

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

OVERALL
DIMENSIONS

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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	621	540	470
Rated uninterrupted current	% 100	98	93	90

Shocks and vibrations

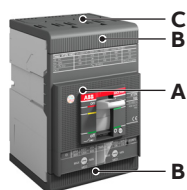
The Tmax XT circuit-breakers are unaffected by vibrations generated mechanically and due to electromagnetic effects, in compliance with the IEC 60068-2-6 Standards and the regulations of the major shipping registers including:

- 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 15g 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

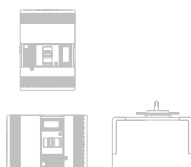
	Without TC	With HTC	With LTC
B	IP20	IP40	IP40
C	NC	IP40	IP30

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, plug-in or withdrawable 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
				I _{max} [A]	I _{max} [A]	I _{max} [A]	I _{max} [A]	I _{max} [A]	I _{max} [A]	I _{max} [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
	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
XT5 630	F	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
			HR	600	565	530	507	484	457	430
	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
			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
			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
			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
				I _{max} [A]	I _{max} [A]	I _{max} [A]	I _{max} [A]	I _{max} [A]	I _{max} [A]	I _{max} [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
	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	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	EF, ES	1250	1205	1157	1108	1056	1002	945
			HR, SHR	1250	1250	1250	1184	1118	1049	980
	W	ELT-SD	VR, Rear FCCuAl	1250	1250	1250	1250	1192	1131	1066
			F with 2x50x10	1400	1350	1296	1240	1183	1122	1058
			F with 3x50x10	1600	1541	1481	1417	1352	1281	1209
XT7 1600A	F	ELT-SD	VR, ES, FCCuAl	1600	1600	1537	1470	1403	1329	1255
			HR, EF	1600	1541	1481	1417	1352	1281	1209
		W	EF, ES	1400	1350	1296	1240	1183	1122	1058
			HR, SHR	1600	1541	1481	1417	1352	1281	1209
		W	VR, Rear FCCuAl	1600	1600	1537	1470	1403	1329	1255

Power [W/pole]	In [A]	XT7- XT7 M	
		F	w
Ekip Dip	800	24	35
Ekip Touch	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 performed 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	-	-	-	-	-

S: Supplied as standard

R: On request

		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

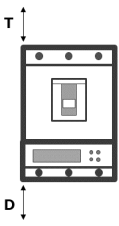
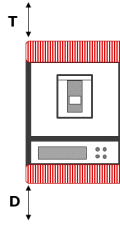
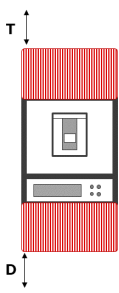
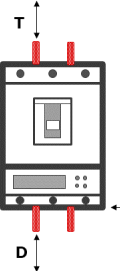
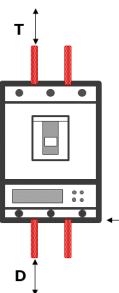
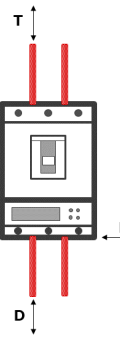
(3) For XT5 LTC height is 25mm

S: Supplied as standard

R: On request

Insulation distances

Alternating Current (AC) application

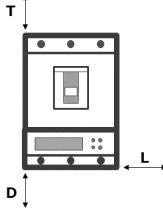
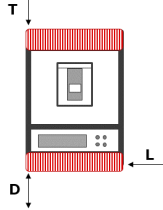
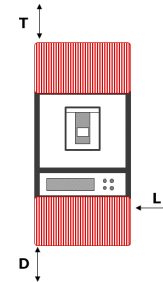
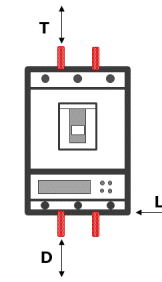
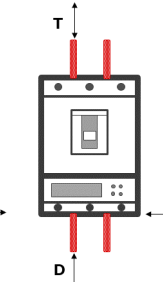
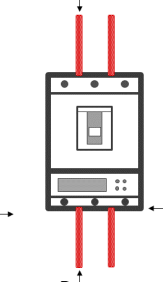
		No accessories			Low terminal cover (LTC)			High terminal cover (HTC)			Phase separators 25mm			Phase separators 100mm			Phase separators 200mm		
																			
		T	D	L	T	D	L	T	D	L	T	D	L	T	D	L	T	D	L
XT1	$U < 440 \text{ V}$	-	-	-	25	20	20	10	5	20	0	0	20	0	0	20	0	0	20 ⁽¹⁾
	$440 \text{ V} < U < 500 \text{ V}$	-	-	-	25	20	20	10	5	20	0	0	20	0	0	20	0	0	20 ⁽¹⁾
	$500 \text{ V} \leq U \leq 690 \text{ V}$	-	-	-	25	20	20	10	5	20	0	0	20	0	0	20	0	0	20 ⁽¹⁾
XT2	$U < 440 \text{ V}$	-	-	-	30	25	10	20	15	10	5	0	10	0	0	10	0	0	10 ⁽¹⁾
	$440 \text{ V} < U < 500 \text{ V}$	-	-	-	50	45	20	40	35	20	25	20	20	0	0	20	0	0	20 ⁽¹⁾
	$500 \text{ V} \leq U \leq 690 \text{ V}$	-	-	-	50	45	20	40	35	20	25	20	20	0	0	20	0	0	20 ⁽¹⁾
XT3	$U < 440 \text{ V}$	-	-	-	50	20	20	45	15	20	25	0	20	0	0	20	0	0	20 ⁽¹⁾
	$440 \text{ V} < U < 500 \text{ V}$	-	-	-	50	20	20	45	15	20	25	0	20	0	0	20	0	0	20 ⁽¹⁾
	$500 \text{ V} \leq U \leq 690 \text{ V}$	-	-	-	50	20	20	45	15	20	25	0	20	0	0	20	0	0	20 ⁽¹⁾
XT4	$U < 440 \text{ V}$	-	-	-	30	25	10	25	20	10	5	0	10	0	0	10	0	0	10 ⁽¹⁾
	$440 \text{ V} < U < 500 \text{ V}$	-	-	-	50	45	20	45	40	20	25	20	20	10	5	20	0	0	20 ⁽¹⁾
	$500 \text{ V} \leq U \leq 690 \text{ V}^{(3)}$	-	-	-	50	45 ⁽²⁾	20	45	40	20	25	20 ⁽²⁾	20	10	5	20	0	0	20 ⁽¹⁾
XT4X	$U \leq 690 \text{ V AC}$	-	-	-	100	100	50	40	40	50	75	75	50	10	10	50	0	0	20 ⁽¹⁾
XT5	$U \leq 440 \text{ V AC}$	30	25	25	5	5	25	10	10	25	10	10	25	10	10	25	0	0	25 ⁽¹⁾
	$440 \text{ V AC} < U < 500 \text{ V AC}$	30	25	25	5	5	25	10	10	25	10	10	25	10	10	25	0	0	25 ⁽¹⁾
	$500 \text{ V AC} \leq U \leq 690 \text{ V AC}$	-	-	-	35	20	25	40	40	25	35	20	25	10	10	25	0	0	50 ⁽¹⁾
XT6	$U \leq 440 \text{ V AC}$	35	20	25	35	20	25	35	20	25	-	-	-	0	0	25	0	0	25 ⁽¹⁾
	$440 \text{ V AC} < U < 500 \text{ V AC}$	100	20	25	100	20	25	35	20	25	-	-	-	0	0	25	0	0	25 ⁽¹⁾
	$500 \text{ V AC} \leq U \leq 690 \text{ V AC}$	100	20	25	100	20	25	35	20	25	-	-	-	0	0	25	0	0	25 ⁽¹⁾
XT7	$U < 440 \text{ V}$	50	10	20	50	10	20	5	0	5	-	-	-	0	0	20	0	0	20 ⁽¹⁾
	$440 \text{ V} < U < 500 \text{ V}$	100	10	20	100	10	20	40	10	5	-	-	-	50	0	20	0	0	20 ⁽¹⁾
	$500 \text{ V} \leq U \leq 690 \text{ V}$	100	10	20	100	10	20	40	10	5	-	-	-	50	0	20	0	0	20 ⁽¹⁾

(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

(3) XT4V only: for application at 690VAC the insulation distances to be used are the same of XT4X

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	$U \leq 250V$	-	-	-	25	20	20	10	5	20	0	0	20	0	0	20	0	0	20 ⁽¹⁾
	$250V < U \leq 500V$	-	-	-	25	20	20	10	5	20	0	0	20	0	0	20	0	0	20 ⁽¹⁾
XT2	$U \leq 250V$	-	-	-	50	45	50	40	35	50	25	20	50	0	0	50	0	0	50 ⁽¹⁾
	$250V < U \leq 500V$	-	-	-	50	45	50	40	35	50	25	20	50	0	0	50	0	0	50 ⁽¹⁾
XT3	$U \leq 250V$	-	-	-	50	20	20	45	15	20	25	0	20	0	0	20	0	0	20 ⁽¹⁾
	$250V < U \leq 500V$	-	-	-	50	20	20	45	15	20	25	0	20	0	0	20	0	0	20 ⁽¹⁾
XT4	$U \leq 250V$	-	-	-	30	25	20	25	20	20	5	0	20	0	0	20	0	0	20 ⁽¹⁾
	$250V < U \leq 500V$	-	-	-	50	45	50	45	40	50	25	20	50	10	5	50	0	0	50 ⁽¹⁾
XT4V/X*	$U \leq 500V$	-	-	-	50	45	50	45	40	50	25	20	50	10	5	50	0	0	50
	$500V < U \leq 750V$	-	-	-	100	100	50	45	40	50	75	75	50	10	5	50	0	0	50
XT5	$U \leq 250V$ DC	30	25	25	5	0	25	10	10	25	10	10	25	10	10	25	0	0	25 ⁽¹⁾
	$U \leq 500V$ DC	-	-	-	40	0	25	40	40	25	40	40	25	10	10	25	0	0	25 ⁽¹⁾
	$500V$ DC $< U \leq 750V$ DC	-	-	-	40	20	25	60	60	50	60	60	50	10	10	50	0	0	50 ⁽¹⁾
XT6	$U \leq 500V$ DC	35	20	25	35	20	25	35	20	25	-	-	-	0	0	25	0	0	25 ⁽¹⁾
	$500V$ DC $< U \leq 750V$ DC	100	20	25	100	20	25	35	20	25	-	-	-	0	0	25	0	0	25 ⁽¹⁾
XT7	$U \leq 500V$	50	10	20	50	10	20	5	0	5	-	-	-	0	0	20	0	0	20 ⁽¹⁾
	$500V < U \leq 750V$	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 the 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 $U_e \geq 500V$ only
(2) for installation with F terminals only. With other connections refer to distances fixed by dimensions of back insulating plates requested

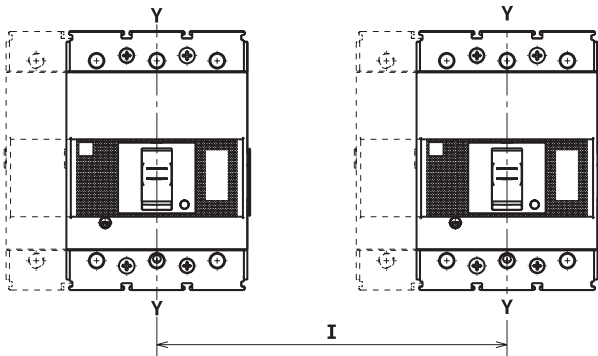


Fig. 1
Side by side XT1...
XT5⁽¹⁾ with HTC

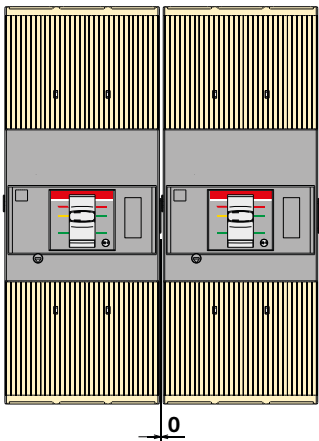


Fig. 2
Side by side XT1...XT5⁽¹⁾
with phase separators

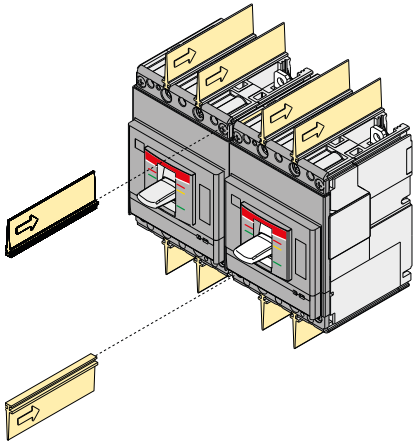
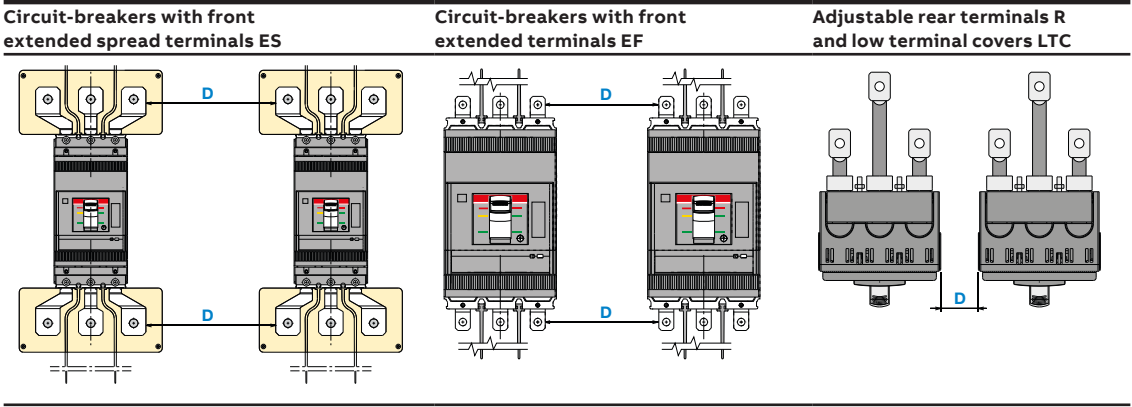


Fig. 1

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



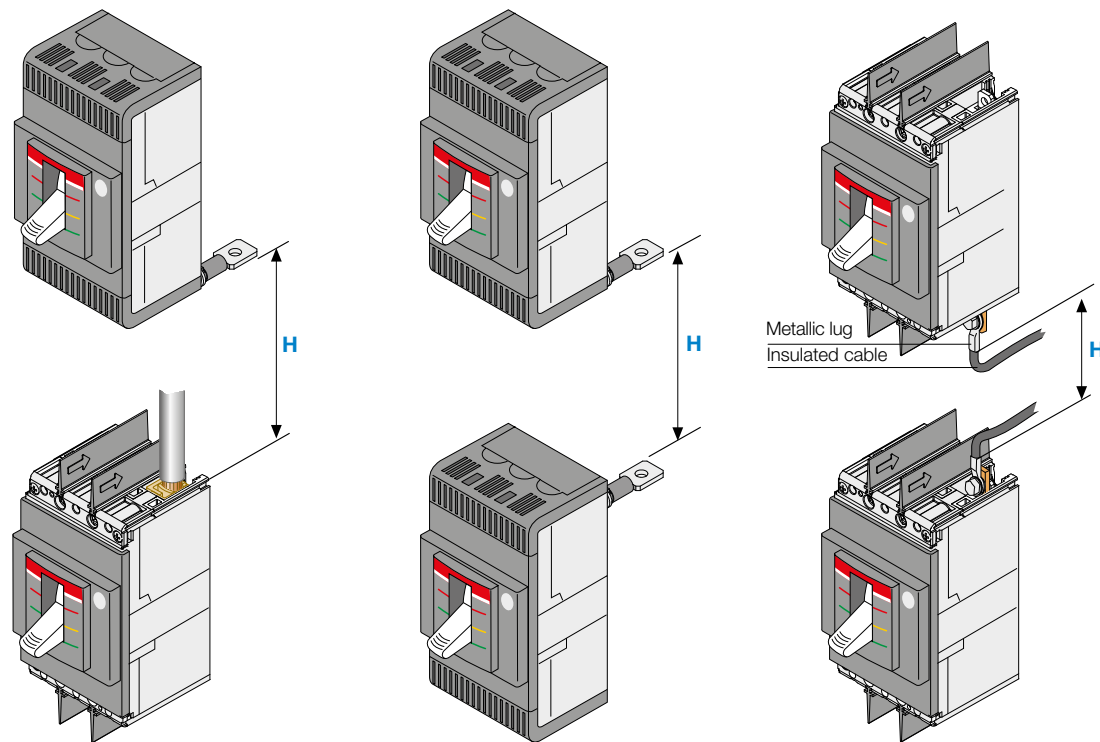
Insulation distances

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	200
XT6	180
XT7	180



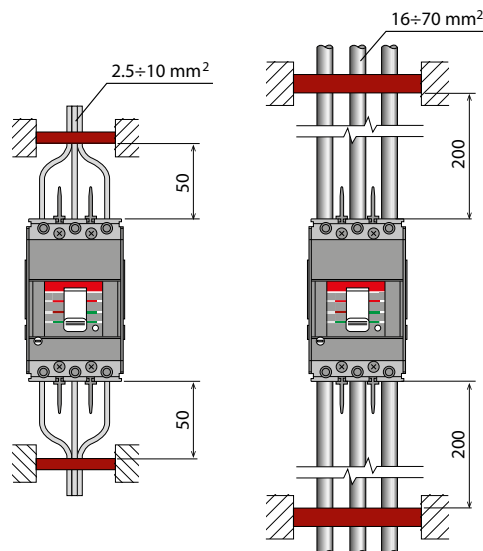
In case of cables with metallic lugs, an insulating screen behind the metallic lugs (on the rear of the circuit-breaker) or high terminal covers is mandatory.

The first insulated anchor

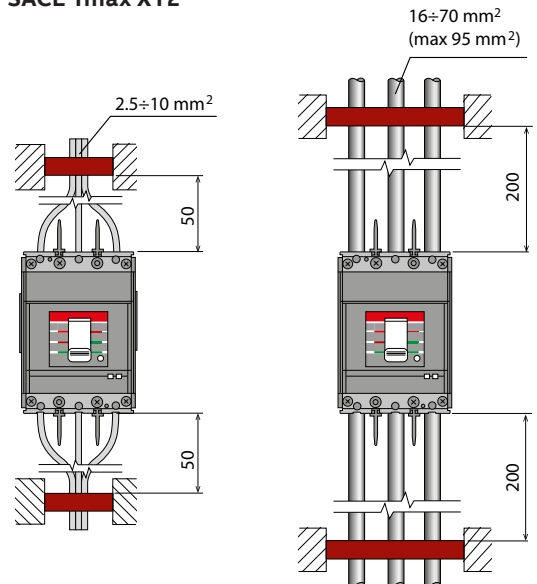
For the Tmax XT molded-case circuit-breakers, the figure below gives an example of the maximum recommended distance (in mm) within which the first insulated anchor should be positioned according to the highest admissible peak current value of the circuit-breaker and according to the cross-sectional area 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.

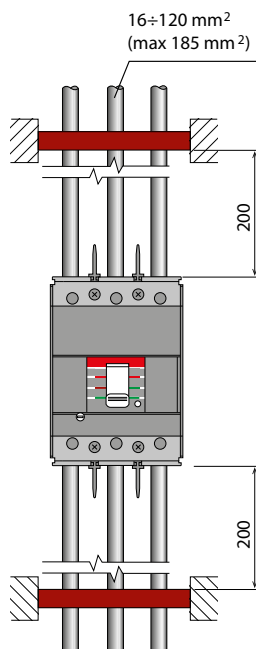
SACE Tmax XT1



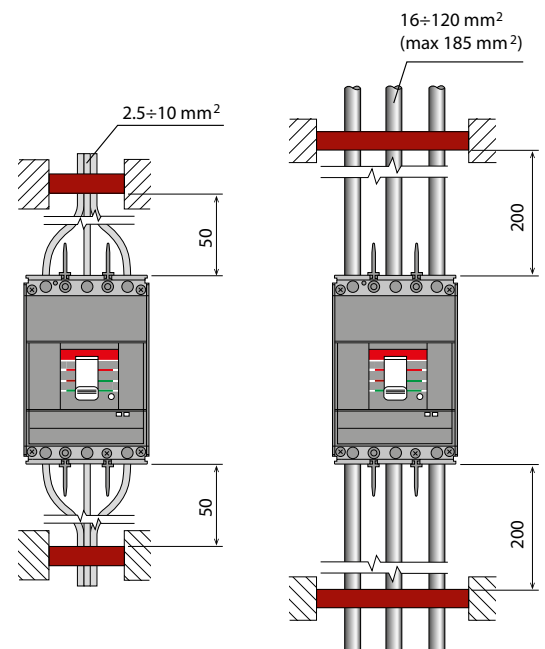
SACE Tmax XT2



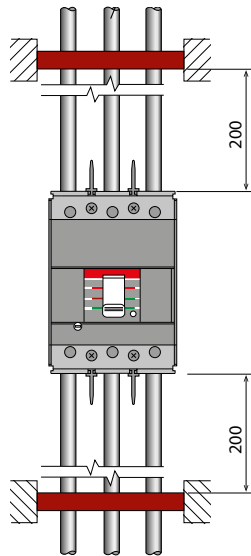
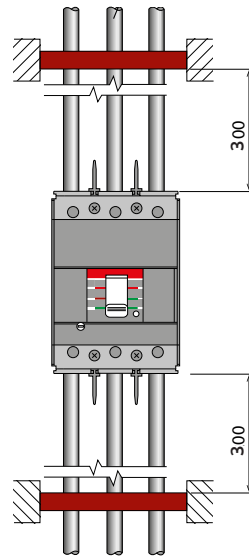
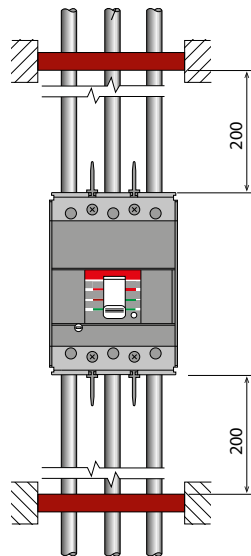
SACE Tmax XT3



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 (K_m) 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					
	1.6		1.6		
	1.5	1.5			
	1.35	1.35			
	1.5	1.5		1.5	
	1.1	1.1		1.1	
	1.1	1.1		1	



Special applications

Connection diagrams of poles in a network with one grounded polarity

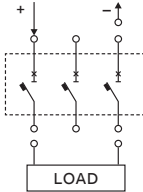
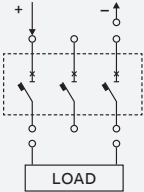
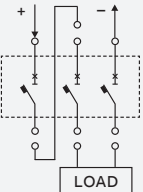
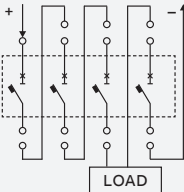
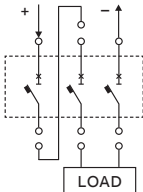
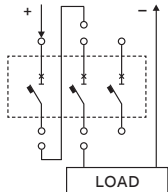
Network with one grounded polarity			
Un	≤250	≤500	
Protection + insulation function			
XT1			
XT2		1.5	
XT3		1.35	
XT4		1.5	
XT5	1.1	1.1	
XT6	1.1	1.1	

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

Network with one grounded polarity			
Un		≤500	≤750
Protection 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
XT6			1

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

Connection diagrams of poles in switch-disconnectors

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

Special applications

Magnetic trip values in single phase application

Breaker	Trip Unit	In [A]	I ₃ [A]	Single-phase trip current (%I _n) ⁽¹⁾
XT1	TMD	16..160	450..1600	150%
XT2	MF/MA	1..160	14..2240	150%
	TMD/TMA	1.6..160	16..1600	150%
	TMG	16..160	160..480	150%
	Ekip Dip LS/I	10..160	1..10xIn	100%
	Ekip Dip LIG	10..160	1..10xIn	100%
	Ekip Dip LSI	10..160	1..10xIn	100%
	Ekip Dip LSIG	10..160	1..10xIn	100%
	Ekip M Dip I	10..160	1..10xIn	100%
	Ekip M Dip LIU	25..160	6..13xIn	100%
	Ekip G Dip LS/I	25..160	1..10xIn	100%
	Ekip Touch LSI	40..160	1.5..10xIn	100%
	Ekip Touch LSIG	40..160	1.5..10xIn	100%
	Ekip Touch Measuring LSI	40..160	1.5..10xIn	100%
	Ekip Touch Measuring LSIG	40..160	1.5..10xIn	100%
	Ekip Hi-Touch LSI	40..160	1.5..10xIn	100%
	Ekip Hi-Touch LSIG	40..160	1.5..10xIn	100%
	Ekip M Touch LRIU	40..100	1.5..10xIn	100%
XT3	MA	100..200	600..2400	150%
	TMD	63..250	630..2500	150%
	TMG	63..250	400..750	150%
XT4	MA	10..200	50..2000	150%
	TMD/TMA	16..250	300..2500	150%
	Ekip Dip LS/I	40..250	1..10xIn	100%
	Ekip Dip LIG	40..250	1..10xIn	100%
	Ekip Dip LSI	40..250	1..10xIn	100%
	Ekip Dip LSIG	40..250	1..10xIn	100%
	Ekip M Dip I	40..250	1..10xIn	100%
	Ekip M Dip LIU	40..160	6..13xIn	100%
	Ekip G Dip LS/I	40..250	1..10xIn	100%
	Ekip Touch LSI	100..250	1.5..10xIn	100%
	Ekip Touch LSIG	100..250	1.5..10xIn	100%
	Ekip Touch Measuring LSI	100..250	1.5..10xIn	100%
	Ekip Touch Measuring LSIG	100..250	1.5..10xIn	100%
	Ekip Hi-Touch LSI	100..250	1.5..10xIn	100%
	Ekip Hi-Touch LSIG	100..250	1.5..10xIn	100%
	Ekip M Touch LRIU	100..200	1.5..10xIn	100%

(1) Satisfy the requirements of the IEC 60947-2 Standard

Breaker	Trip Unit	In [A]	I ₃ [A]	Single-phase trip current (%I ₃) ⁽¹⁾
XT5	MA	320..500	2240..6500	100%
	TMA	320..630	1600..6300	100%
	TMG	320..630	800..3150	100%
	Ekip Dip LS/I	250..630	1..10xIn	100%
	Ekip Dip LIG	250..630	1..10xIn	100%
	Ekip Dip LSI	250..630	1..10xIn	100%
	Ekip Dip LSIG	250..630	1..10xIn	100%
	Ekip M Dip I	250..630	1..10xIn	100%
	Ekip M Dip LIU	250..500	6..13xIn	100%
	Ekip G Dip LS/I	250..630	1..10xIn	100%
	Ekip Touch LSI	250..630	1.5..10xIn	100%
	Ekip Touch LSIG	250..630	1.5..10xIn	100%
	Ekip Touch Measuring LSI	250..630	1.5..10xIn	100%
	Ekip Touch Measuring LSIG	250..630	1.5..10xIn	100%
	Ekip Hi-Touch LSI	250..630	1.5..10xIn	100%
	Ekip Hi-Touch LSIG	250..630	1.5..10xIn	100%
	Ekip M Touch LRIU	250..500	1.5..10xIn	100%
	Ekip G Touch LSIG	250..630	1.5..10xIn	100%
	Ekip G Hi-Touch LSIG	250..630	1.5..10xIn	100%
XT6	TMA	630..800	3150..8000	100%
	Ekip Dip LS/I	630..1000	1..10xIn	100%
	Ekip Dip LIG	630..1000	1..10xIn	100%
	Ekip Dip LSI	630..1000	1..10xIn	100%
	Ekip Dip LSIG	630..1000	1..10xIn	100%
	Ekip M Dip I	630..1000	1..10xIn	100%
	Ekip M Dip LIU	630..800	6..13xIn	100%
	Ekip G Dip LS/I	630..1000	1..10xIn	100%
XT7	Ekip Dip LS/I	630..1600	1..10xIn	100%
	Ekip Dip LIG	630..1600	1..10xIn	100%
	Ekip Dip LSI	630..1600	1..15xIn	100%
	Ekip Dip LSIG	630..1600	1..15xIn	100%
	Ekip M Dip I	630..1600	1..10xIn	100%
	Ekip G Dip LS/I	630..1600	1..10xIn	100%
	Ekip Touch LSI	630..1600	1.5..15xIn	100%
	Ekip Touch LSIG	630..1600	1.5..15xIn	100%
	Ekip Touch Measuring LSI	630..1600	1.5..15xIn	100%
	Ekip Touch Measuring LSIG	630..1600	1.5..15xIn	100%
	Ekip Hi-Touch LSI	630..1600	1.5..15xIn	100%
	Ekip Hi-Touch LSIG	630..1600	1.5..15xIn	100%
	Ekip M Touch LRIU	630..1600	1.5..15xIn	100%
	Ekip G Touch LSIG	630..1600	1.5..15xIn	100%
	Ekip G Hi-Touch LSIG	630..1600	1.5..15xIn	100%

(1) Satisfy the requirements of the IEC 60947-2 Standard

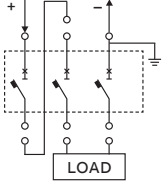
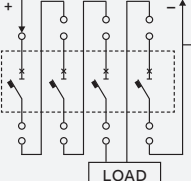
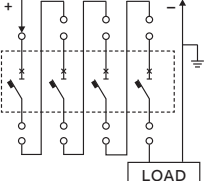
Special applications

Use of apparatus at 16 2/3 Hz

Single phase distribution with a frequency of 16 2/3 Hz was developed for electrical traction systems as an alternative to three phase 50 Hz systems, and to direct current systems.

We hereby confirm that ABB SACE Tmax XT1...XT6 equipped with thermo-magnetic protection release have the following electrical performance, according to IEC 60947-2 standard, at an operating frequency of 16 2/3 Hz.

		Breaking capacity (kA)			
Un (V)		250	500	750	
insulated network					
		LOAD	LOAD	LOAD	LOAD
XT1	B	18			
	C	25			
	N	36			
	S	50			
XT2	N	36	36		
	S	50	50		
	H	70	70		
	L	85	85		
XT3	N	36	36		
XT4	N	36	36		
	S	50	50		
	H	70	70		
	L	85	85		
	V			50	
XT5	N	25	25		
	S	35	35		
	H	50	50		
	L	70	70		
	V	85	85		85
XT6	N	35	20		18
	S	50	35		24

		Breaking capacity (kA)		
Un (V)		250	500	750
Network with one polarity earthed				
	XT1	B 18	18	
		C 25	25	
		N 36	36	
		S 50	50	
XT2	N	36	36	
	S	50	50	
	H	70	70	
	L	85	85	
XT3	N	36	36	
	S	50	50	
	H	70	70	
	L	85	85	
XT4	N	36	36	
	S	50	50	
	H	70	70	
	L	85	85	
XT5	N	25		50
	S	35		
	H	50		
	L	70		
XT6	N	35		18
	S	50		24

The thermal and magnetic thresholds of protection release are the same as those given for a standard operating frequency $f = 50\text{Hz}$, with the connections indicated in the table above.

Special applications

Use of apparatus at 400 Hz

The following tables refer to circuit-breakers with thermomagnetic releases, with a breaking capacity limited to 36kA (XT1...XT4) and 10kA (XT5-XT6). These breaking capacities are normally more than sufficient for protection of 400 Hz plants, characterized by low short-circuit currents. As can be seen from the data indicated, the maximum ampere rating I_n decreases as the skin effect increases the thermal phenomena. Moreover, the magnetic threshold (I_3) increases with the frequency: for this reason, use of a 5- I_n version is recommended. In these table, K_m is the multiplication factor to be applied to I_3 thresholds, due to the induced magnetic fields.

Circuit Breaker	I_n	I_1 (50-60Hz)		I_1 (400Hz)		$K_m I_3$ (400 Hz)
		min	max	min	max	
XT1	16	11	16	10.1	14.4	2
	20	14	20	12.6	18.0	2
	25	18	25	15.8	22.5	2
	32	22	32	20.2	28.8	2
	40	28	40	25.2	36.0	2
	50	35	50	31.5	45.0	2
	63	44	63	39.7	56.7	2
	80	56	80	50.4	72.0	2
	100	70	100	63.0	90.0	2
	125	88	125	78.8	112.5	2
XT2	1.6	1.1	1.6	1.0	1.4	1.3
	2	1.4	2.0	1.3	1.8	1.3
	2.5	1.8	2.5	1.6	2.3	1.3
	3.2	2.2	3.2	2.0	2.9	1.3
	4	2.8	4.0	2.5	3.6	1.3
	5	3.5	5.0	3.2	4.5	1.3
	6.3	4.4	6.3	4.0	5.7	1.3
	8	5.6	8.0	5.0	7.2	1.3
	10	7.0	10.0	6.3	9.0	1.3
	12.5	8.8	12.5	7.9	11.3	1.3
	16	11.2	16.0	10.1	14.4	1.3
	20	14.0	20.0	12.6	18.0	1.3
	25	17.5	25.0	15.8	22.5	1.3
	32	22.4	32.0	20.2	28.8	1.3
	40	28.0	40.0	25.2	36.0	1.3
	50	35.0	50.0	31.5	45.0	1.3
	63	44.1	63.0	39.7	56.7	1.3
	80	56.0	80.0	50.4	72.0	1.3
	100	70.0	100.0	63.0	90.0	1.3
	125	87.5	125.0	78.8	112.5	1.3

Circuit Breaker	In	I ₁ (50-60Hz)		I ₁ (400Hz)		Km I ₃ (400 Hz)
		min	max	min	max	
XT3	63	44	63	39.6	56.7	2
	80	56	80	50.4	72.0	2
	100	70	100	63.0	90.0	2
	125	88	125	79.2	112.5	2
	160	112	160	100.8	144.0	2
	200	140	200	126.0	180.0	2
XT4	16	11	16	9.9	14.4	1.2
	20	14	20	12.6	18.0	1.2
	25	18	25	16.2	22.5	1.2
	32	22	32	19.8	28.8	1.2
	40	28	40	25.2	36.0	1.2
	50	35	50	31.5	45.0	1.2
	63	44	63	39.6	56.7	1.2
	80	56	80	50.4	72.0	1.2
	100	70	100	63.0	90.0	1.2
	125	88	125	79.2	112.5	1.2
	160	112	160	100.8	144.0	1.2
	200	140	200	126.0	180.0	1.2
	225	158	225	142.2	202.5	1.2
XT5	320	224	320	201.6	288.0	1.1
	400	280	400	252.0	360.0	1.1
	500	350	500	315.0	450.0	1.1
XT6	630	441	630	352.8	504.0	1.1

Coordination

Coordination between circuit-breakers

Selection of the protection system for electrical installation is fundamental both to guarantee correct economical and functional service of the whole installation and to reduce to a minimum the problems caused by abnormal service conditions or actual faults.

The coordination between the various devices dedicated to the protection of sections of installation or specific components has to be studied in order to have a protection system able to:

- detect what has happened and where, discriminating between abnormal but tolerable situations and fault situations within its zone of competence, thus avoiding unwanted trips which may cause unjustified stoppage of a properly operating part of the installation;
- act as rapidly as possible to limit the damage (destruction, accelerated ageing, etc.), thus safeguarding power supply continuity and stability.

In order to achieve these goals, it is necessary to know the operating coordination between an upstream circuit-breaker and the downstream one and choose the best combination that fits the installation specific needs.

Selectivity and back-up coordination

There are two different type of coordination between circuit-breakers.

If the priority of the installation is to assure service continuity, then selectivity is the coordination strategy. Selectivity, according to IEC 60947-1, is the coordination between the operating characteristics of two overcurrent protection devices. In the event of an overcurrent within established limits, only the circuit-breaker installed on the line affected by the fault (downstream) will trip. If the overcurrent value exceeds the selectivity limit, then also the upstream device will trip.

If the priority of the installation is to achieve economical savings of the components, then back-up is the suitable coordination. Back-up is the coordination between the operating characteristics of two overcurrent protection devices, so that the upstream protection supports the trip of the downstream protection in case of a short-circuit with a higher value than the short-circuit capacity of the downstream circuit-breaker. In this way, it is possible to optimize the breaking capacity of downstream protection devices by downsizing them.

Selected Optimized Coordination – SOC Online tool

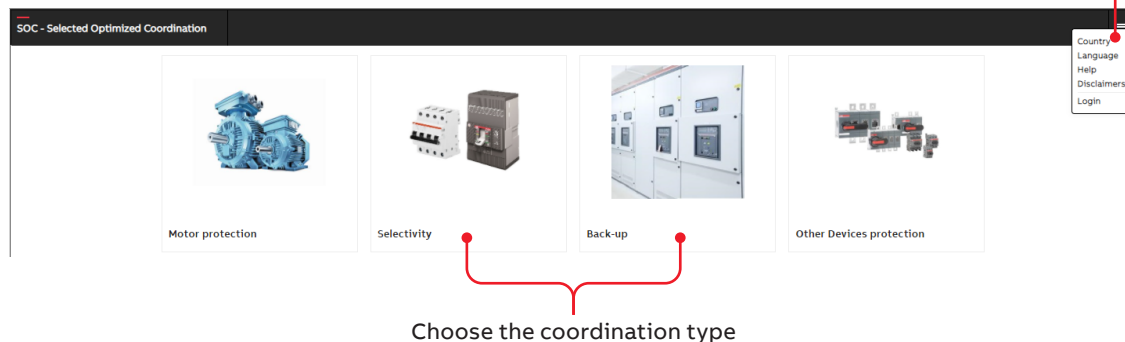
ABB offers a quick and easy way to find the best coordination between circuit- breakers with [SOC Online tool](#).

This tool is not limited to molded-case circuit-breakers, but it includes constantly updated coordination tables for a wide range of ABB protection devices.

Tables can be examined directly online but is also possible to download a PDF version to have a ready to use project documentation.

Step 1

Set your country/language preferences or read the help pages

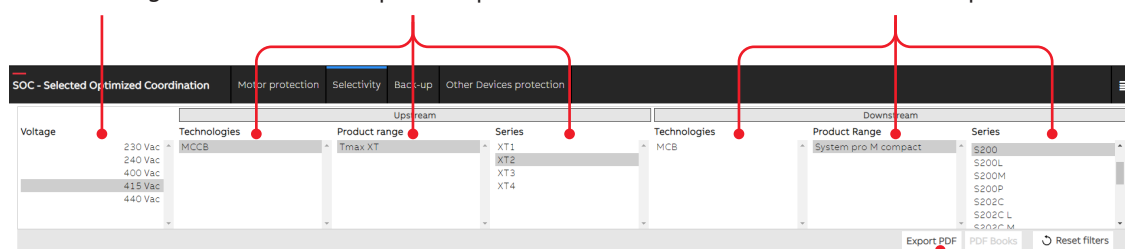


Step 2

Set the
rated voltage*

Choose the upstream protection*

Choose the downstream protection*



Results

MCCB/MCB

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Technology

PR

Series

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Relay

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Clicking on this is possible
to download tables or send
them to an email

Table with coordination results (expressed in kA):

- **numeric value:** represents the max value of short circuit current for which the upstream device is selective (or it guarantees back-up) towards the downstream device;
- **empty cells:** means that for the relative rated currents the selectivity/back-up cannot be achieved;
- **T**:** means that the upstream device assures selectivity up to the Icu value of the downstream device (Total Selectivity)

* Filters can be set without a fixed sequence. If a filter has been modified, others will be kept (if allowed by the conditions).

**This is only valid for selectivity.

Characteristic curves

Example of curves reading

Example 1 - XT3N 250

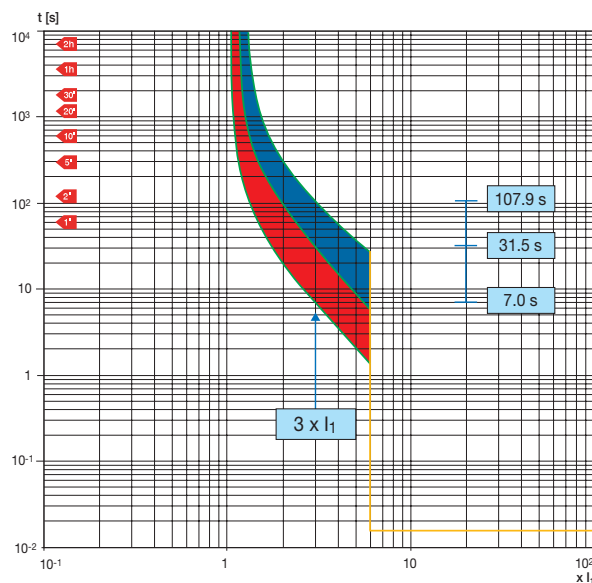
Trip curves for distribution - (thermal magnetic trip unit)

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 $I_n=250$ 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 $3 \times I_{11}$, 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 .

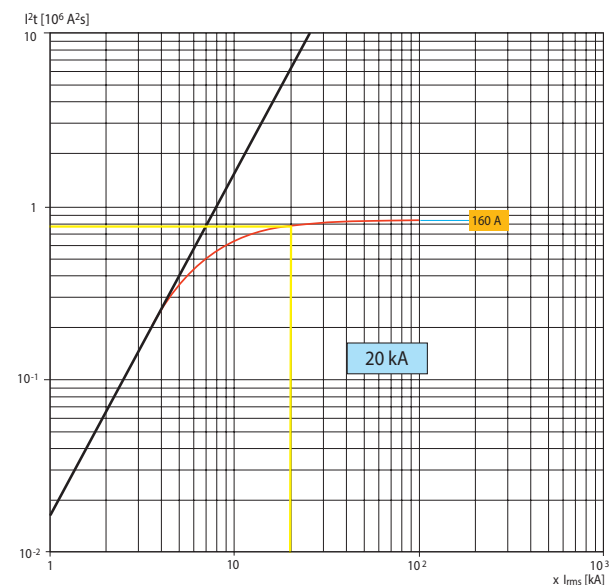


Example 2 - XT2N 160

Specific let-through energy curves

The following figure shows an example of the graph of the specific let-through energy of the XT2N 160 $I_n=160$ A 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 $0.76 \cdot 10^6 \cdot A^2s$ in correspondence with a short-circuit current of 20 kA.



