TECHNICAL CHARACTERISTICS

SACE Tmax XT

Low voltage molded case circuit-breakers

Break new ground

- Data and connectivity
- Ease of use and installation
- Performance and protection
- Safety and reliability

SACE Tmax XT
The complete offering

Installation

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Installation environment

Temperature

The Tmax XT circuit-breakers can be used in environmental conditions where the ambient air temperature varies between -25°C and +70°C, and can be stored at temperatures between -40 °C and +70 °C.
Circuit-breakers fitted with thermomagnetic trip units have their thermal element set for a reference temperature. For temperatures other than the reference, a trip threshold variation must be taken into account. Electronic trip units do not undergo any variations in performance as the temperature varies, but, in the case of temperatures exceeding +40°C, the maximum setting for protection L (protection against overloads) must be reduced, as indicated in the derating graph, to take into account the heating phenomena which occur in the copper parts of the circuit-breaker which the phase current passes through. For temperatures above +70°C the circuit-breaker performances are not guaranteed.

Environmental conditions

The Tmax XT circuit-breakers are designed to operate in environments with a pollution degree of 3 according to the IEC 60947-2 Standard classification.

Altitude
Up to an altitude of 2000m, the Tmax XT circuit-breakers do not undergo any alteration in their rated performances. As the altitude increases, the atmospheric properties are altered in terms of composition, dielectric resistance, cooling capacity and pressure. Therefore, some performance aspects of the circuit-breaker (e.g. the maximum rated operating voltage and the rated uninterrupted current) undergo derating.

Altitude		2000m	3000m	4000m	5000m
Rated service voltage, Ue	[V]	690	600	540	470
Rated uninterrupted current	%	100	98	93	90

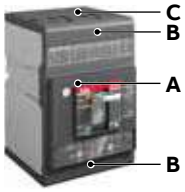
Shocks and vibrations

The Tmax XT circuit-breakers are unaffected by vibrations generated mechanically and due to electromagnetic effects, in compliance with the IEC 60068-2-6 Standards and the regulations of the major shipping registers including:
- RINA
- Det Norske Veritas
- Bureau Veritas
- Lloyd's Register of Shipping
- Germanischer Lloyd
- ABS
- Russian Maritime Register of Shipping
- Nippon Kaiji Kyokai.

The Tmax XT circuit-breakers are also tested according to the IEC 60068-2-27 Standard to resist shocks up to 12g for 11 ms.

Electromagnetic compatibility

Protection is guaranteed in the presence of interference caused by electronic apparatus, atmospheric disturbances or electrical discharges by using the electronic trip units and the electronic residual current releases. No interference with other electronic apparatus near the place of installation is generated either. This is in compliance with the IEC 60947-2 Annex B + Annex F Standards and European Directive No. 2014/30/EC regarding EMC - electromagnetic compatibility.



Degrees of protection

The IP degree of the circuit-breaker can vary depending on the area considered and on the presence of accessories such as a motor or terminal cover.
The following table indicates the degrees of protection guaranteed by Tmax XT circuit-breakers according to the prescriptions of the IEC 60529 Standard, in the different configurations. Furthermore, special kits are available to achieve IP54 with the MOE or RHD installed on the XT5, XT6 and XT7.

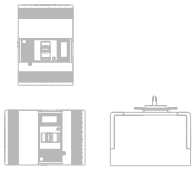
	With front	Without front	With FLD	With RHD	With RHE	Motor operator MOD, MOE or MOE-E	Residual current devices
A	IP40	IP20	IP40 (1)	IP40 (1)	IP40 (1)(2)	IP30	IP40

(1) XT5 W - XT6 W: IP30
(2) XT5-XT6-XT7: IP65

	Without TC	With HTC	With LTC
B	IP20	IP40	IP40
C	NC	IP40	IP30

Protection kits for	RHE	RHD	MOE
XT1 , XT2, XT3,XT4	IP54	-	-
XT5, XT6, XT7	-	IP54	IP54

	Residual current RCQ020	Automatic Transfer Switch ATS021, ATS022
On front	IP41	IP40



Installation position

It is possible to mount circuit-breakers in the fixed version in horizontal, vertical or lying down positions without any derating of the rated characteristics.

Temperature performance

Circuit-breakers with thermal-magnetic trip units

The circuit-breakers fitted with thermal-magnetic trip units have the thermal element set for a reference temperature of +40°C. With the same setting, for temperatures other than +40°C there is a variation in the thermal trip threshold as indicated in the tables below.

XT1

Ambient T (°C)	10		20		30		40		45		50		60		70	
In [A]	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**
16	13	18	12	18	11.9	17	11.2	16	10.8	15.5	11	15	10	14	9	13
20	16	23	15	22	14.7	21	14	20	13.6	19.4	13	19	12	18	11	16
25	20	29	19	28	18.2	26	17.5	25	16.9	24.2	16	23	15	22	14	20
32	26	37	25	35	23.8	34	22.4	32	21.7	31.0	21	30	20	28	18	26
40	32	46	31	44	29.4	42	28	40	27.1	38.7	27	38	25	35	23	33
50	40	58	39	55	37.1	53	35	50	33.9	48.4	33	47	31	44	28	41
63	51	72	49	69	46.2	66	44.1	63	42.7	61	41	59	39	55	36	51
80	64	92	62	88	58.8	84	56	80	54.2	77	53	75	49	70	46	65
100	81	115	77	110	73.5	105	70	100	67.8	97	66	94	61	88	57	81
125	101	144	96	138	91.7	131	87.5	125	84.7	121	82	117	77	109	71	102
160	129	184	123	176	117.6	168	112	160	108.4	155	105	150	98	140	91	130

XT2 with thermal-magnetic trip units

Ambient T (°C)	10		20		30		40		45		50		60		70	
In [A]	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**
1.6	1.3	1.8	1.2	1.8	1.2	1.7	1.1	1.6	1.1	1.5	1.1	1.5	1.0	1.4	0.9	1.3
2	1.6	2.3	1.5	2.2	1.5	2.2	1.4	2.0	1.3	1.9	1.3	1.9	1.2	1.7	1.1	1.6
2.5	2.0	2.9	1.9	2.8	1.8	2.6	1.8	2.5	1.7	2.4	1.6	2.3	1.5	2.2	1.4	2.0
3.2	2.5	3.6	2.5	3.5	2.5	3.5	2.0	3.2	2.0	3.0	2.0	2.8	1.8	2.6	1.6	2.3
4	3.2	4.6	3.1	4.4	2.9	4.2	2.8	4.0	2.7	3.9	2.6	3.7	2.5	3.5	2.2	3.2
5	4	5.7	3.9	5.5	3.7	5.3	3.5	5	3.4	4.8	3.3	4.7	3	4.3	2.8	4
6.3	5.0	7.2	4.9	6.9	4.6	6.6	4.4	6.3	4.2	6.1	4.1	5.9	3.9	5.5	3.6	5.1
8	6.4	9.2	6.2	8.8	5.9	8.4	5.6	8.0	5.4	7.7	5.3	7.5	4.9	7.0	4.6	6.5
10	8.1	11.5	7.7	11.0	7.4	10.5	7.0	10.0	6.7	9.6	6.5	9.3	6.1	8.7	5.7	8.1
12.5	10.1	14.4	9.7	13.8	9.2	13.2	8.8	12.5	8.4	12.0	8.2	11.7	7.6	10.9	7.1	10.1
16	13	18.0	12.0	18.0	11.9	17.0	11.2	16.0	10.8	15.4	10.5	15.0	9.8	14.0	9.1	13.0
20	16	23.0	15.4	22.0	14.7	21.0	14.0	20.0	13.5	19.3	13.3	19.0	11.9	17.0	11.2	16.0
25	20	29.0	19.6	28.0	18.2	26.0	17.5	25.0	16.8	24.0	16.1	23.0	15.4	22.0	14.0	20.0
32	26	37.0	24.5	35.0	23.8	34.0	22.4	32.0	21.6	30.8	21.0	30.0	19.6	28.0	18.2	26.0
40	32	46.0	30.8	44.0	29.4	42.0	28.0	40.0	27.0	38.5	25.9	37.0	24.5	35.0	22.4	32.0
50	40	57.0	38.5	55.0	37.1	53.0	35.0	50.0	33.7	48.2	32.9	47.0	30.1	43.0	28.0	40.0
63	50	72.0	48.3	69.0	46.2	66.0	44.1	63.0	42.5	60.7	41.3	59.0	38.5	55.0	35.7	51.0
80	64	92.0	61.6	88.0	58.8	84.0	56.0	80.0	54.0	77.1	52.5	75.0	49.0	70.0	45.5	65.0
100	81	115.0	77.0	110.0	73.5	105.0	70.0	100.0	67.5	96.4	65.1	93.0	60.9	87.0	56.7	81.0
125	101	144.0	96.6	138.0	92.4	132.0	87.5	125.0	84.3	120.5	81.9	117.0	76.3	109.0	70.7	101.0
160	129	184.0	123.0	178.0	117.6	168.0	112.0	160.0	107.9	154.2	105.0	150.0	97.3	139.0	94.5	135.0

XT3

Ambient T (°C)	10		20		30		40		45		50		60		70	
In [A]	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**	**MIN [A]**	**MAX [A]**
63	51	72	49	69	46	66	44	63	43	61	41	59	39	55	36	51
80	64	92	62	88	59	84	56	80	54	77	53	75	48	69	45	64
100	80	115	77	110	74	105	70	100	68	97	65	93	61	87	56	80
125	101	144	96	138	92	132	88	125	85	121	81	116	76	108	70	100
160	129	184	123	176	118	168	112	160	108	155	104	149	97	139	90	129
200	161	230	154	220	148	211	140	200	136	194	130	186	121	173	113	161
250	201	287	193	278	184	263	175	250	169	242	163	233	151	216	143.5	205

XT4 with thermal-magnetic trip units

Ambient T (°C)	10		20		30		40		45		50		60		70	
In [A]	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**
16	13	19	13	18	12	17	11	16	11	15	10	14	9	13	8	12
20	19	27	17	24	16	23	14	20	14	19	12	17	11	15	9	13
25	21	30	20	28	19	27	18	25	17	24	16	23	15	21	13	19
32	26	43	24	39	25	36	22	32	22	31	19	27	17	24	15	21
40	33	48	32	45	30	43	28	40	27	39	26	37	24	34	21	30
50	37	62	35	58	38	54	35	50	34	48	32	46	29	42	27	39
63	53	75	50	71	47	67	44	63	43	61	41	58	37	53	33	48
80	59	98	55	92	60	86	56	80	54	77	52	74	46	66	41	58
100	83	118	79	113	74	106	70	100	68	97	67	95	60	85	53	75
125	102	145	100	140	94	134	88	125	85	121	81	115	74	105	67	95
160	130	185	123	176	118	168	112	160	108	155	105	150	96	137	91	130
200	161	230	154	220	147	210	140	200	136	194	133	190	123	175	112	160
225	188	269	179	255	168	241	158	225	152	218	146	208	133	190	119	170
250	200	285	193	275	183	262	175	250	169	242	168	240	161	230	154	220

XT5 TMA/TMG

Ambient T (°C)	10		20		30		40		45		50		60		70	
In [A]	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**
320	285	360	245	345	235	335	225	320	215	310	200	295	180	275	155	250
400	370	465	315	450	310	420	280	400	275	390	260	380	240	350	225	320
500	485	605	400	570	375	535	350	500	340	485	330	470	305	435	280	400
630	540	675	460	660	450	645	440	630	430	615	420	605	375	580	330	550

XT6 TMA

Ambient T (°C)	10		20		30		40		45		50		60		70	
In [A]	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**	**MIN[A]**	**MAX [A]**
630	560	700	470	670	450	645	440	630	430	615	420	605	375	580	335	555
800	770	960	635	910	600	860	560	800	545	780	530	760	455	700	385	640

Temperature performance

Circuit-breaker with magnetic only or electronic trip units and switch-disconnectors

The electronic overcurrent trip units do not undergo any variations in performance as the temperature varies. However, even though heating does not affect the trip thresholds of the electronic trip units, in the case of temperatures exceeding +40°C it is advisable to reduce the maximum L (protection against overloads) setting to protect the copper parts of the circuit-breaker against high temperatures.
The same considerations can be made for the switch-disconnectors and magnetic only circuit-breakers.
The table below shows the maximum value at which the threshold of I1 of the overcurrent protection (L) must be set according to the ambient temperature and for the type of terminals used.

				40°C	45°C	50°C	55°C	60°C	65°C	70°C
				Imax [A]	Imax [A]	Imax [A]	Imax [A]	Imax [A]	Imax [A]	Imax [A]
XT1	F	M-SD	F-EF-ES-FCCu-R	160		160		153		140
	P	M-SD	EF-HR/VR	125		117		108		100
XT2	F	M-ELT	F-FCCu	160		160		160		145
	P/W	M-ELT	EF-HR/VR	160		160		160		148
XT3	F	M-SD	F-FCCu	250		250		228		204
	P	M-SD	EF-HR/VR	250		222		196		170
XT4	F	M-ELT-SD	F-FCCu	250		250		238		213
	P/W	M-ELT-SD	EF-HR/VR	250		231		211		190
XT5 400	F	M-ELT-SD	F	400	400	400	400	383	365	346
			VR, ES, EF	400	400	400	400	400	381	362
			FC CuAl	400	400	400	400	383	365	346
			HR	400	400	400	400	383	365	346
	P/W	M-ELT-SD	VR, ES, EF	400	385	370	355	338	321	302
			FC CuAl	400	385	370	355	338	321	302
			HR	400	385	370	355	338	321	302
XT5 630	F	M-ELT-SD	F	630	630	630	630	590	550	505
			VR, ES, EF	630	630	630	630	601	570	537
			FC CuAl	630	630	630	630	601	570	537
			HR	630	630	630	630	590	550	505
	P/W	M-ELT-SD	VR, ES, EF	600	578	555	532	507	481	454
			FC CuAl	600	578	555	532	507	481	454
			HR	600	565	530	507	484	457	430
XT6 800	F	ELT-SD	F-ES-EF-FC CuAl	800	800	800	780	760	740	720
			VR	800	800	800	800	800	780	760
			HR	800	800	800	760	720	680	640
	W	ELT-SD	ES-EF-FC CuAl	800	780	760	740	720	680	640
			VR	800	800	800	780	760	740	720
			HR	800	780	760	740	720	680	640
XT6 1000[1)]	F	ELT-SD	F-EF-FC CuAl	1000	980	960	918.5	877	830.5	784
			ES	1000	950	900	860	820	770	720
			VR	1000	1000	1000	956.5	913	865	817
			HR	1000	963	926	885.5	845	800.5	756

(1) XT6 1000 is supplied by default with EF connection terminals

				40°C	45°C	50°C	55°C	60°C	65°C	70°C
				Imax [A]	Imax [A]	Imax [A]	Imax [A]	Imax [A]	Imax [A]	Imax [A]
XT7 800A	F	ELT	F	800	800	800	800	800	750	700
			VR, ES, FCCuAl	800	800	800	800	800	778	755
			HR, EF	800	800	800	800	800	750	700
	W	ELT	EF, ES	800	800	800	766	730	693	653
			HR, SHR	800	800	800	800	800	750	700
			VR, Rear FCCuAl	800	800	800	800	800	759	716
XT7 1000A	F	ELT-SD	F	1000	1000	1000	971	942	885	827
			VR, ES, FCCuAl	1000	1000	1000	1000	949	885	894
			HR, EF	1000	1000	1000	971	942	885	827
	W	ELT-SD	EF, ES	1000	1000	961	920	877	832	784
			HR, SHR	1000	1000	1000	971	942	885	827
			VR, Rear FCCuAl	1000	1000	1000	1000	953	905	853
XT7 1250A	F	ELT-SD	F with 2x40x10	1250	1250	1250	1184	1118	1049	980
			F with 2x50x10	1250	1250	1250	1240	1182	1122	1057
			VR, ES, FCCuAl	1250	1250	1250	1250	1192	1131	1066
			HR, EF	1250	1250	1250	1184	1118	1049	980
	W	ELT-SD	EF, ES	1250	1205	1157	1108	1056	1002	945
			HR, SHR	1250	1250	1250	1184	1118	1049	980
			VR, Rear FCCuAl	1250	1250	1250	1250	1192	1131	1066
XT7 1600A	F	ELT-SD	F with 2x50x10	1400	1350	1296	1240	1183	1122	1058
			F with 3x50x10	1600	1541	1481	1417	1352	1281	1209
			VR, ES, FCCuAl	1600	1600	1537	1470	1403	1329	1255
			HR, EF	1600	1541	1481	1417	1352	1281	1209
	W	ELT-SD	EF, ES	1400	1350	1296	1240	1183	1122	1058
			HR, SHR	1600	1541	1481	1417	1352	1281	1209
			VR, Rear FCCuAl	1600	1600	1537	1470	1403	1329	1255

Temperature performance

Power losses

To ensure service continuity of the plants, careful assessment of how to keep temperatures within acceptable levels is necessary to guarantee operation of all devices (e.g. by using forced ventilation in switchboards and installation rooms).
The table below shows the dissipated power values per single pole at the rated current In for each circuit-breaker used. The total maximum dissipated power for a circuit-breaker used at 50/60Hz is equal to the power per single pole multiplied by the number of poles.

Power [W/pole]	In [A]	XT1		XT2		XT3		XT4		XT5		XT6	
		F	P	F	P/W	F	P	F	P/W	F	P/W	F	W
Thermomagnetic or magnetic only trip unit: TMD TMA TMG MF MA	1.6			2.00	2.40								
	2			2.40	2.80								
	2.5			2.50	2.80								
	3.2			2.80	3.20								
	4			2.50	2.80								
	6.3			3.30	3.90								
	8			2.60	3.00								
	10			2.90	3.40			2.00	2.20				
	12.5			1.00	1.20			2.30	2.40				
	16	1.50	1.60	1.30	1.50			2.50	2.60				
	20	1.80	2.00	1.60	1.90			2.60	2.70				
	25	2.00	2.80	2.00	2.5			2.70	2.80				
	32	2.10	3.20	2.60	3.00			4.40	4.50				
	40	2.60	4.60	3.70	4.40			4.50	4.70				
	50	3.70	5.00	4.10	4.70			4.70	4.90				
	63	4.30	6.00	4.80	5.70	4.30	5.10	5.30	5.70				
	80	4.80	7.20	5.80	6.80	4.80	5.80	5.50	6.10				
	100	7.00	10.00	8.10	9.50	5.60	6.80	6.20	7.20				
	125	10.70	14.70	11.40	14.00	6.60	7.90	7.40	9.00				
	160	15.00		16.10	19.00	7.90	9.50	8.90	10.80				
	200					13.20	15.80	11.90	14.90				
	250					17.80	21.40	16.40	21.10				
	320									16.9	23		
	400									24.1	33.6		
	500									33.5	45.8		
	630									47.8	67.3	34.4	42.5
	800											54.2	67.7
Electronic trip unit: Ekip Dip Ekip Touch	10			0.10	0.10								
	25			0.80	0.90								
	40							0.60	0.70				
	63			1.70	2.10			1.40	1.80				
	100			4.20	5.20			3.50	4.50				
	160			10.80	13.40			8.90	11.50				
	250							16.40	22.70	8	11.7		
	320									11.6	17.7		
	400									19	27.6		
	500									28.3	40.6		
	630									45	64.5	33.2	41.5
	800											53.4	66.7
	1000											83.5	

Power [W/pole]	In [A]	XT7- XT7 M	
		F	w
Ekip Dip Ekip Touch	800	24	35
	1000	37	55
	1250	57	86
	1600	94	141

Power losses gives indication of the heat generated under specified conditions. Measurement of power losses are perfomed on new samples in free air (according to Annex G of IEC).
The measurement of resistance cannot be directly related to the power loss of the device and is not enough to ascertain the quality of the contacts.

Insulation distances

Clearances for installation in metallic cubicles

This section provides the compliance clearances for the installation of the circuit-breaker inside a metal cubicle.
The cubicle is the reference for the metallic parts of the switchgear assembly adjacent to the circuit-breaker and is used as a reference to define the clearances to be observed to permit the free evacuation of ionized gases and metal vapors and to prevent the ignition of adjacent parts. The clearances refer to the tests carried out in compliance with the IEC 60947-2 Standard.
The installation modality in relation to the type of circuit-breaker and the compulsory protections that must be used depending on the connection terminals is summarized in the tables below.
For further details about installation, please see the related instructions provided with the circuit-breaker.

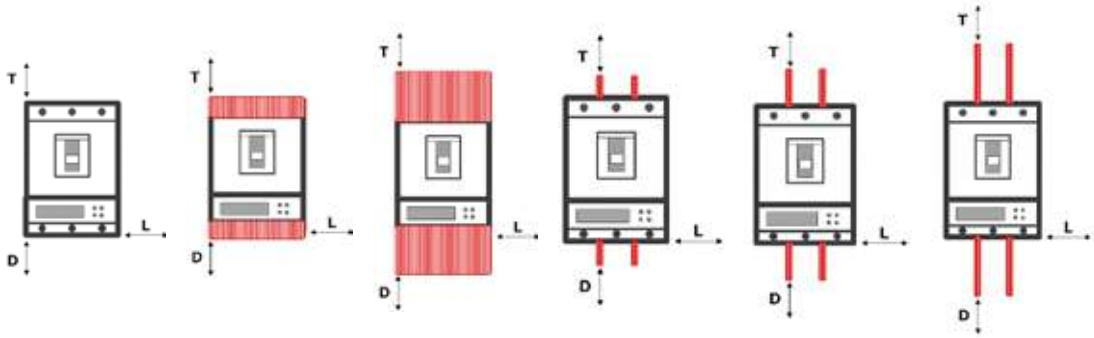
		LTC	HTC	HTC-ES	PB 25mm	PB 100mm	PB 200mm
XT1	F	-	R	-	S	R	R
	EF	-	R	-	-	S	R
	ES	-	-	-	-	-	S
	FC Cu	-	R	-	S	R	R
	FC CuAl 1x1.5...70	-	R	-	S	R	R
	FC CuAl 1x35...95	-	S	-	-	-	-
	FB	-	R	-	S	R	R
	MC	-	S	-	-	-	-
	R	S	-	-	-	-	-
XT2	F	-	R	-	S	R	R
	EF	-	S	-	-	S	R
	ES	-	-	-	-	-	S
	FC Cu	-	R	-	S	R	R
	FC CuAl 1x1...95	-	R	-	S	R	R
	FC CuAl 1x70...185	-	S	-	-	-	-
	FC CuAl 2x35...70	-	S	-	-	-	-
	FB	-	R	-	S	R	R
	MC	-	S	-	-	-	-
	R	S	-	-	-	-	-
XT3	F	-	R	-	S	R	R
	EF	-	R	-	-	S	R
	ES	-	-	-	-	-	S
	FC Cu	-	R	-	S	R	R
	FC CuAl 1x35...150	-	R	-	S	R	R
	FC CuAl 1x95...185	-	R	-	S	R	R
	FC CuAl 2x35...120	-	S	-	-	-	-
	FB	-	R	-	S	R	R
	MC	-	S	-	-	-	-
	R	S	-	-	-	-	-

		LTC [3]	HTC	HTC-ES	PB 25mm	PB 100mm	PB 200mm
XT4	F	-	R	-	S	R	R
	EF	-	S	-	-	S	R
	ES	-	-	-	-	-	S
	FC Cu	-	R	-	S	R	R
	FC CuAl 1x1...150	-	R	-	S	R	R
	FC CuAl 2x35...120	-	S	-	-	-	-
	FB	-	R	-	S	R	R
	MC	-	S	-	-	-	-
	R	S	-	-	-	-	-
XT5	F	-	R	-	S [1]	R	R
	EF	-	R	-	-	S [2]	R
	ES	-	-	R	-	-	S
	R	S	-	-	-	-	-
	FC CuAl 1x35-185	-	R	-	S	R	R
	FC CuAl 1x120-240	-	R	-	S	R	R
	FC CuAl 1x185-300	-	R	-	S	R	R
	FC CuAl 2x70-240	-	R	-	-	S	R
XT6	F	R	R	-	-	R	R
	EF 800A	-	R	-	-	S	R
	EF 1000A	-	-	-	-	-	S
	ES	-	-	R	-	-	S
	R	S	-	-	-	-	-
	Fc CuAl 2x 120...240	R	R	-	-	R	R
	Fc CuAl 3x 70...185	-	S	-	-	-	-
	Fc CuAl 4x 70...150	-	S	-	-	-	-
XT7 **XT7 M**	F	R	R	-	-	R	R
	EF	-	R	-	-	S	R
	ES	-	-	R	-	-	S
	HR/VR	S	-	-	-	-	-
	FC CuAl 4x240	-	S	-	-	-	-
	FC CuAl 2x185...240	S	R	-	-	S	R

(1) above 500V AC
(2) PBs 50mm for W/P versions
(3) For XT5 LTC height is 25mm

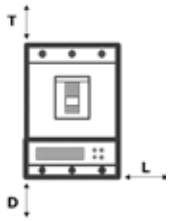
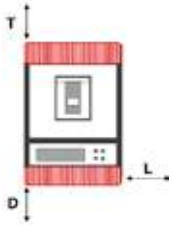
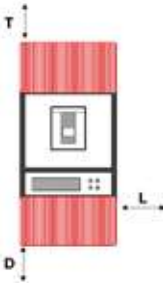
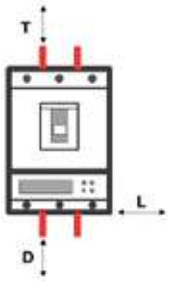
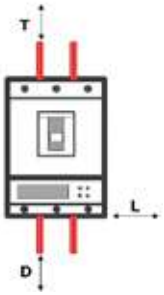
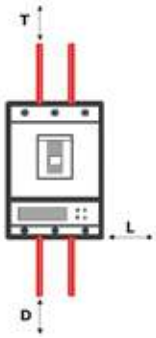
Insulation distances

Alternating Current (AC) application

		No accessories			Low terminal cover (LTC)			High terminal cover (HTC)			Phase separators 25mm			Phase separators 100mm			Phase separators 200mm		
																			
		T	D	L	T	D	L	T	D	L	T	D	L	T	D	L	T	D	L
XT1	U < 440 V	-	-	-	25	20	20	10	5	20	0	0	20	0	0	20	0	0	20 (1)
	440 V < U < 500V	-	-	-	25	20	20	10	5	20	0	0	20	0	0	20	0	0	20 (1)
	500 V ≤ U ≤ 690V	-	-	-	25	20	20	10	5	20	0	0	20	0	0	20	0	0	20 (1)
XT2	U < 440 V	-	-	-	30	25	10	20	15	10	5	0	10	0	0	10	0	0	10 (1)
	440 V < U < 500V	-	-	-	50	45	20	40	35	20	25	20	20	0	0	20	0	0	20 (1)
	500 V ≤ U ≤ 690V	-	-	-	50	45	20	40	35	20	25	20	20	0	0	20	0	0	20 (1)
XT3	U < 440 V	-	-	-	50	20	20	45	15	20	25	0	20	0	0	20	0	0	20 (1)
	440 V < U < 500V	-	-	-	50	20	20	45	15	20	25	0	20	0	0	20	0	0	20 (1)
	500 V ≤ U ≤ 690V	-	-	-	50	20	20	45	15	20	25	0	20	0	0	20	0	0	20 (1)
XT4	U < 440 V	-	-	-	30	25	10	25	20	10	5	0	10	0	0	10	0	0	10 (1)
	440 V < U < 500V	-	-	-	50	45	20	45	40	20	25	20	20	10	5	20	0	0	20 (1)
	500 V ≤ U ≤ 690V	-	-	-	50	45 (2)	20	45	40	20	25	20 (2)	20	10	5	20	0	0	20 (1)
XT4X*	U ≤ 690V AC	-	-	-	100	100	50	40	40	50	75	75	50	10	10	50	0	0	20 (1)
XT5	U ≤ 440 V AC	30	25	25	5	5	25	10	10	25	10	10	25	10	10	25	0	0	25 (1)
	440 V AC < U < 500V AC	30	25	25	5	5	25	10	10	25	10	10	25	10	10	25	0	0	25 (1)
	500 V AC ≤ U ≤ 690 V AC	-	-	-	35	20	25	40	40	25	35	20	25	10	10	25	0	0	50 (1)
XT6	U ≤ 440 V AC	35	20	25	35	20	25	35	20	25	-	-	-	0	0	25	0	0	25 (1)
	440 V AC < U < 500V AC	100	20	25	100	20	25	35	20	25	-	-	-	0	0	25	0	0	25 (1)
	500 V AC ≤ U ≤ 690 V AC	100	20	25	100	20	25	35	20	25	-	-	-	0	0	25	0	0	25 (1)
XT7	U < 440 V	50	10	20	50	10	20	5	0	5	-	-	-	0	0	20	0	0	20 (1)
	440 V < U < 500V	100	10	20	100	10	20	40	10	5	-	-	-	50	0	20	0	0	20 (1)
	500 V ≤ U ≤ 690V	100	10	20	100	10	20	40	10	5	-	-	-	50	0	20	0	0	20 (1)

* Up to 200A with FC CuAl
(1) in case of ES terminals this distance has to be considered starting from terminal edge
(2) XT4V only: 50mm with LTC and 25mm with PSs 25mm

Direct Current (DC) application

		No accessories			Low terminal cover (LTC)			High terminal cover (HTC)			Phase separators 25mm			Phase separators 100mm			Phase separators 200mm		
																			
		T	D	L	T	D	L	T	D	L	T	D	L	T	D	L	T	D	L
XT1	U ≤ 250V	-	-	-	25	20	20	10	5	20	0	0	20	0	0	20	0	0	20 (1)
	250V < U ≤ 500V	-	-	-	25	20	20	10	5	20	0	0	20	0	0	20	0	0	20 (1)
XT2	U ≤ 250V	-	-	-	50	45	50	40	35	50	25	20	50	0	0	50	0	0	50 (1)
	250V < U ≤ 500V	-	-	-	50	45	50	40	35	50	25	20	50	0	0	50	0	0	50 (1)
XT3	U ≤ 250V	-	-	-	50	20	20	45	15	20	25	0	20	0	0	20	0	0	20 (1)
	250V < U ≤ 500V	-	-	-	50	20	20	45	15	20	25	0	20	0	0	20	0	0	20 (1)
XT4	U ≤ 250V	-	-	-	30	25	20	25	20	20	5	0	20	0	0	20	0	0	20 (1)
	250V < U ≤ 500V	-	-	-	50	45	50	45	40	50	25	20	50	10	5	50	0	0	50 (1)
XT4X*	U ≤ 500V	-	-	-	50	45	50	45	40	50	25	20	50	10	5	50	0	0	50
	500V < U ≤ 750V	-	-	-	100	100	50	45	40	50	75	75	50	10	5	50	0	0	50
XT5	U ≤ 250 V DC	30	25	25	5	0	25	10	10	25	10	10	25	10	10	25	0	0	25 (1)
	U ≤ 500 V DC	-	-	-	40	0	25	40	40	25	40	40	25	10	10	25	0	0	25 (1)
	500 V DC < U ≤ 750V DC	-	-	-	40	20	25	60	60	50	60	60	50	10	10	50	0	0	50 (1)
XT6	U ≤ 500 V DC	35	20	25	35	20	25	35	20	25	-	-	-	0	0	25	0	0	25 (1)
	500 V DC < U ≤ 750V DC	100	20	25	100	20	25	35	20	25	-	-	-	0	0	25	0	0	25 (1)
XT7	U ≤ 500V	50	10	20	50	10	20	5	0	5	-	-	-	0	0	20	0	0	20 (1)
	500V < U ≤ 750V	100	10	20	100	10	20	30	10	5	-	-	-	50	0	20	0	0	20 (1)

* Considered only FC CuAl with PB 25mm configuration
(1) in case of ES terminals this distance has to be considered starting from terminal edge

Insulation distances

Minimum clearance between two side by side circuit-breakers

This section gives the clearances to be observed for side by side installation of SACE Tmax XT circuit-breakers in plants with voltages up to 690V AC.
The following table show the minimum center distance between two circuit-breaker side by side. When side by side breakers are different in size, the larger reference clearance should be considered.
In case of Tmax XT1 up to XT5 (1), the values are valid only when they have an HTC or a phase separator is inserted in the slot formed when placing the two fixed circuit-breakers side by side (see Fig.1 and Fig.2).
For further details about installation, please see the related instructions provided with the circuit-breaker."

	Circuit-breaker width (mm)		Centre distance I (mm)	
	3 poles	**4 poles**	**3 poles**	**4 poles**
XT1	76	102	76	102
XT2	90	120	90	120
XT3	105	140	105	140
XT4	105	140	105	140
XT5	140	186	140	186
XT6	210	280	210	280
XT7	210	280	210 (2)	280 (2)

(1) XT5: HTC or phase separators requested for installation voltage values Ue≥500V only
(2) for installation with F terminals only. With other connections refer to distances fixed by dimensions of back insulating plates requested

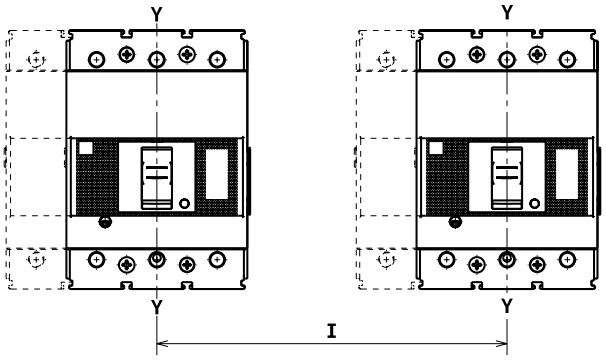


Fig. 1
Side by side XT1... XT5 (1) with HTC

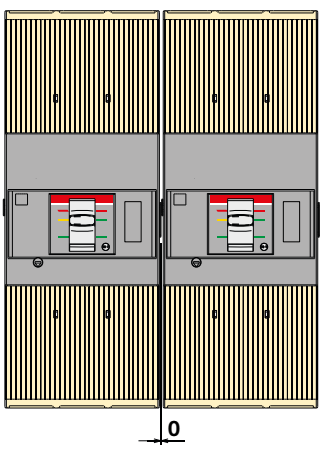


Fig. 1

Fig. 2
Side by side XT1...XT5 (1) with phase separators

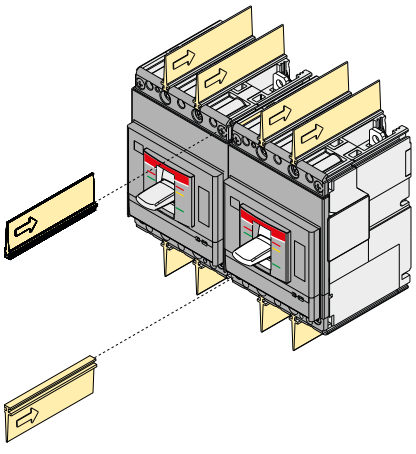
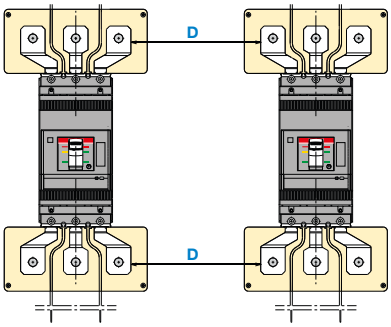
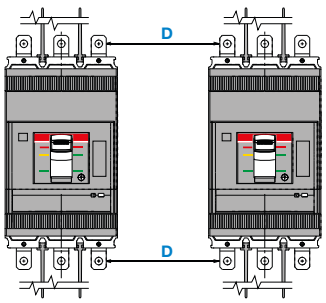
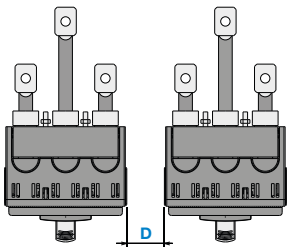


Fig. 2

If the conditions written above are not fulfilled, SACE Tmax XT circuit-breakers can be installed side by side with a minimum clearance D as shown in the following table:

Circuit-breaker	Terminals	D [mm]
XT1-XT3 F-P	ES	35
	EF	35
	Other types of terminals	25
XT2-XT4 F-P-W	ES	120
	EF	35
	Other types of terminals	25
XT5 F-P-W	ES	120
	EF	150
	Other types of terminals	50
XT6 F-W	ES	120
	EF	150
	Other types of terminals	50
XT7 F-W	ES	150
	EF	70
	Other types of terminals	0 fixed - 70 withdrawable

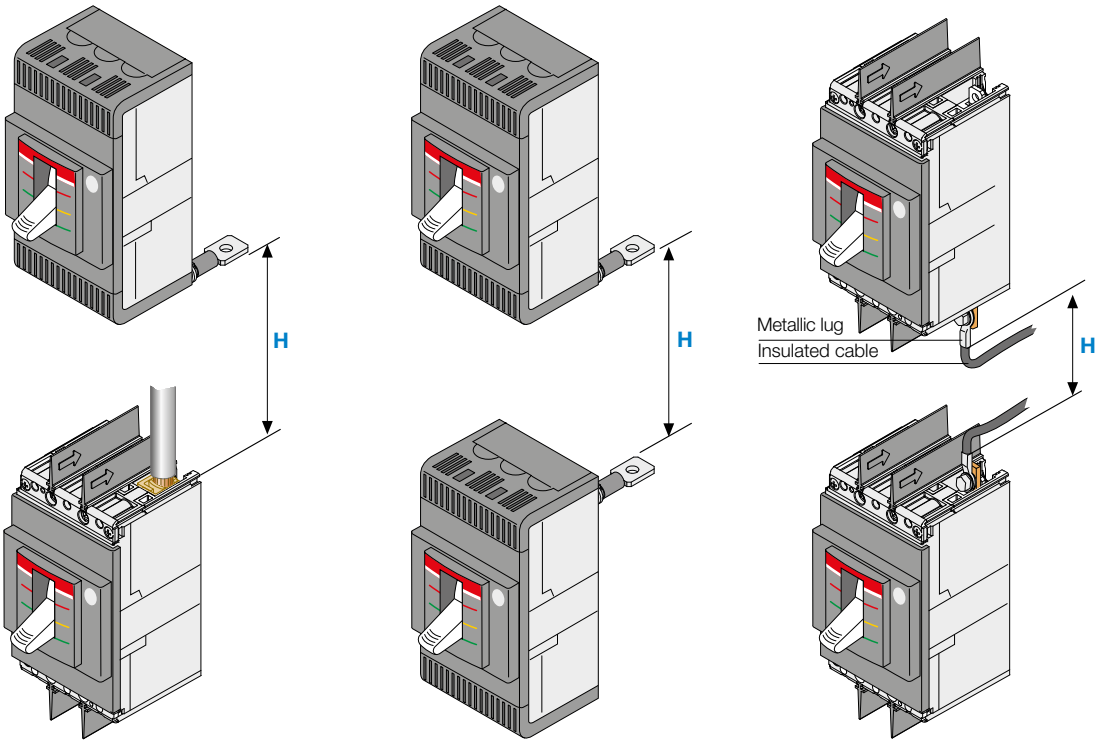
Circuit-breakers with front extended spread terminals ES	Circuit-breakers with front extended terminals EF	Adjustable rear terminals R and low terminal covers LTC
		

Insulation distances

Minimum clearance between two superimposed circuit-breakers

This section gives the clearances H to meet for superimposed mounting of the SACE Tmax XT circuit-breakers in installations with voltages up to 690Vac. Verify that the bare bars or connection cables do not reduce the recommended clearances.
The distances given in the table refer to the maximum overall dimensions of the circuit-breakers in the different versions (F/W/P), with terminals and metallic lugs of insulated cables included, for example.
When superimposed circuit-breakers are different in size, the larger reference clearance should be considered.

Circuit-breaker	H [mm]
XT1	80
XT2	100
XT3	140
XT4	150
XT5	160
XT6	180
XT7	180

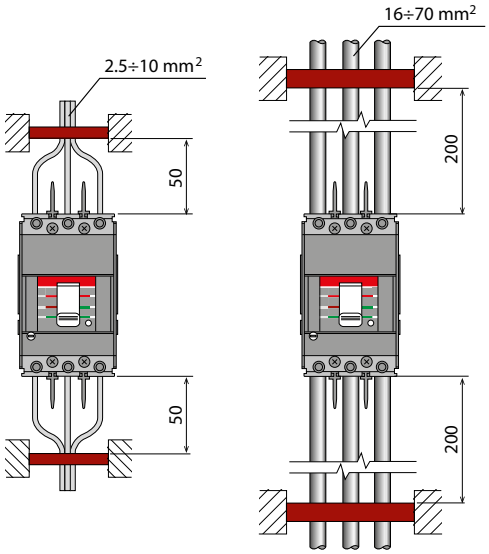


In case of cables with metallic lugs, an insulating screen behind the metallic lugs (on the rear of the circuit-breaker) or high terminal covers is mandatory.

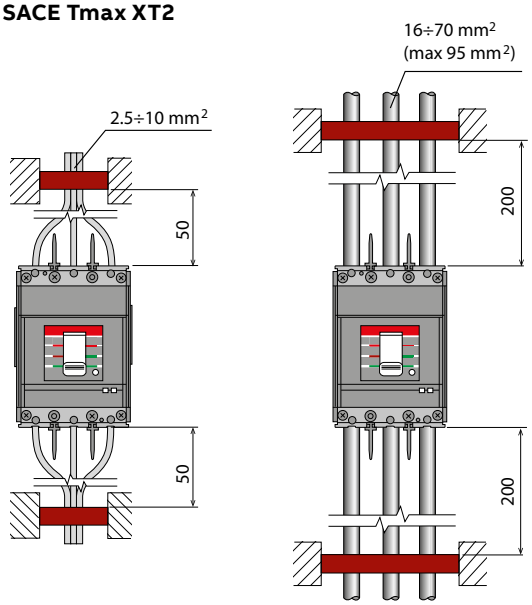
The first insulated anchor

For the Tmax XT molded-case circuit-breakers, the figure below gives an example of the maximum recommended distance (in mm) within which the first insulated anchor should be positioned according to the highest admissible peak current value of the circuit-breaker and according to the cross-sectional area of the cable.
The maximum recommended distance is also valid for busbar connections. For further information and details circuit-breaker instruction manuals should be consulted.

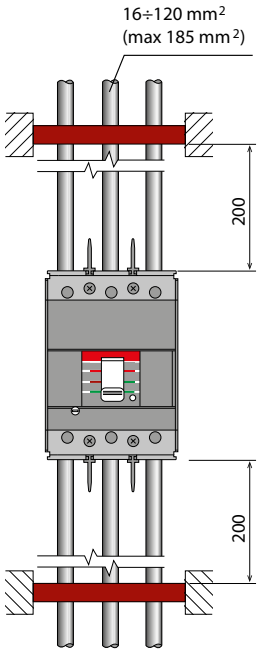
SACE Tmax XT1



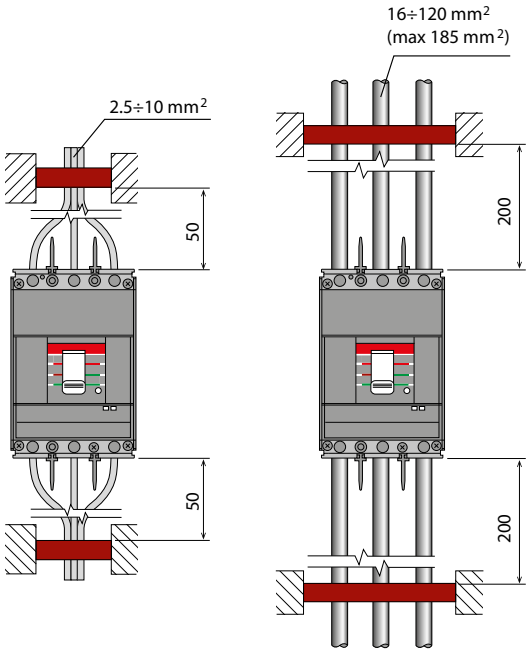
SACE Tmax XT2



SACE Tmax XT3

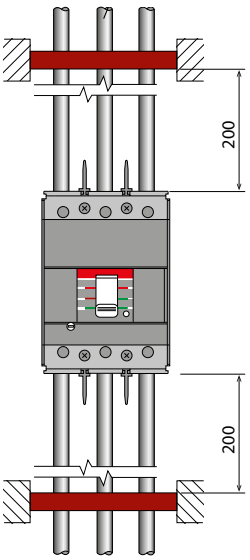


SACE Tmax XT4

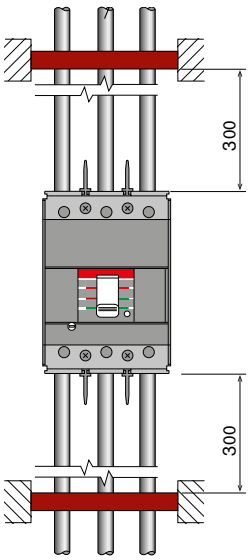


Insulation distances

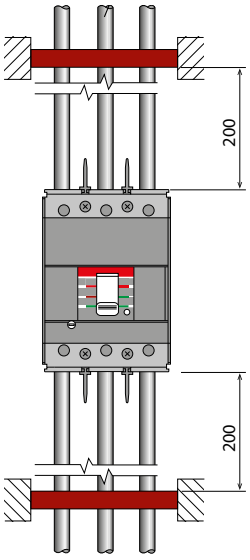
SACE Tmax XT5



SACE Tmax XT6



SACE Tmax XT7



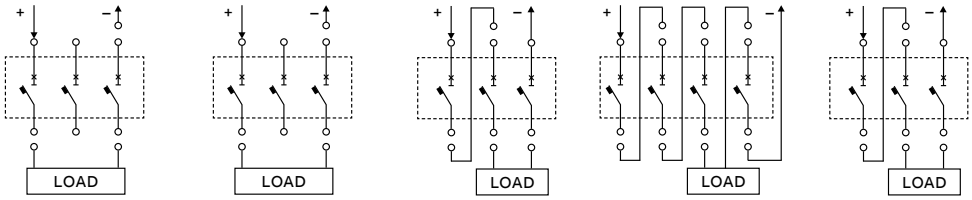
Special applications

Use of direct current apparatus

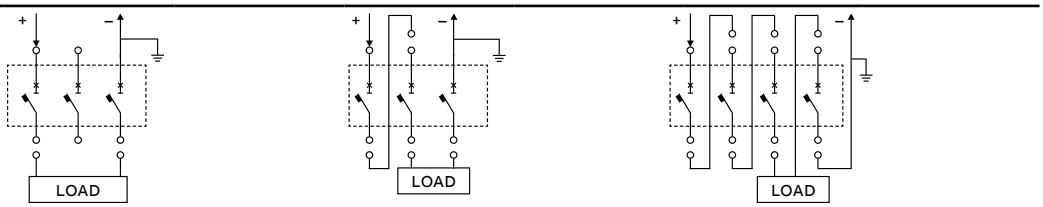
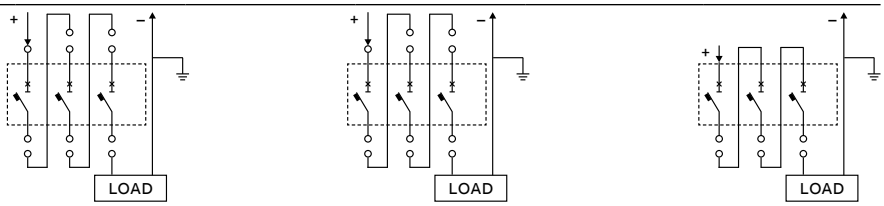
Variation in magnetic tripping

The thermal-magnetic trip units of the SACE Tmax XT circuit-breakers are suitable for use in direct current applications. For the protection thresholds against short-circuits, correction values (Km) must be used, according to the type of distribution network and to the number of poles to be connected in series (the thermal threshold does not undergo any alteration).
The correction value to be used can be found in the following tables.

Connection diagrams of poles in an insulated network

Insulated network				
Un	**≤250**		**≤500**	**≤750**
Protection + insulation function				
XT1	1.6		1.6	
XT2	1.5		1.5	
XT3	1.35		1.35	
XT4	1.5	1.5		1.5
XT5	1.1	1.1		1.1
XT6	1.1	1.1		1

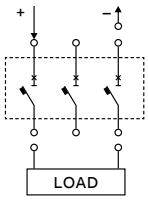
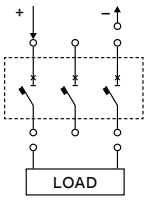
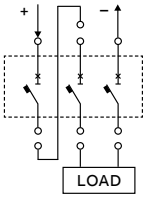
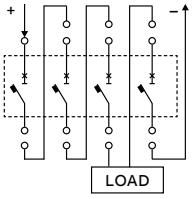
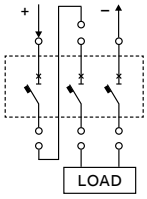
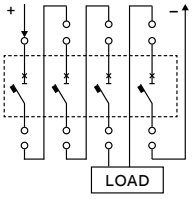
Connection diagrams of poles in a network with one grounded polarity

Network with one grounded polarity				
Un	**≤250**		**≤500**	**≤750**
Protection + insulation function				
Protection function				
XT1		1.6		
XT2		1.5	1.5	1.5
XT3		1.35	1.35	1.35
XT4		1.5	1.5	1.5 1.5
XT5	1.1	1.1		1.1
XT6	1.1	1.1		1

Note: in the considered connections, the earthed polarity is the negative one.

Special applications

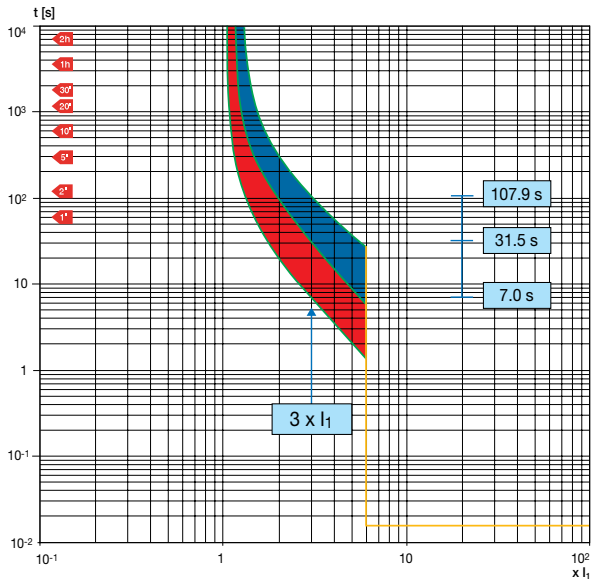
Connection diagrams of poles in switch-disconnectors

Switch-disconnectors							
Un	**≤250**		**≤500**		**≤750**		
Protection + insulation function							
XT1	■			■			
XT3	■		■				
XT4	■		■				
XT5	■	■			■		
XT6	■	■			■		
XT7	■		■			■	

Characteristic curves
Example of curves reading

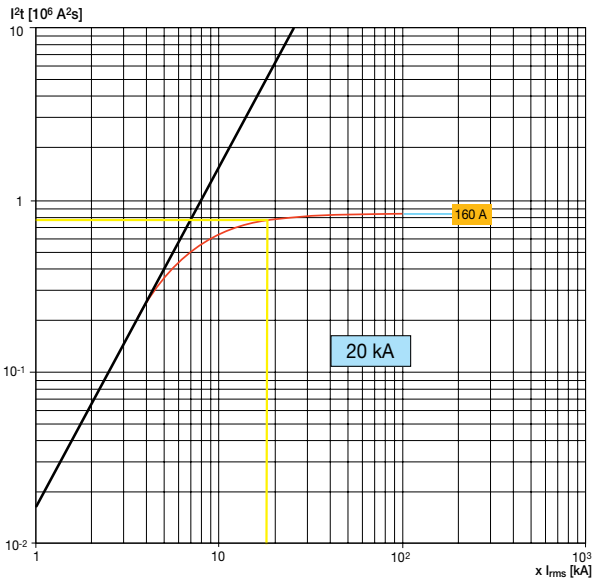
Example 1 - XT3N 250
Trip curves for distribution - (thermal magnetic trip unit)

These curves provide information about the tripping time of the thermal magnetic trip units. The red band indicates the hot trip times, that is with the breaker already loaded with its rated current once the overload has occurred.
The blue band gives the cold trip times, that is with no current flowing into the breaker before the fault.
The curves are assumed at reference air ambient temperature of 40°C and considering three phase overload with symmetrical and equilibrated currents.
Let us consider an XT3N 250 TMD In=250 A circuit-breaker. The trip time of the thermal protection varies considerably depending on the conditions when the overload occurs, i.e. whether the circuit-breakers is at the thermal regime (either cold or hot trip conditions). For example, for an overload current $3xI_1$, the trip time ranges from 107.9 s to 31.5 s for cold tripping and from 31.5 s to 7.0 s for hot tripping. For fault current values higher than 2500 A, the circuit-breaker trips with the instantaneous magnetic protection I_3.



Example 2 - XT2N 160
Specific let-through energy curves

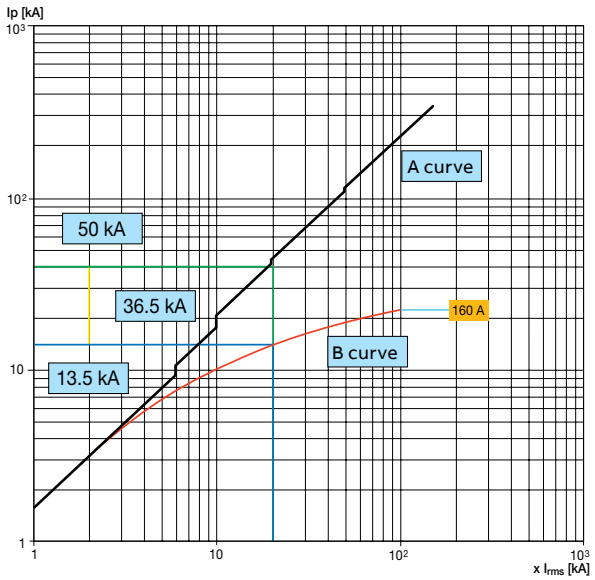
The following figure shows an example of the graph of the specific let-through energy of the XT2N 160 In=160A circuit-breaker at 220/230V. The prospective symmetrical short-circuit current is indicated on the x-axis, whereas the values of the specific let-through energy expressed in A^2s are shown on the y-axis.
The circuit-breaker lets through a value of I^2t equal to 0.76 · 10^6 · A^2s in correspondence with a short-circuit current of 20 kA.



Characteristic curves
Example of curves reading

Example 3 - XT2N 160
Limitation curves
The figure below gives the trend of the limitation curves of the XT2N 160 In=160 A circuit-breaker. The effective value of the prospective symmetrical short-circuit current is given on the x-axis of the graph, whereas the peak value of the short-circuit current is indicated on the y-axis.
The limiting effect can be evaluated by comparing the peak value corresponding to the prospective short-circuit current (curve A) with the peak limited value (curve B), at the same value of symmetrical short-circuit current.

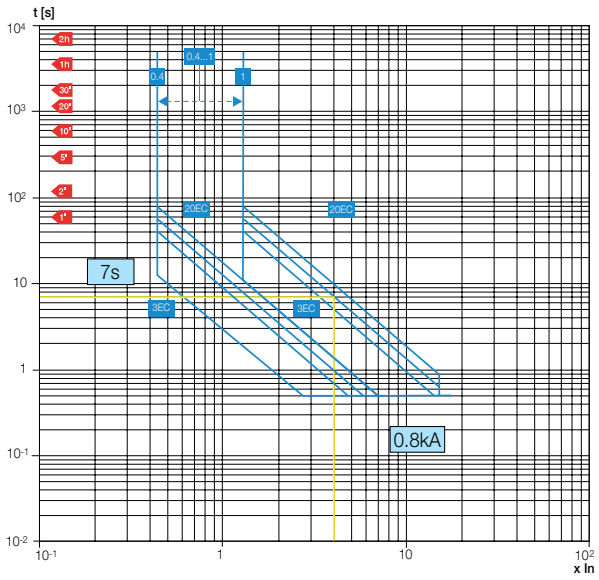
For a fault current of 20 kA, the XT2N 160 circuit-breaker with a thermal magnetic trip unit In =160 A limits the peak prospective short-circuit current to 13.5 kA at a voltage of 500 V, with a reduction of 36.5 kA in relation to the peak value of the prospective short-circuit current.

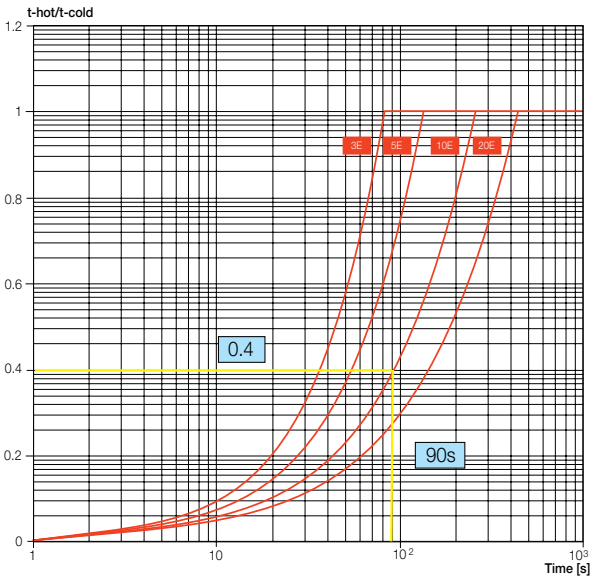


Example 4 - XT4N 250 Ekip M-LIU
Cold trip / hot trip curves

The first curve shows the time of intervention of the trip unit in case of fault under cold conditions. Each curve is related to a single operating class defined by Standard IEC 60947-4-1 (3E, 5E, 10E or 10E). The second curve, hot trip, must be read in relation to the previous one. Considering the time the circuit-breaker has remained open after the first trip (t-off on the x-axis), the t-hot/t-cold ratio can be identified on the y-axis.

Once the cold trip time has been identified on the first graph in relation to a fault current, the hot trip time can be calculated on the second graph, based on t-off and class of intervention. For a XT4N 250 In=200A in the operating class 10E, given a fault current of 0.8kA (4xIn), the cold trip time for intervention is 7s. If we consider a t_{off} = 90s, t-hot/t-cold = 0.4, the hot trip time results 2.8s.



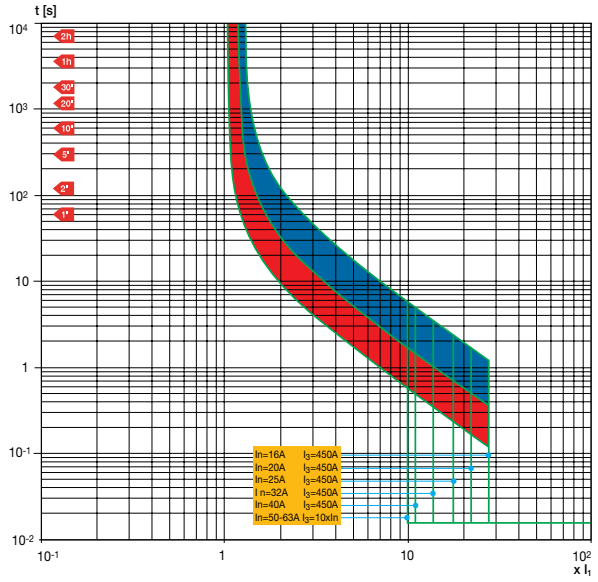


Characteristic curves

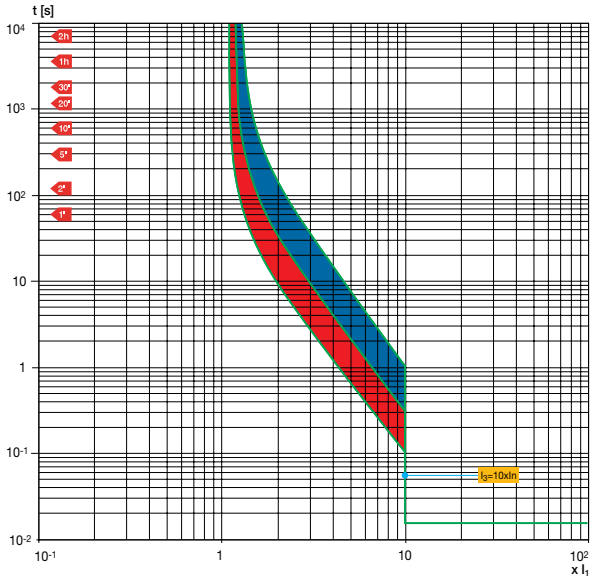
Trip curves with thermal magnetic trip unit

Trip curves for distribution

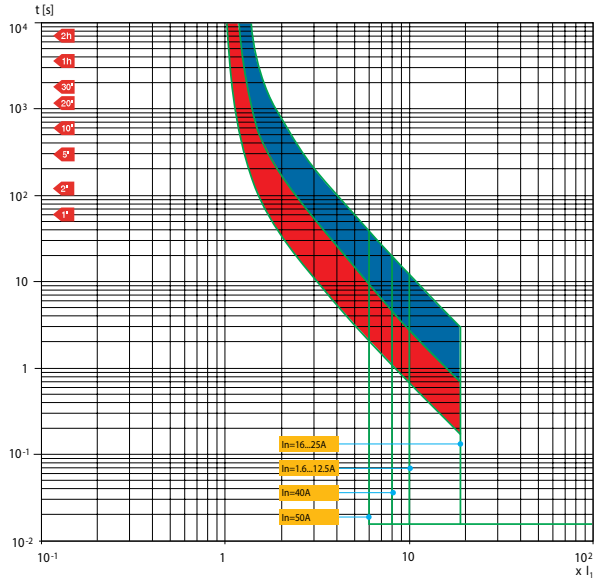
XT1 160 TMD In=16...63A



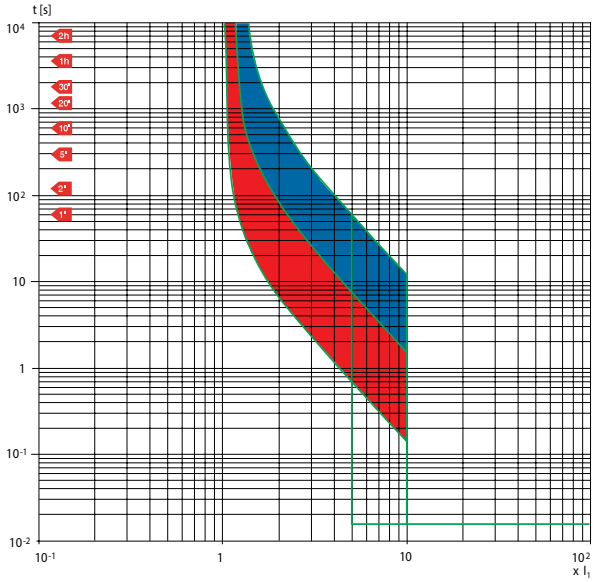
XT1 160 TMD In=80...160A



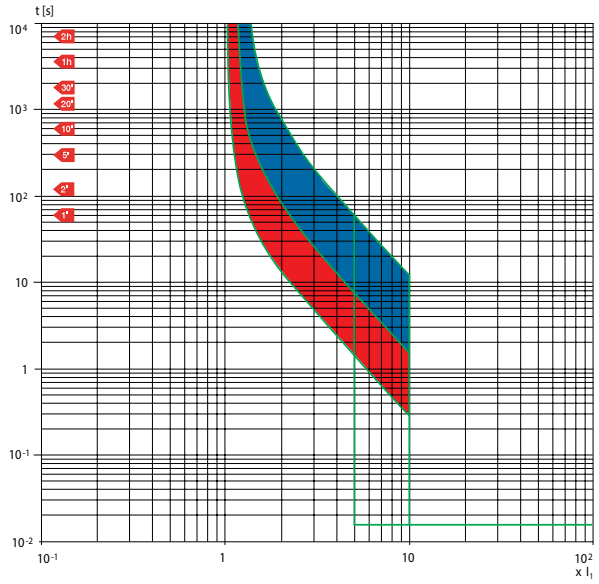
XT2 160 TMA In=1.6...50A



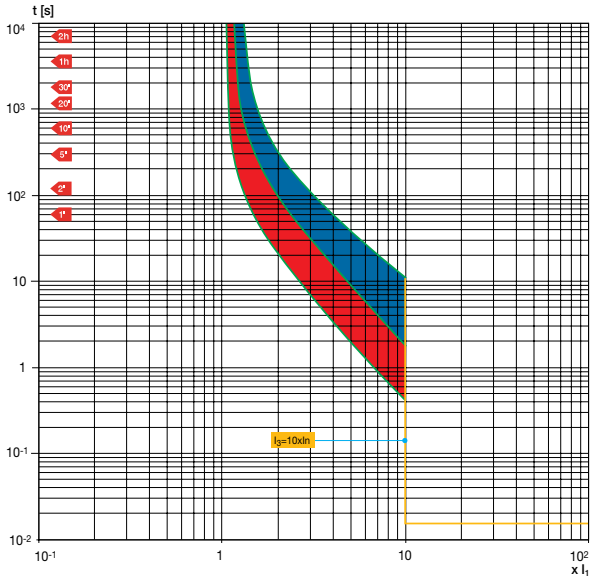
XT2 160 TMA In=63...160A



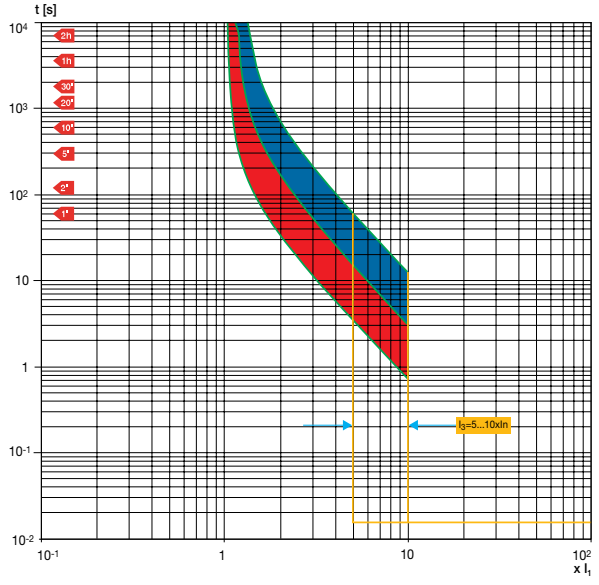
XT2 160 TMA In=100A



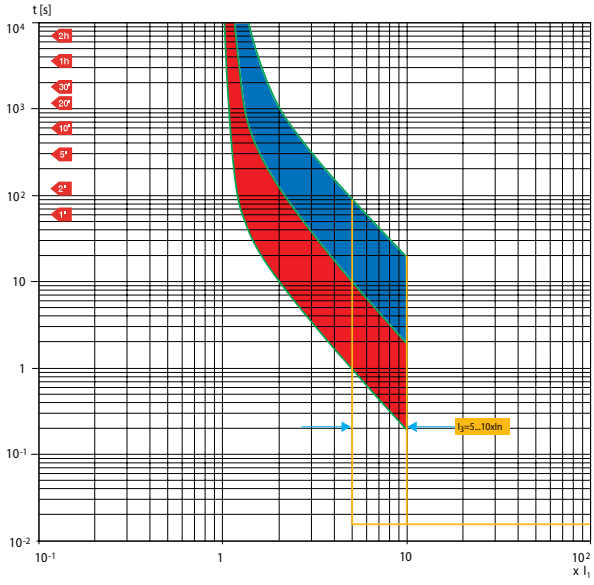
XT3 250 TMD In=63...250A



XT4 250 TMA In=16...250A



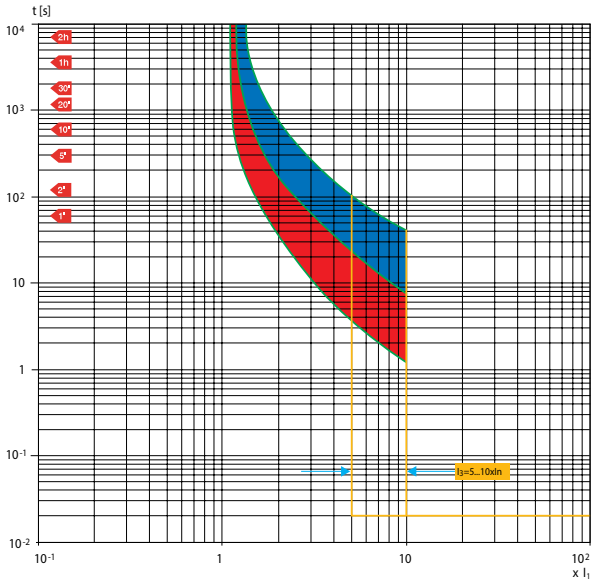
XT5 400-630 TMA In=320...630A



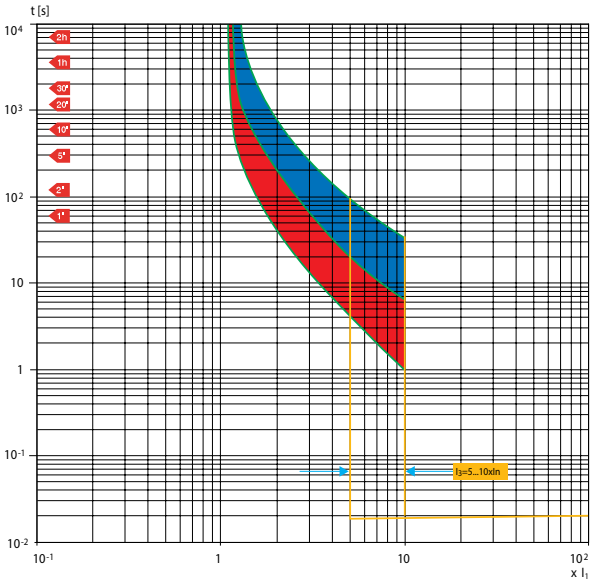
Characteristic curves

Trip curves with thermal magnetic trip unit

XT6 800 TMA In=630A

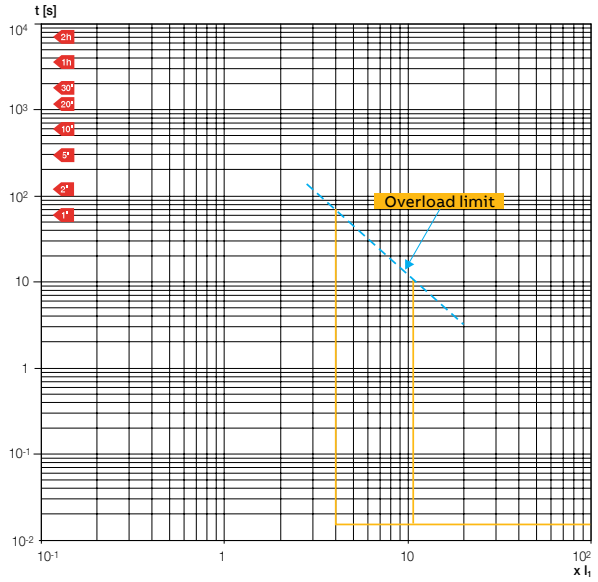


XT6 800 TMA In=800A

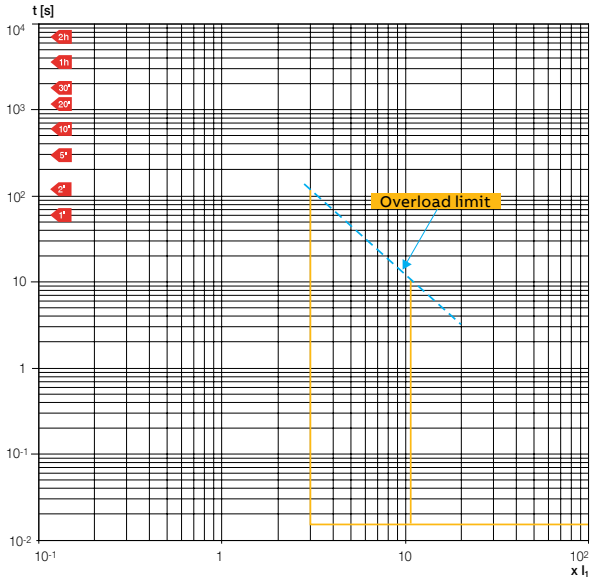


Trip curves for motor protection

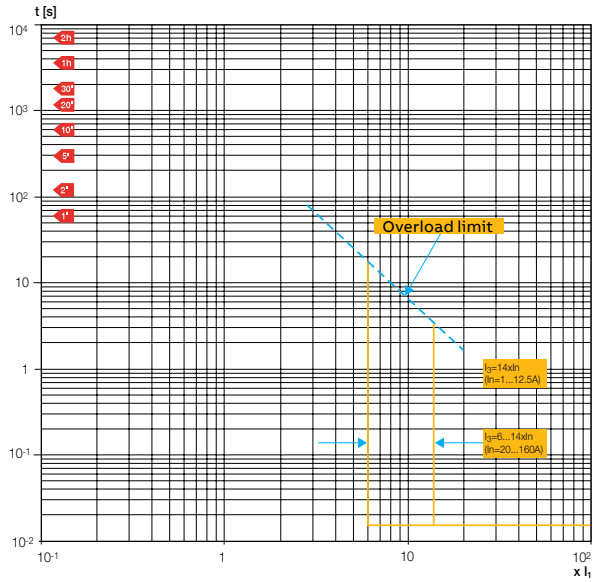
XT1 125 MA In=3.2...6.3A



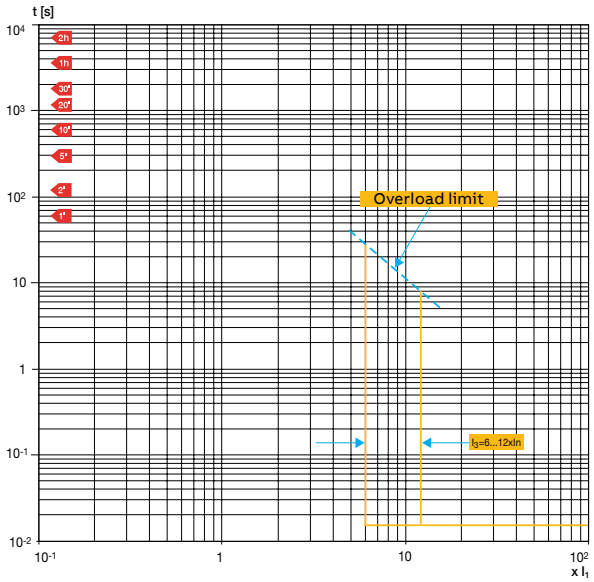
XT1 125 MA In=16...125A



XT2 160 MF/MA In=1...160A



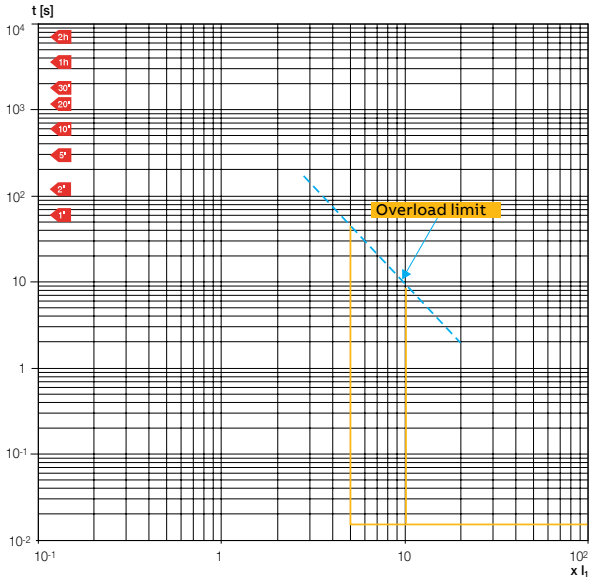
XT3 250 MA In=100...250A



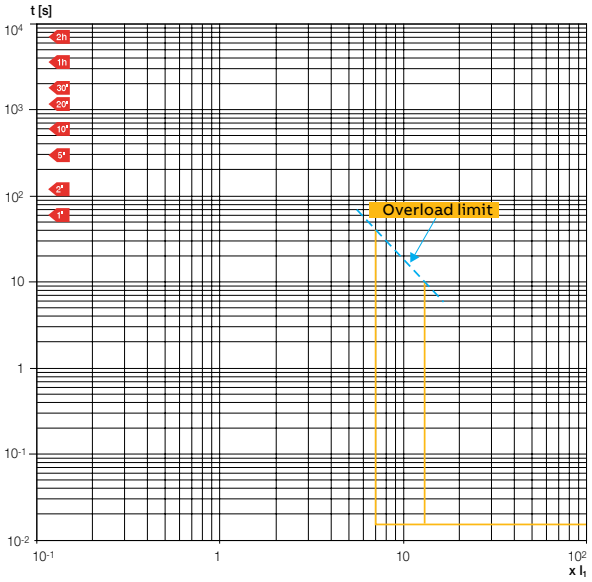
Characteristic curves

Trip curves with thermal magnetic trip unit

XT4 200 MA In=10...200A

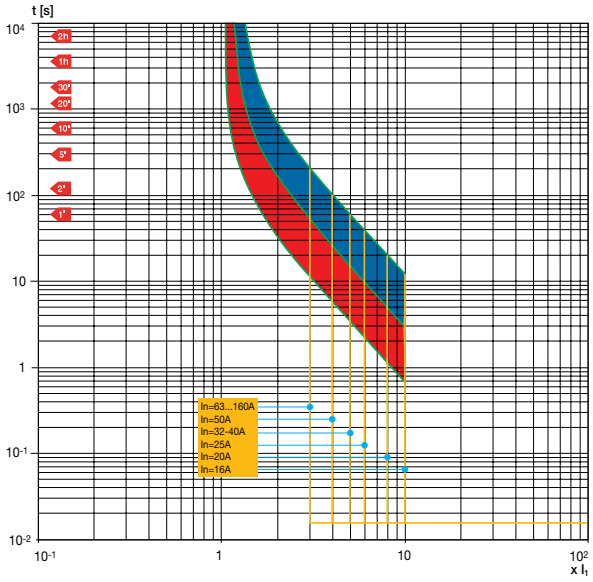


XT5 400-630 MA In=320...500A

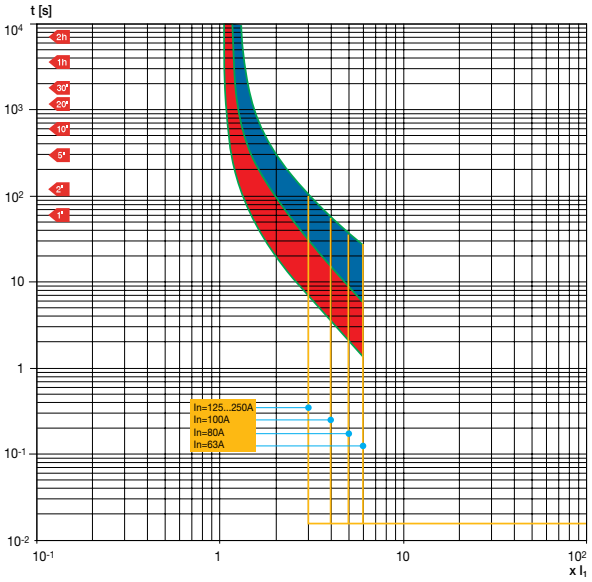


Trip curves for generator protection

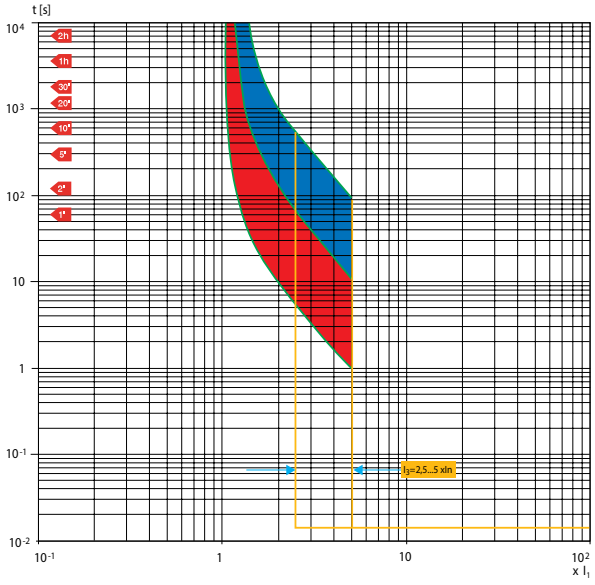
XT2 160 TMG In=16...160A



XT3 250 TMG In=63...250A



XT5 400-630 TMG In=320...630A

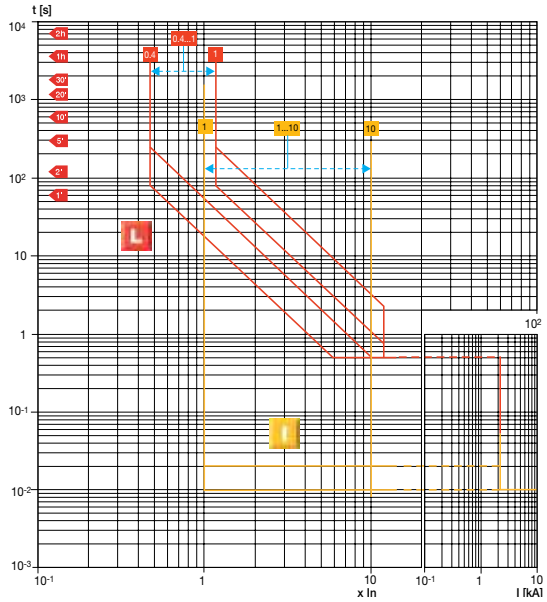


Characteristic curves

Trip curves with electronic trip unit Ekip Dip

Trip curves for distribution

XT2 Ekip LS/I
L-I functions



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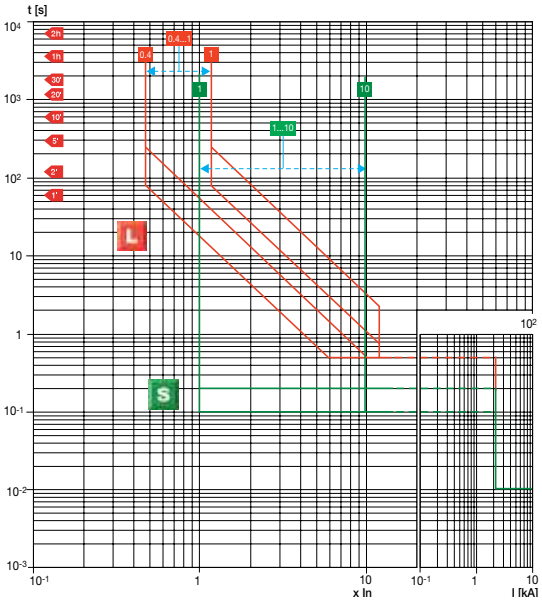
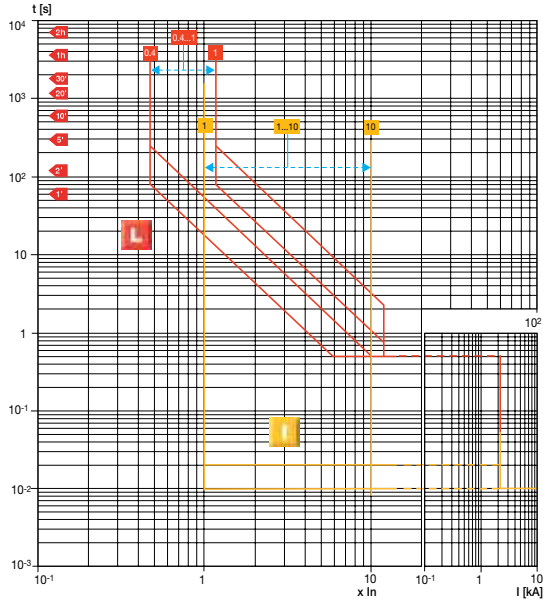
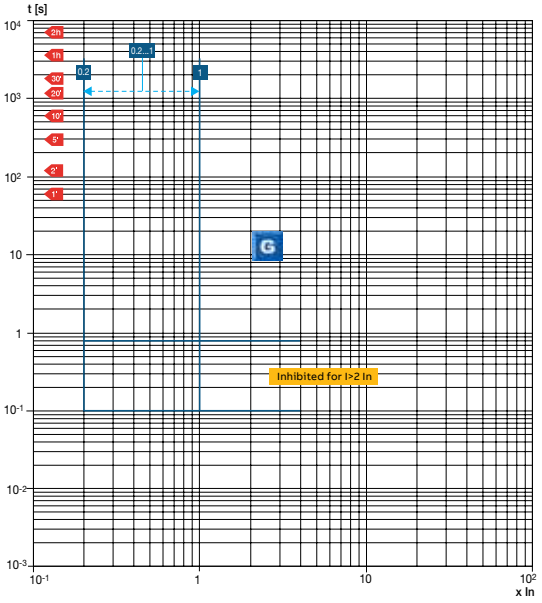
L-S functions



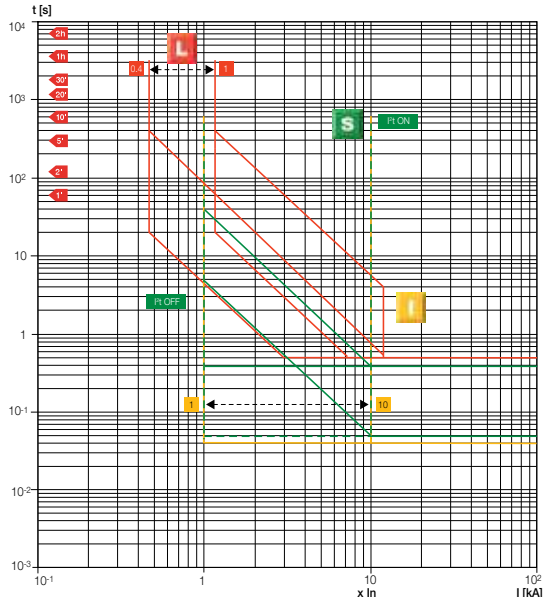
XT2 Ekip LIG
L-I functions



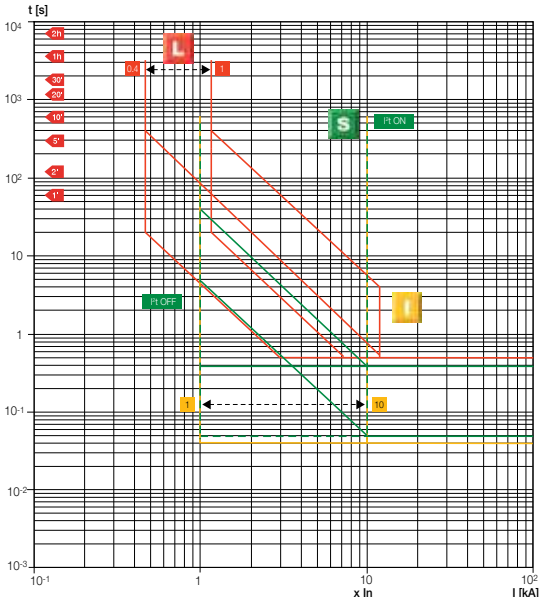
XT2 Ekip LIG
G function



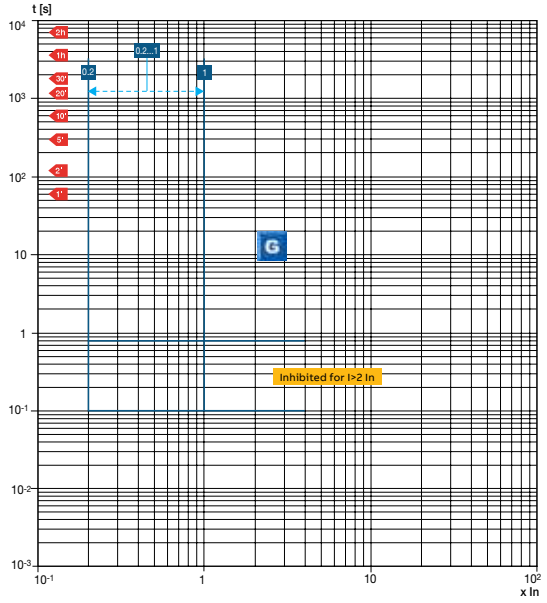
XT2 Ekip LSI
L-S-I functions



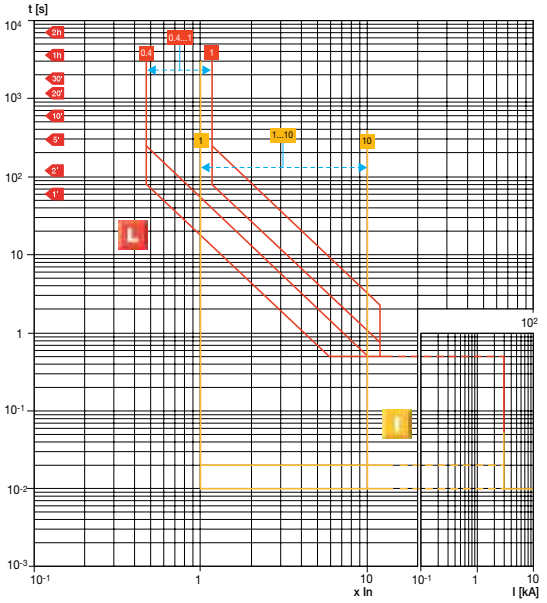
XT2 Ekip LSIG
L-S-I functions



XT2 Ekip LSIG
G function



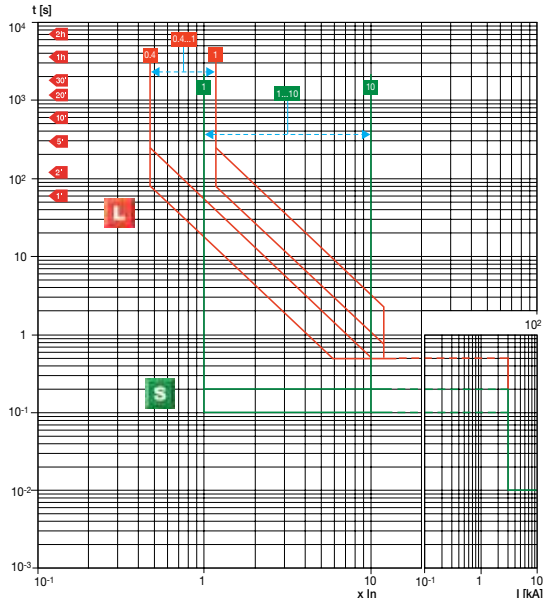
XT4 Ekip LS/I
L-I functions



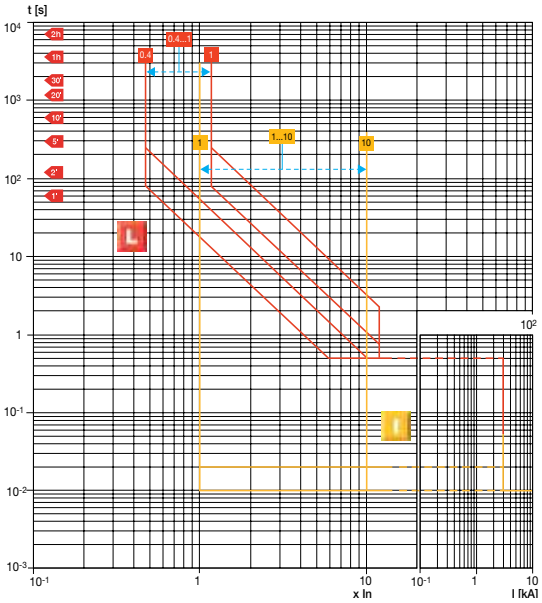
Characteristic curves

Trip curves with electronic trip unit Ekip Dip

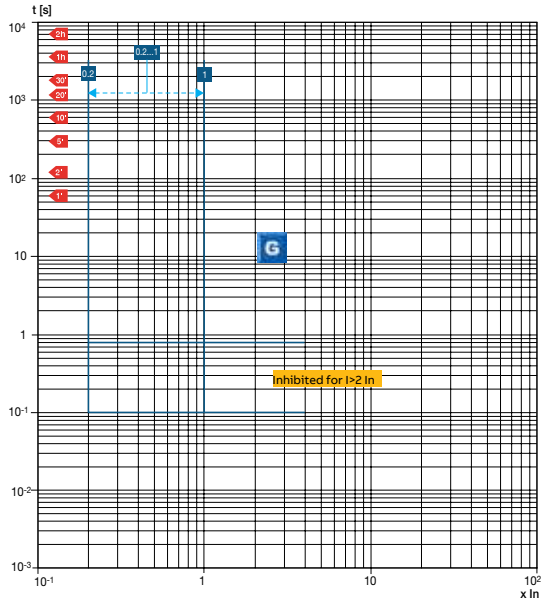
XT4 Ekip LS/I
L-S functions



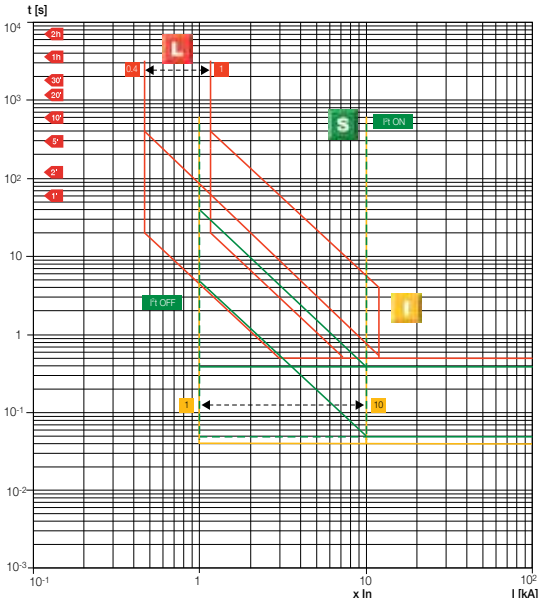
XT4 Ekip LIG
L-I functions



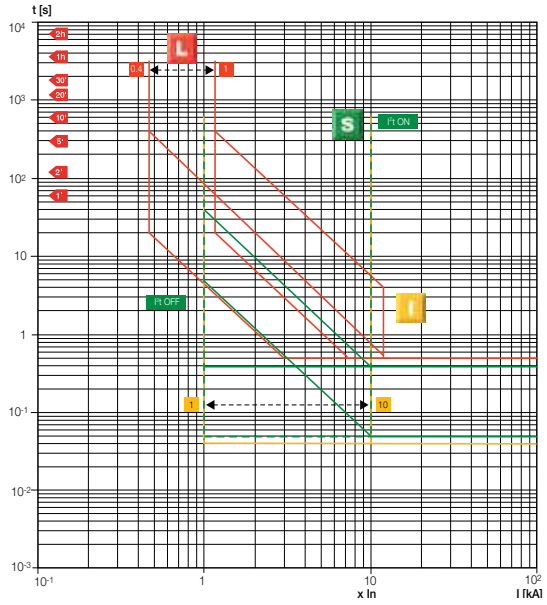
XT4 Ekip LIG
G function



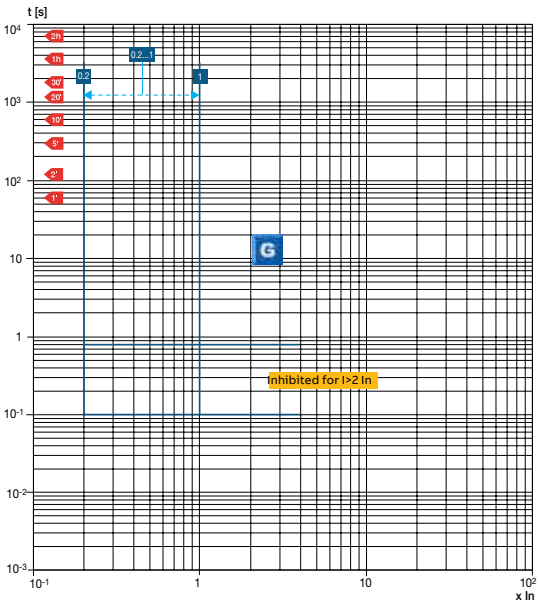
XT4 Ekip LSI
L-S-I functions



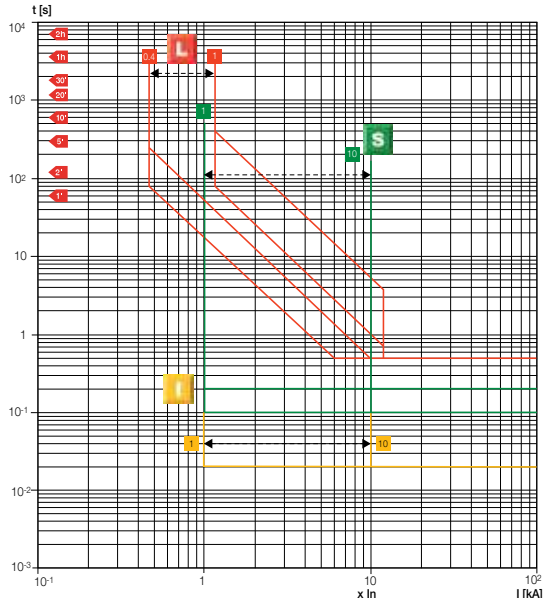
XT4 Ekip LSIG
L-S-I functions



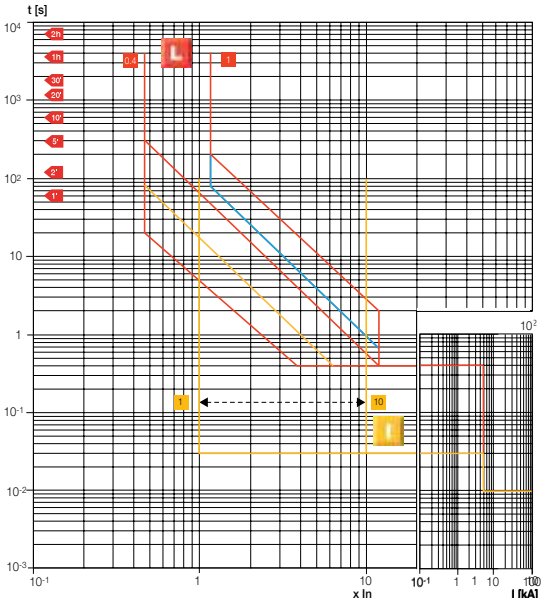
XT4 Ekip LSIG
G function



XT5-XT6 Ekip Dip LS/I
L-S-I functions



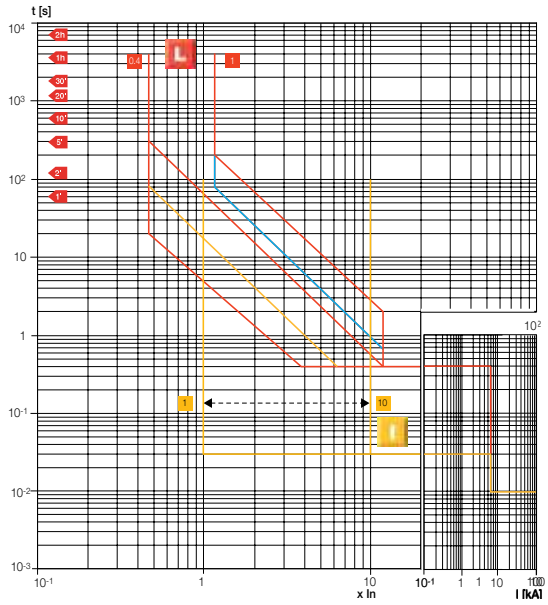
XT5 400 Ekip Dip LIG
L-I functions



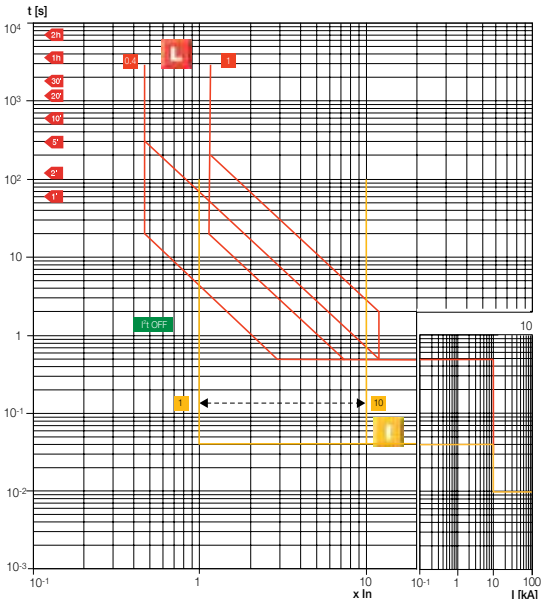
Characteristic curves

Trip curves with electronic trip unit Ekip Dip

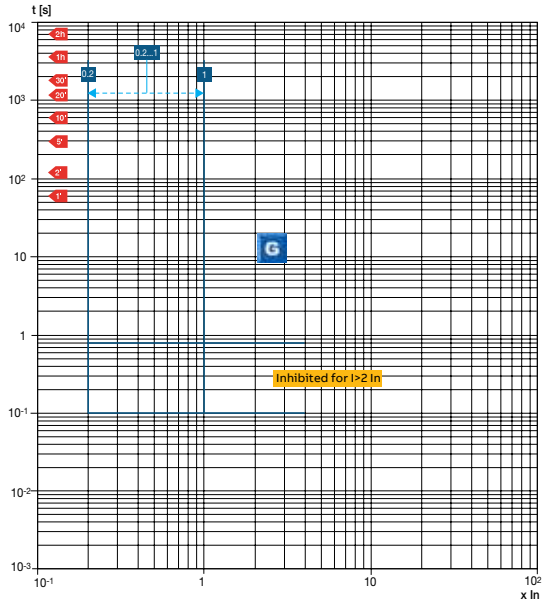
XT5 630 Ekip Dip LIG
L-I functions



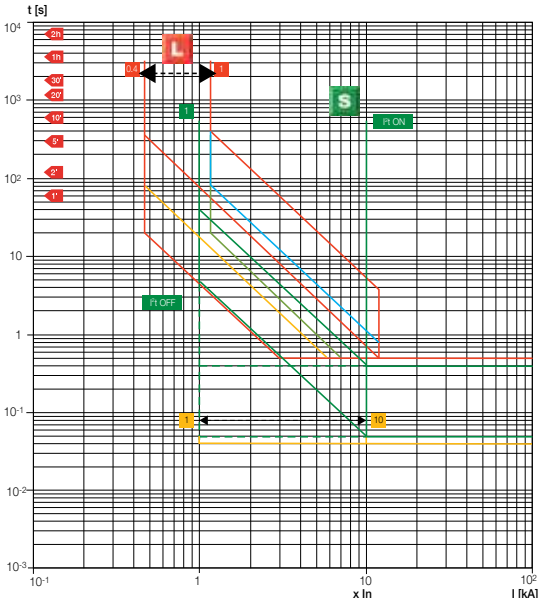
XT6 Ekip Dip LIG
L-I functions



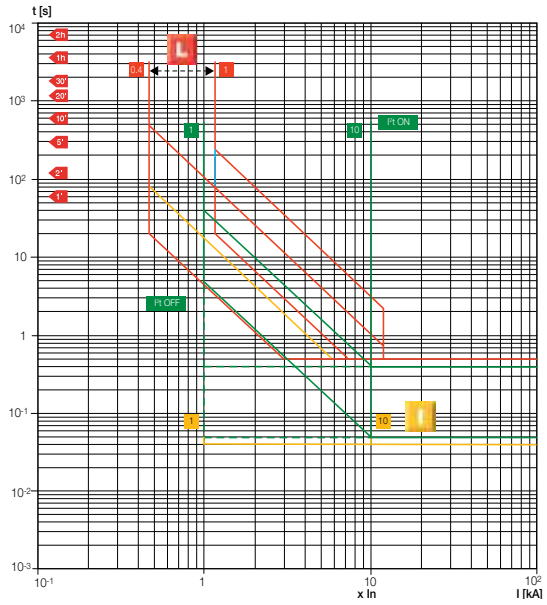
XT5-XT6 Ekip Dip LIG
G functions



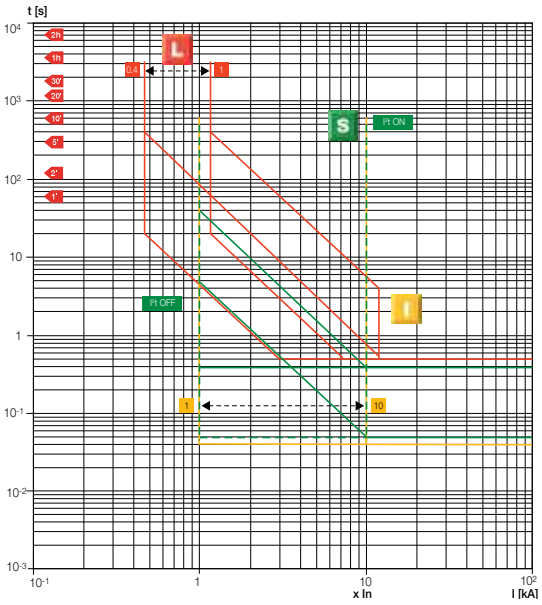
XT5 Ekip Dip LSI
L-S-I functions



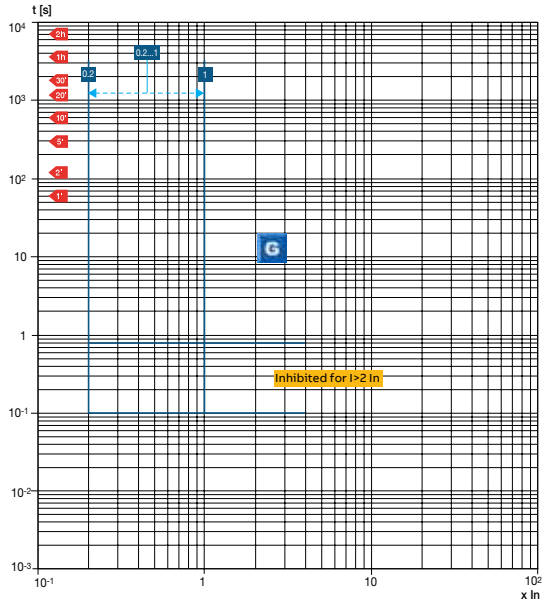
XT6 Ekip Dip LSI
L-S-I functions



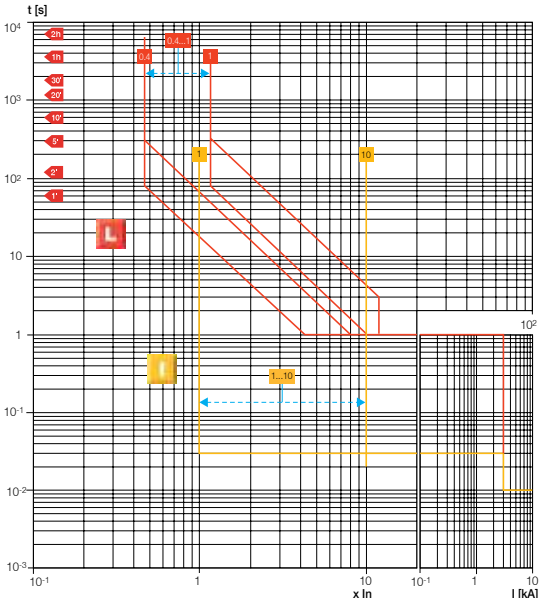
XT5-XT6 Ekip Dip LSIG
L-S-I functions



XT5-XT6 Ekip Dip LSIG
G function



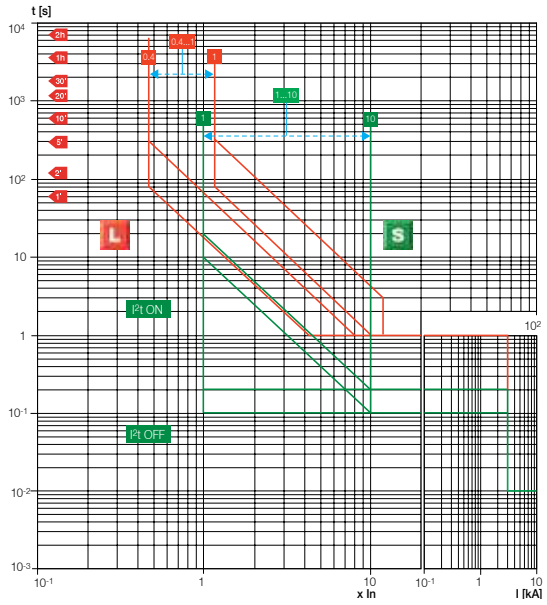
XT7 - XT7 M Ekip Dip LS/I
L-I functions



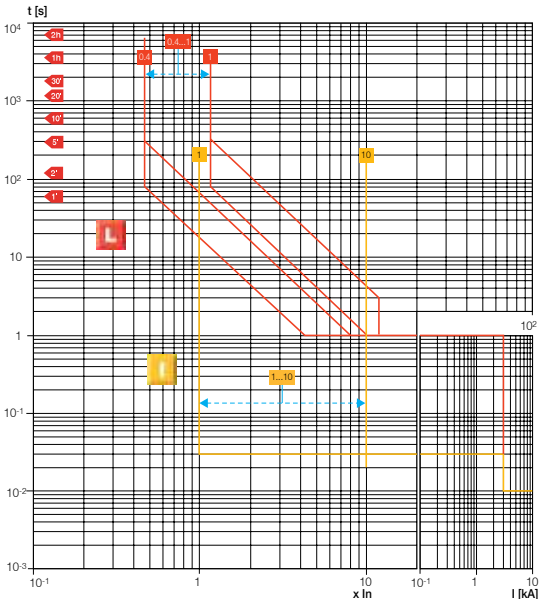
Characteristic curves

Trip curves with electronic trip unit Ekip Dip

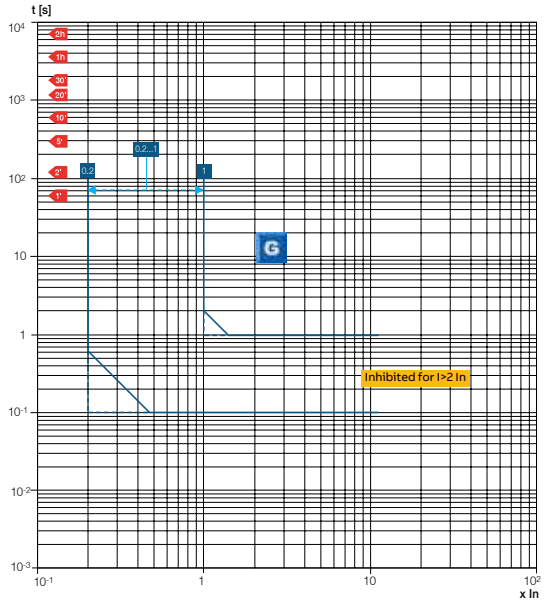
XT7 - XT7 M Ekip Dip LS/I
L-S functions



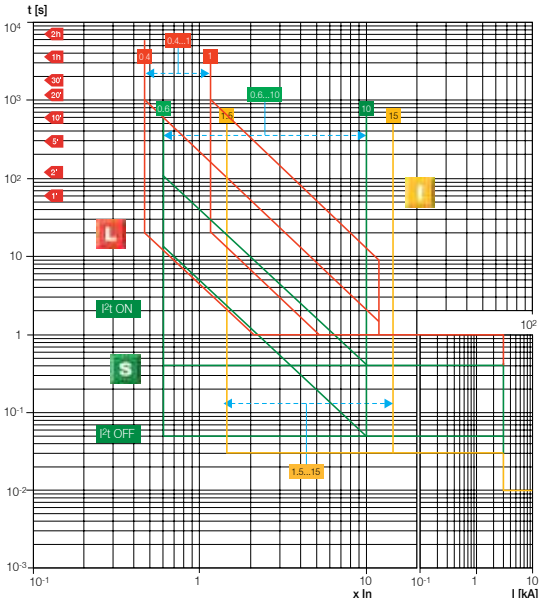
XT7 - XT7 M Ekip Dip LIG
L-I functions



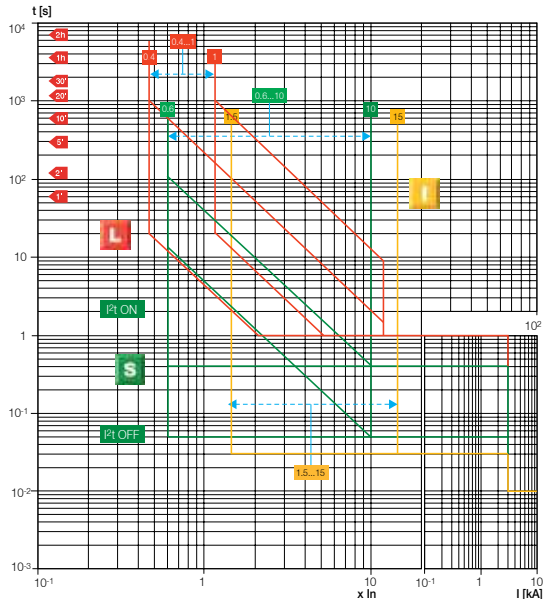
XT7 - XT7 M Ekip Dip LIG
G function



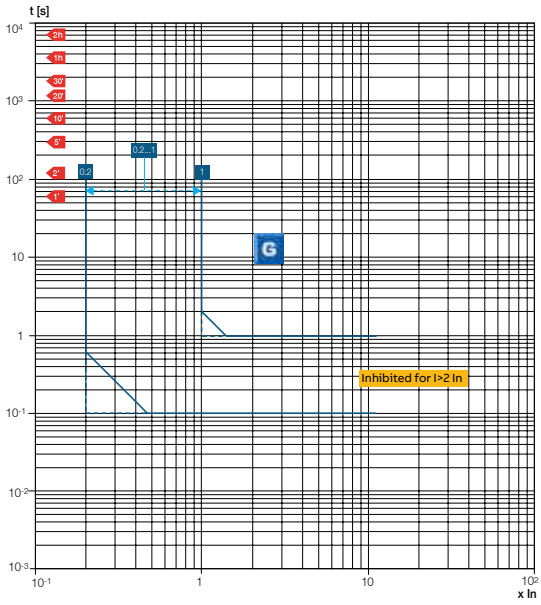
XT7 - XT7 M Ekip Dip LSI
L-S-I functions



XT7 - XT7 M Ekip Dip LSIG
L-S-I functions

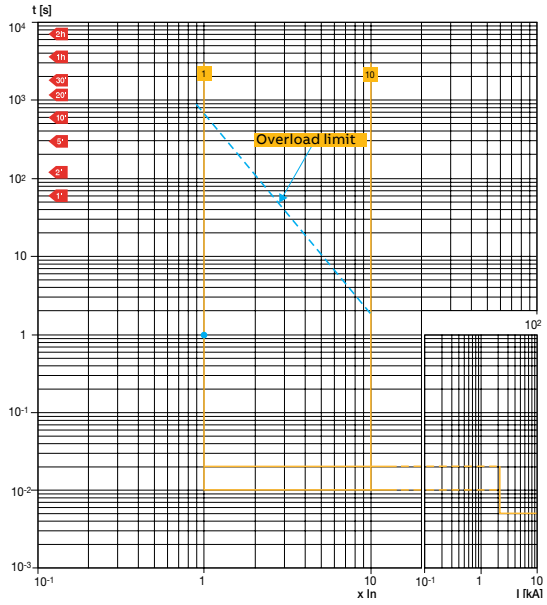


XT7 - XT7 M Ekip Dip LSIG
G function

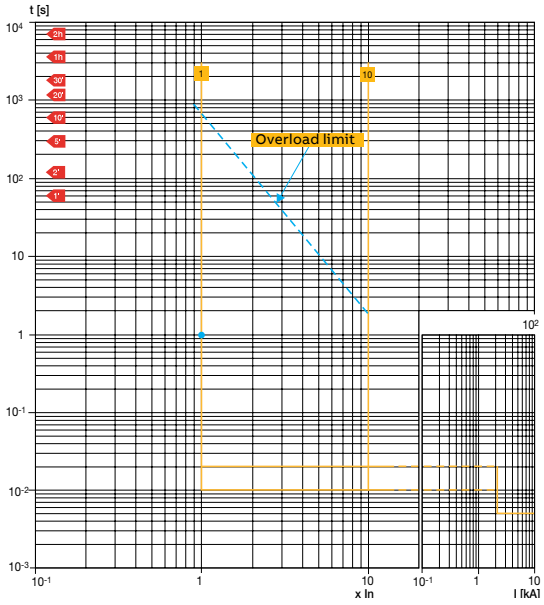


Trip curves for motor protection

XT2 Ekip I
I function



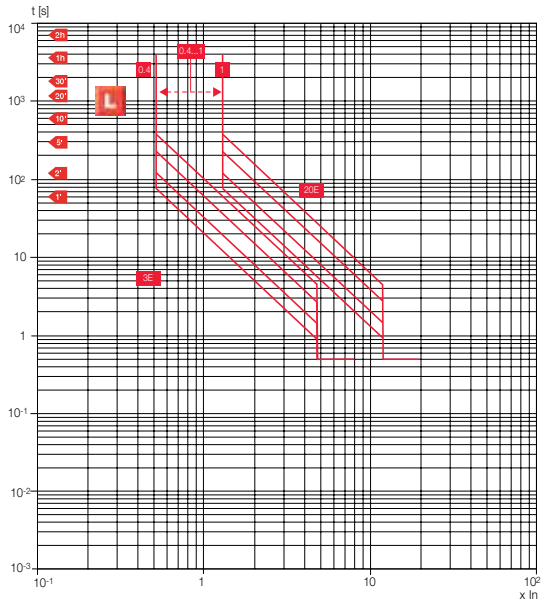
XT4 Ekip I
I function



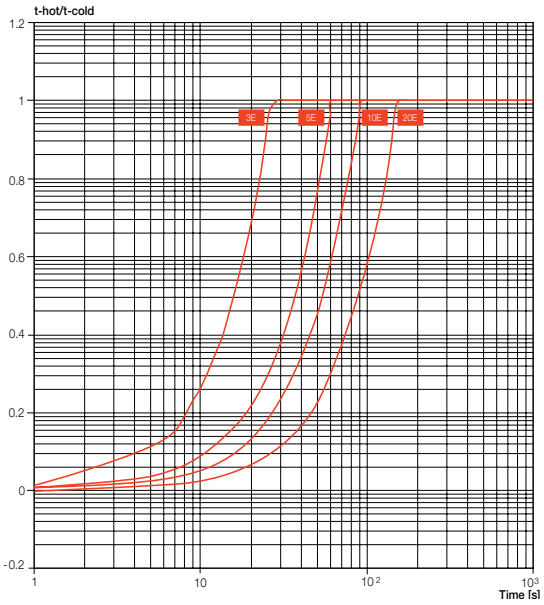
Characteristic curves

Trip curves with electronic trip unit Ekip Dip

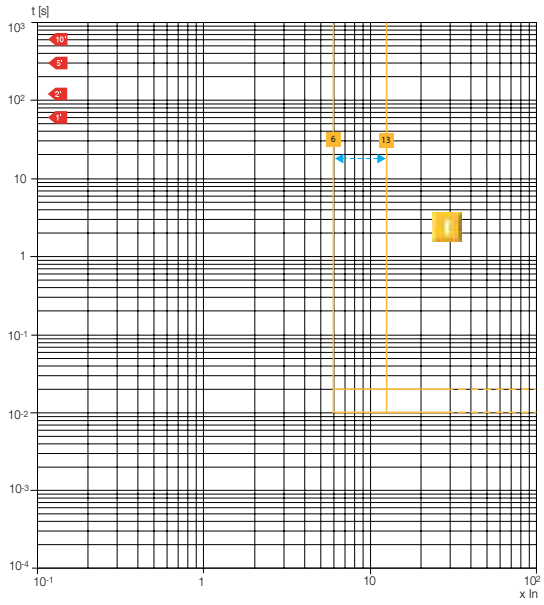
XT2 - XT4 Ekip M-LIU
L function (cold trip)



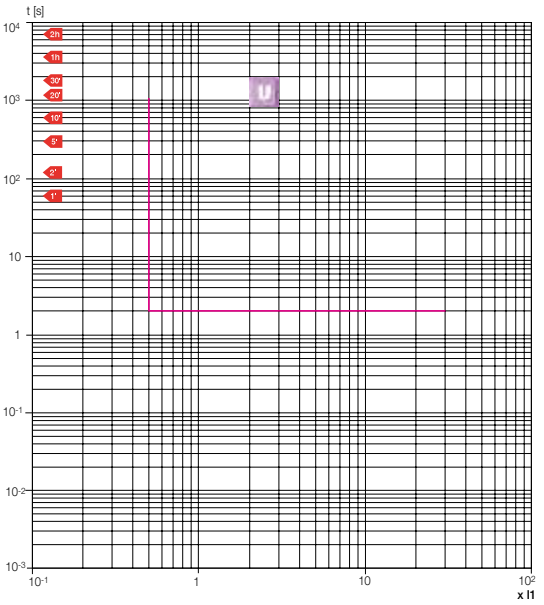
XT2 - XT4 Ekip M-LIU
(hot trip)



XT2 - XT4 Ekip M-LIU
I function



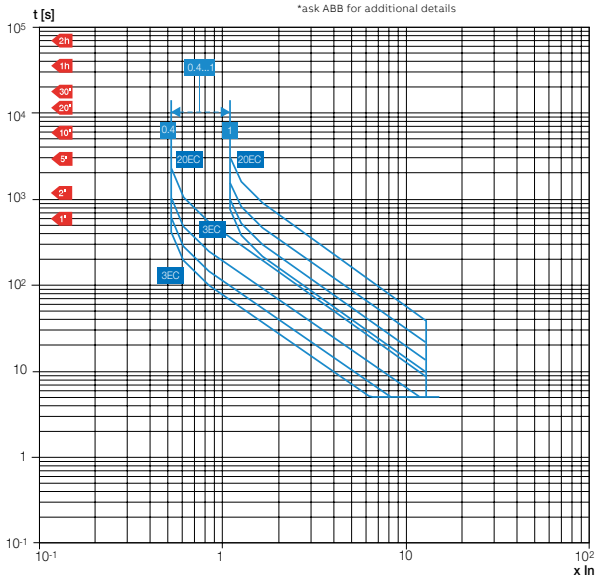
XT2 - XT4 Ekip M-LIU
U function



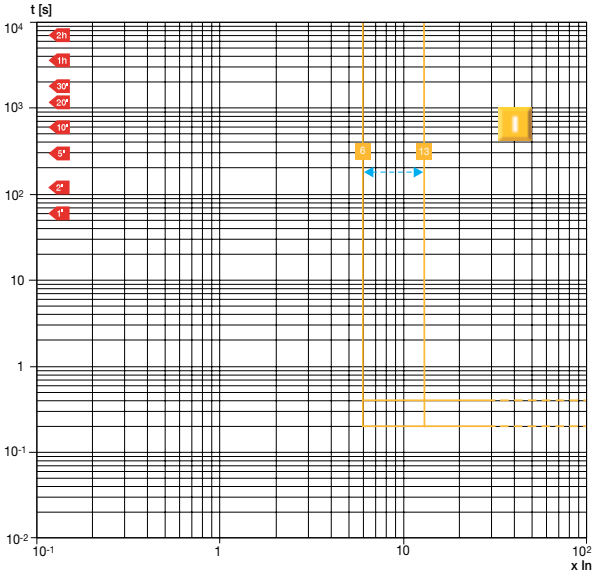
XT2 - XT4 Ekip M-LRIU
L function (cold trip)

Hot trip*	3E	5E	10E	20E
Thermal memory reset time	200s	320s	600s	1200s

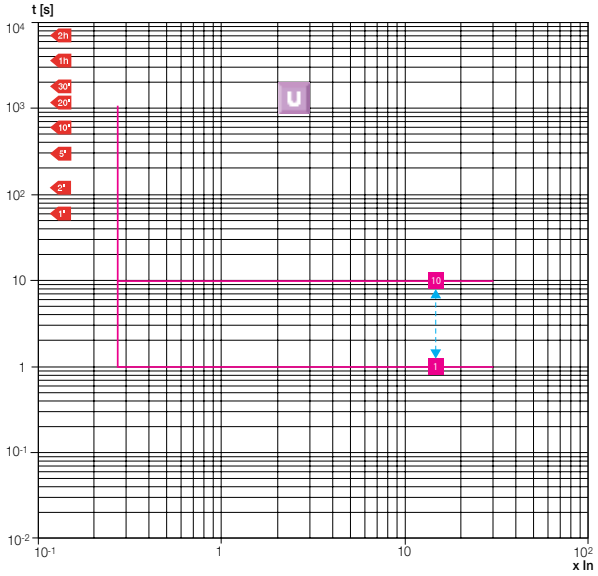
*ask ABB for additional details



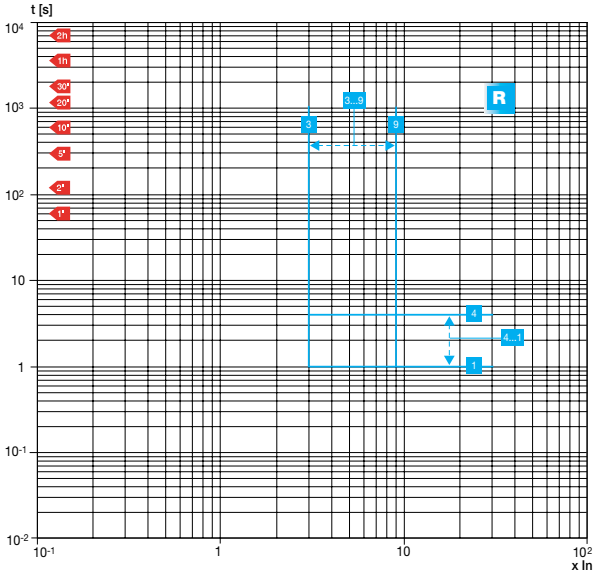
XT2 - XT4 Ekip M-LRIU
I function



XT2 - XT4 Ekip M-LRIU
U function



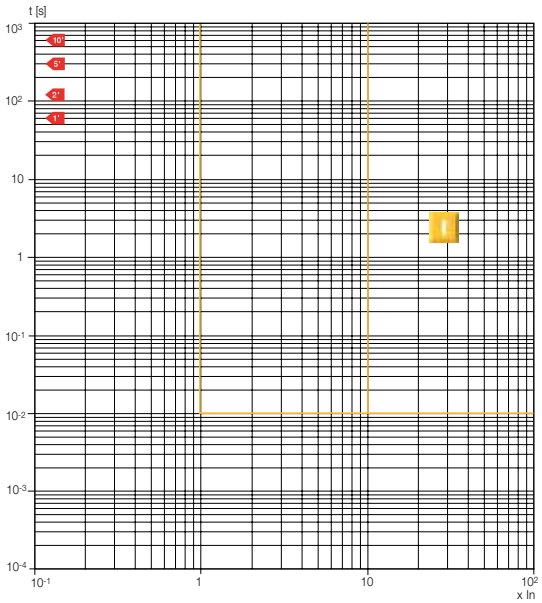
XT2 - XT4 Ekip M-LRIU
R function



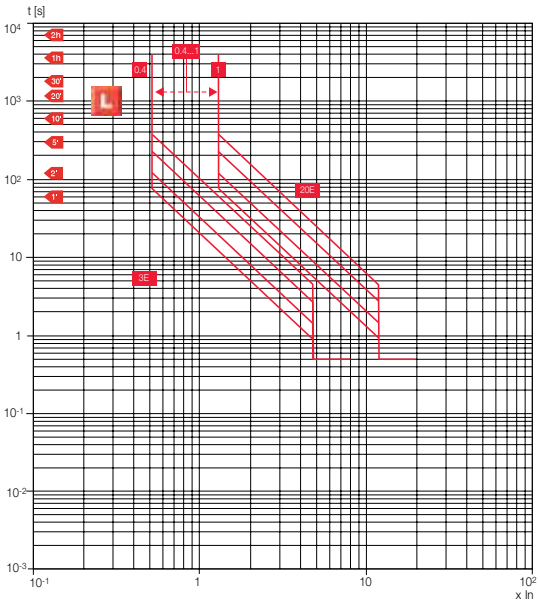
Characteristic curves

Trip curves with electronic trip unit Ekip Dip

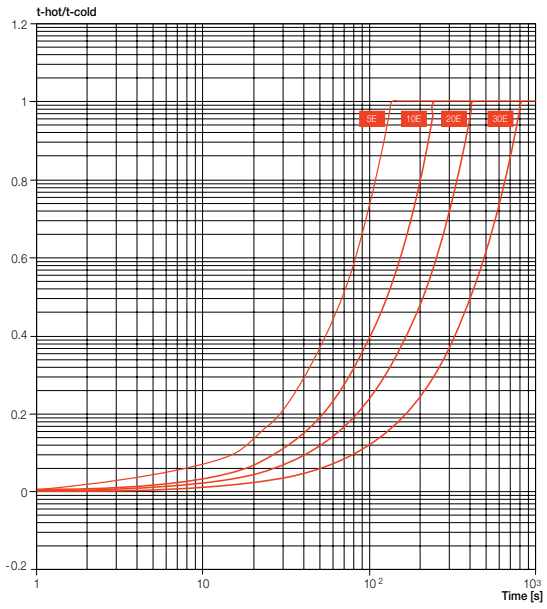
XT5-XT6 Ekip M Dip I
I function



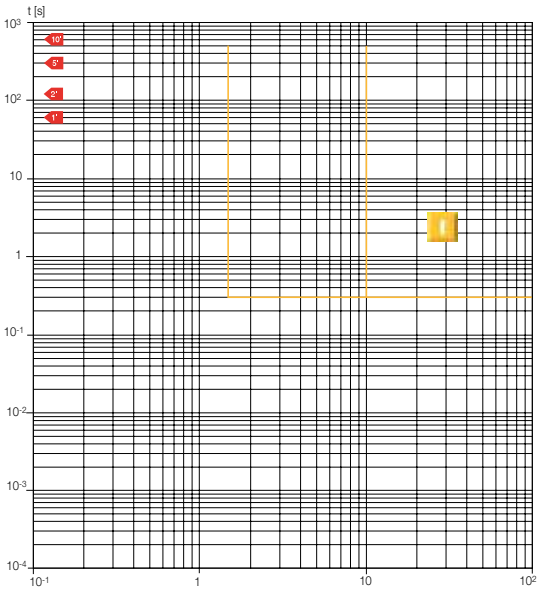
XT5-XT6 Ekip M Dip LIU
L function (cold trip)



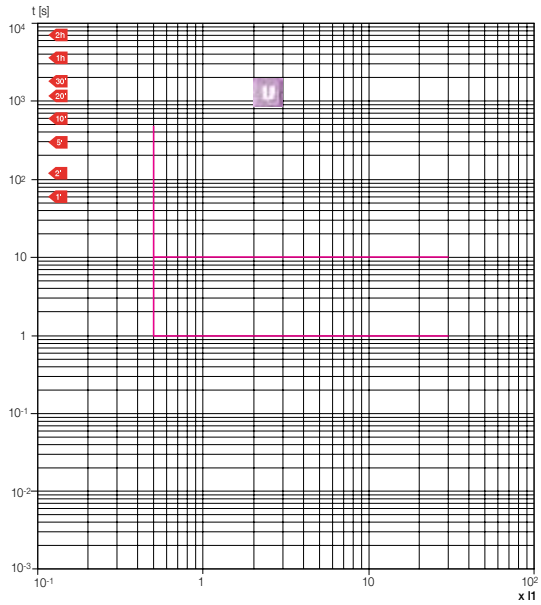
XT5-XT6 Ekip M Dip LIU
(hot trip)



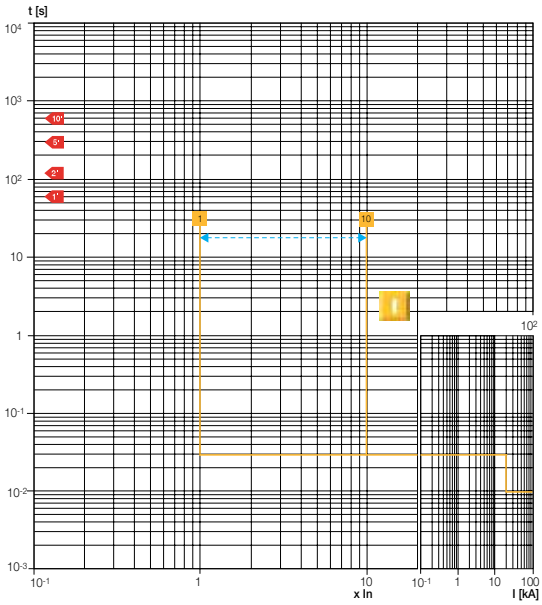
XT5-XT6 Ekip M Dip LIU
I function



XT5-XT6 Ekip M Dip LIU
U function



XT7 - XT7 M Ekip M Dip I
I function

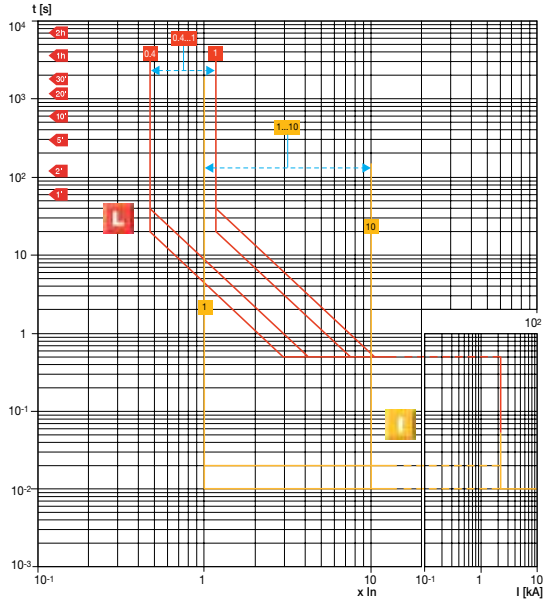


Characteristic curves

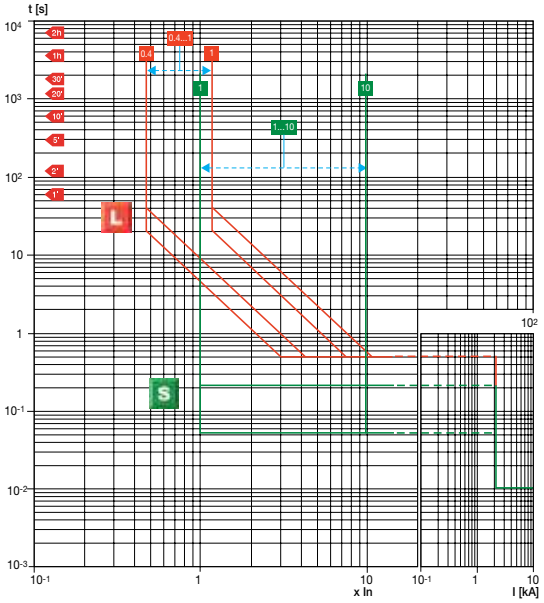
Trip curves with electronic trip unit Ekip Dip

Trip curves for generator protection

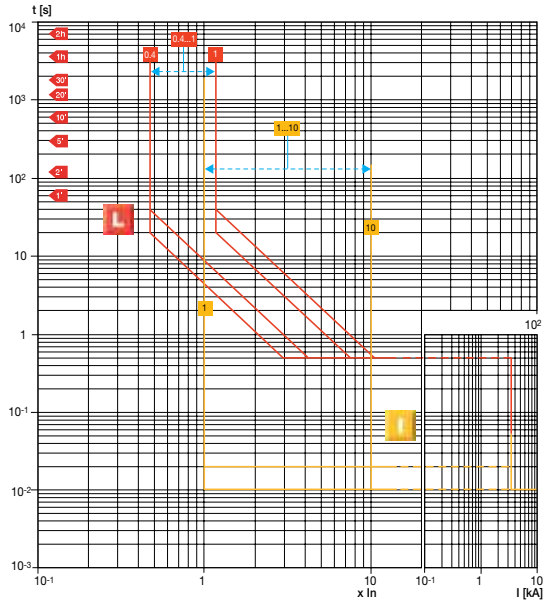
XT2 Ekip G-LS/I
L-I functions



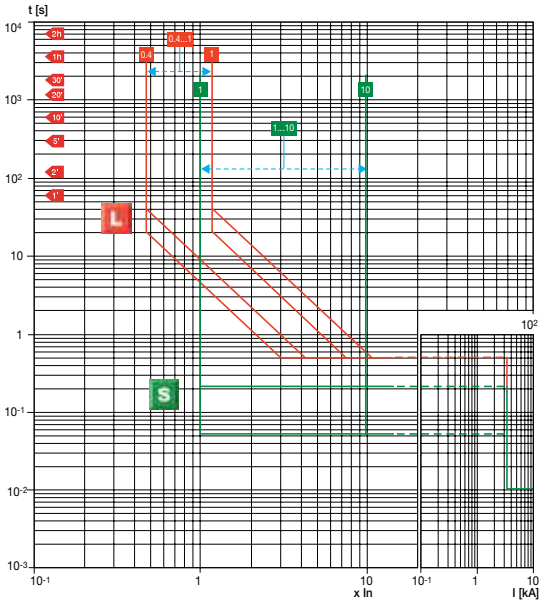
XT2 Ekip G-LS/I
L-S functions



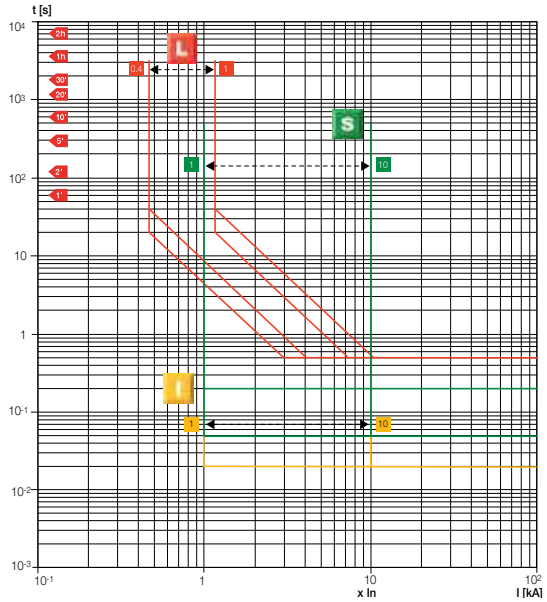
XT4 Ekip G-LS/I
L-I functions



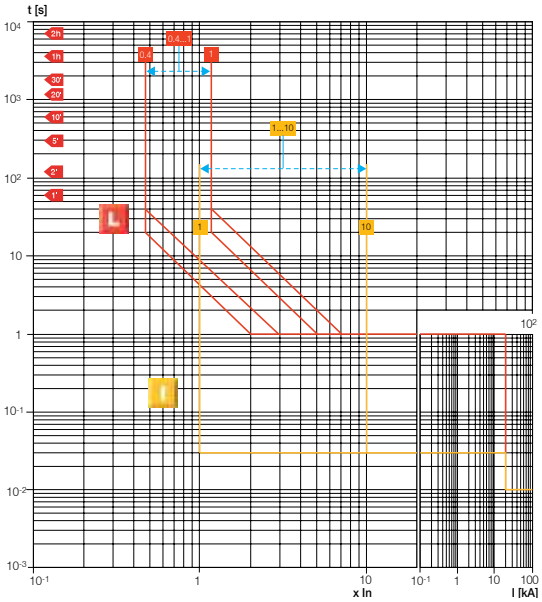
XT4 Ekip G-LS/I
L-S functions



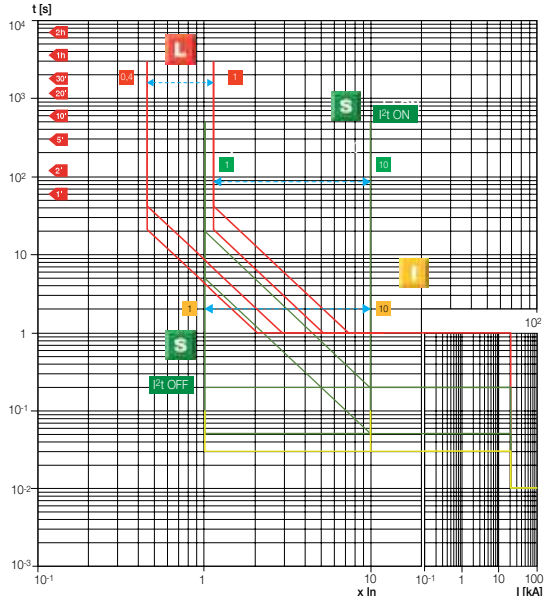
XT5-XT6 Ekip G Dip LS/I
L-S-I functions



XT7 - XT7 M Ekip G Dip LS/I
L-I functions



XT7 - XT7 M Ekip G Dip LS/I
L-S functions

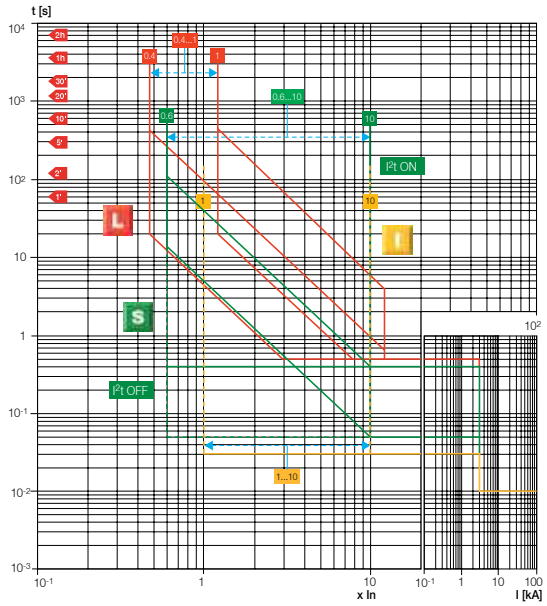


Characteristic curves

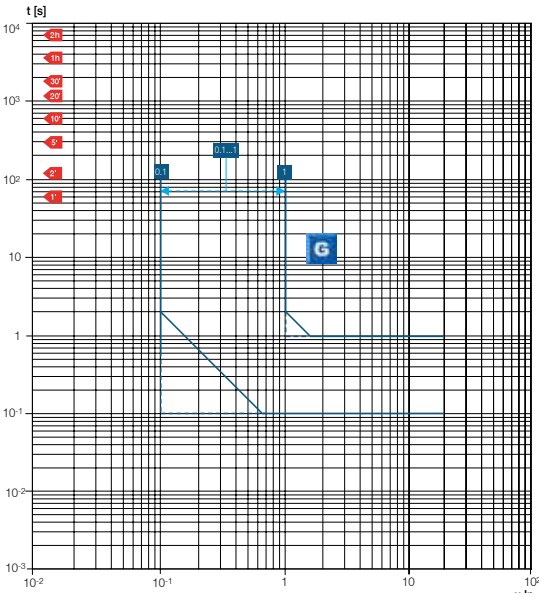
Trip curves with electronic trip unit Ekip Touch and Hi-Touch

Trip curves for distribution

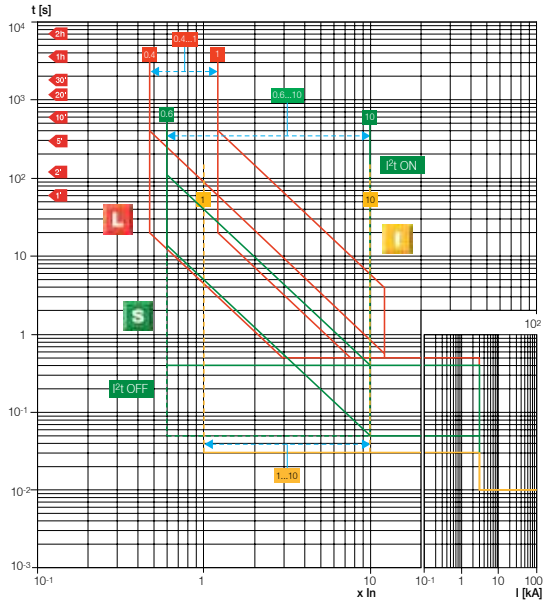
XT2
Ekip Touch LSI • Ekip Touch LSIG • Ekip Touch Measuring LSI • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSI- Ekip Hi-Touch LSIG • L – S – I function



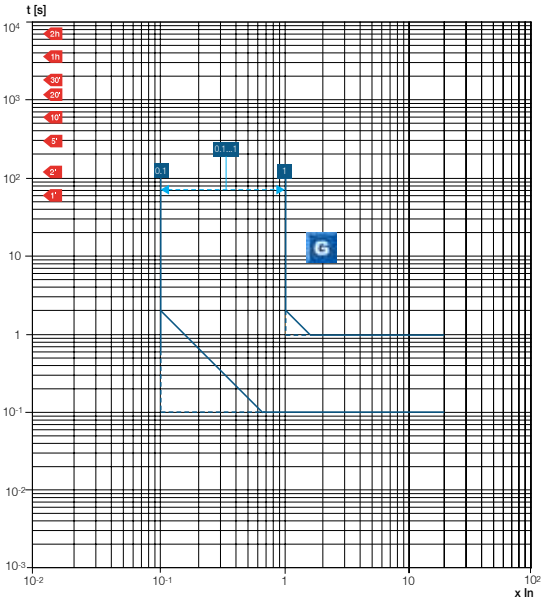
XT2
Ekip Touch LSIG • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSIG • G function



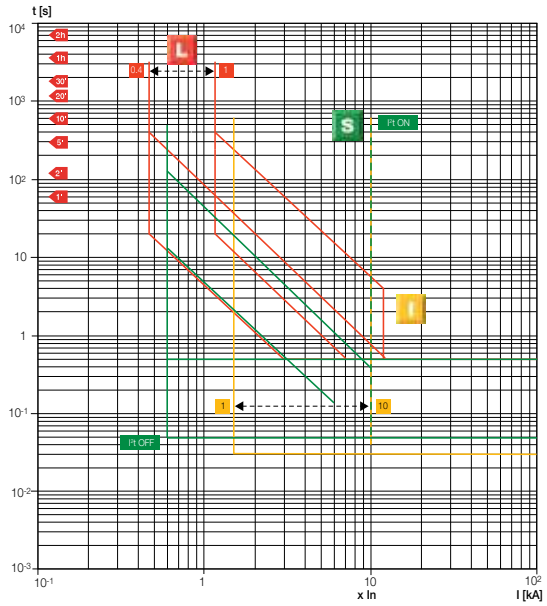
XT4
Ekip Touch LSI • Ekip Touch LSIG • Ekip Touch Measuring LSI • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSI • Ekip Hi-Touch LSIG • L – S – I function



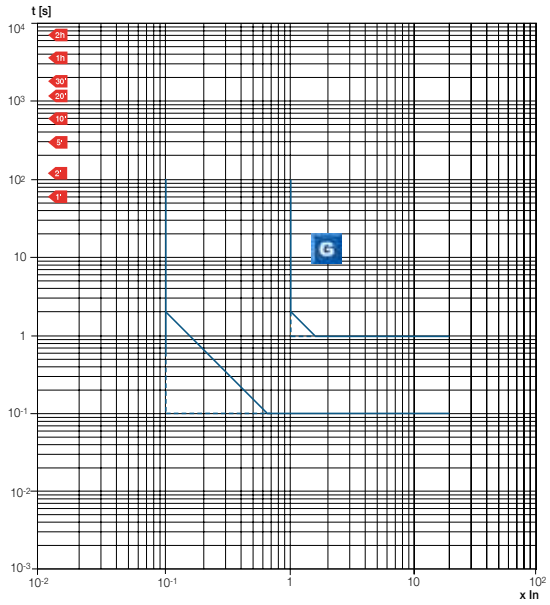
XT4
Ekip Touch LSIG • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSIG • G function



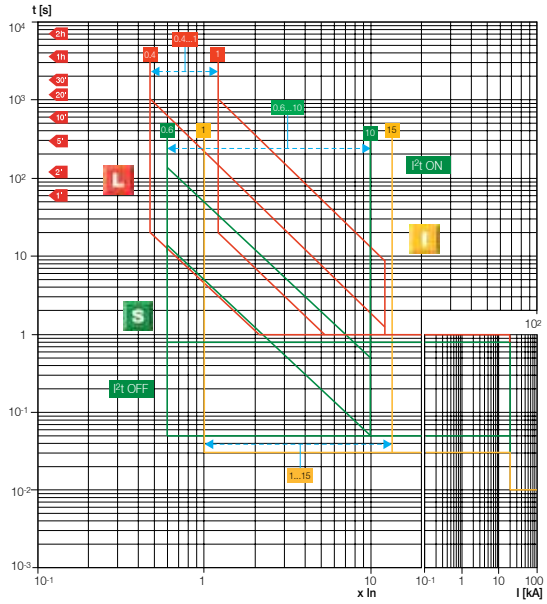
XT5
Ekip Touch LSI • Ekip Touch LSIG • Ekip Touch Measuring LSI • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSI • Ekip Hi-Touch LSIG • L – S – I function



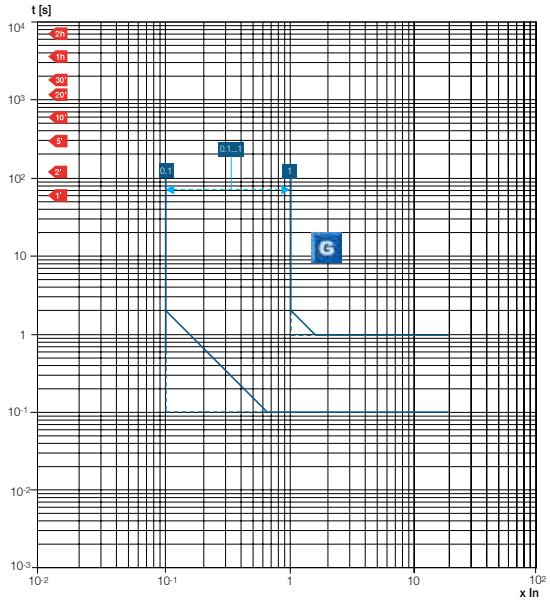
XT5
Ekip Touch LSIG • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSIG • G function



XT7 – XT7 M
Ekip Touch LSI • Ekip Touch LSIG • Ekip Touch Measuring LSI • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSI • Ekip Hi-Touch LSIG • L – S – I function



XT7 – XT7 M
Ekip Touch LSIG • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSIG • G function

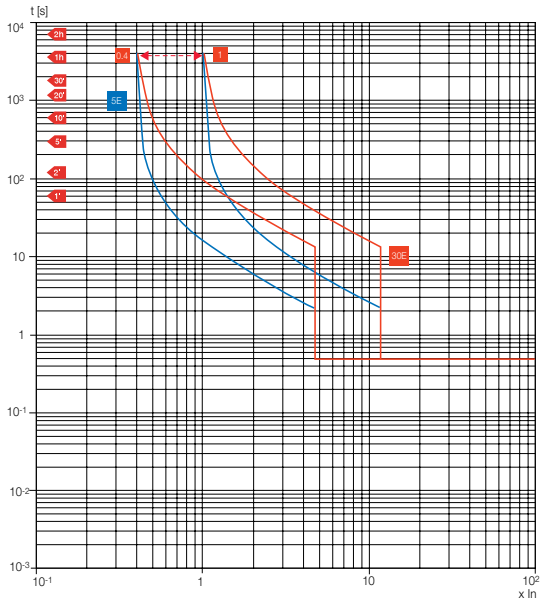


Characteristic curves

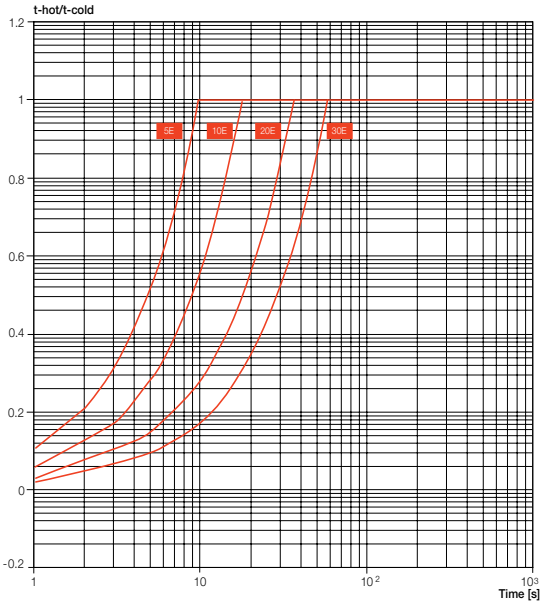
Trip curves with electronic trip unit Ekip Touch and Hi-Touch

Trip curves for motor protection

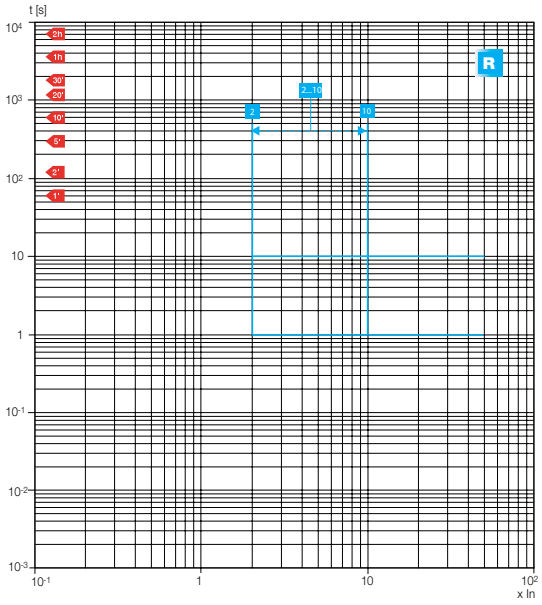
XT2 Ekip M Touch LRIU
L function (cold trip)



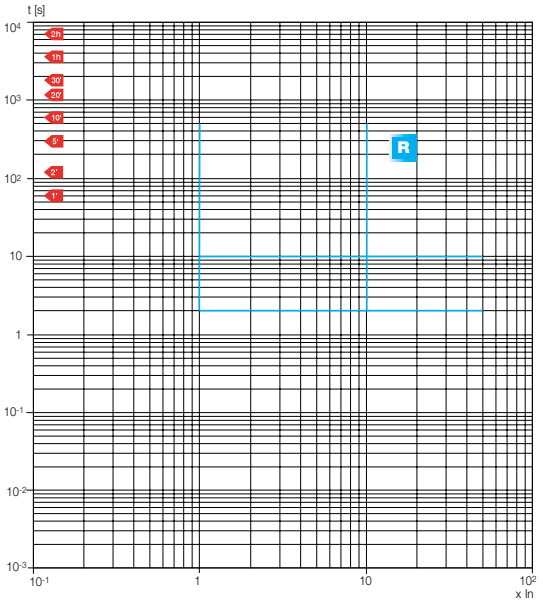
XT2 Ekip M Touch LRIU
(hot trip)



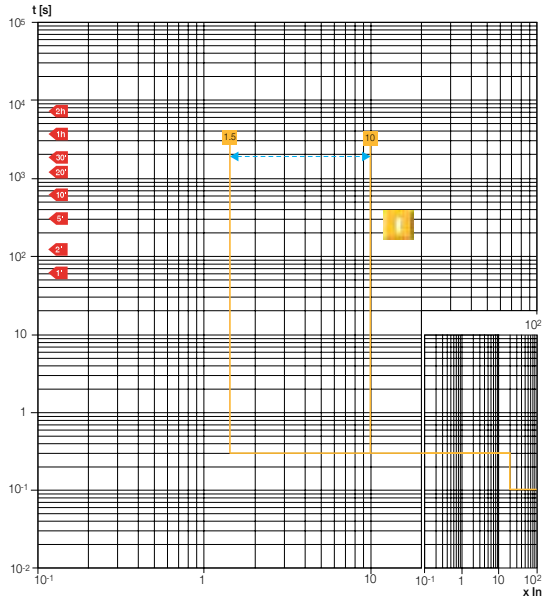
XT2 Ekip M Touch LRIU
R function - JAM



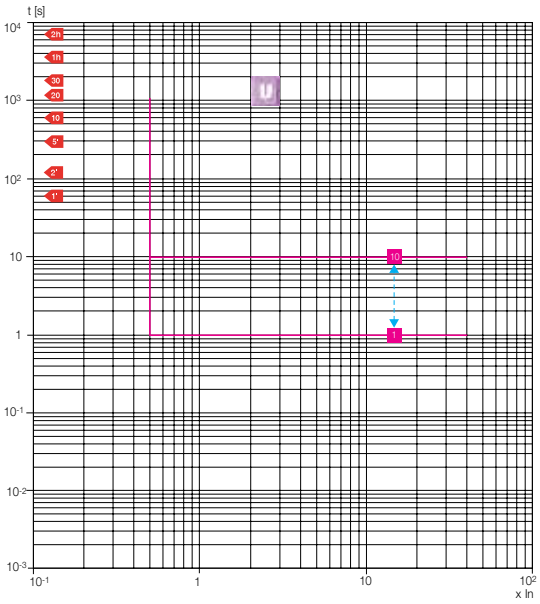
XT2 Ekip M Touch LRIU
R function - STALL



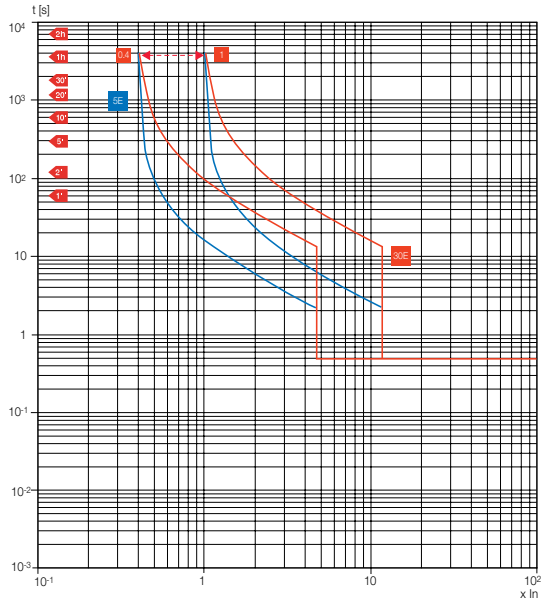
XT2 Ekip M Touch LRIU
I function



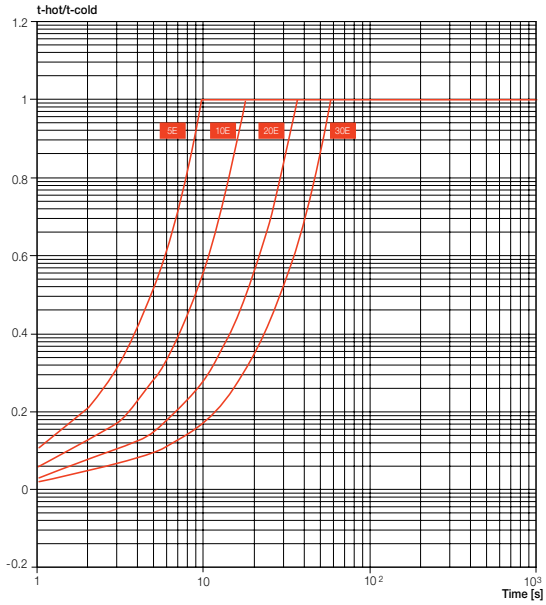
XT2 Ekip M Touch LRIU
U function



XT4 Ekip M Touch LRIU
L function (cold trip)



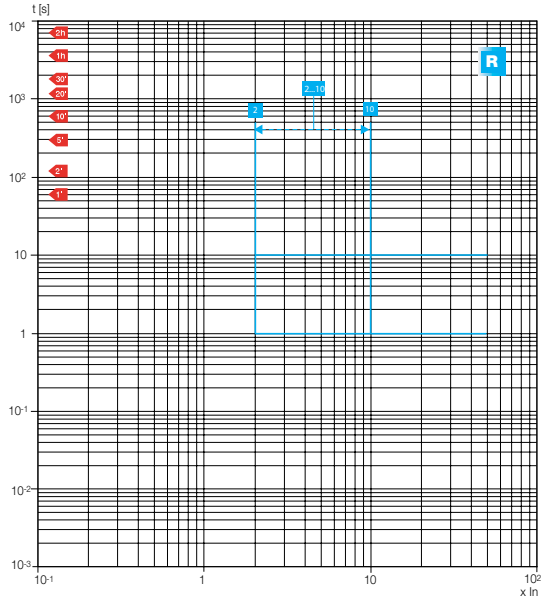
XT4 Ekip M Touch LRIU
(hot trip)



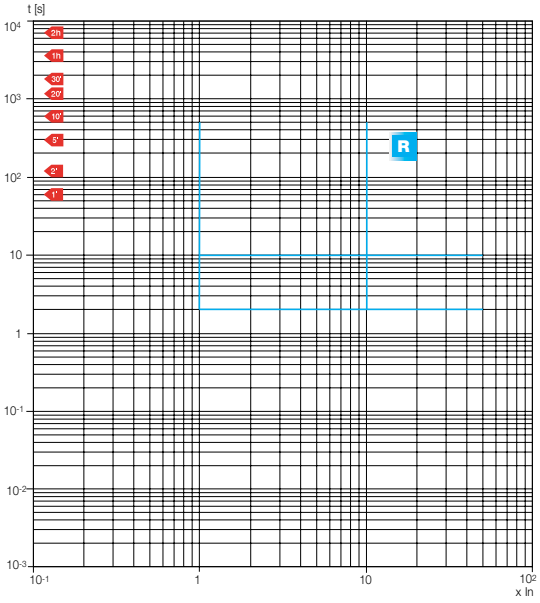
Characteristic curves

Trip curves with electronic trip unit Ekip Touch and Hi-Touch

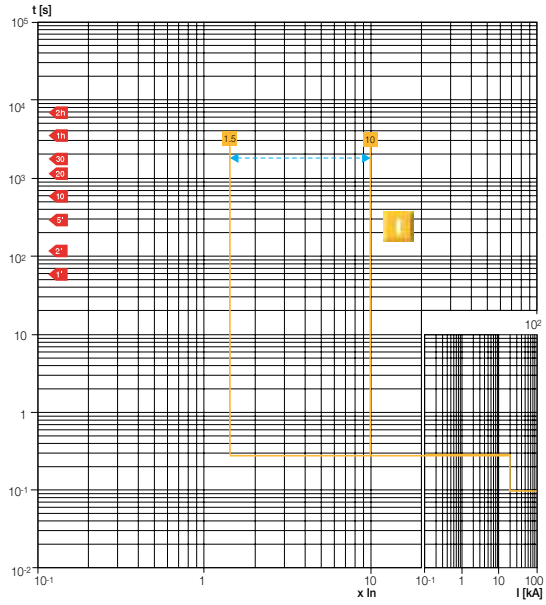
XT4 Ekip M Touch LRIU
R function - JAM



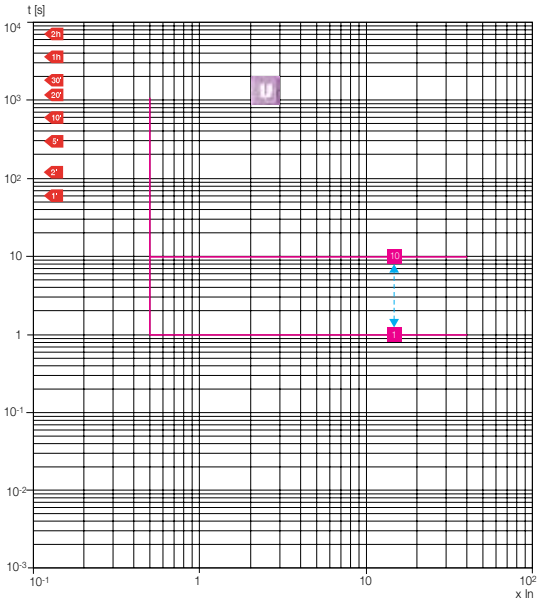
XT4 Ekip M Touch LRIU
R function - STALL



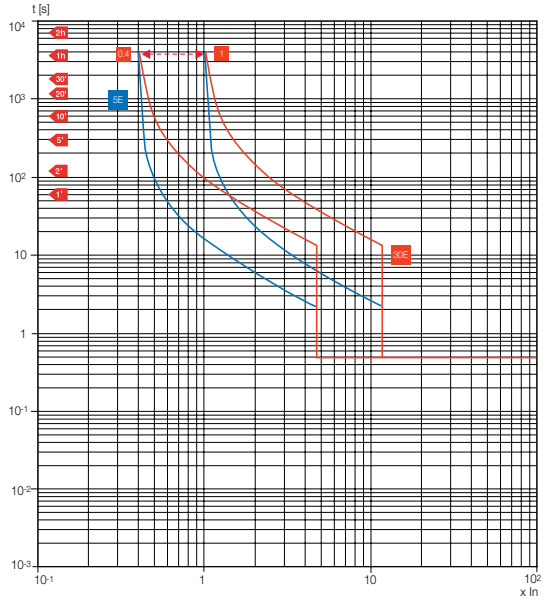
XT4 Ekip M Touch LRIU
I function



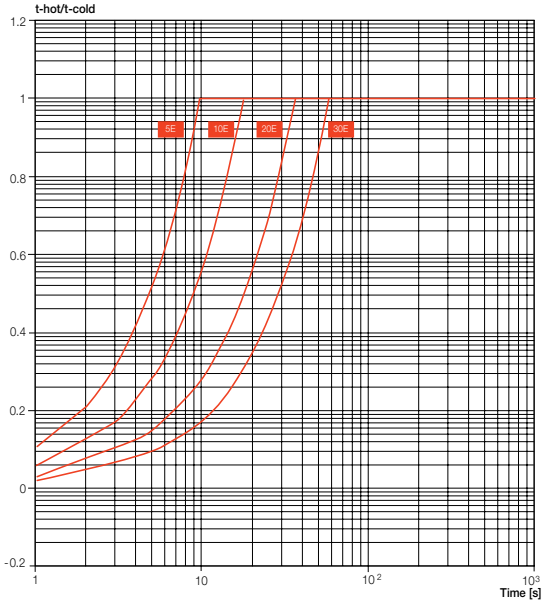
XT4 Ekip M Touch LRIU
U function



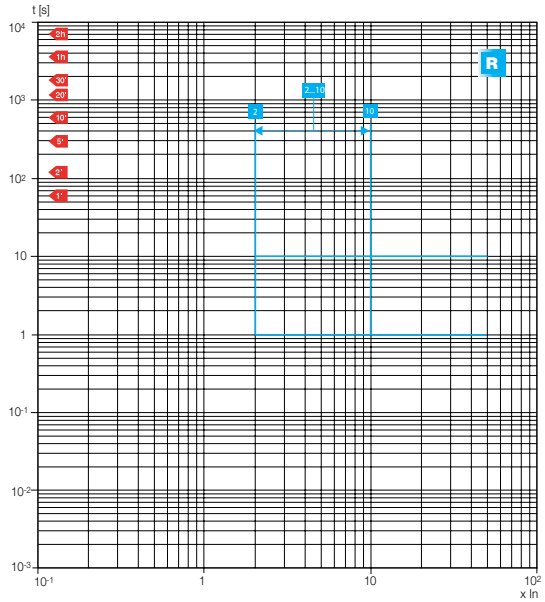
XT5 Ekip M Touch LRIU
L function (cold trip)



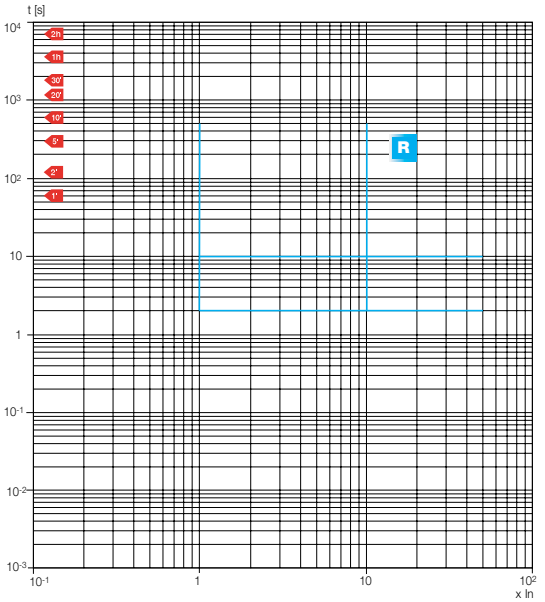
XT5 Ekip M Touch LRIU
(hot trip)



XT5 Ekip M Touch LRIU
R function - JAM



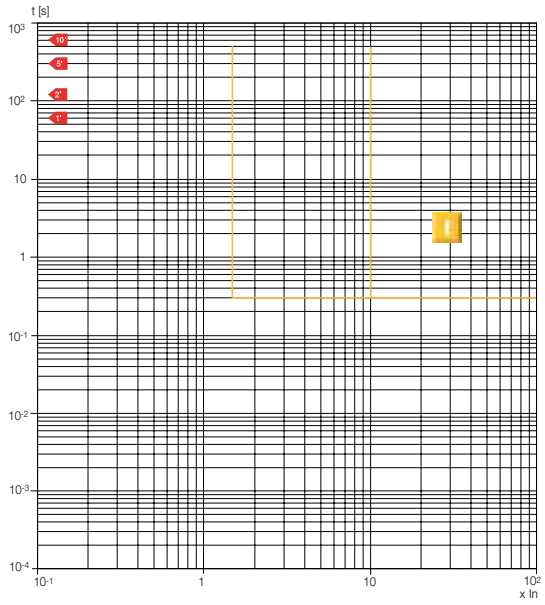
XT5 Ekip M Touch LRIU
R function - STALL



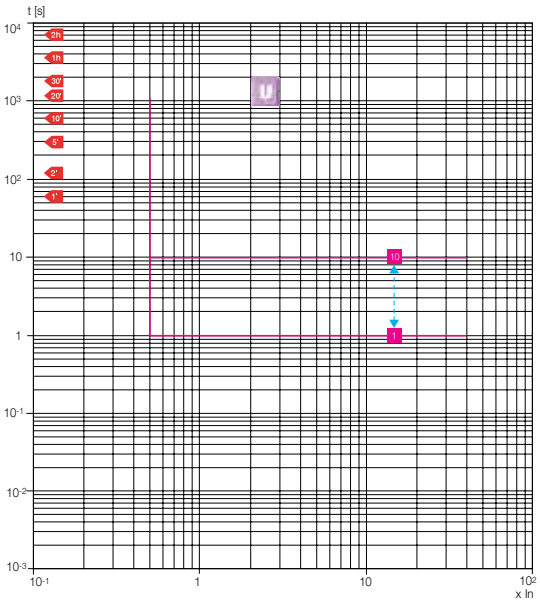
Characteristic curves

Trip curves with electronic trip unit Ekip Touch and Hi-Touch

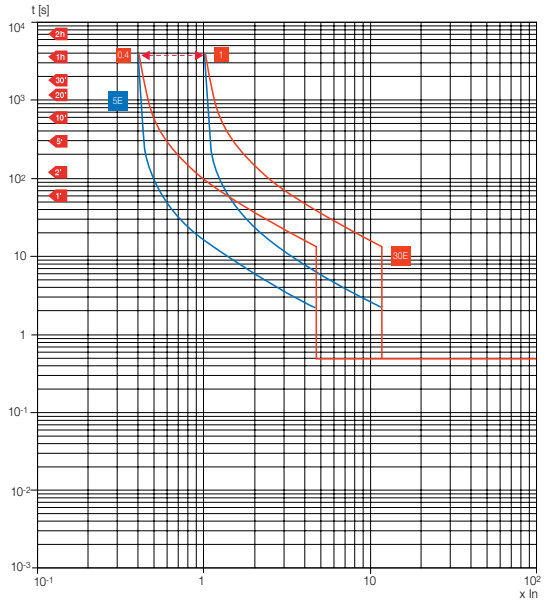
XT5 Ekip M Touch LRIU
I function



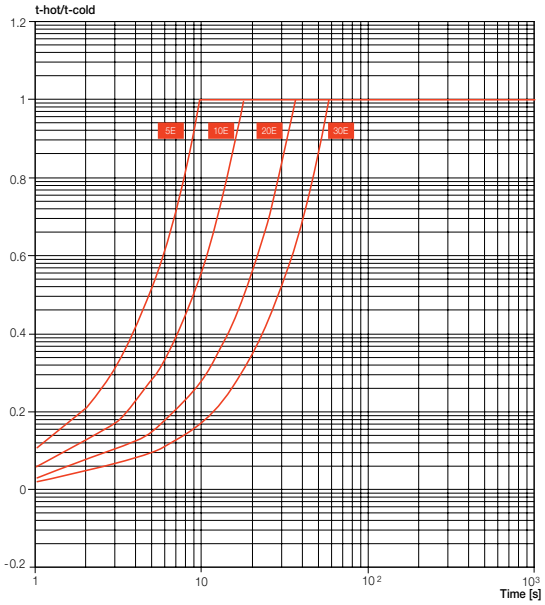
XT5 Ekip M Touch LRIU
U function



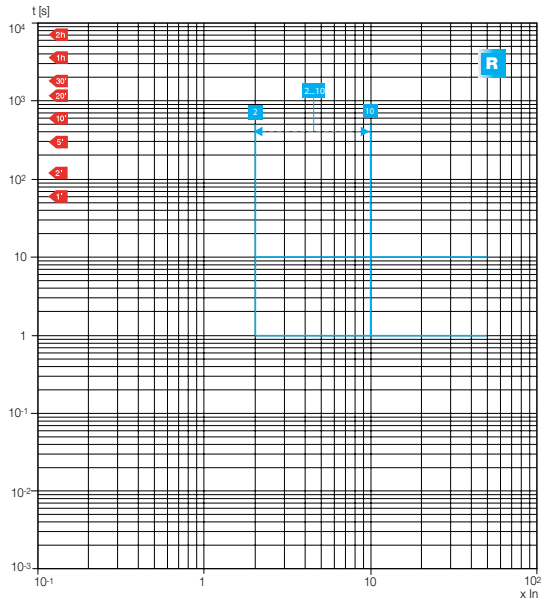
XT7 – XT7 M Ekip M Touch LRIU
L function (cold trip)



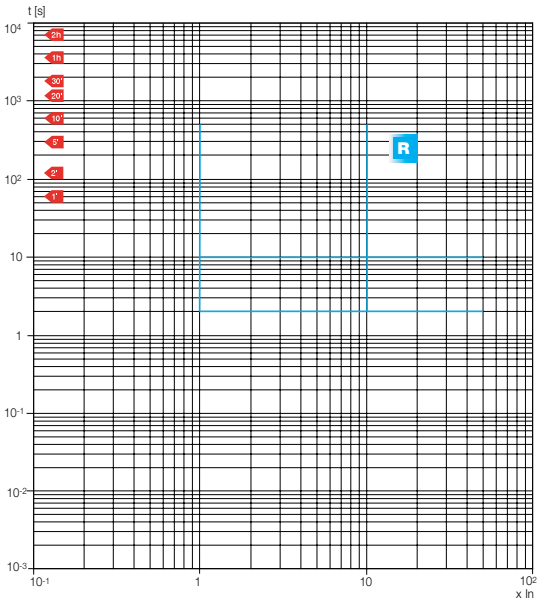
XT7-XT7M Ekip M Touch LRIU
(hot trip)