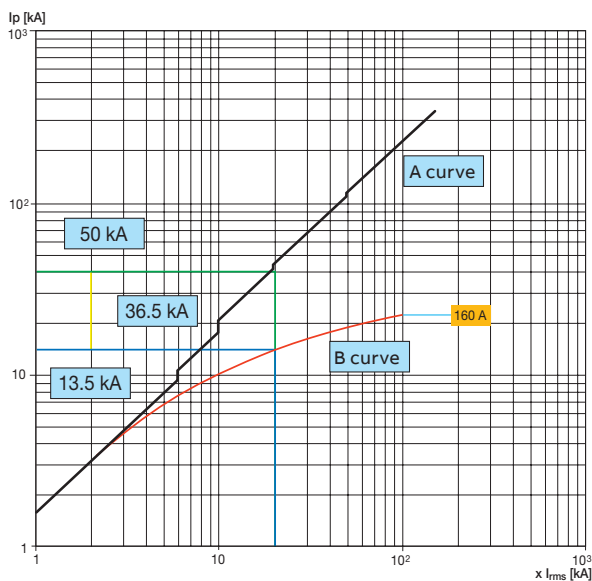
Example 3 - XT2N 160

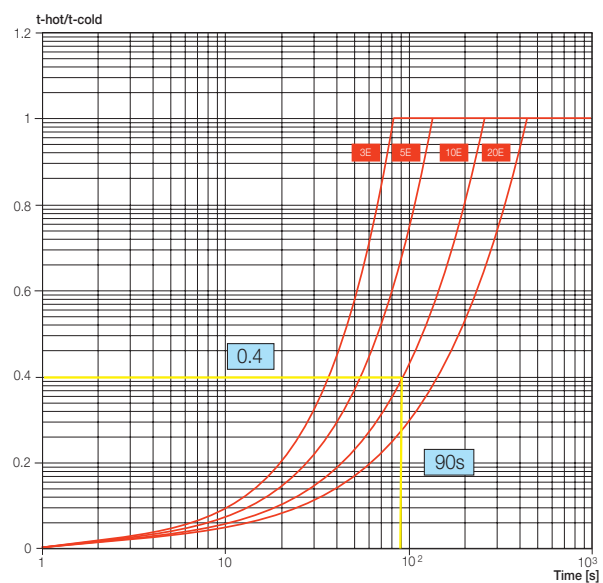
Limitation curves

The figure below gives the trend of the limitation curves of the XT2N 160 $I_n=160$ 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 $I_n=160$ 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.



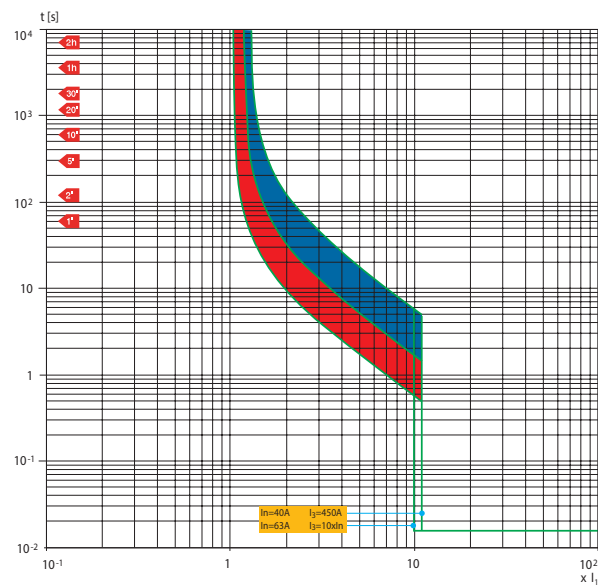


Characteristic curves

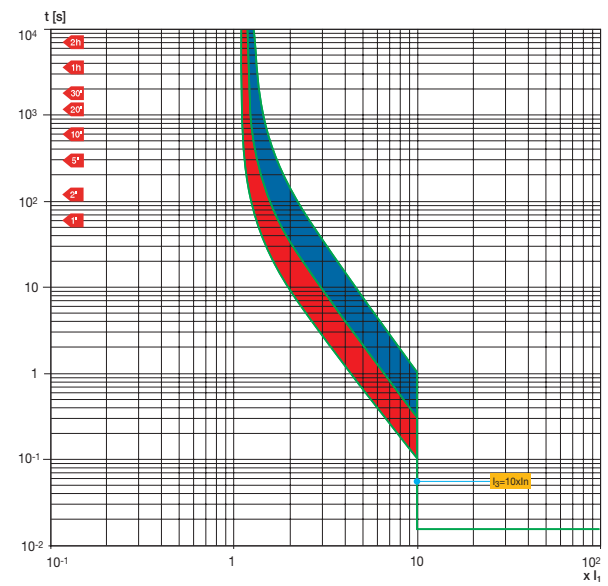
Trip curves with thermal magnetic trip unit

Trip curves for distribution

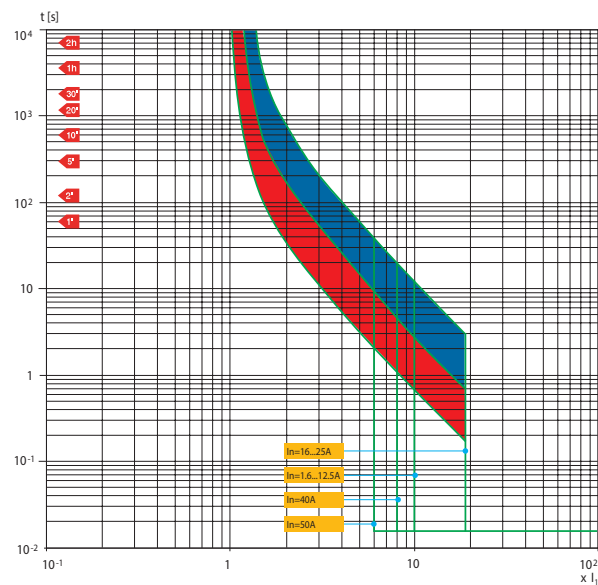
XT1 160 TMD In=16...63A



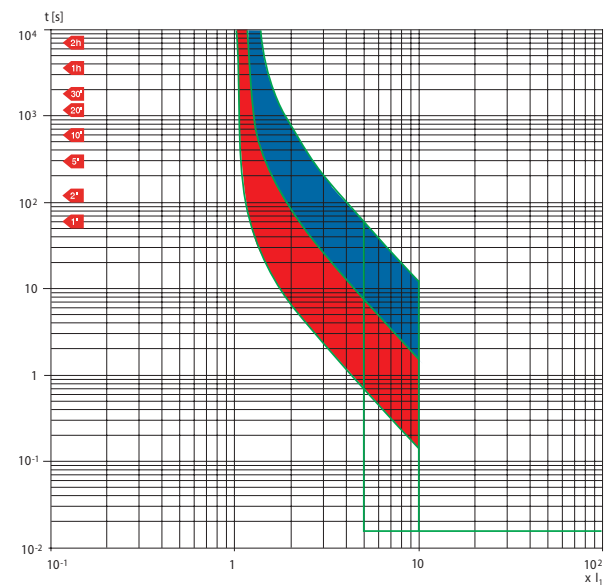
XT1 160 TMD In=80...160A



XT2 160 TMA In=1.6...50A



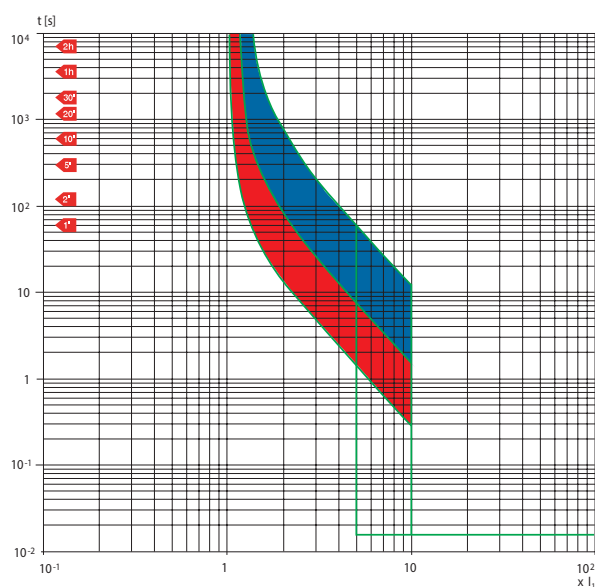
XT2 160 TMA In=63...160A



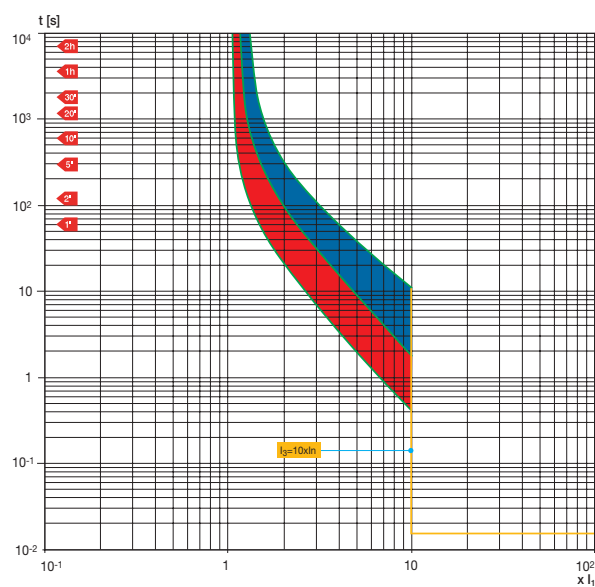
Characteristic curves

Trip curves with thermal magnetic trip unit

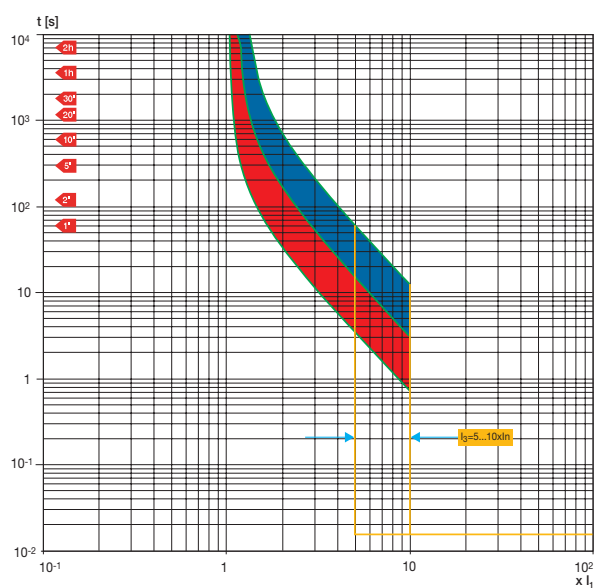
XT2 160 TMA In=100A



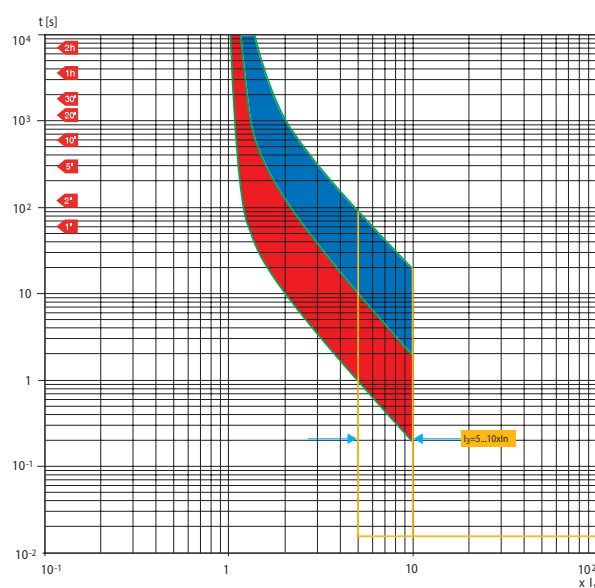
XT3 250 TMD In=63...250A



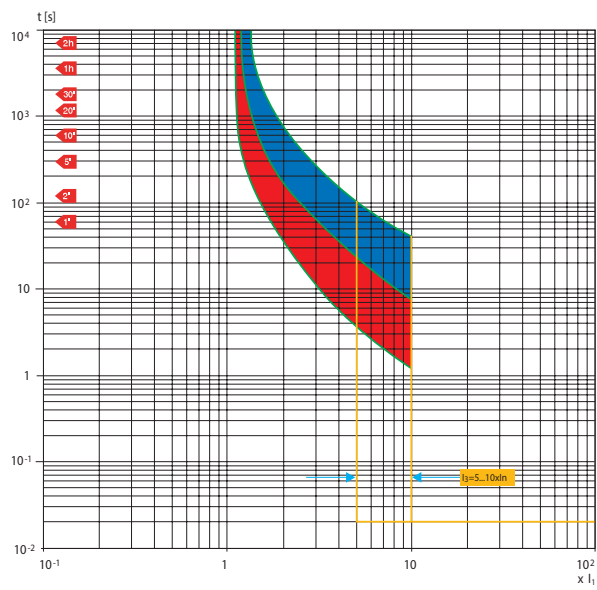
XT4 250 TMA In=16...250A



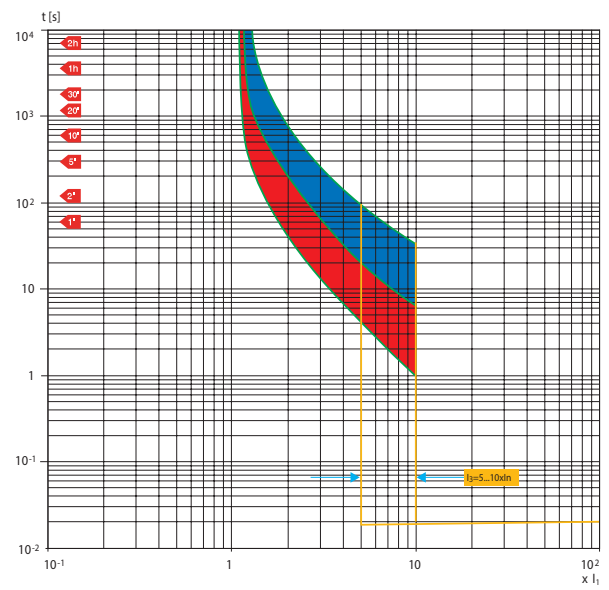
XT5 400-630 TMA In=320...630A



XT6 800 TMA In=630A



XT6 800 TMA In=800A

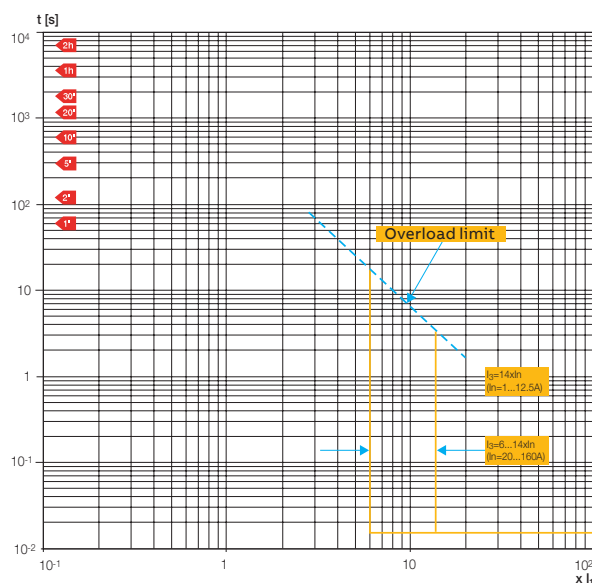


Characteristic curves

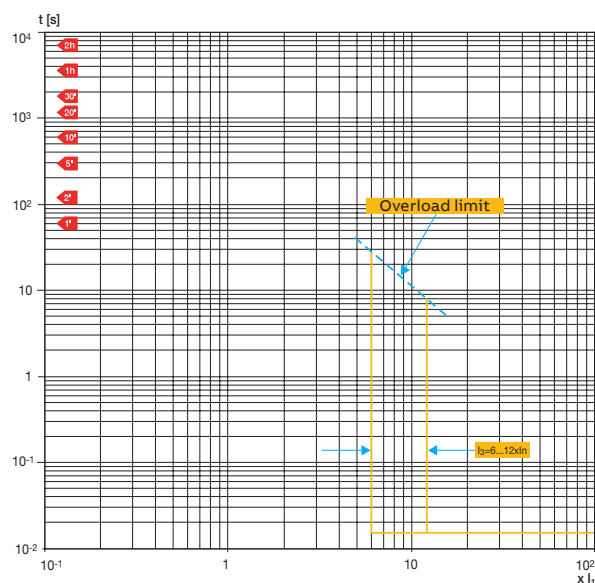
Trip curves with thermal magnetic trip unit

Trip curves for motor protection

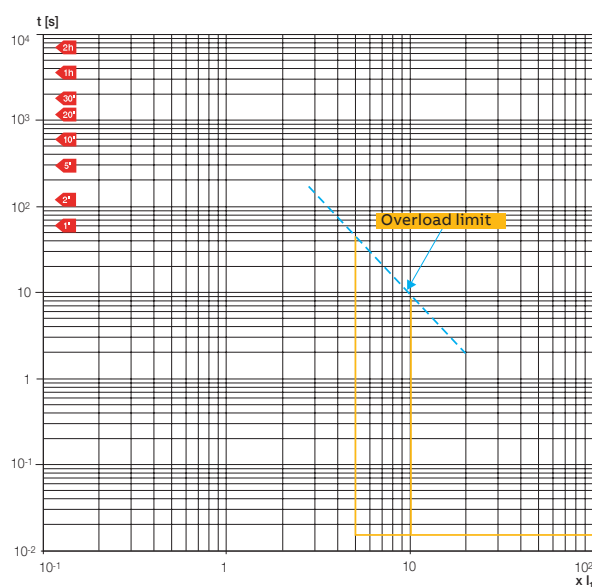
XT2 160 MF/MA In=1...160A



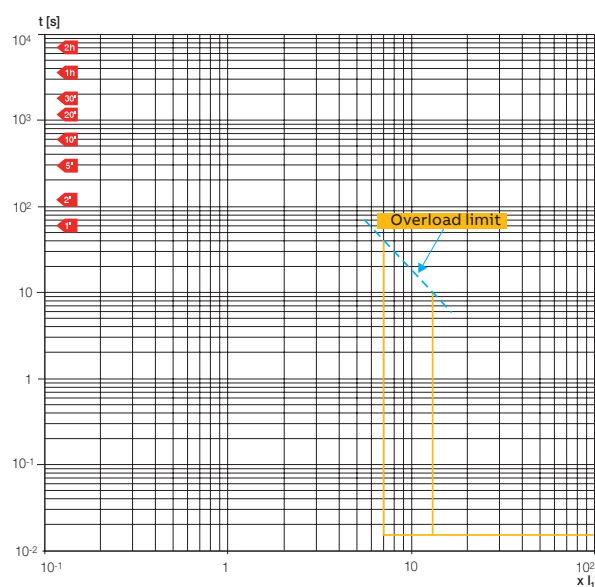
XT3 250 MA In=100...250A



XT4 200 MA In=10...200A

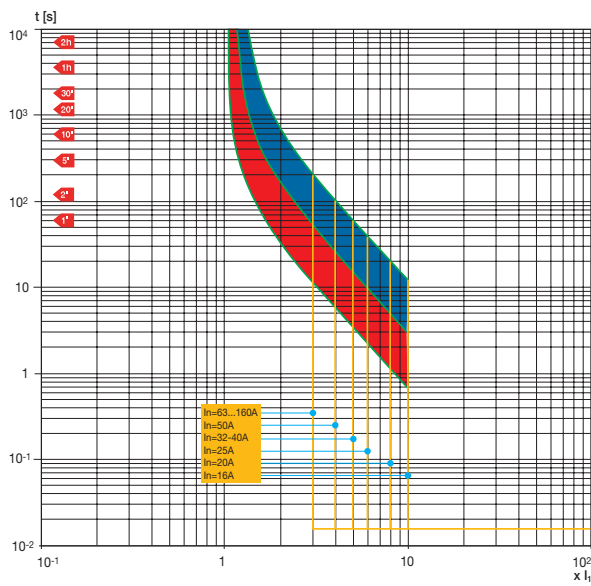


XT5 400-630 MA In=320...500A

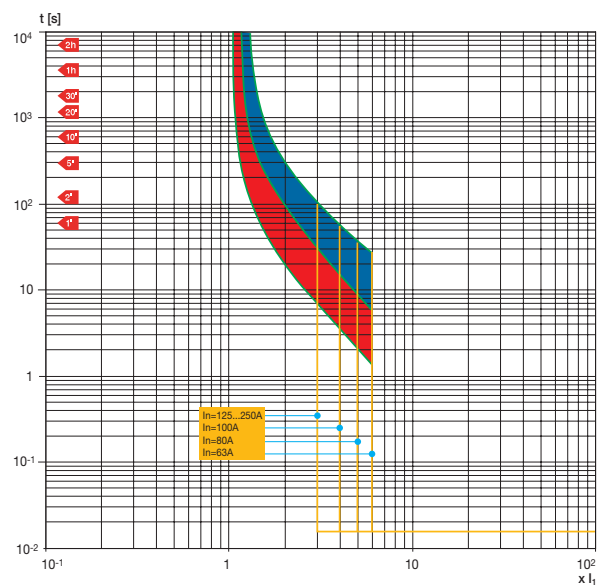


Trip curves for generator protection

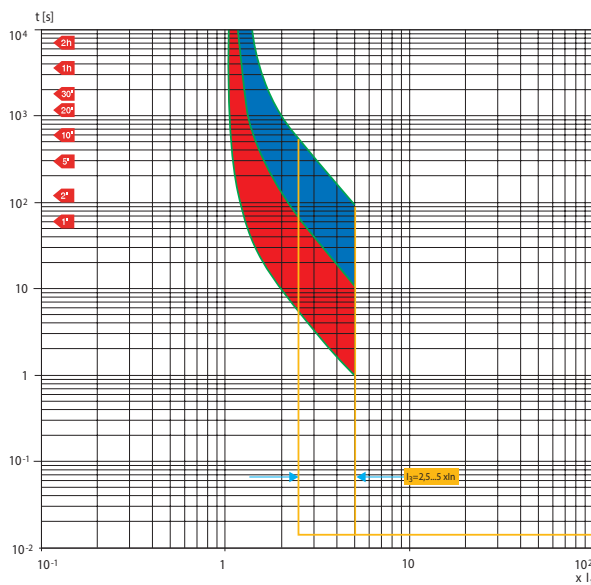
XT2 160 TMG In=16...160A



XT3 250 TMG In=63...250A



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

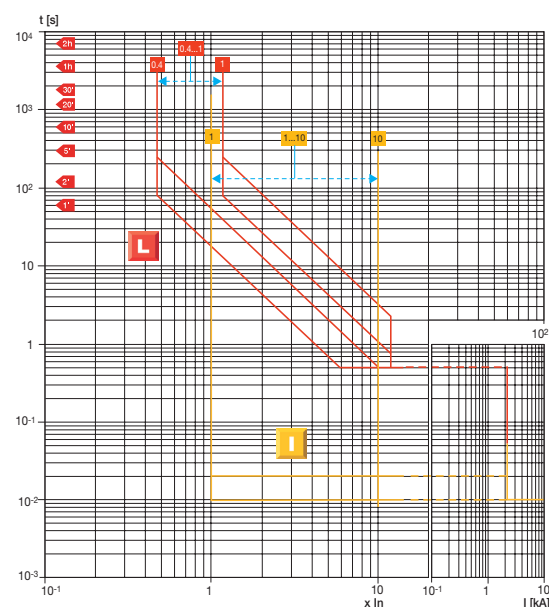


Characteristic curves

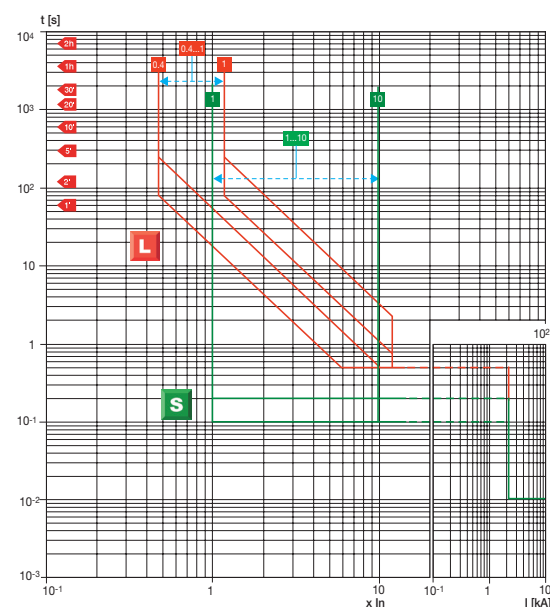
Trip curves with electronic trip unit Ekip Dip

Trip curves for distribution

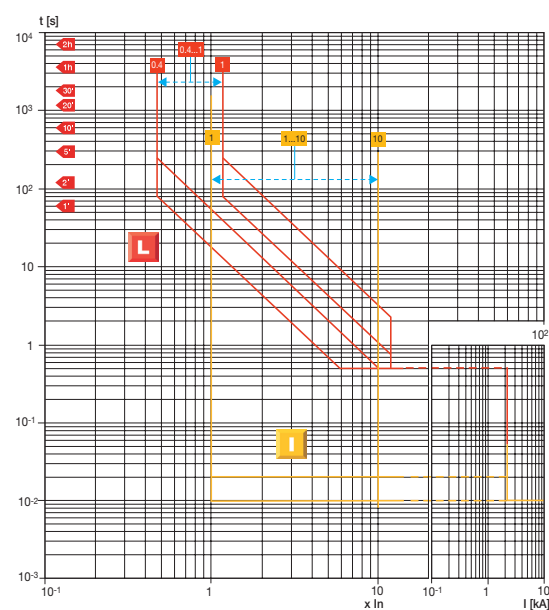
XT2 Ekip Dip LS/I L-I functions



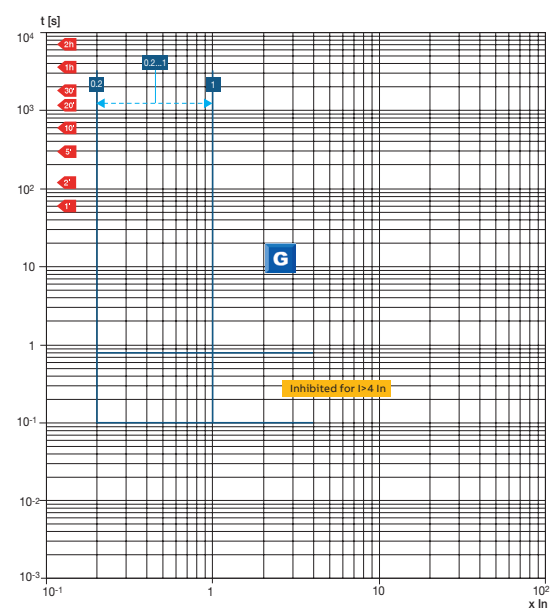
XT2 Ekip Dip LS/I L-S functions



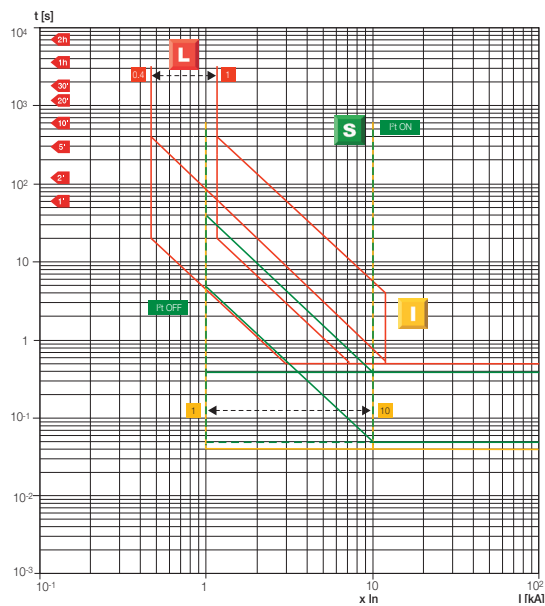
XT2 Ekip Dip LIG L-I functions



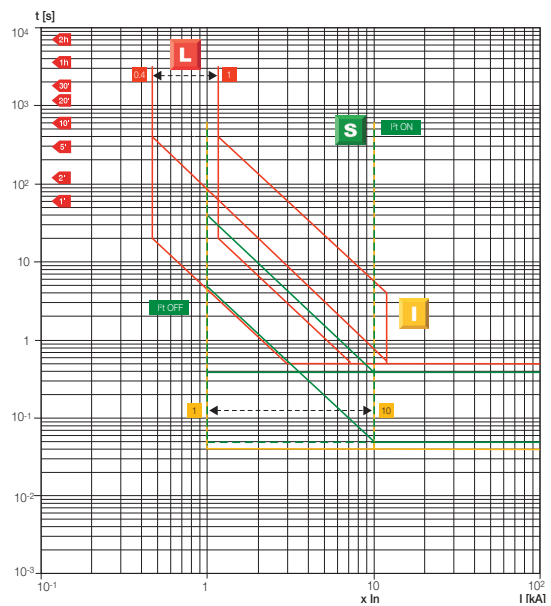
XT2 Ekip Dip LIG G function



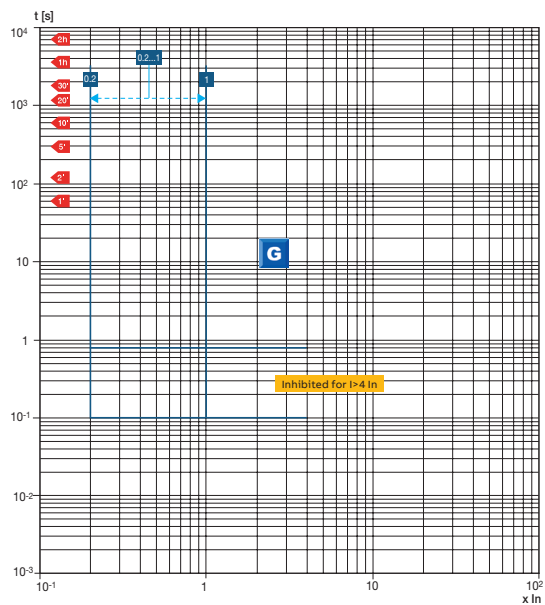
XT2 Ekip Dip LSI and Ekip C Dip LSI L-S-I functions



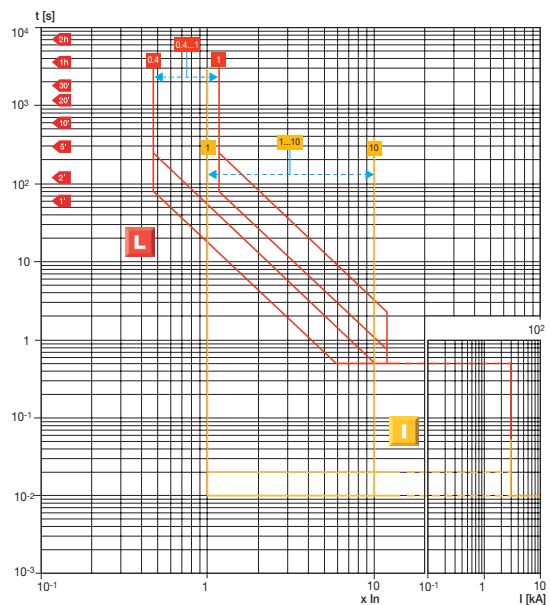
XT2 Ekip Dip LSIG and Ekip C Dip LSIG L-S-I functions



XT2 Ekip Dip LSIG and Ekip C Dip LSIG G function



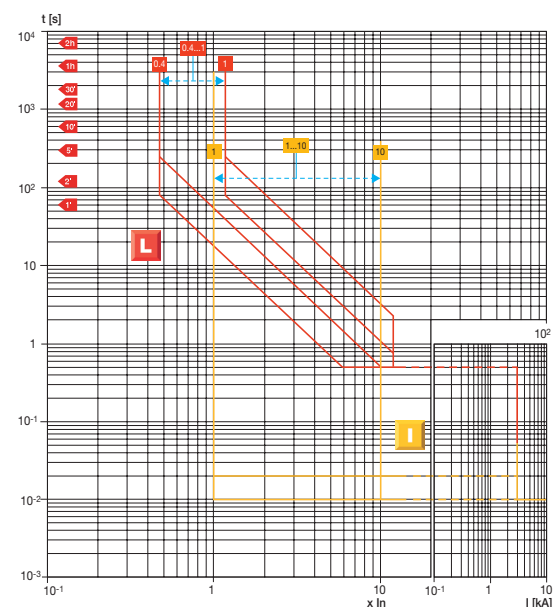
XT4 Ekip Dip LS/I L-I functions



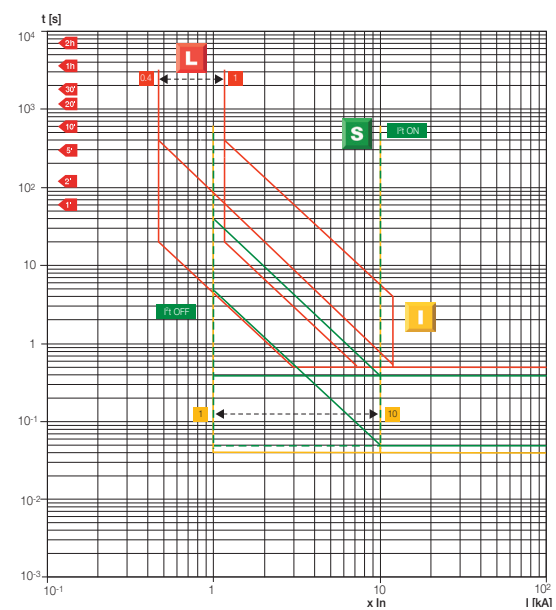
Trip curves with electronic trip unit Ekip Dip

XT4 Ekip Dip LIG

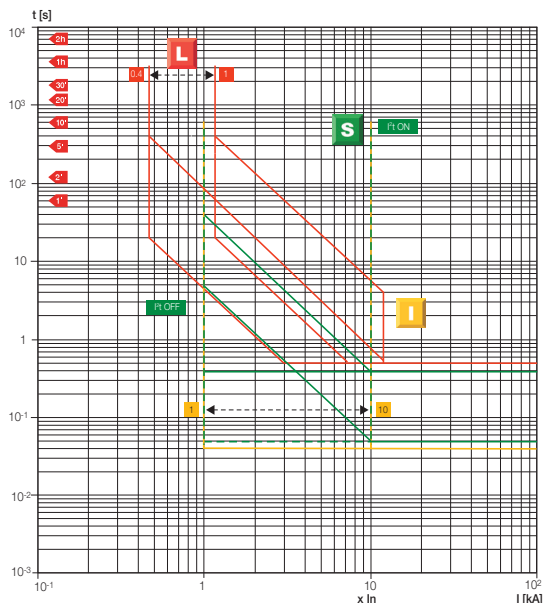
L-I functions



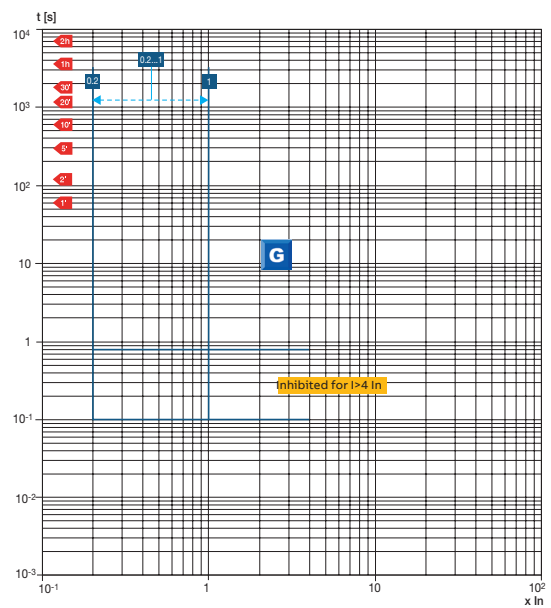
XT4 Ekip Dip LSI, Ekip C Dip LSI and Ekip Dip Measuring LSI - L-S-I functions



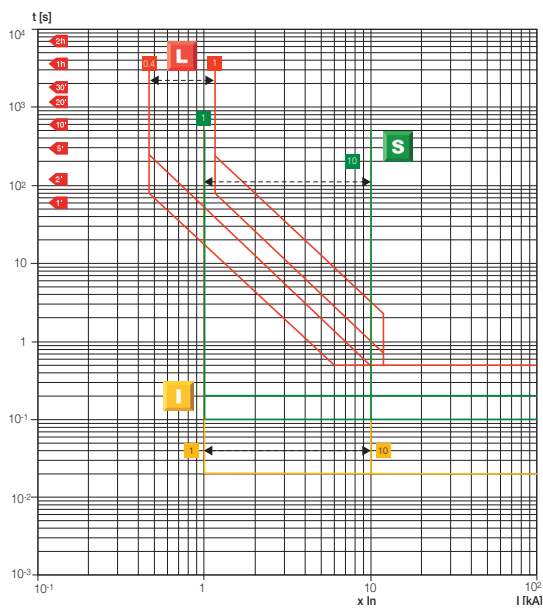
XT4 Ekip Dip LSIG, Ekip C Dip LSIG and Ekip Dip Measuring LSIG - L-S-I functions



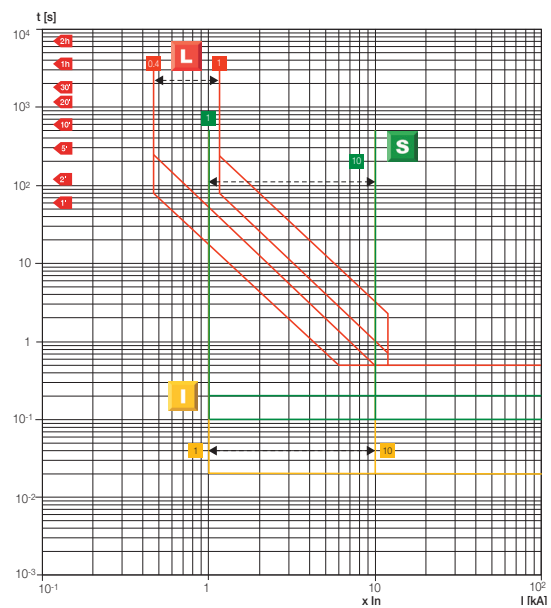
XT4 Ekip Dip LSIG, Ekip C Dip LSIG and Ekip Dip Measuring LSIG - G function



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



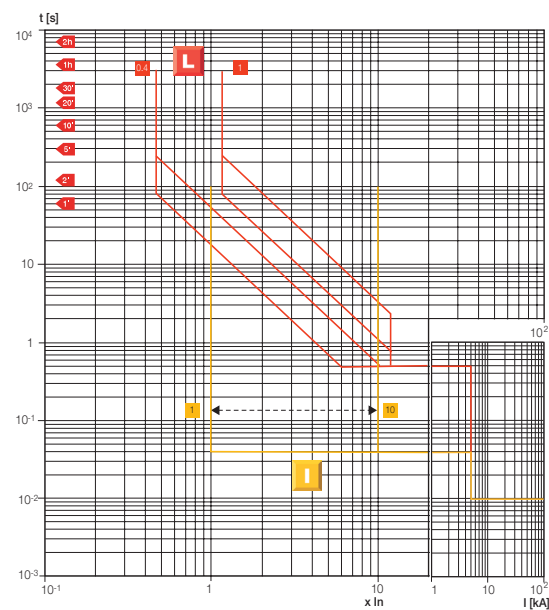
XT6 Ekip Dip LS/I L-S-I functions



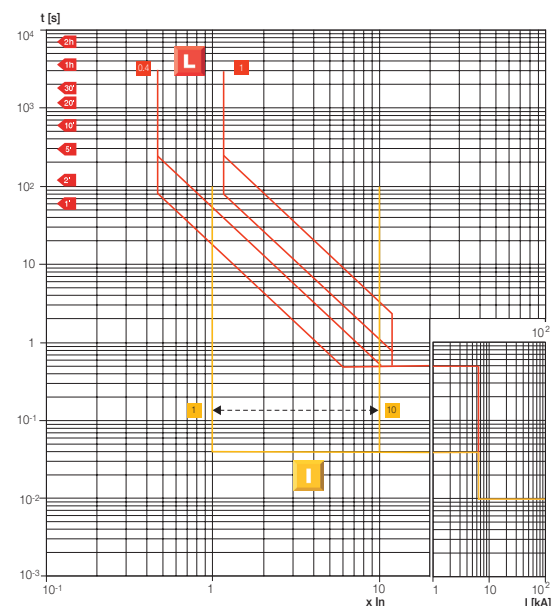
Characteristic curves

Trip curves with electronic trip unit Ekip Dip

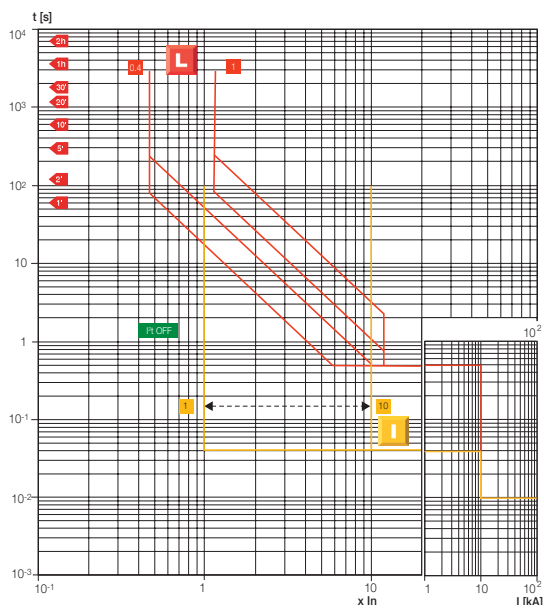
XT5 400 Ekip Dip LIG
L-I functions



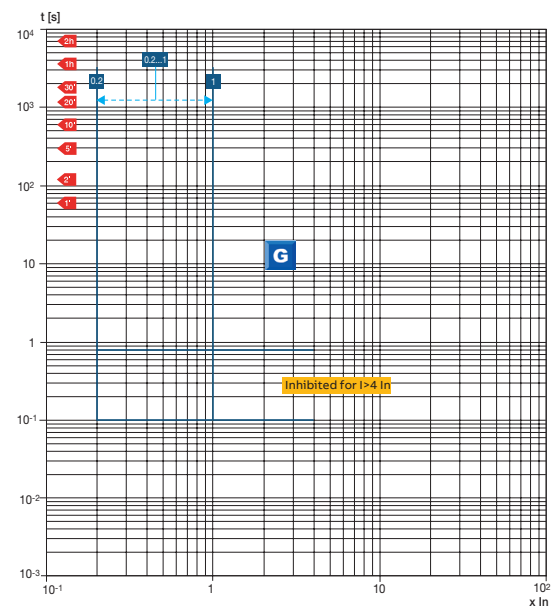
XT5 630 Ekip Dip LIG
L-I functions



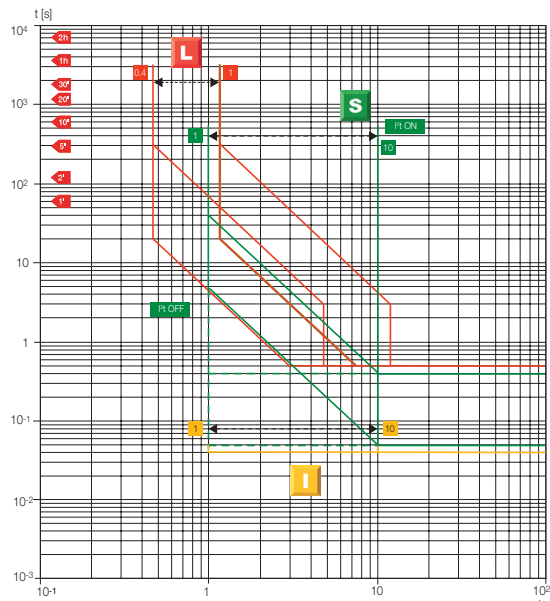
XT6 Ekip Dip LIG
L-I functions



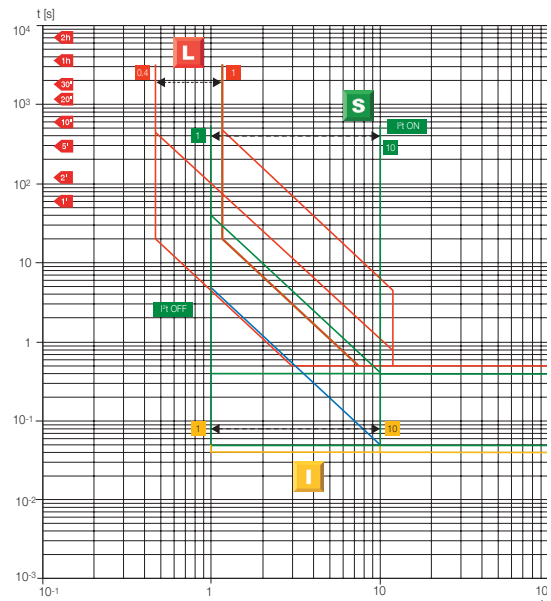
XT5-XT6 Ekip Dip LIG
G functions



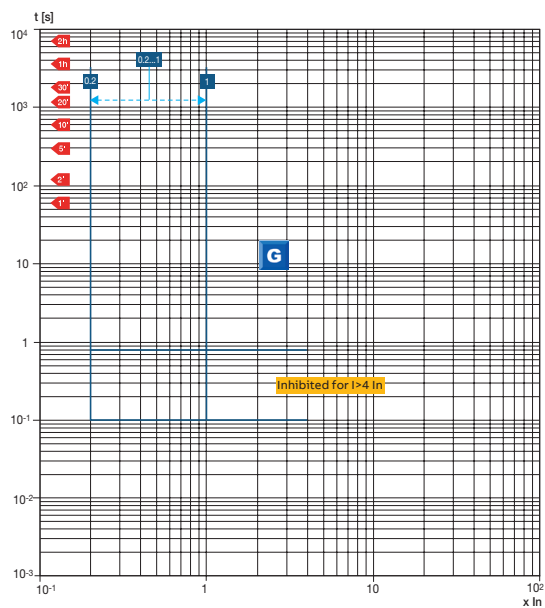
XT5 Ekip Dip LSI L-S-I functions



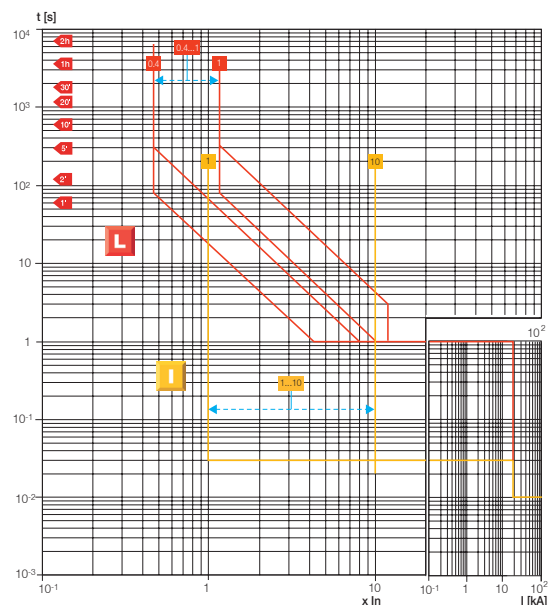
XT6 Ekip Dip LSI L-S-I functions



XT5-XT6 Ekip Dip LSIG G function

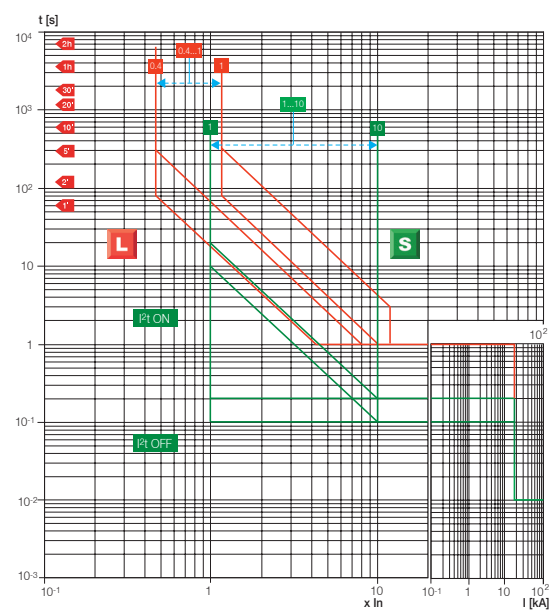


XT7 - XT7 M Ekip Dip LS/I L-I functions

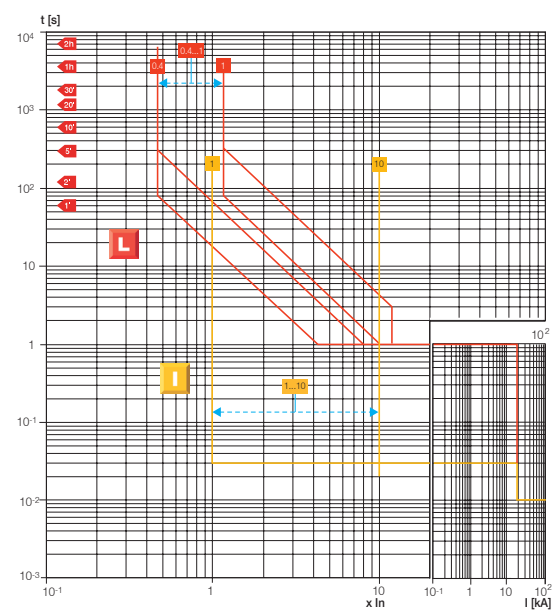


Trip curves with electronic trip unit Ekip Dip

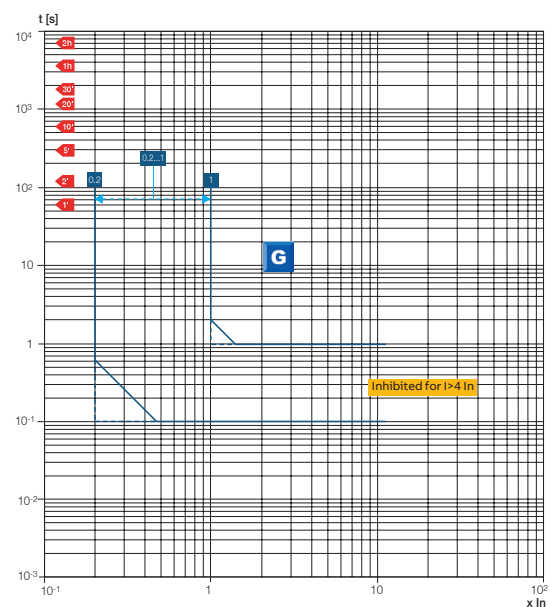
XT7 - XT7 M Ekip Dip LS/I L-S functions



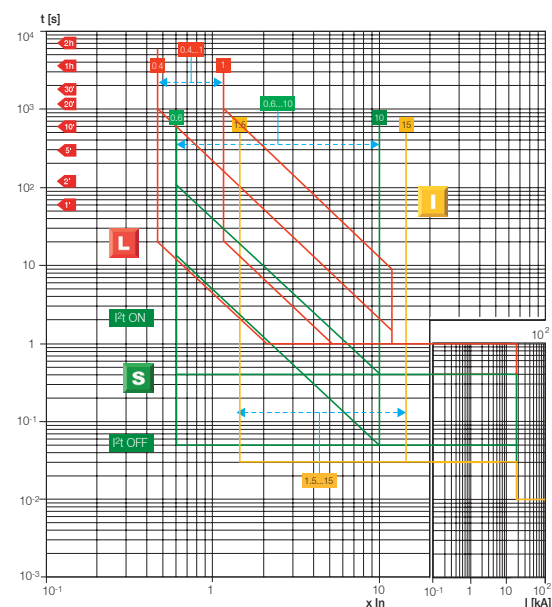
XT7 - XT7 M Ekip Dip LIG



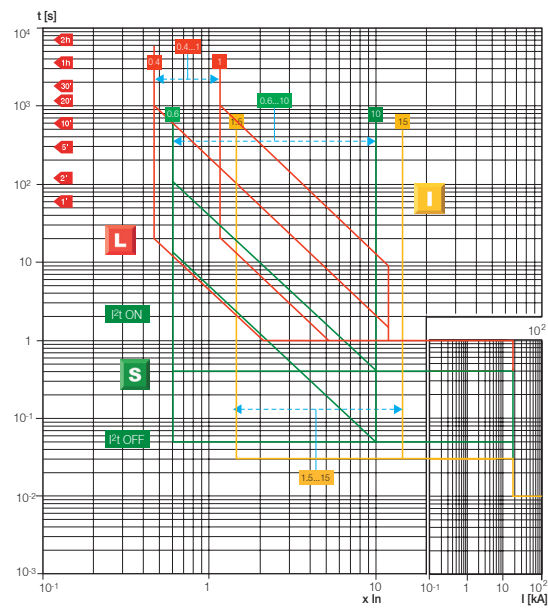
XT7 - XT7 M Ekip Dip LIG G function



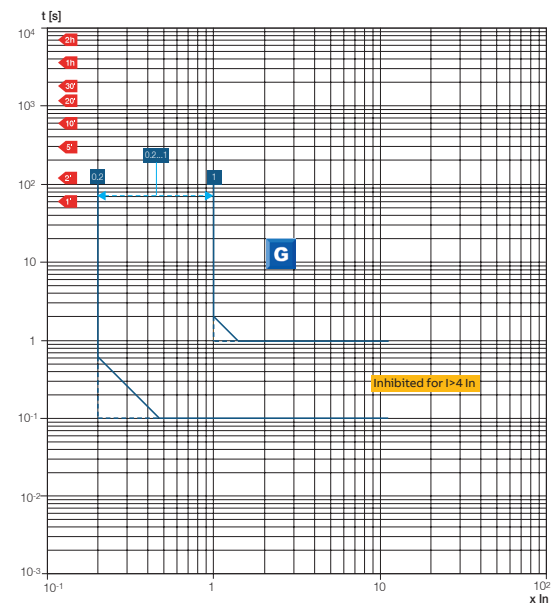
XT7 - XT7 M Ekip Dip LSI L-S-I functions



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

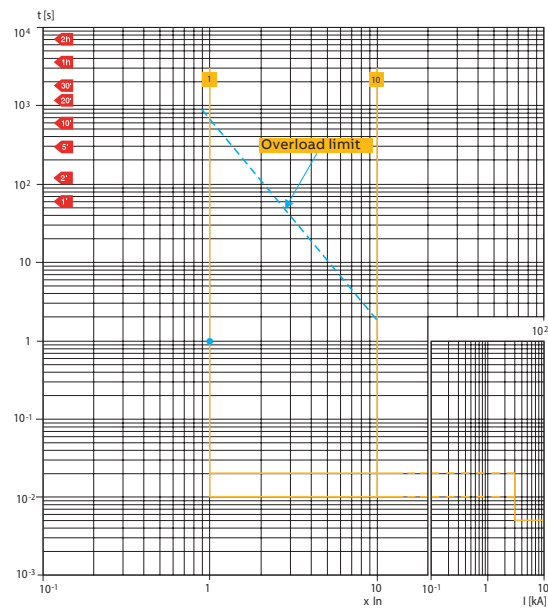


XT7 - XT7 M Ekip Dip LSIG G function

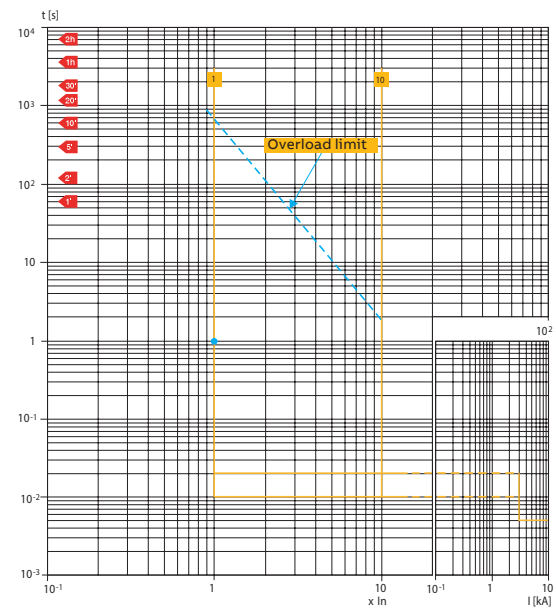


Trip curves for motor protection

XT2 Ekip M Dip I I function



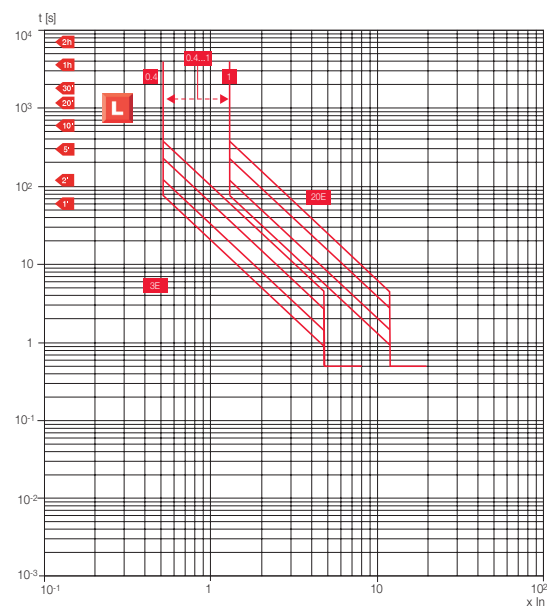
XT4 Ekip M Dip I I function



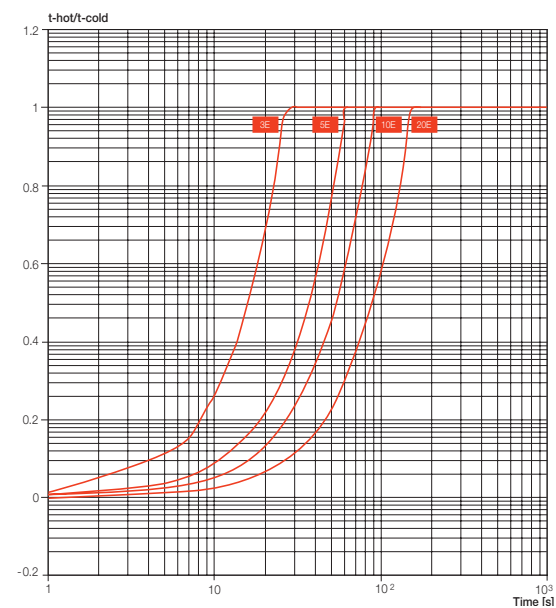
Characteristic curves

Trip curves with electronic trip unit Ekip Dip

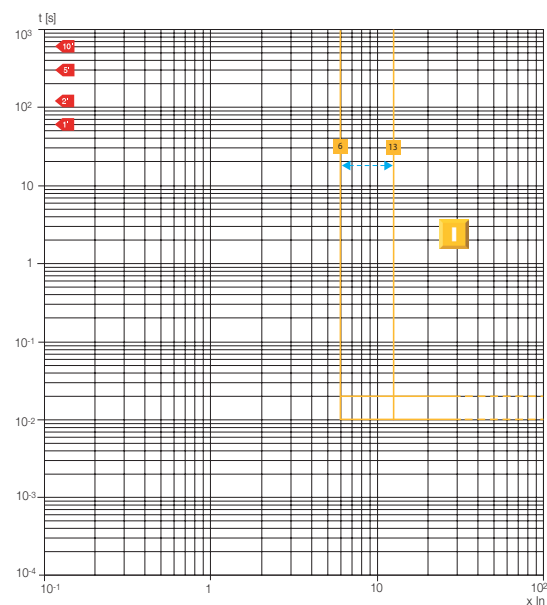
XT2 - XT4 Ekip M-LIU
L function (cold trip)



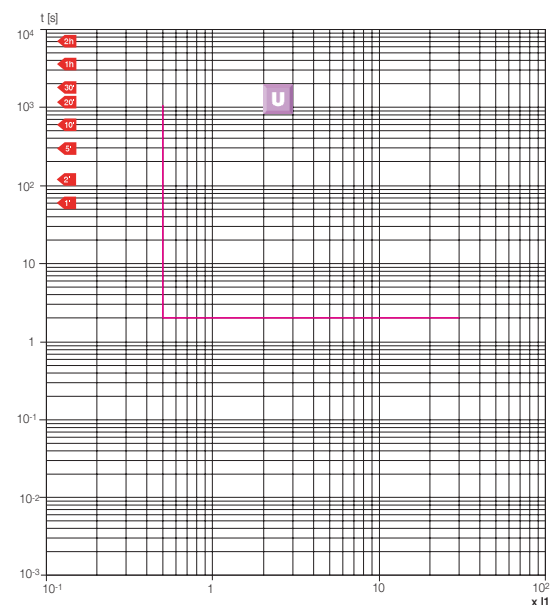
XT2 - XT4 Ekip M-LIU
(hot trip)



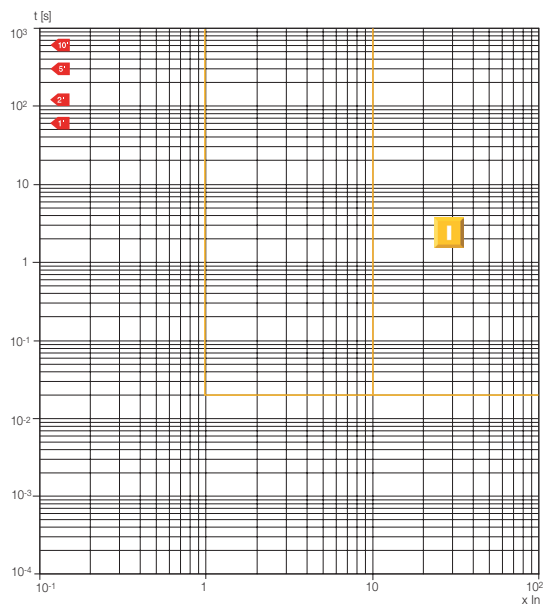
XT2 - XT4 Ekip M-LIU
I function



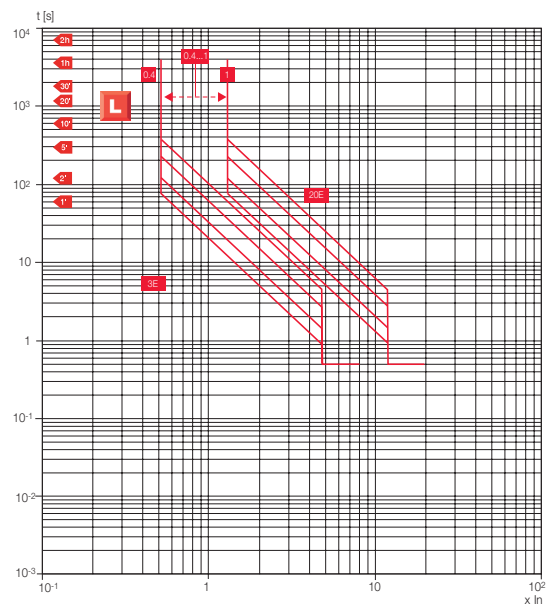
XT2 - XT4 Ekip M-LIU
U function



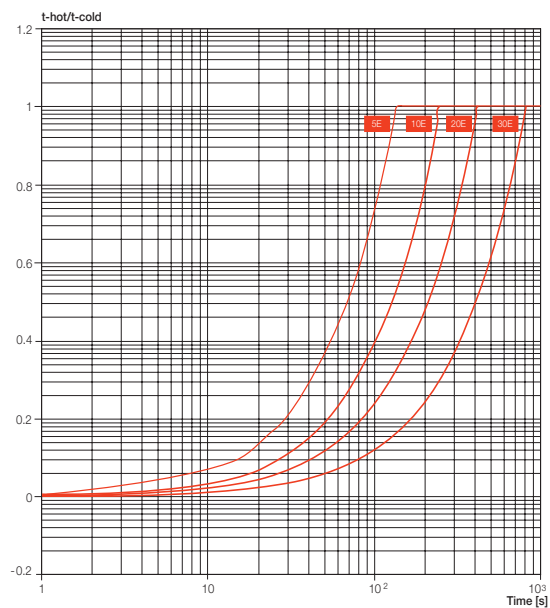
XT5-XT6 Ekip M Dip I I function



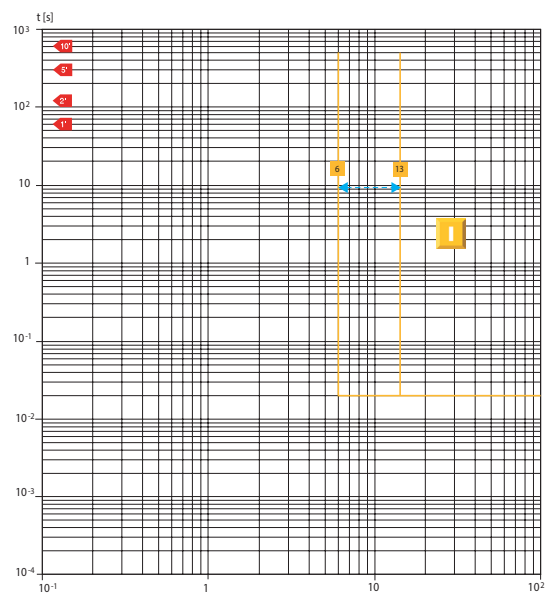
XT5-XT6 Ekip M Dip LIU L function (cold trip)



XT5-XT6 Ekip M Dip LIU (hot trip)



XT5-XT6 Ekip M Dip LIU I function

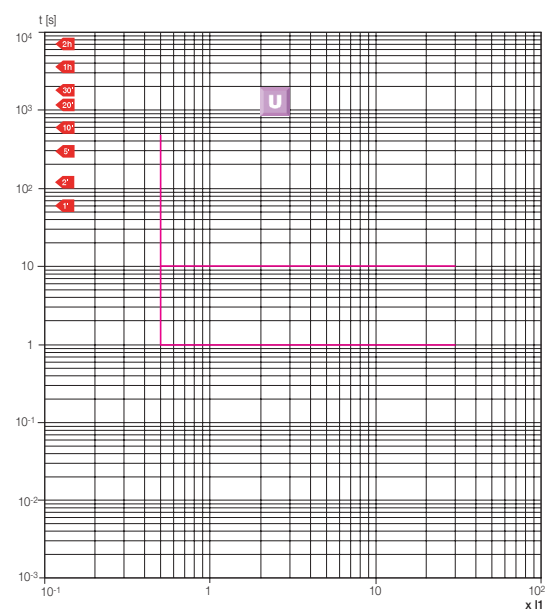


Characteristic curves

Trip curves with electronic trip unit Ekip Dip

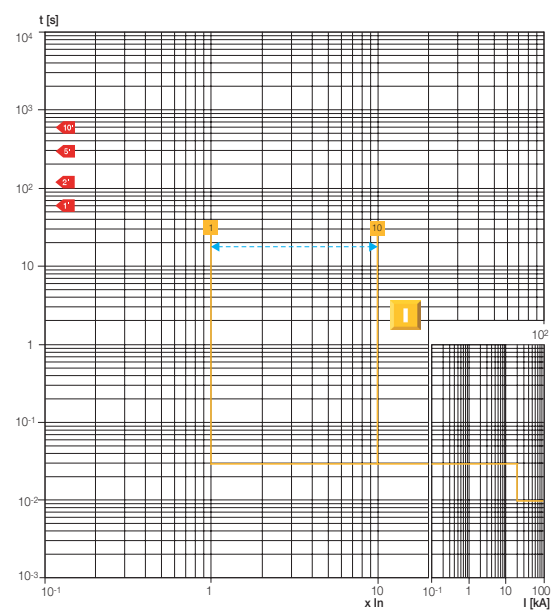
XT5-XT6 Ekip M Dip LIU

U function



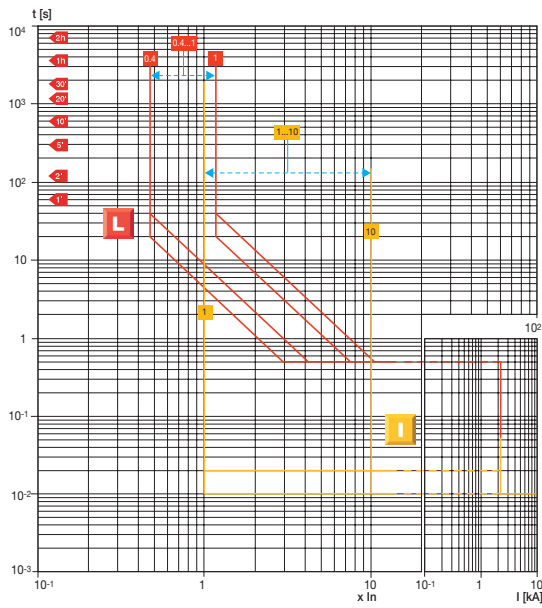
XT7 - XT7 M Ekip M Dip I

I function

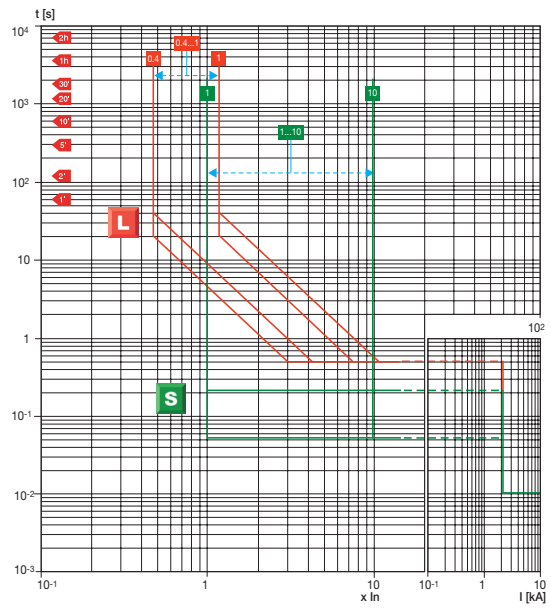


Trip curves for generator protection

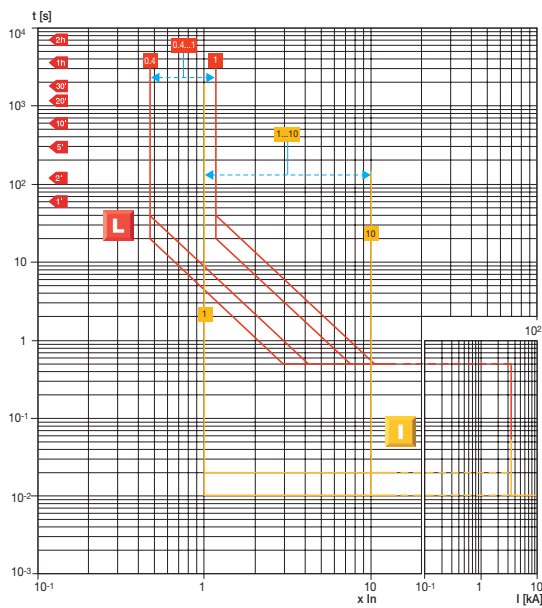
XT2 Ekip G-LS/I L-I functions



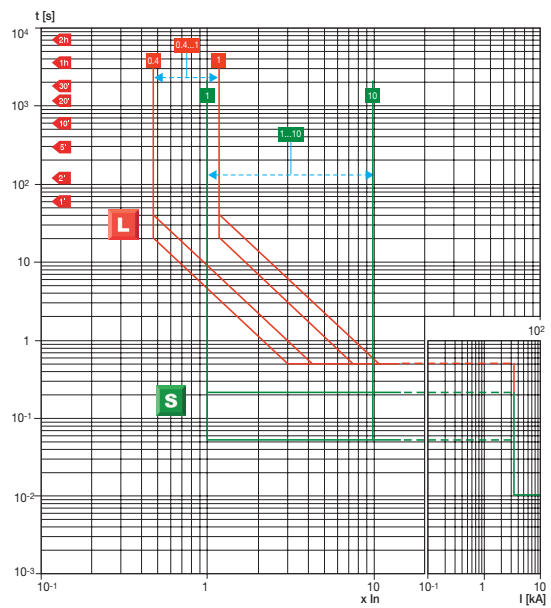
XT2 Ekip G-LS/I L-S functions



XT4 Ekip G-LS/I L-I functions



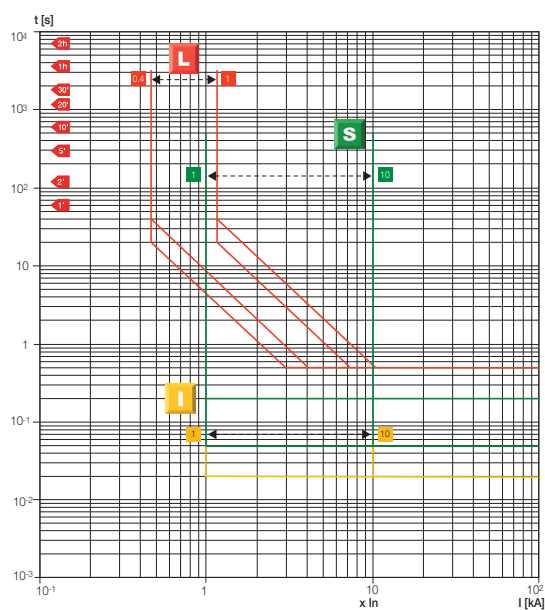
XT4 Ekip G-LS/I L-S functions



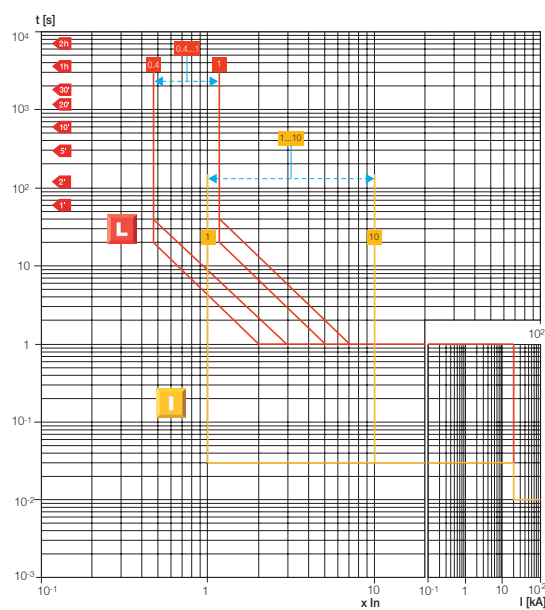
Characteristic curves

Trip curves with electronic trip unit Ekip Dip

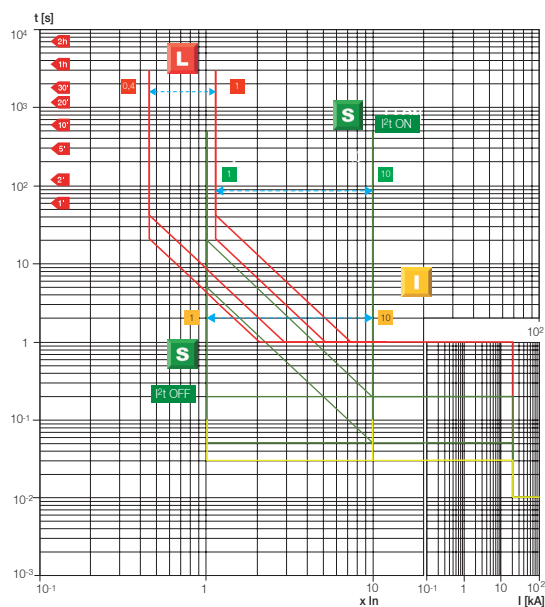
XT5-XT6 Ekip G Dip LS/I
L-S-I functions



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



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



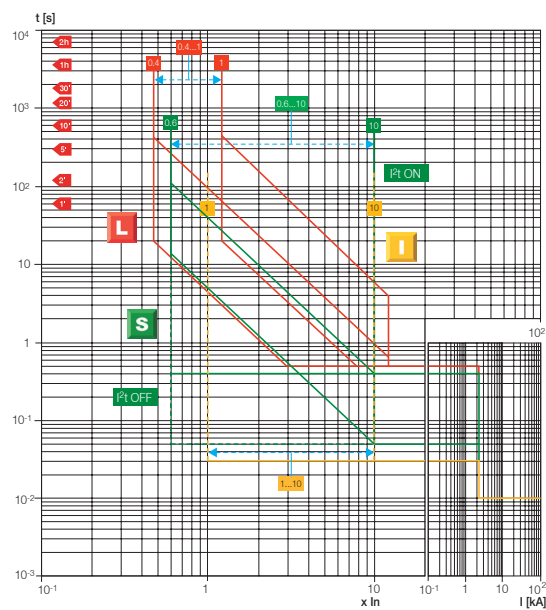
Characteristic curves

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

Trip curves for distribution

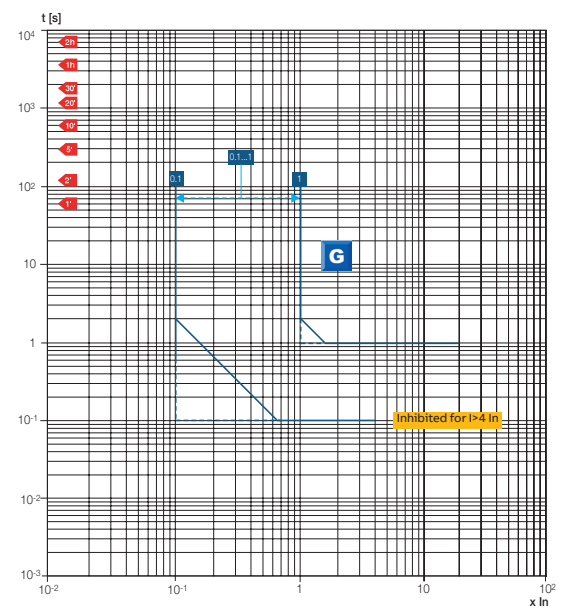
XT2

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



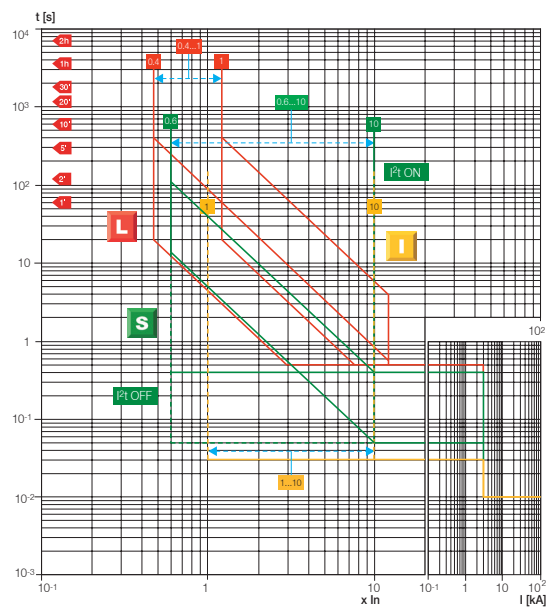
XT2

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



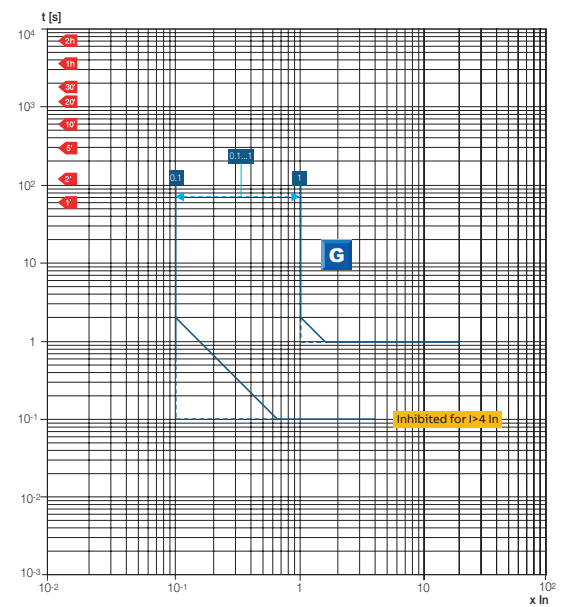
XT4

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

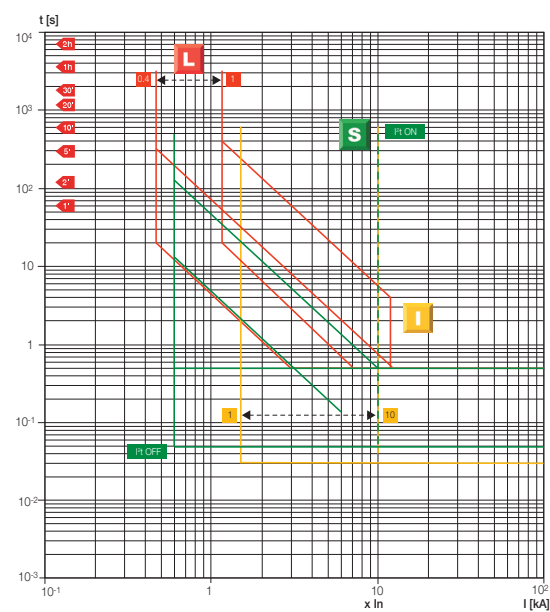


Characteristic curves

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

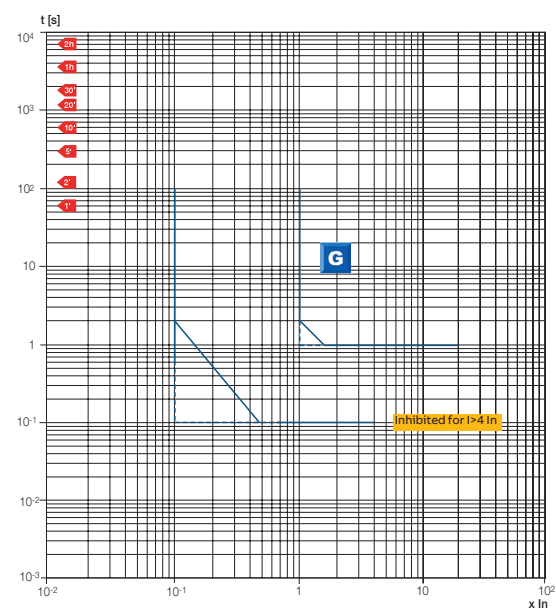
XT5

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



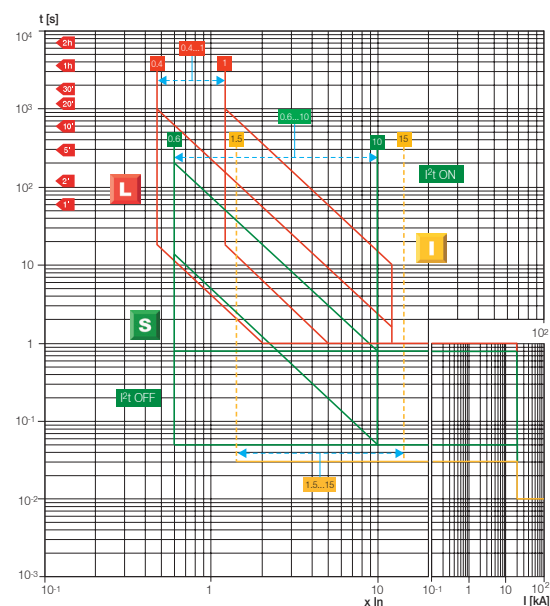
XT5

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



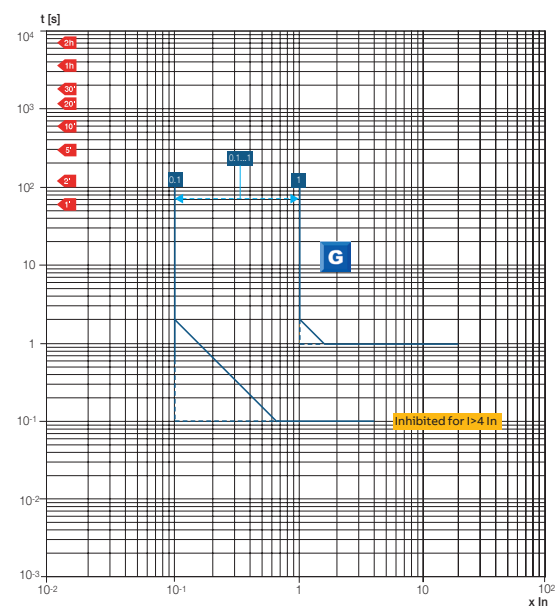
XT7 – XT7 M

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

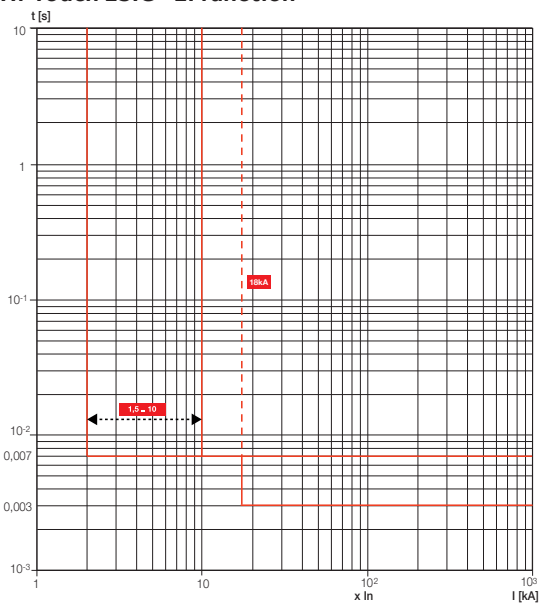
Ekip Touch LSIG • Ekip Touch Measuring LSIG • Ekip Hi-Touch LSIG • G function



Trip curves for distribution

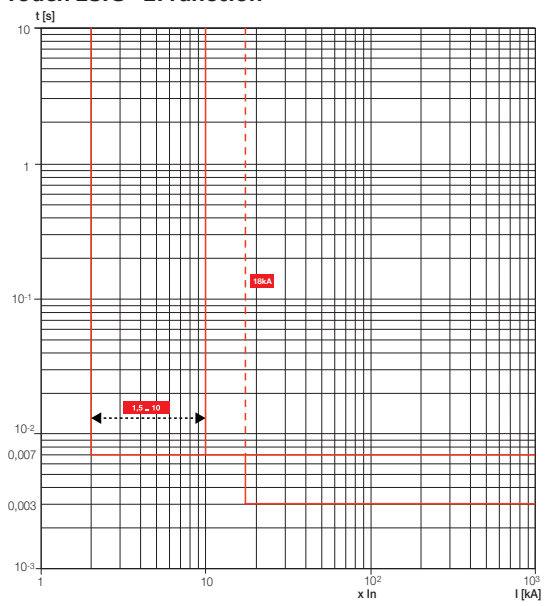
XT2

Ekip Touch LSI • Ekip Touch LSIg • Ekip Touch Measuring LSI • Ekip Touch Measuring LSIg • Ekip Hi-Touch LSI • Ekip Hi-Touch LSIg • 2I function