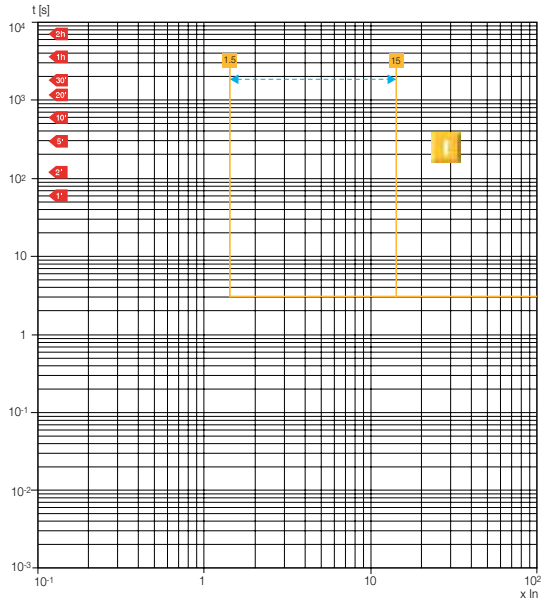
XT7 – XT7 M Ekip M Touch LRIU
R function - JAM



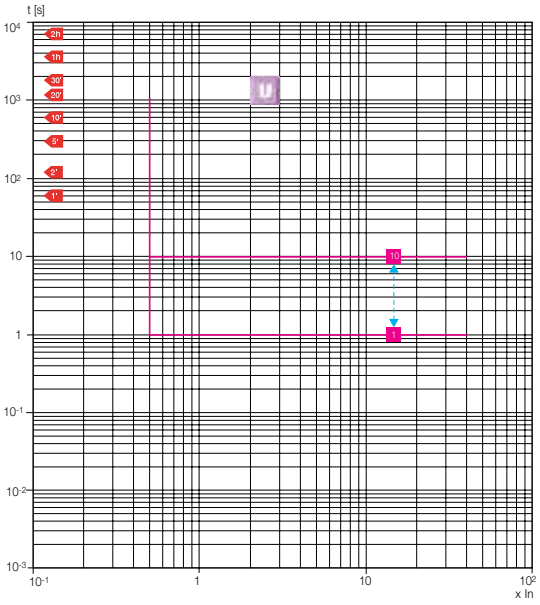
XT7-XT7 M Ekip M Touch LRIU
R function - STALL



XT7 – XT7 M Ekip M Touch LRIU
I function



XT7 – XT7 M Ekip M Touch LRIU
U function

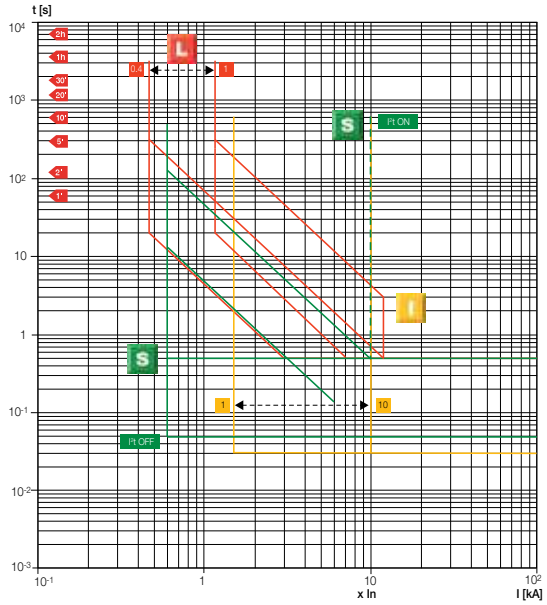


Characteristic curves

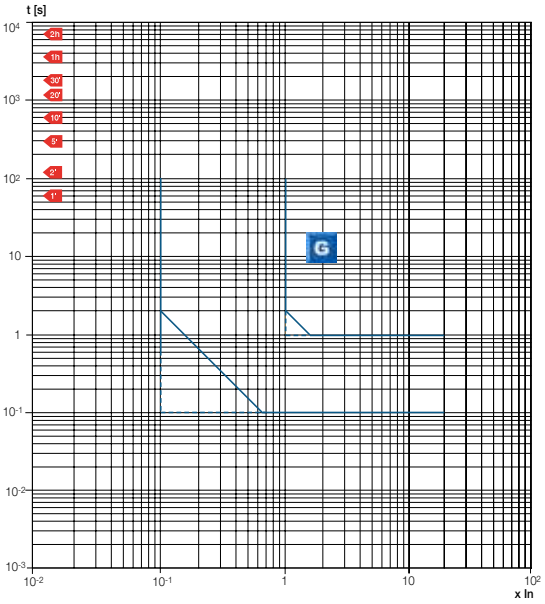
Trip curves with electronic trip unit Ekip Touch and Hi-Touch

Trip curves for generator protection

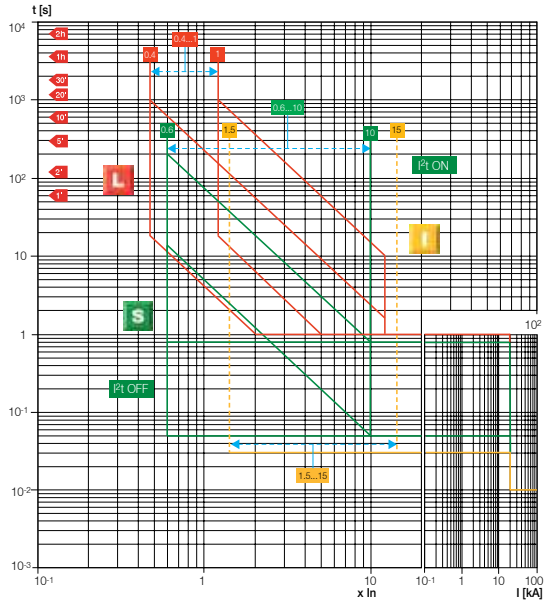
XT5 Ekip G Touch LSIG • Ekip G Hi-Touch LSIG
L-S-I functions



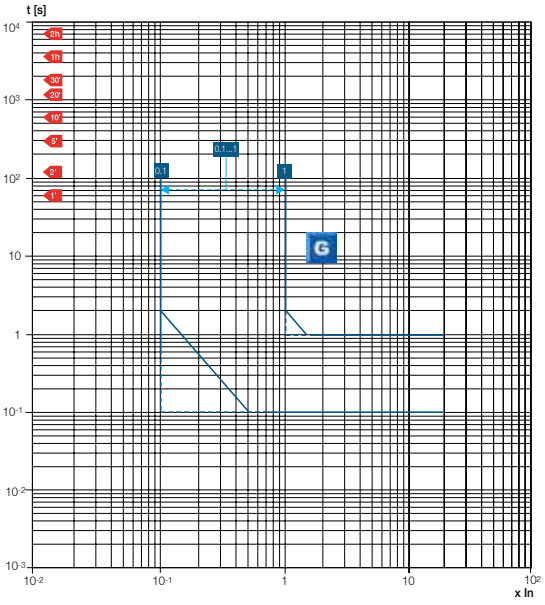
XT5 Ekip G Touch LSIG • Ekip G Hi-Touch LSIG
G function



XT7 – XT7 M Ekip G Touch LSIG • Ekip G Hi-Touch LSIG
L-S-I functions



XT7 – XT7 M Ekip G Touch LSIG • Ekip G Hi-Touch LSIG
G function

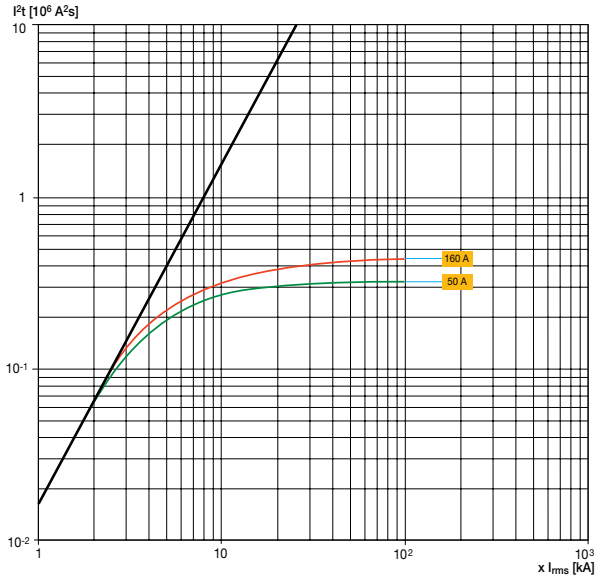


Characteristic curves

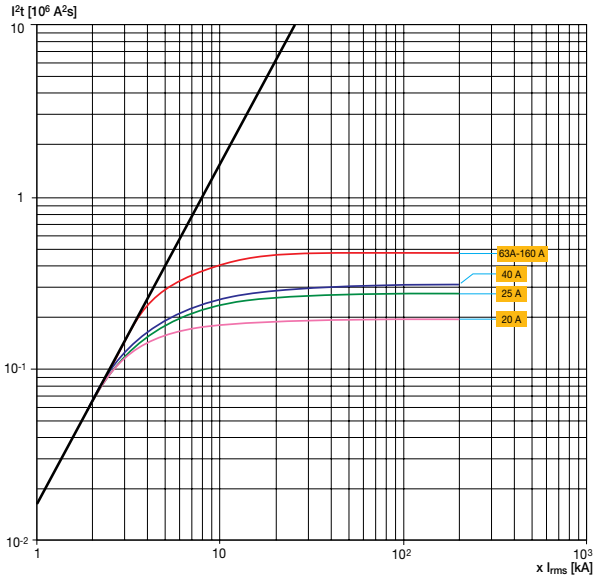
Specific let-through energy curves

240V

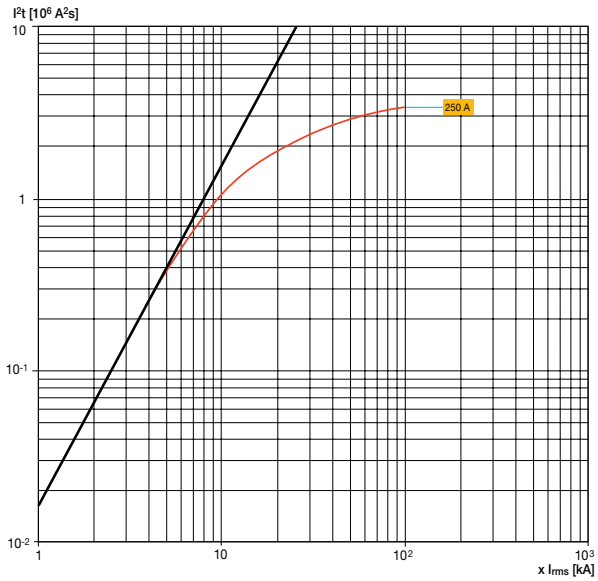
XT1
240V



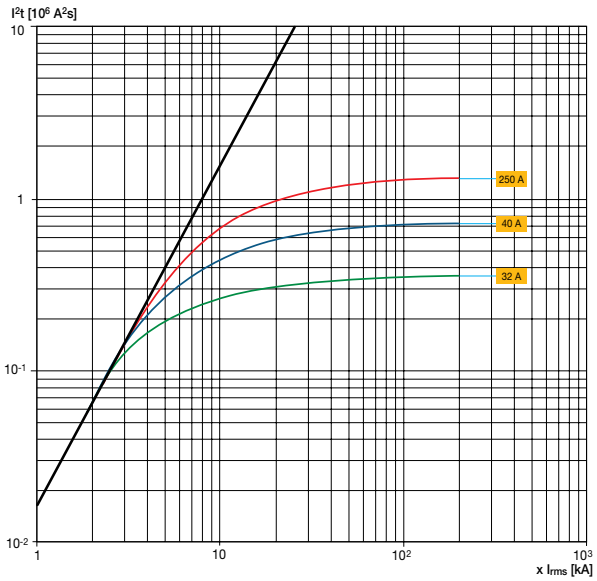
XT2
240V



XT3
240V



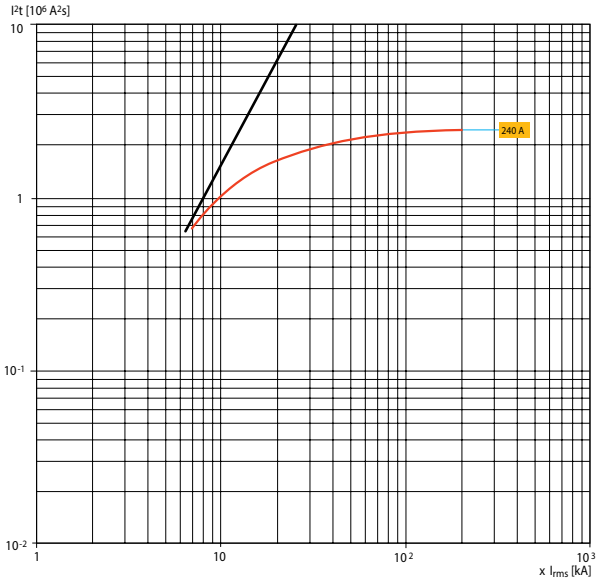
XT4
240V



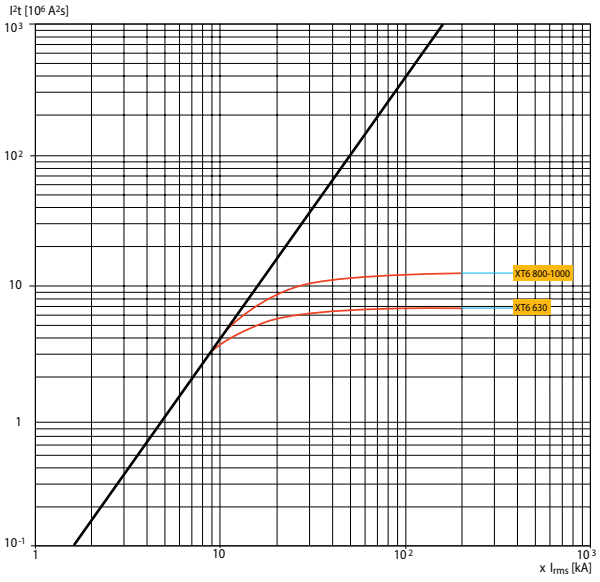
Characteristic curves

Specific let-through energy curves

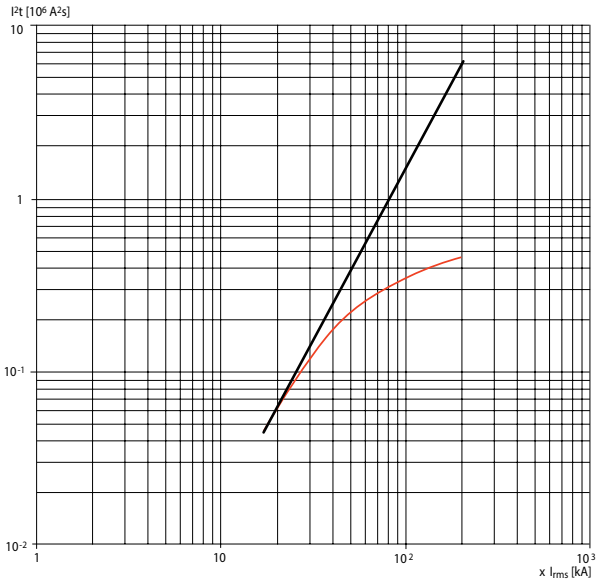
XT5
240V



XT6
240V

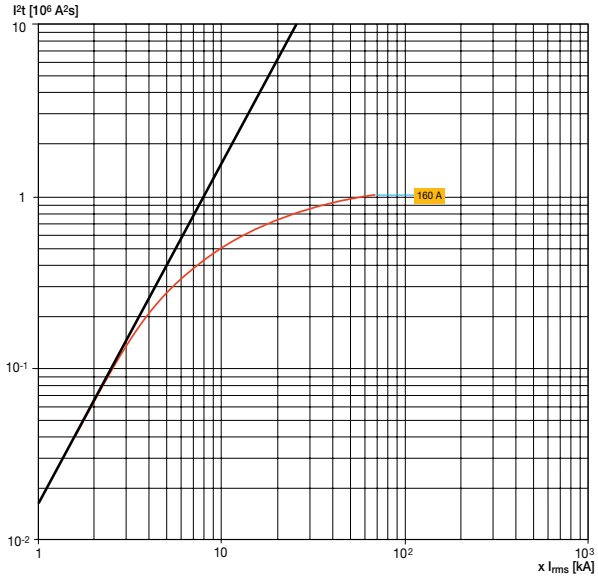


XT7 - XT7 M S-H-L
240V

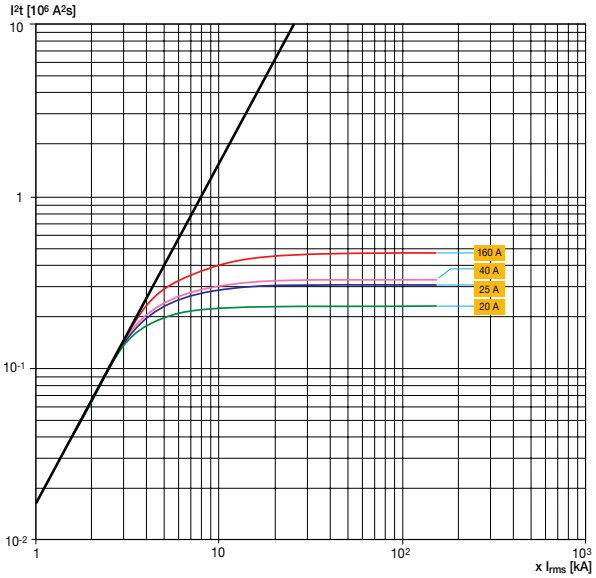


415V

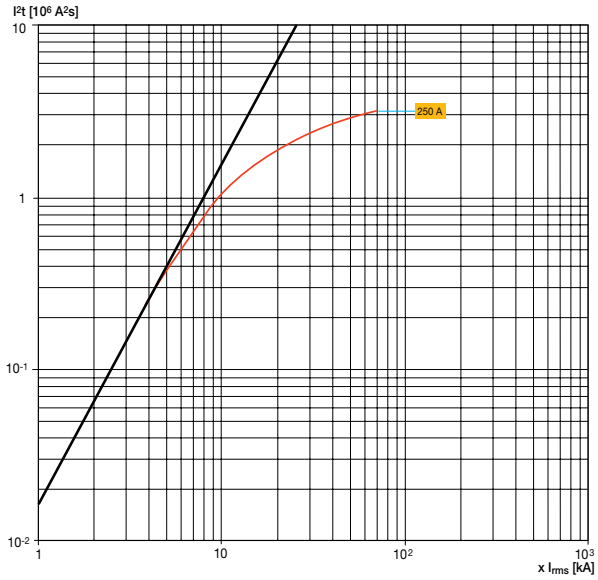
XT1
415V



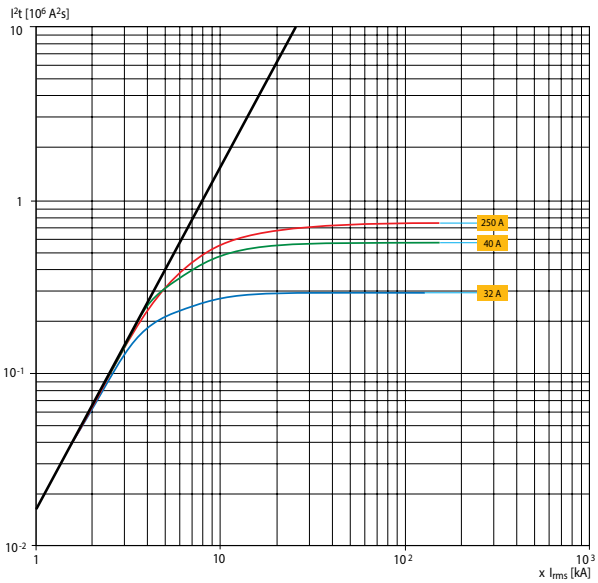
XT2
415V



XT3
415V

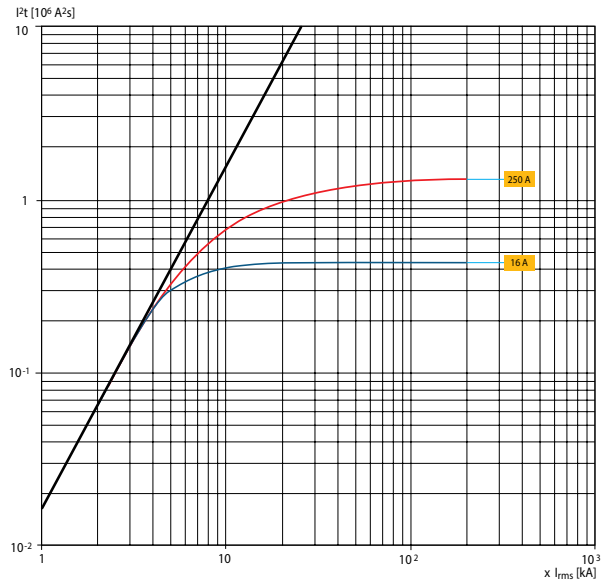


XT4 N-S-H-L
415V



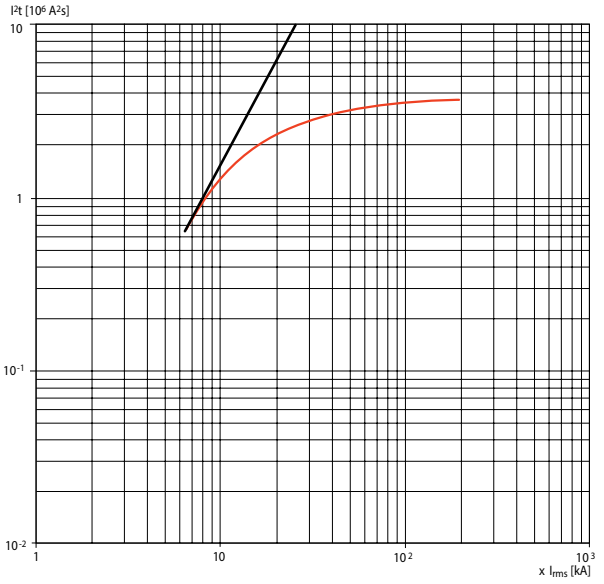
Characteristic curves
Specific let-through energy curves

XT4 V-X
415V

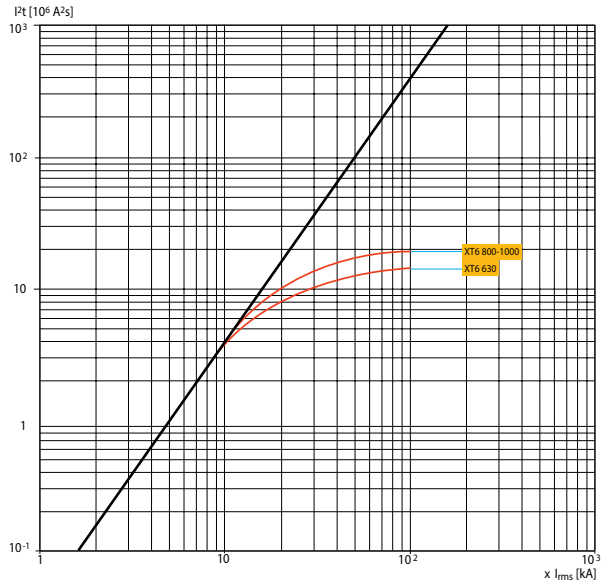


Note: XT4X starting from In=32A

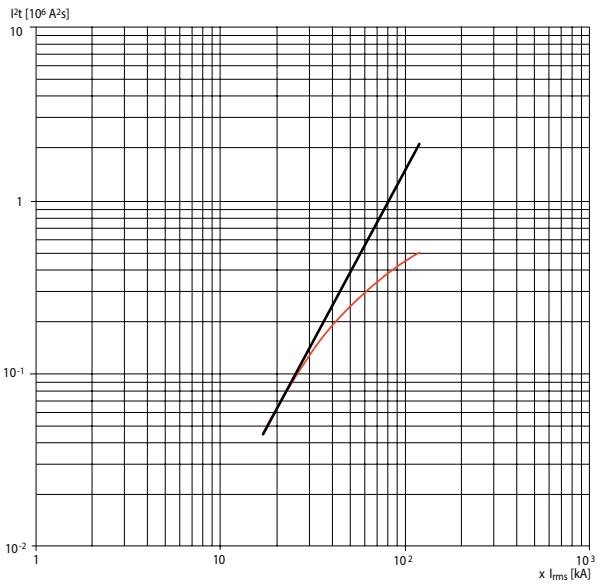
XT5
415V



XT6
415V

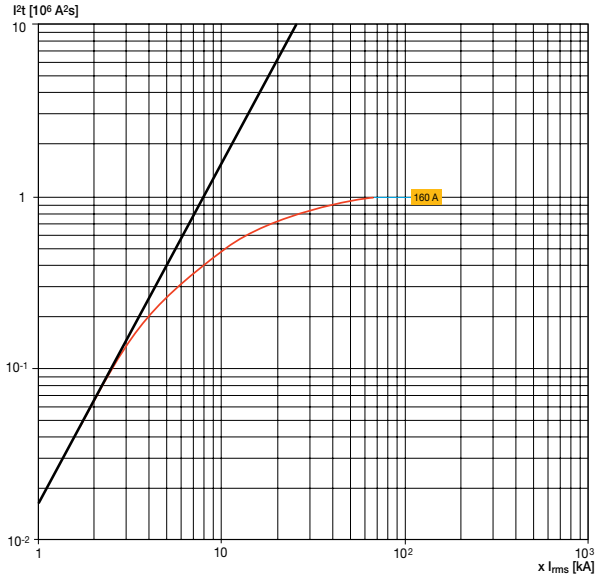


XT7 - XT7 M S-H-L
415V

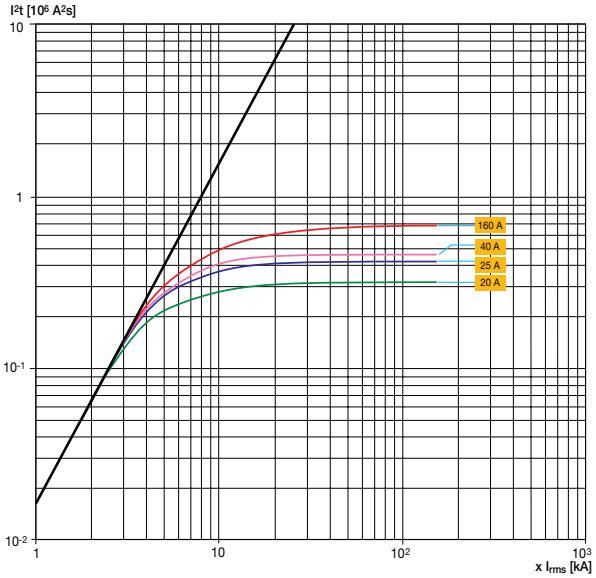


440V

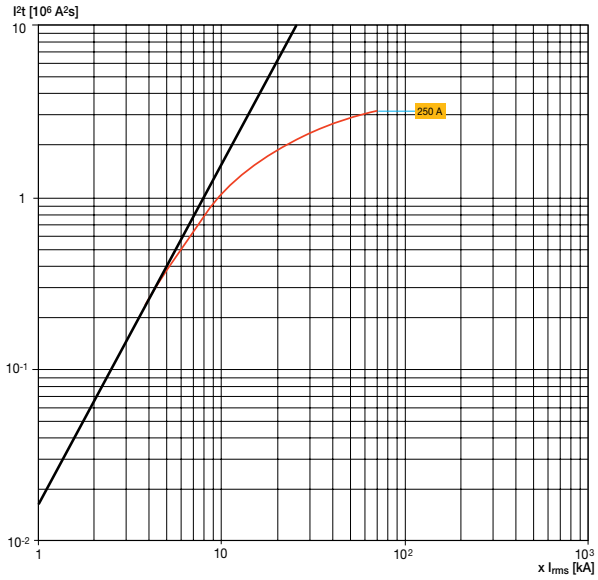
XT1
440V



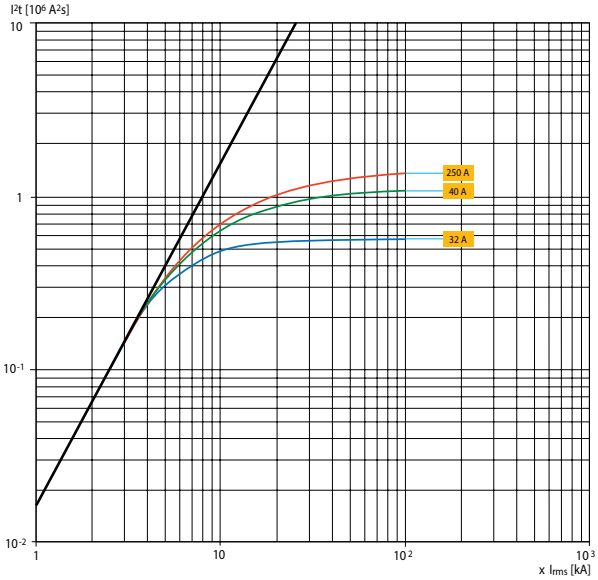
XT2
440V



XT3
440V

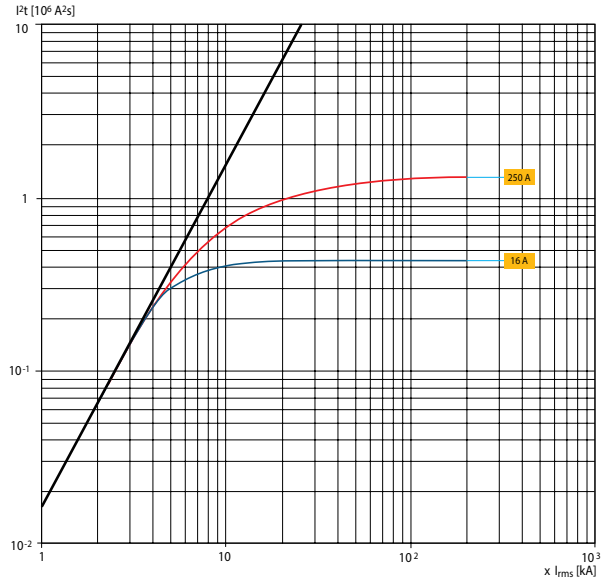


XT4 N-S-H-L
440V



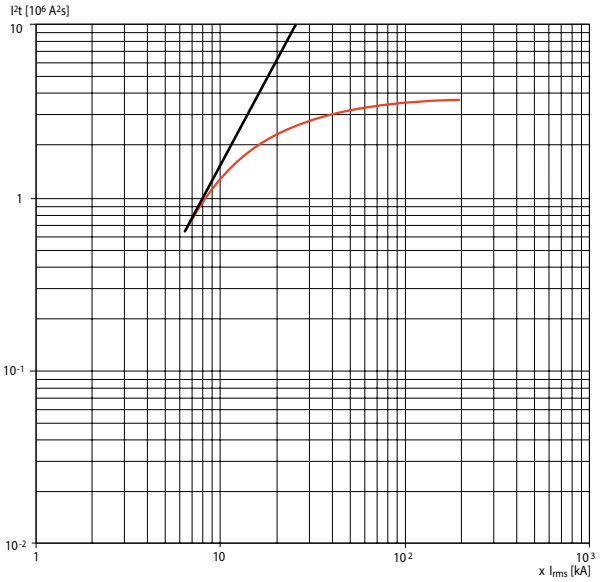
Characteristic curves
Specific let-through energy curves

XT4 V-X
440V

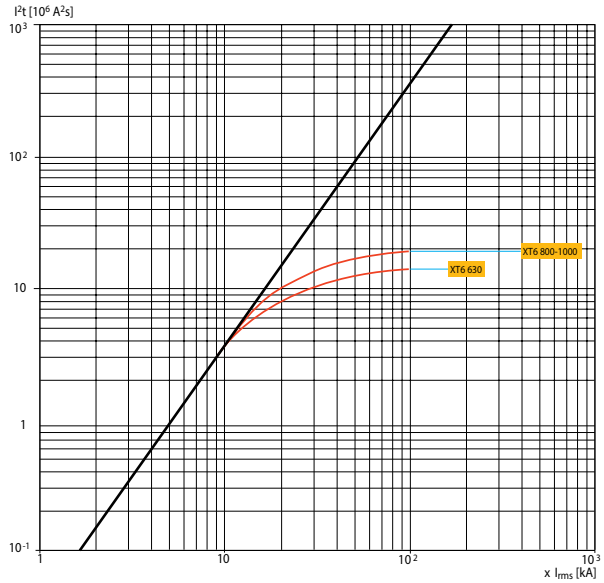


Note: XT4X starting from In=32A

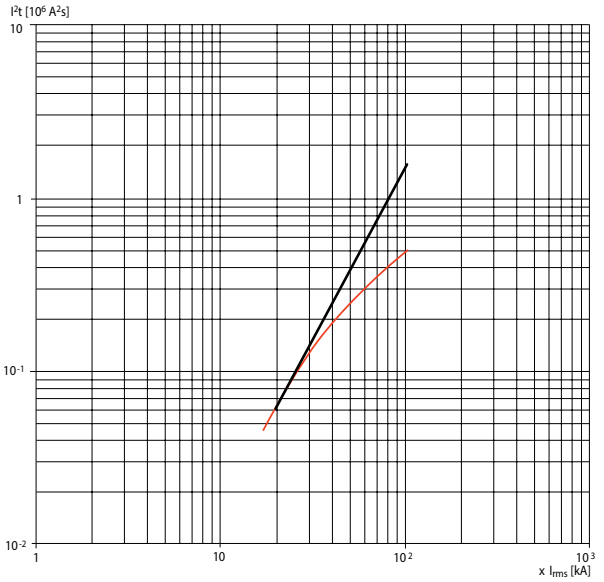
XT5
440V



XT6
440V

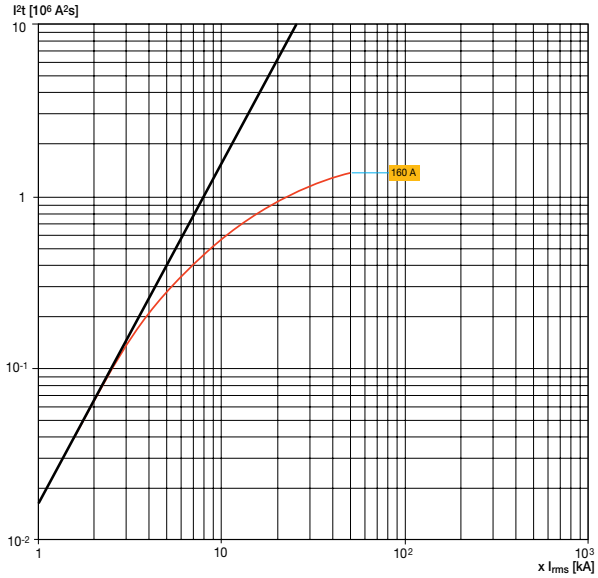


XT7 - XT7 M S-H-L
440V

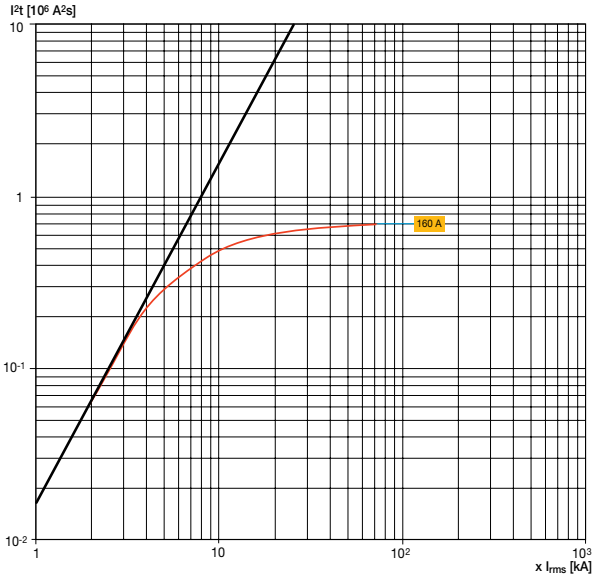


500V

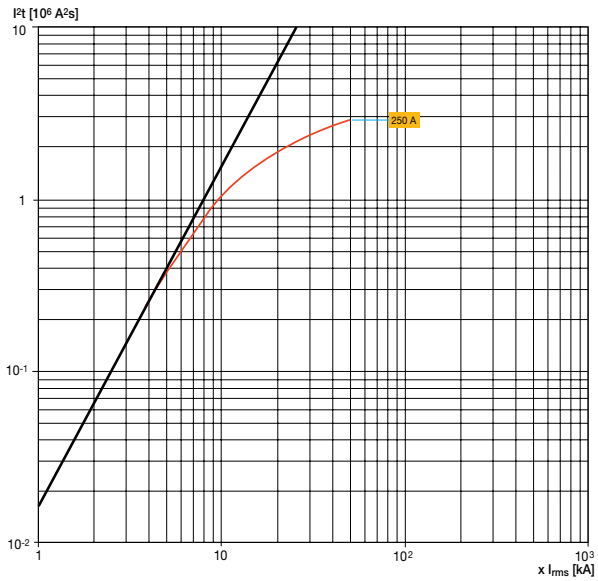
XT1
500V



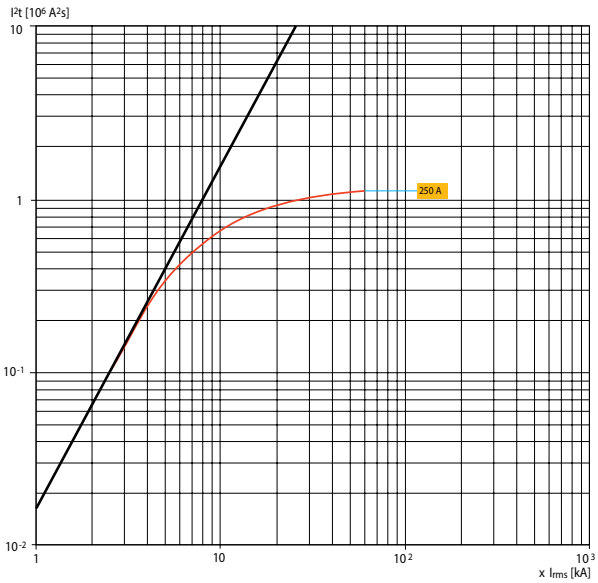
XT2
500V



XT3
500V



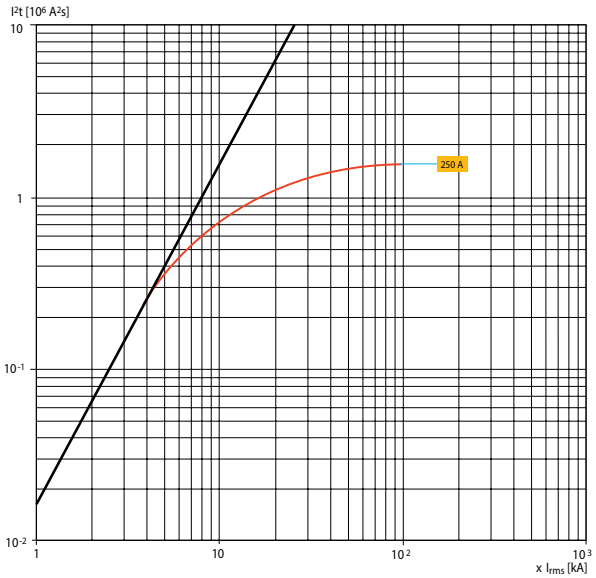
XT4 N-S-H-L
500V



Characteristic curves

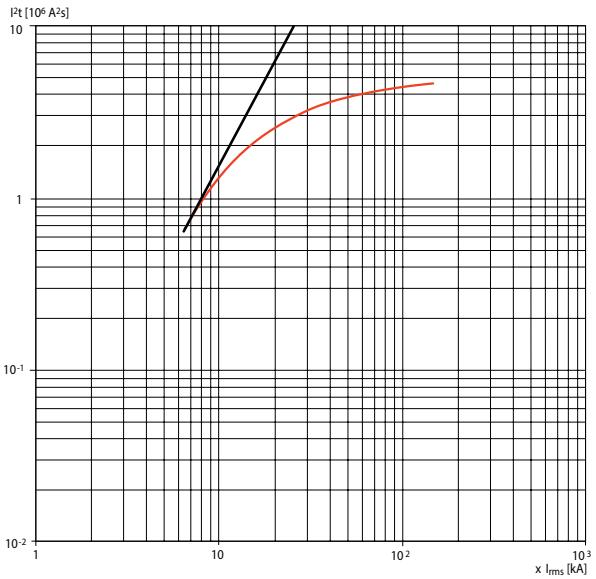
Specific let-through energy curves

XT4 V-X
500V

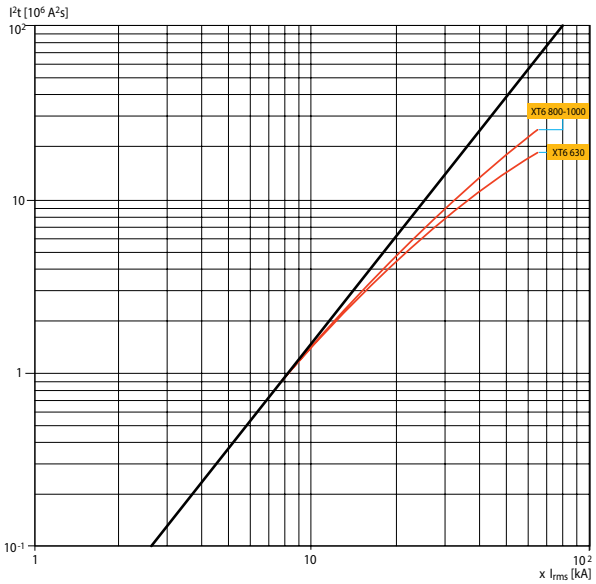


Note: XT4X starting from In=32A

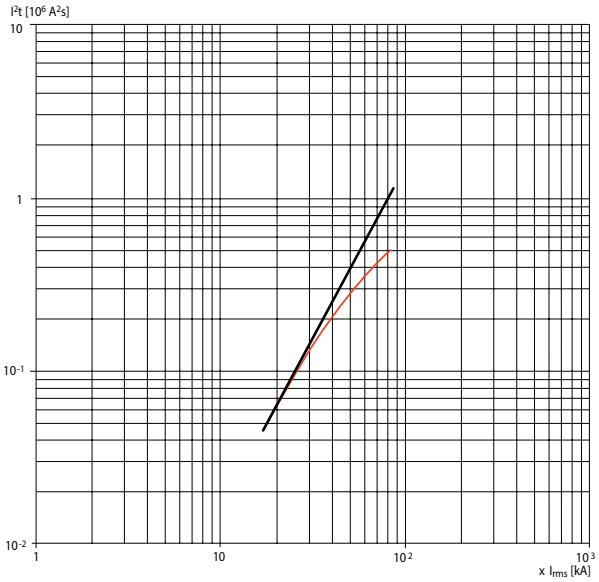
XT5
500V



XT6
500V

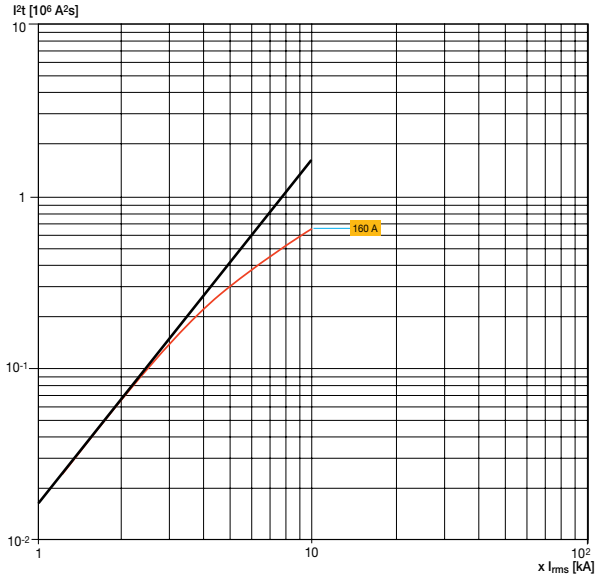


XT7 - XT7 M S-H-L
500V

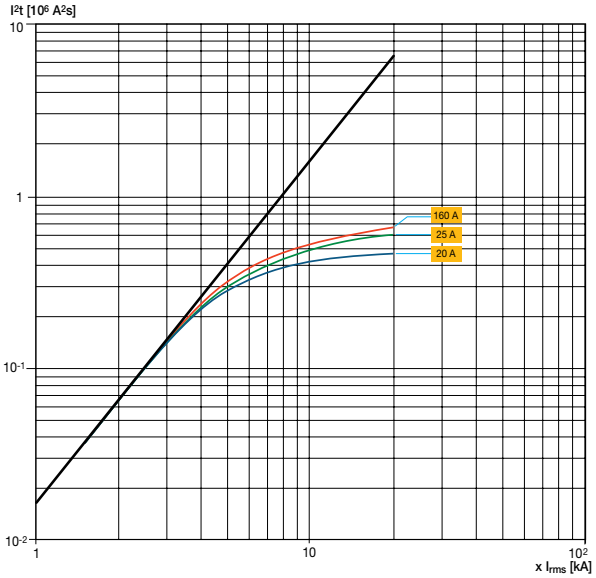


690V

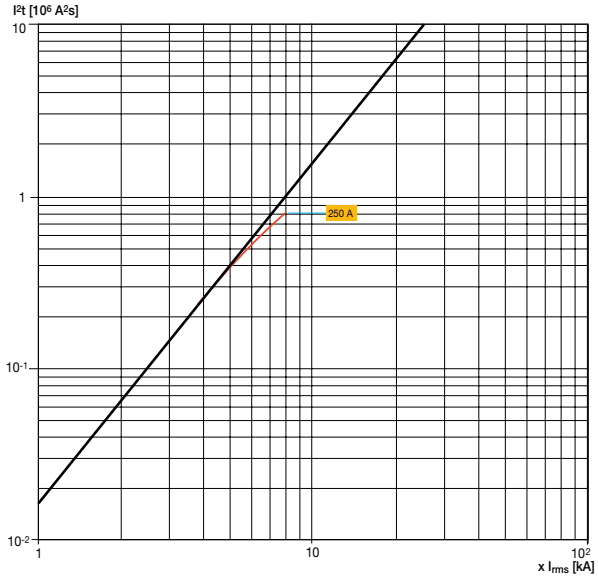
XT1
690V



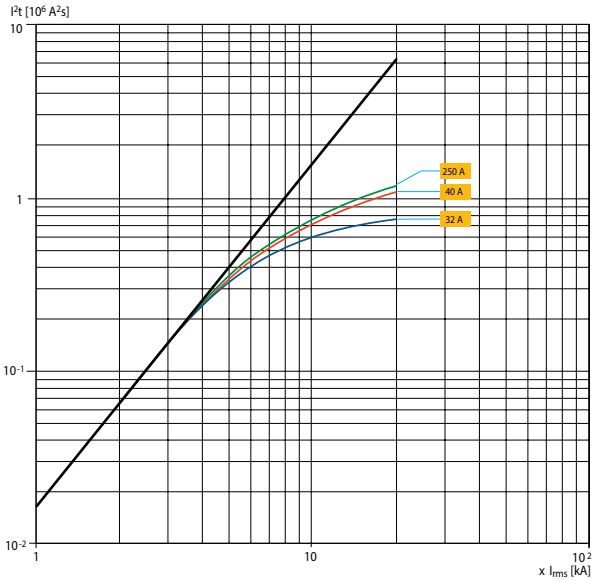
XT2
690V



XT3
690V



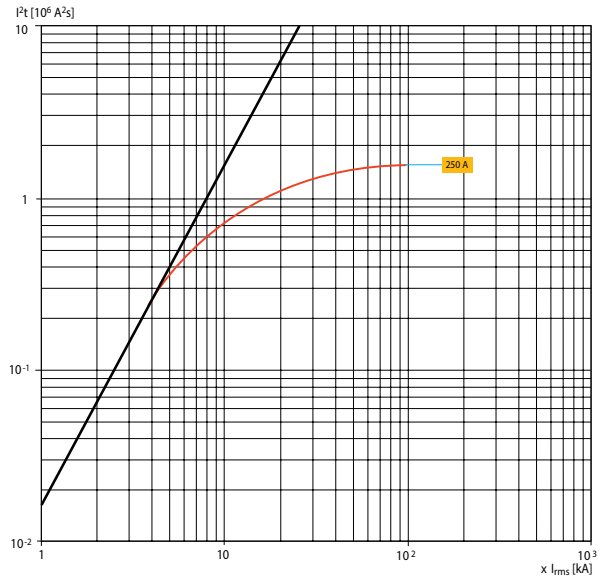
XT4 N-S-H-L
690V



Characteristic curves

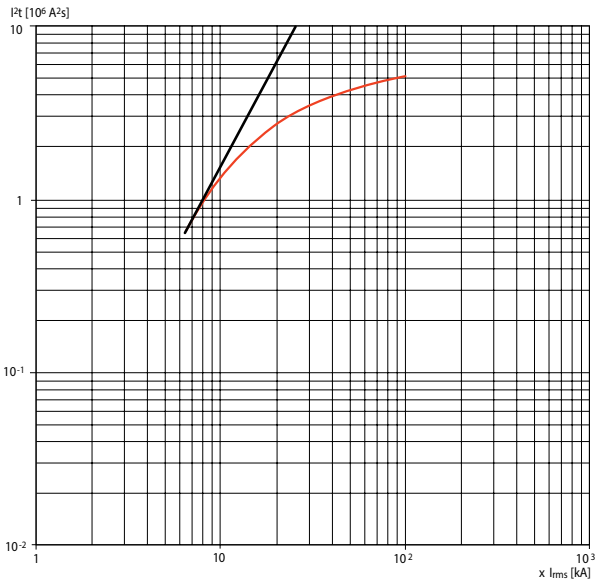
Specific let-through energy curves

XT4 V-X
690V

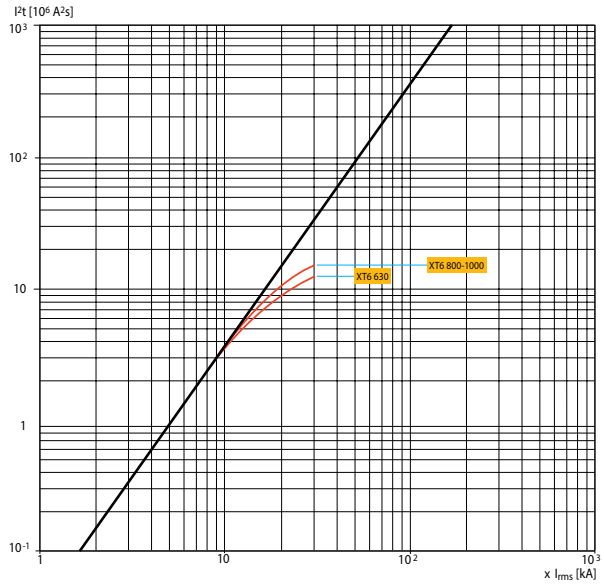


Note: XT4X starting from In=32A

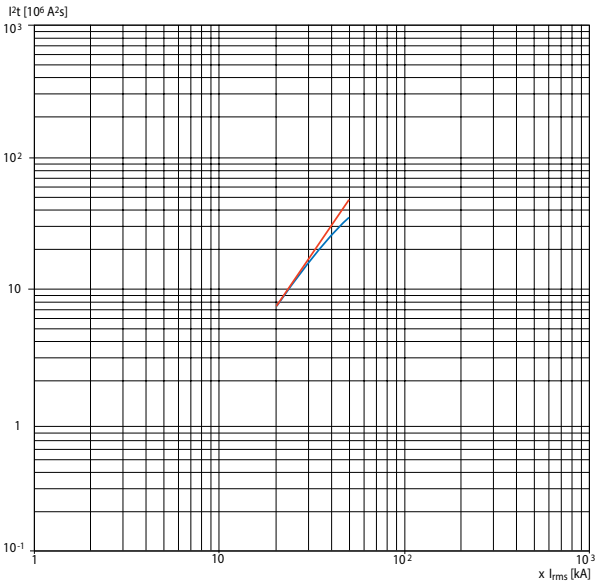
XT5
690V



XT6 800/1000
690V



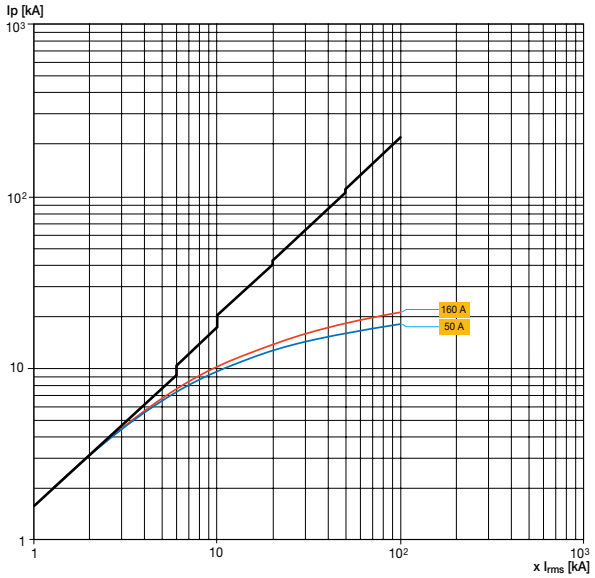
XT7 - XT7 M S-H-L
690V



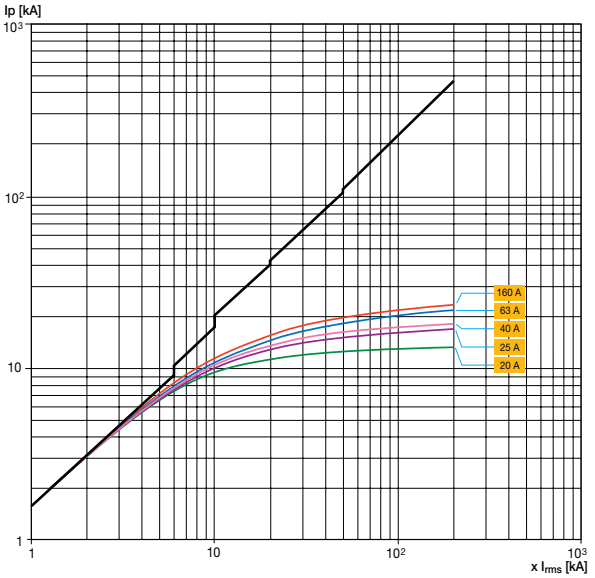
Characteristic curves
Limiting curves

240V

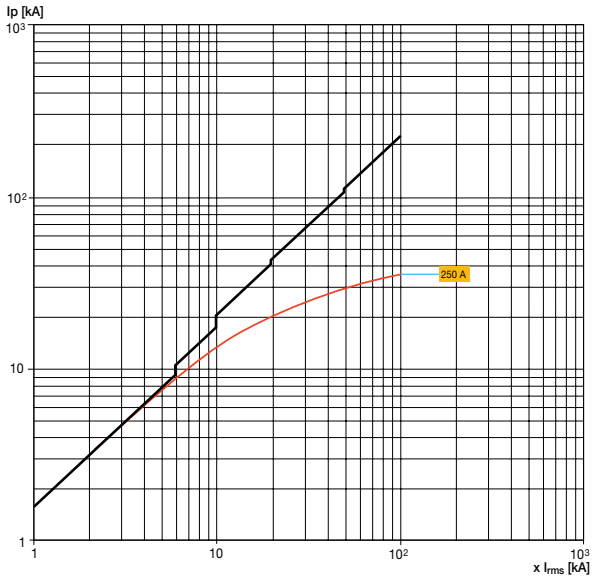
XT1
240V



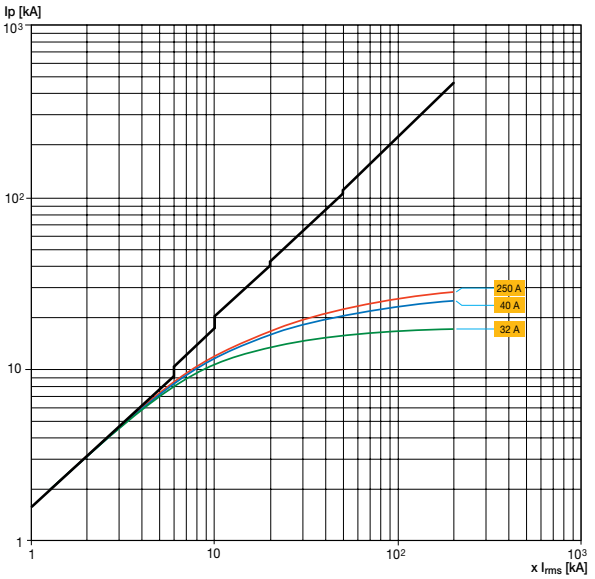
XT2
240V



XT3
240V

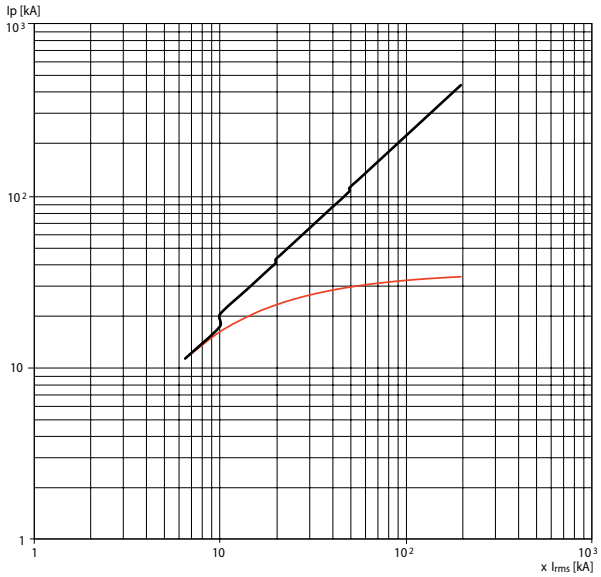


XT4
240V

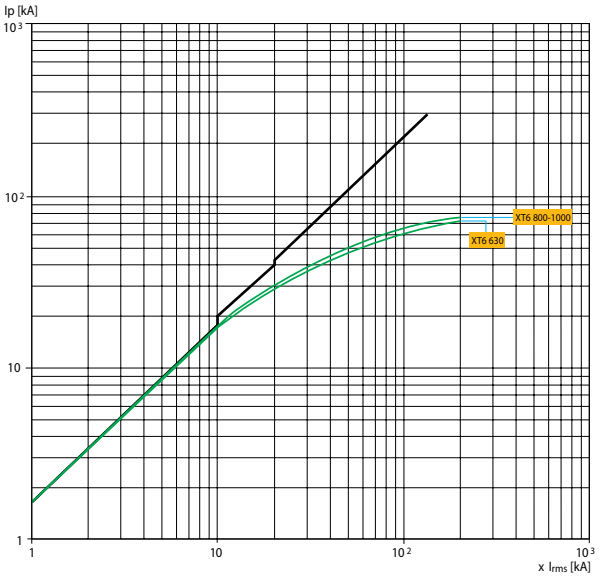


Characteristic curves
Limiting curves

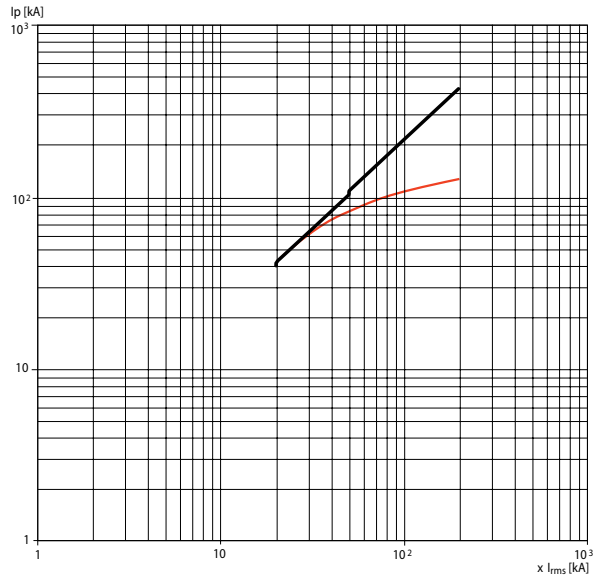
XT5
240V



XT6
240V

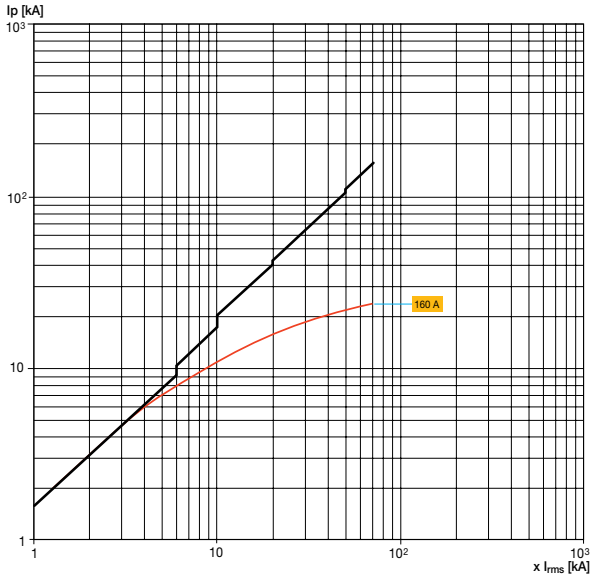


XT7 - XT7 M S-H-L
240V

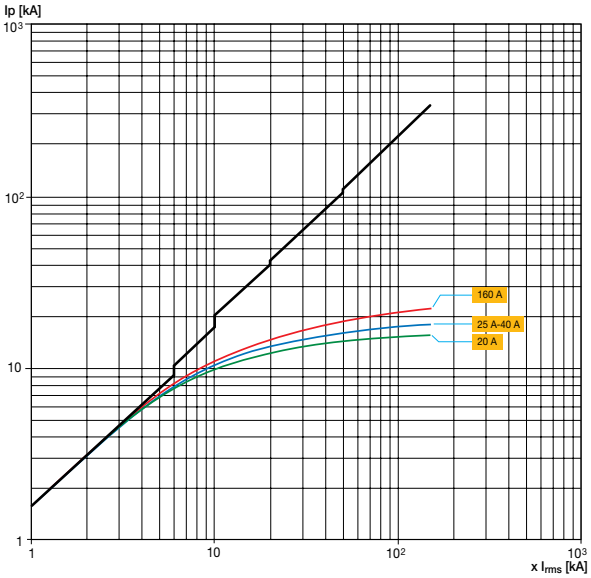


415V

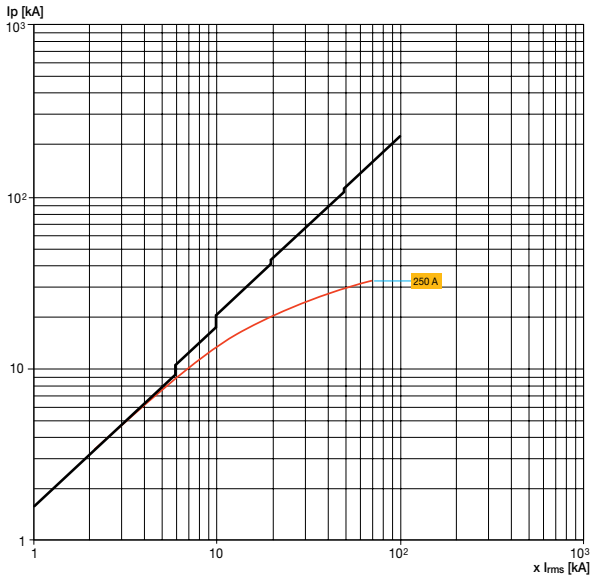
XT1
415V



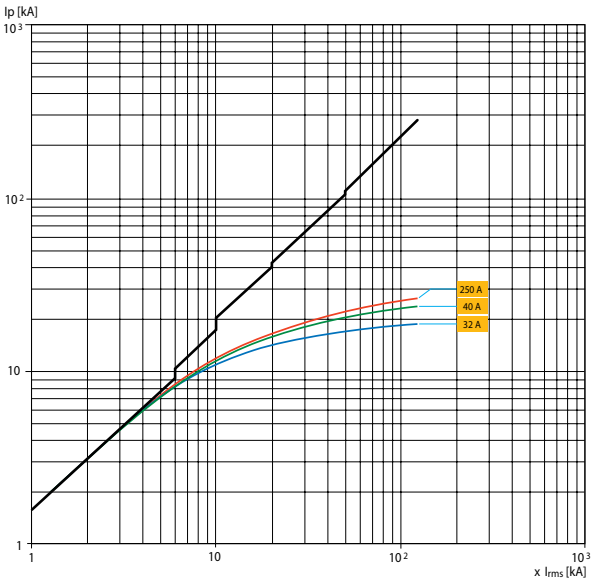
XT2
415V



XT3
415V

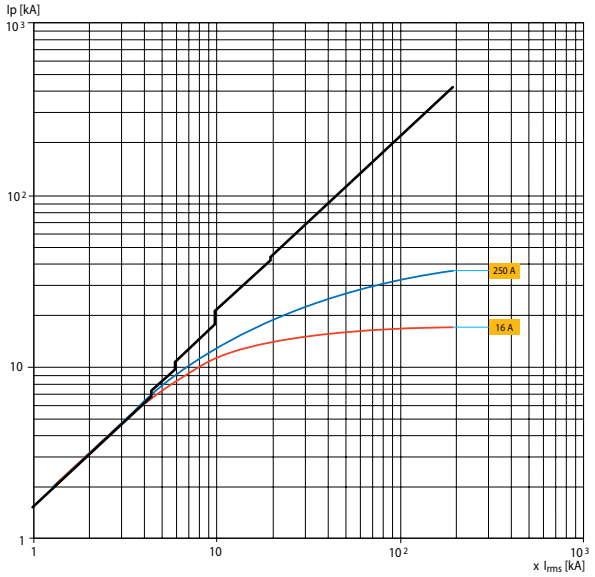


XT4 N-S-H-L
415V



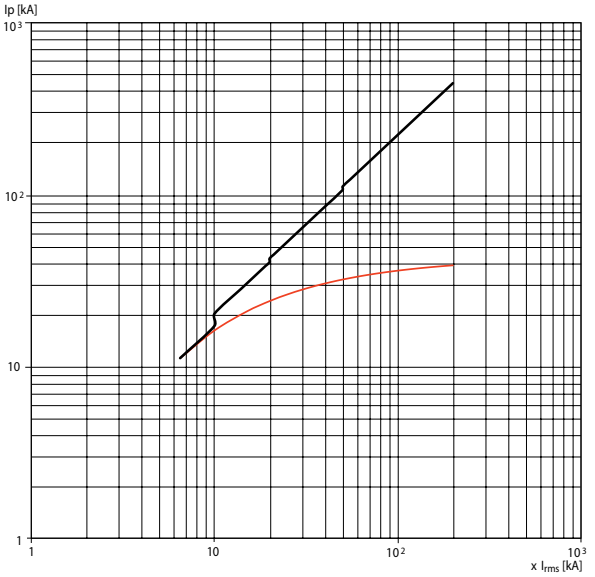
Characteristic curves
Limiting curves

XT4 V-X
415V

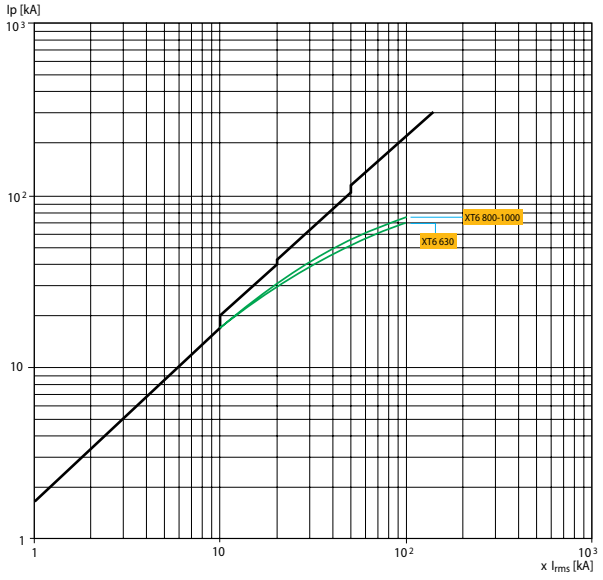


Note: XT4X starting from In=32A

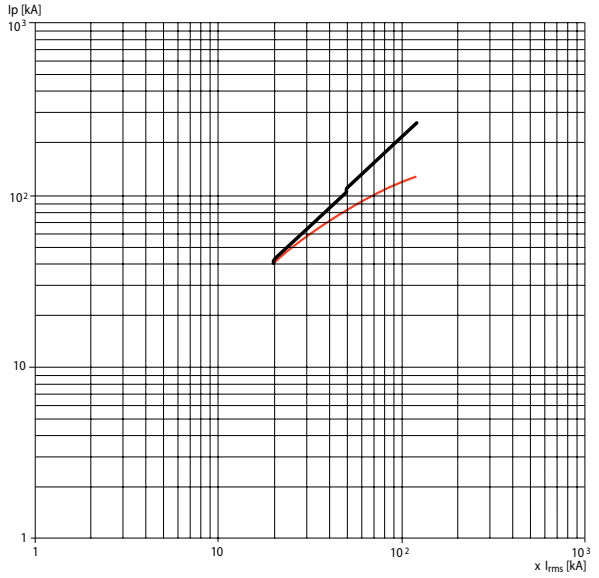
XT5
415V



XT6
415V

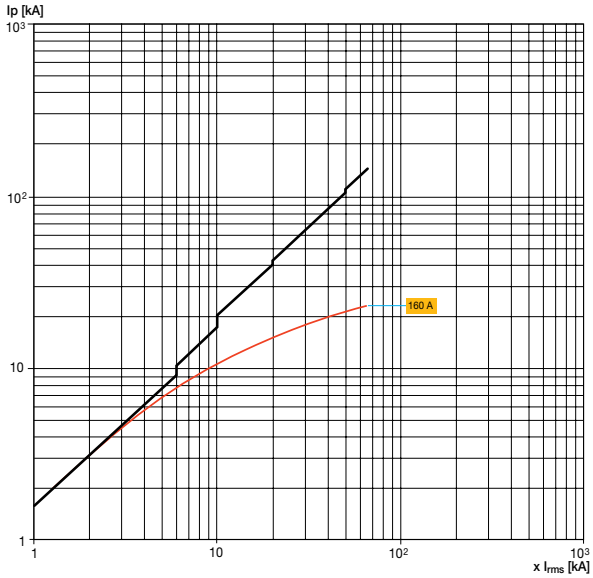


XT7 - XT7 M S-H-L
415V

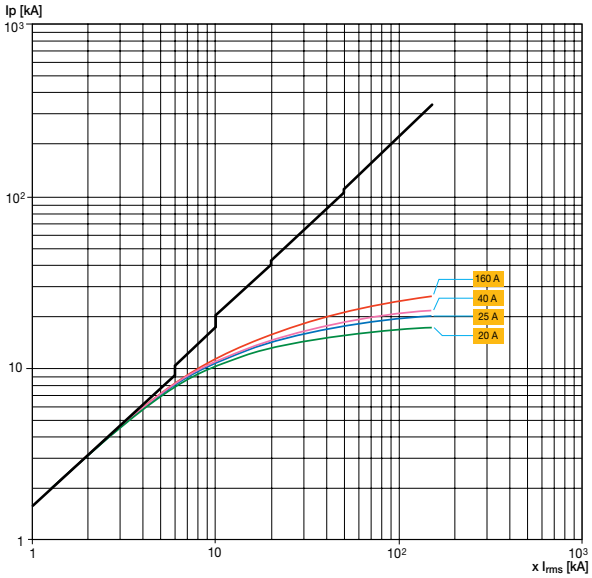


440V

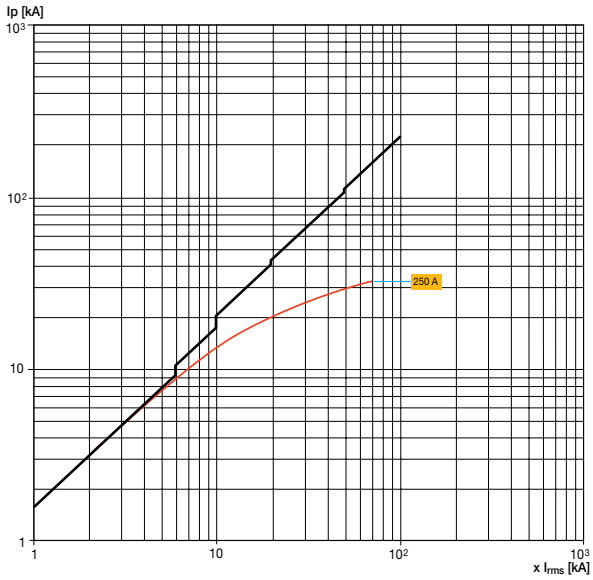
XT1
440V



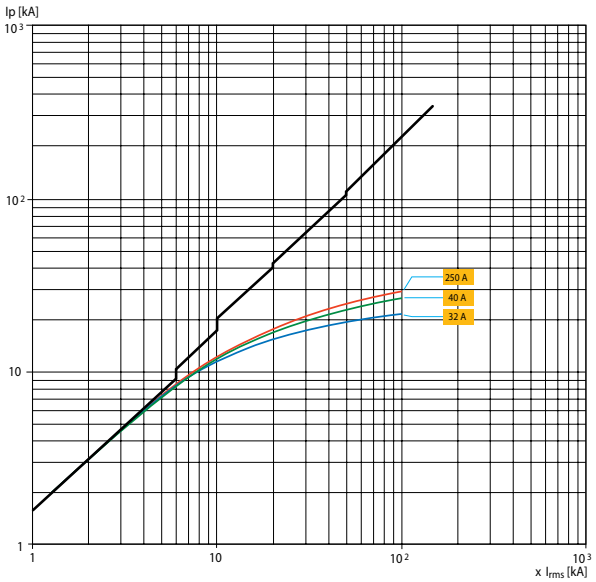
XT2
440V



XT3
440V

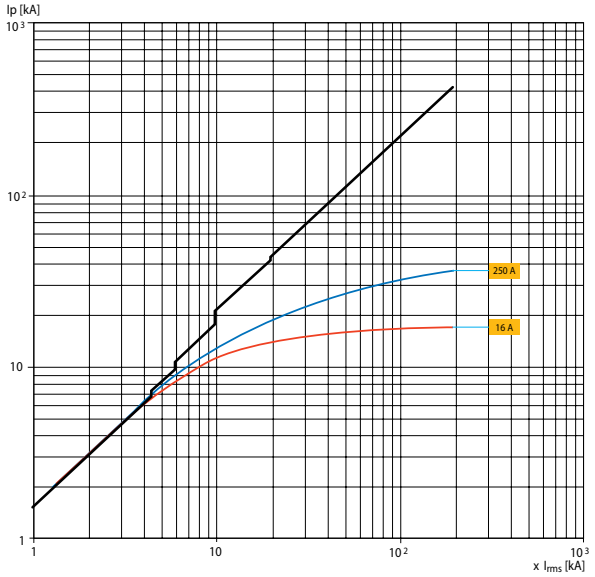


XT4 N-S-H-L
440V



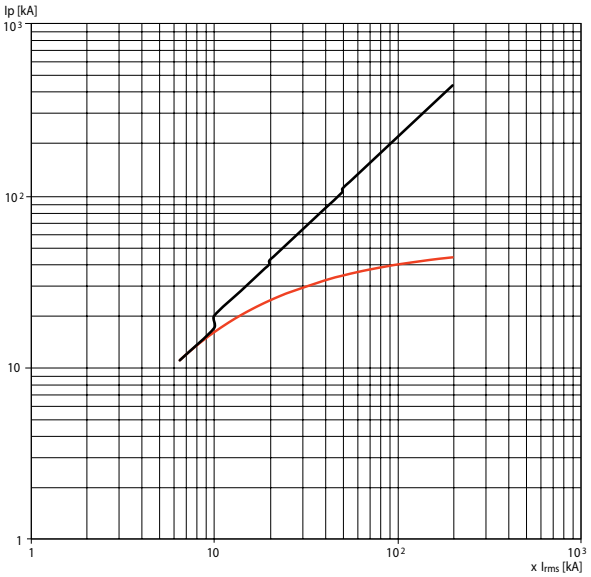
Characteristic curves
Limiting curves

XT4 V-X
440V

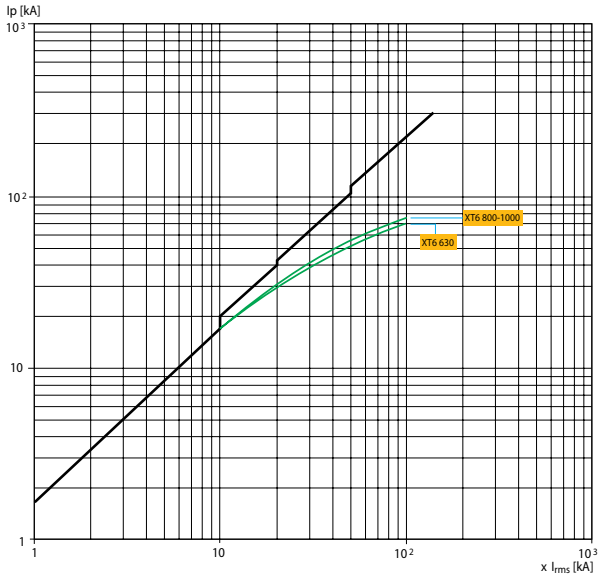


Note: XT4X starting from In=32A

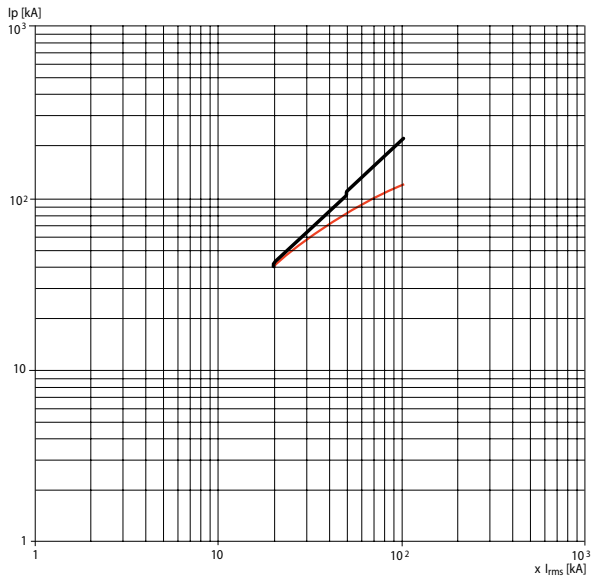
XT5
440V



XT6
440V

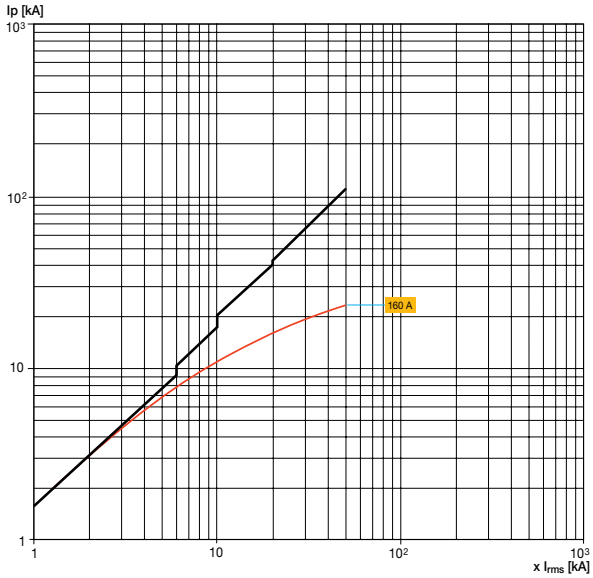


XT7 - XT7 M S-H-L
440V

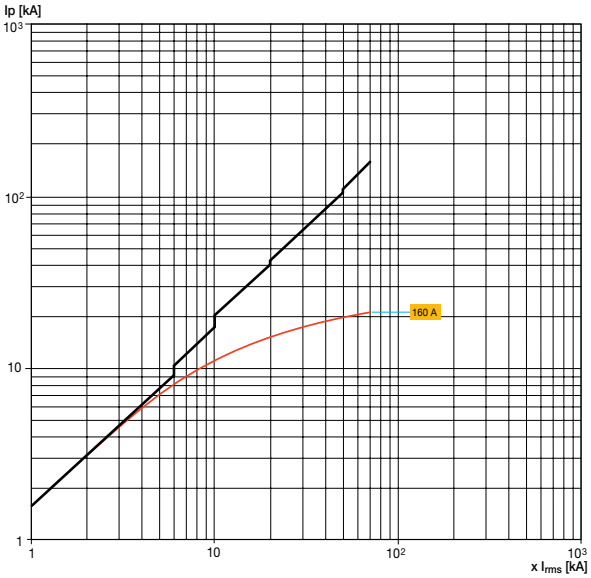


500V

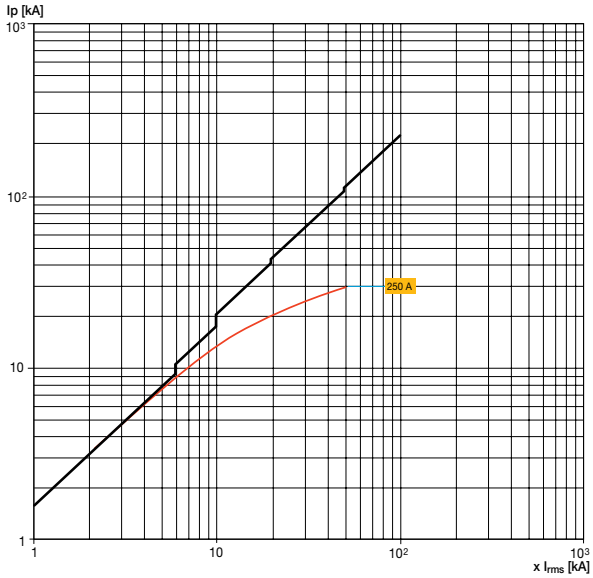
XT1
500V



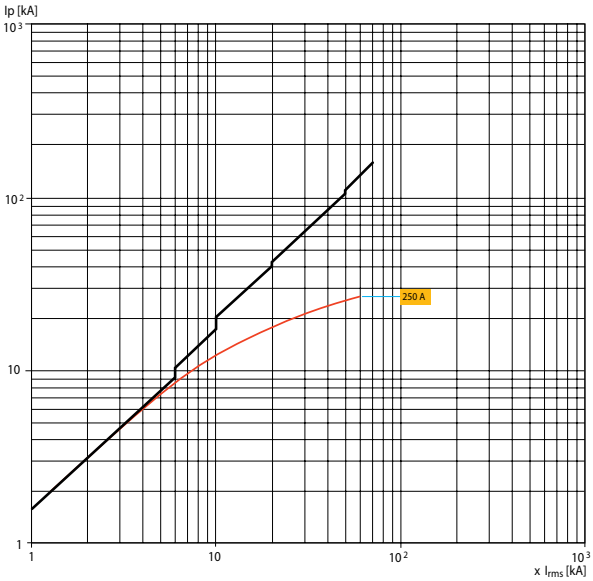
XT2
500V



XT3
500V

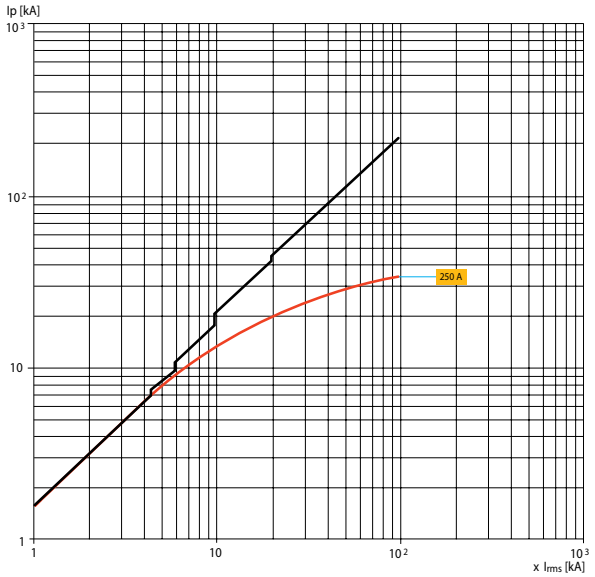


XT4 N-S-H-L
500V



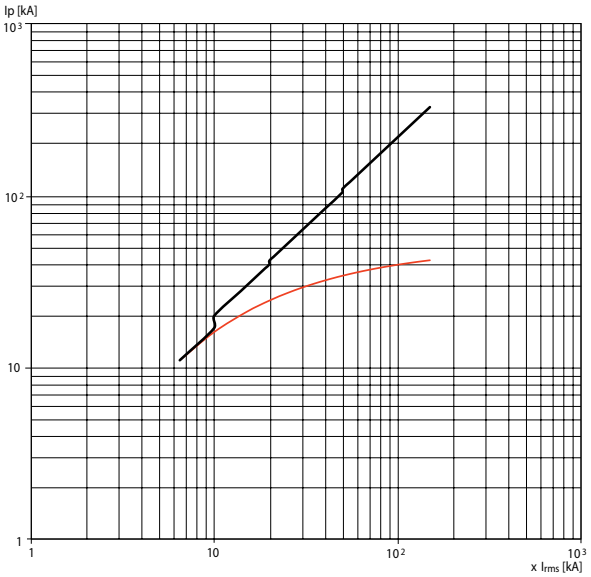
Characteristic curves
Limiting curves

XT4 V-X
500V

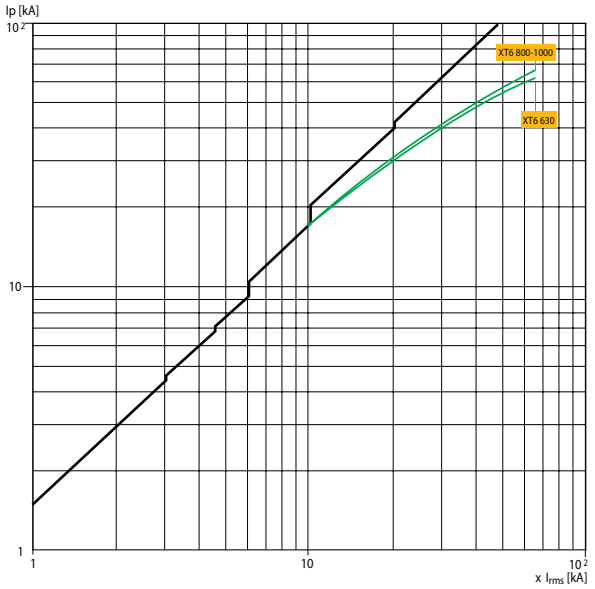


Note: XT4X starting from In=32A

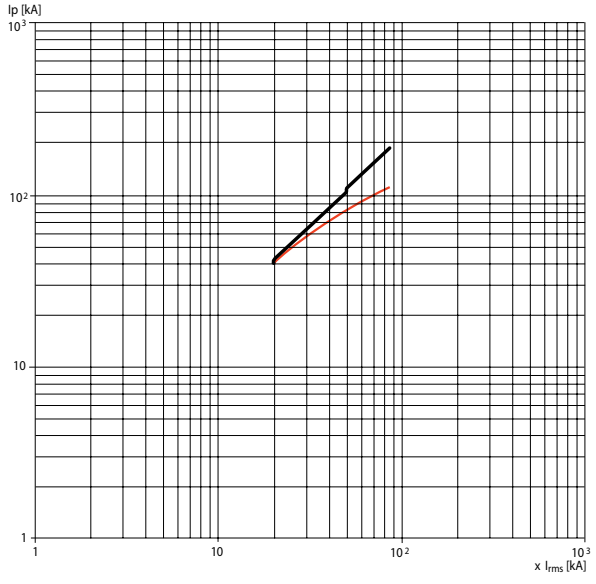
XT5
500V



XT6
500V

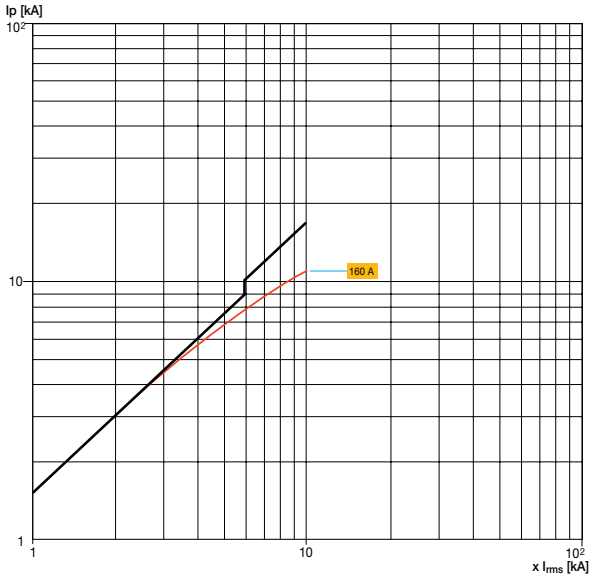


XT7 - XT7 M S-H-L
500V

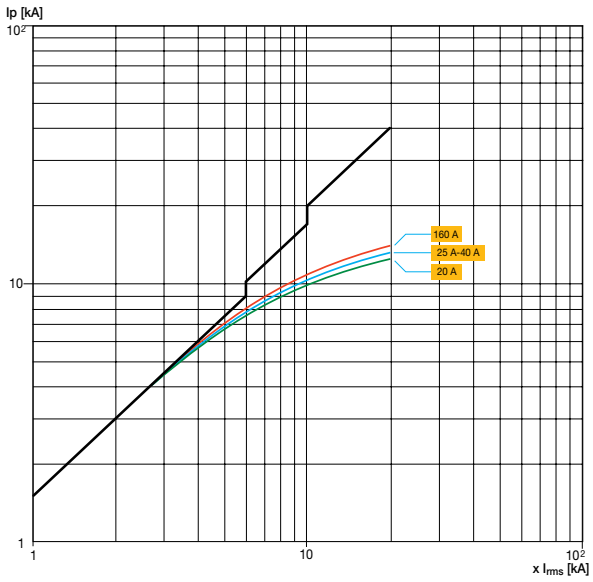


690V

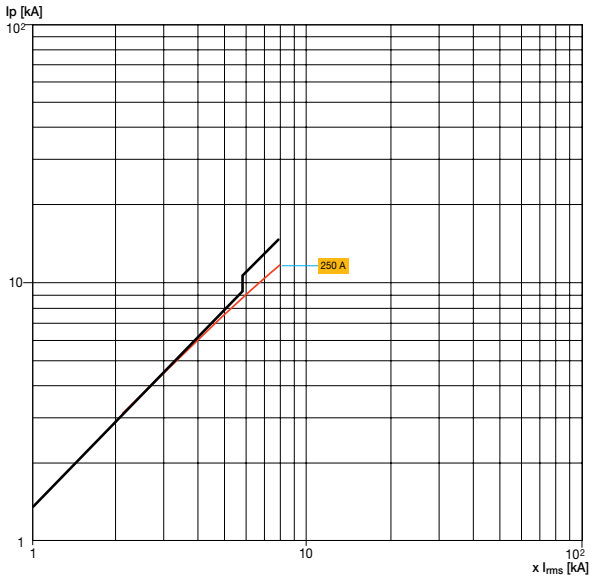
XT1
690V



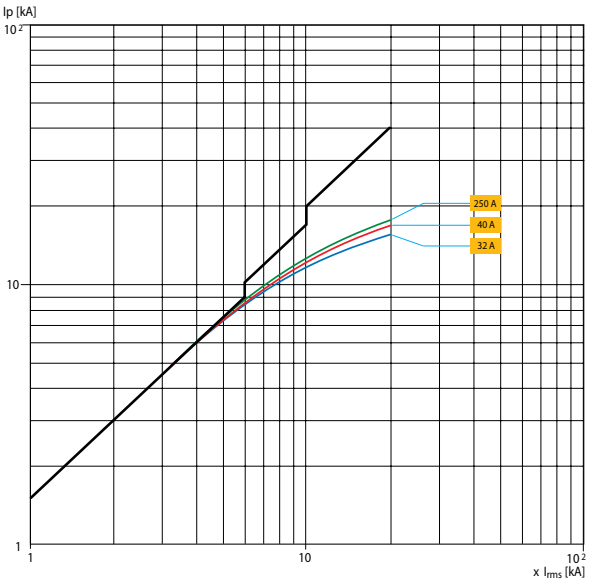
XT2
690V



XT3
690V

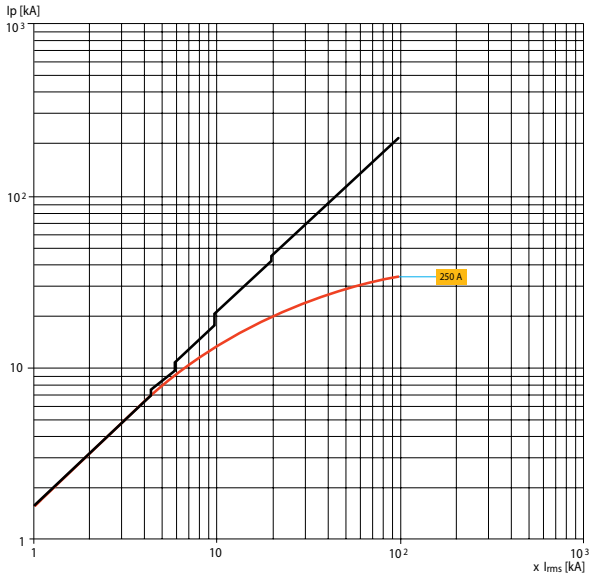


XT4 N-S-H-L
690V



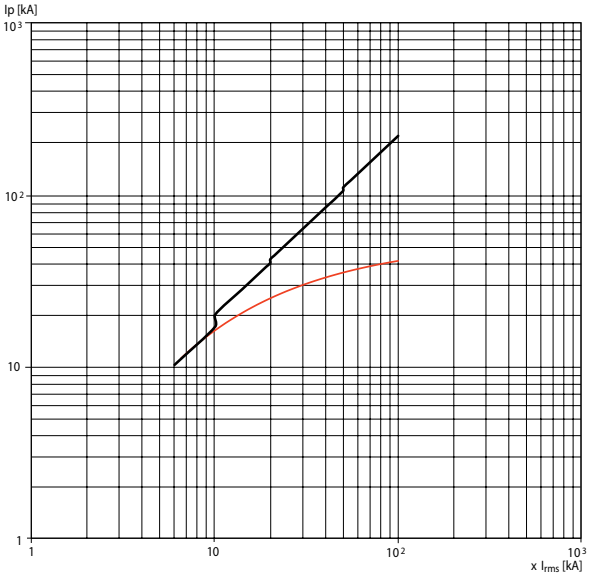
Characteristic curves
Limiting curves

XT4 V-X
690V

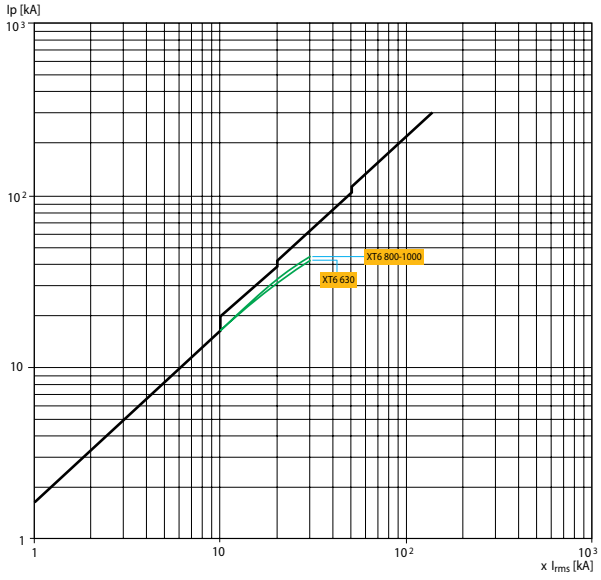


Note: XT4X starting from In=32A

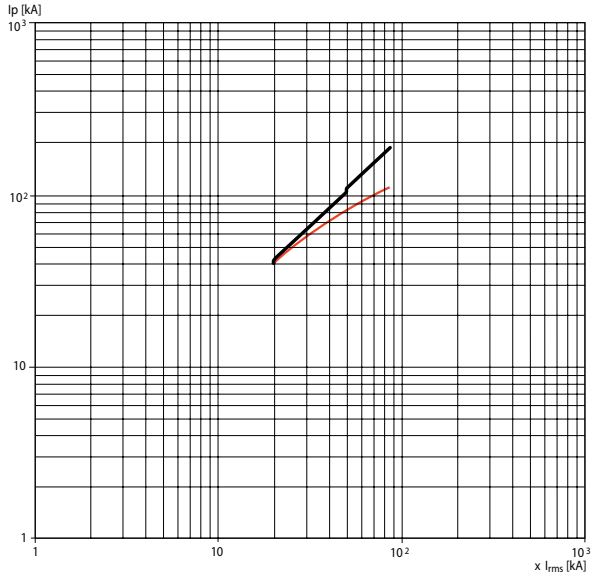
XT5
690V



XT6
690V



XT7 - XT7 M S-H-L
690V



Overall dimensions

Tmax XT1 – Installation

2/3 Installation for fixed circuit breaker
2/6 Terminals for fixed circuit-breaker
2/9 Accessories for fixed circuit-breaker
2/17 Installation for plug-in circuit breaker
2/20 Terminals for plug-in circuit-breaker
2/23 Accessories for plug-in circuit-breaker

Tmax XT2 – Installation

2/24 Installation for fixed circuit breaker
2/27 Terminals for fixed circuit-breaker
2/31 Accessories for fixed circuit-breaker
2/37 Installation for plug-in circuit breaker
2/41 Terminals for plug-in circuit-breaker
2/45 Accessories for plug-in circuit-breaker
2/49 Installation for withdrawable circuit breaker
2/53 Terminals for withdrawable circuit-breaker
2/58 Accessories for withdrawable circuit-breaker

Tmax XT3 – Installation

2/63 Installation for fixed circuit breaker
2/66 Terminals for fixed circuit-breaker
2/70 Accessories for fixed circuit-breaker
2/76 Installation for plug-in circuit breaker
2/79 Terminals for plug-in circuit-breaker
2/83 Accessories for plug-in circuit-breaker

Tmax XT4 – Installation

2/84 Installation for fixed circuit breaker
2/87 Terminals for fixed circuit-breaker
2/92 Accessories for fixed circuit-breaker
2/98 Installation for plug-in circuit breaker
2/102 Terminals for plug-in circuit-breaker
2/106 Accessories for plug-in circuit-breaker
2/110 Installation for withdrawable circuit breaker
2/114 Terminals for withdrawable circuit-breaker
2/119 Accessories for withdrawable circuit-breaker

Tmax XT5

2/124 Installation for fixed circuit-breaker
2/126 Terminals for fixed circuit-breaker
2/132 Accessories for fixed circuit-breaker
2/139 Installation for plug-in circuit-breaker 400A
2/141 Terminals for plug-in circuit-breaker 400A
2/144 Accessories for plug-in circuit-breaker 400A
2/149 Installation for plug-in circuit-breaker 630A
2/151 Terminals for plug-in circuit-breaker 630A
2/154 Accessories for plug-in circuit-breaker 630A

2/159 Installation for withdrawable circuit-breaker 400A
2/161 Terminals for withdrawable circuit-breaker 400A
2/164 Accessories for withdrawable circuit-breaker 400A
2/169 Installation for withdrawable circuit-breaker 630A
2/171 Terminals for withdrawable circuit-breaker 630A
2/174 Accessories for withdrawable circuit-breaker 630A

Tmax XT6 – Installation
2/179 Installation for fixed circuit-breaker
2/181 Terminals for fixed circuit-breaker
2/187 Accessories for fixed circuit-breaker
2/191 Installation for withdrawable circuit-breaker
2/193 Terminals for withdrawable circuit-breaker
2/194 Accessories for withdrawable circuit-breaker

Tmax XT7 – Installation
2/198 Installation for fixed circuit-breaker
2/199 Terminals for fixed circuit-breaker
2/202 Accessories for fixed circuit-breaker
2/204 Installation for withdrawable circuit-breaker
2/205 Terminals for withdrawable circuit-breaker
2/208 Accessories for withdrawable circuit-breaker

Tmax XT7 M – Installation
2/210 Installation for fixed circuit-breaker
2/211 Terminals for fixed circuit-breaker
2/214 Installation for withdrawable circuit-breaker
2/215 Terminals for withdrawable circuit-breaker

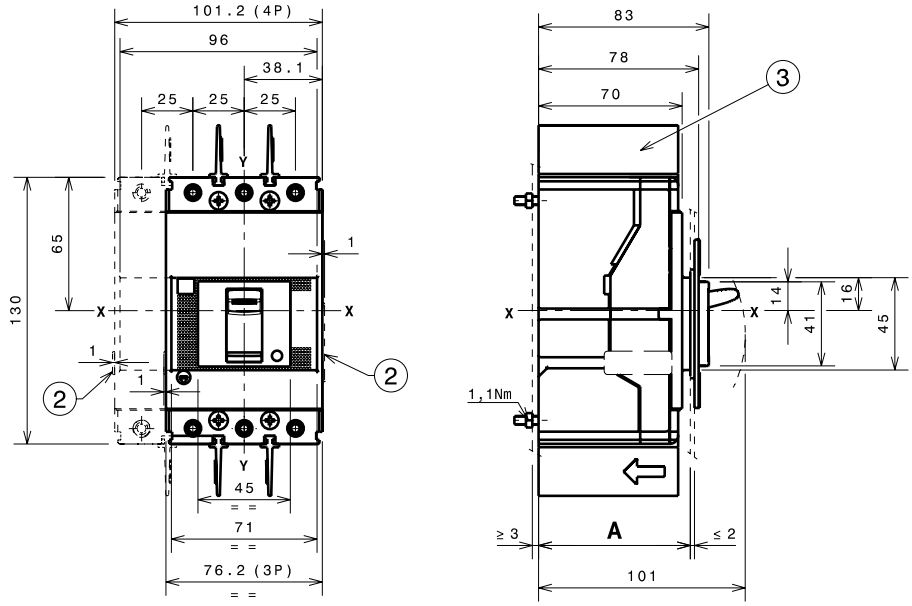
Tmax XT – Common accessories
2/216 Horizontal interlock XT series
2/217 Vertical interlock XT series

Tmax XT1 – Installation

Installation for fixed circuit-breaker

Fixing on support sheet

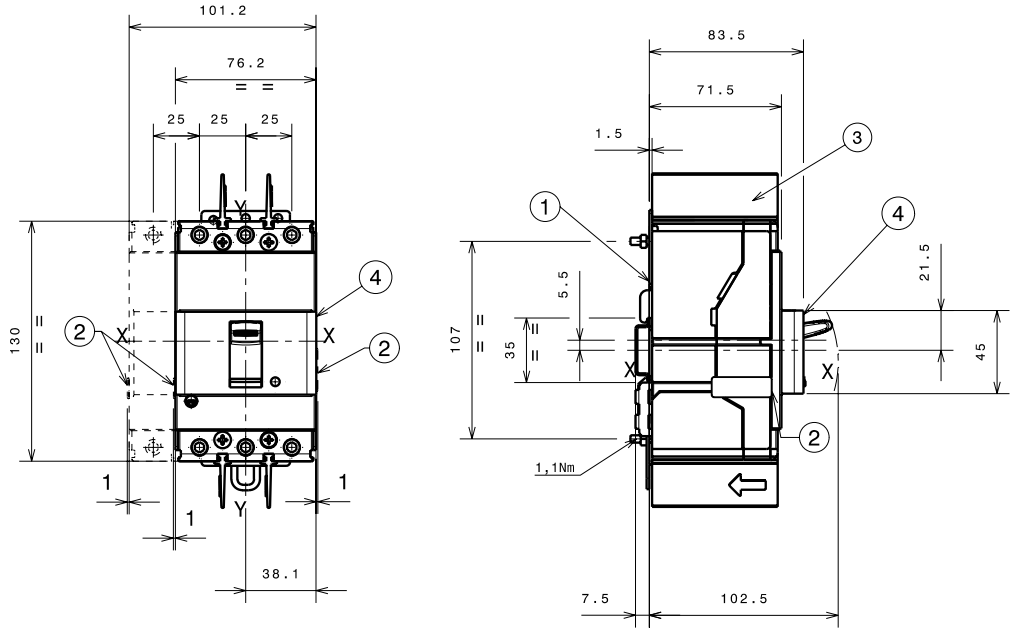
Key
2 Overall dimension of optional wiring ducts
3 25mm insulating barriers between phases (compulsory) provided



		A
With standard flange	III - IV	74
Without flange	III - IV	71
	III - IV	79

Fixing on DIN 50022 rail

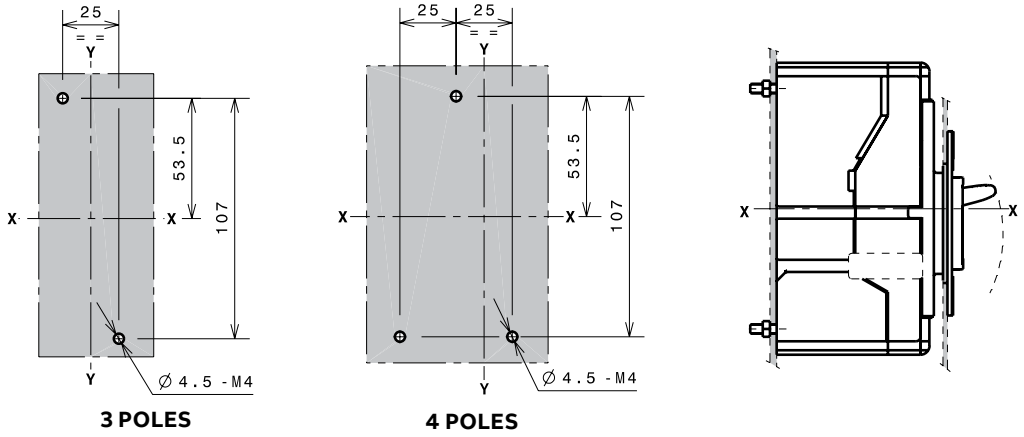
Key
1 Bracket for fixing
2 Overall dimension of optional wiring ducts
3 25mm insulating barriers between phases (compulsory) provided
4 Optional front cover for DIN rail



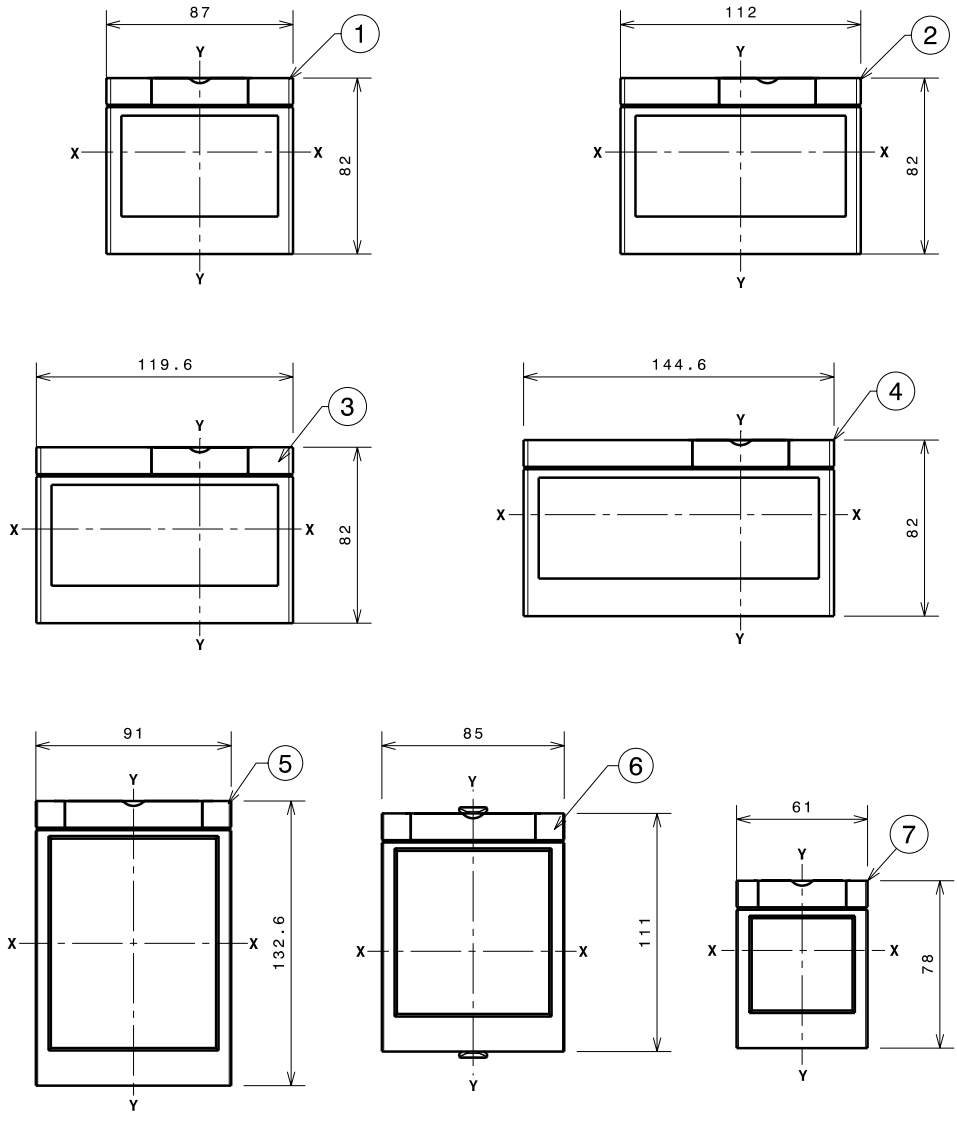
Tmax XT1 – Installation

Installation for fixed circuit-breaker

Drilling templates for circuit-breaker fixing



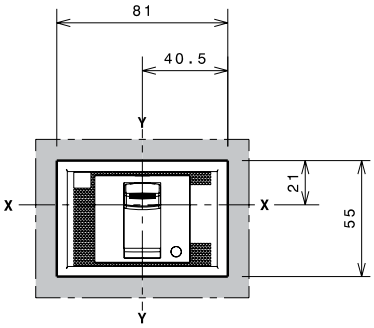
Flanges



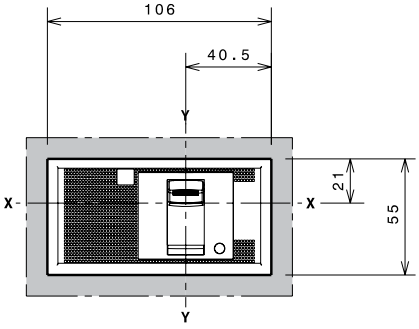
Key
1 Flange for circuit-breaker III
2 Flange for circuit-breaker IV
3 Flange for circuit-breaker III with RC Sel - RC Inst residual current release
4 Flange for circuit-breaker IV with RC Sel - RC Inst residual current release
5 Flange for fixed circuit-breaker III-IV with direct motor operator (MOD)
6 Flange for circuit-breaker III-IV with direct rotary handle (RHD)
7 Optional flange

Drilling templates compartment door

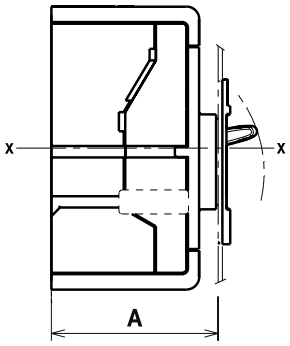
With standard flange



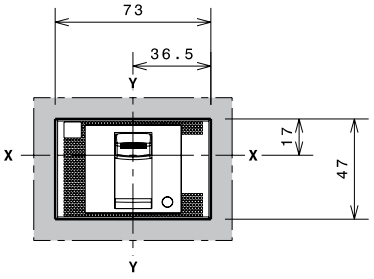
A=74
3 POLES



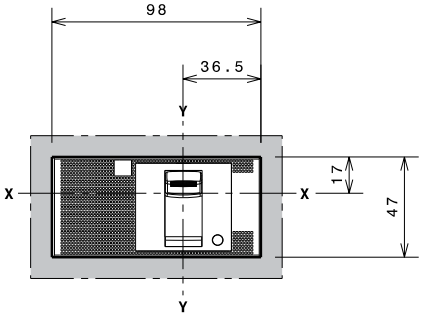
A=74
4 POLES



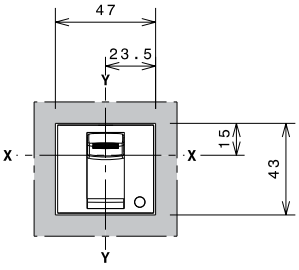
Without flange



A=71
3 POLES

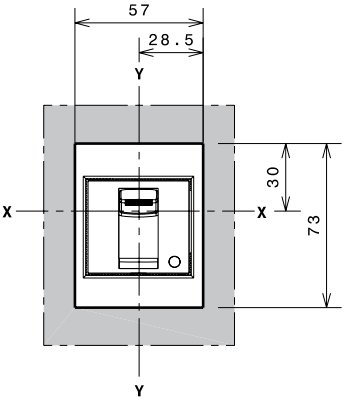


A=71
4 POLES

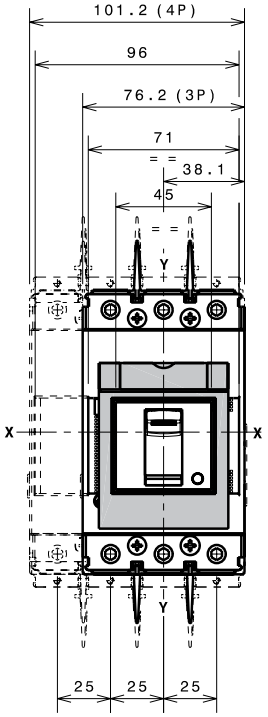


A=79
3-4 POLES

With optional flange



A=79
3-4 POLES

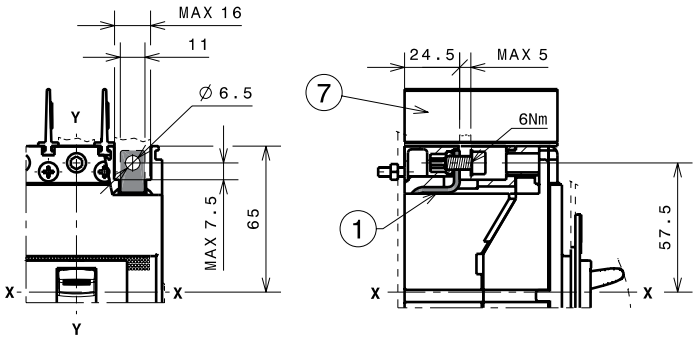


Tmax XT1 – Installation

Terminals for fixed circuit-breaker

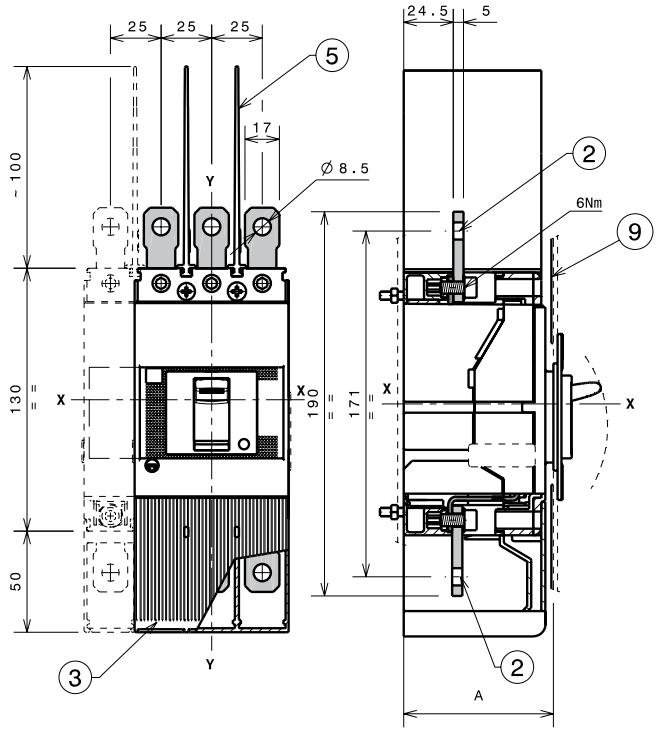
Terminals F

Key
1 Front terminals for busbars connection
7 25mm insulating barriers between phases (compulsory) provided



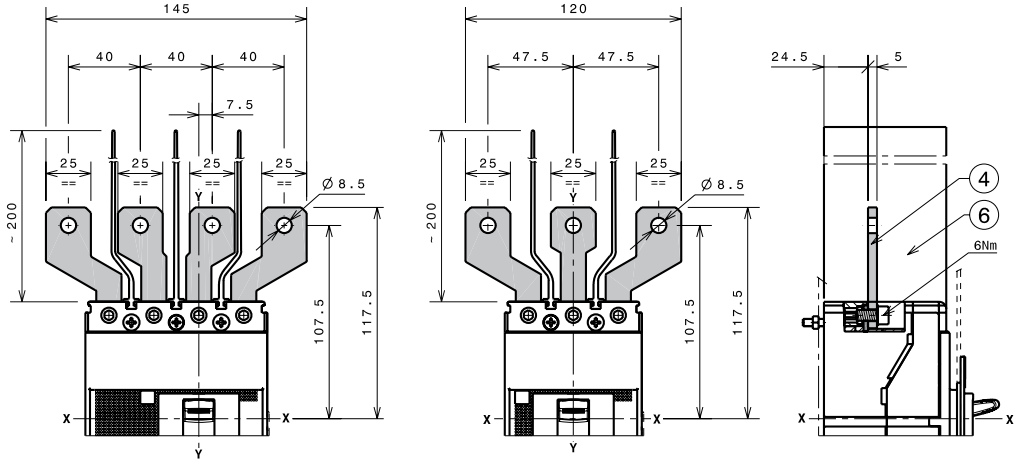
Terminals EF

Key
2 Front extended terminals
3 High terminal covers with degree of protection IP40 (optional) not provided
5 100mm insulating barriers between phases (compulsory) provided
9 Internal insulating plate compulsory with phase barriers (customer attention)



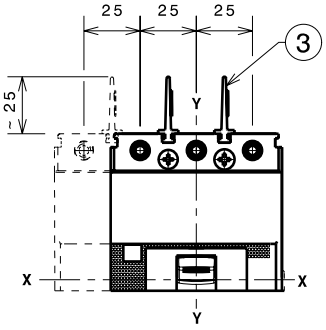
Terminals ES

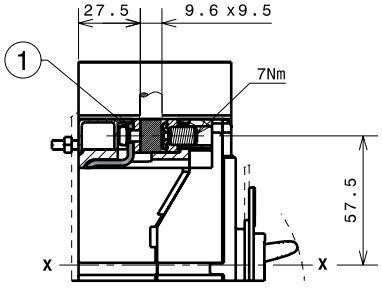
Key
4 Front extended spread terminals for busbar connection
6 200mm insulating barriers between phases (compulsory) provided



1x1.5...50mm² terminals FCCuAl

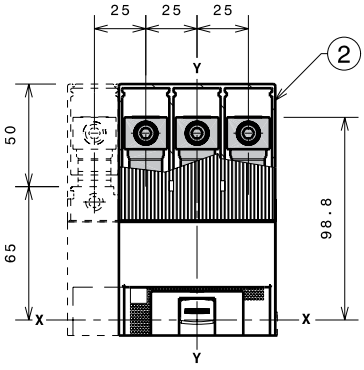
—
Key
1 1x1.5...50mm² front terminal FCCuAl
3 25mm insulating barriers between phases (compulsory) provided

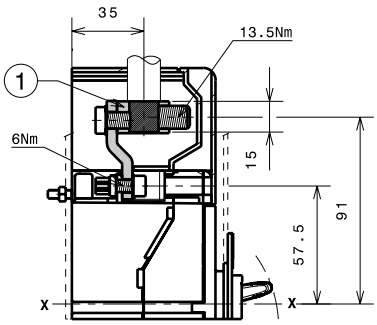




1x35...95mm² terminals FCCuAl

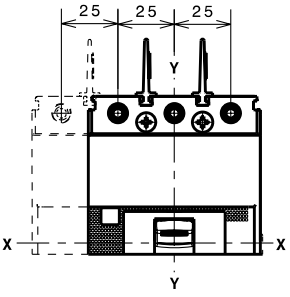
—
Key
1 External terminal FCCuAl
2 High terminal covers with degree of protection IP40 (optional) provided

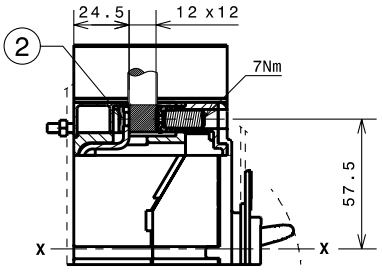




Terminals FCCu

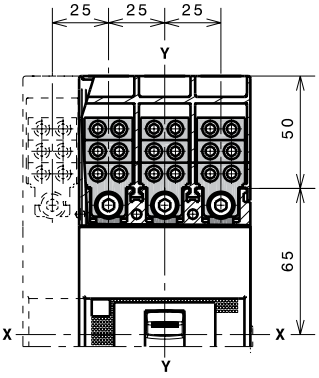
—
Key
2 Front terminal FCCu

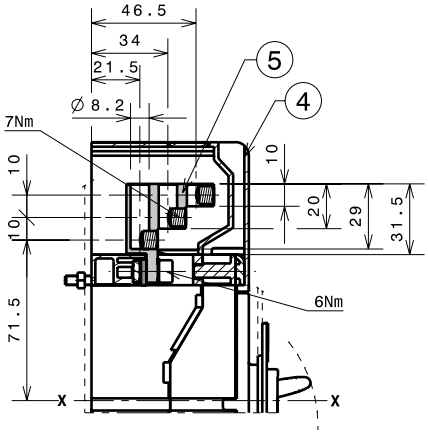




Terminals MC

—
Key
4 Terminal covers with degree of protection IP40 (compulsory) provided
5 Front terminal for multicable connection

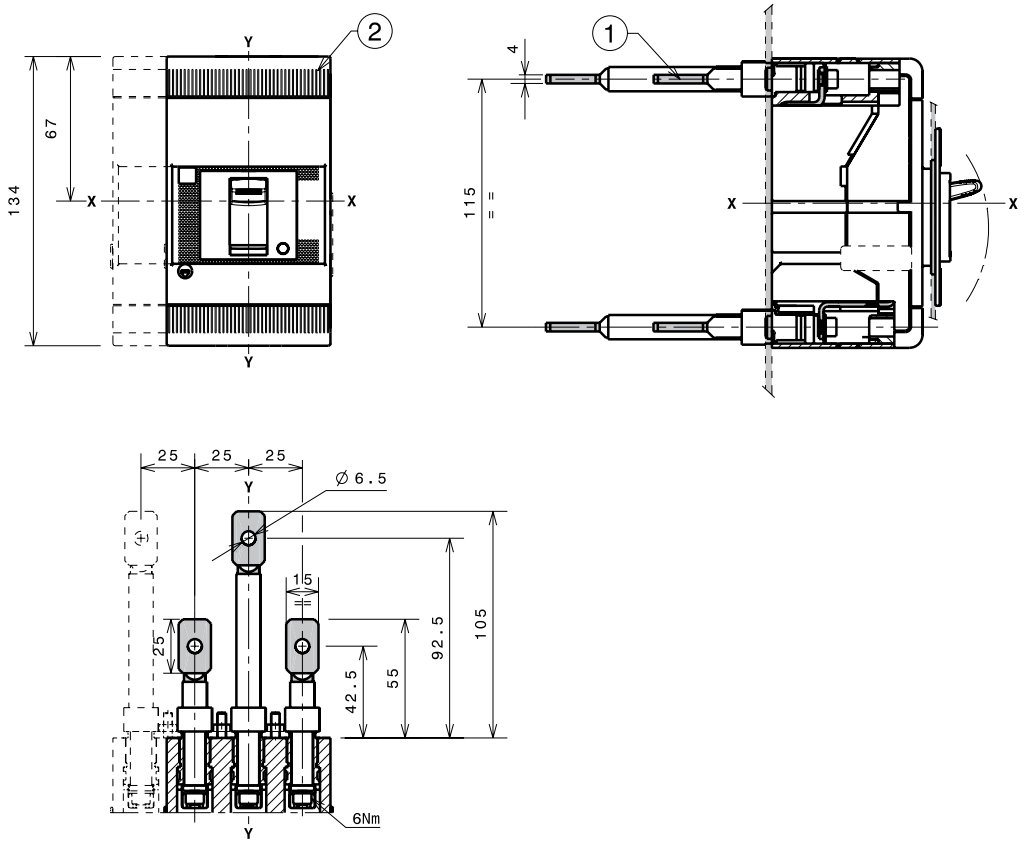


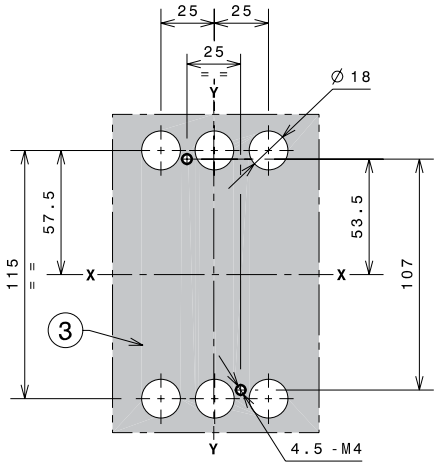


Tmax XT1 – Installation

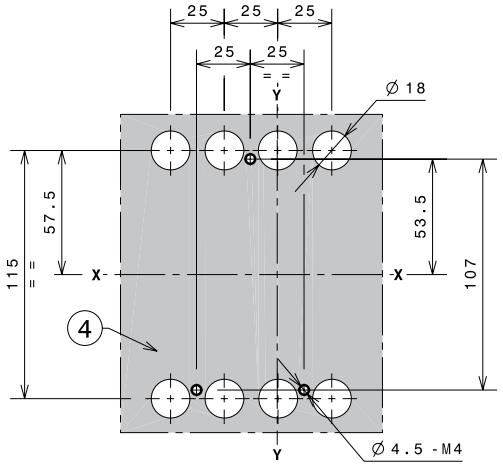
Terminals for fixed circuit-breaker

Terminals R





3 POLES

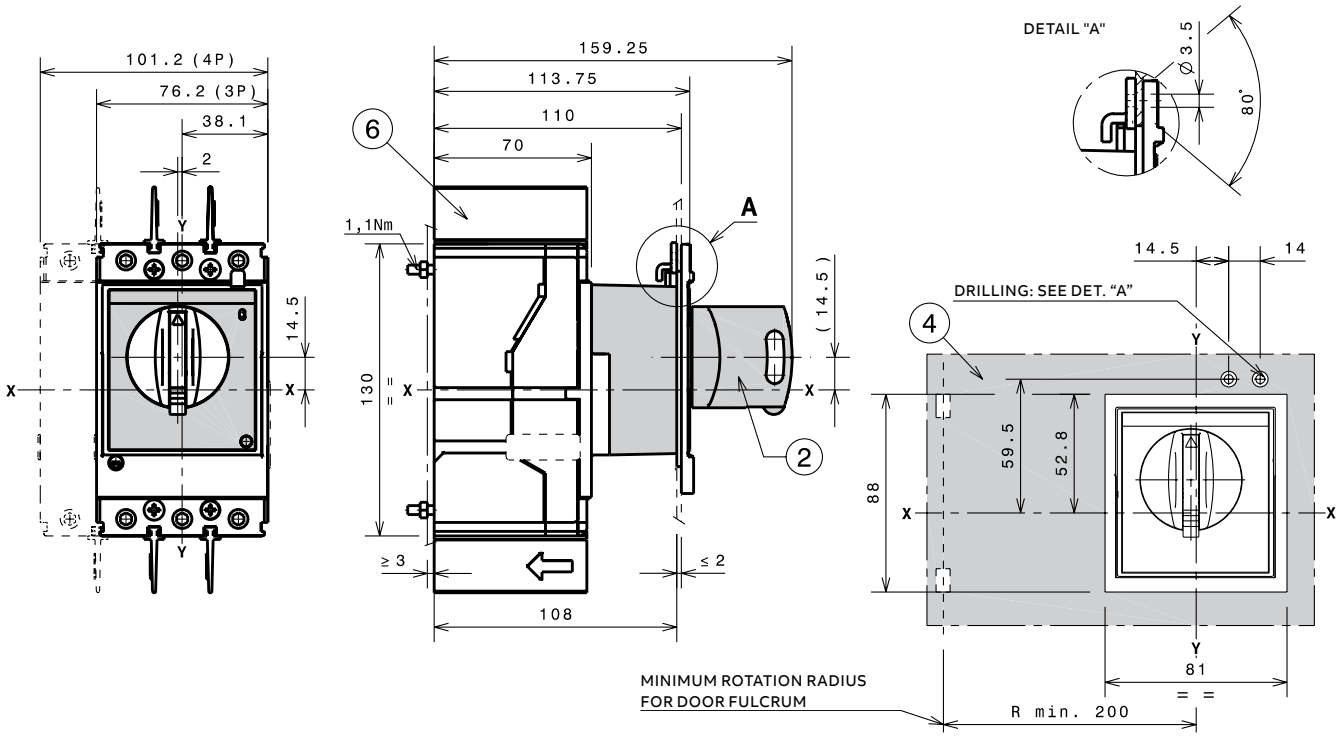


4 POLES

Key
1 Adjustable rear terminals
2 Bottom terminal covers with degree of protection IP30 (optional) not provided
3 Drilling template for circuit-breaker III fixing on sheet
4 Drilling template for circuit-breaker IV fixing on sheet

Tmax XT1 – Installation
Accessories for fixed circuit-breaker

Rotary handle operating mechanism on circuit-breakers (RHD)



—

Key

2 Rotary handle operating mechanism on circuit-breaker RHD

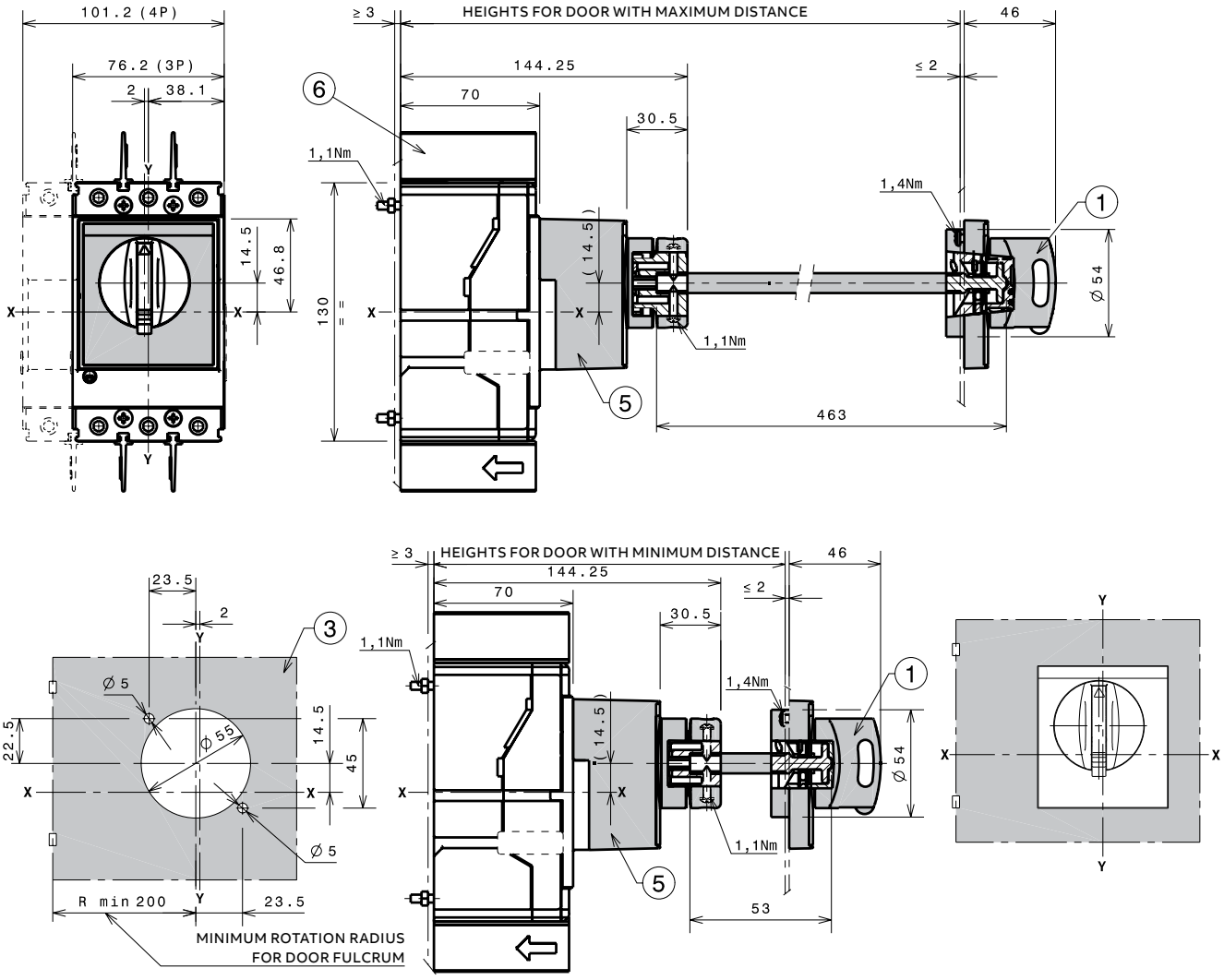
4 Door drilling template with direct rotary handle

6 25mm insulating barriers between phases (compulsory) provided

Tmax XT1 – Installation

Accessories for fixed circuit-breaker

Rotary handle operating mechanism on the compartment door (RHE)

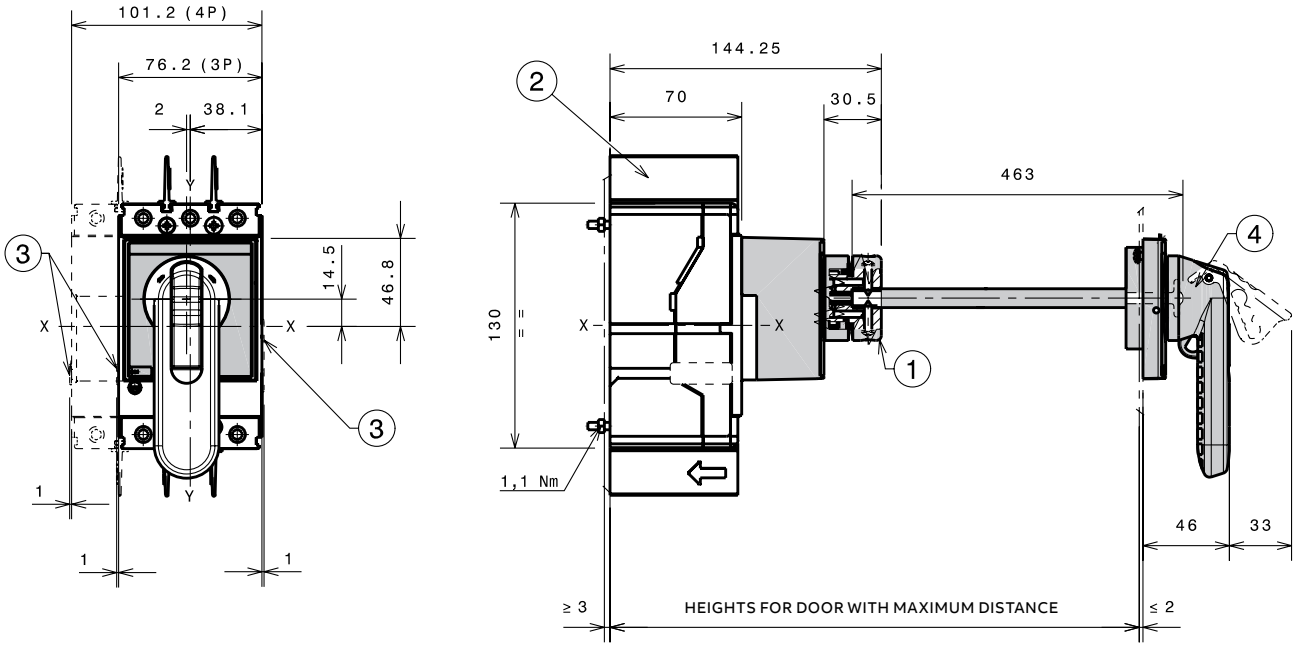


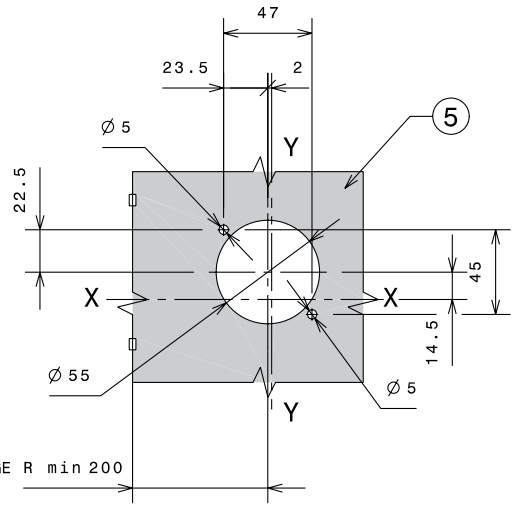
—

Key

1 Transmitted rotary handle
3 Door drilling template with transmitted rotary mandly
5 Transmission unit
6 25mm insulating barriers between phases provided with circuit-breaker

Large rotary handle operating mechanism on the compartment door (RHE-LH)





—

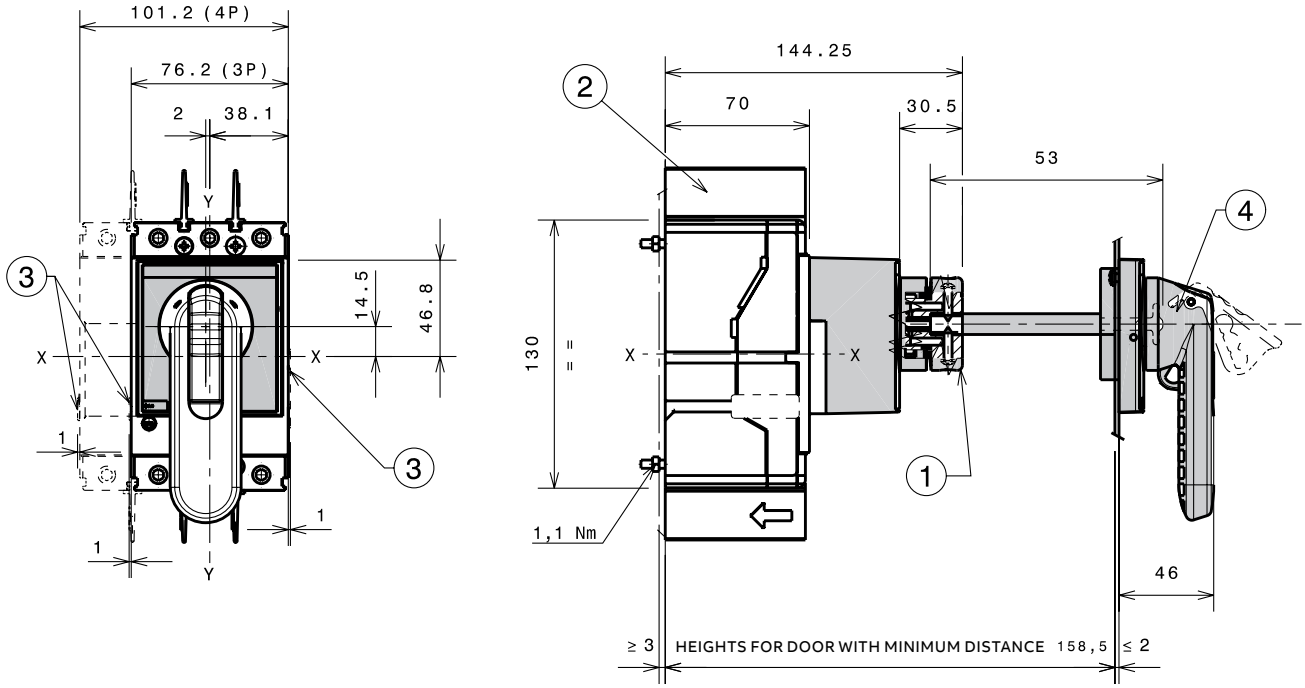
Key

1 Transmission unit
2 25mm insulating barriers between phases provided with circuit-breaker
3 Optional wiring ducts
4 Wide type rotary handle
5 Door drilling template with transmitted rotary handle

Tmax XT1 – Installation

Accessories for fixed circuit-breaker

Large rotary handle operating mechanism on the compartment door (RHE-LH)

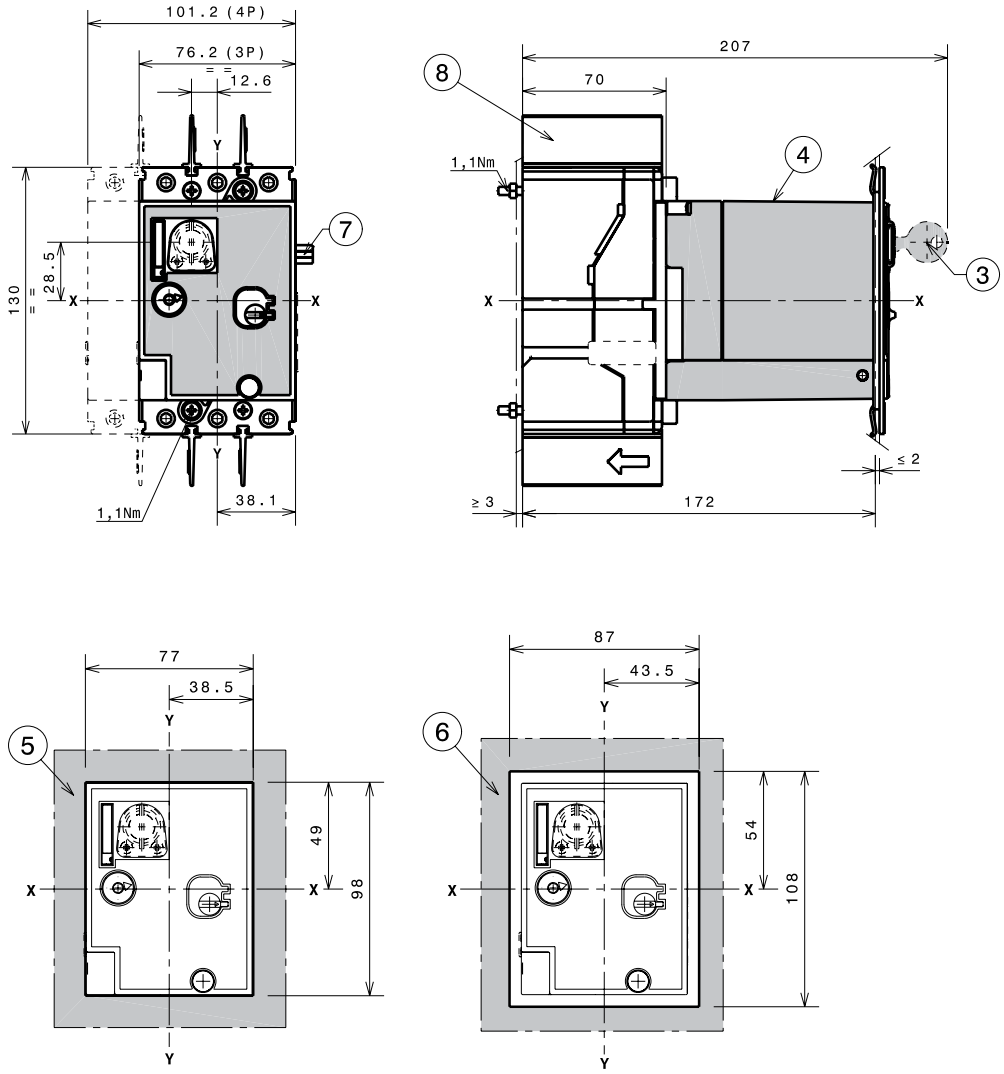


—

Key

1 Transmission unit
2 25mm insulating barriers between phases (compulsory) provided
3 Optional wiring ducts
4 Wide type rotary handle
5 Door drilling template with transmitted rotary handle

Direct motor operator (MOD)



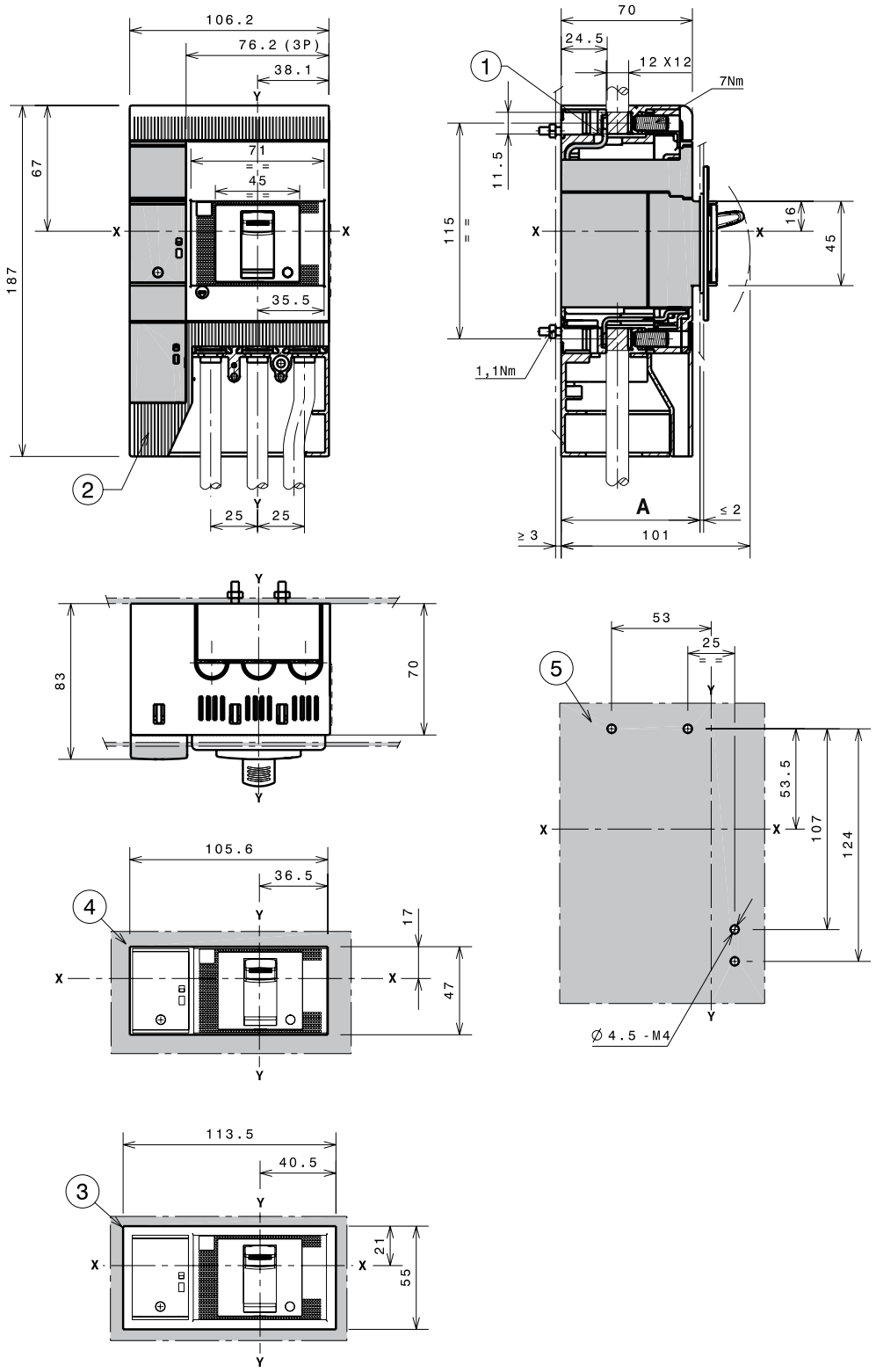
—

Key

3 Key lock (on request)
4 Direct motor operator (MOD)
5 Drilling template of door with MOD without flange
6 Drilling template of door with MOD with flange
7 Cables connection
8 25mm phase barriers

Tmax XT1 – Installation
Accessories for fixed circuit-breaker

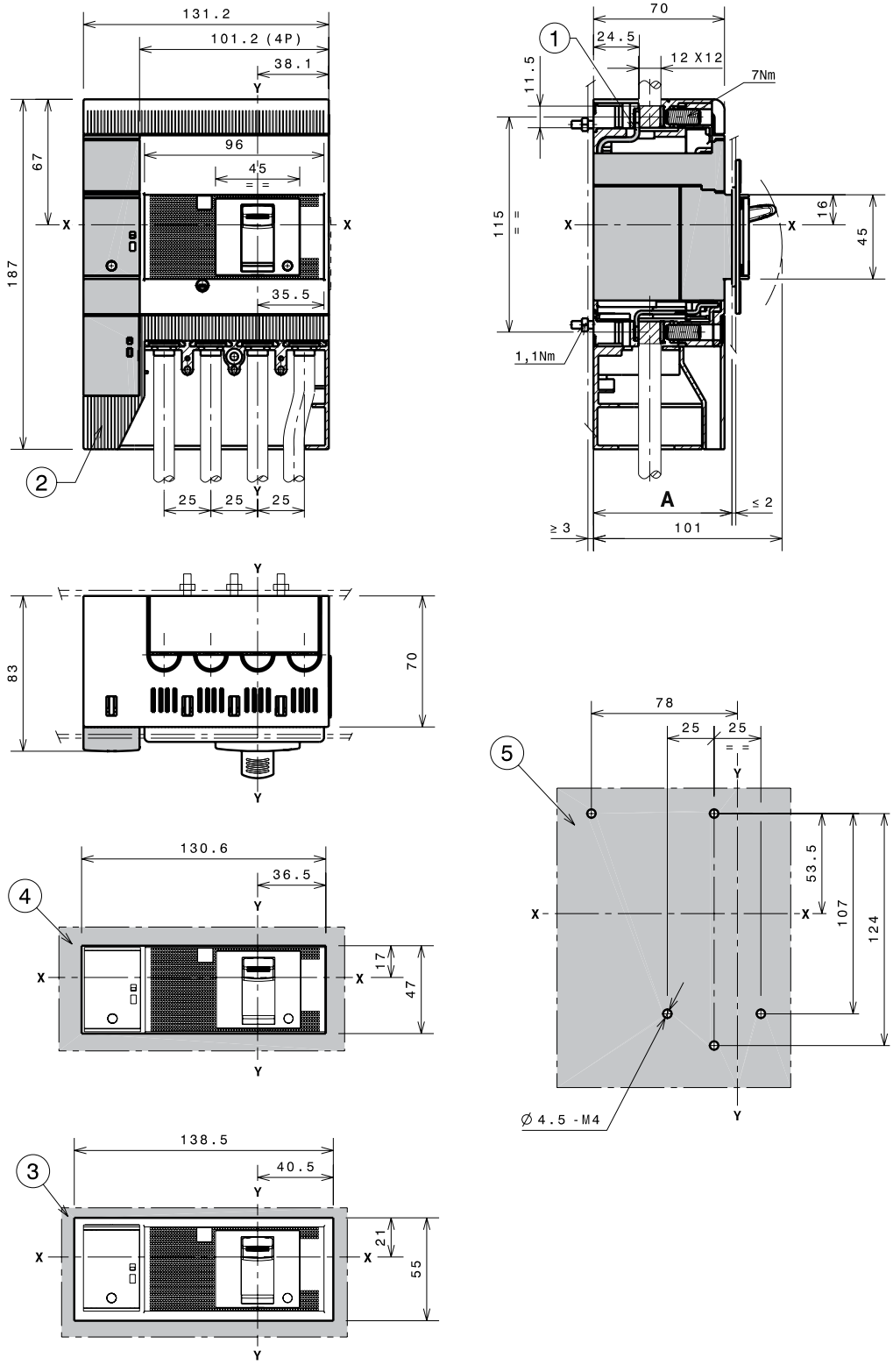
RC Inst and RC Sel residual current release for 3 poles circuit-breaker



Key
1 Front terminals for busbars connection
2 Terminal covers with degree of protection IP40
3 Drilling template of door with direct rotary handle with flange
4 Drilling template of door with direct rotary handle without flange
5 Drilling template for circuit-breaker fixing on sheet

		A
With standard flange	III	74
Without flange	III	71

RC Inst and RC Sel residual current release for 4 poles circuit-breaker



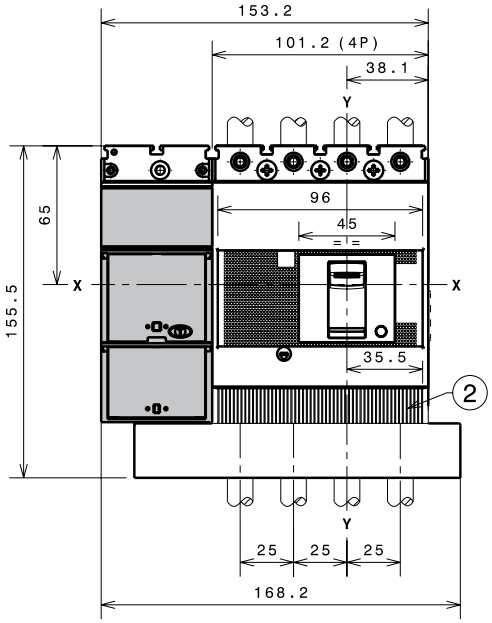
Key
1 Front terminals for busbars connection
2 Terminal covers with degree of protection IP40
3 Drilling template of door with direct rotary handle with flange
4 Drilling template of door with direct rotary handle without flange
5 Drilling template for circuit-breaker fixing on sheet

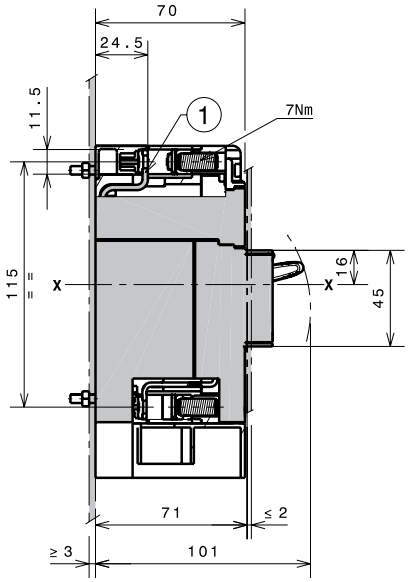
		A
With standard flange	IV	74
Without flange	IV	71

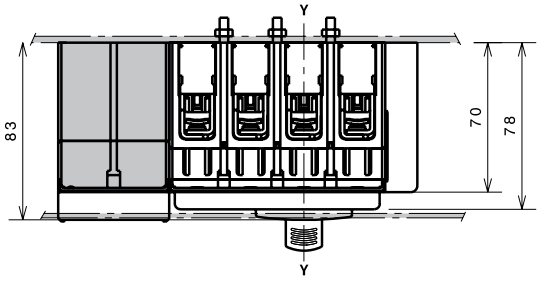
Tmax XT1 – Installation

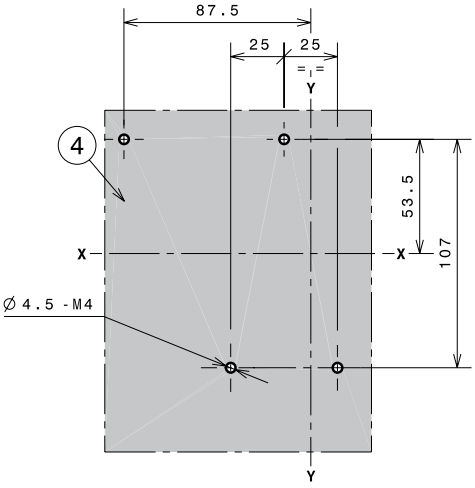
Accessories for fixed circuit-breaker

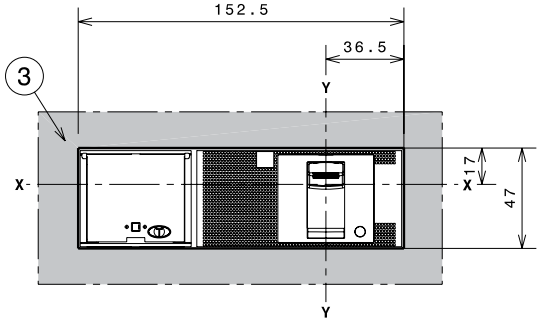
RC Sel 200 4 poles residual current release











Key

1 Front terminals for busbars connection
2 Terminal covers with degree of protection IP40
3 Drilling template of door with direct rotary handle
4 Drilling template for circuit-breaker fixing on sheet

Tmax XT1 – Installation

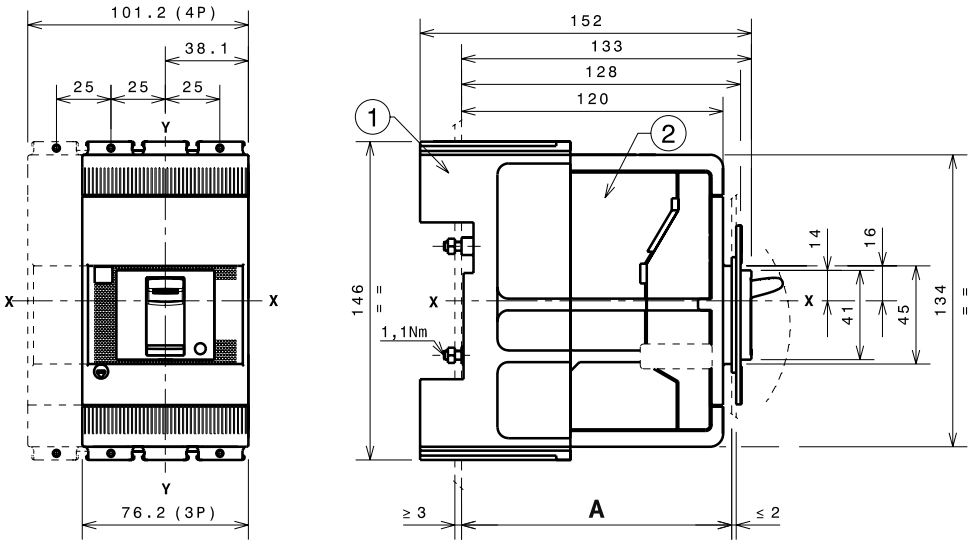
Installation for plug-in circuit-breaker

Fixing on support sheet

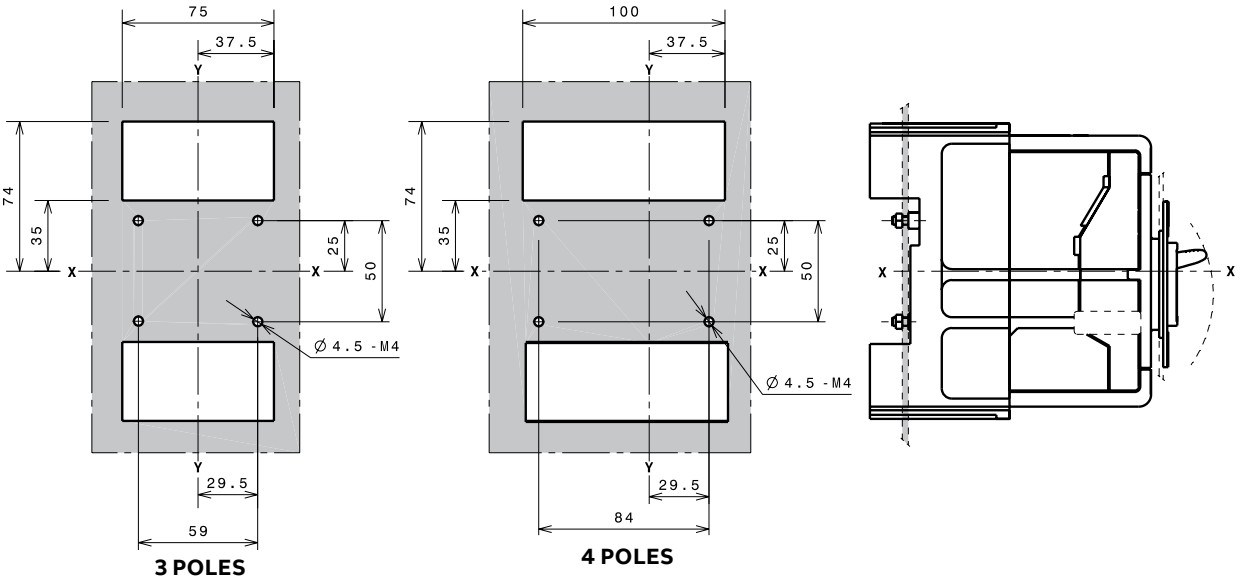
Key
1 Fixed part
2 Moving part

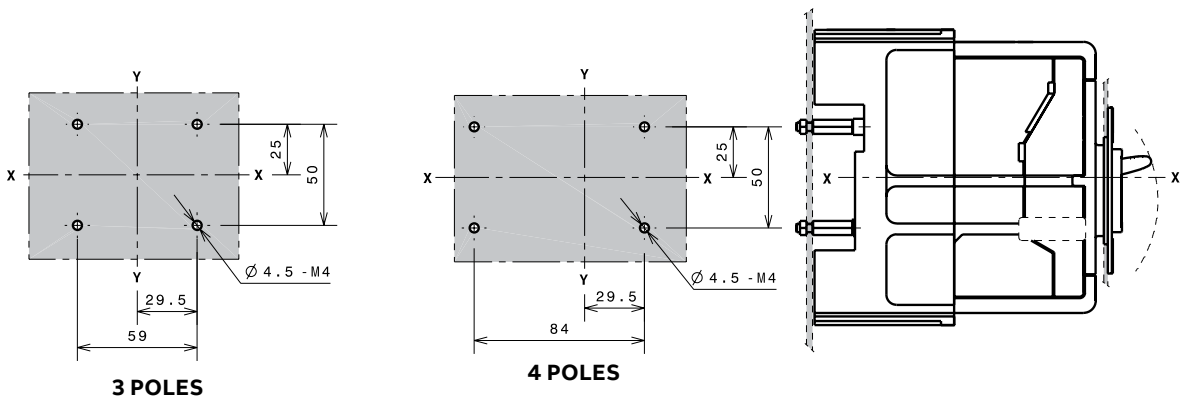
		A
With standard flange	III-IV	124
Without flange	III-IV	121
	III-IV	129

		A
With standard flange	III-IV	144
Without flange	III-IV	141
	III-IV	149



Drilling templates for fixing circuit-breaker

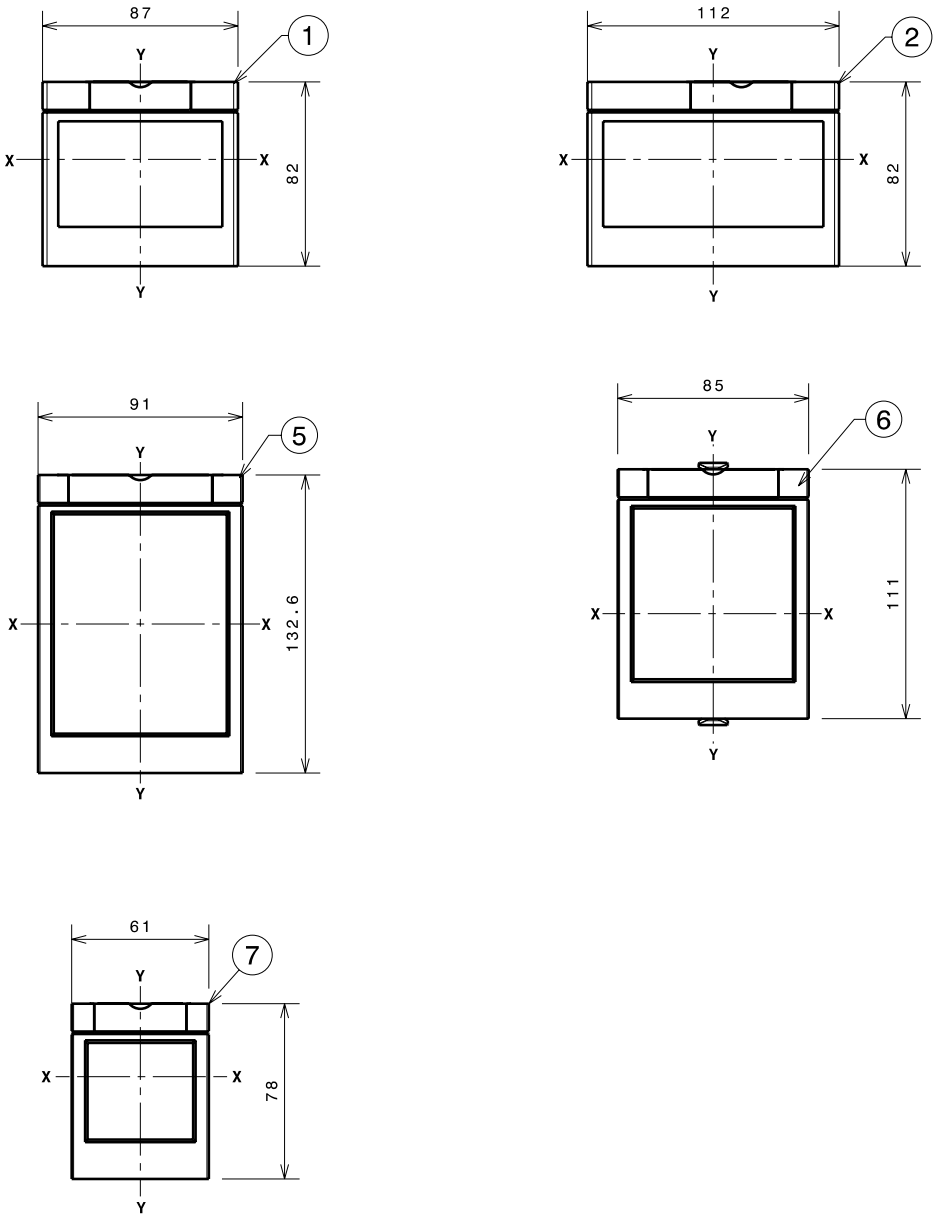




Tmax XT1 – Installation

Installation for plug-in circuit-breaker

Flanges



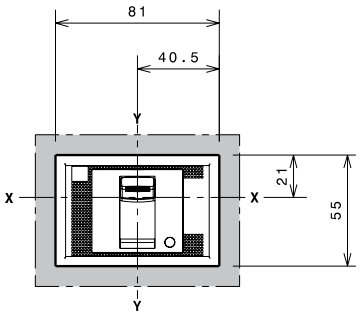
—

Key

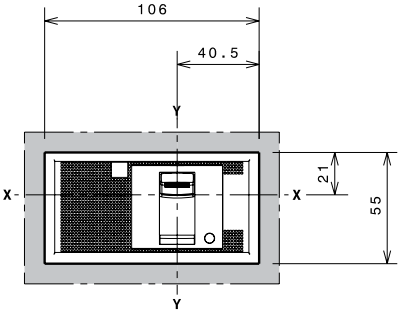
1 Flange for plug-in circuit-breaker III
2 Flange for circuit-breaker IV
5 Flange for plug-in circuit-breaker III-IV with direct motor operator (MOD)
6 Flange for plug-in circuit-breaker III-IV with direct rotary handle RHD
7 Optional flange

Drilling templates compartment door

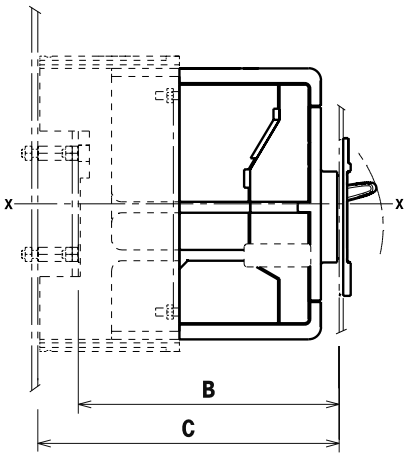
With standard flange



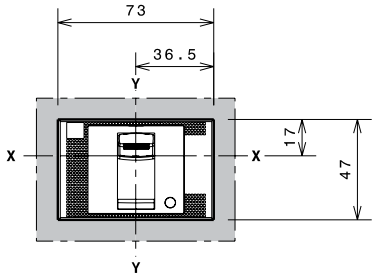
B=124 C=144
3 POLES



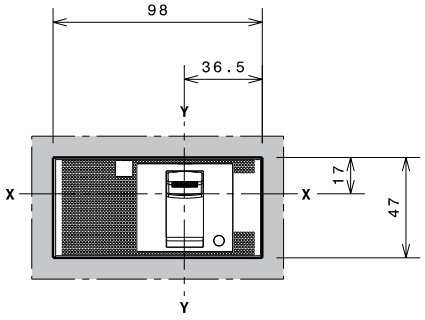
B=124 C=144
4 POLES



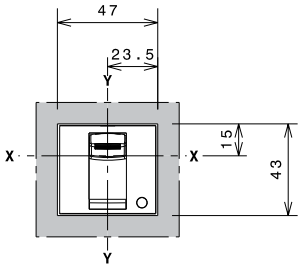
Without flange



B=121 C=141
3 POLES

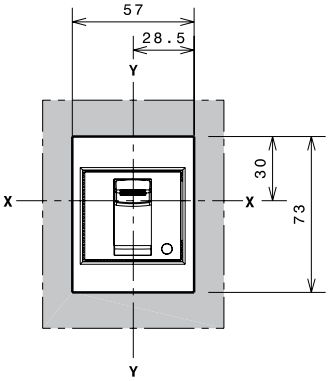


B=121 C=141
4 POLES

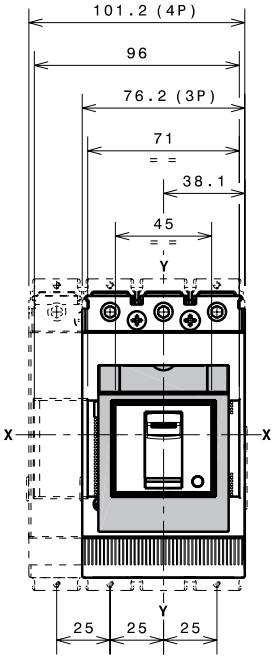


B=129 C=149
3-4 POLES

With optional flange



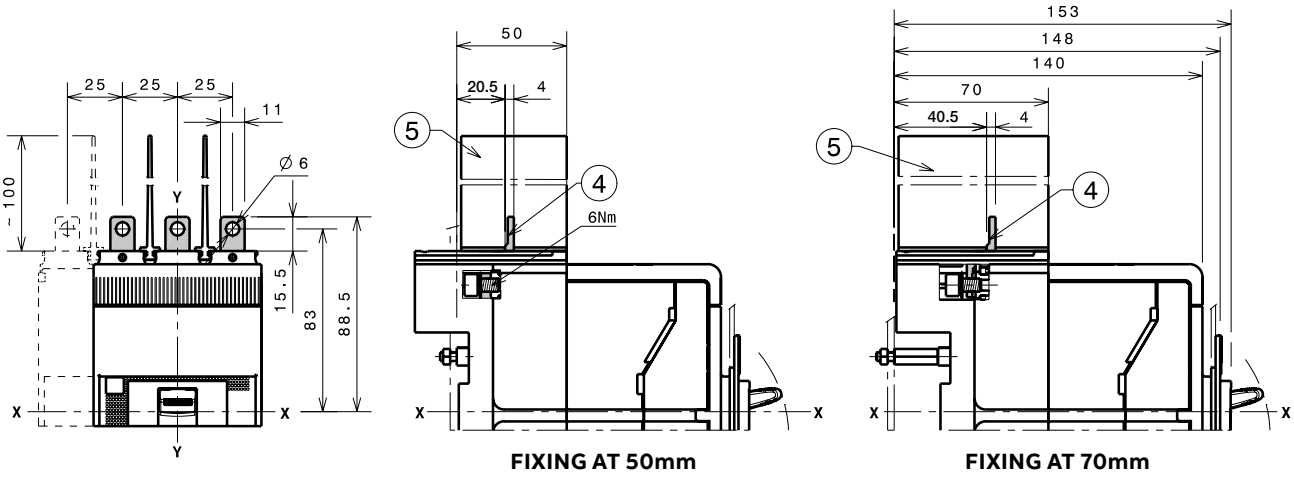
B=129 C=149
3-4 POLES



Tmax XT1 – Installation

Terminals for plug-in circuit-breaker

Terminals EF



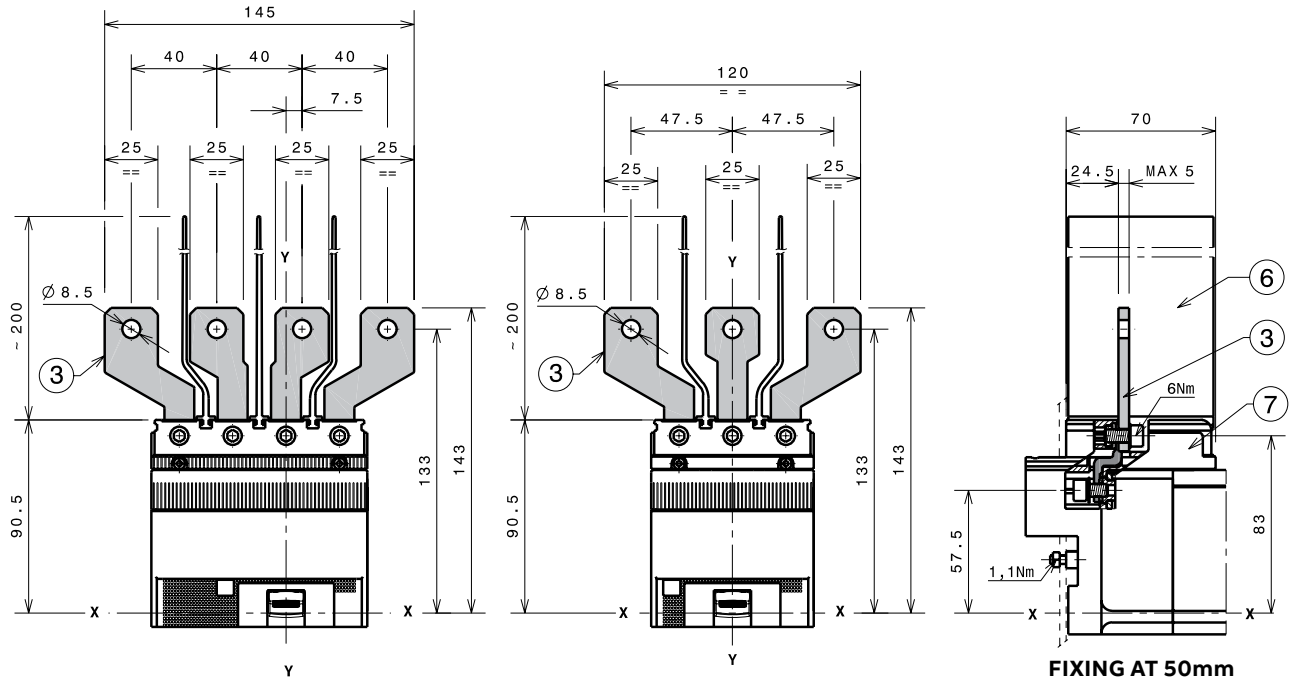
—

Key

4 Front extended terminals

5 100mm insulating barriers between phases (compulsory) provided

Terminals ES



—

Key

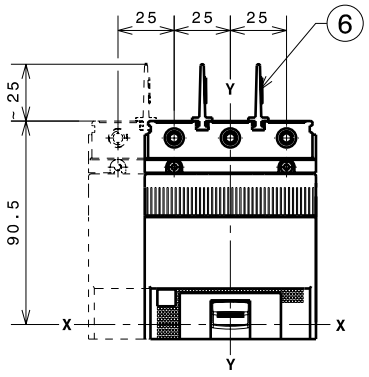
3 Front extended spread terminals

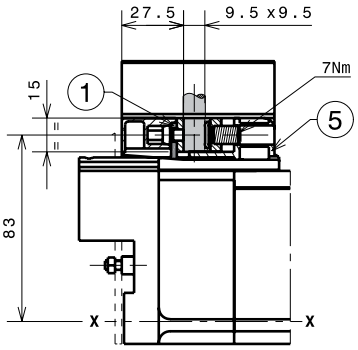
6 200mm insulating barriers between phases (compulsory) provided

7 Adaptor (compulsory) not provided

1x1.5...50mm² terminals FCCuAl

Key
1 1x1.5...50mm² front terminal FCCuAl
5 Adaptor (compulsory) optional
6 25mm insulating barriers between phases (compulsory) provided

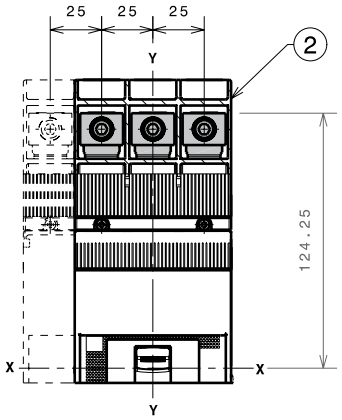


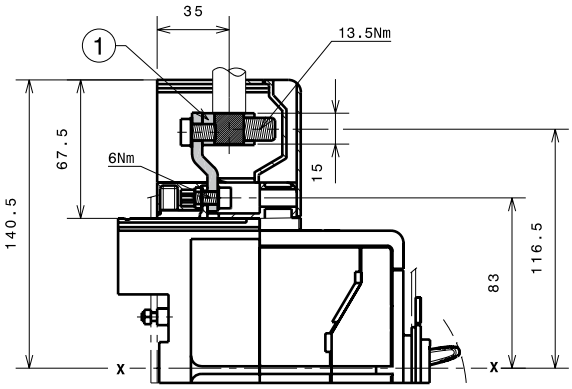


FIXING AT 50mm

1x35...95mm² terminals FCCuAl

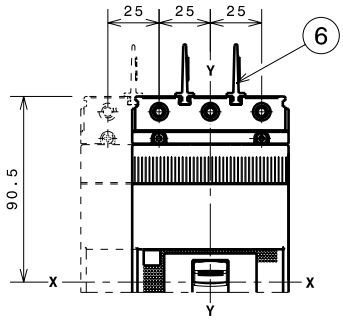
Key
1 External terminal FCCuAl
2 High terminal covers with degree of protection IP40 (optional) provided

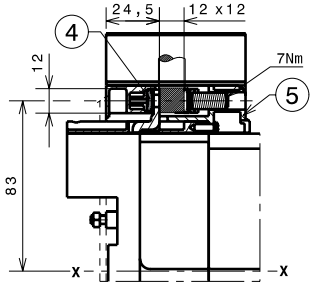




Terminals FCCu

Key
4 Terminals FCCu
5 Adaptor (compulsory) not provided
6 25mm insulating barriers between phases (compulsory) provided





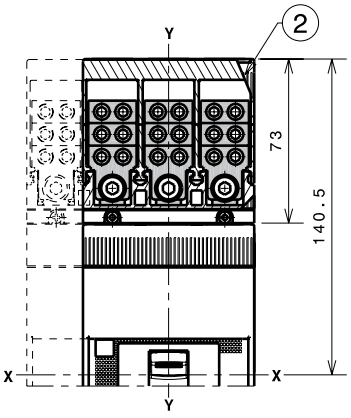
FIXING AT 50mm

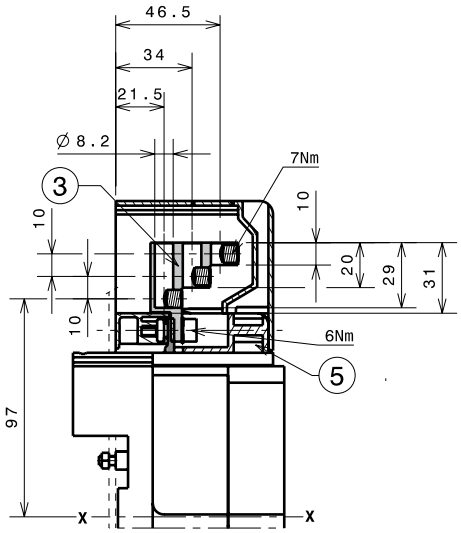
Tmax XT1 – Installation

Terminals for plug-in circuit-breaker

Terminals MC

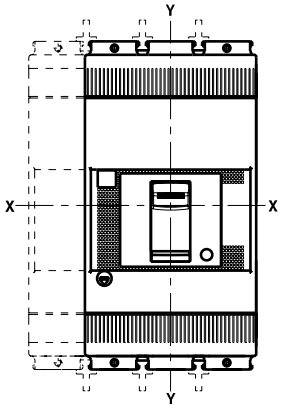
—
Key
2 Terminal covers with degree of protection IP40 (optional) provided
3 Front terminal for multicable connection
5 Adaptor (compulsory) not provided

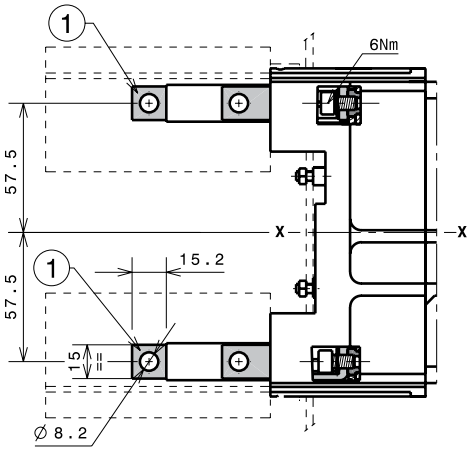




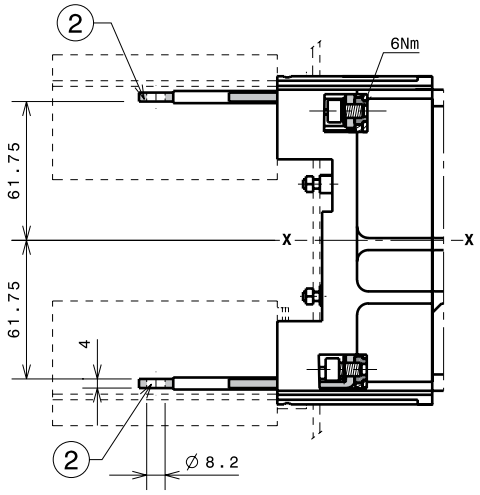
FIXING AT 50mm

Terminals HR/VR



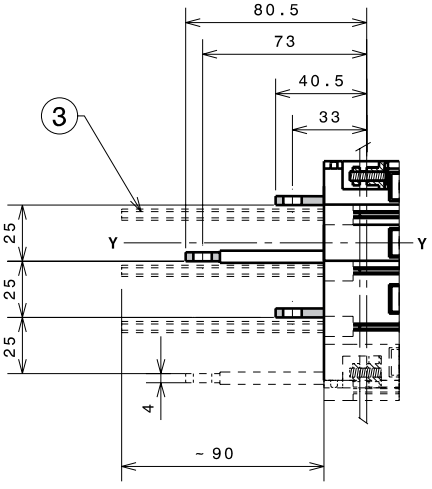


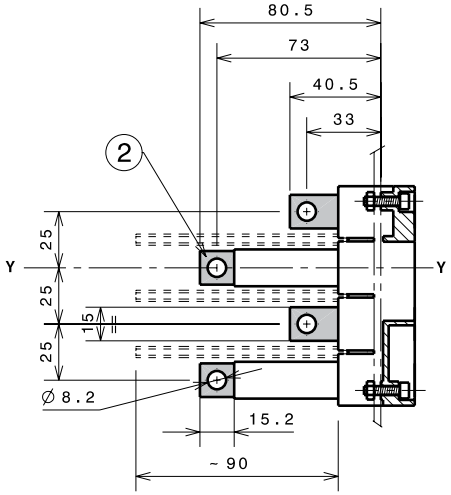
FIXING AT 50mm



FIXING AT 50mm

—
Key
1 Rear vertical terminals
2 Rear horizontal terminals
3 90mm insulating barriers between phases (compulsory) not provided

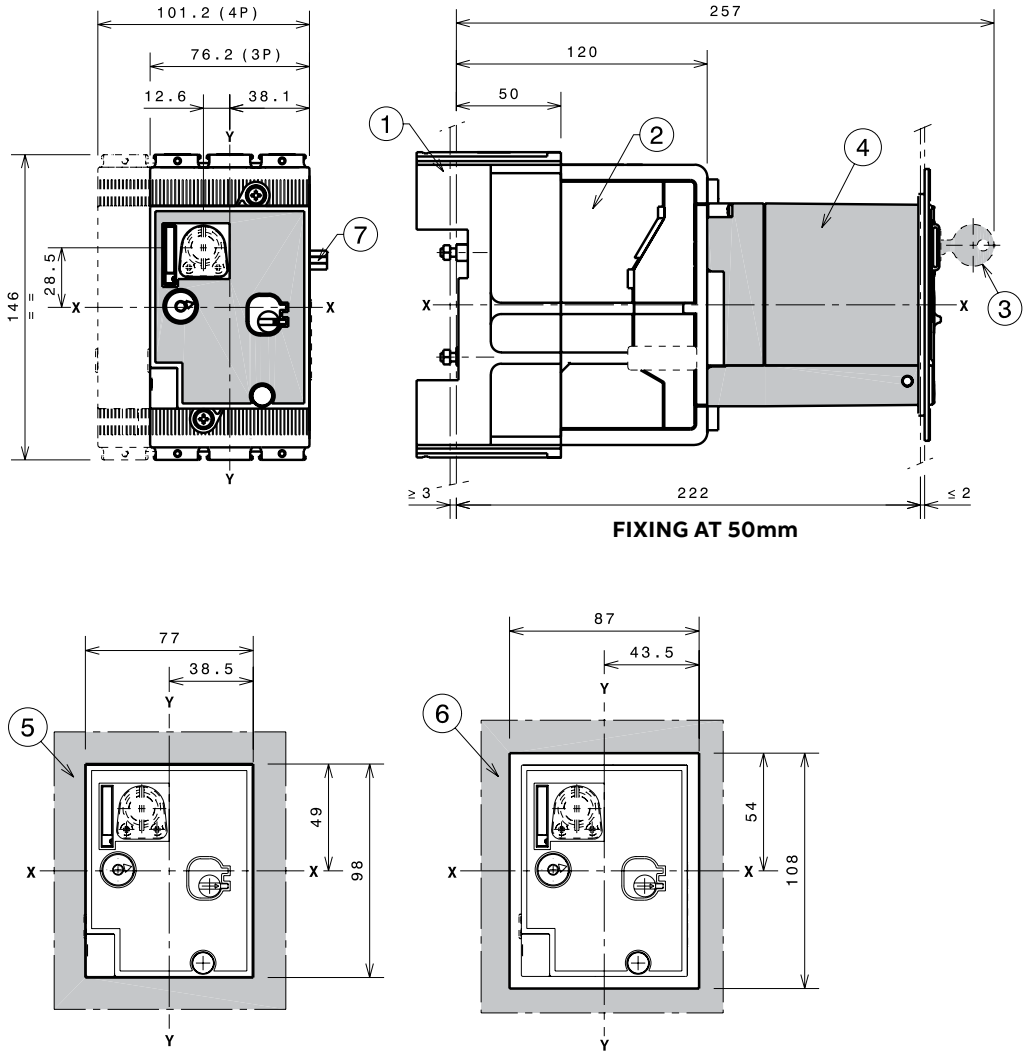




Tmax XT1 – Installation

Accessories for plug-in circuit-breaker

Direct motor operator (MOD)



—

Key

1 Fixed part
2 Moving part
3 Key lock (on request)
4 Direct motor operator (MOD)
5 Drilling template of door with MOD without flange
6 Drilling template of door with MOD with flange
7 Cables connection

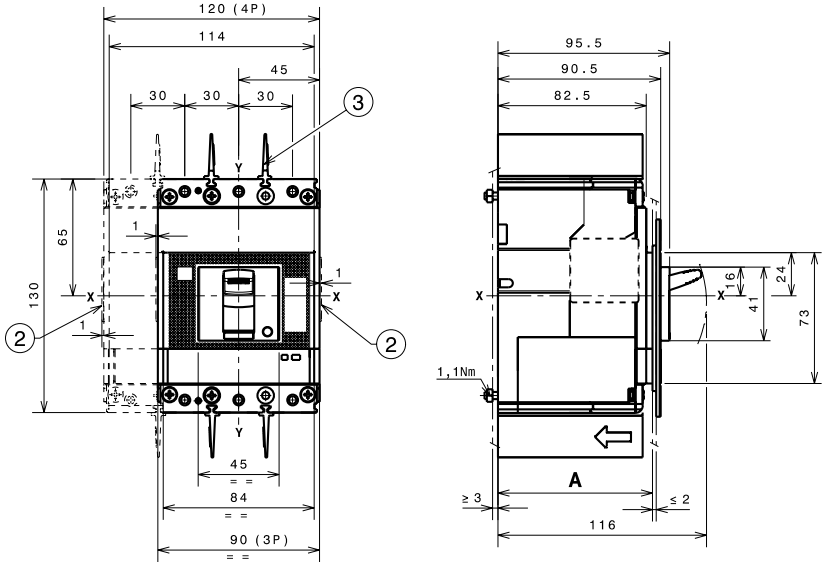
Tmax XT2 – Installation

Installation for fixed circuit-breaker

Fixed circuit-breaker fixing on sheet

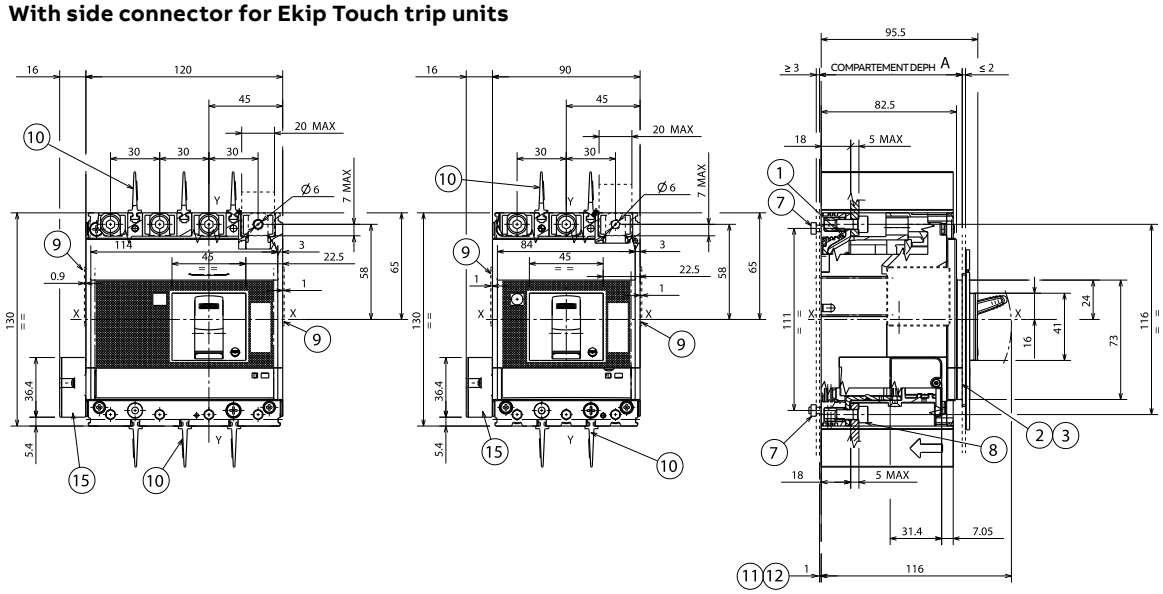
Key
2 Optional wiring ducts
3 25mm insulating barriers between phases (compulsory) provided

		A
With standard flange	III-IV	86
Without flange	III-IV	83.5
	III-IV	91.5



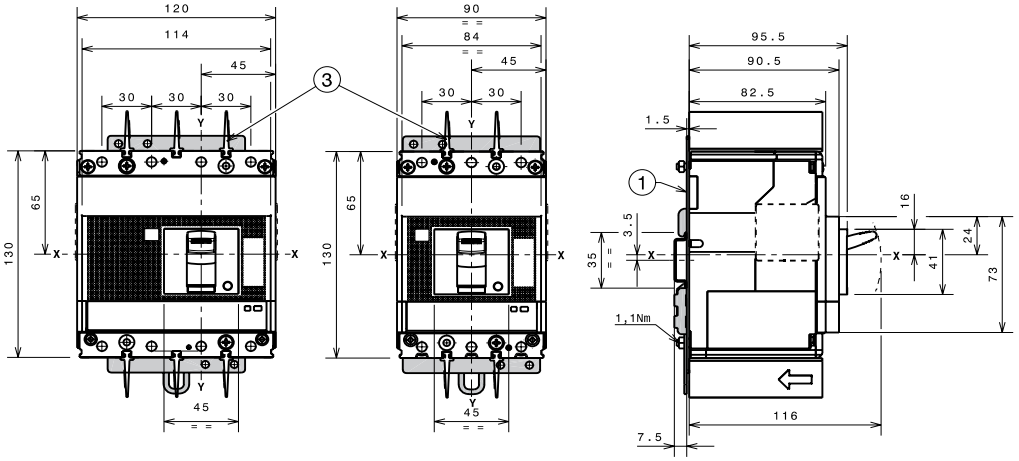
With side connector for Ekip Touch trip units

Key
1 Front terminals
2 Flange for IV circuit-breaker (always supplied with IV cb)
3 Flange for III circuit-breaker (always supplied with III cb)
7 Tightening torque 1,1 Nm - 10 In.Lbs
8 Tightening torque 6 Nm - 53 In.Lbs
9 Optional wiring duct
10 Interphase insulating barriers 25mm - 0.98"(compulsory)
11 Rear plate insulating III (only ul version)
12 Rear plate insulating IV (only ul version)
15 Connection kit F/P IntBus/ExtNeut/Se

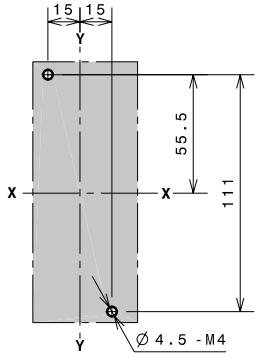


Fixed circuit-breaker fixing on DIN EN 50022 rail

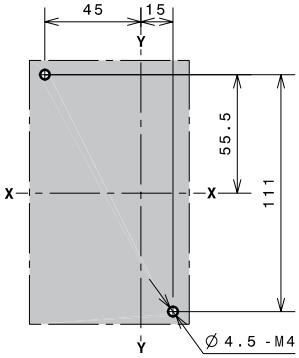
Key
1 Bracket for fixing
3 25mm insulating barriers between phases (compulsory) provided



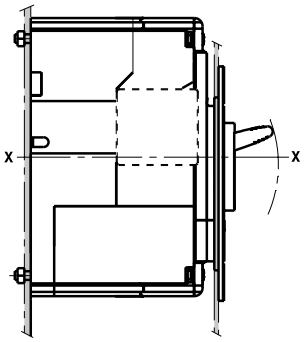
Drilling templates and support sheet



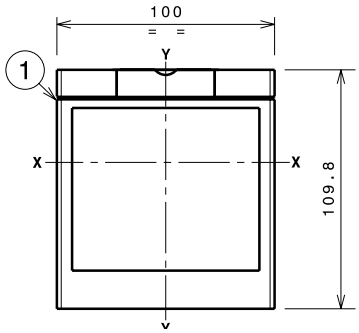
3 POLES

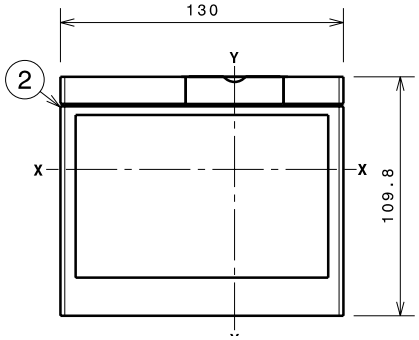


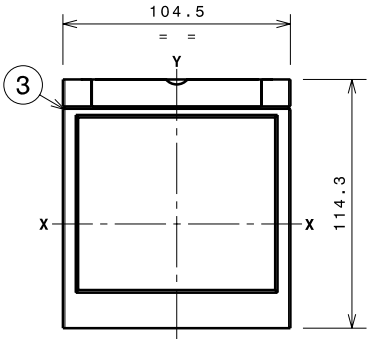
4 POLES

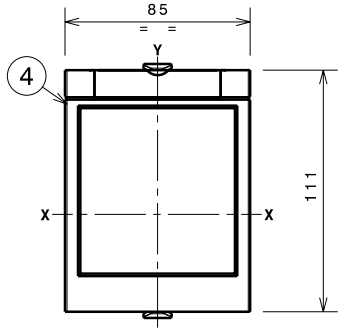


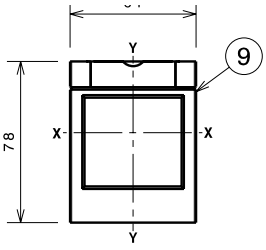
Flanges

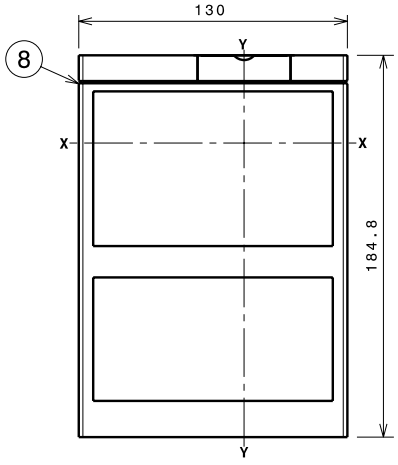












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Key

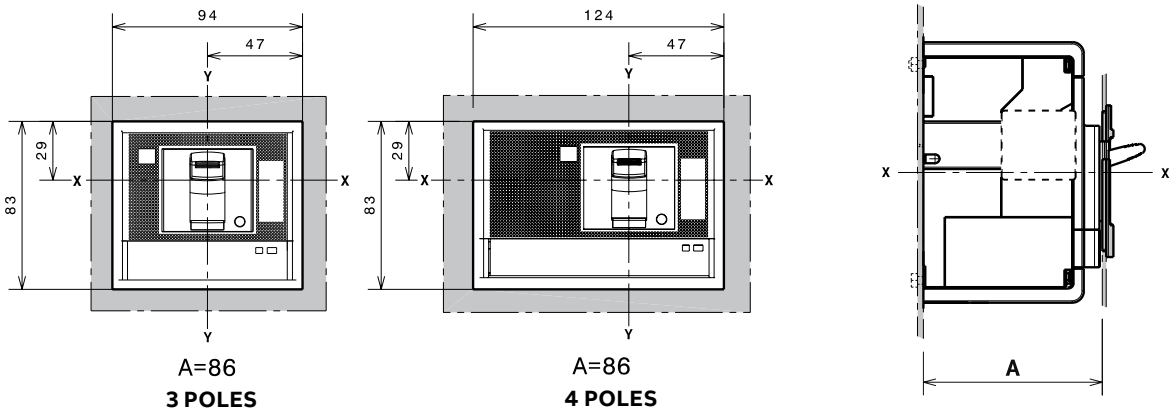
1 Flange for fixed circuit-breaker III
2 Flange for fixed circuit-breaker IV
3 Flange for fixed circuit-breaker III-IV with MOE and FLD
4 Flange for circuit-breaker III-IV with direct rotary handle RHD
8 Flange for circuit-breaker IV with fixed residual current and front terminals
9 Optional flange

Tmax XT2 – Installation

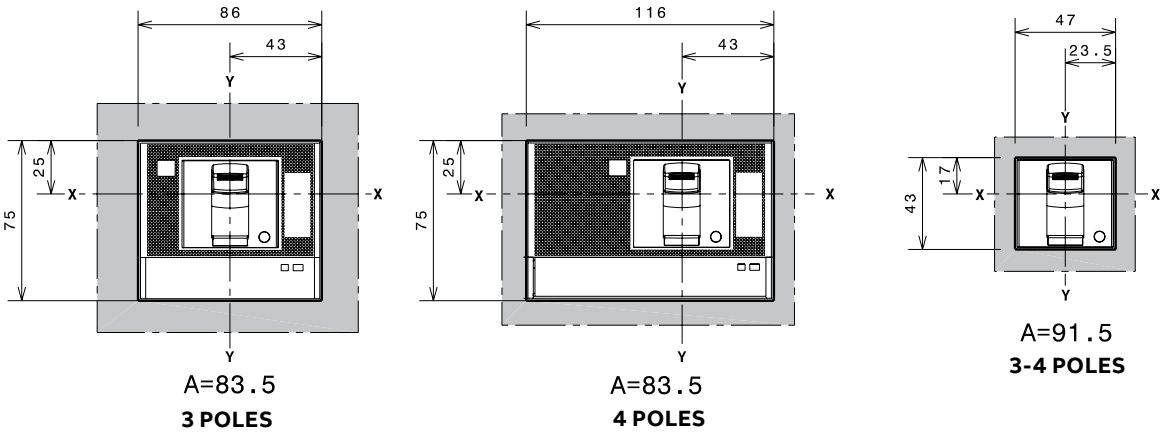
Installation for fixed circuit-breaker

Drilling templates compartment door

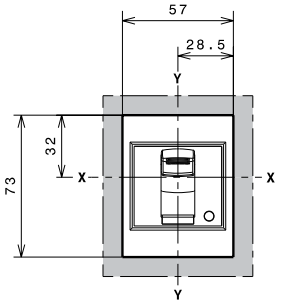
With standard flange

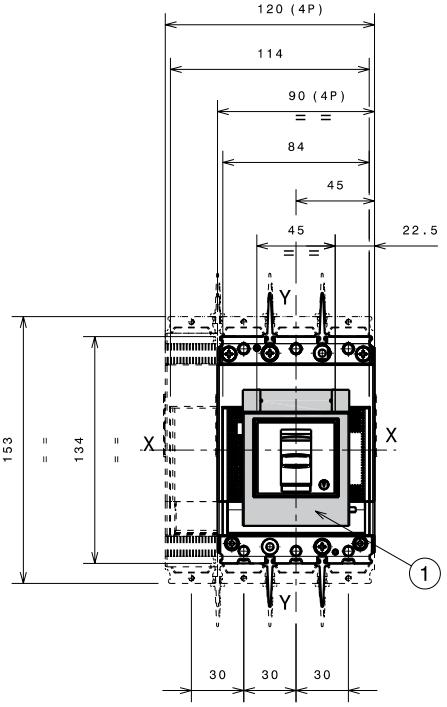


Without flange



With optional flange





—
Key
1 Optional flange

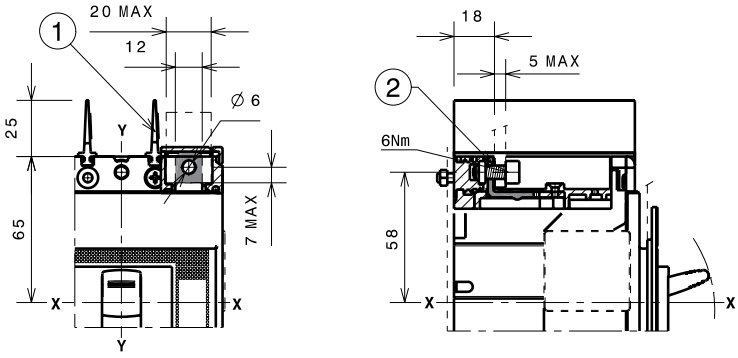
	Execution	A	B	C	
With optional flange	fixed	92			3-4 poles
	plug-in, fixing at 50mm		142		3-4 poles
	plug-in, fixing at 70mm			162	3-4 poles

Tmax XT2 – Installation

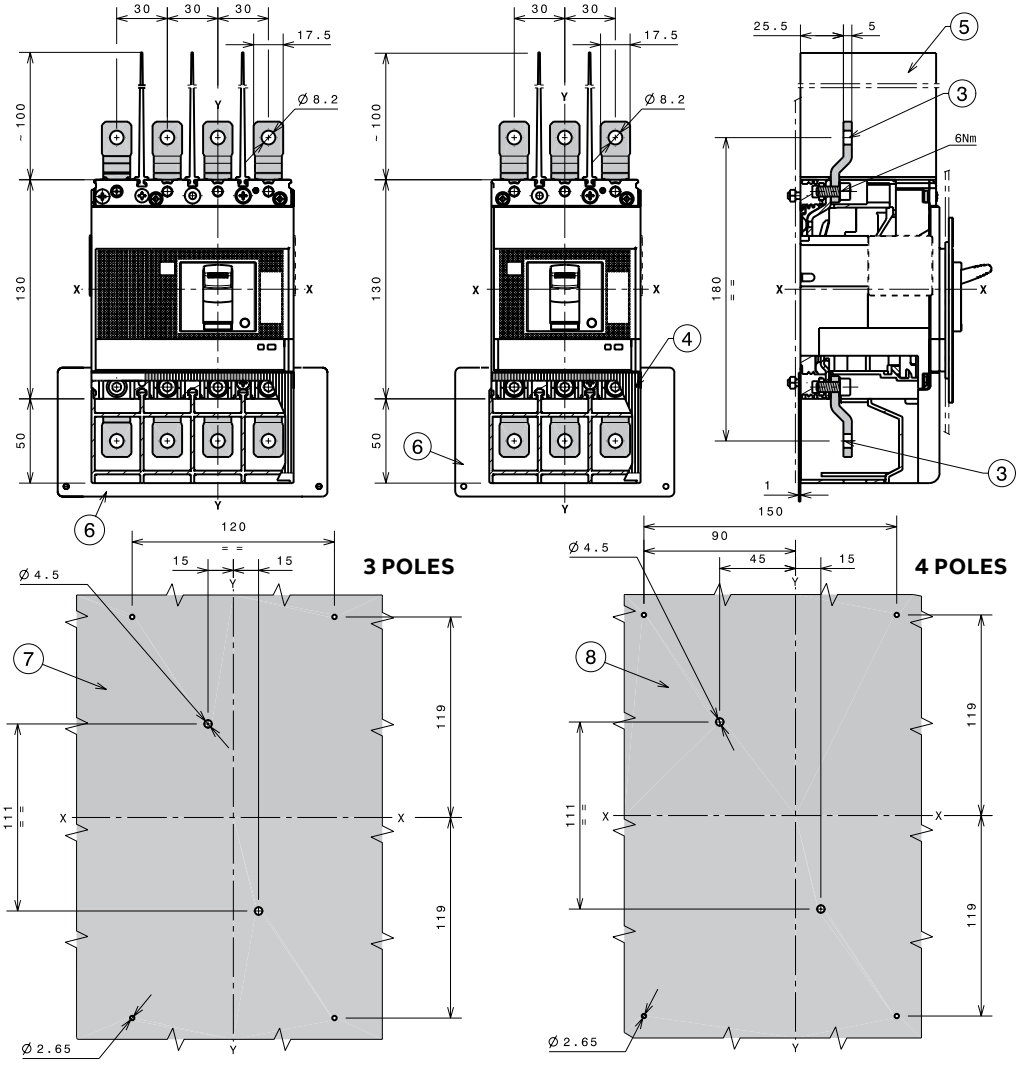
Terminals for fixed circuit-breaker

Terminals F

Key
1 25mm insulating barriers between phases (compulsory) not provided
2 Front terminals for busbars connection



Terminals EF

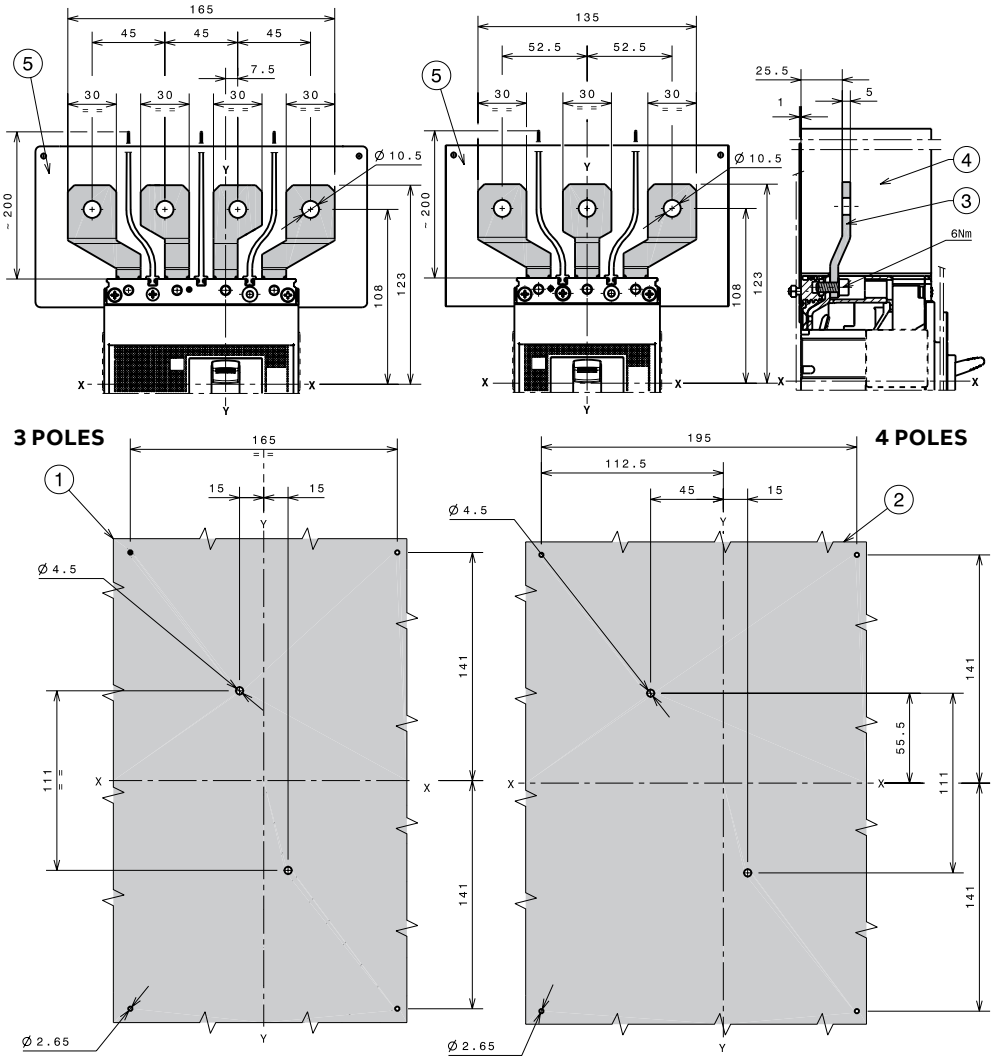


Key
3 Front extended terminals
4 Terminal covers with degree of protection IP40 (optional) not provided
5 100mm insulating barriers between phases (compulsory) provided
6 Insulated plate (compulsory) provided for XT2 Ue>440V
7 Drilling template for 3p circuit-breaker Ue>440V (compulsory)
8 Drilling template for 4p circuit-breaker Ue>440V (compulsory)

Tmax XT2 – Installation
Terminals for fixed circuit-breaker

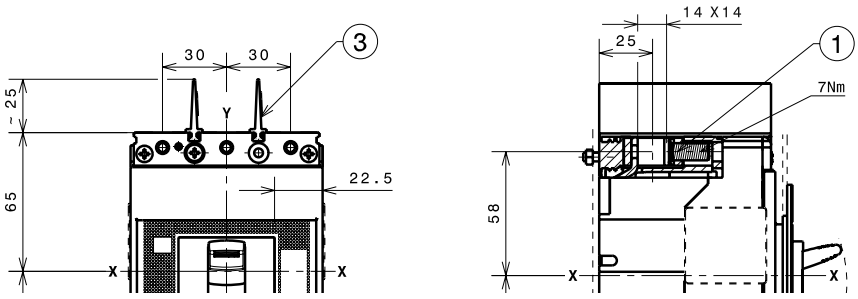
Terminals ES

Key
1 Drilling template for 3p circuit-breaker Ue>440V (compulsory)
2 Drilling template for 4p circuit-breaker Ue>440V (compulsory)
3 Front extended spread terminals
4 200mm insulating barriers between phases (compulsory) provided for Ue>440V
5 Insulated plate (compulsory) provided for XT2 Ue>440V



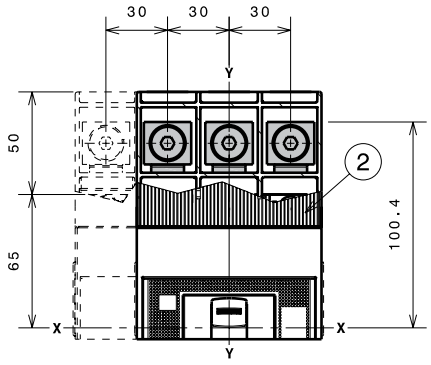
1x1...95mm² terminals FCCuAl

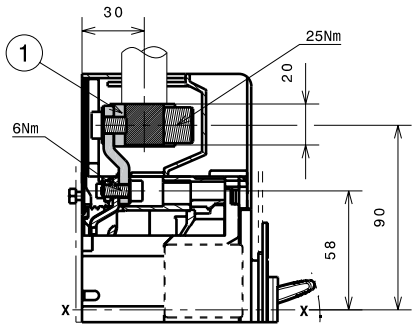
Key
1 1x1...95mm² terminals FCCuAl
3 25mm insulating barriers between phases (compulsory) provided



1x70...185mm² terminals FCCuAl

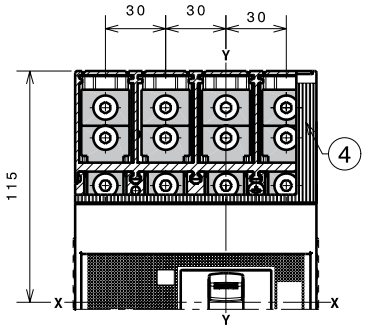
Key
1 External terminal FCCuAl
2 High terminal covers with degree of protection IP40 (optional) provided

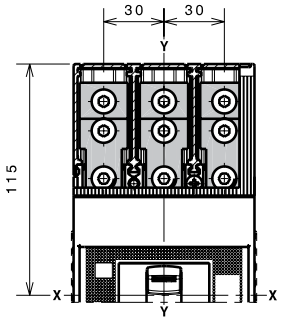


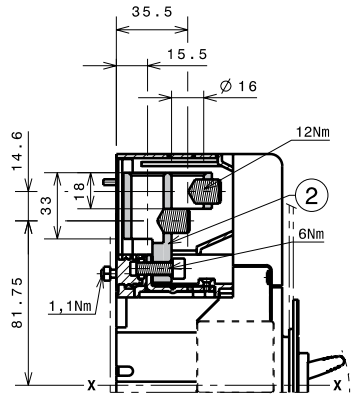


2x35...70mm² terminals FCCuAl

Key
2 2x35...70mm² terminals FCCuAl
4 Terminal covers with degree of protection IP40 (optional) provided

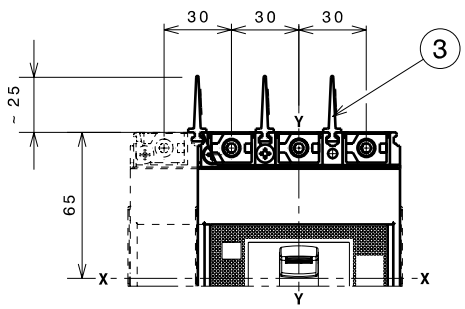


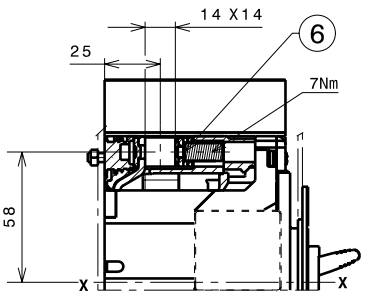




Terminals FCCu

Key
3 25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker
6 Terminals FCCu



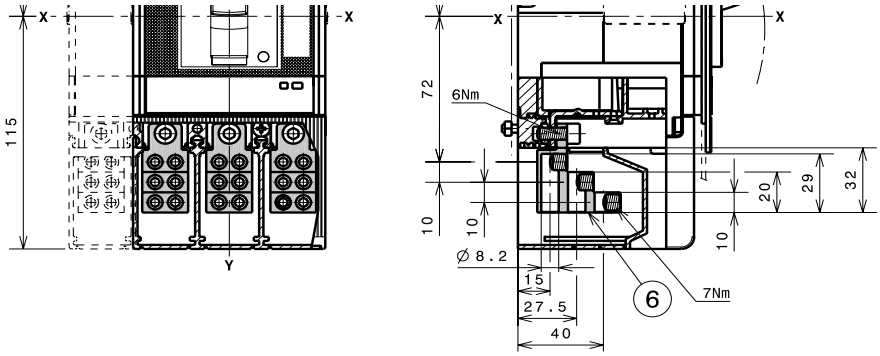


Tmax XT2 – Installation

Terminals for fixed circuit-breaker

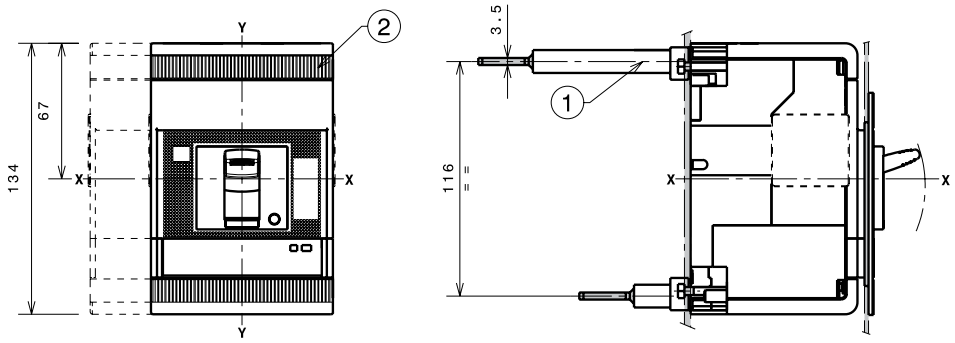
Terminals MC

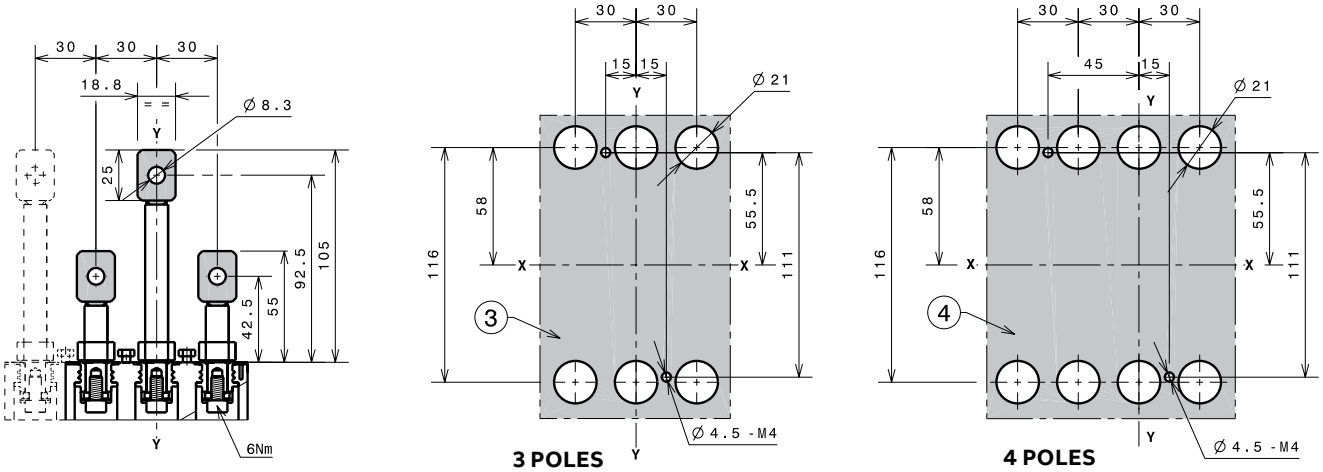
Key
6 Multicable terminals



Terminals R

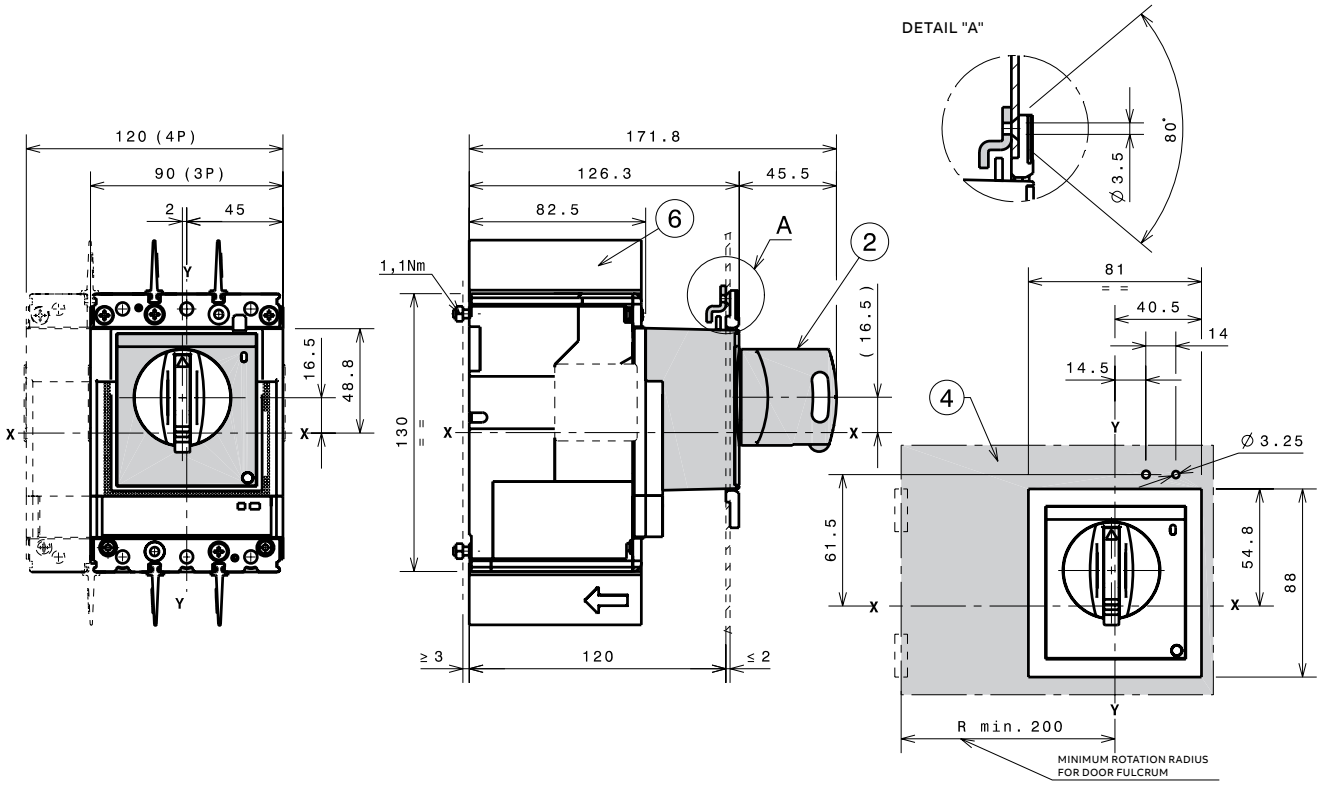
Key
1 Rear adjustable terminals
2 Bottom terminal covers with degree of protection IP30 (optional) provided
3 Drilling template for circuit-breaker III fixing on sheet
4 Drilling template for circuit-breaker IV fixing on sheet





Tmax XT2 – Installation
Accessories for fixed circuit-breaker

Rotary handle operating mechanism on circuit-breaker (RHD)



—

Key

2 Rotary handle operating mechanism on circuit-breaker

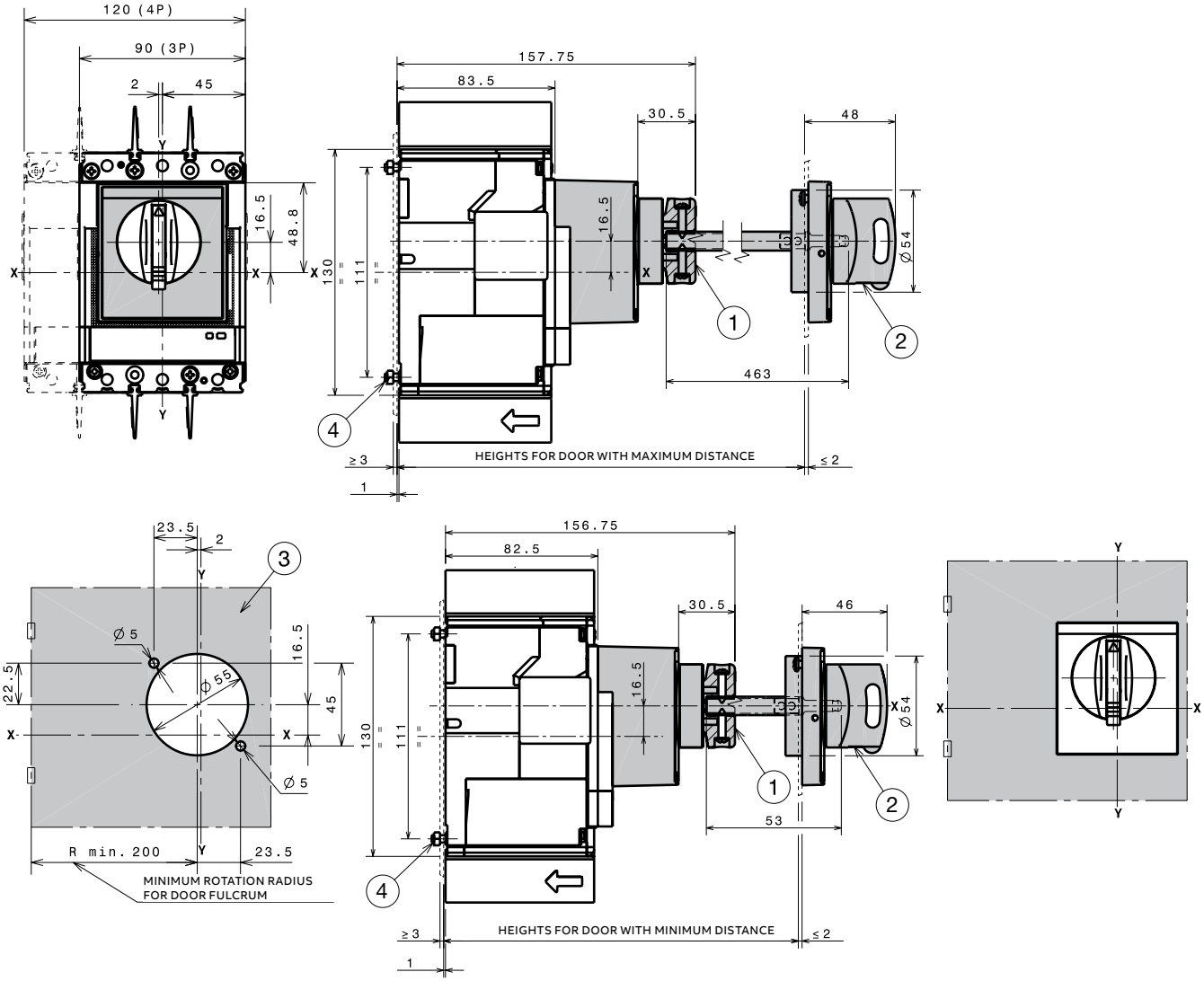
4 Drilling template of door with direct rotary handle

6 25mm insulating barriers between phases provided with circuit-breaker

Tmax XT2 – Installation

Accessories for fixed circuit-breaker

Rotary handle operating mechanism on the compartment door (RHE)

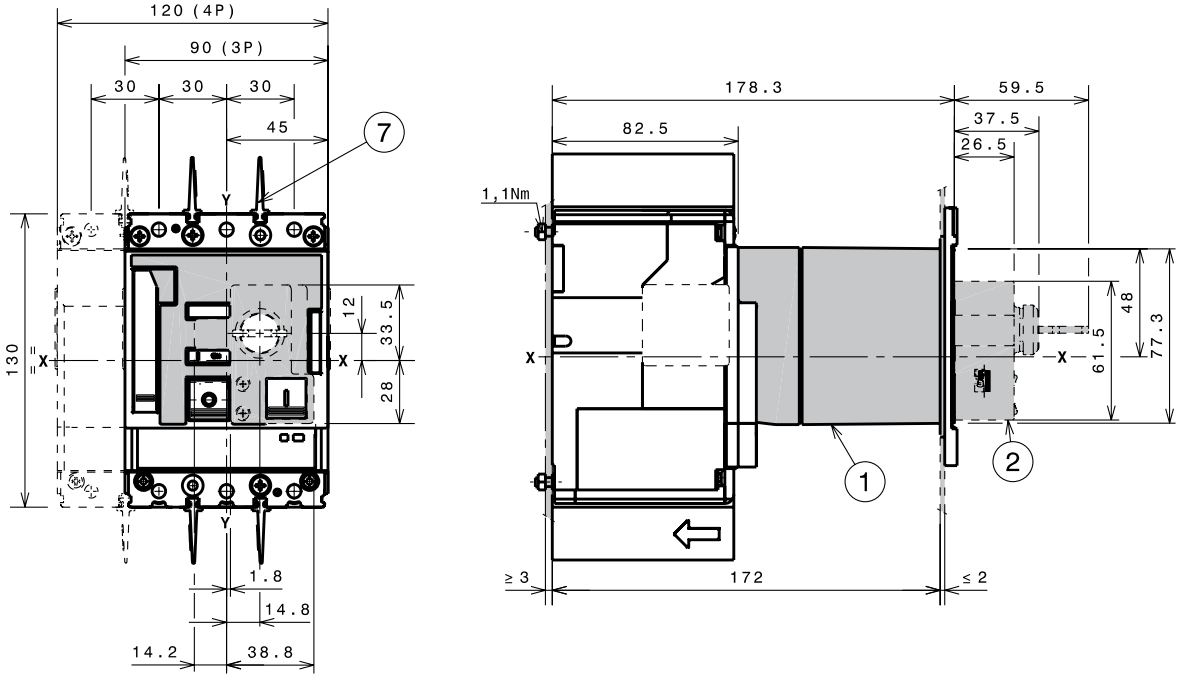


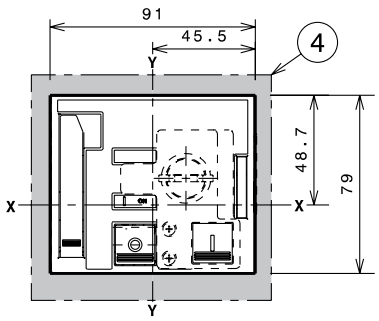
—

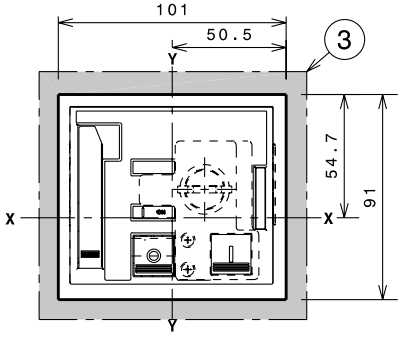
Key

1 Transmission mechanism
2 Rotary handle operating mechanism for compartment door
3 Compartment door shett steel drilling
4 Tightening torque 1.1Nm

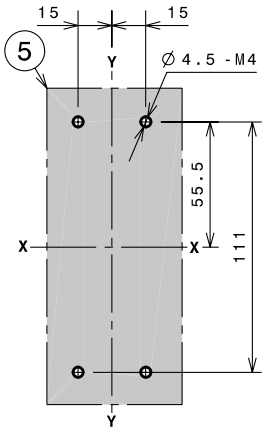
Stored energy motor operator (MOE)



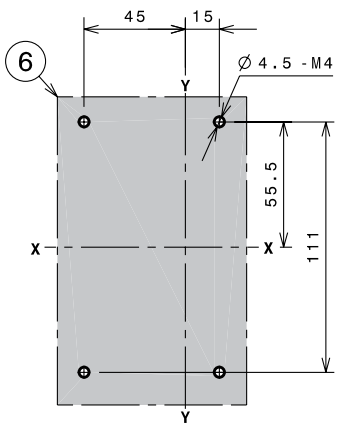




3 POLES



4 POLES



—

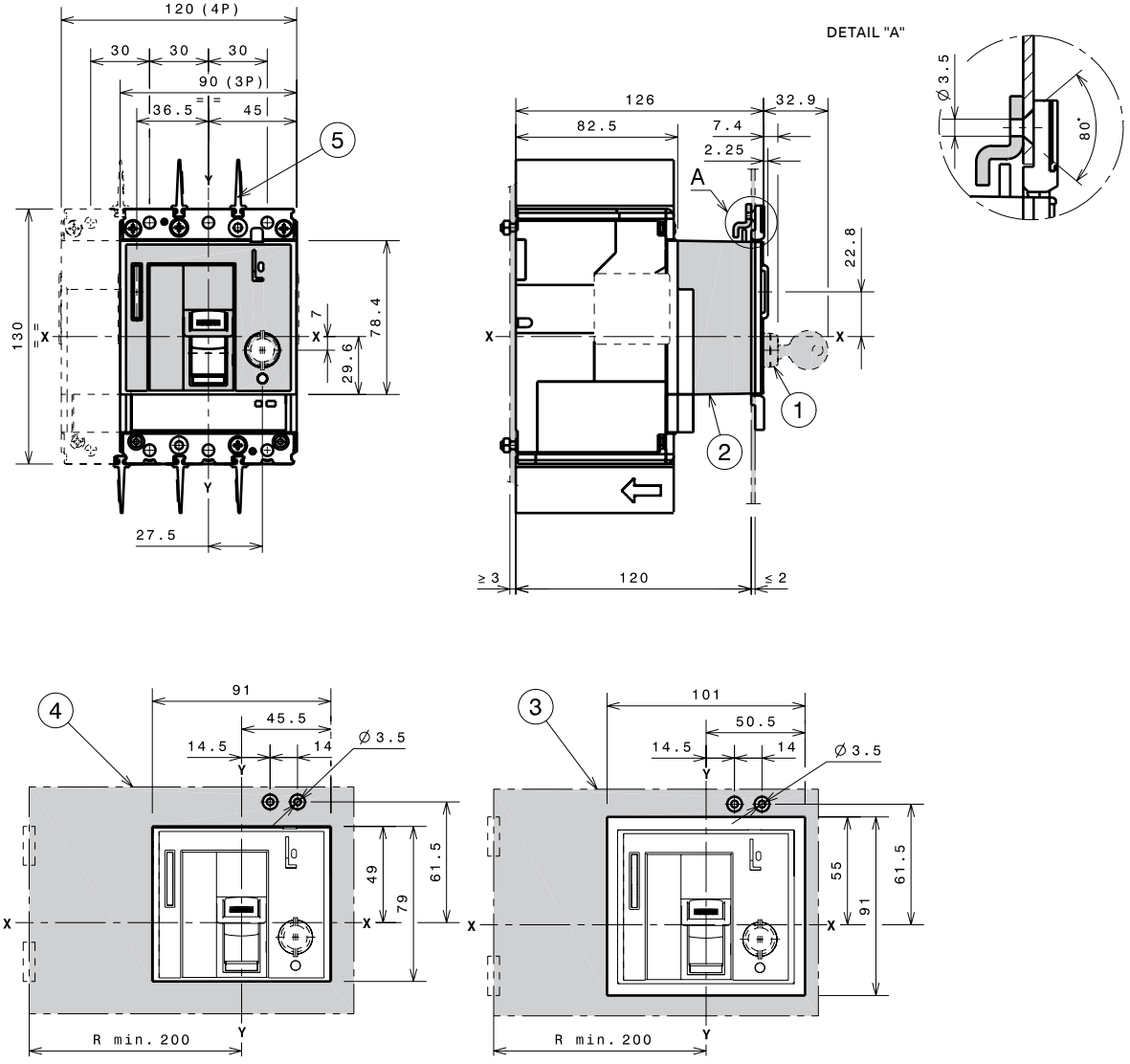
Key

1 Stored energy motor operator (MOE)
2 Key lock optional
3 Drilling template of door with MOE with flange
4 Door drilling template with MOE without flange
5 Drilling template for circuit-breaker 3p fixing on sheet
6 Drilling template for circuit-breaker 4p fixing on sheet
7 25mm insulating barriers between phases provided with circuit-breaker

Tmax XT2 – Installation

Accessories for fixed circuit-breaker

Front for lever operating mechanism (FLD)

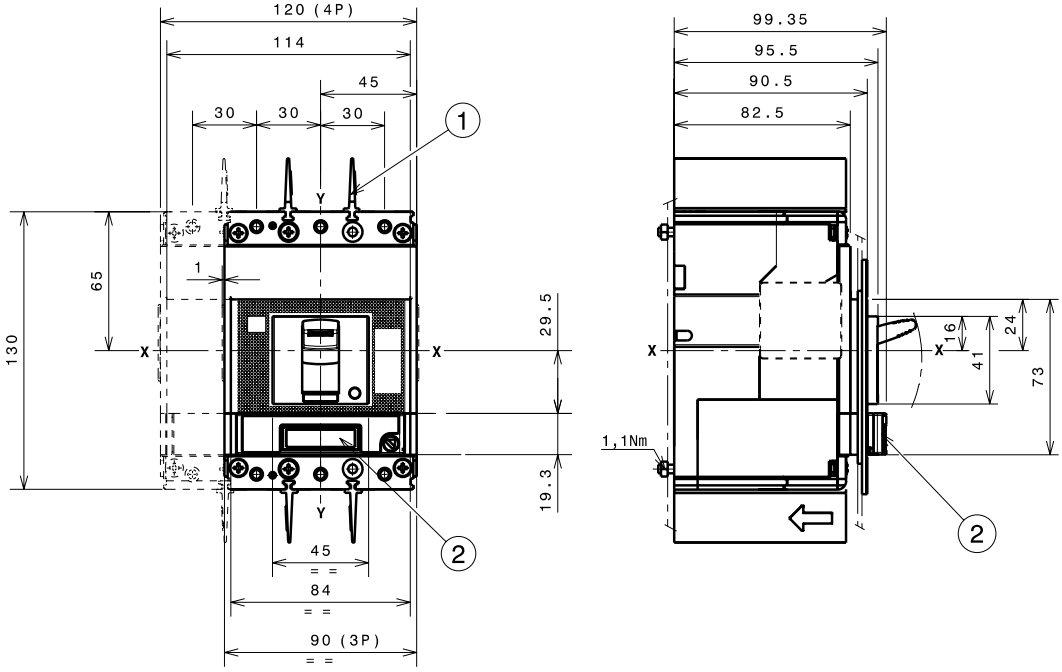


—

Key

1 Key lock optional
2 Front for lever operating mechanism (FLD)
3 Drilling template of door with FLD with flange
4 Drilling template of door with FLD without flange
5 25mm insulating barriers between phases provided with circuit-breaker

Ekip Display or Ekip LED Meter



—

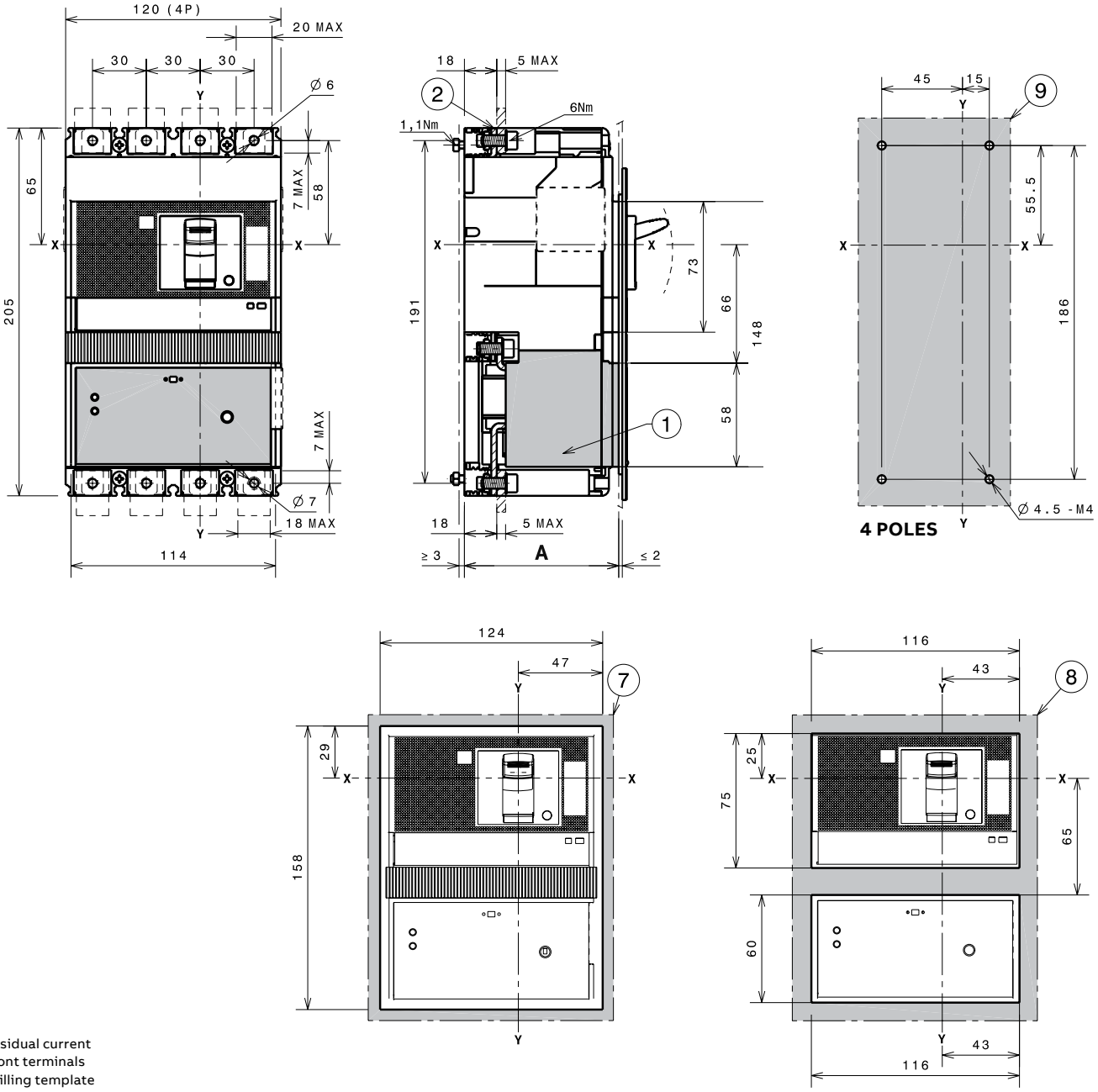
Key

1 25mm insulating barriers between phases provided with circuit-breaker
2 Ekip Display or Ekip LED Meter

Tmax XT2 – Installation

Accessories for fixed circuit-breaker

Residual current RC Sel



Key
1 Residual current
2 Front terminals
7 Drilling template of door with direct rotary handle and fixing with flange
8 Drilling template of door with direct rotary handle and fixing without flange
9 Drilling template for circuit-breaker fixing on sheet

		A
With standard flange	IV	86
Without flange	IV	83.5

Tmax XT2 – Installation

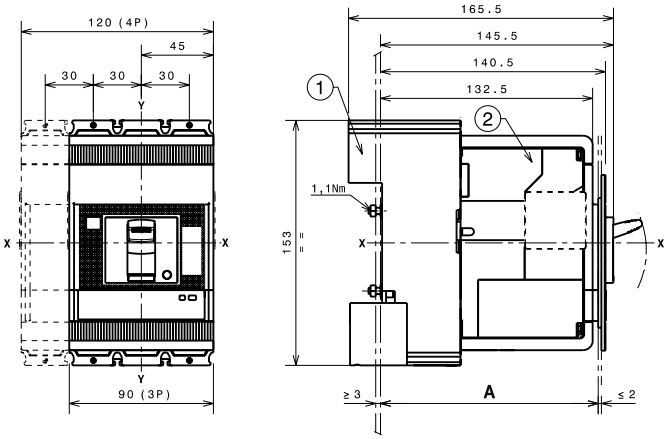
Installation for plug-in circuit-breaker

Plug-in circuit-breaker fixing on sheet

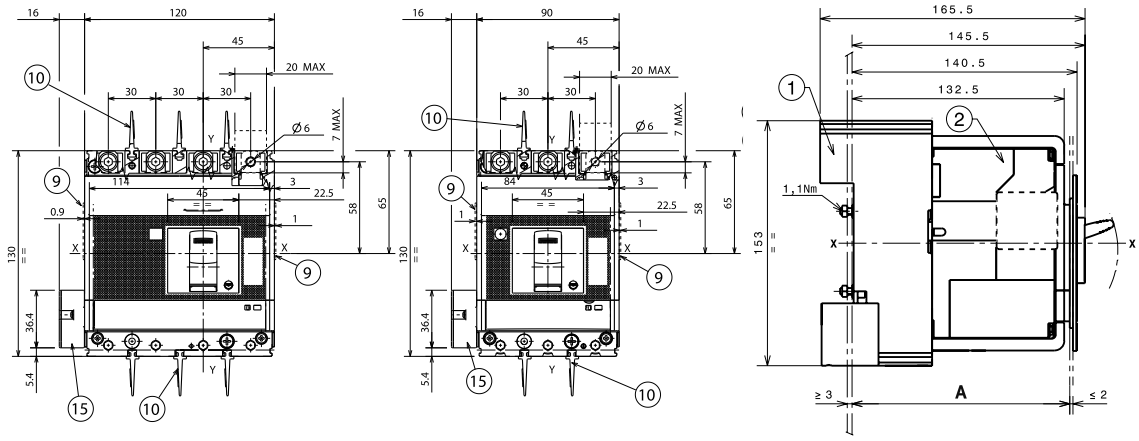
Key
1 Fixed part
2 Moving part

Fixing at 50mm		A
With standard flange	III-IV	136
Without flange	III-IV	133.5
	III-IV	141.5

Fixing at 70mm for extended front terminals		A
With standard flange	III-IV	156
Without flange	III-IV	153.5
	III-IV	161.5



With side connector for Ekip Touch trip units

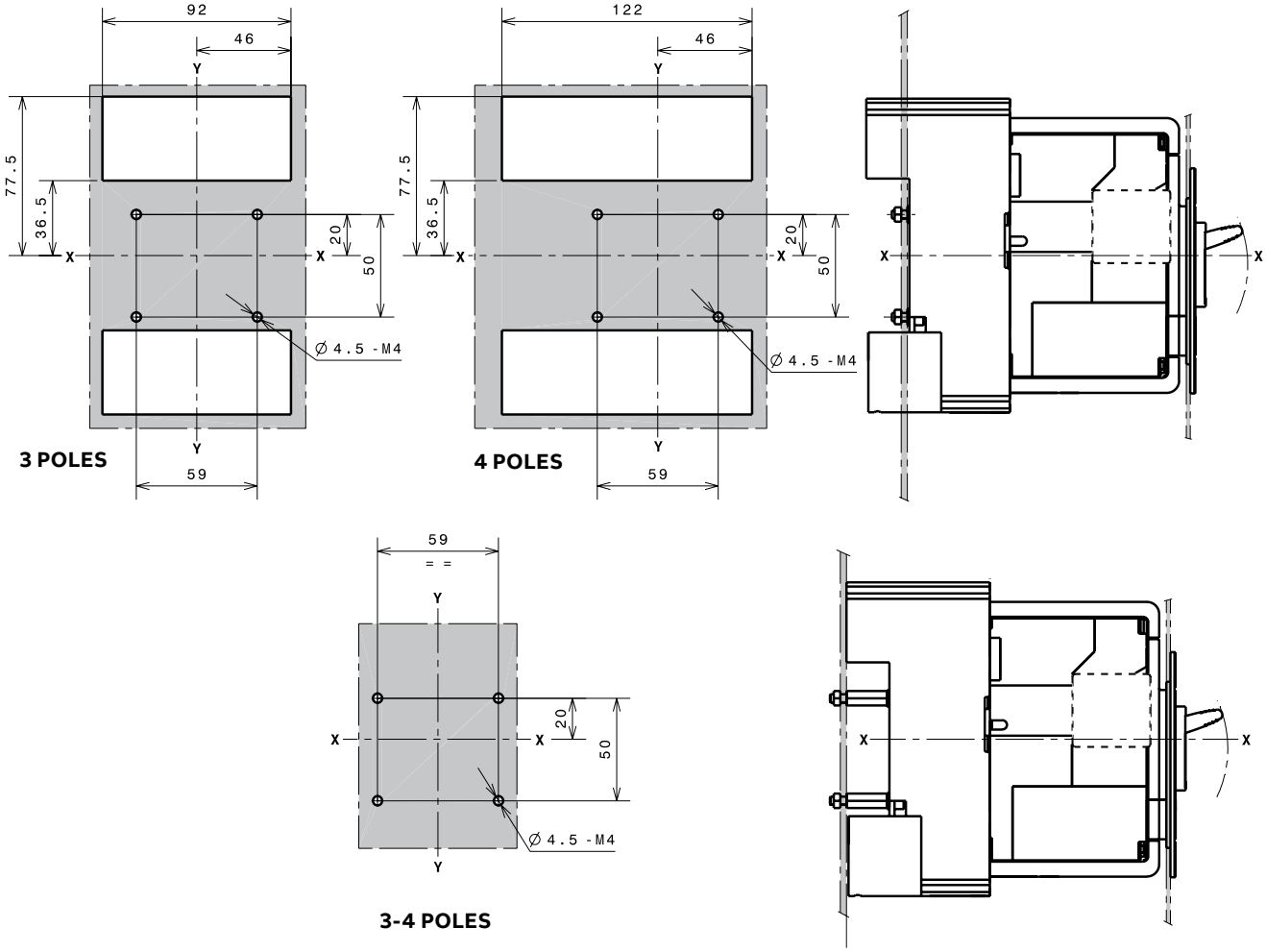


Key
9 Optional wiring duct
10 Interphase insulating barriers 25mm - 0.98"(COMPULSORY)
15 Connection kit F/P IntBus/ExtNeut/Se

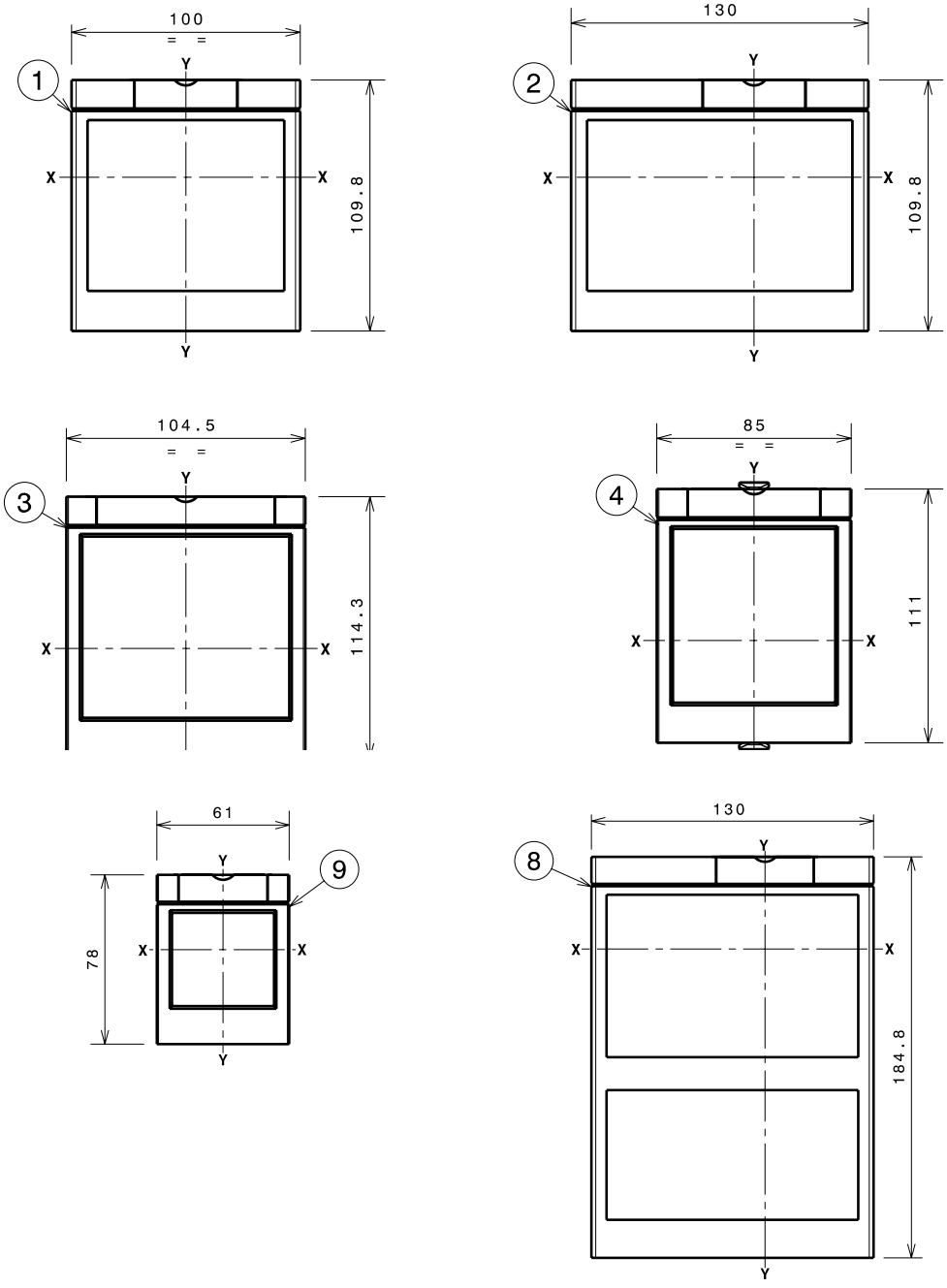
Tmax XT2 – Installation

Installation for plug-in circuit-breaker

Drilling templates for support sheet



Flanges



—

Key

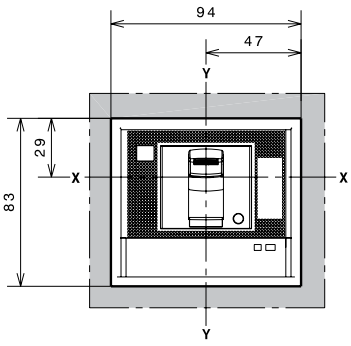
1 Flange for circuit-breaker rimovibile III
2 Flange for circuit-breaker IV
3 Flange for plug-in circuit-breaker III-IV with MOE and FLD
4 Flange for circuit-breaker III-IV with direct rotary handle (RHD)
8 Flange for circuit-breaker IV with residual current and plug-in with front terminals
9 Optional flange

Tmax XT2 – Installation

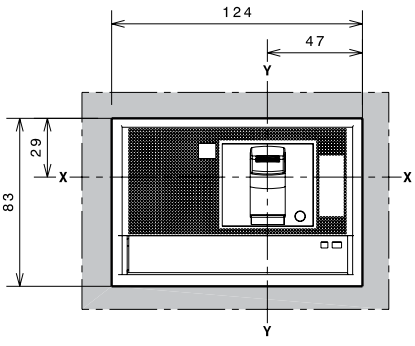
Installation for plug-in circuit-breaker

Drilling templates compartment door

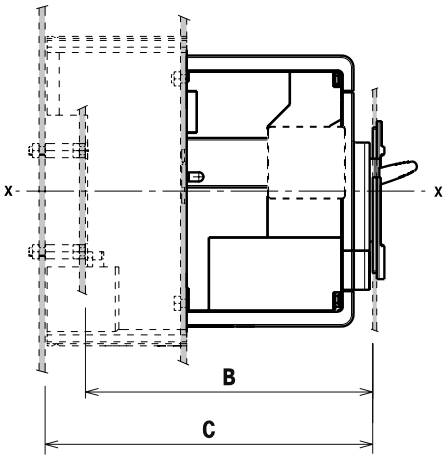
With standard flange



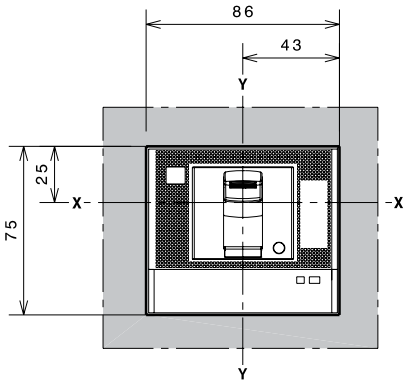
B=136 C=156
3 POLES



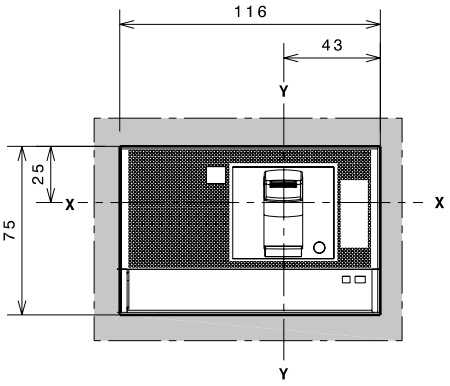
B=136 C=156
4 POLES



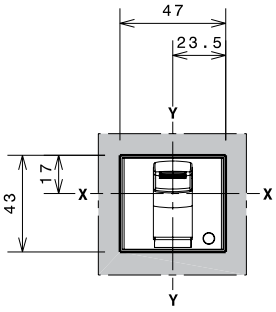
Without flange



B=133.5 C=153.5
3 POLES

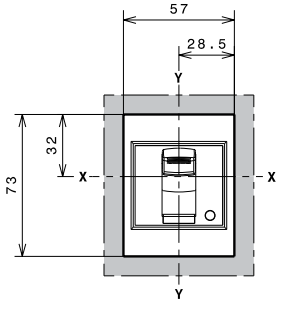


B=133.5 C=153.5
4 POLES

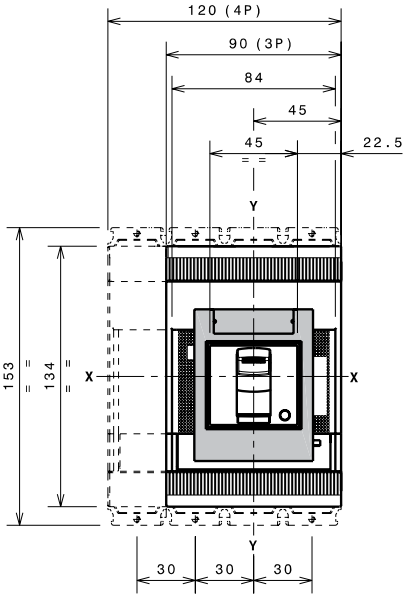


B=141.5 C=101.5
3-4 POLES

With optional flange



B=142 C=162
3-4 POLES

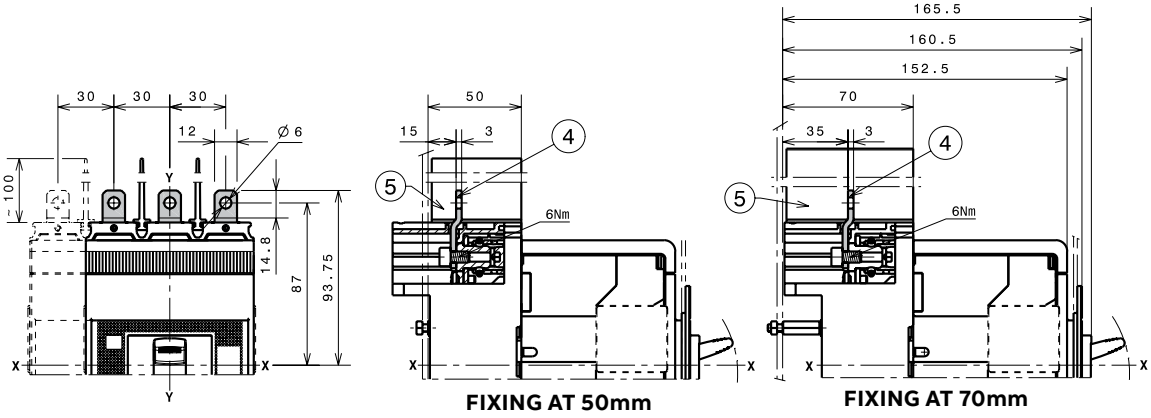


Tmax XT2 – Installation

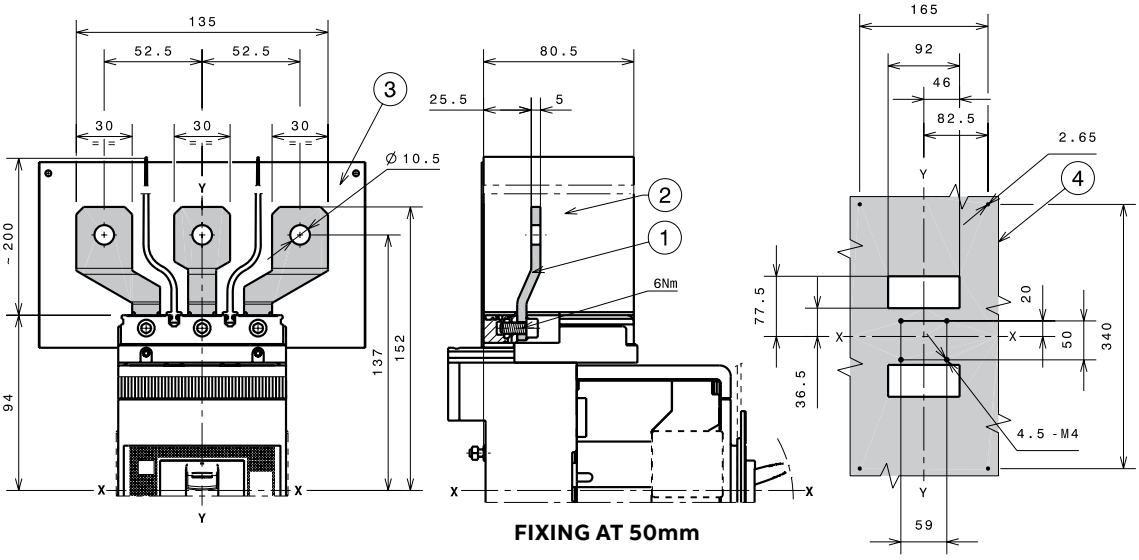
Terminals for plug-in circuit-breaker

Terminals EF

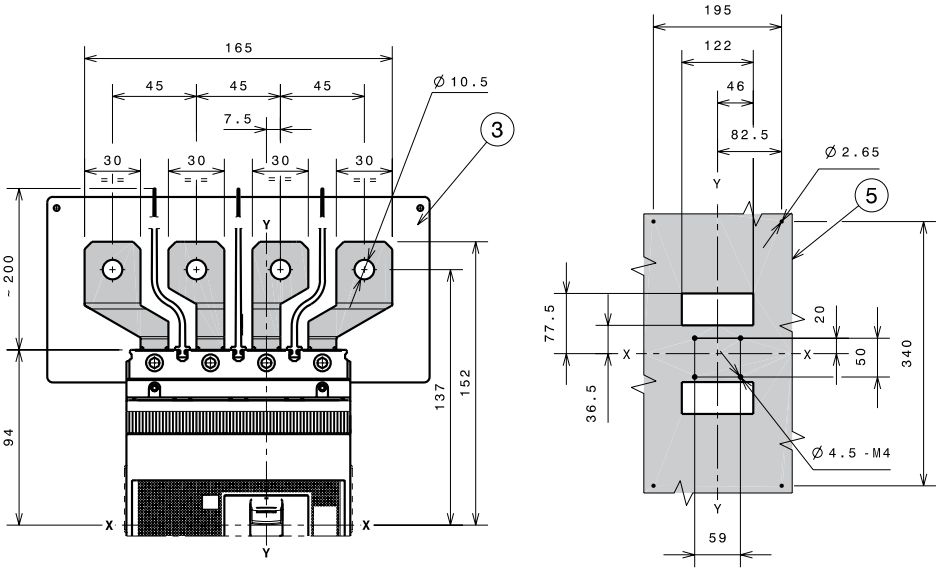
Key
4 Front extended terminals
5 100mm insulating barriers between phases (compulsory) provided



Terminals ES



Key
1 Front extended spread terminals
2 200mm insulating barriers between phases (compulsory) provided
3 Insulated plate (compulsory) provided
4 Drilling template for 3p circuit-breaker Ue>440V (compulsory)
5 Drilling template for 4p circuit-breaker Ue>440V (compulsory)

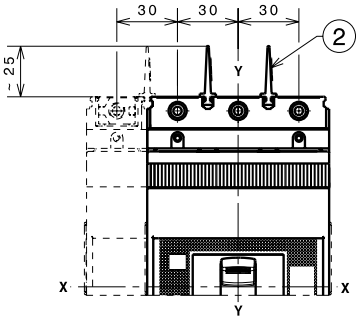


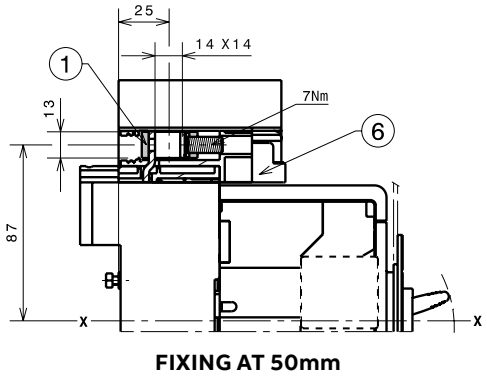
Tmax XT2 – Installation

Terminals for plug-in circuit-breaker

1x1...95mm² terminals FCCuAl

Key
1 1x1...95mm² front terminal FCCuAl
2 25mm insulating barriers between phases (compulsory) provided
6 Adaptor (compulsory) not provided

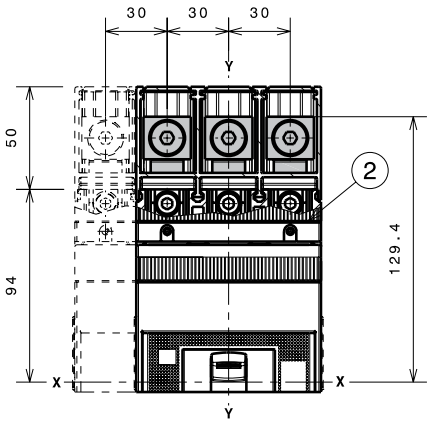


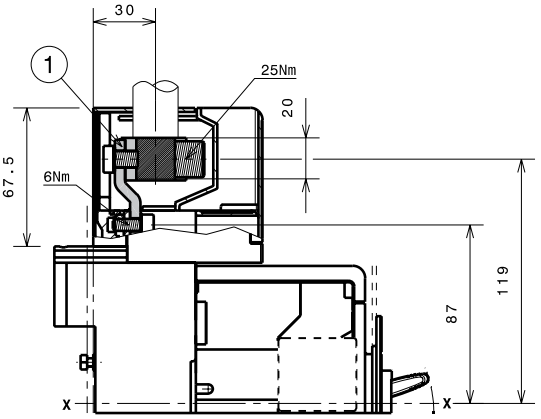


FIXING AT 50mm

1x70...185mm² terminals FCCuAl

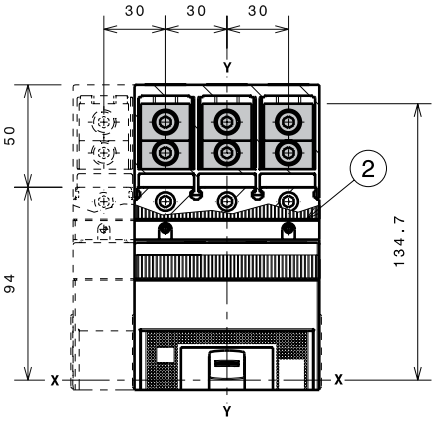
Key
1 External terminal FCCuAl
2 High terminal covers with degree of protection IP40 (optional) provided

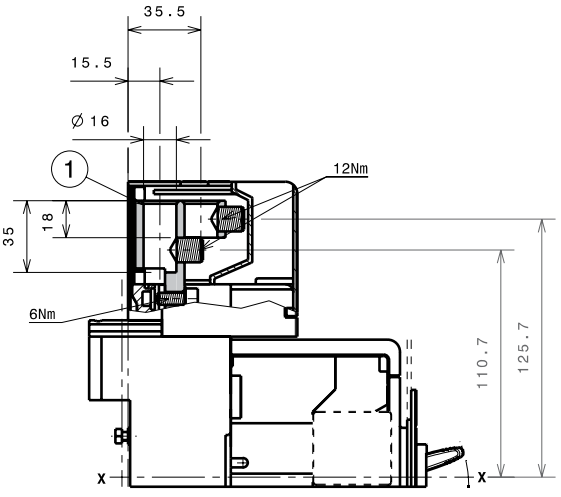




2x35...70mm² terminals FCCuAl

Key
1 External terminal FCCuAl
2 High terminal covers with degree of protection IP40 (optional) provided

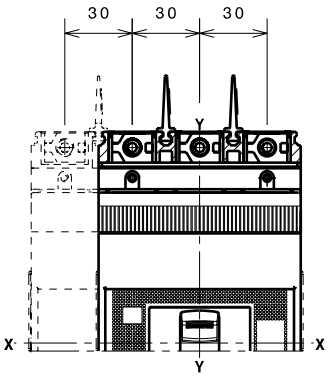


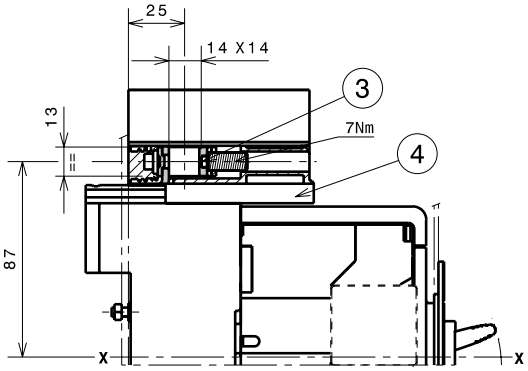


Terminals FCCu

—
Key
3 Terminals FCCu
4 Adaptor (compulsory) not provided

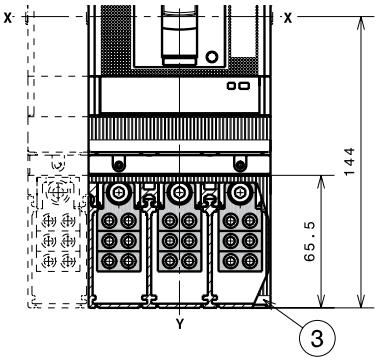
—
Note:
25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker

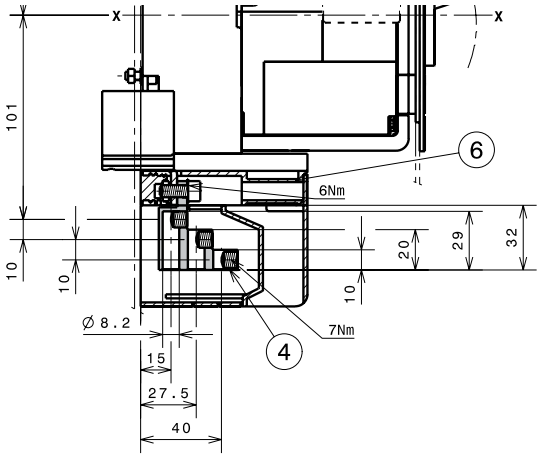




FIXING AT 50mm

Terminals MC





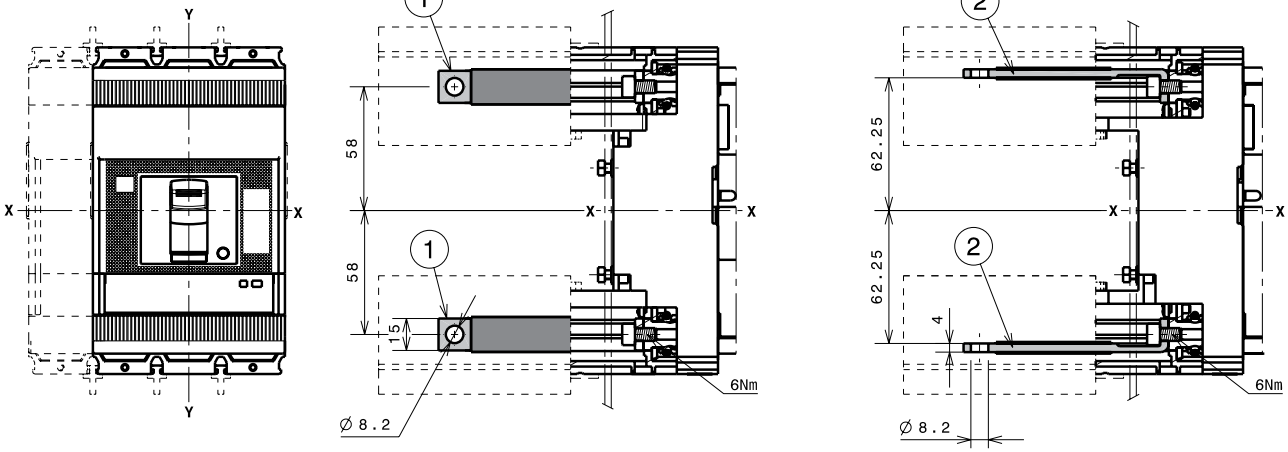
FIXING AT 50mm

—
Key
3 High terminal covers with degree of protection IP40 (optional) provided
4 Multicable terminals
6 Adaptor (compulsory) not provided

Tmax XT2 – Installation

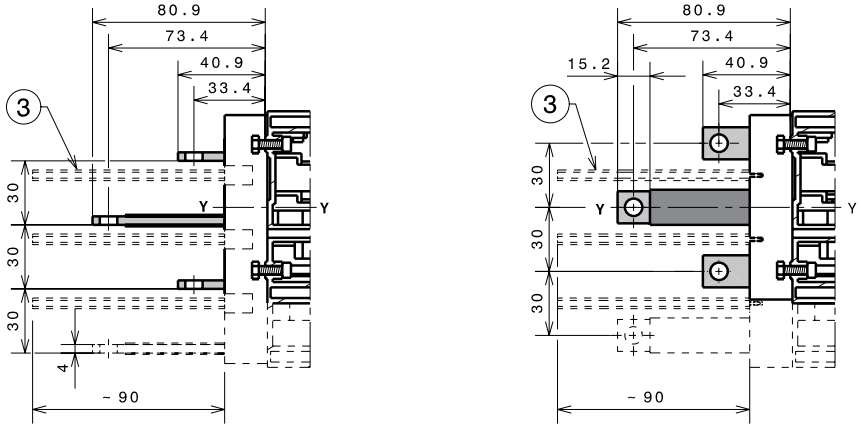
Terminals for plug-in circuit-breaker

Terminals HR/VR



FIXING AT 50mm

FIXING AT 50mm



—

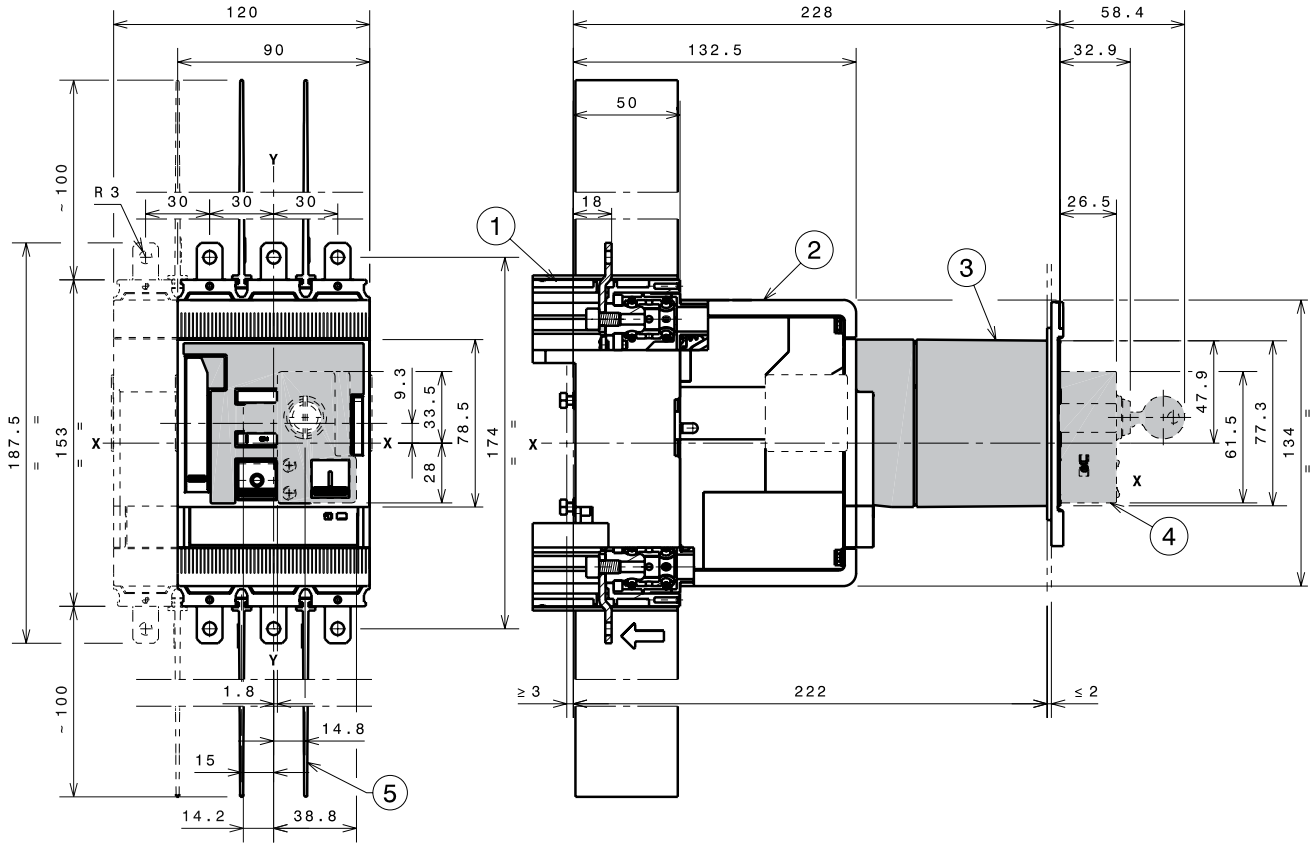
Key

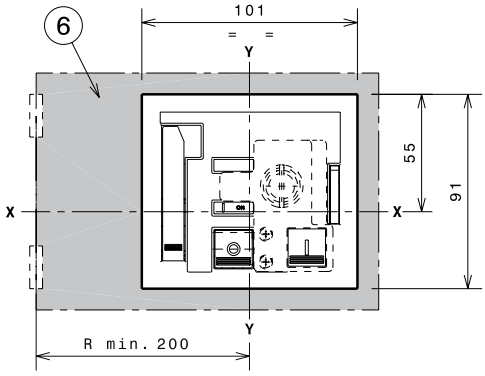
1 Rear vertical terminals
2 Rear horizontal terminals
3 90mm insulating barriers between phases (compulsory) not provided

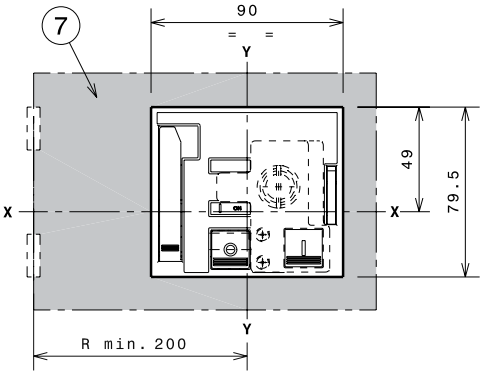
Tmax XT2 – Installation

Accessories for plug-in circuit-breaker

Stored energy motor operator (MOE)







—

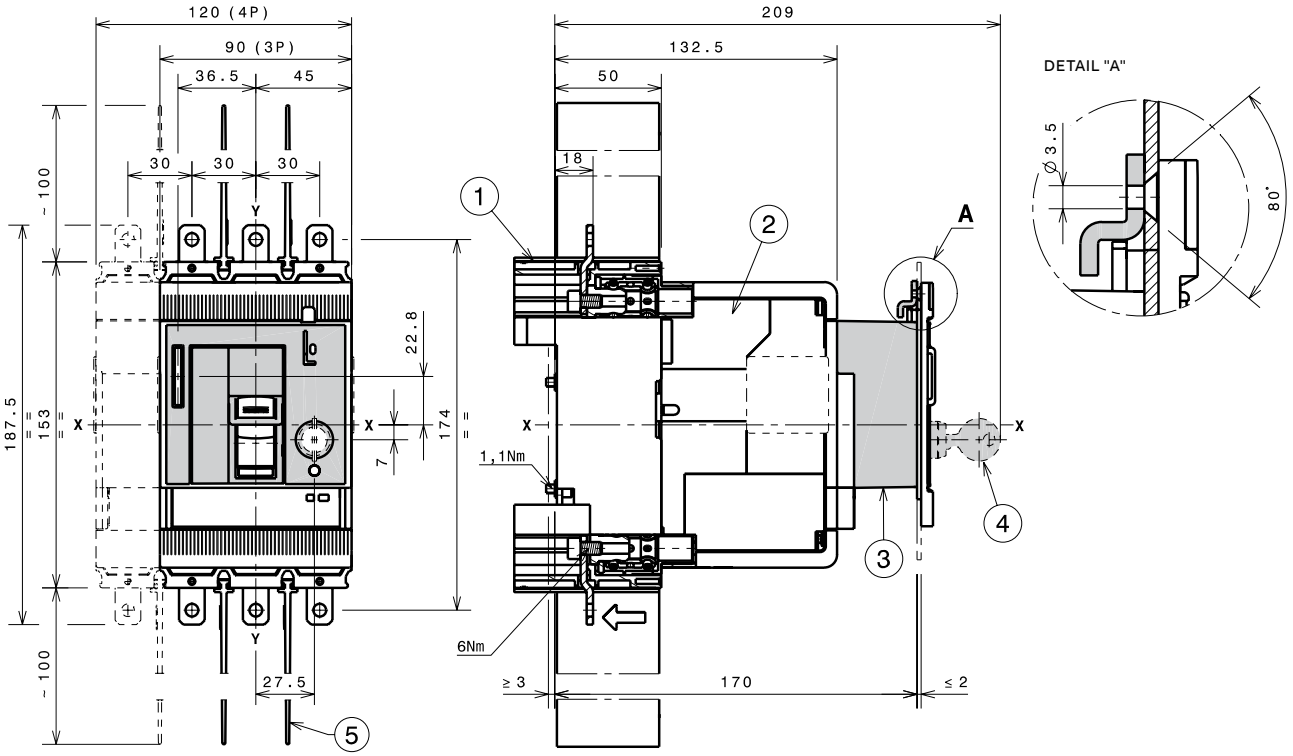
Key

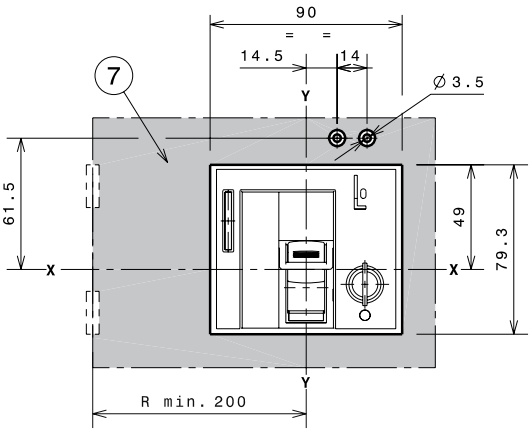
1 Fixed part
2 Moving part
3 MOE
4 Key lock optional
5 100mm insulating barriers between phases (compulsory) provided
6 Drilling template of door with direct rotary handle with flange
7 Drilling template of door with direct rotary handle without flange

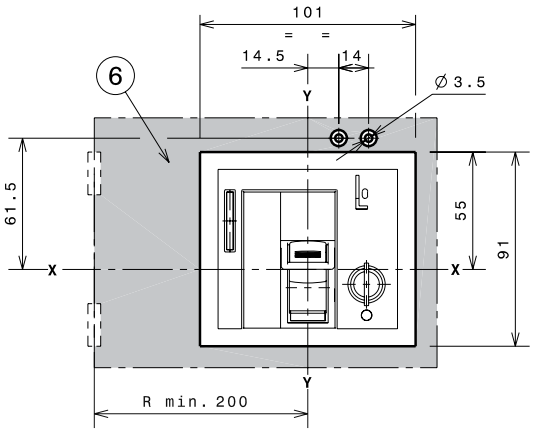
Tmax XT2 – Installation

Accessories for plug-in circuit-breaker

Front for lever operating mechanism (FLD)



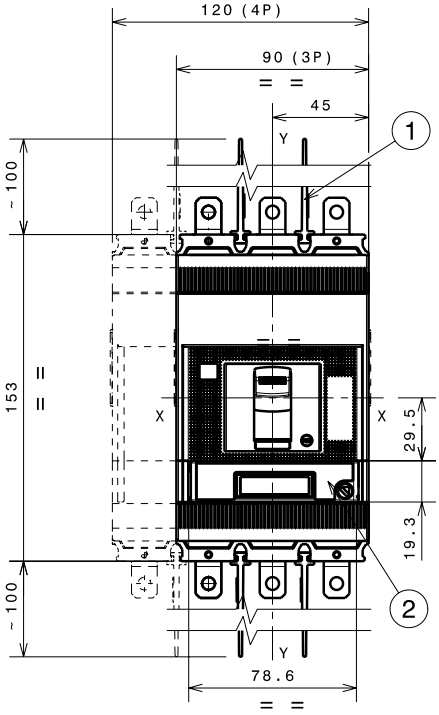


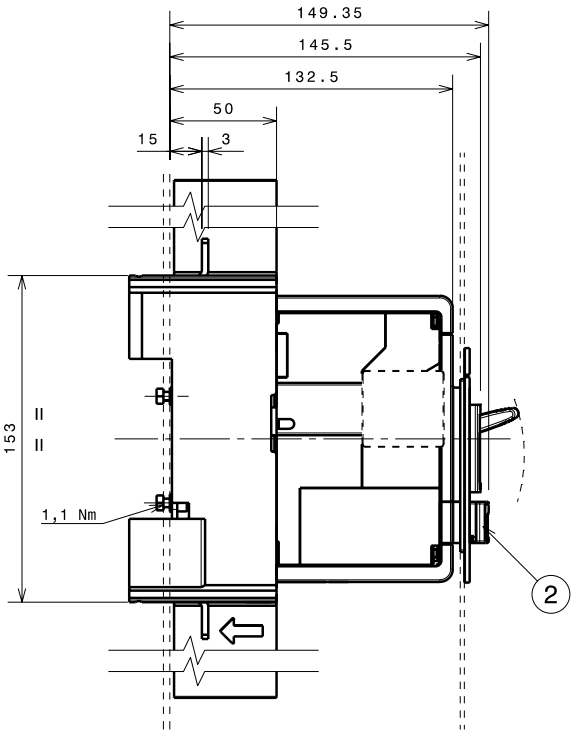


Key

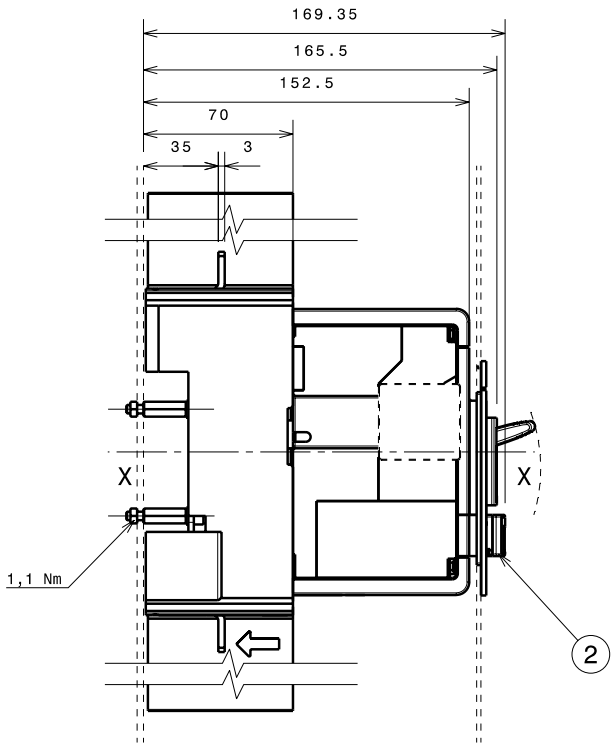
1 Fixed part
2 Moving part
3 Front for lever operating mechanism (FLD)
4 Key lock optional
5 100mm insulating barriers between phases (compulsory) provided
6 Drilling template of door with direct rotary handle with flange
7 Drilling template of door with direct rotary handle without flange

Ekip Display or Ekip LED Meter





FIXING AT 50mm



FIXING AT 50mm

—

Key

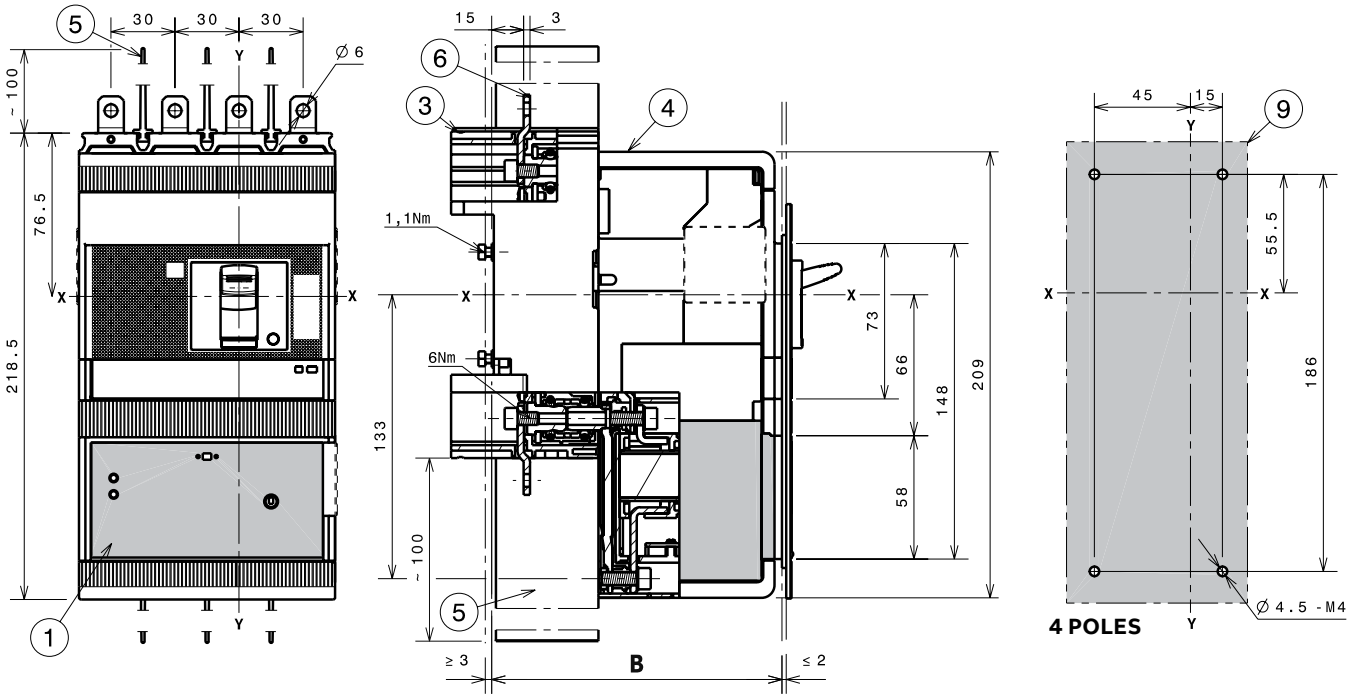
1 100mm insulating barriers between phases

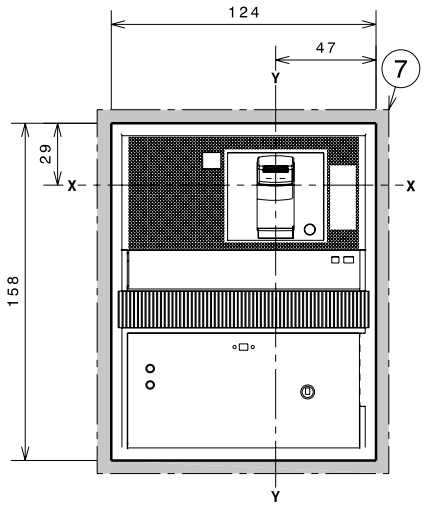
2 Ekip Display or Ekip LED Meter

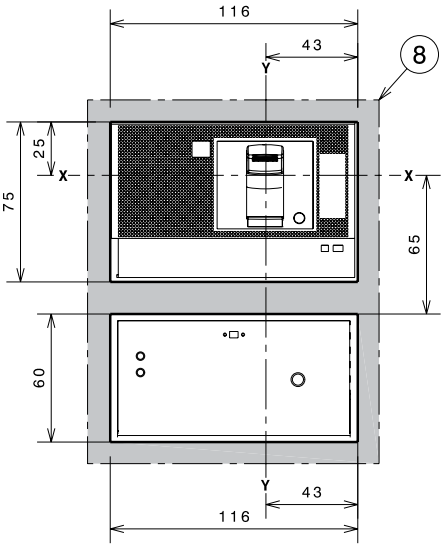
Tmax XT2 – Installation

Accessories for plug-in circuit-breaker

Residual current RC Sel







—

Key

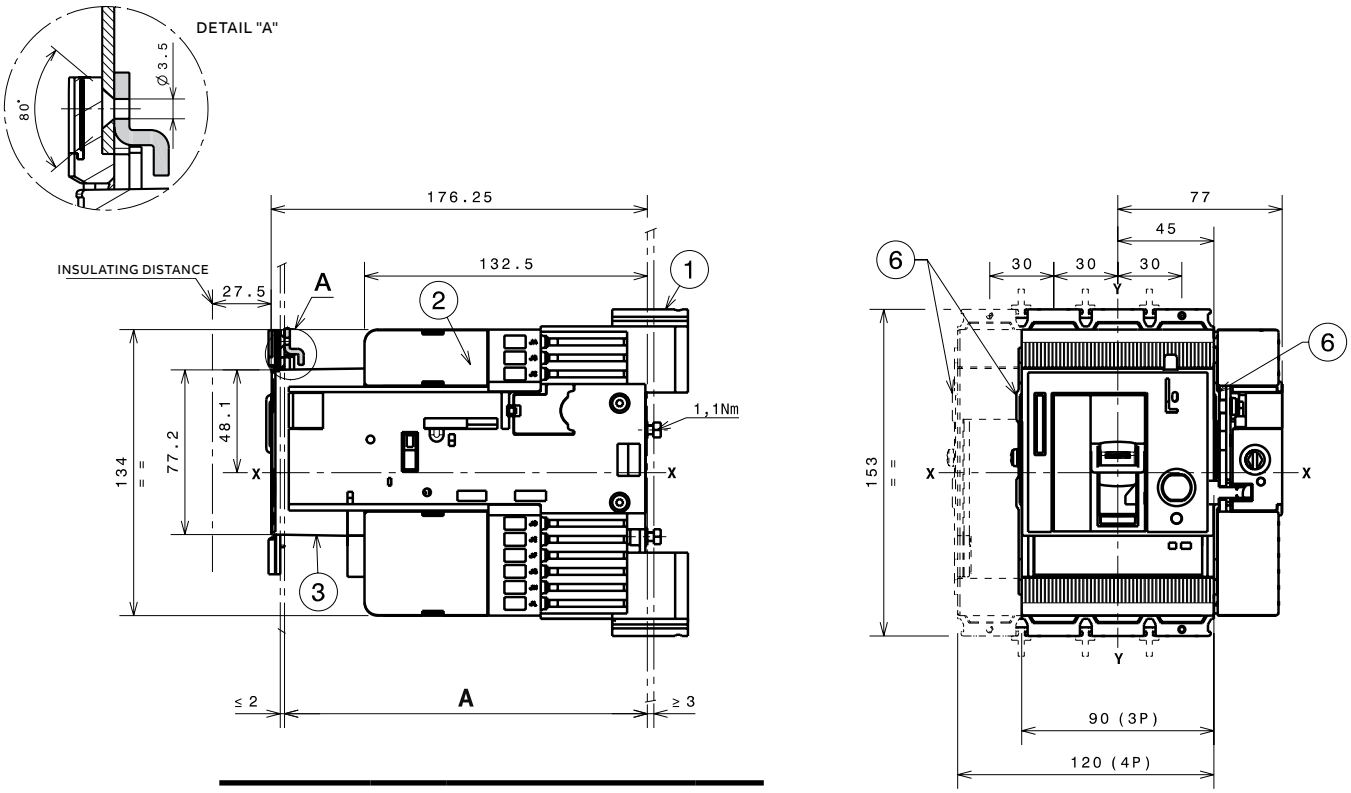
1 Residual current
3 Fixed part
4 Moving part
5 100mm insulating barriers between phases (compulsory) provided
6 Extended terminals
7 Drilling template of door with direct rotary handle and fixing with flange
8 Drilling template of door with direct rotary handle and fixing without flange
9 Drilling template for circuit-breaker fixing on sheet

		A
With standard flange	IV	136
Without flange	IV	133.5

Tmax XT2 – Installation

Installation for withdrawable circuit-breaker

Fixing on sheet



			A
With standard flange	III - IV	Fixing at 50mm	170
	III - IV	Fixing at 70mm for extended front terminals	190

—

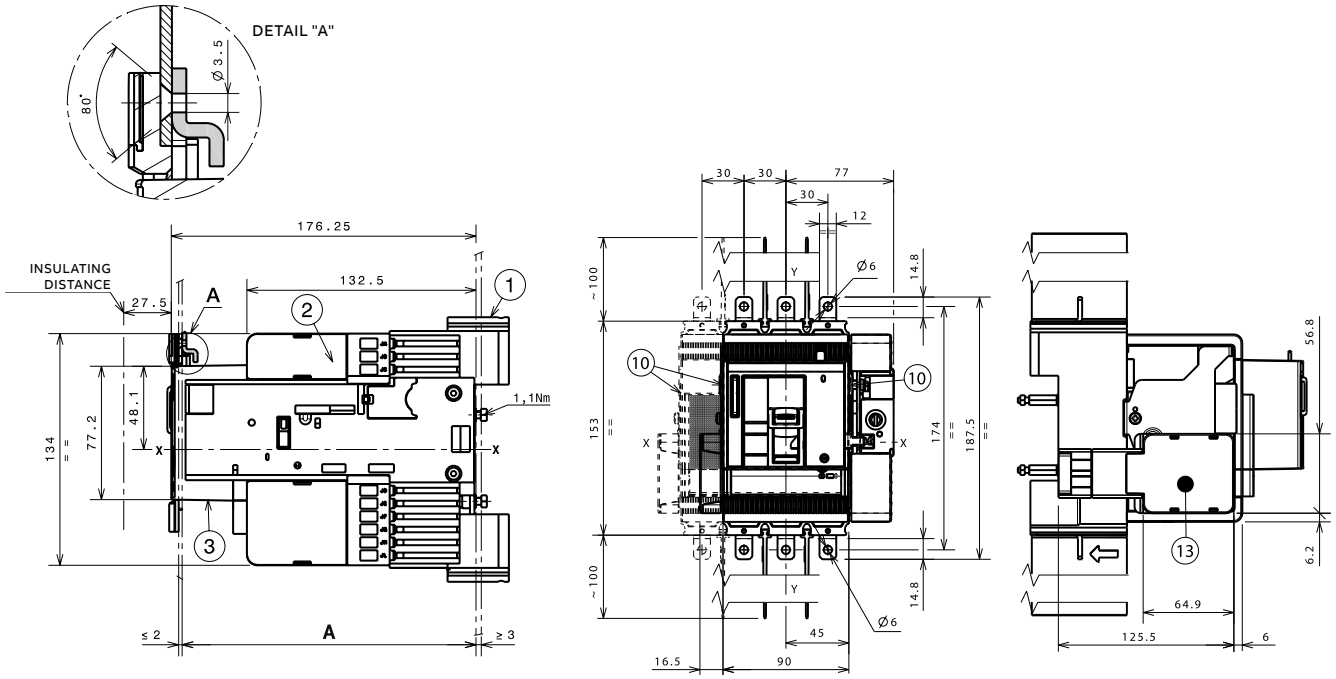
Key

1 Fixed part
2 Moving part
3 FLD (FLD o RHD o RHE o MOE) mandatory for withdrawable version
6 Optional wiring ducts

Tmax XT2 – Installation

Installation for withdrawable circuit-breaker

With side connector for Ekip Touch trip units



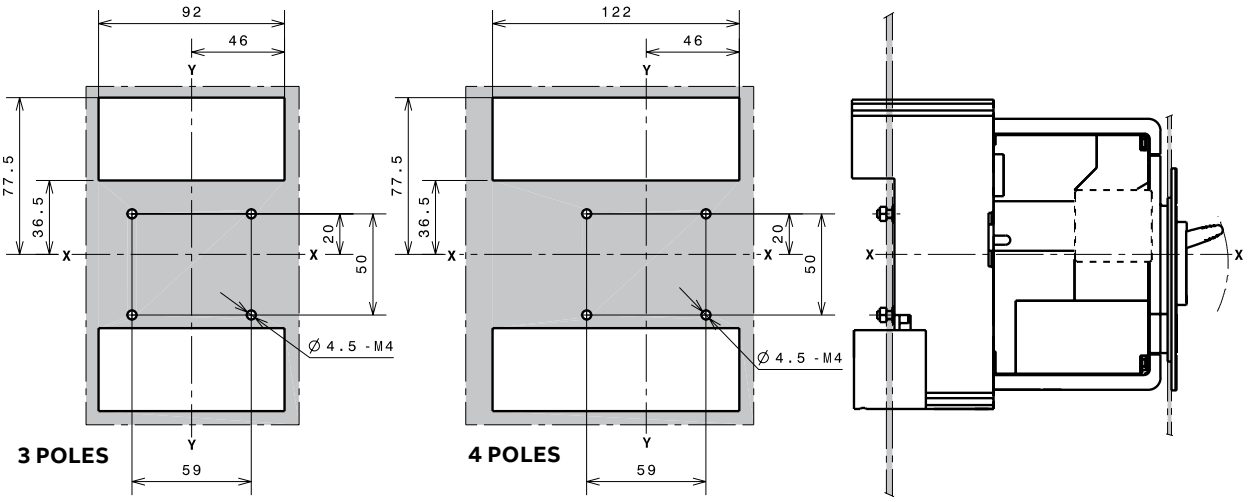
			A
With standard flange	III - IV	Fixing at 50mm	170
	III - IV	Fixing at 70mm for extended front terminals	190

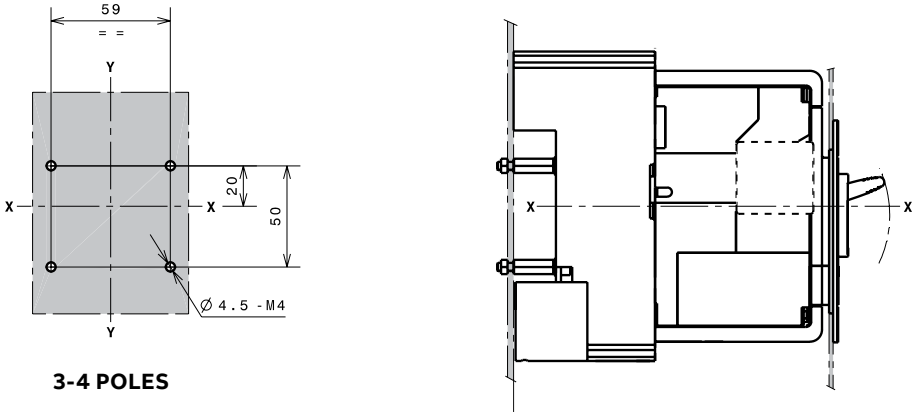
—

Key

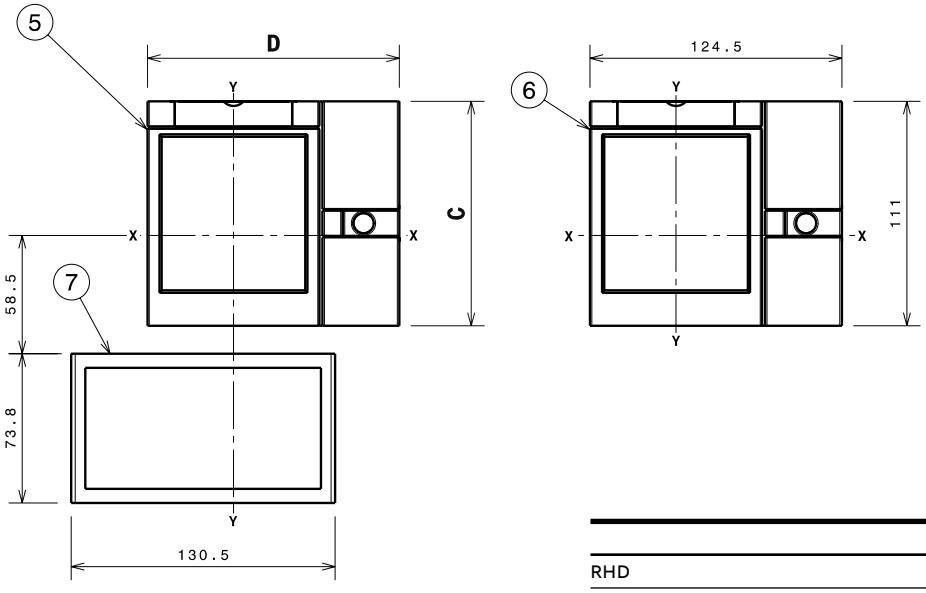
1 Fixed part
2 Moving part
3 FLD (FLD o RHD o RHE o MOE) mandatory for withdrawable version
10 Optional Wiring Duct
13 Connection Kit W IntBus/ExtNeut/Sel

Drilling templates for support sheet





Flanges



—

Key

5 Flange for circuit-breaker III-IV withdrawable

6 Flange for circuit-breaker withdrawable III-IV with direct rotary handle RHD

7 Flange for circuit-breaker residual current IV withdrawable with front extended terminals

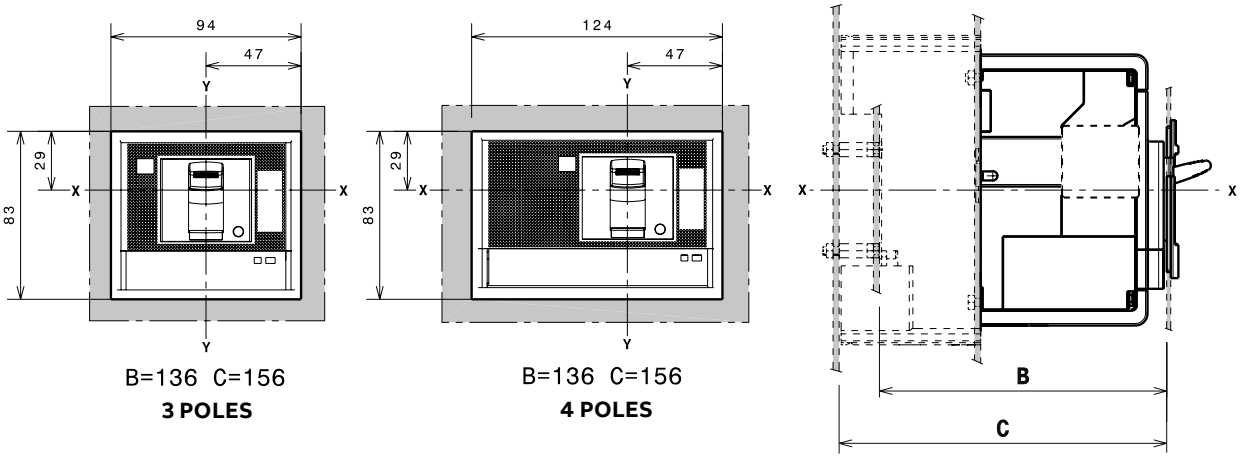
	C	D
RHD	111	124.5
FLD - MOE	114.3	134.5

Tmax XT2 – Installation

Installation for withdrawable circuit-breaker

Drilling templates compartment door

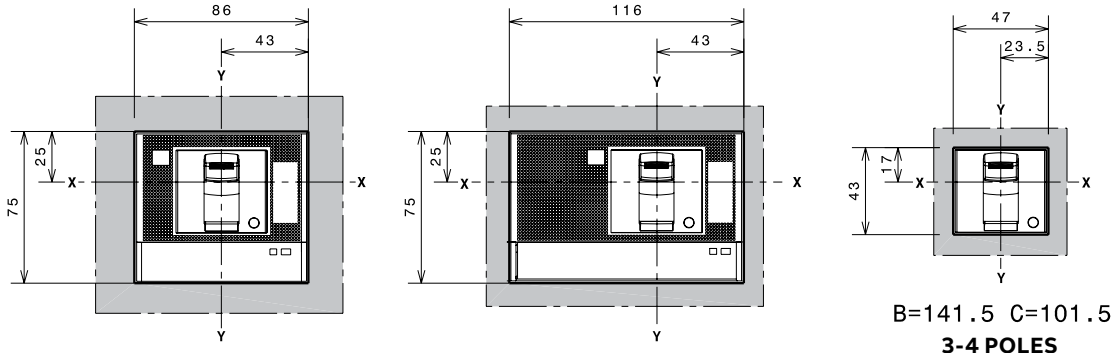
With standard flange



B=136 C=156
3 POLES

B=136 C=156
4 POLES

Without flange

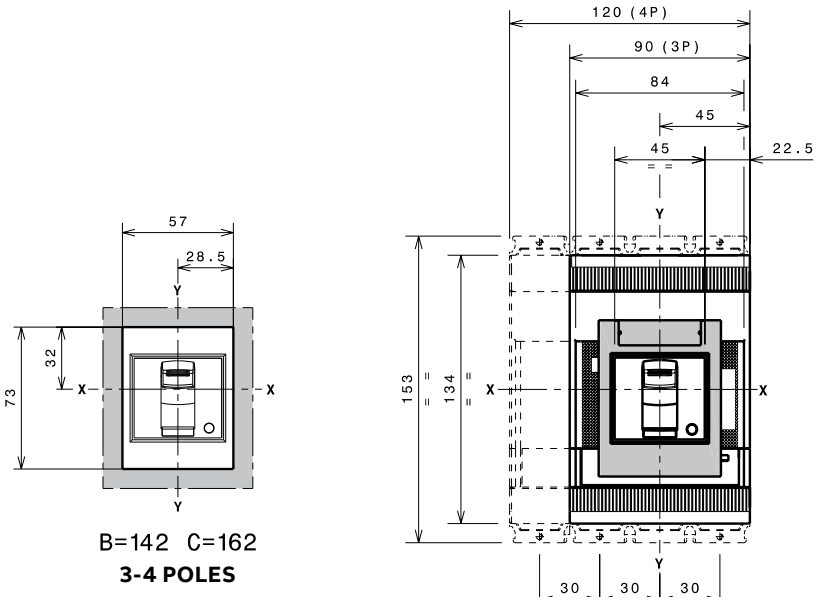


B=133.5 C=153.5
3 POLES

B=133.5 C=153.5
4 POLES

B=141.5 C=101.5
3-4 POLES

With standard flange

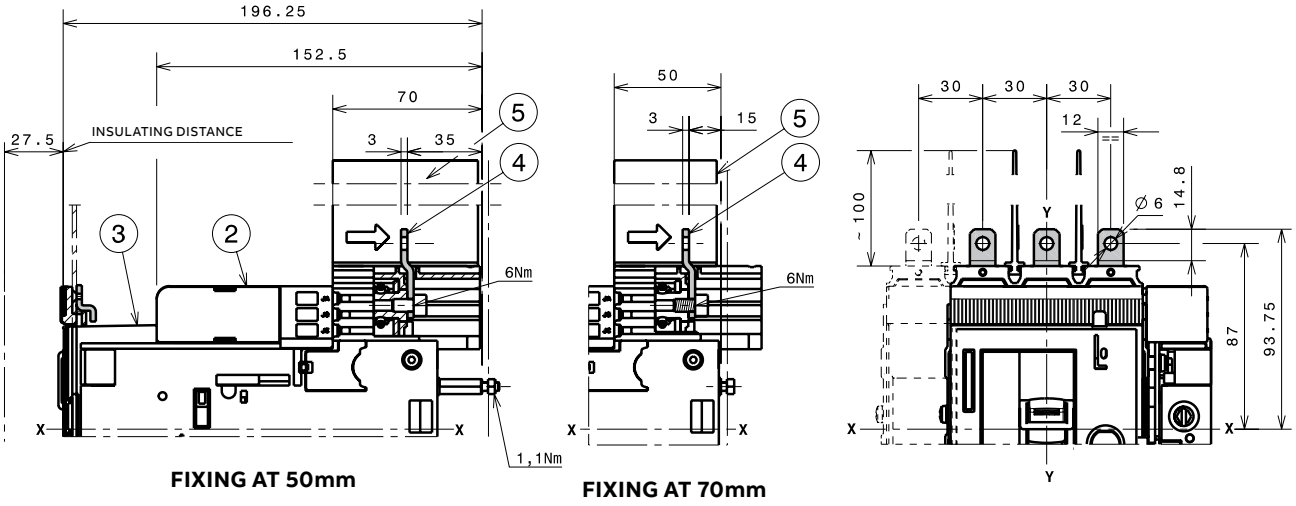


B=142 C=162
3-4 POLES

Tmax XT2 – Installation

Terminals for withdrawable circuit-breaker

Terminals EF



FIXING AT 50mm

FIXING AT 70mm

—

Key

2 Moving part
3 FLD (FLD or RHD or RHE or MOE) mandatory for withdrawable version
4 Front extended terminals
5 100mm insulating barriers between phases (compulsory) provided

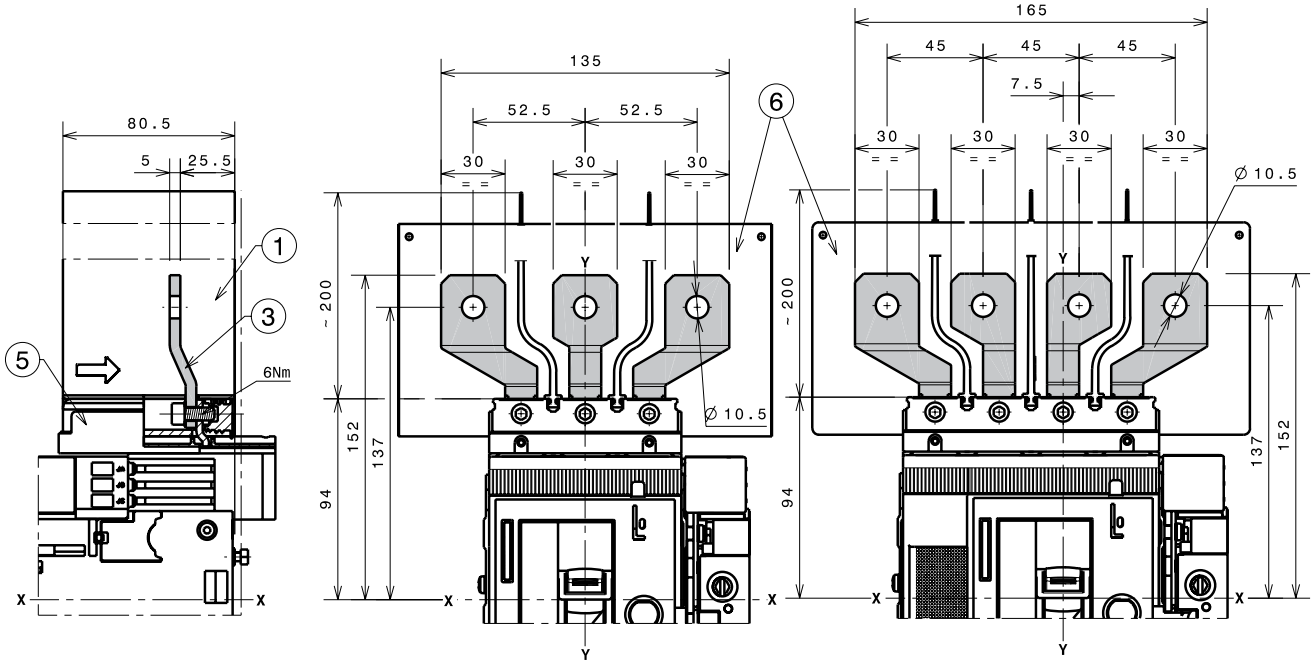
—

Note:
insulated plate (compulsory) provided

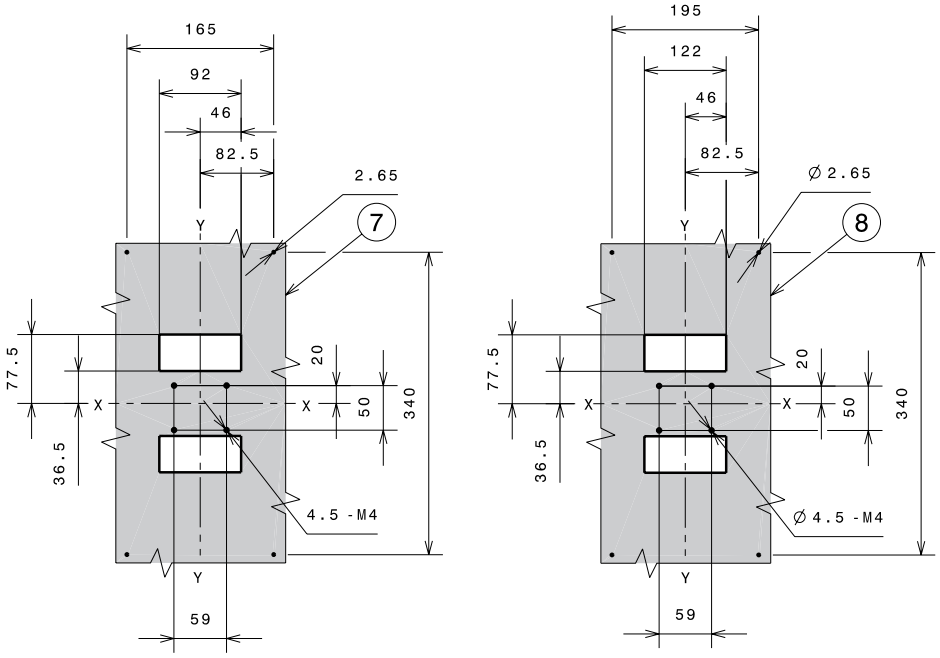
Tmax XT2 – Installation

Terminals for withdrawable circuit-breaker

Terminals ES



FIXING AT 50mm

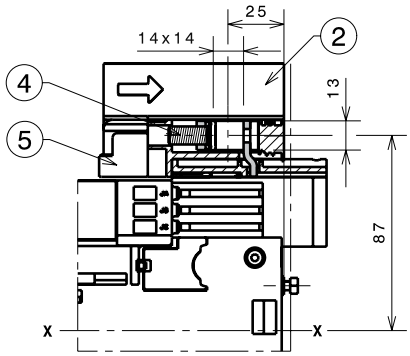


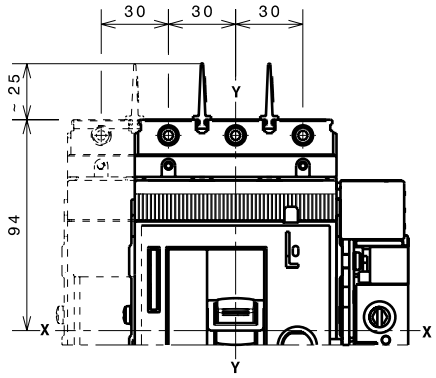
Key

1 200mm insulating barriers between phases (compulsory) provided
3 Front extended spread terminals
5 Adaptor (compulsory) not provided
6 Insulated plate (compulsory) provided
7 Drilling template for 3p circuit-breaker Ue>440V (compulsory)
8 Drilling template for 4p circuit-breaker Ue>440V (compulsory)

1x1...95mm² terminals FCCuAl

Key
2 25mm insulating barriers between phases (compulsory) provided
4 1x1...95mm² front terminals FcCuAl
5 Adaptor (compulsory) not provided

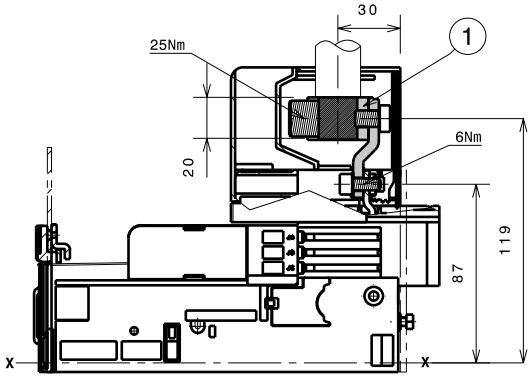


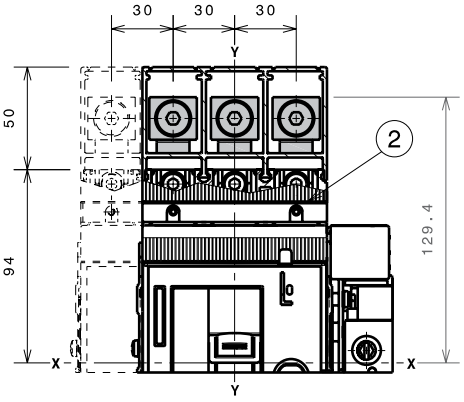


FIXING AT 50mm

1x70...185mm² terminals FCCuAl

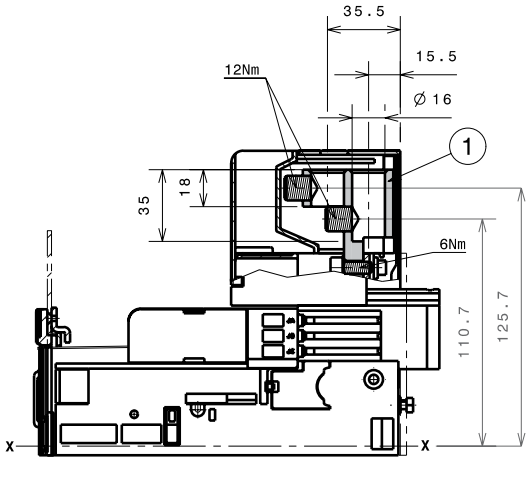
Key
1 External terminal FCCuAl
2 High terminal covers with degree of protection IP40 (optional) provided

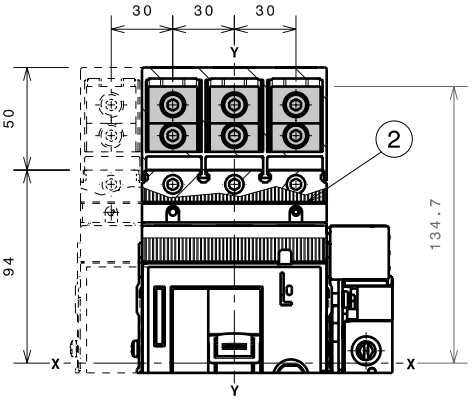




2x35...70mm² terminals FCCuAl

Key
1 External terminal FCCuAl 2x70mm²
2 High terminal covers with degree of protection IP40 (optional) provided



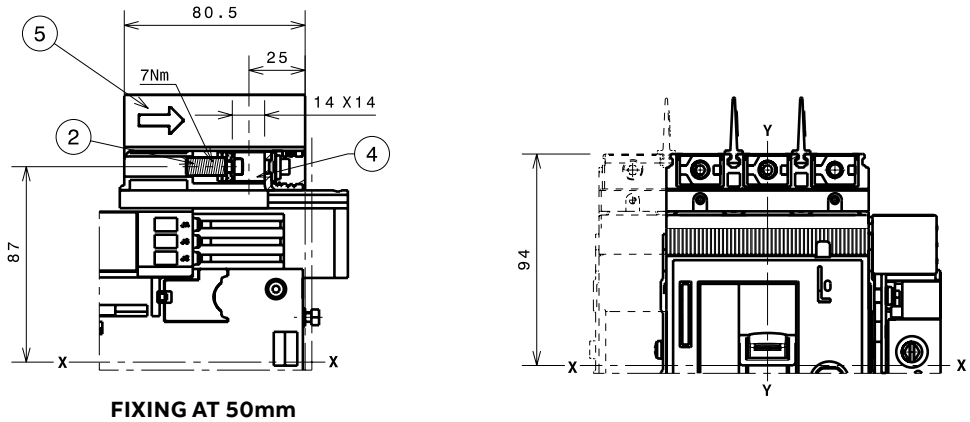


Tmax XT2 – Installation

Terminals for withdrawable circuit-breaker

Terminals FCCu

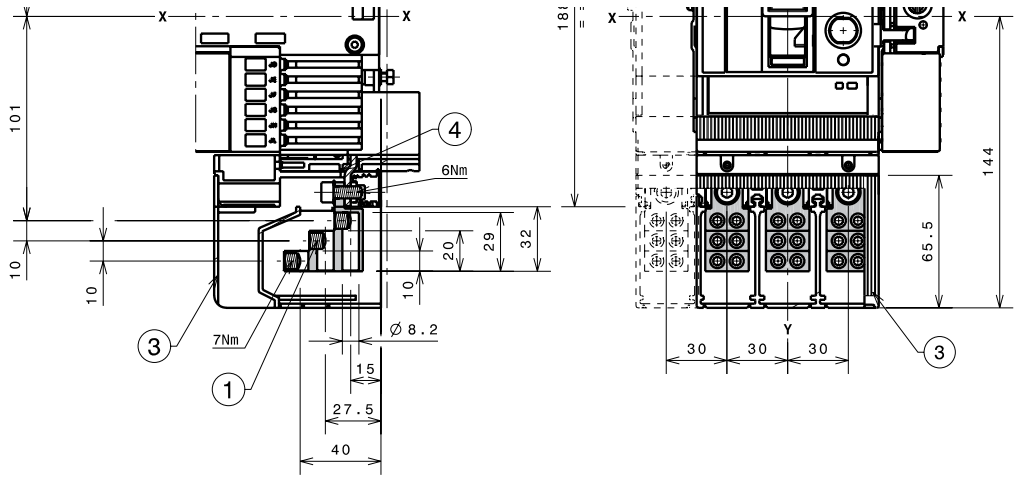
Key
2 Terminals FCCu
4 Adaptor (compulsory) not provided
5 25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker



FIXING AT 50mm

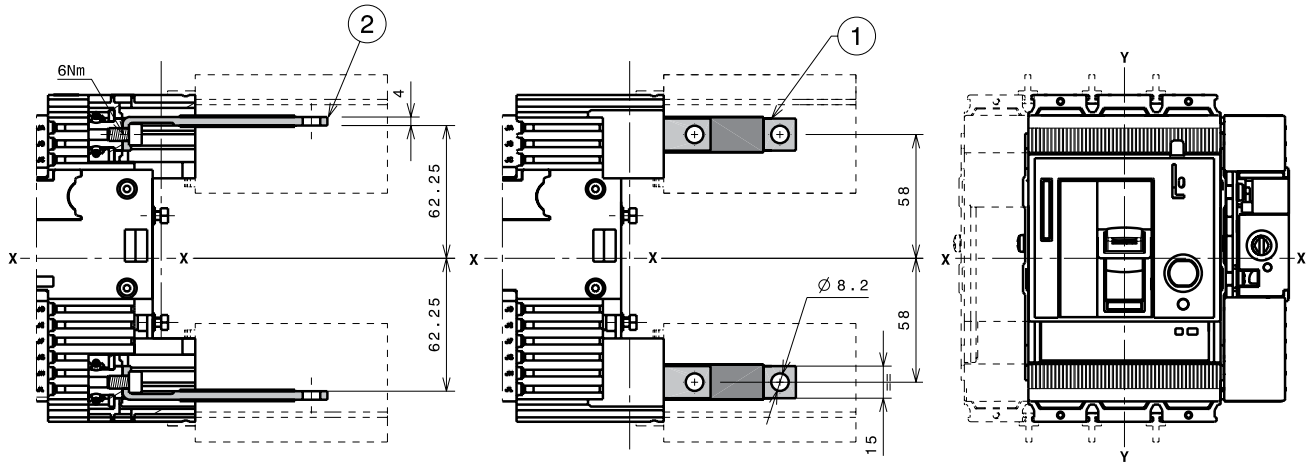
Terminals MC

Key
1 Multicable terminals
3 High terminal covers with degree of protection IP40 (optional) provided
4 Adaptor (compulsory) not provided

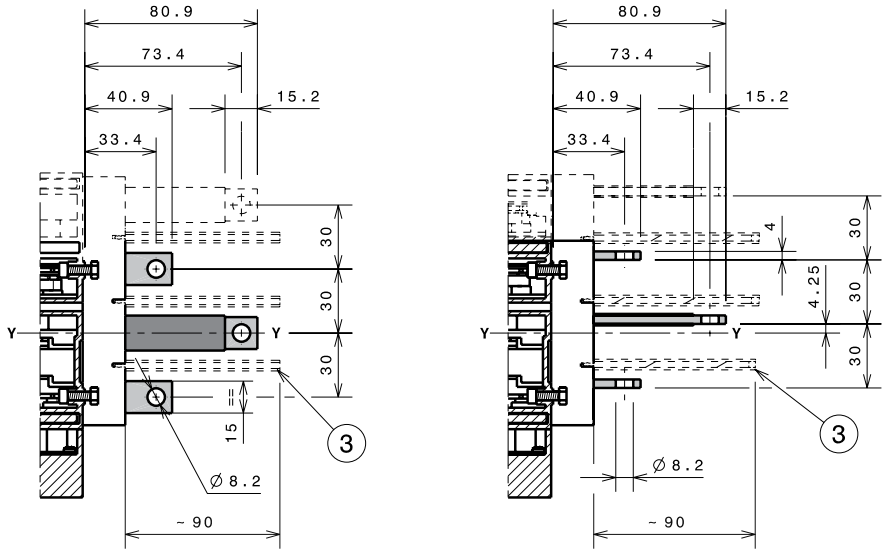


FIXING AT 50mm

Terminals HR/VR



FIXING AT 50mm **FIXING AT 50mm**



—

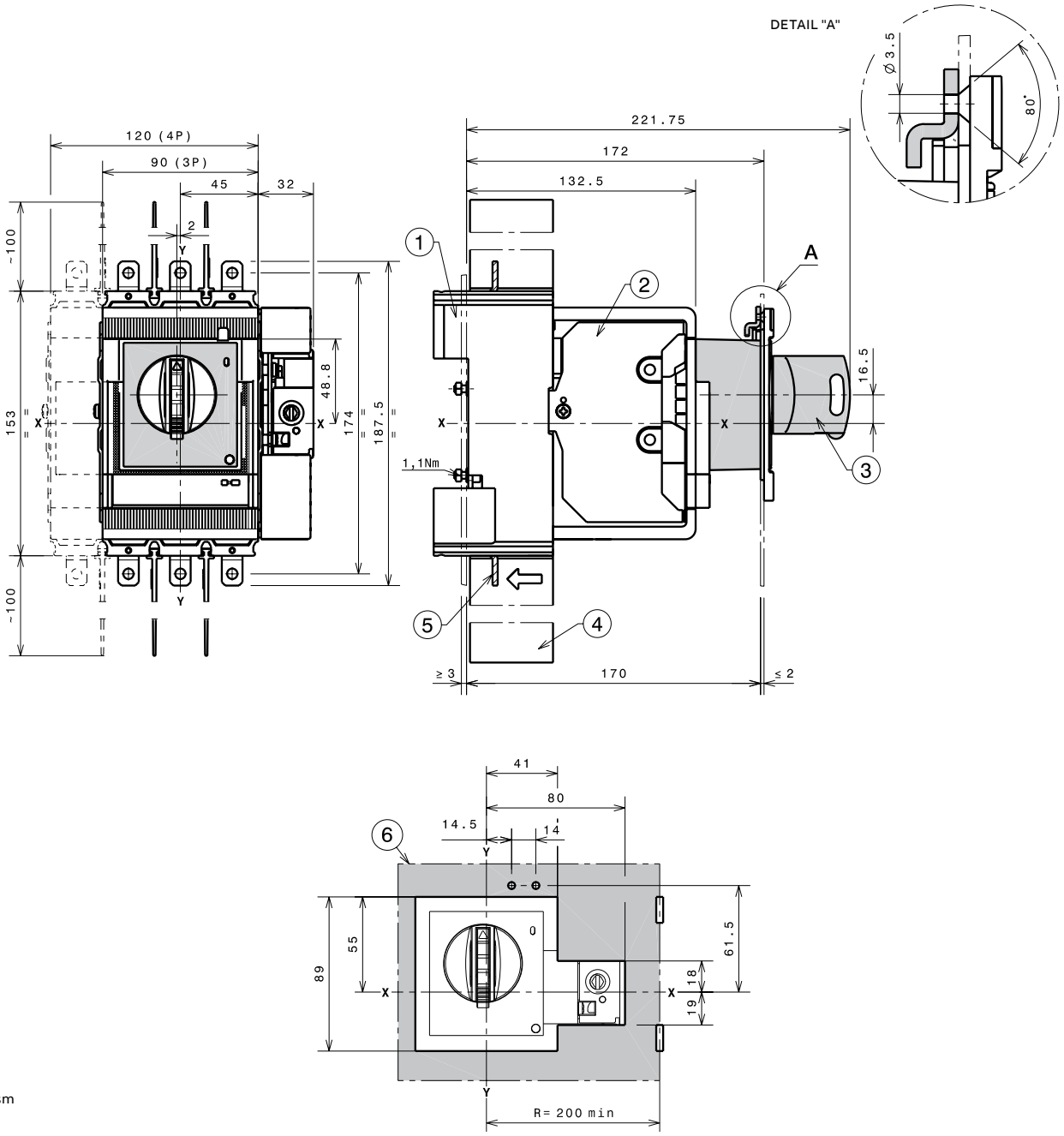
Key

1 Rear vertical terminals
2 Rear horizontal terminals
3 90mm insulating barriers between phases (compulsory) not provided

Tmax XT2 – Installation

Accessories for withdrawable circuit-breaker

Rotary handle operating mechanism on circuit-breakers (RHD)

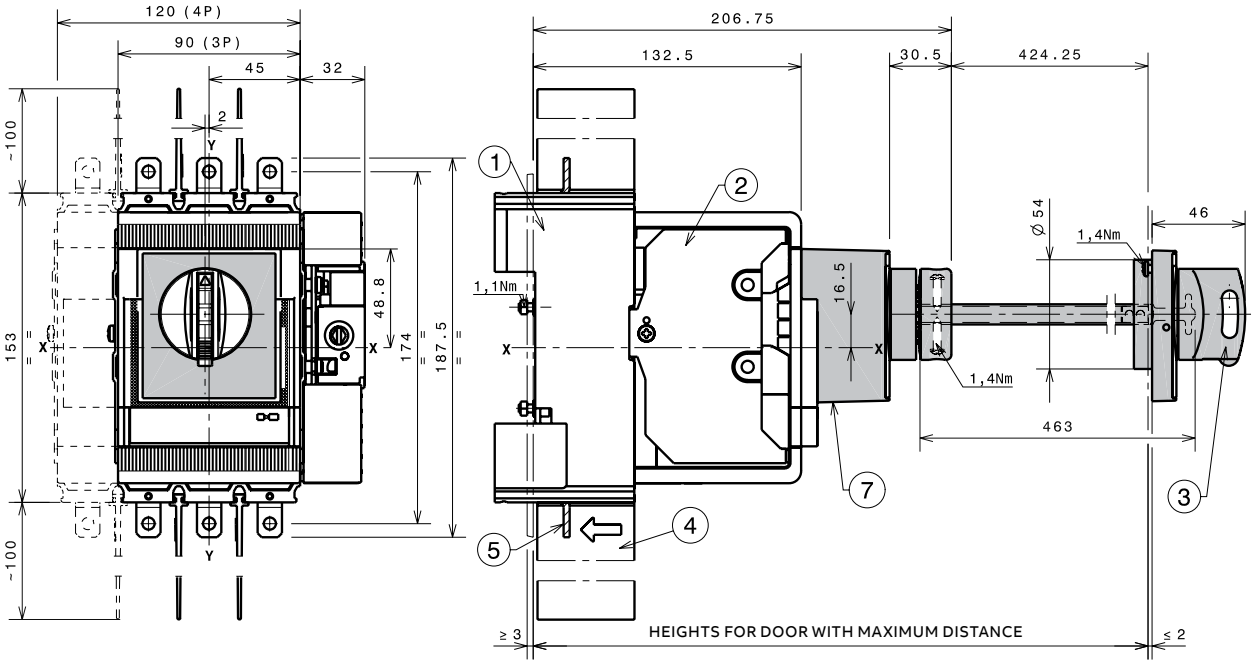


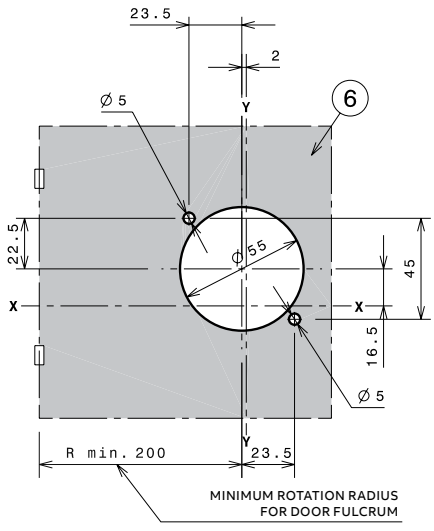
—

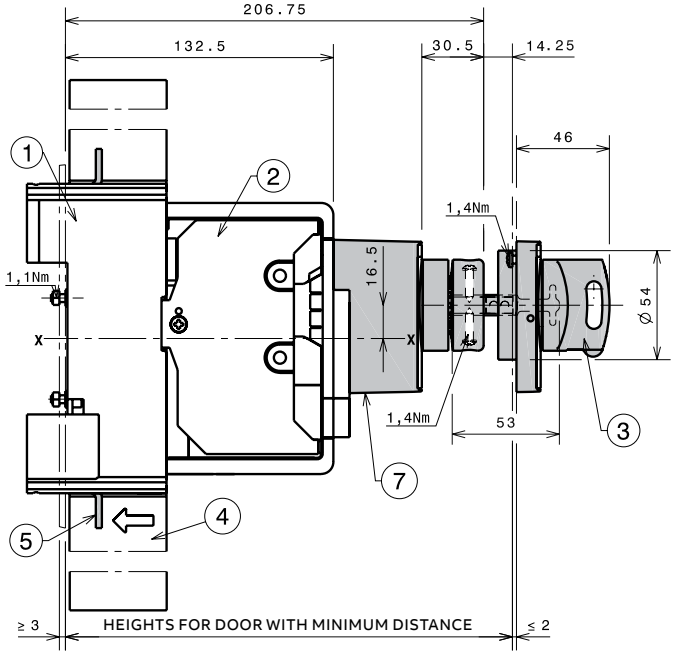
Key

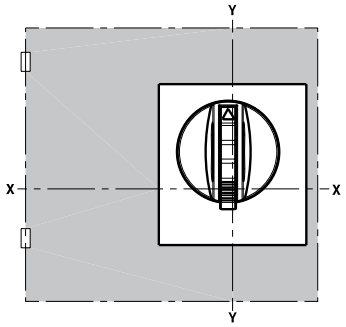
1 Fixed part
2 Moving part
3 Rotary handle operating mechanism on circuit-breaker
4 100mm insulating barriers between phases (compulsory) provided
5 Extended terminals
6 Drilling template of door with direct rotary handle

Rotary handle operating mechanism on the compartment door (RHE)









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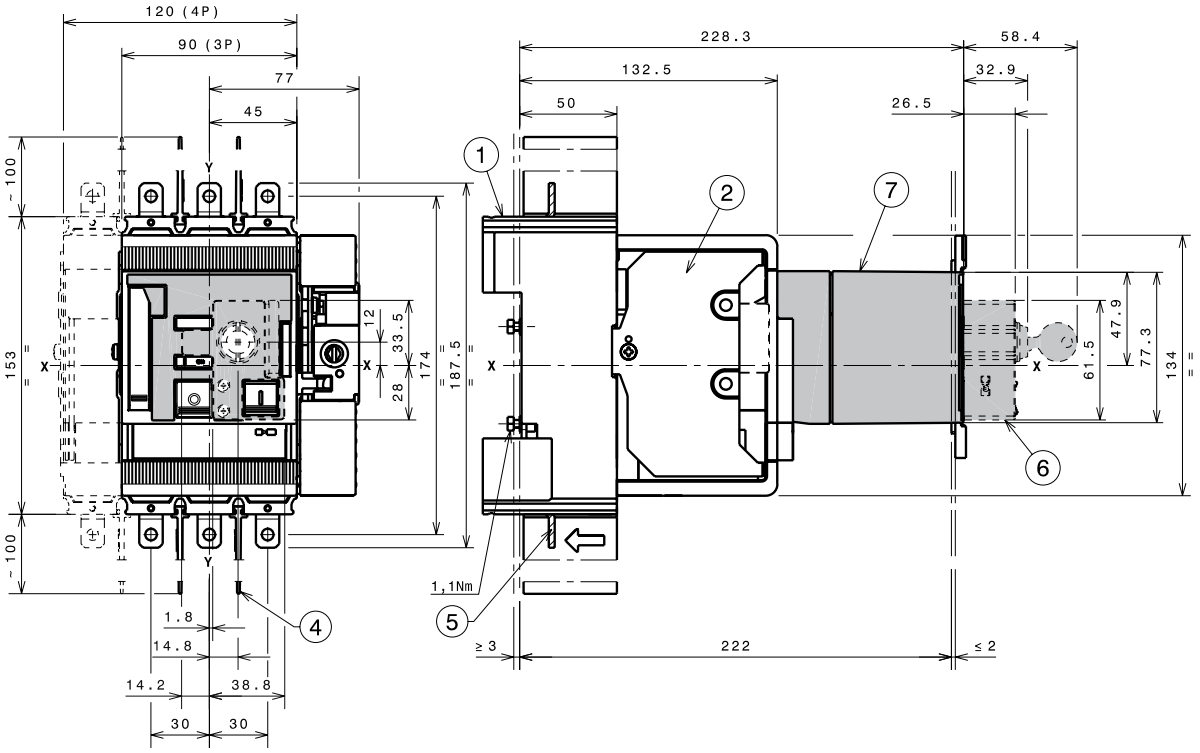
Key

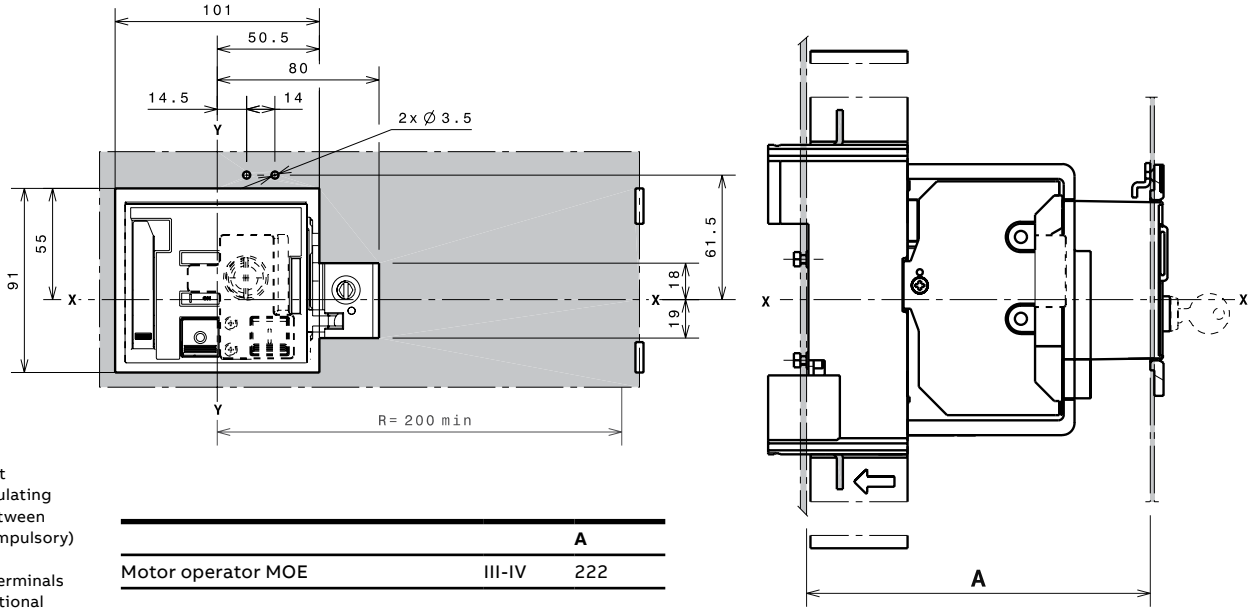
1 Fixed part
2 Moving part
3 Rotary handle operating mechanism on the compartment door (RHE)
4 100mm insulating barriers between phases (compulsory) provided
5 Extended terminals
6 Door drilling template with transmetted rotary handle
7 Transmission unit

Tmax XT2 – Installation

Accessories for withdrawable circuit-breaker

Stored energy motor operator (MOE)

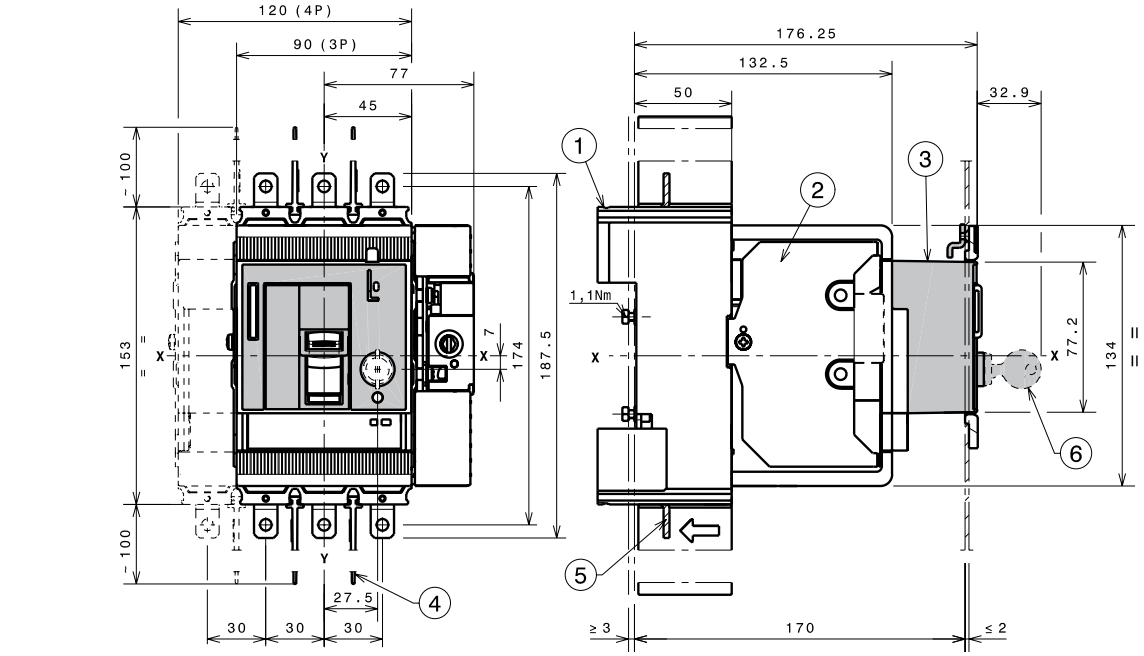


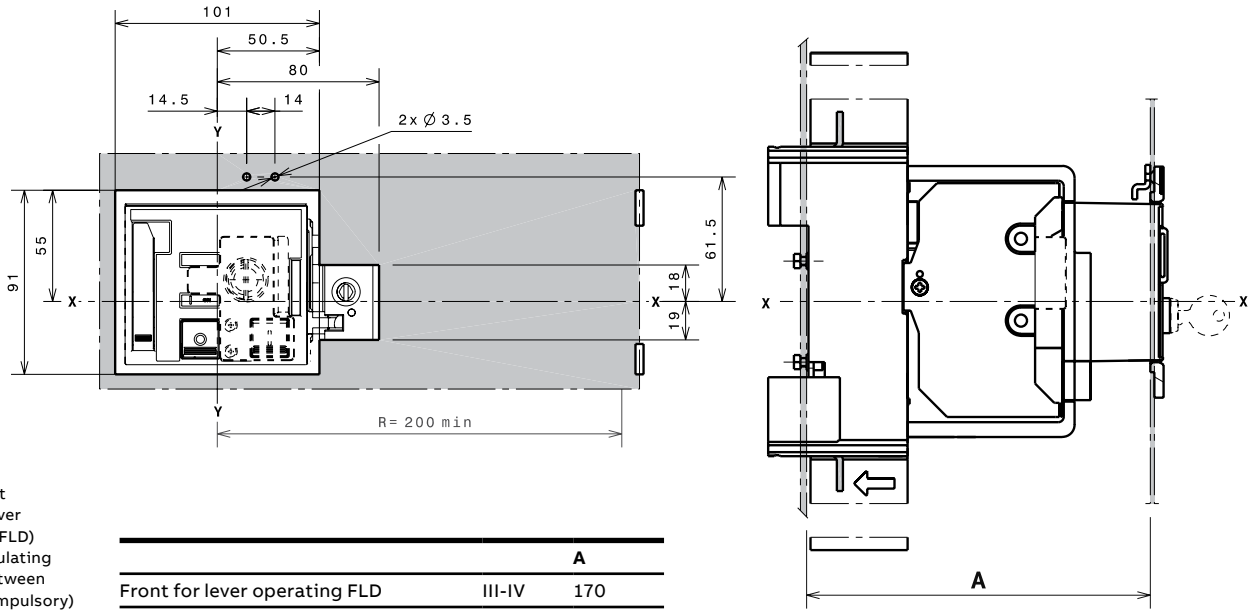


Key
1 Fixed part
2 Moving part
4 100mm insulating barriers between phases (compulsory) provided
5 Extended terminals
6 Key lock optional
7 Stored energy motor operator (MOE)