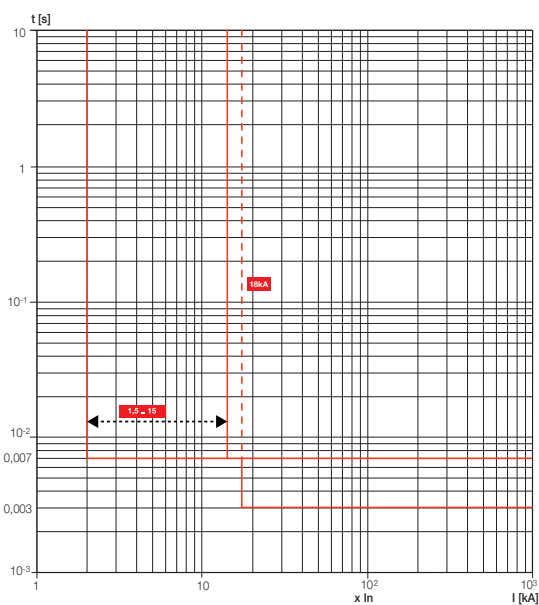
XT4

Ekip Touch LSI • Ekip Touch LSIg • Ekip Touch Measuring LSI • Ekip Touch Measuring LSIg • Ekip Hi-Touch LSI • Ekip Hi-Touch LSIg • 2I function



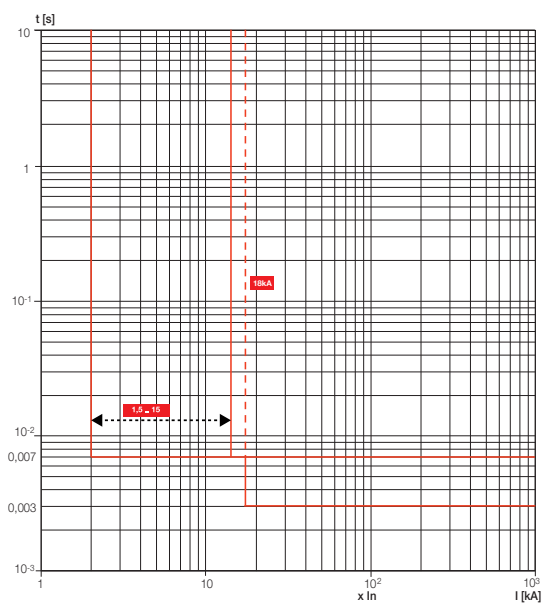
XT5

Ekip Touch LSI • Ekip Touch LSIg • Ekip Touch Measuring LSI • Ekip Touch Measuring LSIg • Ekip Hi-Touch LSI • Ekip Hi-Touch LSIg • 2I 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 • 2I function

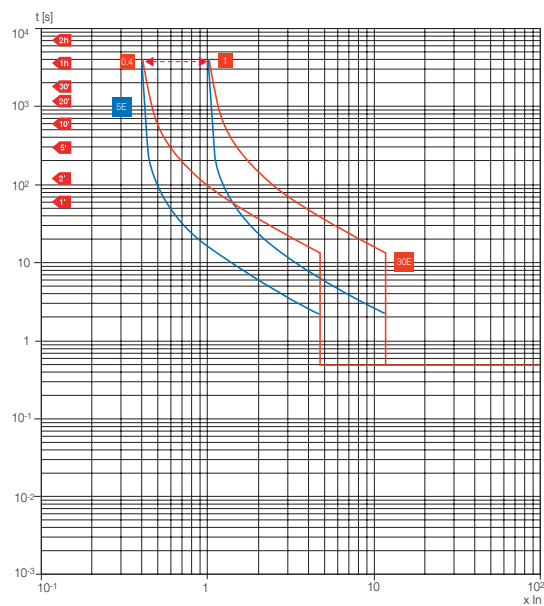


Characteristic curves

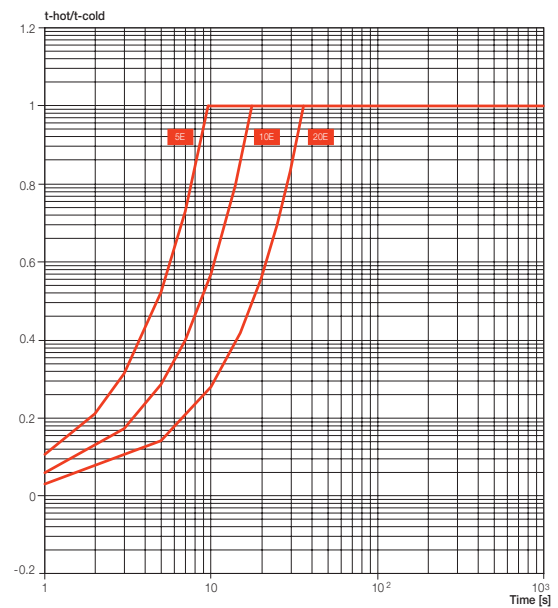
Trip curves with electronic trip unit Ekip Touch and Hi-Touch

Trip curves for motor protection

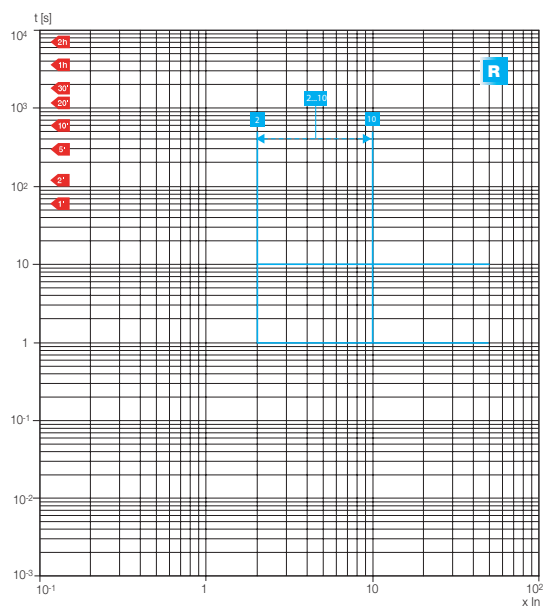
XT2 Ekip M Touch LRIU
L function (cold trip)



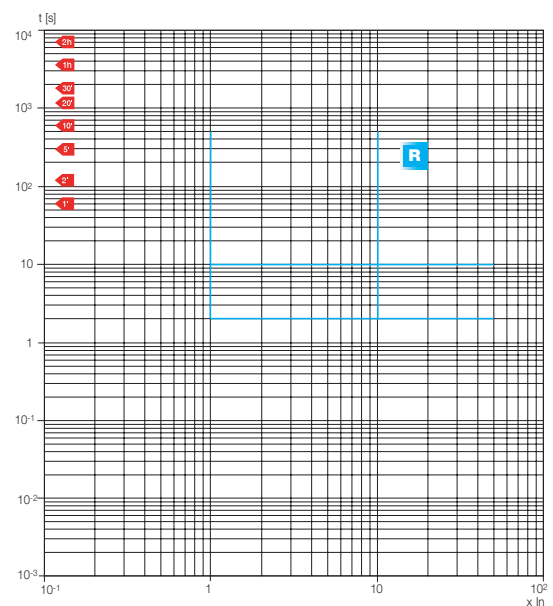
XT2 Ekip M Touch LRIU
(hot trip)



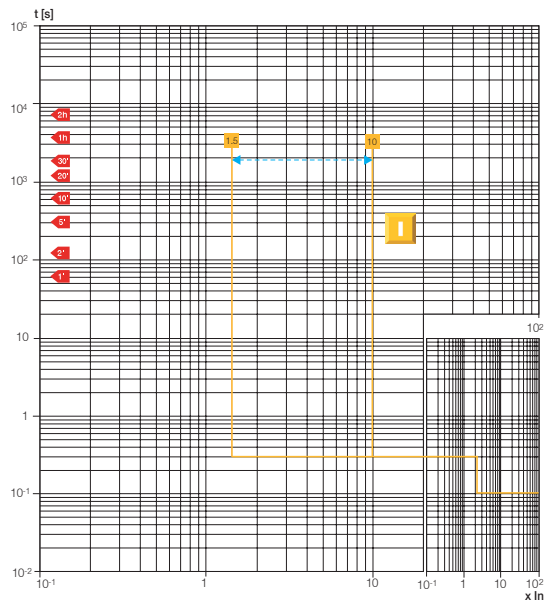
XT2 Ekip M Touch LRIU
R function - JAM



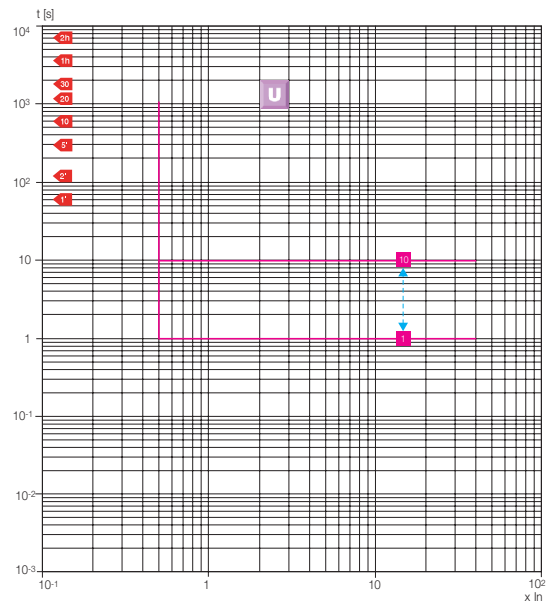
XT2 Ekip M Touch LRIU
R function - STALL



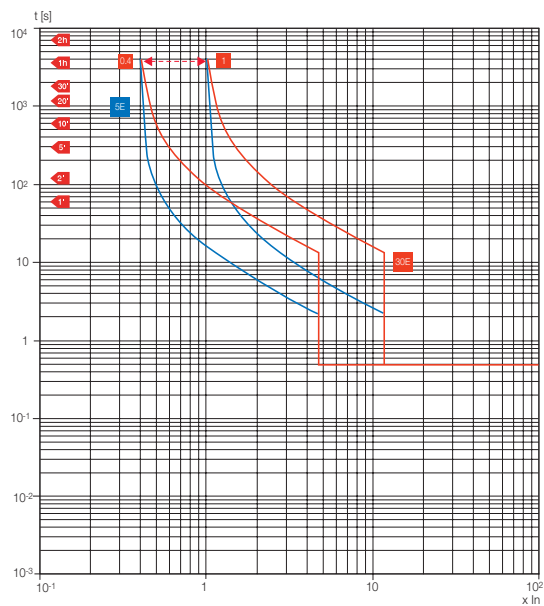
XT2 Ekip M Touch LRIU I function



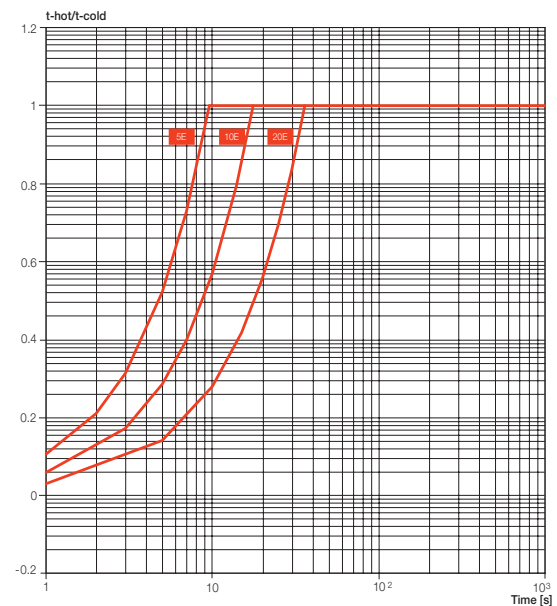
XT2 Ekip M Touch LRIU U function



XT4 Ekip M Touch LRIU L function (cold trip)



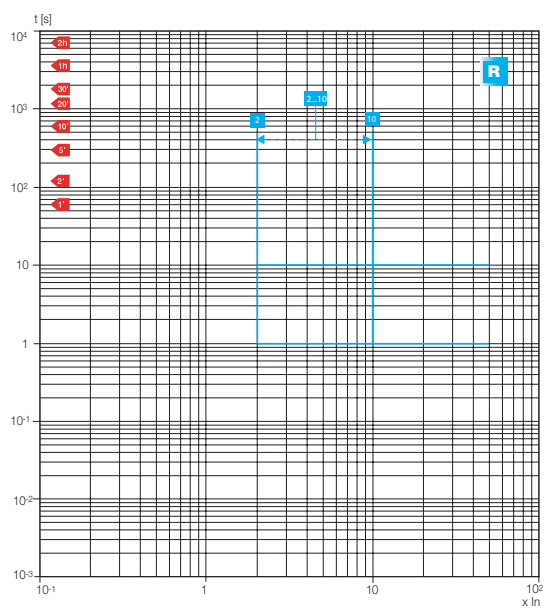
XT4 Ekip M Touch LRIU (hot trip)



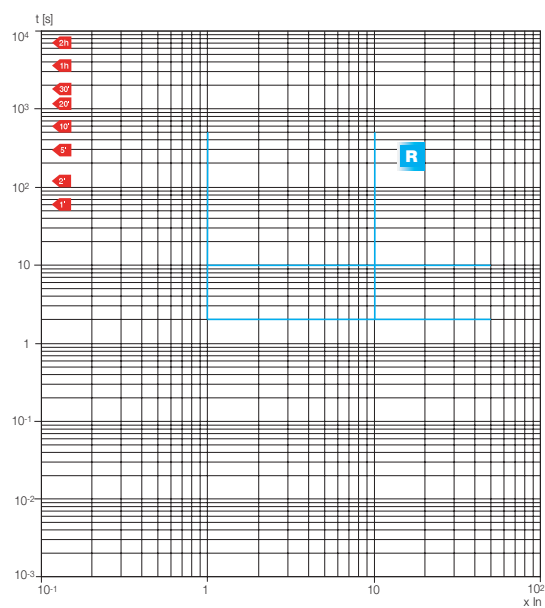
Characteristic curves

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

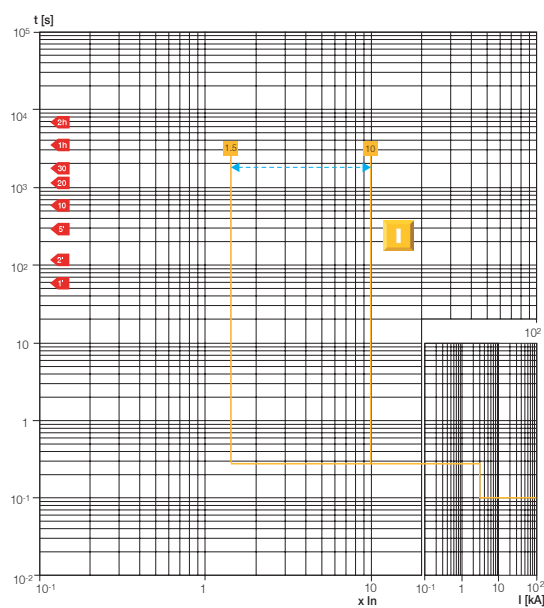
XT4 Ekip M Touch LRIU
R function - JAM



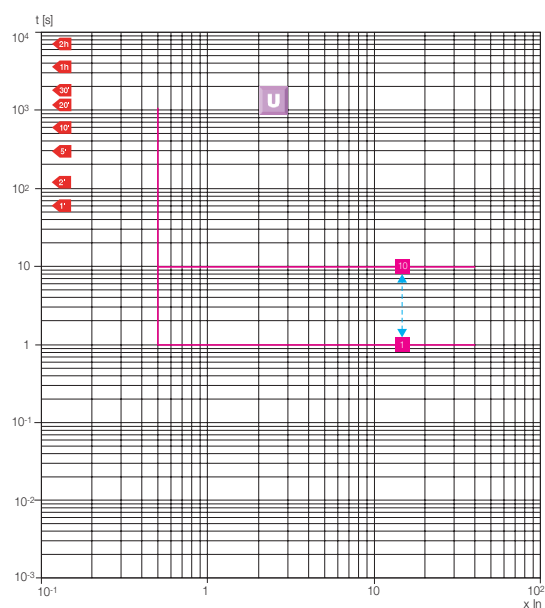
XT4 Ekip M Touch LRIU
R function - STALL



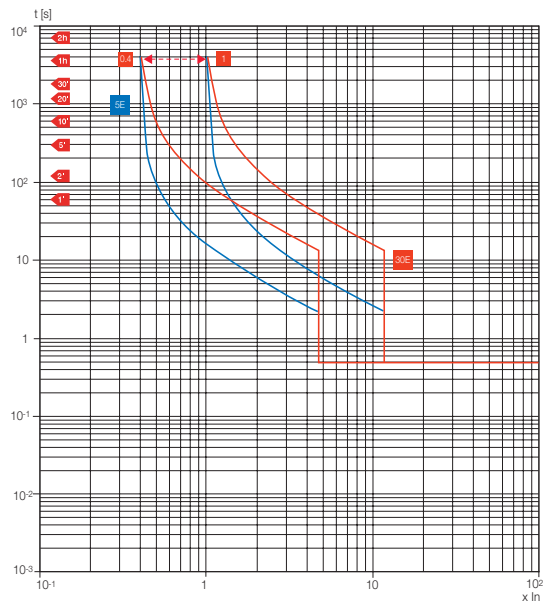
XT4 Ekip M Touch LRIU
I function



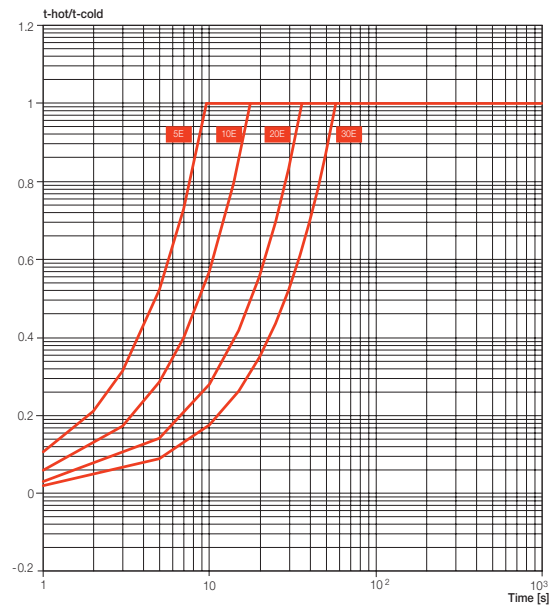
XT4 Ekip M Touch LRIU
U function



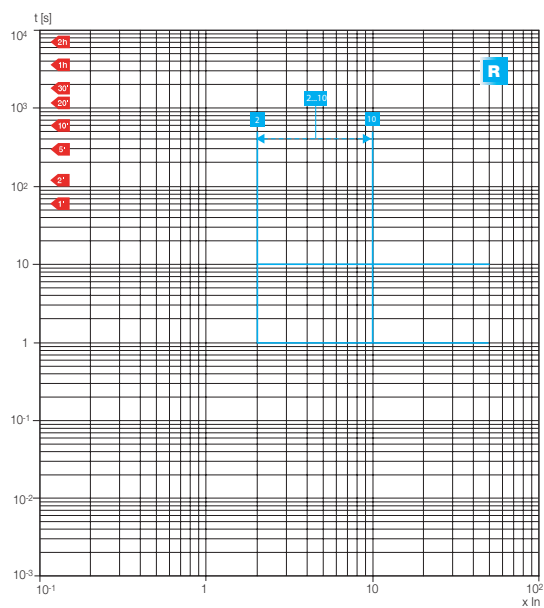
XT5 Ekip M Touch LRIU
L function (cold trip)



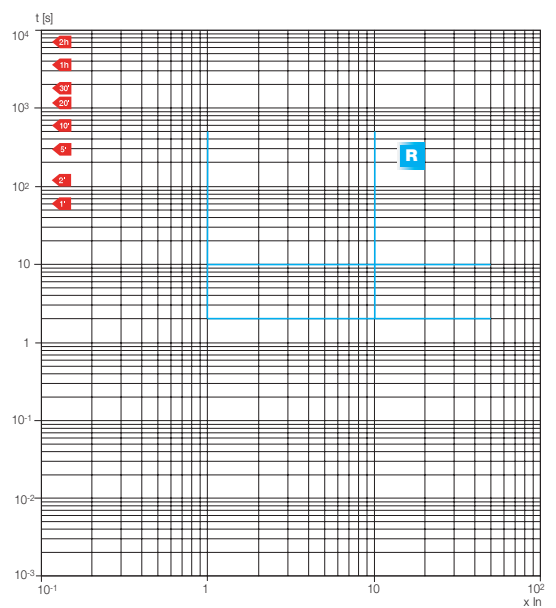
XT5 Ekip M Touch LRIU
(hot trip)



XT5 Ekip M Touch LRIU
R function - JAM



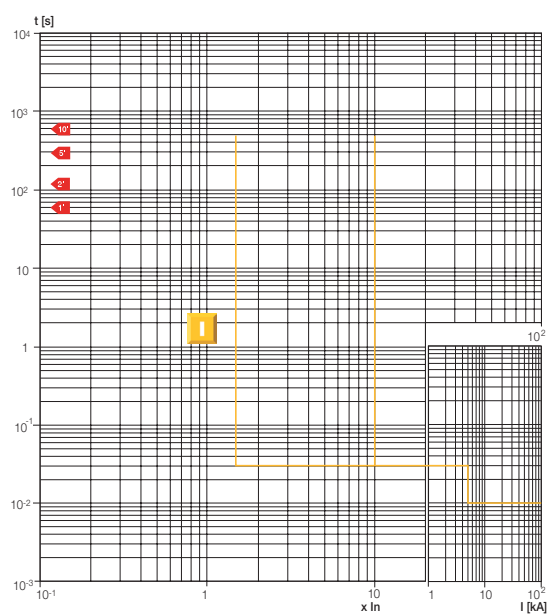
XT5 Ekip M Touch LRIU
R function - STALL



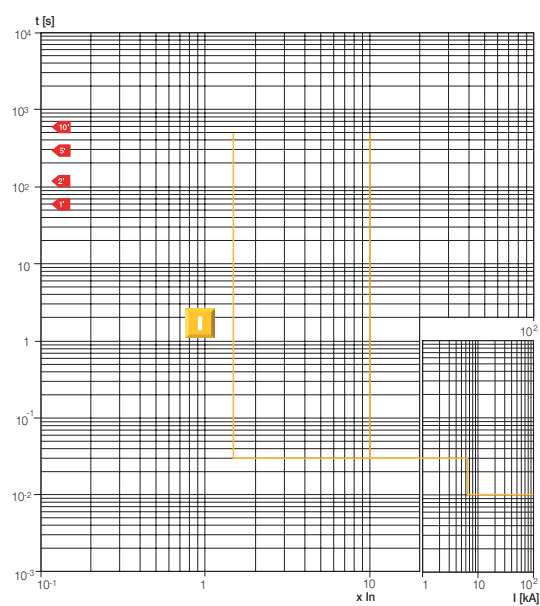
Characteristic curves

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

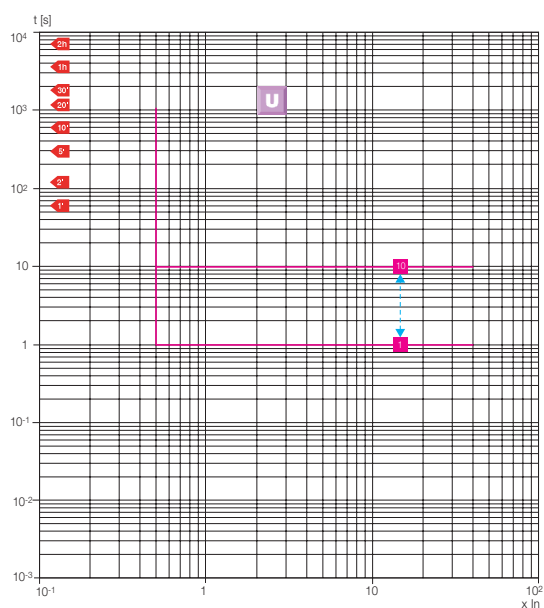
XT5 400 Ekip M Touch LRIU
I function



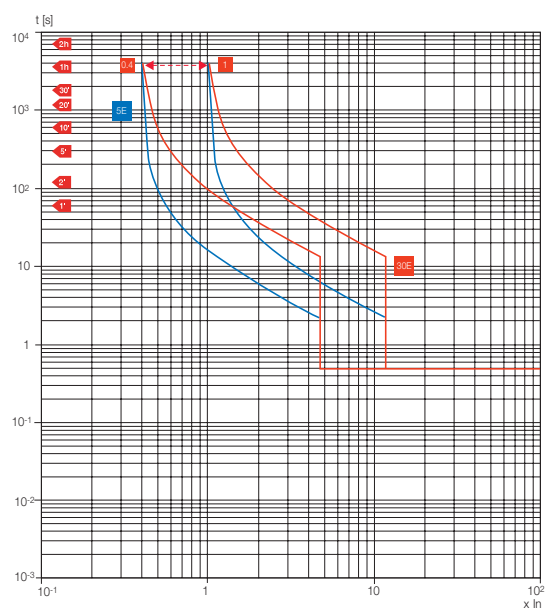
XT5 630 Ekip M Touch LRIU
I function



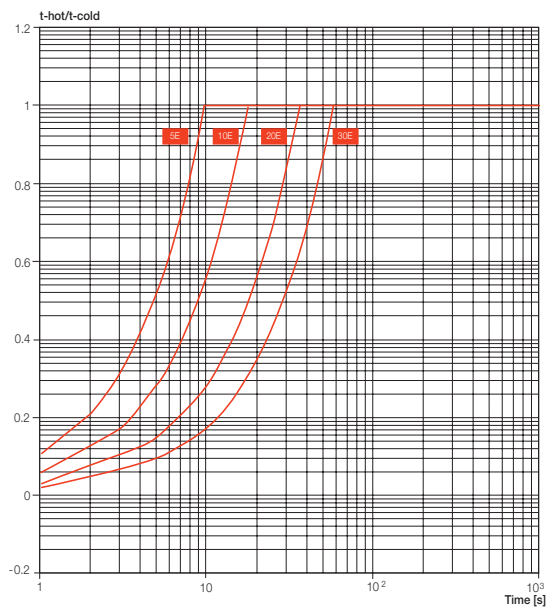
XT5 Ekip M Touch LRIU
U function



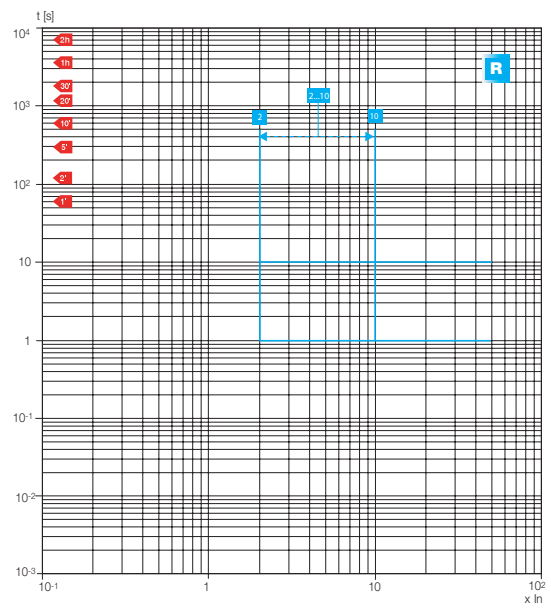
XT7 – XT7 M Ekip M Touch LRIU
L function (cold trip)



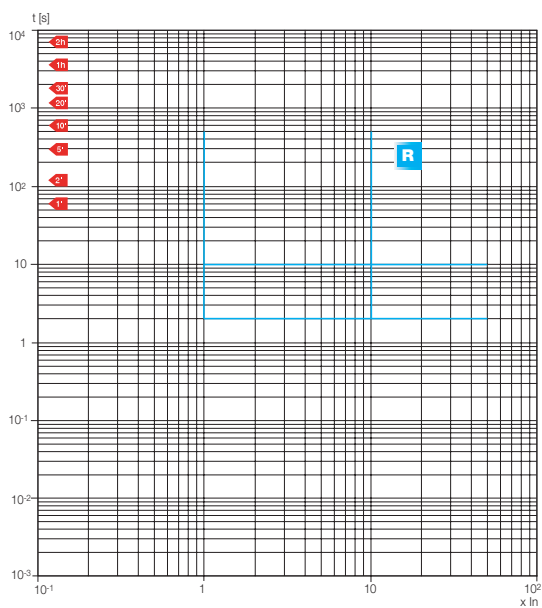
XT7-XT7M Ekip M Touch LRIU (hot trip)



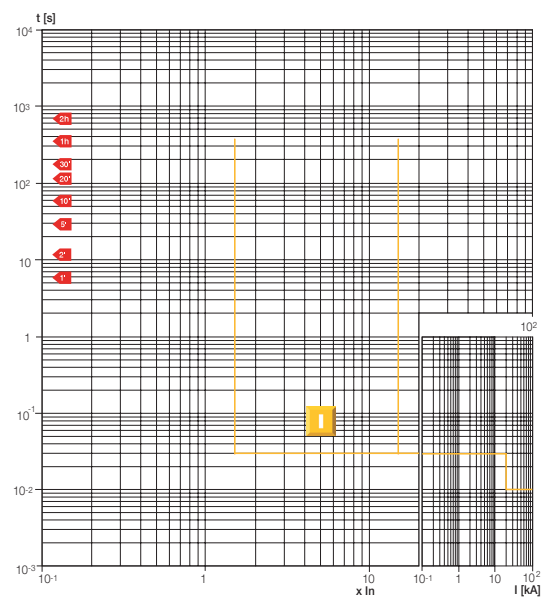
XT7 – XT7 M Ekip M Touch LRIU R function - JAM



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



XT7 – XT7 M Ekip M Touch LRIU I function

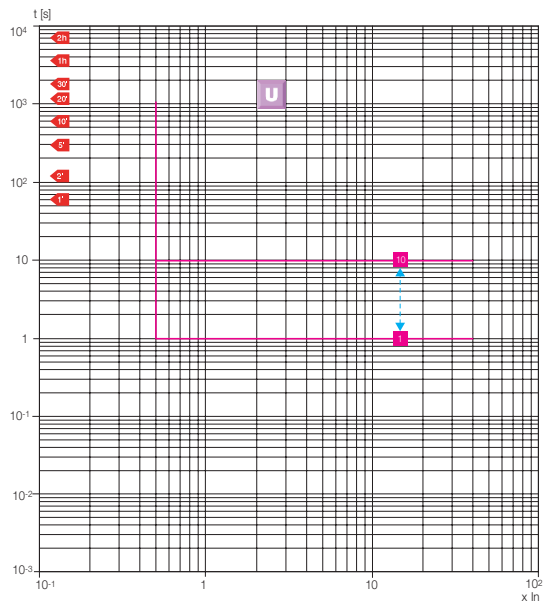


Characteristic curves

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

XT7 – XT7 M Ekip M Touch LRIU

U function

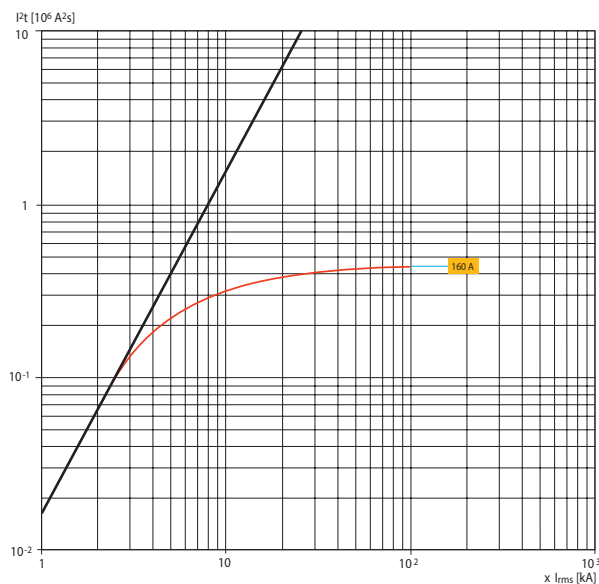


Characteristic curves

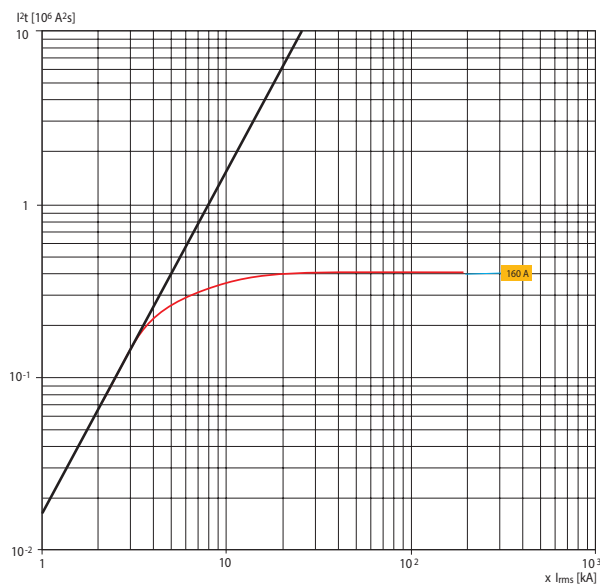
Specific let-through energy curves

240V

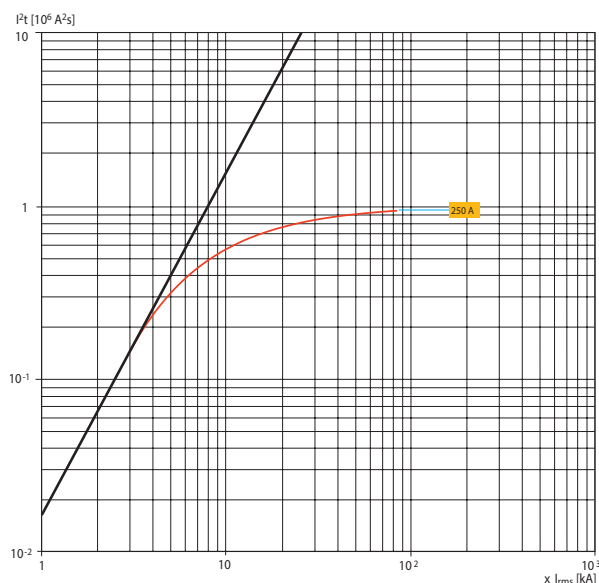
XT1
240V



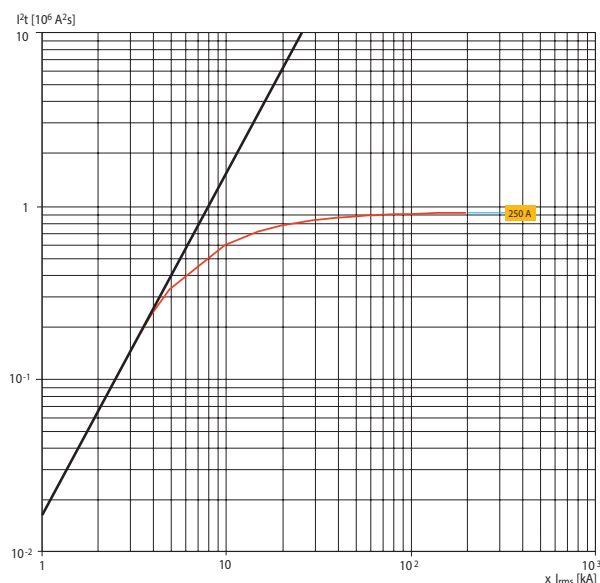
XT2
240V



XT3
240V

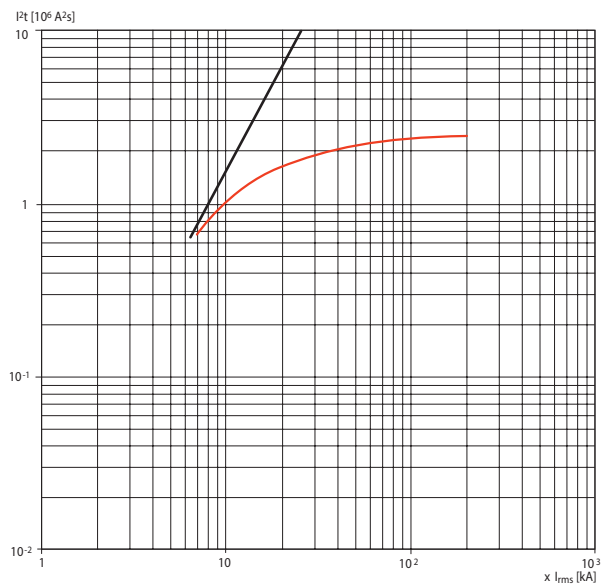


XT4
240V

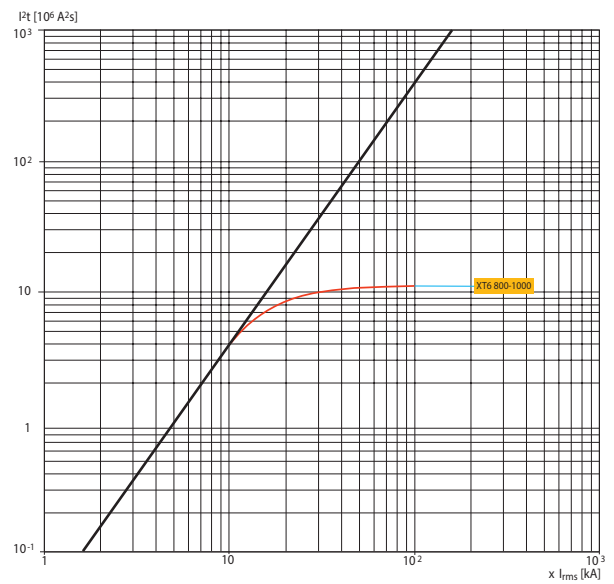


240V

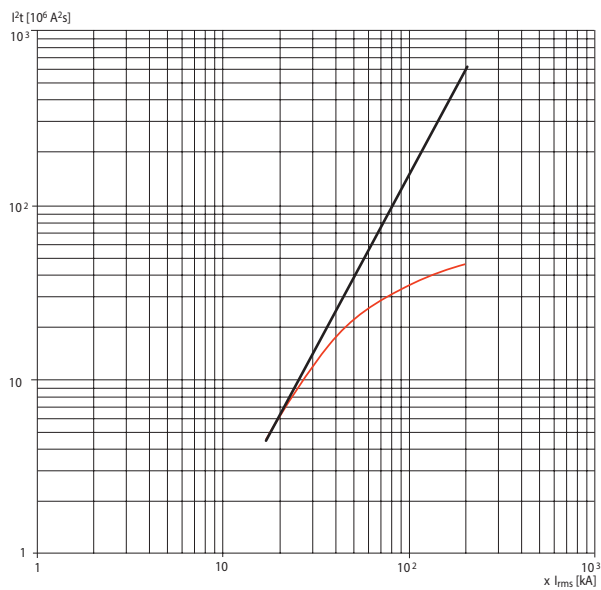
XT5
240V



XT6
240V



XT7 - XT7 M S-H-L
240V

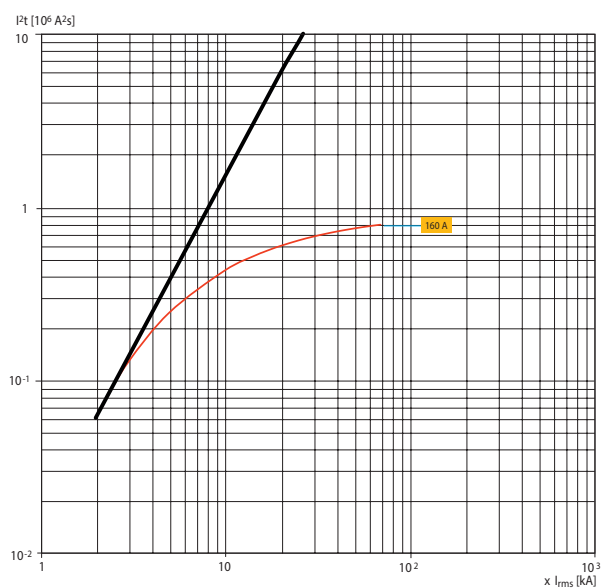


Characteristic curves

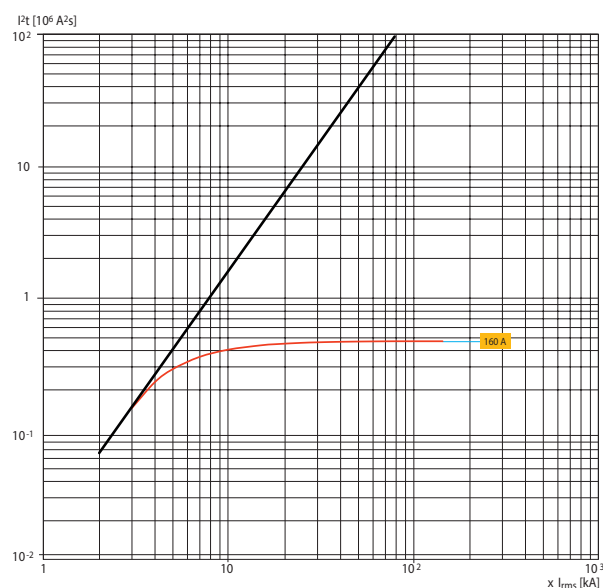
Specific let-through energy curves

415V

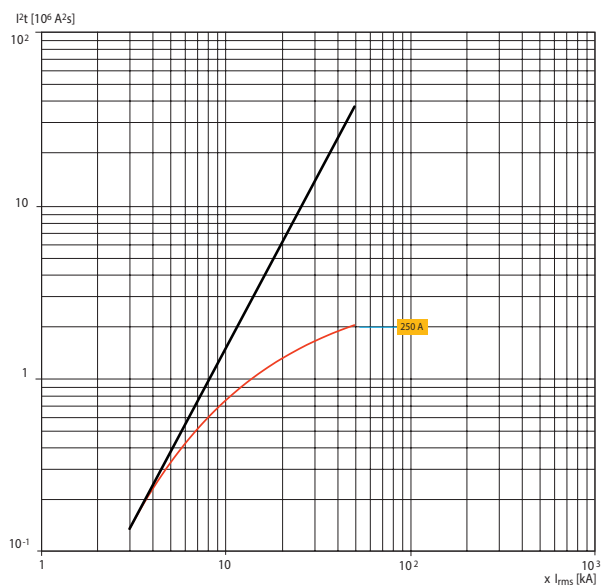
XT1
415V



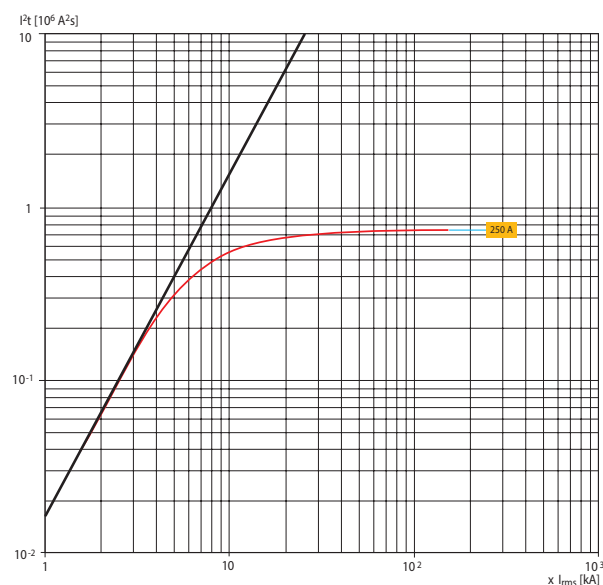
XT2
415V



XT3
415V

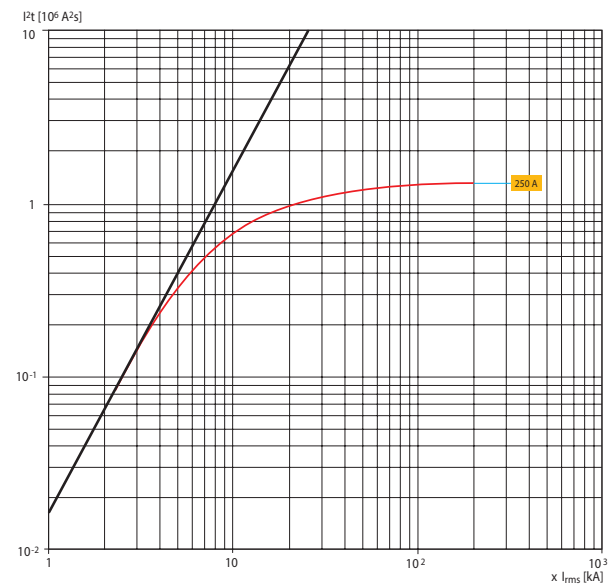


XT4 N-S-H-L
415V

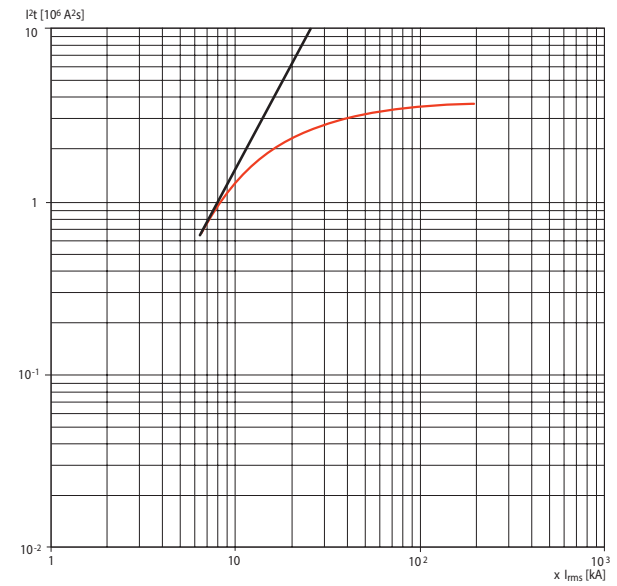


415V

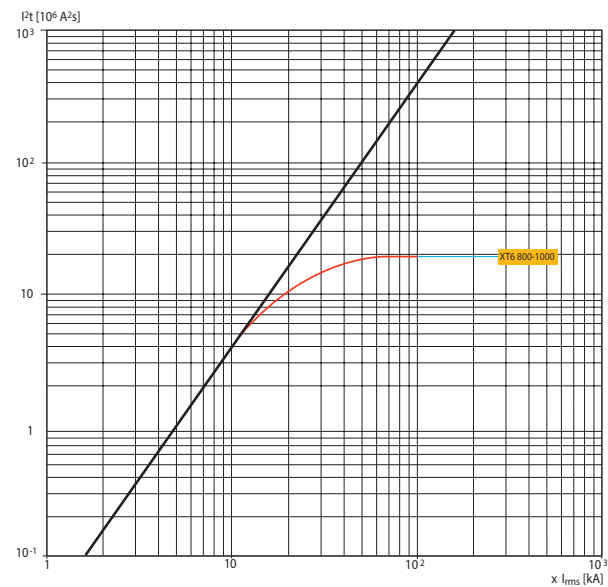
XT4 V-X
415V



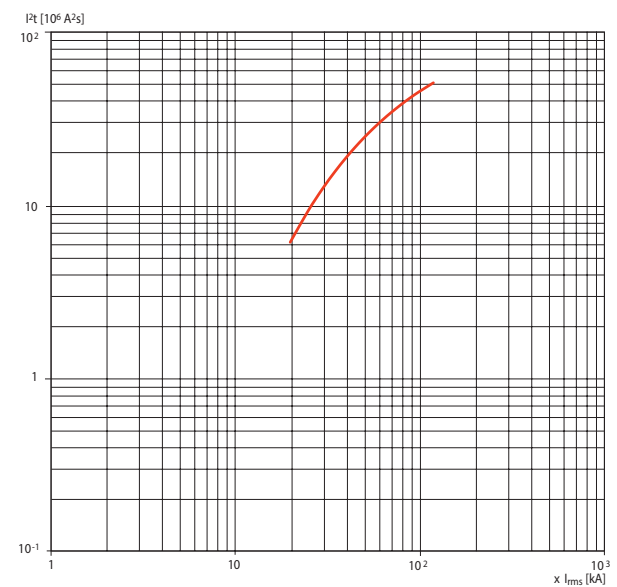
XT5
415V



XT6
415V



XT7 - XT7 M S-H-L
415V

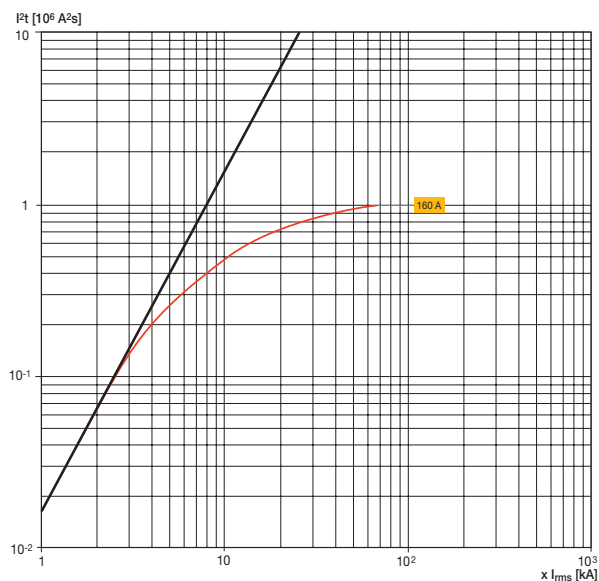


Characteristic curves

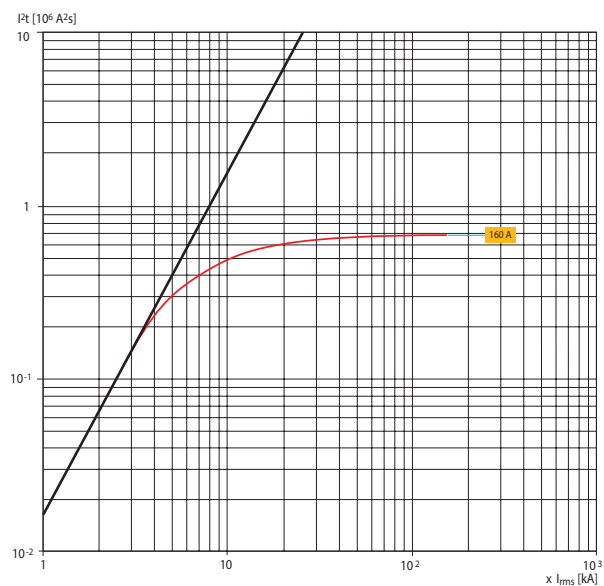
Specific let-through energy curves

440V

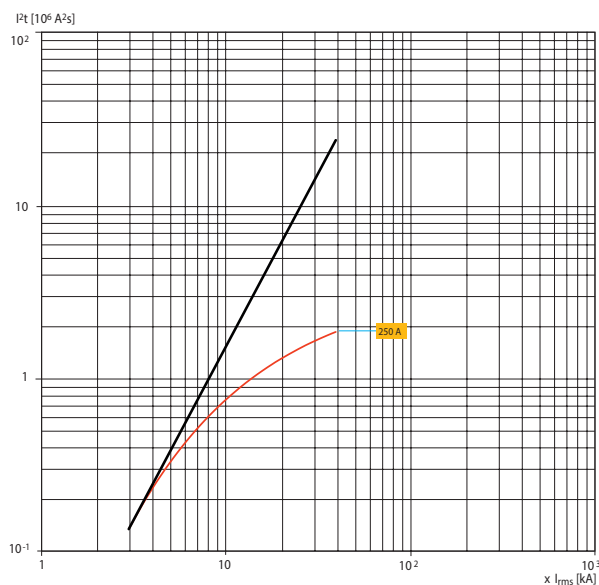
XT1
440V



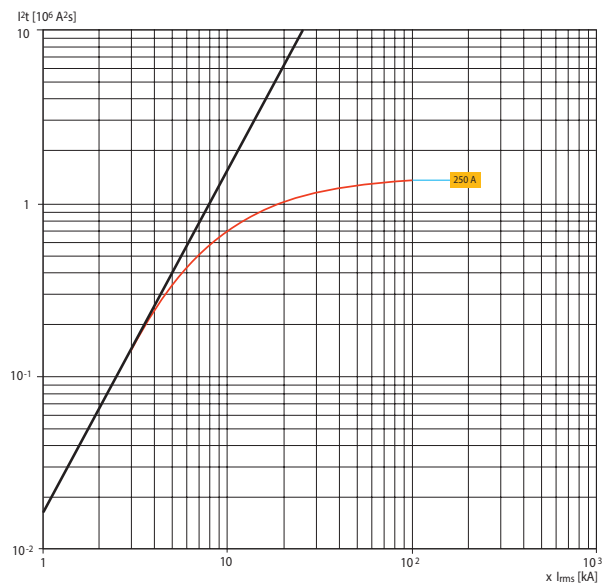
XT2
440V



XT3
440V

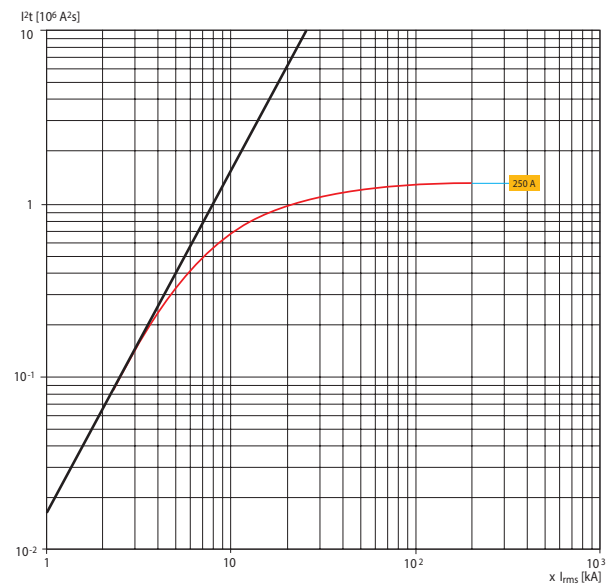


XT4 N-S-H-L
440V

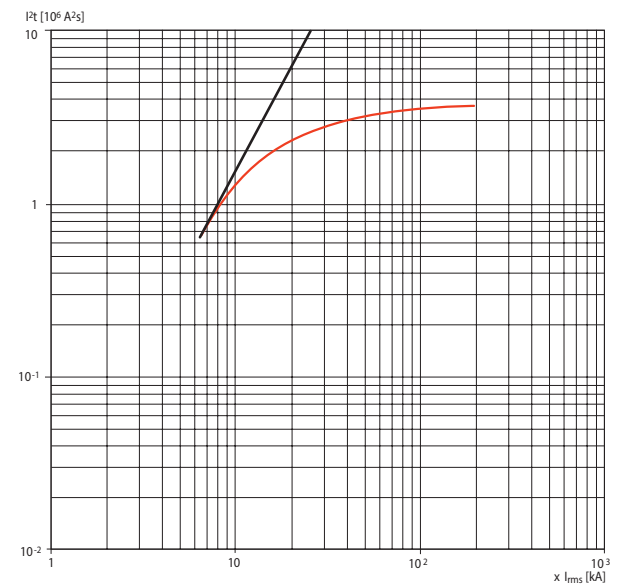


440V

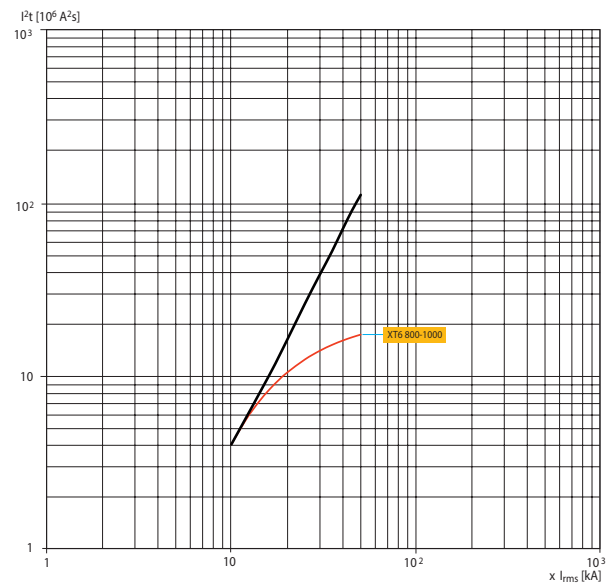
XT4 V-X
440V



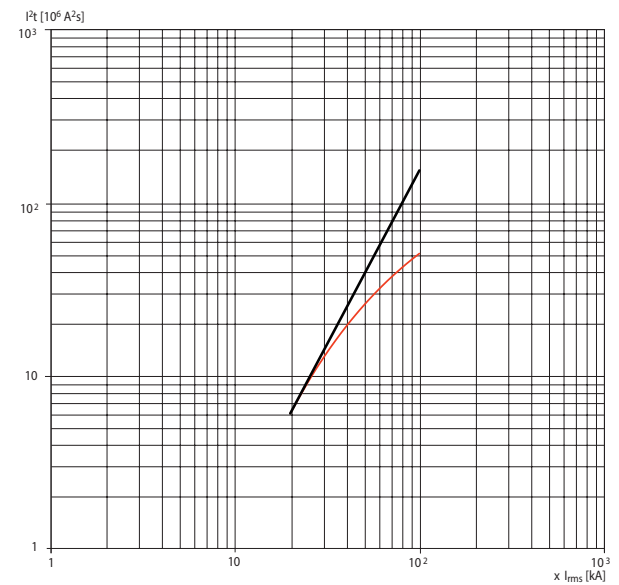
XT5
440V



XT6
440V



XT7 - XT7 M S-H-L
440V

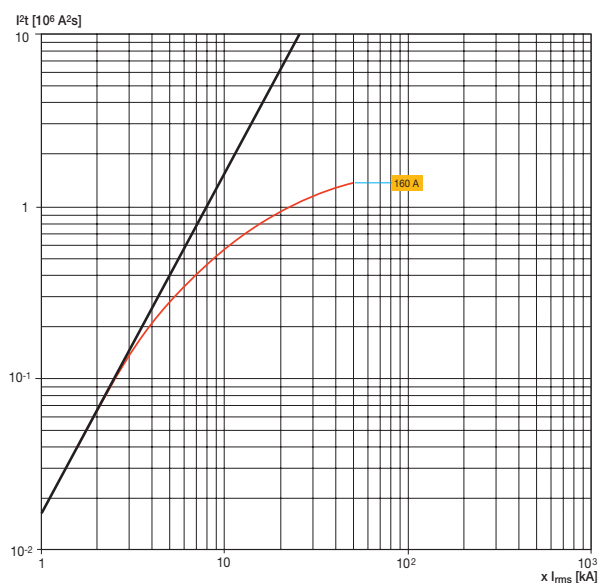


Characteristic curves

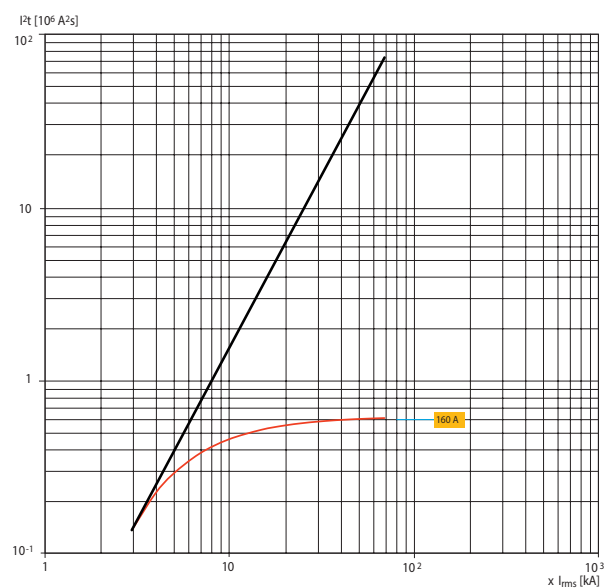
Specific let-through energy curves

500V

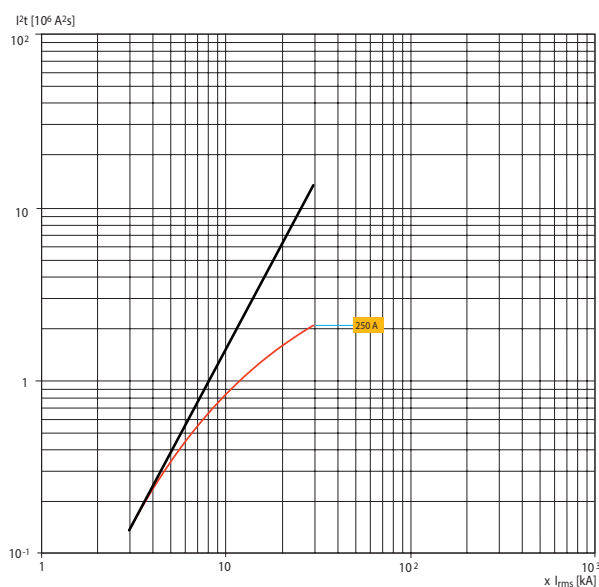
XT1
500V



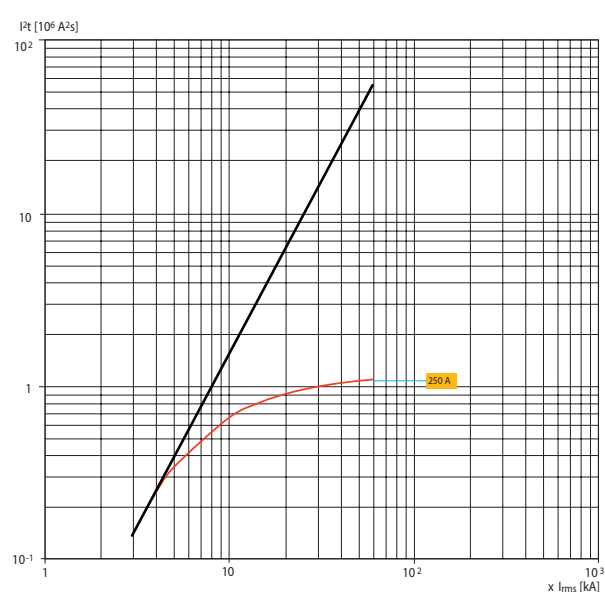
XT2
500V



XT3
500V

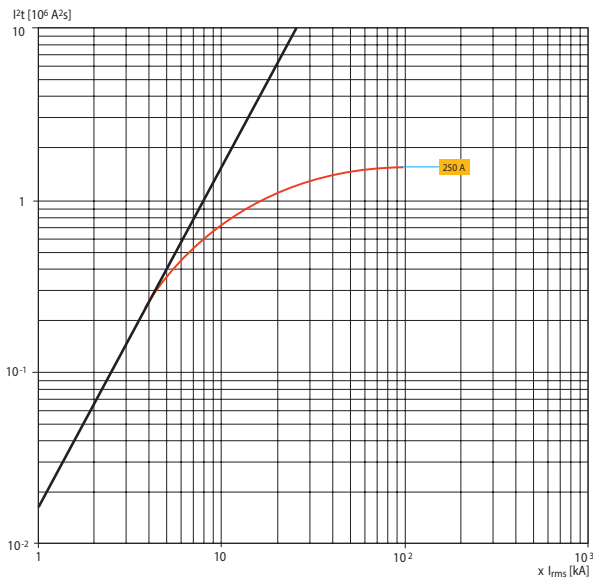


XT4 N-S-H-L
500V



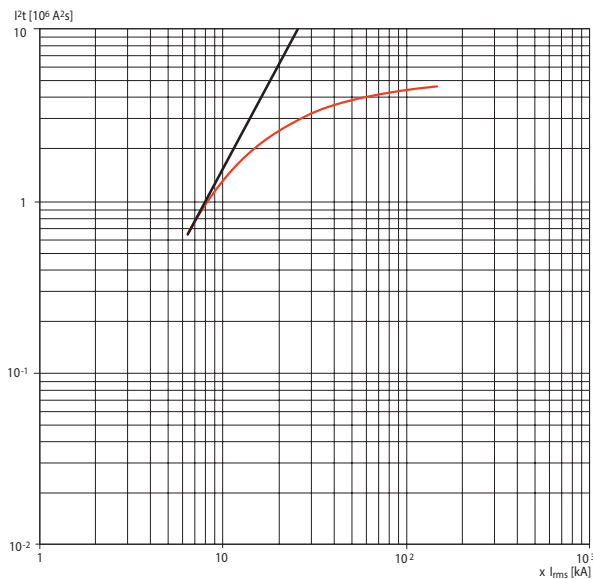
500V

XT4 V-X
500V

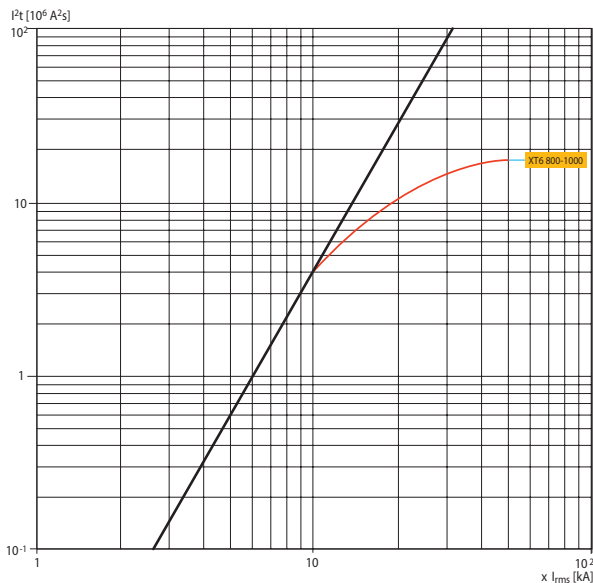


Note: XT4X starting from $I_n=32\text{A}$

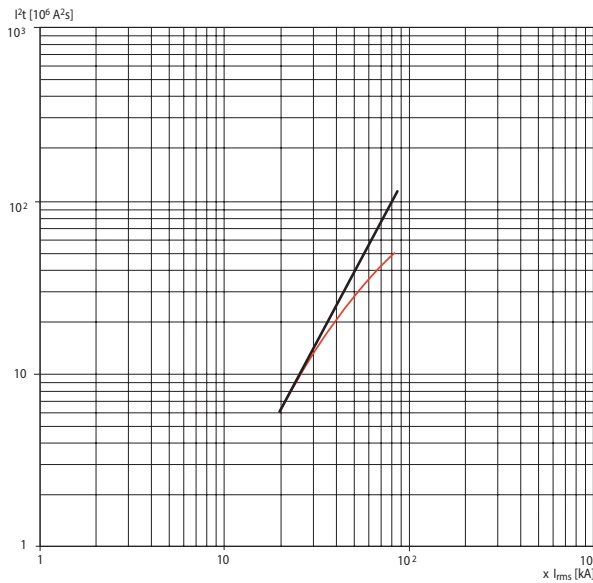
XT5
500V



XT6
500V



XT7 - XT7 M S-H-L
500V

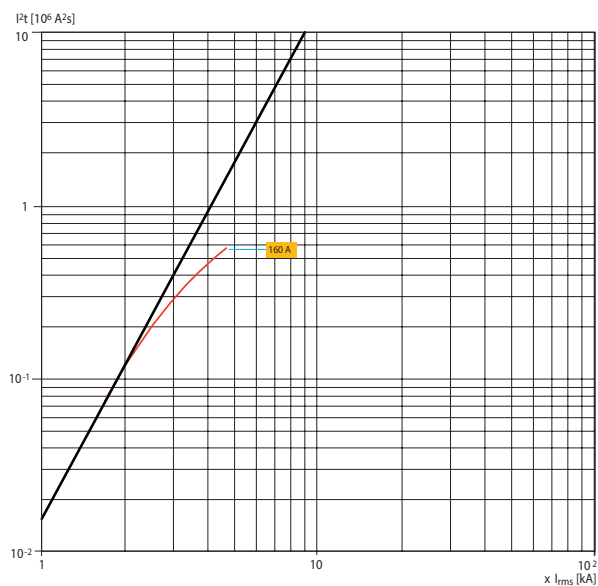


Characteristic curves

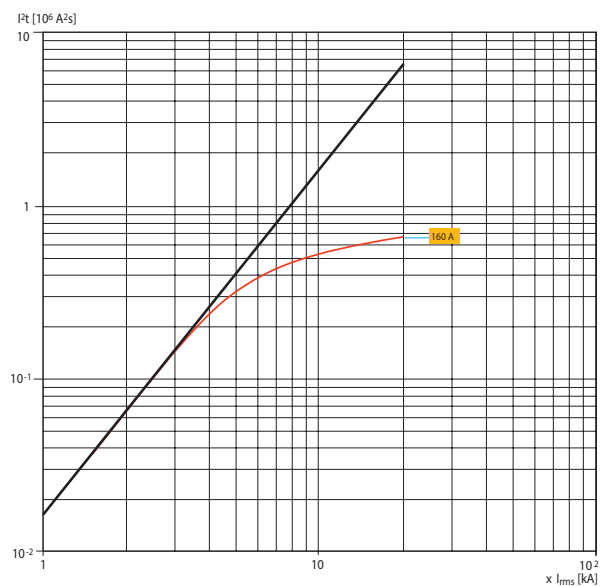
Specific let-through energy curves

690V

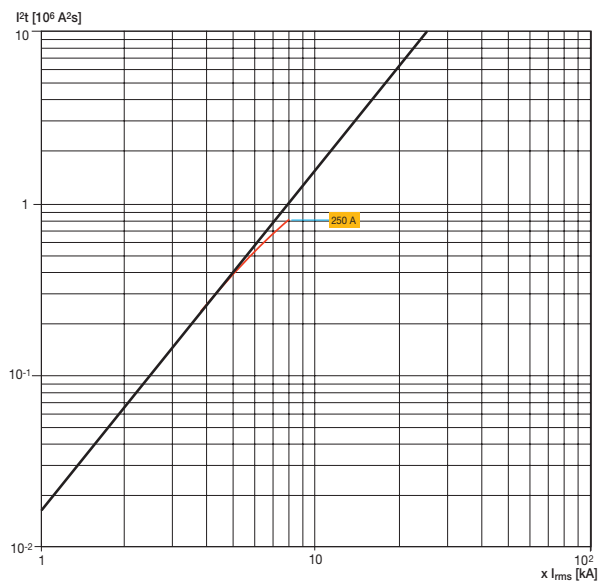
**XT1
690V**



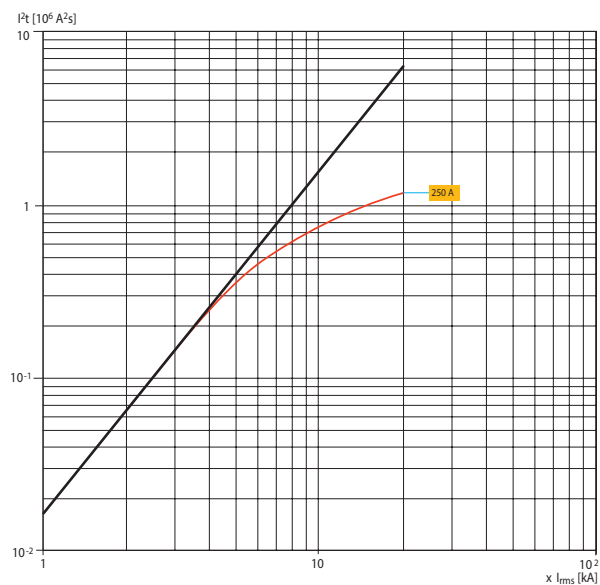
**XT2
690V**



**XT3
690V**

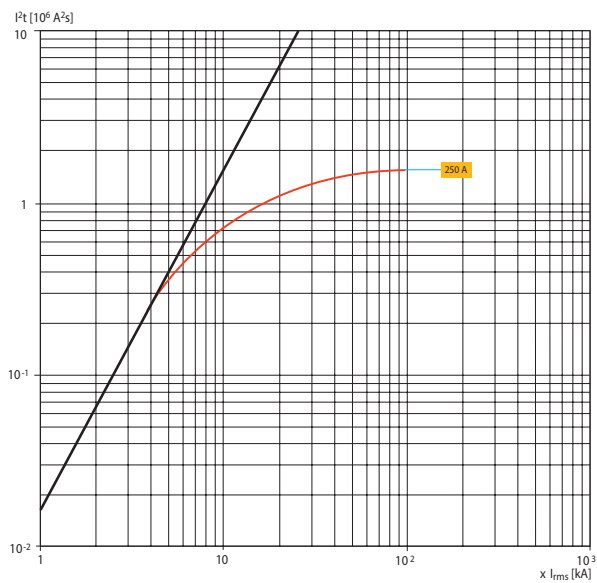


**XT4 N-S-H-L
690V**



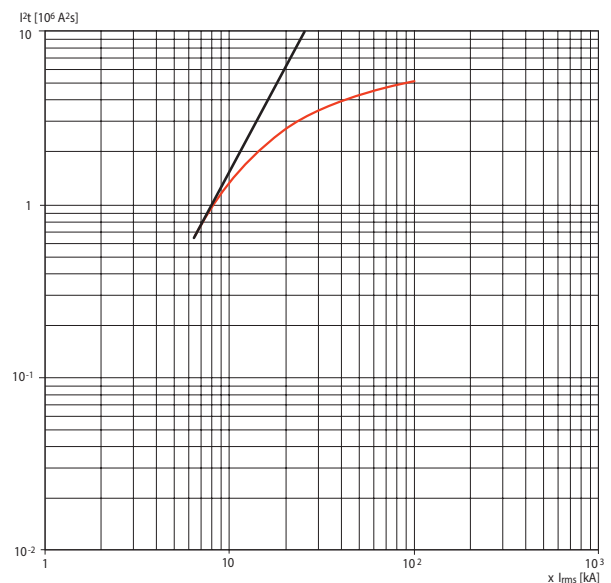
690V

**XT4 V-X
690V**

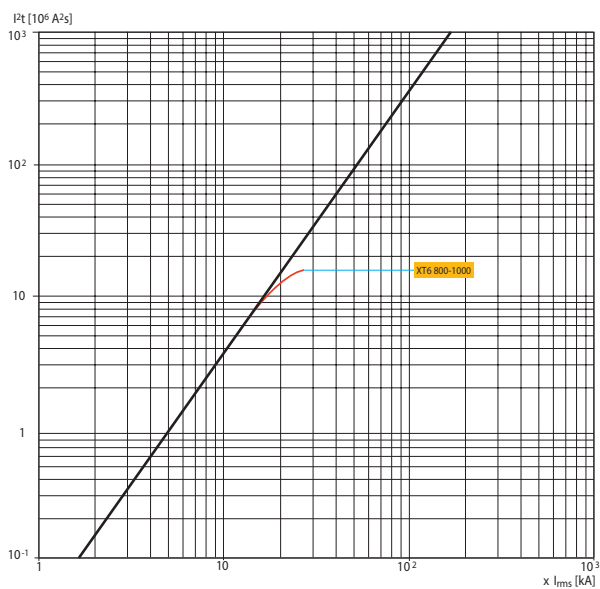


Note: XT4X starting from $I_n=32A$

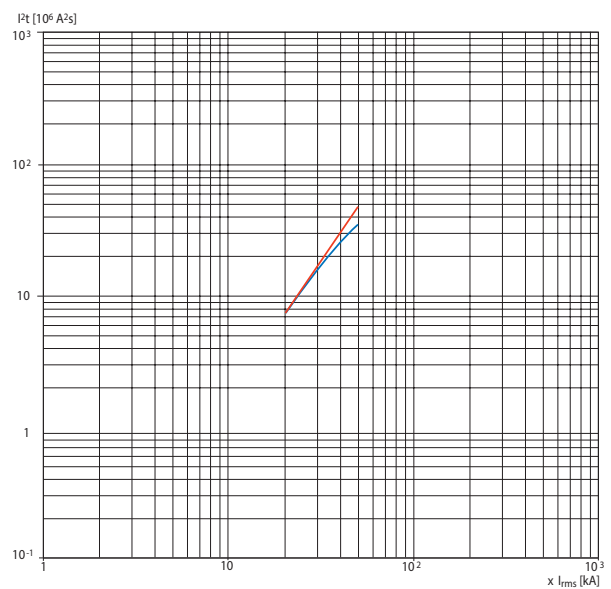
**XT5
690V**



**XT6 800/1000
690V**



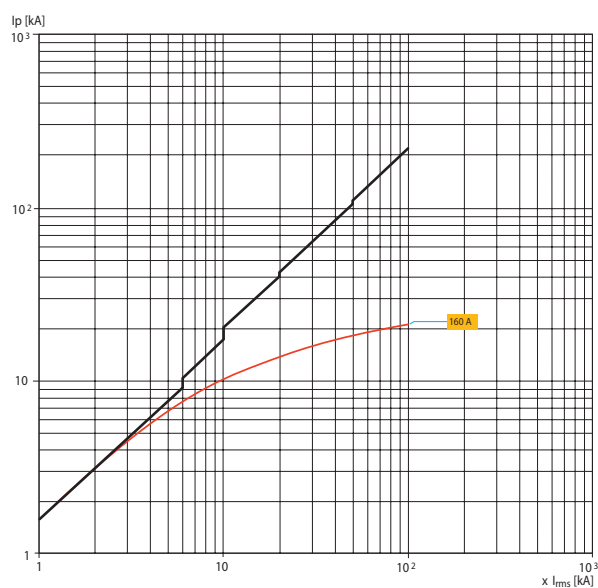
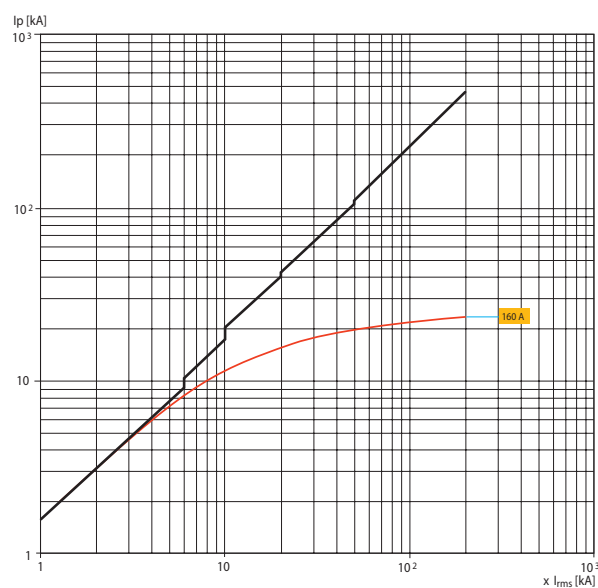
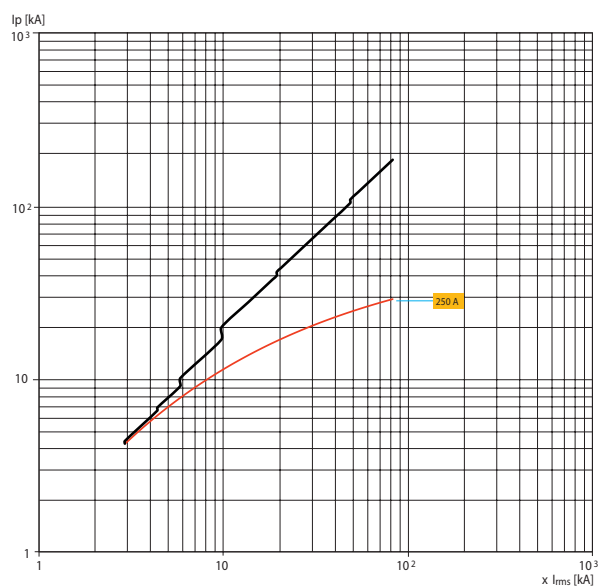
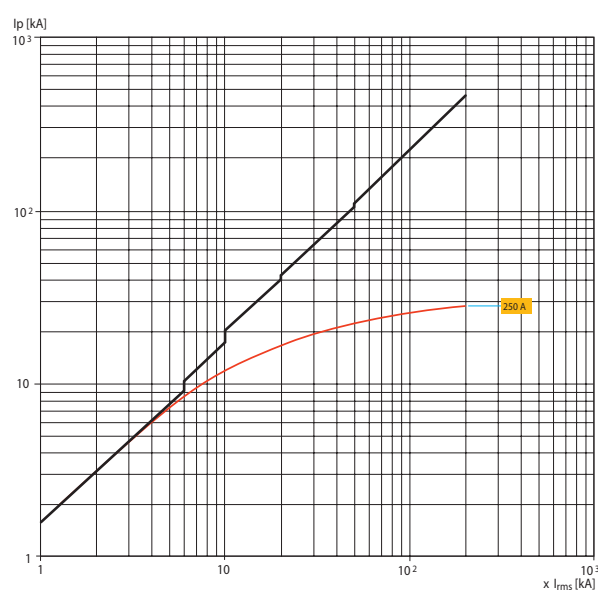
**XT7 - XT7 M S-H-L
690V**



Characteristic curves

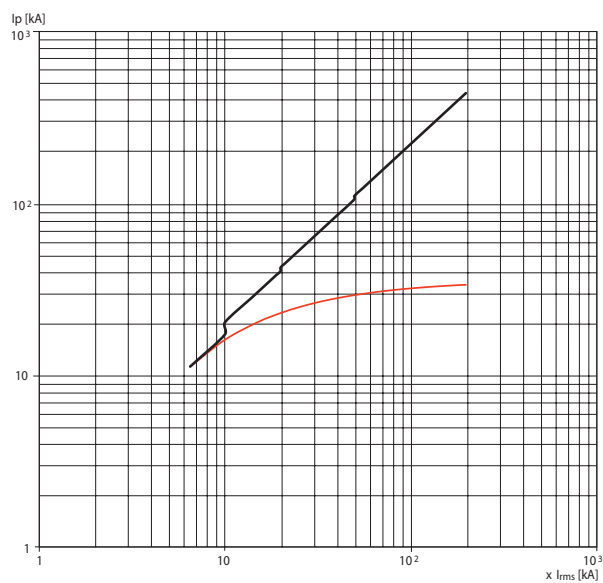
Limiting curves

240V

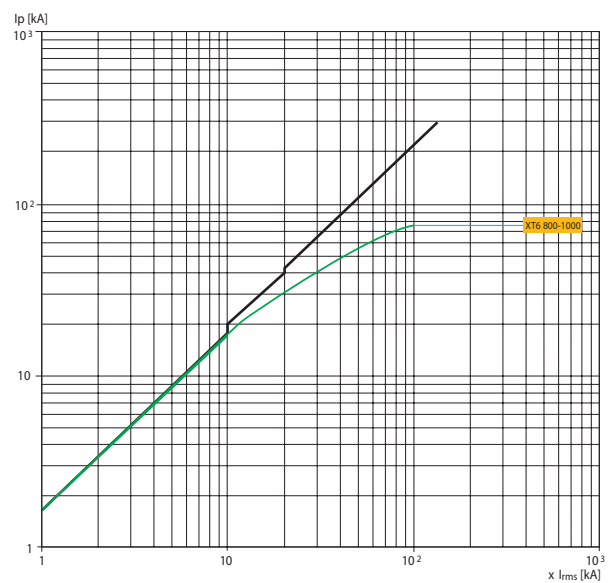
**XT1
240V****XT2
240V****XT3
240V****XT4
240V**

240V

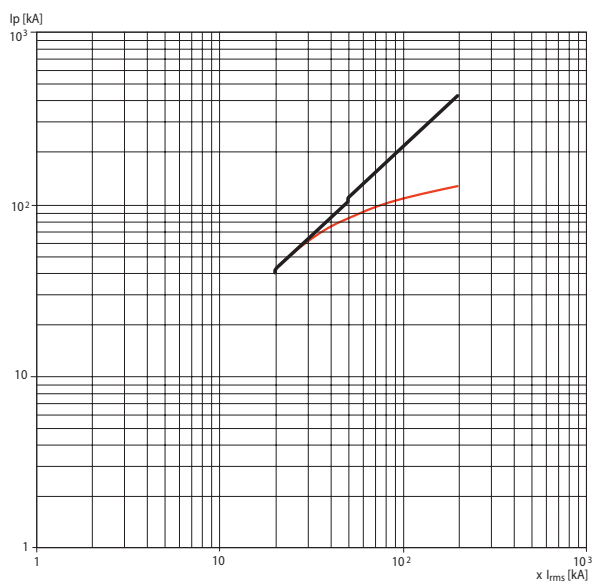
XT5
240V



XT6
240V



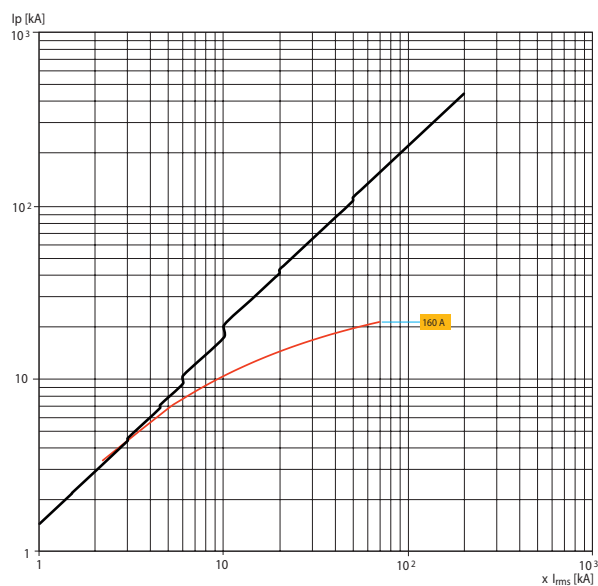
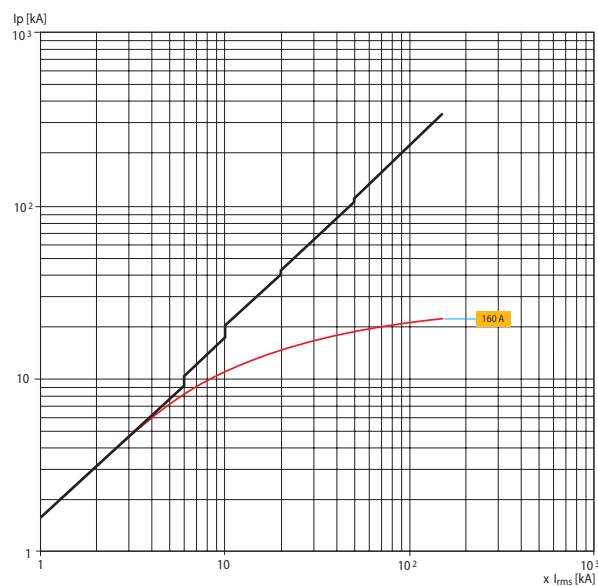
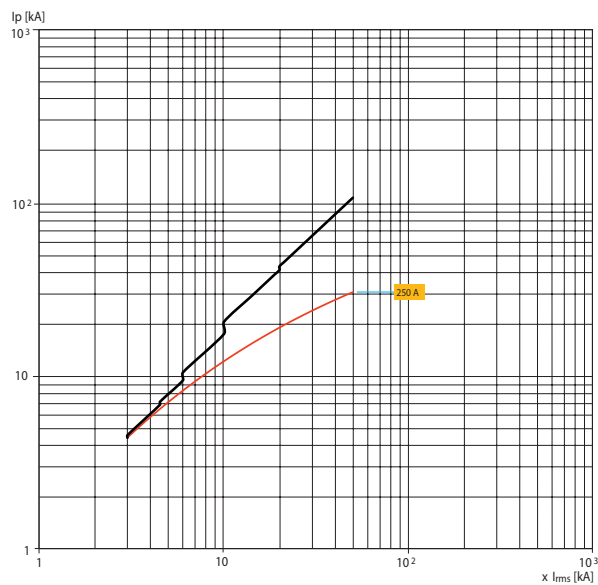
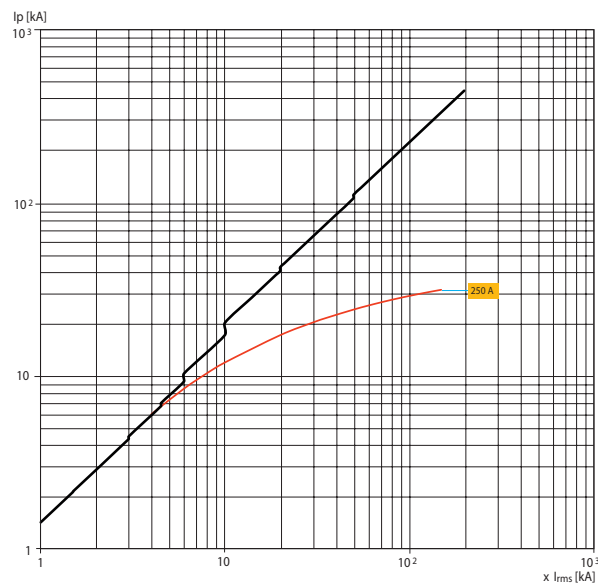
XT7 - XT7 M S-H-L
240V