		A
Motor operator MOE	III-IV	222

Front for lever operating (FLD)





—

Key

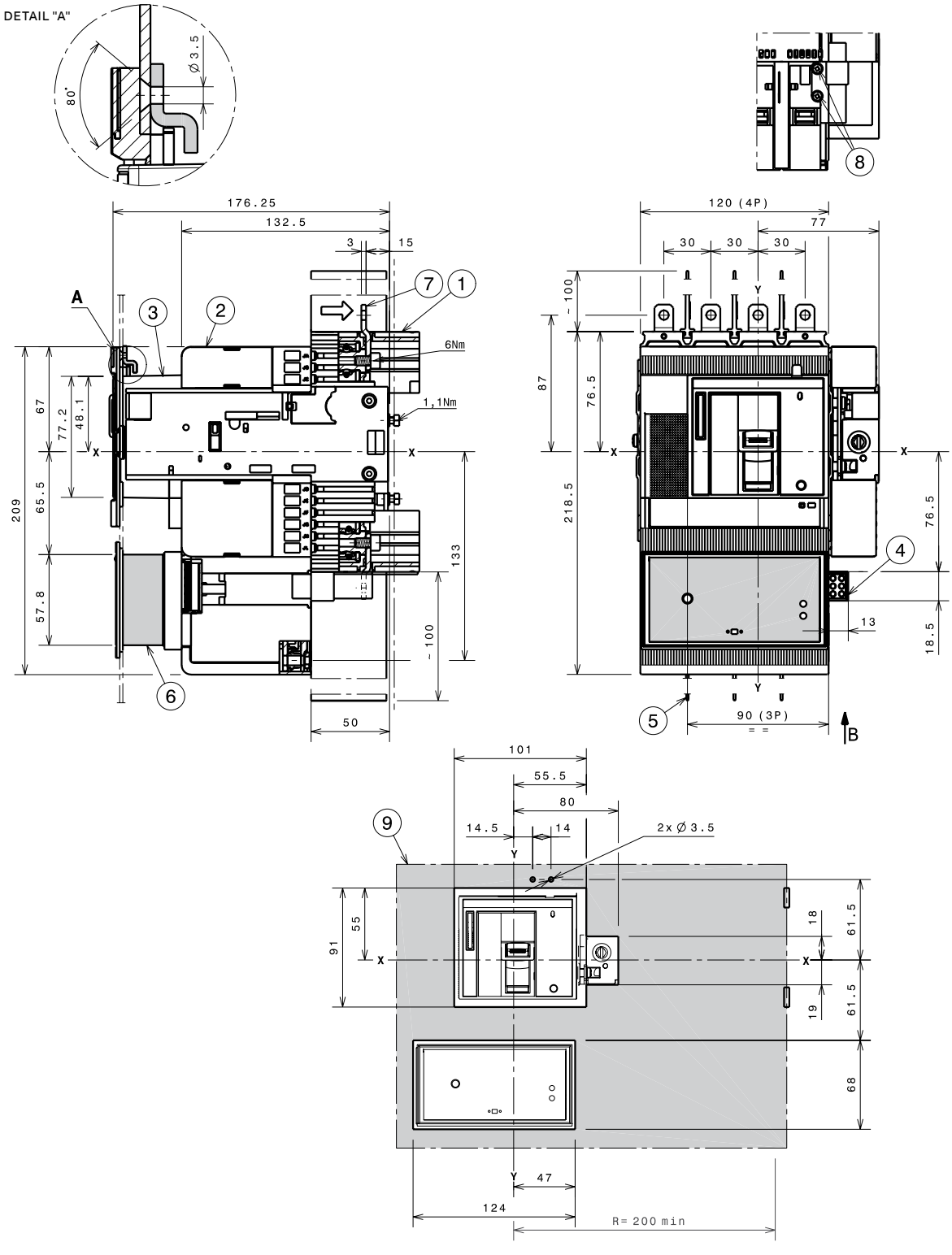
1 Fixed part
2 Moving part
3 Front for lever operating (FLD)
4 100mm insulating barriers between phases (compulsory) provided
5 Extended terminals
6 Key lock optional

		A
Front for lever operating FLD	III-IV	170

Tmax XT2 – Installation

Accessories for withdrawable circuit-breaker

Residual current RC Sel 4 poles



Key

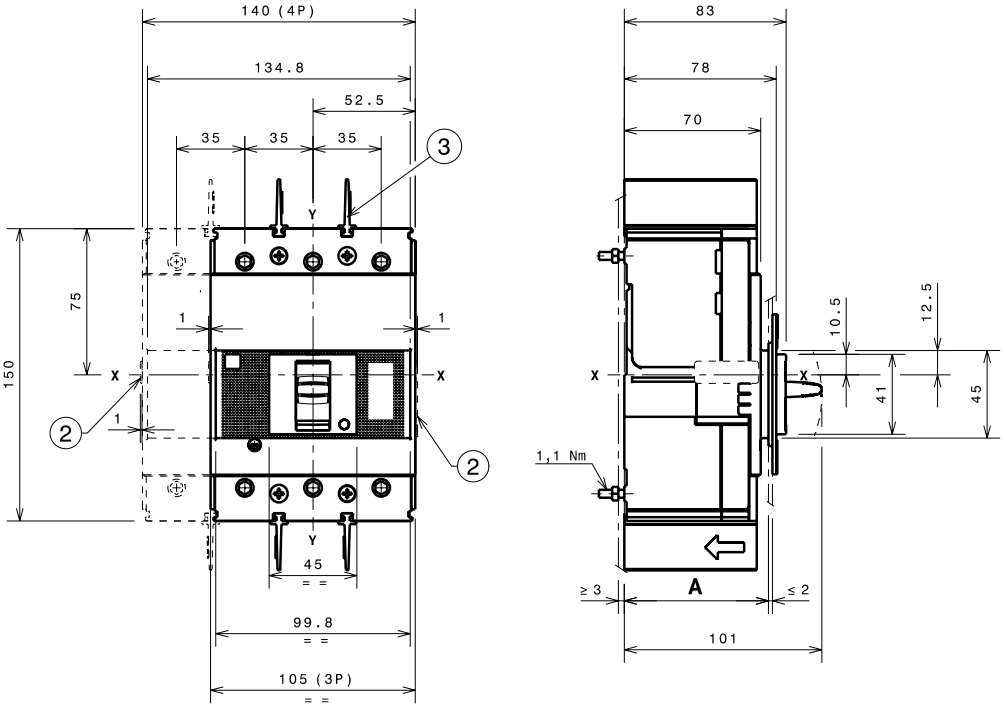
1 Fixed part
2 Moving part
3 Front for lever operating
4 Residual current connector (optional)
5 100mm insulating barriers between phases (compulsory) provided
6 Residual current
7 Extended terminals
8 Fixing screws for fixed part of connector
9 Door drilling template and flange fixing

Tmax XT3 – Installation

Installation for fixed circuit-breaker

Fixing on sheet

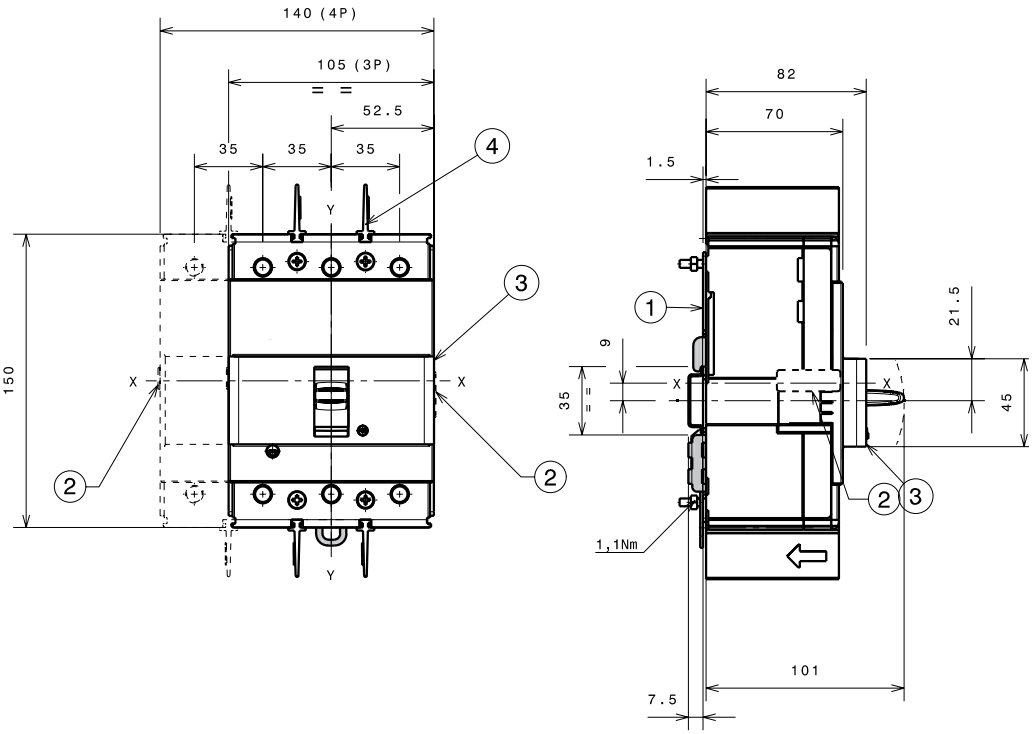
Key
2 Overall dimension of optional wiring ducts
3 25mm insulating barriers between phases (compulsory) provided



		A
With standard flange	II IV	74
Without flange	III - IV	71
	III - IV	79

Fixing on DIN EN 50022 rail

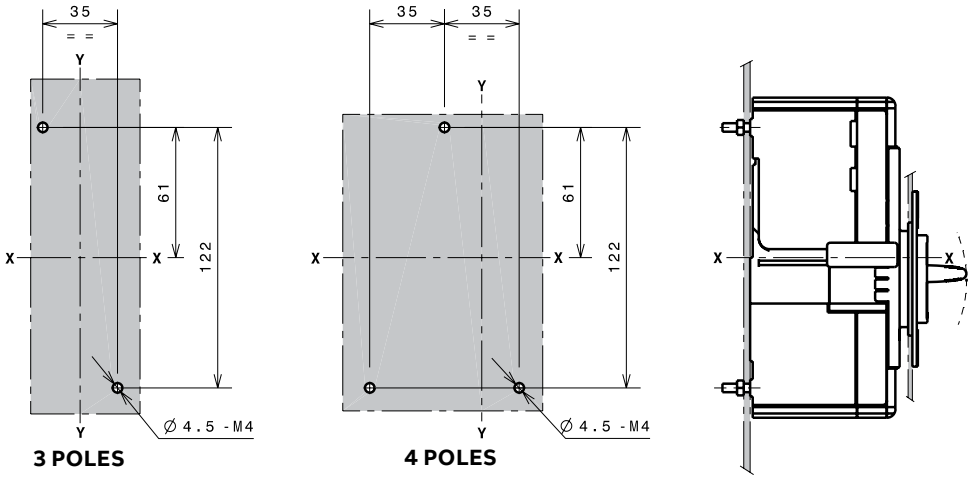
Key
1 Bracket for fixing
2 Optional wiring ducts
3 Optional front cover for DIN rail
4 25mm insulating barriers between phases (compulsory) provided



Tmax XT3 – Installation

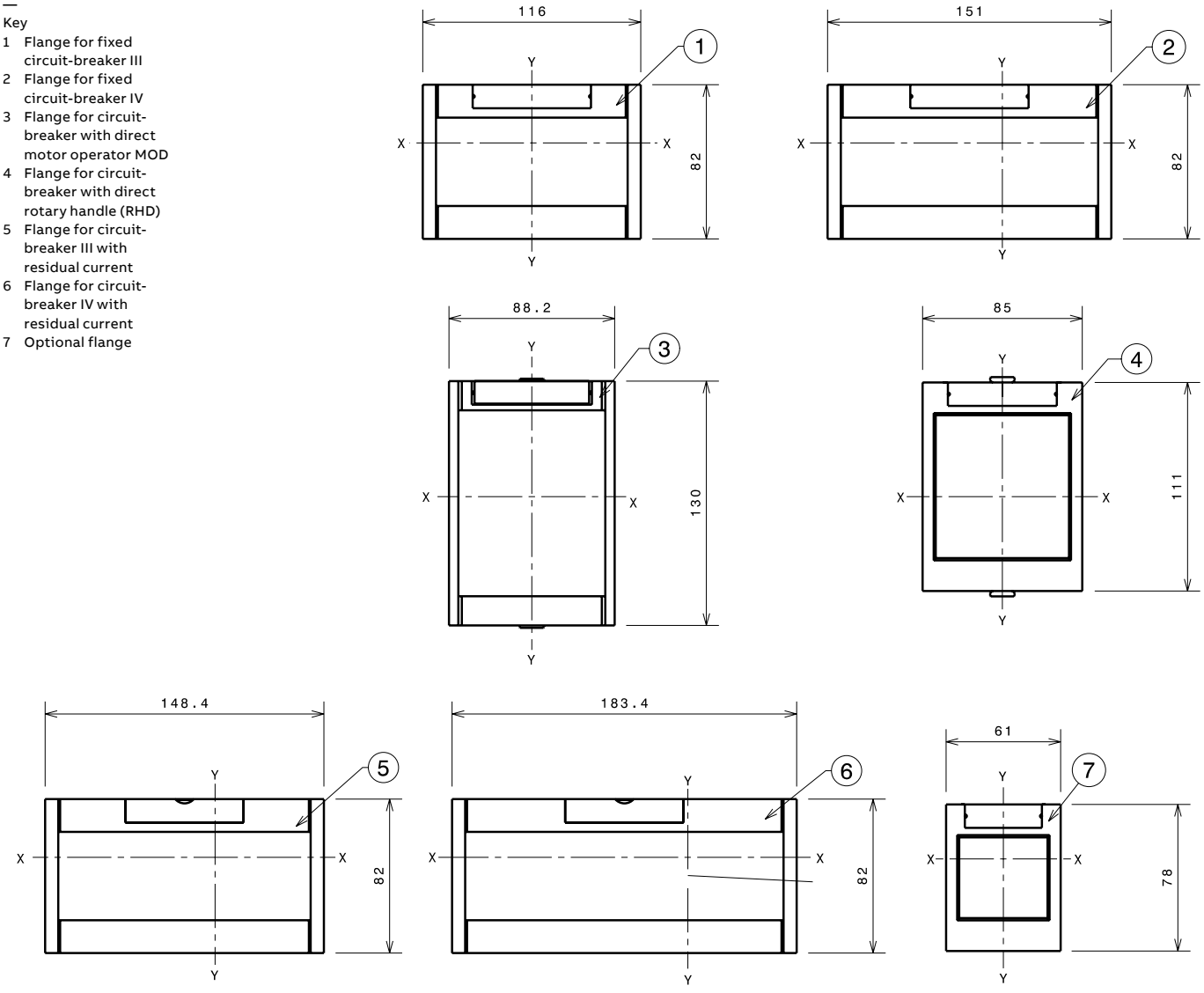
Installation for fixed circuit-breaker

Drilling templates for circuit-breaker fixing



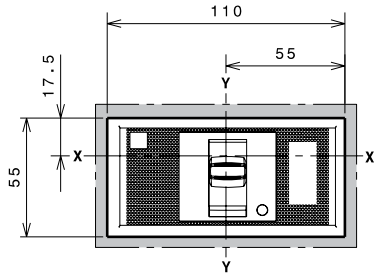
Flanges

Key
1 Flange for fixed circuit-breaker III
2 Flange for fixed circuit-breaker IV
3 Flange for circuit-breaker with direct motor operator MOD
4 Flange for circuit-breaker with direct rotary handle (RHD)
5 Flange for circuit-breaker III with residual current
6 Flange for circuit-breaker IV with residual current
7 Optional flange

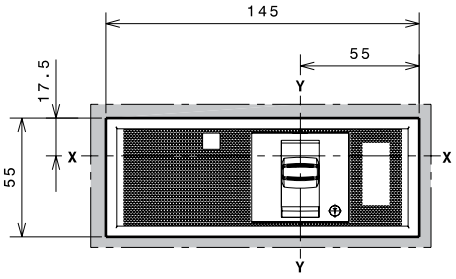


Drilling templates compartment door

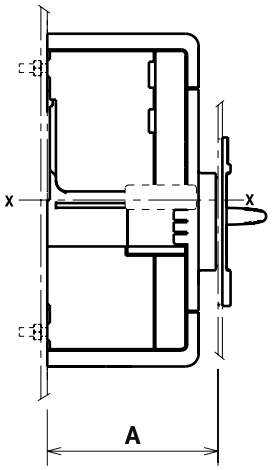
With standard flange



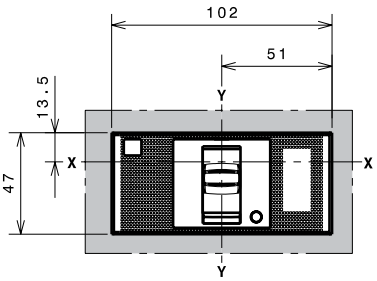
A=74
3 POLES



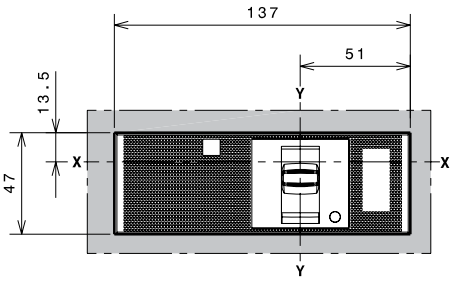
A=74
4 POLES



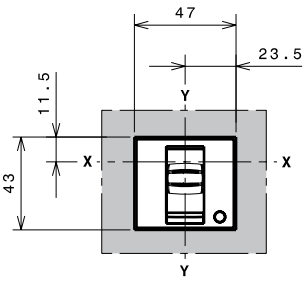
Without flange



A=71
3 POLES

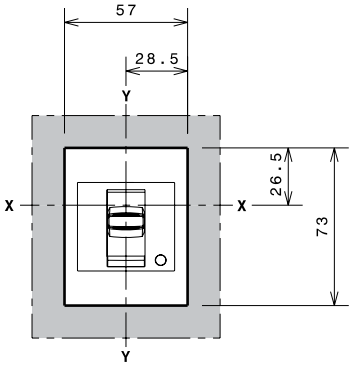


A=71
4 POLES

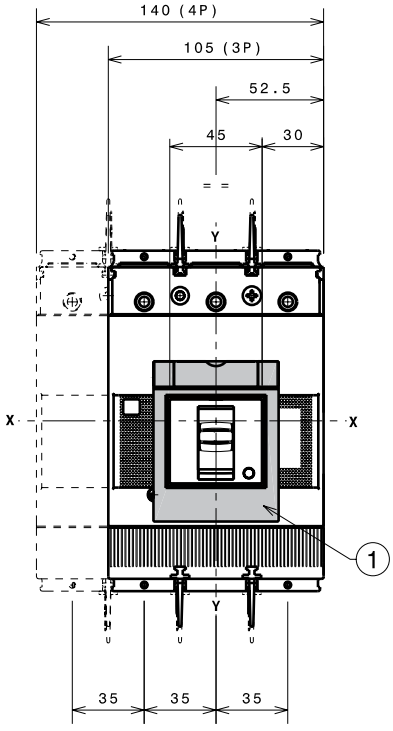


A=79
3-4 POLES

With optional flange



A=79
3-4 POLES



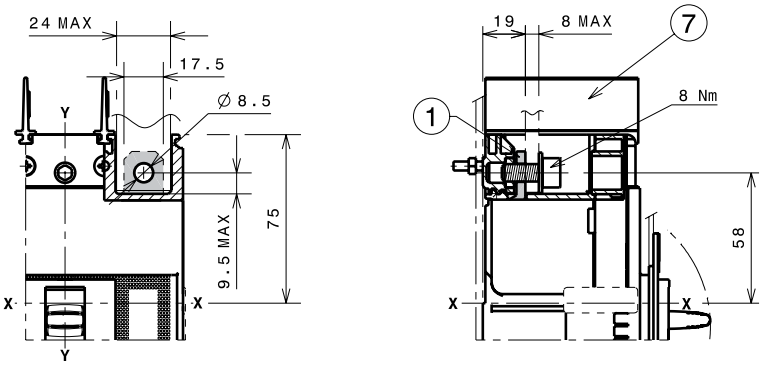
—
Key
1 Optional flange

Tmax XT3 – Installation

Terminals for fixed circuit-breaker

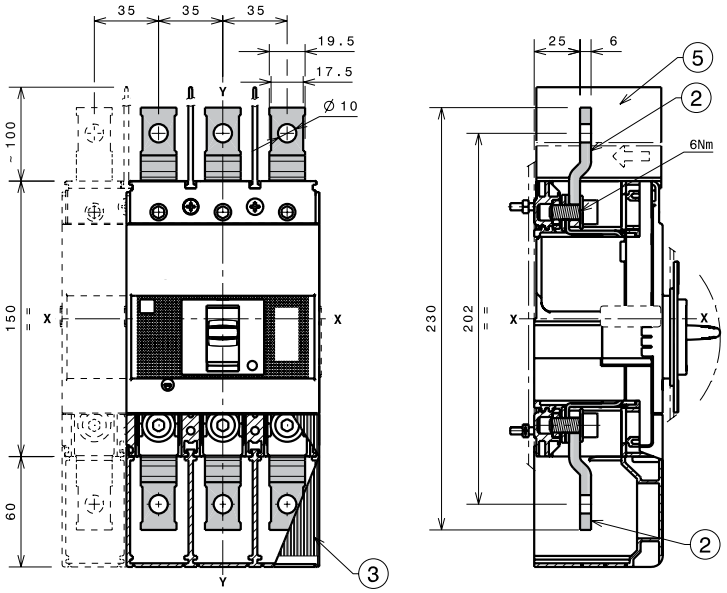
Terminals F

Key
1 Front terminals for busbars connection
7 25mm insulating barriers between phases (compulsory) provided



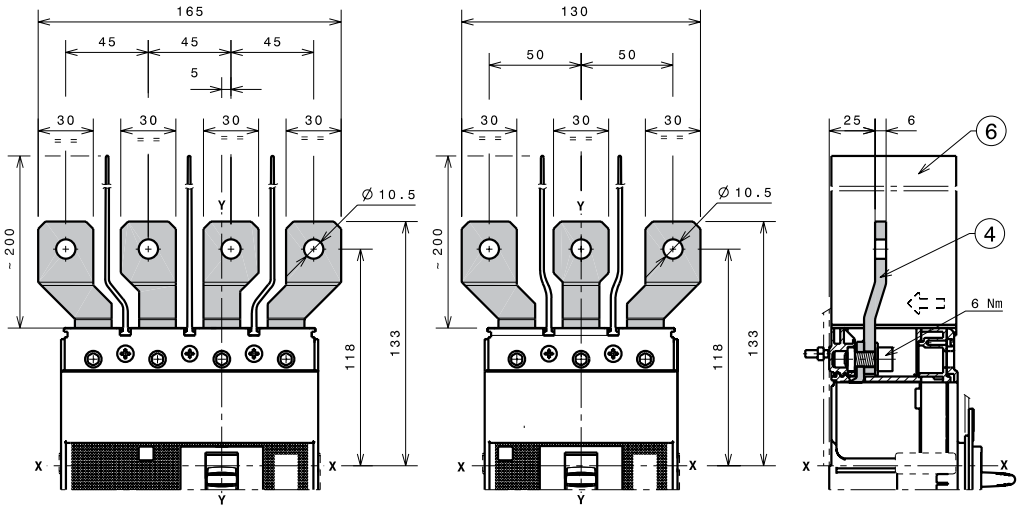
Terminals EF

Key
2 Front extended terminals
3 Terminal covers with degree of protection IP40 (optional) not provided
5 100mm insulating barriers between phases (compulsory) provided



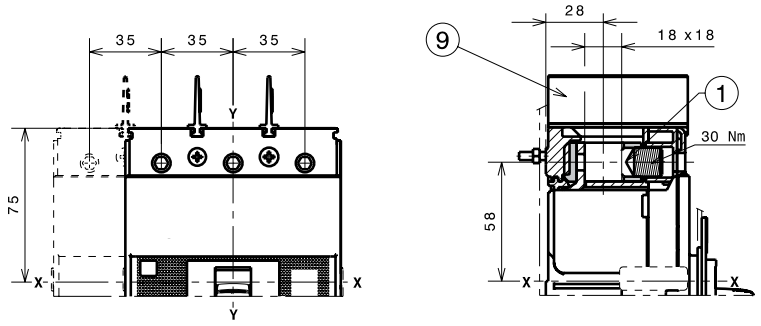
Terminals ES

Key
4 Front extended spread terminals for busbars connection
6 200mm insulating barriers between phases (compulsory) provided

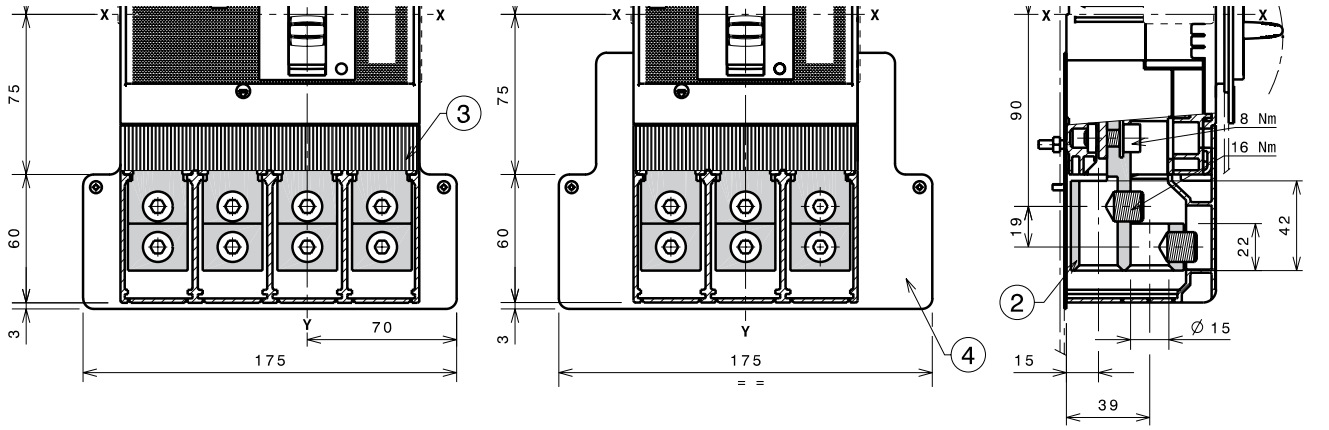


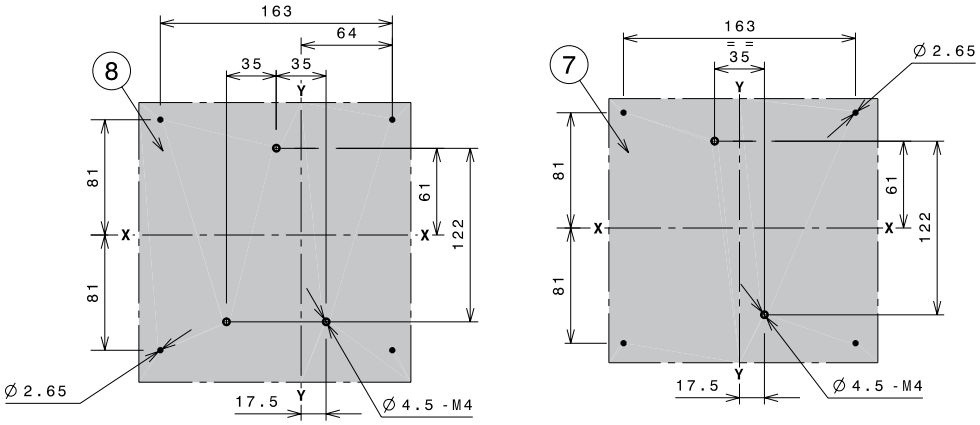
1x95...185mm² terminals FCCuAl

—
Key
1 1x95...185mm² terminals FCCuAl
9 25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker



2x35...120mm² terminals FCCuAl





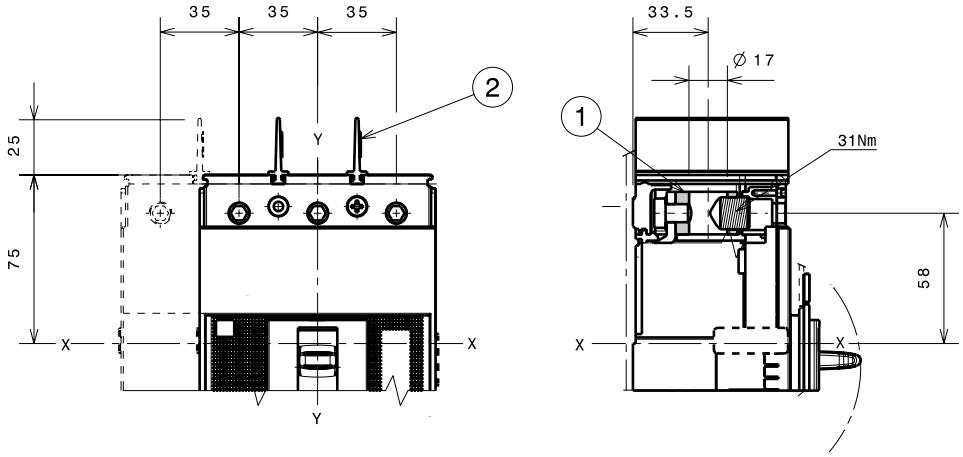
—
Key
2 2x35...120mm² terminals FCCuAl
3 Terminal covers with degree of protection IP40 (optional) provided
4 Provided rear insulated plate (mandatory for CuAl 2x120mm² cables)
7 Drilling template for circuit-breaker fixing on sheet III with rear insulated plate
8 Drilling template for circuit-breaker fixing on sheet IV with rear insulated plate

Tmax XT3 – Installation

Terminals for fixed circuit-breaker

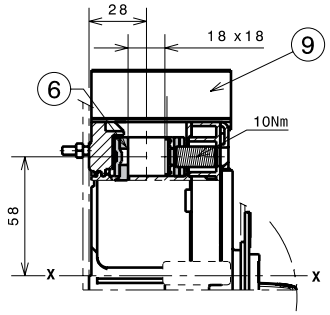
30...150mm² terminals FCCuAl

Key
1 30...150mm² terminals FCCuAl
2 25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker



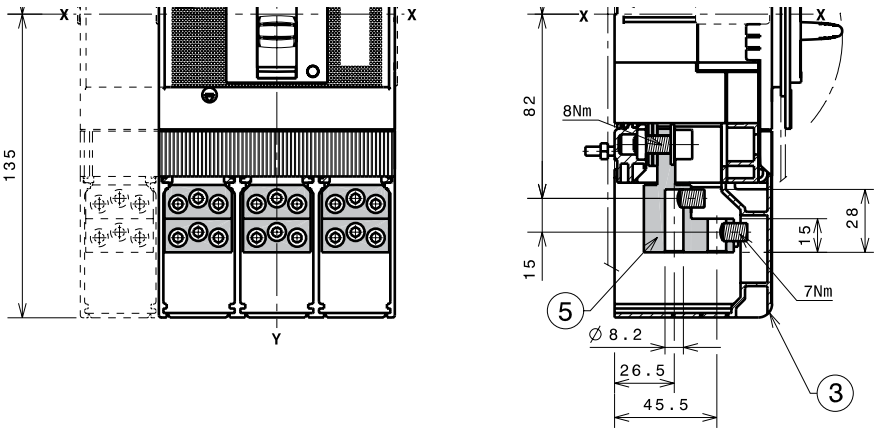
Terminals FCCu

Key
6 Front terminals FCCu
9 25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker

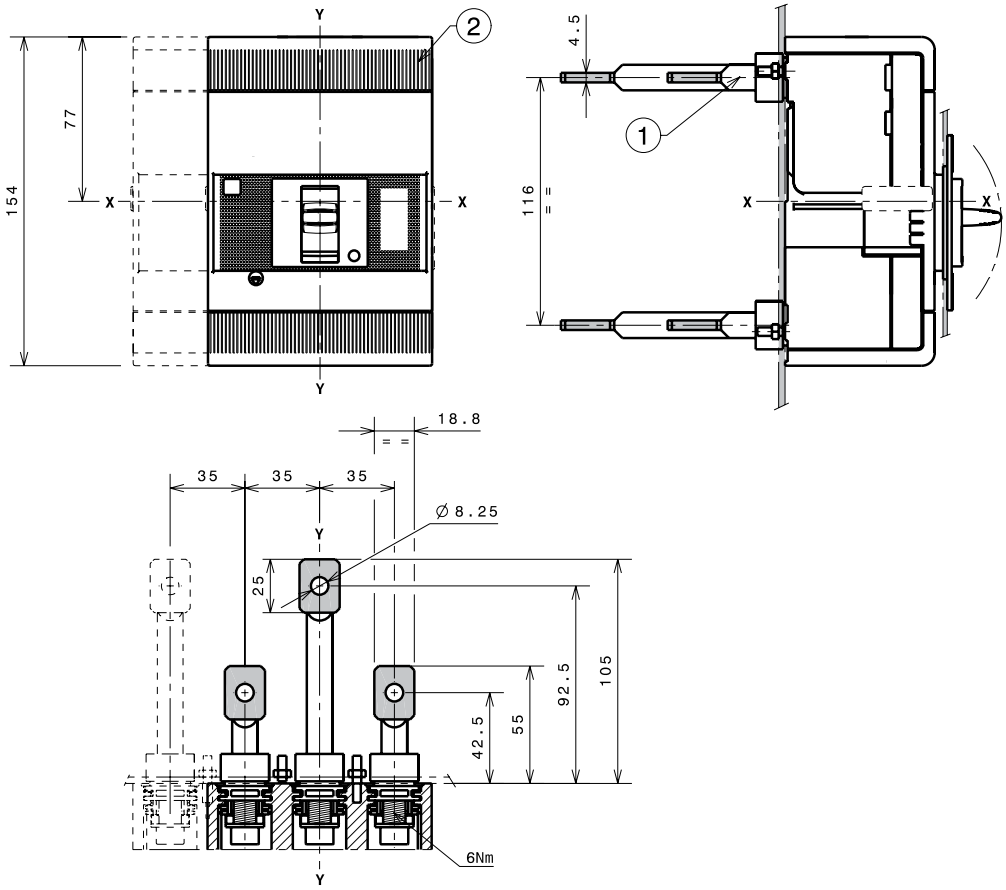


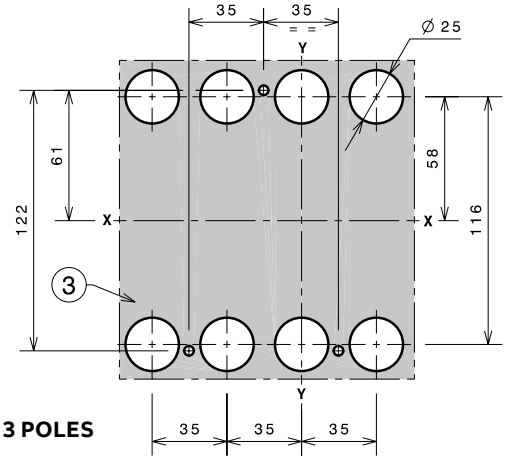
Terminals MC

Key
3 Terminal covers with degree of protection IP40 (optional) provided
5 Front terminal for multicable connection

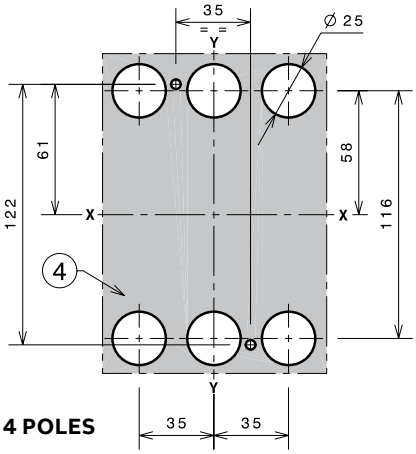


Terminals R





3 POLES



4 POLES

—

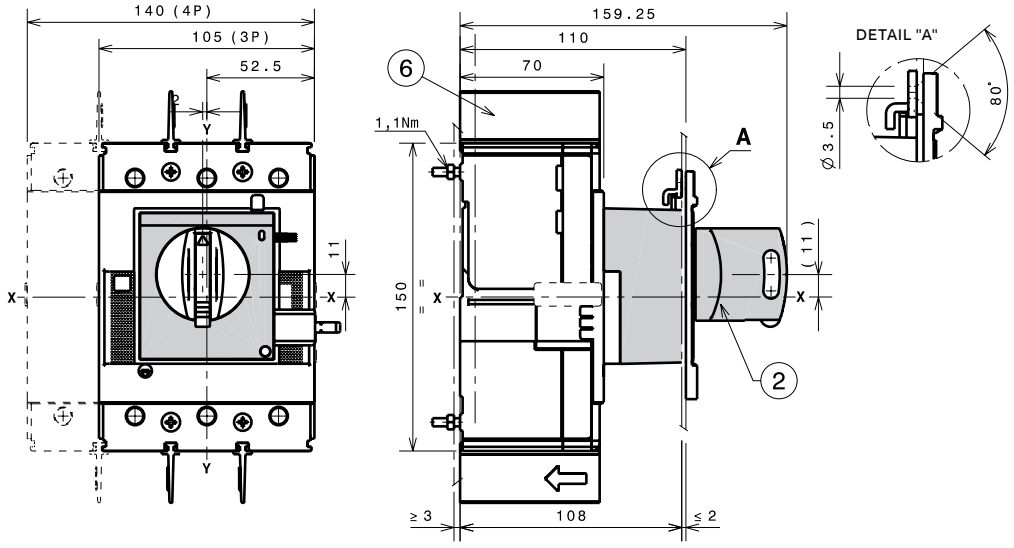
Key

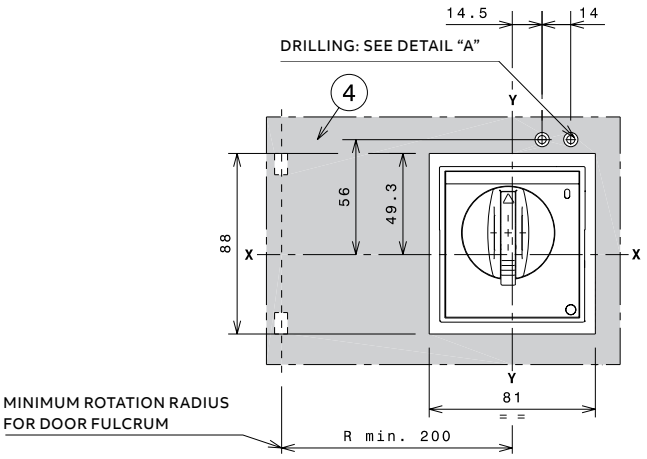
1 Adjustable rear terminals
2 Bottom terminal covers with degree of protection IP30 (optional) provided
3 Drilling tamplate for circuit-breaker IV fixing on sheet
4 Drilling tamplate for circuit-breaker III fixing on sheet

Tmax XT3 – Installation

Accessories for fixed circuit-breaker

Rotary handle operating mechanism on circuit-breaker (RHD)



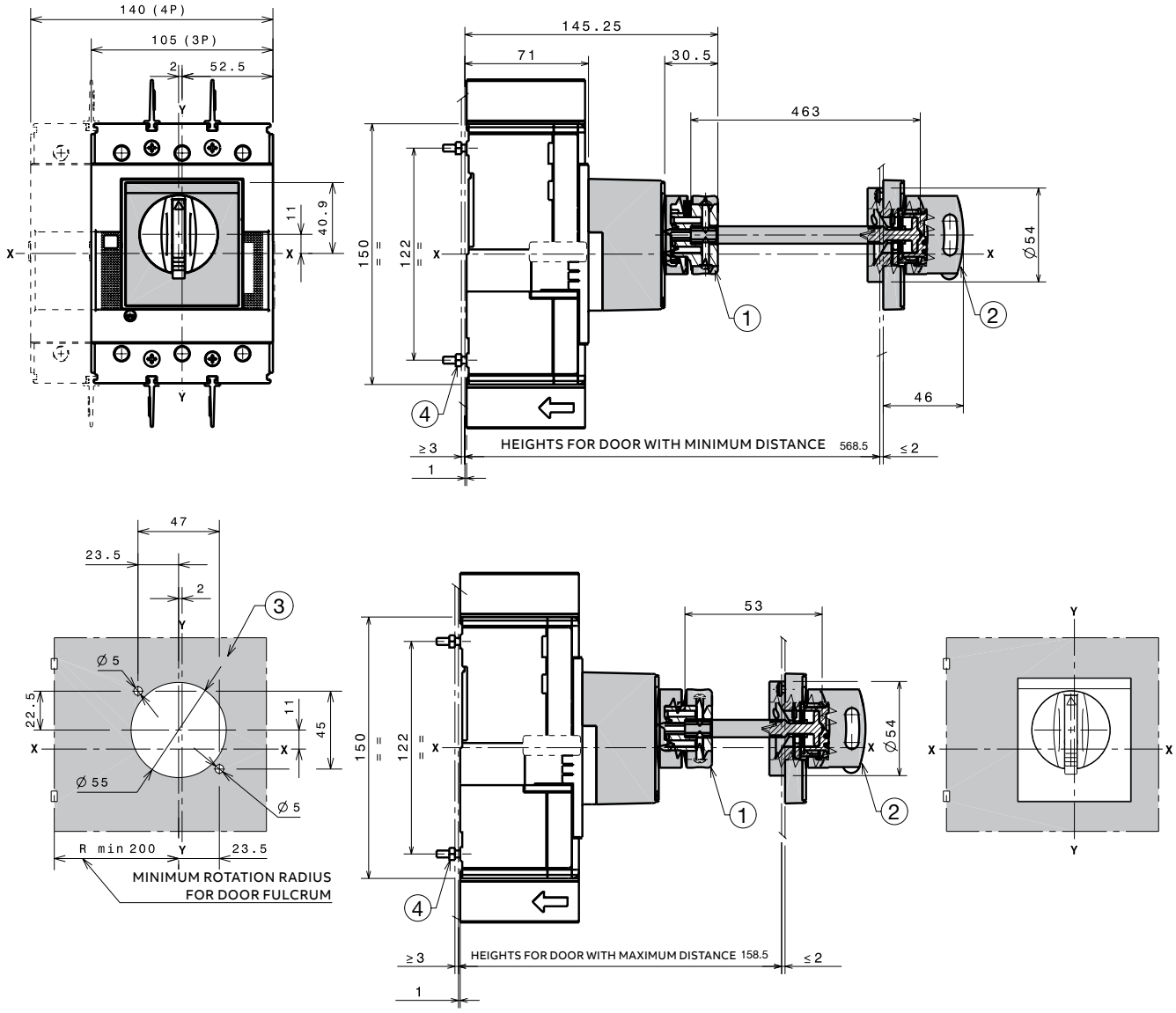


—

Key

2 Rotary handle operating mechanism on circuit-breaker RHD
4 Drilling template of door with direct rotary handle
6 25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker

Rotary handle operating mechanism on the compartment door (RHE)



—

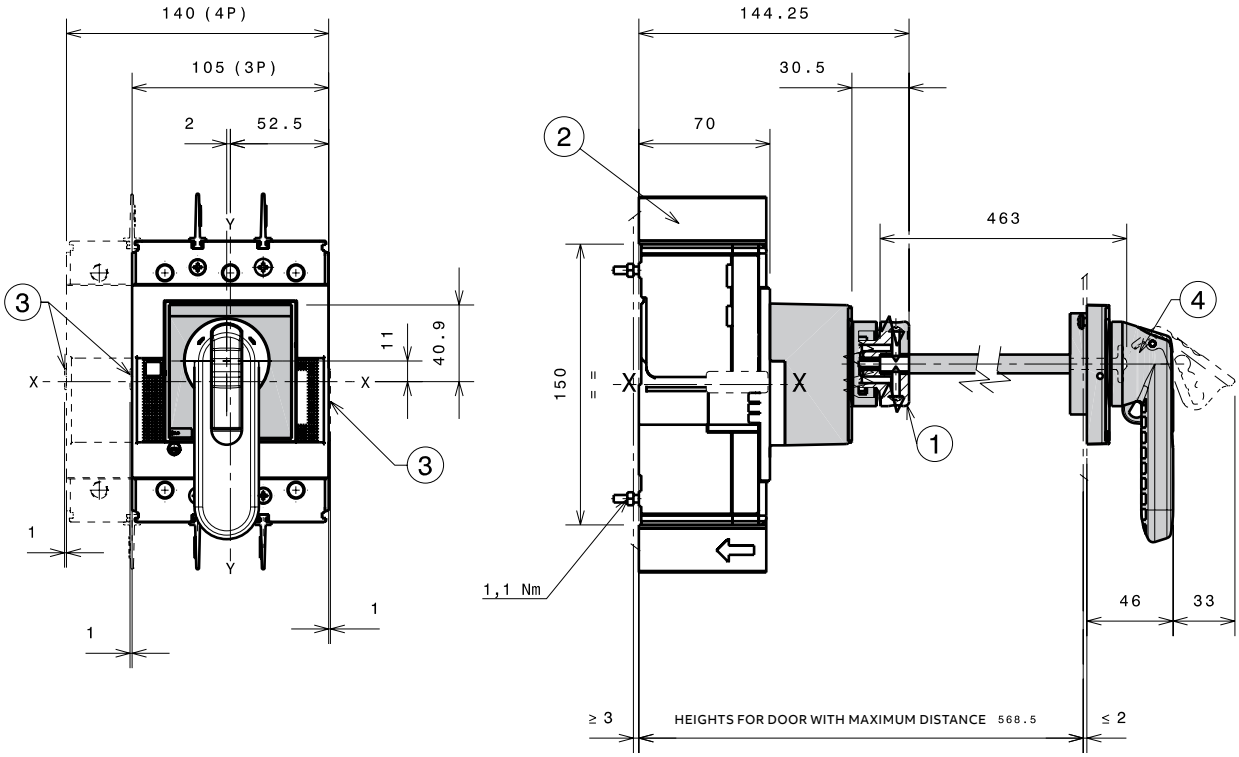
Key

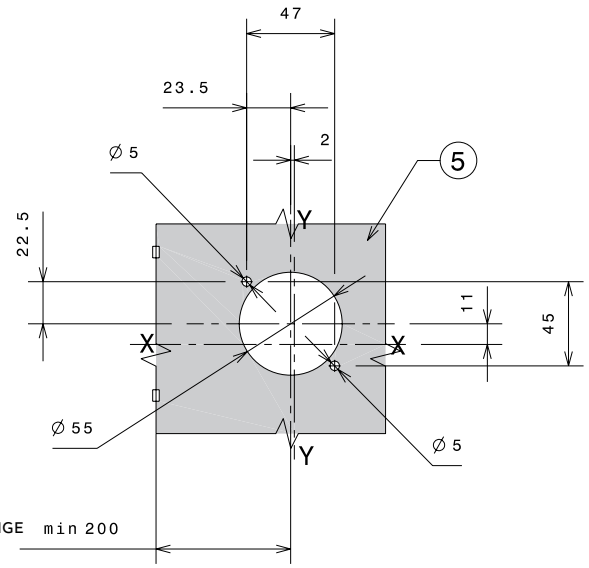
1 Transmission mechanism
2 Rotary handle operating mechanism for compartment door (RHE)
5 Compartment door shett steel drilling
4 Tightening torque 1.1Nm

Tmax XT3 – Installation

Accessories for fixed circuit-breaker

Large rotary handle operating mechanism on the compartment door (RHE-LH)



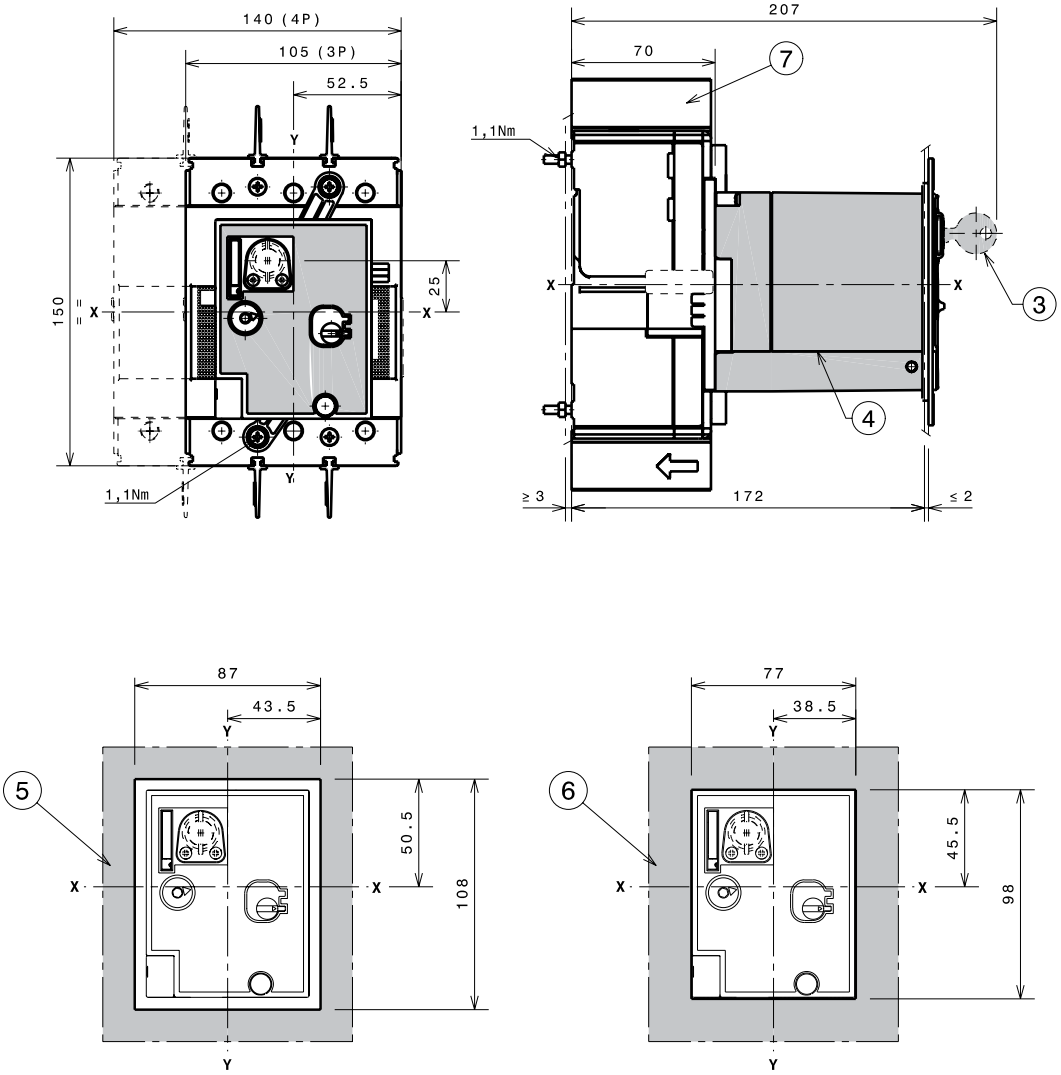


—

Key

1 Transmission unit
2 25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker
3 Optional wiring ducts
4 Large transmitted rotary handle
5 Drilling template of door with large transmitted rotary handle

Direct motor operator (MOD)



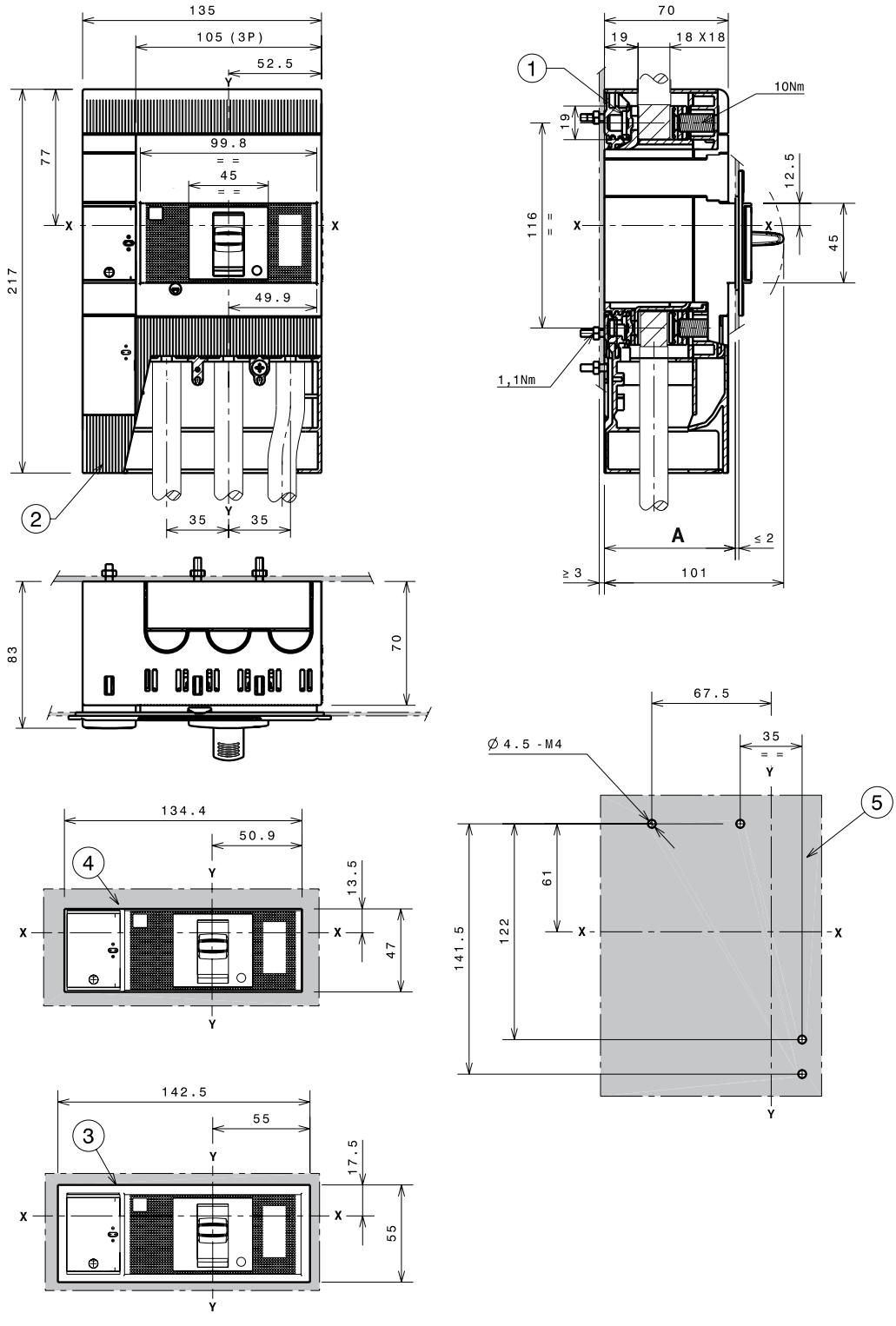
—

Key

3 Key lock (on request)
4 Direct motor operator MOD
5 Drilling template of door with MOD with flange
6 Drilling template of door with MOD without flange
7 25mm insulating barriers

Tmax XT3 – Installation
Accessories for fixed circuit-breaker

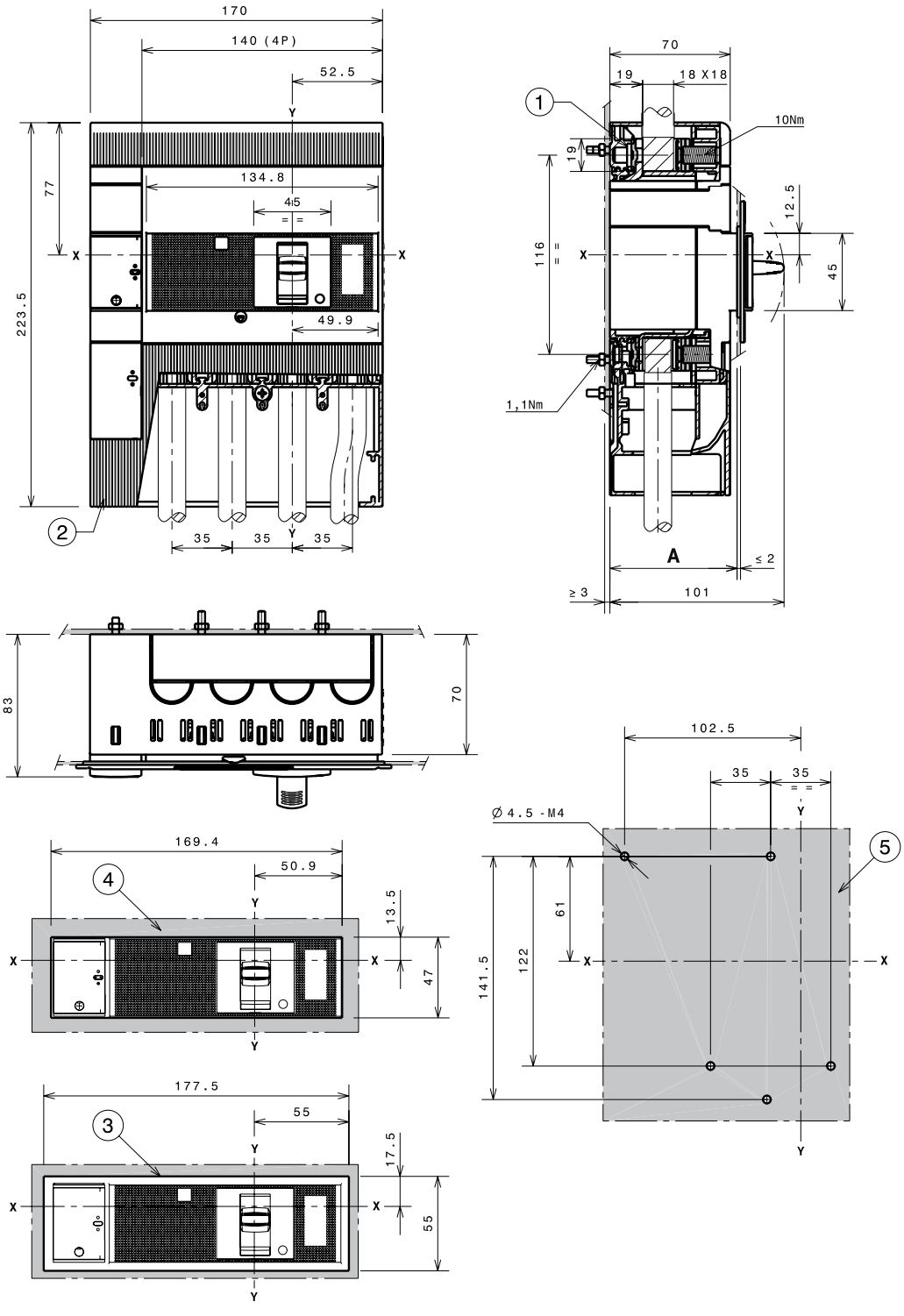
RC Inst and RC Sel residual current release for 3 poles circuit-breaker



Key
1 Front terminals for cables connection
2 Terminal covers with degree of protection IP40
3 Drilling template of door with direct rotary handle with flange
4 Drilling template of door with direct rotary handle without flange
5 Drilling template for circuit-breaker fixing on sheet

		A
With standard flange	III	74
Without flange	III	71

RC Inst and RC Sel residual current release for 4 poles circuit-breaker



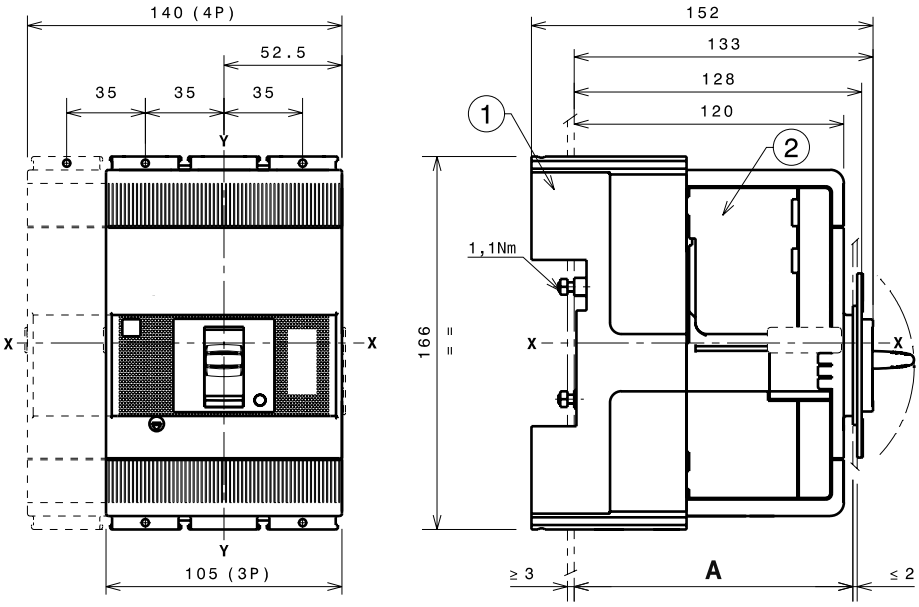
Key
1 Front terminals for cables connection
2 Terminal covers with degree of protection IP40
3 Drilling template of door with direct rotary handle with flange
4 Drilling template of door with direct rotary handle without flange
5 Drilling template for circuit-breaker fixing on sheet

		A
With standard flange	IV	74
Without flange	IV	71

Tmax XT3 – Installation

Installation for plug-in circuit-breaker

Fixing on support sheet

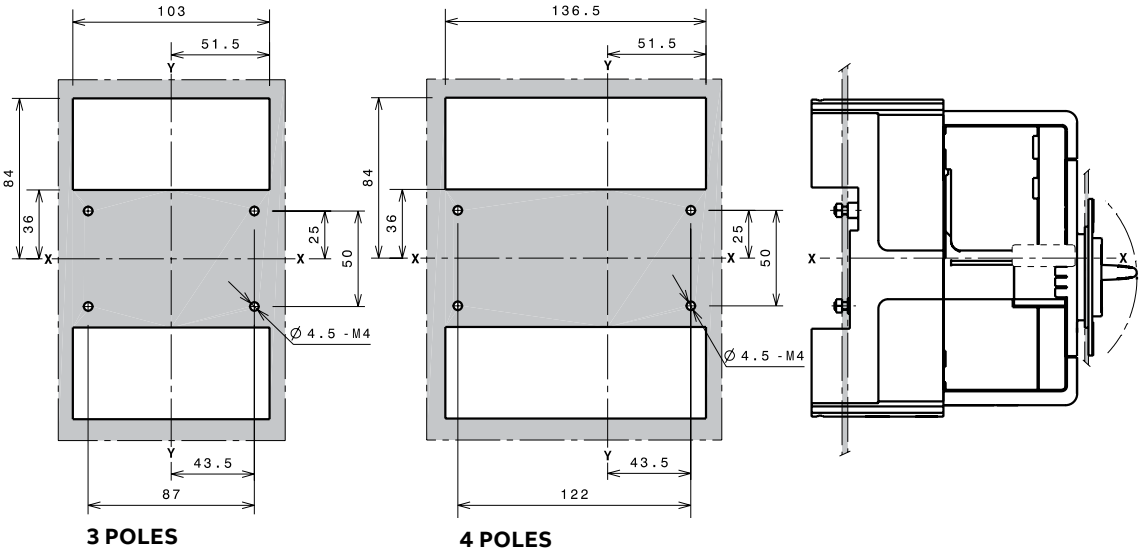


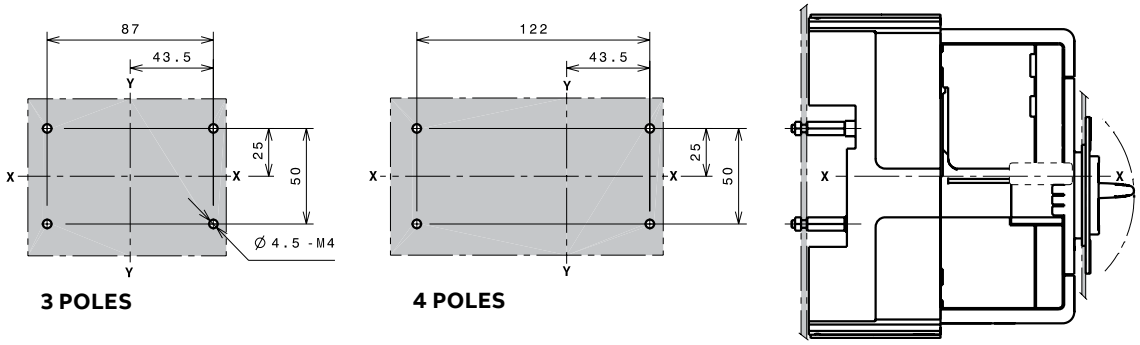
Fixing at 50mm		A
With standard flange	III-IV	124
Without flange	III-IV	121
	III-IV	129

Fixing at 70mm for extended front terminals		A
With standard flange	III-IV	144
Without flange	III-IV	141
	III-IV	149

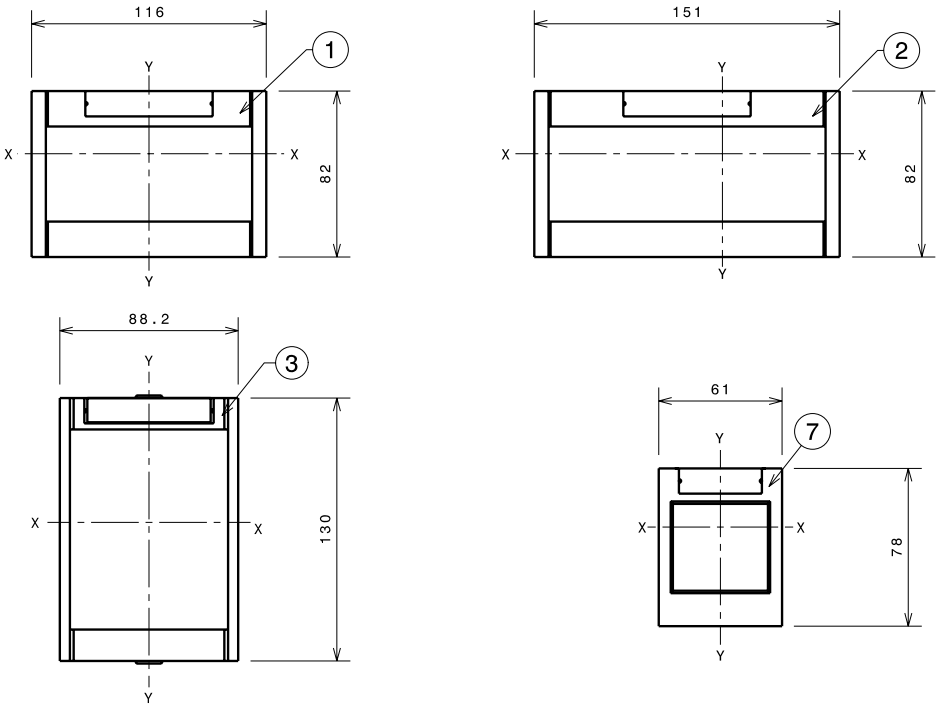
—
Key
1 Fixed part
2 Moving part

Drilling templates for support sheet





Flanges



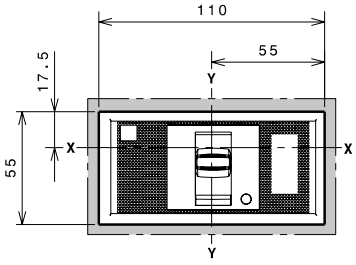
—
Key
1 Flange for plug-in circuit-breaker III
2 Flange for plug-in circuit-breaker IV
3 Flange for plug-in circuit-breaker with direct motor operator MOD
7 Optional flange

Tmax XT3 – Installation

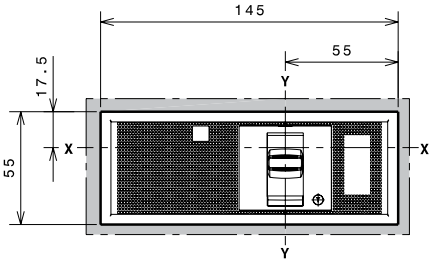
Installation for plug-in circuit-breaker

Drilling templates compartment door

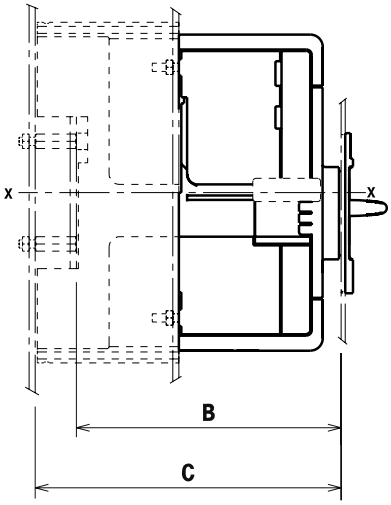
With standard flange



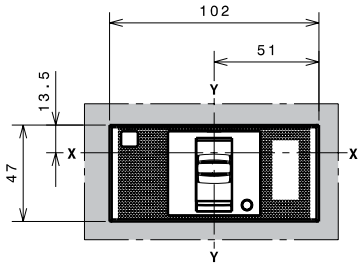
B=124 C=144
3 POLES



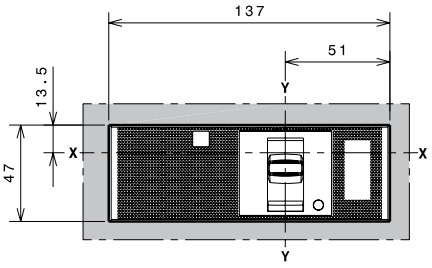
B=124 C=144
4 POLES



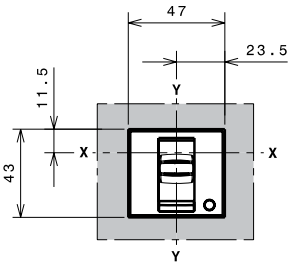
Without flange



B=121 C=141
3 POLES

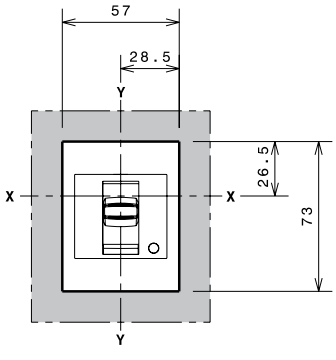


B=121 C=141
4 POLES

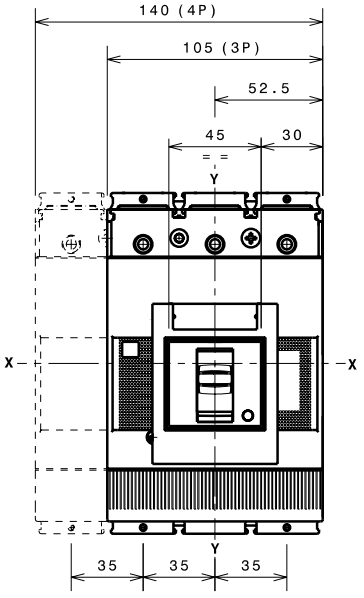


B=129 C=149
3-4 POLES

With optional flange



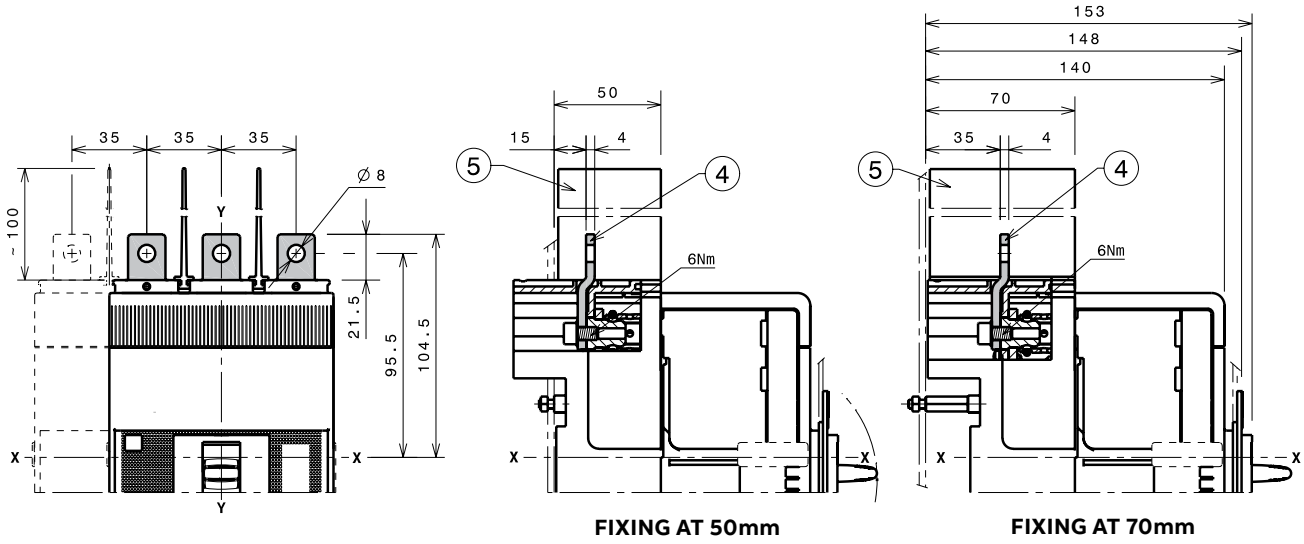
B=129 C=149
3-4 POLES



Tmax XT3 – Installation

Terminals for plug-in circuit-breaker

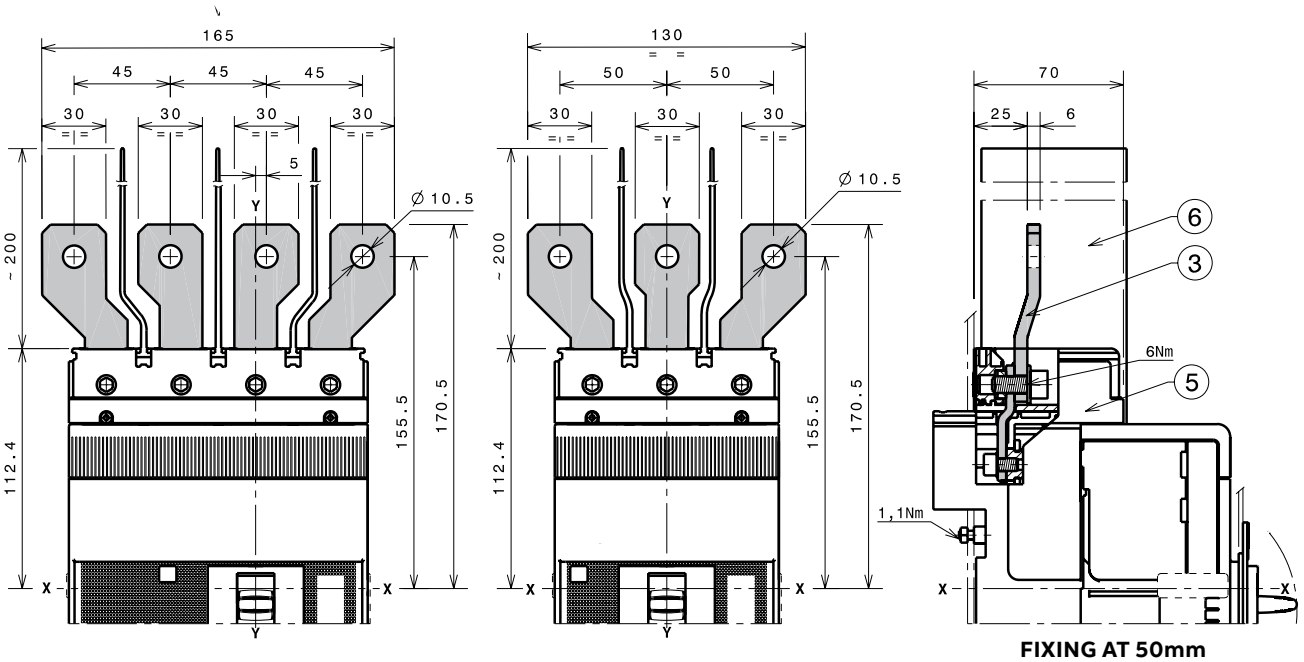
Terminals EF



Key

4 Front extended terminals
5 100mm insulating barriers between phases (compulsory) provided

Terminals ES



Key

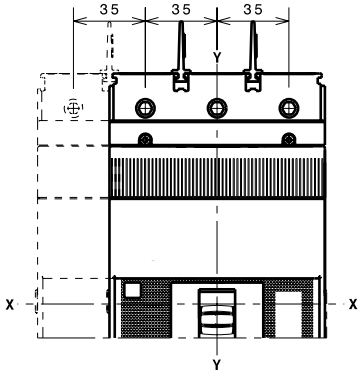
3 Front extended spread terminals for busbars connection
5 Adapter for fixed part (compulsory) not provided
6 200mm insulating barriers between phases (compulsory) provided

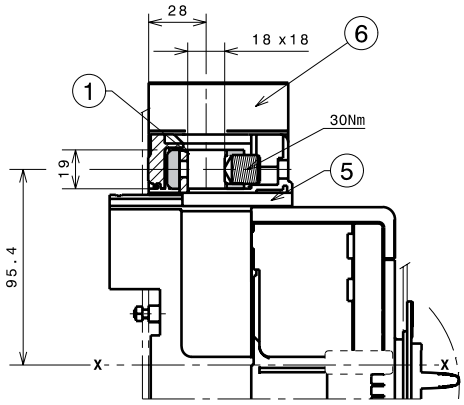
Tmax XT3 – Installation

Terminals for plug-in circuit-breaker

1x95...185mm² terminals FCCuAl

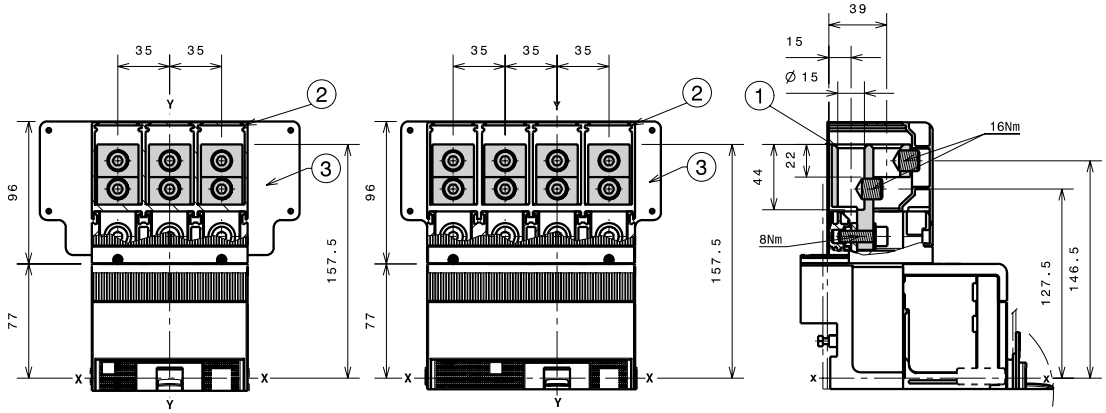
Key
1 1x95...185mm² front terminal FCCuAl
5 Adapter for fixed part (compulsory) not provided
6 25mm insulating barriers between phases (compulsory) provided



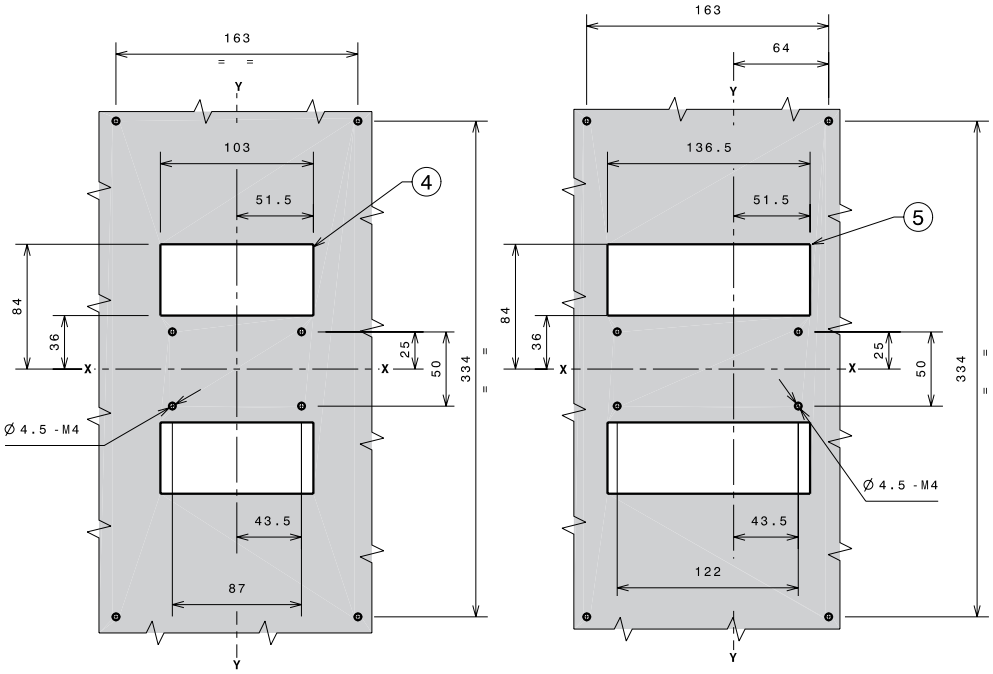


FIXING AT 70mm

2x35...120mm² terminals FCCuAl

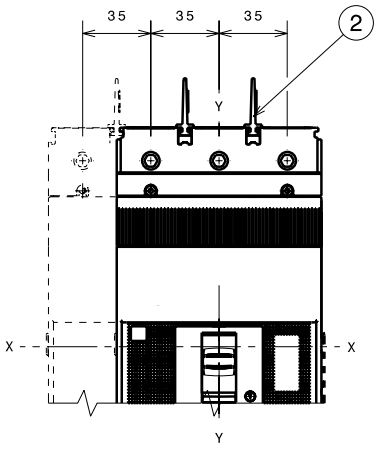


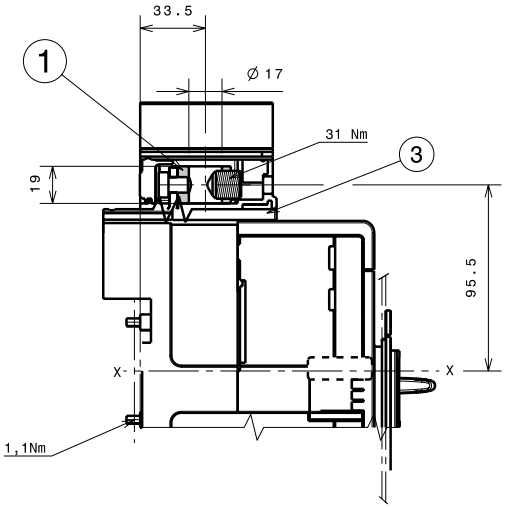
Key
1 2x35...120 mm² external terminal FCCuAl
2 High terminal covers with degree of protection IP40
3 Rear insulated plate (compulsory with 2x120mm²)
4 Drilling template for fixing circuit-breaker III with rear insulated plate
5 Drilling template for fixing circuit-breaker IV with rear insulated plate



30...150mm² terminals FCCuAl

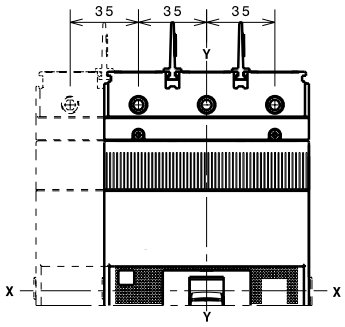
—
Key
1 30...150mm² terminals FCCuAl
2 25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker
3 Adapter for fixed part (compulsory) not provided

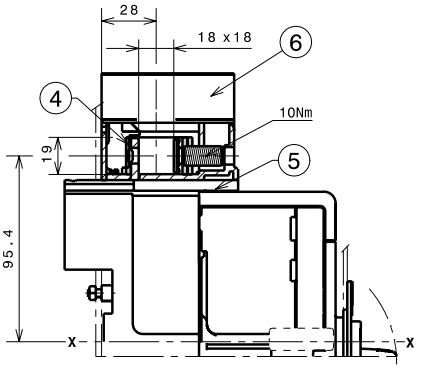




Terminals FCCu

—
Key
4 Front terminals FCCu
5 Adapter for fixed part (compulsory) not provided
6 25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker

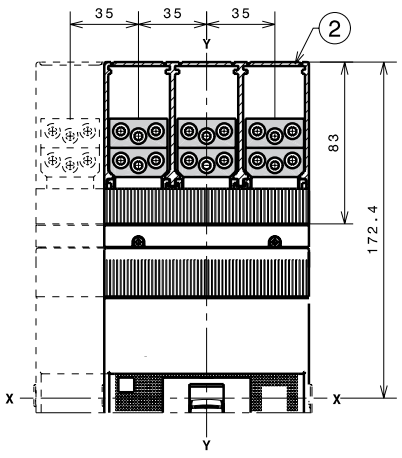


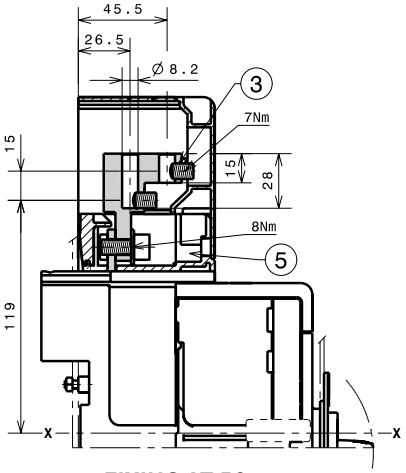


FIXING AT 50mm

Terminals MC

—
Key
2 High terminal covers with degree of protection IP40 (compulsory with multicable)
3 Front terminal for multicable connection
5 Adapter for fixed part (compulsory) not provided



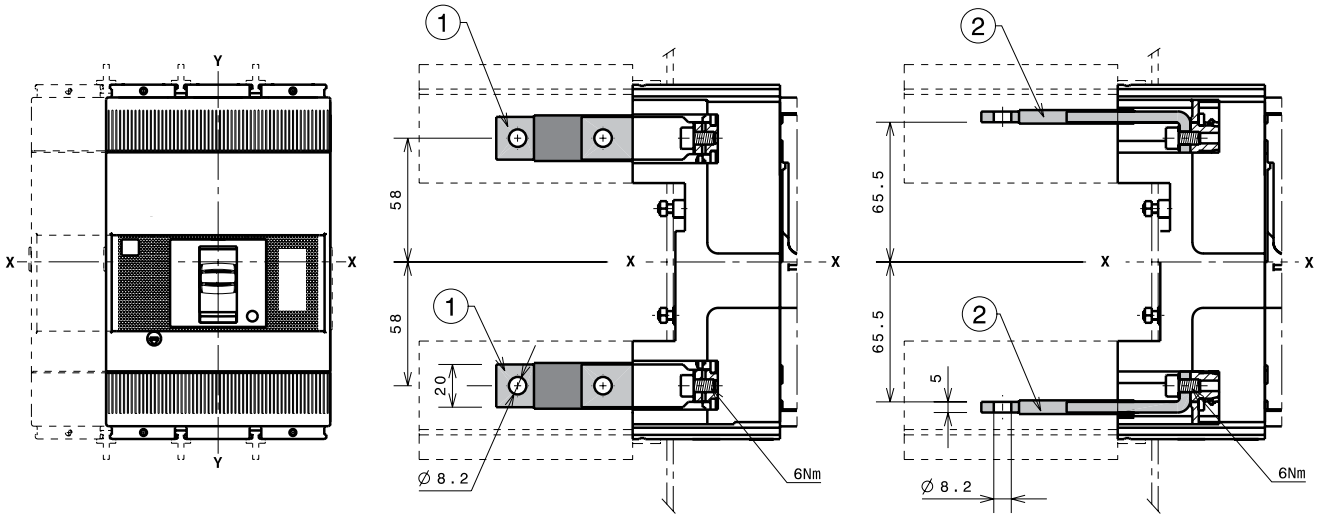


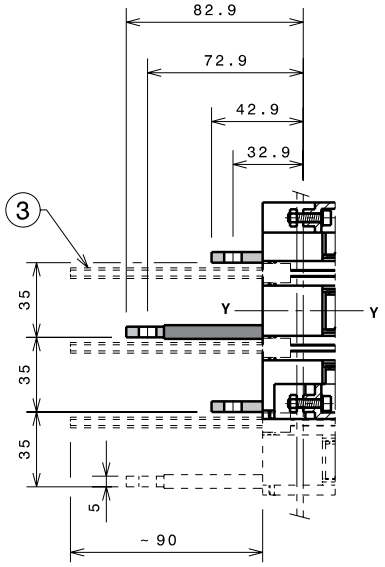
FIXING AT 50mm

Tmax XT3 – Installation

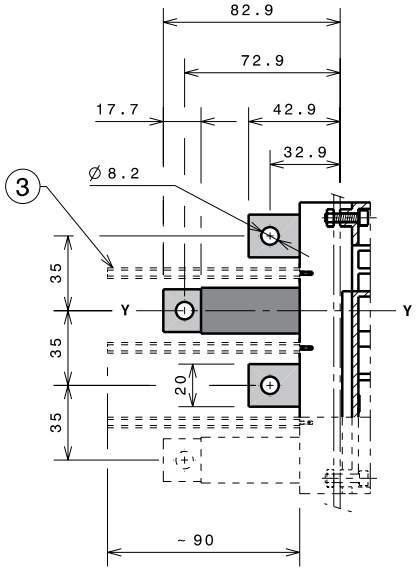
Terminals for plug-in circuit-breaker

Terminals HR/VR





FIXING AT 50mm



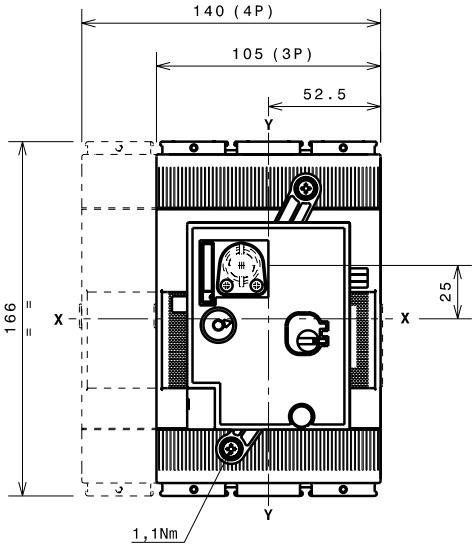
FIXING AT 50mm

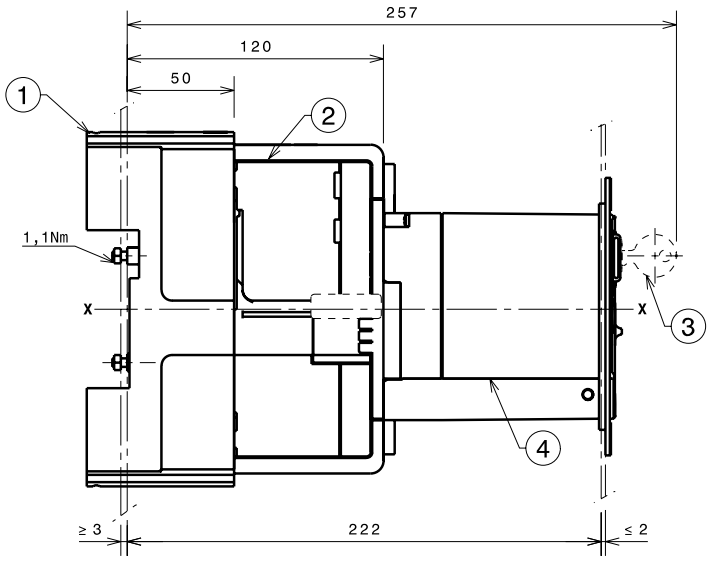
Key
1 Rear vertical terminals
2 Rear horizontal terminals
3 90mm insulating barriers between phases (compulsory) not provided

Tmax XT3 – Installation

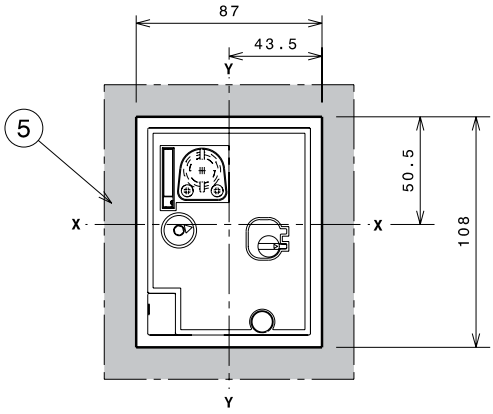
Accessories for plug-in circuit-breaker

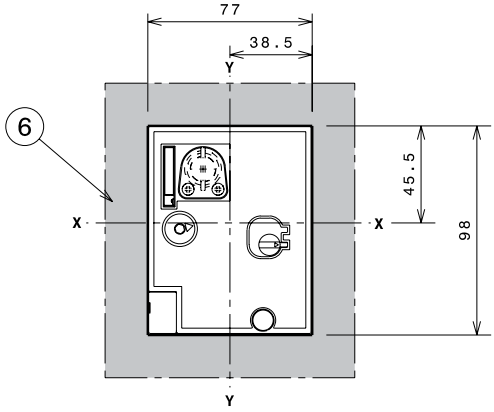
Direct motor operator (MOD)





FIXING AT 50mm





—

Key

1 Fixed part
2 Moving part
3 Key lock (on request)
4 Direct motor opetrator MOD
5 Drilling template of door with MOD with flange
6 Drilling template of door with MOD without flange

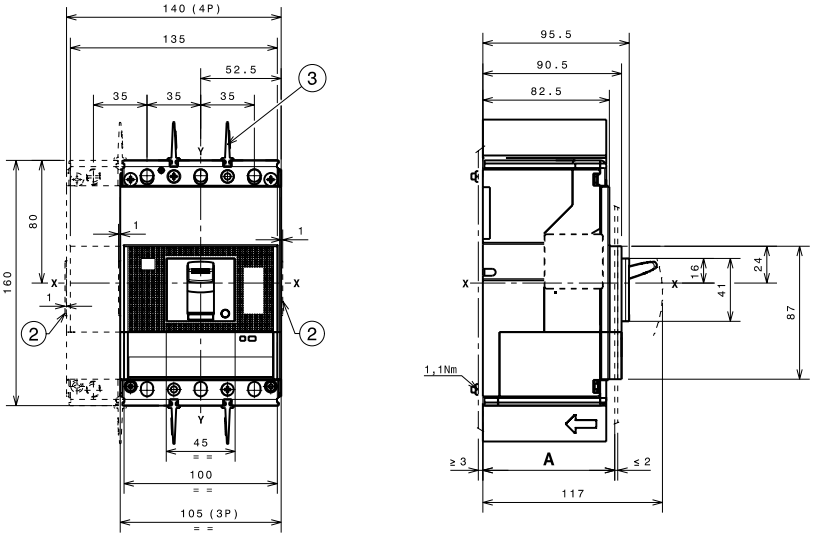
Tmax XT4 – Installation

Installation for fixed circuit-breaker

Fixing on sheet

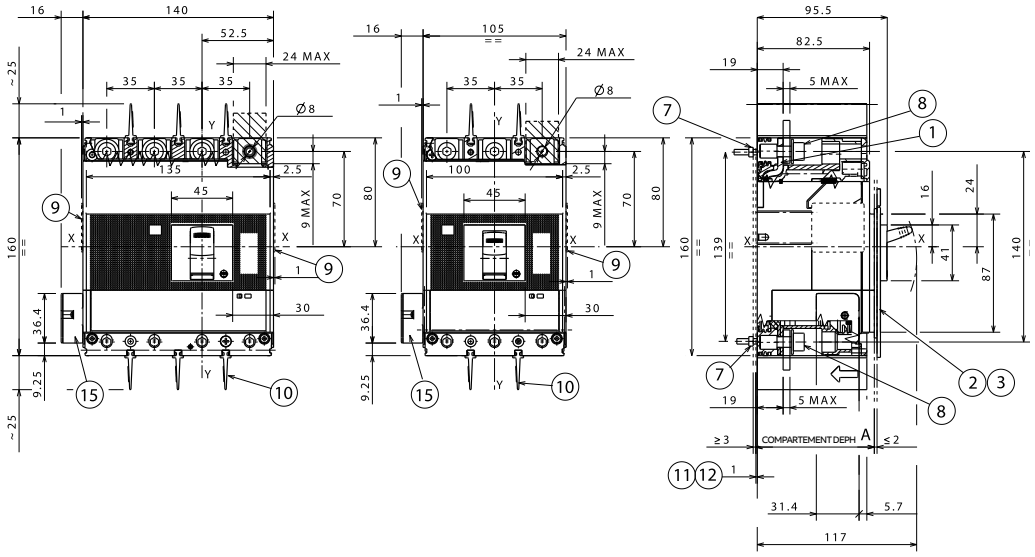
Key
2 Overall dimension of optional wiring ducts
3 25mm insulating barriers between phases (compulsory) provided

		A
With standard flange	III-IV	86
Without flange	III-IV	83.5
	III-IV	91.5



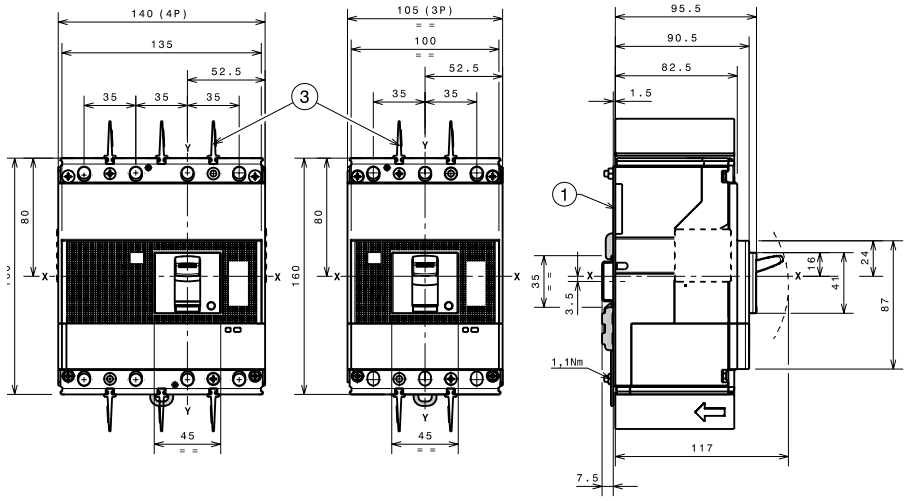
With side connector for Ekip Touch trip units

Key
1 Front terminals
2 Flange for IV circuit-breaker (always supplied with IV cb)
3 Flange for III circuit-breaker (always supplied with III cb)
7 Tightening torque 1,1 Nm - 10 In.Lbs
8 Tightening torque 8 Nm - 70.3 In.Lbs
9 Optional wiring duct
10 Interphase insulating barriers 25mm - 0.98"(compulsory)
11 Rear plate insulating III (only ul version)
12 Rear plate insulating IV (only ul version)
15 Connection kit F/P IntBus/ExtNeut/Se

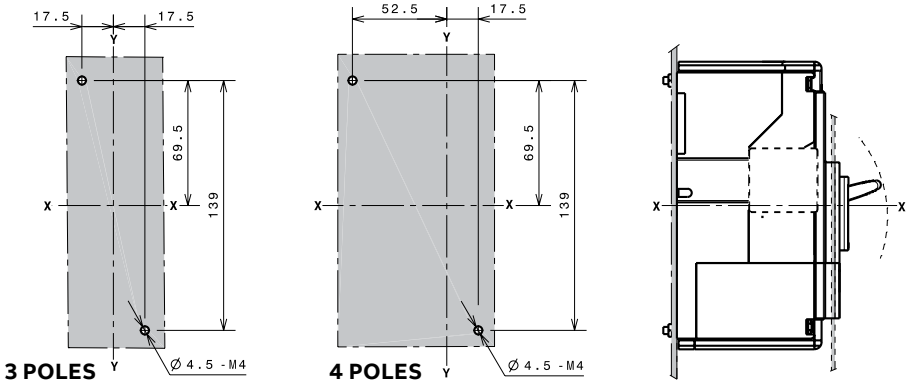


Fixing on DIN 50022 rail

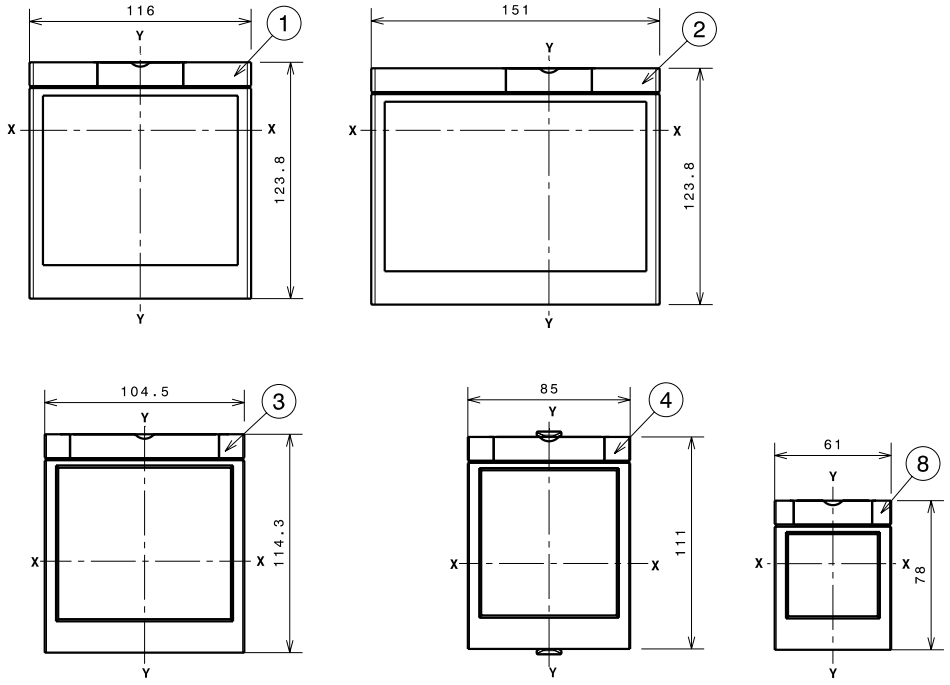
Key
1 Bracket for fixing
3 25mm insulating barriers between phases (compulsory) provided

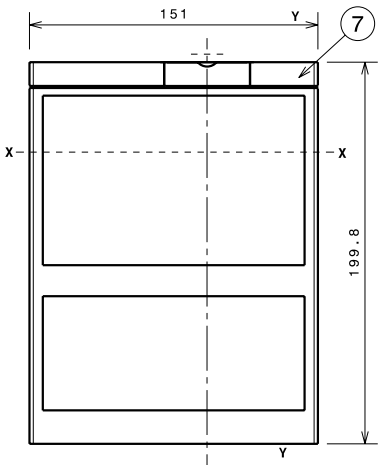


Drilling templates for support sheet



Flanges





—

Key

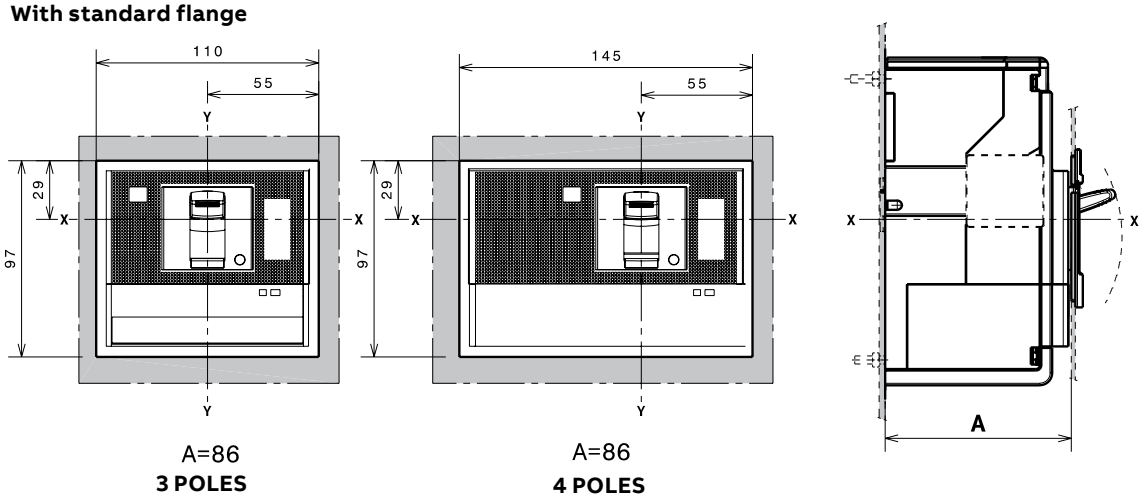
1 Flange for fixed circuit-breaker III
2 Flange for fixed circuit-breaker IV
3 Flange for fixed circuit-breaker III-IV with MOE and FLD
4 Flange for circuit-breaker III-IV with direct rotary handle RHD
7 Flange for fixed circuit-breaker IV with front extended terminals and residual current
8 Optional flange

Tmax XT4 – Installation

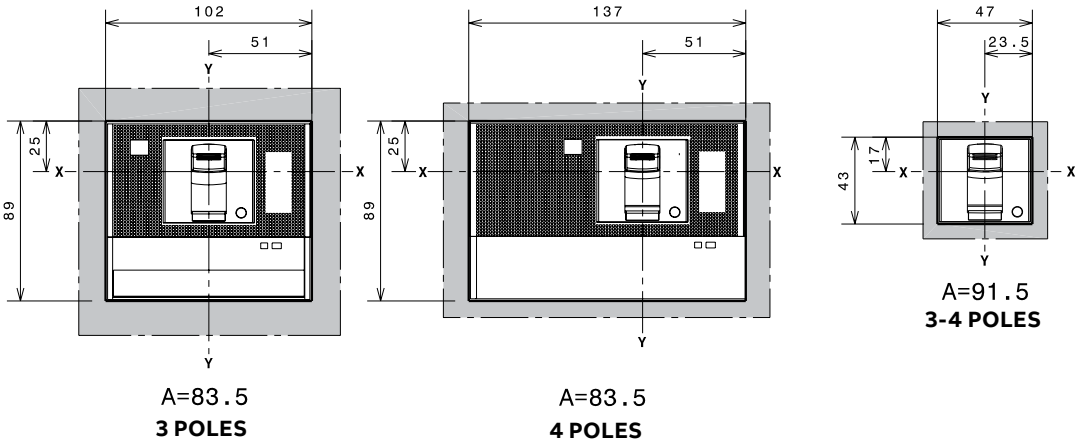
Installation for fixed circuit-breaker

Drilling templates compartment door

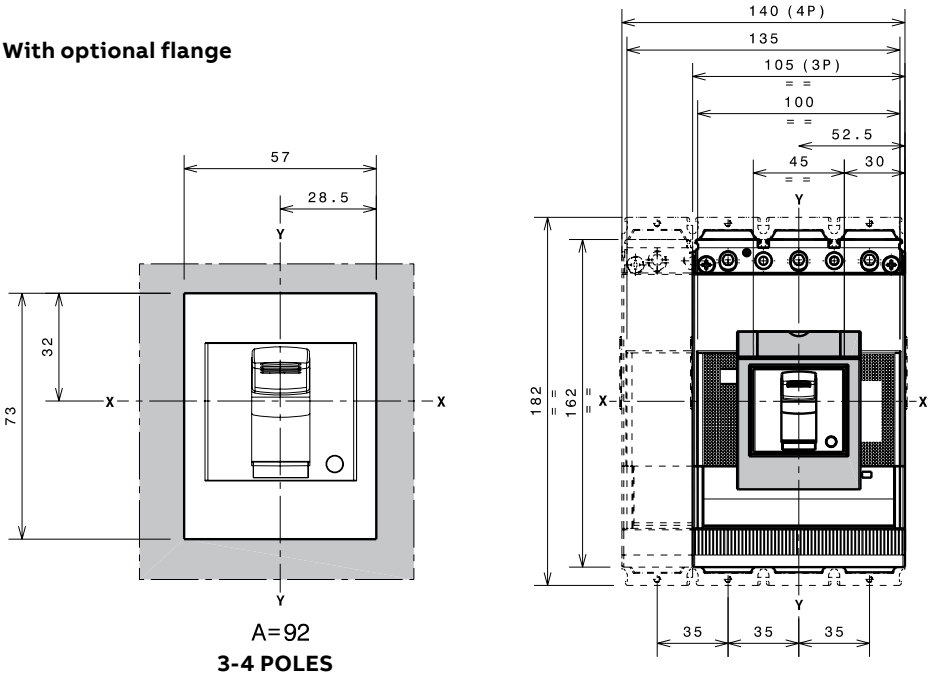
With standard flange



Without flange



With optional flange

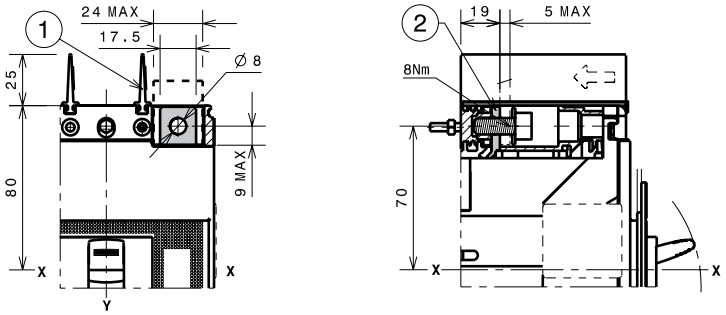


Tmax XT4 – Installation

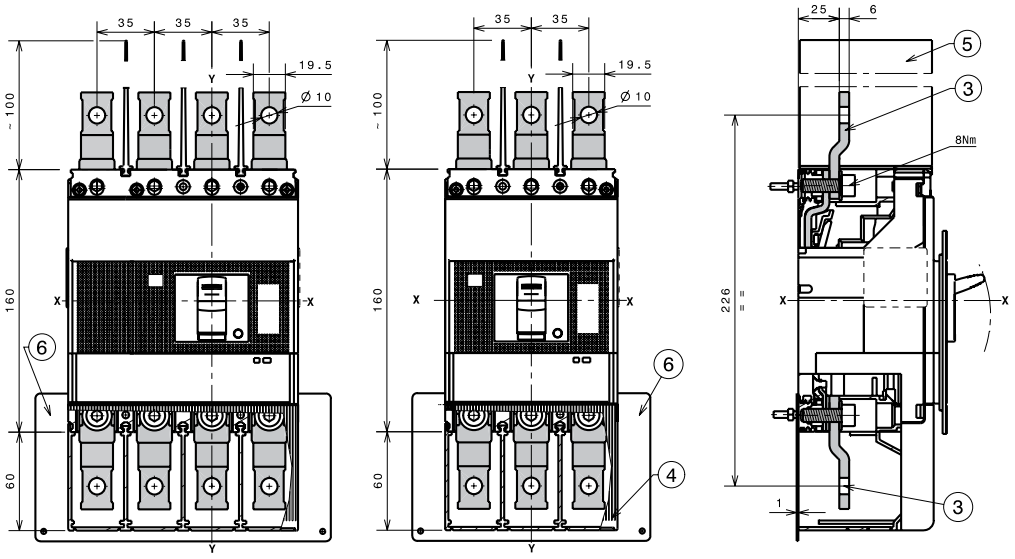
Terminals for fixed circuit-breaker

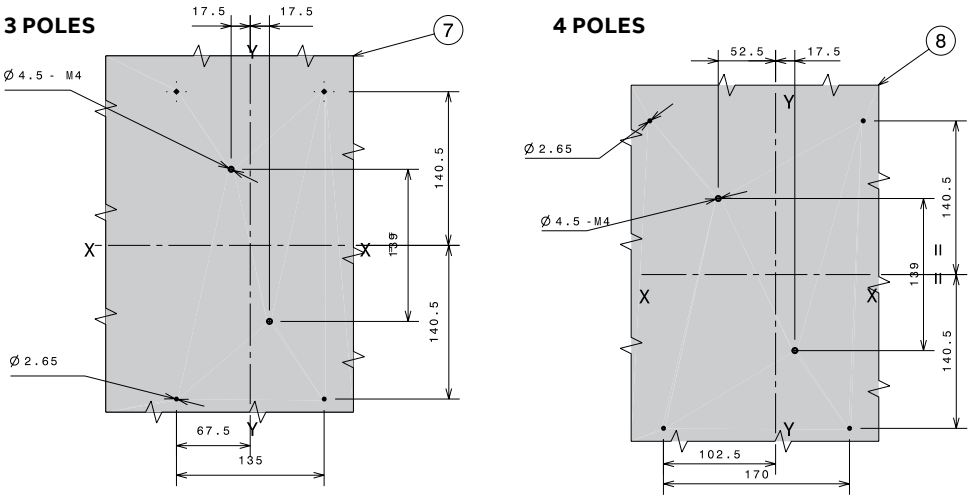
Terminals F

Key
1 25mm insulating barriers between phases (compulsory) provided
2 Top terminal covers with degree of protection IP30 (optional) not provided



Terminals EF





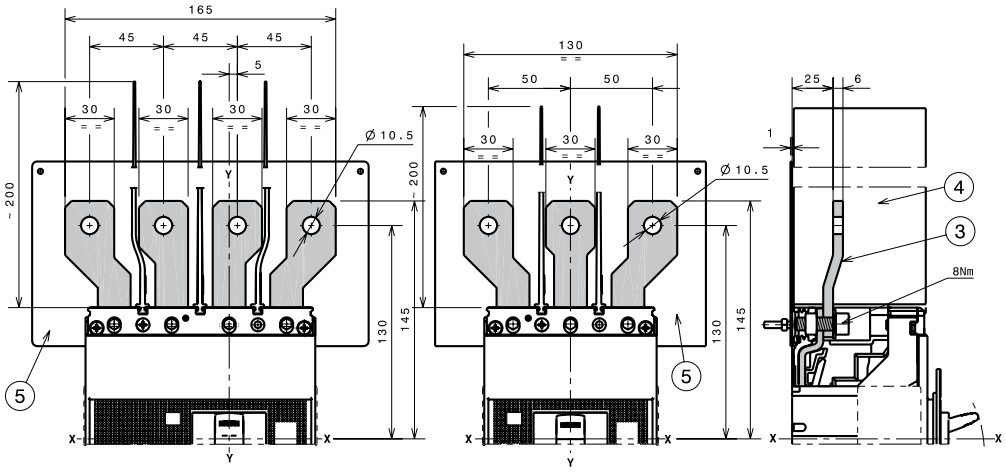
Key
3 Front extended terminals
4 Terminal covers with degree of protection IP40 (optional) not provided
5 100mm insulating barriers between phases (compulsory) provided
6 Insulated plate provided compulsory for Ue>440V
7 Drilling template for 3p circuit-breaker
8 Drilling template for 4p circuit-breaker

Tmax XT4 – Installation

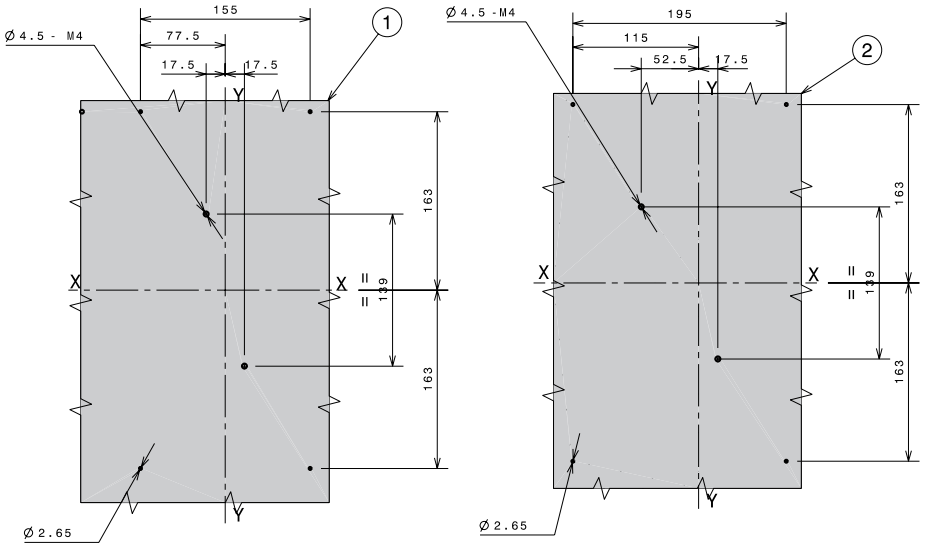
Terminals for fixed circuit-breaker

Terminals ES

Key
1 Drilling template for 3p circuit-breaker
2 Drilling template for 4p circuit-breaker
3 Front extended spread terminals
4 200mm insulating barriers between phases (compulsory) provided
5 Insulating plate provided compulsory for Ue>440V

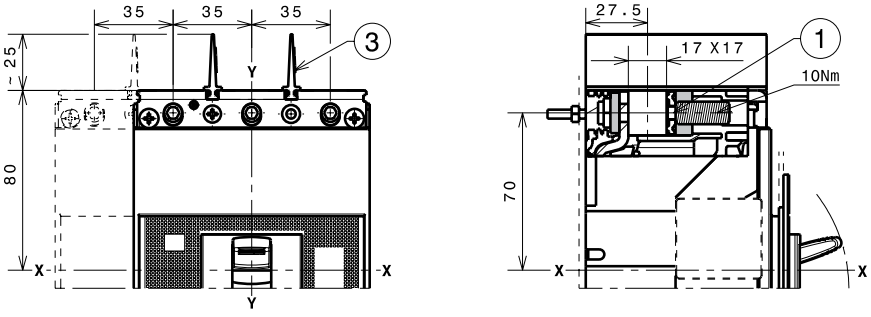


3 POLES **4 POLES**

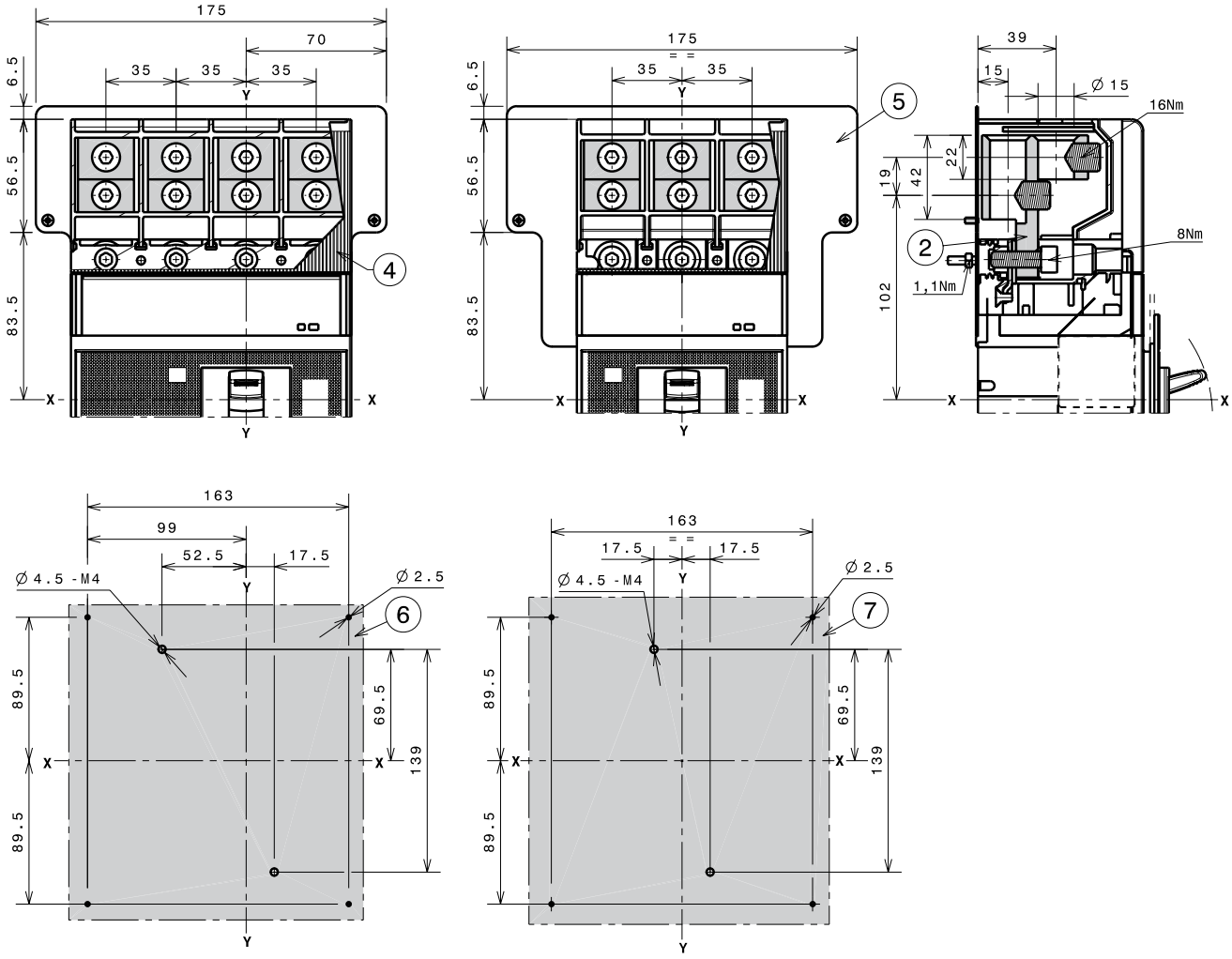


1x1...185mm² terminals FCCuAl

Key
1 1x1...185mm² terminals FCCuAl
3 25mm insulating barriers between phases (compulsory) provided



2x35...120mm² terminals FCCuAl



—

Key

2 2x35...120mm² terminals FCCuAl

4 Terminal covers with degree of protection IP40 (optional) provided

5 Provided rear insulated plate (mandatory for CuAl 2x120mm² cables)

6 Drilling template for circuit-breaker IV fixing with insulating plate

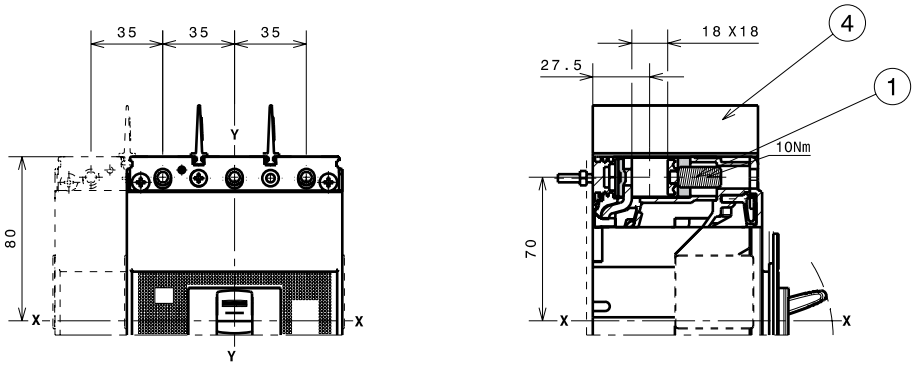
7 Drilling template for circuit-breaker III fixing with insulating plate

Tmax XT4 – Installation

Terminals for fixed circuit-breaker

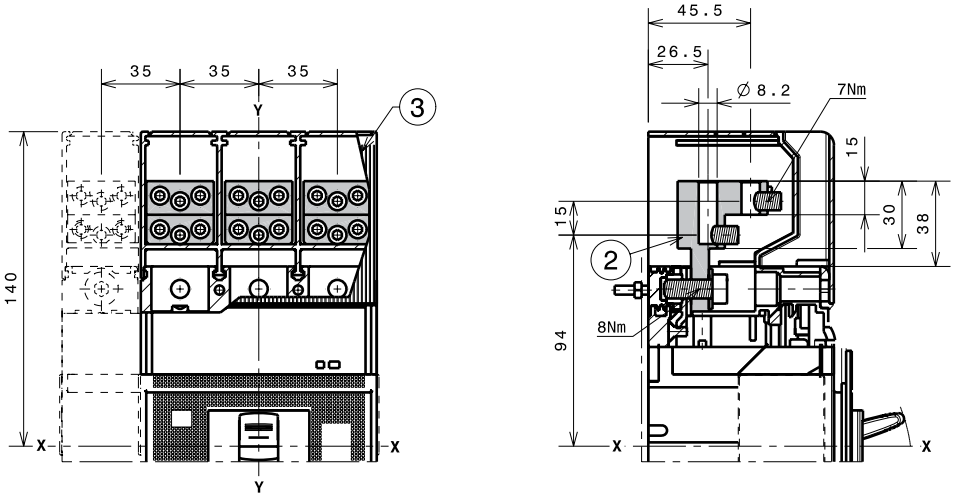
Terminals FCCu

Key
1 Terminals FCCu
4 25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker

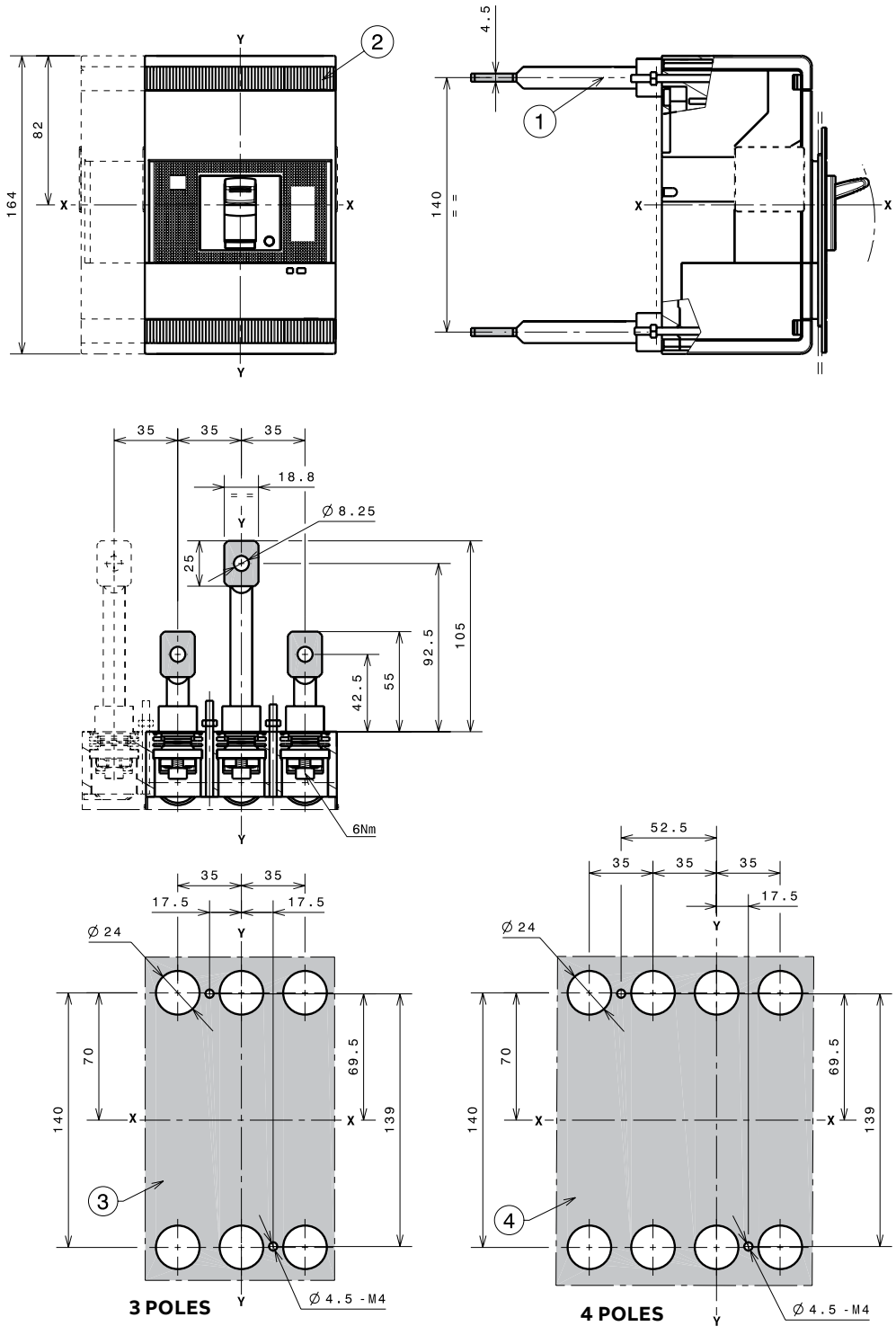


Terminals MC

Key
2 Multicable terminals
3 Terminal covers with degree of protection IP40 (optional) provided



Terminals R



—

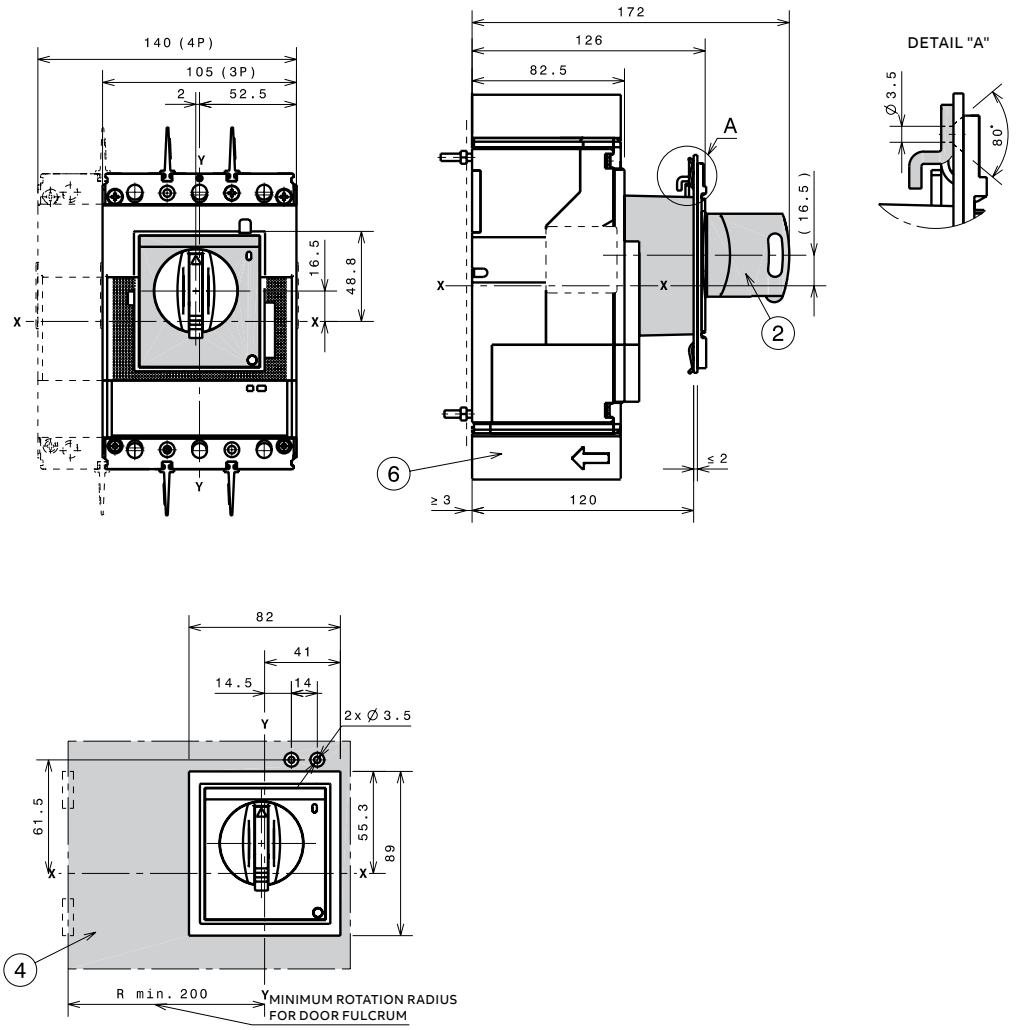
Key

1 Adjustable rear terminals
2 Bottom terminal covers with degree of protection IP40 (optional) provided
3 Drilling template for circuit-breaker III fixing on sheet
4 Drilling template for circuit-breaker IV fixing on sheet

Tmax XT4 – Installation

Accessories for fixed circuit-breaker

Rotary handle operating mechanism on circuit-breaker (RHD)

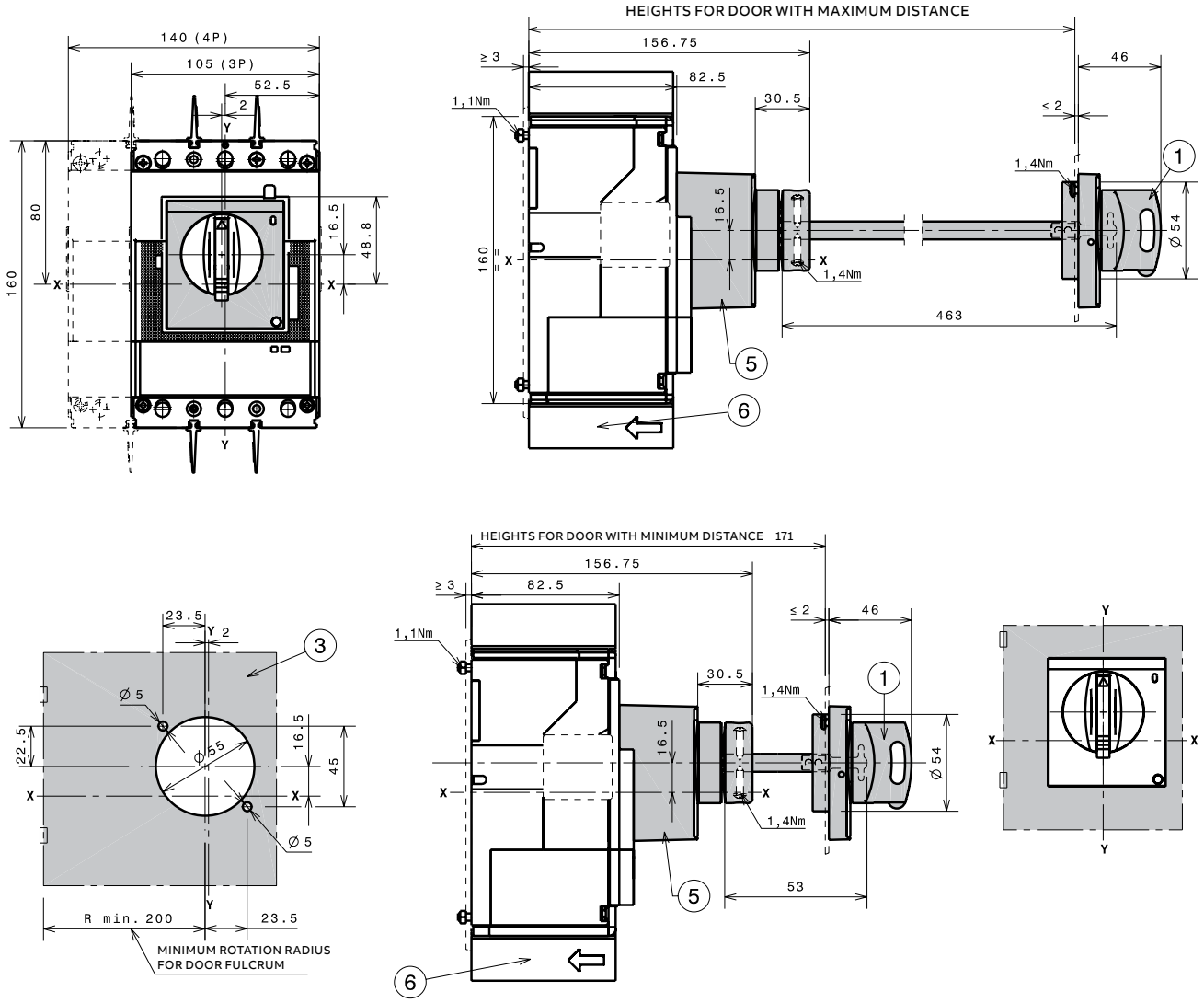


—

Key

2 Rotary handle operating mechanism on circuit-breaker
4 Drilling template of door with direct rotary handle
6 25mm insulating barriers between phases

Rotary handle operating mechanism of the compartment door (RHE)



—

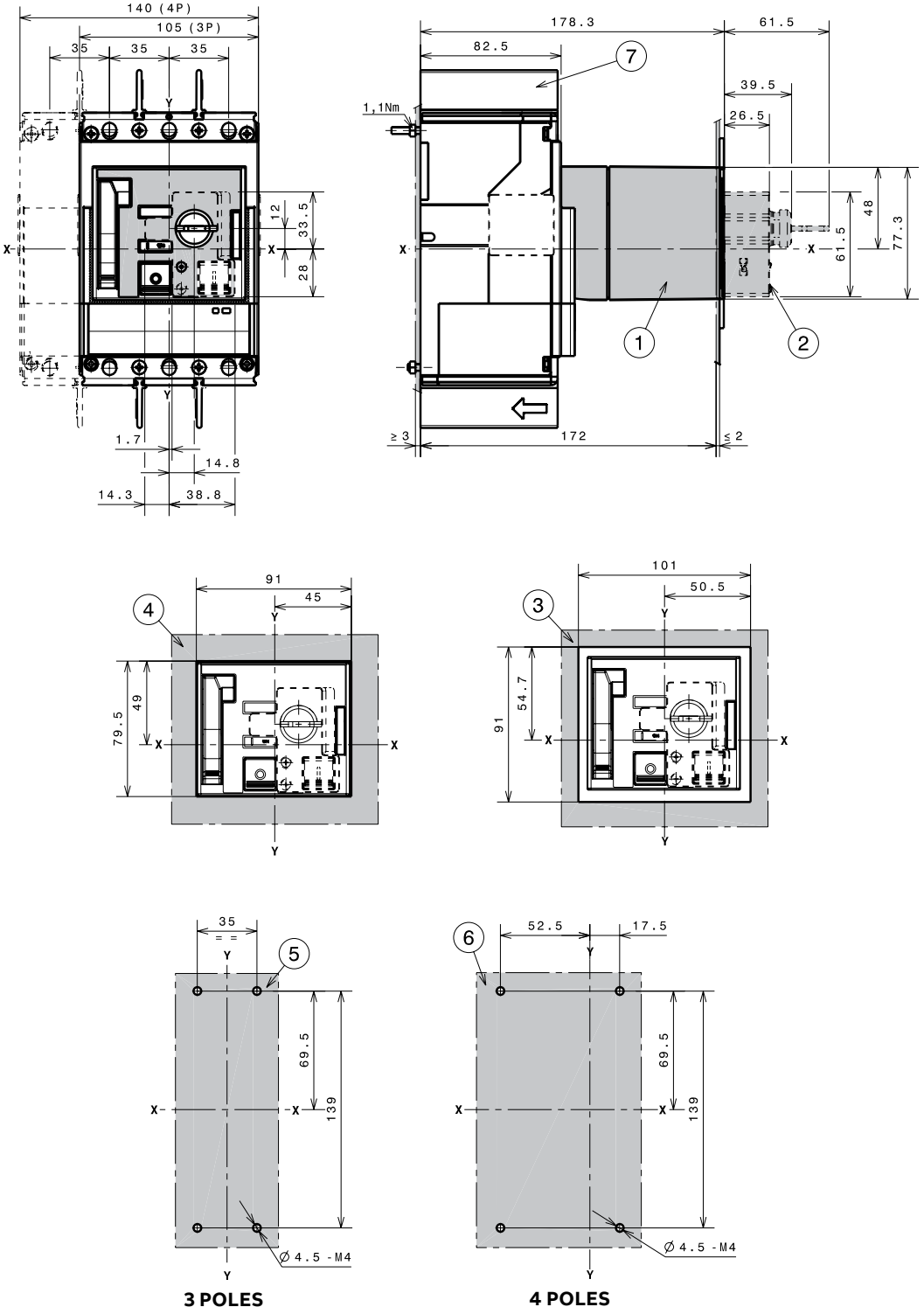
Key

1 Rotary handle operating mechanism of the compartment door
3 Drilling template for RHE
5 Transmission unit
6 25mm insulating barriers between phases

Tmax XT4 – Installation

Accessories for fixed circuit-breaker

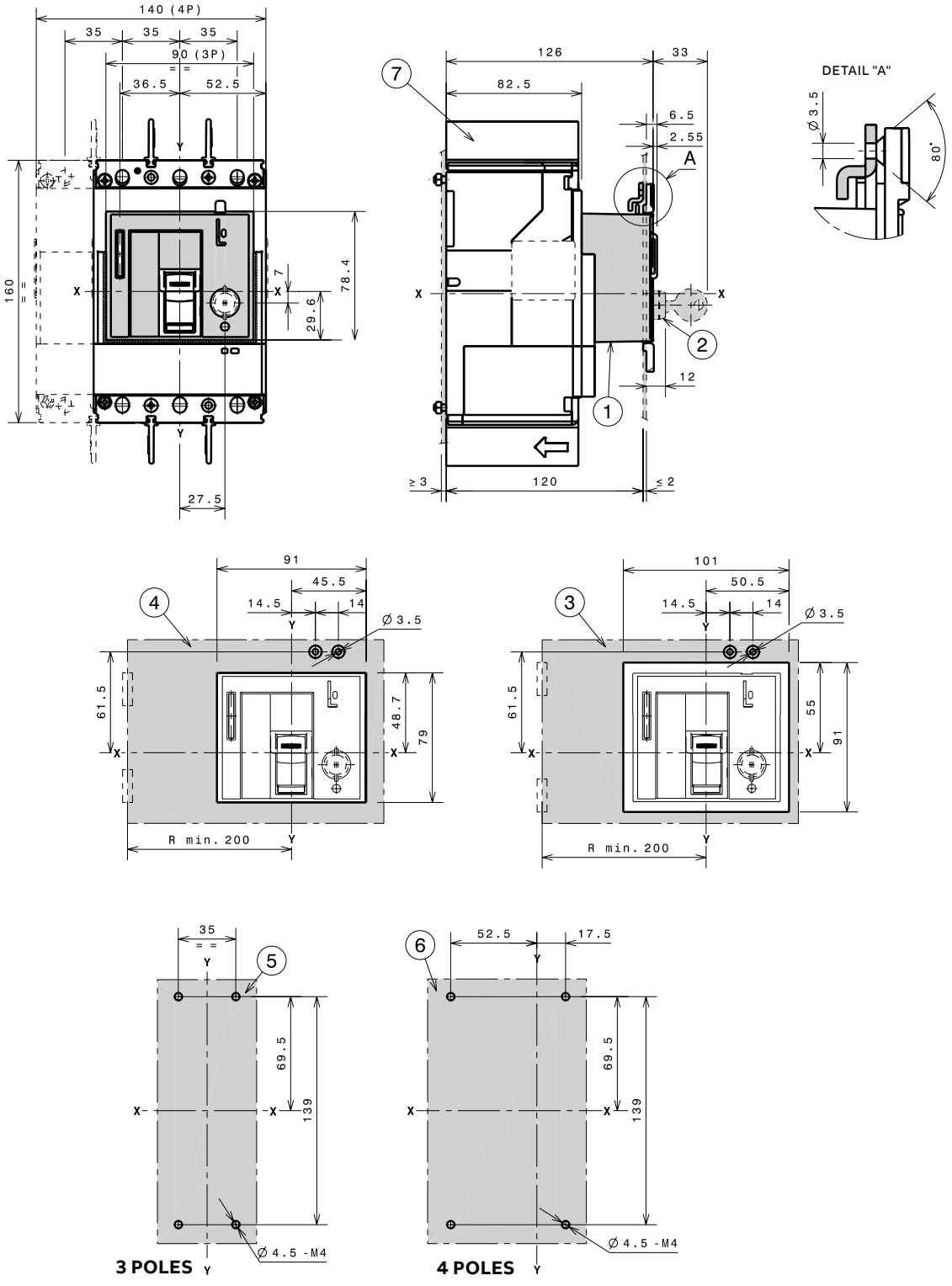
Stored energy motor operator (MOE)



Key

1 Stored energy motor operator (MOE)
2 Key lock optional
3 Drilling template of door with direct rotary handle with flange (MOE)
4 Drilling template of door with direct rotary handle without flange (MOE)
5 Drilling template for circuit-breaker III fixing on sheet
6 Drilling template for circuit-breaker IV fixing on sheet
7 25mm insulating barriers between phases

Front for lever operating mechanism (FLD)



—

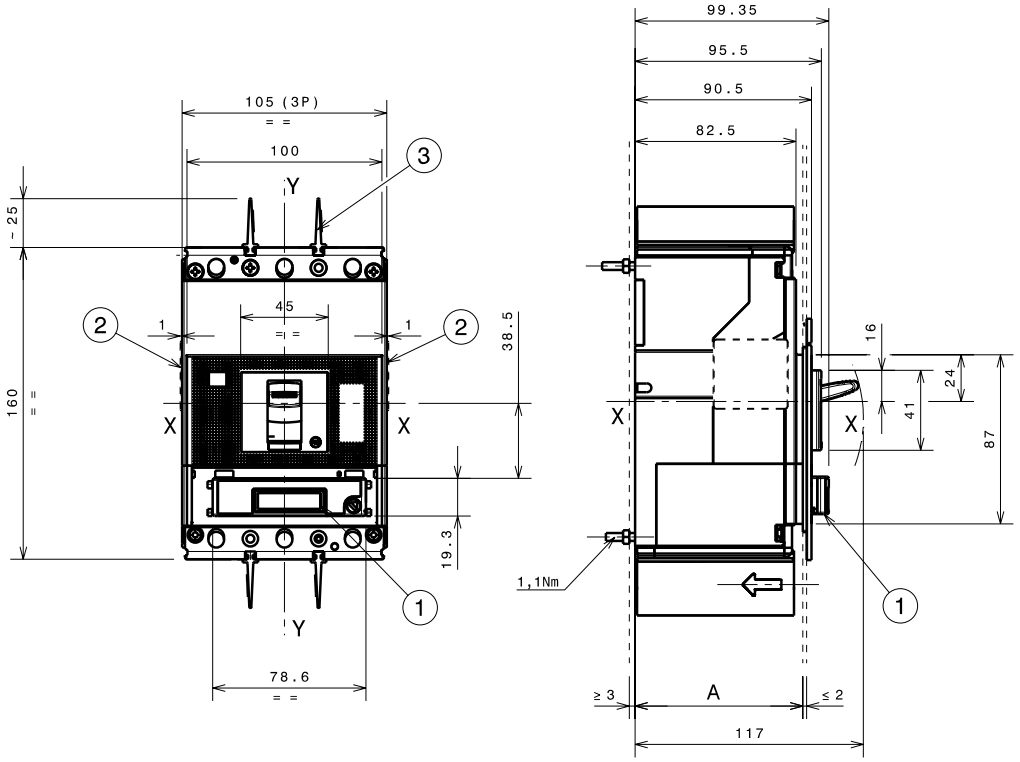
Key

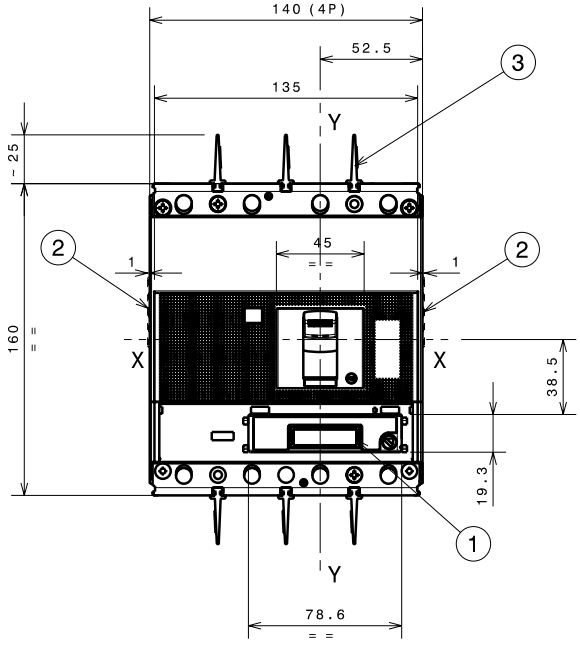
1 Front for lever operating mechanism (FLD)
2 Key lock optional
3 Drilling template of door with direct rotary handle with flange (FLD)
4 Drilling template of door with direct rotary handle without flange (FLD)
5 Drilling template for circuit-breaker III fixing on sheet
6 Drilling template for circuit-breaker IV fixing on sheet
7 25mm insulating barriers between phases

Tmax XT4 – Installation

Accessories for fixed circuit-breaker

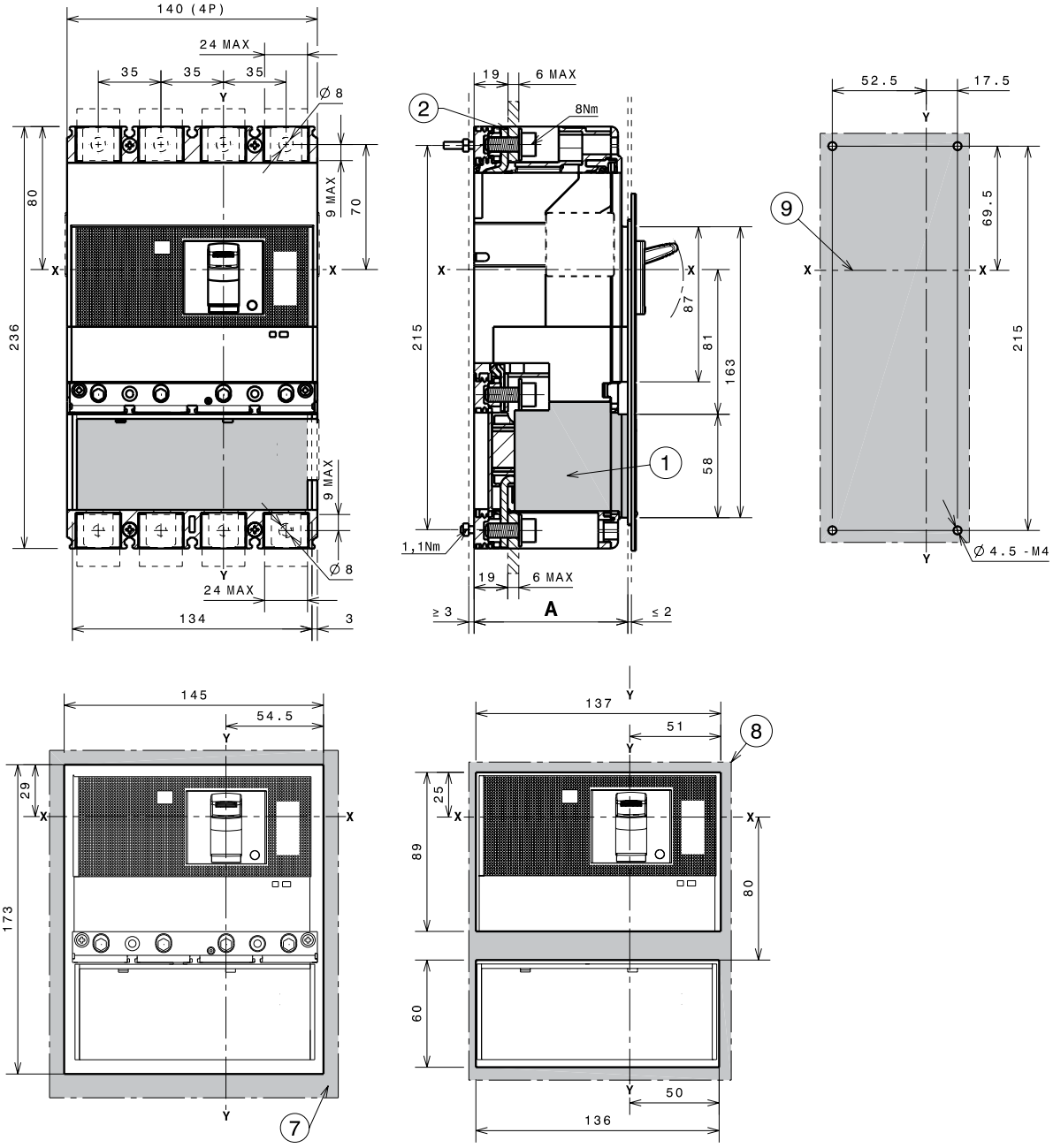
Ekip Display or LED Meter





Key
1 Ekip Display or LED Meter
2 Optional wiring ducts
3 25mm insulating barriers between phases

Residual current RC Sel



Key
1 Residual current
2 Front terminals
7 Drilling template of door with direct rotary handle and fixing with flange
8 Drilling template of door with direct rotary handle and fixing without flange
9 Drilling template for circuit-breaker fixing on sheet

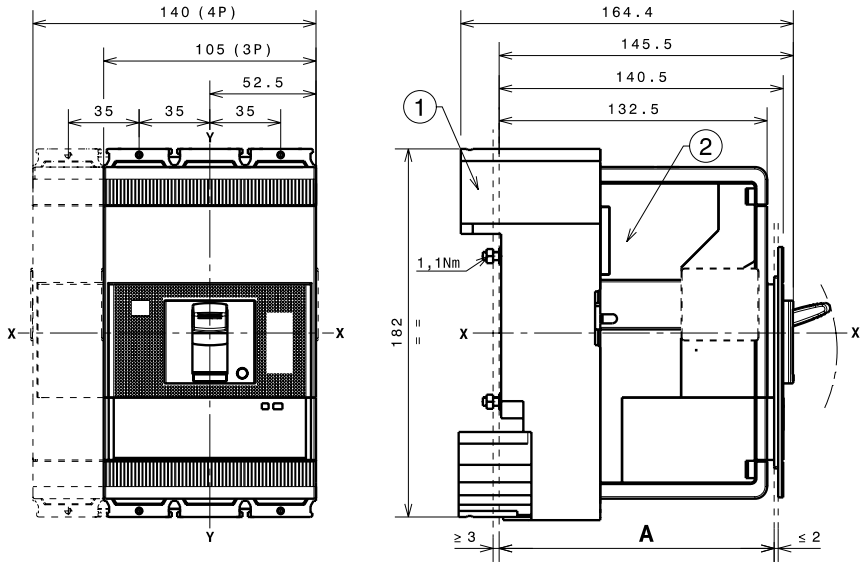
		A
With standard flange	IV	86
Without flange	IV	83.5

Tmax XT4 – Installation

Installation for plug-in circuit-breaker

Fixing on sheet

—
Key
1 Fixed part
2 Moving part

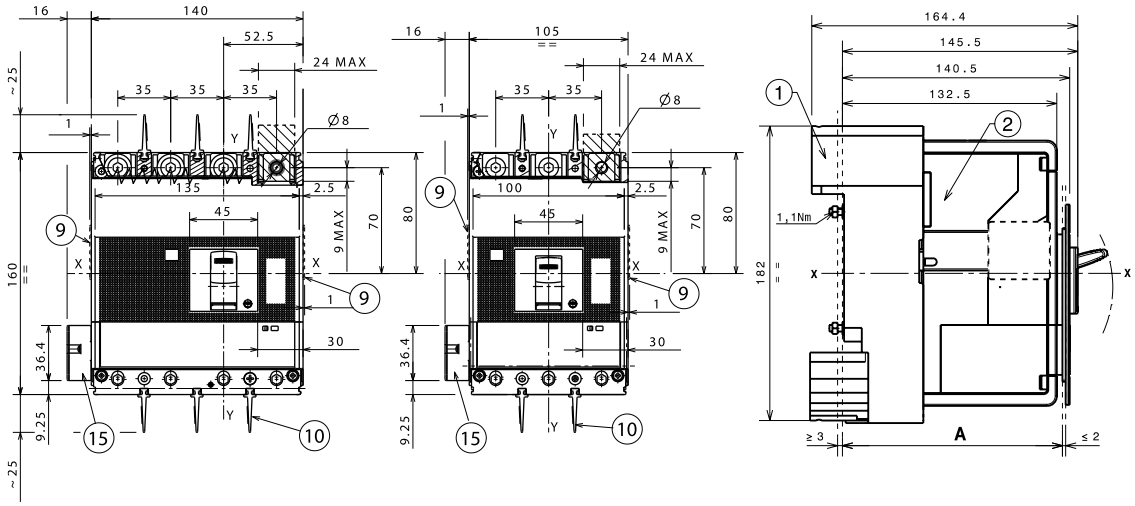


Fixing at 50mm		A
With standard flange	III-IV	136
Without flange	III-IV	133.5
	III-IV	141.5

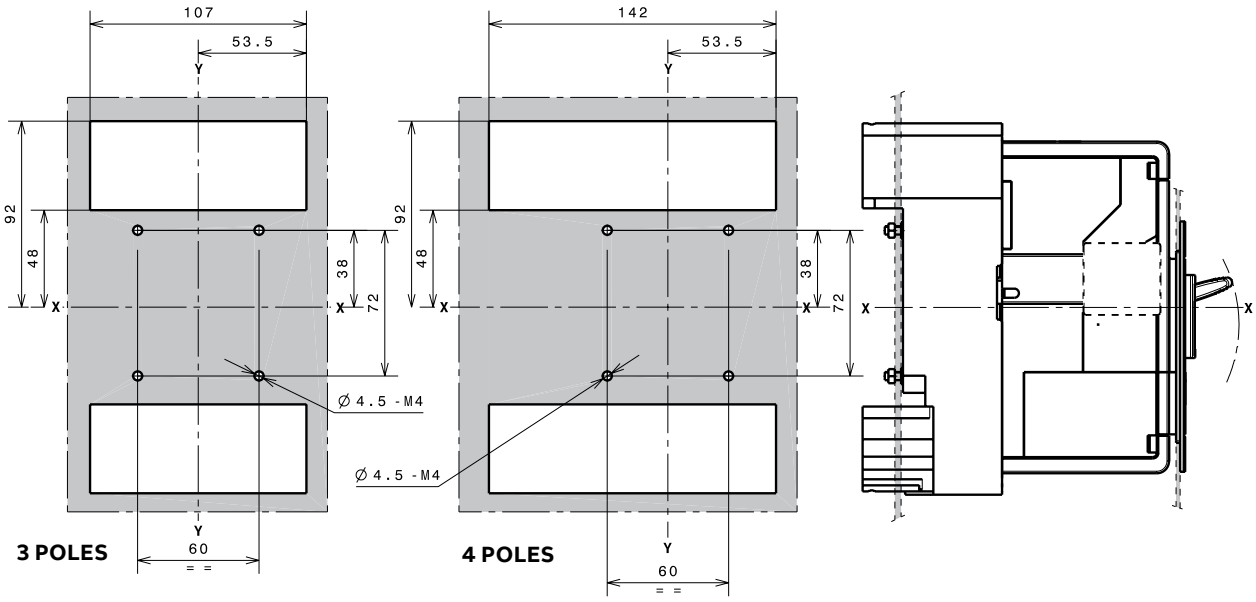
Fixing at 70mm for extended front terminals		A
With standard flange	III-IV	156
Without flange	III-IV	153.5
	III-IV	161.5

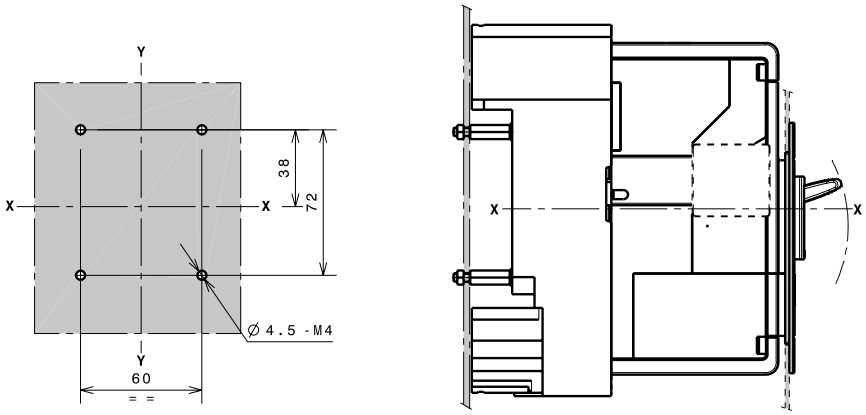
With side connector for Ekip Touch trip units

—
Key
1 Front terminals
2 Flange for IV circuit-breaker (always supplied with IV cb)
9 Optional wiring duct
10 Interphase insulating barriers 25mm - 0.98"(compulsory)
15 Connection kit F/P IntBus/ExtNeut/Se



Drilling templates for support sheet

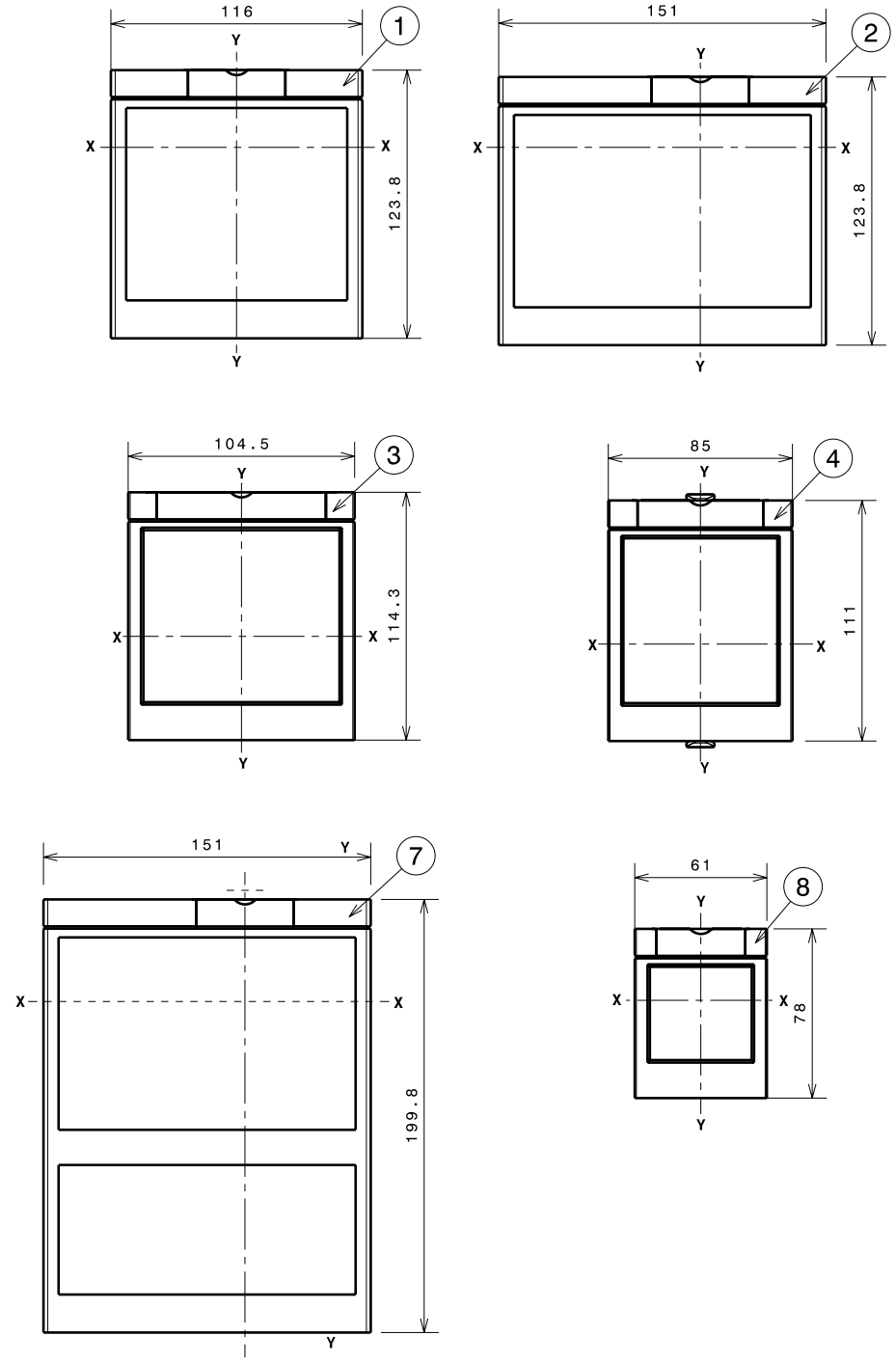




Tmax XT4 – Installation

Installation for plug-in circuit-breaker

Flanges



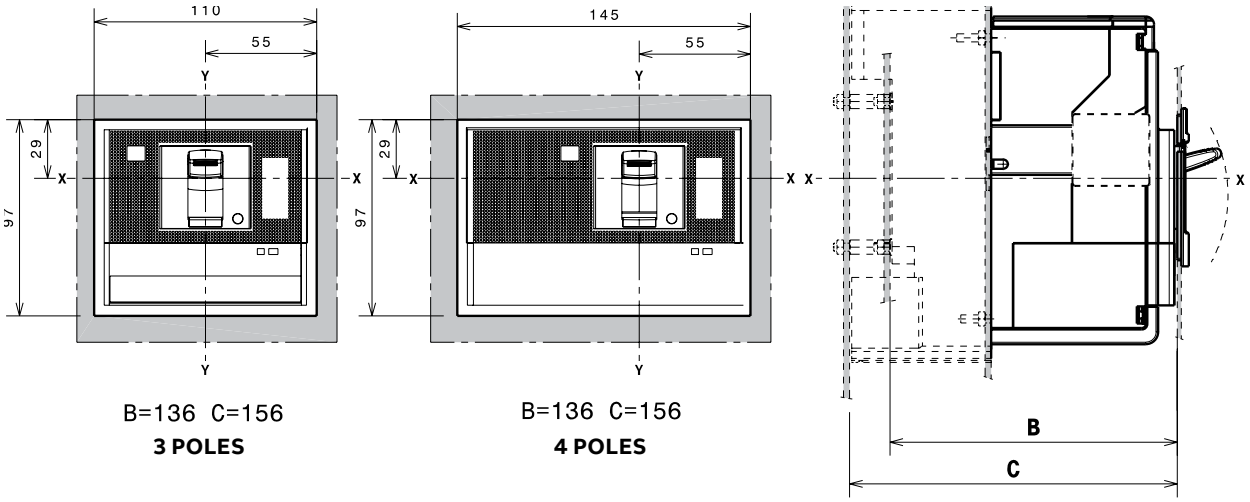
—

Key

1 Flange for plug-in circuit-breaker III
2 Flange for plug-in circuit-breaker IV
3 Flange for plug-in circuit-breaker III-IV with MOE and FLD
4 Flange for circuit-breaker III-IV with direct rotary handle
7 Flange for plug-in circuit-breaker IV with front extended terminals and residual current
8 Optional flange

Drilling templates compartment door

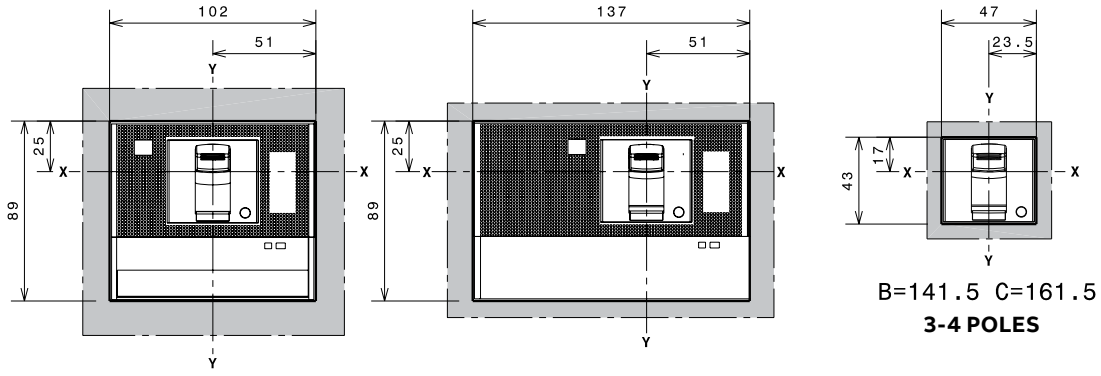
With standard flange



B=136 C=156
3 POLES

B=136 C=156
4 POLES

Without flange

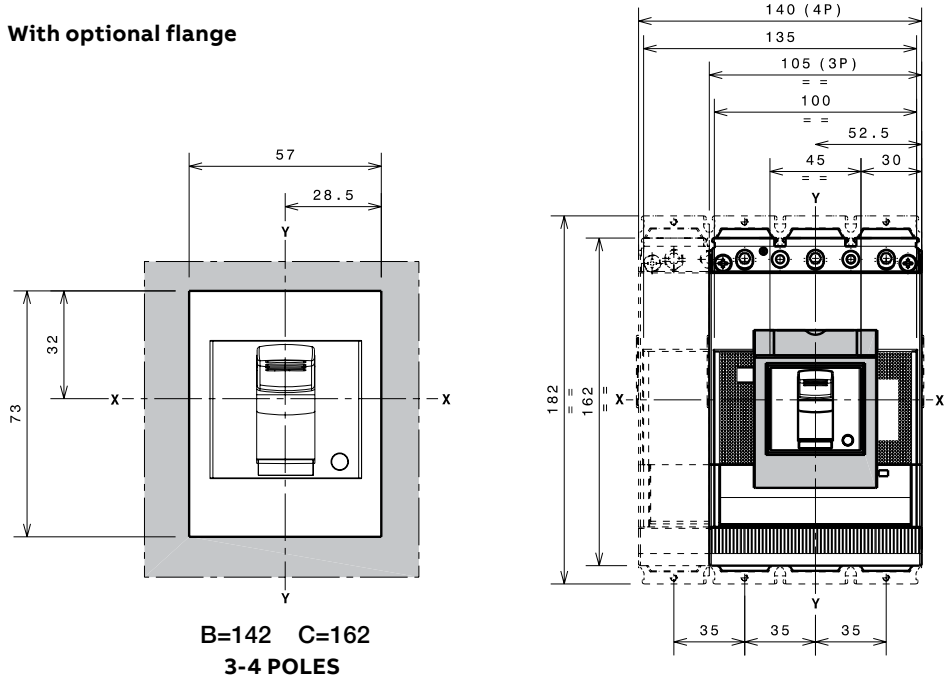


B=133.5 C=153.5
3 POLES

B=133.5 C=153.5
4 POLES

B=141.5 C=161.5
3-4 POLES

With optional flange

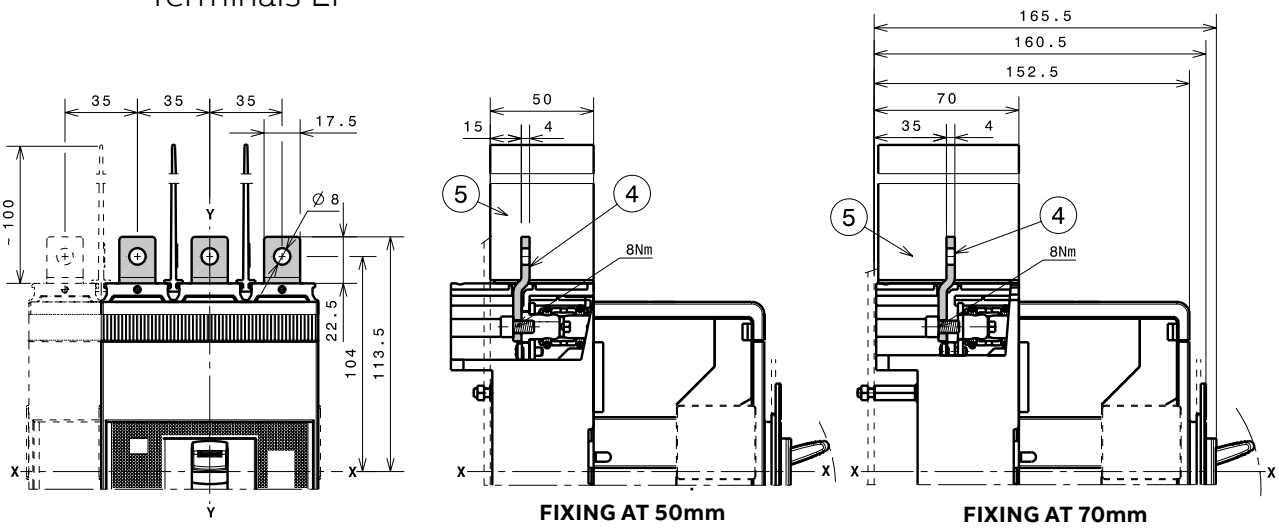


B=142 C=162
3-4 POLES

Tmax XT4 – Installation

Terminals for plug-in circuit-breaker

Terminals EF



—

Key

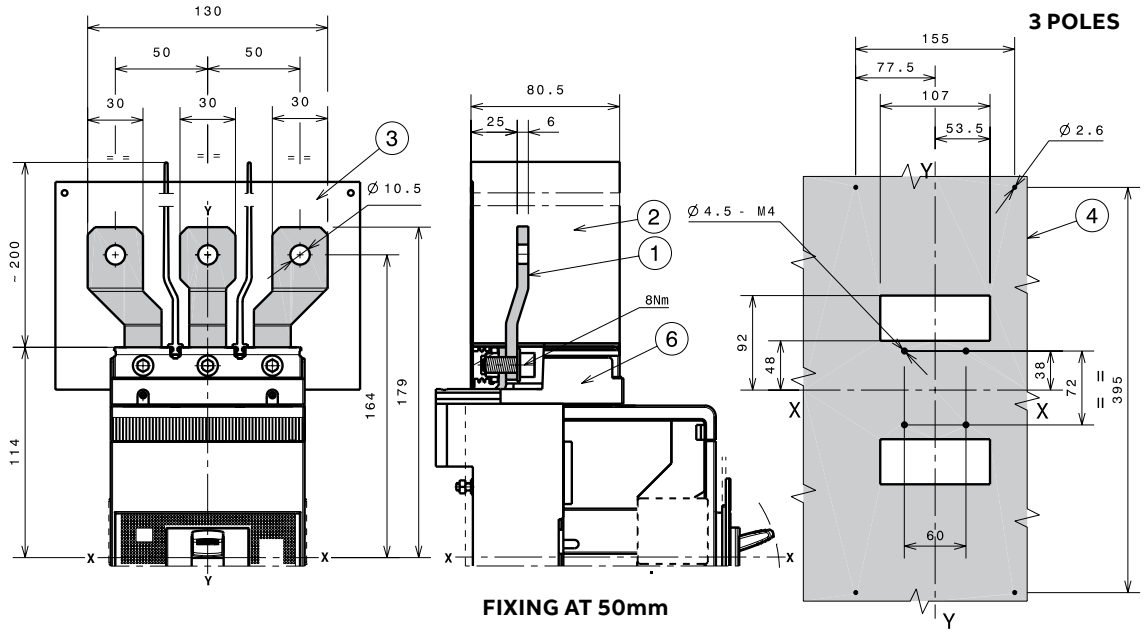
4 Front extended terminals

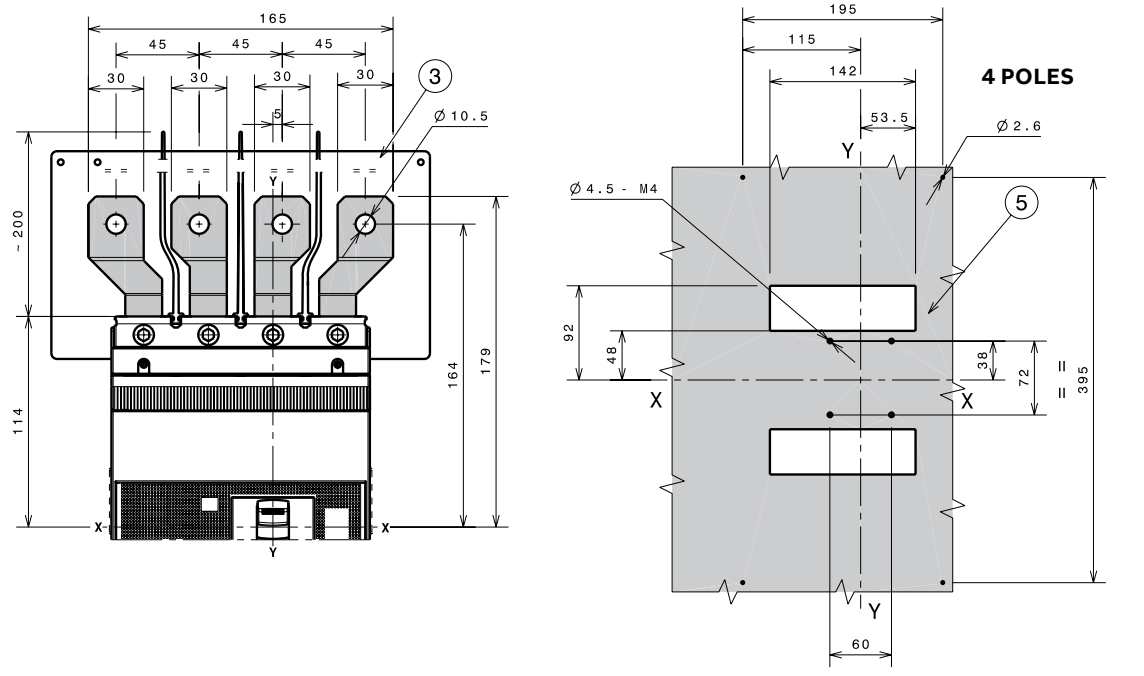
5 100mm insulating barriers between phases (compulsory) provided