Characteristic curves

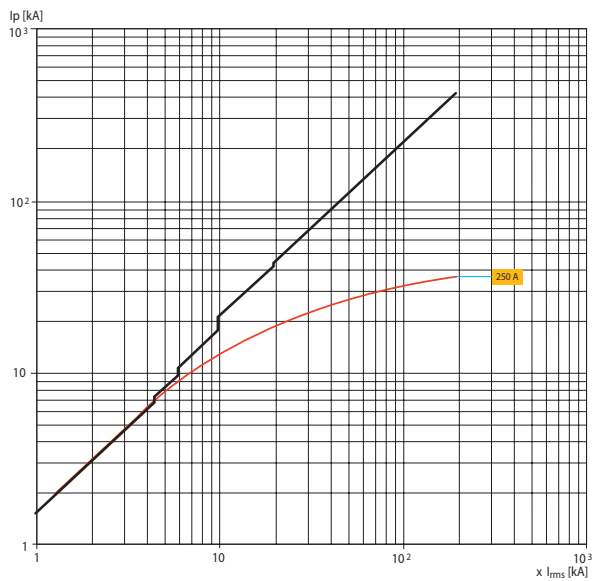
Limiting curves

415V

XT1
415V**XT2**
415V**XT3**
415V**XT4 N-S-H-L**
415V

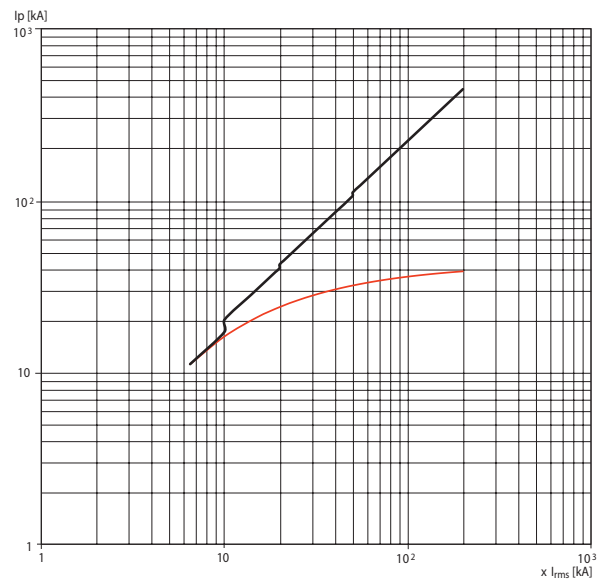
415V

XT4 V-X
415V

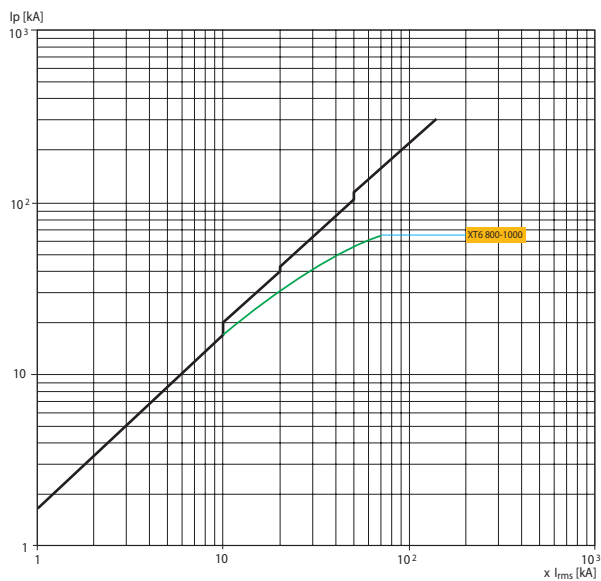


Note: XT4X starting from $I_n=32A$

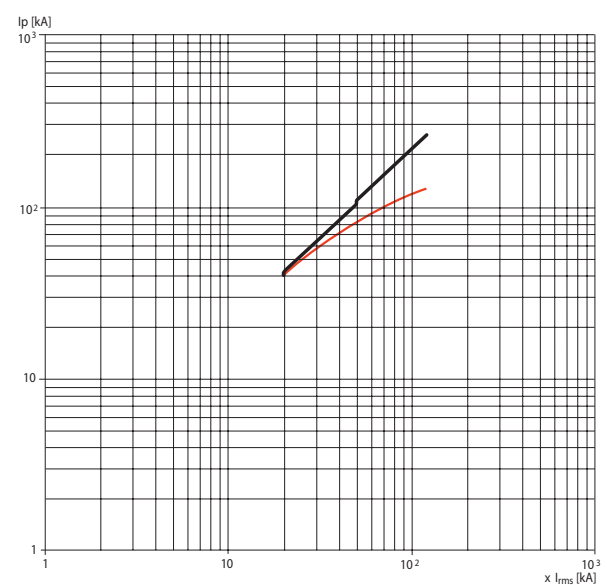
XT5
415V



XT6
415V



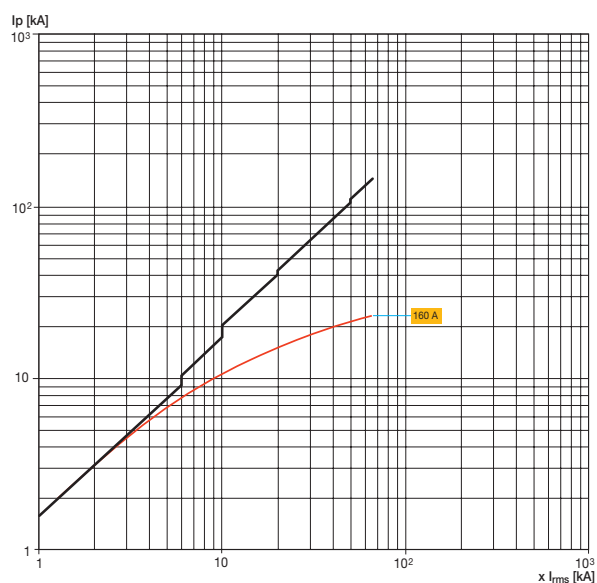
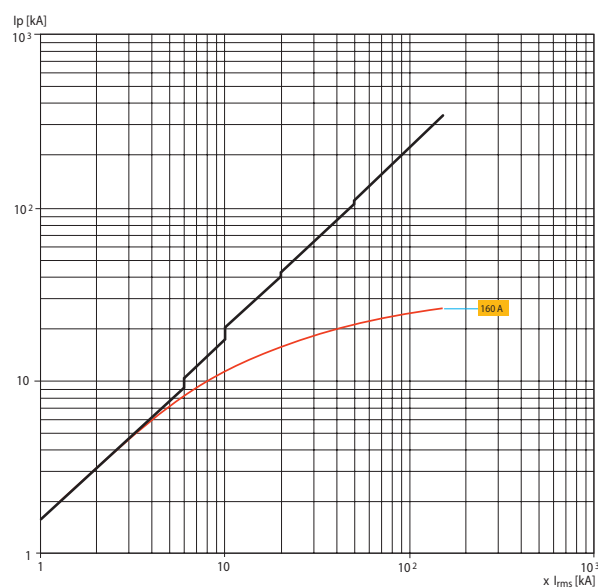
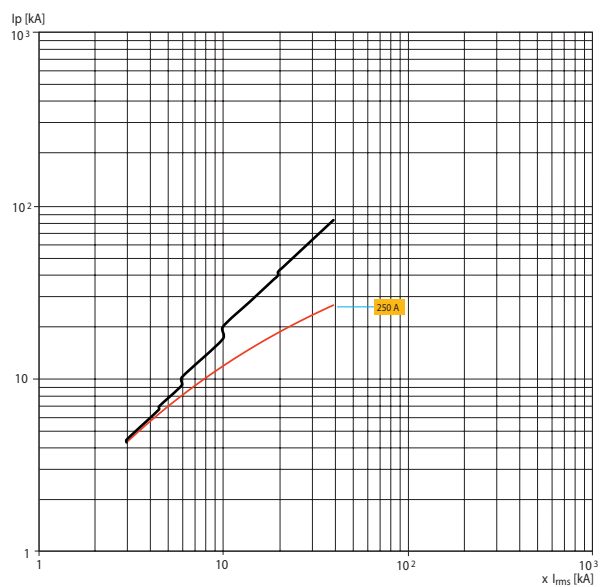
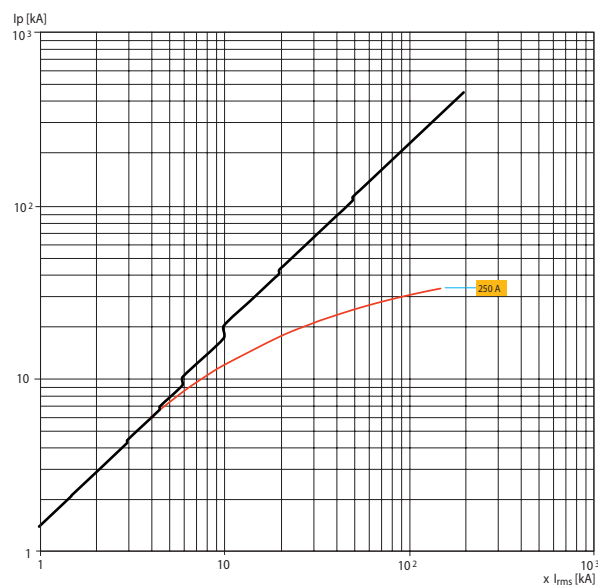
XT7 - XT7 M S-H-L
415V



Characteristic curves

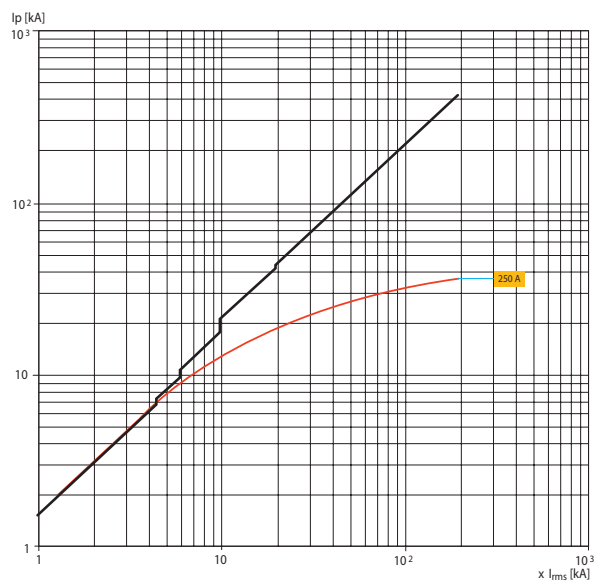
Limiting curves

440V

**XT1
440V****XT2
440V****XT3
440V****XT4 N-S-H-L
440V**

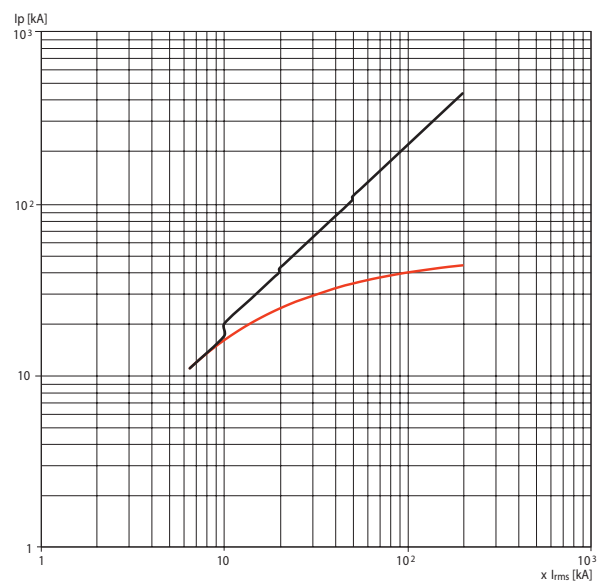
440V

XT4 V-X
440V

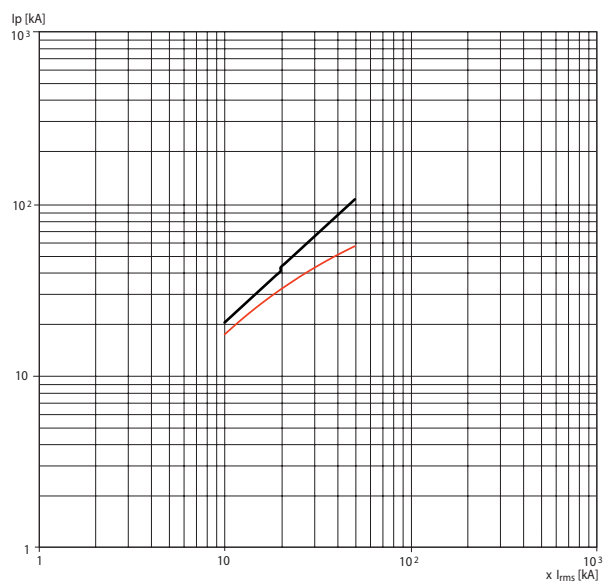


Note: XT4X starting from $I_n=32A$

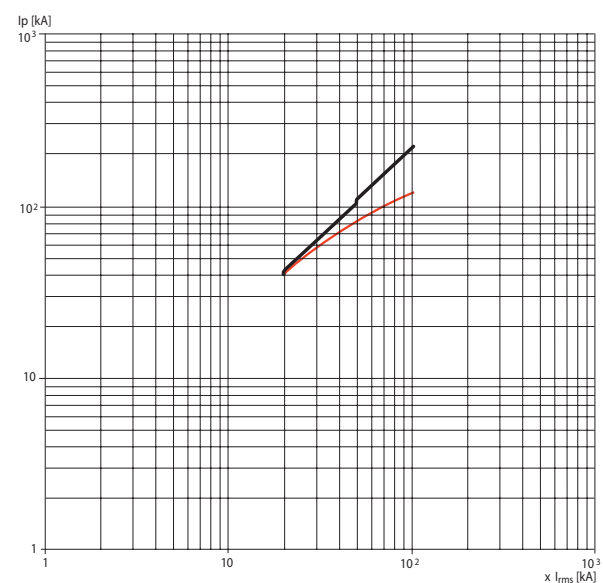
XT5
440V



XT6
440V



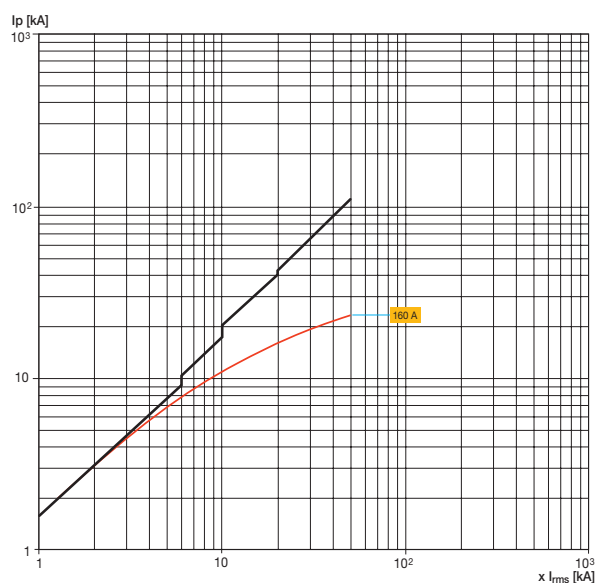
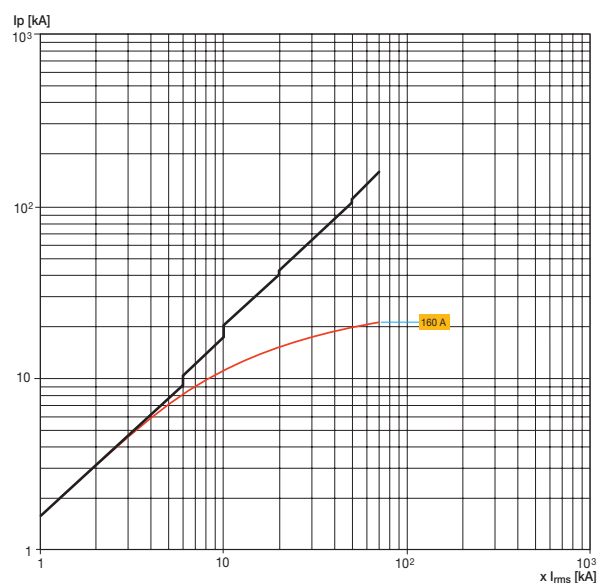
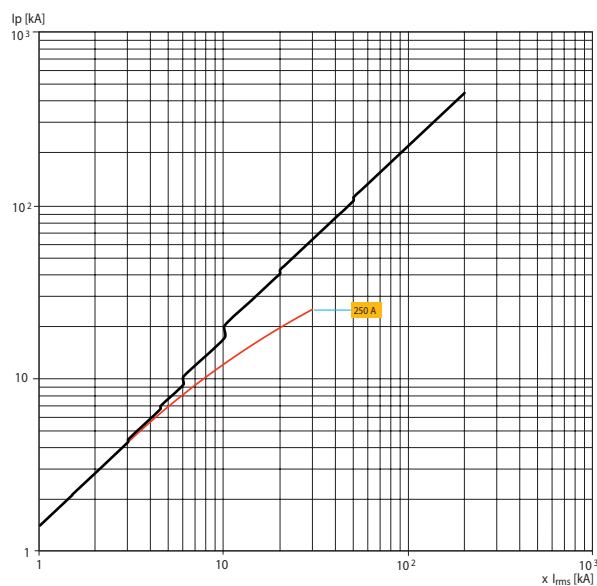
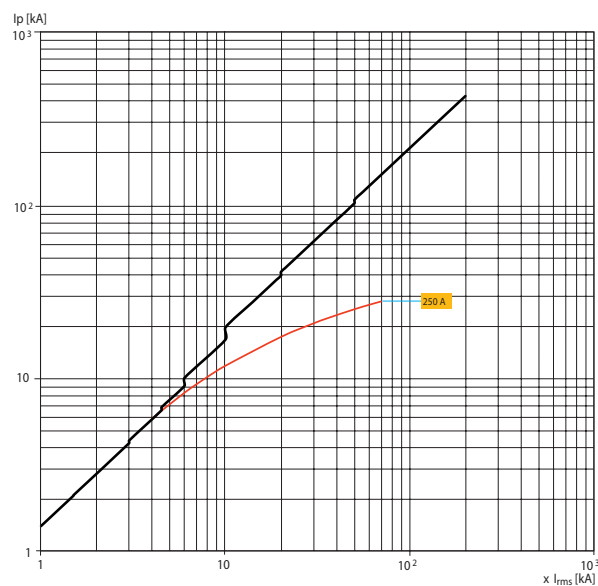
XT7 - XT7 M S-H-L
440V



Characteristic curves

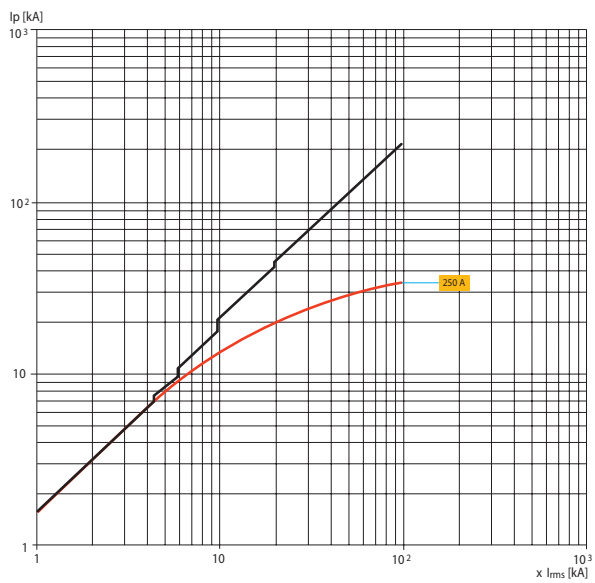
Limiting curves

500V

**XT1
500V****XT2
500V****XT3
500V****XT4 N-S-H-L
500V**

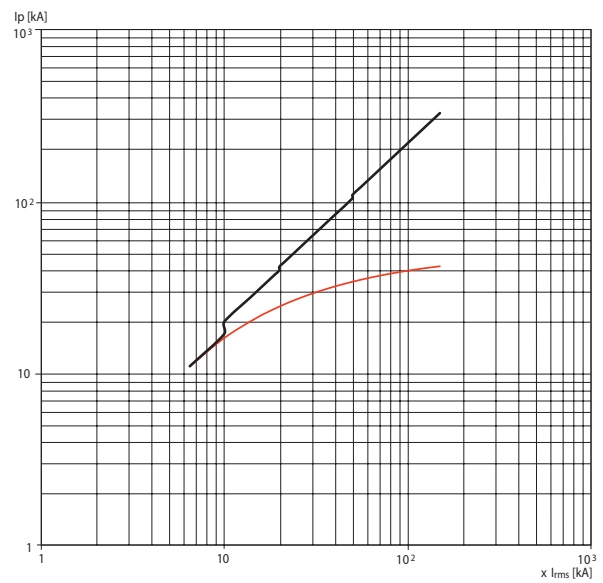
500V

XT4 V-X
500V

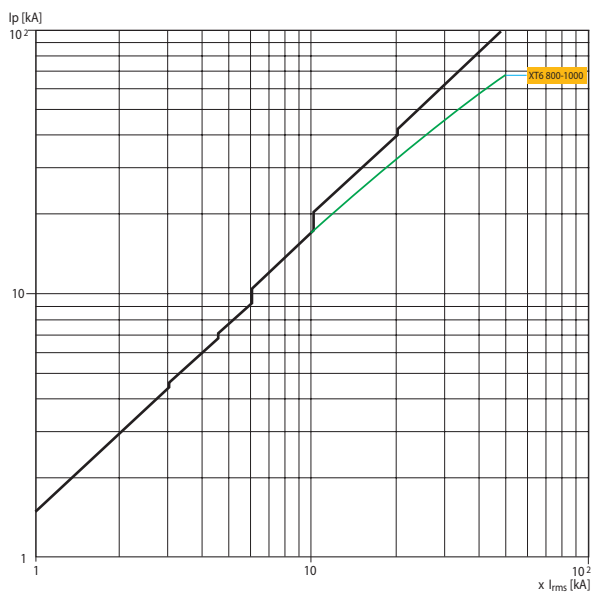


Note: XT4X starting from $I_n=32A$

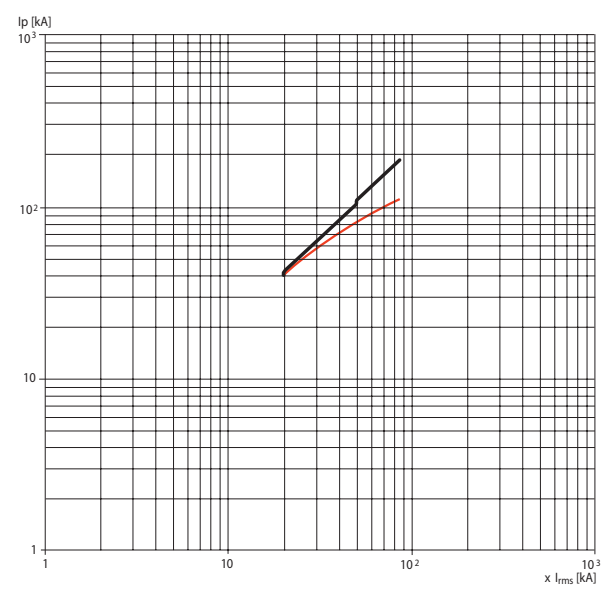
XT5
500V



XT6
500V



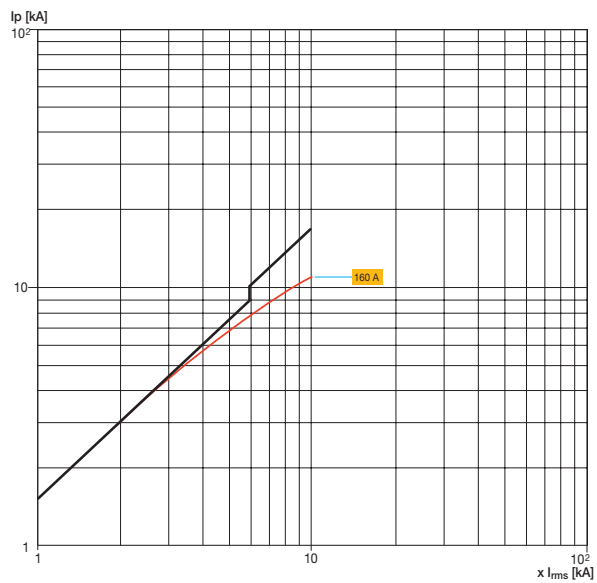
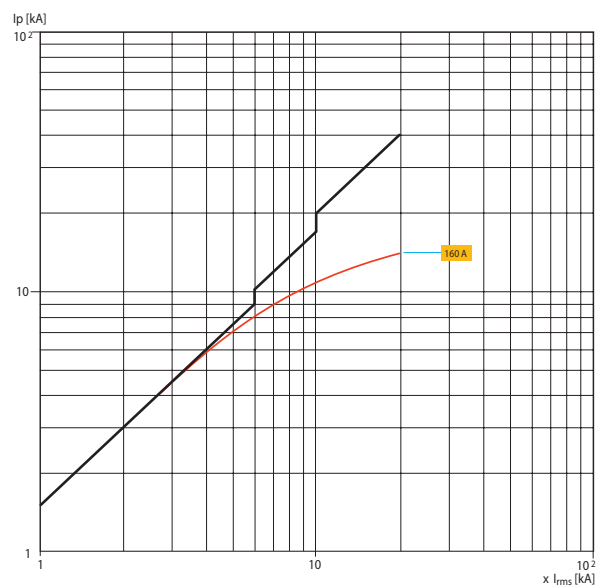
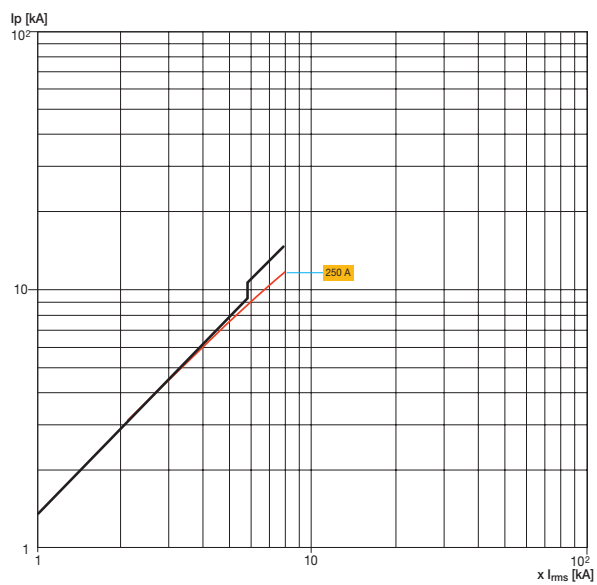
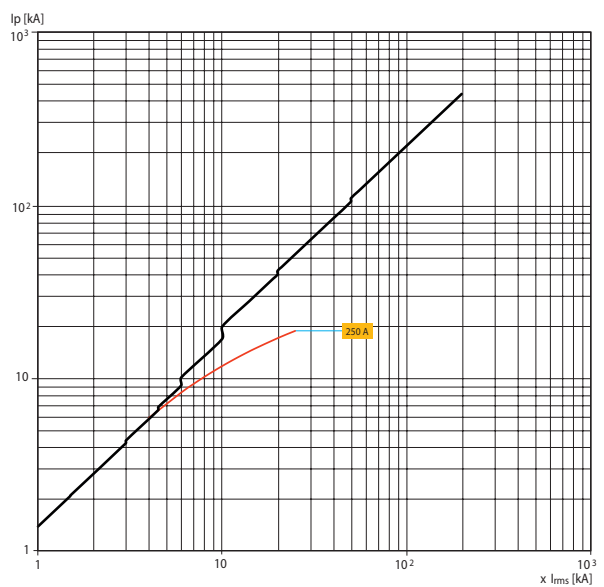
XT7 - XT7 M S-H-L
500V



Characteristic curves

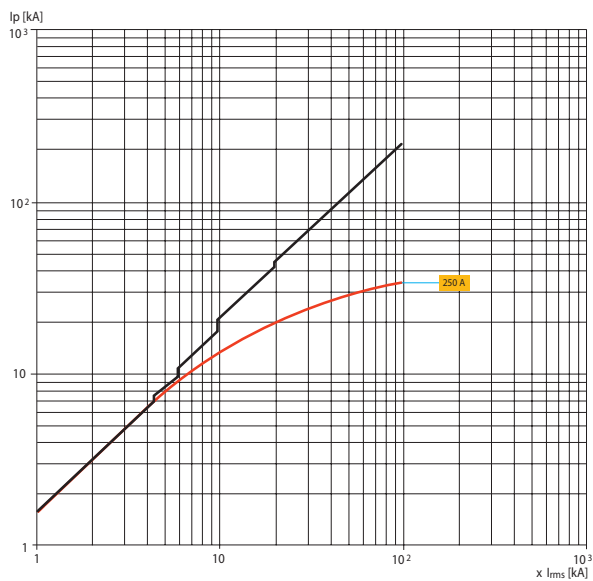
Limiting curves

690V

**XT1
690V****XT2
690V****XT3
690V****XT4 N-S-H-L
690V**

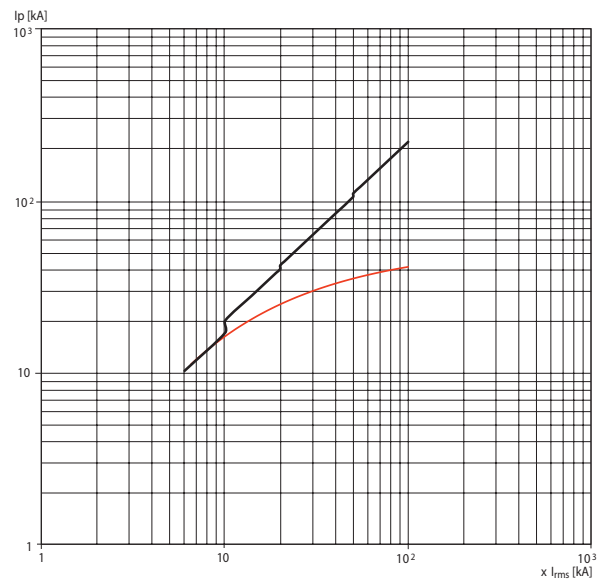
690V

XT4 V-X
690V

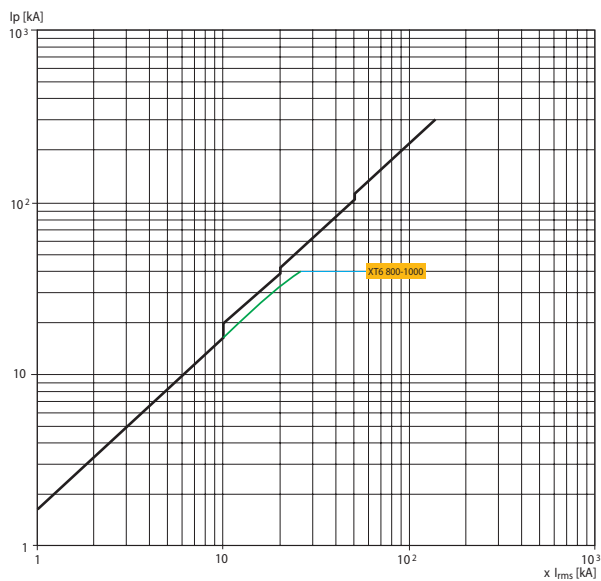


Note: XT4X starting from $I_n=32A$

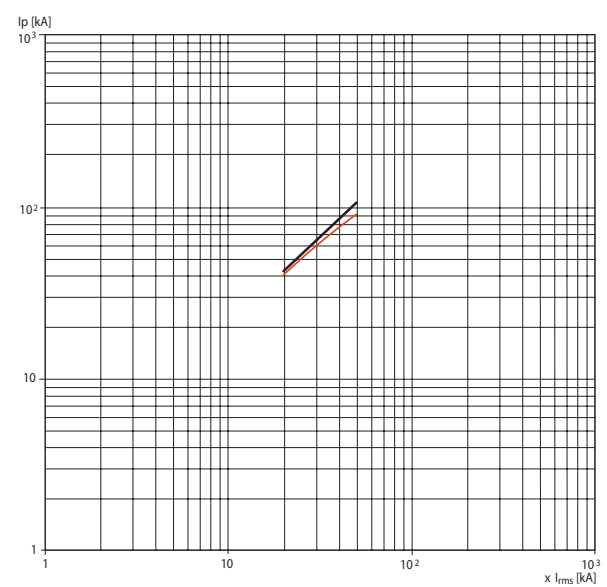
XT5
690V



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
- 2/36** Installation for plug-in circuit breaker
- 2/40** Terminals for plug-in circuit-breaker
- 2/44** Accessories for plug-in circuit-breaker
- 2/47** Installation for withdrawable circuit breaker
- 2/51** Terminals for withdrawable circuit-breaker
- 2/56** Accessories for withdrawable circuit-breaker

Tmax XT3 – Installation

- 2/61** Installation for fixed circuit breaker
- 2/64** Terminals for fixed circuit-breaker
- 2/68** Accessories for fixed circuit-breaker
- 2/74** Installation for plug-in circuit breaker
- 2/77** Terminals for plug-in circuit-breaker
- 2/81** Accessories for plug-in circuit-breaker

Tmax XT4 – Installation

- 2/82** Installation for fixed circuit breaker
- 2/85** Terminals for fixed circuit-breaker
- 2/90** Accessories for fixed circuit-breaker
- 2/95** Installation for plug-in circuit breaker
- 2/99** Terminals for plug-in circuit-breaker
- 2/103** Accessories for plug-in circuit-breaker
- 2/106** Installation for withdrawable circuit breaker
- 2/110** Terminals for withdrawable circuit-breaker
- 2/115** Accessories for withdrawable circuit-breaker

Tmax XT5

- 2/120** Installation for fixed circuit-breaker
- 2/122** Terminals for fixed circuit-breaker
- 2/128** Accessories for fixed circuit-breaker
- 2/138** Installation for plug-in circuit-breaker 400A
- 2/140** Terminals for plug-in circuit-breaker 400A
- 2/143** Accessories for plug-in circuit-breaker 400A
- 2/153** Installation for plug-in circuit-breaker 630A
- 2/155** Terminals for plug-in circuit-breaker 630A
- 2/158** Accessories for plug-in circuit-breaker 630A

2/168	Installation for withdrawable circuit-breaker 400A
2/170	Terminals for withdrawable circuit-breaker 400A
2/175	Accessories for withdrawable circuit-breaker 400A
2/181	Installation for withdrawable circuit-breaker 630A
2/183	Terminals for withdrawable circuit-breaker 630A
2/188	Accessories for withdrawable circuit-breaker 630A

Tmax XT6 – Installation

2/194	Installation for fixed circuit-breaker
2/196	Terminals for fixed circuit-breaker
2/202	Accessories for fixed circuit-breaker
2/209	Installation for withdrawable circuit-breaker
2/211	Terminals for withdrawable circuit-breaker
2/212	Accessories for withdrawable circuit-breaker

Tmax XT7 – Installation

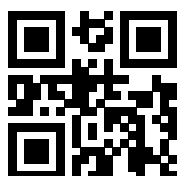
2/217	Installation for fixed circuit-breaker
2/218	Terminals for fixed circuit-breaker
2/222	Accessories for fixed circuit-breaker
2/224	Installation for withdrawable circuit-breaker
2/225	Terminals for withdrawable circuit-breaker
2/228	Accessories for withdrawable circuit-breaker

Tmax XT7 M – Installation

2/230	Installation for fixed circuit-breaker
2/231	Terminals for fixed circuit-breaker
2/235	Installation for withdrawable circuit-breaker
2/236	Terminals for withdrawable circuit-breaker

Tmax XT – Common accessories

2/237	Horizontal interlock XT series
2/241	Vertical interlock XT series



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To access the full set of drawings in ABB Library scan the QR code or enter through the following link:
to.abb/WPBfA07x

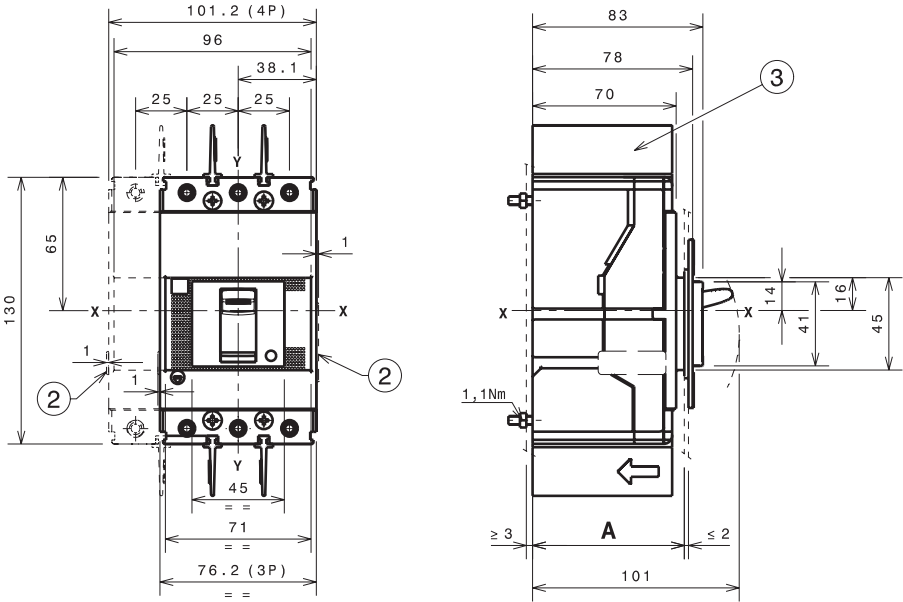


Tmax XT1 – Installation

Installation for fixed circuit-breaker

Fixing on support sheet

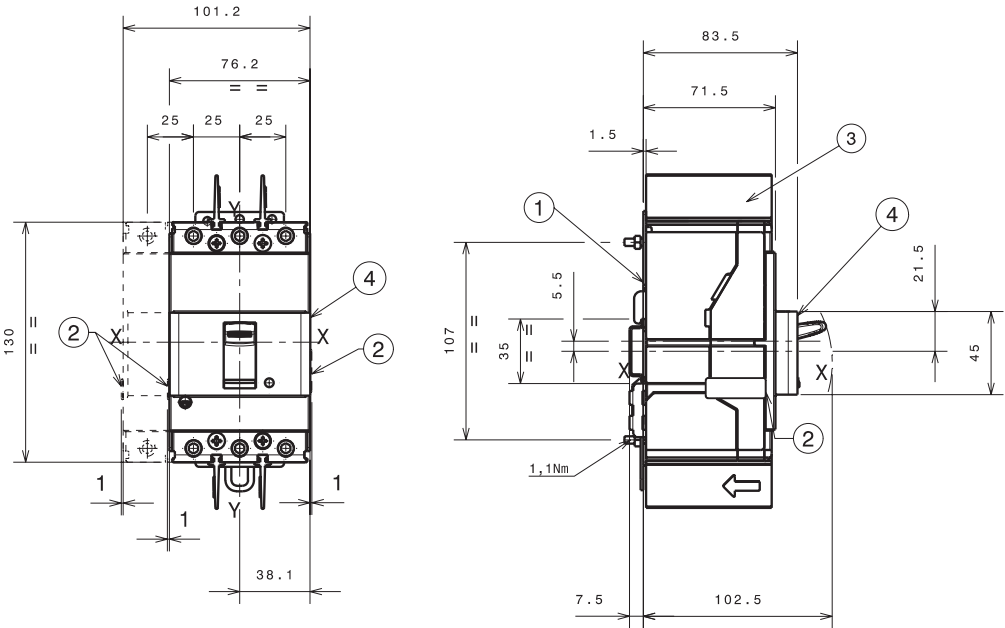
- Key
2 Overall dimensions of optional wiring ducts
3 Phase separators 25mm



A		
With standard flange	3p - 4p	74
Without flange	3p - 4p	71
	3p - 4p	79

Fixing on DIN 50022 rail

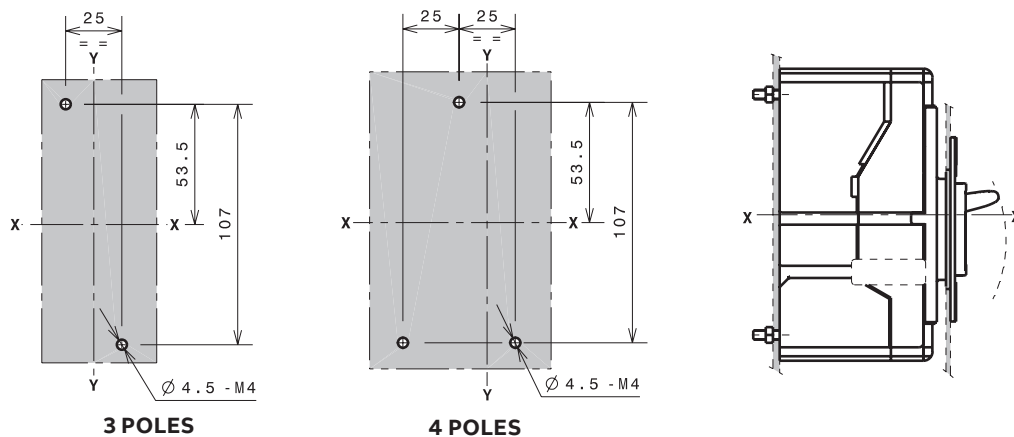
- Key
1 Bracket for fixing
2 Overall dimensions of wiring ducts
3 Phase separators 25mm
4 Optional front cover for DIN rail