—

Note:
insulated plate to be provided by customer

Terminals ES





—

Key

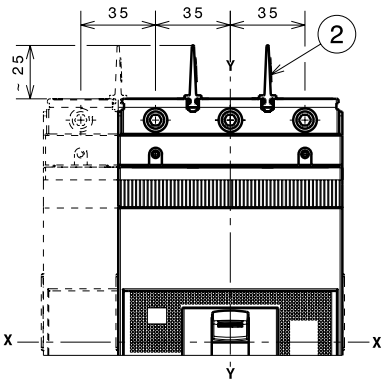
1 Front extended spread terminals
2 200mm insulating barriers between phases (compulsory) provided
3 Insulated plate (compulsory) provided
4 Drilling template for 3p circuit-breaker
5 Drilling template for 4p circuit-break
6 Adaptor (compulsory) not provided

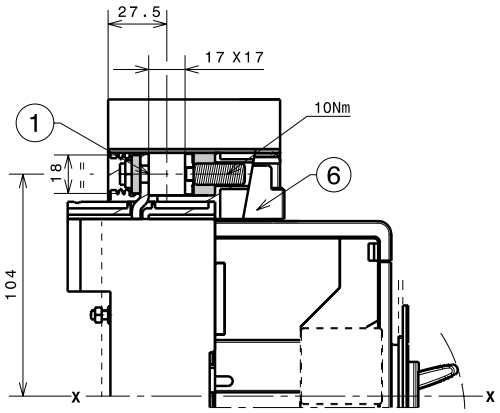
Tmax XT4 – Installation

Terminals for plug-in circuit-breaker

1x1...185mm² terminals FCCuAl

Key
1 1x1...185mm² front terminals FCCuAl
2 25mm insulating barriers between phases (compulsory) provided
6 Adaptor (compulsory) not provided

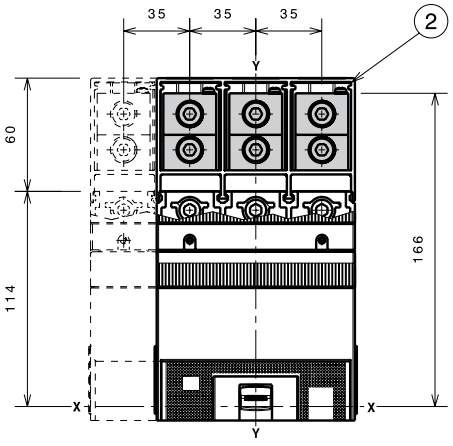


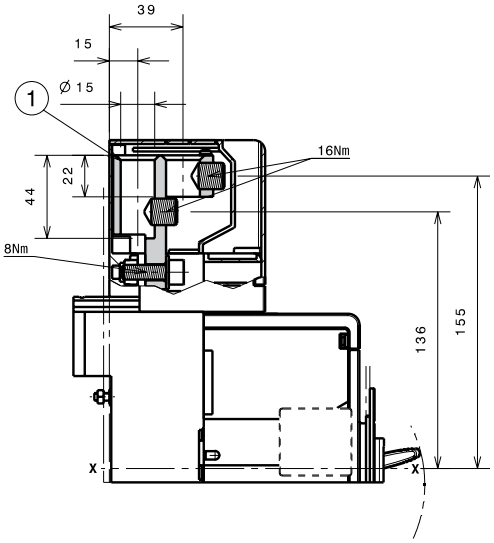


FIXING AT 50mm

2x35...120mm² terminals FCCuAl

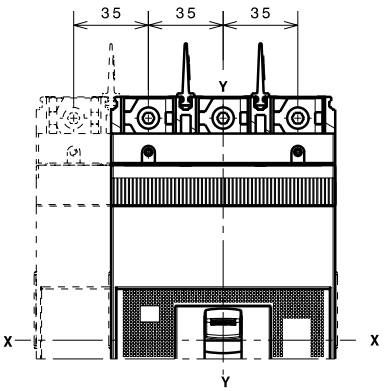
Key
1 2x120mm² external terminal FCCuAl
2 High terminal covers with degree of protection IP40 (optional) provided

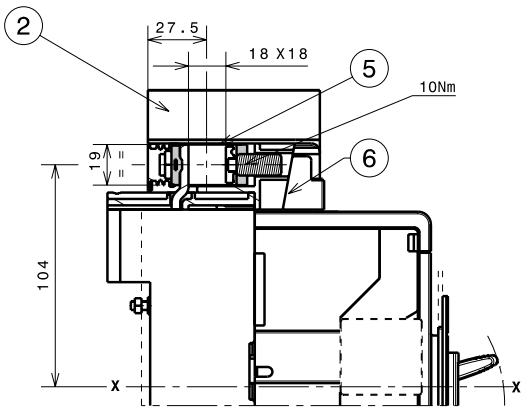




Terminals FCCu

Key
2 25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker
5 Terminals FCCu
6 Adaptor (compulsory) not provided

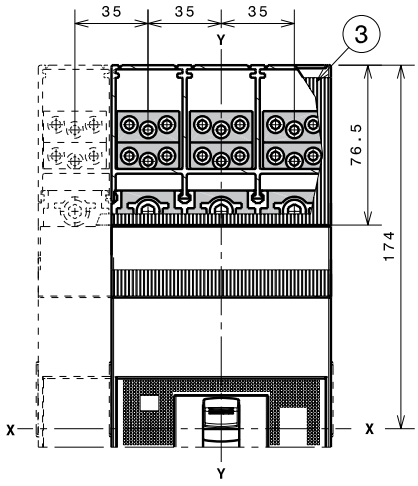


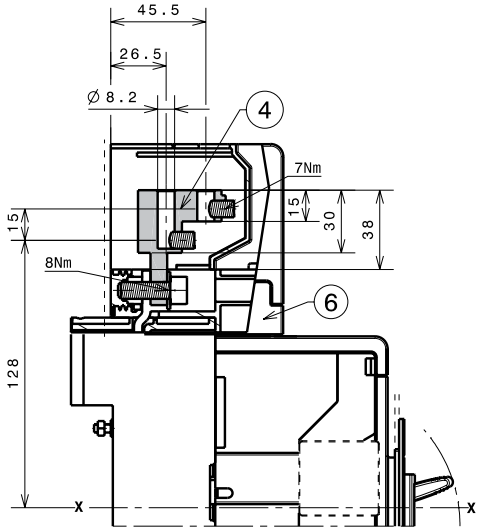


FIXING AT 50mm

Terminals MC

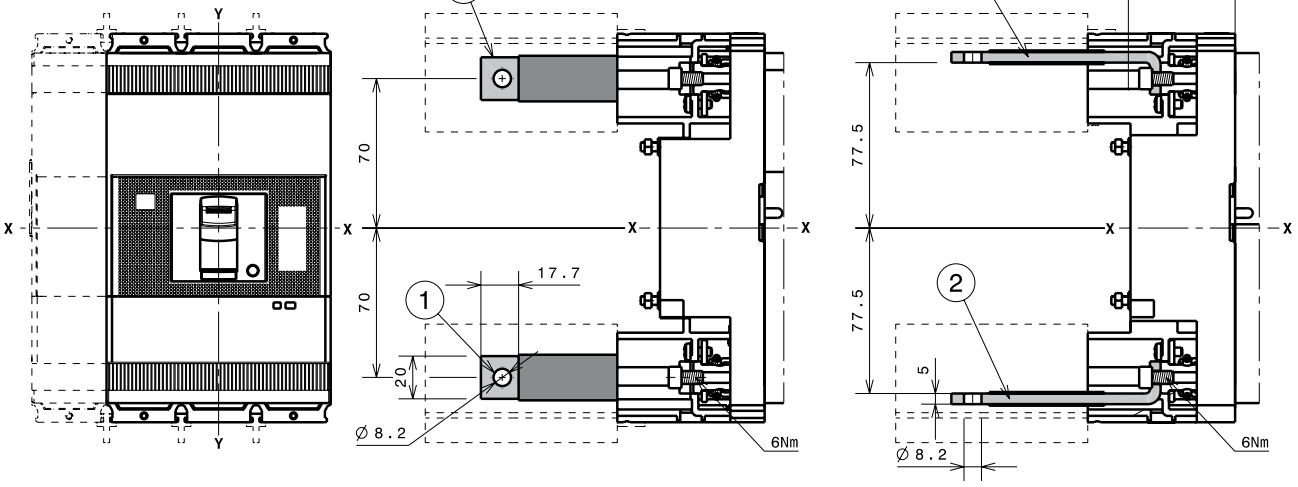
Key
3 Provided high terminal covers with degree of protection IP40 (mandatory for multicables terminals)
4 Multicable terminals
6 Adaptor (compulsory) not provided





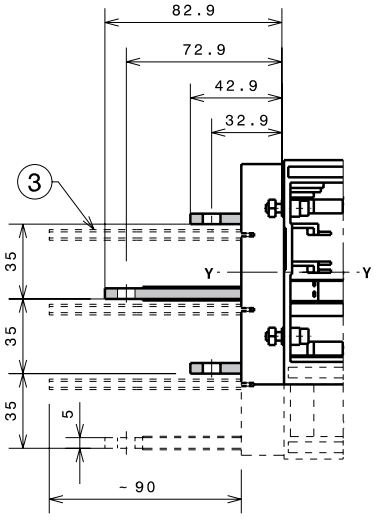
FIXING AT 50mm

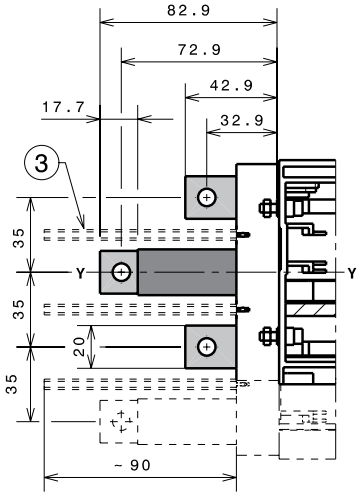
Terminals HR/VR



FIXING AT 50mm **FIXING AT 50mm**

Key
1 Rear vertical terminals
2 Rear horizontal terminals
3 90mm insulating barriers between phases (compulsory) not provided

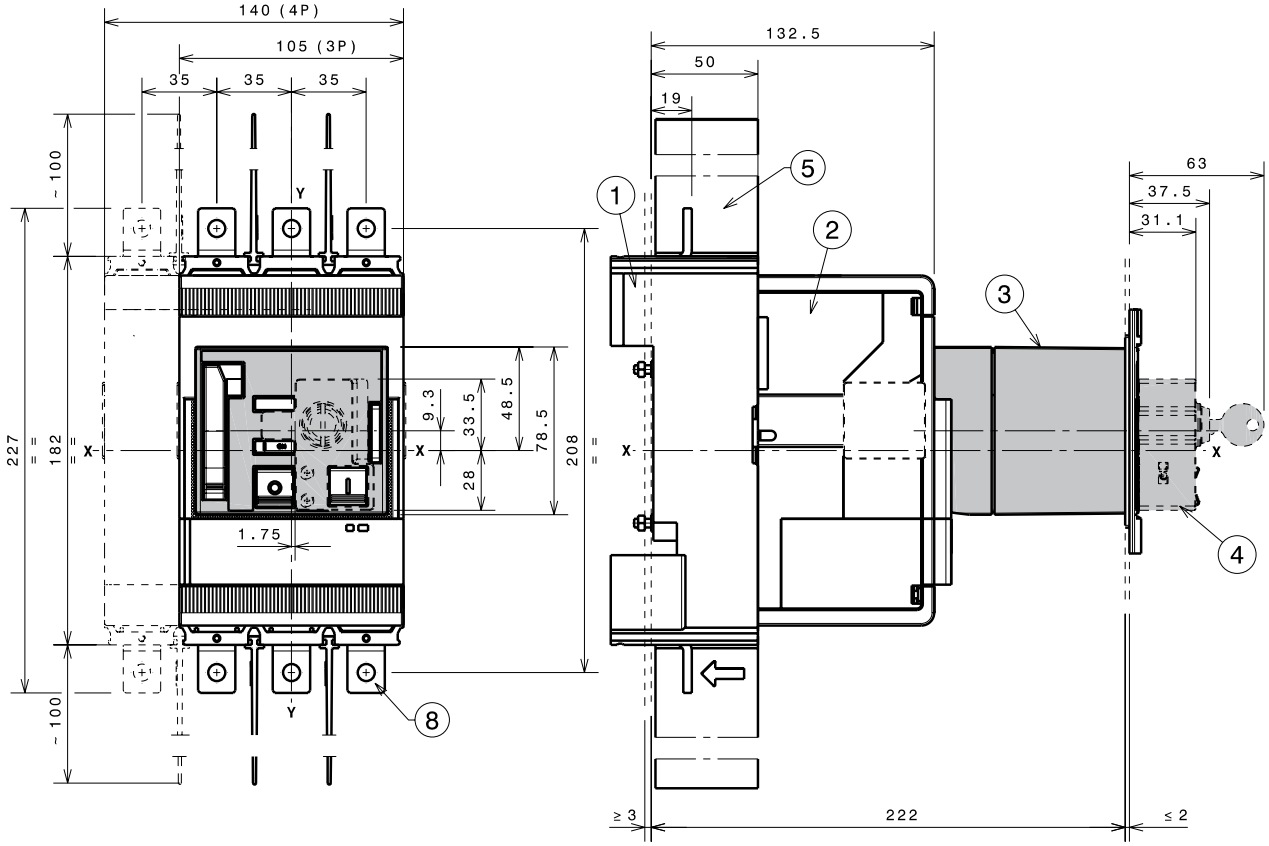


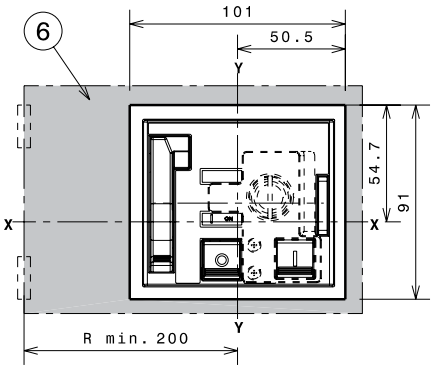


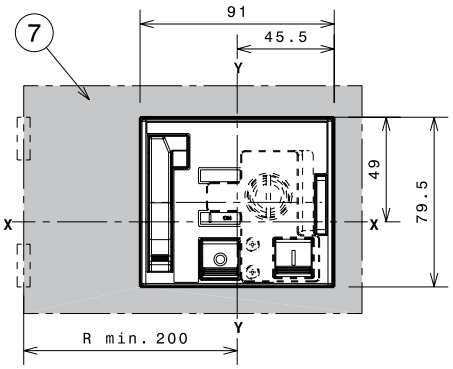
Tmax XT4 – Installation

Accessories for plug-in circuit-breaker

Stored energy motor operator (MOE)



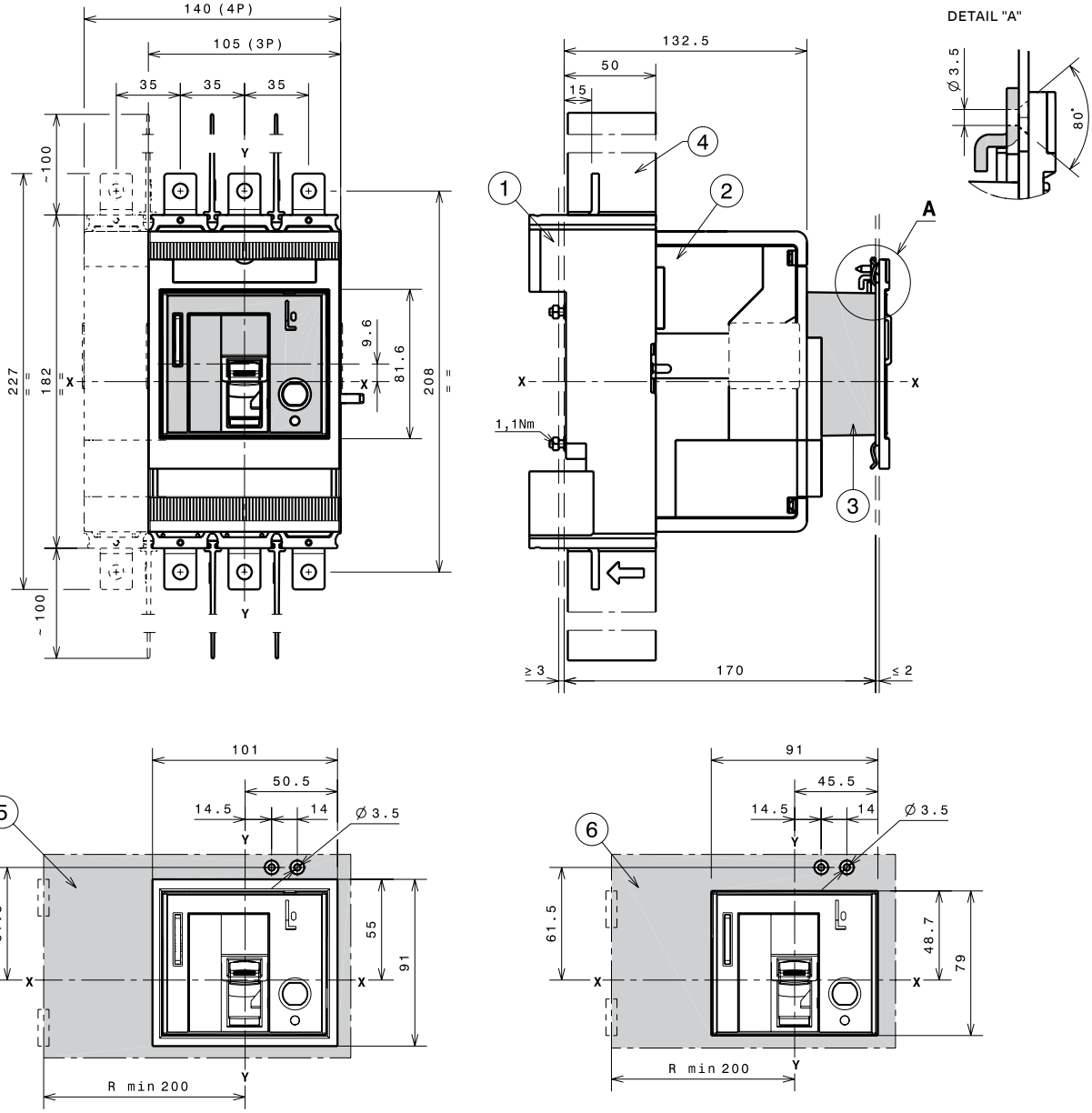




Key

1 Fixed part
2 Moving part
3 Stored energy motor operator (MOE)
4 Key lock optional
5 100mm insulating barriers between phases (compulsory) provided
6 Drilling template of door with direct rotary handle with flange
7 Drilling template of door with direct rotary handle without flange
8 Extended terminals

Front for lever operating mechanism (FLD)



—

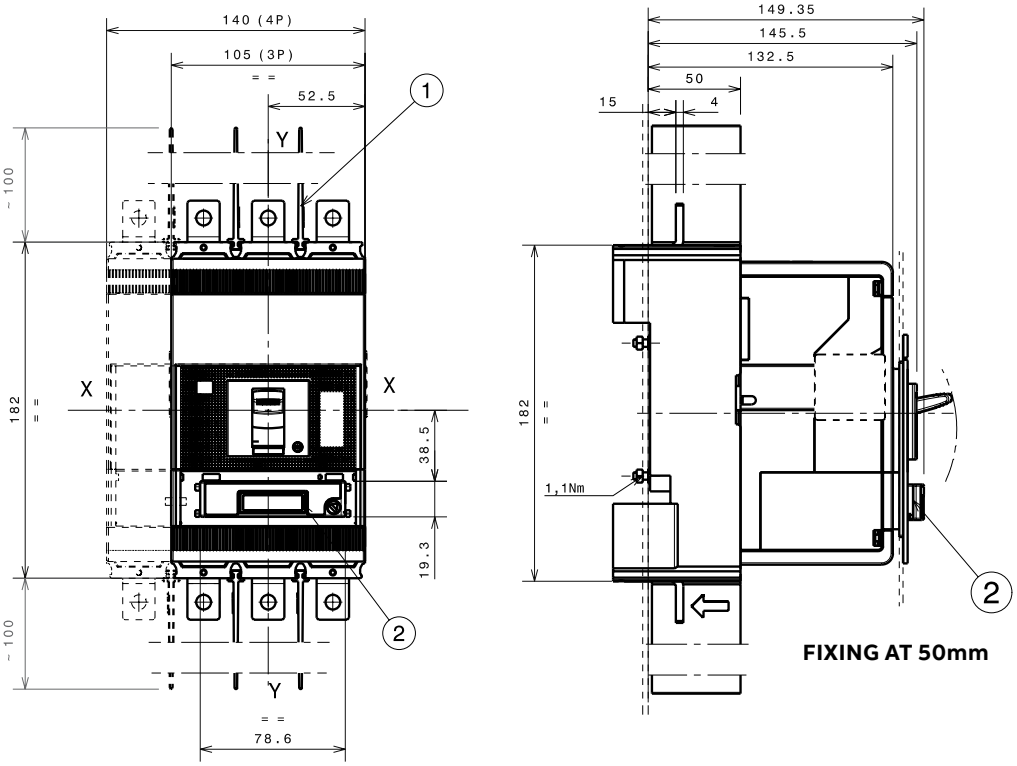
Key

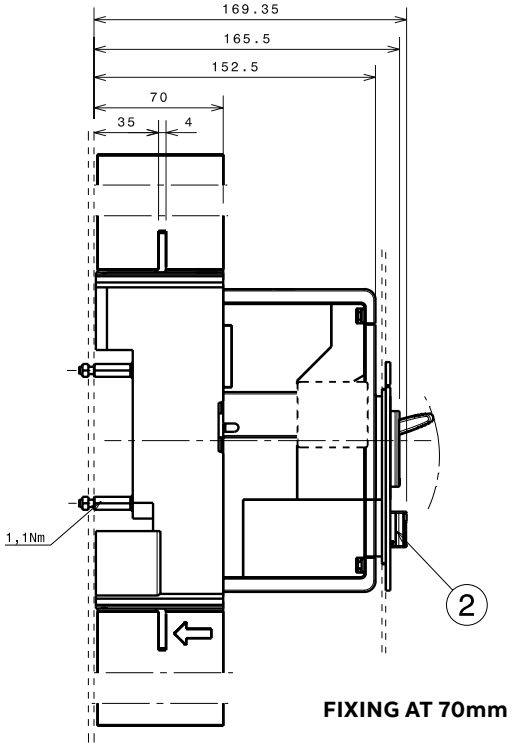
1 Fixed part
2 Moving part
3 Front for lever operating mechanism (FLD)
4 100mm insulating barriers between phases (compulsory) provided
5 Drilling template of door with direct rotary handle with flange
6 Drilling template of door with direct rotary handle without flange

Tmax XT4 – Installation

Accessories for plug-in circuit-breaker

Ekip Display or LED Meter



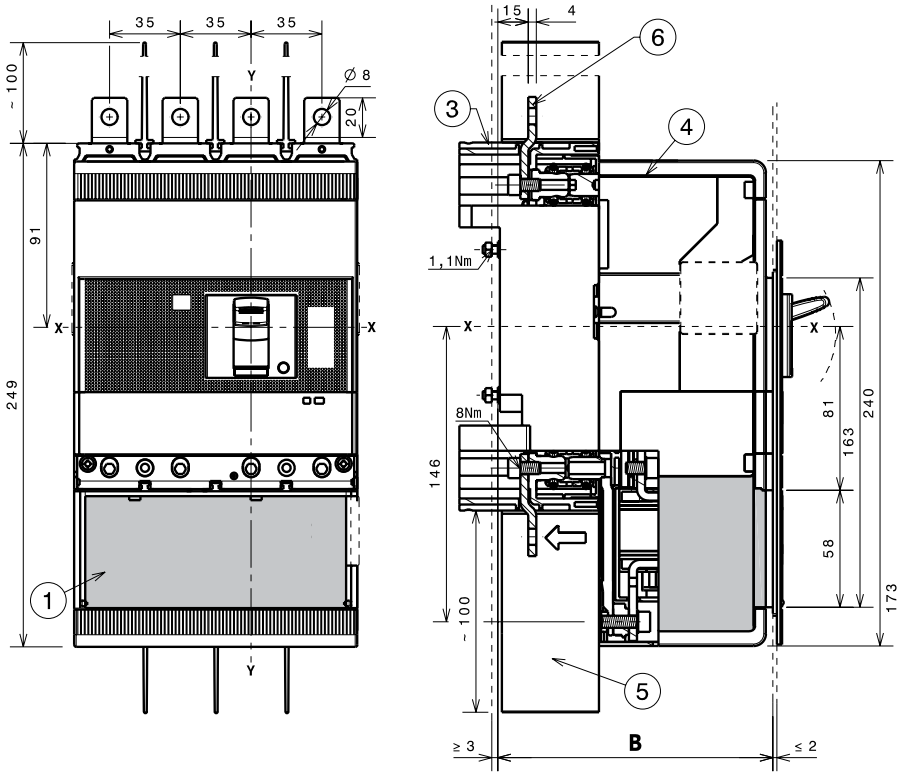


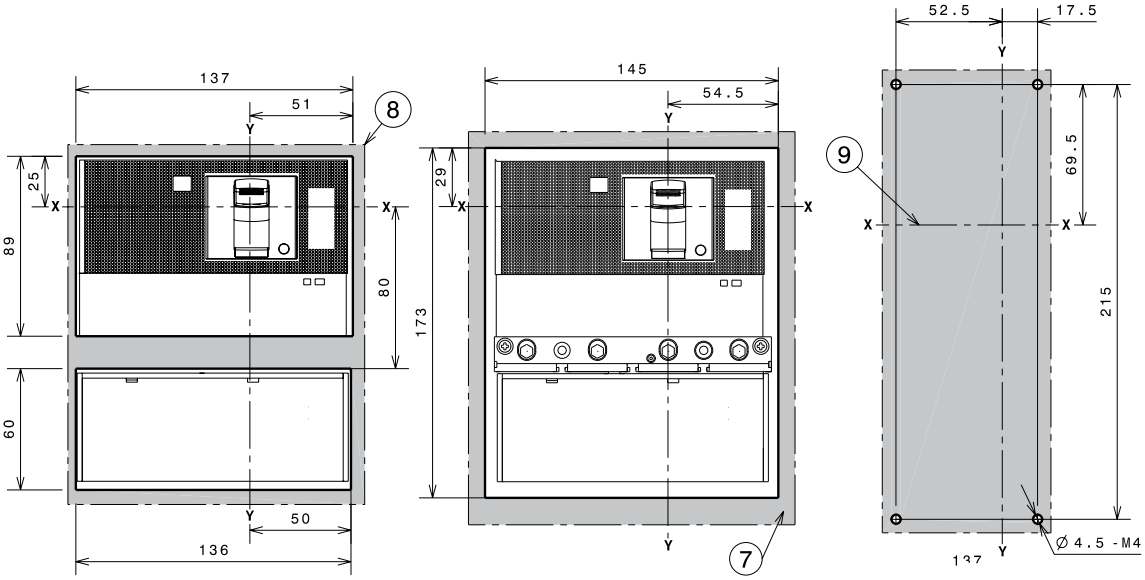
—

Key

1 100mm insulating barriers between phases (compulsory) provided
2 Ekip Display or LED Meter

Residual current RC Sel





—

Key

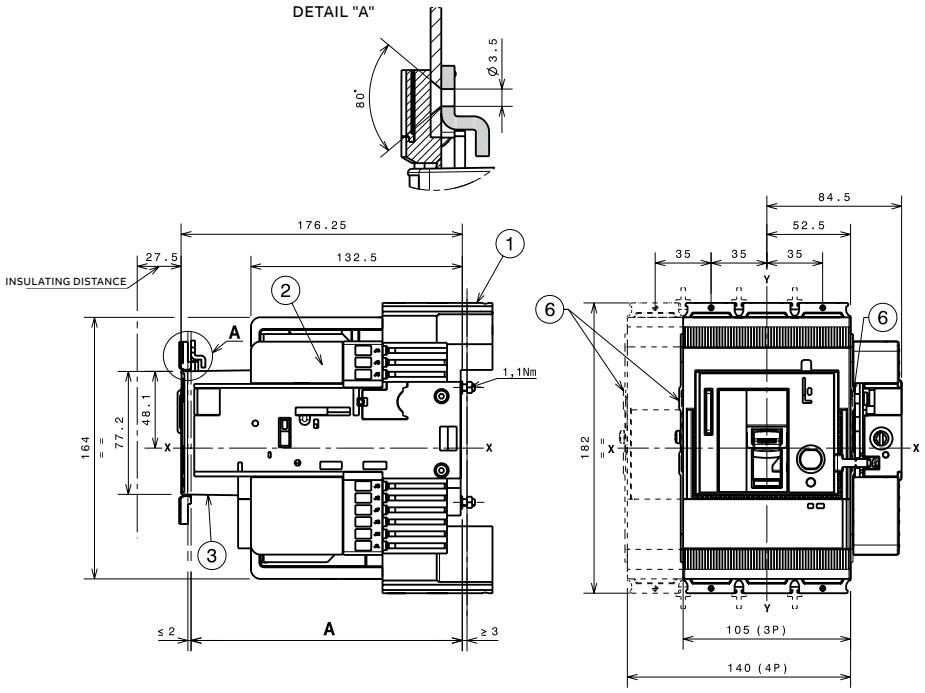
1 Residual current
3 Fixed part
4 Moving part
5 100mm insulating barriers between phases (compulsory) provided
6 Extended terminals
7 Drilling template of door with direct rotary handle and fixing with flange
8 Drilling template of door with direct rotary handle and fixing without flange
9 Drilling template for circuit-breaker fixing on sheet

Fixing at 50mm		**B**
With standard flange	IV	136
Without flange	IV	133.5

Tmax XT4 – Installation

Installation for withdrawable circuit-breaker

Fixing on sheet



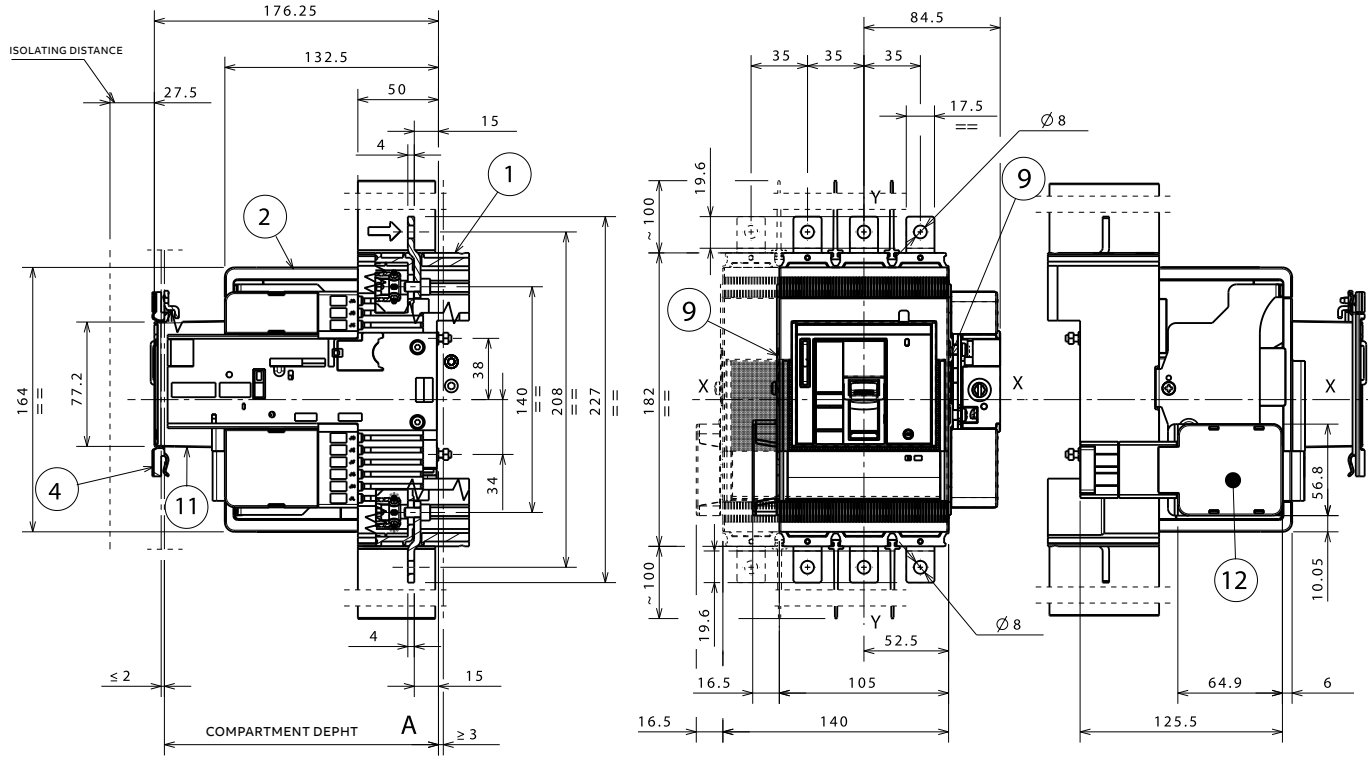
			A
With standard flange	III - IV	Fixing at 50mm	170
	III - IV	Fixing at 70mm for front extended terminals	190

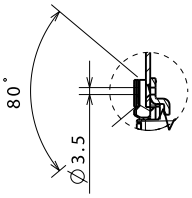
—

Key

1 Fixed part
2 Moving part
3 FLD (FLD or RHD or RHE or MOE) mandatory with withdrawable version
6 Optional wiring ducts

With side connector for Ekip Touch trip units





			A
With standard flange	III - IV	Fixing at 50mm	170
	III - IV	Fixing at 70mm for front extended terminals	190

—

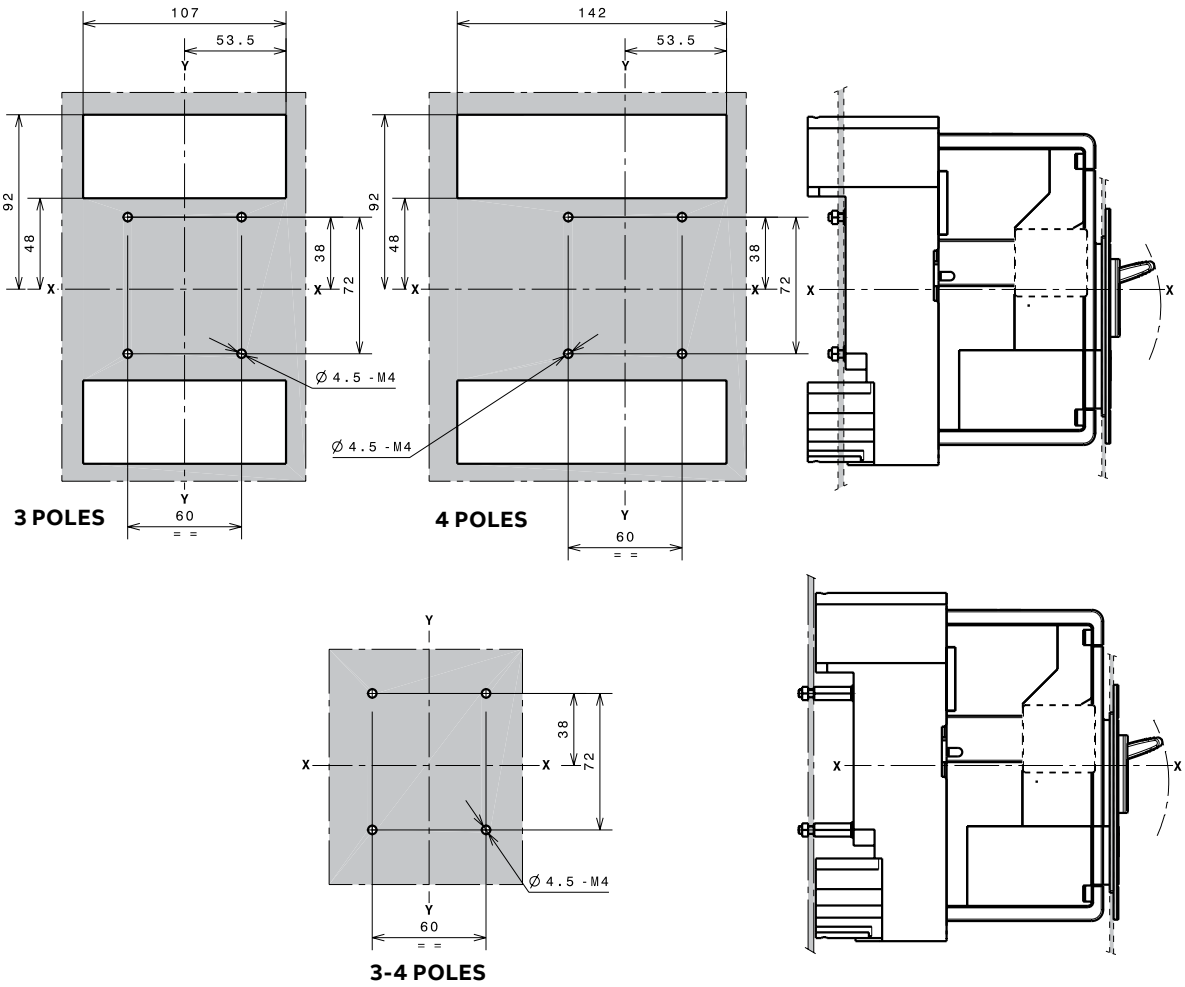
Key

1 Fixed part
2 Moving part
3 FLD (FLD or RHD or RHE or MOE) mandatory with withdrawable version
4 Flange
9 Optional wiring ducts
11 Fld (FLD o RHD o RHE o MOE) Compulsory with withdrawable version
12 Connection kit W IntBus/ExtNeut/Sel

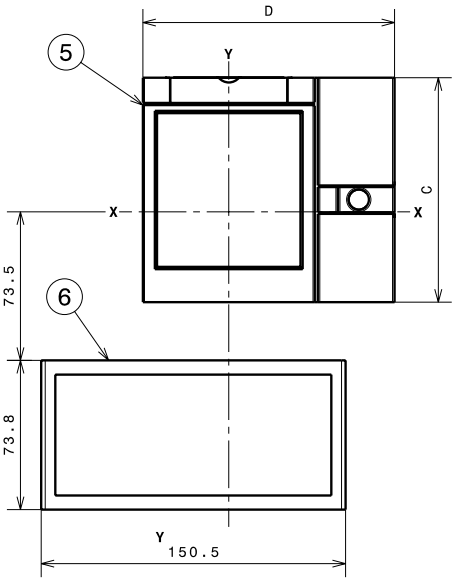
Tmax XT4 – Installation

Installation for withdrawable circuit-breaker

Drilling templates for support sheet



Flanges

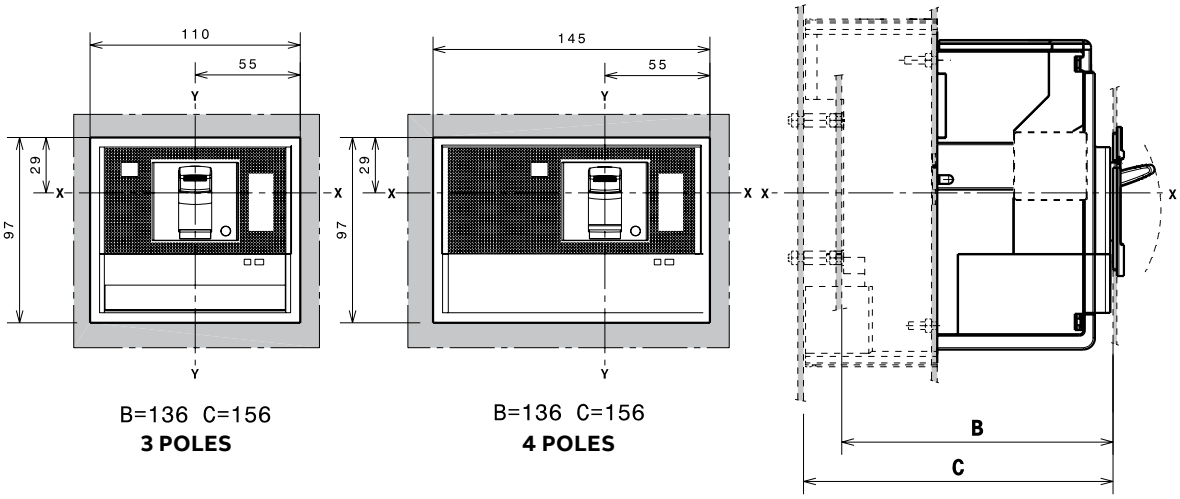


—
Key
5 Flange for circuit-breaker III-IV estraibile
6 Flange for circuit-breaker residual current IV withdeawable with front extended terminals

	C	D
RHD	111	124.5
FLD - MOE	114.3	134.5

Drilling templates compartment door

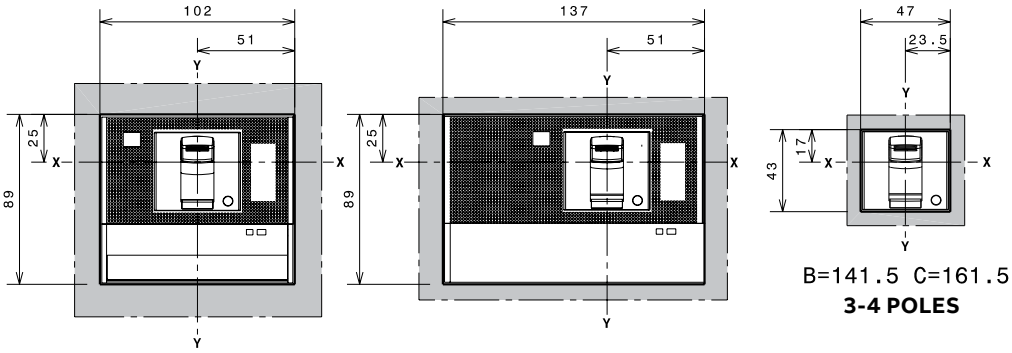
With standard flange



B=136 C=156
3 POLES

B=136 C=156
4 POLES

Without flange

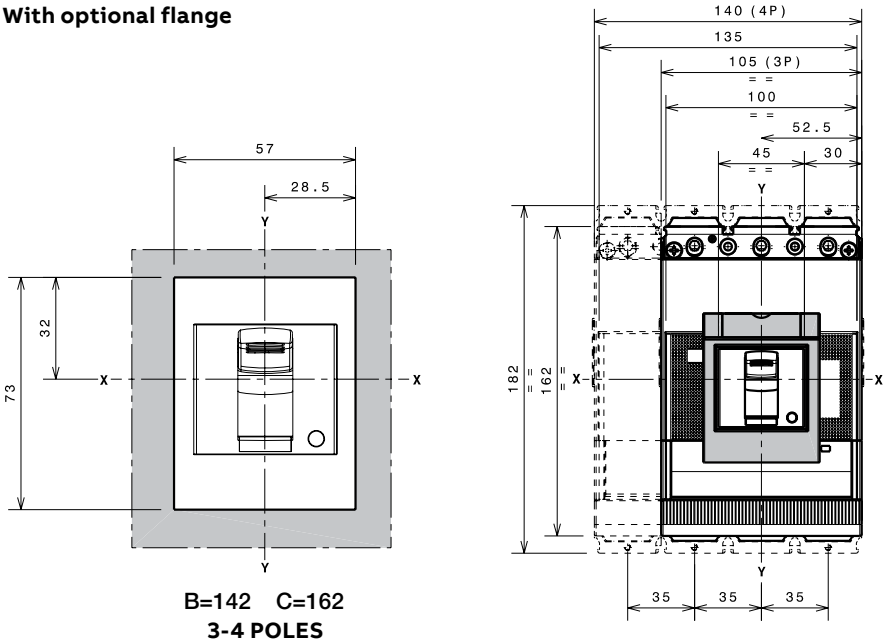


B=133.5 C=153.5
3 POLES

B=133.5 C=153.5
4 POLES

B=141.5 C=161.5
3-4 POLES

With optional flange

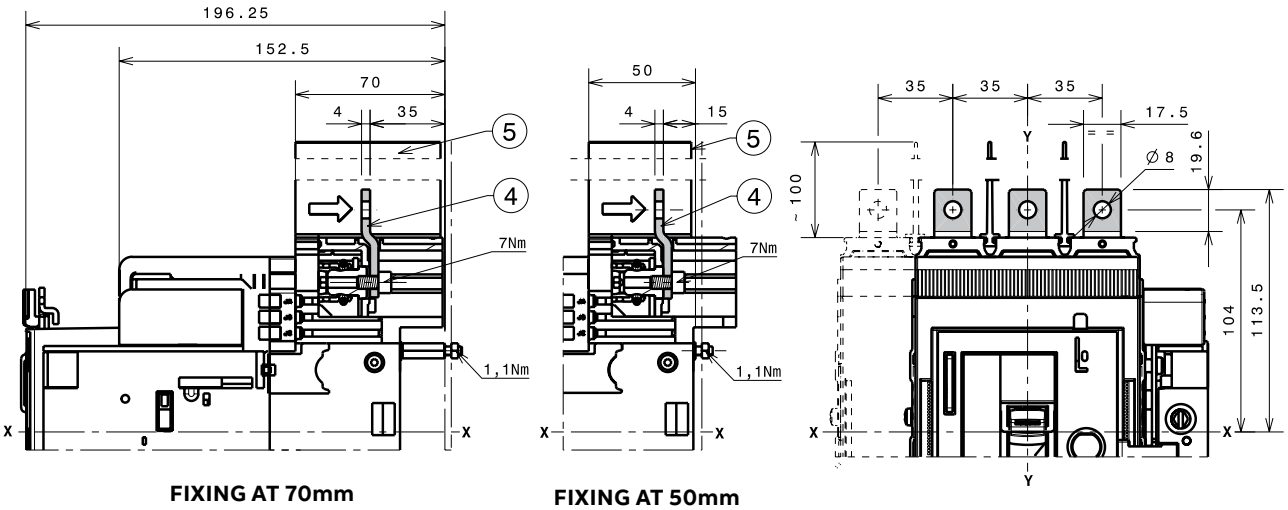


B=142 C=162
3-4 POLES

Tmax XT4 – Installation

Terminals for withdrawable circuit-breaker

Terminals EF



FIXING AT 70mm

FIXING AT 50mm

—

Key

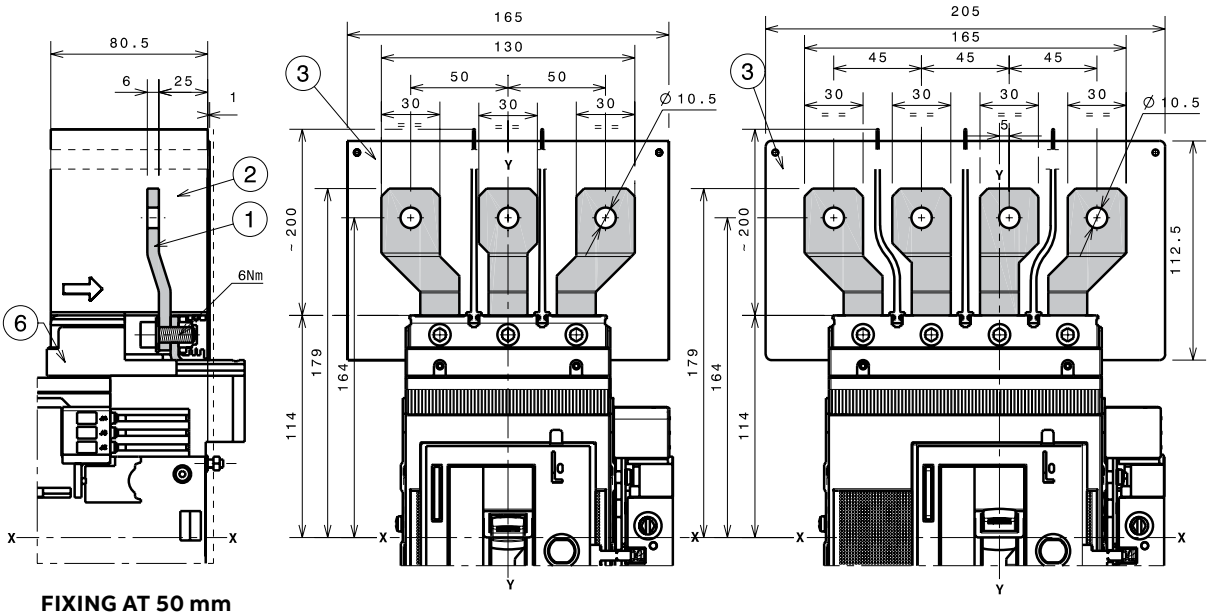
4 Front extended terminals

5 100mm insulating barriers between phases (compulsory) provided

—

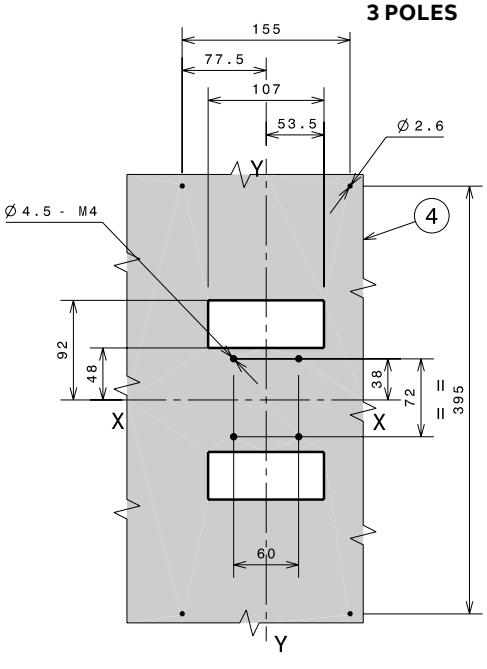
Note:
insulated plate (compulsory) provided

Terminals ES

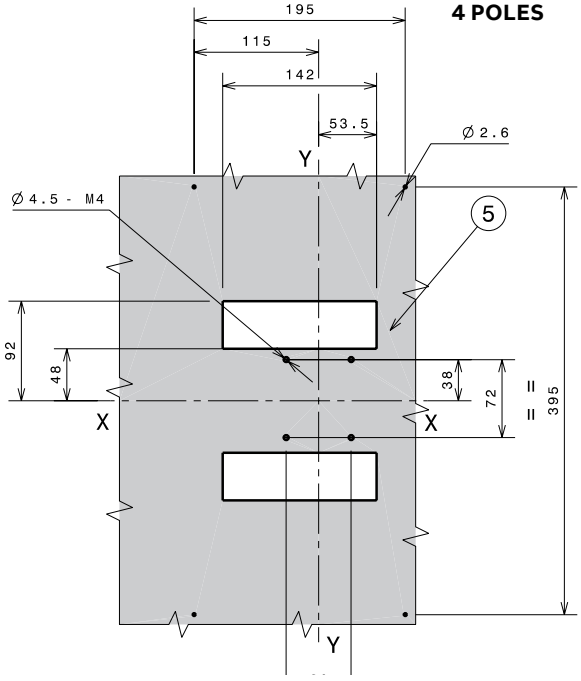


FIXING AT 50 mm

3 POLES



4 POLES



—

Key

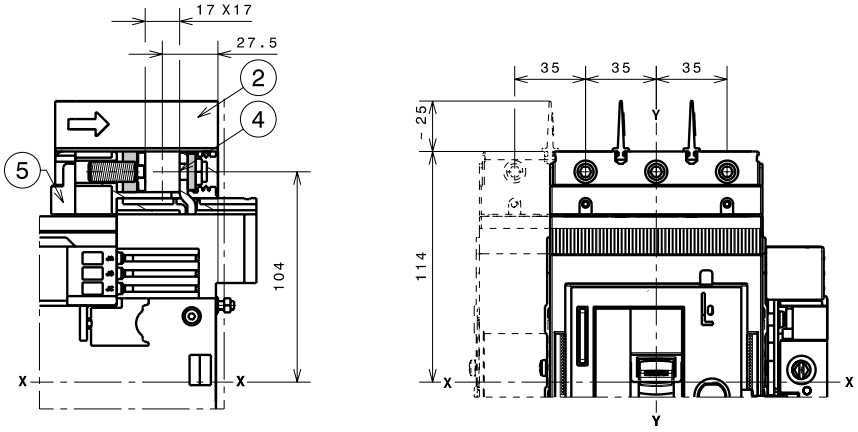
1 Front extended spread terminals
2 200mm insulating barriers between phases (compulsory) provided
3 Insulated plate provided compulsory for Ue>440V
4 Drilling template for 3p circuit-breaker
5 Drilling template for 4p circuit-breaker
6 Adaptor (compulsory) not provided

Tmax XT4 – Installation

Terminals for withdrawable circuit-breaker

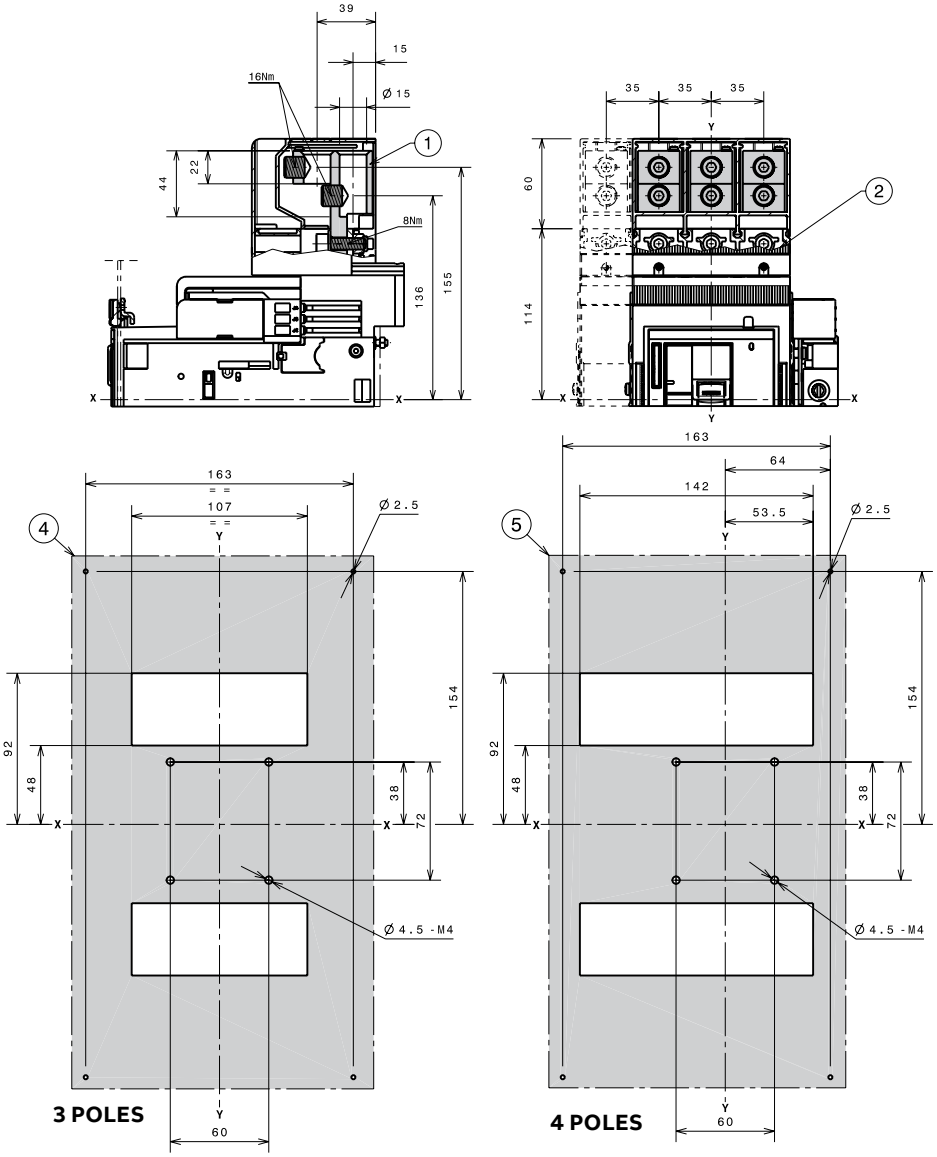
1x1...185mm² terminals FCCuAl

—
Key
2 25mm insulating barriers between phases (compulsory) provided
4 Front terminals FCCuAl
5 Adaptor (compulsory) not provided



FIXING AT 50 mm

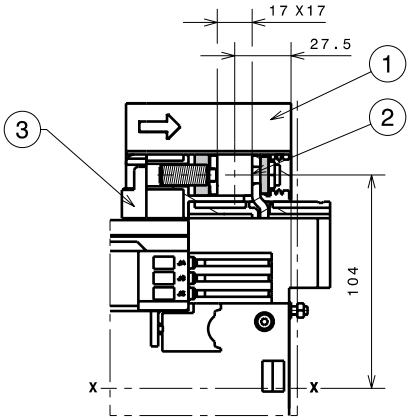
2x35...120mm² terminals FCCuAl

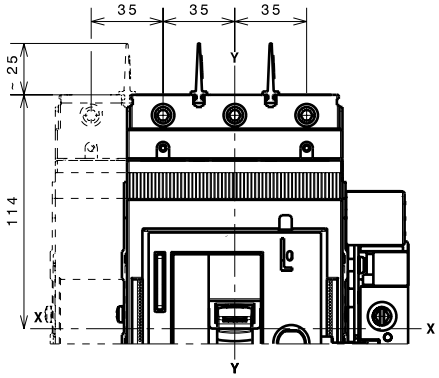


—
Key
1 2x35...120mm² terminals FCCuAl
2 Terminal covers with degree of protection IP40 (optional) provided
3 Provided rear insulated plate (mandatory for CuAl 2x150mm² cables)
4 Drilling template for circuit-breaker III fixing with insulating plate
5 Drilling template for circuit-breaker IV fixing with insulating plate

Terminals FCCu

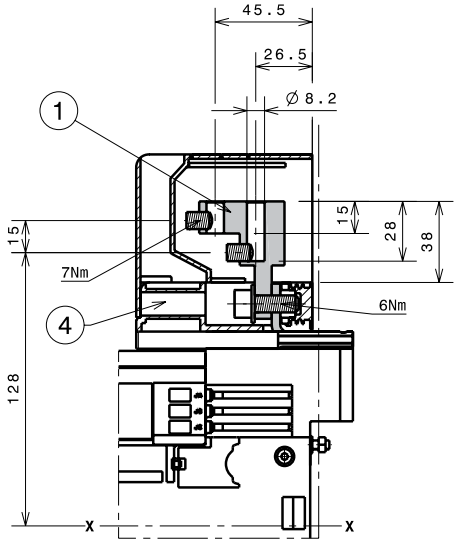
—
Key
1 25mm insulating barriers between phases (compulsory) provided as standard with the circuit-breaker
2 Terminals FCCu
3 Adaptor (compulsory) not provided

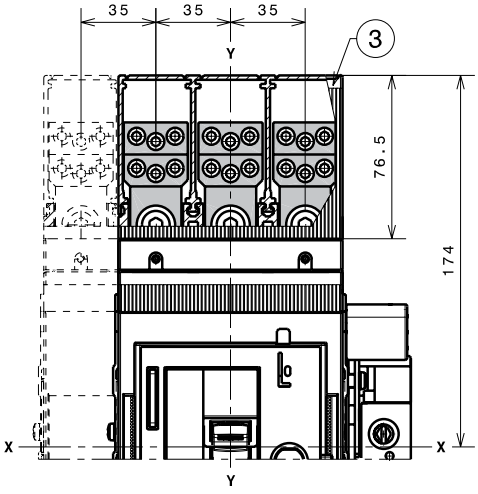




FIXING AT 50 mm

Terminals MC





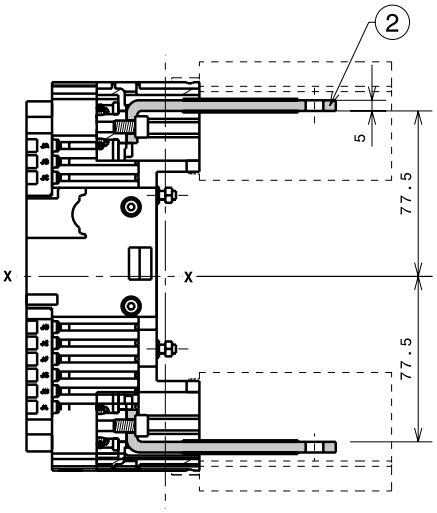
FIXING AT 50 mm

—
Key
1 Multicable terminals
3 High terminal covers with degree of protection IP40 (optional) provided
4 Adaptor (compulsory) not provided

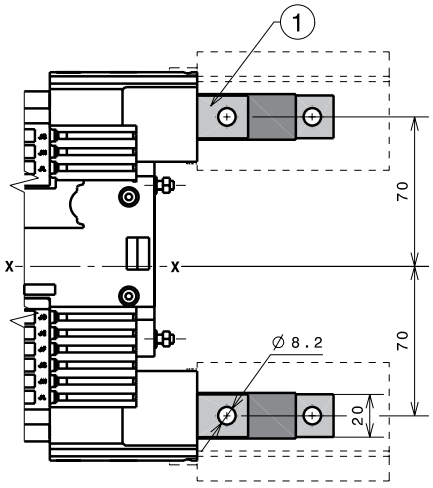
Tmax XT4 – Installation

Terminals for withdrawable circuit-breaker

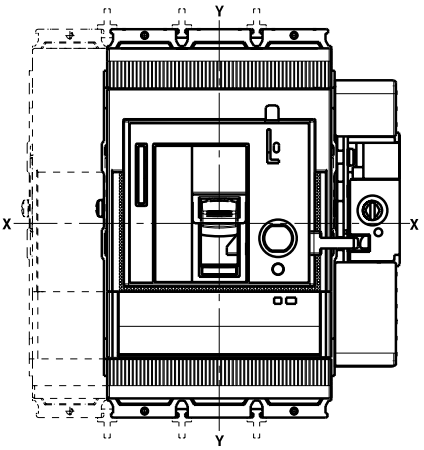
Terminals HR/VR

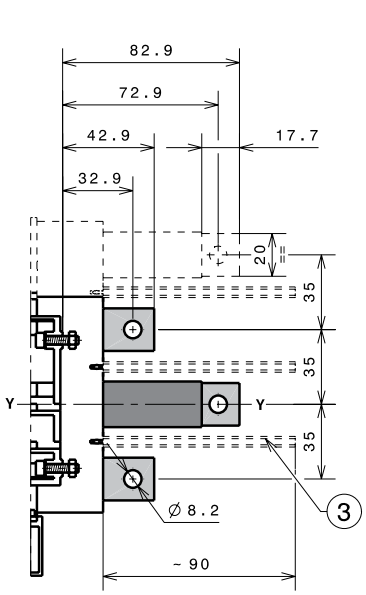


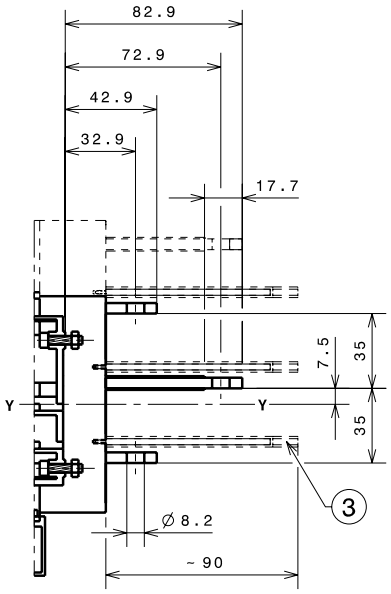
FIXING AT 50 mm



FIXING AT 50 mm







—

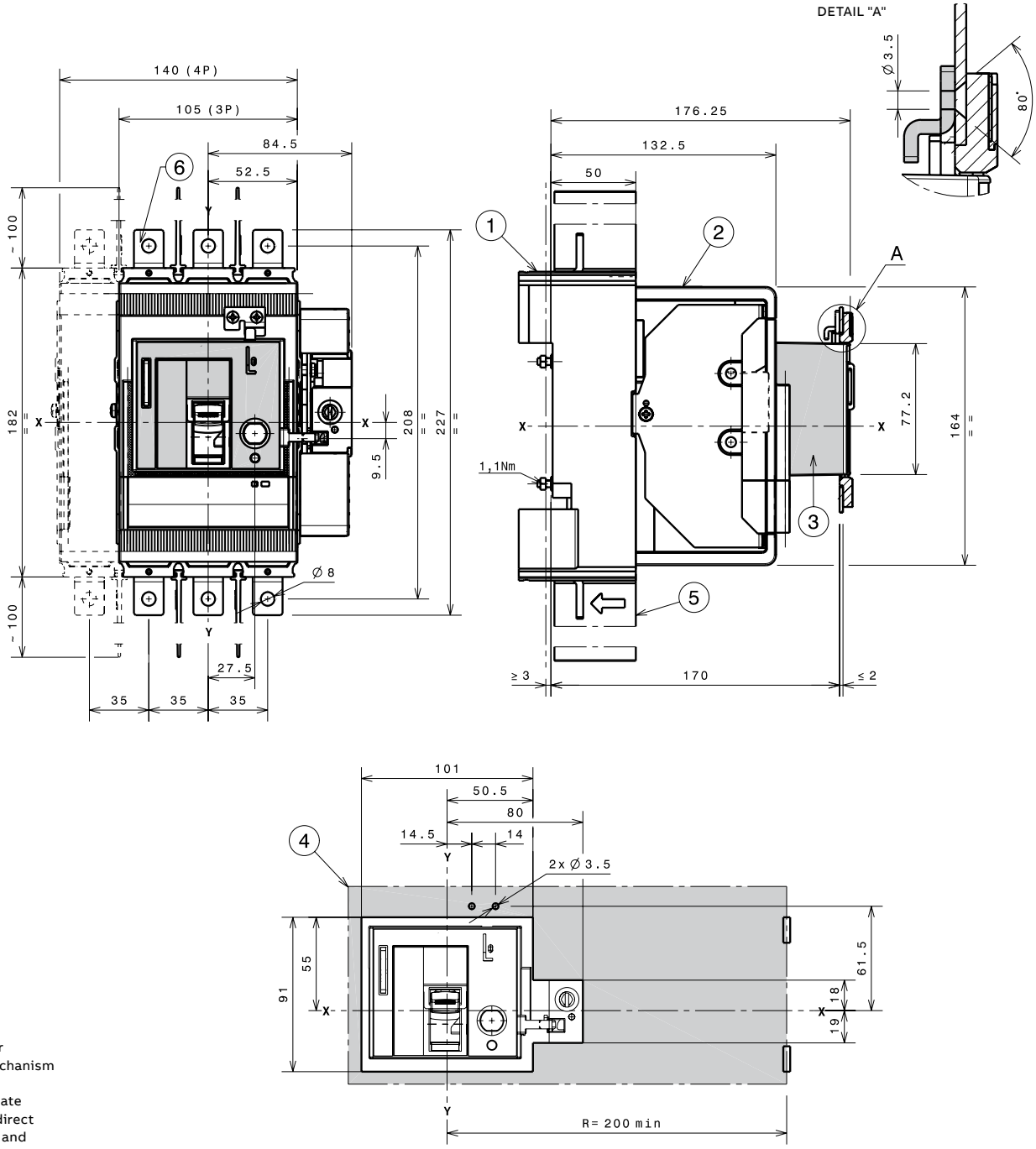
Key

1 Rear vertical terminals
2 Rear horizontal terminals
3 90mm insulating barriers between phases (compulsory) not provided

Tmax XT4 – Installation

Accessories for withdrawable circuit-breaker

Front for lever operating mechanism (FLD)



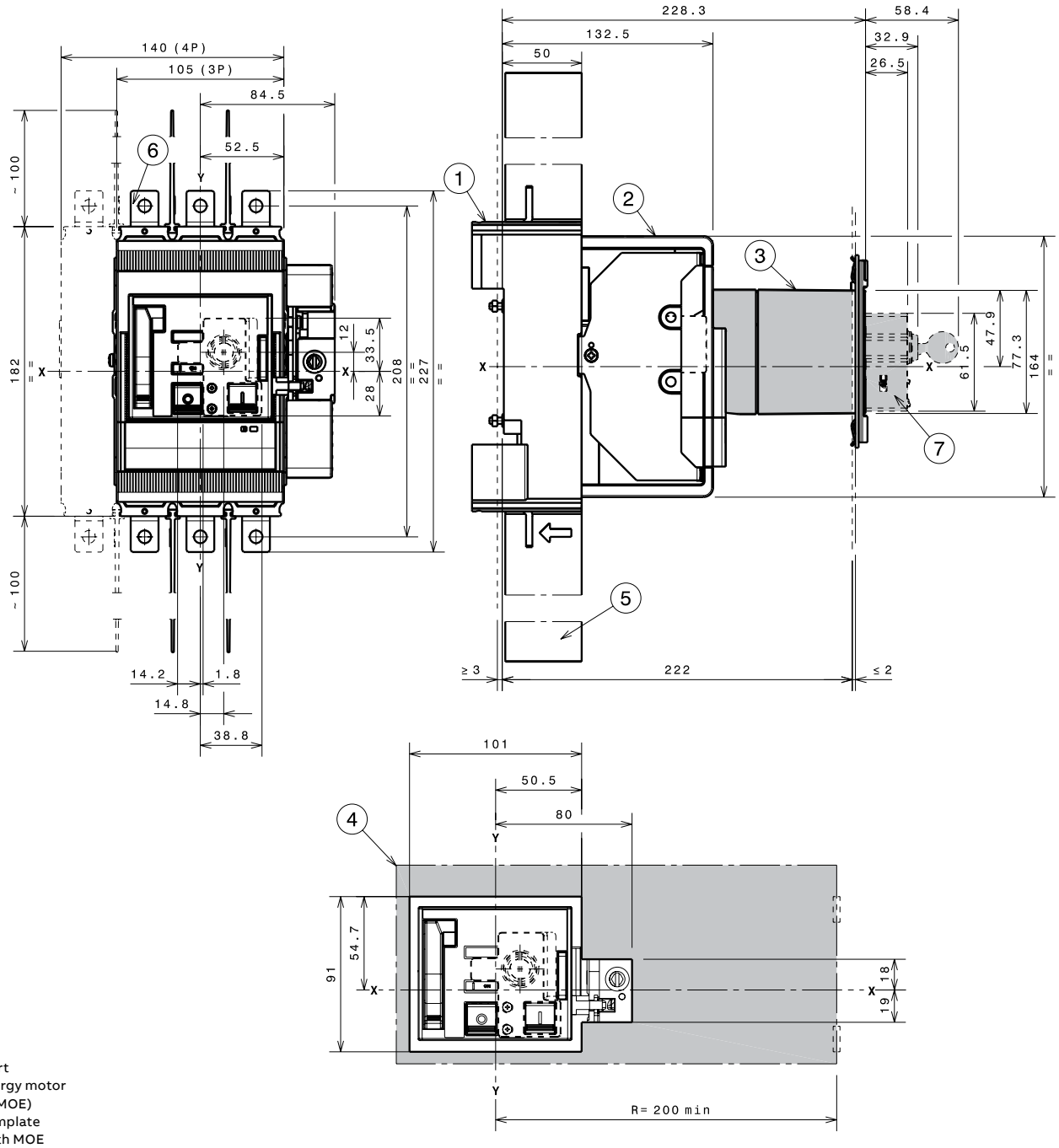
Key

1 Fixed part
2 Moving part
3 Front for lever operating mechanism FLD
4 Drilling template of door with direct rotary handle and fixed flange
5 100mm insulating barriers between phases (compulsory) provided
6 Extended terminals

Tmax XT4 – Installation

Accessories for withdrawable circuit-breaker

Stored energy motor operator (MOE)

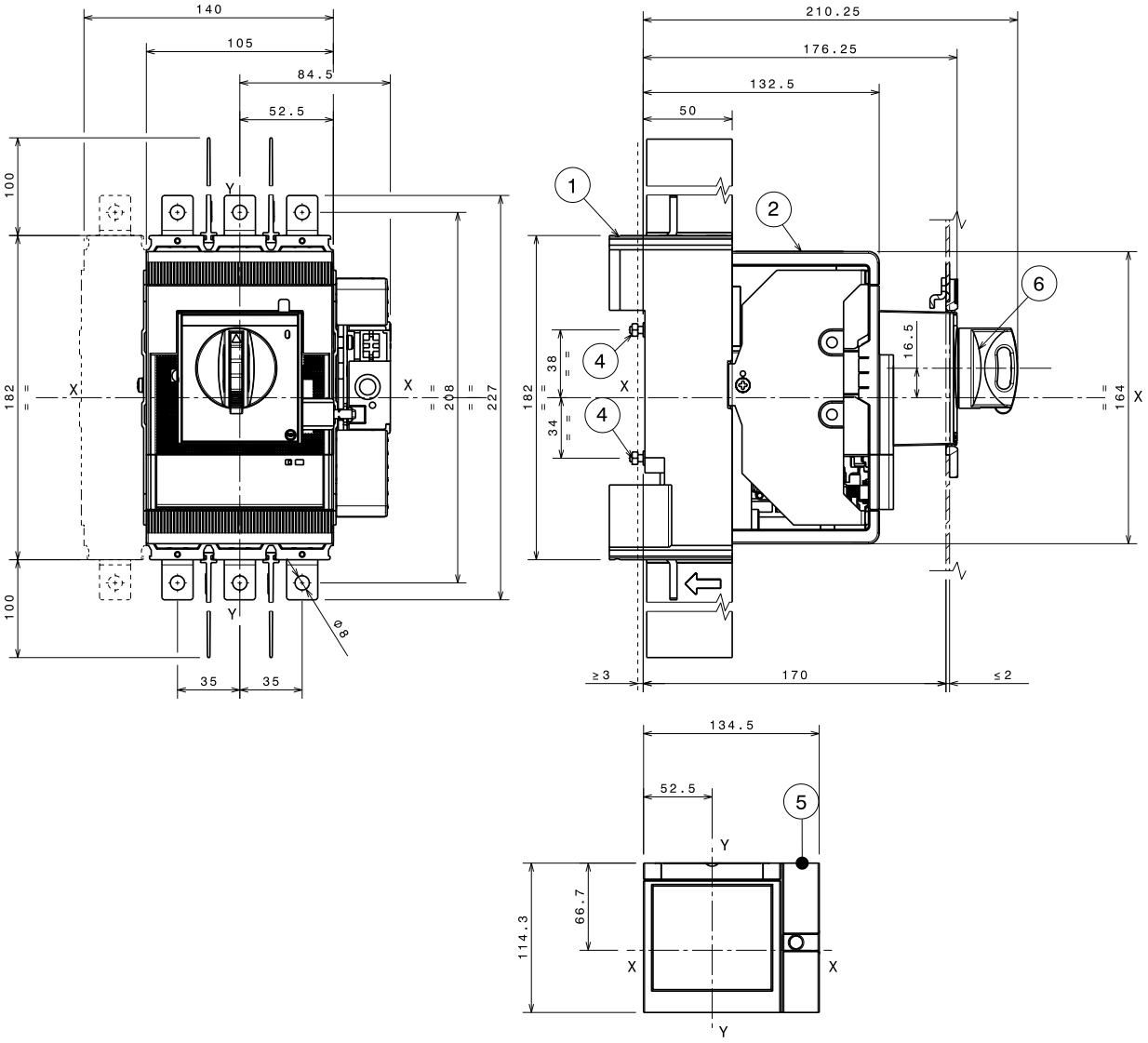


—

Key

1 Fixed part
2 Moving part
3 Stored energy motor operator (MOE)
4 Drilling template of door with MOE and fixing flange
5 100mm insulating barriers between phases (compulsory) provided
6 Extended terminals
7 Key lock optional

Rotary handle operating mechanism on circuit-breakers (RHD)



—

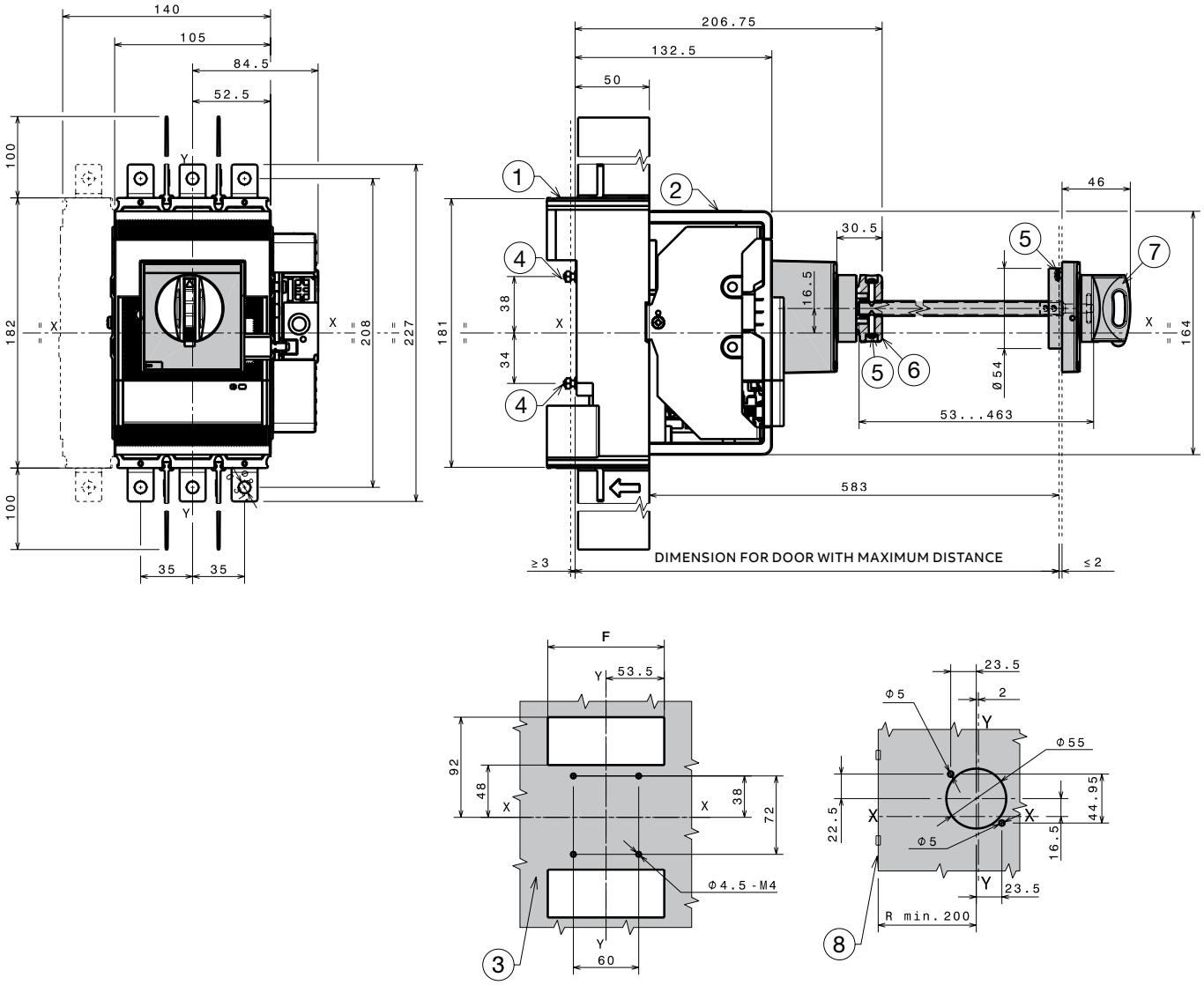
Key

1 Fixed part
2 Moving part
4 Tightening torque 1.1 Nm
5 Flange for the compartment door
6 Rotary handle operating mechanism for circuit-breaker

Tmax XT4 – Installation

Accessories for withdrawable circuit-breaker

Rotary handle operating mechanism on the compartment door (RHE)



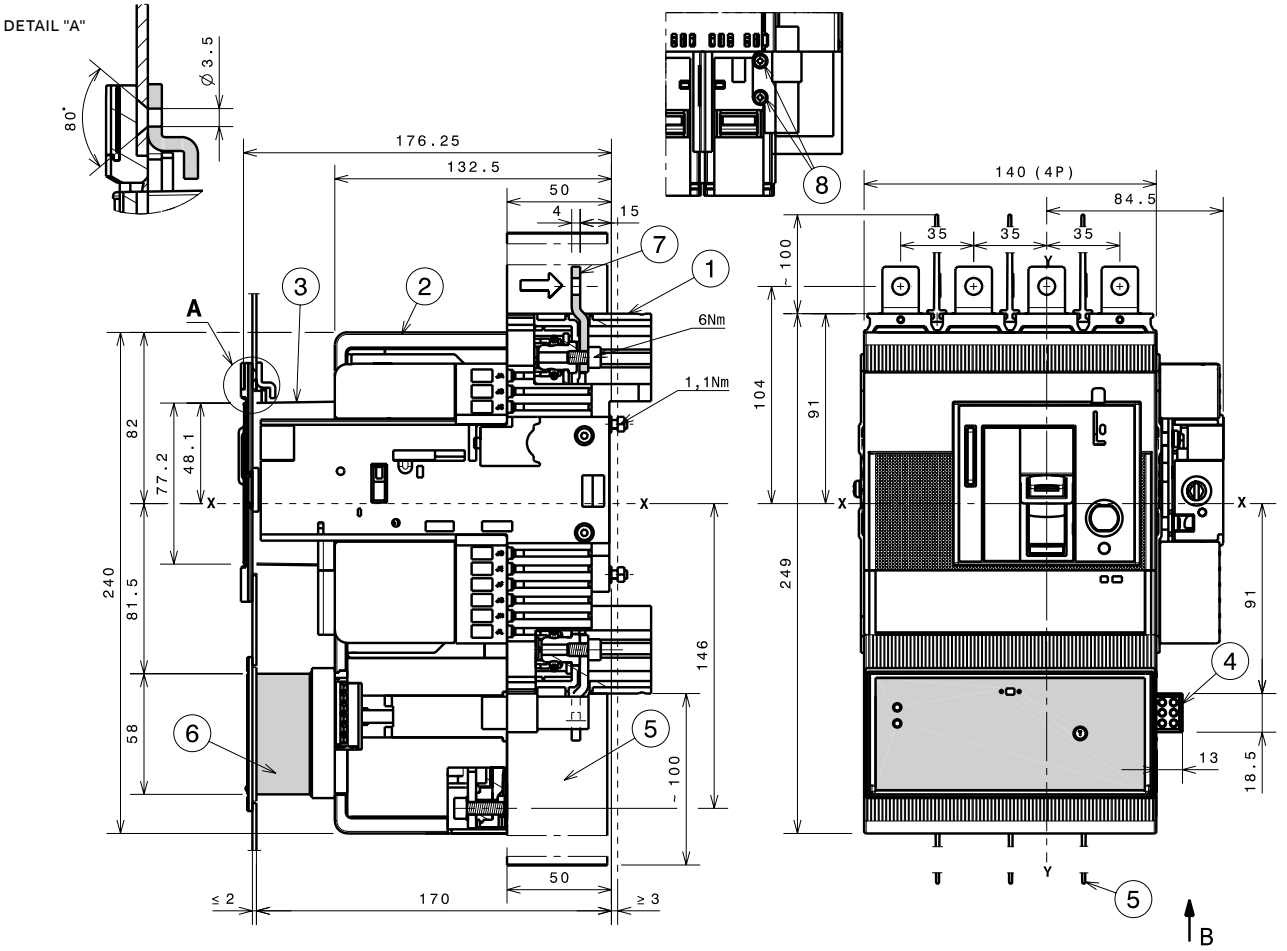
—

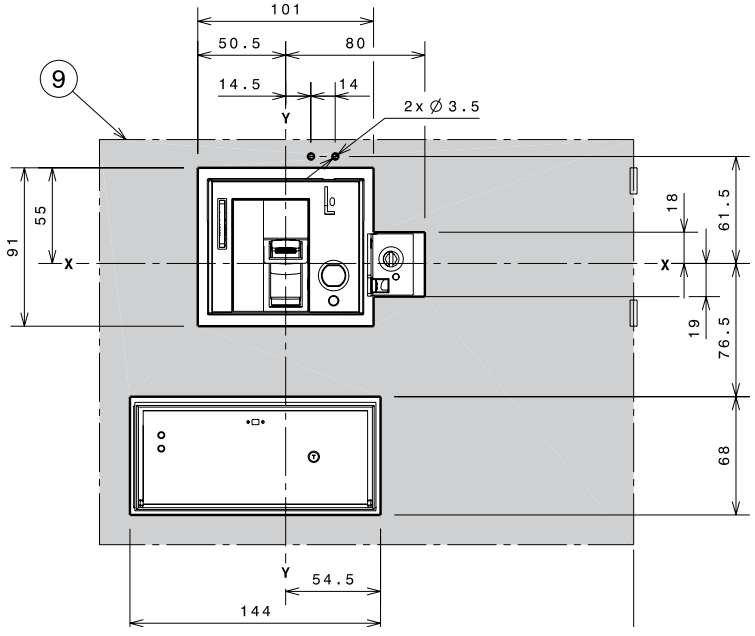
Key

1 Fixed part
2 Moving part
3 Shape for compartment door sheet steel drilling for fixed part
4 Tightening torque 1.1 Nm
5 Tightening torque 1.4 Nm
6 Transmission mechanism
7 Rotary handle operating mechanism for compartment door
8 Compartment door sheet steel drilling

	F
Fixing 3 poles	107
Fixing 4 poles	142

Residual current RC Sel 4 poles





—

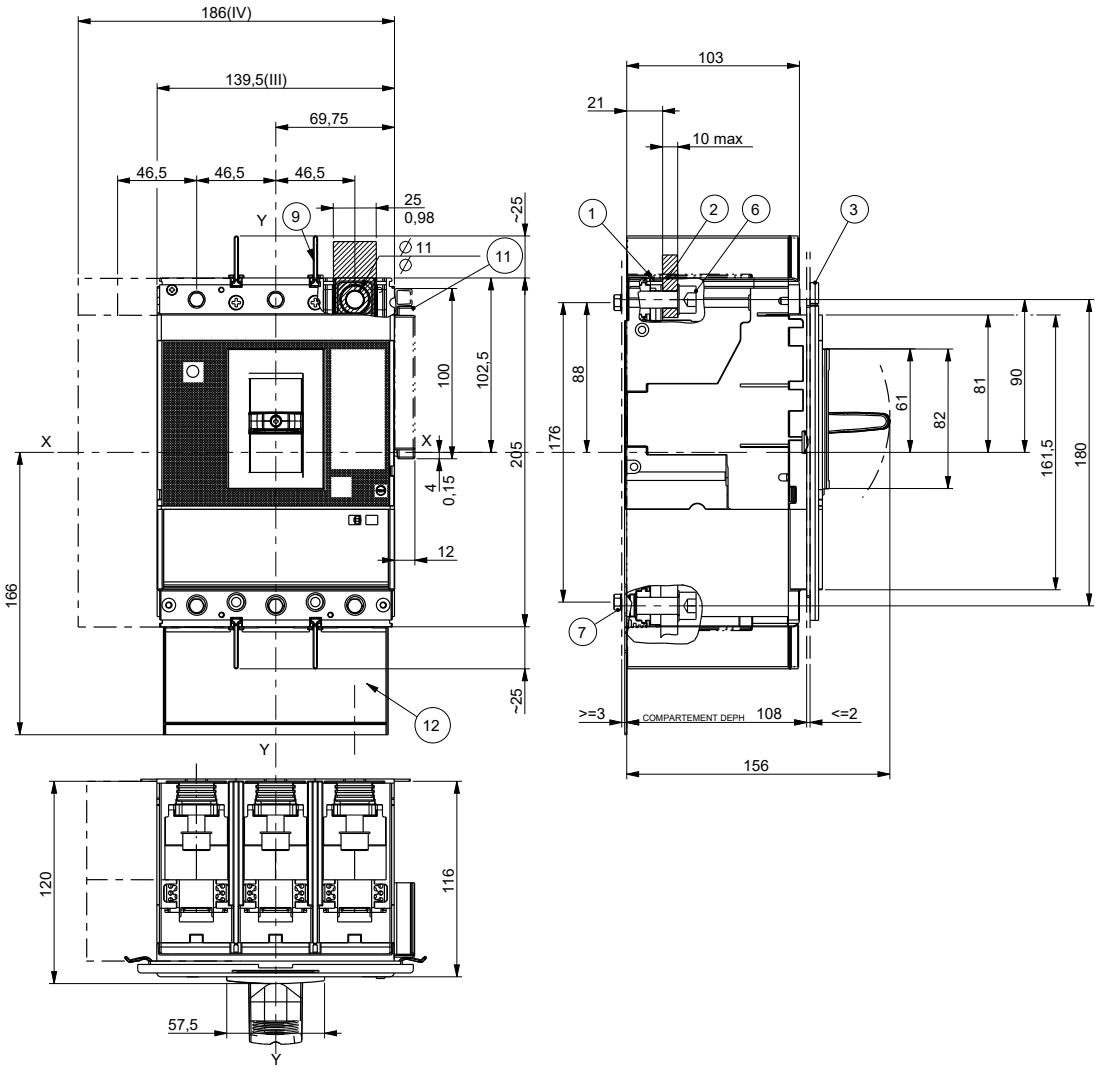
Key

1 Fixed part
2 Moving part
3 Front for lever operating mechanism
4 Connector residual current (optional)
5 100mm insulating barriers between phases (compulsory) provided
6 Residual current
7 Extended terminals
8 Fixing screws for fixed part of connector
9 Drilling template of door with direct rotary handle and fixed flange

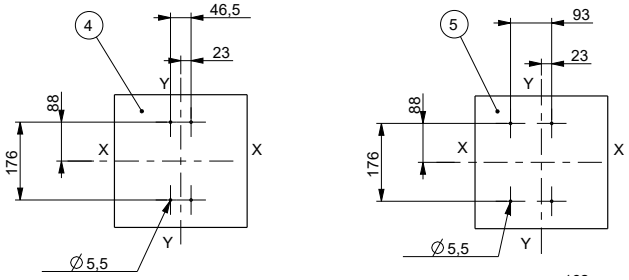
Tmax XT5 – Installation

Installation for fixed circuit-breaker

Fixing on sheet



Drilling templates for support sheet

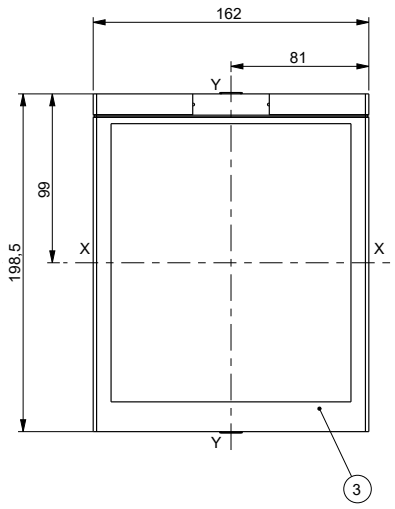


Key

1 Front terminals for flat connection
2 Connection bar
3 Flange without gasket for the compartment door (optional)
6 Tightening torque 36Nm
7 Tightening torque 2Nm
9 Interphase insulating barriers 25mm compulsory ≥500V
11 Cable rack (optional)
12 Rear insulating plate

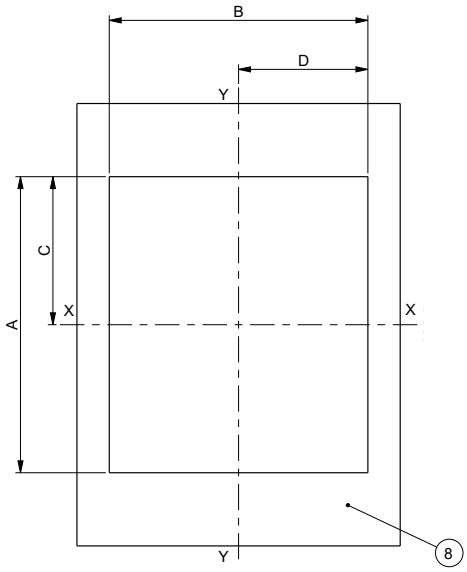
Flange

Key
3 Flange without gasket for the compartment door (optional)



Drilling template compartment door

Key
8 Compartment door sheet steel drilling with/without flange

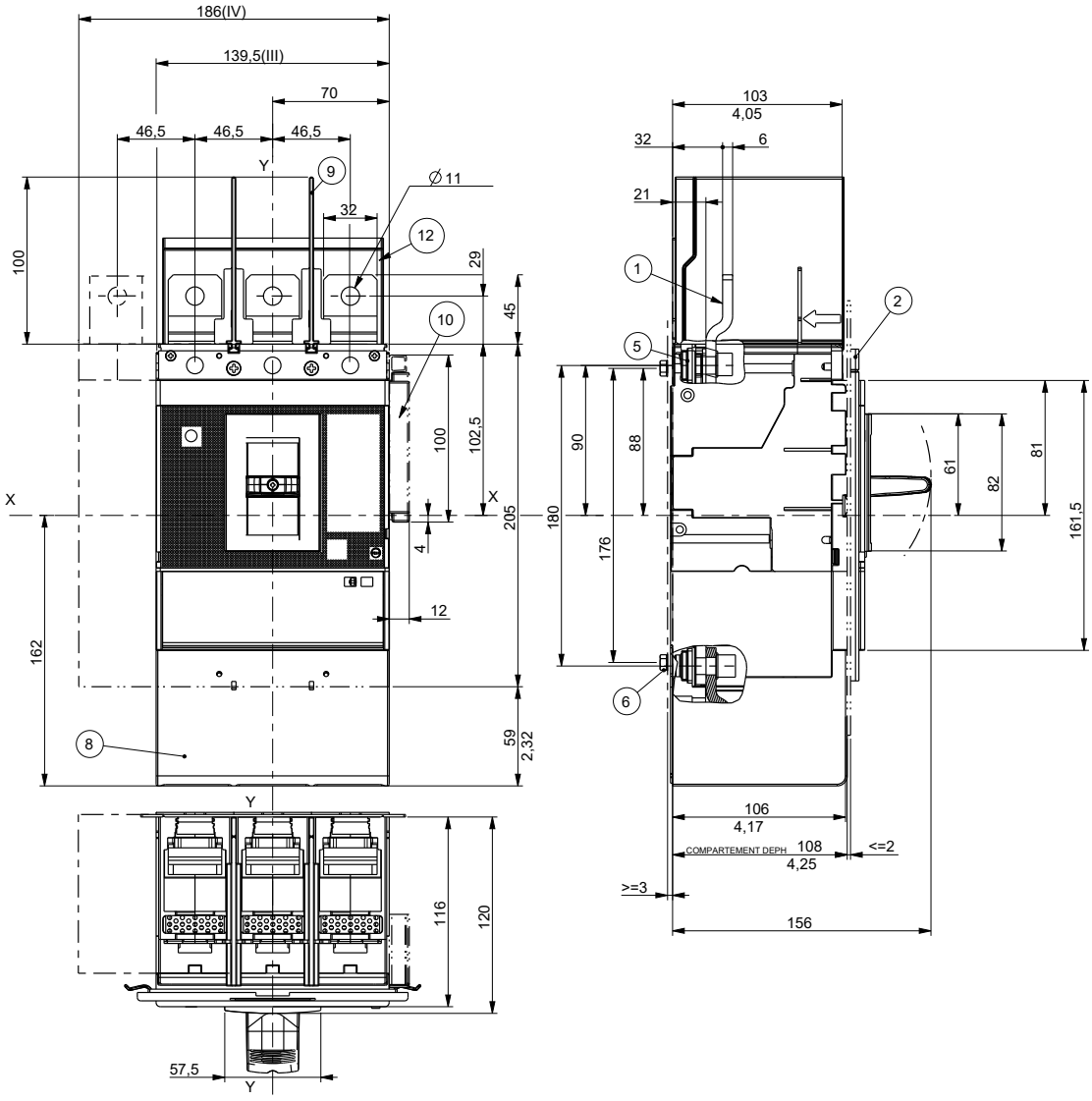


		A [mm]	B [mm]	C [mm]	D [mm]
With flange	III - IV	174	152	87	76
Without flange	III - IV	165	143	82.5	71.5

Tmax XT5 – Installation

Terminals for fixed circuit-breaker

Terminals EF

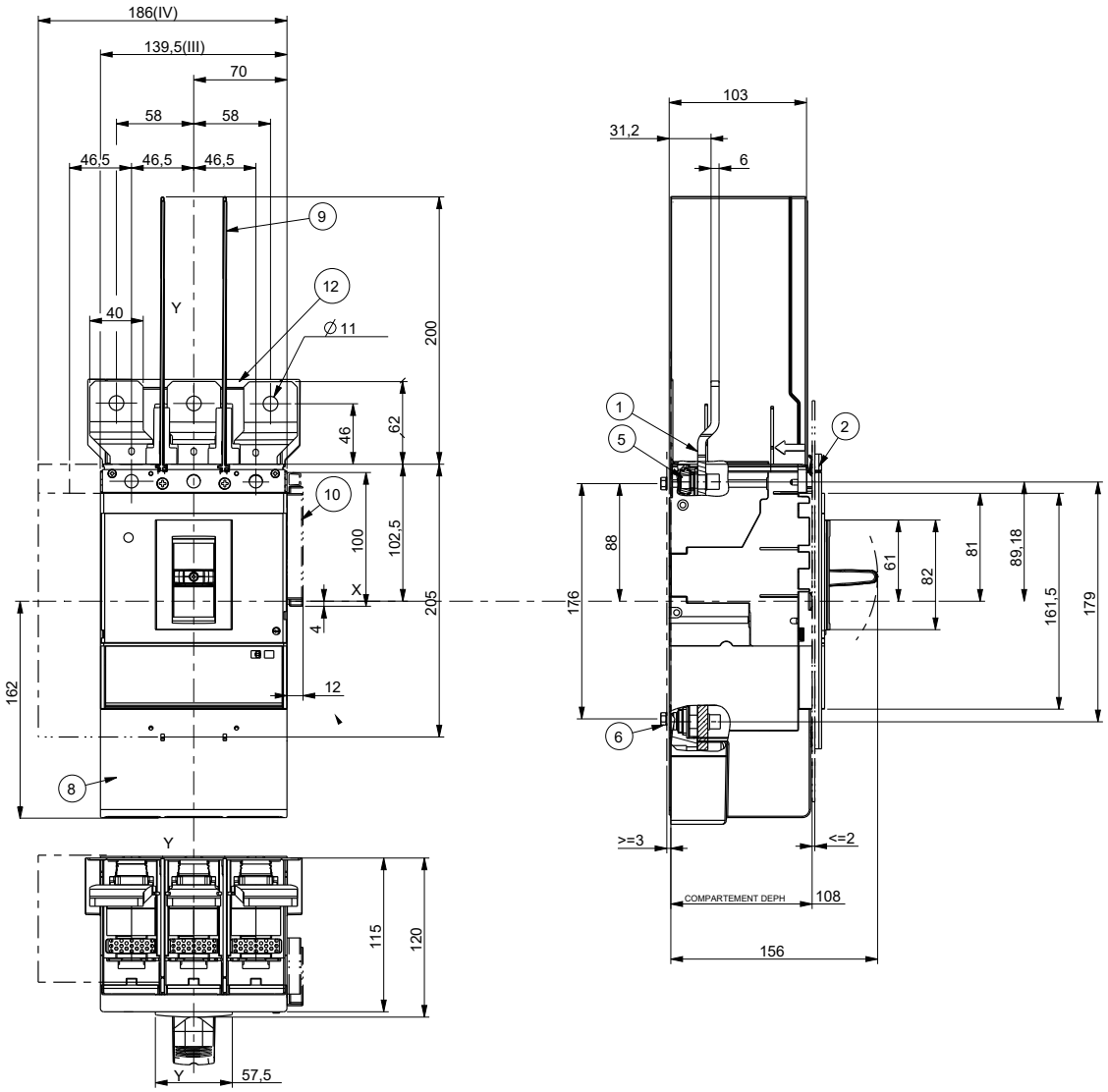


—

Key

1 Extended front terminals
2 Flange for the compartment door (optional)
5 Tightening torque 36Nm
6 Tightening torque 2Nm
8 High terminal cover
9 Separating partition 100mm
10 Cable rack (optional)
12 Rear insulating plate

Terminals ES



—

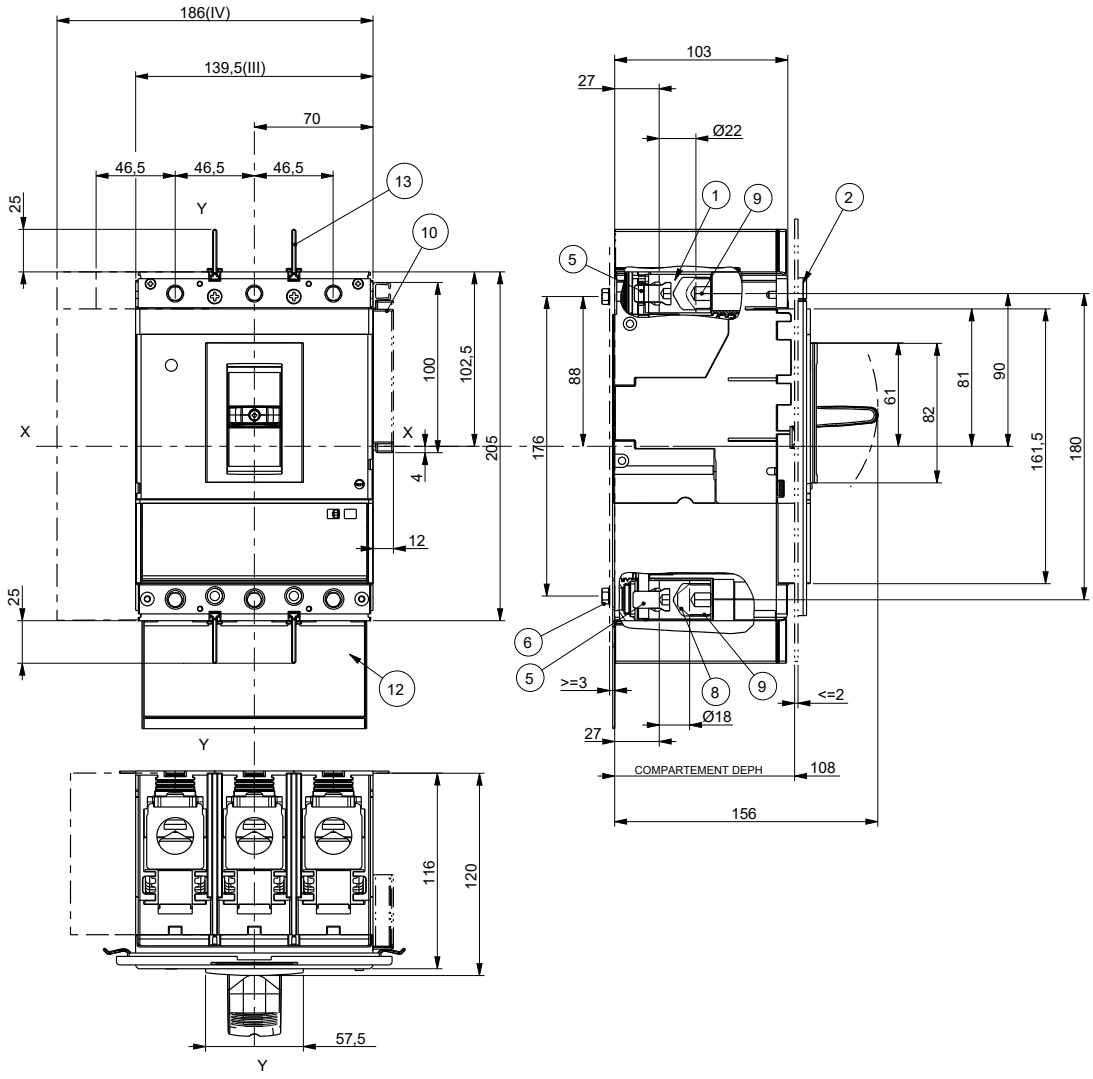
Key

1 Extended front terminals
2 Flange for the compartment door
5 Tightening torque 18Nm
6 Tightening torque 2Nm
8 Rear insulating plate
9 Separating partition 200mm
10 Cable rack (optional)
12 Caps kit plate (optional)

Tmax XT5 – Installation

Terminals for fixed circuit-breaker

1 x 120…240mm² and 1 x 35…185mm² terminals FC CuAl

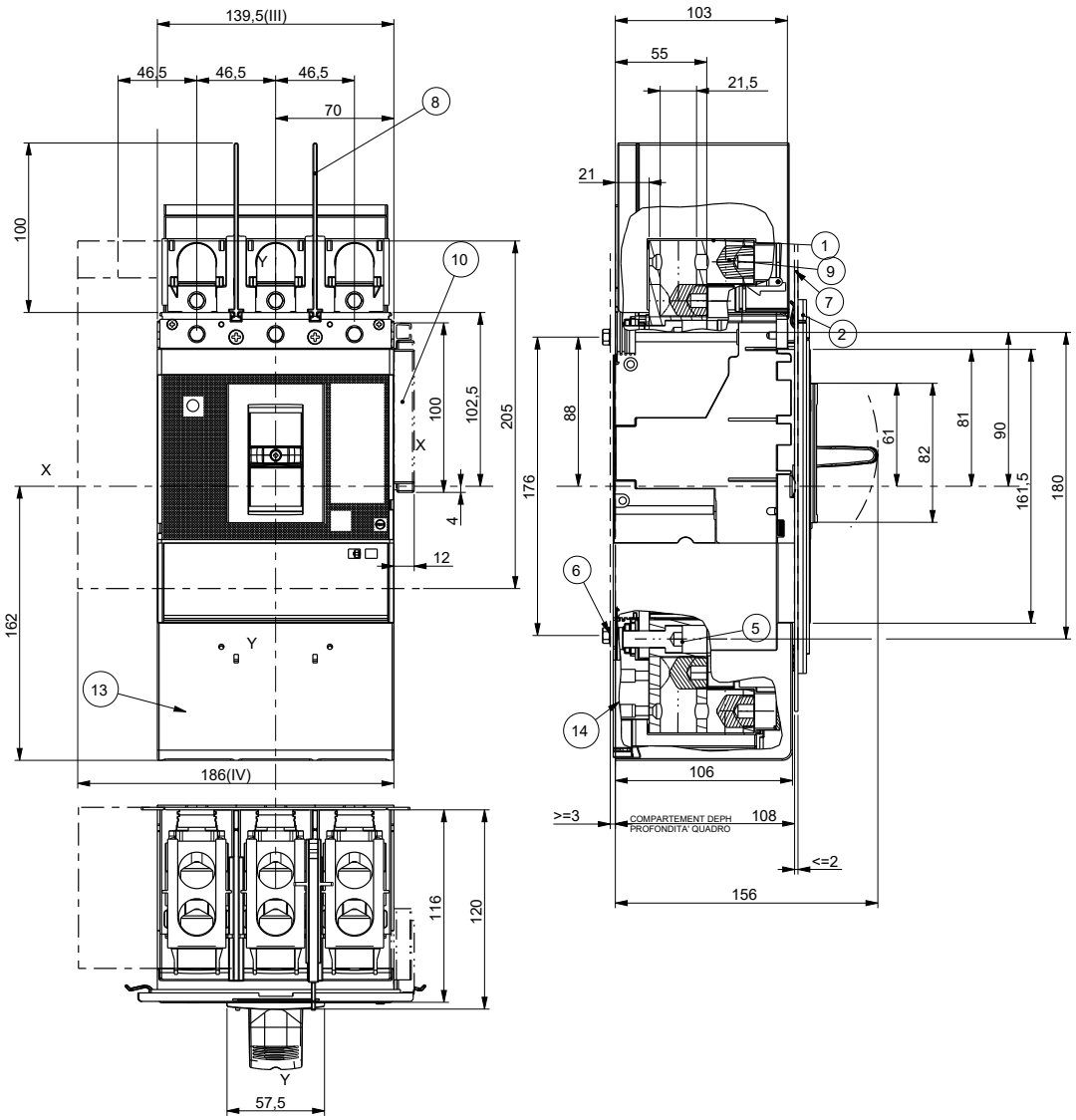


—

Key

1 Terminals FCuAl 1x120…240mm²
2 Flange for the compartment door
5 Tightening torque 23Nm
6 Tightening torque 2Nm
8 Terminals FCuAl 1x35…185mm²
9 Tightening torque 23Nm
10 Cable rack (optional)
12 Rear insulating plate
13 Interphase insulating barriers 0.98"/25mm compulsory

2 x 70...240mm^2 terminals FC CuAl



—

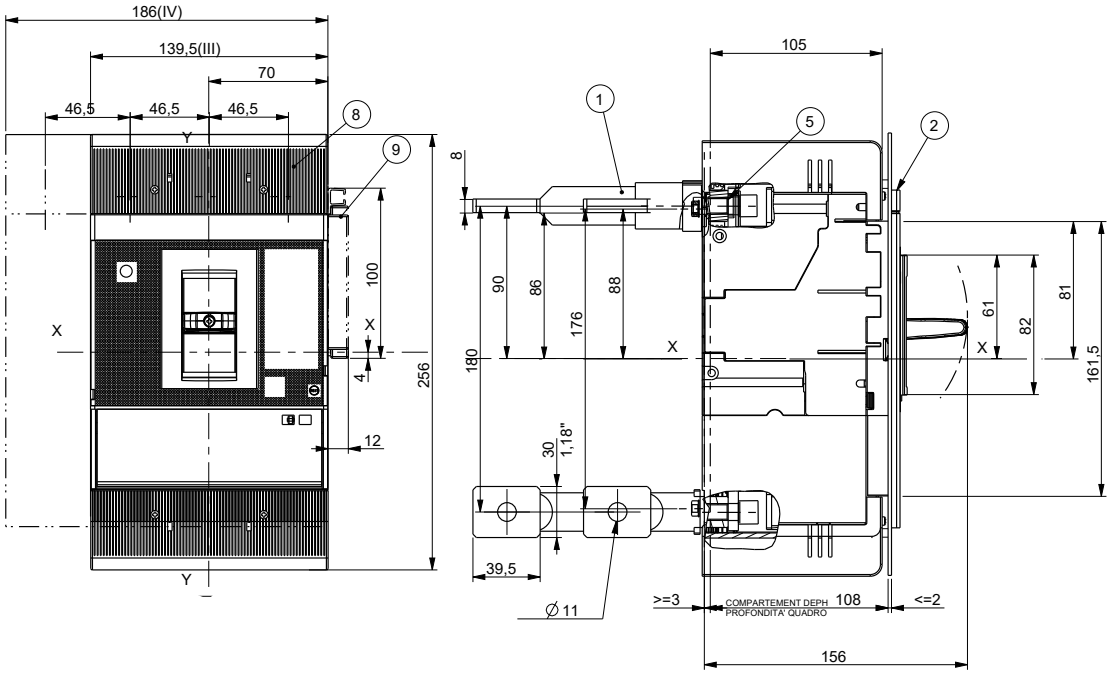
Key

1 Terminals FCual 2x240mm
2 Flange for the compartment door (optional)
5 Tightening torque 36Nm
6 Tightening torque 2Nm
7 Compartment door sheet steel drilling for flange without gasket
8 Phase barrier 100mm
9 Tightening torque 31Nm
10 Cable rack (optional)
13 High terminal cover
14 Form base IV optional in alternative plate cap kits

Tmax XT5 – Installation

Terminals for fixed circuit-breaker

Terminals R



—

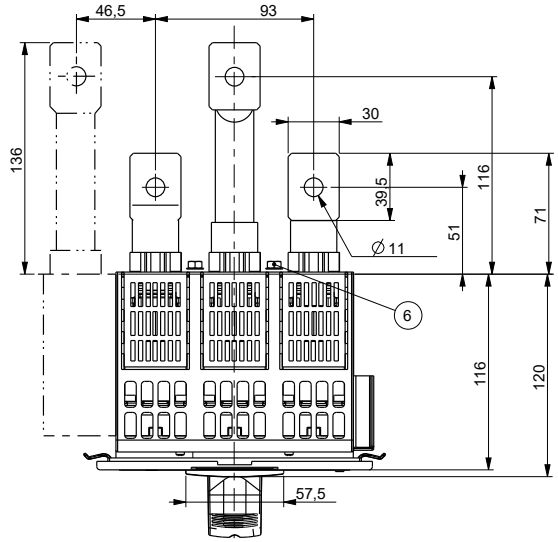
Key

1 Rear terminals (horizontal and vertical)
2 Flange without gasket for the compartment door (optional)
5 Tightening torque 18Nm
7 Compartment door sheet steel drilling with/without flange
8 Low terminal cover
9 Cable rack (optional)

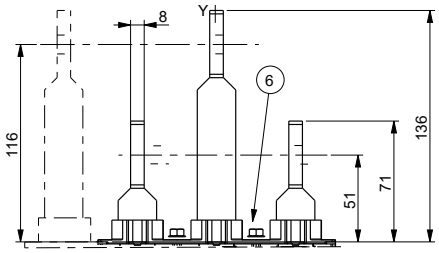
Terminals HR upper

—
Key

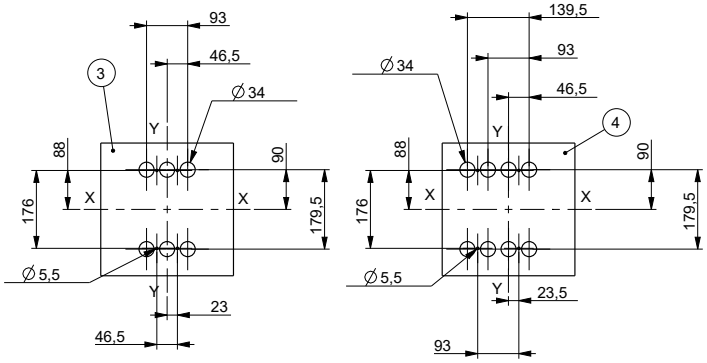
6 Tightening torque 2Nm



Terminals VR lower

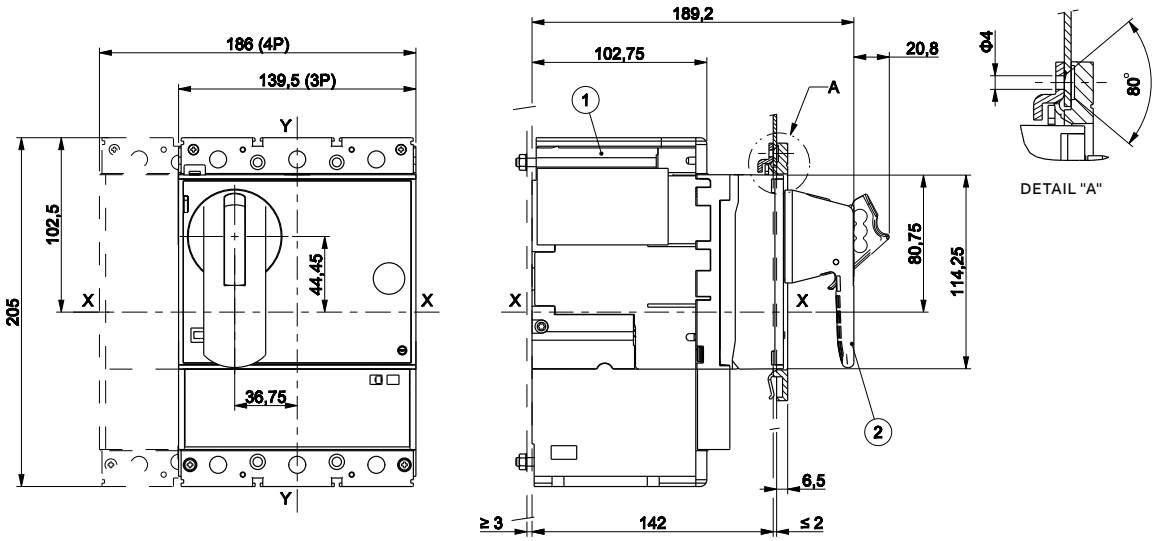


—
Key
3 Fixing on sheet steel III
4 Fixing on sheet IV

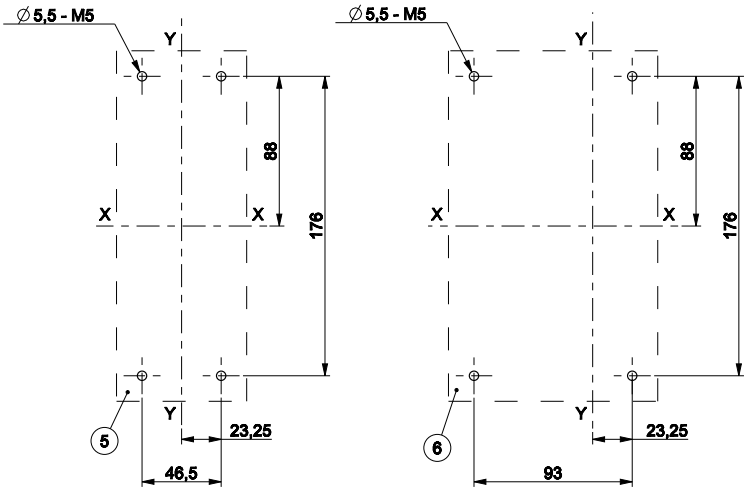


Tmax XT5 – Installation
Accessories for fixed circuit-breaker

Rotary handle operating mechanism on the circuit-breaker (RHD)



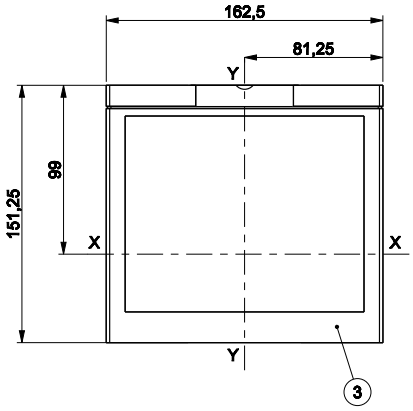
Drilling templates for support sheet



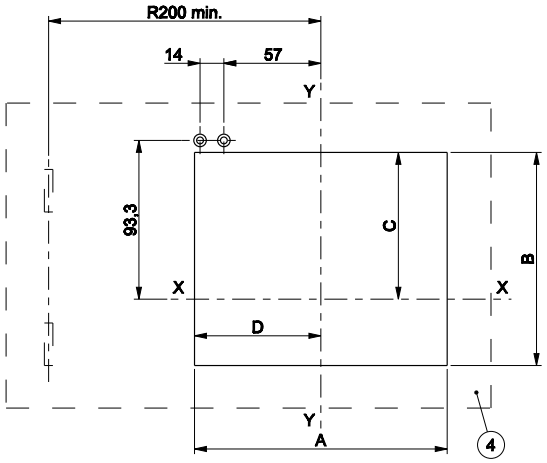
—
Key
1 Base breaker
2 Rotary handle operating mechanism on circuit-breaker
3 Flange for the compartment door
4 Compartment door sheet steel drilling with/without flange
5 Fixing on sheet steel III
6 Fixing on sheet steel IV

Flange

—
Key
3 Flange for the compartment door
4 Compartment door sheet steel drilling with/without flange



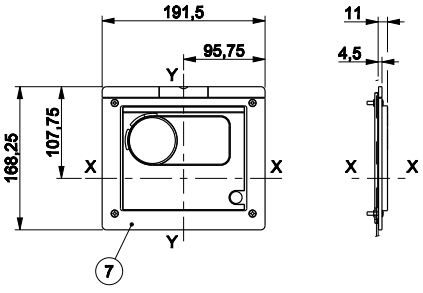
Drilling template compartment door



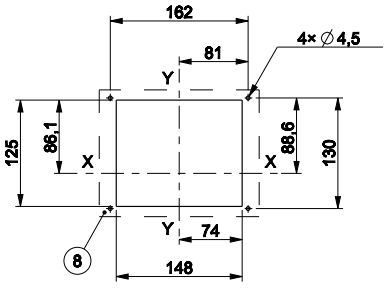
		A [mm]	B [mm]	C [mm]	D [mm]
With flange	III - IV	147.5	124.3	85.8	73.75
Without flange	III - IV	140.5	115.3	81.3	70.25

Flange IP54

—
Key
7 IP54 flange for the compartment door
8 Compartment door sheet steel drilling with IP54 flange



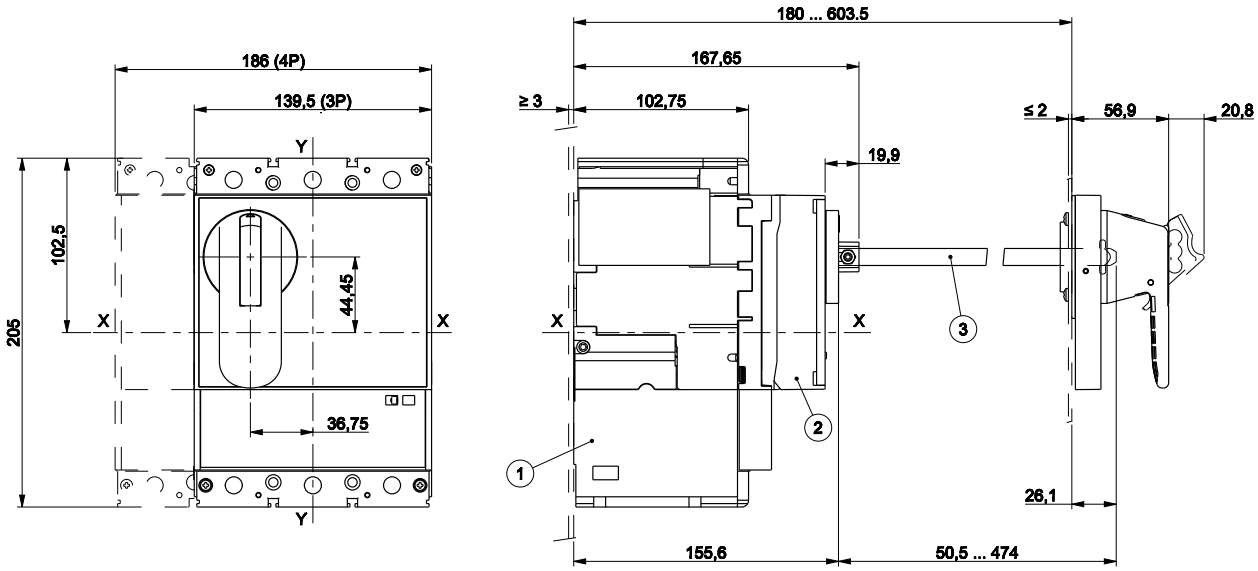
Drilling template compartment door with flange IP54

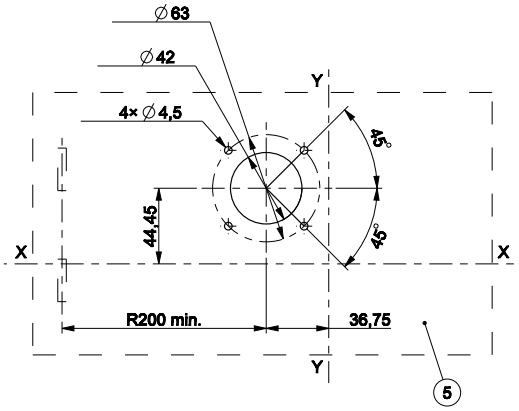


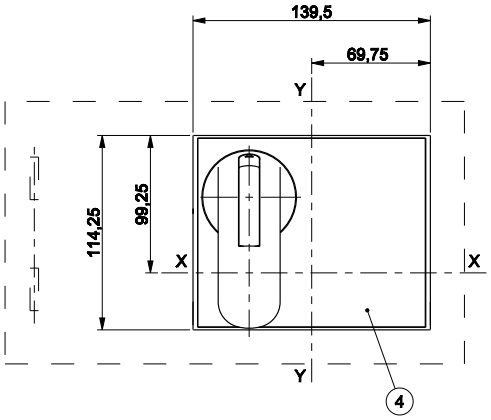
Tmax XT5 – Installation

Accessories for fixed circuit-breaker

Rotary handle operating mechanism on the compartment door (RHE)





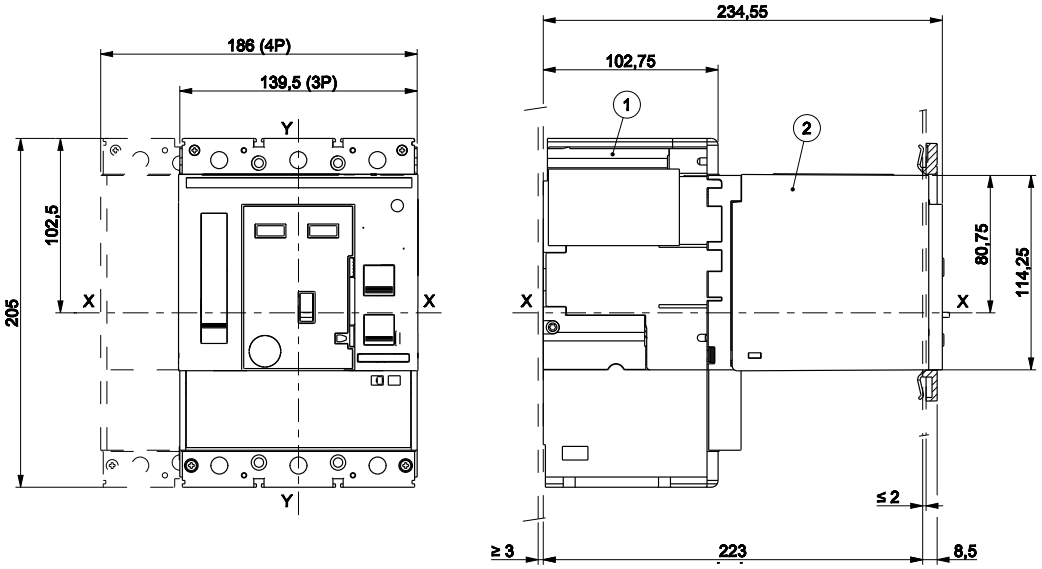


—

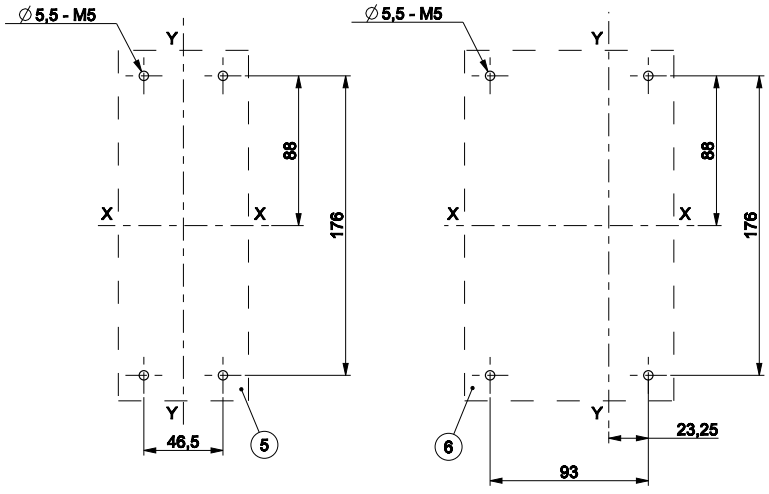
Key

1 Base breaker
2 Base of rotary handle operating mechanism
3 Transmission rod
4 Rotary handle operating mechanism of compartment door
5 Compartment door sheet steel drilling
6 Fixing on sheet steel III
7 Fixing on sheet steel IV

Stored energy motor operator (MOE)



Drilling templates for support sheet



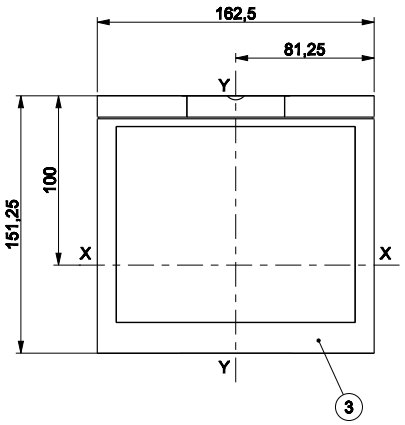
—

Key

1 Base breaker
2 Stored energy motor operator
3 Flange for the compartment door
4 Compartment door sheet steel drilling of compartment door with/without flange
5 Fixing on sheet steel III
6 Fixing on sheet steel IV

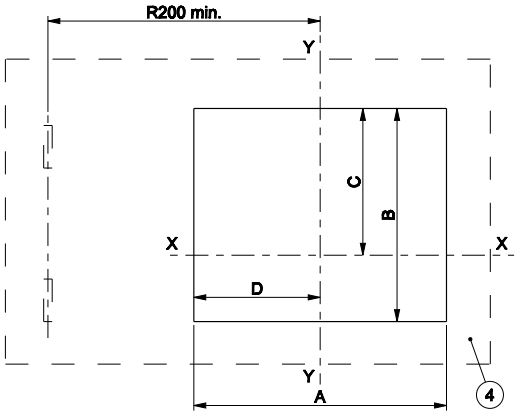
Tmax XT5 – Installation
Accessories for fixed circuit-breaker

Flange



—
Key
8 Flange without gasket for the compartment door

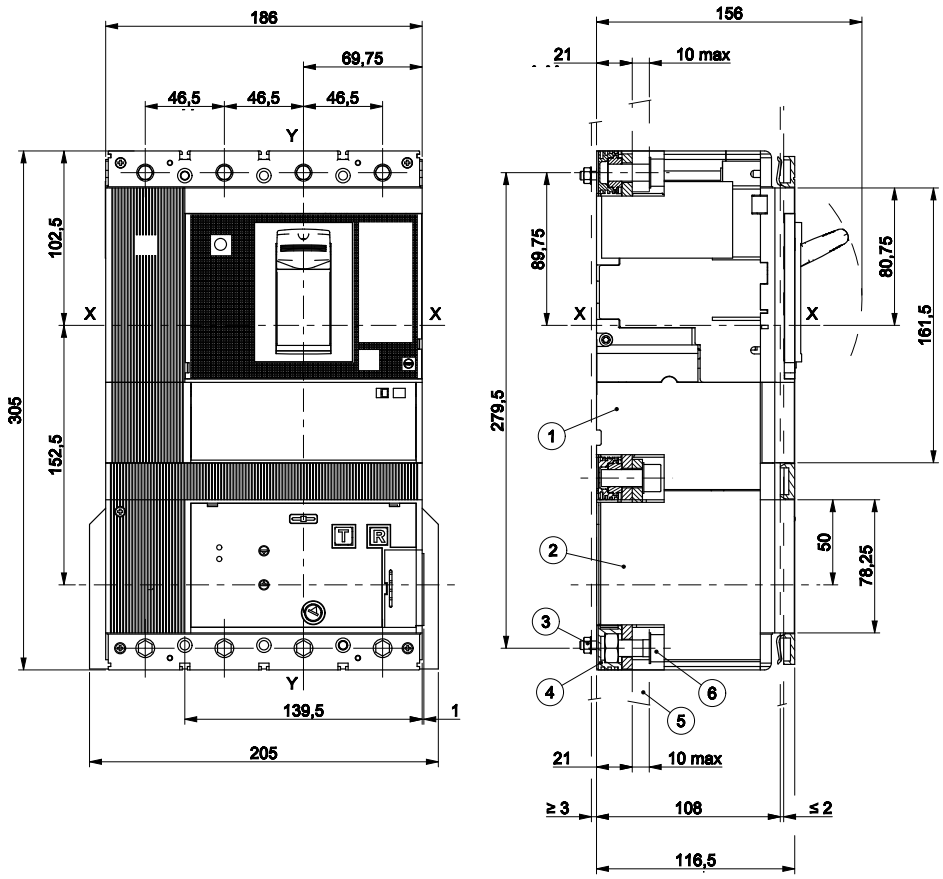
Drilling template compartment door



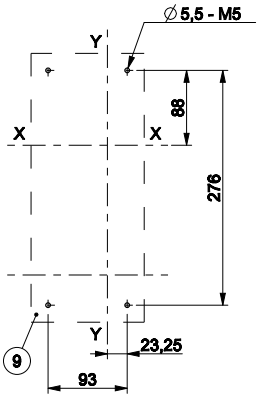
—
Key
4 Comparment door sheet steel drilling of compartment door with/without flange

		A [mm]	B [mm]	C [mm]	D [mm]
With flange	III - IV	147.5	124.3	85.8	73.75
Without flange	III - IV	140.5	115.3	81.3	70.25

Residual current RC



Drilling template for support sheet



—

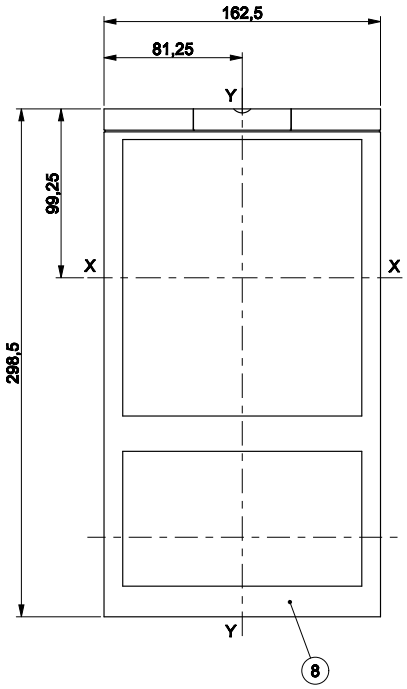
Key

1 Base breaker
2 Residual current release
3 Tightening torque 2Nm
4 Front terminals for flat connection
5 Connection bar
6 Tightening torque 36Nm
9 Fixing on sheet steel IV

Tmax XT5 – Installation
Accessories for fixed circuit-breaker

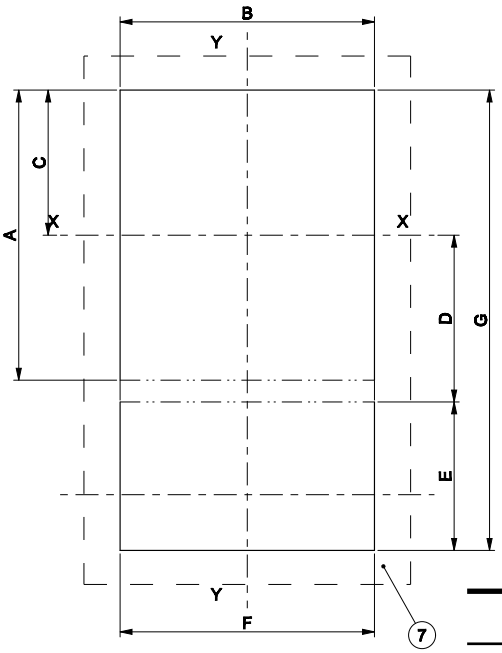
Flange

Key
3 Flange for the compartment door



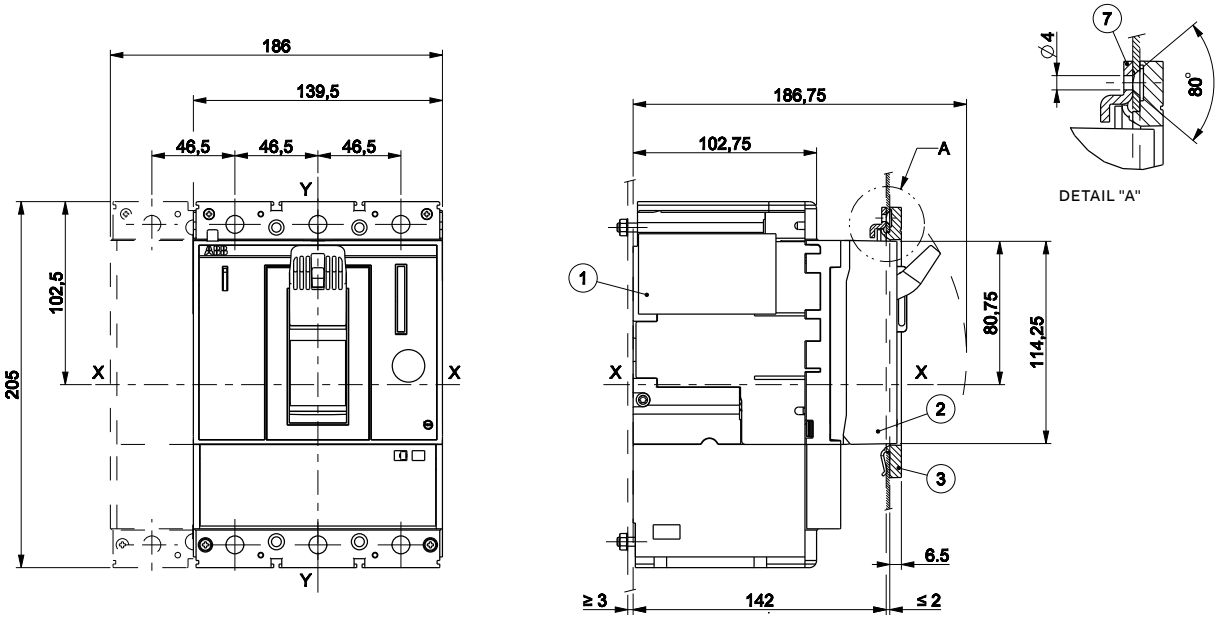
Drilling template compartment door

Key
7 Compartment door sheet steel drilling of compartment door with/without flange

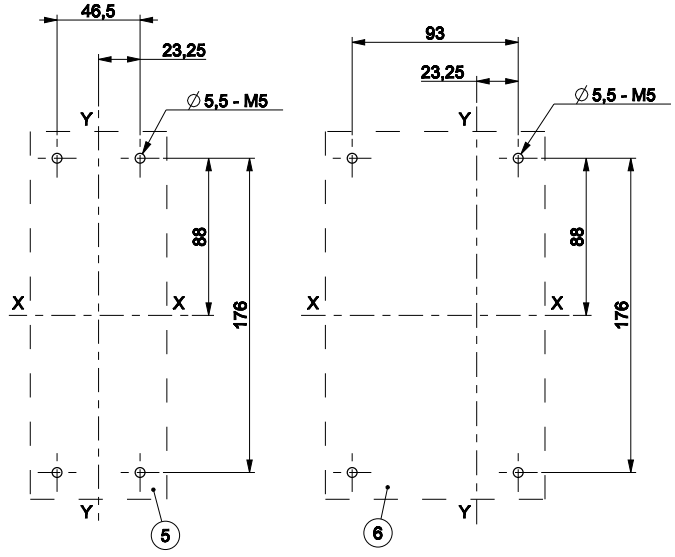


		A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]
With flange	III - IV	-	147.5	84.8	-	-	147.5	269.5
Without flange	III - IV	163.5	141.5	81.8	101.5	80.3	141.5	-

Front for lever operating mechanism (FLD)



Drilling templates for support sheet



—

Key

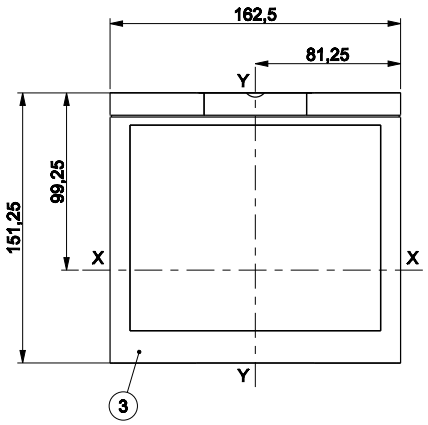
1 Base breaker
2 Front for lever operating system (FLD)
3 Flange for the compartment door
4 Compartment door sheet steel drilling with/without flange
5 Fixing on sheet steel III
6 Fixing on sheet steel IV
7 Door lock

Tmax XT5 – Installation

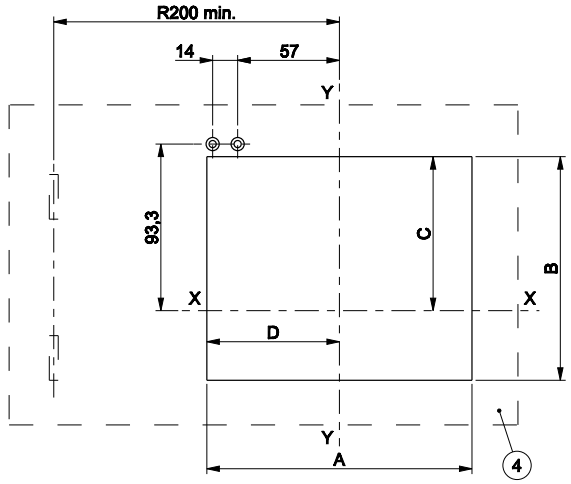
Accessories for fixed circuit-breaker

Flange

—
Key
3 Flange for the compartment door
4 Compartment door sheet steel drilling with/without flange

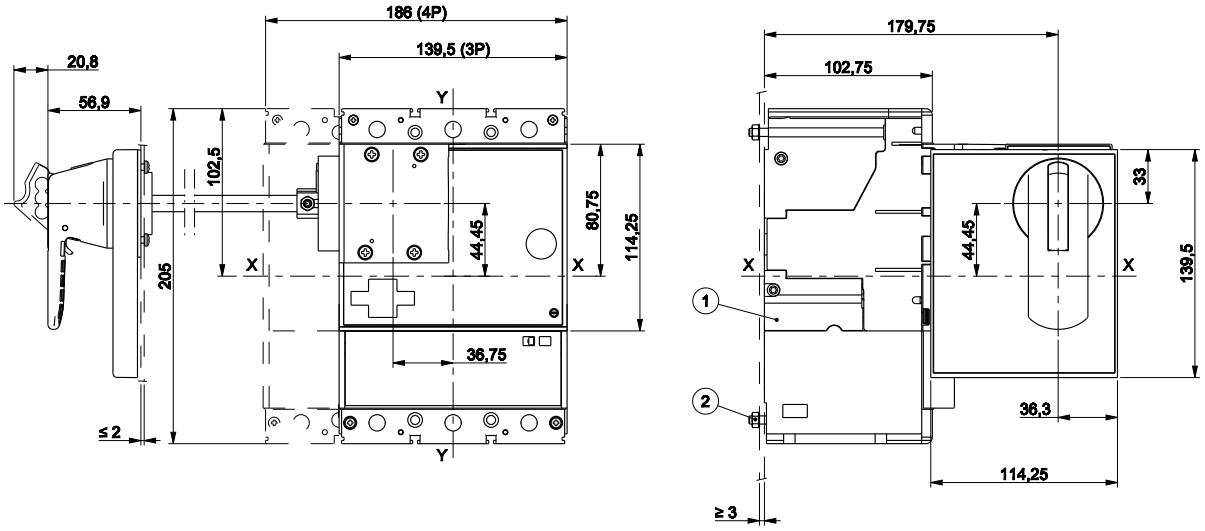


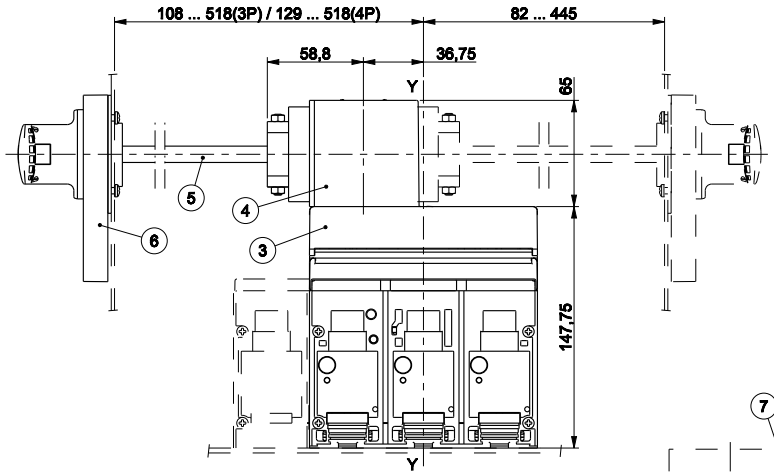
Drilling template compartment door

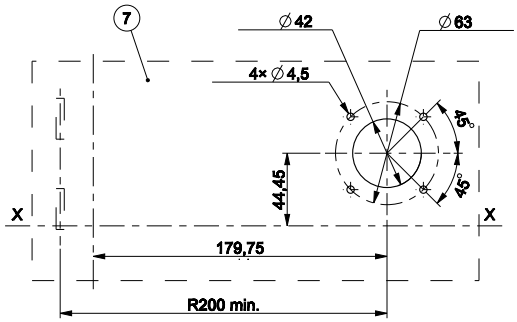


		A	B	C	D
With flange	III - IV	147.5	124.3	85.8	73.75
Without flange	III - IV	140.5	115.3	81.3	70.25

Lateral rotary handle operating mechanism on the compartment door (RHL)







—

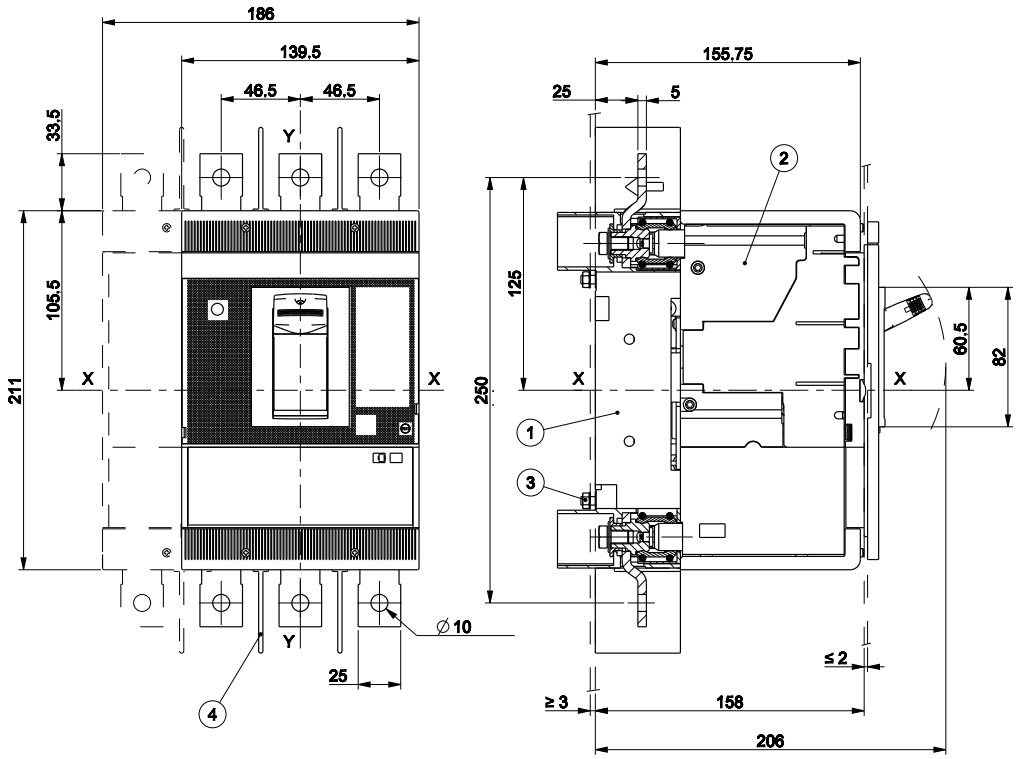
Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Base of rotary handle operating mechanism
6 Lateral handle
7 500mm transmission ROD
8 Rotary handle on compartment door
11 Compartment door sheet steel drilling

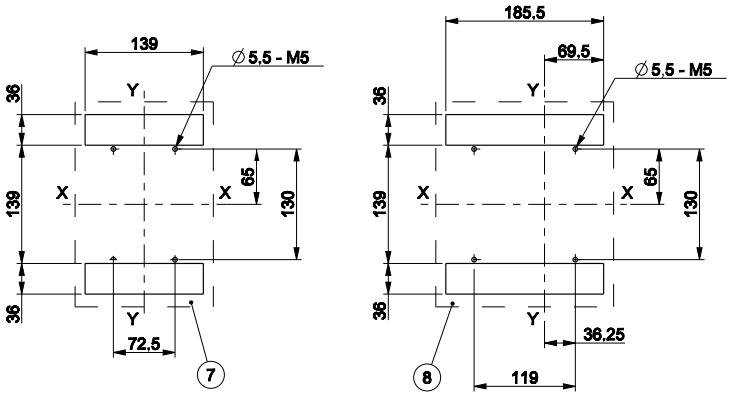
Tmax XT5 – Installation

Installation for plug-in circuit-breaker 400A

Fixing on sheet



Drilling templates for support sheet



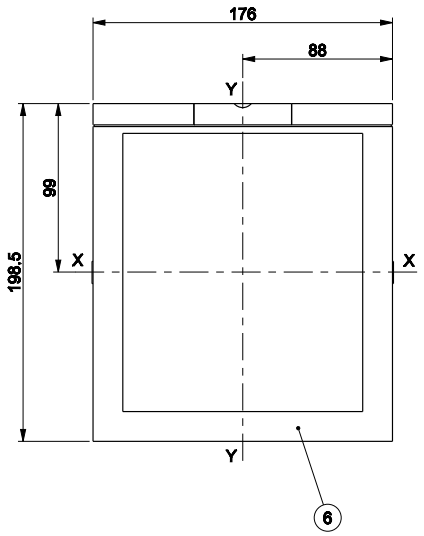
—

Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Compartment door sheet steel drilling of compartment door with/without flange
6 Flange without gasket for the compartment door
7 Fixing on sheet steel III
8 Fixing on sheet steel IV

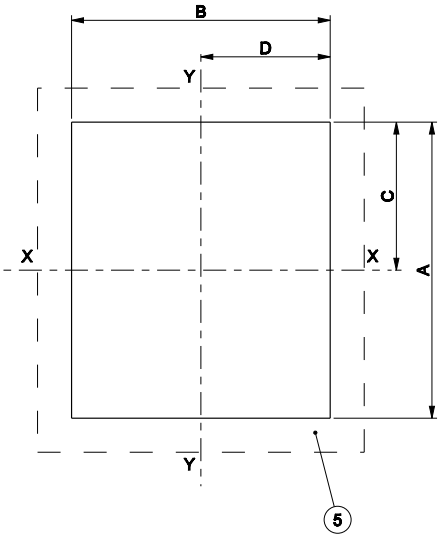
Flange

—
Key
6 Flange without gasket for the compartment door



Drilling template compartment door

—
Key
5 Compartment door sheet steel drilling of compartment door with/without flange

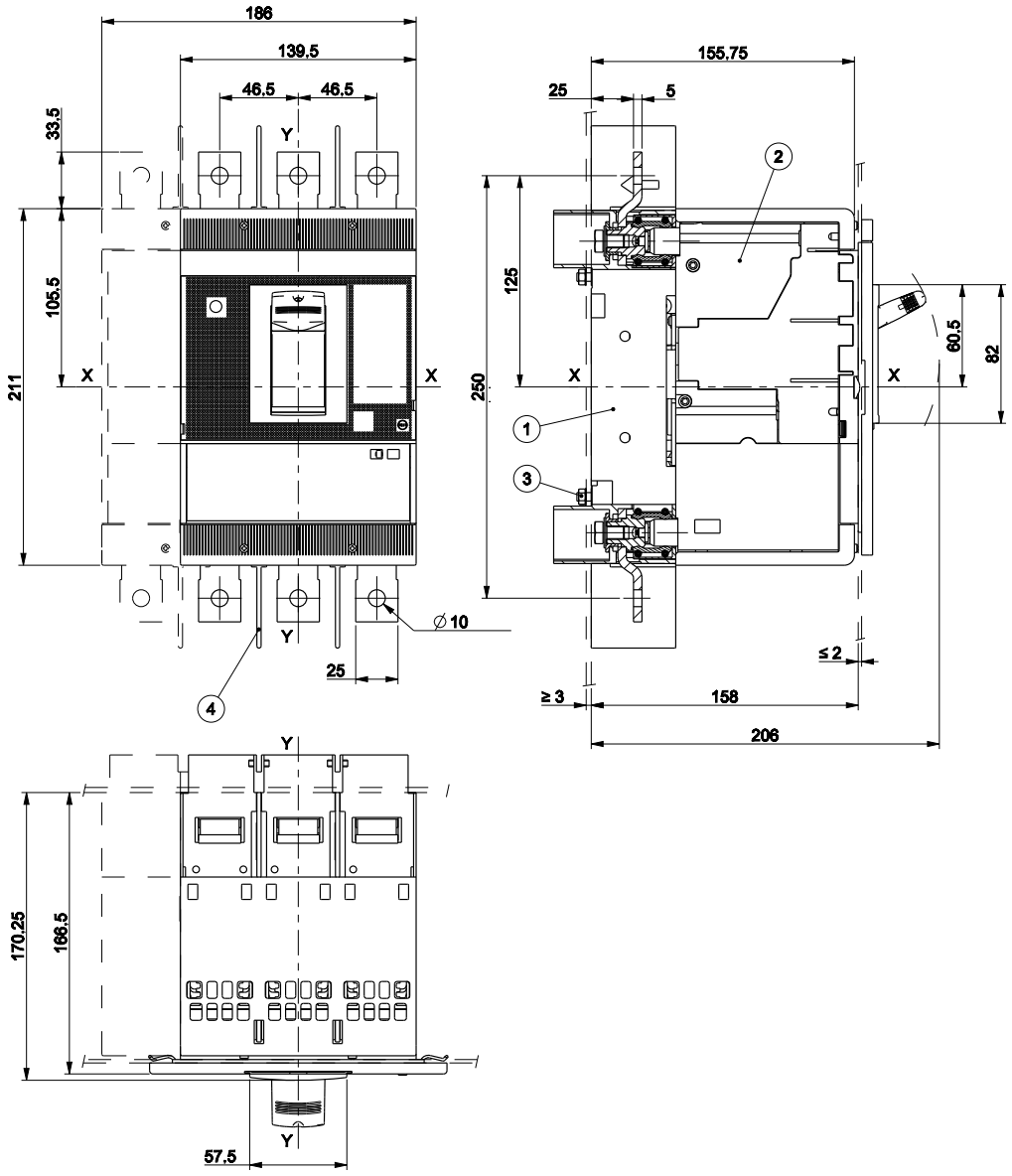


		A [mm]	B [mm]	C [mm]	D [mm]
With flange	III - IV	174	152	87	76
Without flange	III - IV	165	143	82.5	71.5

Tmax XT5 – Installation

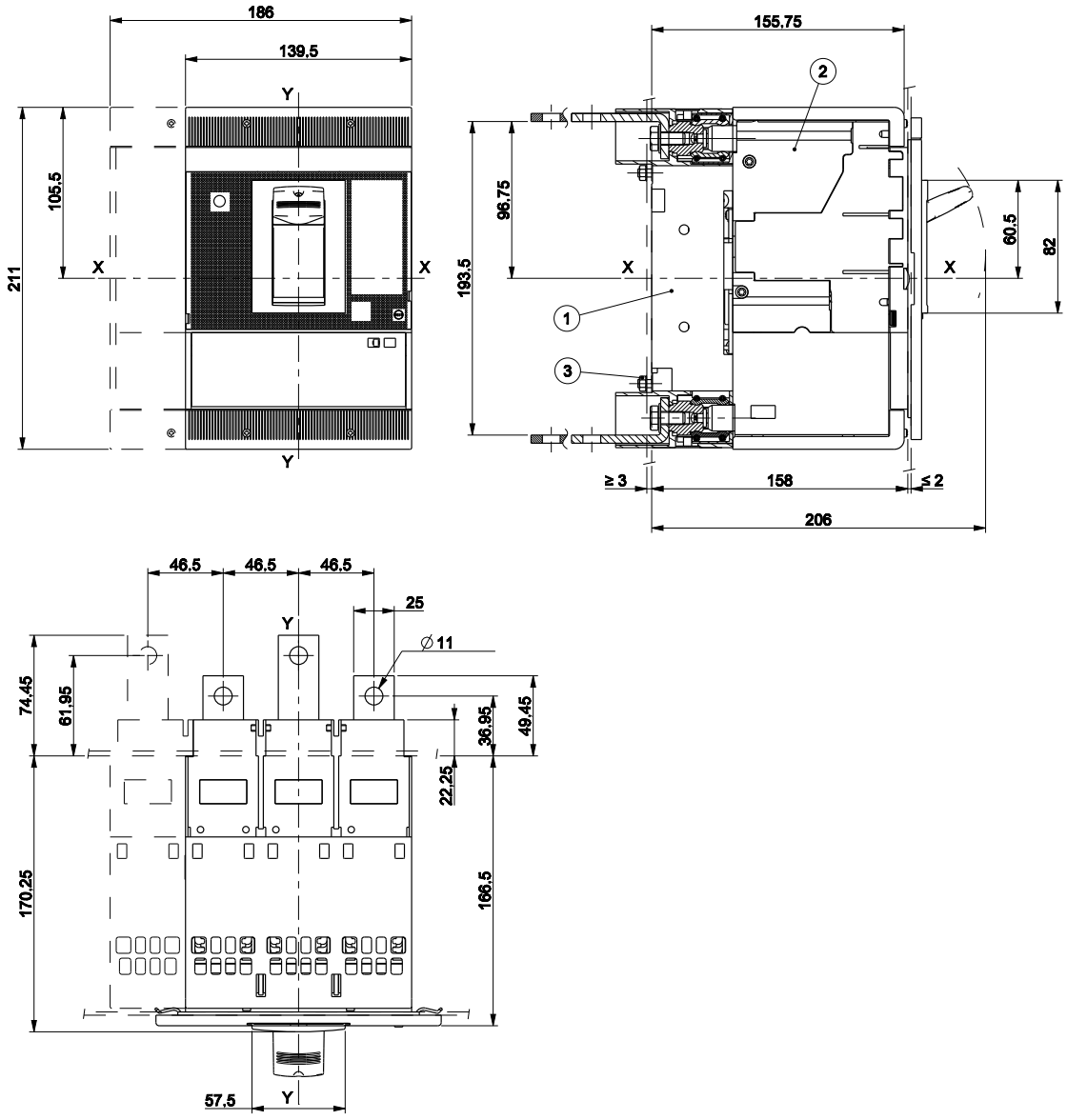
Terminals for plug-in circuit-breaker 400A

Terminals EF



Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided

Terminals HR



—

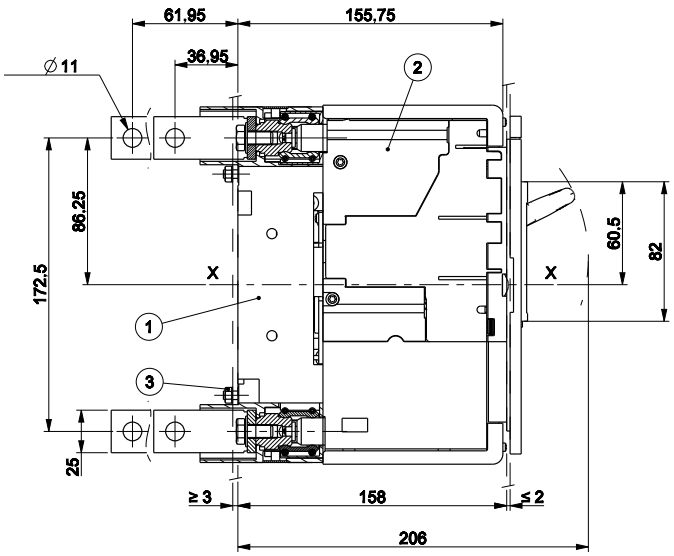
Key

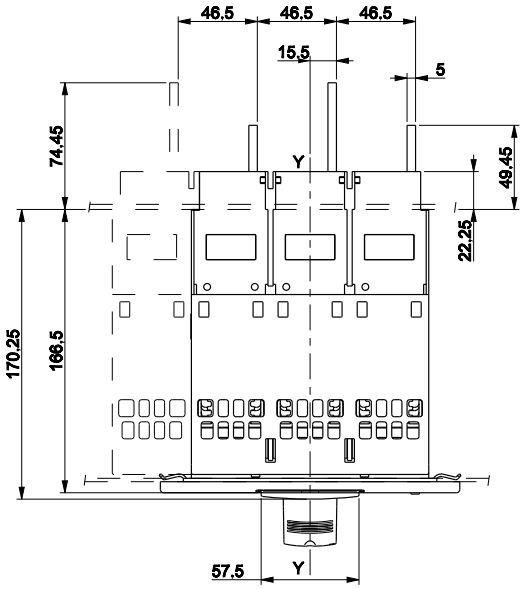
1 Fixed part
2 Moving part
3 Tightening torque 2Nm

Tmax XT5 – Installation

Terminals for plug-in circuit-breaker 400A

Terminals VR





—

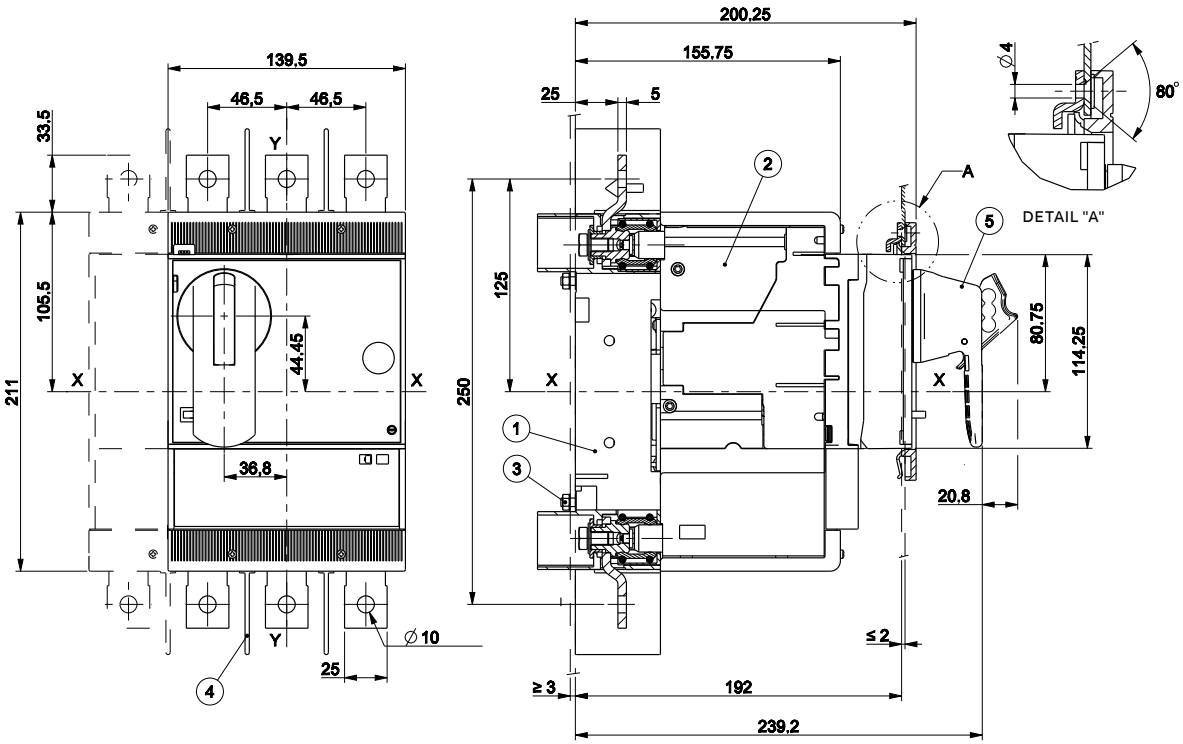
Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm

Tmax XT5 – Installation

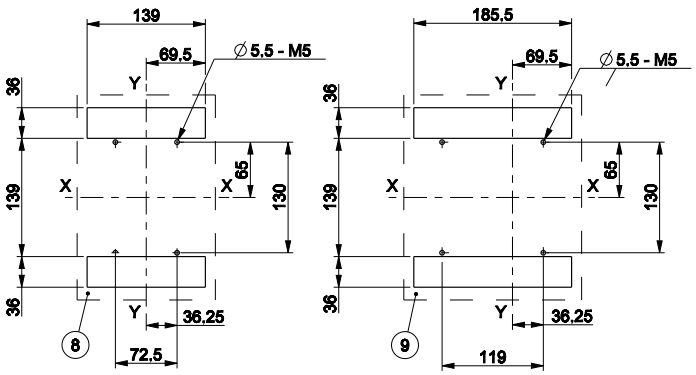
Accessories for plug-in circuit-breaker 400A

Rotary handle operating mechanism on the circuit-breaker (RHD)



Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Rotary handle operating mechanism (RHD)

Drilling templates for support sheet



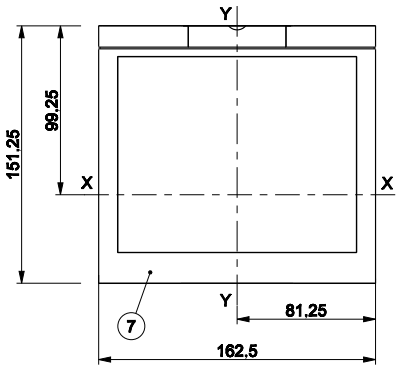
Key
8 Fixing on sheet steel III
9 Fixing on sheet steel IV

Tmax XT5 – Installation

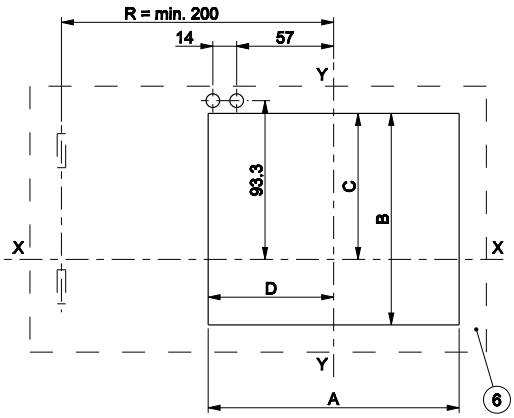
Accessories for plug-in circuit-breaker 400A

Flange

—
Key
7 Flange for the compartment door
8 Compartment door sheet steel drilling with/without flange



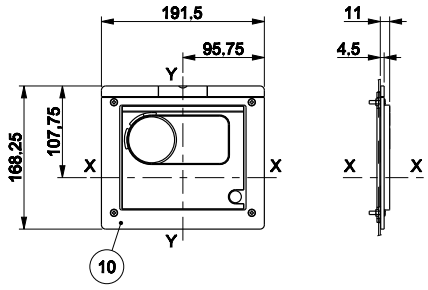
Drilling template compartment door



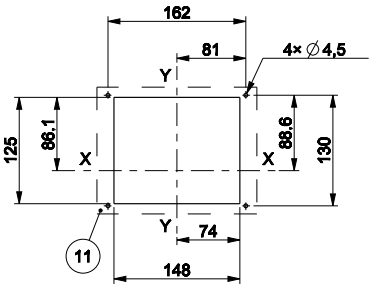
		A [mm]	B [mm]	C [mm]	D [mm]
With flange	III - IV	147.5	124.3	85.8	73.75
Without flange	III - IV	140.5	115.3	81.3	70.25

Flange IP54

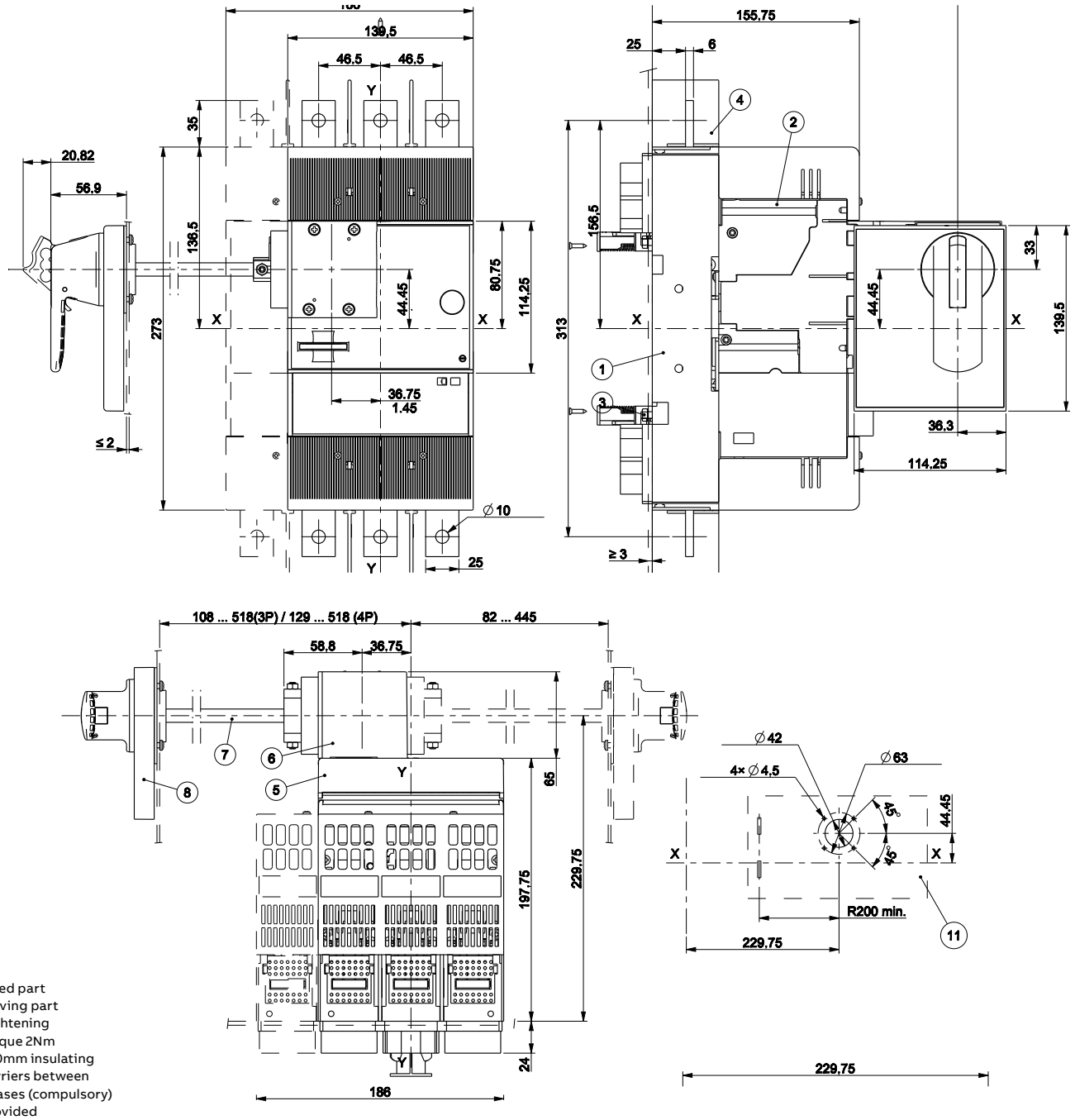
—
Key
10 IP54 flange for the compartment door
11 Comparment door sheet steel drilling with IP54 flange



Drilling template compartment door with flange IP54



Lateral rotary handle operating mechanism on the compartment door (RHL)