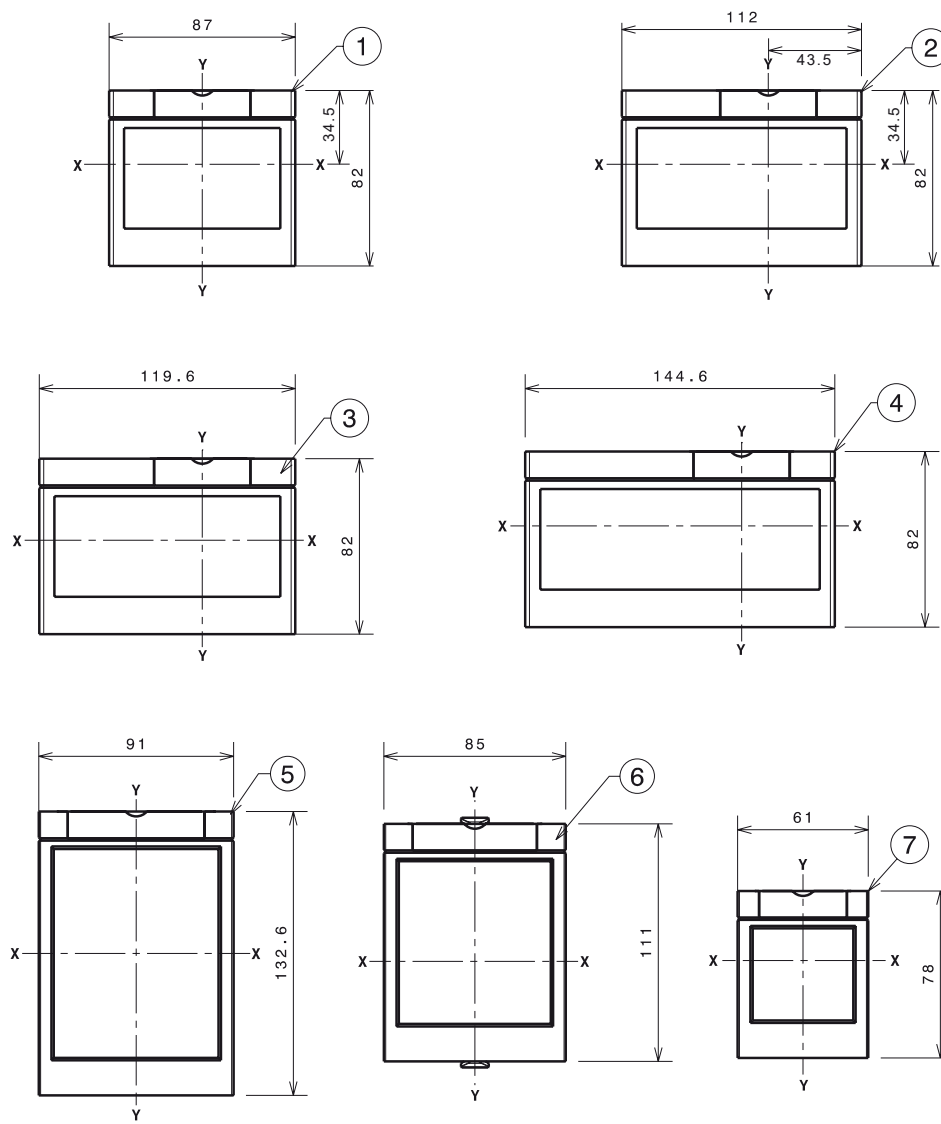
Tmax XT1 – Installation

Installation for fixed circuit-breaker

Drilling templates for circuit-breaker fixing



Flanges

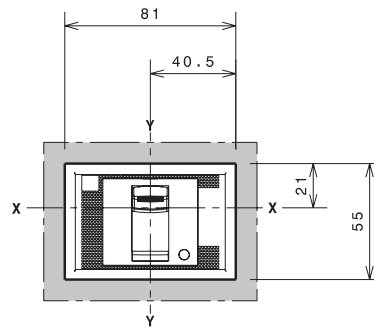


Key

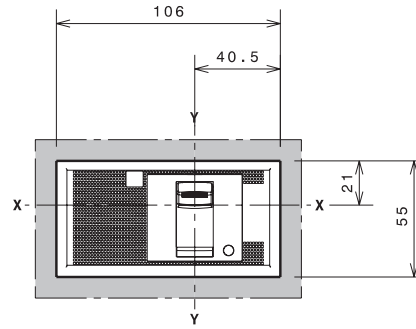
- 1 Flange for circuit-breaker 3p
- 2 Flange for circuit-breaker 4p
- 3 Flange for circuit-breaker 3p with RC Sel - RC Inst residual current release
- 4 Flange for circuit-breaker 4p with RC Sel - RC Inst residual current release
- 5 Flange for fixed circuit-breaker 3p-4p with direct motor operator (MOD)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

Compartment door drilling templates

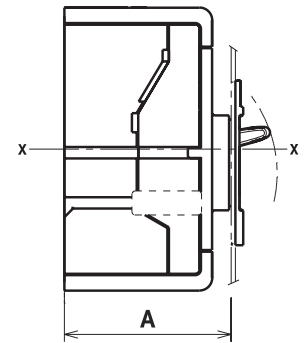
With standard flange



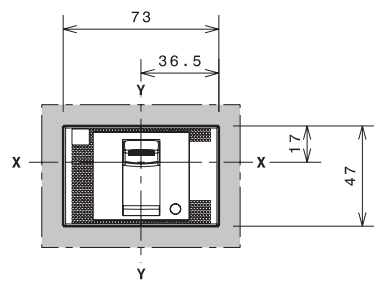
A=74
3 POLES



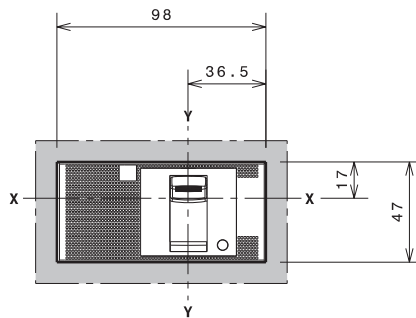
A=74
4 POLES



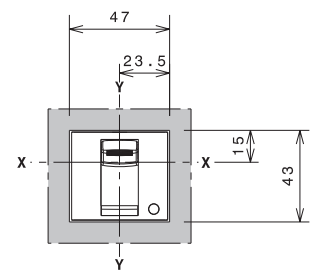
Without flange



A=71
3 POLES

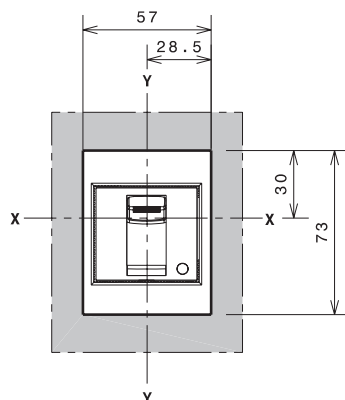


A=71
4 POLES

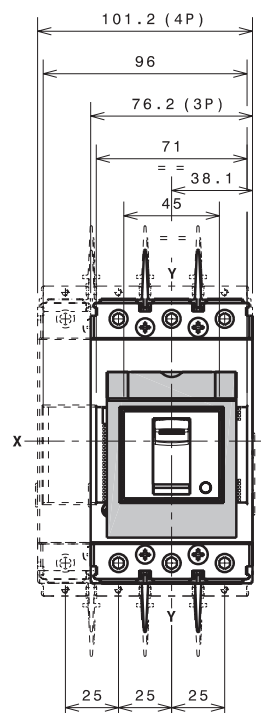


A=79
3-4 POLES

With optional flange



A=79
3-4 POLES



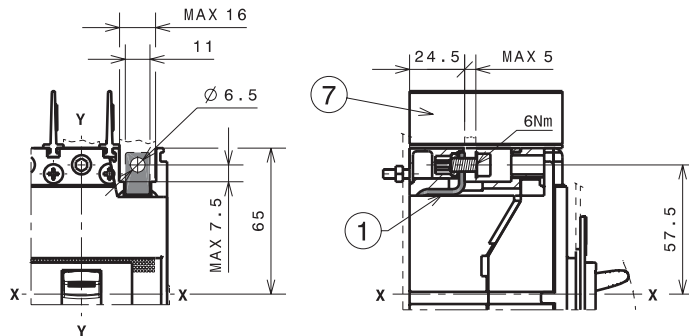
Tmax XT1 – Installation

Terminals for fixed circuit-breaker

Terminals F

Key

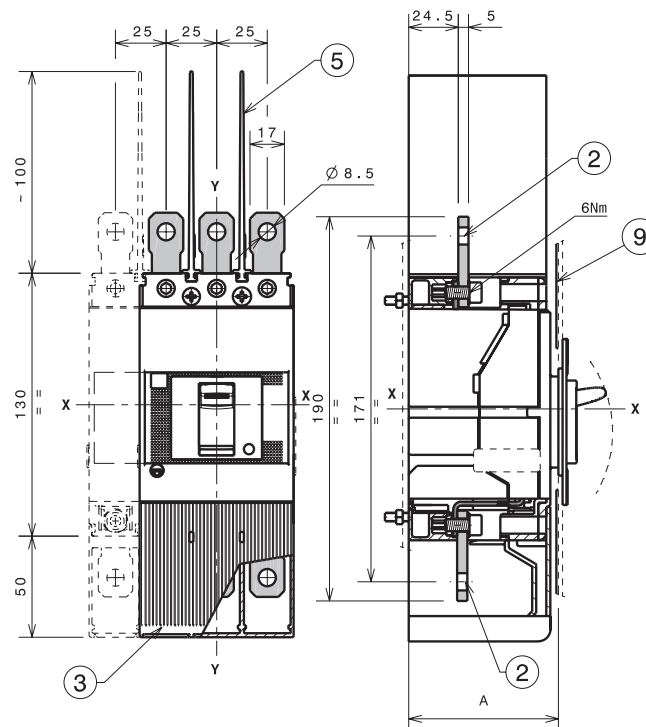
- 1 Front terminals for busbars connection
- 7 Phase separators 25mm



Terminals EF

Key

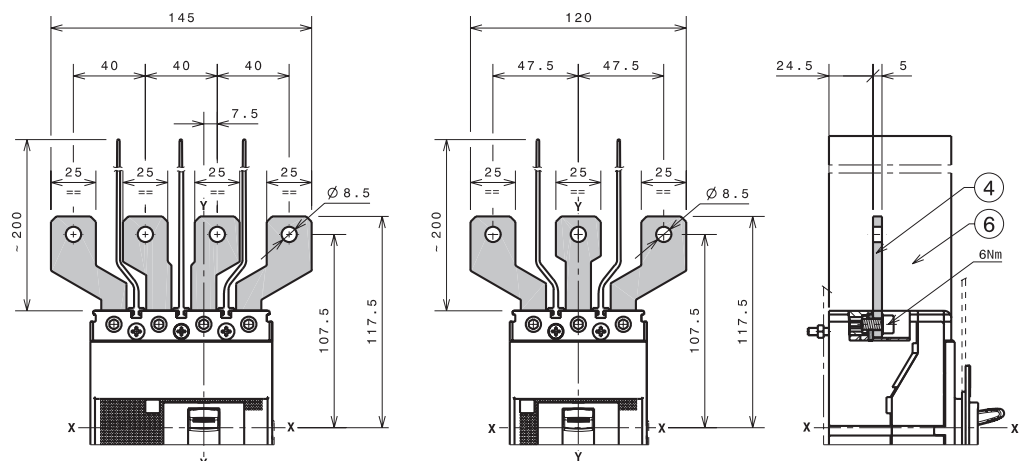
- 2 Front extended terminals
- 3 High terminal covers with degree of protection IP40
- 5 Phase separators 100mm
- 9 Internal insulating plate



Terminals ES

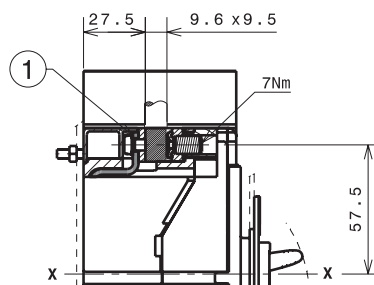
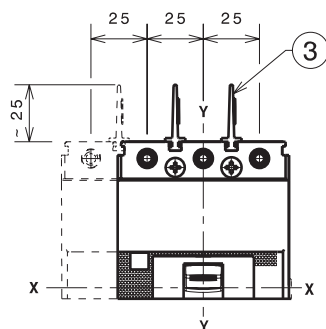
Key

- 4 Front extended spread terminals for busbar connection
- 6 Phase separators 200mm

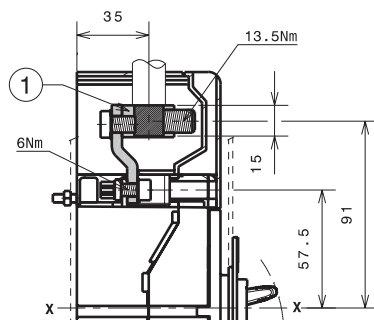
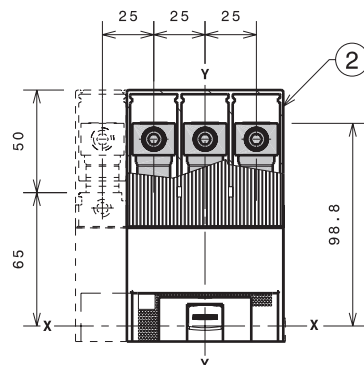


1x1.5...50mm² terminals FCCuAl

- Key
1 1x1.5...50mm² front
terminal FCCuAl
3 Phase separators
25mm

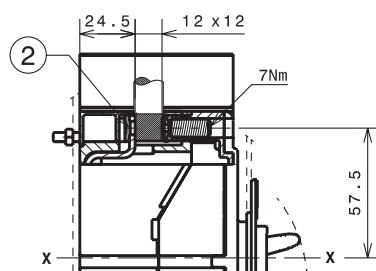
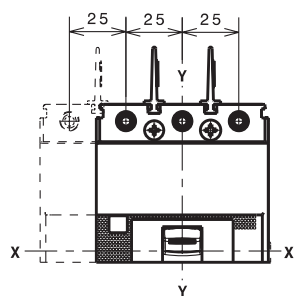
1x35...95mm² terminals FCCuAl

- Key
1 External terminal
FCCuAl
2 High terminal covers
with degree of
protection IP40



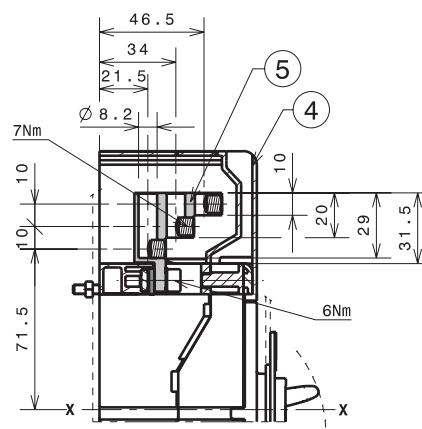
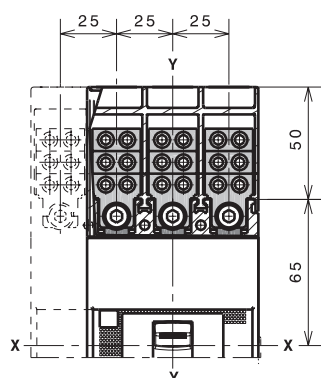
Terminals FCCu

- Key
2 Front terminal FCCu

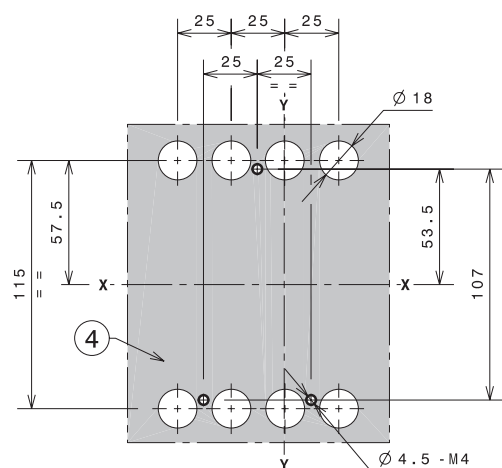
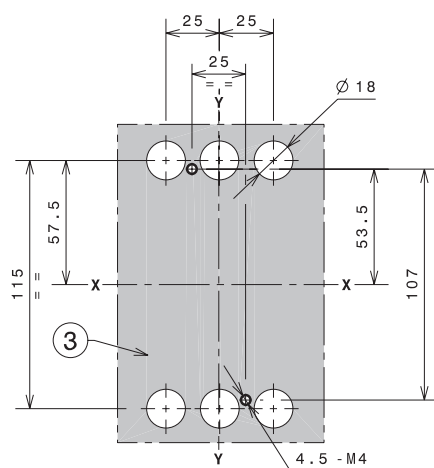
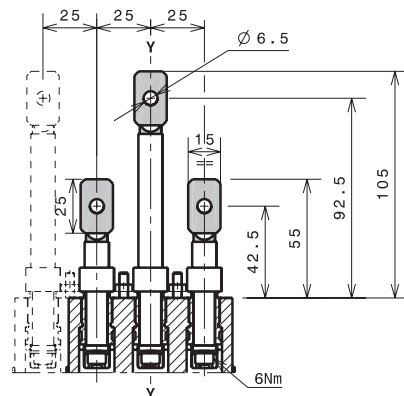


Terminals MC

- Key
4 Terminal covers
with degree of
protection IP40
5 Front terminal
for multicable
connection



Terminals for fixed circuit-breaker



3 POLES

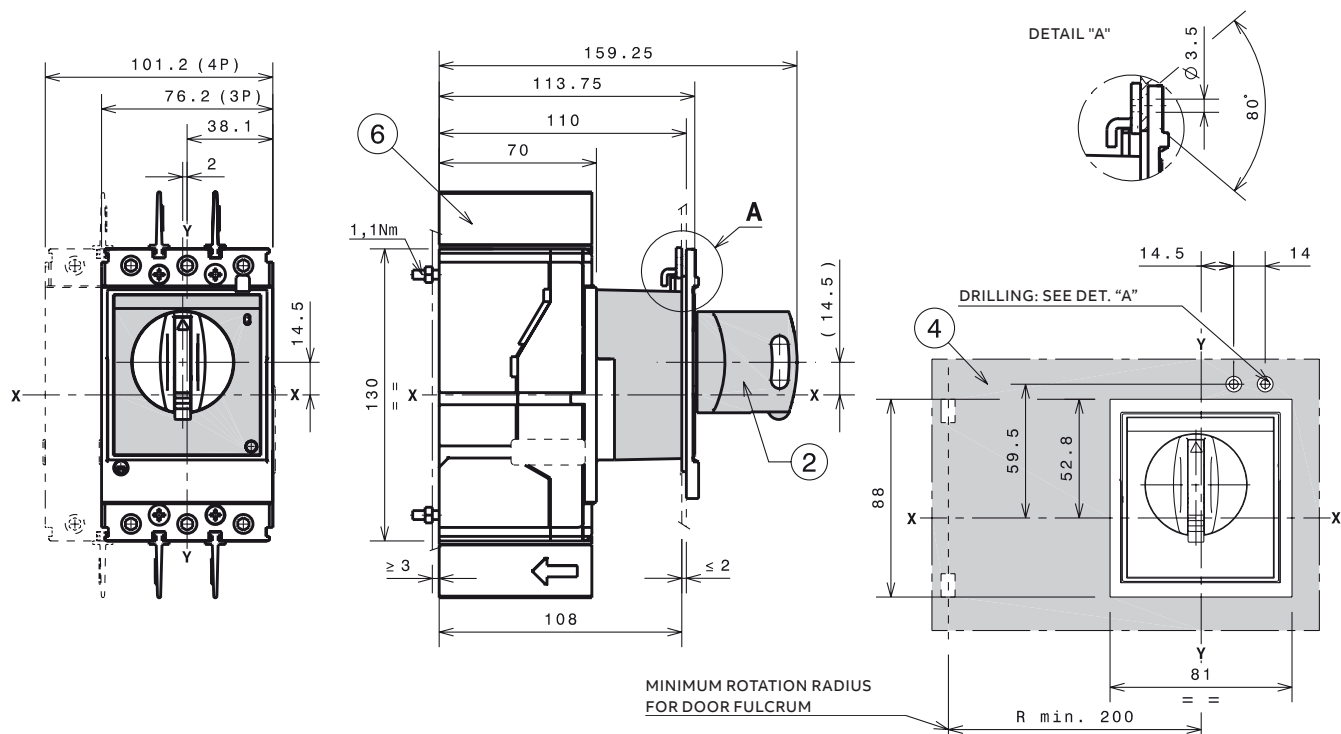
4 POLES

- 1 Adjustable rear terminals
- 2 Bottom terminal covers with degree of protection IP30
- 3 Drilling template for circuit-breaker 3p fixing on sheet
- 4 Drilling template for circuit-breaker 4p fixing on sheet

Tmax XT1 – Installation

Accessories for fixed circuit-breaker

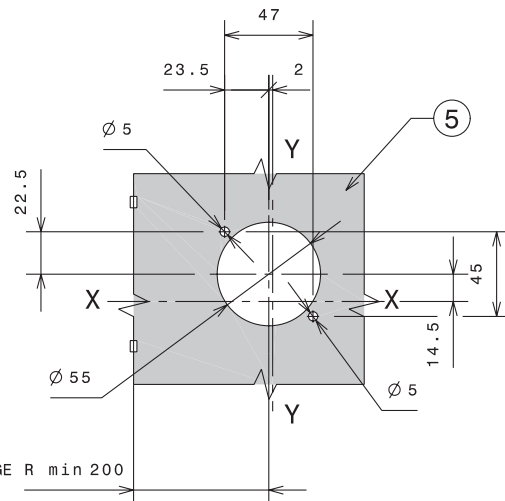
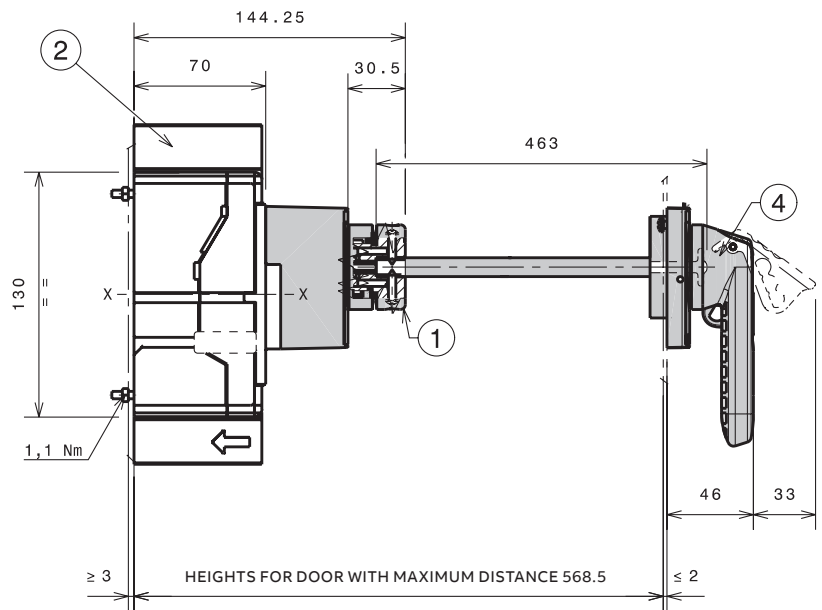
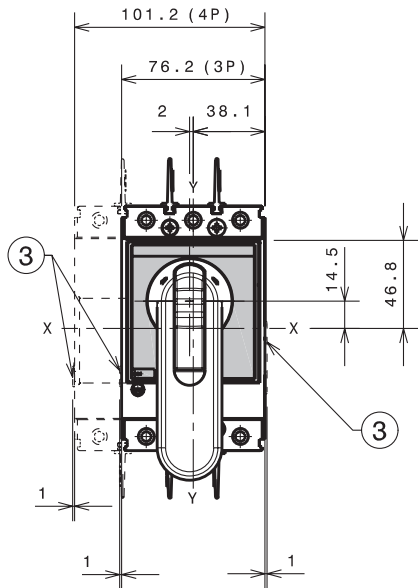
Rotary handle operating mechanism on circuit-breakers (RHD)



Key

- 2 Rotary handle operating mechanism on circuit-breaker RHD
- 4 Door drilling template with direct rotary handle
- 6 Phase separators 25mm

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



Key

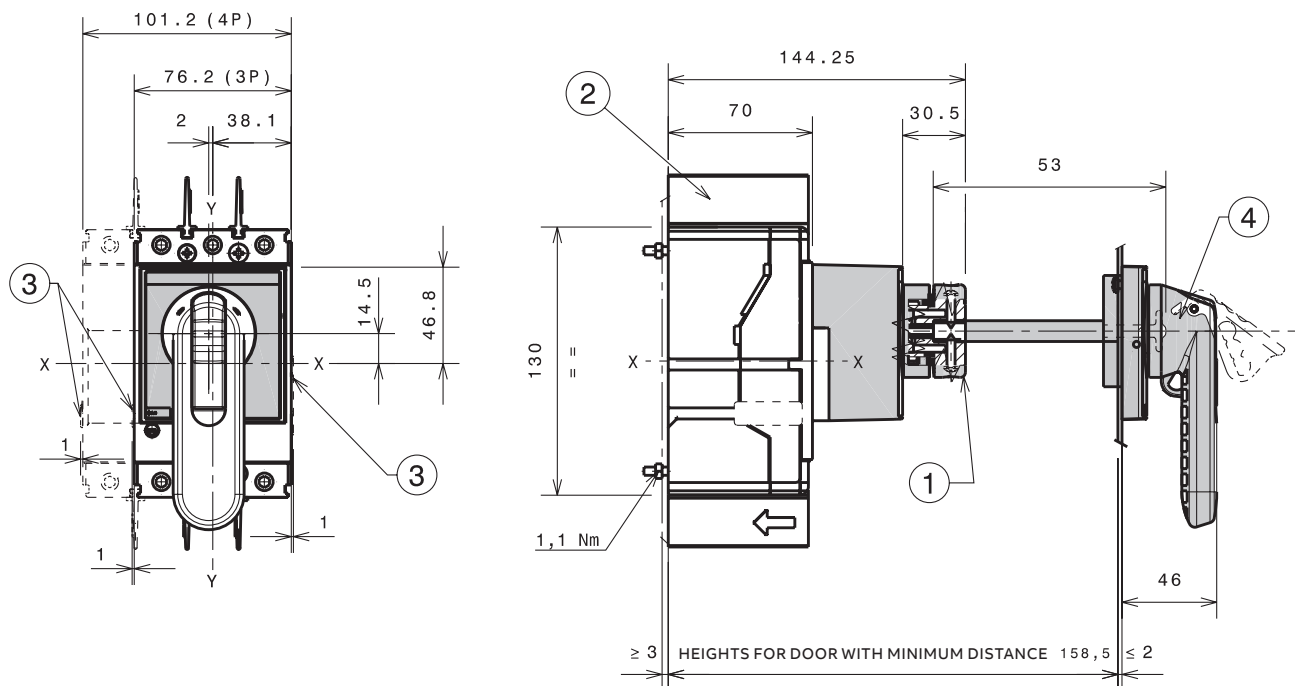
- 1 Transmission unit
- 2 Phase separators 25mm
- 3 Optional wiring ducts
- 4 Wide type rotary handle
- 5 Door drilling template with transmitted rotary handle

MINIMUM DISTANCE FROM DOOR HINGE R min 200

Tmax XT1 – Installation

Accessories for fixed circuit-breaker

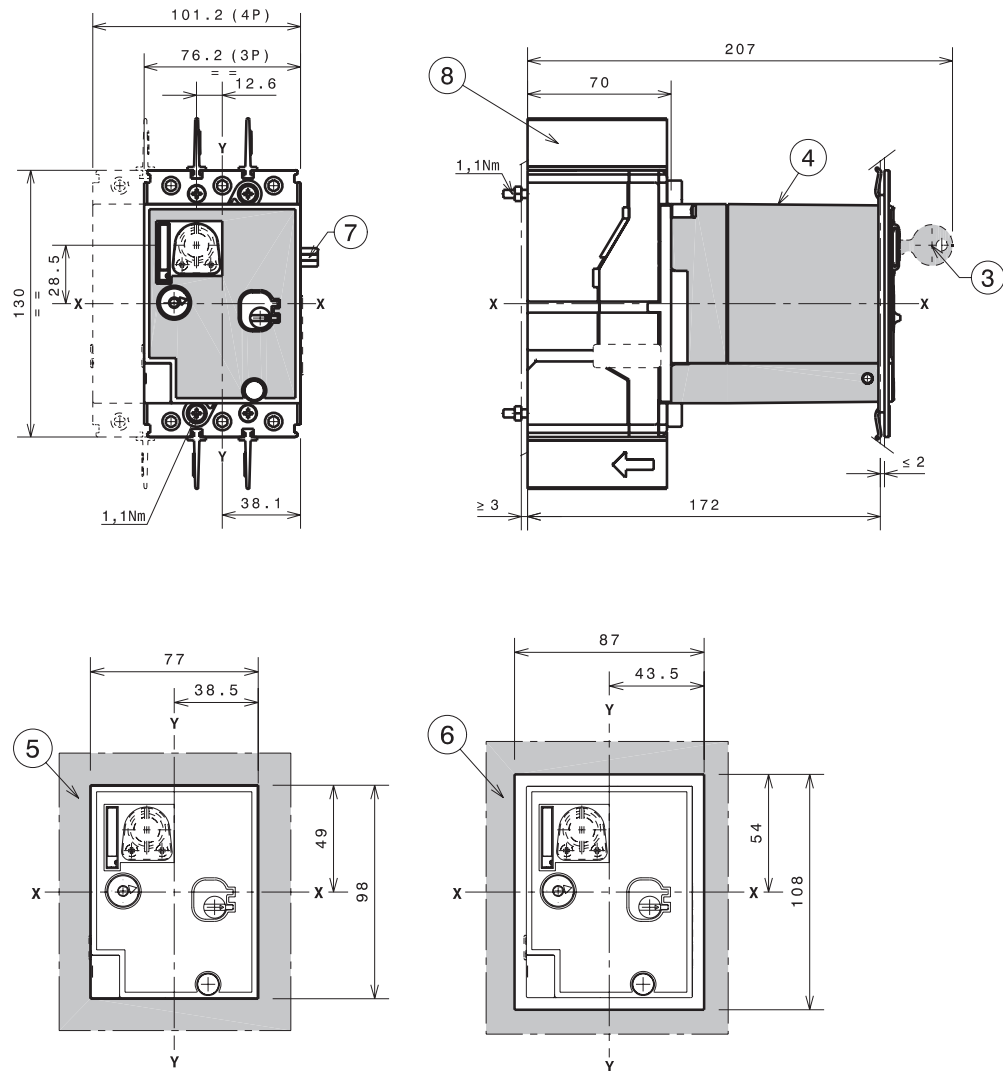
Large rotary handle operating mechanism on the compartment door (RHE-LH)



Key

- 1 Transmission unit
- 2 Phase separators
25mm
- 3 Optional wiring ducts
- 4 Wide type rotary
handle
- 5 Door drilling
template with
transmitted rotary
handle

Direct motor operator (MOD)



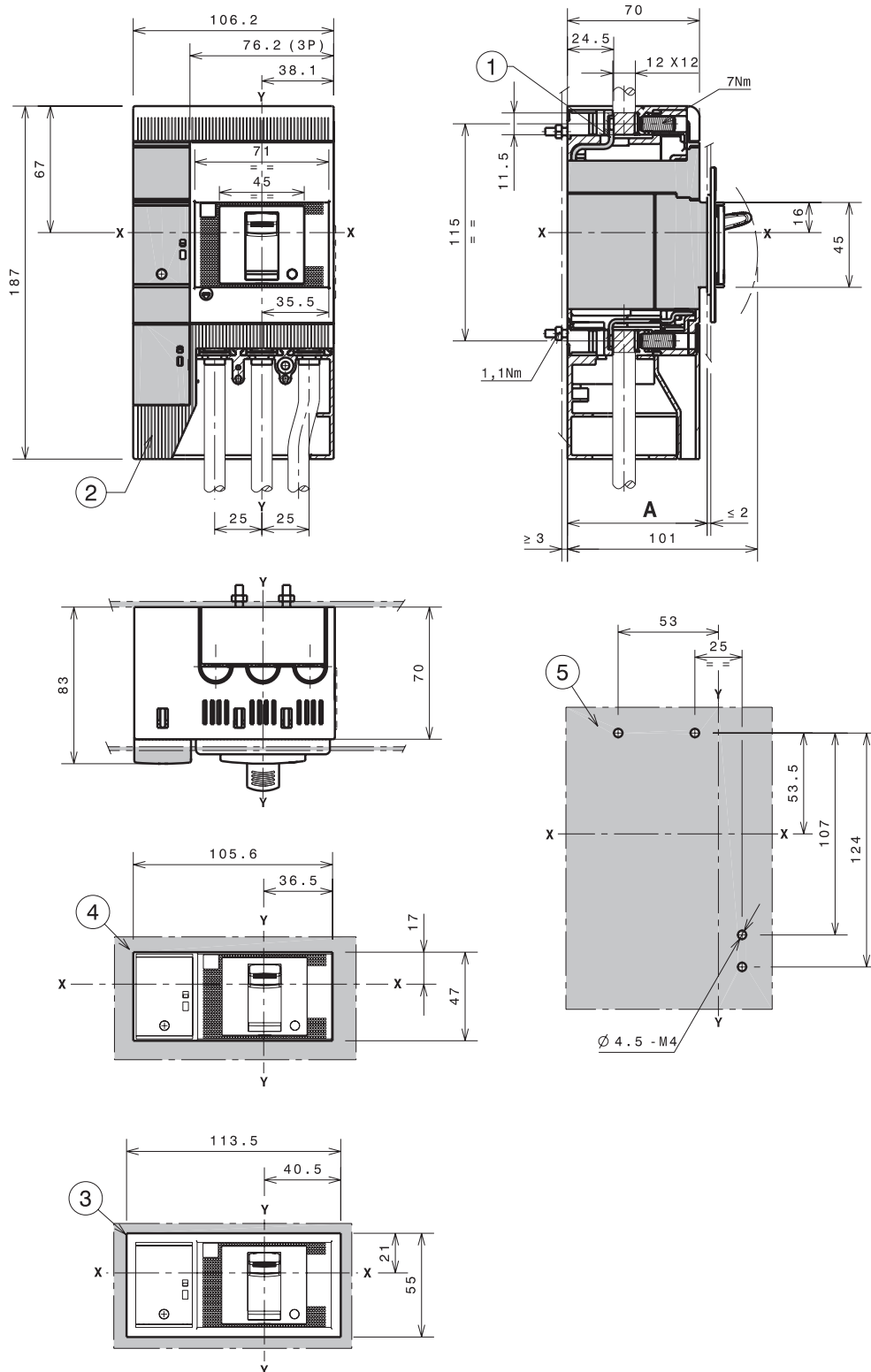
Key

- 3 Key lock
- 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 Phase separators 25mm

Tmax XT1 – Installation

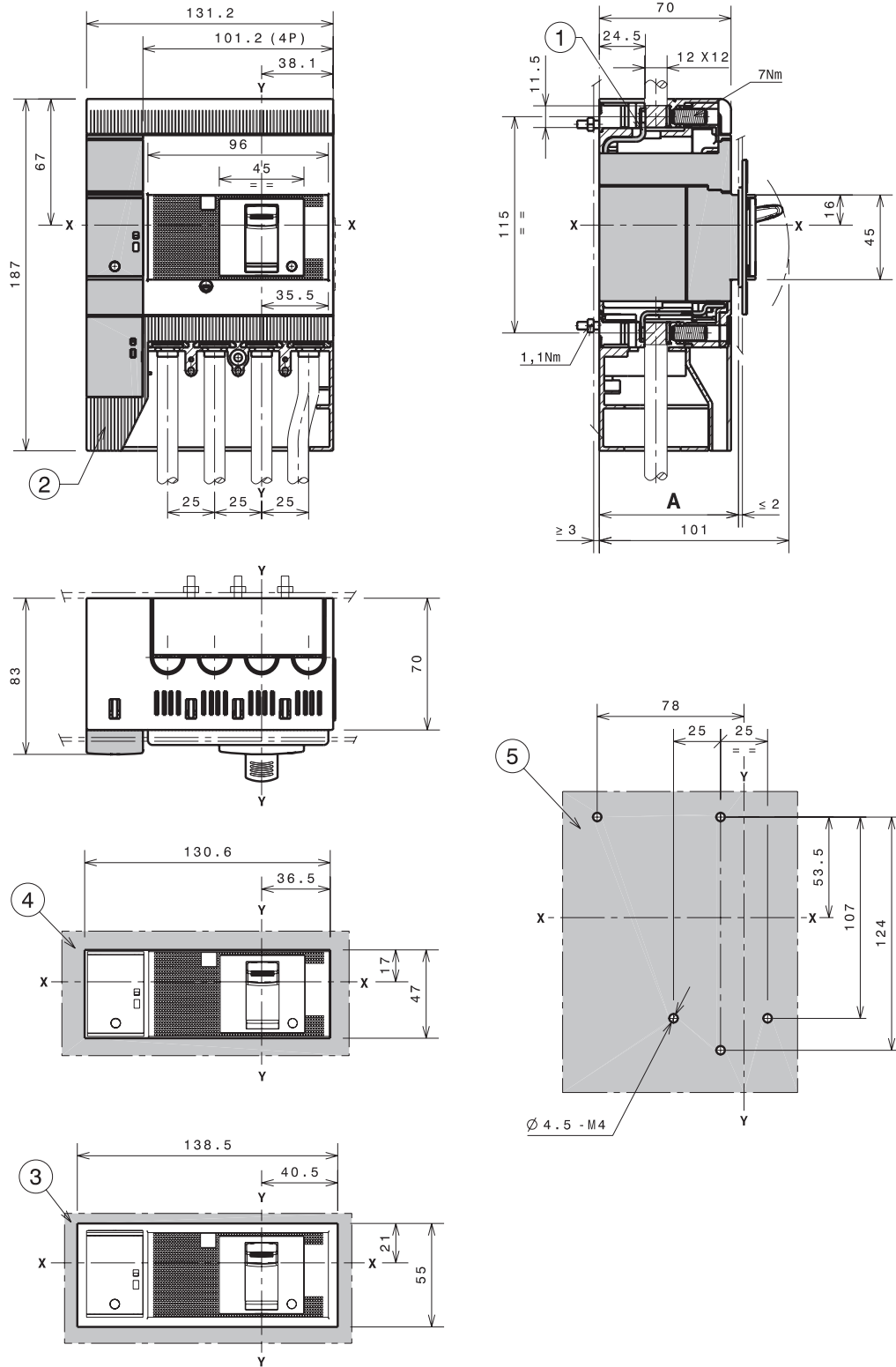
Accessories for fixed circuit-breaker

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



		A
With standard flange	3p	74
Without flange	3p	71

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

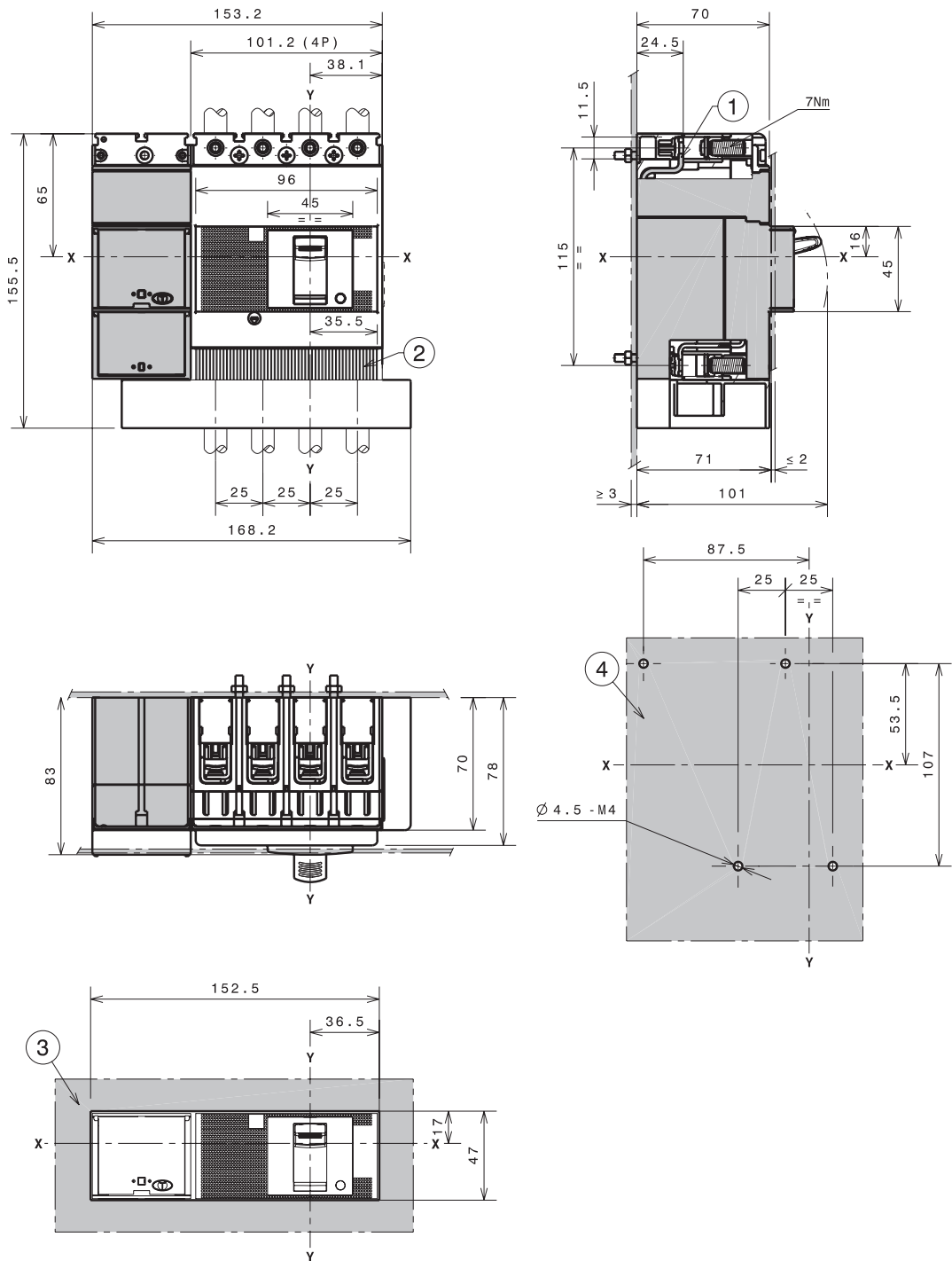


		A
With standard flange	4p	74
Without flange	4p	71

Tmax XT1 – Installation

Accessories for fixed circuit-breaker

RC Sel 200 4 poles residual current release



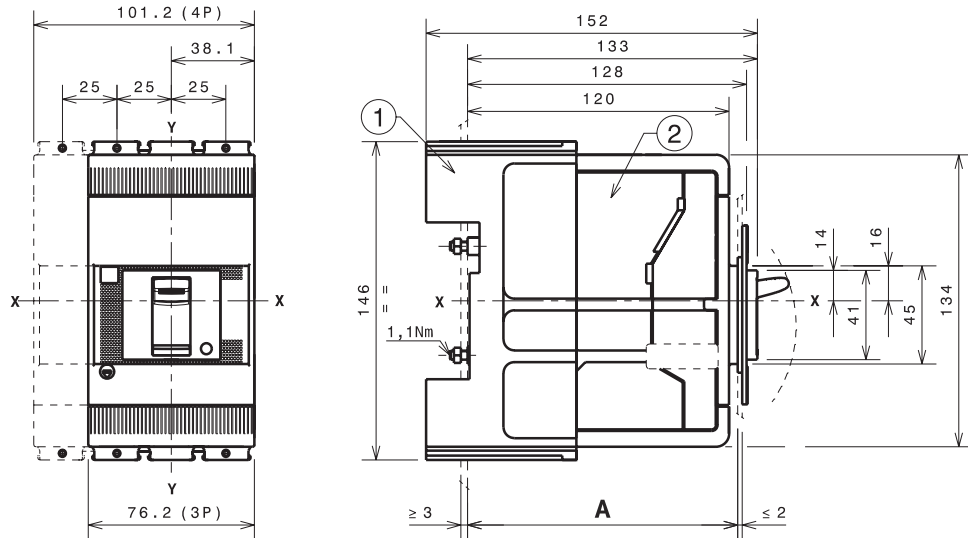
Tmax XT1 – Installation

Installation for plug-in circuit-breaker

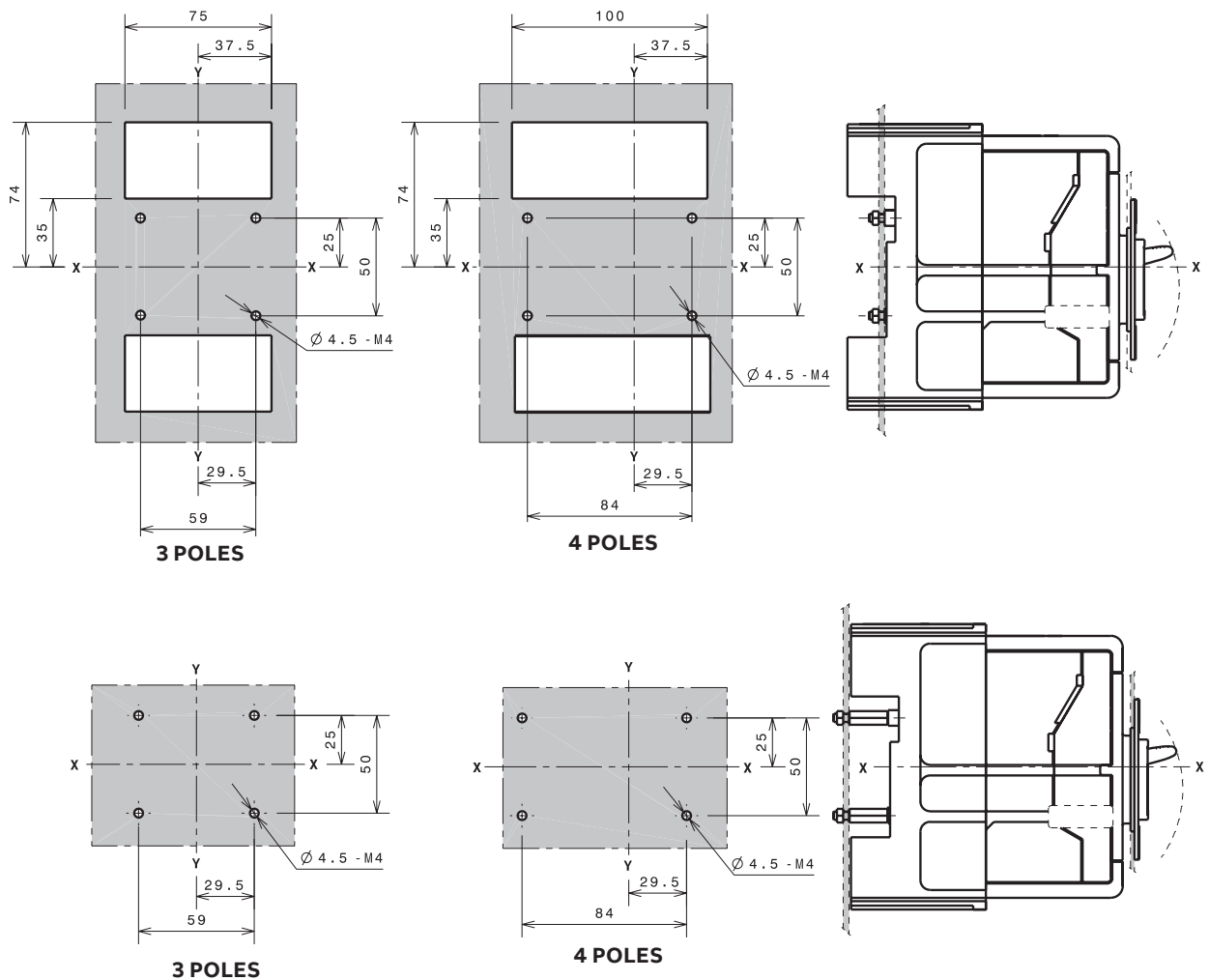
Fixing on support sheet

- Key
1 Fixed part
2 Moving part

	A
With standard 3p-4p 124 flange	
Without 3p-4p 121 flange	3p-4p 129
	A
With standard 3p-4p 144 flange	
Without 3p-4p 141 flange	3p-4p 149