—

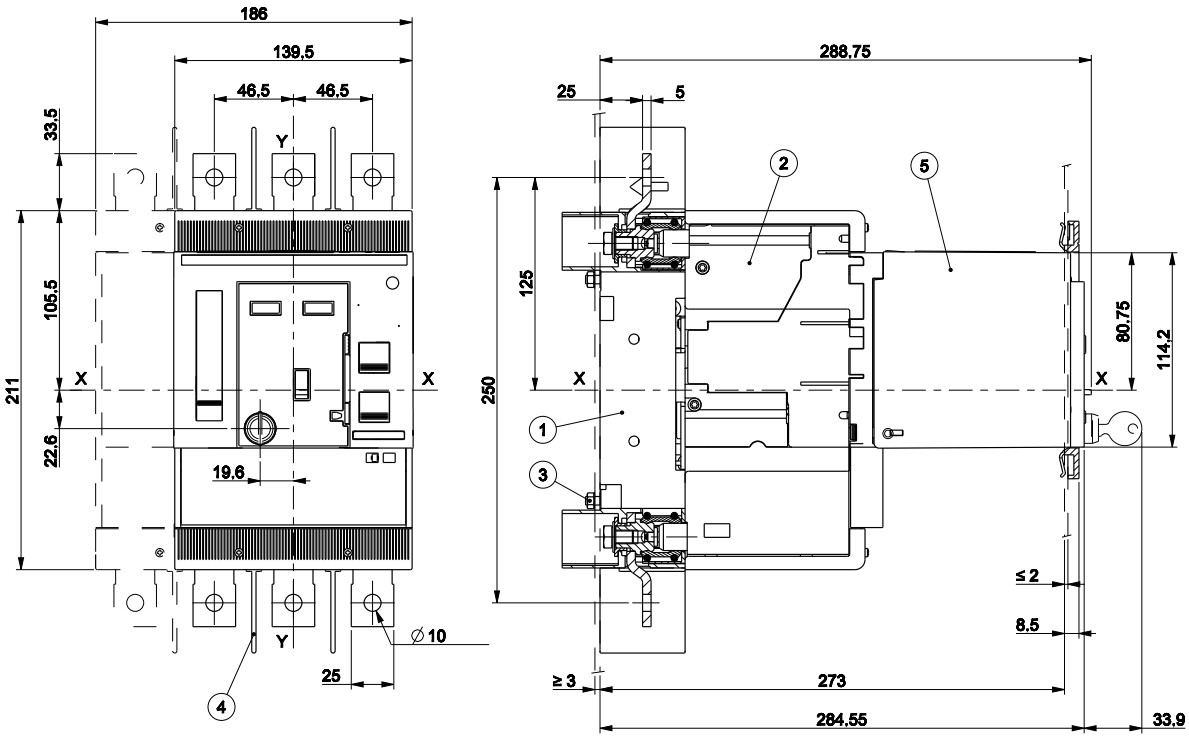
Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Base of rotary handle operating mechanism
6 Lateral handle
7 500mm transmission ROD
8 Rotary handle on compartment door
11 Compartment door sheet steel drilling

Tmax XT5 – Installation

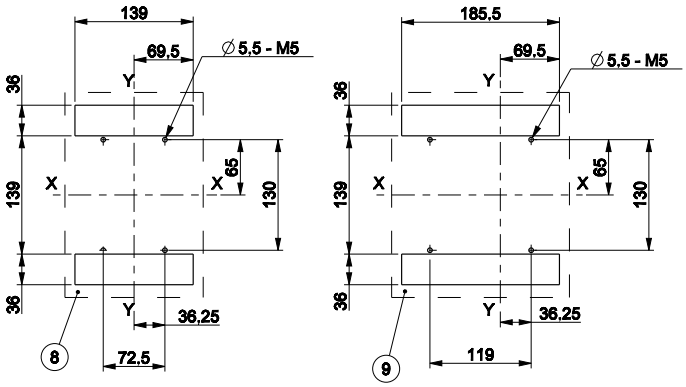
Accessories for plug-in circuit-breaker 400A

Stored energy motor operator (MOE)



Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Stored energy motor operator (MOE)

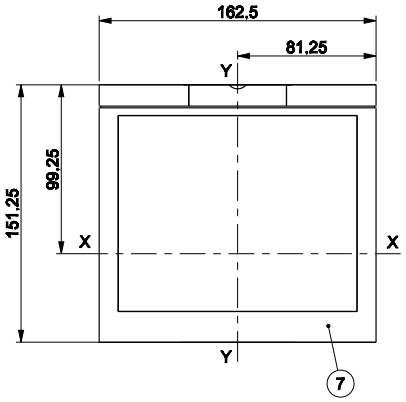
Drilling templates for support sheet



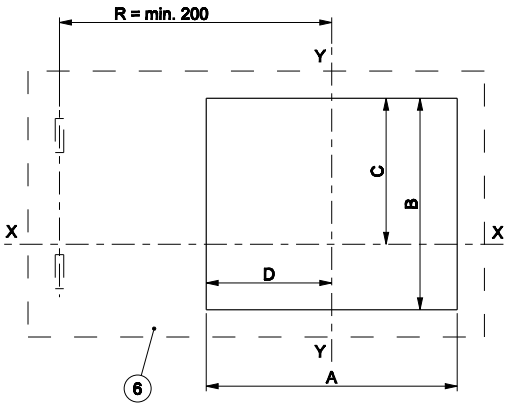
Key
8 Fixing on sheet steel III
9 Fixing on sheet steel IV

Flange

—
Key
7 Flange without gasket for the compartment door



Drilling template compartment door



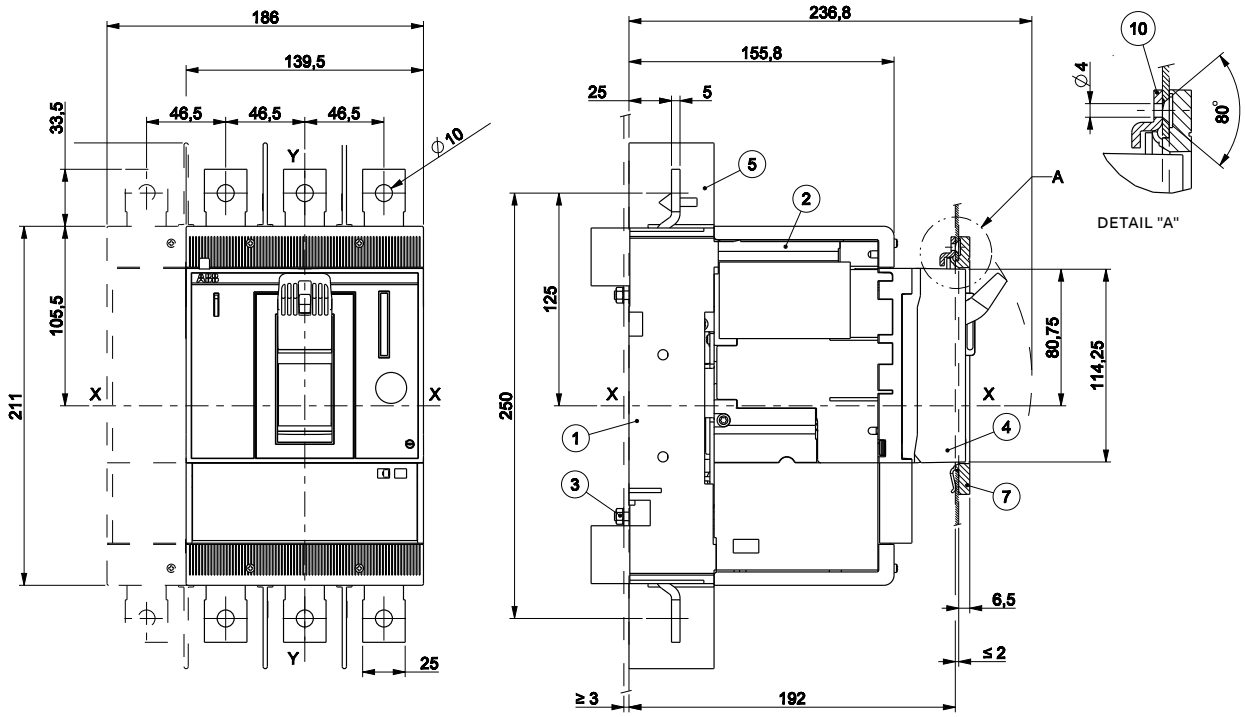
—
Key
6 Comparment door sheet steel drilling of compartment door with/without flange

		A [mm]	B [mm]	C [mm]	D [mm]
With flange	III - IV	147.5	124.3	85.8	73.75
Without flange	III - IV	140.5	115.3	81.3	70.25

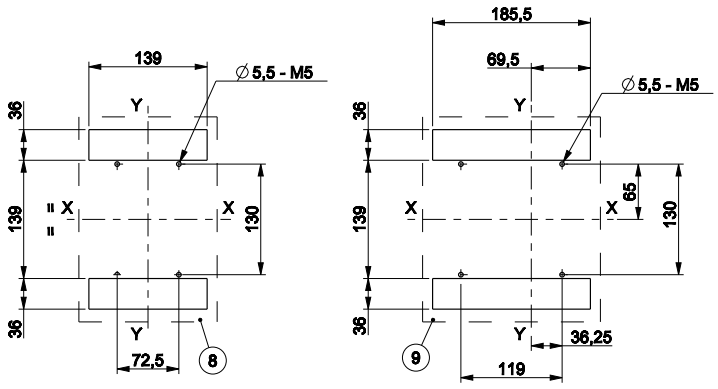
Tmax XT5 – Installation

Accessories for plug-in circuit-breaker 400A

Front for lever operating mechanism (FLD)



Drilling templates for support sheet



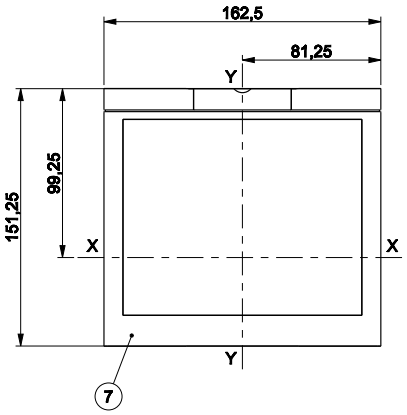
—

Key

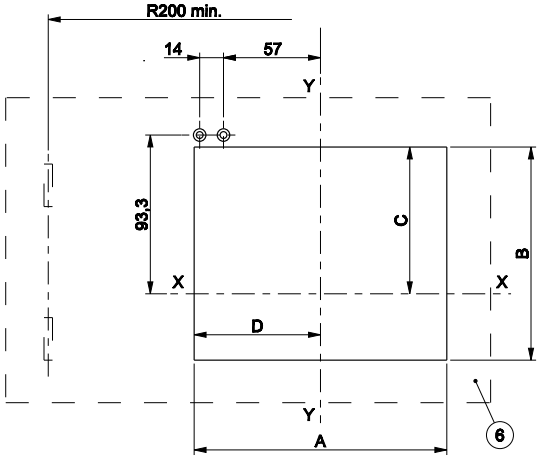
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Fron for lever operating system (FLD)
5 100mm insulating barriers between phases (optional)
7 Flange without gasket for the compartment door
10 Door lock

Flange

—
Key
6 Compartment door sheet steel drilling with/without flange
7 Flange without gasket for the compartment door



Drilling template compartment door

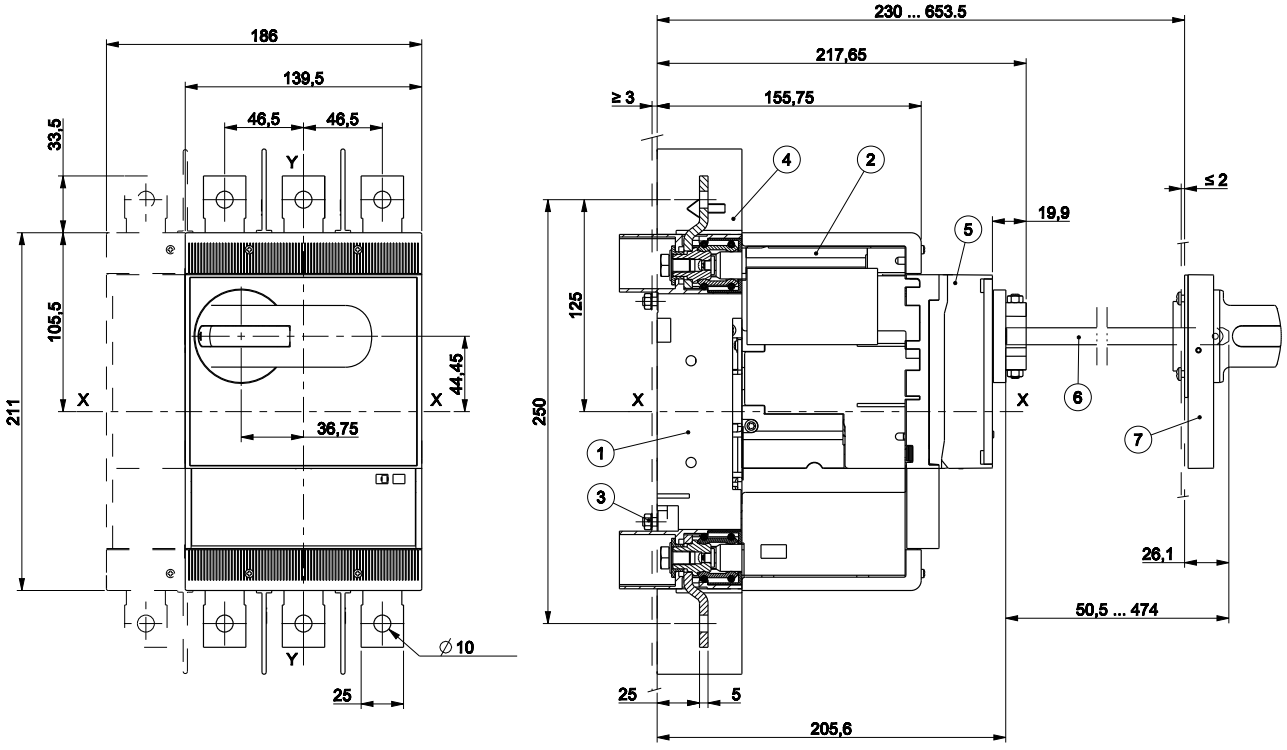


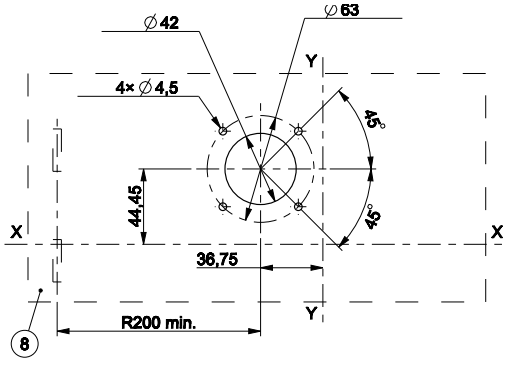
		A [mm]	B [mm]	C [mm]	D [mm]
With flange	III - IV	147.5	124.3	85.8	73.75
Without flange	III - IV	140.5	115.3	81.3	70.25

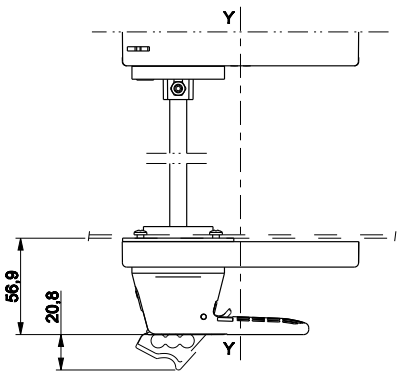
Tmax XT5 – Installation

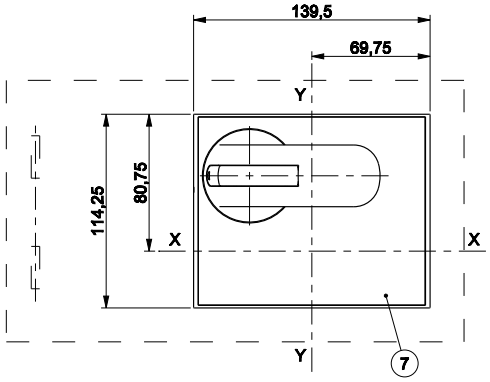
Accessories for plug-in circuit-breaker 400A

Rotary handle operating mechanism on the compartment door (RHE)





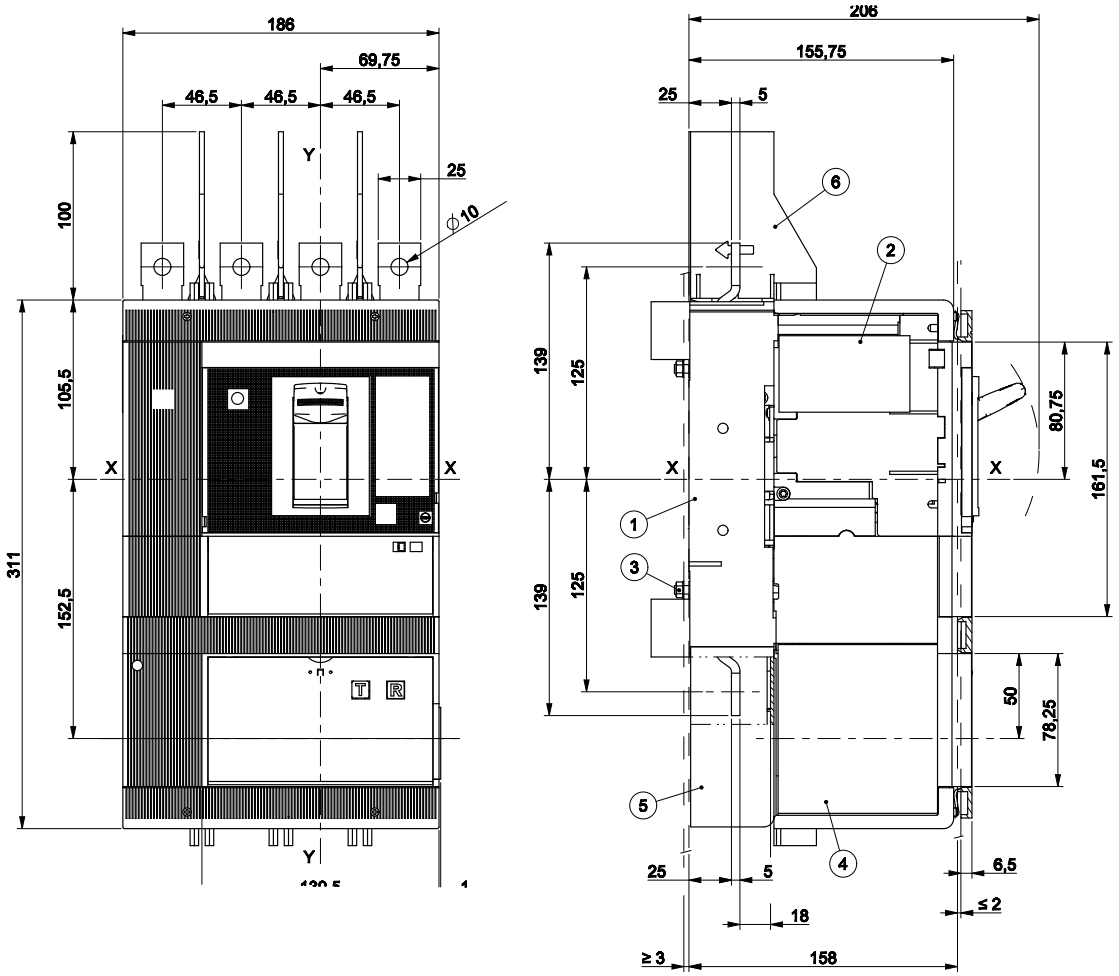




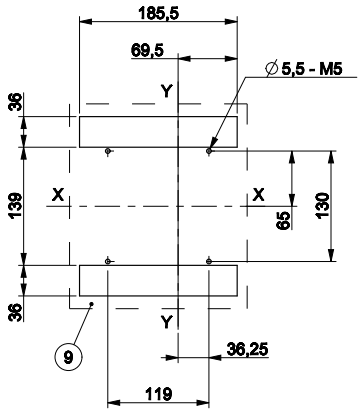
Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Rotary handle operating mechanism base (RHE_B)
6 500mm transmission ROD (RHE_S)
7 Rotary handle on compartment door (RHE_H)
8 Compartment door sheet steel drilling

Residual current RC



Drilling template for support sheet



—

Key

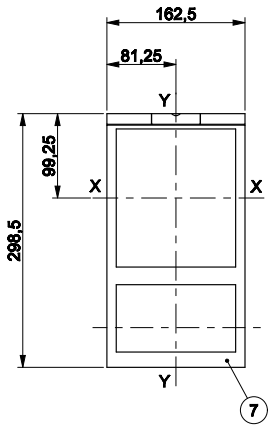
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Residual current release
5 Terminal cover for residual current release
8 Fixing on sheet steel

Tmax XT5 – Installation

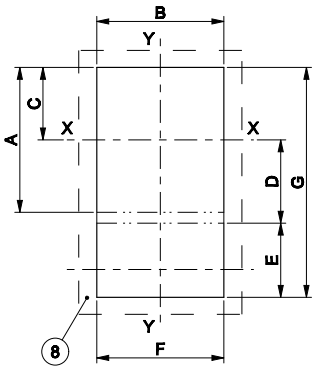
Accessories for plug-in circuit-breaker 400A

Flange

—
Key
6 Flange for the compartment door
7 Compartment door sheet steel drilling with/without flange



Drilling template compartment door



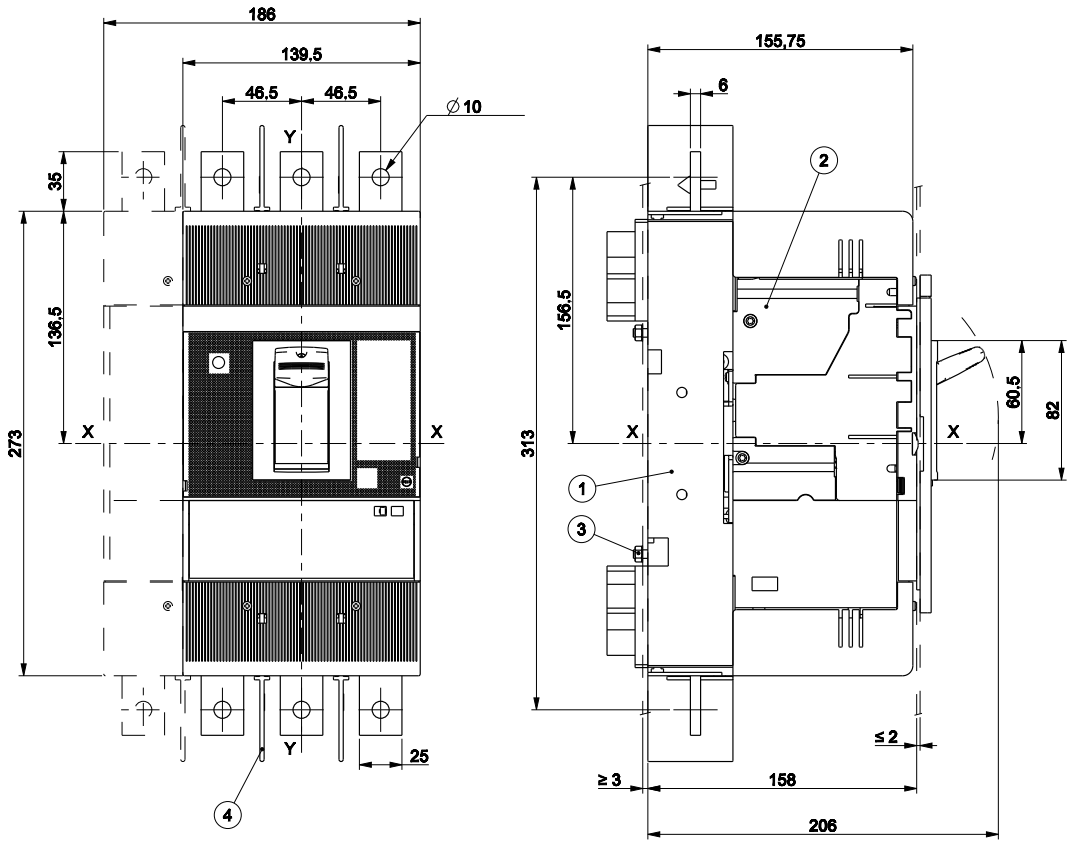
		A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]
With flange	III - IV	-	147.5	84.8	-	-	147.5	269.5
Without flange	III - IV	163.5	141.5	81.8	101.5	80.3	141.5	-

Tmax XT5 – Installation

Installation for plug-in circuit-breaker 630A

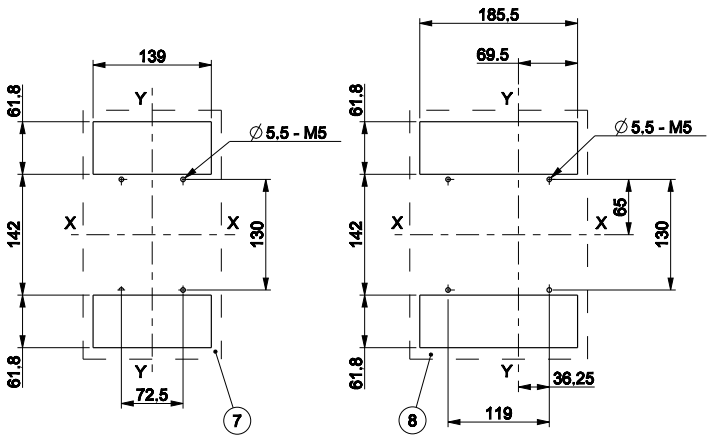
Fixing on sheet

—
Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided



Drilling templates for support sheet

—
Key
7 Fixing on sheet steel III
8 Fixing on sheet steel IV

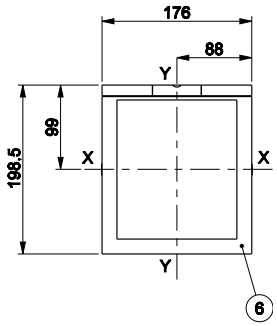


Tmax XT5 – Installation

Installation for plug-in circuit-breaker 630A

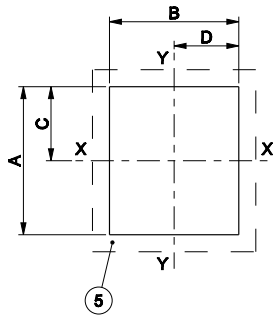
Flange

—
Key
6 Flange without gasket for the compartment door



Drilling template compartment door

—
Key
5 Compartment door sheet steel drilling with/without flange

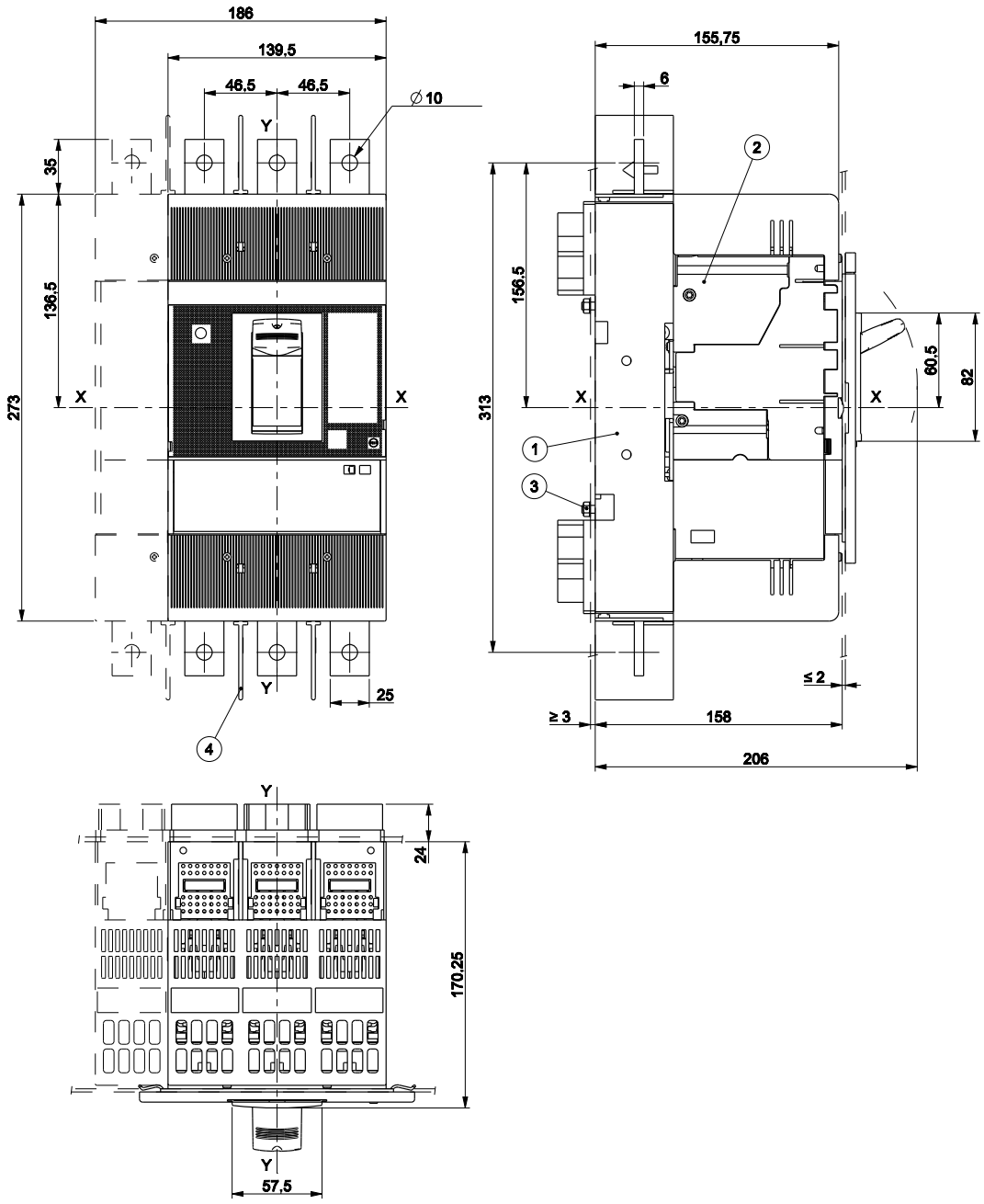


		A [mm]	B [mm]	C [mm]	D [mm]
With flange	III - IV	174	152	87	76
Without flange	III - IV	165	143	82.5	71.5

Tmax XT5 – Installation

Terminals for plug-in circuit-breaker 630A

Terminals EF



—

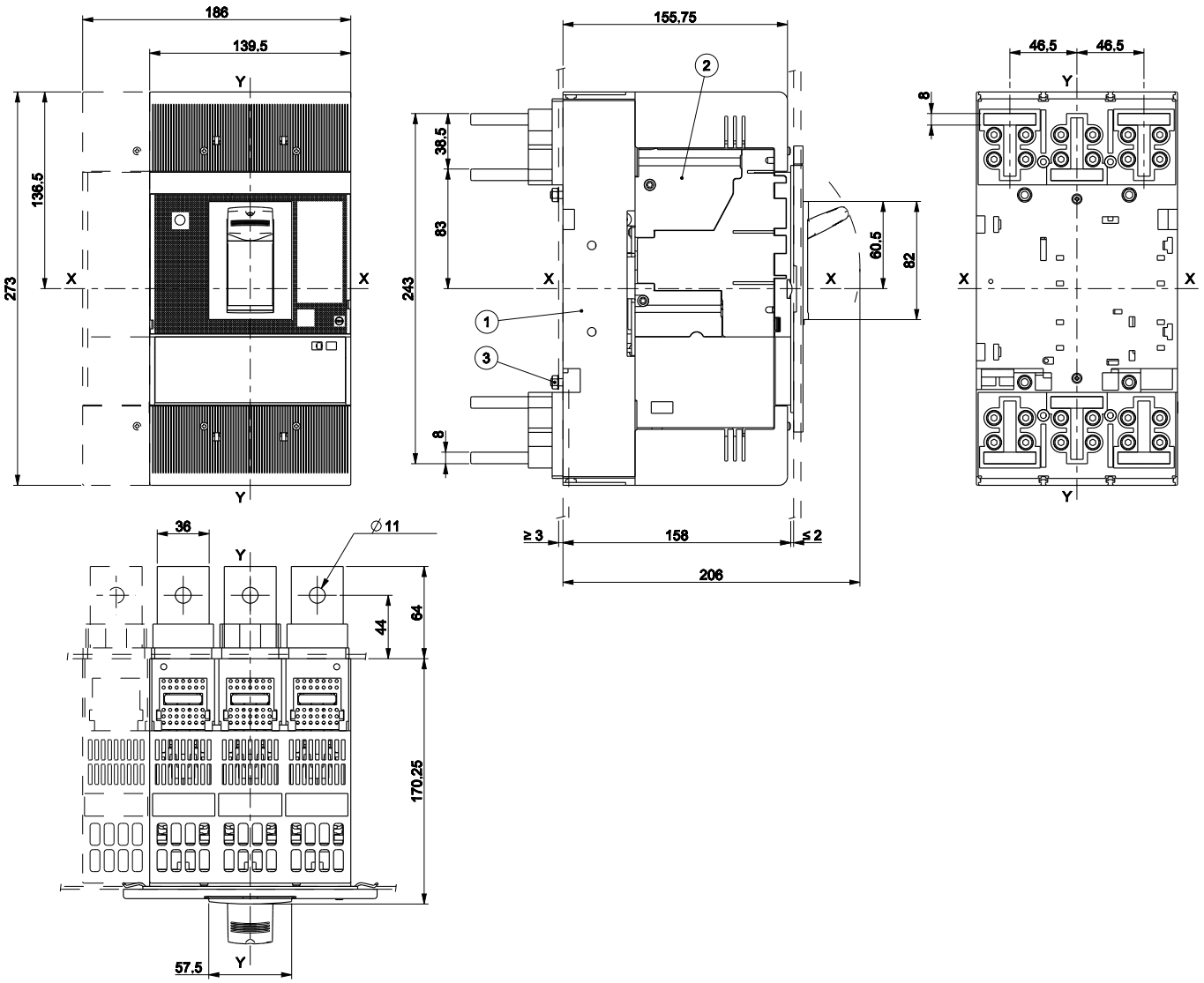
Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided

Tmax XT5 – Installation

Terminals for plug-in circuit-breaker 630A

Terminals HR

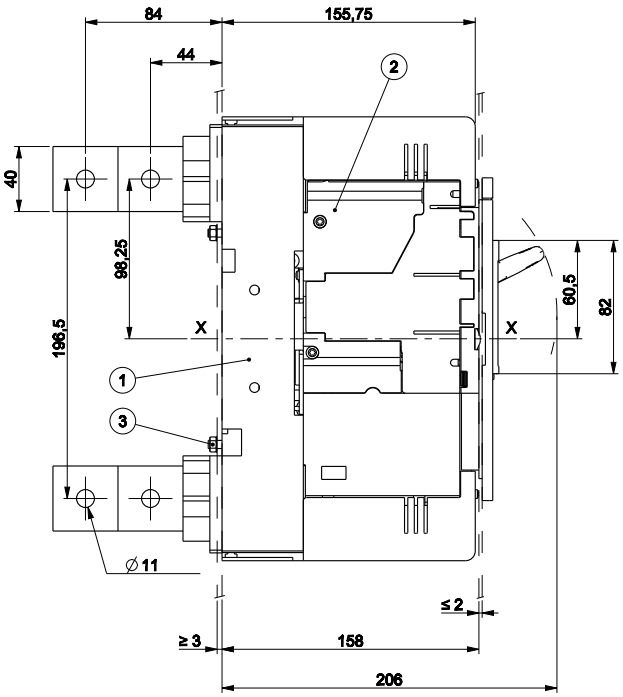


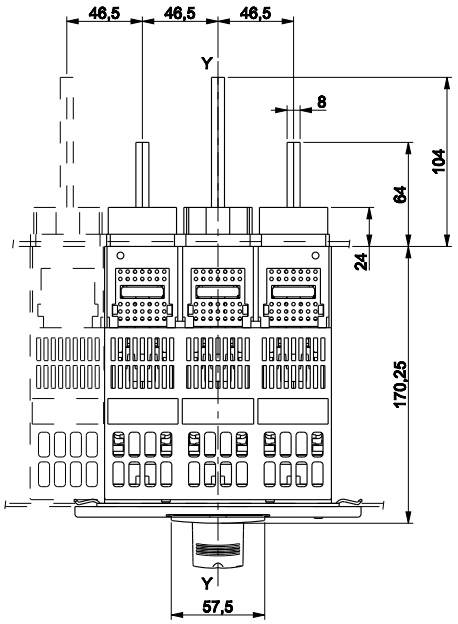
—

Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm

Terminals VR



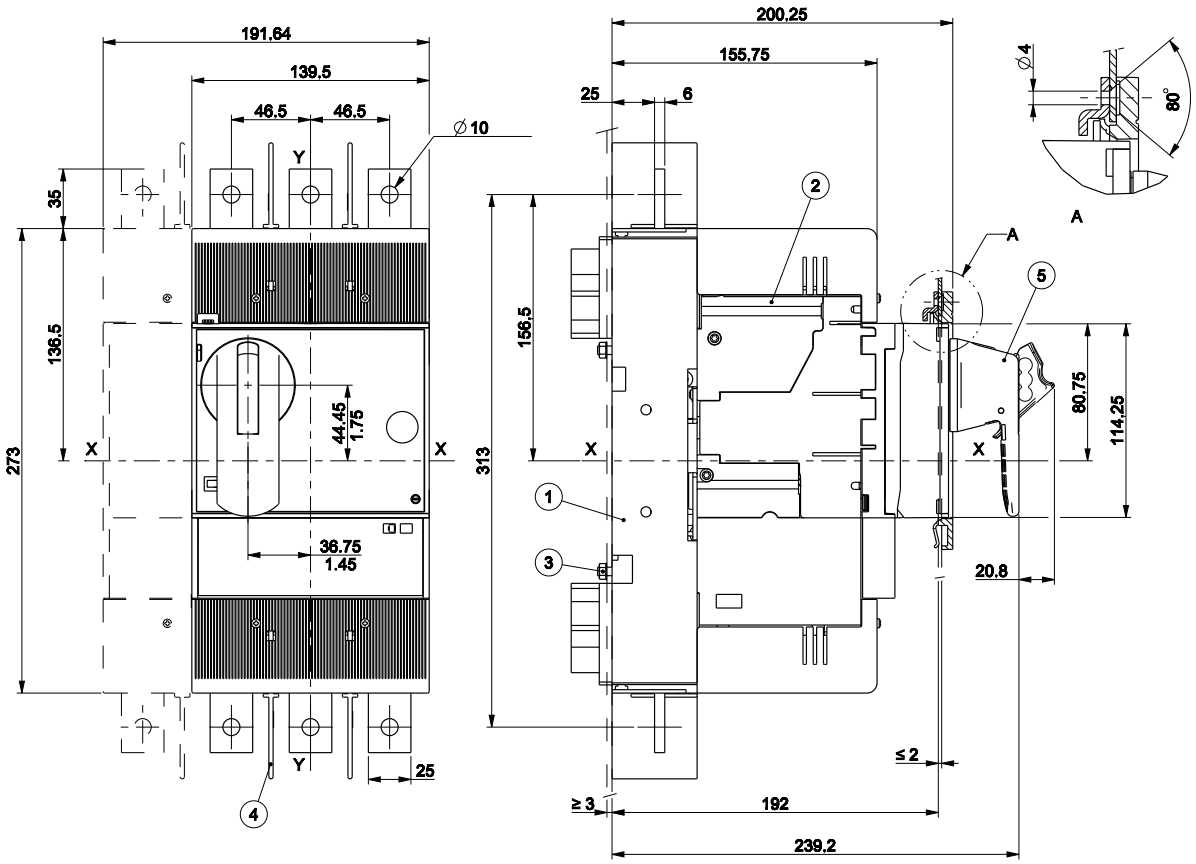


—
Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm

Tmax XT5 – Installation

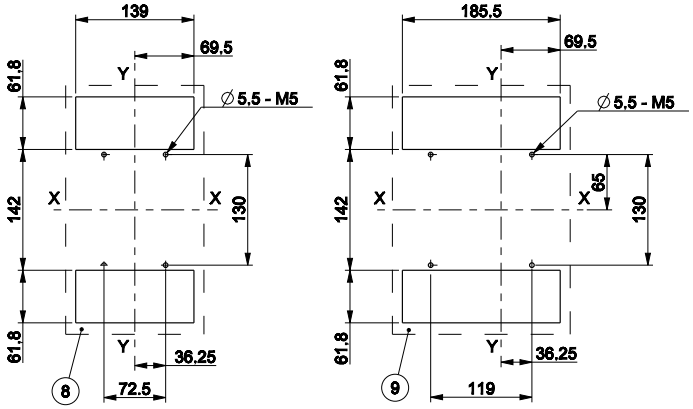
Accessories for plug-in circuit-breaker 630A

Rotary handle operating mechanism on the circuit-breaker (RHD)



Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Direct rotary handle operating mechanism (RHD)

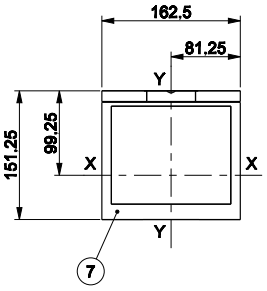
Drilling templates for support sheet



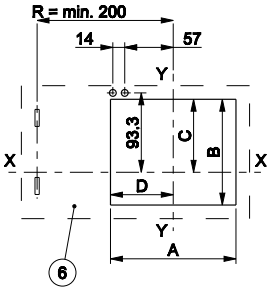
Key
8 Fixing on sheet steel III
9 Fixing on sheet steel IV

Flange

—
Key
6 Compartment door sheet steel drilling with/without flange
7 Flange for the compartment door



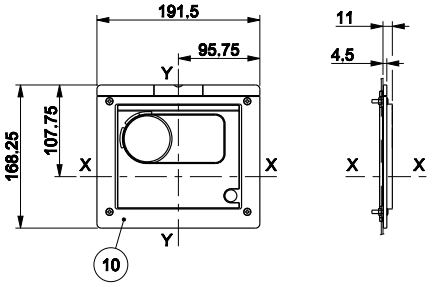
Drilling template compartment door



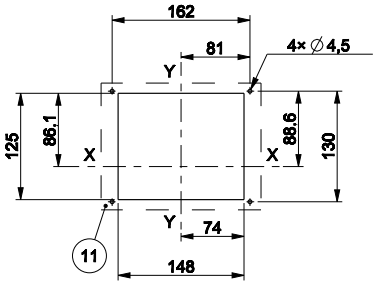
		A [mm]	B [mm]	C [mm]	D [mm]
With flange	III - IV	147.5	124.3	85.8	73.75
Without flange	III - IV	140.5	115.3	81.3	70.25

Flange IP54

—
Key
10 IP54 flange for the compartment door
11 Comparment door sheet steel drilling with IP54 flange



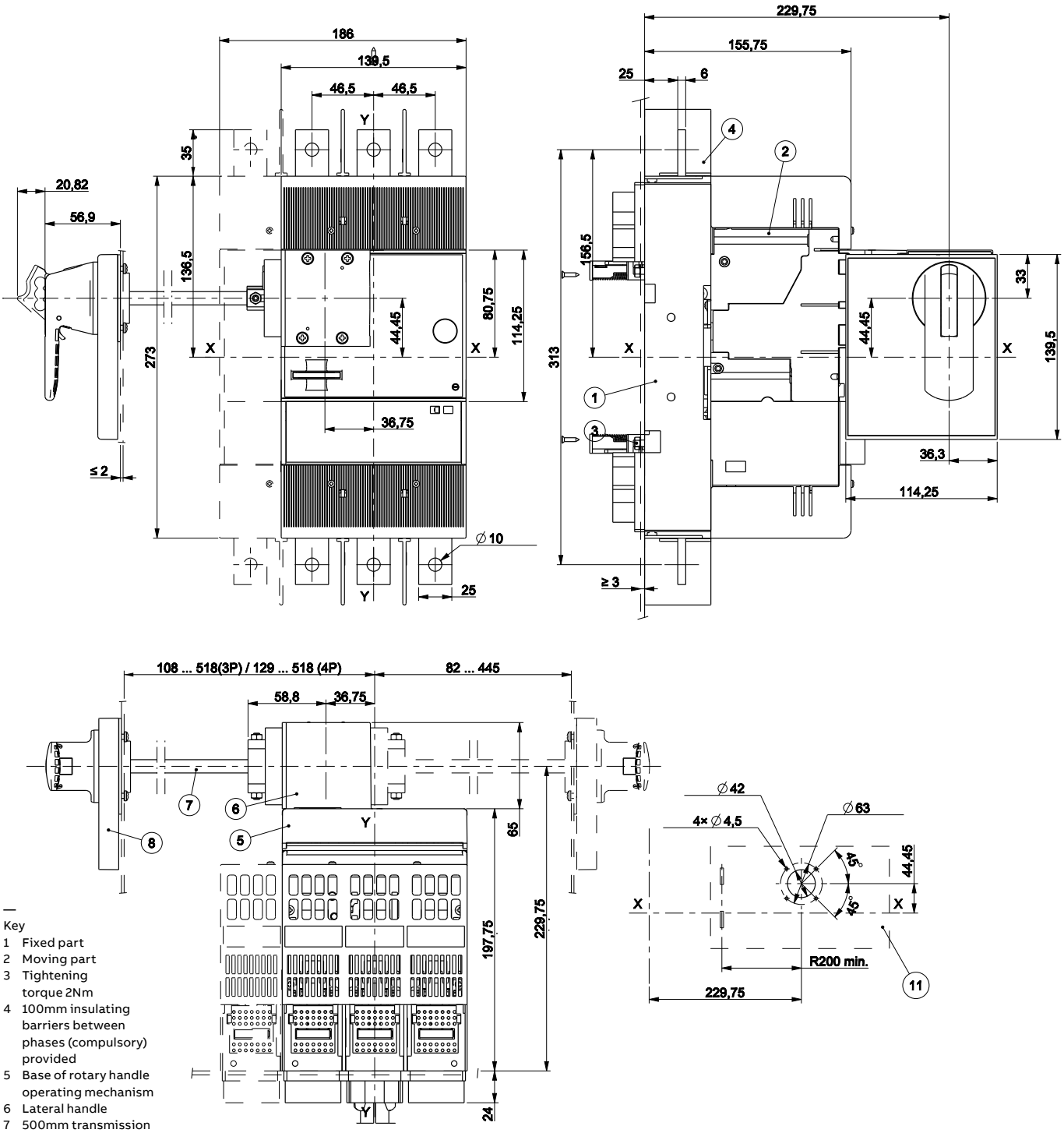
Drilling template compartment door with flange IP54



Tmax XT5 – Installation

Accessories for plug-in circuit-breaker 630A

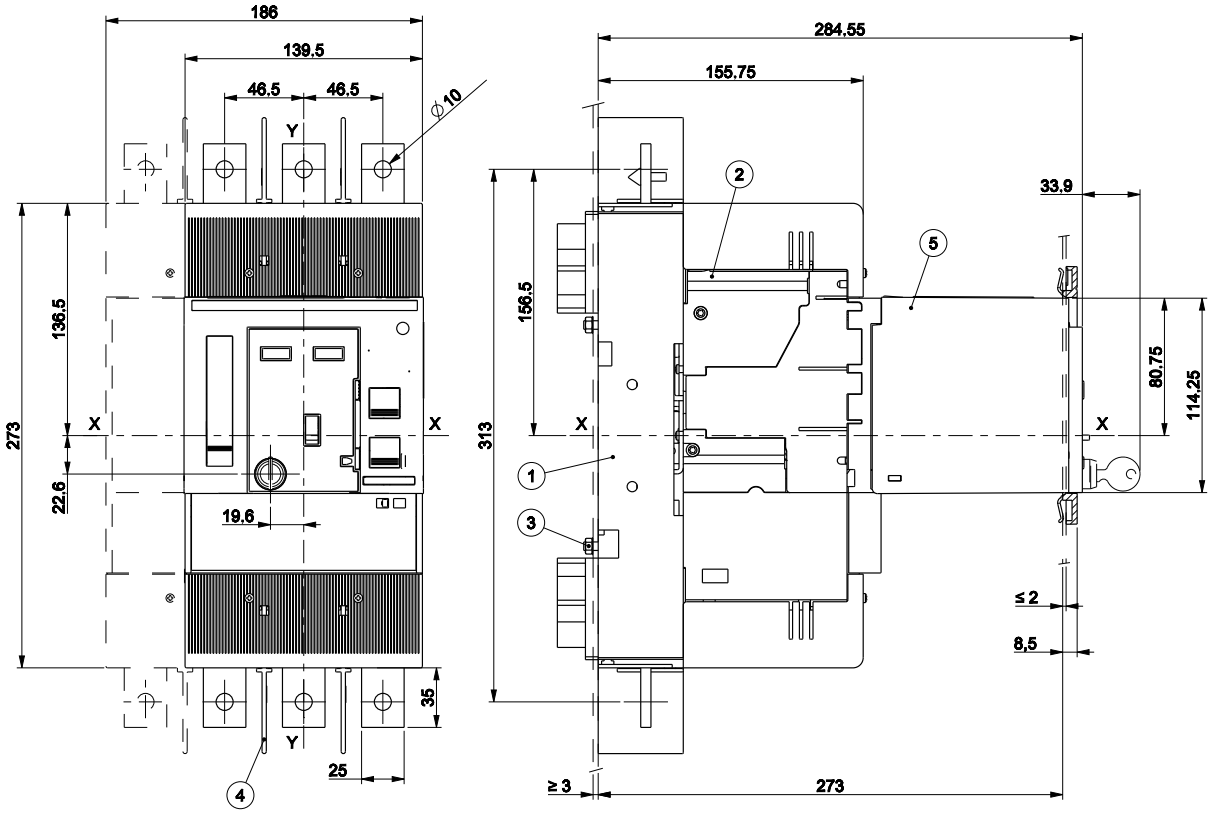
Lateral rotary handle operating mechanism on the compartment door (RHL)



Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Base of rotary handle operating mechanism
6 Lateral handle
7 500mm transmission ROD
8 Rotary handle on compartment door
11 Compartment door sheet steel drilling

Stored energy motor operator (MOE)

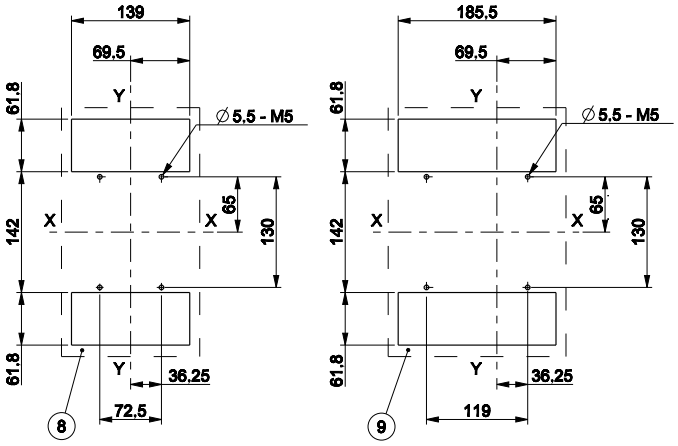


—

Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Stored energy motor operator (MOE)

Drilling templates for support sheet



—

Key

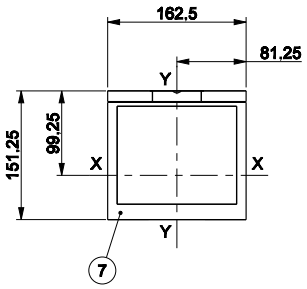
8 Fixing on sheet steel III
9 Fixing on sheet steel IV

Tmax XT5 – Installation

Accessories for plug-in circuit-breaker 630A

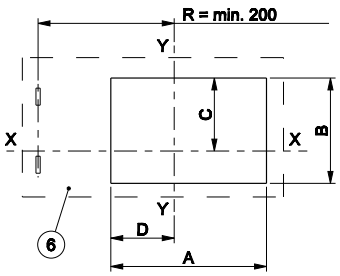
Flange

Key
7 Flange without gasket for the compartment door



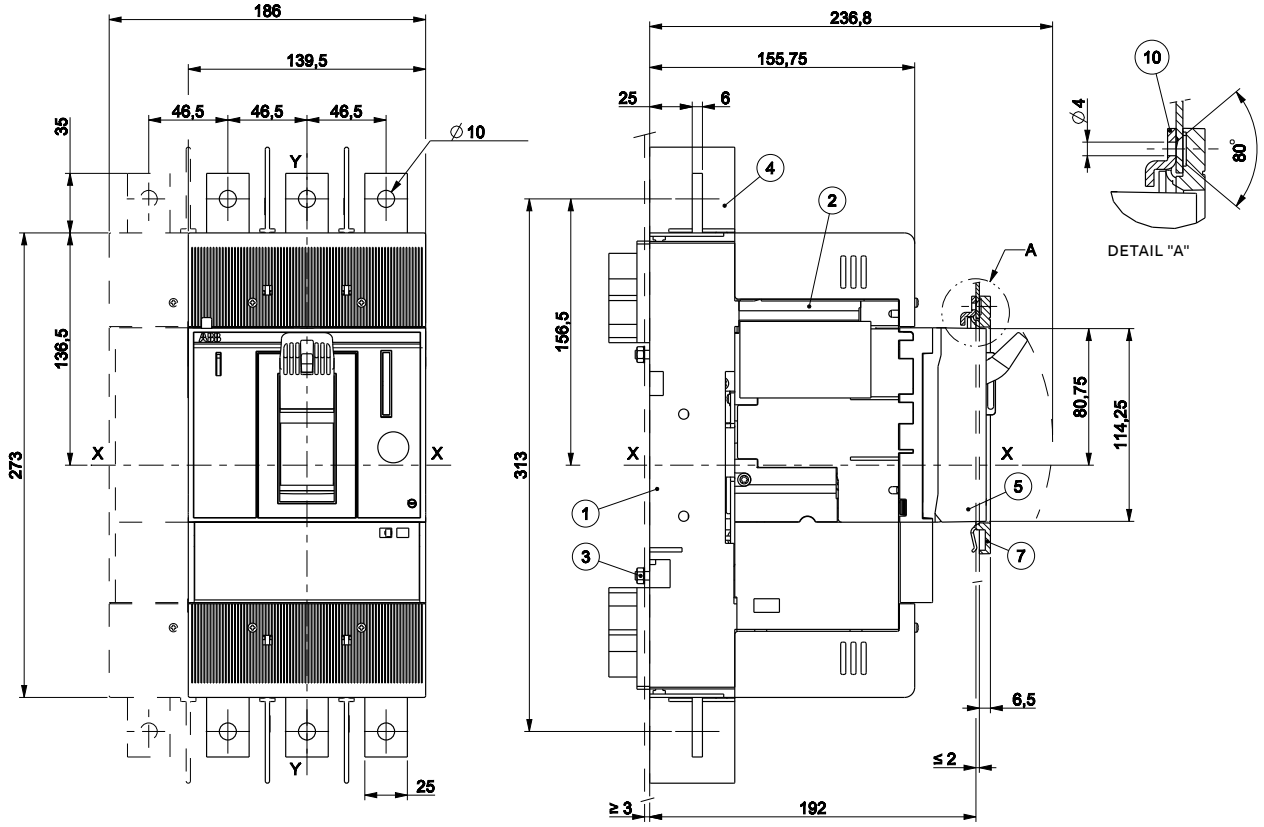
Drilling template compartment door

Key
6 Compartment door sheet steel drilling of compartment door with/without flange

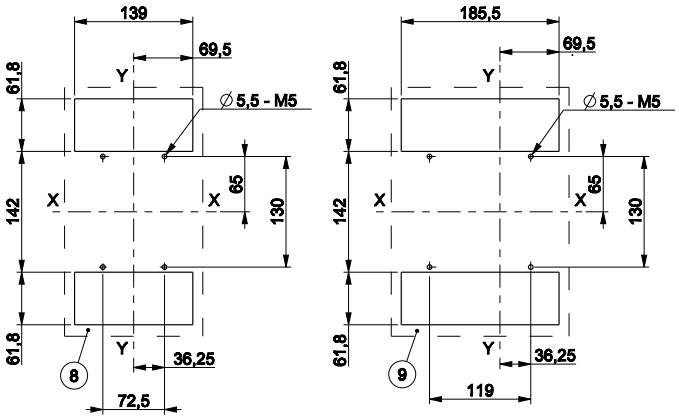


		A [mm]	B [mm]	C [mm]	D [mm]
With flange	III - IV	147.5	124.3	85.8	73.75
Without flange	III - IV	140.5	115.3	81.3	70.25

Front for lever operating mechanism (FLD)



Drilling templates for support sheet



—

Key

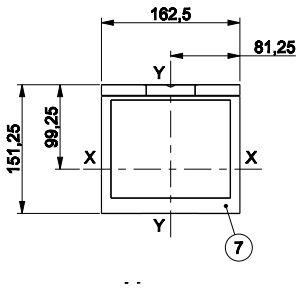
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Front for lever operating mechanism (FLD)
6 Compartment door sheet steel drilling with/without flange
7 Flange without gasket for the compartment door
8 Fixing on sheet steel III
9 Fixing on sheet steel IV
10 Door lock

Tmax XT5 – Installation

Accessories for plug-in circuit-breaker 630A

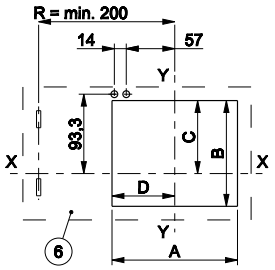
Flange

—
Key
7 Flange without gasket for the compartment door



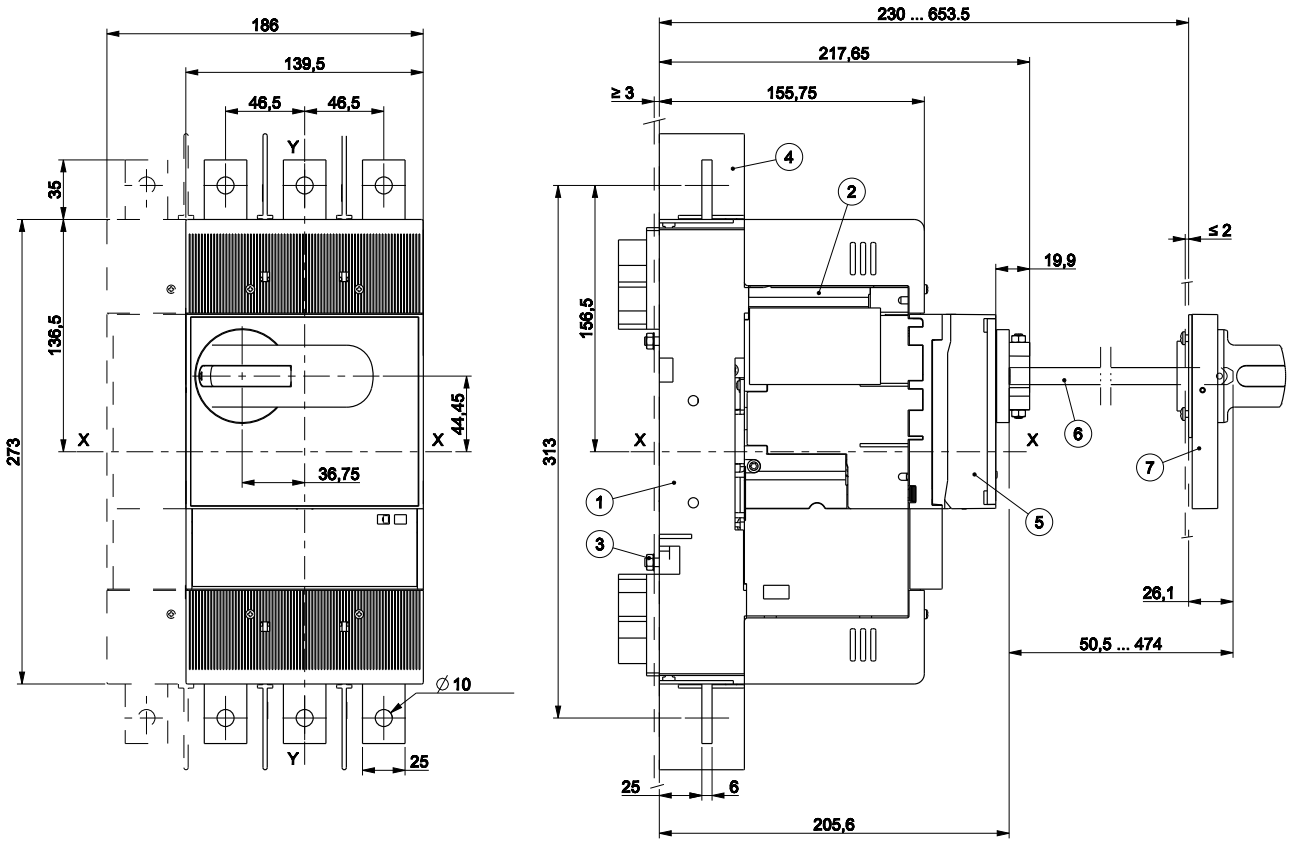
Drilling template compartment door

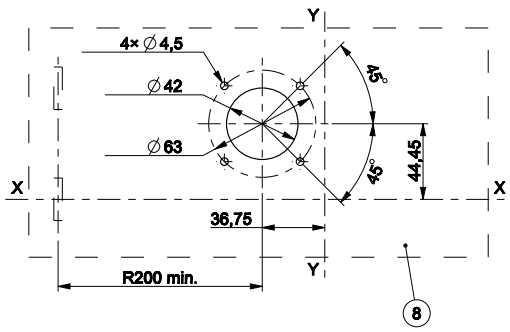
—
Key
6 Compartment door sheet steel drilling with/without flange

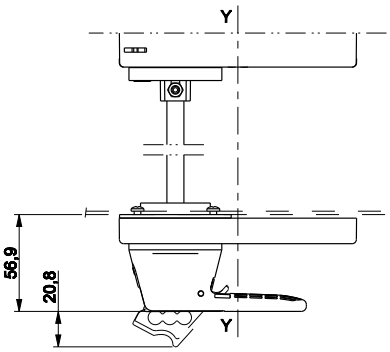


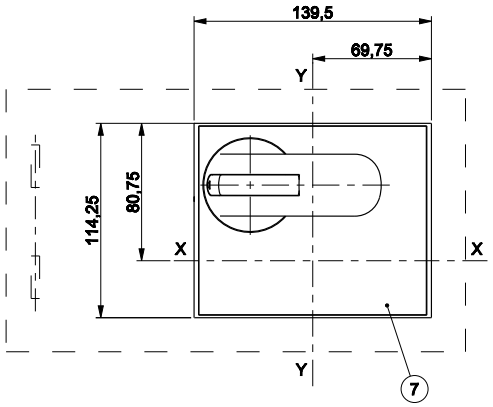
		A [mm]	B [mm]	C [mm]	D [mm]
With flange	III - IV	147.5	124.3	85.8	73.75
Without flange	III - IV	140.5	115.3	81.3	70.25

Rotary handle operating mechanism on the compartment door (RHE)









—

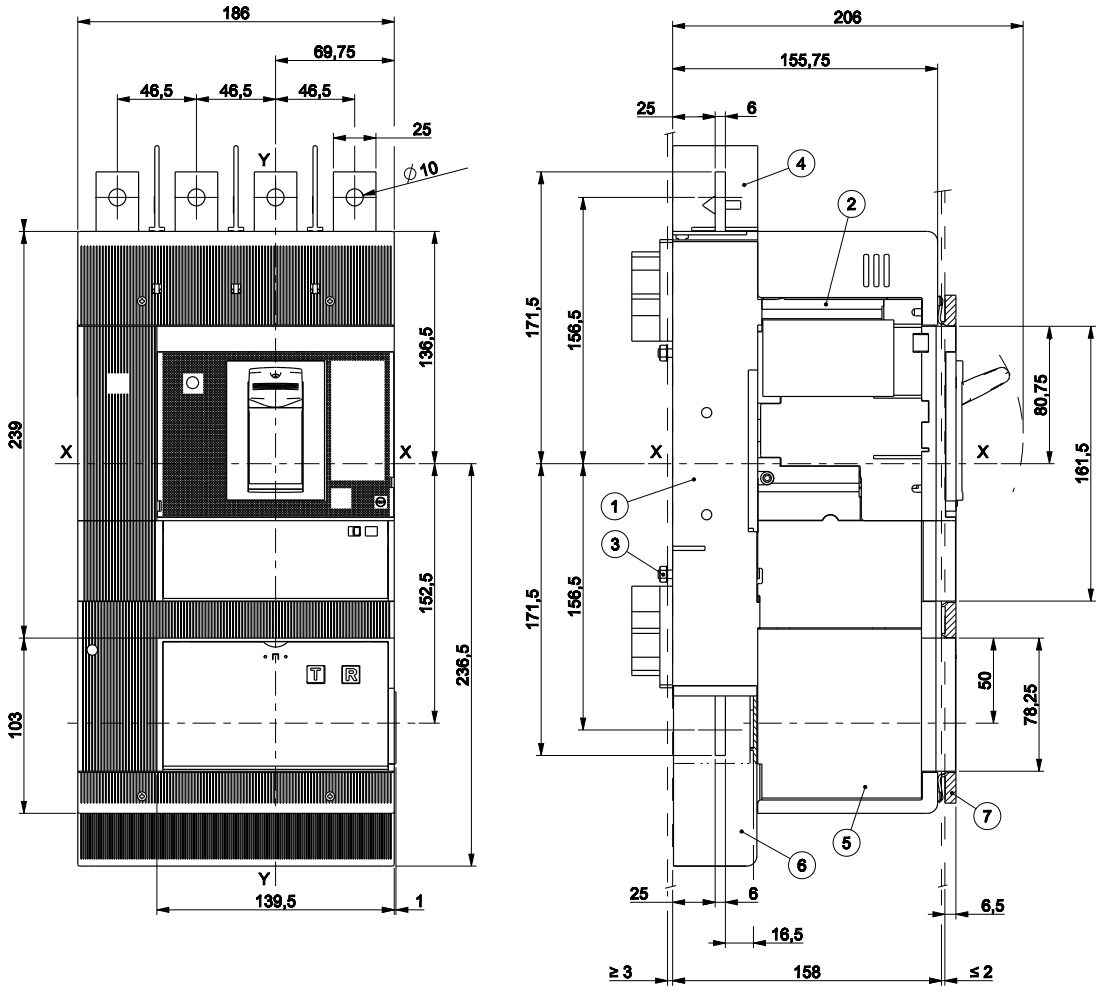
Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Rotary handle operating mechanism base (RHE_B)
6 500mm transmission ROD (RHE_S)
7 Rotary handle on compartment door (RHE_H)
8 Compartment door sheet steel drilling

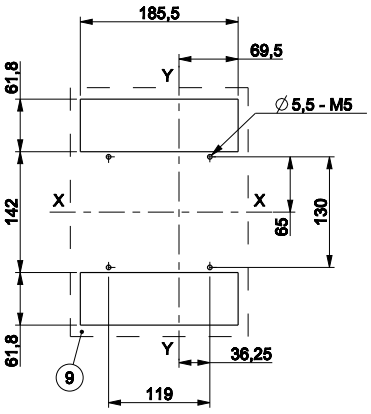
Tmax XT5 – Installation

Accessories for plug-in circuit-breaker 630A

Residual current RC



Drilling template for support sheet



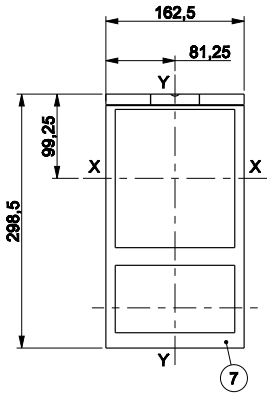
—

Key

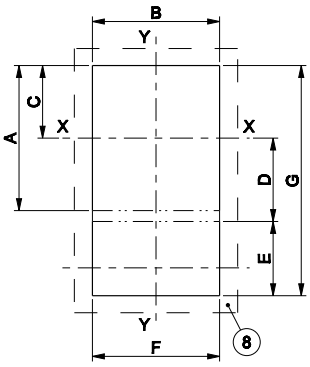
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Residual current release
6 Terminal cover for residual current release
9 Fixing on sheet steel

Flange

—
Key
7 Flange for the compartment door
8 Compartment door sheet steel drilling with/without flange



Drilling template compartment door

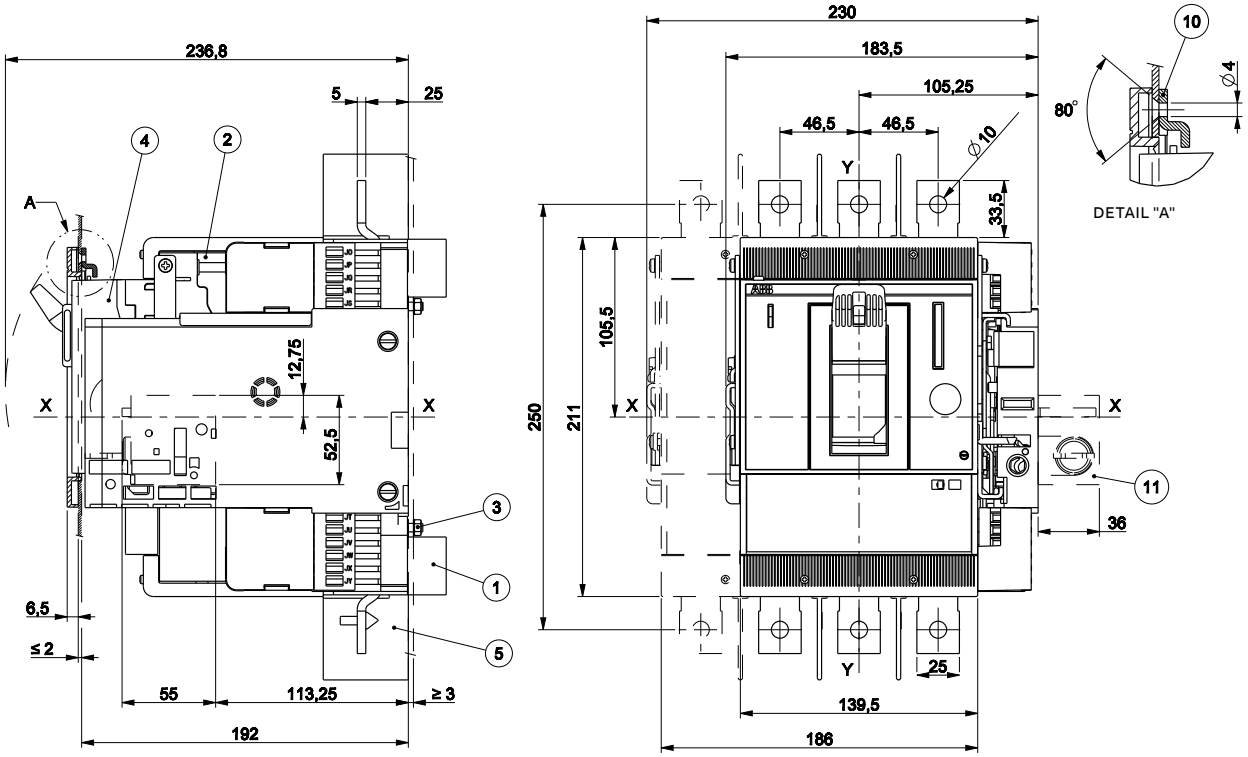


		A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]
With flange	III - IV	-	147.5	84.8	-	-	147.5	269.5
Without flange	III - IV	163.5	141.5	81.8	101.5	80.3	141.5	-

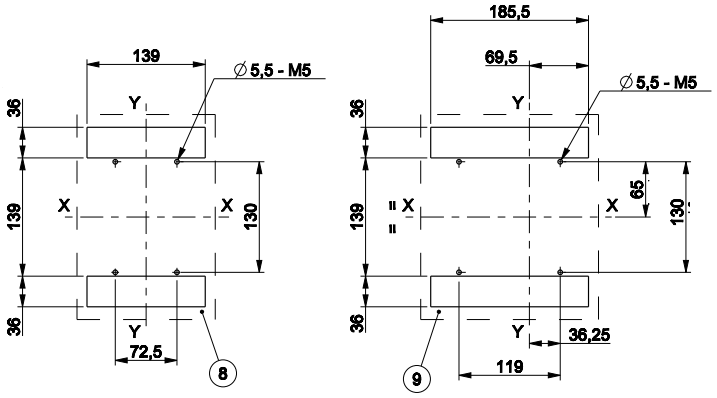
Tmax XT5 – Installation

Installation for withdrawable circuit-breaker 400A

Fixing on sheet



Drilling templates for support sheet



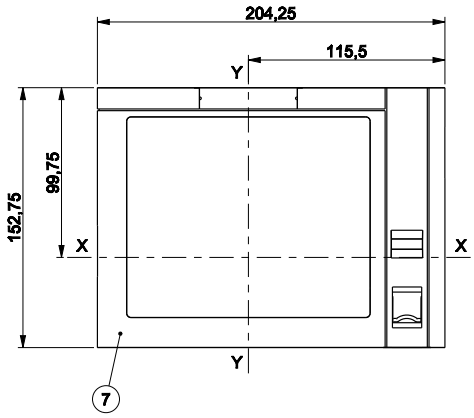
—

Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Front for lever operating mechanism (fld)
5 100mm insulating barriers between phases (optional)
8 Fixing on sheet steel III
9 Fixing on sheet steel IV
10 Door lock
11 Key lock for fixed part

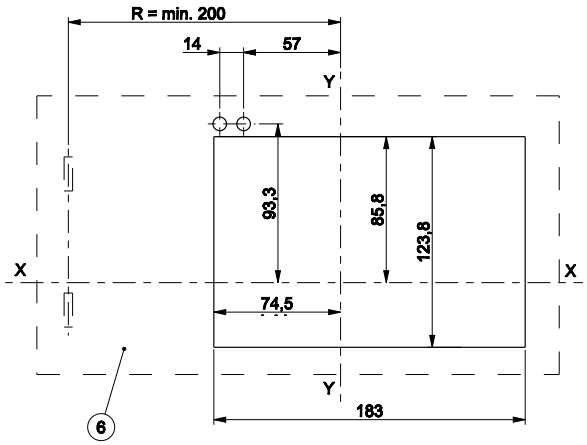
Flange

—
Key
7 Flange without gasket for the compartment door



Drilling template compartment door

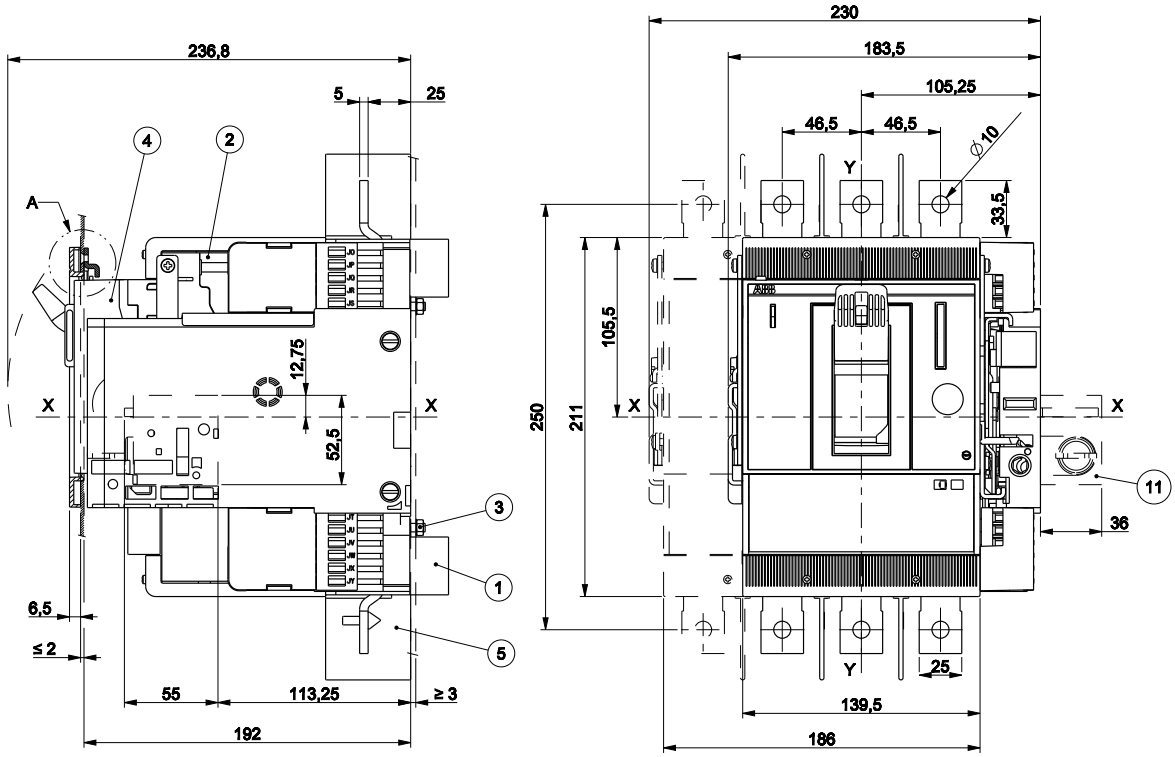
—
Key
6 Compartment door sheet steel drilling with flange



Tmax XT5 – Installation

Terminals for withdrawable circuit-breaker 400A

Terminals EF

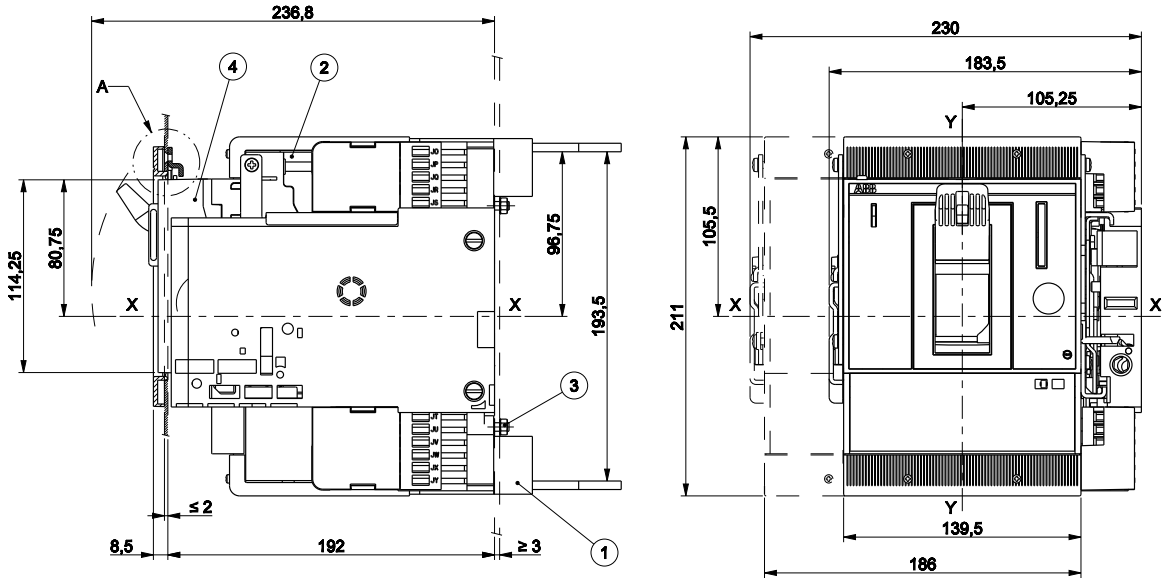


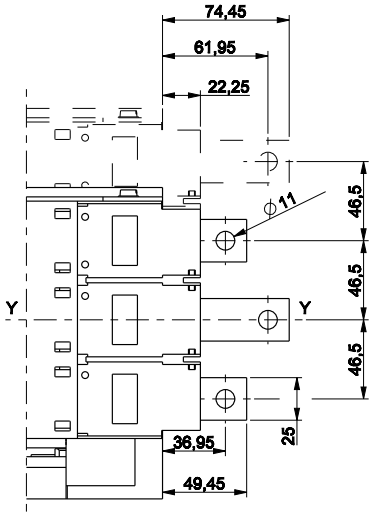
—

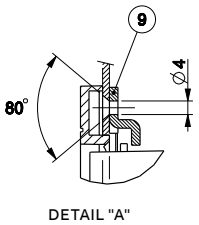
Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Front for lever operating mechanism (fld)
5 100mm insulating barriers between phases (optional)
10 Door lock
11 Key lock for fixed part

Terminals HR







DETAIL "A"

—

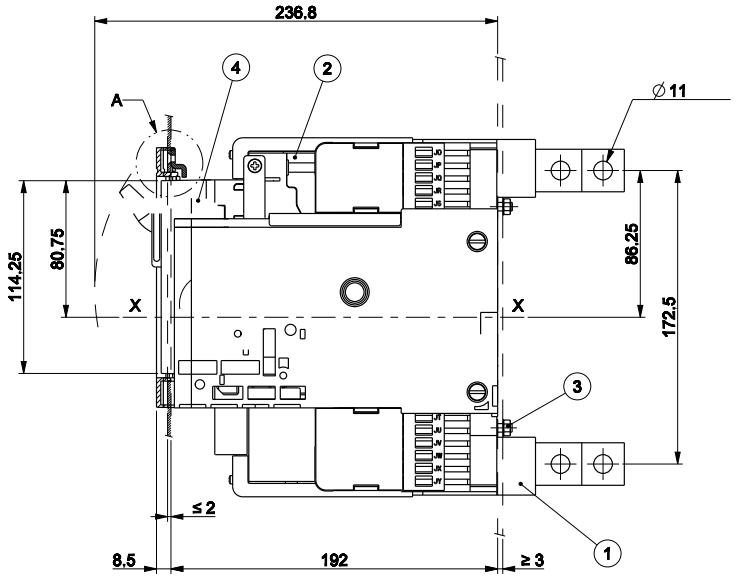
Key

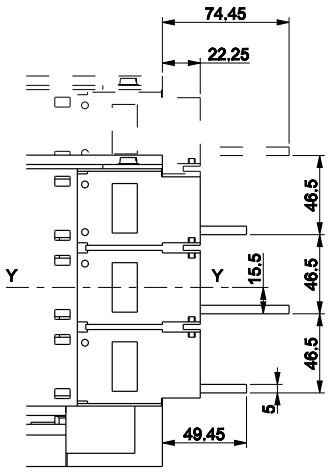
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Front for lever operating mechanism (FLD)
9 Door lock

Tmax XT5 – Installation

Terminals for withdrawable circuit-breaker 400A

Terminals VR



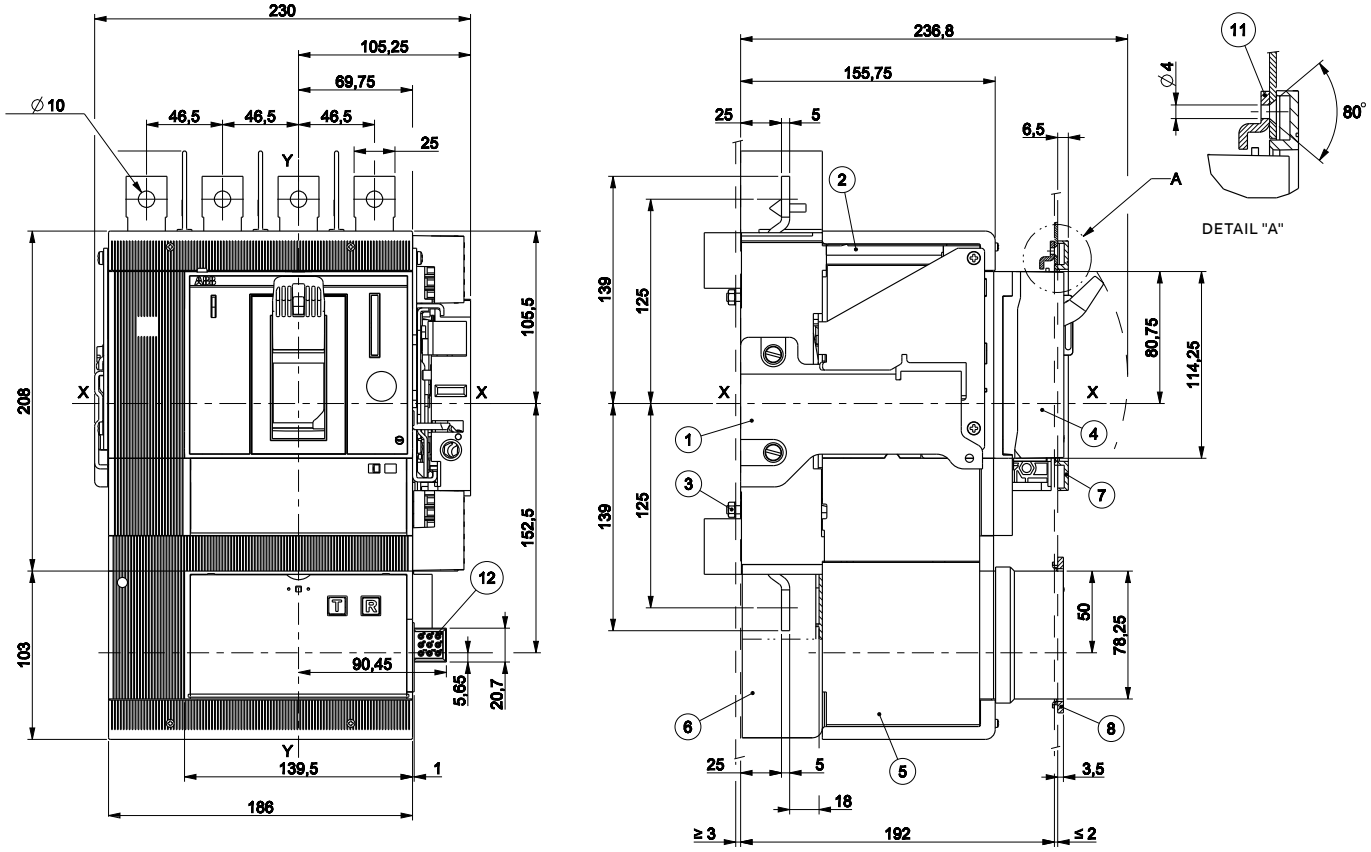


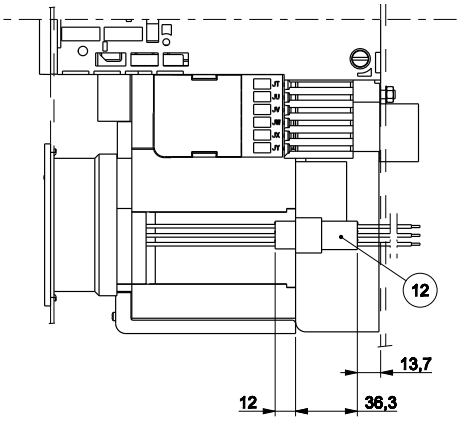
—

Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Front for lever operating mechanism (FLD)

Residual current (RC) and Front for lever operating mechanism (FLD)





—

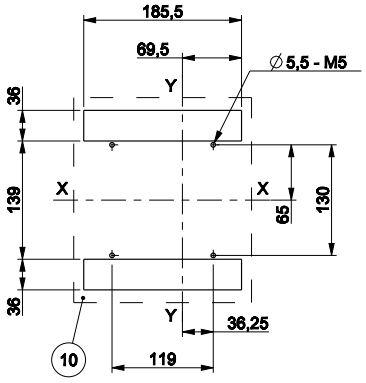
Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Front for operating lever mechanism
5 Residual current release
6 Terminal cover for residual current release
7 Flange for the compartment door
8 Flange for residual current release
11 Door lock plate
12 Plup and socket adapter for residual current release

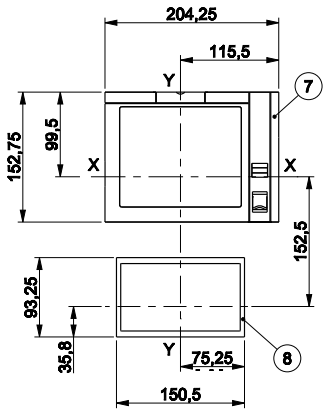
Tmax XT5 – Installation

Terminals for withdrawable circuit-breaker 400A

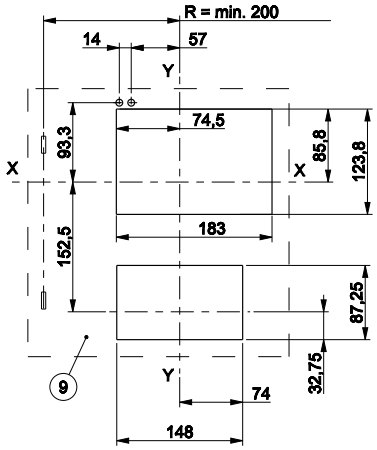
Drilling template for support sheet



Flange



Drilling template compartment door



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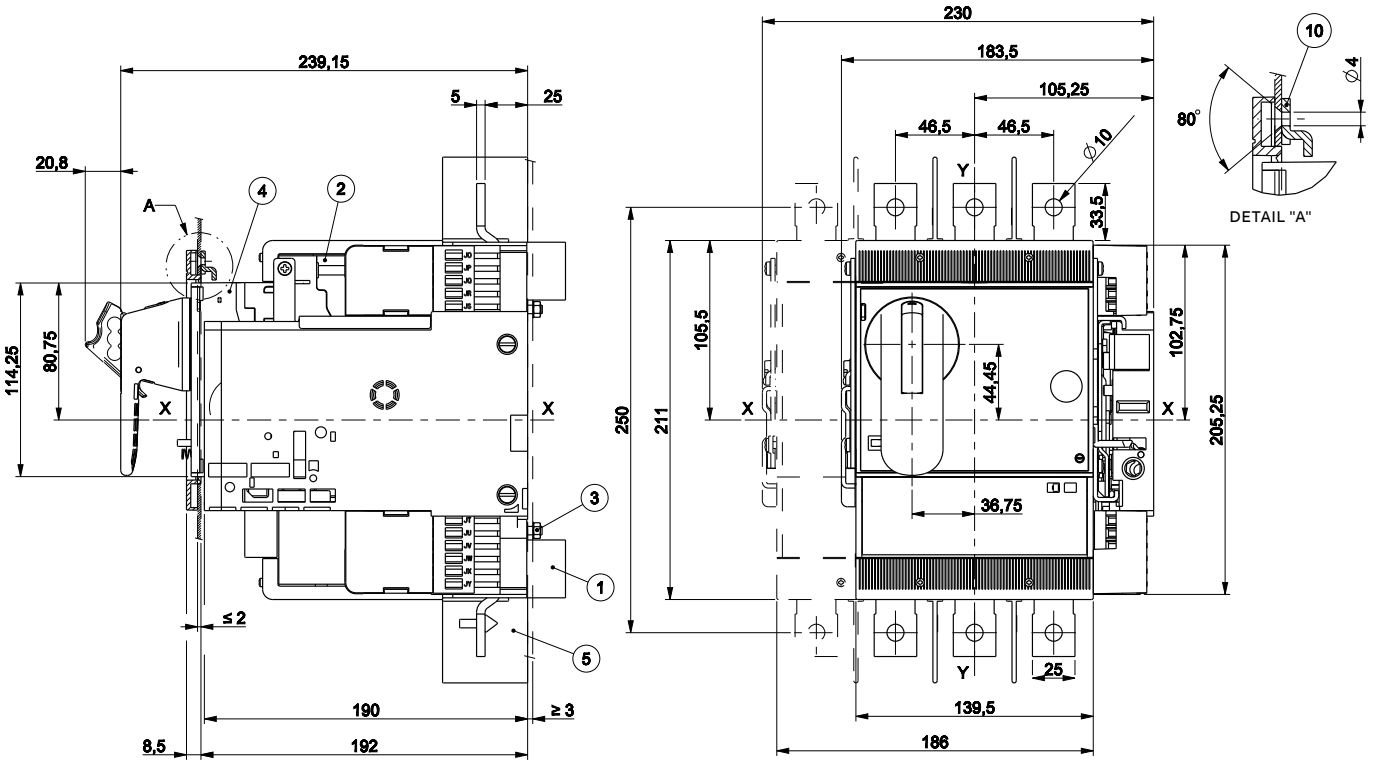
Key

7 Flange for the compartment door
8 Flange for residual current release
9 Compartment door sheet steel drilling with/without flange
10 Fixing on sheet steel

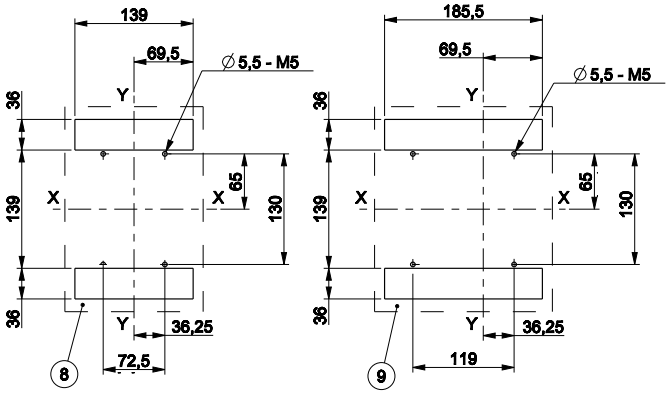
Tmax XT5 – Installation

Accessories for withdrawable circuit-breaker 400A

Rotary handle operating mechanism on the circuit-breaker (RHD)



Drilling templates for support sheet



—

Key

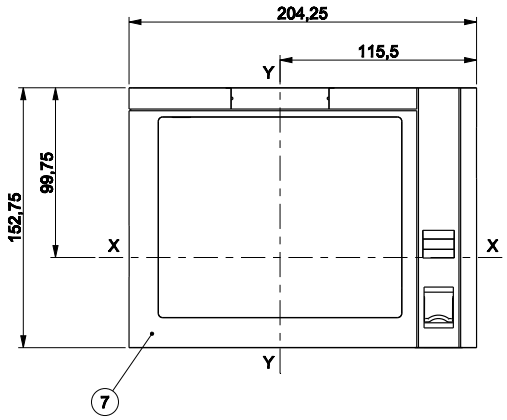
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Rotary handle operating mechanism (RHD)
5 100mm insulating barriers between phases (optional)
8 Fixing on sheet steel III
9 Fixing on sheet steel IV
10 Door lock

Tmax XT5 – Installation

Accessories for withdrawable circuit-breaker 400A

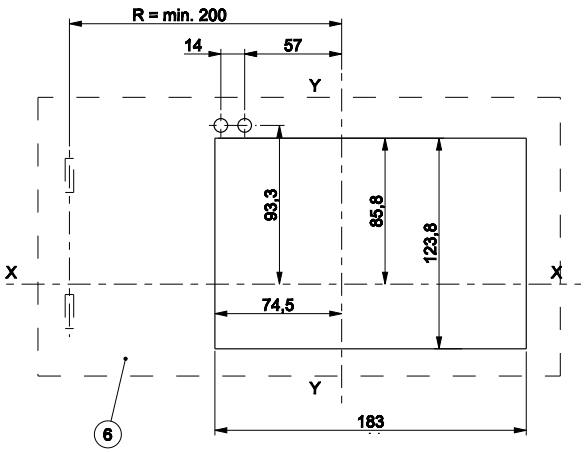
Flange

Key
7 Flange without gasket for the compartment door

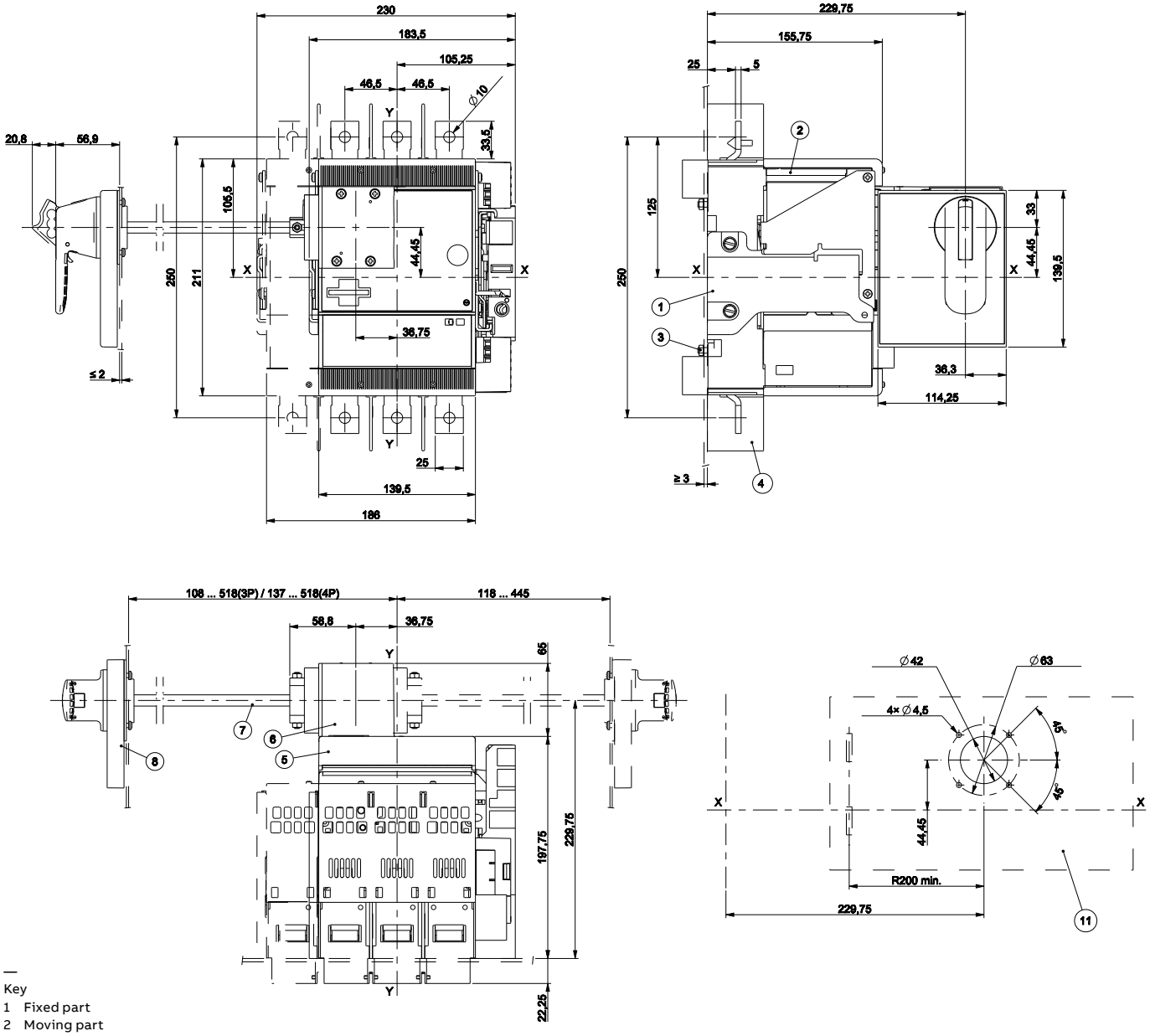


Drilling template compartment door

Key
6 Compartment door sheet steel drilling with flange



Lateral rotary handle operating mechanism on the compartment door (RHL)



—

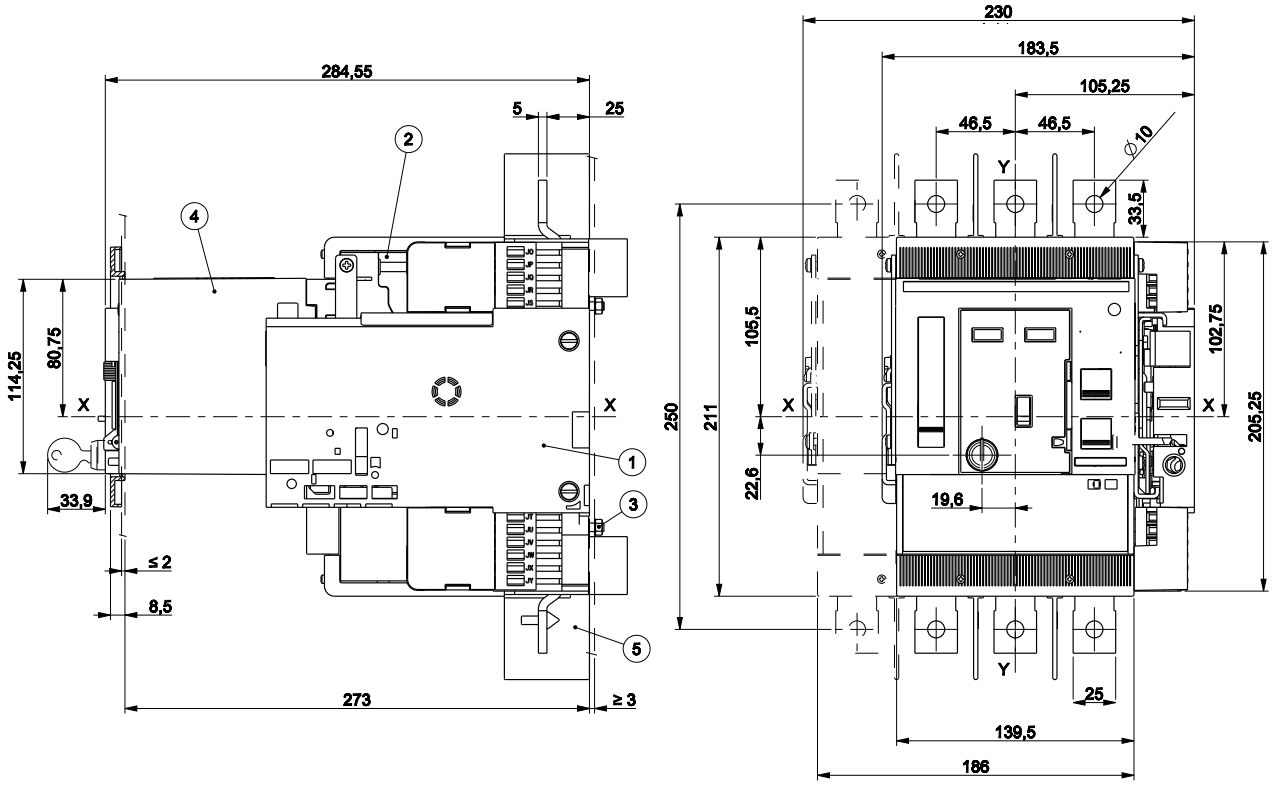
Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (optional)
5 Base of rotary handle operating mechanism
6 Lateral handle
7 Transmission ROD
8 Rotary handle on compartment door
11 Compartment door sheet steel drilling

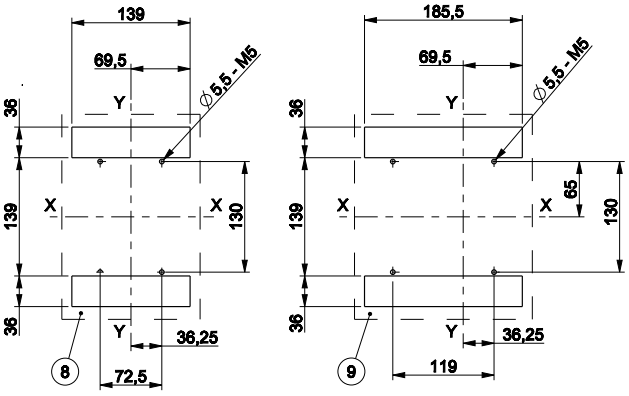
Tmax XT5 – Installation

Accessories for withdrawable circuit-breaker 400A

Stored energy motor operator (MOE)



Drilling templates for support sheet



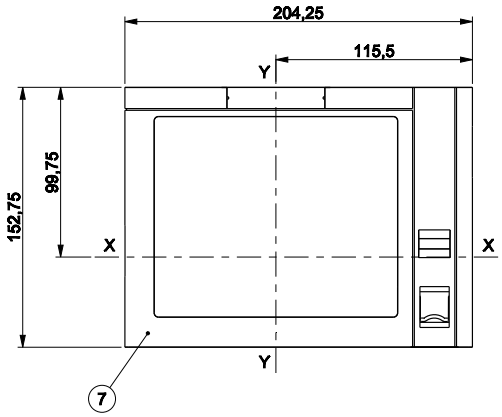
—

Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Stored energy motor operator (MOE)
5 100mm insulating barriers between phases (optional)
8 Fixing on sheet steel III
9 Fixing on sheet steel IV

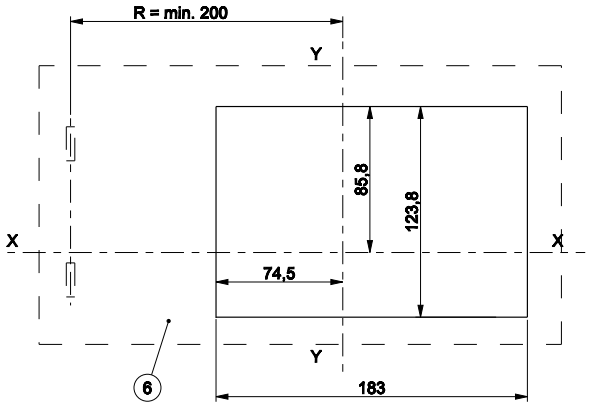
Flange

—
Key
7 Flange without gasket for the compartment door



Drilling template compartment door

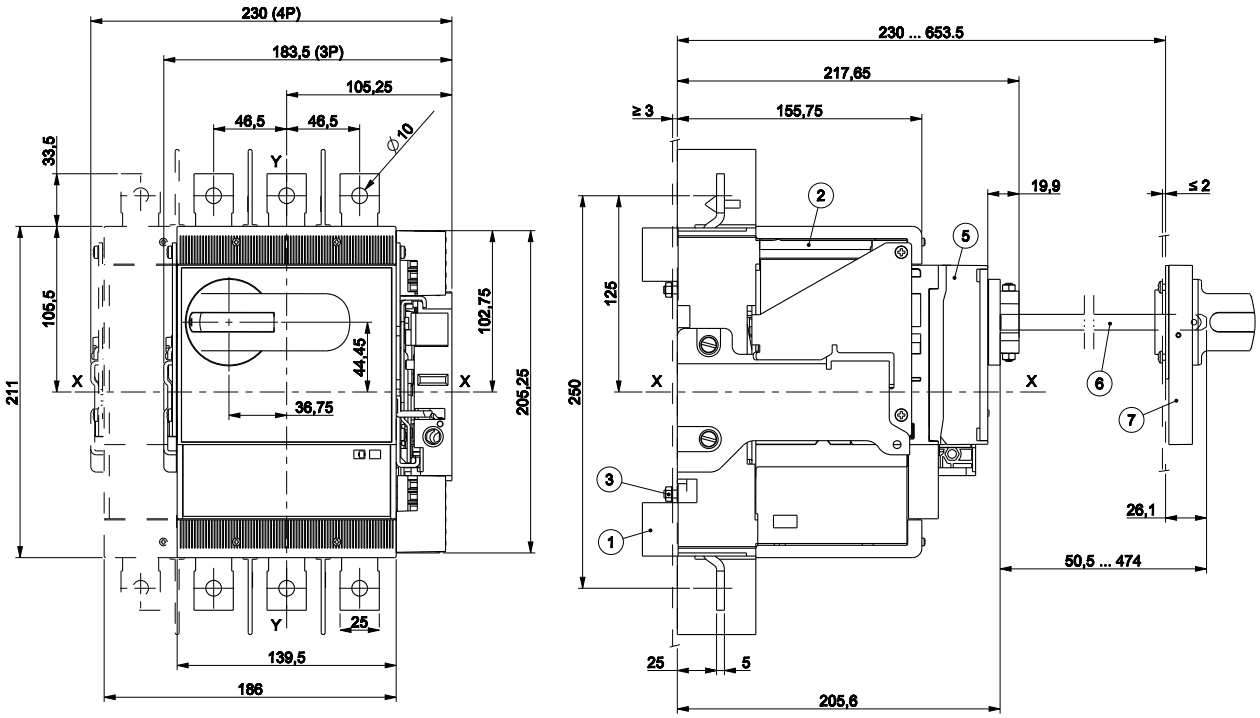
—
Key
6 Compartment door sheet steel drilling with flange

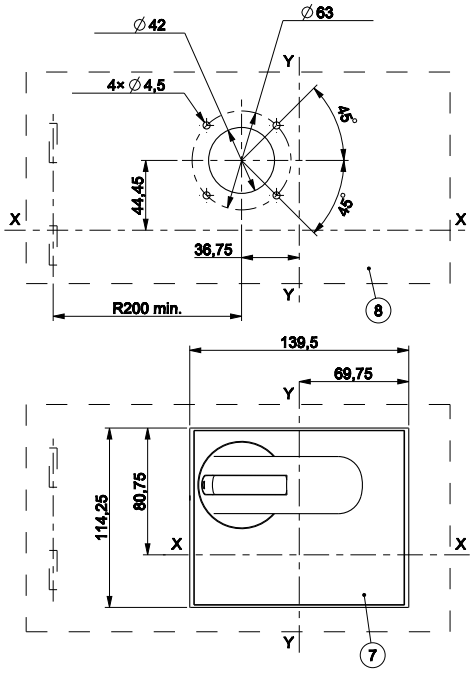


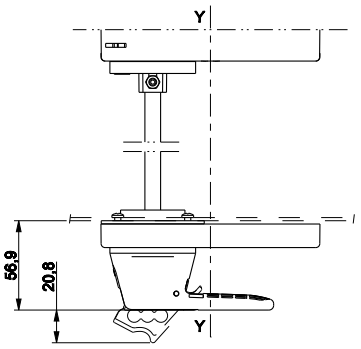
Tmax XT5 – Installation

Accessories for withdrawable circuit-breaker 400A

Rotary handle operating mechanism on the compartment door (RHE)







—

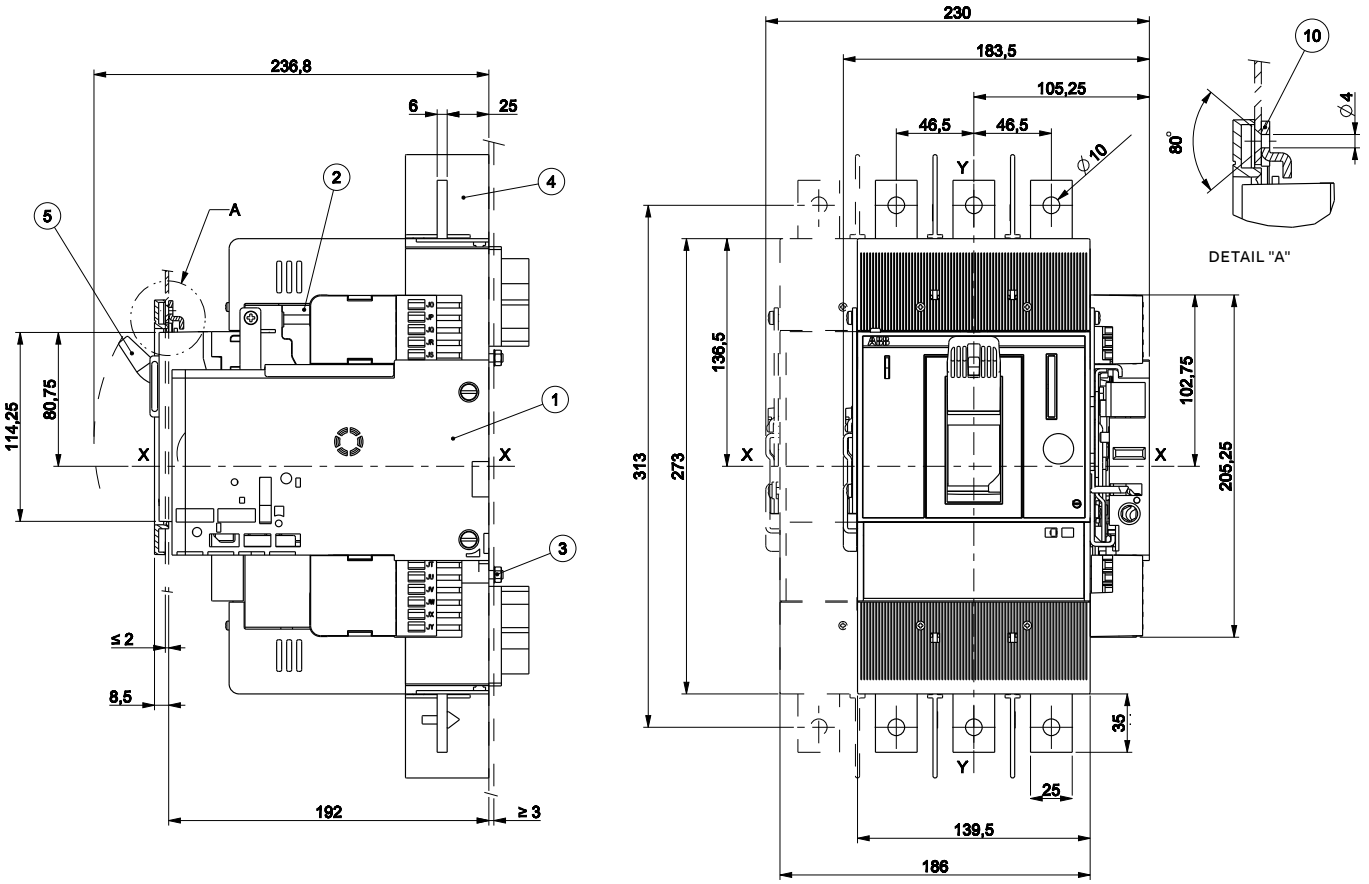
Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Rotary handle operating mechanism base (RHE_B)
6 Transmission ROD (RHE_S)
7 Rotary handle on compartment door (RHE_H)
8 Compartment door sheet steel drilling

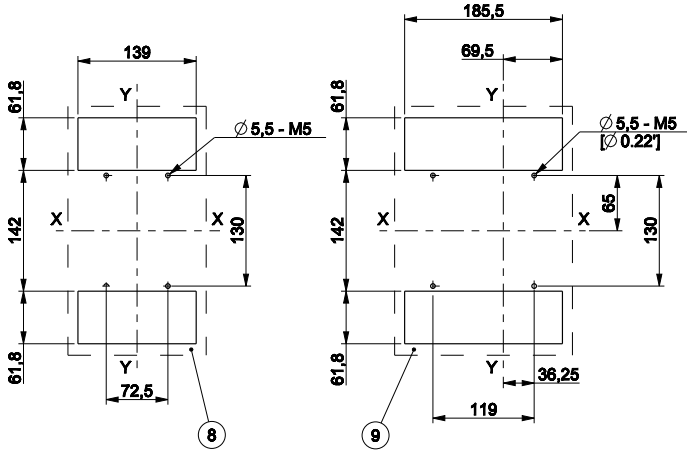
Tmax XT5 – Installation

Installation for withdrawable circuit-breaker 630A

Fixing on sheet



Drilling templates for support sheet



—

Key

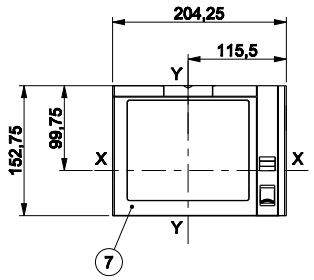
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Front for lever operating mechanism
8 Fixing on sheet steel III
9 Fixing on sheet steel IV
10 Door lock

Tmax XT5 – Installation

Installation for withdrawable circuit-breaker 630A

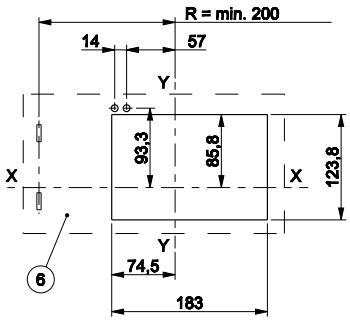
Flange

Key
7 Flange without gasket for the compartment door



Drilling template compartment door

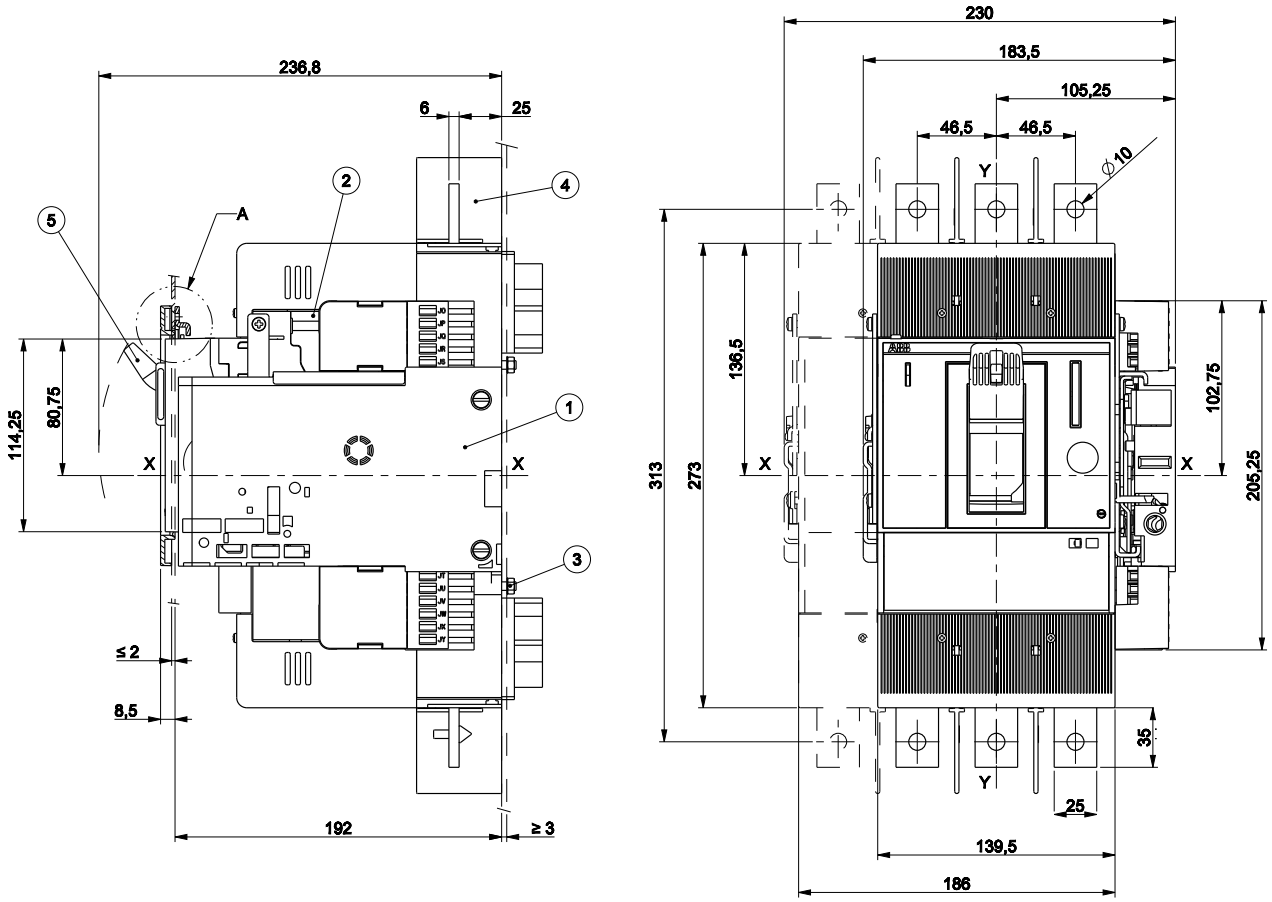
Key
6 Compartment door sheet steel drilling with flange



Tmax XT5 – Installation

Terminals for withdrawable circuit-breaker 630A

Terminals EF



—

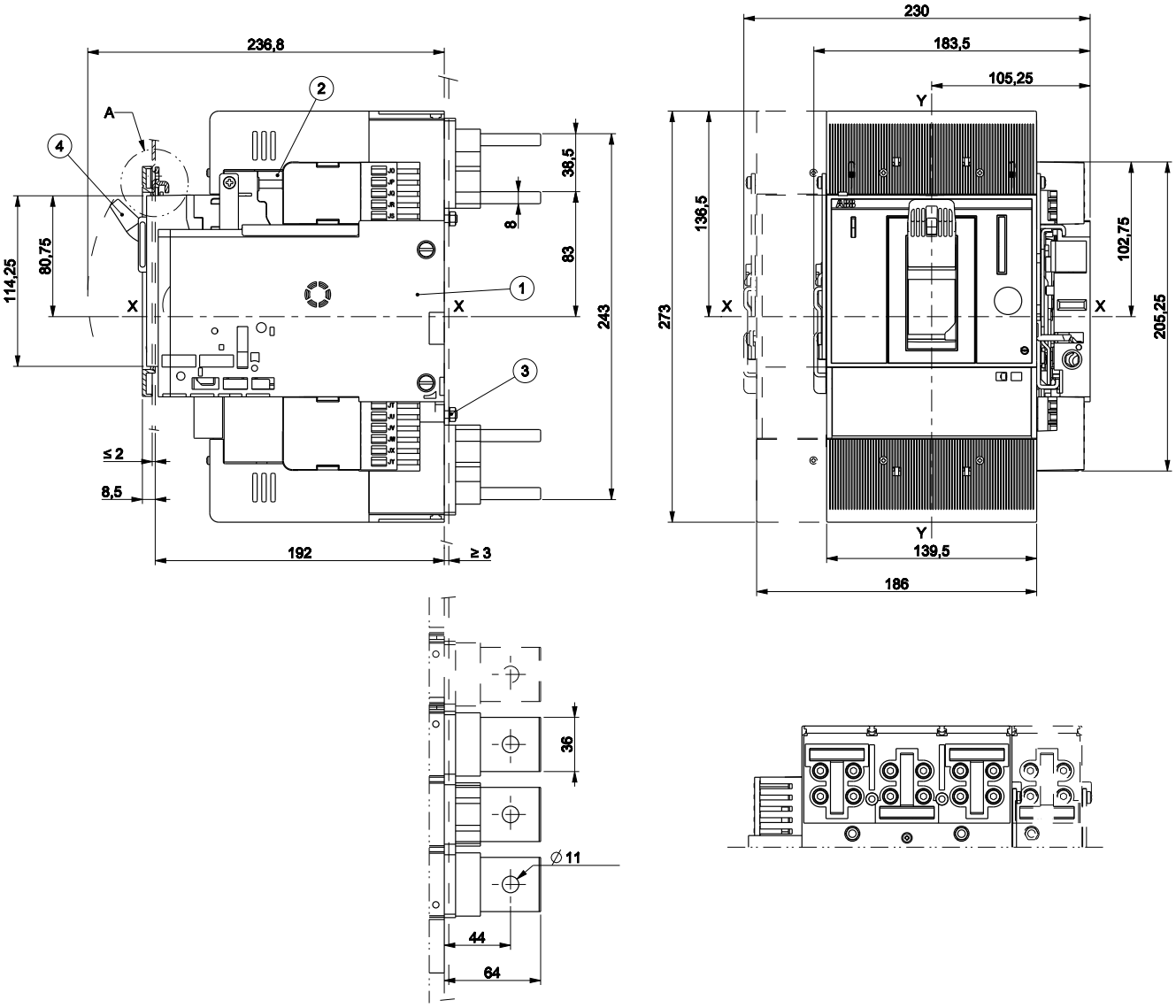
Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Front for lever operating mechanism

Tmax XT5 – Installation

Terminals for withdrawable circuit-breaker 630A

Terminals HR

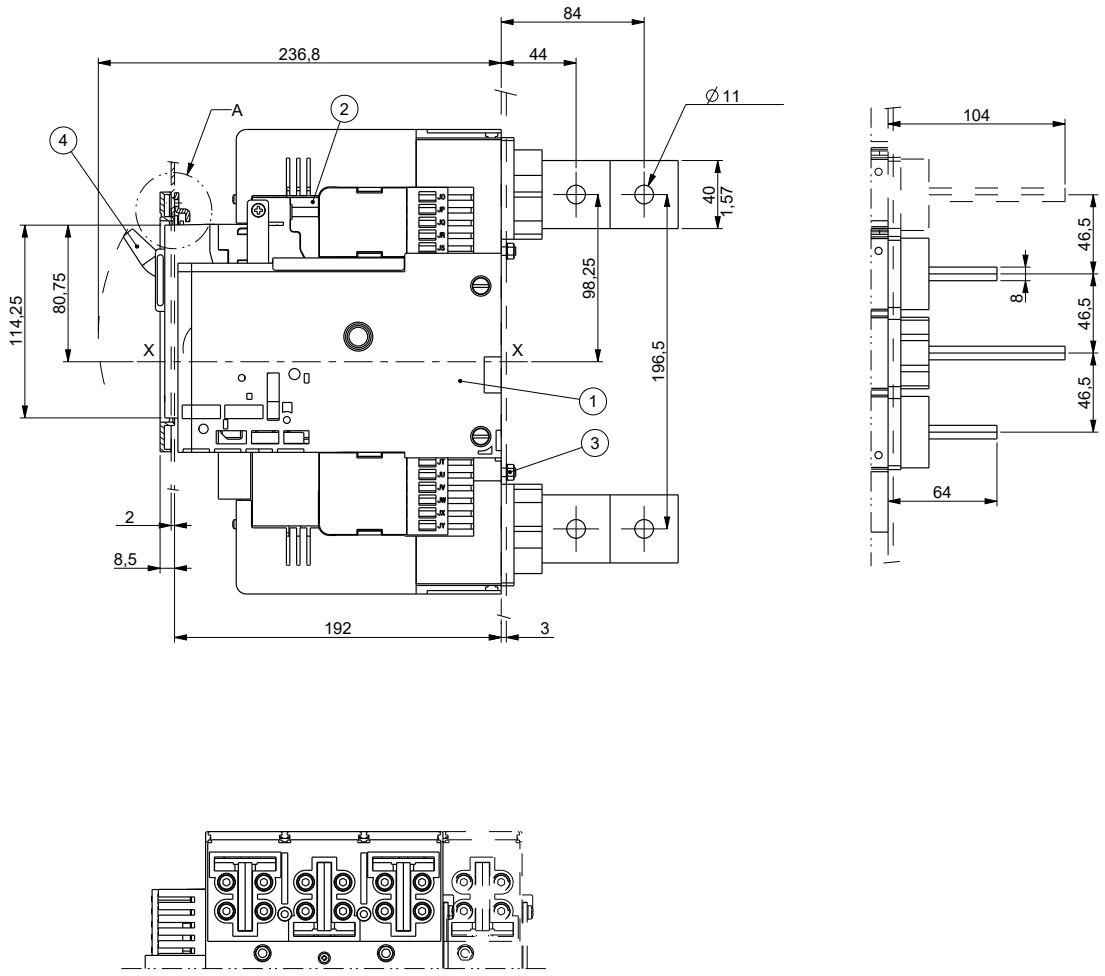


—

Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Front for lever operating mechanism

Terminals VR



—

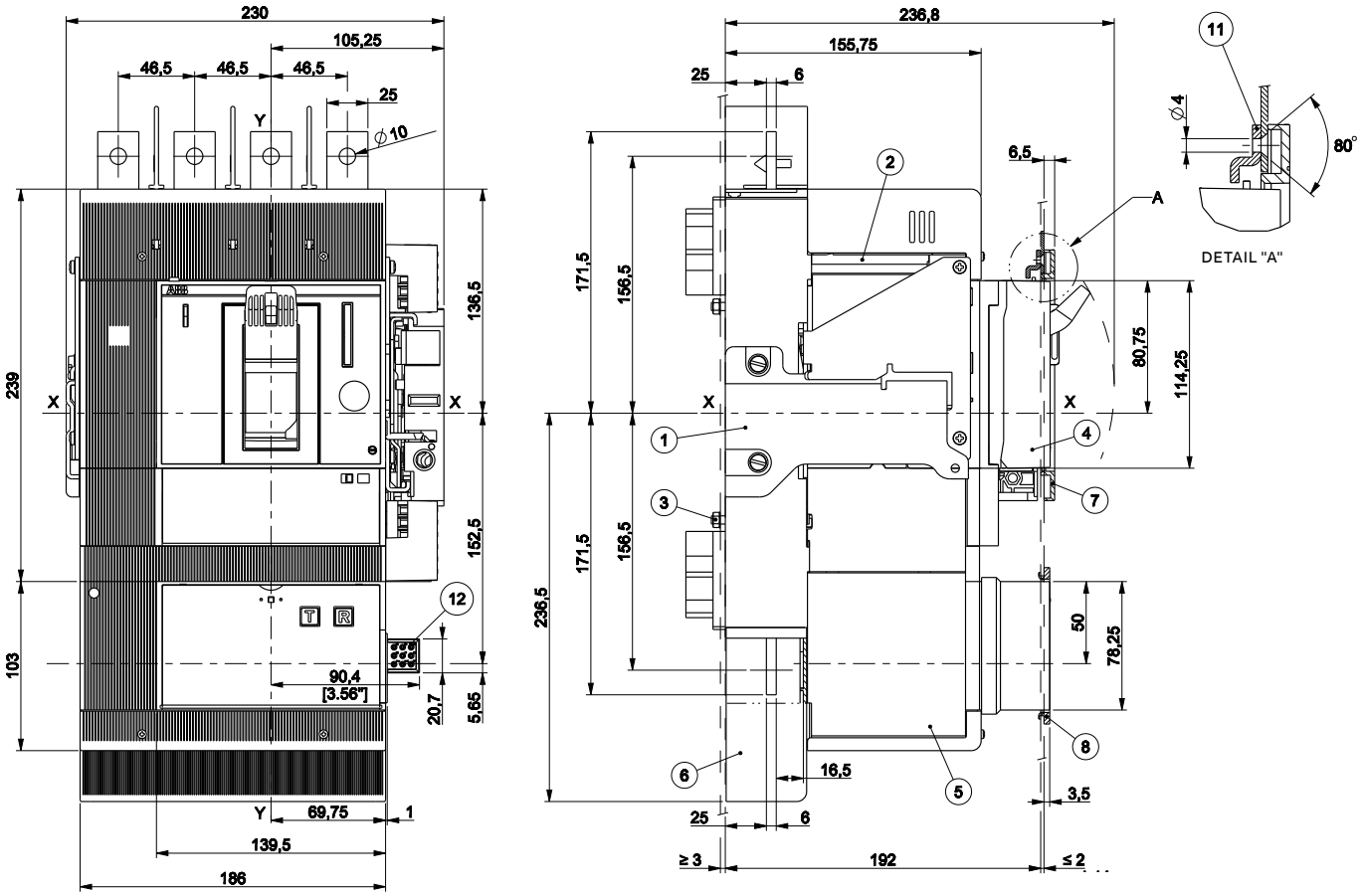
Key

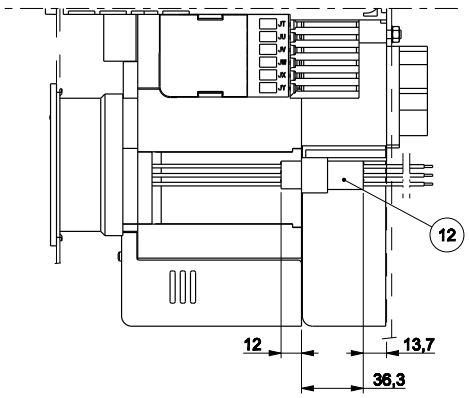
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Front for lever operating mechanism (FLD)

Tmax XT5 – Installation

Terminals for withdrawable circuit-breaker 630A

Residual current (RC) and Front for lever operating mechanism (FLD)

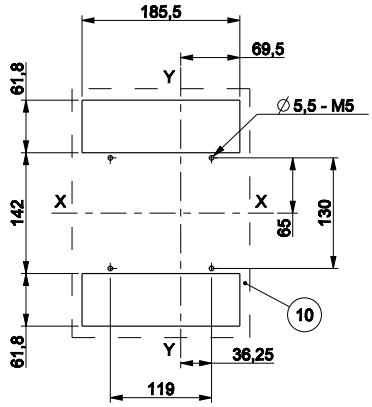




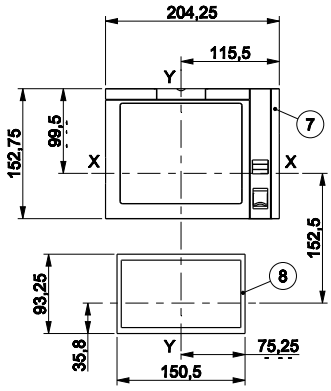
Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 Front for operating lever mechanism
5 Residual current release
6 Terminal cover for residual current release
7 Flange for the compartment door
8 Flange for residual current release
11 Door lock plate
12 Plup and socket adapter for residual current release

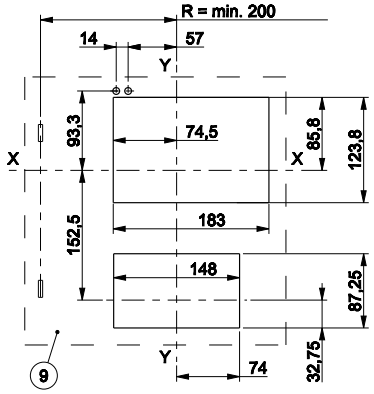
Drilling template for support sheet



Flange



Drilling template compartment door



—

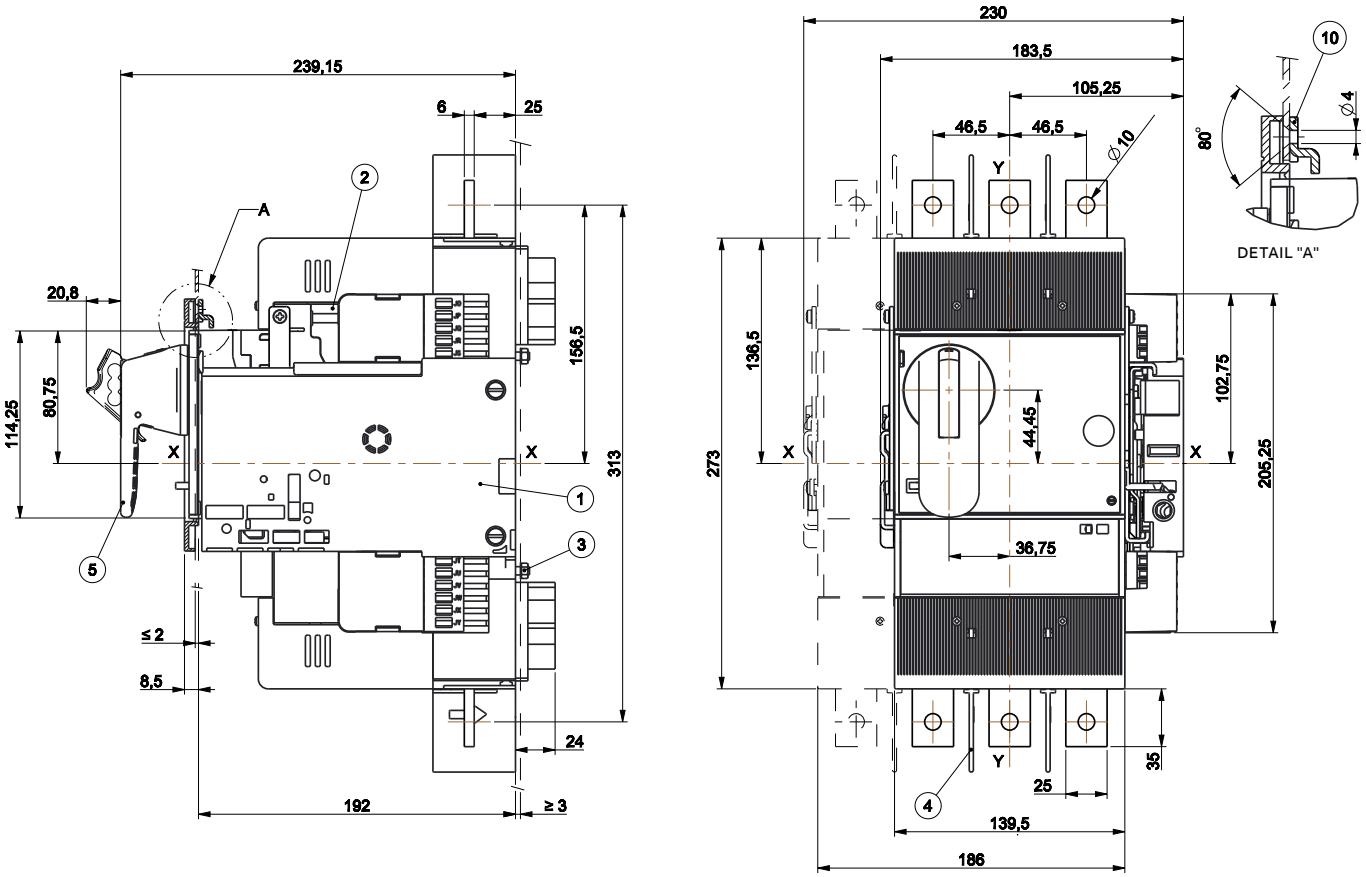
Key

7 Flange for the compartment door
8 Flange for residual current release
9 Compartment door sheet steel drilling with/without flange
10 Fixing on sheet steel

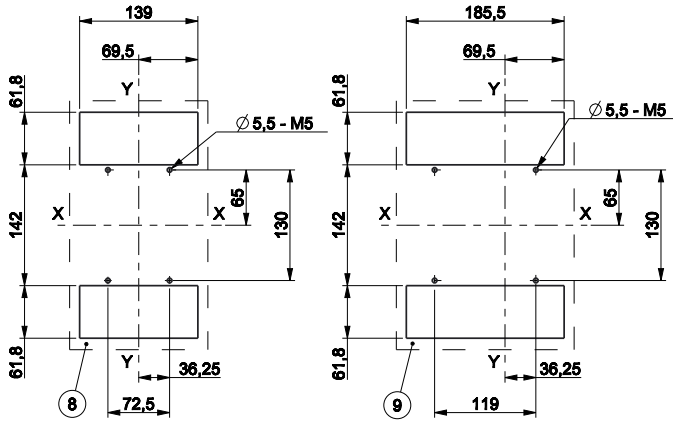
Tmax XT5 – Installation

Accessories for withdrawable circuit-breaker 630A

Rotary handle operating mechanism on the circuit-breaker (RHD)



Drilling templates for support sheet

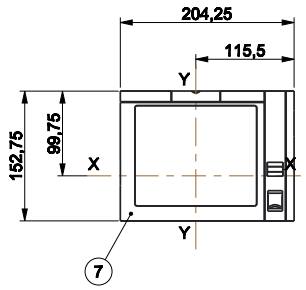


Key

1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Rotary handle operating mechanism (RHD)
8 Fixing on sheet steel III
9 Fixing on sheet steel IV
10 Door lock

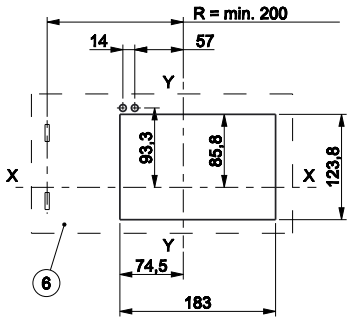
Flange

—
Key
7 Flange without gasket for the compartment door



Drilling template compartment door

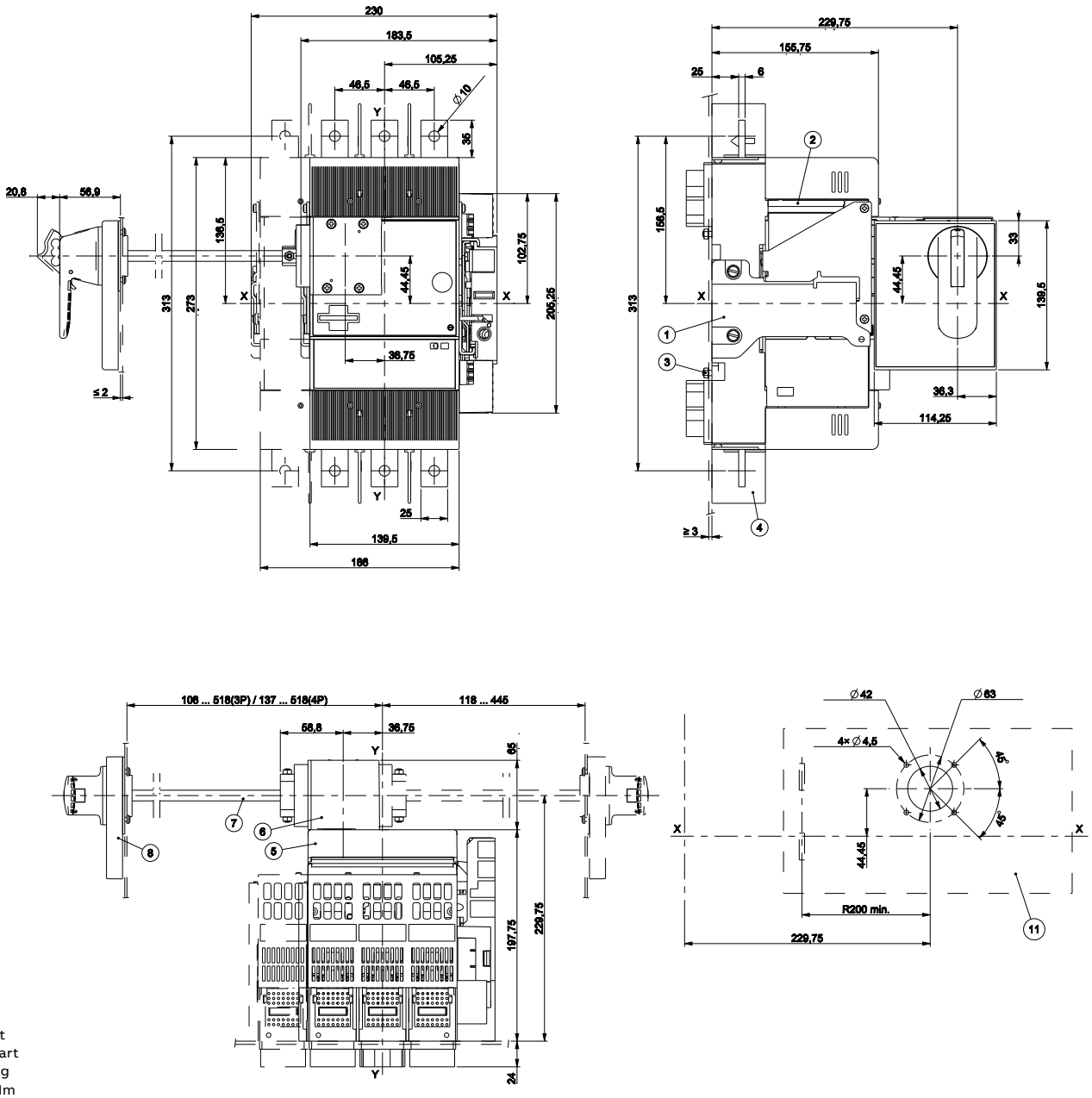
—
Key
6 Compartment door sheet steel drilling with flange



Tmax XT5 – Installation

Accessories for withdrawable circuit-breaker 630A

Lateral rotary handle operating mechanism on the compartment door (RHL)

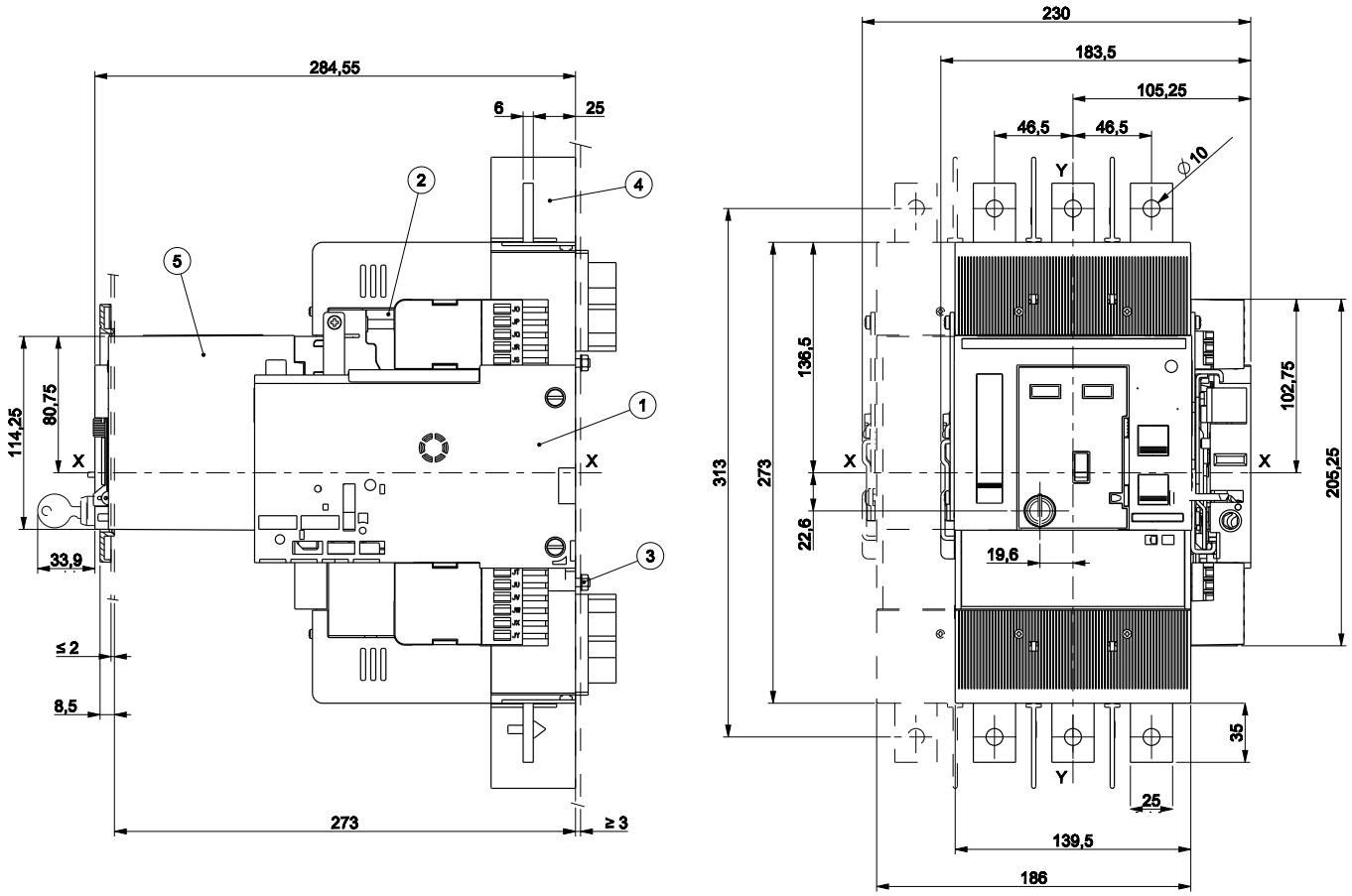


—

Key

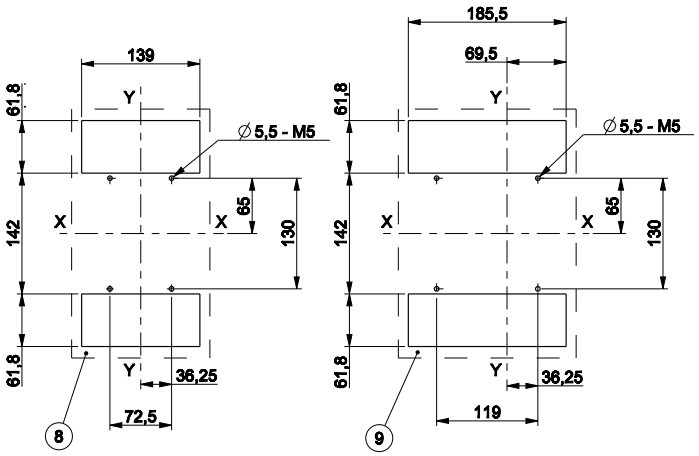
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Base of rotary handle operating mechanism
6 Lateral handle
7 500mm transmission ROD
8 Rotary handle on compartment door
11 Compartment door sheet steel drilling

Stored energy motor operator (MOE)



Drilling templates for support sheet

—
Key
1 Fixed part
2 Moving part
3 Tightening torque 2Nm
4 100mm insulating barriers between phases (compulsory) provided
5 Stored energy motor operator (MOE)
8 Fixing on sheet steel III
9 Fixing on sheet steel IV

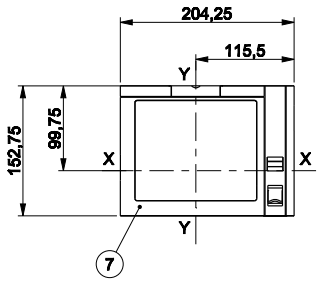


Tmax XT5 – Installation

Accessories for withdrawable circuit-breaker 630A

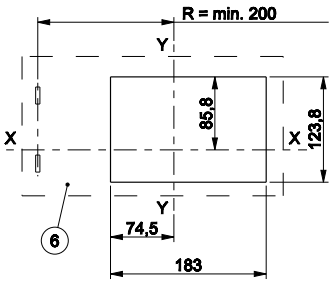
Flange

Key
7 Flange without gasket for the compartment door

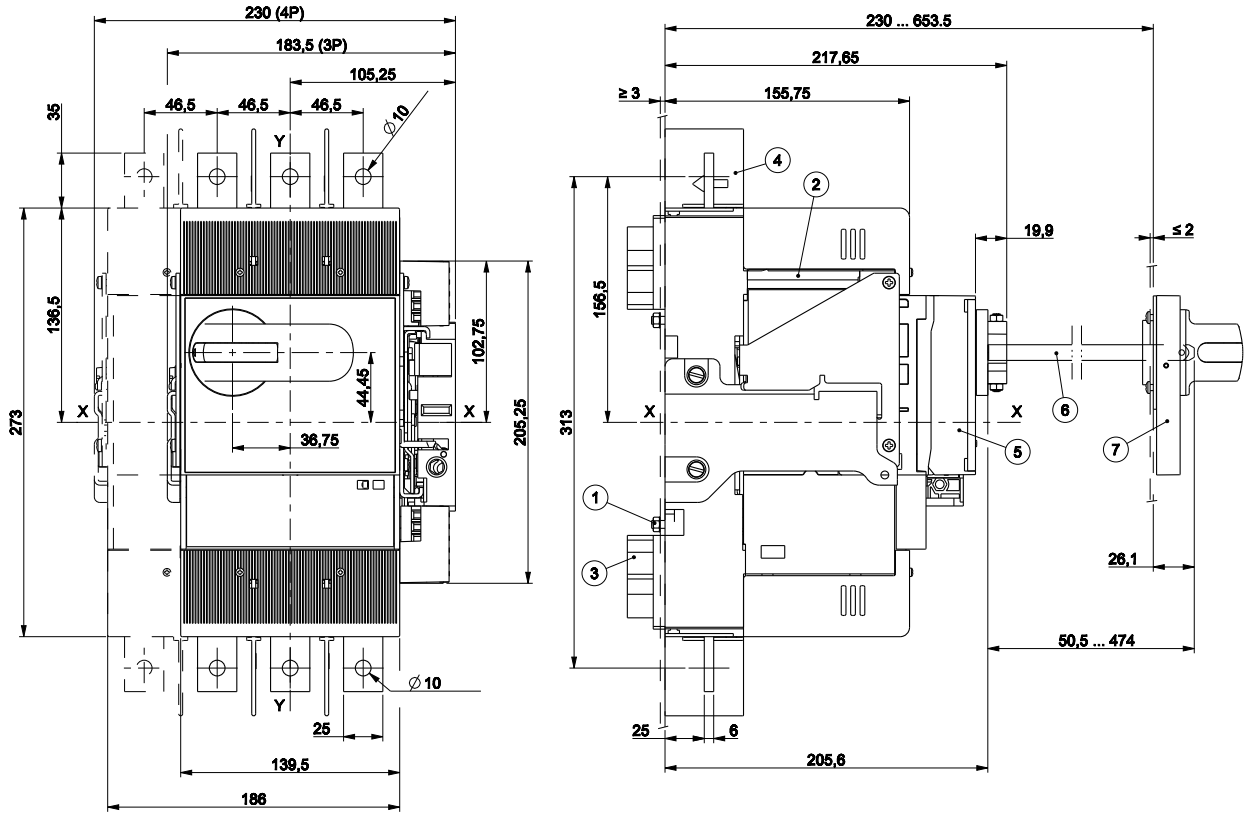


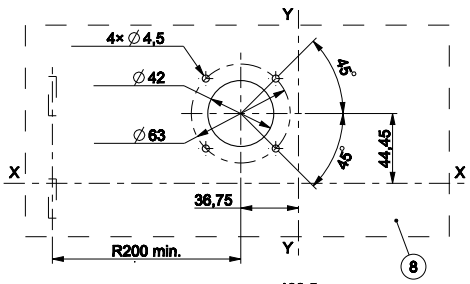
Drilling template compartment door

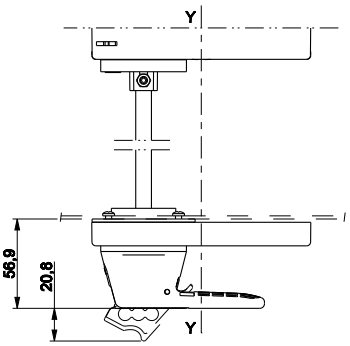
Key
6 Compartment door sheet steel drilling with flange

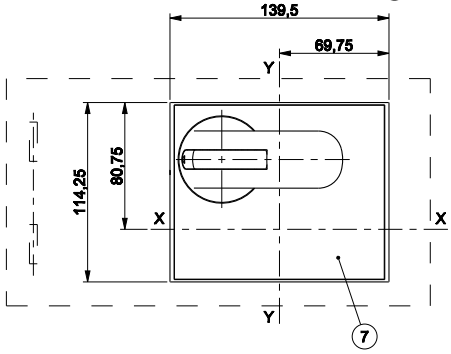


Rotary handle operating mechanism on the compartment door (RHE)









—

Key

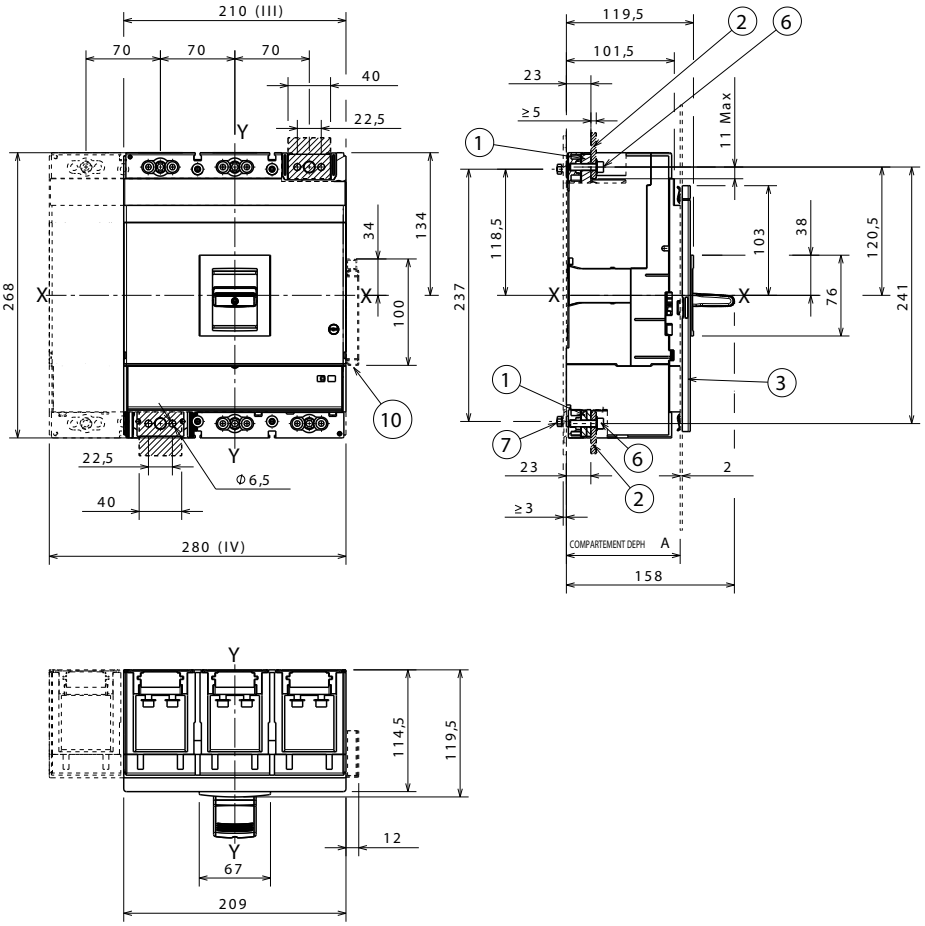
1 Fixed part
2 Moving part
3 Tightening torque 2Nm-18lbs in
4 100mm insulating barriers between phases (compulsory) provided
5 Rotary handle operating mechanism base (RHE_B)
6 Transmission ROD (RHE_S)
7 Rotary handle on compartment door (RHE_H)
8 Compartment door sheet steel drilling

Tmax XT6 – Installation

Installation for fixed circuit-breaker

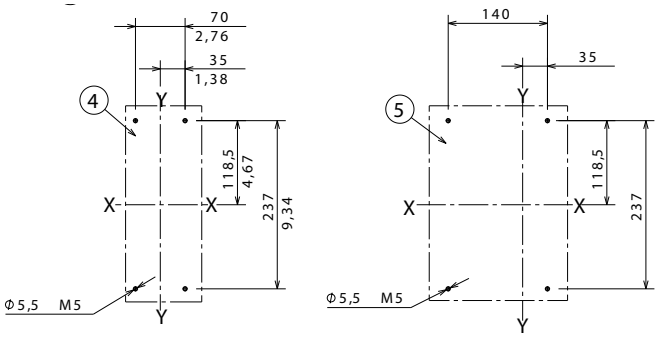
Fixing on sheet

Key
1 Front terminals for flat connection
2 Connection bar
6 Tightening torque 9Nm
7 Tightening torque 2Nm
10 Lateral conduit (optional)



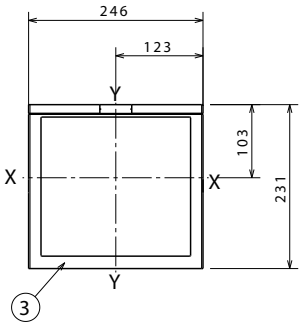
Drilling templates for support sheet

Key
4 Fixing on sheet steel III
5 Fixing on sheet steel IV



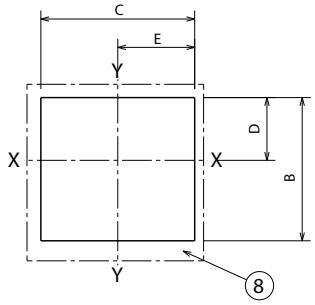
Flange

—
Key
3 Flange without gasket for compartment door



Drilling template compartment door

—
Key
8 Compartment door sheet steel drilling with/without flange

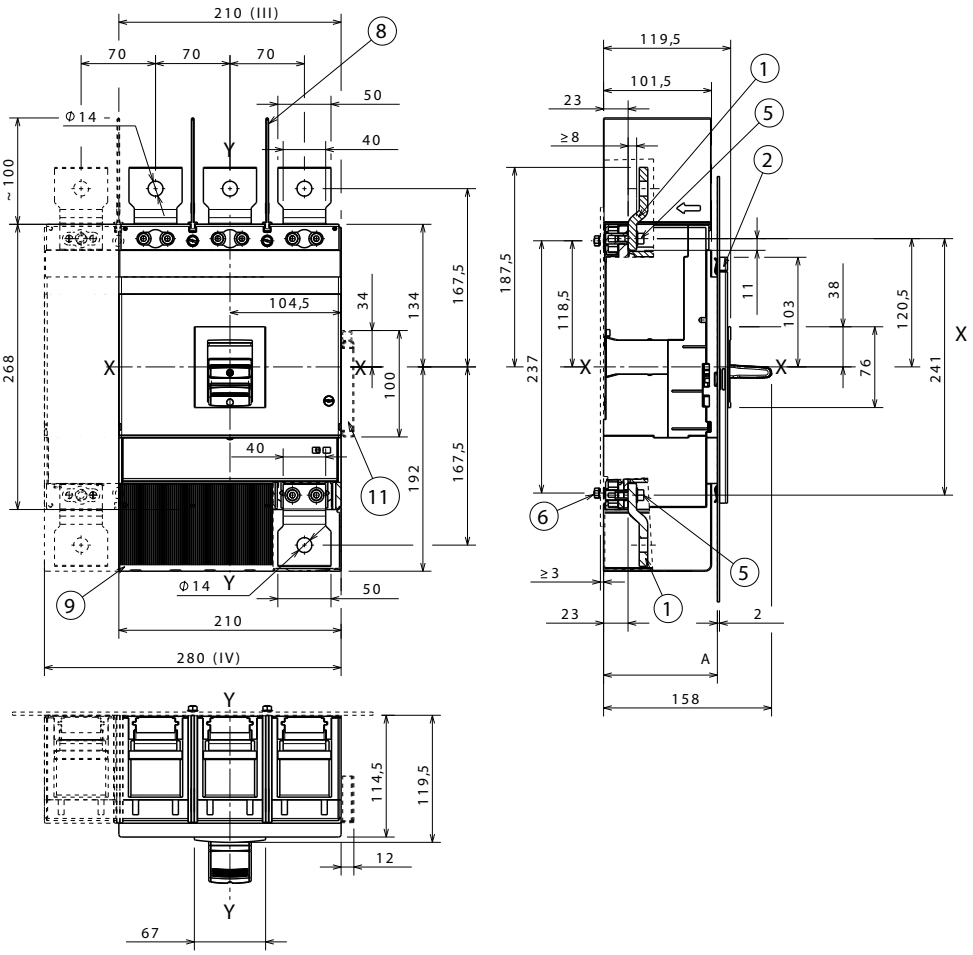


		A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
With flange	III - IV	108	202	217	88.5	108.5
Without flange	III - IV	103.5	197	212	86	106

Tmax XT6 – Installation

Terminals for fixed circuit-breaker

Terminals EF

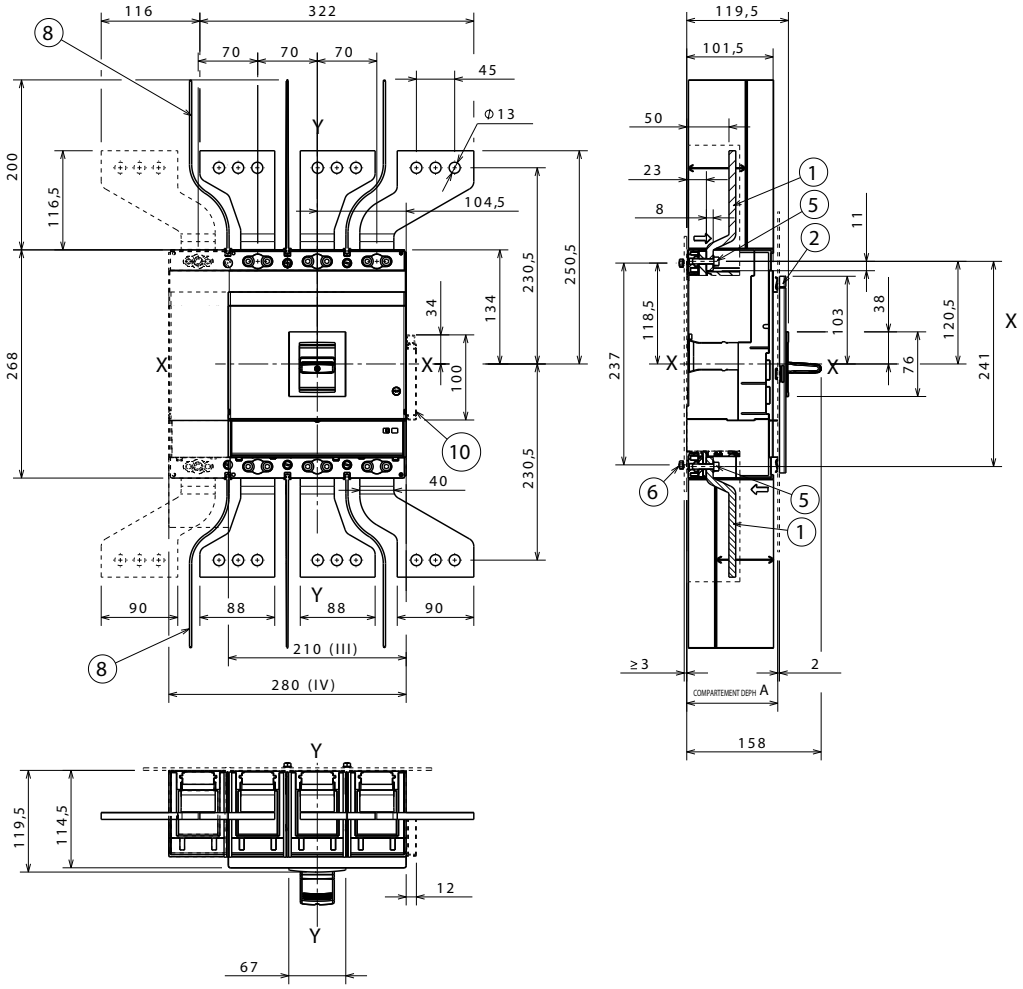


—

Key

1 Extended front terminals
5 Tightening torque 9Nm
6 Tightening torque 2Nm
8 Separating partitions 100mm
9 High terminal cover with IP40 protection degree
11 Lateral conduit (optional)

Terminals ES



—

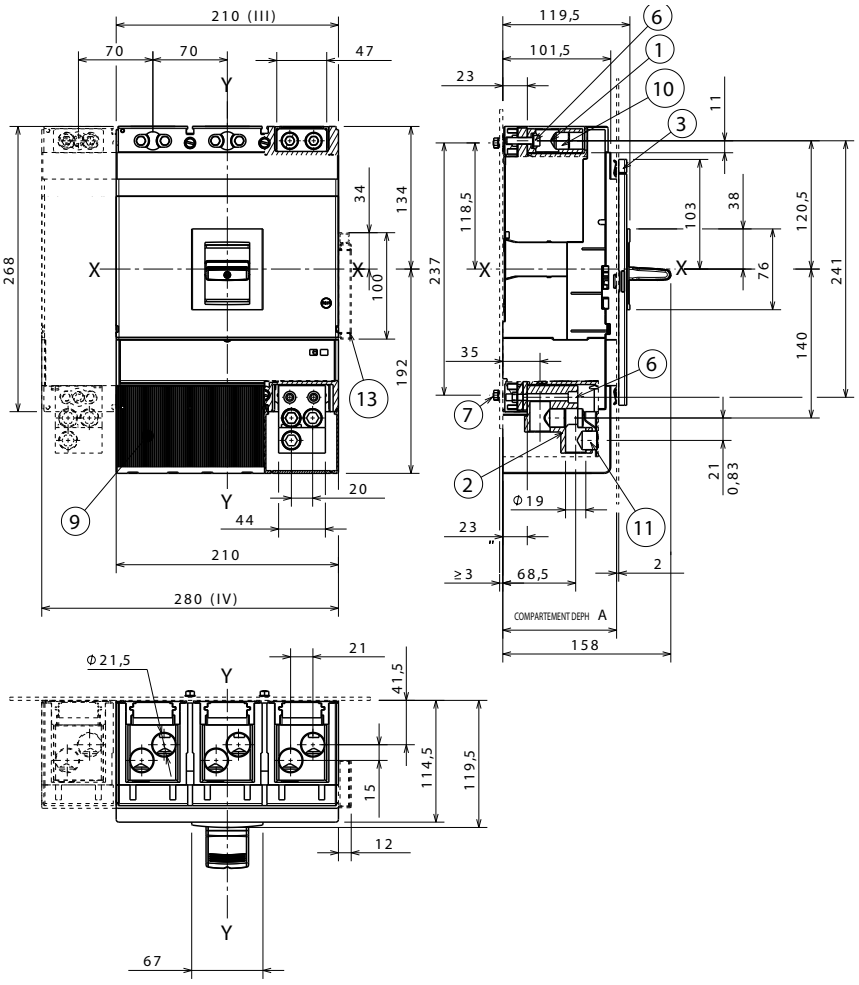
Key

1 Extended front terminals
5 Tightening torque 9Nm
6 Tightening torque 2Nm
8 Separating partitions 200mm
10 Lateral conduit (optional)

Tmax XT6 – Installation

Terminals for fixed circuit-breaker

2 x 120…240mm² and 3 x 70…185mm² terminals FC CuAl

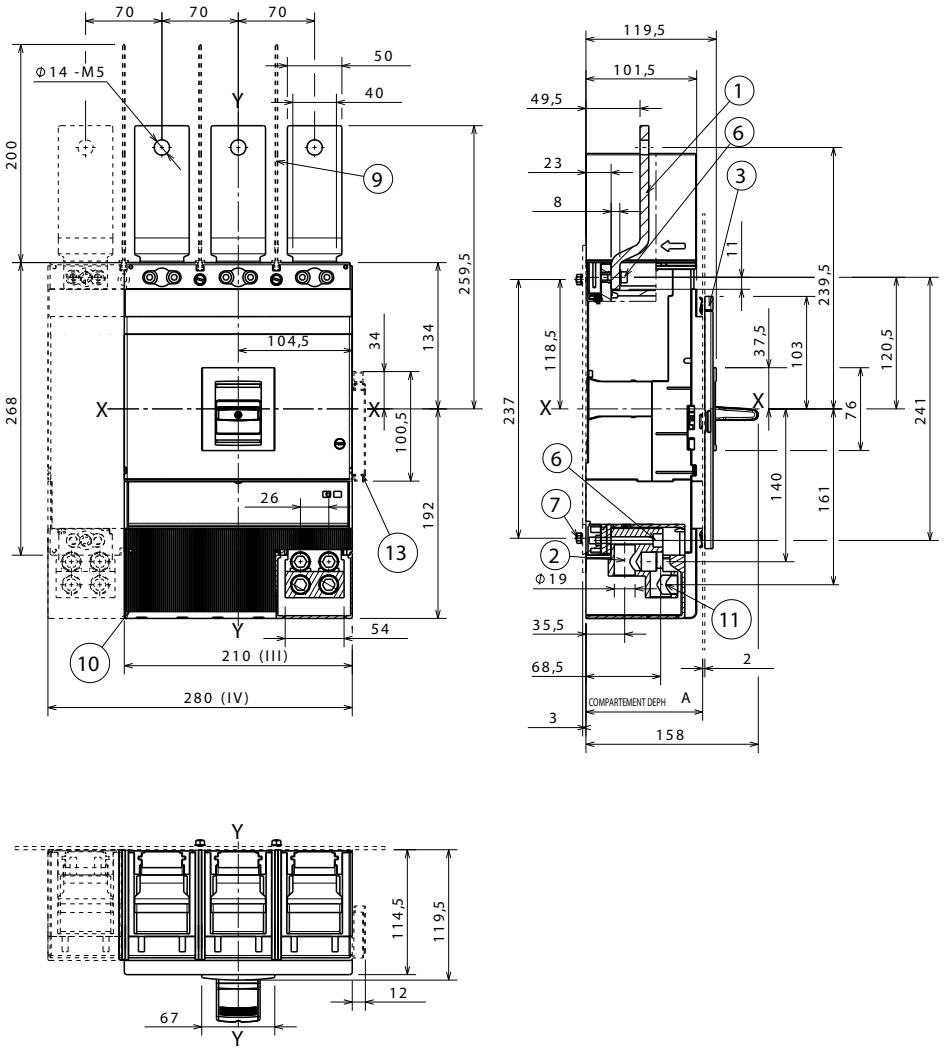


—

Key

1 Terminal FCCuAl 630A
2 Terminal FCCuAl 800A
6 Tightening torque 9Nm
7 Tightening torque 2Nm
9 High terminal cover with IP40 protection degree
10 Tightening torque 31Nm
11 Tightening torque 43Nm
13 Lateral conduit (optional)

Terminals EF and 4 x 70…150mm² terminals FC CuAl (1000A)



—

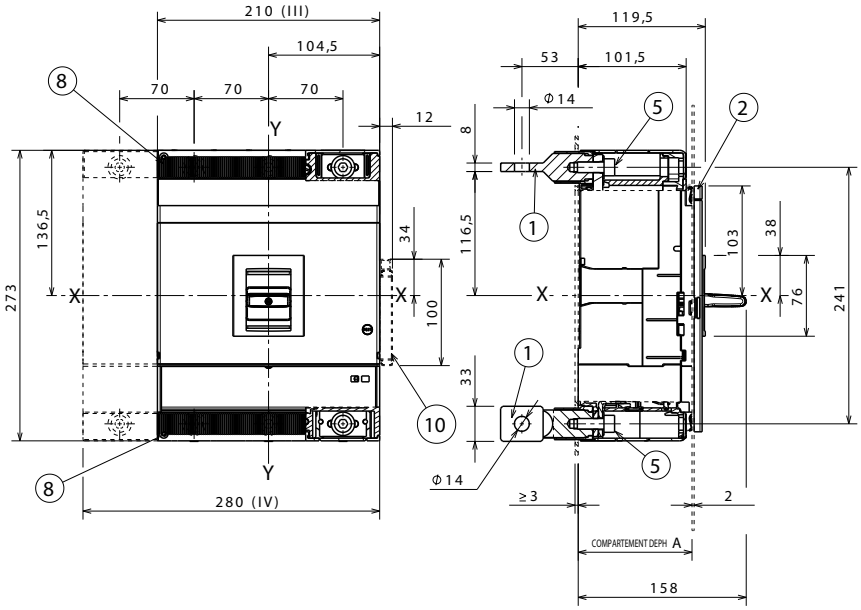
Key

1 Extended front terminals
2 Terminal FCCuAl 1000A
6 Tightening torque 9Nm
7 Tightening torque 2Nm
9 Separating partitions 200mm (optional)
10 High terminal cover with IP40 protection degree
11 Tightening torque 43Nm
13 Lateral conduit (optional)

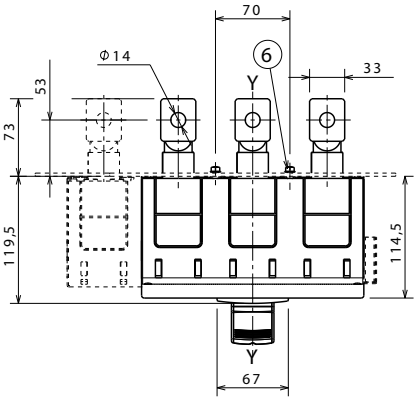
Tmax XT6 – Installation

Terminals for fixed circuit-breaker

Terminals R



Terminals HR upper

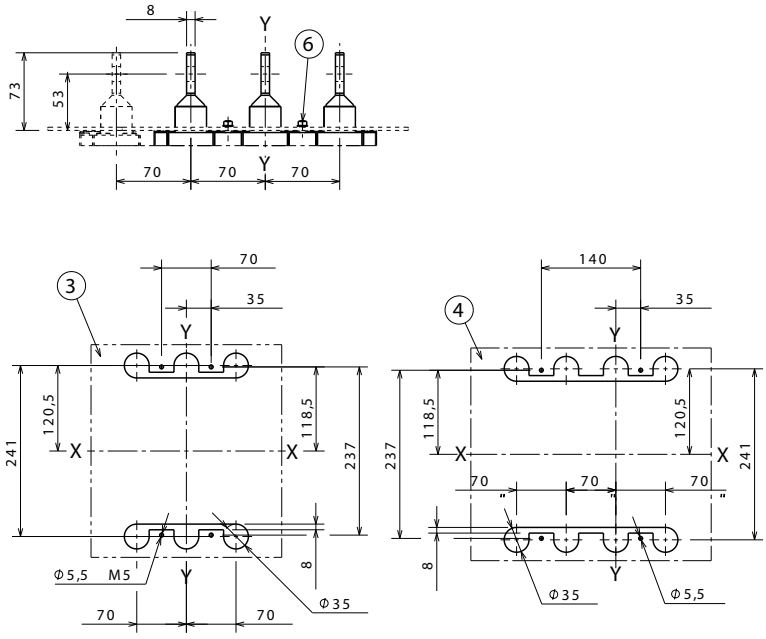


—

Key

1 Rear terminals (horizontal or vertical)
5 Tightening torque 18Nm
6 Tightening torque 2Nm
8 Terminals cover with IP20 protection degree (included in the supply of rear terminals)
10 Lateral conduit (optional)

Terminals VR lower

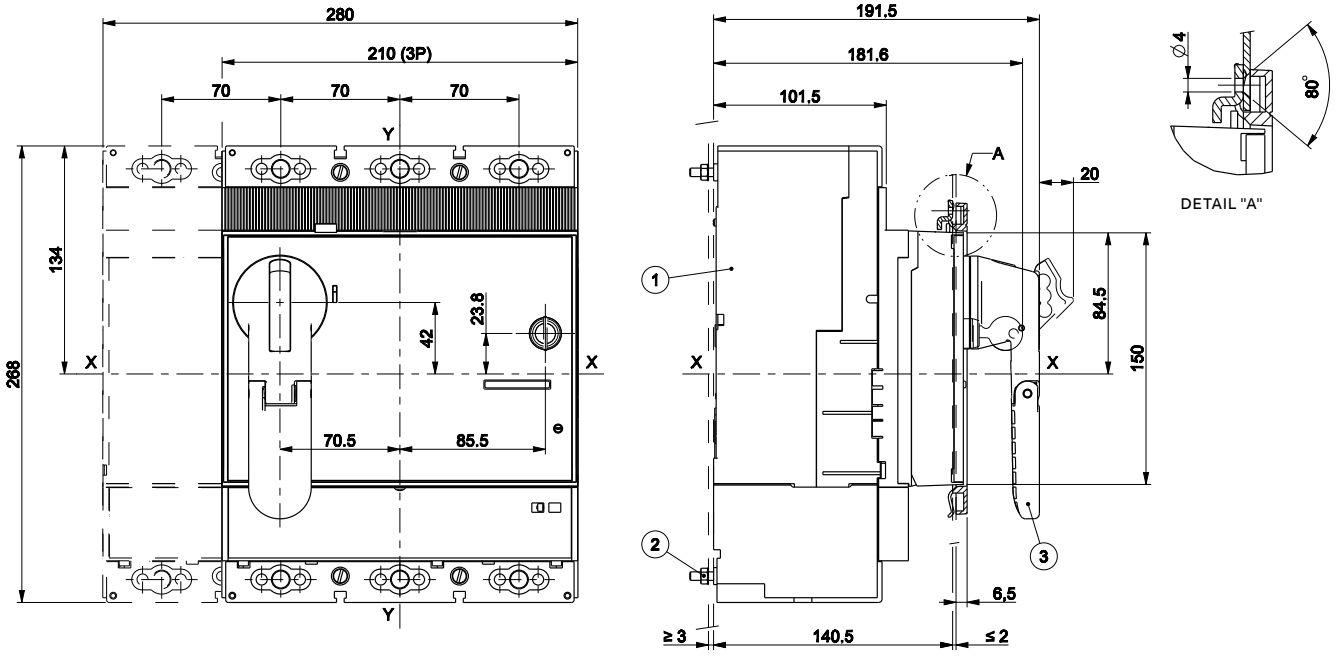


Key
3 Fixing on sheet steel III
4 Fixing on sheet steel IV
6 Tightening torque 2Nm

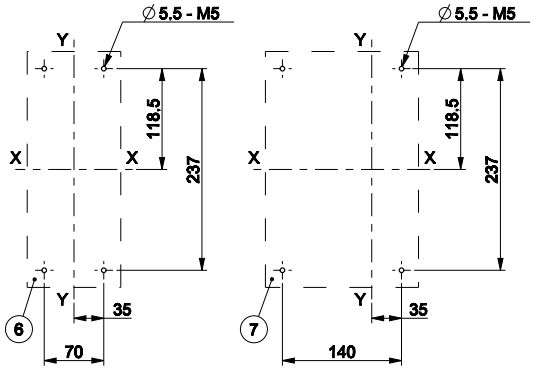
Tmax XT6 – Installation

Accessories for fixed circuit-breaker

Rotary handle operating mechanism on the circuit-breaker (RHD)



Drilling templates for support sheet



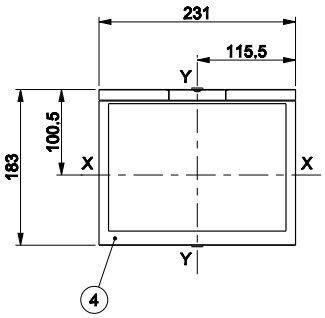
—

Key

1 Base breaker
2 Tightening torque 2Nm
3 Rotary handle operating mechanism on circuit-breaker (RHD)
6 Fixing on sheet steel III
7 Fixing on sheet steel IV

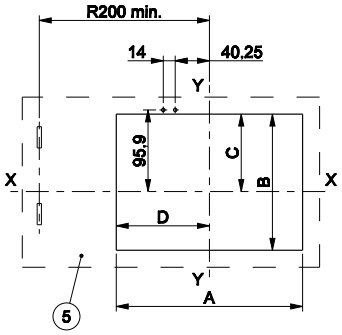
Flange

—
Key
4 Flange for the compartment door



Drilling template compartment door

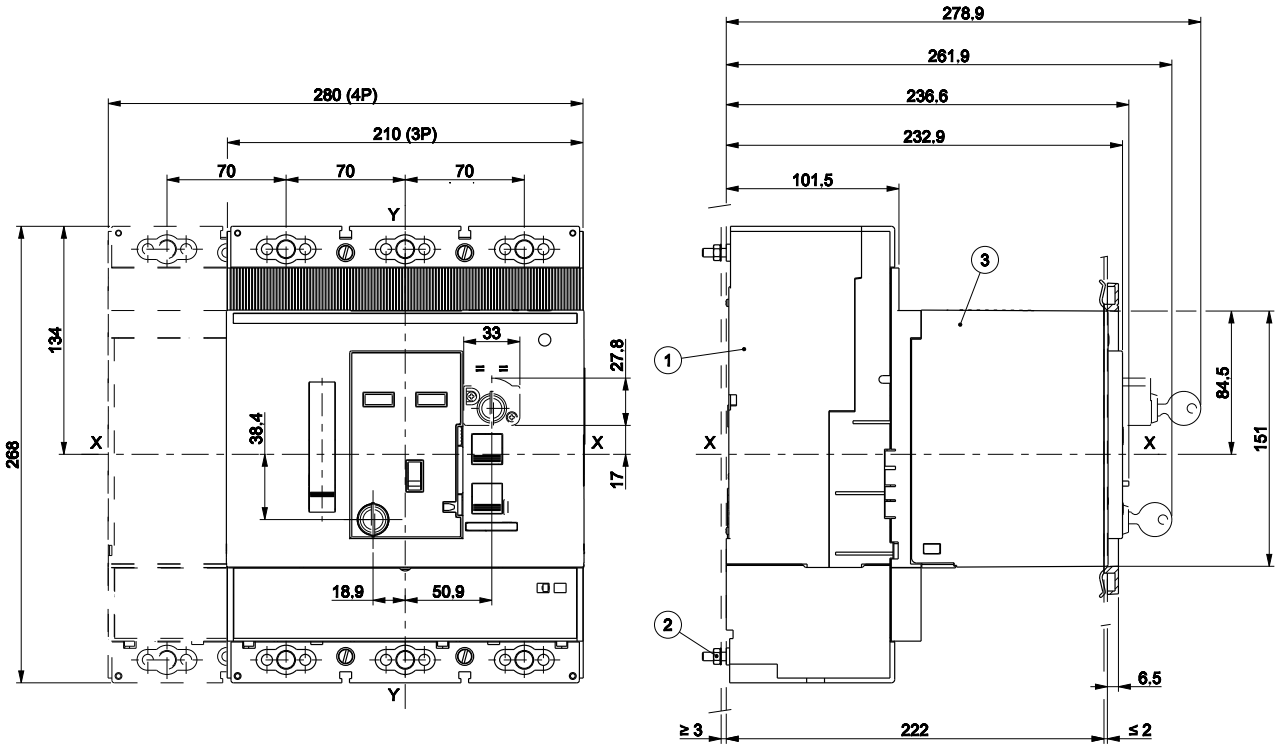
—
Key
5 Compartment door sheet steel drilling with/without flange



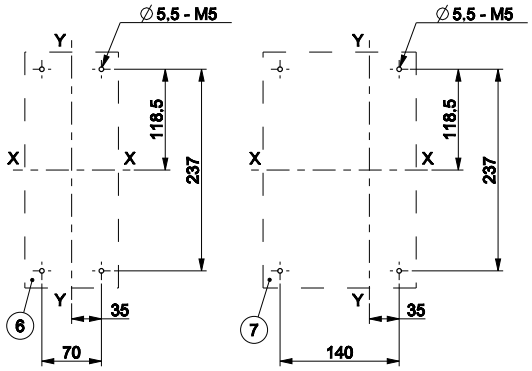
		A [mm]	B [mm]	C [mm]	D [mm]
With flange	III - IV	219	160	91	109.5
Without flange	III - IV	209	149.8	85.9	104.5

Tmax XT6 – Installation
Accessories for fixed circuit-breaker

Stored energy motor operator (MOE)



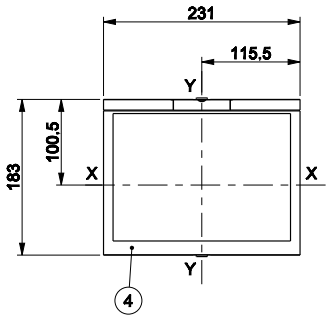
Drilling templates for support sheet



Key
1 Base breaker
2 Tightening torque 2Nm
3 Stored energy motor operator (MOE)
6 Fixing on sheet steel III
7 Fixing on sheet steel IV

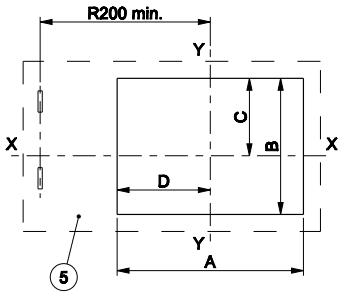
Flange

—
Key
4 Flange for the compartment door



Drilling template compartment door

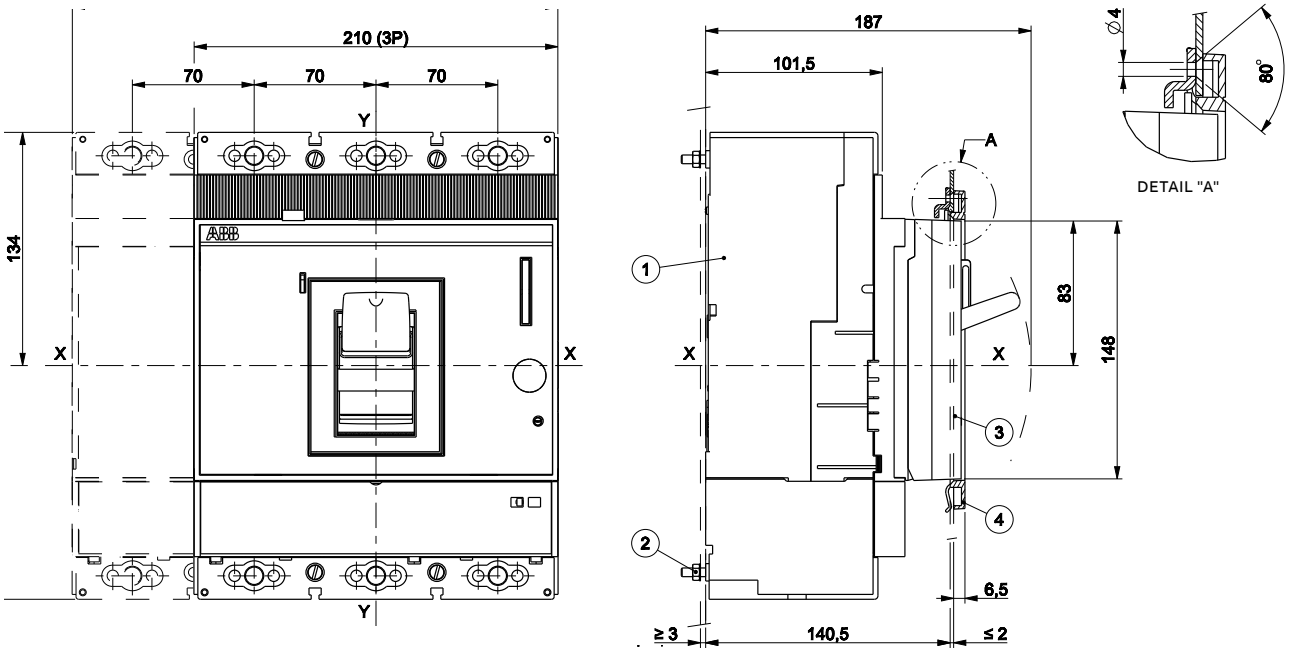
—
Key
5 Compartment door sheet steel drilling with/without flange



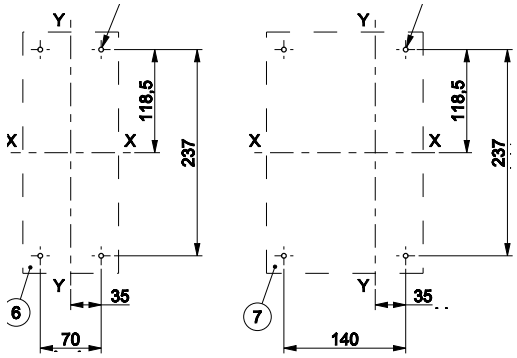
		A [mm]	B [mm]	C [mm]	D [mm]
With flange	III - IV	219	160	91	109.5
Without flange	III - IV	209	149.8	85.9	104.5

Tmax XT6 – Installation
Accessories for fixed circuit-breaker

Front for lever operating mechanism (FLD)



Drilling templates for support sheet



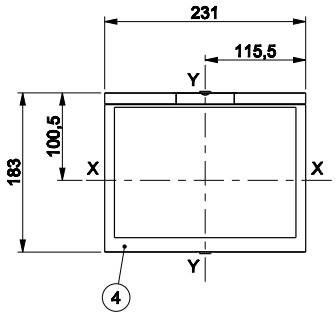
—

Key

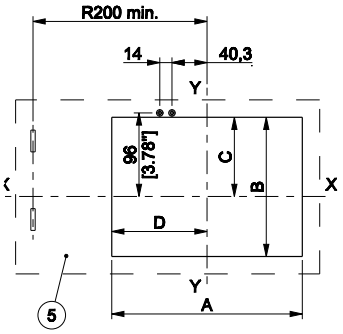
1 Base breaker
2 Tightening torque 2Nm
3 Front for lever operating mechanism (FLD)
4 Flange for the compartment door
6 Fixing on sheet steel III
7 Fixing on sheet steel IV

Flange

—
Key
4 Flange for the compartment door
5 Compartment door sheet steel drilling with / without flange



Drilling template compartment door

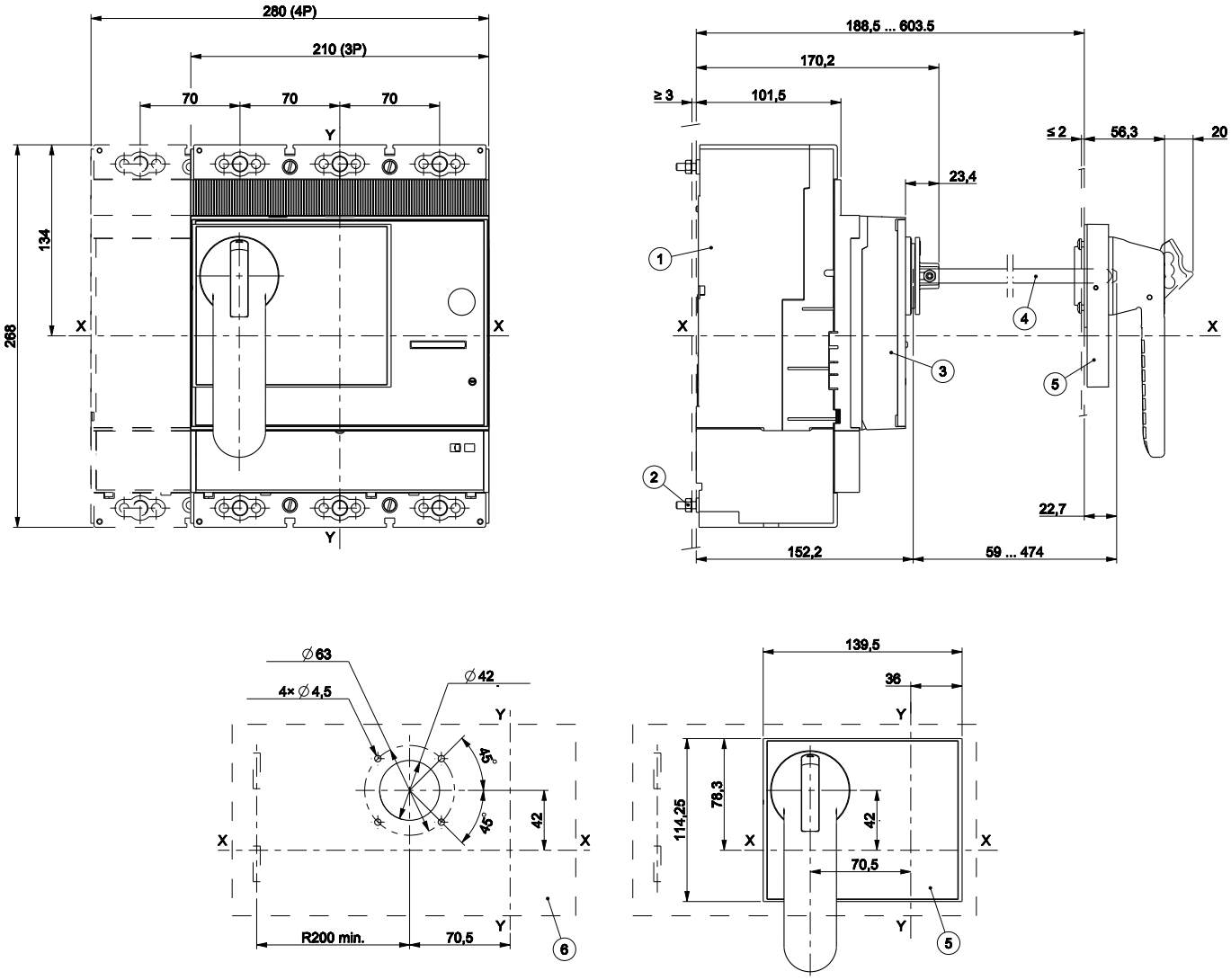


		A [mm]	B [mm]	C [mm]	D [mm]
With flange	III - IV	219	160	91	109.5
Without flange	III - IV	209	149.8	85.9	104.5

Tmax XT6 – Installation

Accessories for fixed circuit-breaker

Rotary handle operating mechanism on the compartment door (RHE)



—

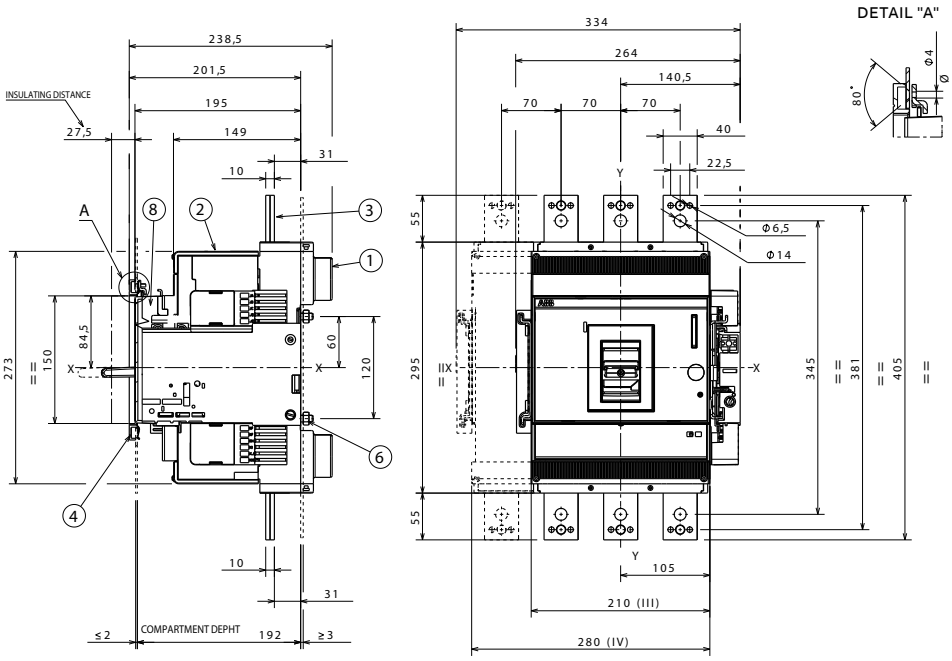
Key

1 Base breaker
2 Tightening torque 2Nm
3 Base of rotary handle operating mechanism
4 Transmission ROD
5 Rotary handle operating mechanism of the compartment door
6 Compartment door sheet steel drilling

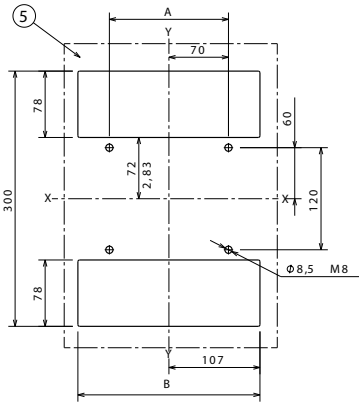
Tmax XT6 – Installation

Installation for withdrawable circuit-breaker

Fixing on sheet



Drilling template for support sheet



—

Key

1 Fixed part
2 Moving part
3 Extended front terminals
5 Fixing on sheet steel III-IV
6 Tightening torque 8Nm
8 FLD compulsory with withdrawable version

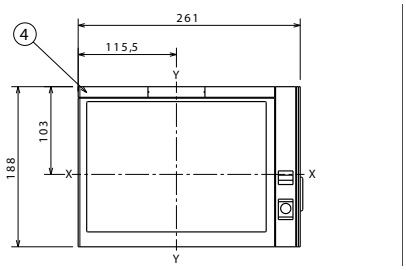
	A [mm]	B [mm]
III	140	214
IV	210	284

Tmax XT6 – Installation

Installation for withdrawable circuit-breaker

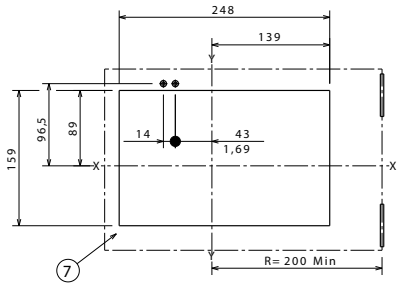
Flange

Key
4 Fixing on sheet steel III



Drilling template compartment door

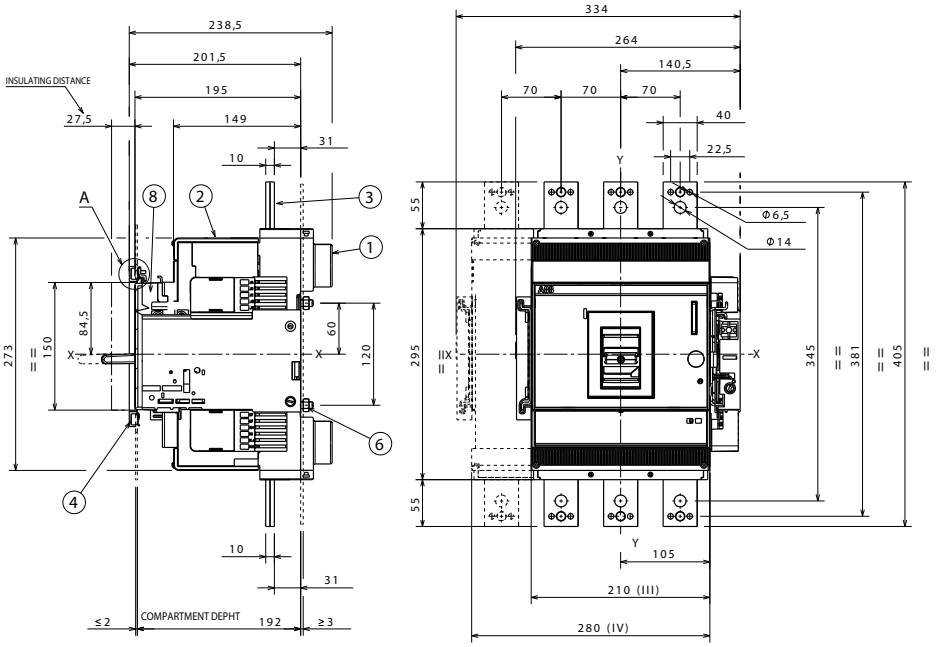
Key
7 Compartment door sheet drilling with flange



Tmax XT6 – Installation

Terminals for withdrawable circuit-breaker

Terminals EF



—

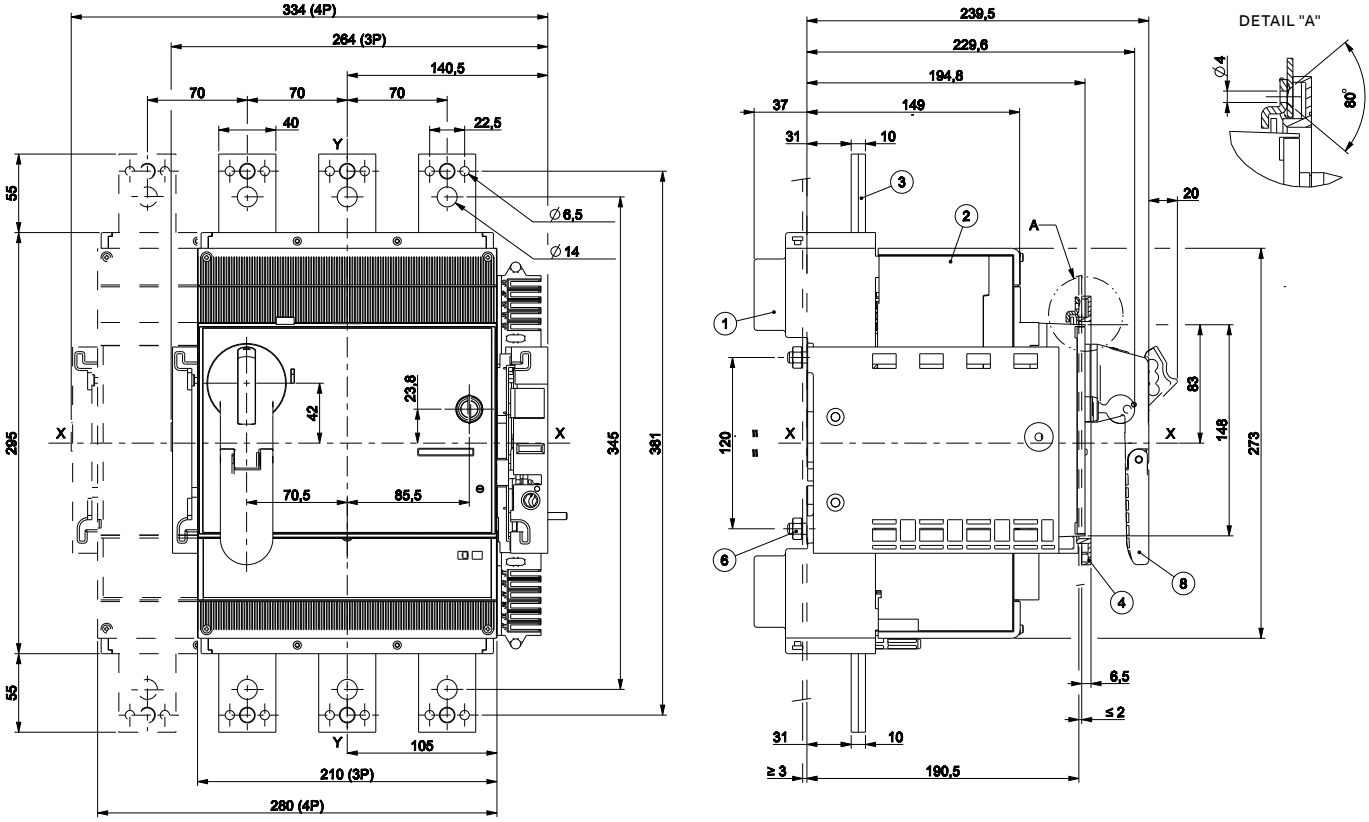
Key

1 Fixed part
2 Moving part
3 Extended front terminals
6 Tightening torque 8Nm
8 FLD compulsory with withdrawable version

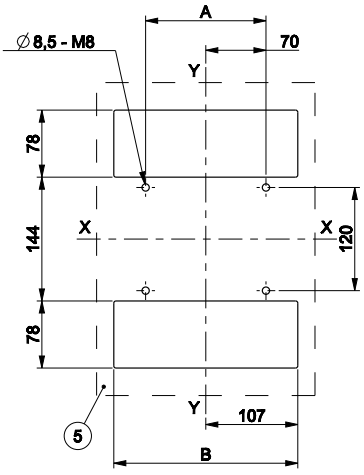
Tmax XT6 – Installation

Accessories for withdrawable circuit-breaker

Rotary handle operating mechanism on the circuit-breaker (RHD)



Drilling template for support sheet



—

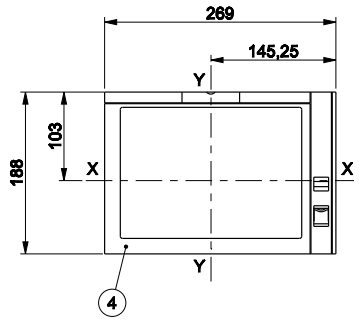
Key

1 Fixed part
2 Moving part
3 Extended front terminals
5 Fixing on sheet steel III-IV
6 Tightening torque 8Nm
8 Rotary handle operating mechanism on circuit breaker (RHD)

	A [mm]	B [mm]
III	140	214
IV	210	284

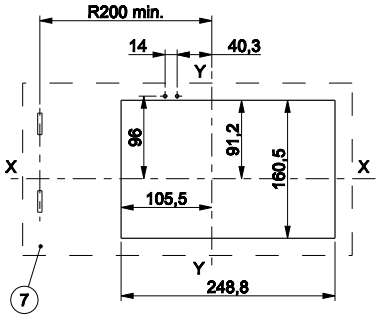
Flange

—
Key
4 Flange for the compartment door



Drilling template compartment door

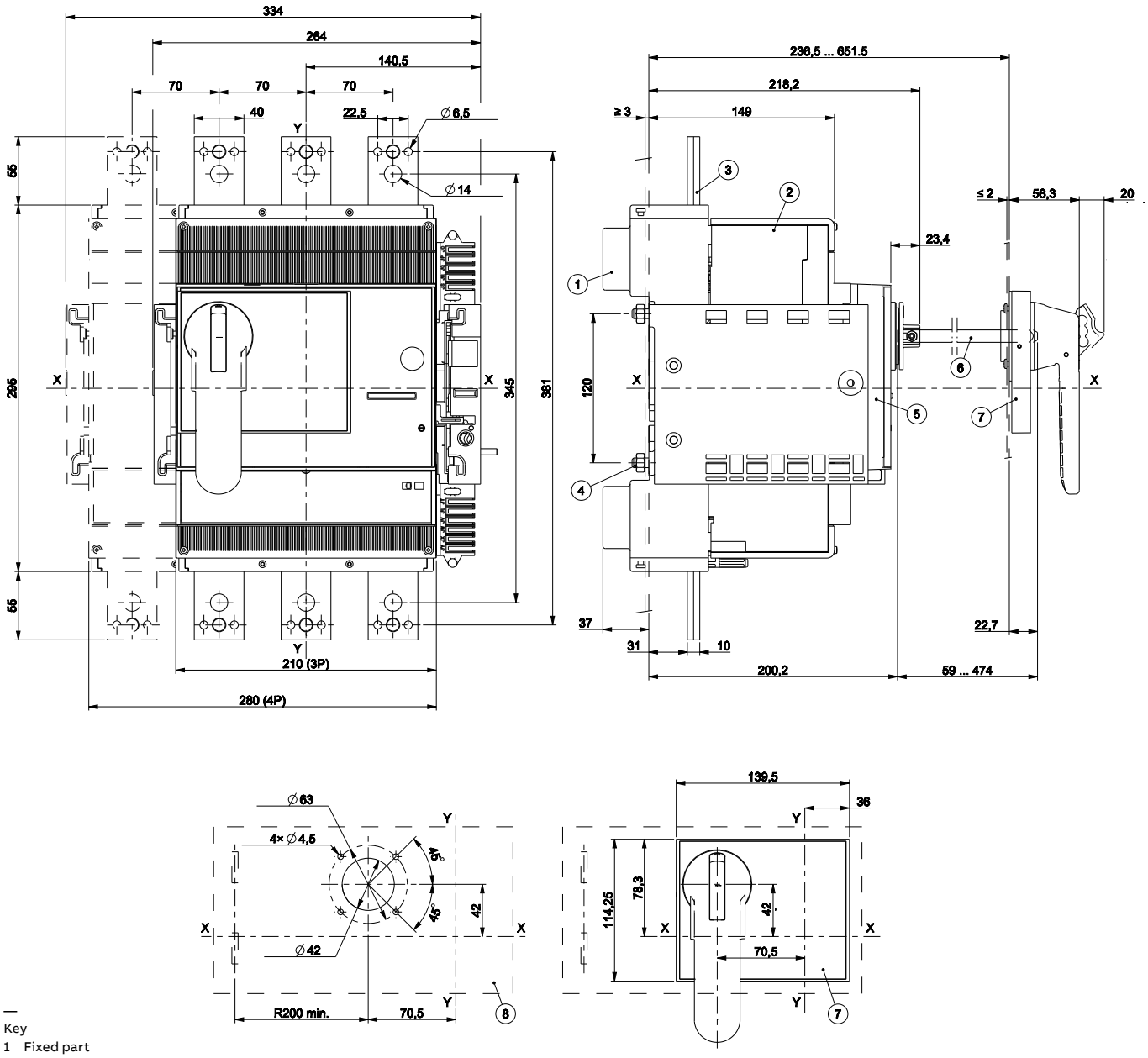
—
Key
7 Compartment door sheet steel drilling with flange



Tmax XT6 – Installation

Accessories for withdrawable circuit-breaker

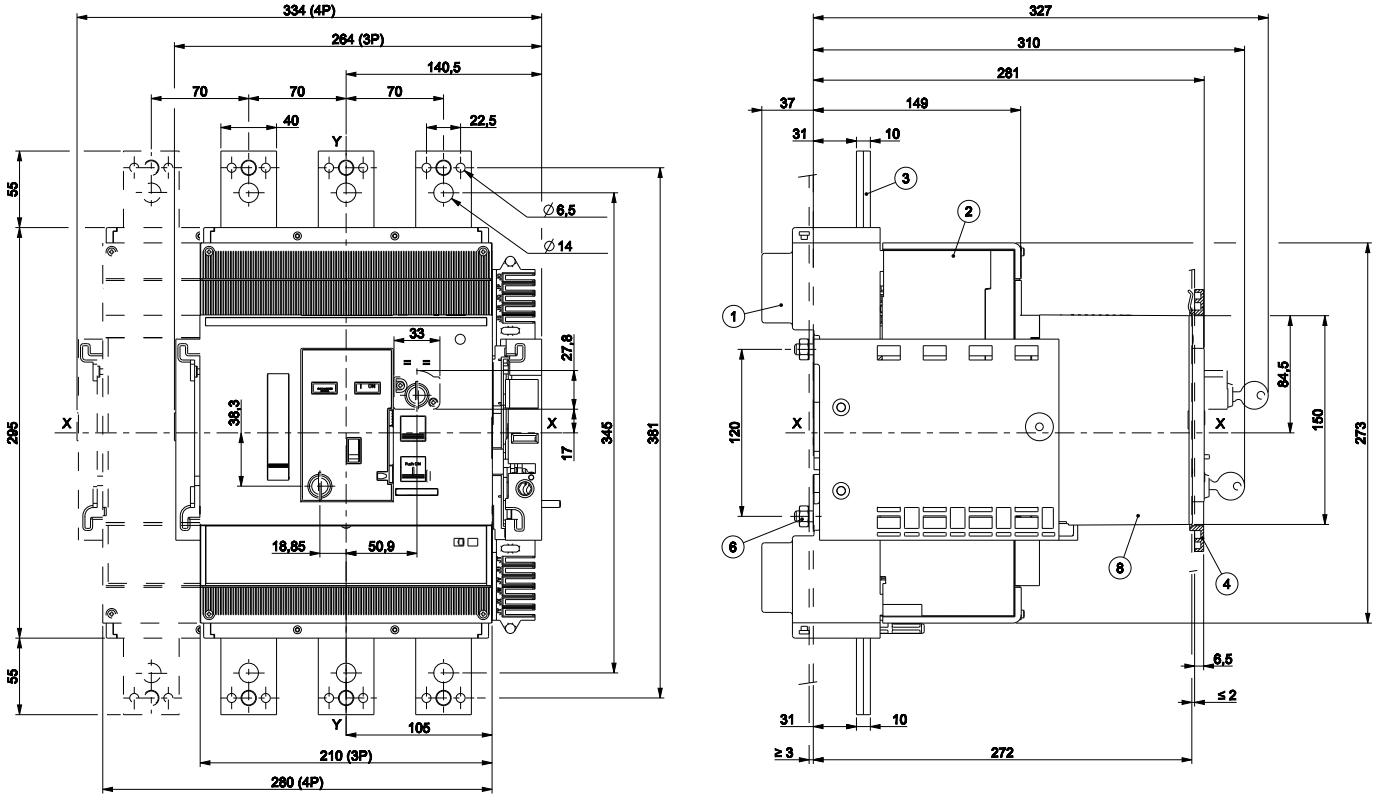
Rotary handle operating mechanism on the compartment door (RHE)



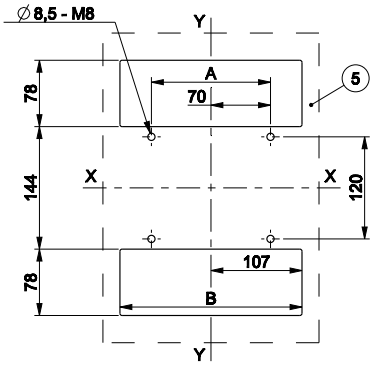
—
Key
1 Fixed part
2 Moving part
3 Extended front terminals
4 Tightening torque 2Nm
5 Base of rotary handle operating mechanism
6 Transmission ROD
7 Rotary handle operating mechanism of the compartment door
8 Compartment door sheet steel drilling

	A [mm]	B [mm]
III	140	214
IV	210	284

Stored energy motor operator (MOE)



Drilling template for support sheet



—

Key

1 Fixed part
2 Moving part
3 Extended front terminals
5 Fixing on sheet steel III-IV
6 Tightening torque 8Nm
8 Stored energy motor operator

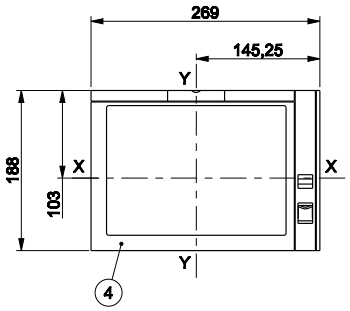
	A [mm]	B [mm]
III	140	214
IV	210	284

Tmax XT6 – Installation

Accessories for withdrawable circuit-breaker

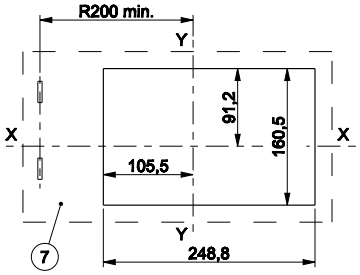
Flange

—
Key
4 Flange for the compartment door



Drilling template compartment door

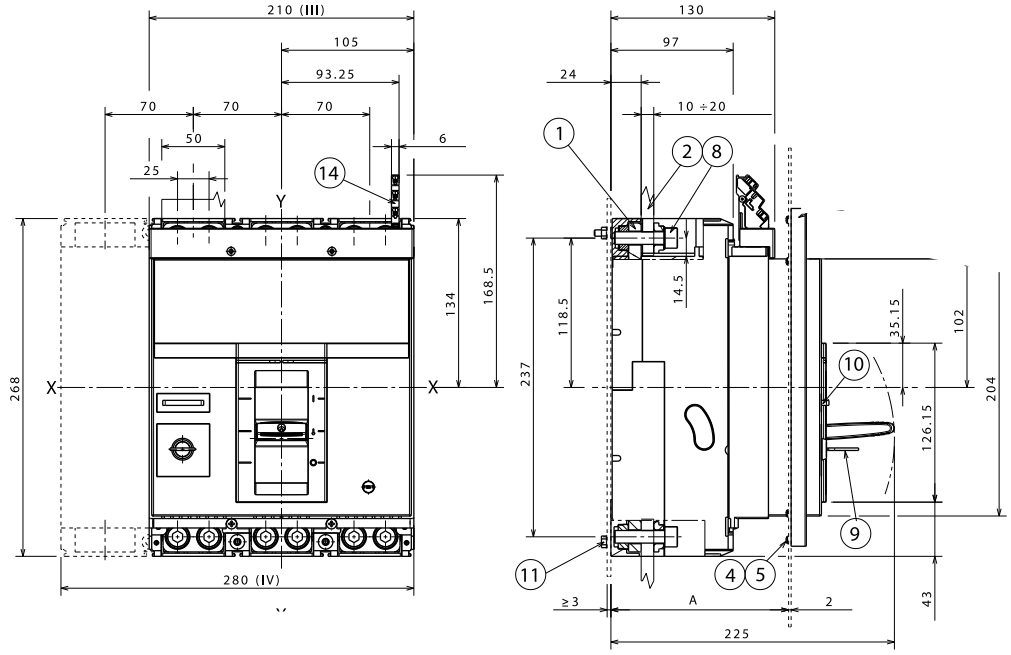
—
Key
7 Compartment door sheet steel drilling with flange



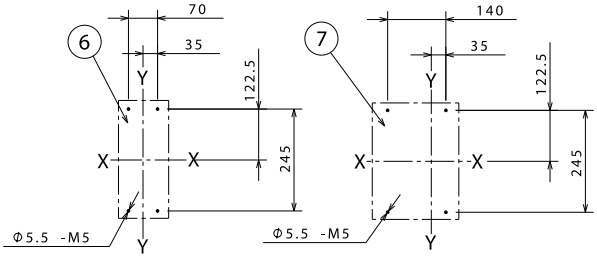
Tmax XT7 – Installation

Installation for fixed circuit-breaker

Fixing on sheet



Drilling templates for support sheet

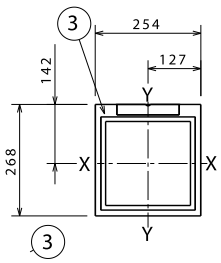


—

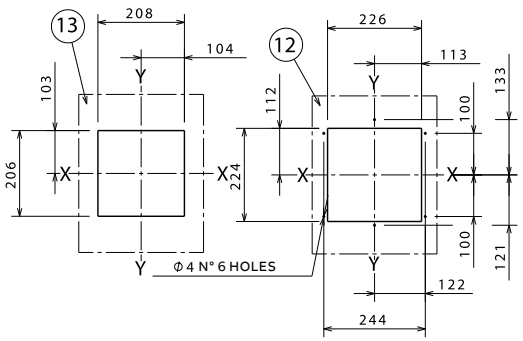
Key

1 Front terminals for flat connection
2 Extended front terminals
3 Flange for the compartment door
4 Flange fixing screws
5 Tightening torque 0.5 Nm - 4.4 lbs in
6 Fixing on sheet steel III
7 Fixing on sheet steel IV
8 Tightening torque 18 Nm - 159 lbs in
9 Key look (optional)
10 Padlock device (optional)
11 Tightening torque 2 Nm - 18 lbs in
12 Compartment door sheet steel drilling for flange
13 Compartment door sheet steel drilling for 206x204 frontal
14 Clamp for auxiliary contacts

Flange



Drilling templates compartment door

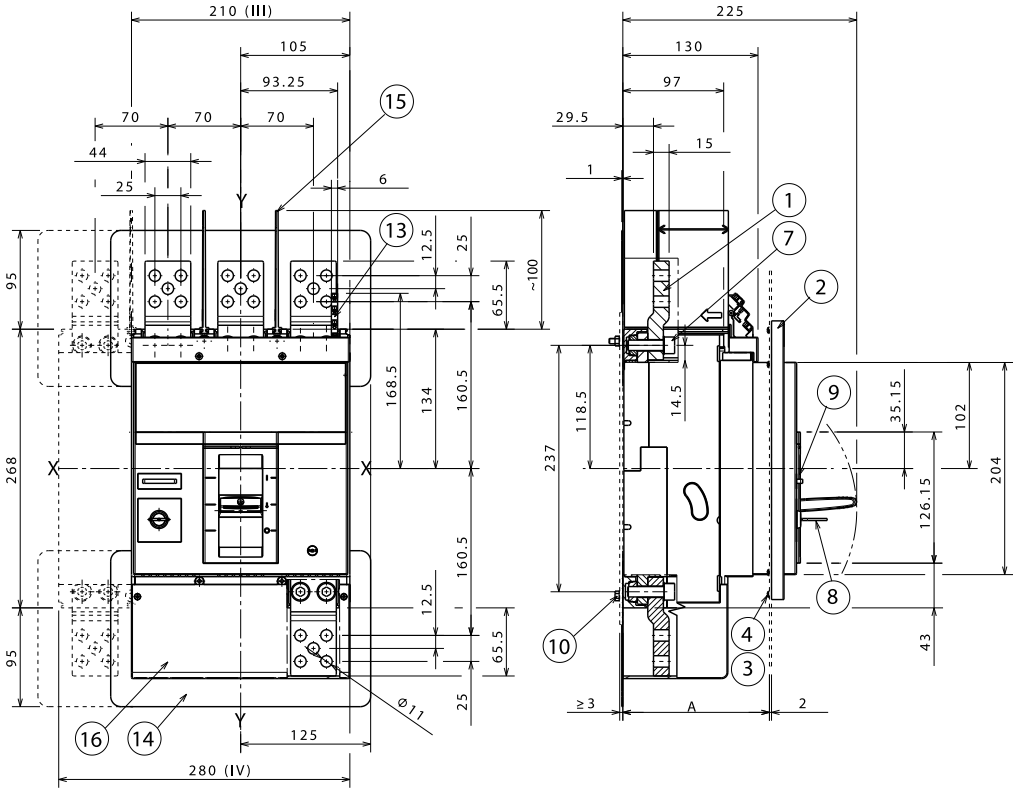


Tmax XT7 – Installation

Terminals for fixed circuit-breaker

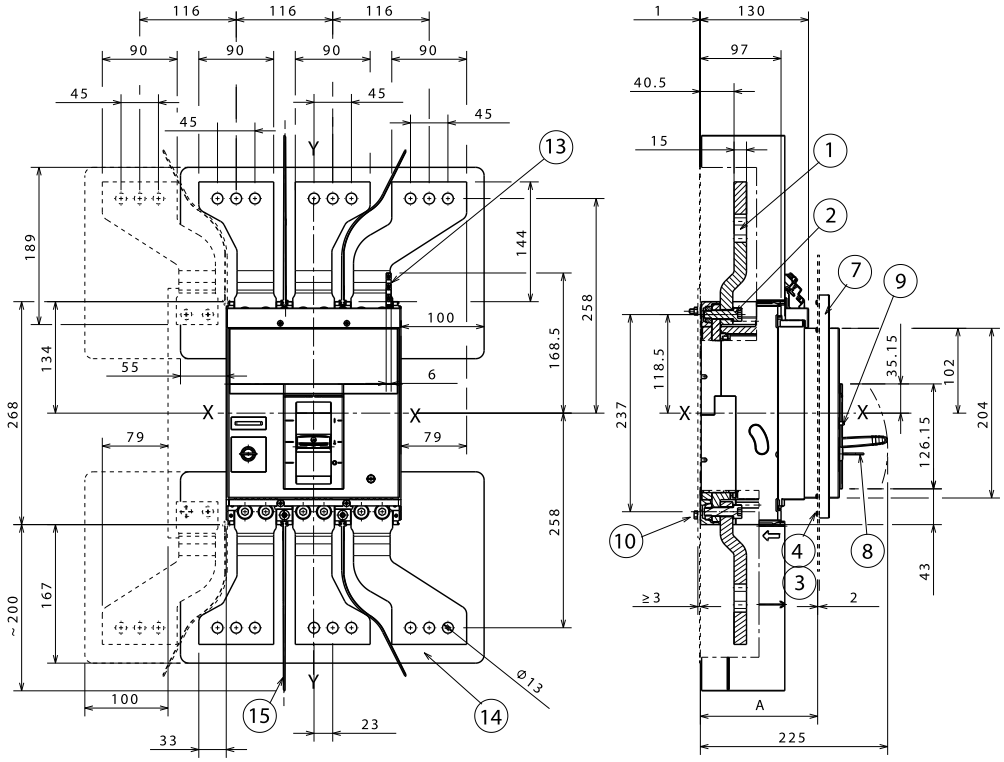
Terminals EF

Key
1 Extended front terminals EF
2 Flange for the compartment door
3 Flange fixing screws
4 Tightening torque 0.5 nm - 4.4 lbs in
7 Tightening torque 18 nm - 159 lbs in
8 Key look (optional)
9 Padlock device (optional)
10 Tightening torque 2 Nm - 18 lbs in
13 Clamp for auxiliary contacts
14 Insulating plate
15 Separating partitions 100mm
16 High terminal cover with IP40 protection degree



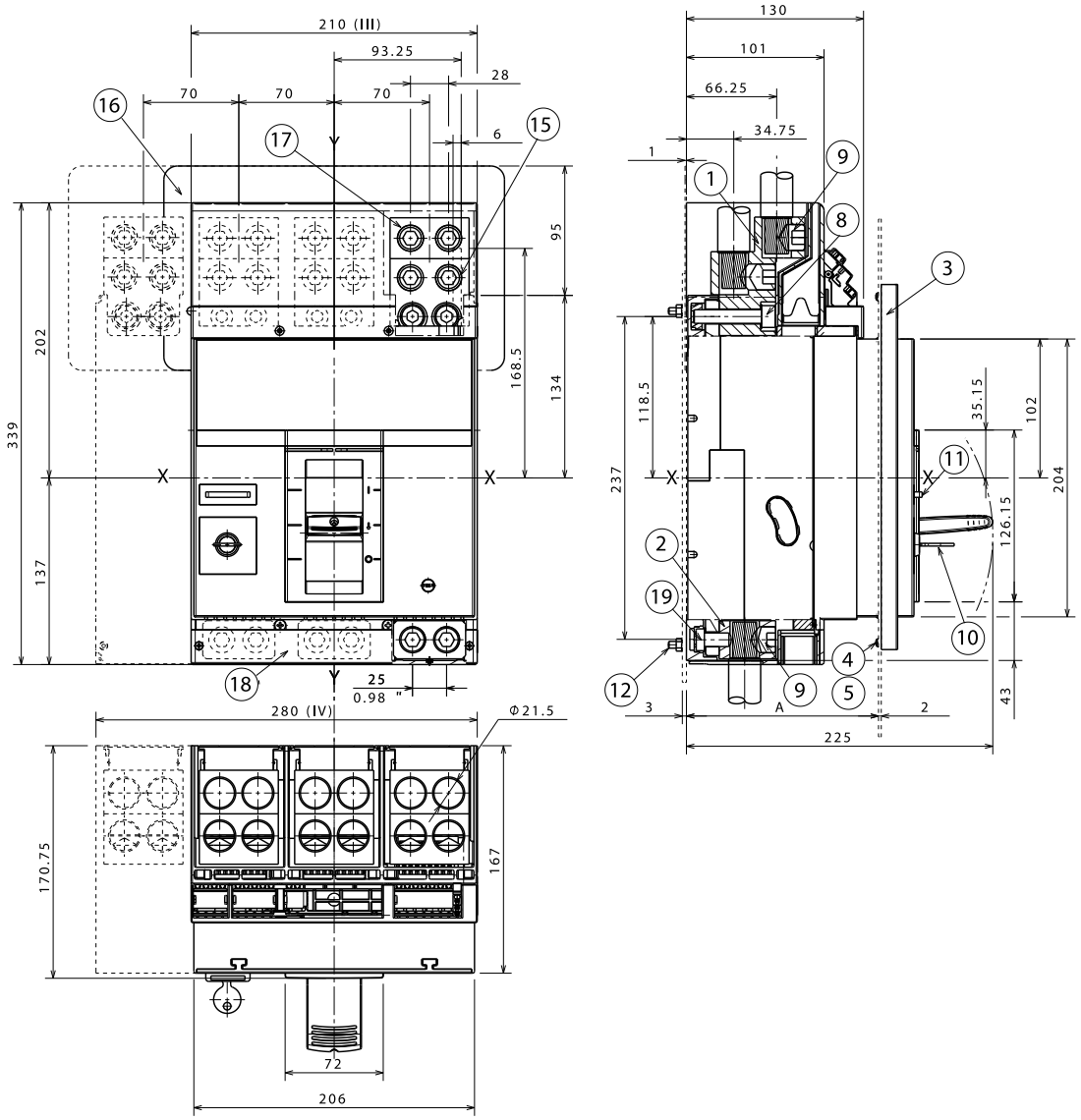
Terminals ES

Key
1 Spreadead extended front terminals ES
2 Flange for the compartment door
3 Flange fixing screws
4 Tightening torque 0.5 nm - 4.4 lbs in
7 Tightening torque 18 nm - 159 lbs in
8 Key look (optional)
9 Padlock device (optional)
10 Tightening torque 2 Nm - 18 lbs in
13 Clamp for auxiliary contacts
14 Insulating plate
15 Separating partitions 200mm



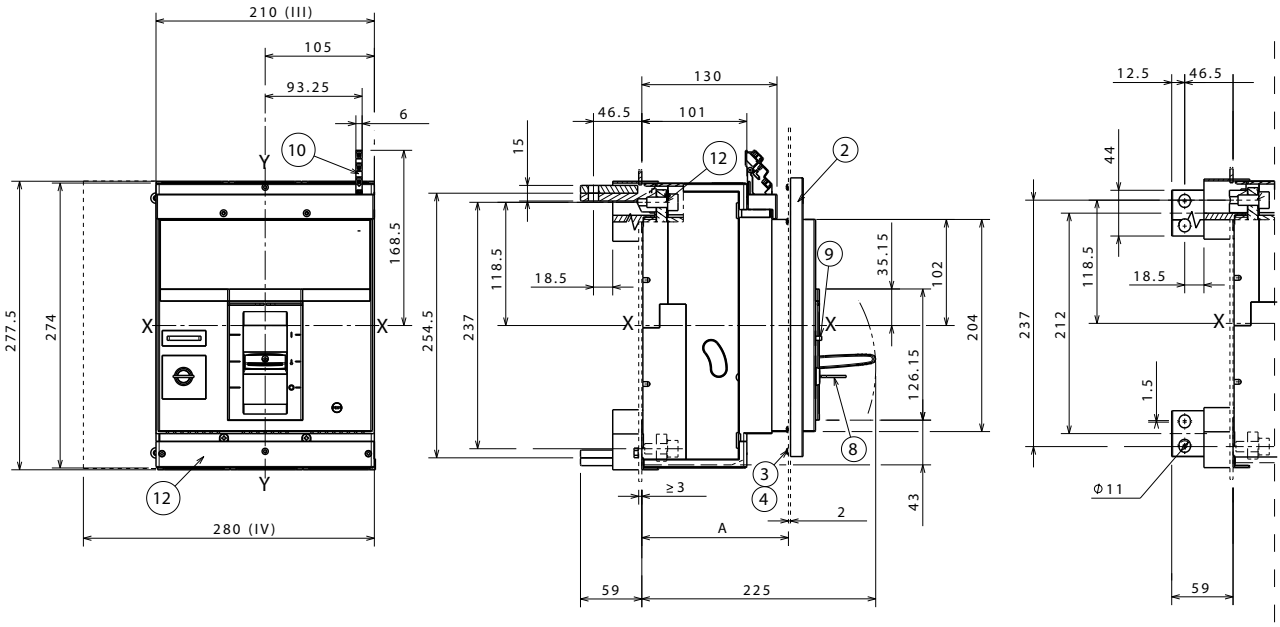
4 x 380mm² and 2 x 240mm² FC CuAl

Key
1 Fc Cu-Al terminal 4x240mm²
2 Fc Cu-Al terminal 2x240mm²
3 Flange for the compartment door
4 Flange fixing screws
5 Tightening torque 0.5 Nm - 4.4 lbs in
8 Tightening torque 18 Nm - 159 lbs in
9 Tightening torque 43 Nm - 380 lbs in
10 Key look (optional)
11 Padlock device (optional)
12 Tightening torque 2 Nm - 18 lbs in
15 Clamp for auxiliary contacts
16 Insulating plate
17 High terminal cover with IP40 protection degree
18 Low protection cover with IP30 protection degree
19 Tightening torque 18 Nm - 159 lbs in



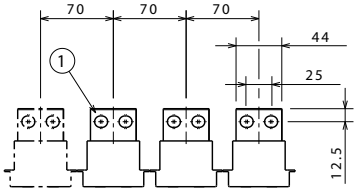
Tmax XT7 – Installation
Terminals for fixed circuit-breaker

Terminals HR/VR

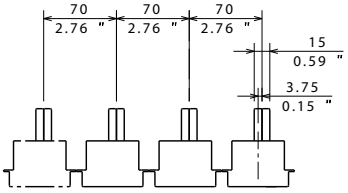


Key
1 HR horizontal rear terminal HR
2 Flange for the compartment door
3 Flange fixing screws
4 Tightening torque 0.5 Nm - 4,4 lbs in
8 Key lock (optional)
9 Padlock (optional)
10 Clamp for auxiliary contacts
12 Tightening torque 20 Nm - 177 lbs in
13 Tightening torque 2 Nm - 18 lbs in

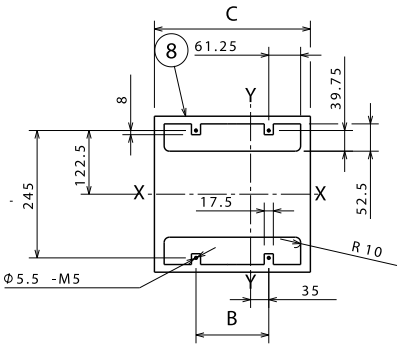
Terminals HR upper



Terminals VR lower



Key
8 Drilling template support plate

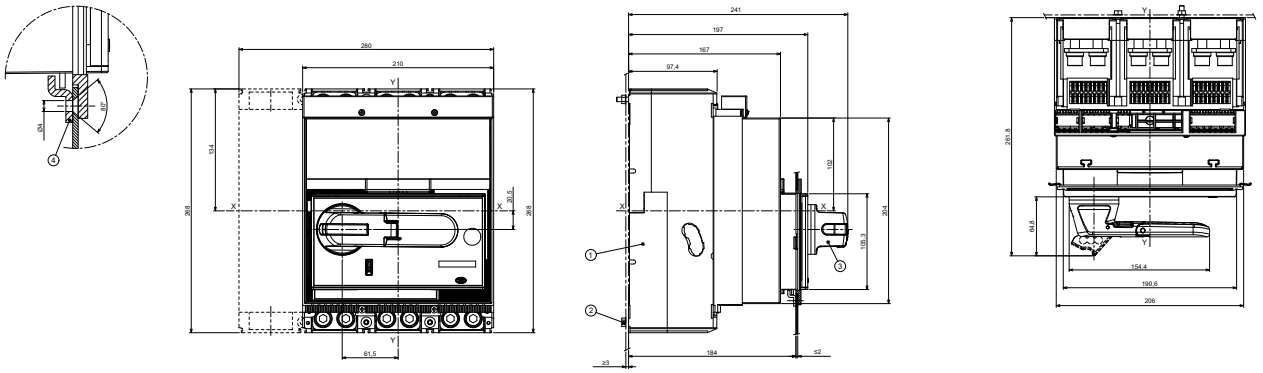


	III	IV
B	70	140
C	192.5	262.5

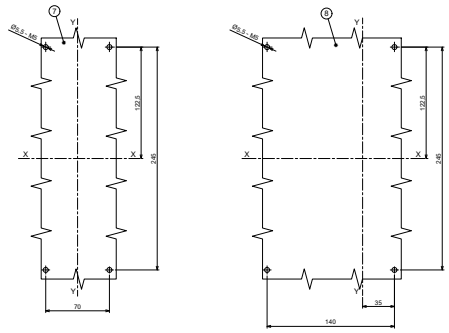
Tmax XT7 – Installation

Accessories for fixed circuit-breaker

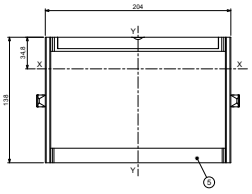
Rotary handle operating mechanism on the circuit-breaker (RHD)



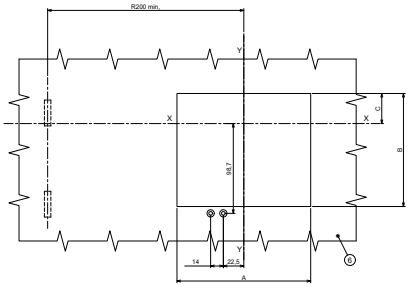
Drilling templates for support sheet



Flange



Drilling template compartment door



	A	B	C
With flange	201	116	24.25
Without flange	192	107	19.75

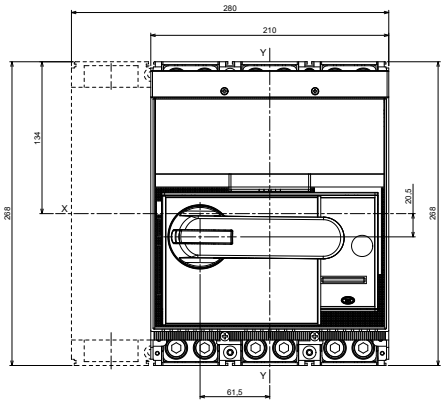
Key

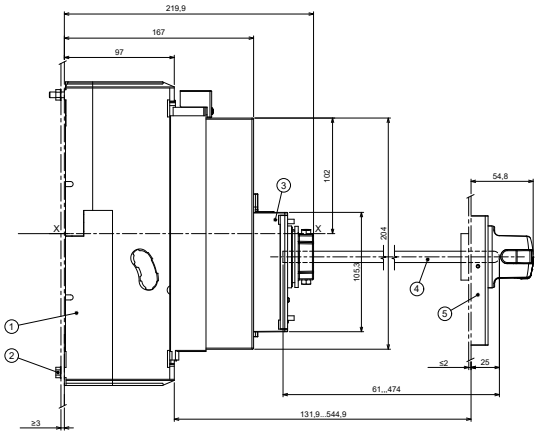
1 Base breaker
2 Tightening torque 2Nm
3 Rotary handle operating mechanism for circuit-breaker
4 Plate for door lock
5 Flange without gasket for the compartment door
6 Compartment door sheet steel drilling with/without flange
7 Fixing on sheet steel III
8 Fixing on sheet steel IV

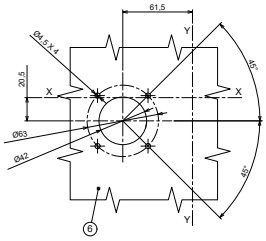
Tmax XT7 – Installation

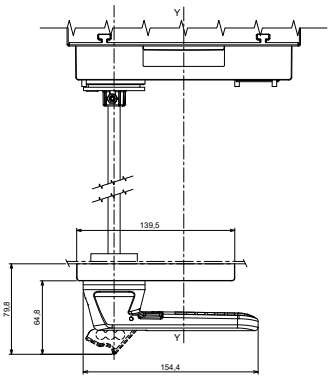
Accessories for fixed circuit-breaker

Rotary handle operating mechanism on the compartment door (RHE)









—

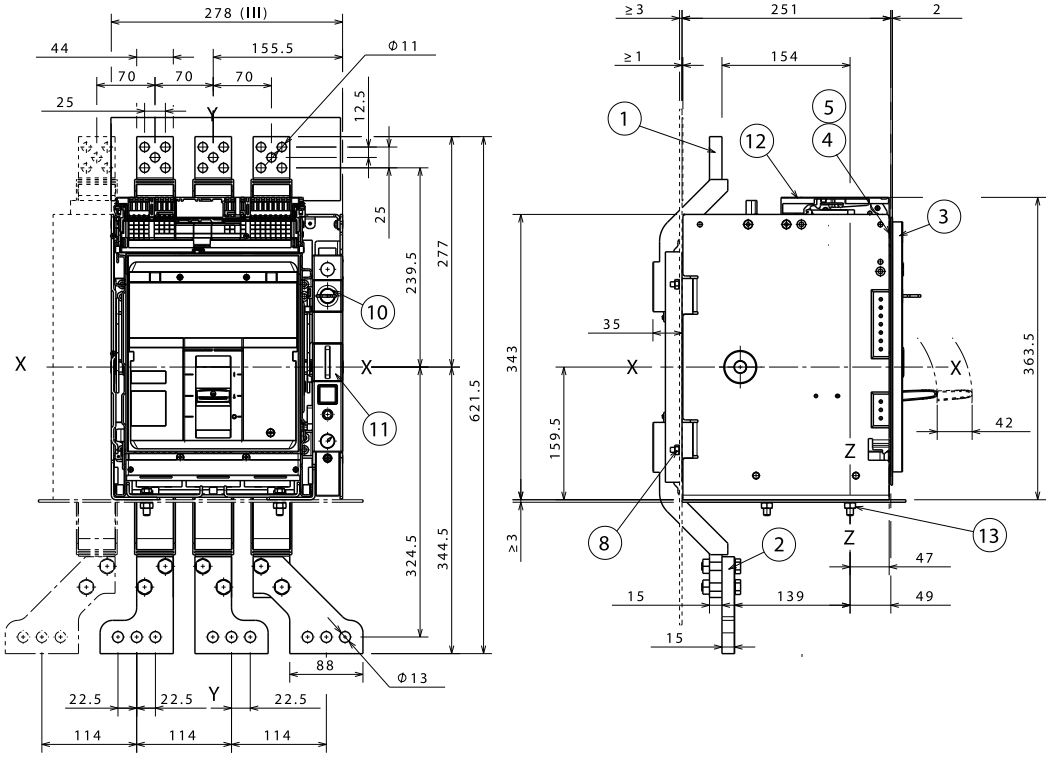
Key

1 Base breaker
2 Tightening torque 2Nm
3 Base for totary handle operating mechanism
4 500mm transmission ROD
5 Rotary handle operating mechanism of the compartment door
6 Compartment door sheet steel drilling

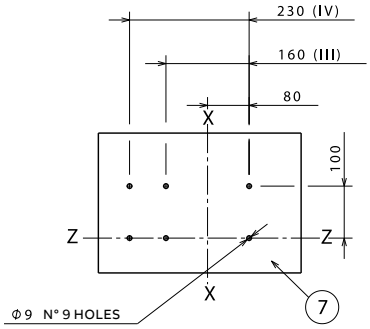
Tmax XT7 – Installation

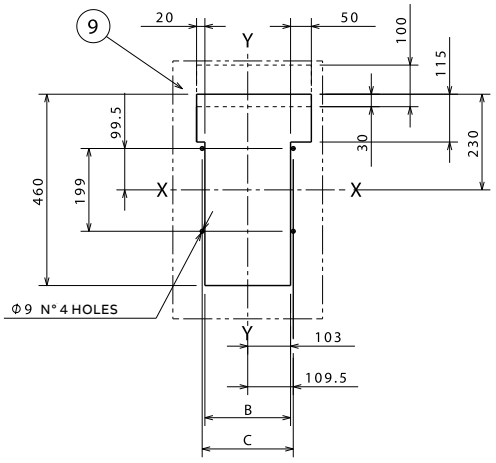
Installation for withdrawable circuit-breaker

Fixing on sheet

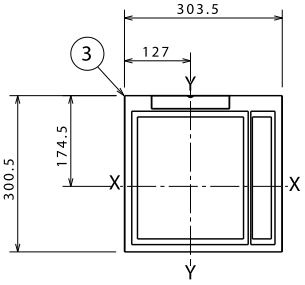


Drilling templates for support sheet

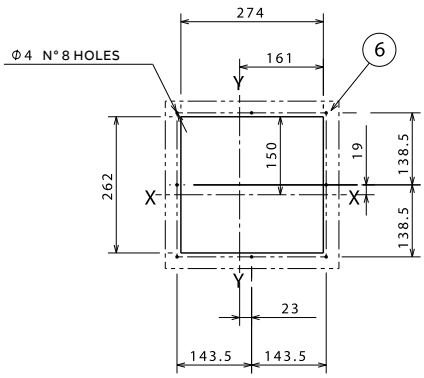




Flange



Drilling template compartment door



—

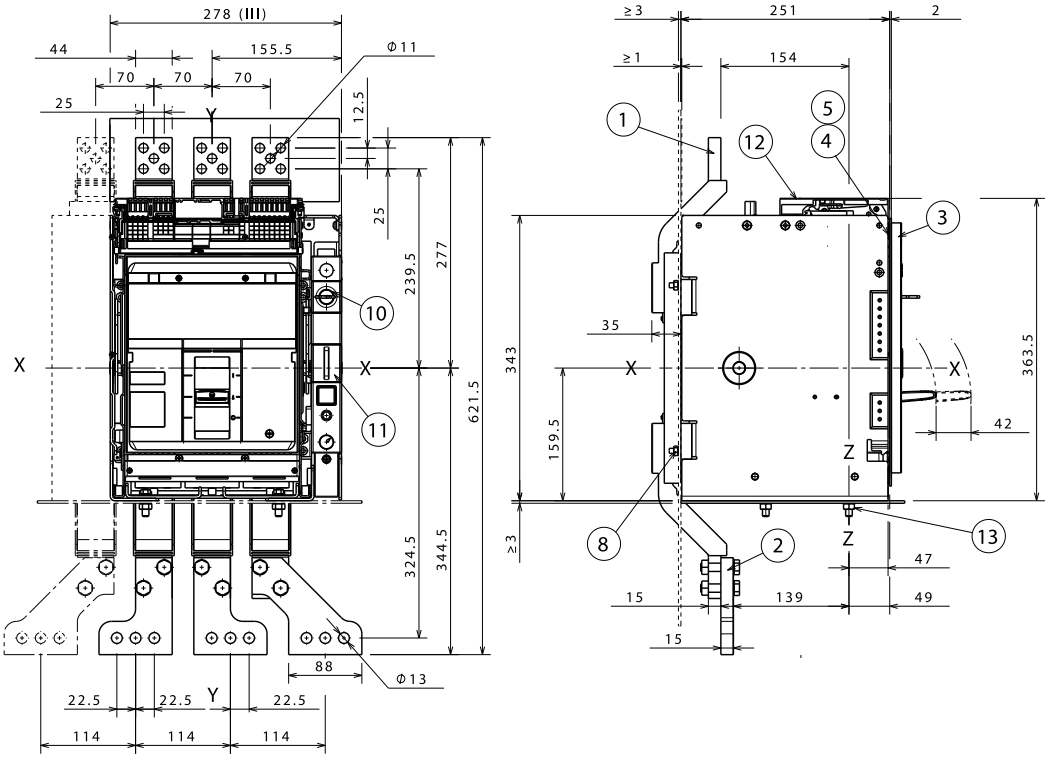
Key

1 EF front terminal
2 ES front terminal
3 Flange for the compartment door
4 Flange fixing screws
5 Tightening torque 0.5 Nm - 4.4 lbs in
6 Compartment door sheet steel drilling for flange
7 Fixing on sheet steel drilling template
8 Tightening torque 9 Nm - 79.6 lbs in
9 Mounting at wall
10 Key lock (optional)
11 Padlock (optional)
12 Clamp for auxiliary contacts
13 Tightening torque 9 Nm - 79.6 lbs in

Tmax XT7 – Installation

Terminals for withdrawable circuit-breaker

Terminals EF and ES

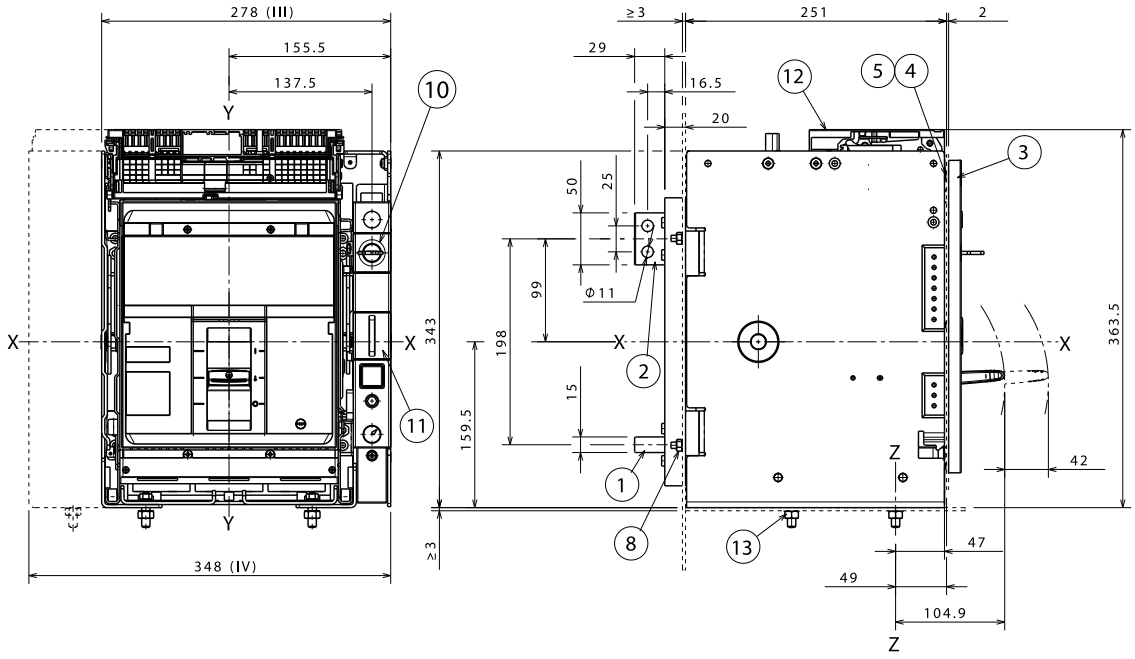


—

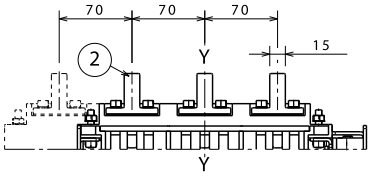
Key

1 EF front terminal
2 ES front terminal
4 Flange fixing screws
5 Tightening torque 0.5 Nm - 4.4 lbs in
8 Tightening torque 9 Nm - 79.6 lbs in
10 Key lock (optional)
11 Padlock (optional)
12 Clamp for auxiliary contacts
13 Tightening torque 9 Nm - 79.6 lbs in

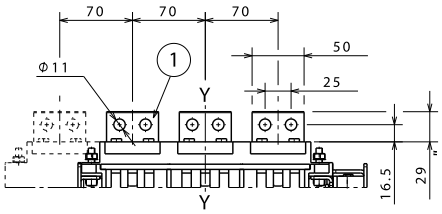
Terminals R

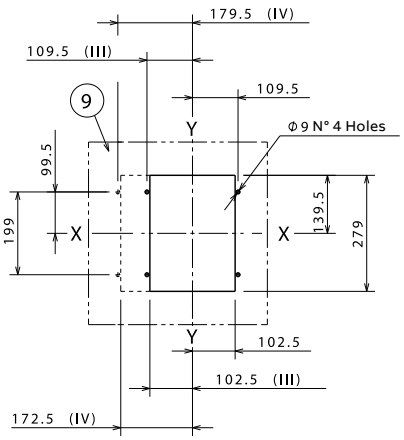


Terminals VR upper



Terminals HR lower





—

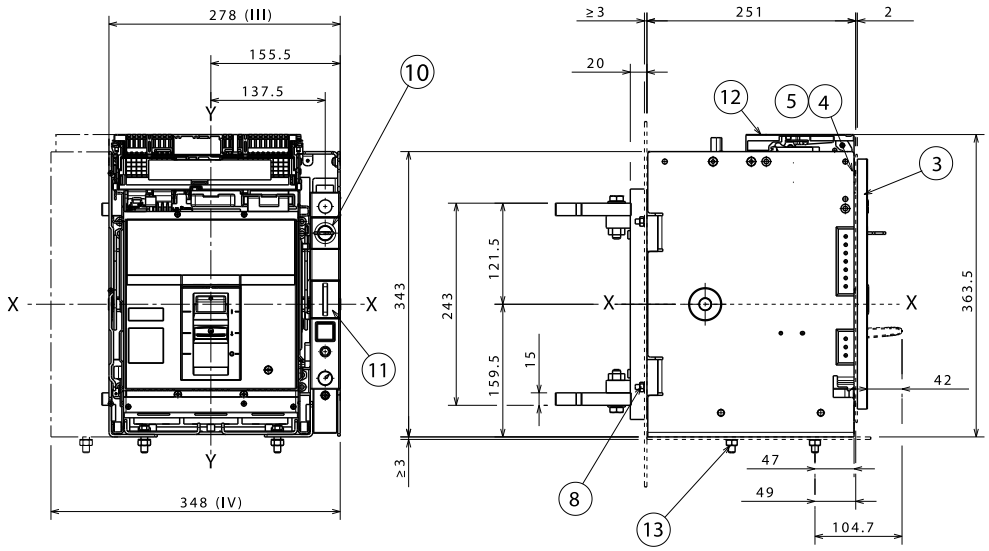
Key

1 HR horizontal rear terminal HR
2 VR vertical rear terminal VR
3 Flange for the compartment door
4 Flange fixing screws
5 Tightening torque 0.5 Nm - 4.4 lbs in
8 Tightening torque 9 Nm - 79.6 lbs in
9 Mounting at wall
10 Key lock (optional)
11 Padlock (optional)
12 Clamp for auxiliary contacts
13 Tightening torque 9 Nm - 79.6 lbs in

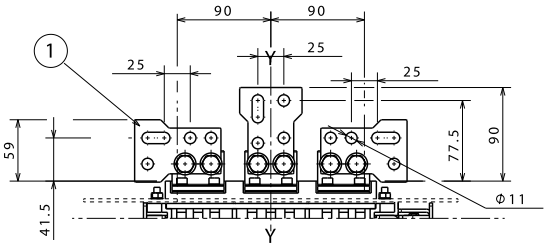
Tmax XT7 – Installation

Terminals for withdrawable circuit-breaker

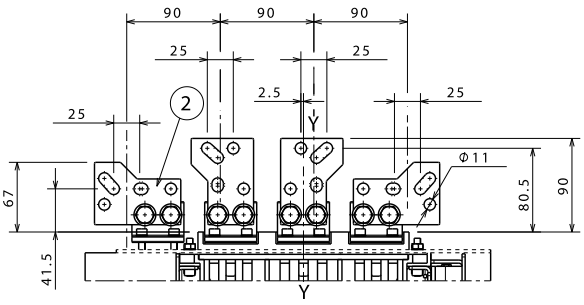
Terminals SHR

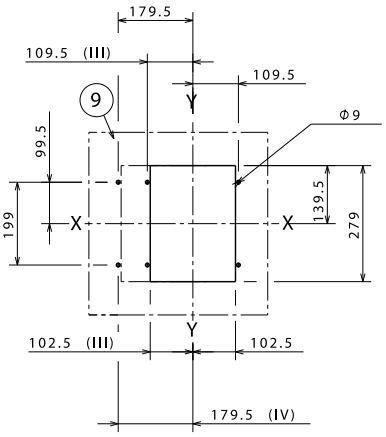


Terminals VR upper



Terminals HR lower



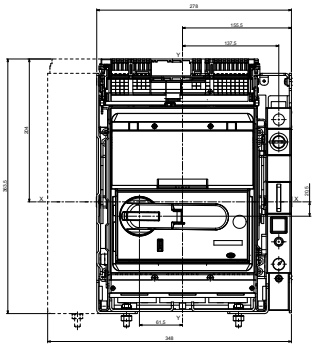


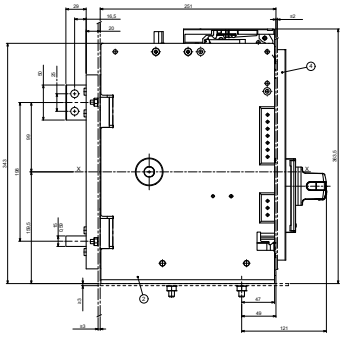
Key
1 SHR rear side terminals (III)
2 SHR rear side terminals (IV)
3 Flange for the compartment door
4 Flange fixing screws
5 Tightening torque 0.5 Nm - 4.4 lbs in
8 Tightening torque 9 Nm - 79.6 lbs in
9 Mounting at wall
10 Key lock (optional)
11 Padlock (optional)
12 Clamp for auxiliary contacts
13 Tightening torque 9 Nm - 79.6 lbs in

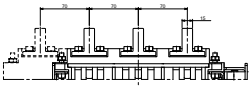
Tmax XT7 – Installation

Accessories for withdrawable circuit-breaker

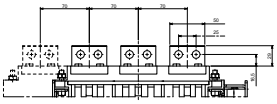
Rotary handle operating mechanism on the circuit-breaker (RHD)



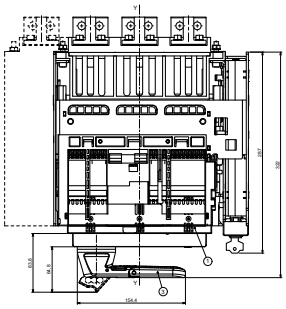




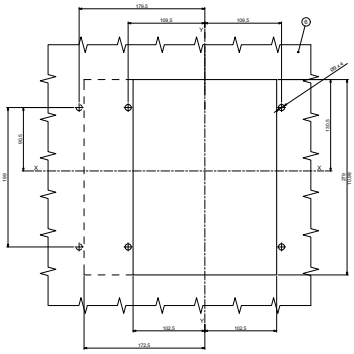
Terminals VR upper

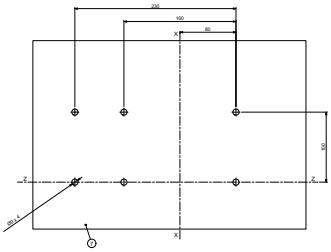


Terminals HR lower



Drilling templates for support sheet



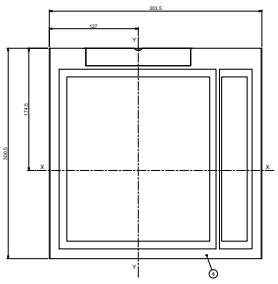


—

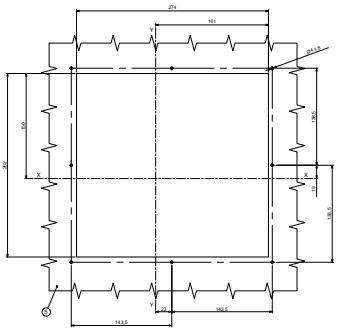
Key

1 Moving part
2 Fixed part
3 Rotary handle operating mechanism for circuit-breaker
4 Flange for the compartment door
5 Compartment door sheet steel drilling for flange
6 Mounting at wall
7 Fixing on sheet steel drilling template

Flange



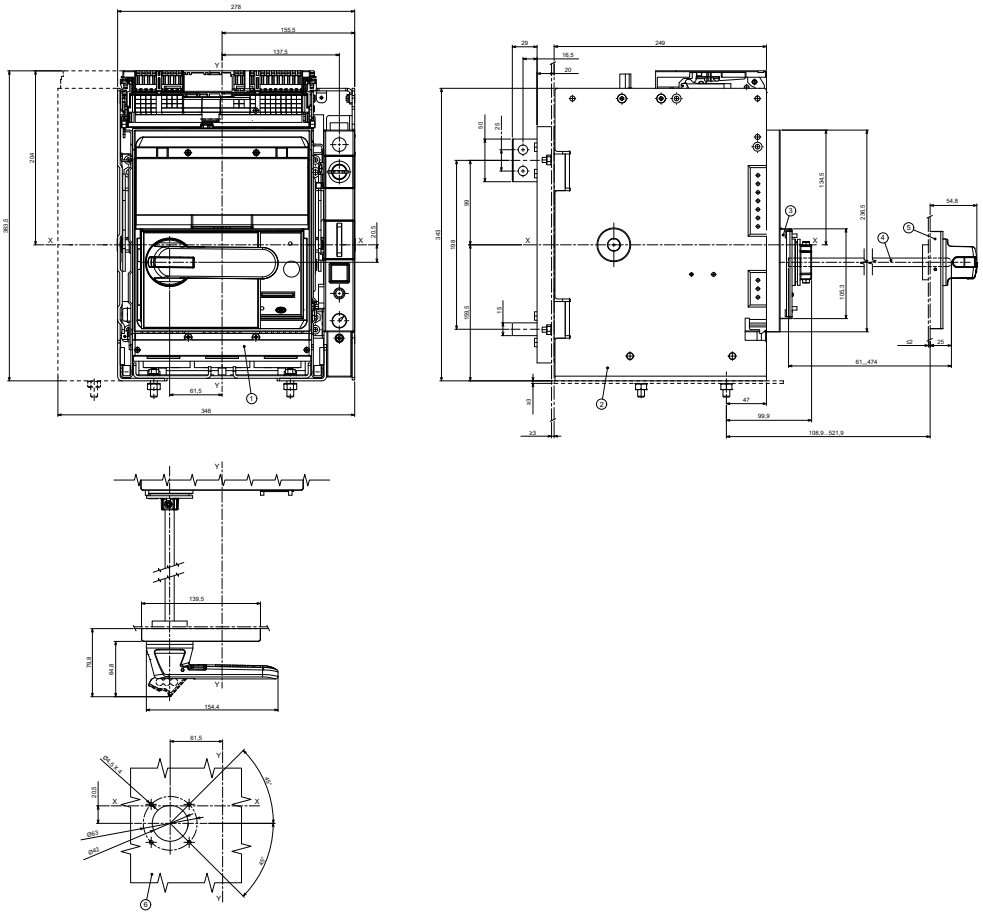
Drilling template compartment door



Tmax XT7 – Installation

Accessories for withdrawable circuit-breaker

Rotary handle operating mechanism on the compartment door (RHE)

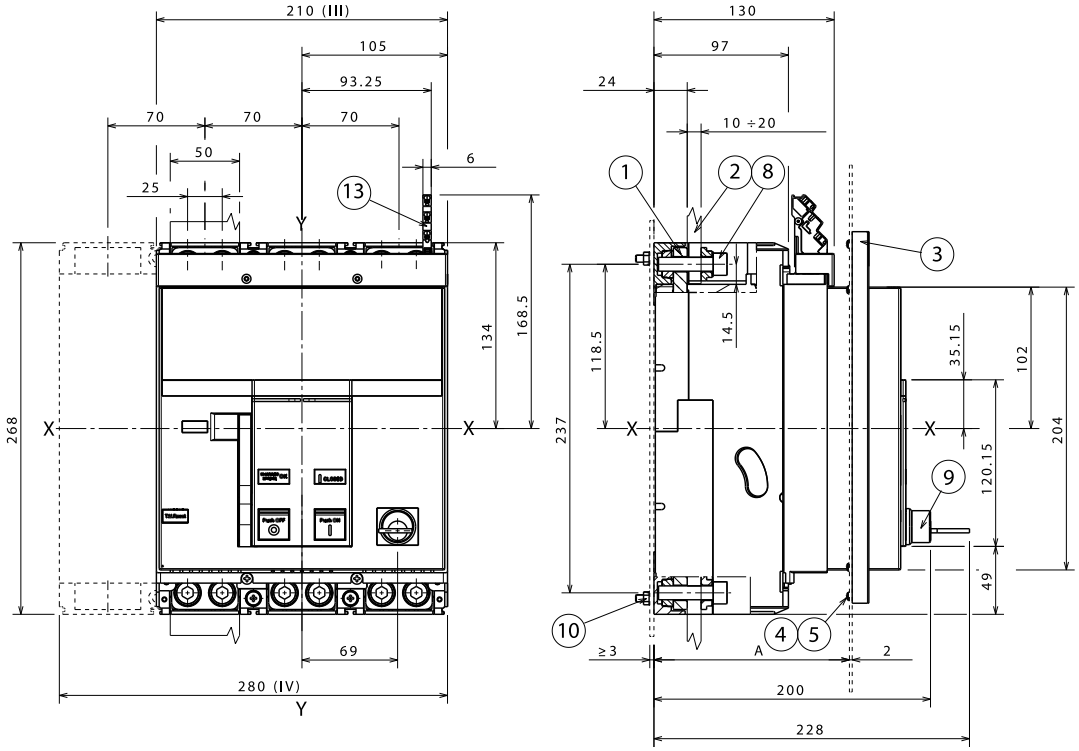


Key
1 Base breaker
2 Fixed part
3 Base for rotary handle operating mechanism
4 500mm transmission ROD
5 Rotary handle operating mechanism of the compartment door
6 Compartment door sheet steel drilling

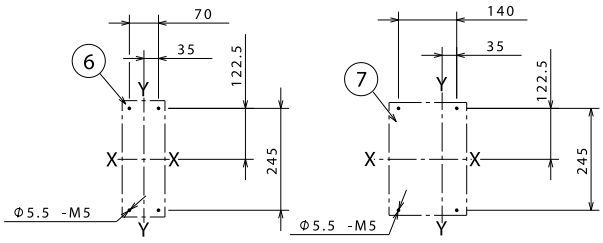
Tmax XT7 M – Installation

Installation for fixed circuit-breaker

Fixing on sheet



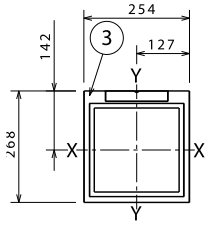
Drilling templates for support sheet



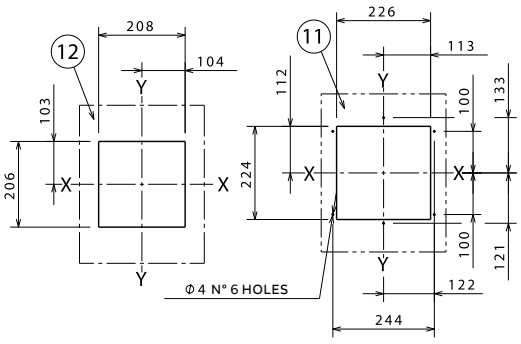
Key

1 Front terminals for flat connection
2 Extended front terminals
3 Flange for the compartment door
4 Flange fixing screws
5 Tightening torque 0.5 Nm - 4.4 lbs in
6 Fixing on sheet steel III
7 Fixing on sheet steel IV
8 Tightening torque 18 Nm - 159 lbs in
9 Key look (optional)
10 Tightening torque 2 Nm - 18 lbs in
11 Compartment door sheet steel drilling for flange
12 Compartment door sheet steel drilling for 206x204 frontal
13 Clamp for auxiliary contacts

Flange



Drilling templates compartment door

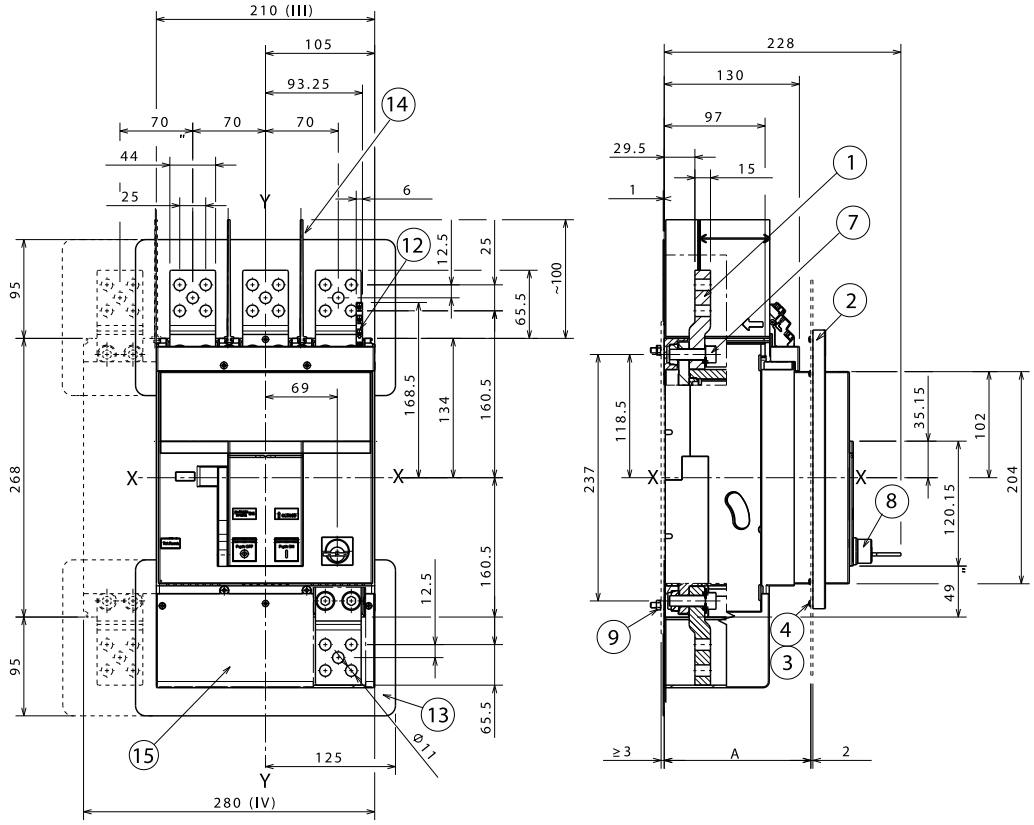


Tmax XT7 M – Installation

Terminals for fixed circuit-breaker

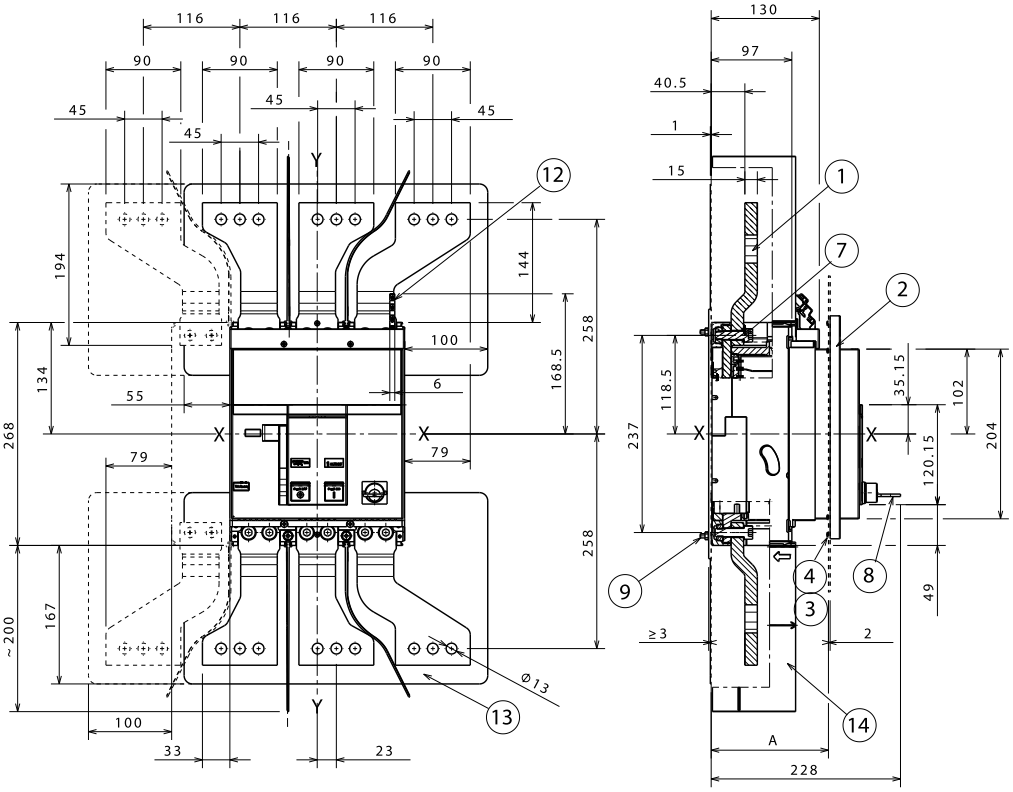
Terminals EF

Key
1 Extended front terminals EF
2 Flange for the compartment door
3 Flange fixing screws
4 Tightening torque 0,5 Nm - 4,4 lbs in
7 Tightening torque 18 Nm - 159 lbs in
8 key look (optional)
9 Tightening torque 2Nm - 18 lbs in
12 Clamp for auxiliary contacts
13 Insulating plate
14 Separating partitions 100mm
15 High terminal cover with IP40 protection degree



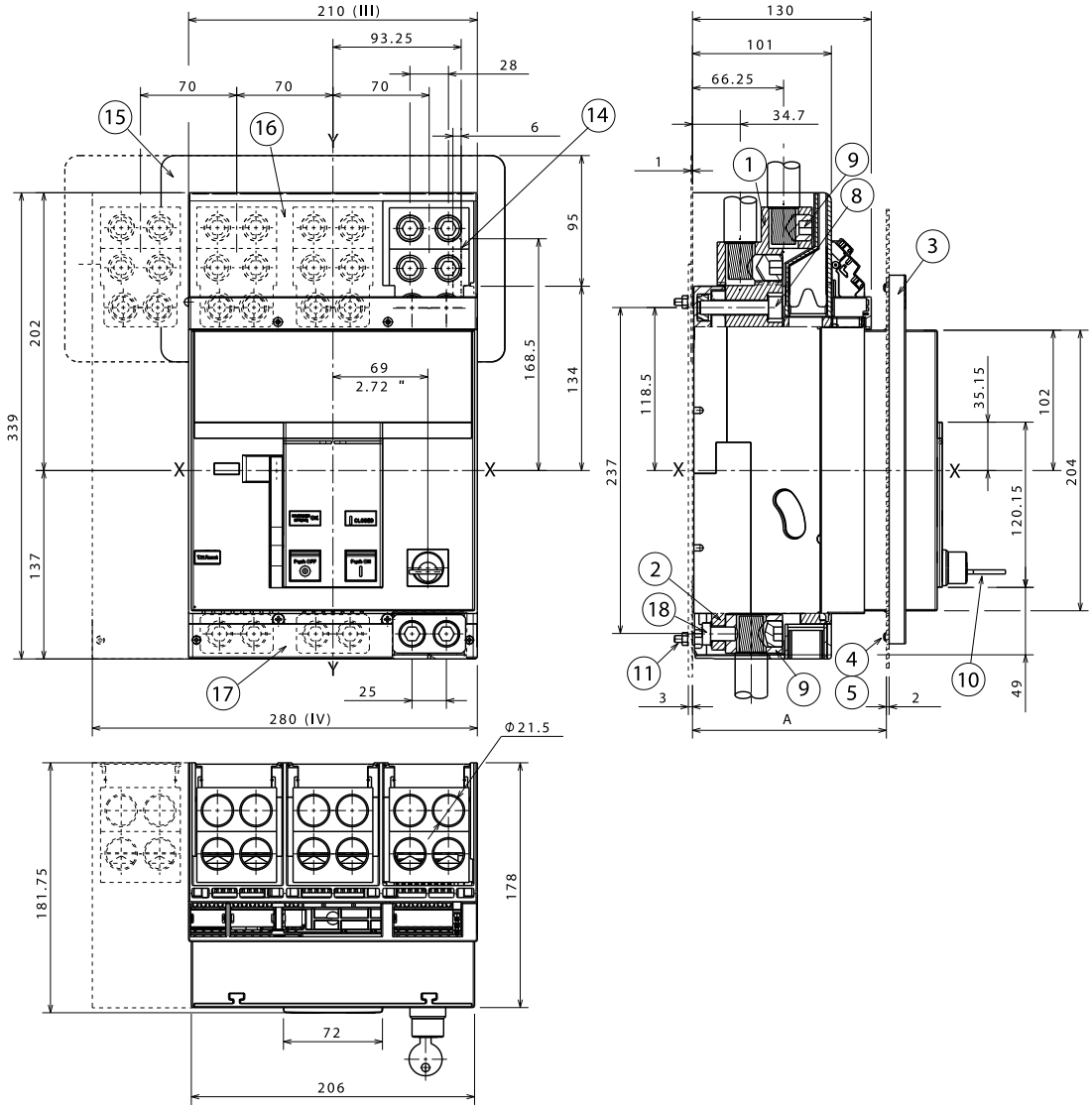
Terminals ES

Key
1 Spreadead extended front terminals ES
2 Flange for the compartment door
3 Flange fixing screws
4 Tightening torque 0.5 Nm - 4.4 lbs in
7 Tightening torque 18 Nm - 159 lbs in
8 Key look (optional)
9 Tightening torque 2 Nm - 18 lbs in
12 Clamp for auxiliary contacts
13 Insulating plate



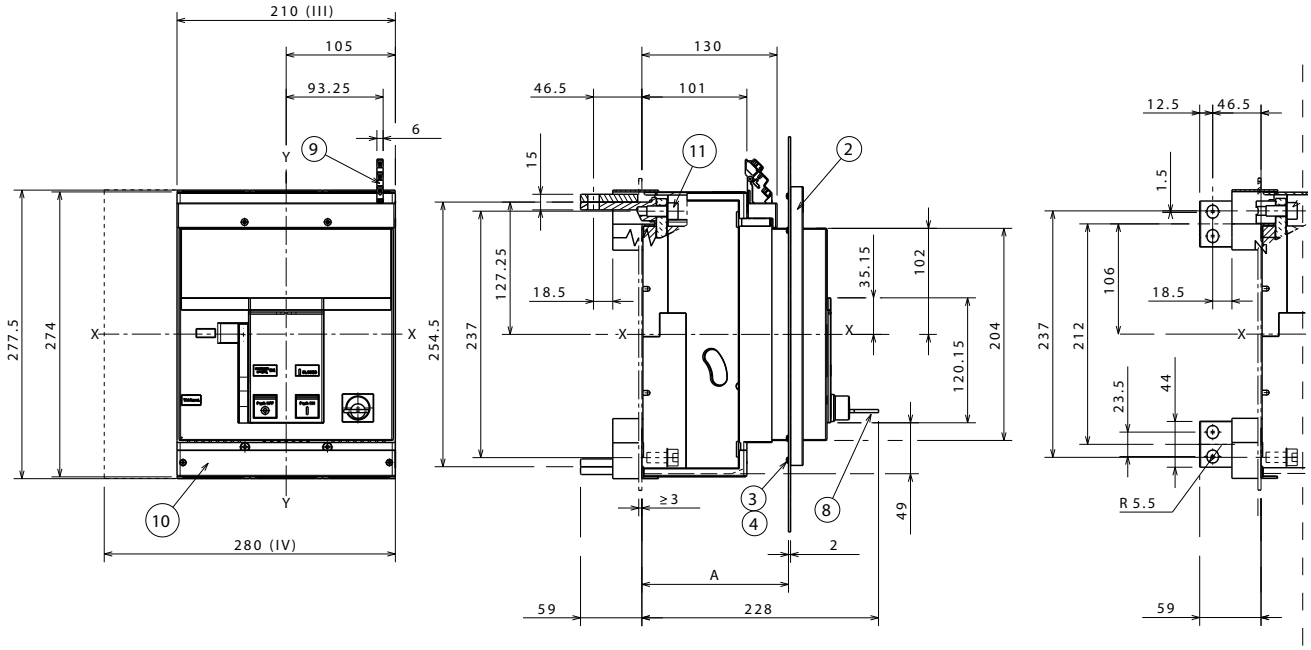
4 x 380mm² and 2 x 240mm² FC CuAl

Key
1 Fc Cu-Al terminal 4x240mm²
2 Fc Cu-Al terminal 2x240mm²
3 Flange for the compartment door
4 Flange fixing screws
5 Tightening torque 0.5 Nm - 4.4 lbs in
8 Tightening torque 18 Nm - 159 lbs in
9 Tightening torque43 Nm - 380 lbs in
10 Key look (optional)
11 Tightening torque 2 Nm - 18 lbs in
14 Clamp for auxiliary contacts
15 Insulating plate
16 High terminal cover with ip40 protection degree
17 Low protection cover with ip30 protection degree
18 Tightening torque 18 Nm - 159 lbs in



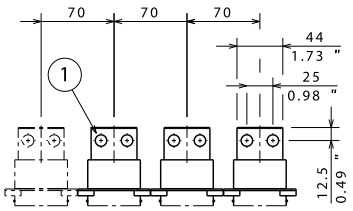
Tmax XT7 M – Installation
Terminals for fixed circuit-breaker

Terminals HR/VR

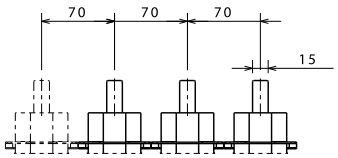


—
Key
1 HR horizontal rear terminal HR
2 Flange for the compartment door
3 Flange fixing screws
4 Tightening torque 0.5 Nm - 4,4 lbs in
8 Key lock (optional)
9 Padlock (optional)
10 Clamp for auxiliary contacts
11 Tightening torque 20 Nm - 177 lbs in

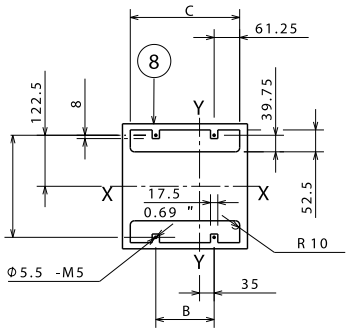
Terminals HR upper



Terminals VR lower



—
Key
8 Drilling template support plate

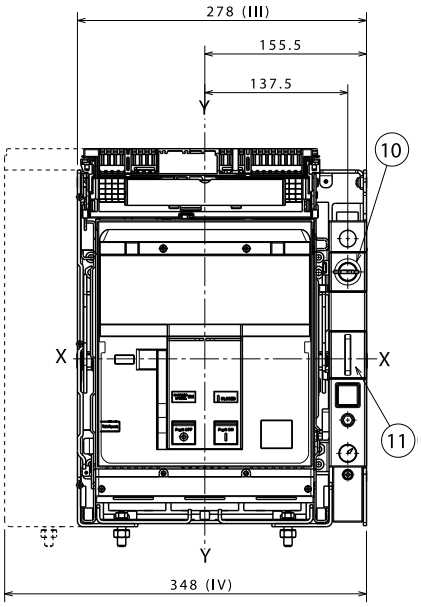


	III	IV
B	70	140
C	192.5	262.5

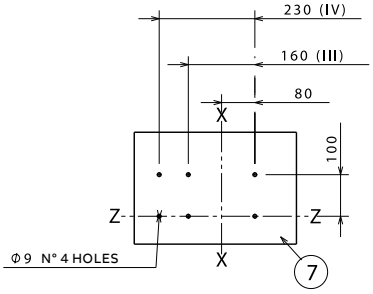
Tmax XT7 M – Installation

Installation for withdrawable circuit-breaker

Fixing on sheet



Drilling template for support sheet

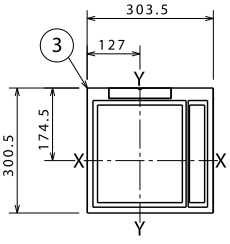


—

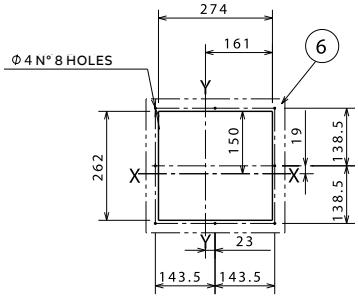
Key

3 Flange for the compartment door
6 Compartment door sheet steel drilling for flange
7 Fixing on sheet steel drilling template
10 Key lock (optional)
11 Padlock (optional)

Flange



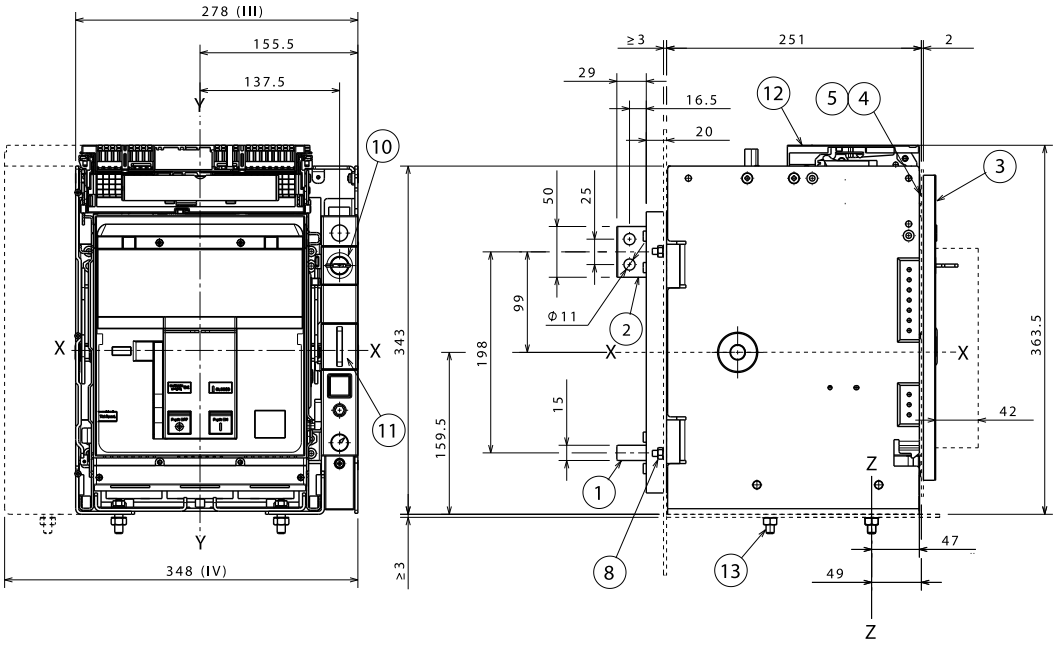
Drilling template compartment door



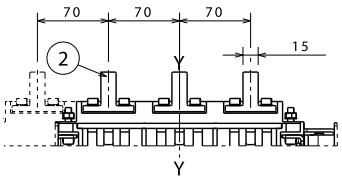
Tmax XT7 M – Installation

Terminals for withdrawable circuit-breaker

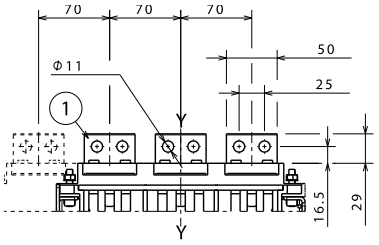
Terminals R

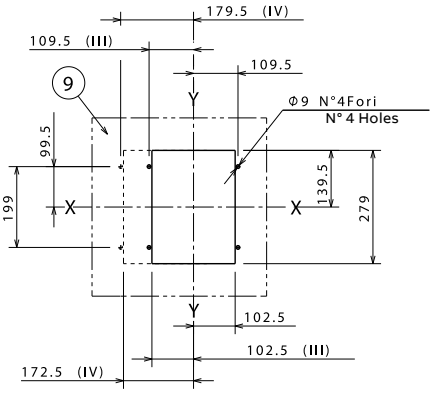


Terminals VR lower



Terminals HR lower





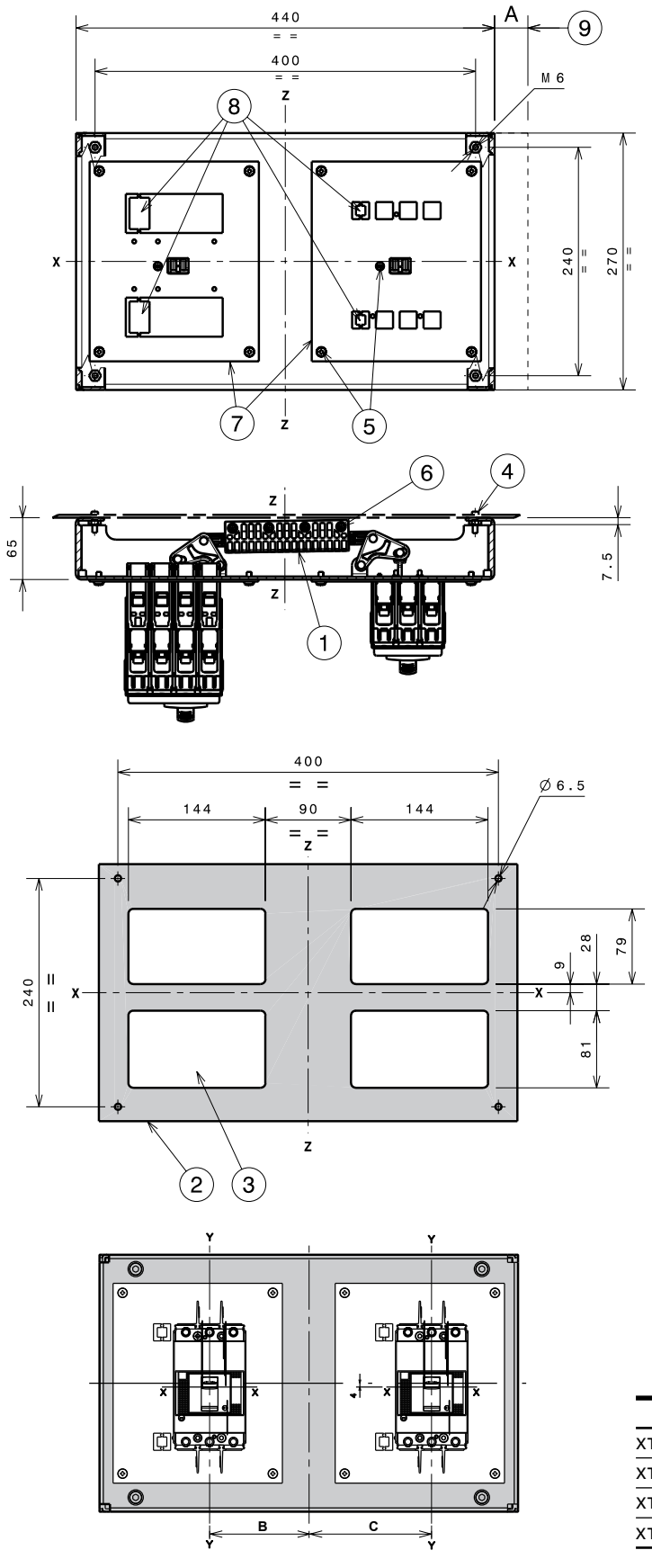
—

Key

1 HR horizontal rear terminal HR
2 VR vertical rear terminal VR
3 Flange for the compartment door
4 Flange fixing screws
5 Tightening torque 0.5 Nm - 4.4 lbs in
8 Tightening torque 9 Nm - 79.6 lbs in
9 Mounting at wall
10 Key lock (optional)
11 Padlock (optional)
12 Clamp for auxiliary contacts
13 Tightening torque 9 Nm - 79.6 lbs in

Tmax XT – Common accessories

Horizontal interlock XT series



—

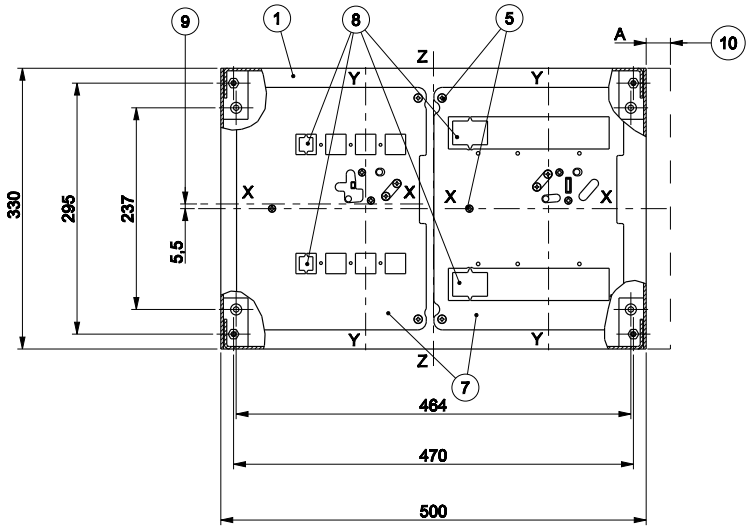
Key

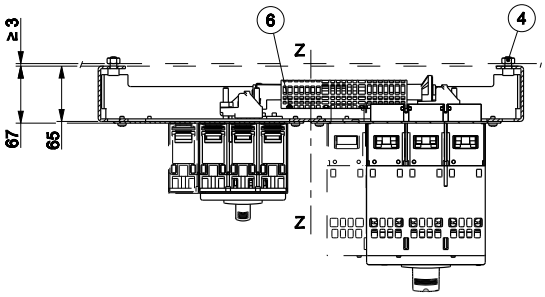
1 Interlocking mechanism
2 Drilling template for fixing interlocking system
3 Drilling template for all version with rear terminals
4 Tightening torque 3.7Nm
5 Tightening torque 3Nm
6 Tightening torque 2.5Nm
7 Couplink plate for circuit-breakers
8 Breaking for 4p version
9 A = 35mm XT4 withdrawable with key lock for fixed part
A = 25mm XT2 withdrawable with key lock for fixed part

	B	C
XT1	104.25	129.25
XT2	101.75	131.75
XT3	99.75	133.75
XT4	99.25	134.25

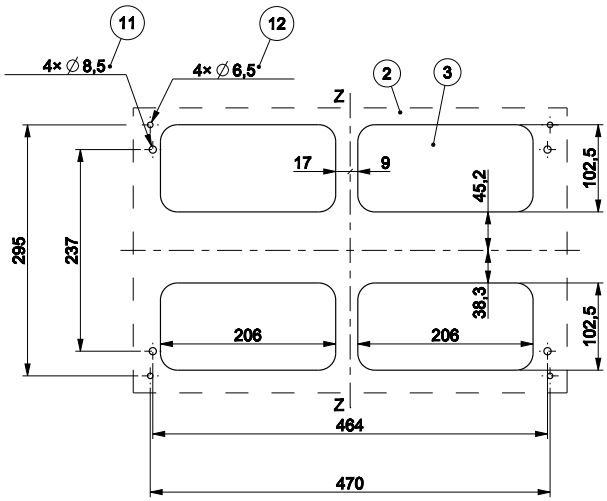
Tmax XT – Common accessories
Horizontal interlock XT series

Horizontal interlock between two circuit breakers (MIR-H)

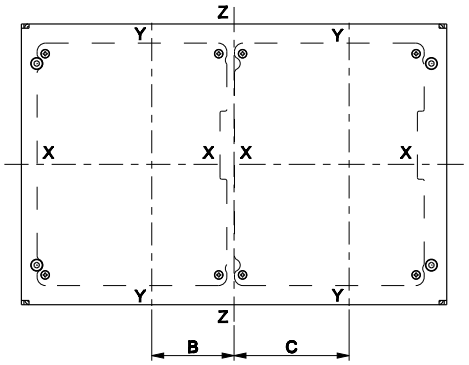




Drilling template



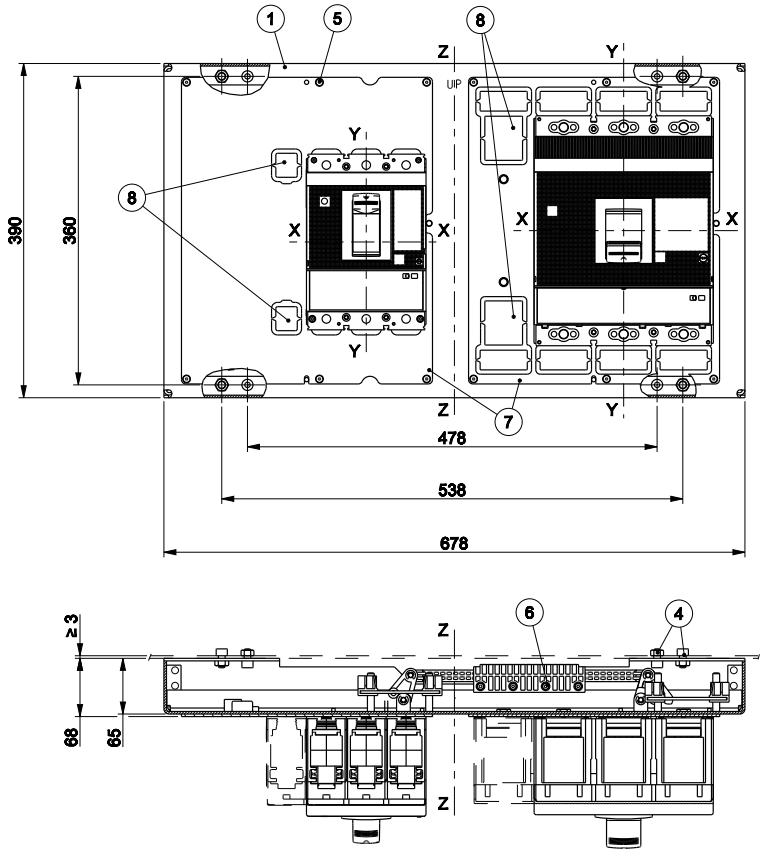
Interlocking plate



—
Key
1 Interlocking mechanism
2 Drilling template for fixing interlocking system
3 Drilling template for all version with rear terminals
4 Tightening torque 3,7Nm
5 Tightening torque 3Nm
6 Tightening torque 2,5Nm
7 Interlocking plate for circuit-breakers
8 Breaking for 4p version
9 Dimension for XT4 circuit-breaker only
10 A = 23mm XT4 withdrawable with key lock for fixed part
A = 28,5mm XT5 withdrawable with key lock for fixed part
11 Hole for front mounting only
12 Hole for rear mounting only

Type	Description	B	C
Plate A	XT4 F	79.75	152.25
Plate B	XT4 P/W	79.75	152.25
Plate C	XT5 F	96.75	135.25
Plate D	XT5 400 P/W	96.75	135.25
Plate E	XT5 630 P/W	96.75	135.25

Horizontal interlock between two circuit breakers (MIR-H)



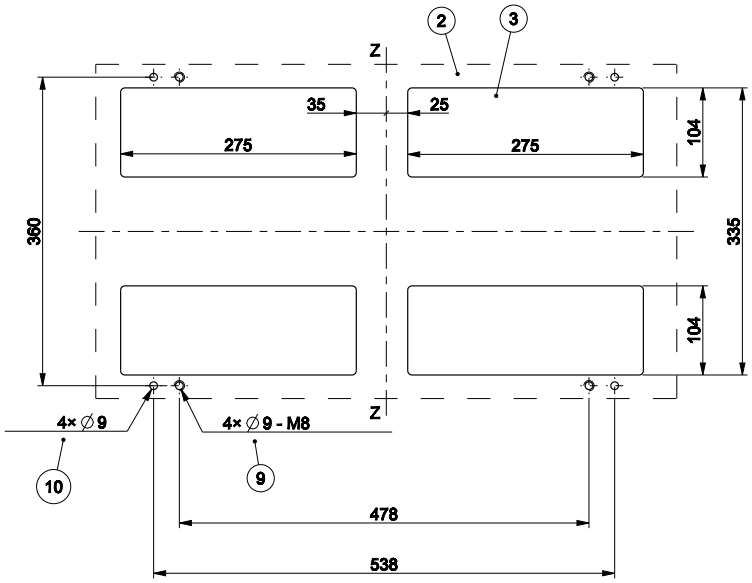
—

Key

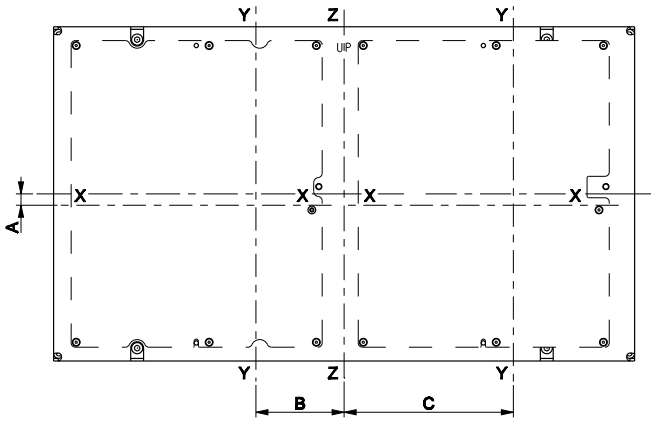
1 Interlocking mechanism
2 Drilling template for fixing interlocking system
3 Drilling template for all version with rear terminals
4 Tightening torque 18Nm
5 Tightening torque 3Nm
6 Tightening torque 3Nm
7 Interlocking plate for circuit-breakers
8 Breaking for 4P version

Tmax XT – Common accessories
Horizontal interlock XT series

Drilling template



Interlocking plate

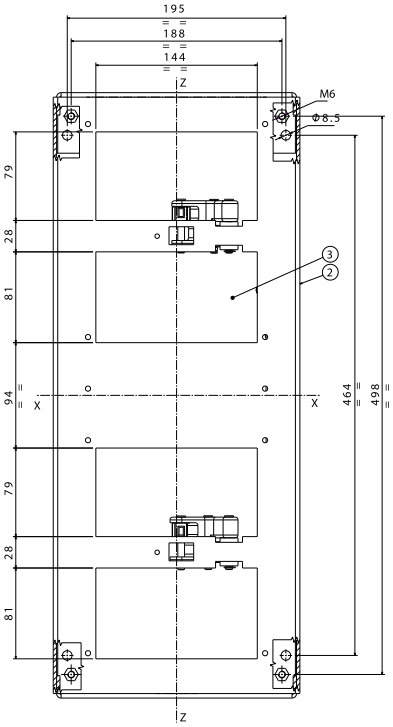


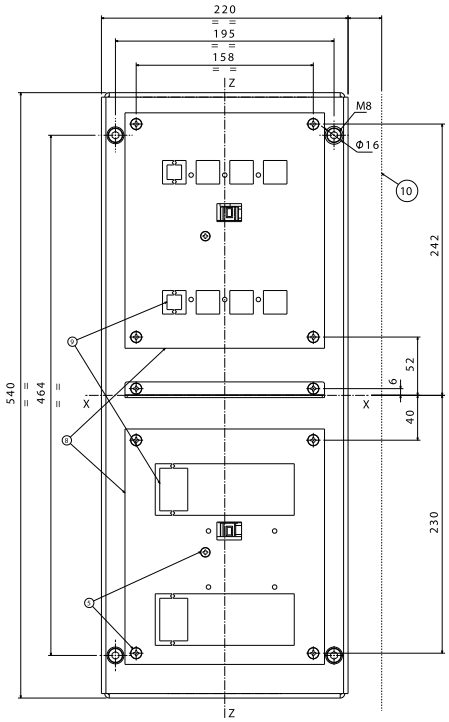
—
Key
9 - 4×Ø9-M8 hole for front mounting only
10 - 4×Ø9 hole for rear mounting only

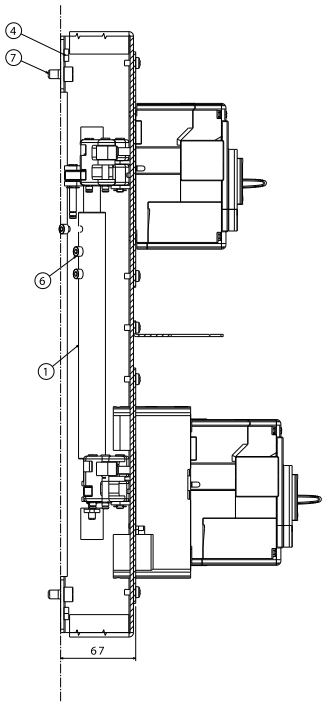
Couplink plate type	A	B	C
MIR-P XT5 F	13.25	102.9	232.1
MIR-P XT5 P/W 400	13.25	102.9	232.1
MIR-P XT5 P/W 630	13.25	102.9	232.1
MIR-P XT6 F	0	137.5	197.5
MIR-P XT6 W	0	137.5	197.5

Tmax XT – Common accessories

Vertical interlock XT series







—

Key

1 Interlock device
2 Drilling template for fixing the interlock device on sheet Steel
3 Drilling template for all rear terminal version
4 Tightening torque 9Nm
6 Tightening torque 1Nm
7 Tightening torque under customer's responsibility
9 Pre-drilling for 4P version
10 A=35mm for XT4 fixed part Withdrawable with padlock device A=30mm for XT2 fixed part withdrawable with padlock device

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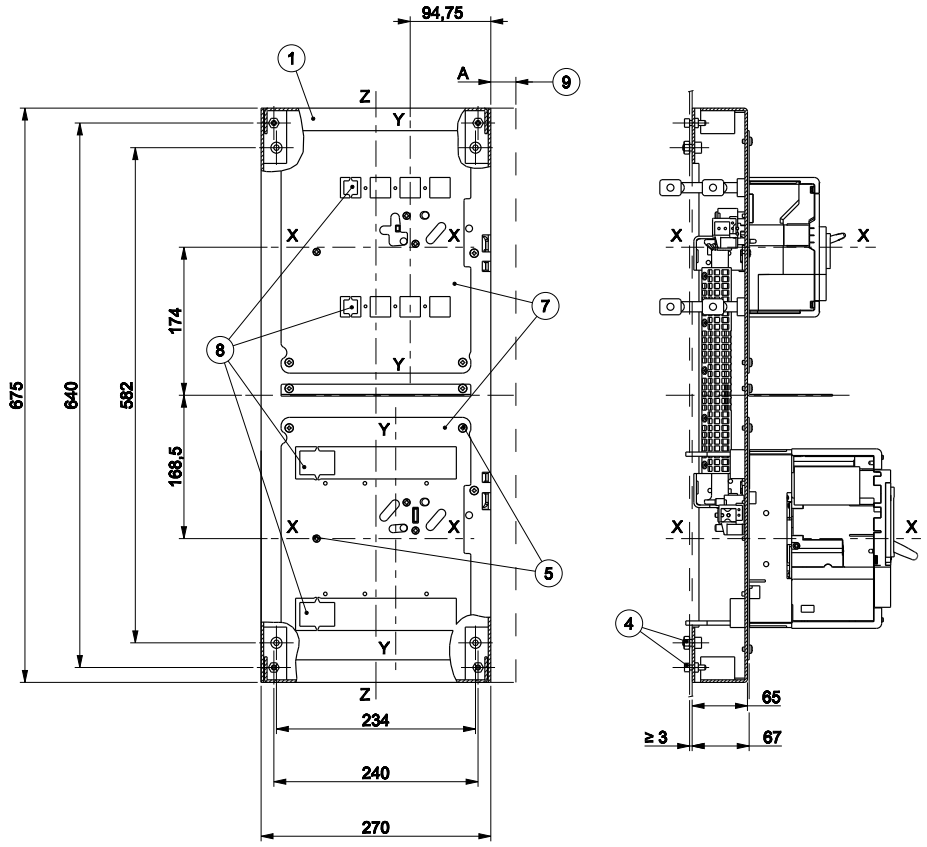
Note:
For the overall dimension of the circuit-breaker see the relevant dimension tables and the configuration

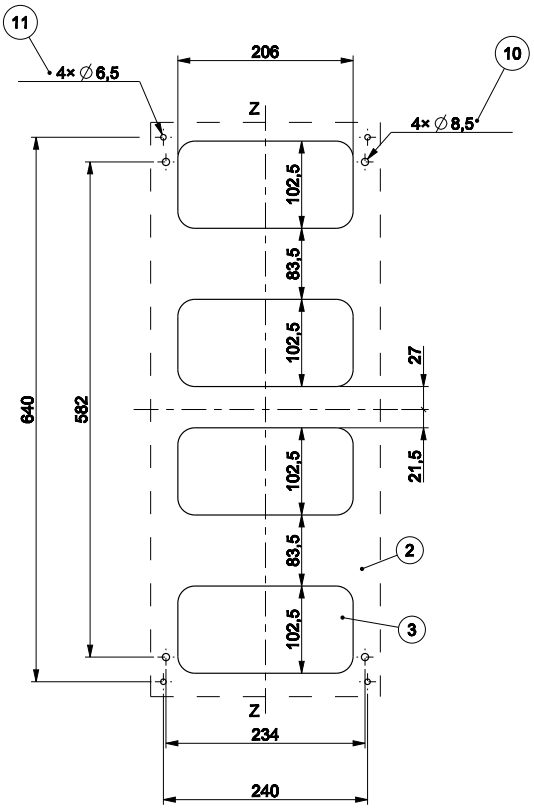
Tmax XT – Common accessories
Vertical interlock XT series

Vertical interlock between two circuit breakers (MIR-V)

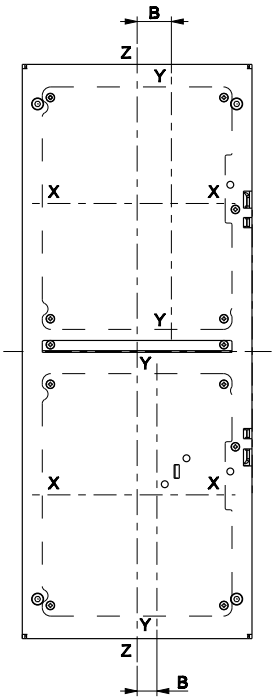


—
Key
1 Interlocking mechanism
4 Tightening torque 3,7Nm
5 Tightening torque 3Nm
6 Tightening torque 2,5Nm
7 Interlocking plate for circuit-breakers
8 Breaking for 4p version
9 A = 26mm XT4 withdrawable with key lock for fixed part
A = 29,5mm XT5 withdrawable with key lock for fixed part

Drilling template



Interlocking plate



—

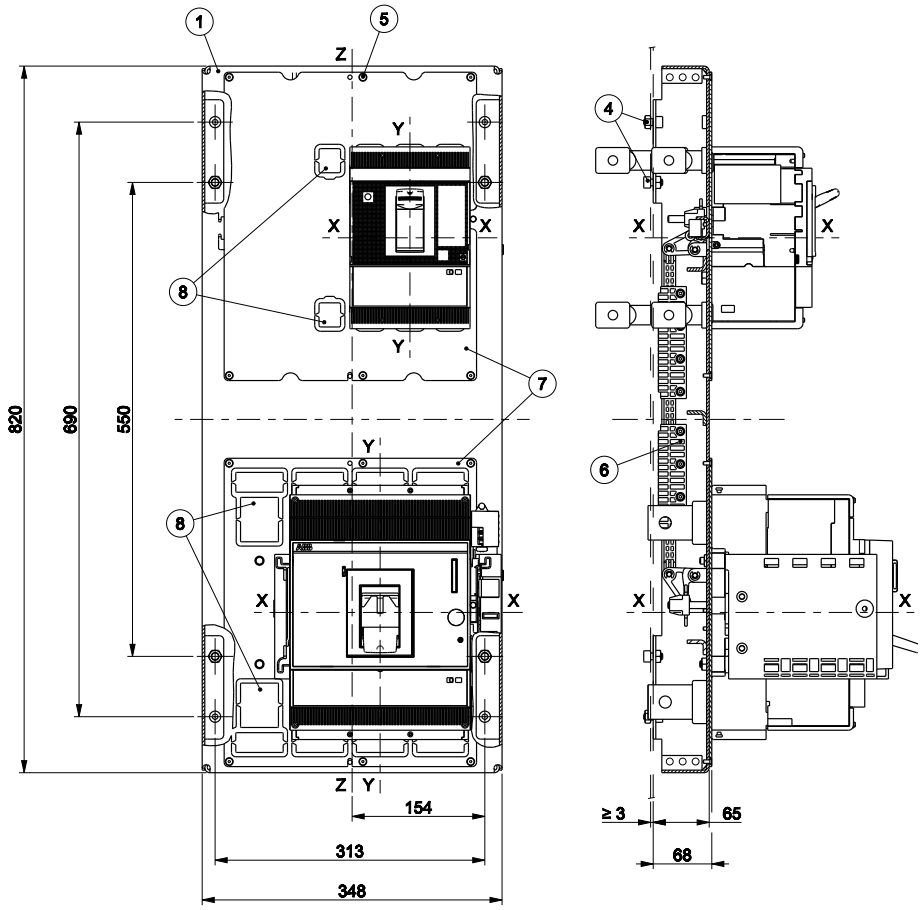
Key

2 Drilling template for fixing interlocking system
3 Drilling template for all version with rear terminals
10 Hole for front mounting only
11 Hole for rear mounting only

Type	Description	B
Plate A	XT4 F	40.25
Plate B	XT4 P/W	40.25
Plate C	XT5 F	23.25
Plate D	XT5 400 P/W	23.25
Plate E	XT5 630 P/W	23.25

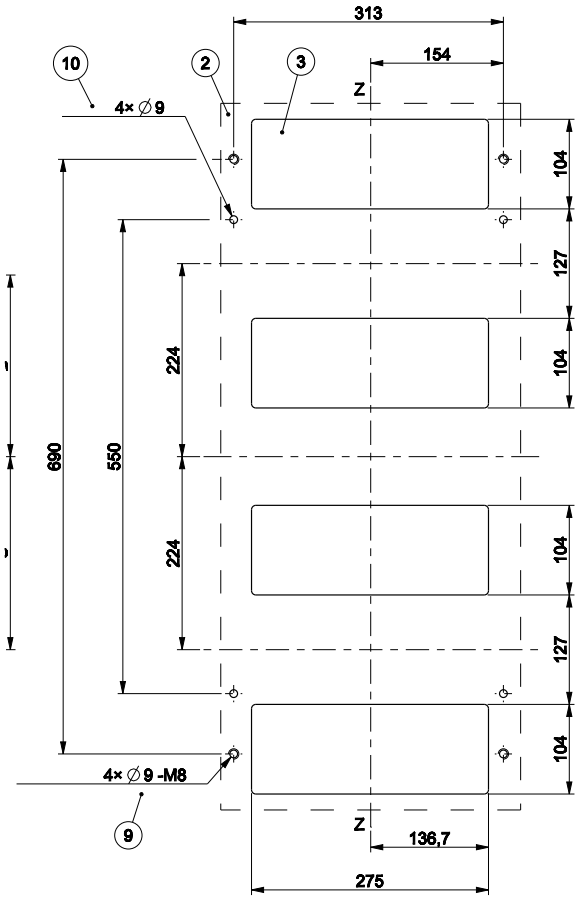
Tmax XT – Common accessories
Vertical interlock XT series

Vertical interlock between two circuit breakers (MIR-V)

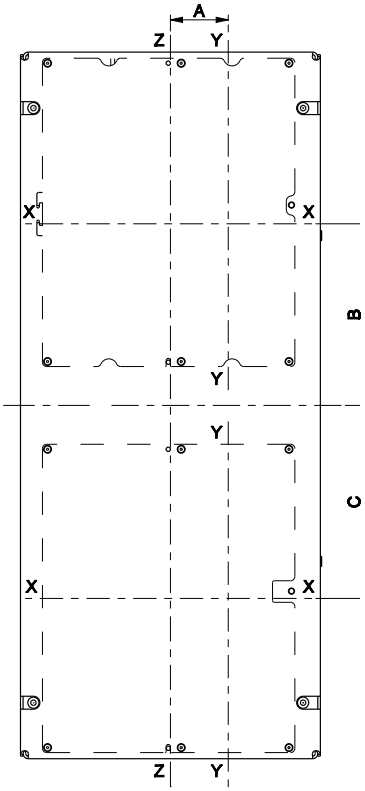


—
Key
1 Interlocking mechanism
4 Tightening torque 18Nm
5 Tightening torque 3Nm
6 Tightening torque 3Nm
7 Interlocking plate for circuit-breakers
8 Pre-drilling for 4P version

Drilling template



Interlocking plate



—

Key

2 Drilling template for fixing interlocking system
3 Drilling template for all version with rear terminals
9 4×Ø9-M8 hole for front mounting only
10 4×Ø9 hole for rear mounting only

Couplink plate type	A	B	C
MIR-P XT5 F	67.1	210.75	237.25
MIR-P XT5 P/W 400	67.1	210.75	237.25
MIR-P XT5 P/W 630	67.1	210.75	237.25
MIR-P XT6 F	32.5	224	224
MIR-P XT6 W	32.5	224	224

Wiring diagrams

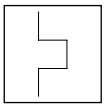
Reading information
3/2 Graphical symbols for electrical diagrams (617 IEC STANDARDS)
3/4 Information on how to read the diagrams

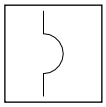
3/13 **Wiring diagrams**
3/17 Diagrams for XT1...XT4
3/35 Diagrams for XT5-XT6
3/60 Diagrams for XT7 and XT7 M
3/68 XT2-XT4-XT5-XT7-XT7 M modules

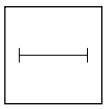
Reading information

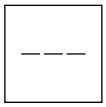
Graphical symbols for electrical diagrams (60617 IEC STANDARDS)

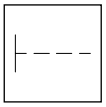
Graphical symbols for electrical diagrams (Standards IEC 60617)

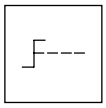

Thermal effect

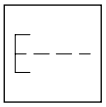

Electromagnetic effect

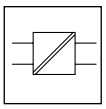

Timing

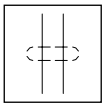

Mechanical connection


Manual mechanical operating mechanism (general case)

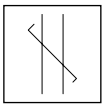

Rotary handle operating mechanism

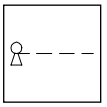

Pushbutton operating mechanism

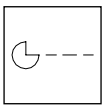

Converter separated galvanically

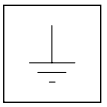

Conductors in shielded cable (example two conductors)

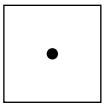
Watt-hour meter

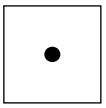

Conductors with corded cables (example two conductors)

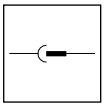

Key operating mechanism

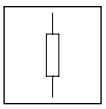

Cam operating mechanism

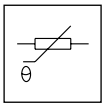

Ground (general symbol)


Connection of conductors

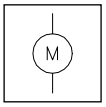

Terminal or clamp


Socket and plug (female and male)

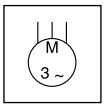

Resistor (general symbol)



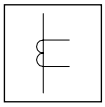
Resistor dependent on the temperature

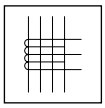


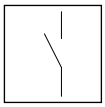
Motor (general symbol)

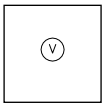


Three-phase asynchronous motor, with short-circuited rotor (cage)

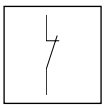

Current transformer

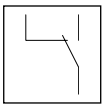

Current transformer with primary consisting of 4 passing conductors and with wound secondary, with socket

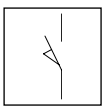

Closing contact

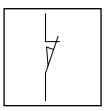


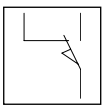
Voltmeter

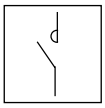

Opening contact


Changeover contact with momentary break

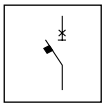

Closing position contact (limit switch)


Opening position contact (limit switch)

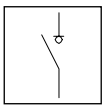

Changeover contact with momentary break (limit switch)



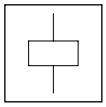
Contactor
(closing contact)



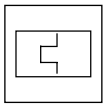
Power cut-off of switch-disconnector power with automatic opening



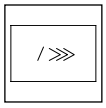
Switch-disconnector



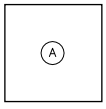
Control coil
(general symbol)



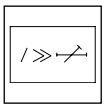
Thermal trip unit



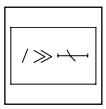
Instantaneous overcurrent release



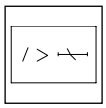
Ammeter



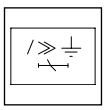
Overcurrent release with short adjustable time delay characteristic



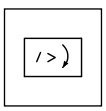
Overcurrent release with short inverse adjustable time delay characteristic



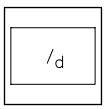
Overcurrent release with long inverse adjustable time delay characteristic



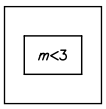
Overcurrent release for earth fault with short inverse time characteristic



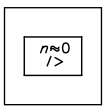
Current relay for unbalance between phases



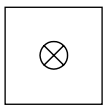
Residual current release



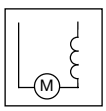
Relay for detecting lack of phase in a three-phase system



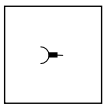
Relay for detecting blocked rotor by means of current measurement



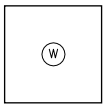
Lamp, general symbol



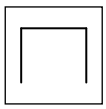
Motor with excitation in series



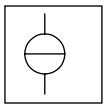
Brush



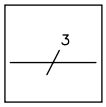
Wattmeter



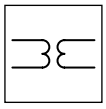
Screen, shield (it may be drawn in any convenient shape)



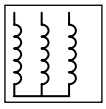
Ideal current source



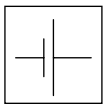
Three connections



Voltage transformer



Winding of three-phase transformer, connection star



Primary cell, secondary cell, battery of primary cell or secondary cell

Reading information
Information on how to read the diagrams

State of operation shown
The diagrams are shown in the following conditions:
- fixed version circuit-breaker, open;
- withdrawable or plug-in version circuit-breaker, open and connected;
- contactor for starting the motor open;
- circuits de-energised;
- trip units not tripped;
- motor operator with springs charged.

Key XT1...XT4

*	= See note indicated by the letter
A12	= Ekip Com type interface unit
A13	= Ekip Signaling 10K type signaling unit
A14	= MOE-E type stored energy motor operator actuating unit
A15	= Ekip Multimeter type measurement unit
A16	= Ekip Micro Module I/O type interface unit
A17	= MOE type stored energy motor operator actuating unit
BUS1	= Serial interface with external bus
BUS2	= Redundant serial interface with external bus
LINK BUS	= Interface with external Link bus
	D 2 Electronic time-delay device for undervoltage release coil YU, outside circuit-breaker (only for voltage up to 250 V)
H2	= Signaling lamp for stored energy motor operator blocked
I 11...32	= Programmable digital inputs
I 41...43 51...53	= Analog inputs from temperature sensor
I 44-54	= Analog inputs from 4-20mA sensor
I Pt1OO	= Analog input from PtiOO temperature sensor of motor
I reset	= Digital input for resetting tripped mo tor starting contactor operating unit
J...	= Connectors for auxiliary circuits of withdrawable circuit-breaker. Withdrawal of connectors occurs at the same time as that of circuit-breaker
K	= Motor starting contactor
K51	= Ekip type electronic relay for overcurrent protection
K51/CI	= Motor starting contactor operator module
K51/COM	= Communication module
K51/MEAS	= Measurement module
K51/SIGN	= Signaling module
K51/SUPPLY	= Auxiliary supply module (110-24OVAC/DC and 24-48VDC)
K51/SYNC	= Synchronizing module
K51/TEMP	= Temperature monitoring module
K87	= Residual current relay
M	= Motor with energizing in series for circuit-breaker opening and closing (Fig. 21)
M	= Motor for opening circuit-breaker and loading the closing springs (Fig. 22-54-55-56-57)
M1	= Three-phase asynchronous motor
0 11...32	= Programmable signaling contacts
OCI	= Contact for motor starting contactor operating mechanism
0 SC	= Synchronism monitoring contact
Q	= Main circuit-breaker
Q/O...7	= Auxiliary contacts of the circuit-breaker open/closed
R-R1	= Resistor
R2	= Pt100 temperature sensor of motor
81	= Contact controlled by the motor operator cam
82	= Contact controlled by the key lock of the direct action motor operator
83/1-2	= Contacts operated by Auto/Manual selector switch and by key lock of the stored energy motor operator
S4	= Contact operated by direct action motor operator cam
S4/1-2	= Early auxiliary contacts operated by circuit-breaker mounted crank handle
851	= Contact for signaling circuit-breaker open due to tripped thermomagnetic overcurrent protection release or electronic relay

86/1-2 = Contacts controlled by Auto/Manual selector switch of direct action motor operator
S75E/1-2 = Contacts for signaling circuit-breaker in withdrawn position (only applicable to withdrawable circuit-breaker ver sions)
S75I/1-2-5 = Contacts for signaling circuit-breaker in racked-in position (only applicable to withdrawable or plug-in circuit-breaker versions)
S87/1 = Contact for electrical signaling of residual current relay prealarm
S87/2 = Contact for electrical signaling of residual current relay alarm
S87/3 = Contact for electrical signaling of circuit-breaker open due to residual current relay trip
SC = Pushbutton or contact for closing the circuit-breaker
SC3 = Motor start pushbutton
SD = Residual current relay supply disconnector
SO = Pushbutton or contact for opening circuit-breaker
SO3 = Motor stop pushbutton
SR = Electrical reset pushbutton or contact
SY/1...3 = Contacts for signaling circuit-breaker open due to tripped overcurrent protection relay, thermomagnetic release and coils Y0, YO1, Y02, YU (tripped position)
TI = Toroidal current transformer
TI/L1-L2-L3 = L1-L2-L3 phase current transformer
TI/N = Current transformer on neutral
TU2 = Insulation voltage transformer (out side circuit-breaker)
Uaux = Auxiliary supply voltage
V1 = Circuit-breaker applications
V2 = Motor operator applications
V4 = Indicative switchgear and connec-tions for operation and signaling, out side circuit-breaker
V5 = Ekip DIN Rail Cartridge Basic or Ekip DIN Rail Cartridge applications
W2 = Serial interface with internal bus (local bus)
W9...14 = Connector RJ45 for interface unit and for communication modules
W9R...12R = Connector RJ45 for redundant communication modules
X3-X4-X8 = Protection relay connectors
X41 = Connector of current circuit for extenal neutral
XB.. = Three-way connector for auxiliary circuits of plug-in circuit-breaker
XC.. = Six-way connector for auxiliary circuits of plug-in circuit-breaker
XC2-3 = Six-way connector for auxiliary circuits of plug-in circuit-breaker for voltage up to 400V
XCT1-2 = Terminal box of Ekip DIN Rail Cartridge Basic or Ekip DIN Rail Cartridge
XD.. = Nine-way connector for auxiliary circuits of plug-in circuit-breaker
XE.. = Fifteen-way connector for auxiliary circuits of plug-in circuit-breaker
XF.. = Ekip Com type interface unit connector
XG = Protection relay connector
XH1 = Protection relay connector
XK7 = Connector of contact S75I/5
XM = MOE-E actuator unit connector
XV = Terminal box of circuit-breaker applications
YC = Closing coil of stored energy motor operator
YO = Opening coil
YO1 = Coil for opening due to overcurrent
YO2 = Opening coil of residual current relay
YU = Undervoltage coil

Reading information
Information on how to read the diagrams

Notes XT1...XT4

A) The presence of an auxiliary supply is required for the local bus and zone selectivity functions (see Fig. 51-81).

B) The undervoltage coil is provided for power supply branched on the supply side of the circuit-breaker or from an independent source: circuit-breaker can only close when coil is energized (closing lock is obtained mechanically).

C) Contacts 84/1 and 84/2 of Fig. 7-8 open circuit when circuit-breaker is open and close it again when a manual closing command is imparted by means of the rotary handle, in accordance with the Standards governing machine tools (however, circuit-breaker will not close if undervoltage release is not being supplied).

E) If the application in Fig. 21 and the contacts in Fig. 31 must be installed at the same time, contact 0/2 must be installed in the adjacent slot (marked 0/1).

F) R= Additional external undervoltage resistor supplied at 380/440 VAC and 480/525 VAC.
R1= Additional external resistor for stored energy motor operator or direct action motor operator supplied at 480/525VAC.

G) If a three-pole fixed circuit-breaker with current transformer on the neutral conductor outside the circuit- breaker is used, the terminals of the Tl/N transformer must be short-circuited when the circuit-breaker must be removed.

H) "Galvanically separated converters" conforming to standards IEC 60950 (UL 1950) or equivalent must be used since an earthed Uaux is required.

I) Mandatory in the presence of any sort of Ekip module.

L) Only one application among Fig. 83...97-131-132 can be supplied in the case of Ekip DIN Rail Cartridge Basic. In the case of Ekip DIN Rail Cartridge, up to three applications can be supplied among Fig. 83...97-131-132, taken once only. In addition, the Ekip Com module (if chosen) can be duplicated by choosing among Fig. 110...116.

M) To ensure correct operation, at least one module must always be present.

N) BELDEN 3105A cables or an equivalent type must be used.

0) When there are several Ekip Com modules with withdrawable circuit-breakers, contact S75I/5 must be connected once only to one single module.

P) Auxiliary voltage Uaux allows all the functions of EKIP electronic protection relays to be activated. "Galvanically separated converters" conforming to standards IEC 60950 (UL 1950) or equivalent must be used since an earthed Uaux is required.

Q) BELDEN 3105A cables or an equivalent type must be used. Maximum length 15 m.

R) Recommended RJ45 cable: CAT6 STP.

S) Consult “Technical Application Papers - vol. 9: Communication via BUS with ABB circuit-breakers" for connection of the EIA RS485 serial line.

T) Short-circuit terminals 1200 on to install a termination resistor on the Local Bus.

U) Use Belden 3079A cables or equivalent. Consult White Paper 1SDCOO741ZGO201 "Communication with SACE Emax 2 circuit-breakers" for further details.

V) Use Belden 3084A cables or equivalent. Consult White Paper 1SDC007412G0201 "Communication with SACE Emax 2 circuit-breakers" for further details.

Z) Ekip Supply cannot be used to energize the electronic relay via terminals K1 and K2.

AA) Consult Fig. 51 or 81 for the connection of W3 and W4.

AB) Use two-pole shielded cable type BELDEN 8762/8772 or equivalent. The shield must be earthed on the selectivity input side (for zone selectivity) or on both sides (for other applications).

AC) The rated maximum secondary voltage is 120V.

AD) Use insulated cables for thermcouples such as PENTRONIC TEC/SITW-24F (Type TX) or equivalent. Maximum length 3 m.

AE) Use suitable cables up to 3 meters in length compatible with the workplace in which the 4-20mA current sensor is used.

Key XT5-XT6

* = See note indicated by the letter
A12 = Ekip Com type Interface unit
A13 = Ekip Signaling 10K type signaling unit
A14 = MOE-E type stored energy motor operator actuating unit
A15 = Ekip Multimeter type measurement unit
A16 = Ekip Micro Module I/O type interface unit
A17 = MOE type stored energy motor operator actuating unit
A18 = Ekip DIN Rail Cartridge Basic
A19 = Ekip DIN Rail Cartridge
BUS1 = Serial interface with external bus
BUS2 = Redundant serial interface with external bus
LINK BUS = Interface with external Link bus
D = Electronic time delay device for undervoltage release coilYU, outside circuit-breaker (only for voltages up to 250V)
H2 = Signaling lamp for stored energy motor operator blocked
I 01-11...32= Programmable digital inputs
I 41-51 = Analog inputs from 4-20mA sensor
I 42-44 52...54 = Analog inputs temperature sensor
I Pt 100 = Analog input from Pt 100 temperature sensor of motor
I reset = Digital input for resetting tripped motor startin contactor operating unit
J... = Connectors for auxiliary circuits of a withdrawable circuit-breaker. Withdrawal of connectors occurs at the same time as that of circuit-breaker
K = Motor starting contactor
K51 = Ekip type electronic relay for overcurrent protection
K51/CI = Motor starting contactor operator module
K51/COM = Communication module
K51/SIGN = Signaling module
K51/SUPPLY = Auxiliary supply module (110-240VAC/DC and 24-48Vdc)
K51/SYNC = Synchronizing module
K51/TEMP= Temperature monitoring
K87 = Residual current release type RC Inst, RC Sel, RC Sel 200, RC B Type
KO = Auxiliary opening relay
M = Motor for opening circuit-breaker and loading closing springs
0 01-11...32 = Programmable signaling contacts
OCI = Contact for motor starting contactor operating mechanism
O SC = Synchronism monitoring contact
Q = Main circuit-breaker
Q/0..7 = Auxiliary contacts of the circuit-breaker open/closed
Q/26 = Open/Close auxiliary used internally by protection release
R = Resistor
R2 = Pt100 temperature sensor of motor
S1 = Contact controlled by the motor operator cam
S3/1-2 = Contacts controlled by Auto/Manual selector switch and key lock of motor
S4/1-2 = Early auxiliary contacts
S4/1-4 = Early auxiliary contacts operated by circuit-breaker mounted crank handle
S51 = Contact for signaling circuit-breaker open due to tripped thermomagnetic overcurrent protection release or electronic relay
S52 = YU/YO trip signaling contact (for voltage up to 250V)
S75E/1 = Contact for signaling circuit-breaker in racked out position (only applicable to withdrawable circuit-breaker versions)
S75E/1-2-3 = Contacts for signaling circuit-breaker in racked-in position (only applicable to withdrawable or plug-in circuit-breaker versions)
S75T/1 = Contact for signaling circuit-breaker in test position (only applicable to withdrawable circuit-breaker versions)
S87/1 = Contact for electrical signaling of residual current relay prealarm
S87/2 = Contact for electrical signaling of residual current relay alarm

Reading information
Information on how to read the diagrams

S87/3 = Contact for electrical signaling of circuit-breaker open due to residual current relay trip
SC = Pushbutton or contact for closing the circuit- breaker
SC3 = Motor start pushbutton
SD = Residual current relay supply disconnector
SO = Pushbutton or contact for opening circuit-breaker
S03 = Motor stop pushbutton
SR = Electrical reset pushbutton or contact
SY/1...3 = Contacts for signaling circuit-breaker open due to tripped overcurrent protection relay, thermomagnetic release and coils YO, Y01, Y02, YU (tripped position)
TI = Toroidal current transformer
TI/L1-L2-L3 = L1-L2-L3 phase current transformer
TI/N = Current transformer on neutral
TU2 = Insulation voltage transformer (out side circuit-breaker)
Uaux = Auxiliary supply voltage
V1 = Circuit-breaker applications
V2 = Motor operator applications
V4 = Indicative switchgear and connections for operation and signaling, outside circuit- breaker
V5 = Ekip DIN Rail Cartridge Basic or Ekip DIN Rail Cartridge applications
W2 = Serial interface with internal bus (local bus)
W9...14 = Connector RJ45 for interface unit and for communication modules
W9R...12R = Connector RJ45 for redundant communication modules
X3-X4-X8 = Protection relay connectors
XB.. = Three-way connector for auxiliary circuits of plug-in circuit-breaker
XC.. = Six-way connector for auxiliary circuits of plug-in circuit-breaker
XC2-3 = Six-way connector for auxiliary circuits of plug-in circuit-breaker for voltage up to 400V
XCT1-2 = Terminal box of Ekip DIN Rail Cartridge Basic or Ekip DIN Rail Cartridge
XD.. = Nine-way connector for auxiliary circuits of plug-in circuit-breaker
XE.. = Fifteen-way connector for auxiliary circuits of plug-in circuit-breaker
XF.. = Ekip Corn type interface unit connector
XH1 = Protection relay connector
XV = Terminal box of circuit-breaker applications
YC = Closing coil of stored energy motor operator
YO = Opening coil
YO1 = Coil for opening due to overcurrent
YO2 = Opening coil of residual current relay
YU = Undervoltage coil
YU/0 = Undervoltage and opening coil (Combo)

Notes XT5-XT6

A) The presence of an auxiliary supply is required for the local bus and zone selectivity functions (see Fig. 41-78).
B) The undervoltage coil is provided for power supply branched on the supply side of the circuit-breaker or from an independent source: circuit-breaker can only close when coil is energized (closing lock is obtained mechanically).
C) Contacts S4/1 and S4/2 of Fig. 7-10-15 open circuit when circuit-breaker is open and close it again when a manual closing command is imparted by means of the rotary handle, in accordance with the Standards governing machine tools (however, circuit-breaker will not close if undervoltage release is not being supplied).
D) Only for XT5 F-P.
E) Only for XT5.
G) If a three-pole fixed circuit-breaker with current transformer on the neutral conductor outside the circuit-breaker is used, the terminals of the TI/N transformer must be short-circuited when the circuit-breaker must be removed.
H) "Galvanically separated converters" conforming to standards IEC 60950 (UL 1950) or equivalent must be used since an earthed Uaux is required.
I) Mandatory in the presence of any sort of Ekip module.
L) Only one application among Fig. 79...93-131-132 can be supplied in the case of Ekip DIN Rail Cartridge Basic. In the case of Ekip DIN Rail Cartridge, up to three applications can be supplied among Fig. 79...93-131-132, taken once only. In addition, the Ekip Com module (if chosen) can be duplicated by choosing among Fig. 110...116.
M) To ensure correct operation, the Ekip Supply module and at least one module must always be present.
N) BELDEN 3105A cables or an equivalent type must be used.
0) When there are several Ekip Com modules with withdrawable circuit-breakers, contact 5751/2 must be connected once only to one single module.
P) Auxiliary voltage Uaux allows all the functions of EKIP electronic protection relays to be activated. "Galvanically separated converters" conforming to standards IEC 60950 (UL 1950) or equivalent must be used since an earthed Uaux is required.
Q) BELDEN 3105A cables or an equivalent type must be used. Maximum length 15 m.
R) Recommended RJ45 cable: CAT6 STP.
S) Consult "Technical Application Papers - vol. 9: Communication via BUS with ABB circuit-breakers" for connection of the EIA RS485 serial line.
T) Short-circuit terminals 1200 on to install a termination resistor on the Local Bus.
U) Use Belden 3079A cables or equivalent. Consult White Paper 1SDC007412G0201 "Communication with SACE Emax 2 circuit-breakers" for further details.
V) Use Belden 3084A cables or equivalent. Consult White Paper 1SDC007412G0201 "Communication with SACE Emax 2 circuit-breakers" for further details.
Z) Ekip Supply cannot be used to energize the electronic relay via terminals K1 and K2.
AA) Consult Fig. 78 for the connection of W3 and W4.
AB) Use two-pole shielded cable type BELDEN 8762/8772 or equivalent. The shield must be earthed on the selectivity input side (for zone selectivity) or on both sides (for other applications).
AC) The rated maximum secondary voltage is 120V.
AD) Use insulated cables for thermcouples such as PENTRONIC TEC/SITW-24F (Type TX) or equivalent. Maximum length 3 m.
AE) Use suitable cables up to 3 meters in length compatible with the workplace in which the 4-20mA current sensor is used
AG) Relay type TMG for XT5 only
AH) Designation Connector X .. -> X3 for XT5; X4 for XT6

Reading information
Information on how to read the diagrams

Key XT7-XT7M

* = See note indicated by the letter
A1 = Applications located on the moving part of the circuit-breaker
A3 = Applications located on the fixed part of the circuit-breaker
A4 = Indicative devices and connections for control and signaling, outside the circuit-breaker
A13 = Signaling unit type Ekip Signalling 10K
A15 = Metering unit type Ekip Multimeter
BUS1 = Serial interface with external bus
BUS2 = Redundant serial interface with external bus
LINK BUS = Interface with the external Link bus
D = Electronic time-lag device of YU under voltage coil, outside the circuit- breaker
GZi(DBi) = Zone selectivity input for G protection or input in "reverse" direction for D protection
GZo(DBo)= Zone selectivity output for G protection or output in "reverse" direction for D protection
| 11...32 = Programmable digital inputs
| 41...43 51...53 = Analogue inputs from temperature sensor
| 44-54 = Analogue inputs from 4-20mA sensor
K51 = Ekip type electronic release for overcurrent protection
K51/COM = Communication module
K51/MEAS =Measurement module
K51/SIGN = Signaling module
K51/SUPPLY = Auxiliary supply module (110-220VAC/DC and 24-48VDC)
K51/SYNC = Synchronization module
K51/TEMP = Temperature monitoring module
K51/YC = Closing command from EKIP protection release
K51/YO = Opening command from EKIP protection release
M = Motor for loading closing springs
O 11...32 = Programmable signaling contacts
0 SC = Contact for synchronism control
Q = Circuit-breaker
Q/1...25 = Open/close auxiliary contacts of circuit-breaker
Q/26-27 = Open/close auxiliary contacts used internally by protection release
RC = RC (residual current) protection sensor
RTC EKIP= Ready to close auxiliary contact of circuit-breaker, used internally by protection release
RTC = Contact for signaling circuit-breaker is ready to close
S4/1-2 = Early auxiliary contacts (AUE1-2)
S33M/1-2 = Limit contacts of spring loading motor
S43 = Switch for presetting remote/local control
S51 = Contact for signaling circuit breaker open due to tripping of overcurrent protection release
S52 = Contact for signaling circuit breaker open due to tripping of opening coil and of undervoltage coil
S75E/1-2 = Contacts for signaling circuit-breaker in racked-out position (only provided with withdrawable circuit-breakers)
S75I/1-2-5 = Contacts for signaling circuit-breaker in racked-in position (only provided with withdrawable circuit-breakers)
S75T/1-2 = Contact for signaling circuit-breaker in test position (only provided with withdrawable circuit-breakers)
SC = Pushbutton or contact for closing circuit-breaker
S0 = Pushbutton or contact for immediate opening of circuit-breaker
S01 = Pushbutton or contact for opening circuit-breaker with time-delayed trip
SR = Pushbutton or contact for electrical resetting of S51 trip contact
SY = Contact for signaling circuit breaker open due to tripping of overcurrent protection release and of Y0, Y02, YU coils (tripped position)
SZi(DFi) = Zone selectivity input for S protection or input in "forward" direction for S protection

SZo(DFo) = Zone selectivity output for S protection or output in "forward" direction for D protection
Tl/L1-L2-L3 = Current transformer phase L1-L2-L3
Tl/N = Current transformer on neutral
TU1-2 = Insulation voltage transformer (outside circuit-breaker)
Uaux = Auxiliary supply voltage
Ul/L1-L2-L3 = Current sensor phase L1-L2-L3
Ul/N = Current sensor on neutral
Ul/O = Single-pole current sensor
W2 = Serial interface with internal bus (local bus)
W9...14 = RJ45 connector for communication modules
W9R...12R= RJ45 connector for redundant communication modules
X = Delivery connector for auxiliary circuits of withdrawable circuit-breaker
XB1...7 = Connectors for circuit-breaker applications
XF = Delivery terminal box for position contacts of withdrawable circuit-breaker
XK1...3 = Connectors for auxiliary circuits of EKIP protection release
XK7 = Connector for auxiliary circuits of communication modules
XV = Delivery terminal board for auxiliary circuits of fixed circuit-breaker
YC = Closing coil
YO = Opening coil
YO1 = Opening coil for overcurrent
YO2 = Second opening coil
YR = Coil for electrical resetting of trip contact S51
YU = Undervoltage coil

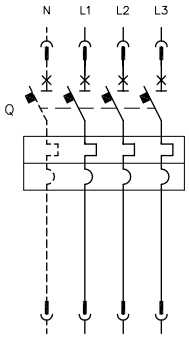
Notes XT7-XT7M

A) Auxiliary power supply must be present for zone selectivity and local bus functions (consult Fig. 31-32).
B) When there are mixed auxiliary contacts, 01 and 02 are 400V, while 03-04 are 24V.
C) Always supplied with Ekip Com module.
D) Always supplied with motor for loading closing springs in Fig. 13.
E) A voltage transformer is mandatory in the case of external sockets. External sockets are mandatory for systems for over 690V rated voltage. Admissible maximum rated secondary voltage is 230V.
F) Connections between RC residual current protection sensor and poles of connector X (or XV) of the circuit-breaker must be made of 4-pole shielded cable with paired braided conductors (BELDEN 9696 paired type or equivalent) no more than 10 m in length.
G) Earth fault protection (Gext) by means of a current sensor on the neutral point of the MV/LV transformer is available with all electronic protection releases equipped with display interface with LSIG protections. The connection between terminals 1 and 2 of the UI/O current transformer and Ge+ and Ge- poles of connector X (or XV) must be made of shielded and stranded 2-pole cable (BELDEN 8841 or equivalent) no more than 15 m in length.
H) Use the supplied cable to make the connection. There must be no break in the cable. Use of other cables or extensions using intermediate terminal boxes is not allowed. With a circuit- breaker, poles Ne+ and Ne- of connector X (or XV) are short-circuited unless the external neutral is present: enable short-circuit if connection is absent.
I) Mandatory if any Ekip module is present.
L) Up to two applications between Fig. 41...59 taken only once can be supplied. The Ekip Com module selected can be duplicated by choosing between Fig. 61...67.

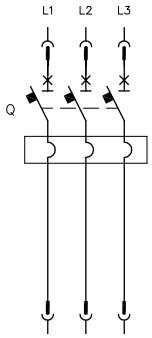
Reading information
Information on how to read the diagrams

M) Opening and closing commands from Ekip Actuator can be obtained with Y0 and Y0 coils, with 110-120VDC and 240-250VAC maximum voltage values.
N) Use BELDEN 3105A cables or equivalent.
O) Contact 8751/5 should be connected once only to a single module when there are several Ekip Com modules with withdrawable circuit-breakers.
P) Auxiliary voltage Uaux. Enables all the functions of the EKIP electronic protection releases to be activated. "Galvanically separated convertors" conforming to standard IEC 60950 (UL 1950) or equivalent must be used since an earthed Uaux is required.
Q) Use BELDEN 3105A cables or equivalent not more than 15m in length.
R) Recommended RJ45 cable: CAT6 STP.
S) Consult "Technical Application Papers - vol. 9: Bus Communication with ABB Circuit-breakers" for serial line connection EIA RS485.
T) Short-circuit terminals 1200 on if a terminating resistor must be connected to the Local Bus.
U) Use Belden 3079A cables or equivalent. For further details see White Paper 1SDCOO741200201 "Communication with SACE Emax 2 Circuit- Breakers".
V) Use Belden 3084A cables or equivalent. For further details see White Paper 18DCOO7412G0201 "Communication with SACE Emax 2 Circuit- Breakers".
W) Contacts S4/1 and S4/2 in Fig. 17 can be used to open the undervoltage coil circuit shown in Fig. 73-74 when the circuit-breaker is open and to close it again in the presence of a closing command, in compliance with the Standard governing machine tools.
X) Contact S52 signals the state of the Y02 / YU opening coils.
For coil Y02, the contact connected to poles 25-28 of connector X (or XV) is closed with Y02 energized (circuit-breaker opening activated), contact 25-26 is closed with Y02 de-energized.
For coil YU, the contact connected to poles 25-28 of connector X (or XV) is closed with YU de-energized (circuit-breaker opening activated), contact 25-26 is closed with YU energized.
Z) Ekip Supply cannot be used for direct supply to the electronic release by means of terminals K1 and K2.
AA) See Fig. 31 and 32 for connection of W3 and W4.
AB) Use BELDEN 8762/8722 two-pole shielded cable or equivalent. The shield must be earthed on the selectivity input side (for zone selectivity) or on both sides (for other applications).
AC) Admissible maximum rated secondary voltage is 120V.
AD) Use PENTRONIC TEC/SITW-24F (type TX) insulated cables for thermocouples or equivalent, no more than I'm in length.
AE) Use appropriate cables compatible with the workplace in which the 4-20mA current sensor is used and not more than 3 m in length.

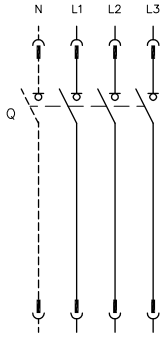
Wiring diagrams



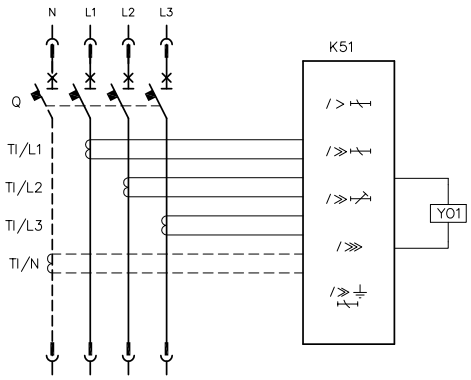
Three-pole or four-pole circuit-breaker with thermal magnetic trip unit



Three-pole circuit-breaker with magnetic trip unit

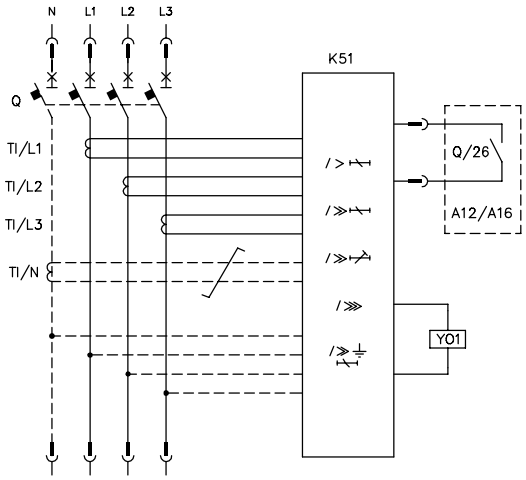


Three-pole or four-pole switch-disconnector

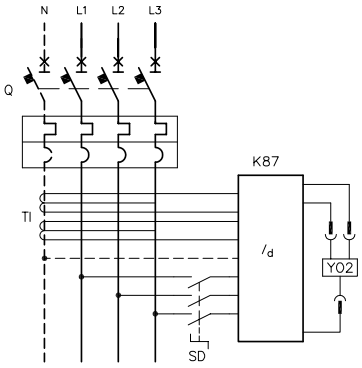


Three-pole or four-pole version circuit-breaker with Ekip Dip trip unit

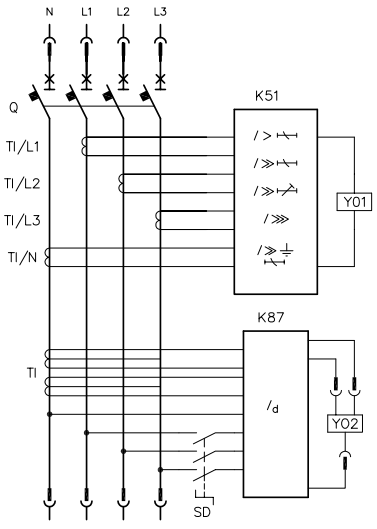
Wiring diagrams



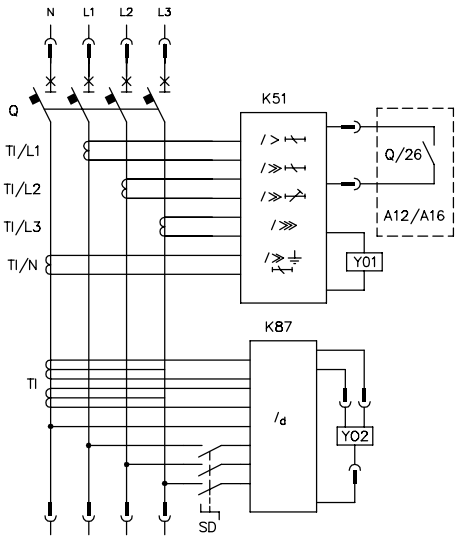
Three-pole or four-pole version circuit-breaker XT5-XT6 with Ekip Touch trip unit



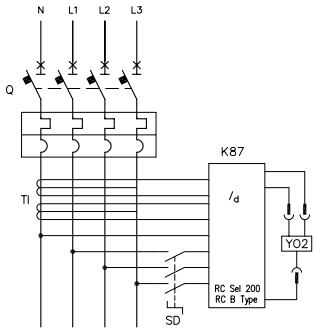
Three-pole or four-pole version circuit-breaker with thermal magnetic trip unit and residual current device



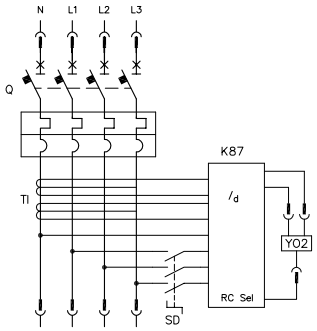
Three-pole or four-pole version circuit-breaker with Ekip Dip trip unit and residual current device



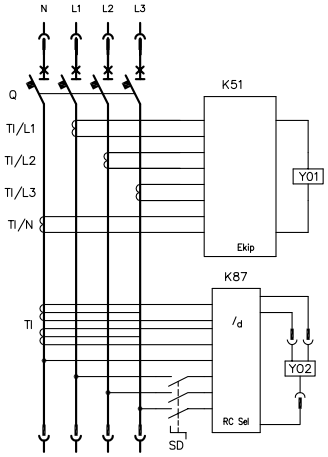
Three-pole or four-pole version circuit-breaker with Ekip Touch trip unit and residual current device



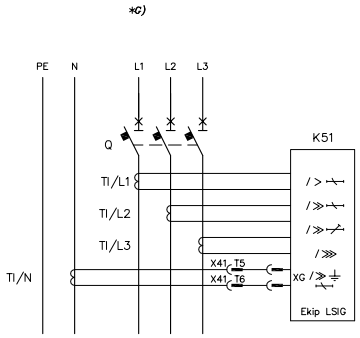
Four-pole circuit-breaker with thermal magnetic trip unit and RC Sel 200 or RC B type residual current release



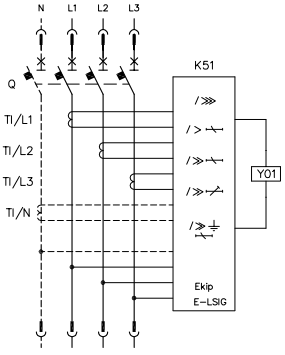
Four-pole circuit-breaker with thermal magnetic trip unit and RC Sel residual current release



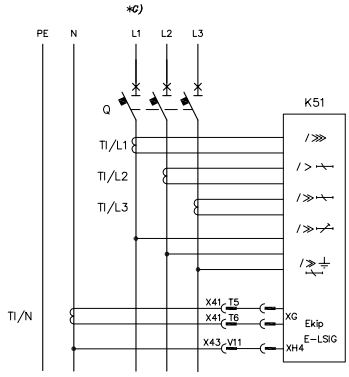
Four-pole circuit-breaker with electronic trip unit and RC Sel residual current release



Three-pole fixed version circuit-breaker with Ekip Dip trip unit with current transformer on the neutral conductor outside the circuit-breaker

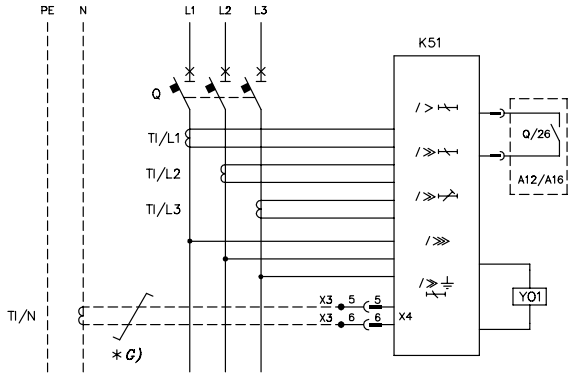


Three-pole or four-pole XT4 circuit-breaker with Ekip E-LSIG microprocessor based release

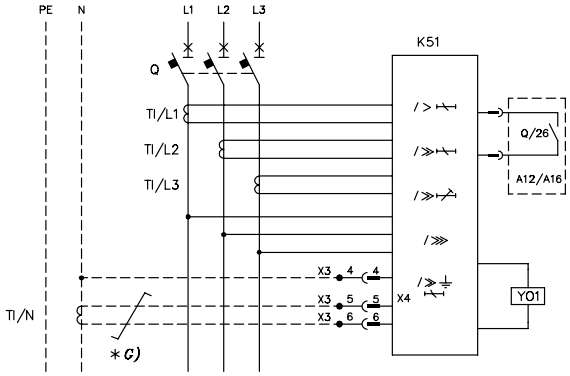


Fixed version three-pole XT4 circuit-breaker with Ekip E-LSIG with current transformer on neutral conductor, external to circuit-breaker

Wiring diagrams



Three-pole fixed version circuit-breaker with Ekip Touch trip unit with current sensor on the neutral conductor outside the circuit-breaker



Three-pole fixed version circuit-breaker with Ekip Touch trip unit with current and voltage sensor on the neutral conductor outside the circuit-breaker

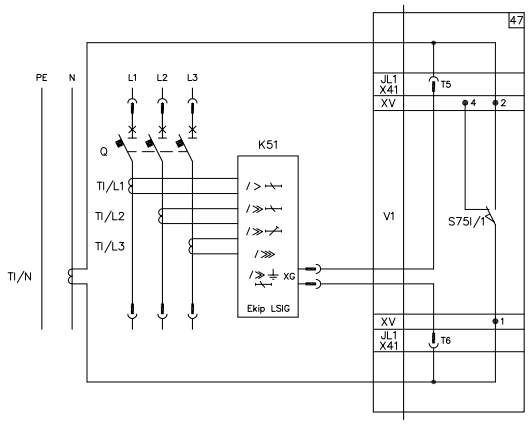
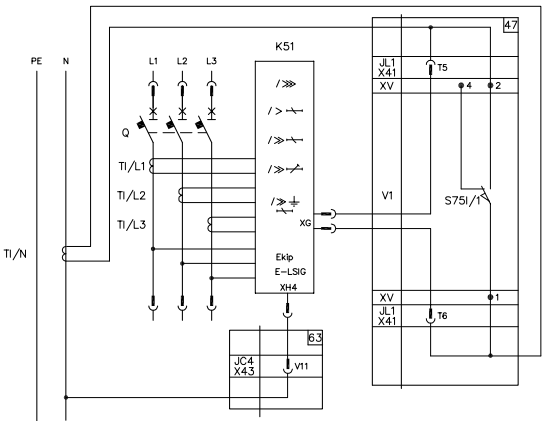


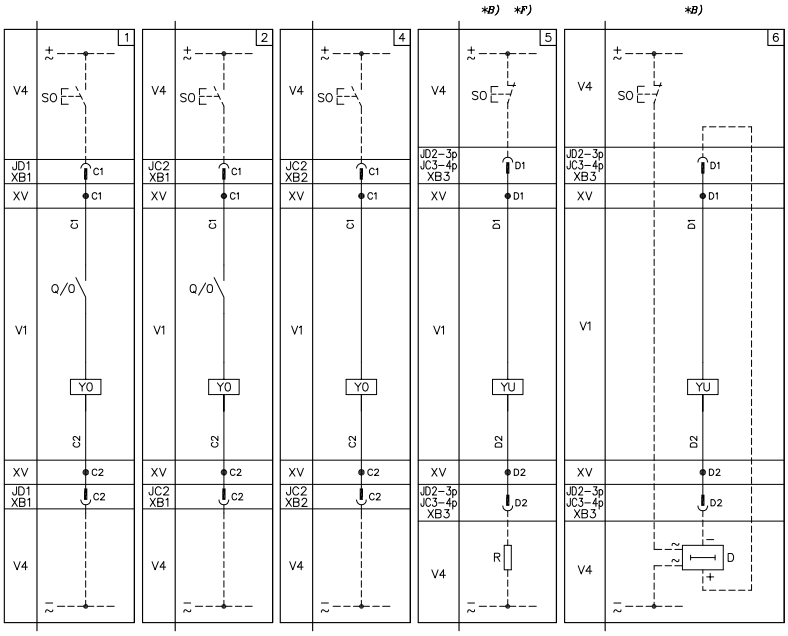
Diagram recommended for three-pole plug-in or withdrawable version circuit-breakers with Ekip Dip trip unit with current sensor on the neutral conductor outside the circuit-breaker



Recommended diagram for plug-in or withdrawable version three-pole circuit-breakers with Ekip Dip trip unit, current transformer and voltage connection on neutral conductor, external to circuit-breaker

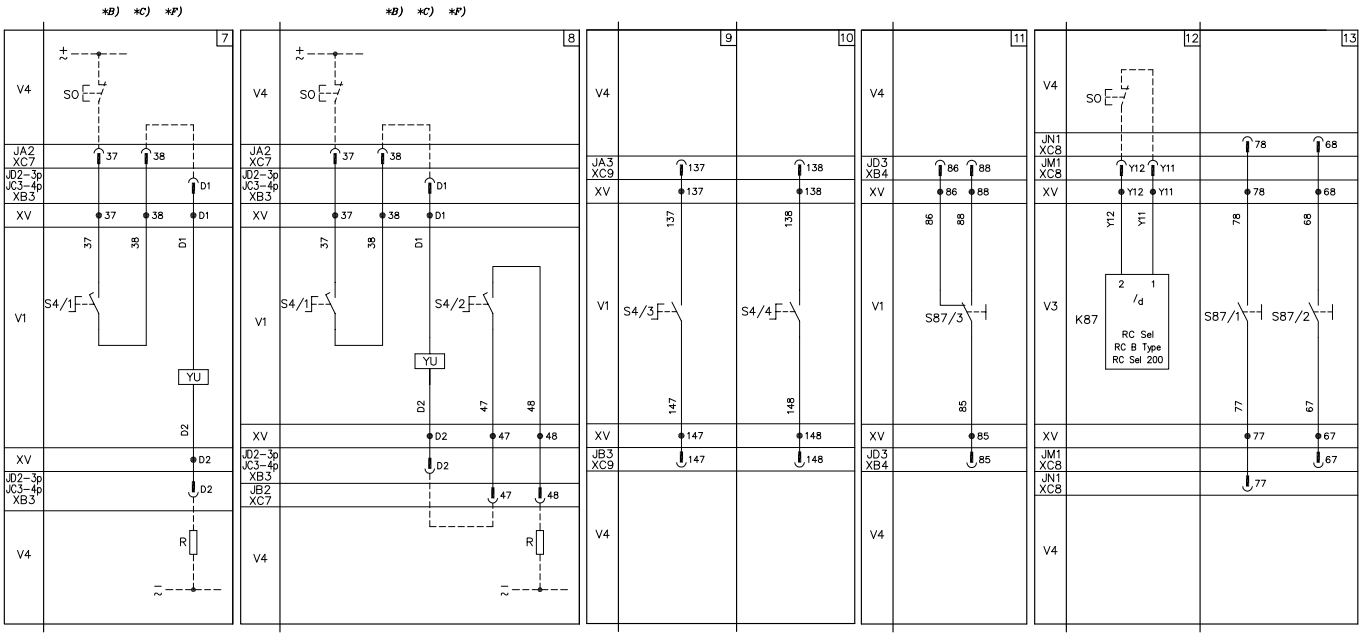
Wiring diagrams
Diagrams for XT1...XT4

1) Shunt opening release.
2) Supplementary shunt opening release (only for four-pole circuit-breakers).
4) Supplementary permanent shunt opening release (only for four-pole circuit-breakers).
5) Instantaneous undervoltage release (see Notes B and F).
6) Undervoltage release with electronic time delay device outside the circuit-breaker, see note B).



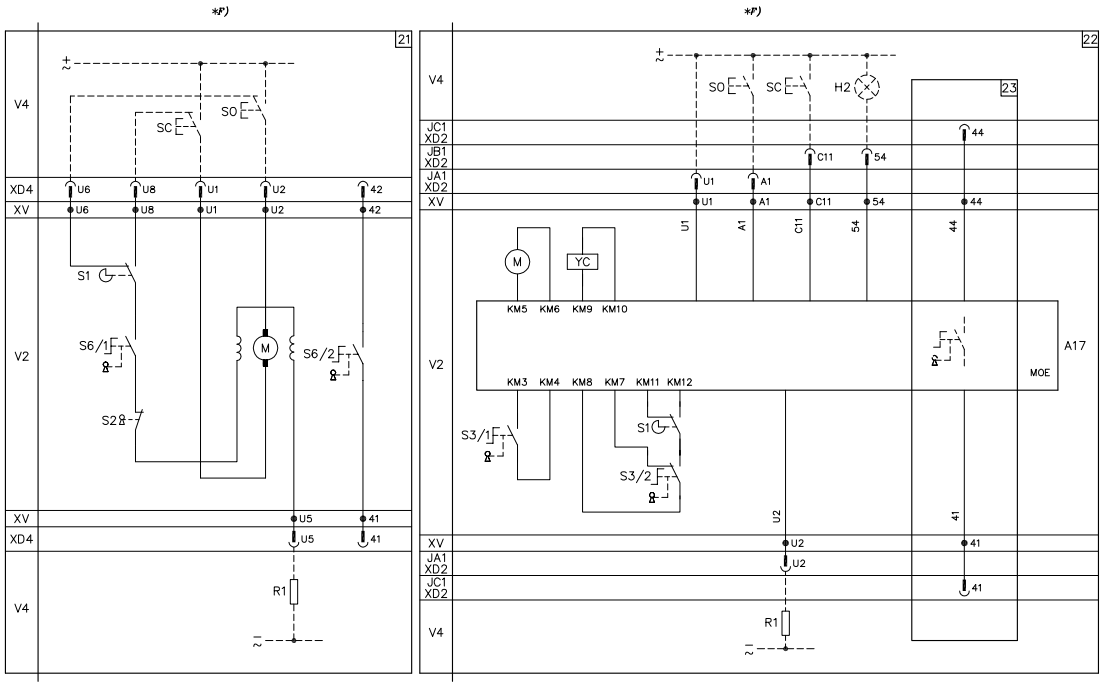
Wiring diagrams
Diagrams for XT1...XT4

7) **Instantaneous undervoltage release in the version for machine tools with one contact in series (see notes B, C and F).**
8) **Instantaneous undervoltage release in the version for machine tools with two contacts in series (see Notes B, C and F).**
9) **First auxiliary early contact operated by the crank handle.**
10) **Second auxiliary early contact operated by the crank handle.**
11) **One changeover contact for electrical signaling of circuit-breaker open due to tripping of the residual current release type RC Inst, RC Sel, RC B Type or RC Sel 200.**
12) **Residual current release circuits type RC Sel, RC B Type or RC Sel 200.**
13) **Two contacts for electrical signaling of residual current release pre-alarm and alarm type RC Sel, RC B Type or RC Sel 200.**



Motor operator

21) Direct control motor operator (MOD) (only for XT1 and XT3 fixed or plug-in circuit-breakers) (see note l).
22) Motor operator with stored energy (MOE) (only for circuit-breakers XT2 and XT4).
23) A contact for electrical signaling of stored energy motor operator that can be operated remotely.



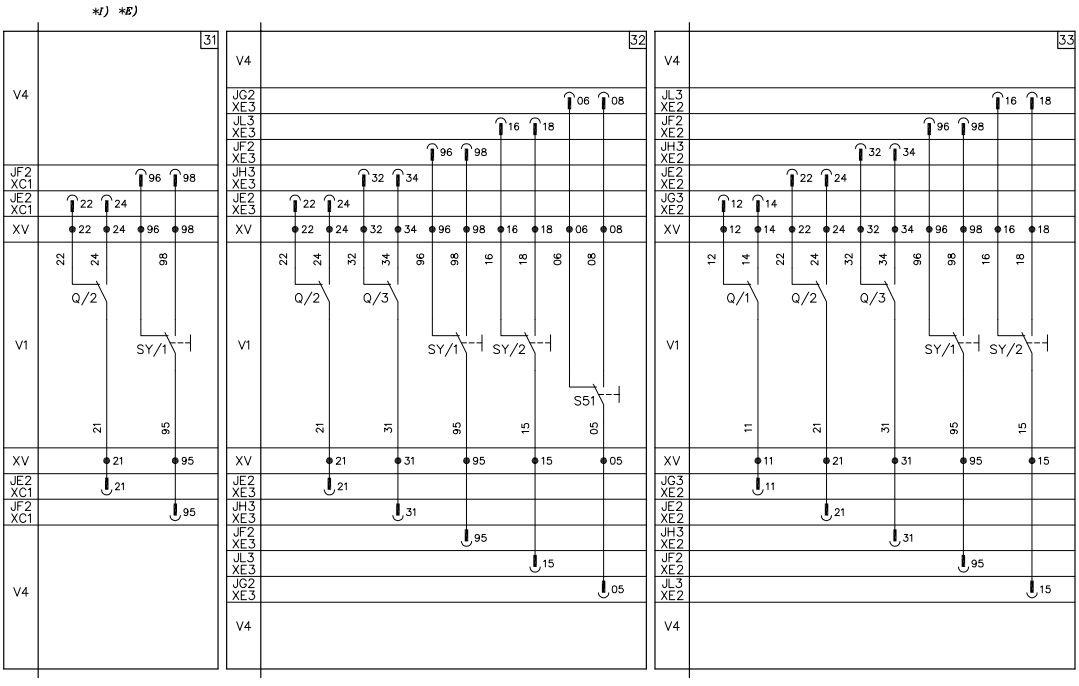
Wiring diagrams
Diagrams for XT1...XT4

Signaling contacts

31) One changeover contact for electrical signaling of circuit-breaker open or closed and one changeover contact for electrical signaling of circuit-breaker open due to tripping of the magnetic, thermal magnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltages up to 250V) (see notes E and I).

32) Two changeover contacts for electrical signaling of circuit-breaker open or closed, two change over contacts for electrical signaling of circuit-breaker open due to tripping of the magnetic, thermal magnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) and one changeover contact for electrical signaling of circuit-breaker open due to tripping of the ther momagnetic or electronic trip unit (only for voltages up to 250V).

33) Three changeover contacts for electrical signaling of circuit-breaker open or closed and two changeover contacts for electrical signaling of circuit-breaker open due to tripping of the magnetic, thermal magnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltages up to 250V).



Signaling contacts

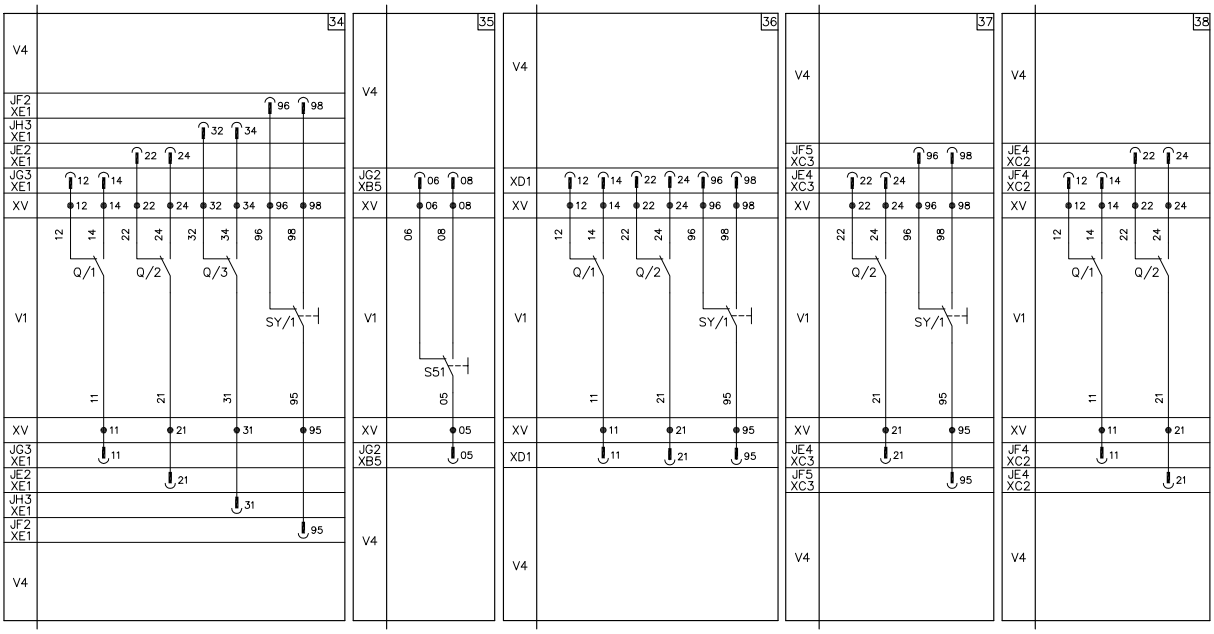
34) Three changeover contacts for electrical signaling of circuit-breaker open and one changeover contact for electrical signaling of circuit-breaker open due to tripping of the magnetic, thermal-magnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltages up to 250V).

35) One changeover contact for electrical signaling of circuit-breaker open due to tripping of the thermal magnetic electronic trip unit (only for voltages up to 250V).

36) Two changeover contacts for electrical signaling of circuit-breaker open or closed and one changeover contact for electrical signaling of circuit-breaker open due to tripping of the magnetic, thermal magnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltages up to 250V).

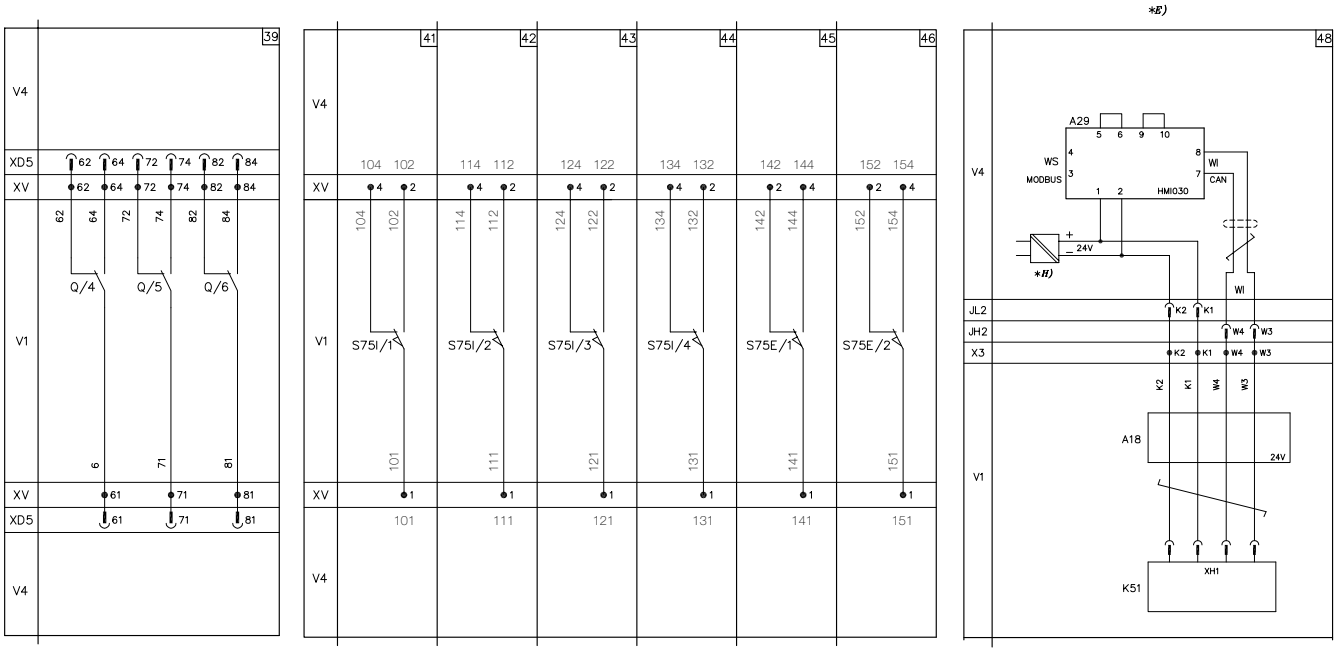
37) One changeover contact for electrical signaling of circuit-breaker open or closed and one changeover contact for electrical signaling of circuit-breaker open due to tripping of the magnetic, thermal magnetic or electronic trip units, YO, YO1, YO2, YU (tripped position) (only for voltage up to 400V).

38) Two changeover contacts for electrical signaling of circuit-breaker open or closed (only for voltage up to 400V).



Wiring diagrams
Diagrams for XT1...XT4

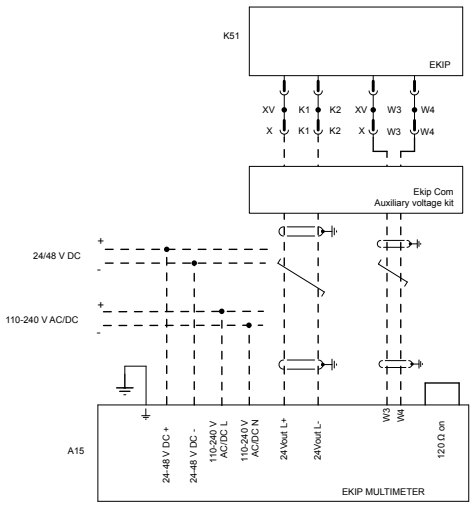
39) Three supplementary changeover contacts for electrical signaling of circuit-breaker open or closed (only for fixed or plug-in version circuit-breakers).
41) First changeover position contact of the circuit-breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit-breakers).
42) Second changeover position contact of the circuit-breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit-breakers).
43) Third changeover position contact of the circuit-breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit-breakers).
44) Fourth changeover position contact of the circuit-breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit-breakers).
45) First changeover position contact of the circuit-breaker, for electrical signaling of isolated (only for withdrawable version circuit-breakers).
46) Second changeover position contact of the circuit-breaker, for electrical signaling of isolated (only for withdrawable version circuit-breakers).
48) Auxiliary circuits of the 24V auxiliary power supply unit and of the HMI030 type interface unit (see note E).



Signaling contacts

104) Auxiliary circuits of Ekip Com or Kit of 24V DC auxiliary voltage for electronic trip units and of Ekip Multimeter display.

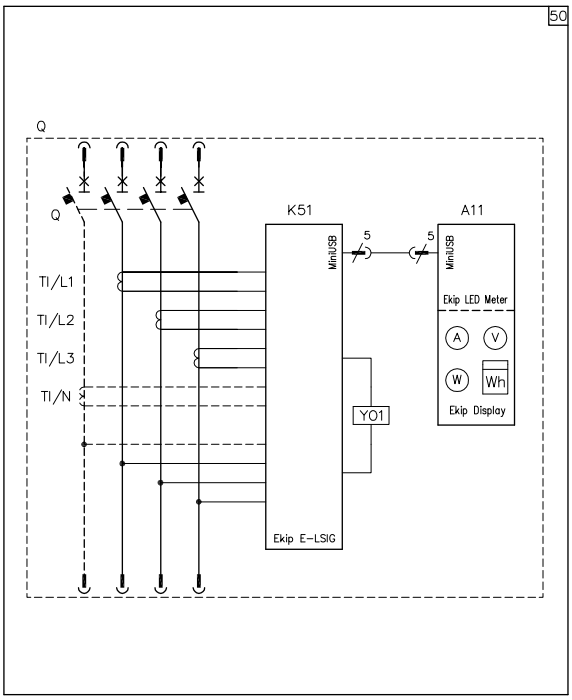
104



Wiring diagrams
Diagrams for XT1...XT4

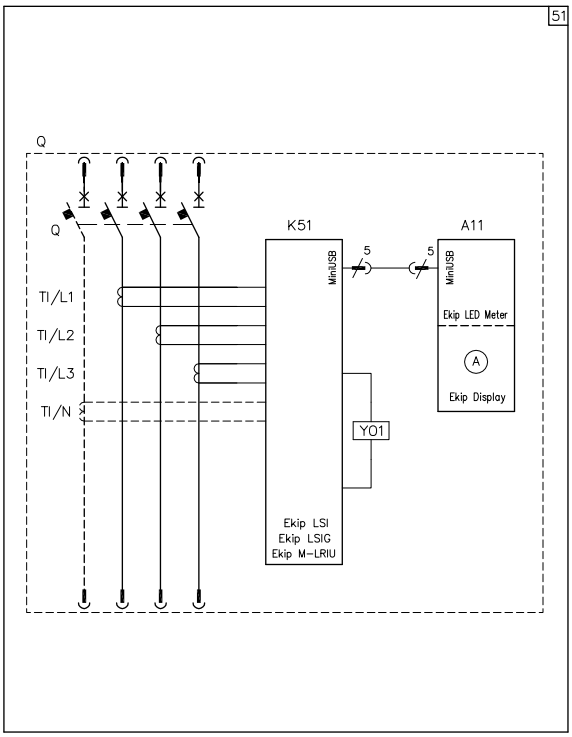
Electronic trip unit Ekip E-LSIG connected with Ekip Display or Ekip LED Meter

50) Auxiliary circuits of the Ekip E-LSIG microprocessor-based release connected to the Ekip Display (display) or Ekip LED Meter (current display) display unit.



Electronic trip unit Ekip LSI, Ekip LSIG, Ekip M-LRIU connected with Ekip Display or Ekip LED Meter

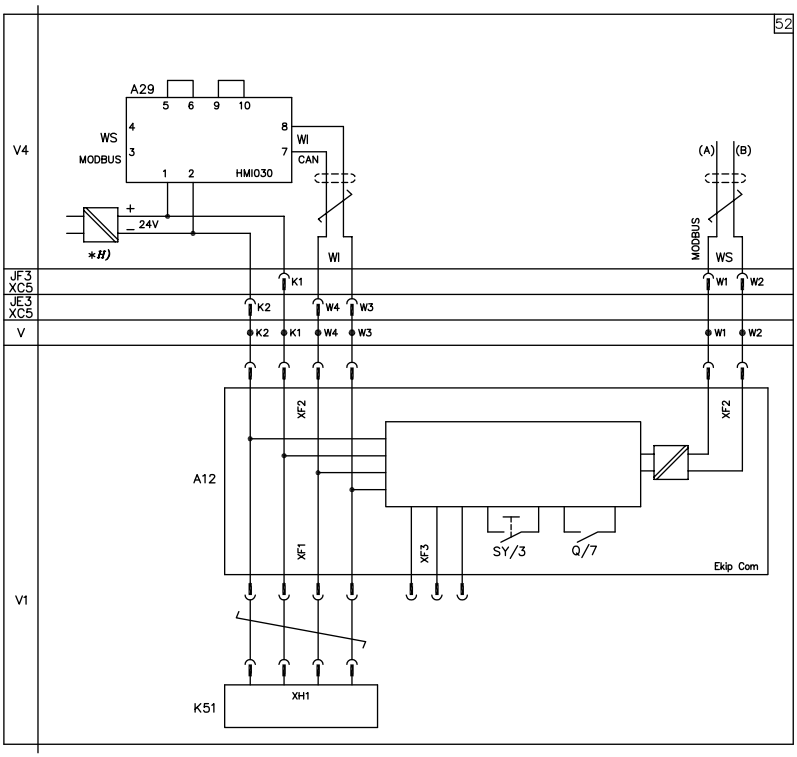
51) Auxiliary circuits of the electronic trip unit type Ekip LSI, Ekip LSIG or Ekip MLRIU connected to display unit type Ekip Display (display) or Ekip LED Meter (current display).



Wiring diagrams
Diagrams for XT1...XT4

Auxiliary circuit of Ekip-Com and HMI030

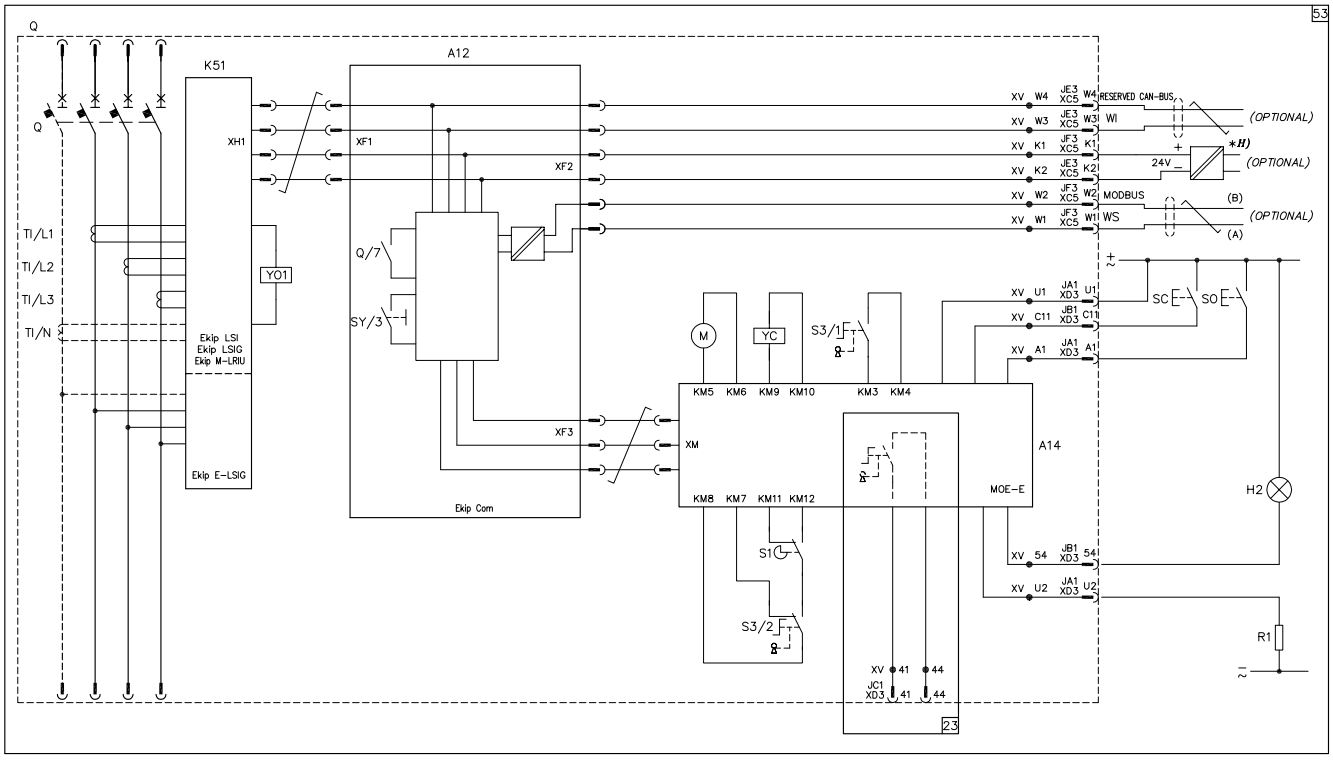
52) Auxiliary circuits of the Ekip Com type interface unit and of the HMI030 type interface unit (see note E).



Electronic trip unit Ekip LSI, Ekip LSIG or Ekip M-LRIU connected to interface unit Ekip Com and with actuator unit type MOE-E for the stored energy motor operator

23) One Contact for electrical signaling of stored energy motor operator that can be operated remotely.

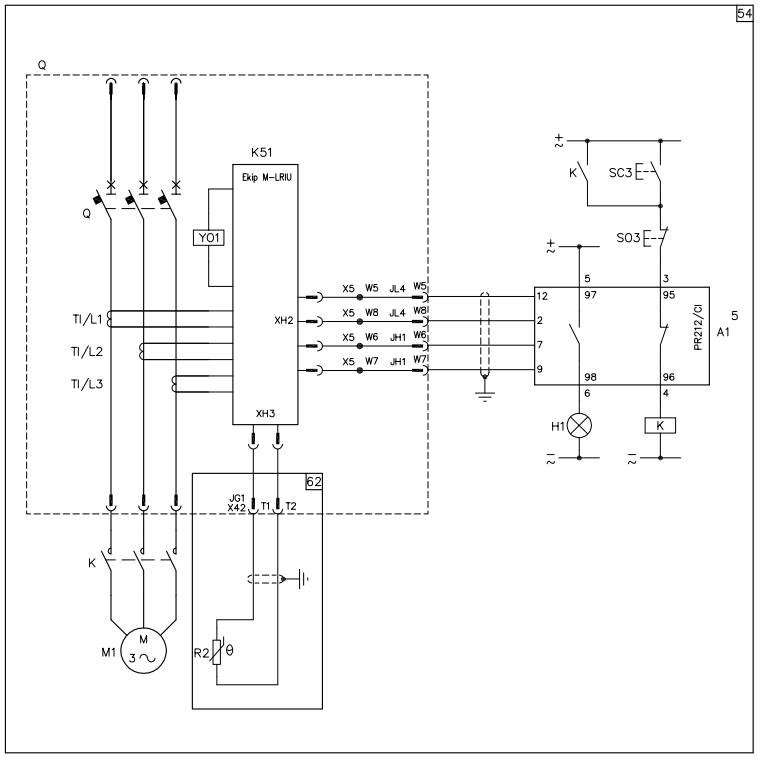
53) Auxiliary circuits of the electronic trip unit type Ekip LSI, Ekip LSIG or Ekup M-LRIU connected to interface unit type Ekip Com and with actuator unit type MOE-E for the stored energy motor operator.



Wiring diagrams
Diagrams for XT1...XT4

Auxiliary circuits of the electronic trip unit Ekip M-LRIU connected to the contactor control unit for starting the motor PR212/CI (the circuit to the motor thermistor is optional)

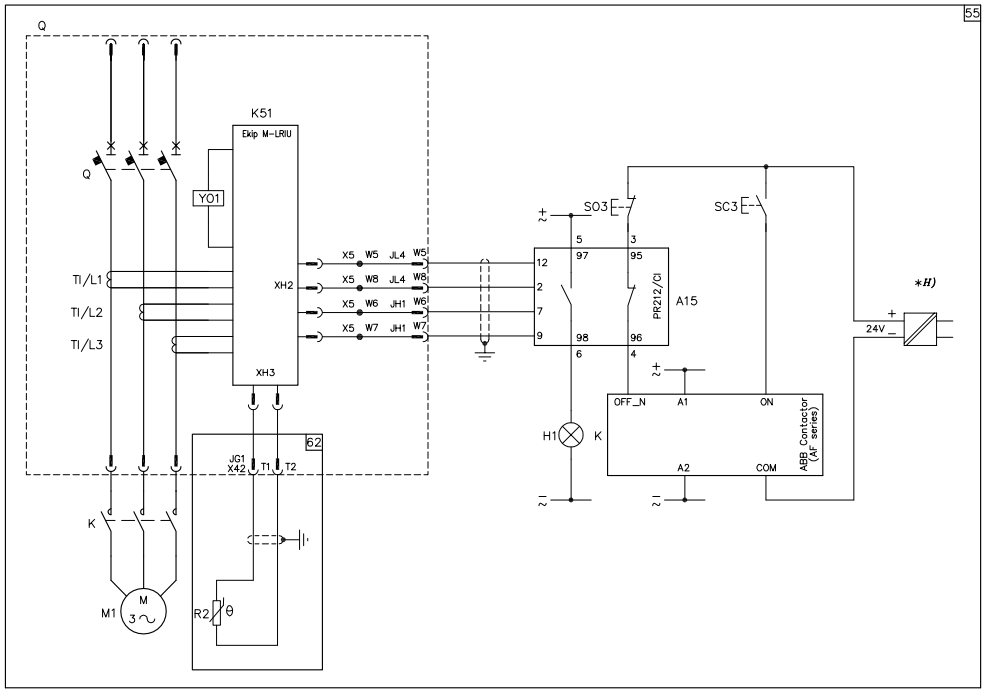
54) Auxiliary circuits of the electronic trip unit type Ekip M-LRIU connected to the contactor control unit for starting the motor type PR212/CI (the circuit to the motor thermistor is optional).
62) Motor thermistor circuit.



Electronic trip unit Ekip M-LRIU connected to the contactor control unit for starting the motor PR212/CI and with ABB AF series contactor (the circuit to the motor thermistor is optional)

55) Auxiliary circuits of the electronic trip unit type Ekip M-LRIU connected to the contactor control unit for starting the motor type PR212/CI and with ABB AF series contactor (the circuit to the motor thermistor is optional).

62) Motor thermistor circuit.



Wiring diagrams
Diagrams for XT1...XT4

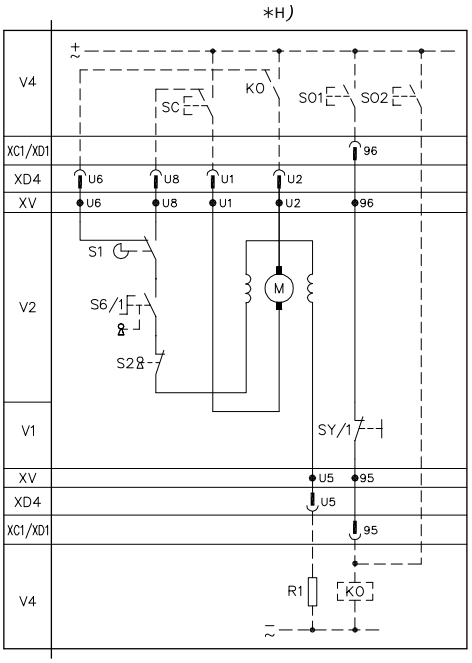
Instructions for resetting the circuit-breaker after tripping

Selection of the type of circuit-breaker resetting depends on design requirements and on service conditions.
Resetting can take place following tripping of the following releases:
- overcurrent;
- undervoltage;
- shunt opening.

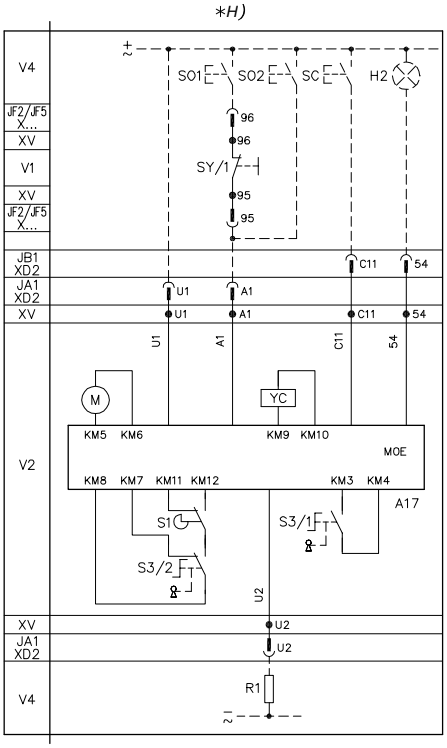
The following three possibilities are suggested (see diagrams in the following page):
1. Only manual resetting
   To be wired (by the customer): contact SO1, contact SY/1 and the auxiliary relay KO (only for MOD).
   Opening is prevented until the circuit-breaker is in the tripped position.
   To reset the circuit-breaker it is necessary to activate the special lever on the front of the motor until the circuit-breaker goes into the open position.
2. Electrical resetting under the operator's responsibility
   To be wired (by the customer): contact SO1, SO2, contact SY/1 and the auxiliary relay KO (only for MOD).
   Opening of the circuit-breaker is allowed by means of the contact S02. Such contact shall be protected to avoid unwanted activation and can be used only if the information received by the operator make it possible to exclude tripping due to a short-circuit, or if the causes of the short-circuit have been removed.
3. Electrical resetting always allowed
   To be wired (by the customer): contact SO1, SO2, contact SY/1 and the auxiliary relay KO (only for MOD).
   Opening is always allowed by means of contact S02.

NB: If the magnetic, thermal magnetic or electronic trip unit is present, it is necessary to find the causes which led to the circuit-breaker being in the tripped position so as to prevent reclosing under short-circuit conditions. In all cases, manual resetting is always allowed.

MOD

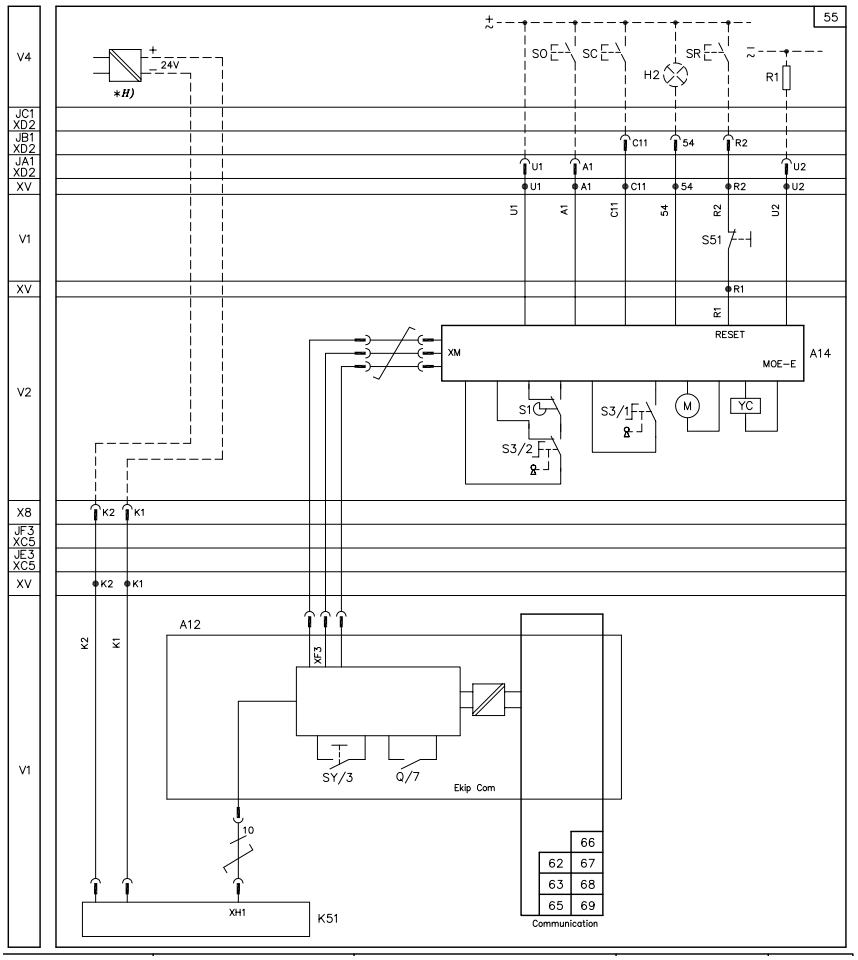


MOE or MOE-E

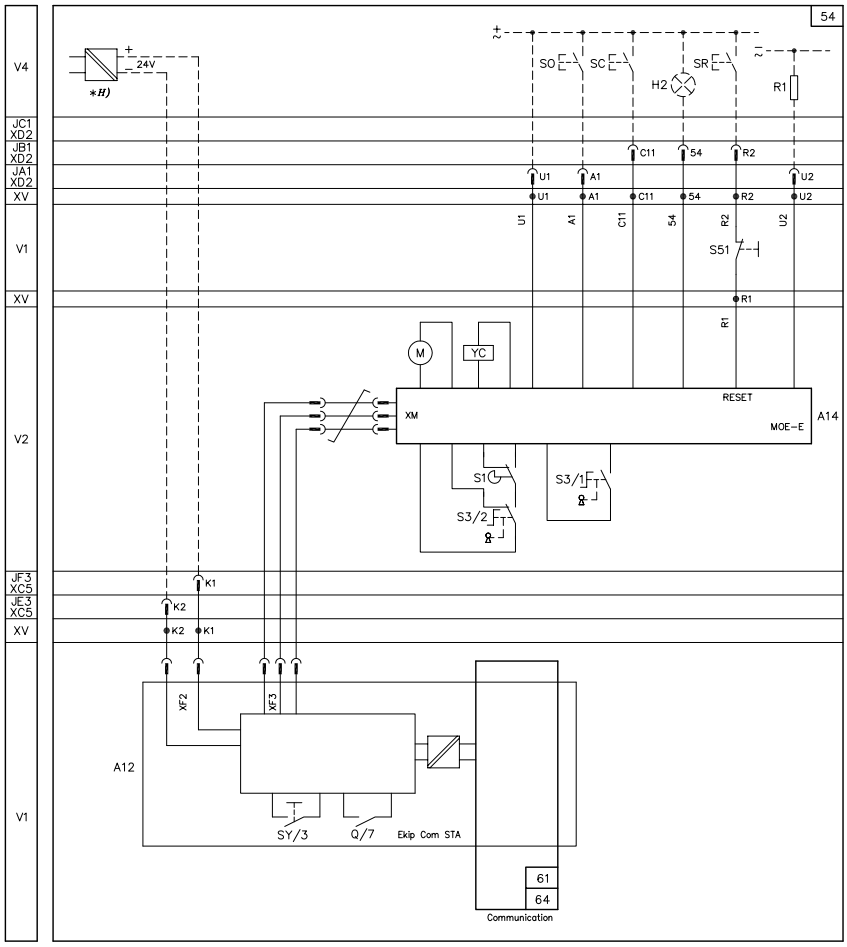


Wiring diagrams
Diagrams for XT1...XT4

55a) Interface unit type Ekip Com with direct supply to the trip unit and MOE-E motor operator



54a) Stand-alone interface unit type Ekip Com with MOE-E motor operator



Wiring diagrams
Diagrams for XT1...XT4

61) Modbus RTU STA interface of Ekip Com Unit to be installed inside the circuit-breaker
62a)Modbus RTU interface of Ekip Com Unit to be installed inside the circuit-breaker
63a)Modbus TCP STA interface of Ekip Com Unit to be installed inside the circuit-breaker
64) Modbus TCP interface of Ekip Com Unit to be installed inside the circuit-breaker
65) Profinet interface of Ekip Com Unit to be installed inside the circuit-breaker
66) Ethernet IP interface of Ekip Com Unit to be installed inside the circuit-breaker
67) IEC61850 interface of Ekip Com Unit to be installed inside the circuit-breaker
68) Ekip Link interface of Ekip Com Unit to be installed inside the circuit-breaker
69) Ekip Com Hub interface of Ekip Com Unit to be installed inside the circuit-breaker

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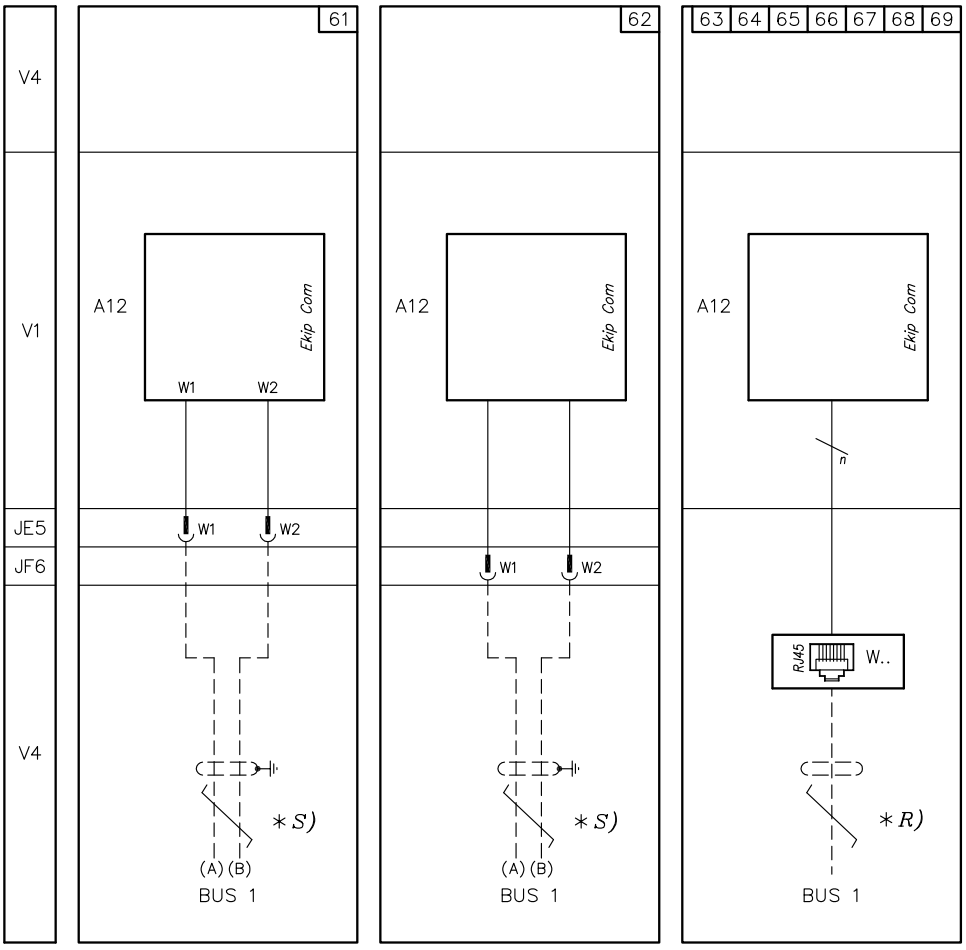
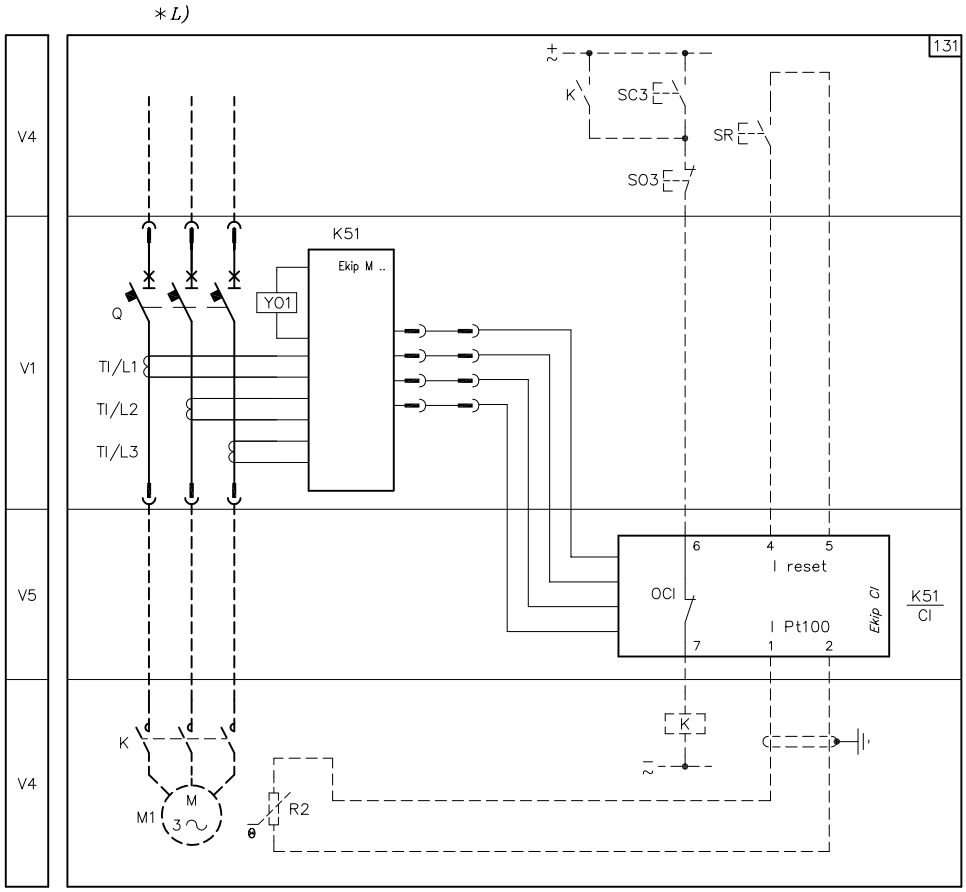
61 - 62 - 63 - 64 - 65 - 66 - 67 - 68 - 69 as an alternative to each other

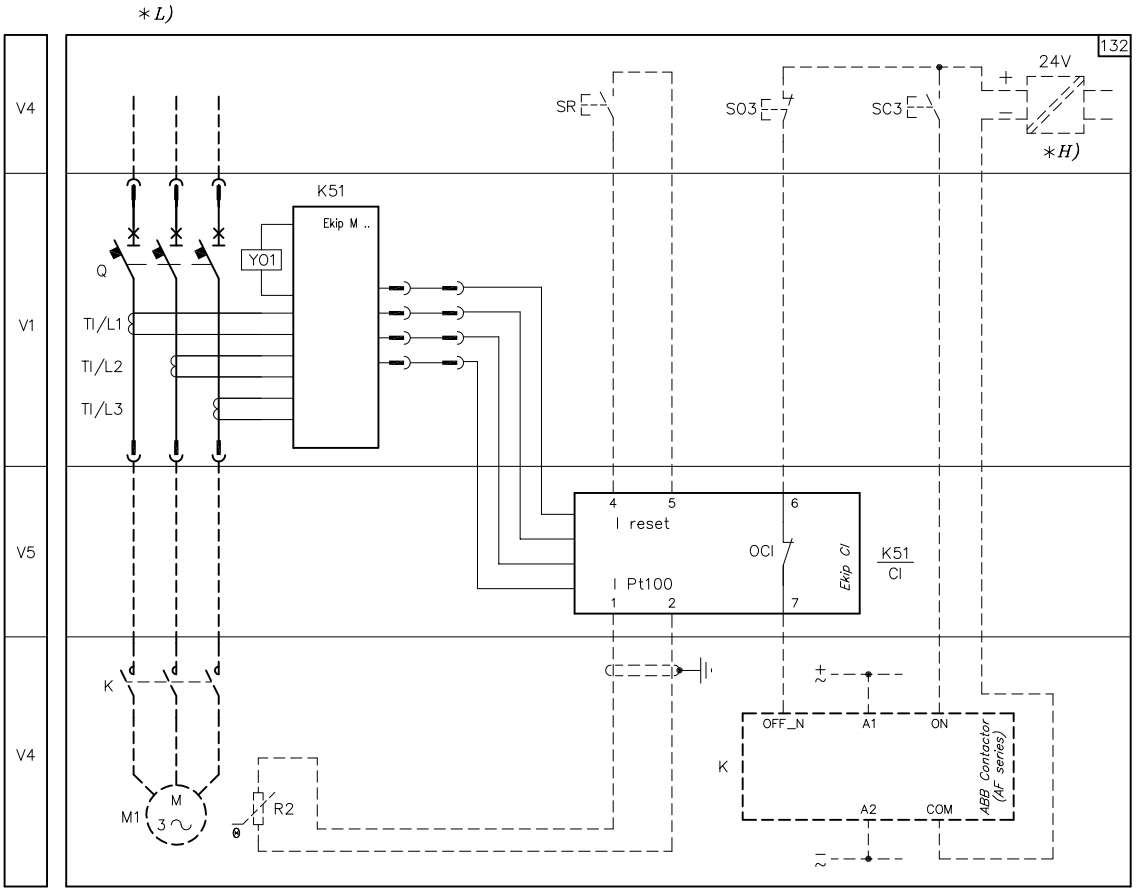


131) Motor starting module Ekip CI



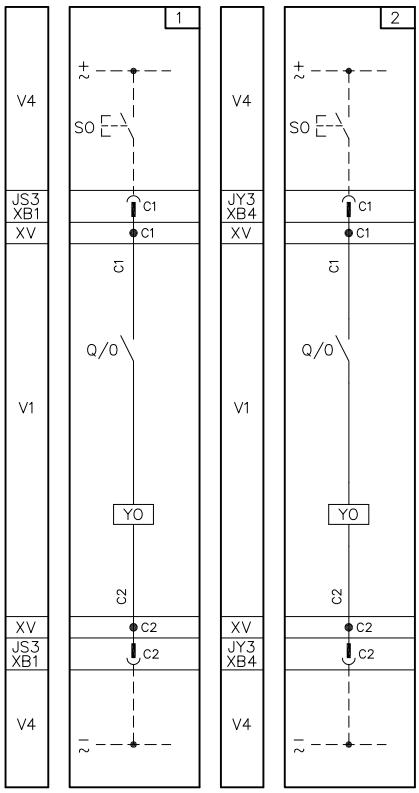
Wiring diagrams
Diagrams for XT1...XT4

132) Motor starting module Ekip CI with ABB contactor series AF



Wiring diagrams
Diagrams for XT5 and XT6

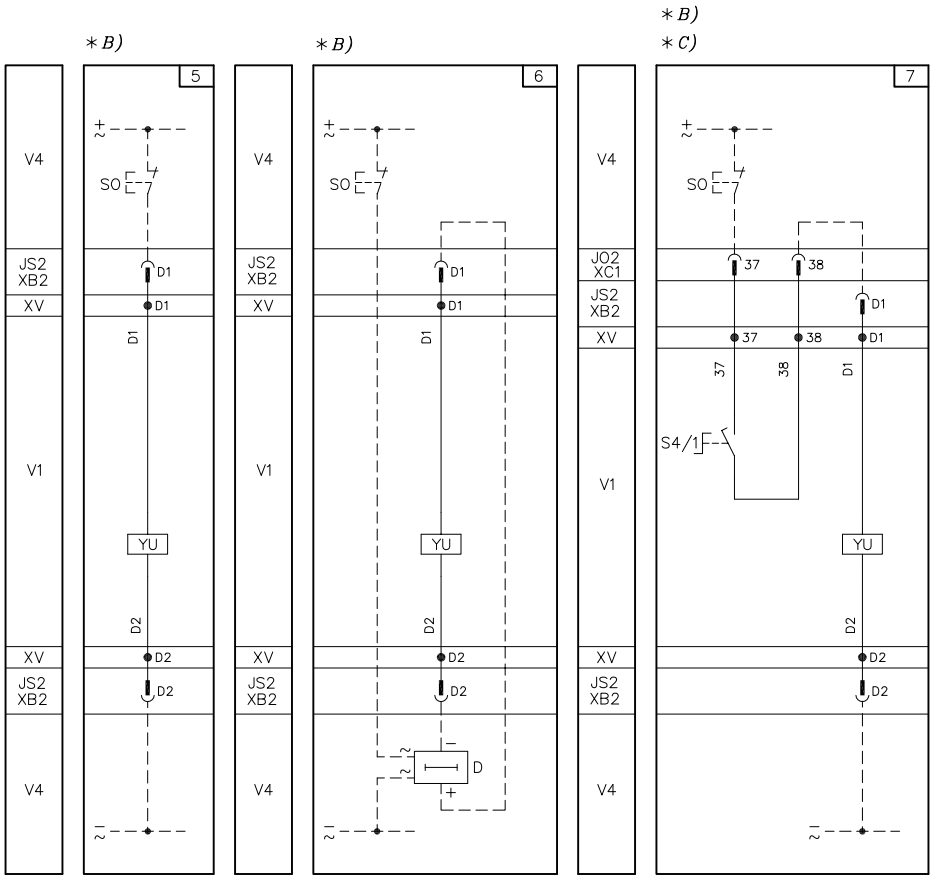
1) Left opening coil - YO (1)
2) Right opening coil - YO (1)



(1) Up to 380-440V YO version

Wiring diagrams
Diagrams for XT5 and XT6

5) Instantaneous left undervoltage coil - YU (1)
6) Left undervoltage coil with electronic time-delay device outside the circuit-breaker - YU (1)
7) Instantaneous left undervoltage coil in the version for machine tools with a contact in series - YU (1)

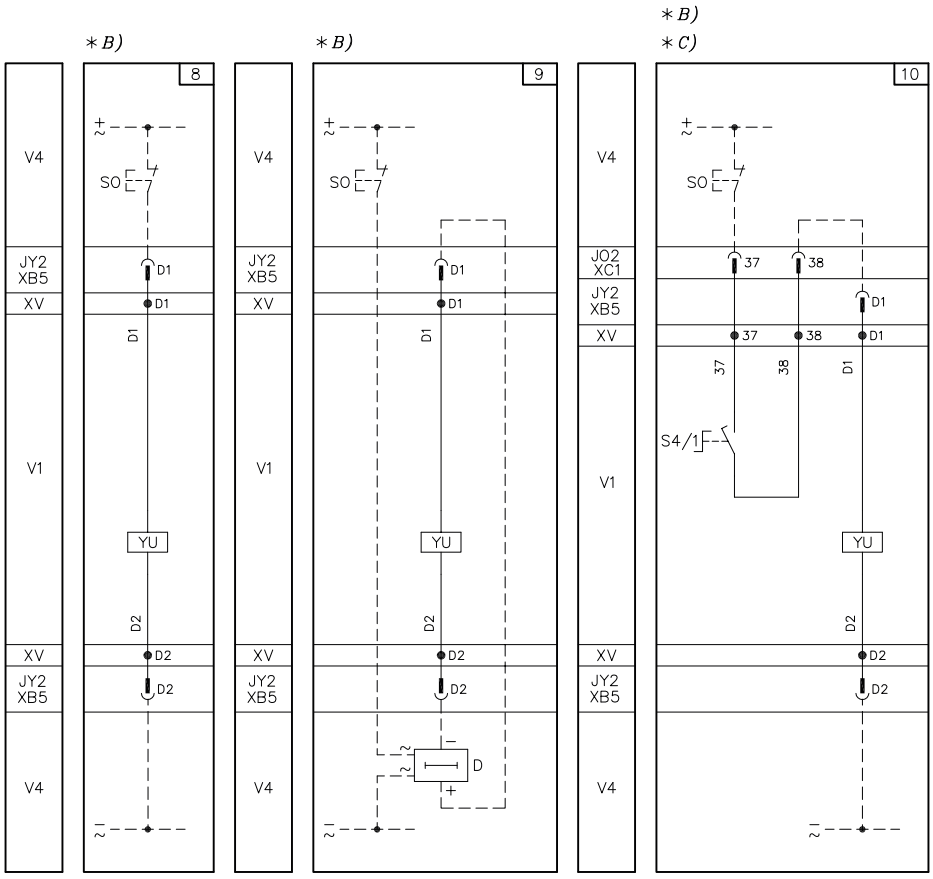


(1) Up to 380-440V YU version

8) Instantaneous right undervoltage coil - YU (1)

9) Right undervoltage coil with electronic time-delay device outside the circuit-breaker - YU (1)

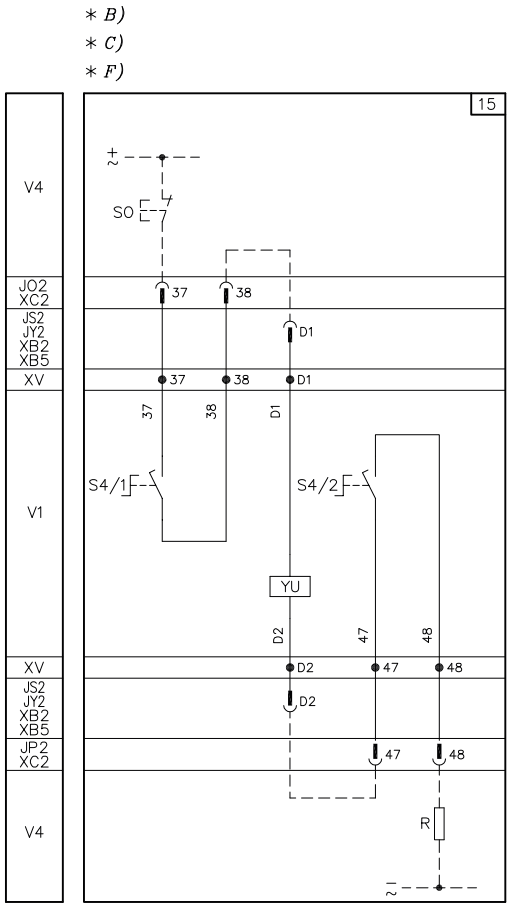
10) Instantaneous right undervoltage coil in the version for machine tools with a contact in series - YU (1)



(1) Up to 380-440V YU version

Wiring diagrams
Diagrams for XT5 and XT6

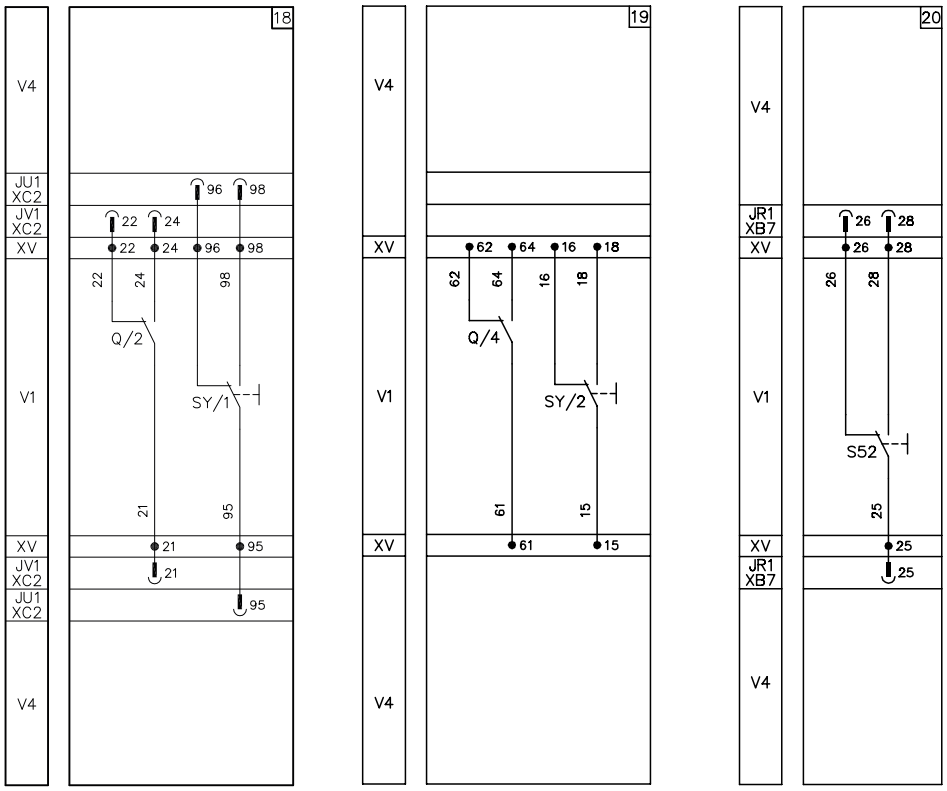
15) Instantaneous undervoltage coil in the version for machine tools with two contact in series - YU



18) Open/closed circuit-breaker signalling contact and circuit-breaker tripped signalling contact (for voltage up to 250V)

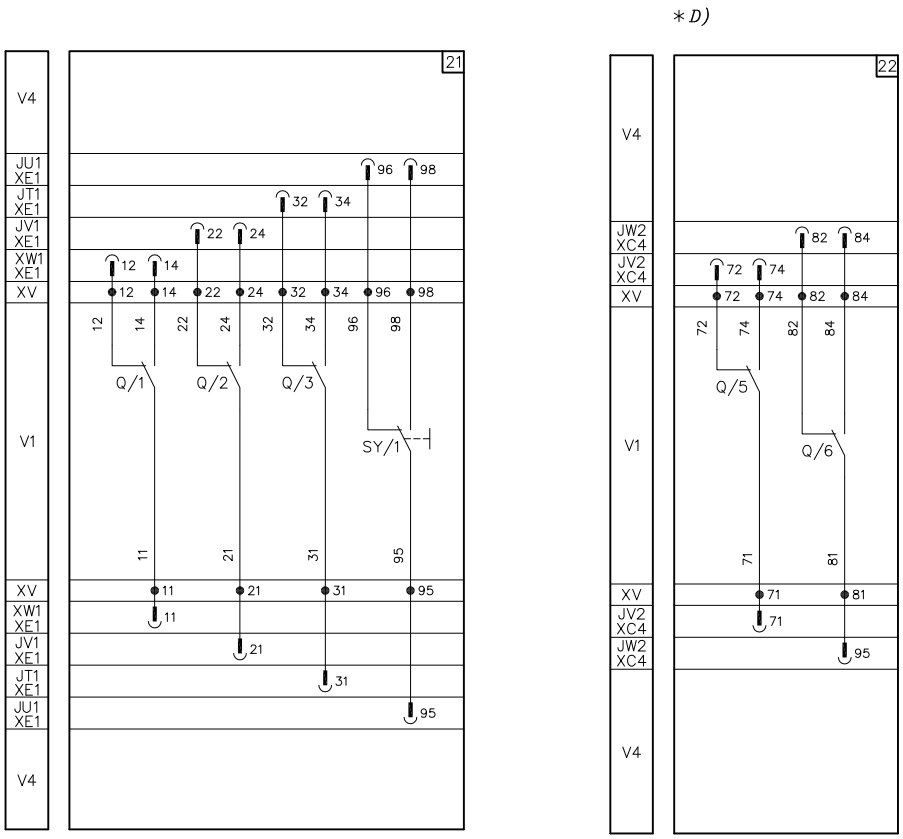
19) Open/closed circuit-breaker signalling contact and circuit-breaker tripped signalling contact (for voltage up to 250V) left position

20) Signalling contact for minimum voltage relay tripping

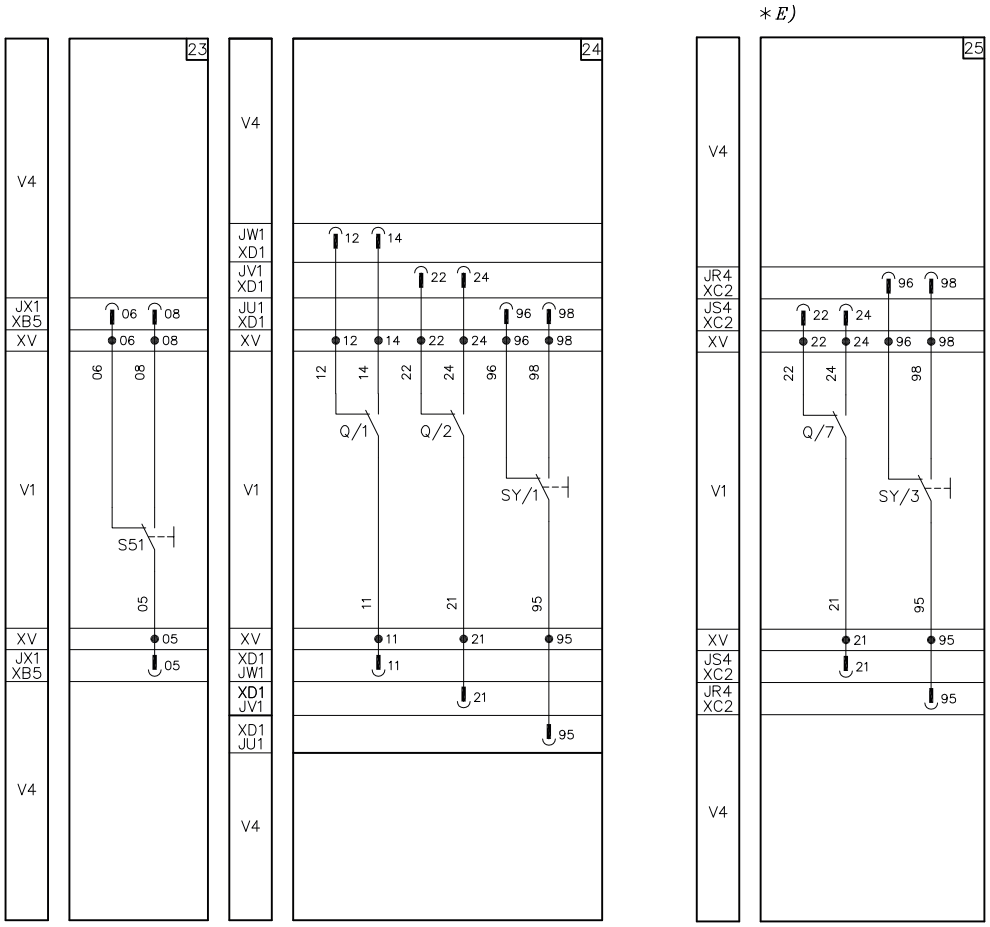


Wiring diagrams
Diagrams for XT5 and XT6

21) Three open/closed circuit-breaker signalling contacts and circuit-breaker tripped signalling contacts (for voltage up to 250V)
22) Open/closed circuit-breaker 2 signalling contacts (for voltage up to 400V)



23) Protection relay tripped signalling contact (for voltage up to 250V)
24) Two open/closed circuit-breaker signalling contacts and circuit-breaker tripped signalling contacts (for voltage up to 250V)
25) Open/closed circuit-breaker signalling contacts and circuit-breaker tripped signalling contacts (for voltage up to 400V)



Wiring diagrams
Diagrams for XT5 and XT6

28) Circuit-breaker test position signalling contacts
29) Circuit-breaker disconnected position signalling contacts
30) Circuit-breaker inserted position signalling contacts
31) Circuit-breaker inserted position signalling contacts
32) Circuit-breaker inserted position signalling contacts

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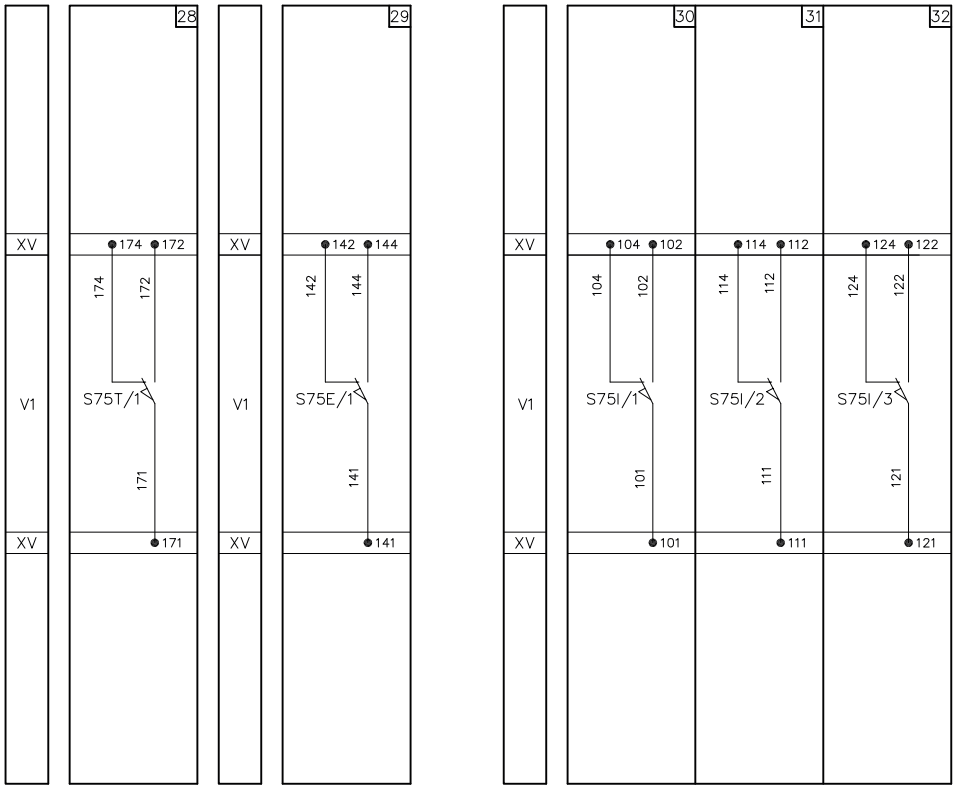
28 - 29
Only for withdrawable version circuit-breaker

—
30 - 31 - 32
Only for plug-in or withdrawable version circuit-breaker



35) Differential relay tripped signalling contact S87/3
36) Differential relay circuits K87
37) Two contacts signalling differential relay pre-alarm and alarm S87

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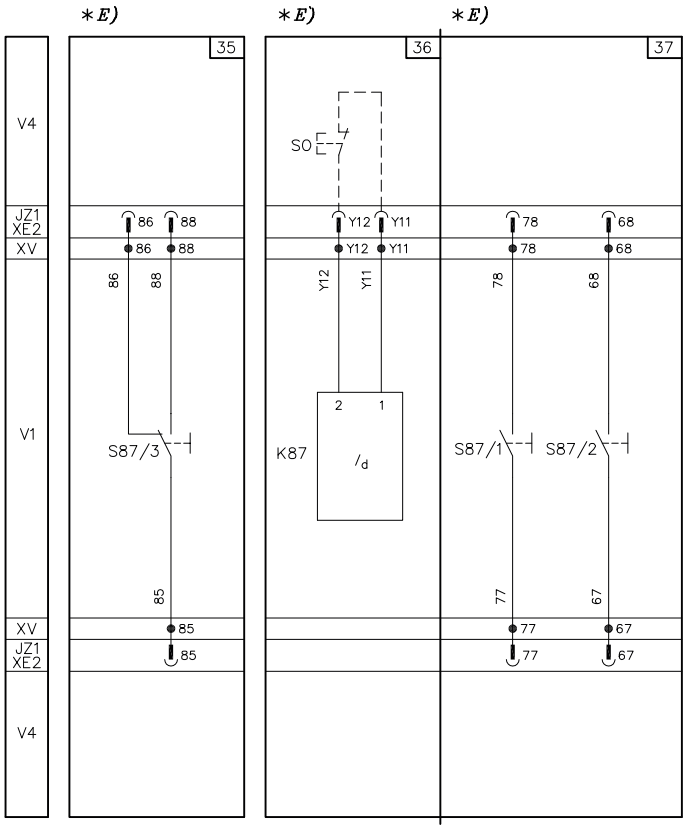
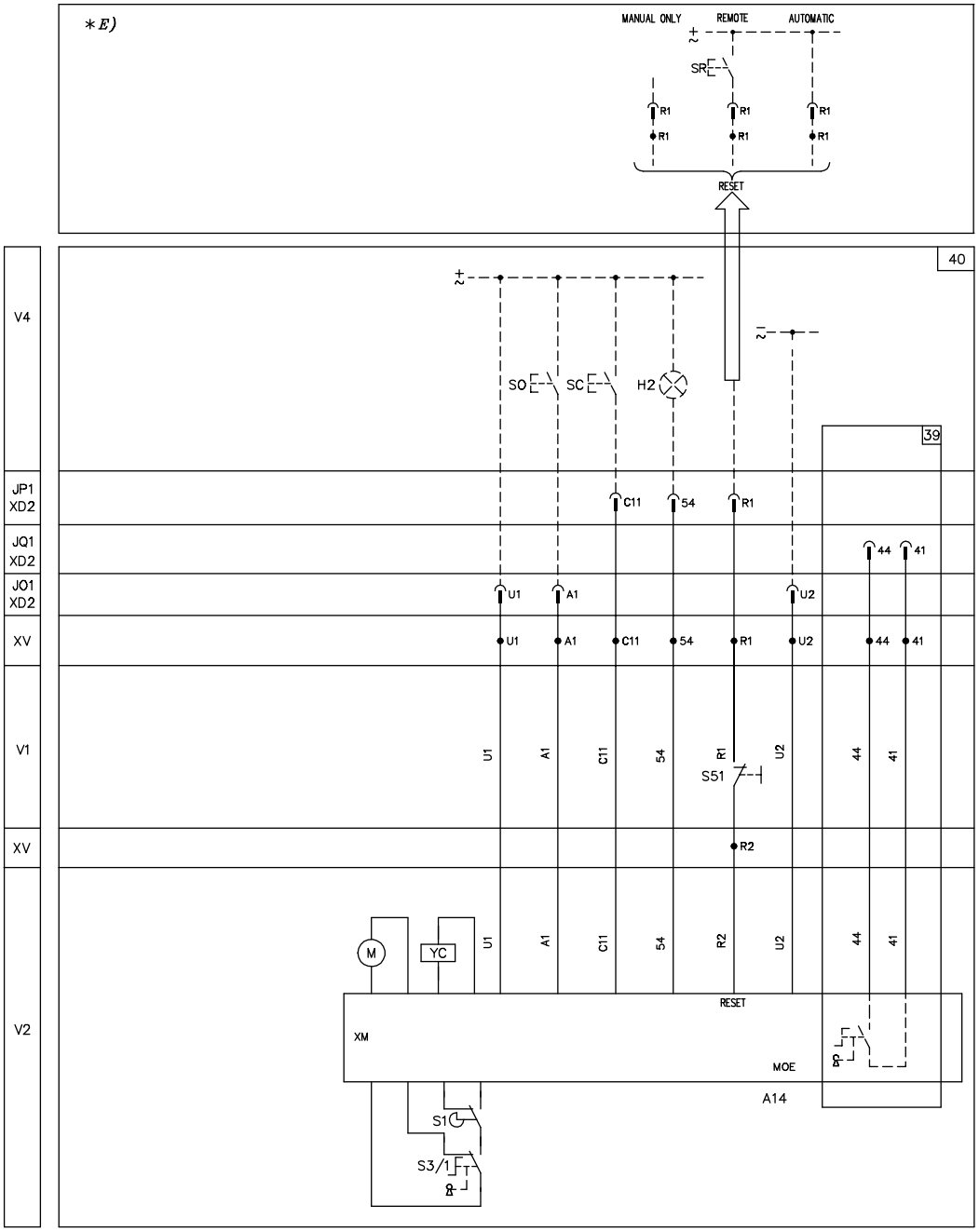
36 - 37
Only for differential relay type RC sel XT5 4 poles



Wiring diagrams
Diagrams for XT5 and XT6

39) Auto/manual/lock status feedback
40) Stored energy motor operator (MOE)



41) Direct auxiliary supply 24Vdc and local bus

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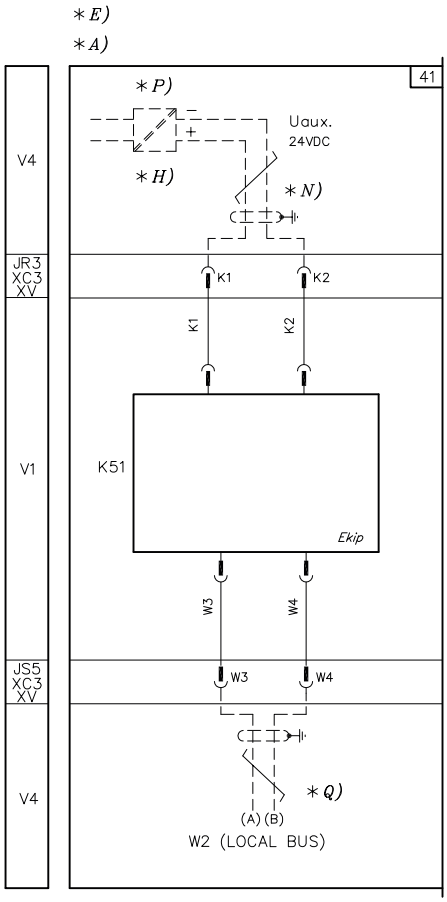
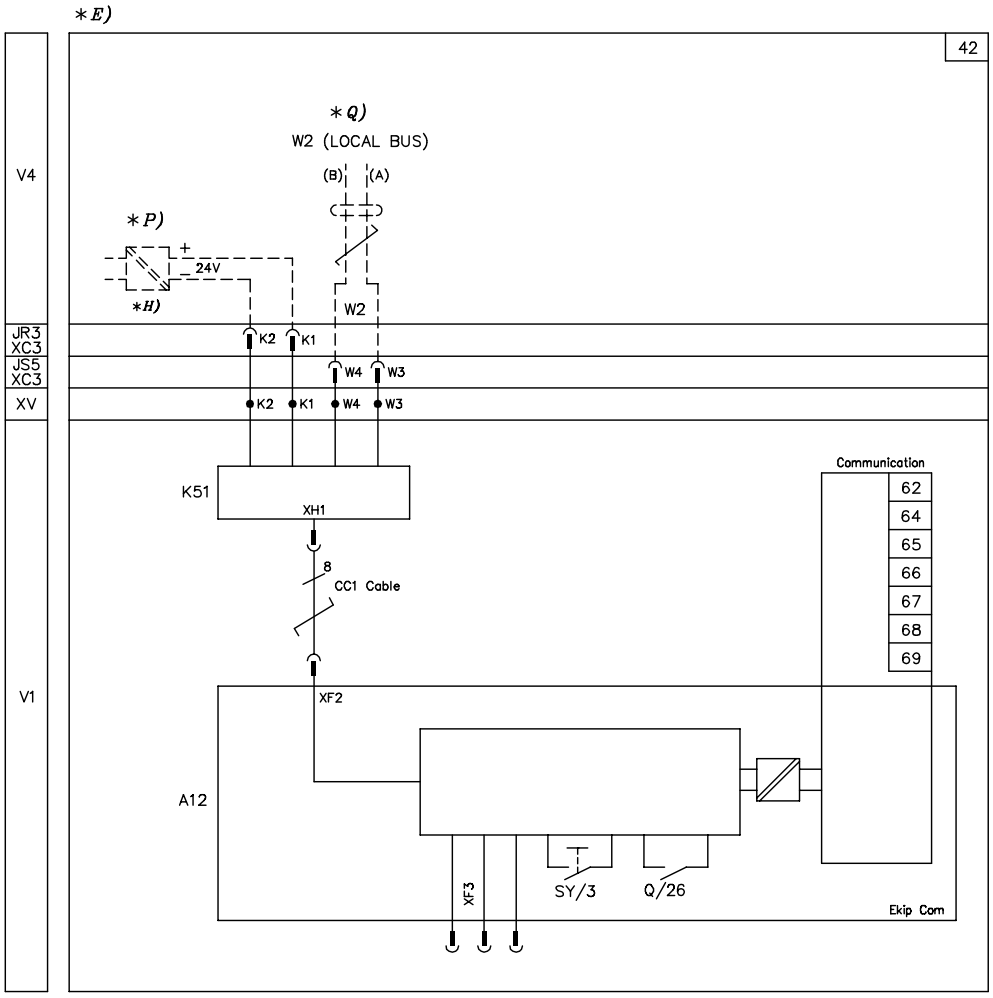
As an alternative to figure 78

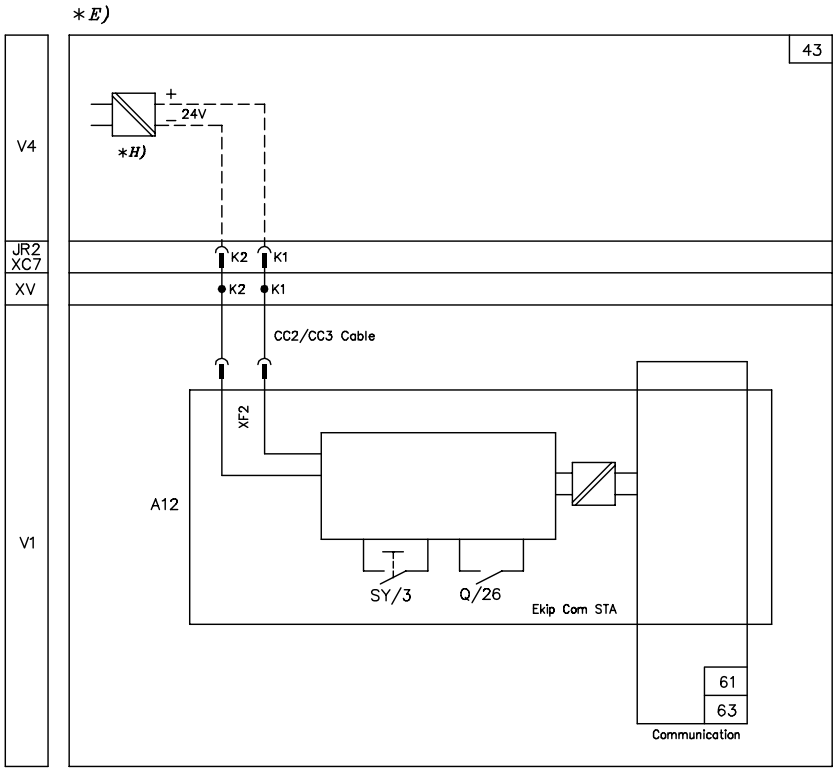


Wiring diagrams
Diagrams for XT5 and XT6

42) Interface unit type Ekip Com

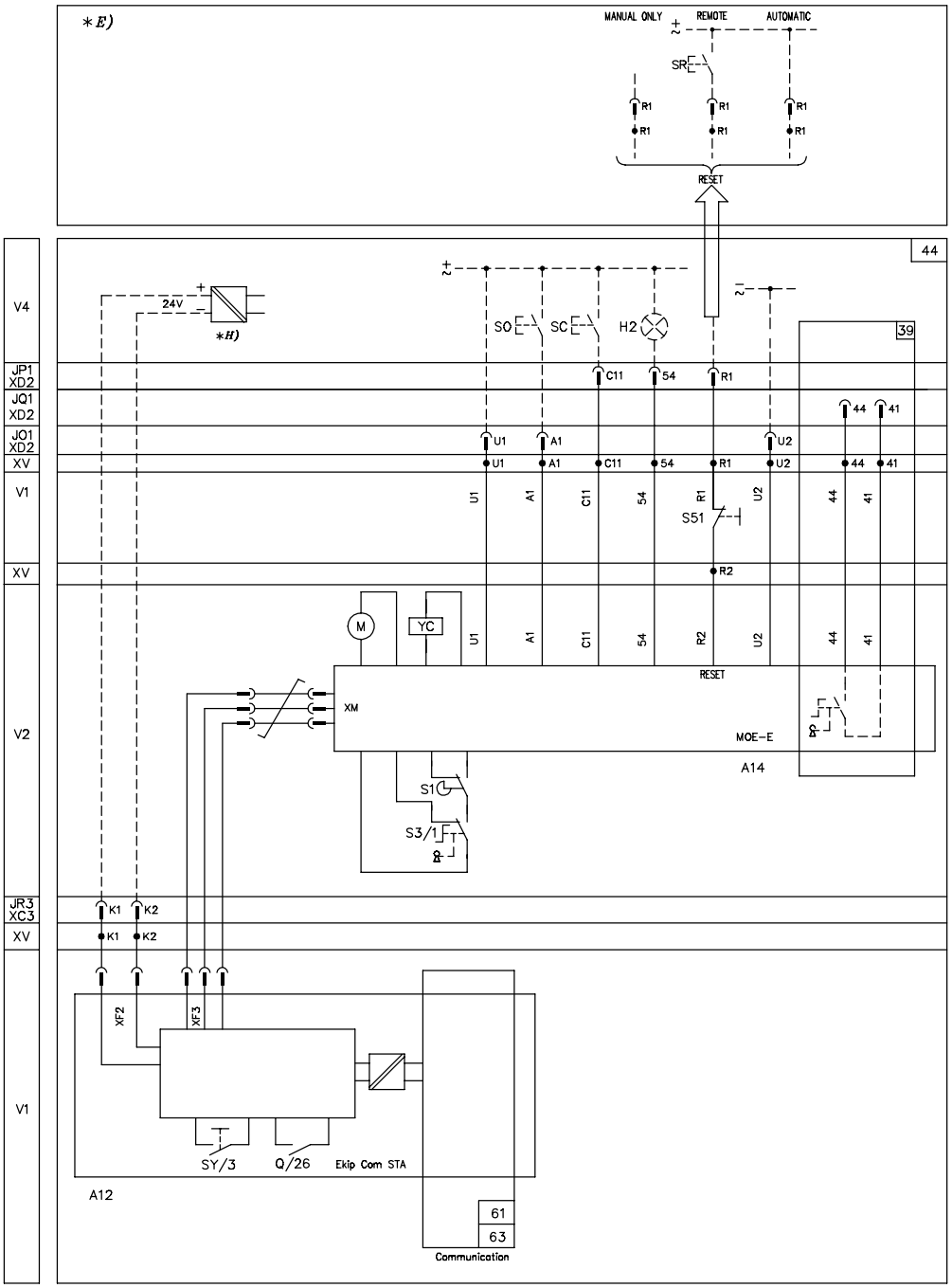


43) Stand alone interface unit type Ekip Com



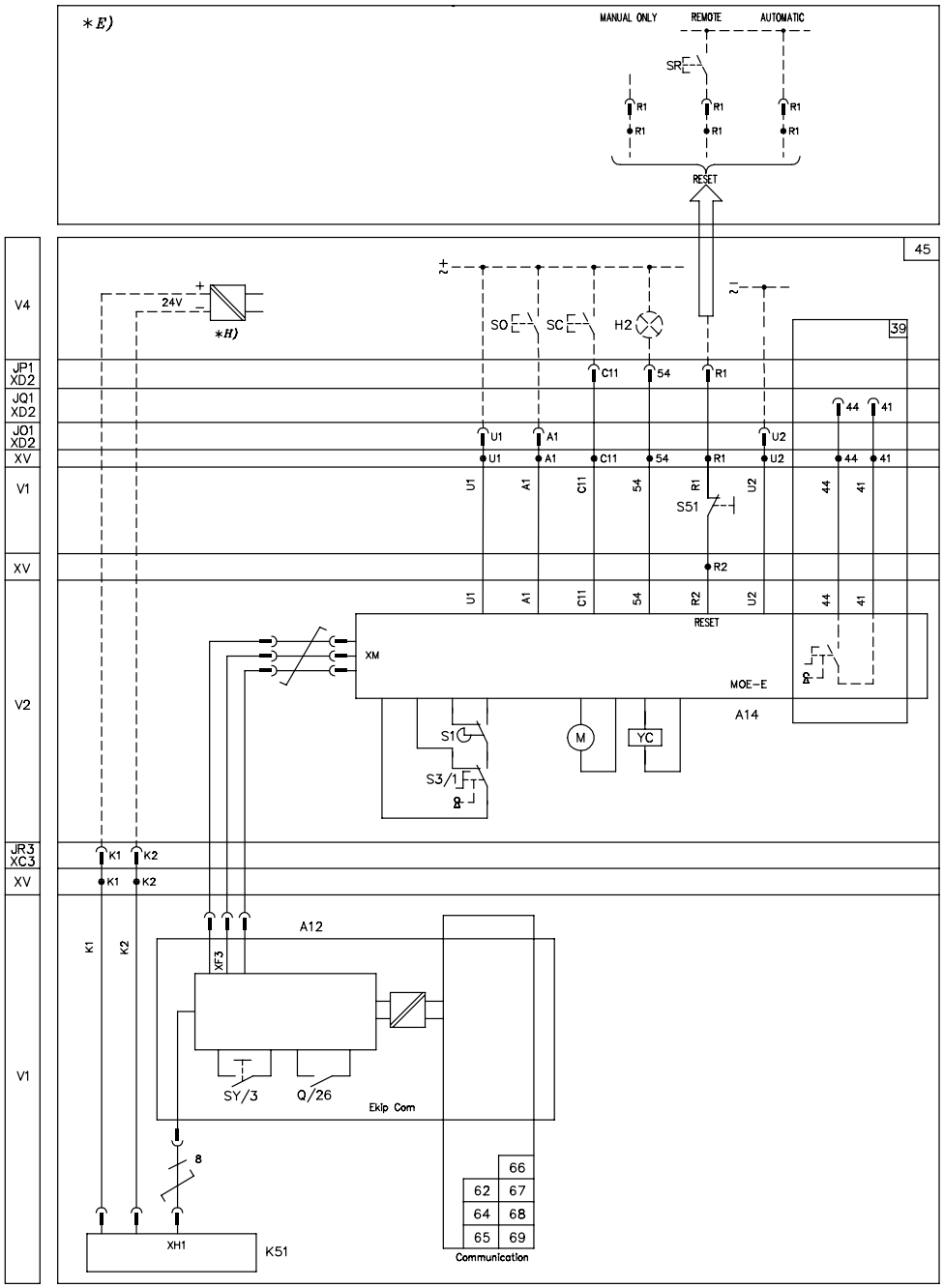
Wiring diagrams
Diagrams for XT5 and XT6

39) Auto/manual/lock status feedback
44) Stand alone interface unit type Ekip Com with MOE-E motor operator



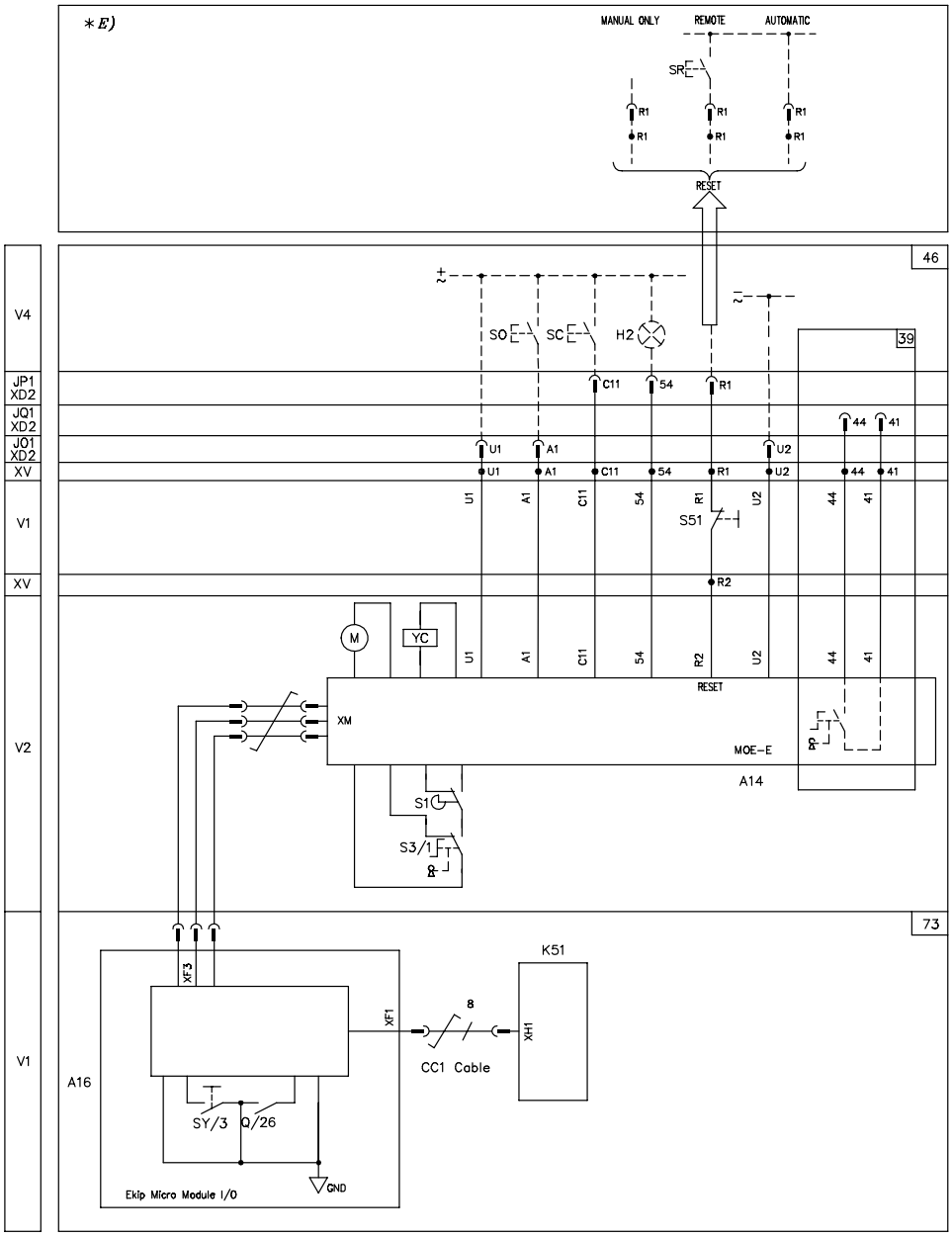
39) Auto/manual/lock status feedback

45) Interface unit type Ekip Com with direct supply to relay and MOE-E motor operator

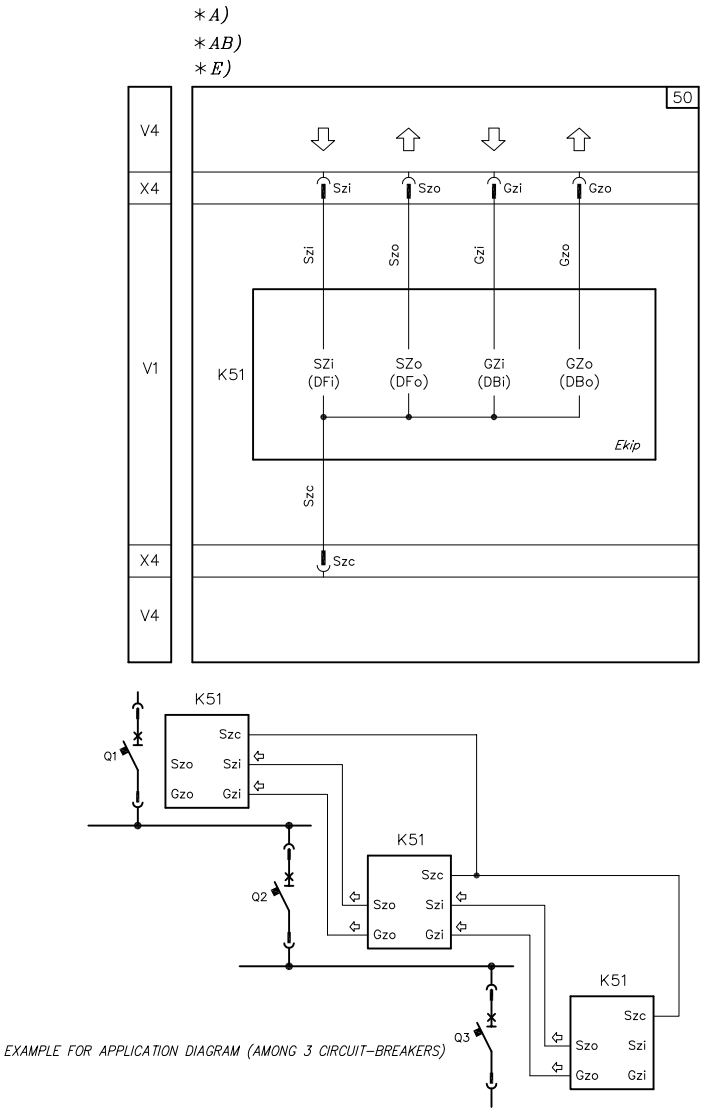


Wiring diagrams
Diagrams for XT5 and XT6

39) Auto/manual/lock status feedback
46) Interface unit type Ekip Micro Module I/O with MOE-E motor operator
47) Ekip Micro Module I/O



50) Zone selectivity



EXAMPLE FOR APPLICATION DIAGRAM (AMONG 3 CIRCUIT–BREAKERS)

Wiring diagrams
Diagrams for XT5 and XT6

61) Modbus RTU STA interface of Ekip Com unit
62) Modbus RTU interface of Ekip Com unit
63) Modbus TCP STA interface of Ekip Com unit
64) Communication interface of Ekip Com unit (see table below)
65) Communication interface of Ekip Com unit (see table below)
66) Communication interface of Ekip Com unit (see table below)
67) Communication interface of Ekip Com unit (see table below)
68) Communication interface of Ekip Com unit (see table below)
69) Communication interface of Ekip Com unit (see table below)

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61 - 62 - 63 - 64 - 65 - 66 - 67 - 68 - 69
As in alternative to each other

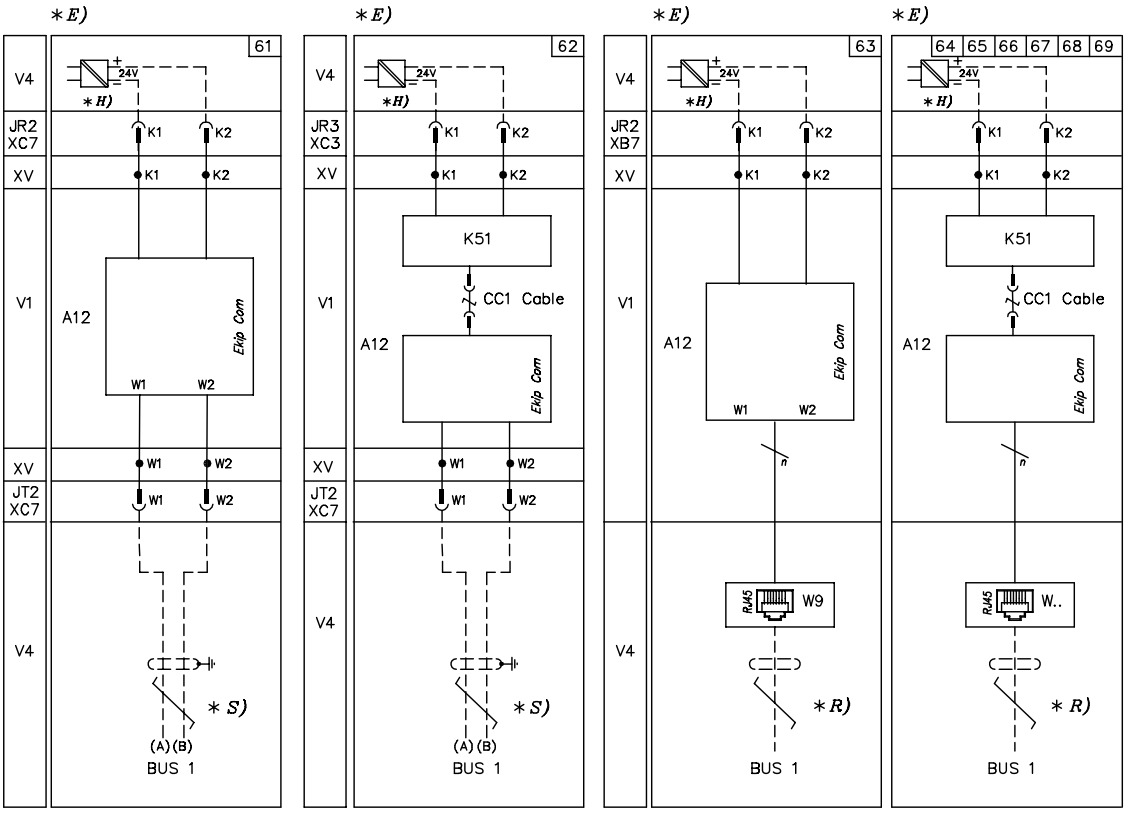
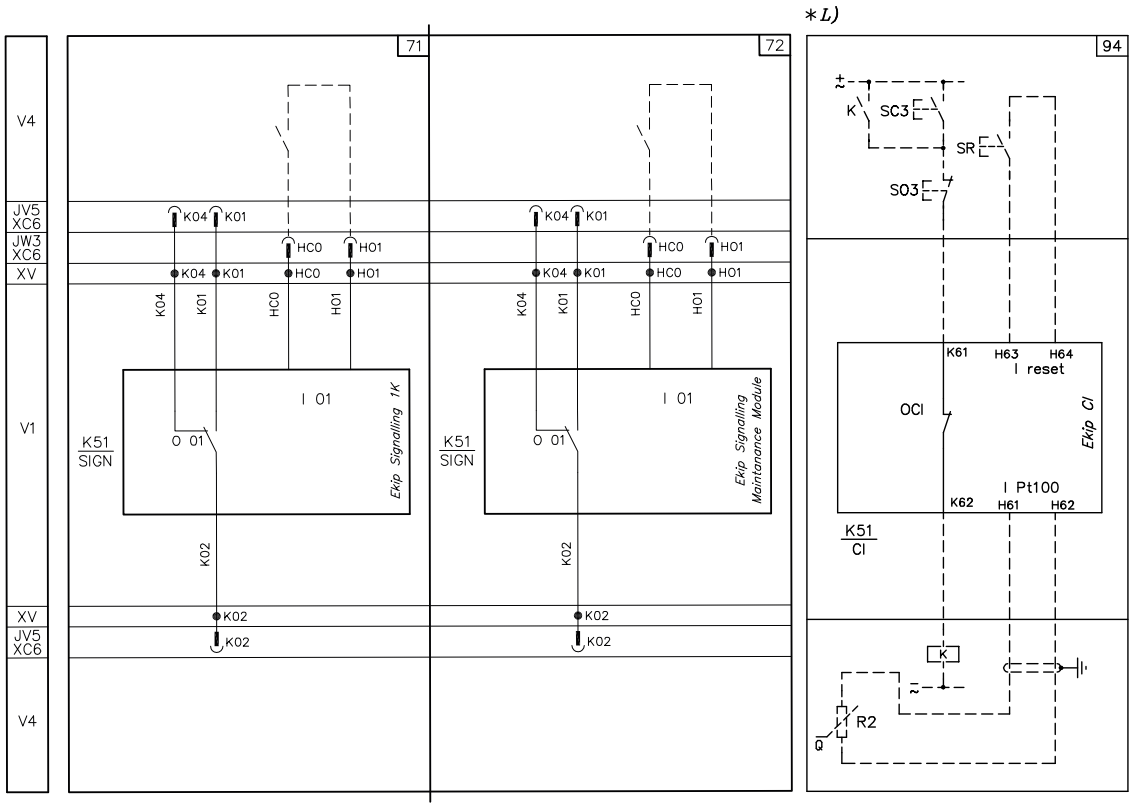


FIG.	DESCRIZIONE / DESCRIPTION	BUS
64	MODBUS TCP	W9
65	PROFINET	W10
66	ETHERNET I/P™	W11
67	IEC61850	W12
68	LINK	W13
69	HUB	W14

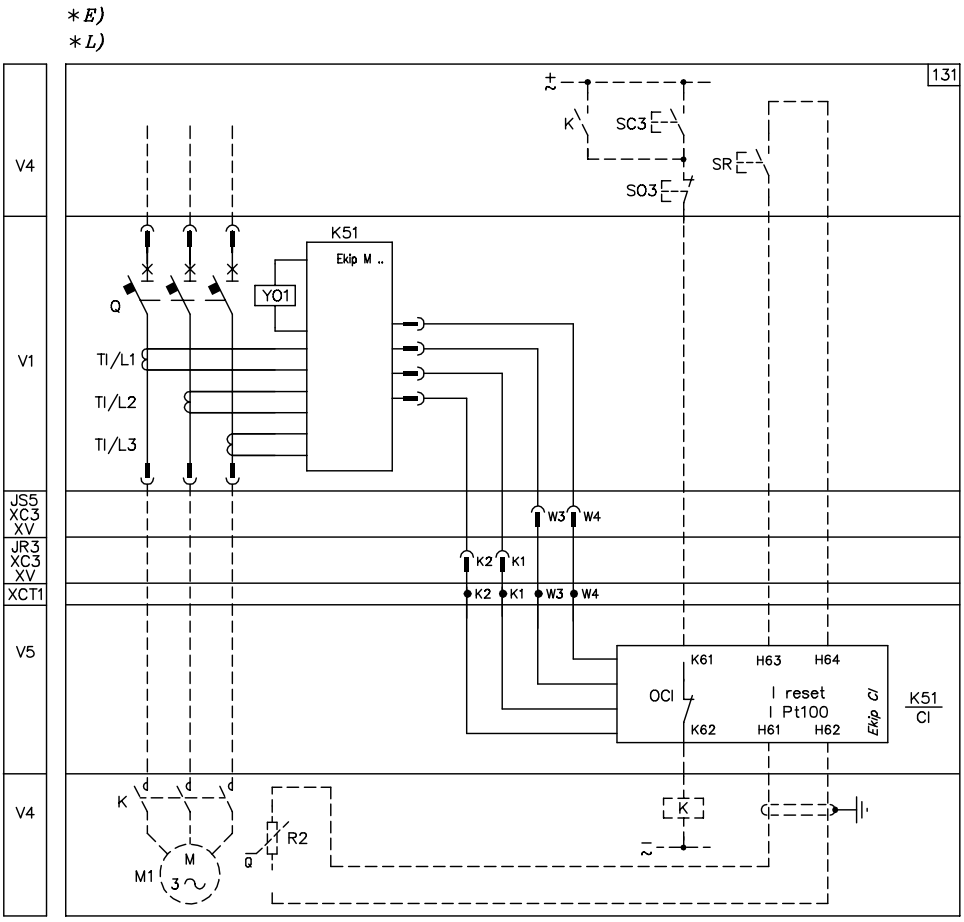
71) Ekip signalling 1K
72) Ekip signalling maintenance module
94) Ekip CI

—
71 - 72
As in alternative
to each other

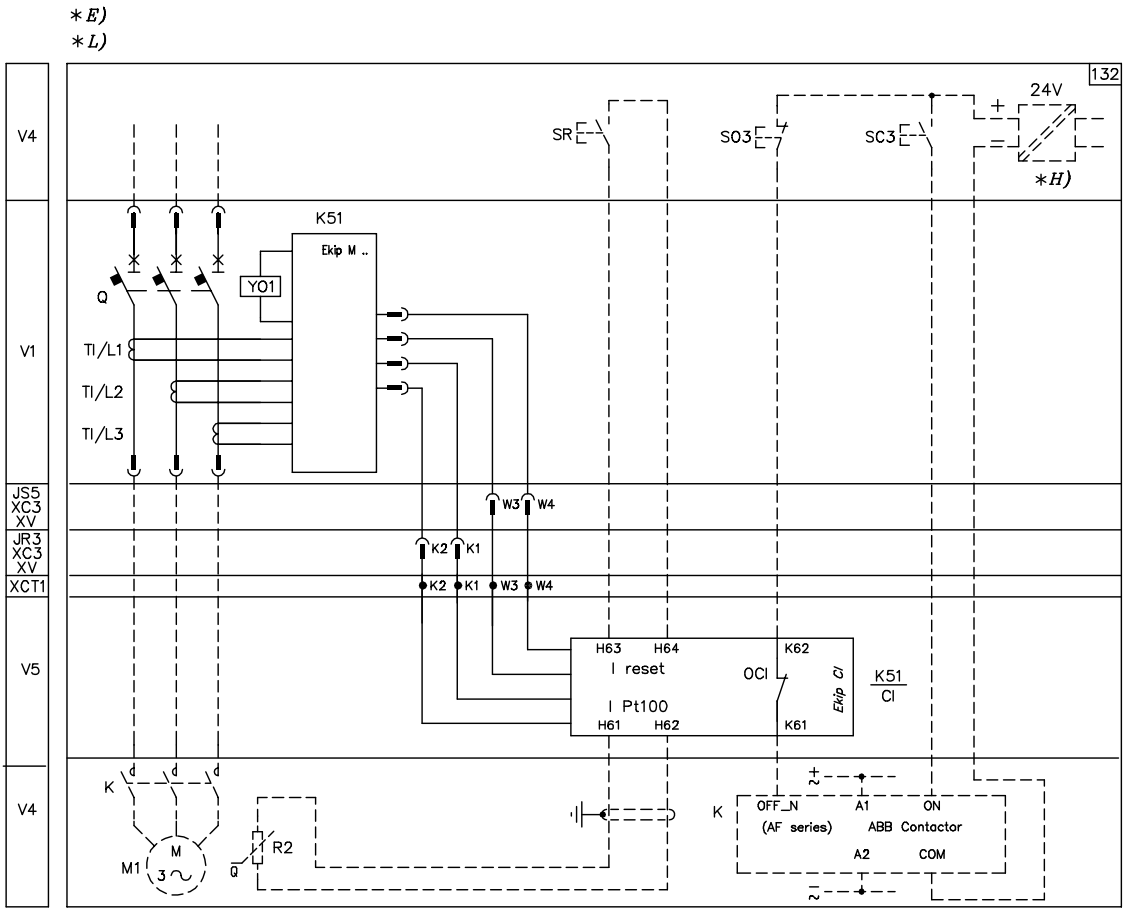


Wiring diagrams
Diagrams for XT5 and XT6

131) Motor starting module Ekip CI

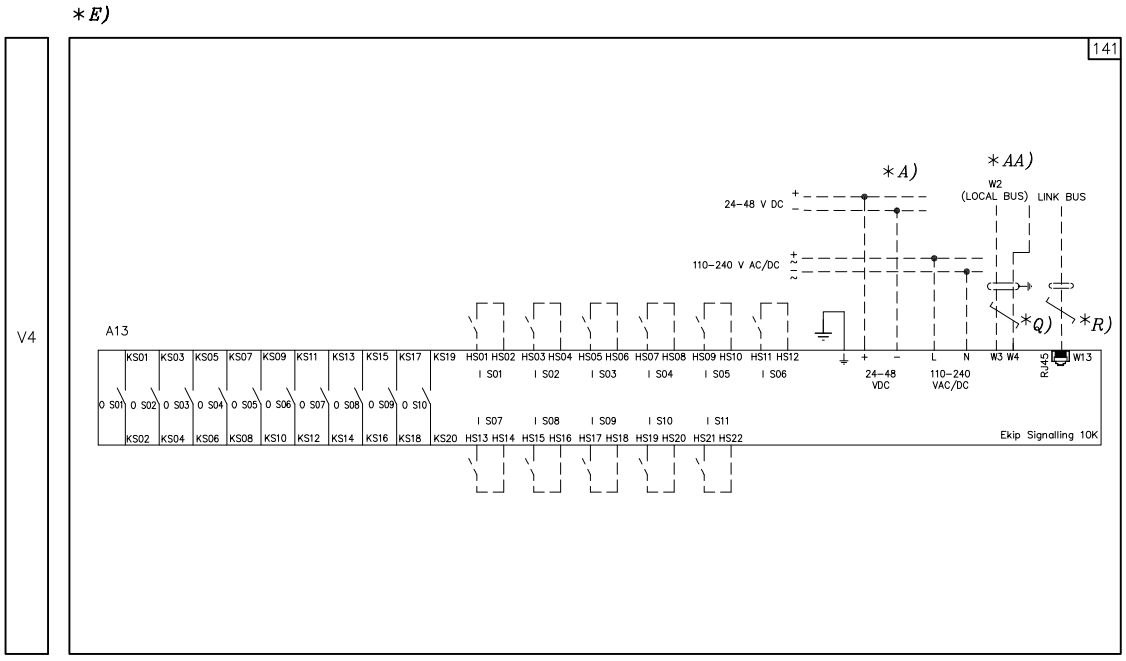


132) Motor starting module Ekip CI with ABB contactor series AF

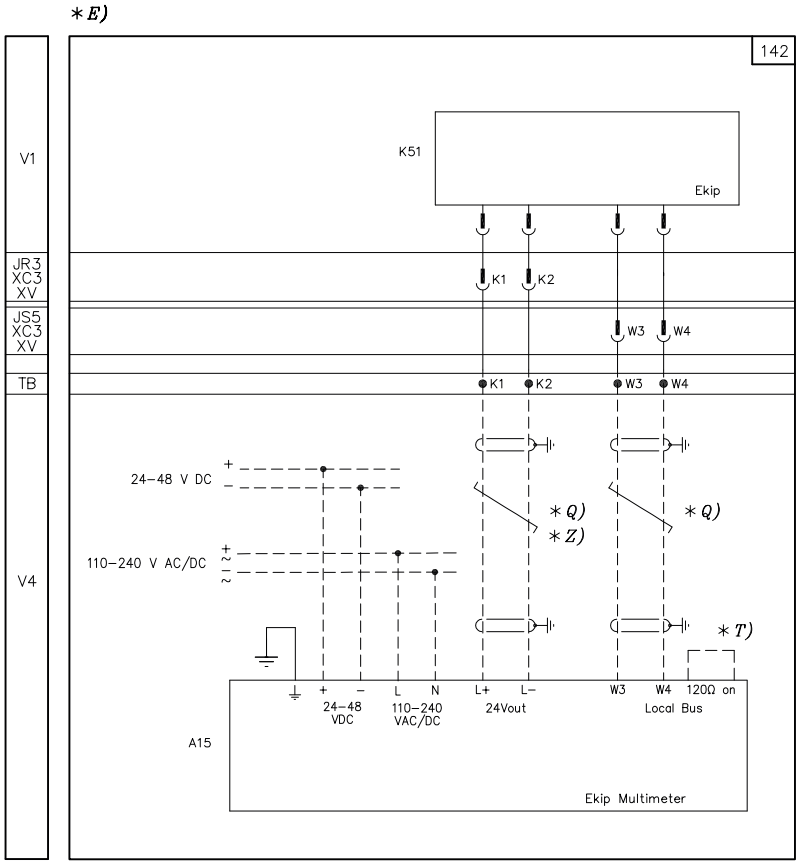


Wiring diagrams
Diagrams for XT5 and XT6

141) Ekip signalling 10K signalling unit

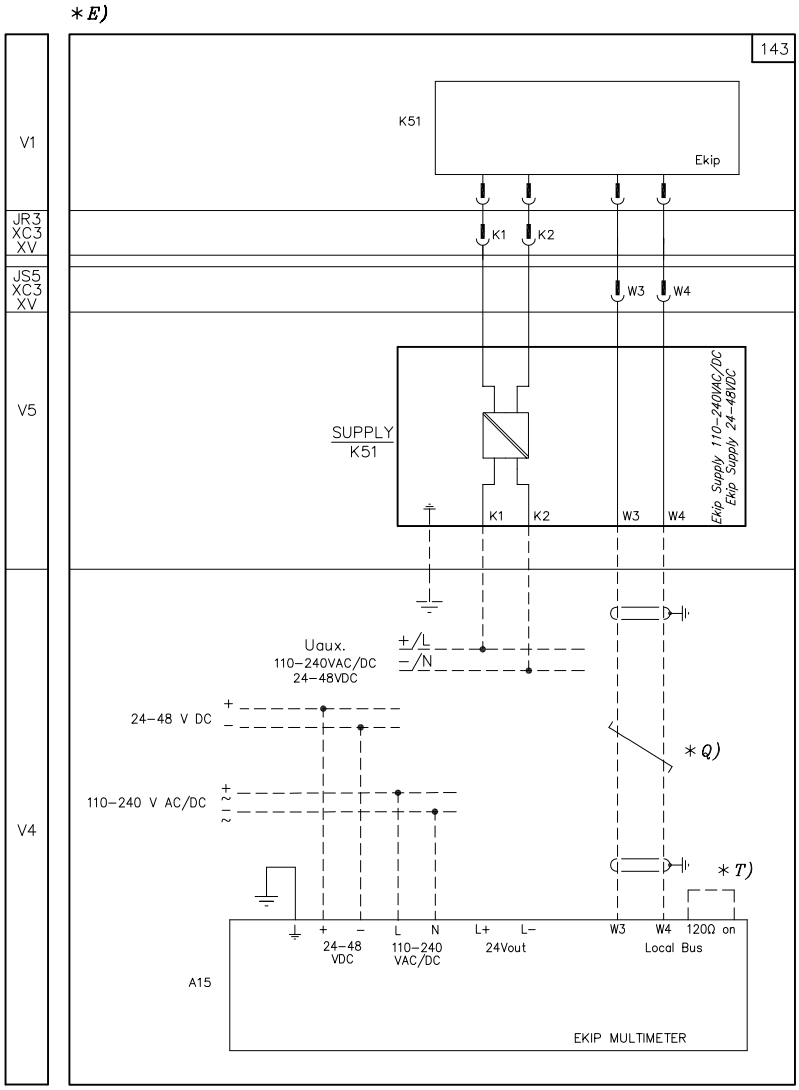


142) Ekip Multimeter unit with relay and direct auxiliary supply 24Vdc

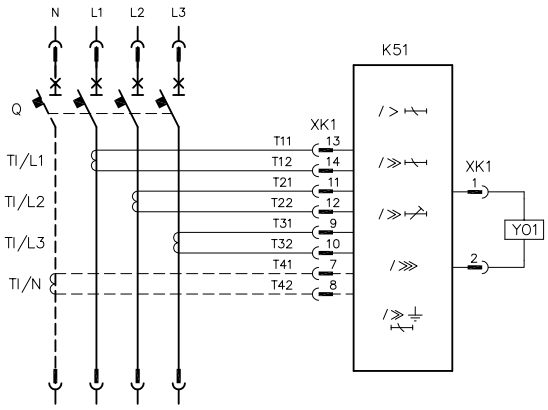


Wiring diagrams
Diagrams for XT5 and XT6

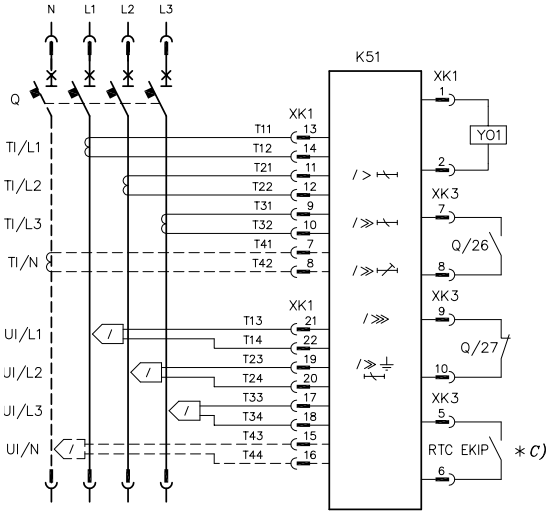
143) Ekip Multimeter unit with relay and auxiliary supply through module 110-240Vac/dc or 24-48Vdc



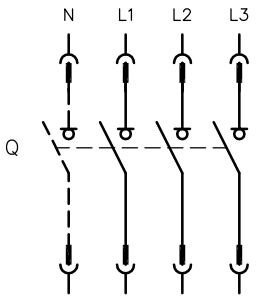
Wiring diagrams
Diagrams for XT7 and XT7 M



Three-pole or four-pole circuit-breaker with Ekip Dip trip unit



Three-pole or four-pole circuit-breaker with Ekip Touch trip unit

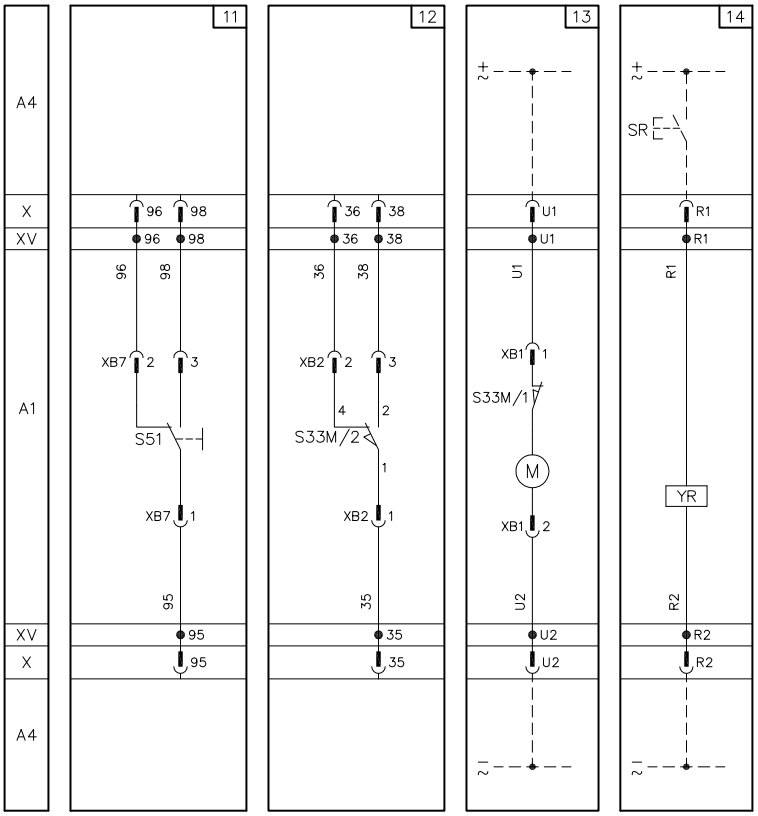


Three-pole or four-pole switch-disconnector

Wiring diagrams
Diagrams for XT7 and XT7 M

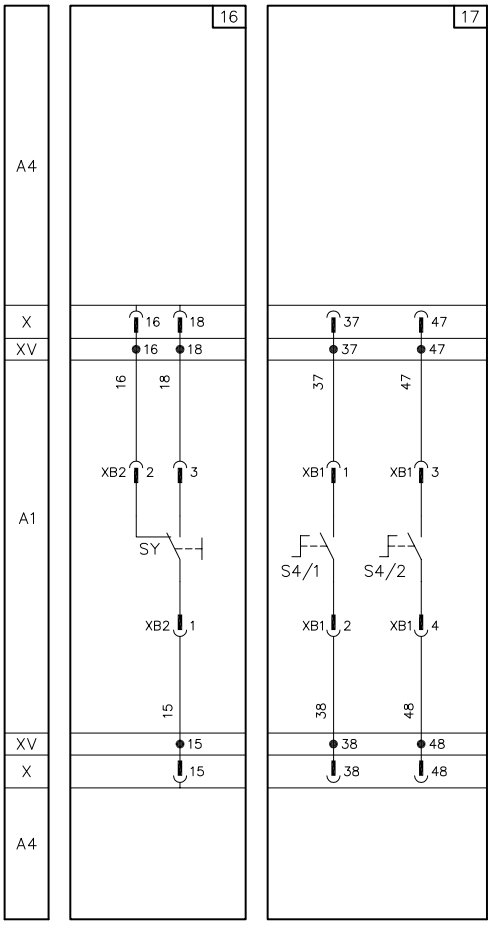
11a) Protection trip unit tripped signaling contact – S51
12a) Contact for signaling position of loaded springs – S33M
13a) Motor for loading closing springs – M
14a) Trip contact reset coil – YR

—
12 - 13 - 14 only for XT7 M circuit-breakers



16) Tripped position breaker signaling contact SY
17) Auxiliary early contacts – S4

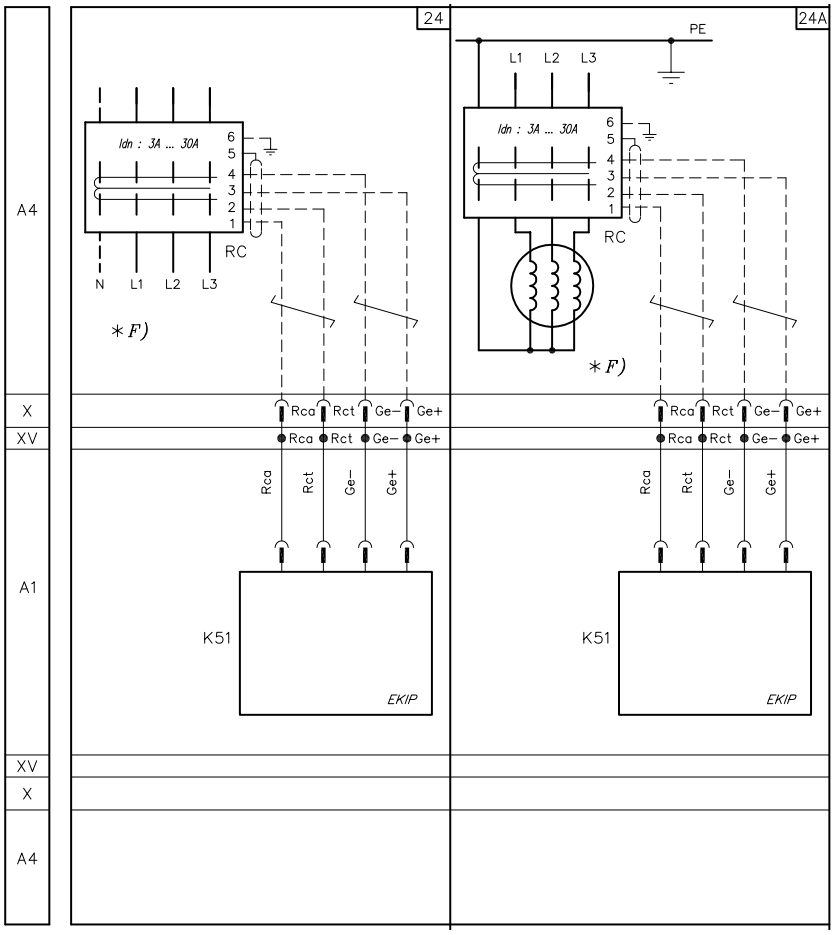
—
16 - 17 only for XT7 circuit-breakers



Wiring diagrams
Diagrams for XT7 and XT7 M

24) RC residual current sensor input (ANSI 64&50N TD)
24a) RC differential ground fault protection sensor input (ANSI 87N)

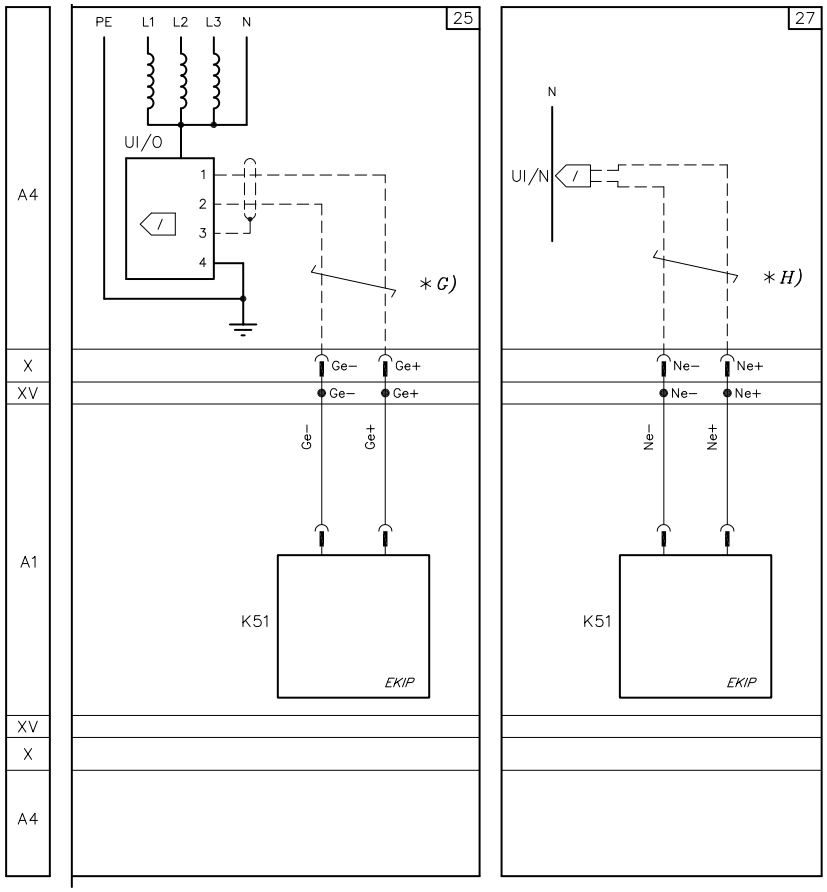
—
24 - 24a as an alternative to each other and to figure 25



25) Transformer star centre sensor input

27) Current sensor input on external neutral (only for 3-pole circuit breaker)

—
25 as an alternative
to figures 24 - 24a



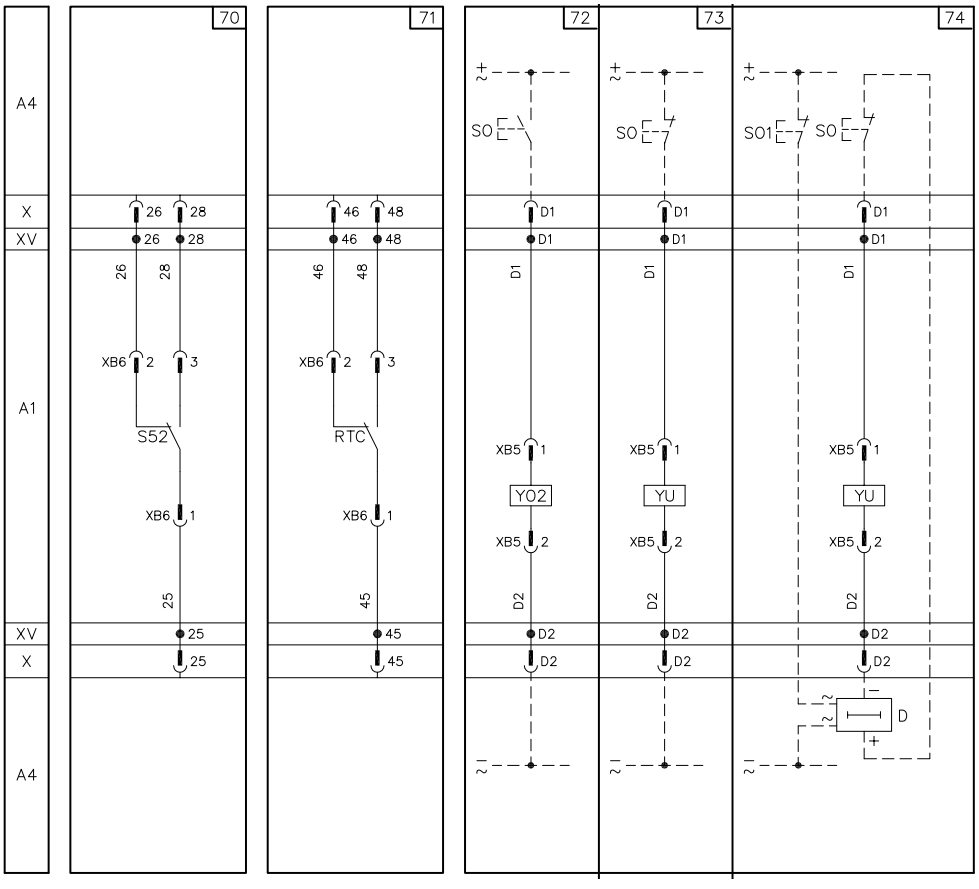
Wiring diagrams
Diagrams for XT7 and XT7 M

70) Y02/YU opening coil state signaling contact – S52
71) Ready to close contact – RTC
72) Second opening coil – YO2
73) Undervoltage coil – YU
73) Undervoltage coil with externa time-lag device YU, D

—
70 only for XT7 circuit-breakers

71 only for XT7 M circuit-breakers

72 - 73 - 74 as an alternative to each other

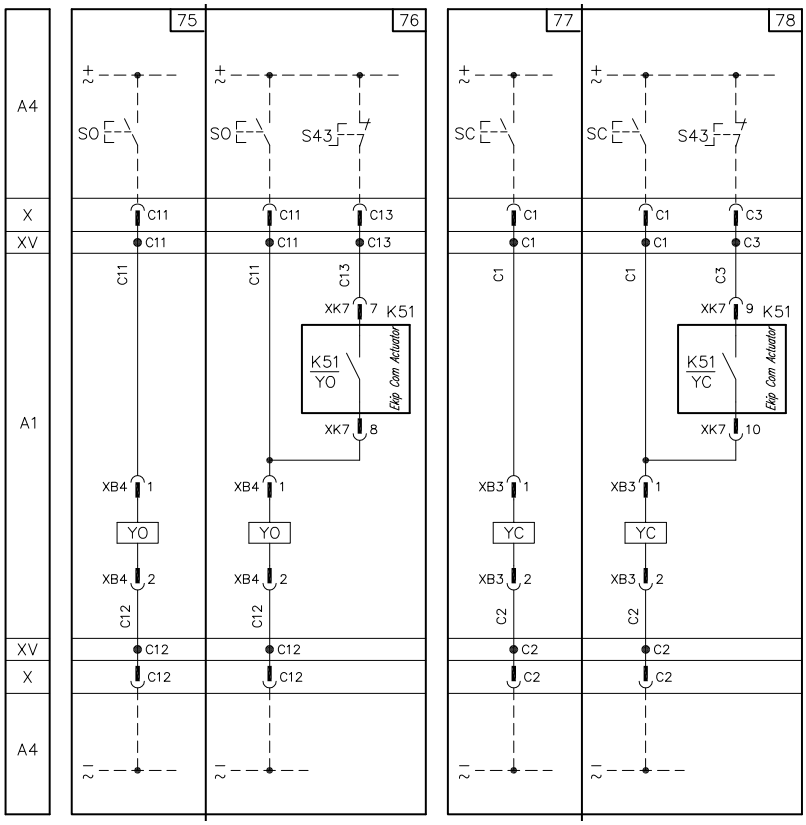


75) First opening coil – YO
76) First opening coil with control from protection trip unit – YO, Ekip Com Actuator
77) First closing coil – YC
78) First opening coil with control from protection trip unit – YC, Ekip Com Actuator

—
75 - 76 as an alternative to each other

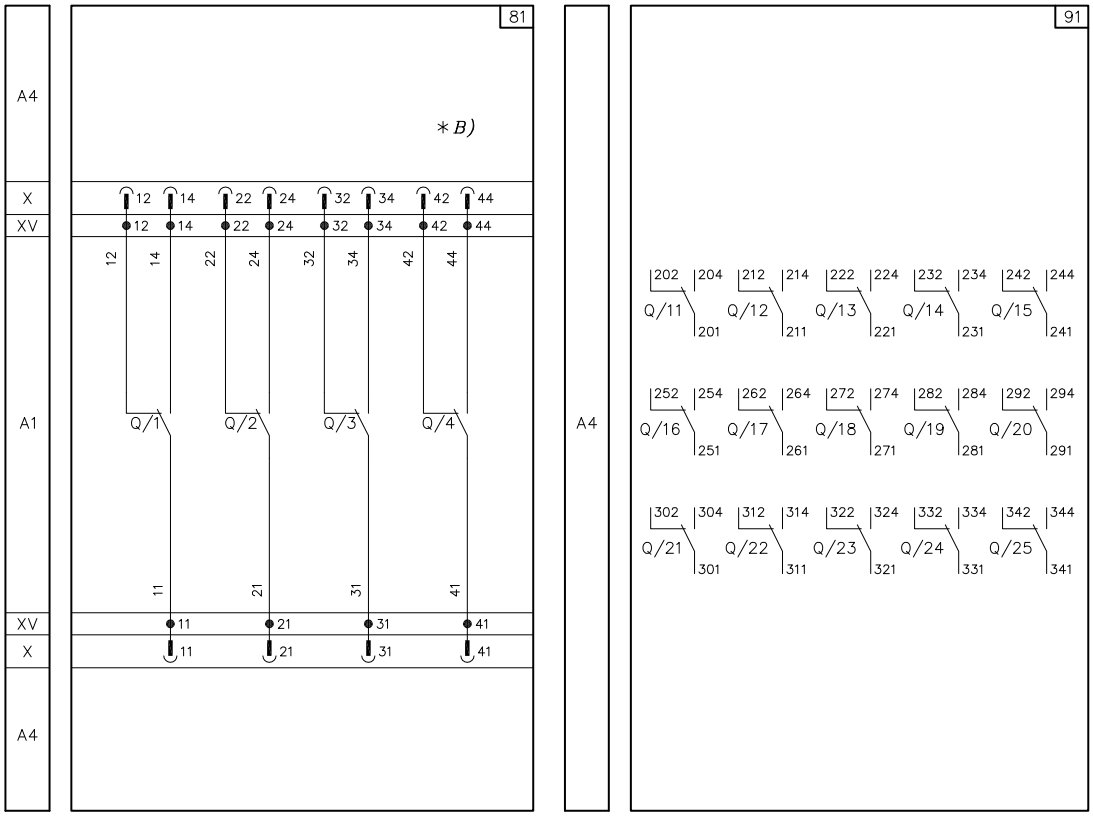
77 - 78 only for XT7 M circuit-breakers

77 - 78 as an alternative to each other



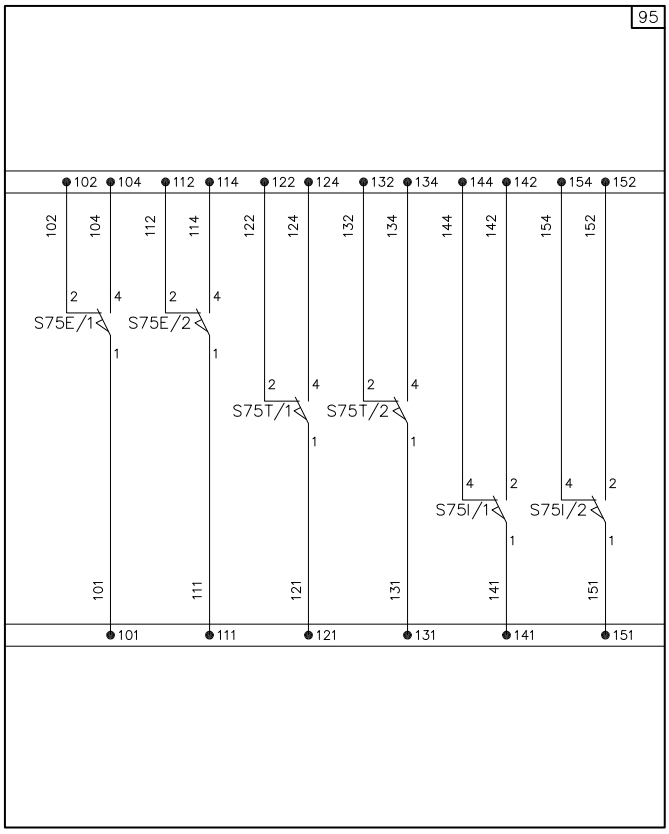
Wiring diagrams
Diagrams for XT7 and XT7 M

81) Open/Close auxiliary contacts of the circuit-breaker (first set)
91a) Supplementary open/close auxiliary contacts outside the circuit-breaker

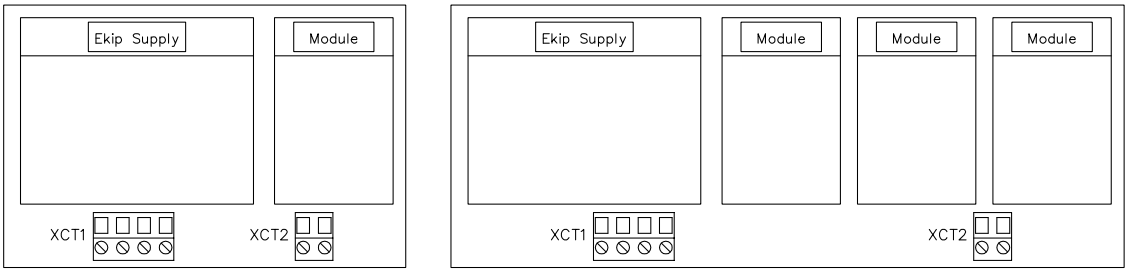


95a) Contacts for signaling of circuit-breaker in racked-in, test, racked-out position

—
only for withdrawable version

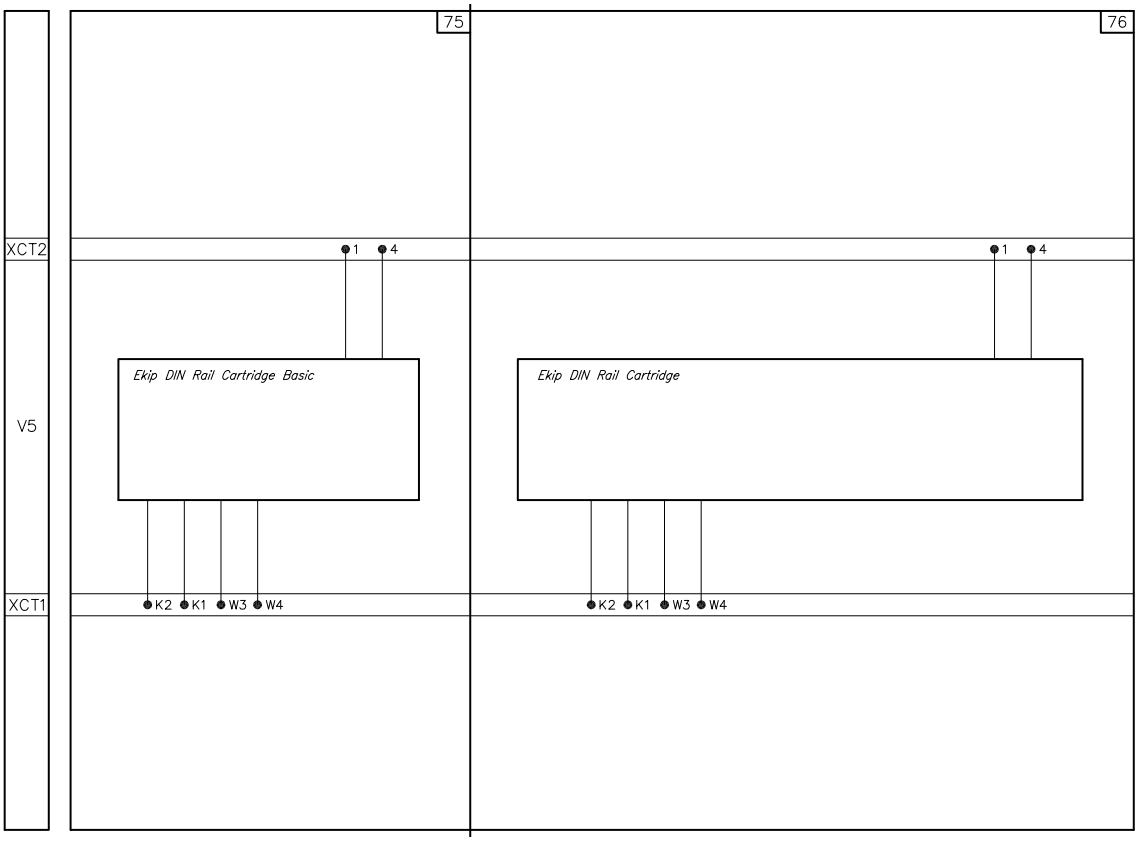


Wiring diagrams
XT2-XT4-XT5-XT7-XT7 M modules



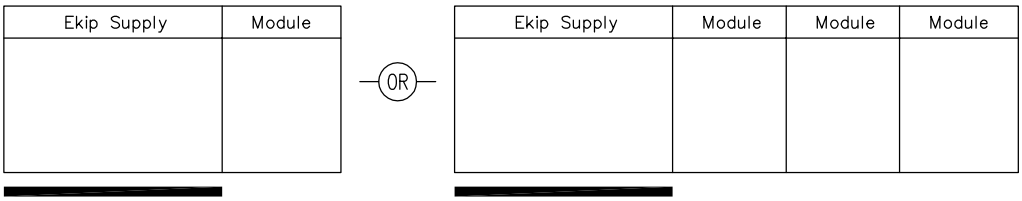
75a) Ekip Cartridge for one module and one Ekip Supply
76a) Ekip Cartridge for three modules and one Ekip Supply

—
75 - 76 as an alternative to each other

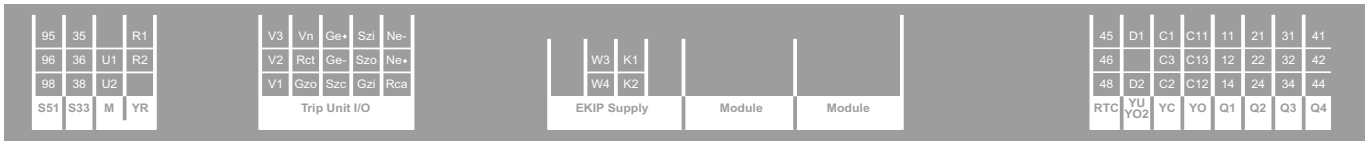


Installation slot

For XT2-XT4-XT5 Ekip Cartiridge

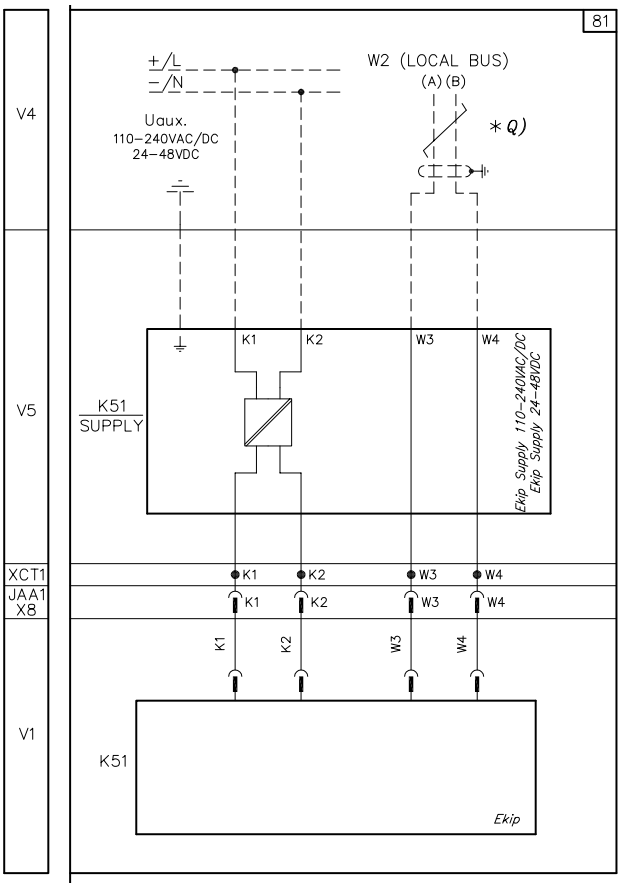


For XT7-X7M terminal box



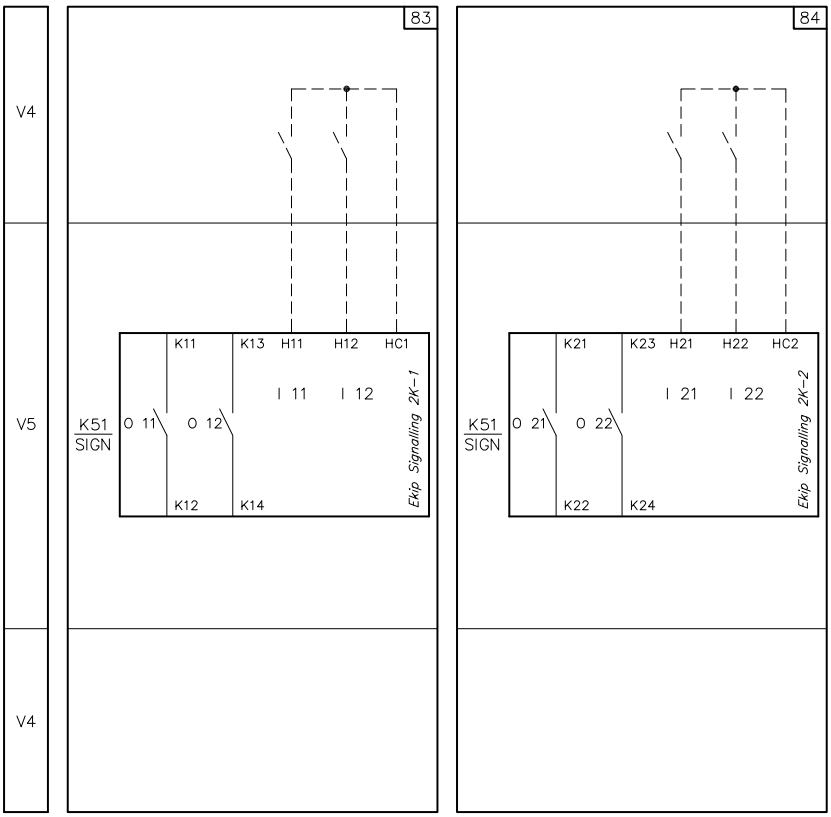
81a) Ekip Supply: auxiliary supply through module 110-240Vac/dc or 24/48Vdc and local bus

—
81 as an alternative to figure 49

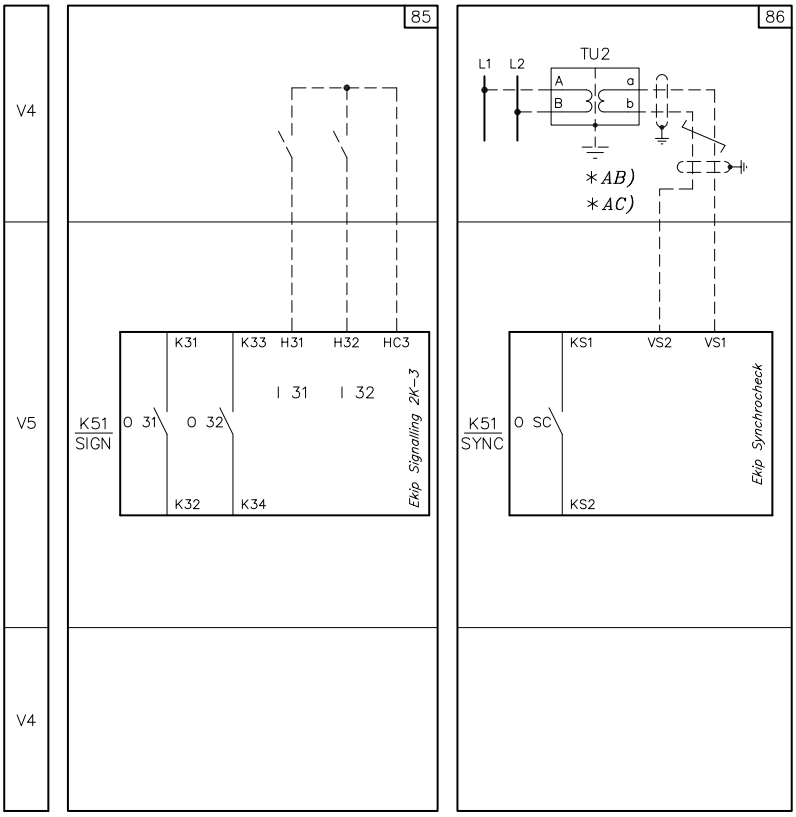


Wiring diagrams
XT2-XT4-XT5-XT7-XT7 M modules

83) Ekip Signalling 2K-1
84) Ekip Signalling 2K-2

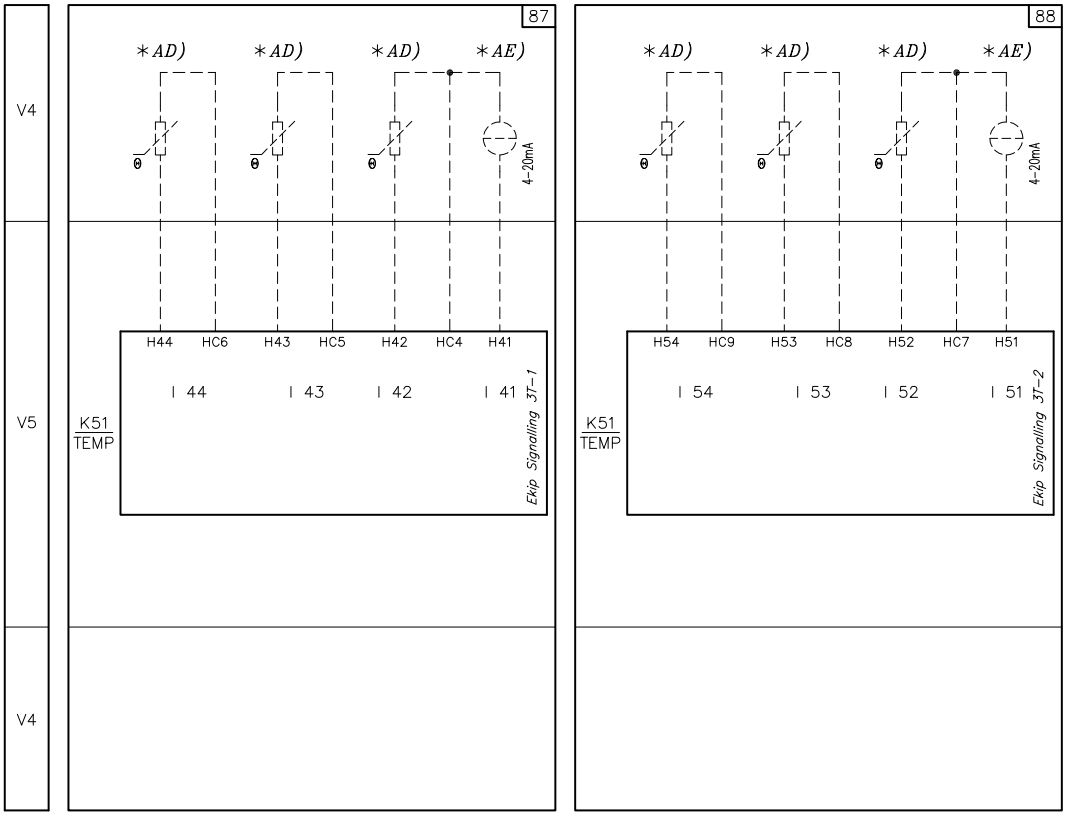


85) Ekip Signalling 2K-3
86) Ekip Synchrocheck



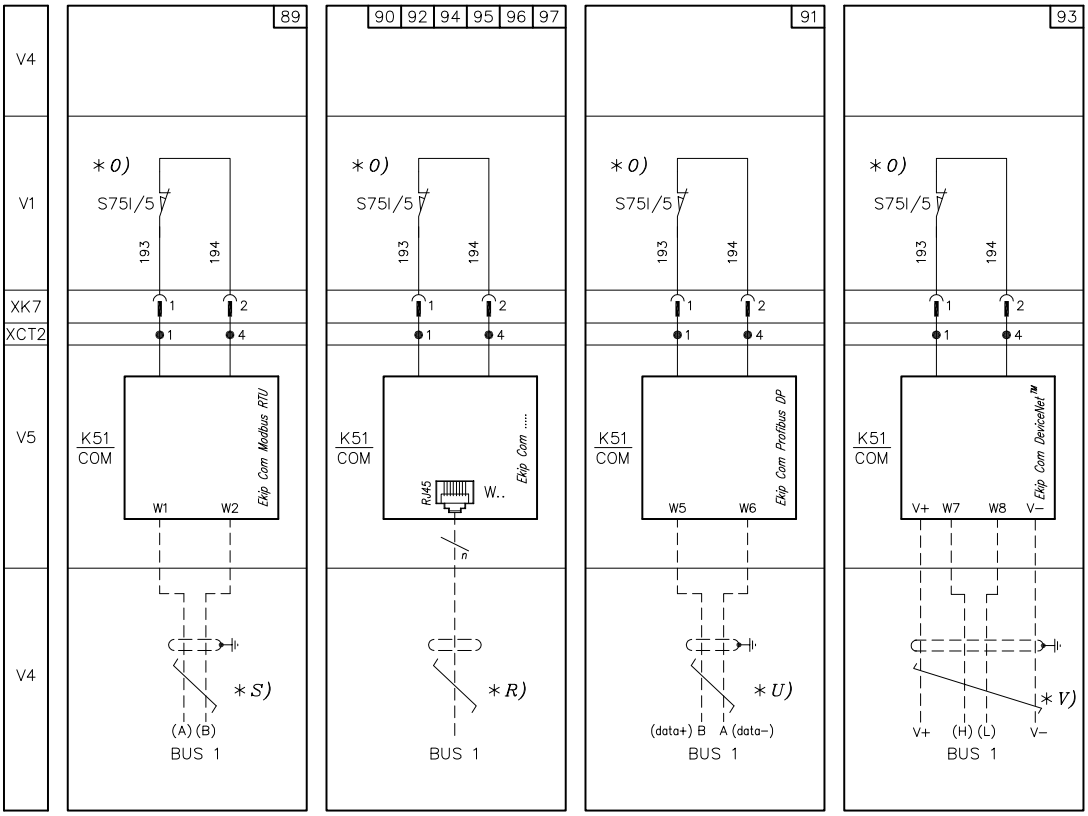
Wiring diagrams
XT2-XT4-XT5-XT7-XT7 M modules

87) Ekip Signalling 3T-1
88) Ekip Signalling 3T-2



XT2-XT4-XT7-XT7 M

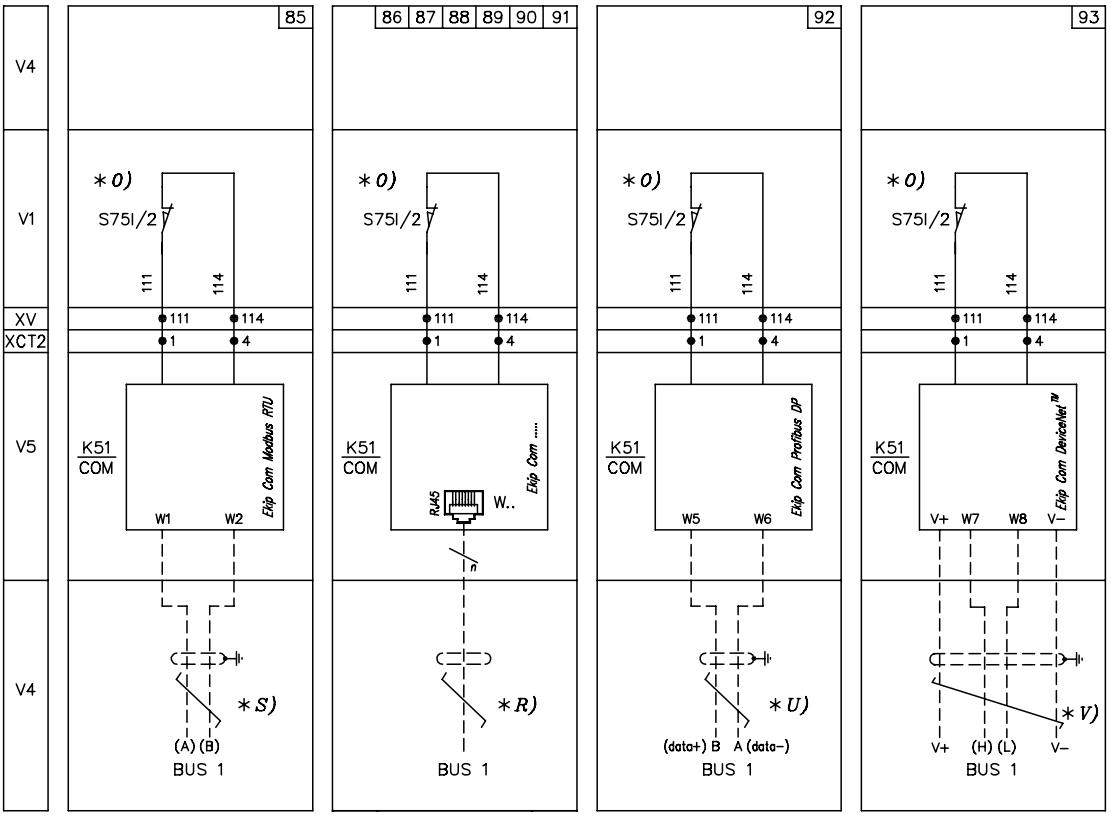
89) Ekip Com Modbus RTU
90) Ekip Com Modbus TCP
92) Ekip Com Ethernet/IP
94) Ekip Com IEC61850
95) Ekip Link
96) Ekip Com HUB
97) Ekip Com Profinet
91) Ekip Com Profibus DP
93) Ekip Com DeviceNet



Wiring diagrams
XT2-XT4-XT5-XT7-XT7 M modules

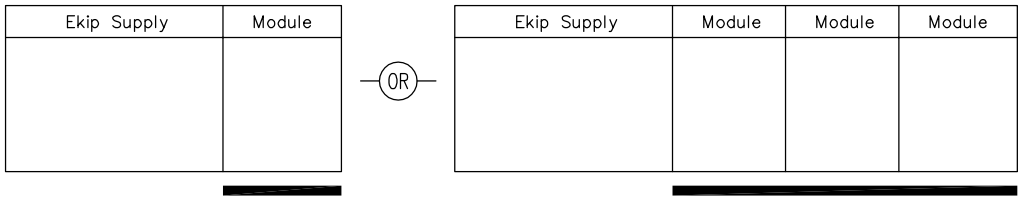
XT5

85) Ekip Com Modbus RTU
86) Ekip Com Modbus TCP
87) Ekip Com Profinet
88) Ekip Com I/P™
89) Ekip Com IEC61850
90) Ekip Com Link
91) Ekip Com HUB
92) Ekip Com Profibus DP
93) Ekip Com DeviceNet™

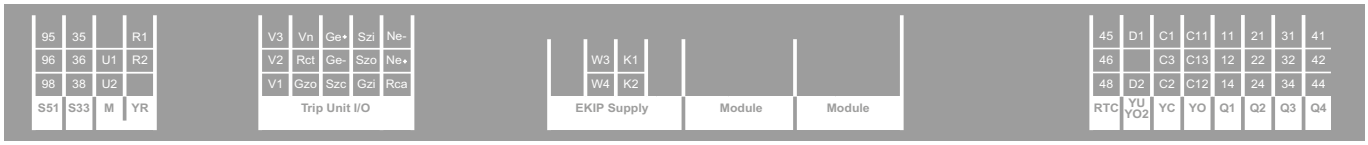


Installation slot

For XT2-XT4-XT5 Ekip Cartiridge

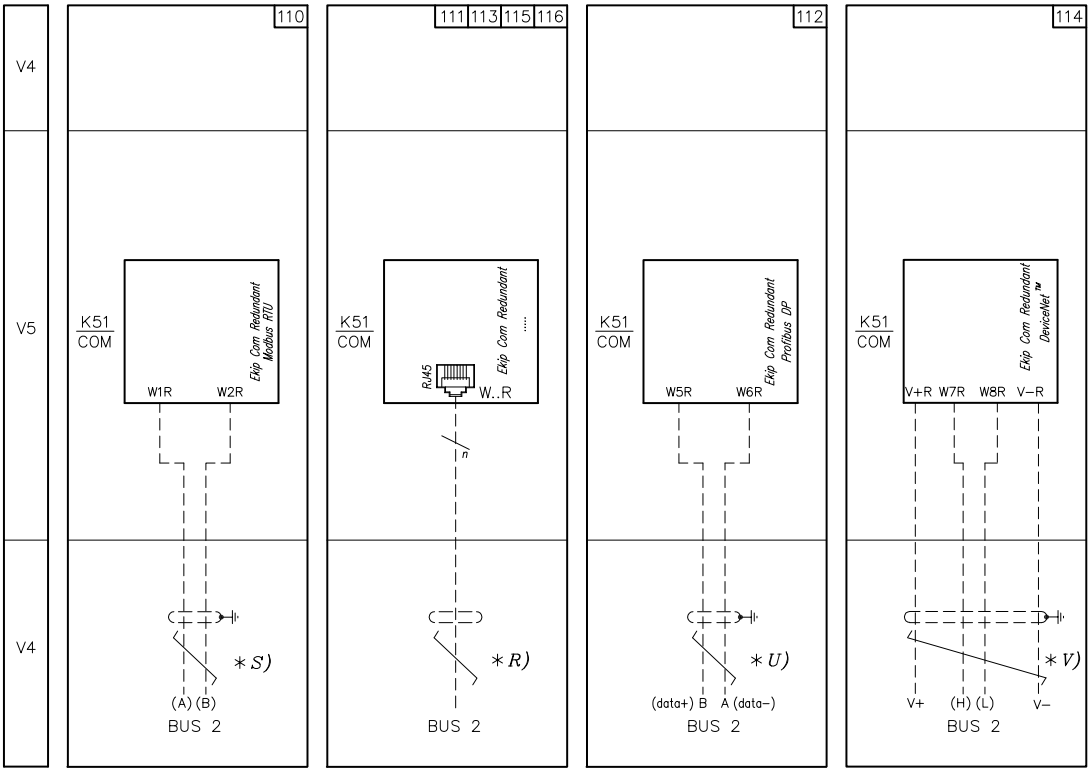


For XT7-X7M terminal box



110) Ekip Com Modbus RTU redundant
111) Ekip Com Modbus TCP redundant
113) Ekip Com Profinet redundant
115) Ekip Com Ethernet IP redundant

116) Ekip Com IEC61850 redundant
112) Ekip Com Profibus DP redundant
114) Ekip Com Devicenet™ redundant



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