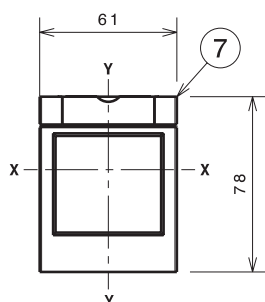
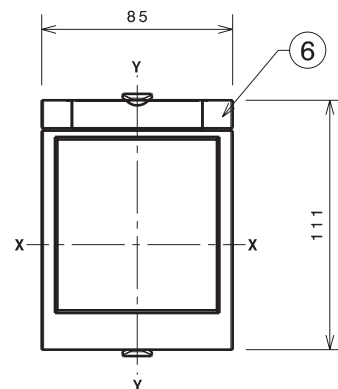
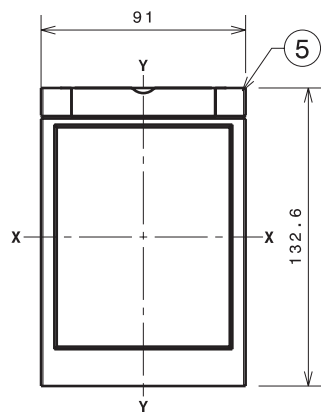
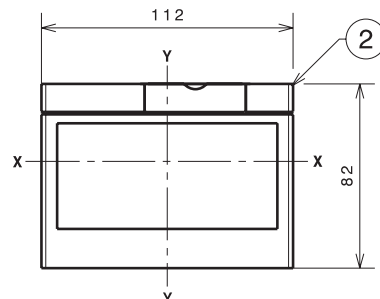
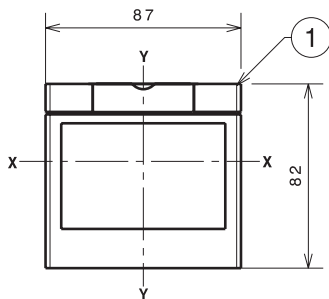
Drilling templates for fixing circuit-breaker



Tmax XT1 – Installation

Installation for plug-in circuit-breaker

Flanges

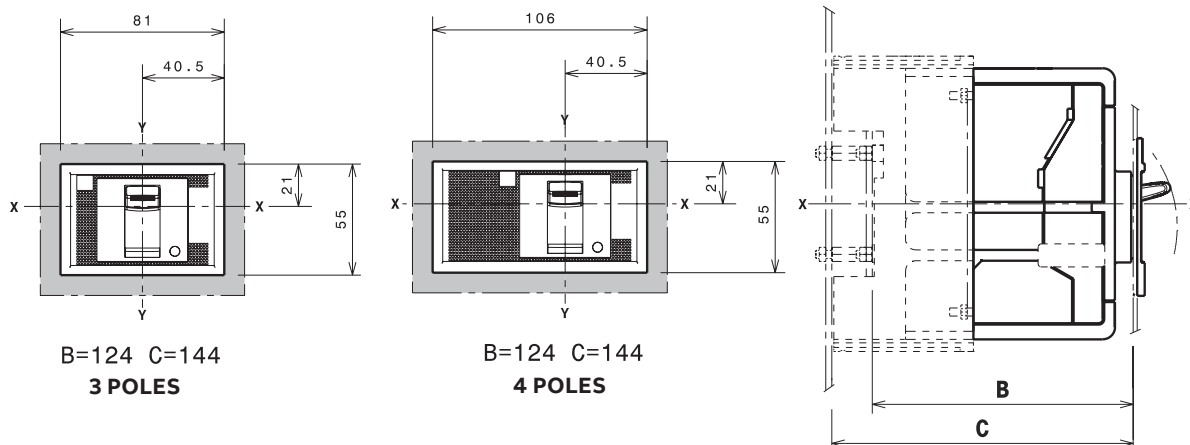


Key

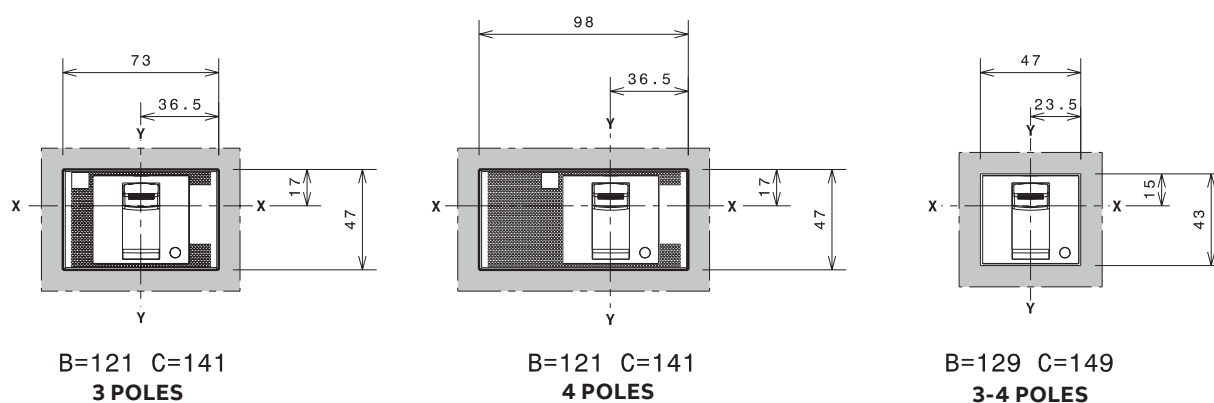
- 1 Flange for plug-in circuit-breaker 3p
- 2 Flange for circuit-breaker 4p
- 5 Flange for plug-in circuit-breaker 3p-4p with direct motor operator (MOD)
- 6 Flange for plug-in circuit-breaker 3p-4p with direct rotary handle RHD
- 7 Optional flange

Compartment door drilling templates

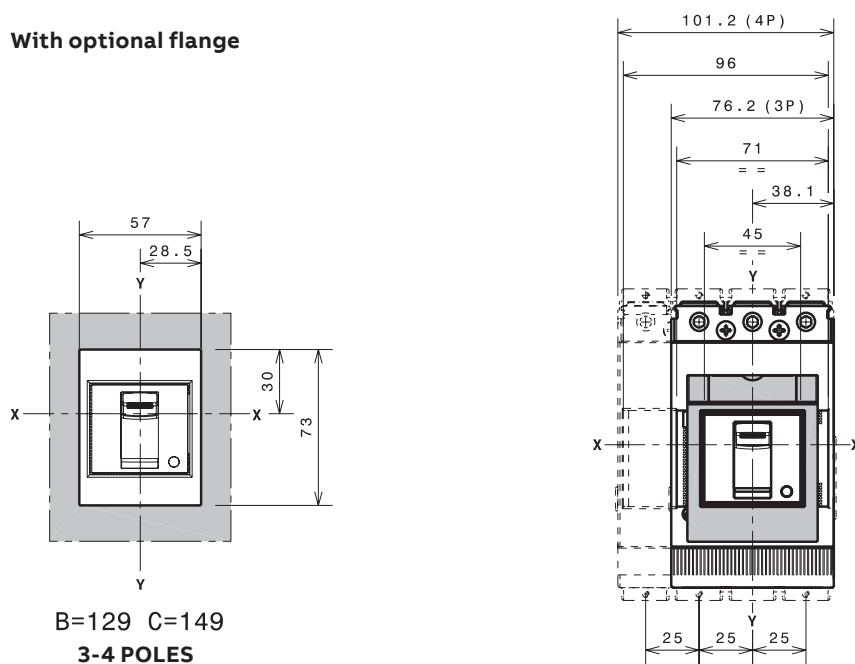
With standard flange



Without flange



With optional flange



Terminals for plug-in circuit-breaker

The technical drawings illustrate the dimensions and assembly details of the 1000W heater unit. The front view (left) shows a unit with a total width of 75mm (three 25mm segments) and a height of 88.5mm. The top section has a height of 15.5mm and a diameter of 6mm. The side view (middle) shows a unit with a total width of 50mm (20.5mm + 4mm) and a height of 88.5mm. The side view (right) shows a unit with a total width of 153mm (148mm + 5mm) and a height of 88.5mm. The side view (right) also shows a total width of 140mm (135mm + 5mm) and a height of 88.5mm. The side view (right) includes callouts 4 and 5, and a torque specification of 6Nm. The side view (right) also shows a total width of 140mm (135mm + 5mm) and a height of 88.5mm. The side view (right) includes callouts 4 and 5, and a torque specification of 6Nm. The side view (right) also shows a total width of 140mm (135mm + 5mm) and a height of 88.5mm. The side view (right) includes callouts 4 and 5, and a torque specification of 6Nm.

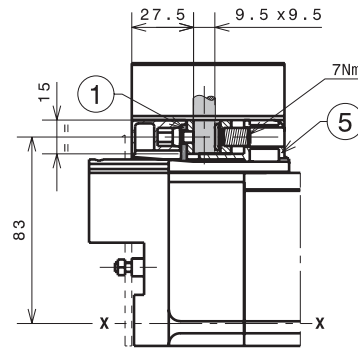
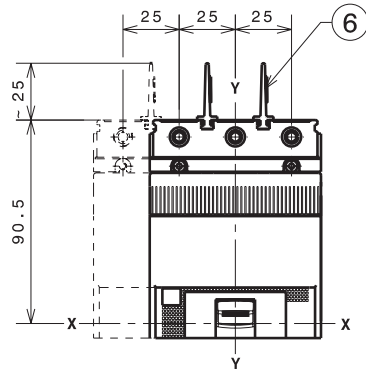
—
Key
4 Front extended
terminals
5 Phase separators
100mm

Key

- 3 Front extended spread terminals
- 6 Phase separators 200mm
- 7 Adaptor

1x1.5...50mm² terminals FCCuAl

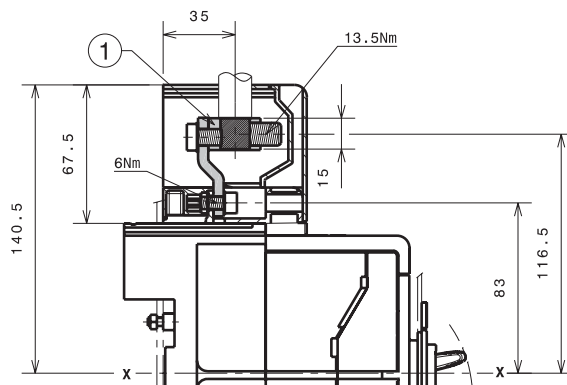
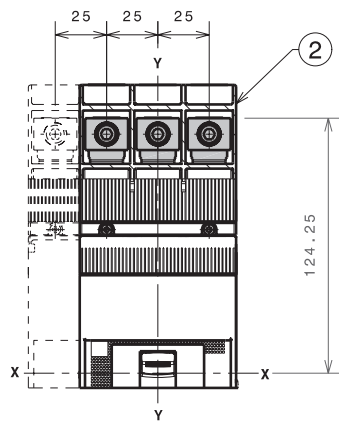
- Key
1 1x1.5...50mm² front
terminal FCCuAl
5 Adaptor
6 Phase separators
25mm



FIXING AT 50mm

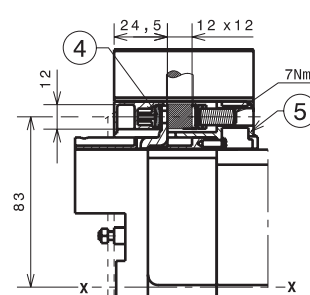
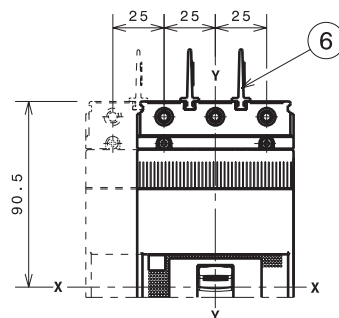
1x35...95mm² terminals FCCuAl

- Key
1 External terminal
FCCuAl
2 High terminal covers
with degree of
protection IP40



Terminals FCCu

- Key
4 Terminals FCCu
5 Adaptor
6 Phase separators
25mm



FIXING AT 50mm

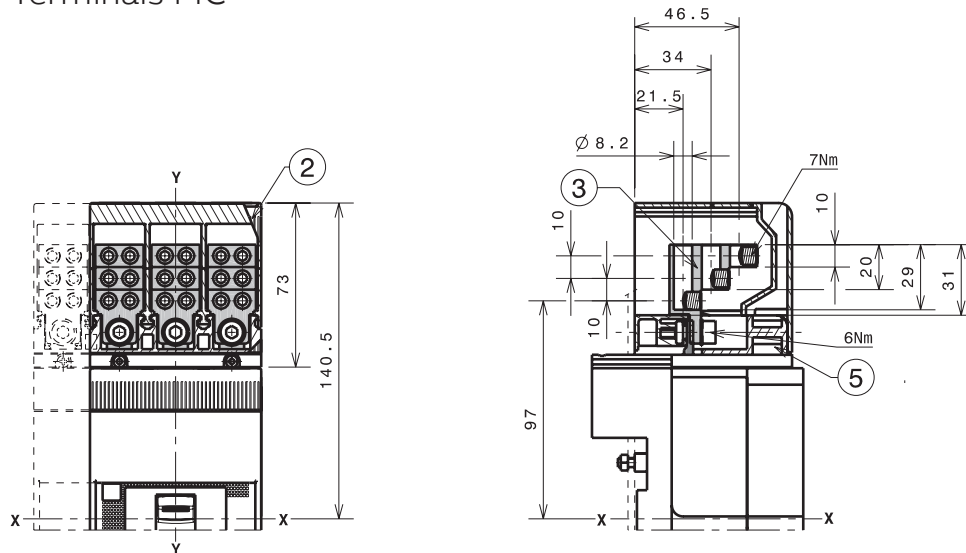
Tmax XT1 – Installation

Terminals for plug-in circuit-breaker

Terminals MC

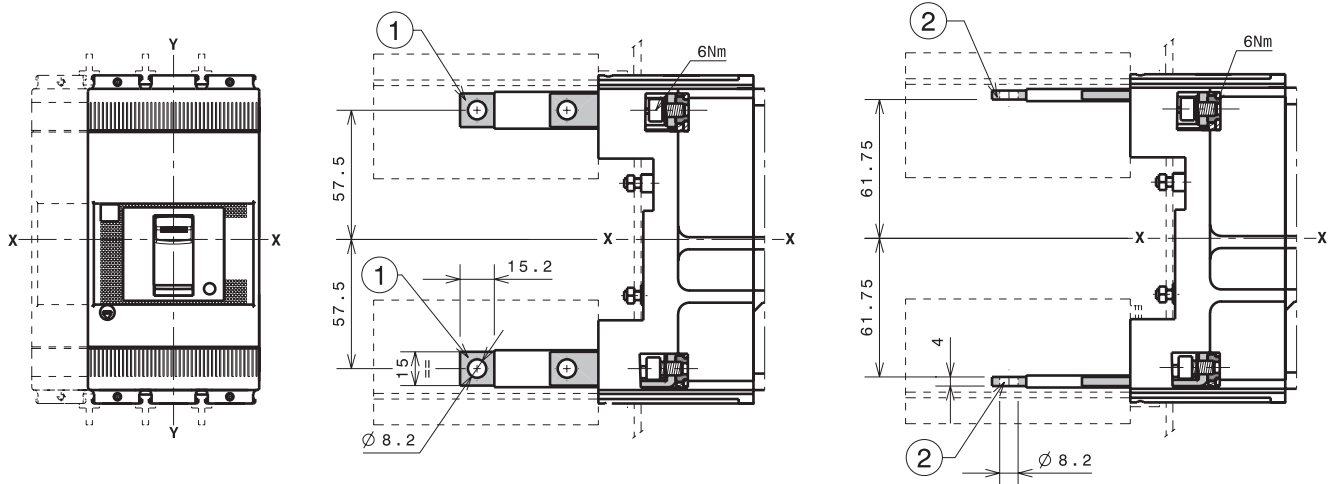
Key

- 2 Terminal covers with degree of protection IP40
- 3 Front terminal for multicable connection
- 5 Adaptor



FIXING AT 50mm

Terminals HR/VR

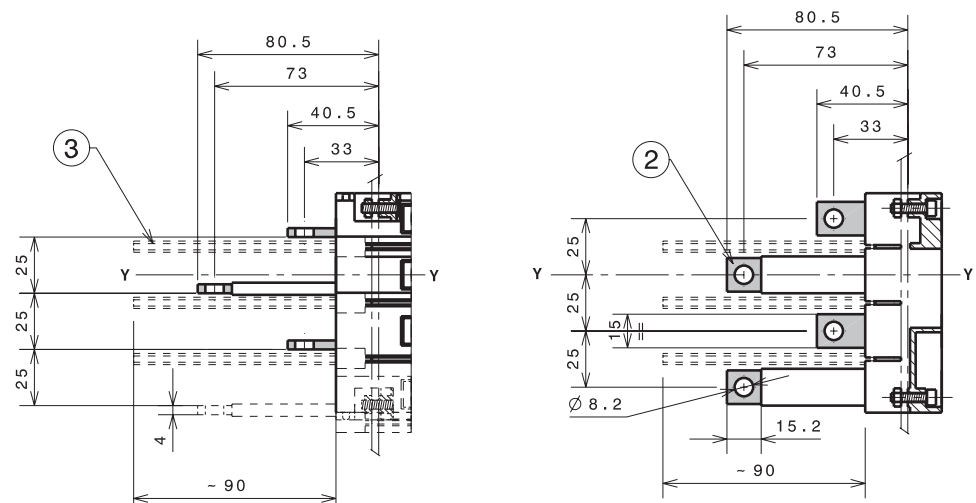


FIXING AT 50mm

FIXING AT 50mm

Key

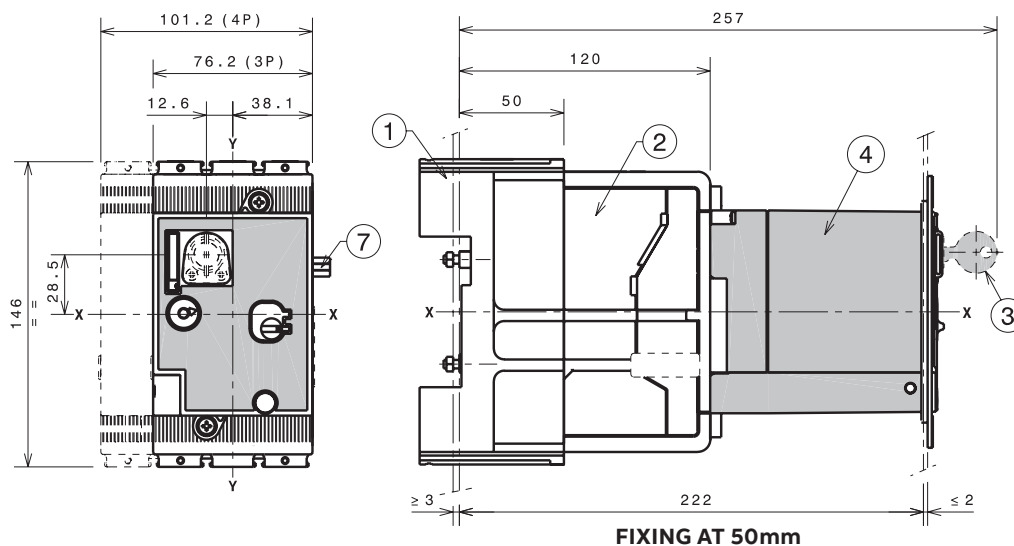
- 1 Rear vertical terminals
- 2 Rear horizontal terminals
- 3 Rear phase separators 90mm



Tmax XT1 – Installation

Accessories for plug-in circuit-breaker

Direct motor operator (MOD)



Key

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

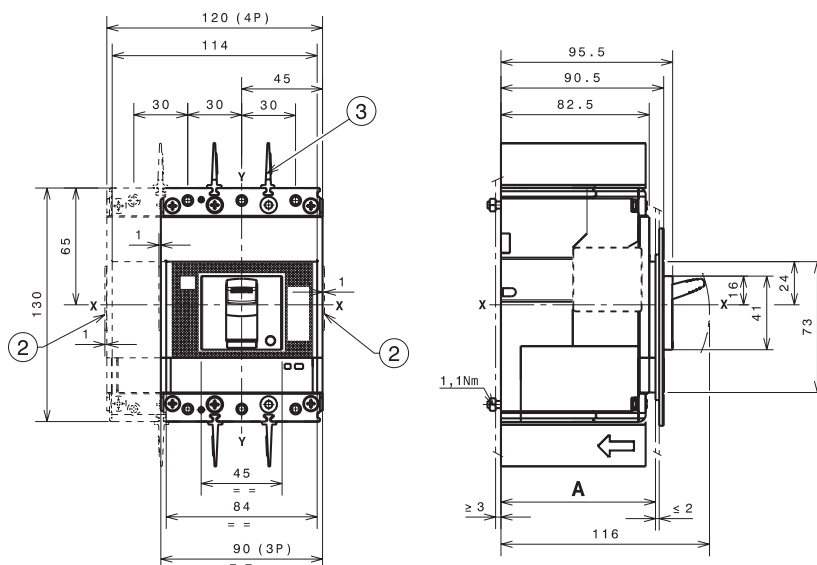
Tmax XT2 – Installation

Installation for fixed circuit-breaker

Fixed circuit-breaker fixing on sheet

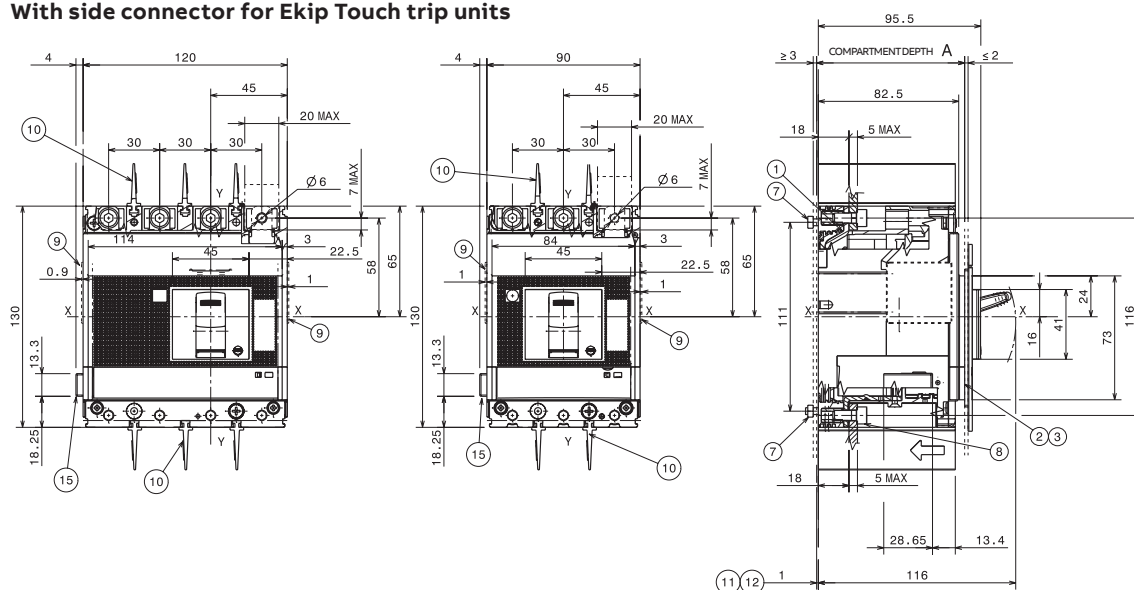
- Key
2 Optional wiring ducts
3 Phase separators
25mm

	A
With standard 3p-4p 86 flange	
Without 3p-4p 83.5 flange	
Without 3p-4p 91.5 flange	



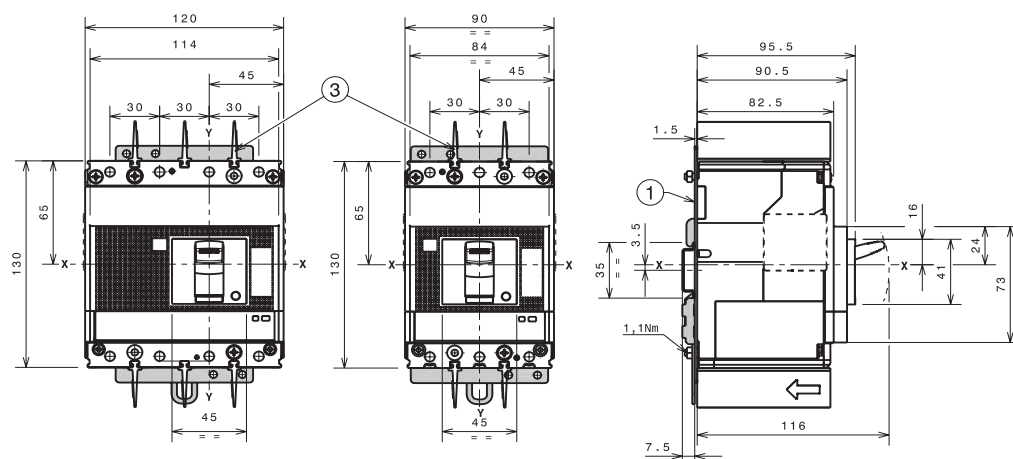
With side connector for Ekip Touch trip units

- Key
1 Front terminals
2 Flange for 4p circuit-breaker
3 Flange for 3p circuit-breaker
7 Tightening torque 1,1 Nm - 10 In.Lbs
8 Tightening torque 6 Nm - 53 In.Lbs
9 Optional wiring duct
10 Phase separators 25mm
11 Rear plate insulating 3p (UL version only)
12 Rear plate insulating 4p (UL version only)
15 Connection kit F/P IntBus/ExtNeut/Sel

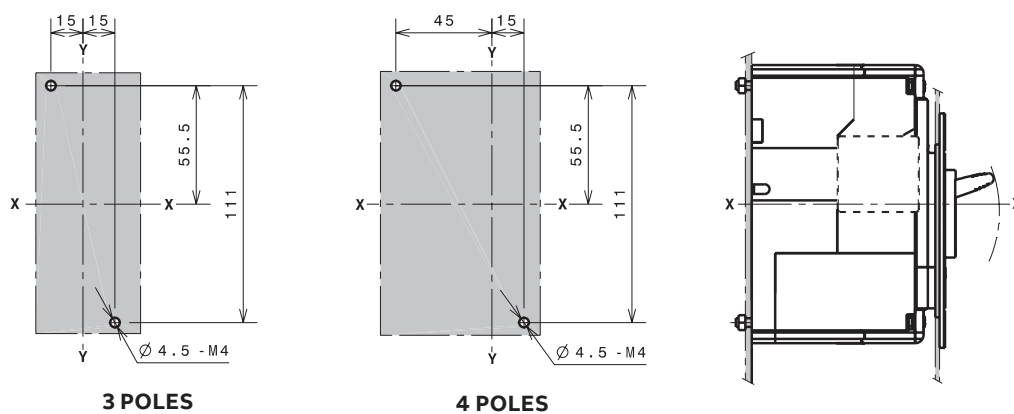


Fixed circuit-breaker fixing on DIN EN 50022 rail

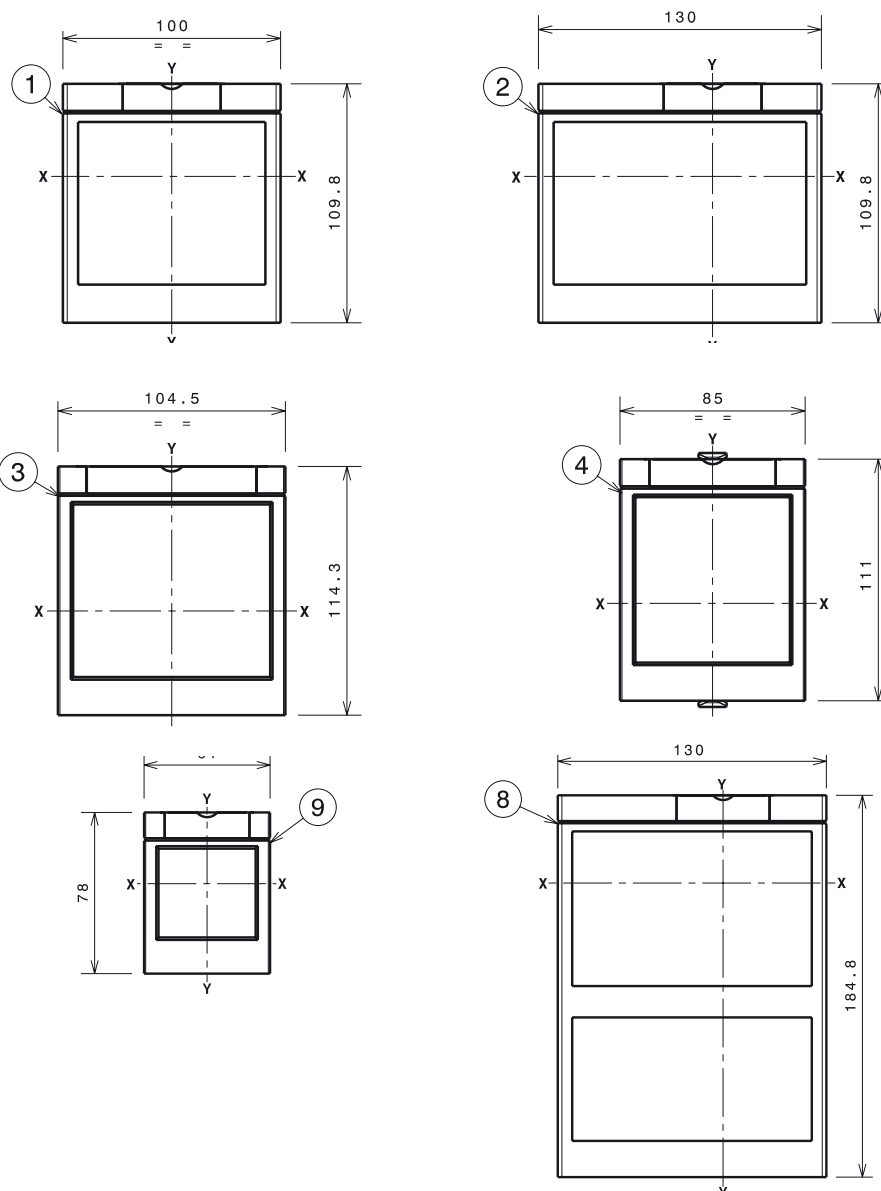
- Key
1 Bracket for fixing
3 Phase separators 25mm



Drilling templates and support sheet



Flanges



Key

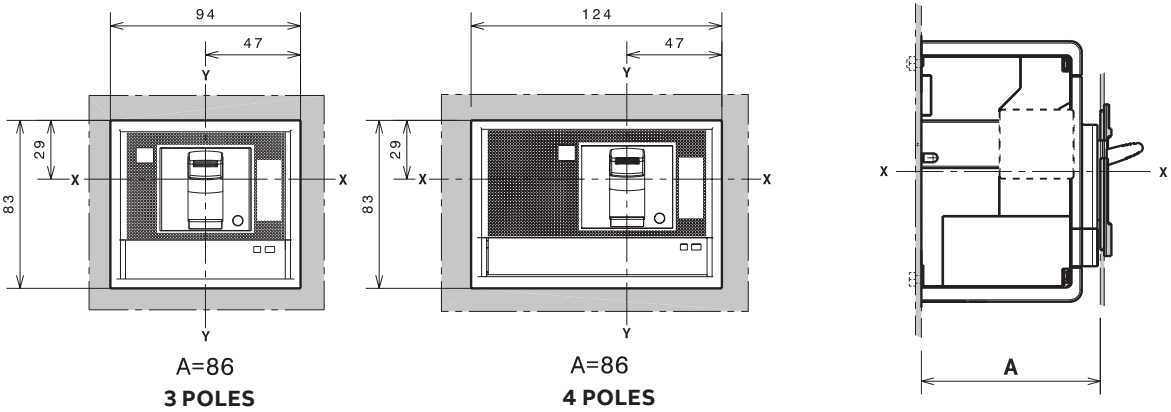
- 1 Flange for fixed circuit-breaker 3p
- 2 Flange for fixed circuit-breaker 4p
- 3 Flange for fixed circuit-breaker 3p-4p with MOE and FLD
- 4 Flange for circuit-breaker 3p-4p with direct rotary handle RHD
- 8 Flange for circuit-breaker 4p with fixed residual current and front terminals
- 9 Optional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

Tmax XT2 – Installation

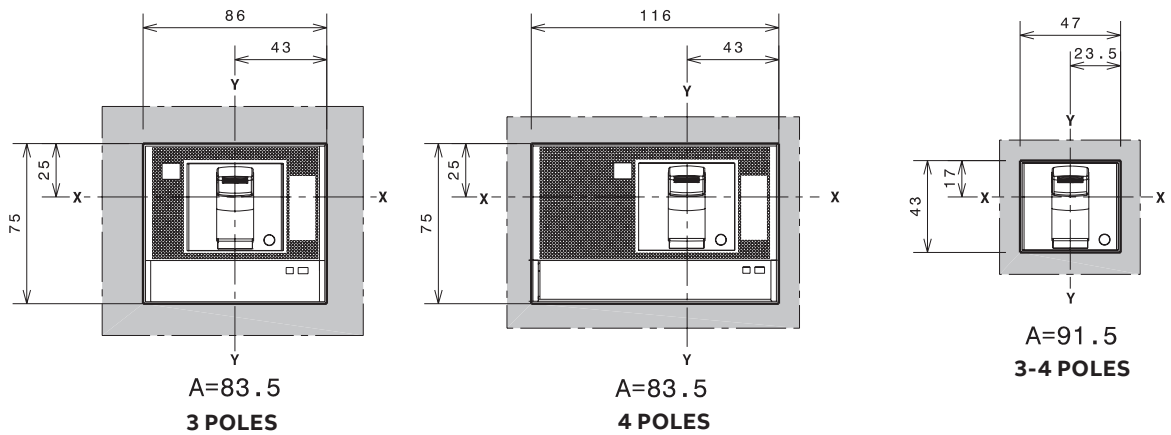
Installation for fixed circuit-breaker

Compartment door drilling templates

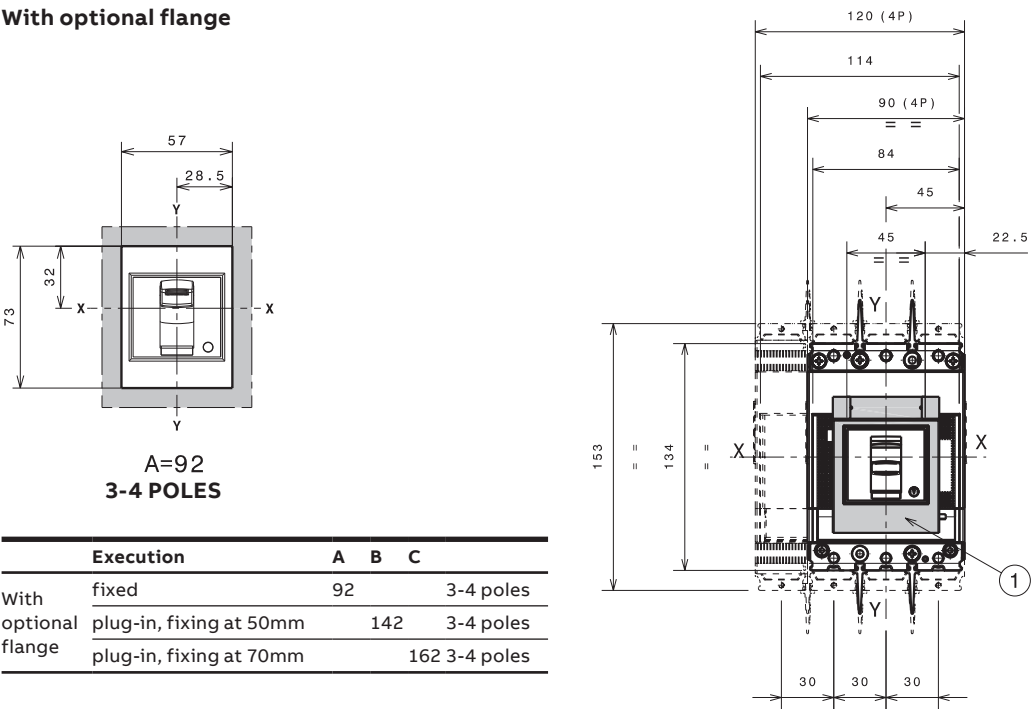
With standard flange



Without flange



With optional flange



Key
1 Optional flange

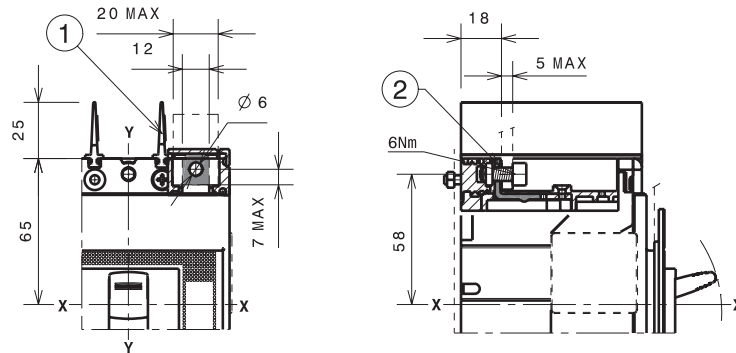
Tmax XT2 – Installation

Terminals for fixed circuit-breaker

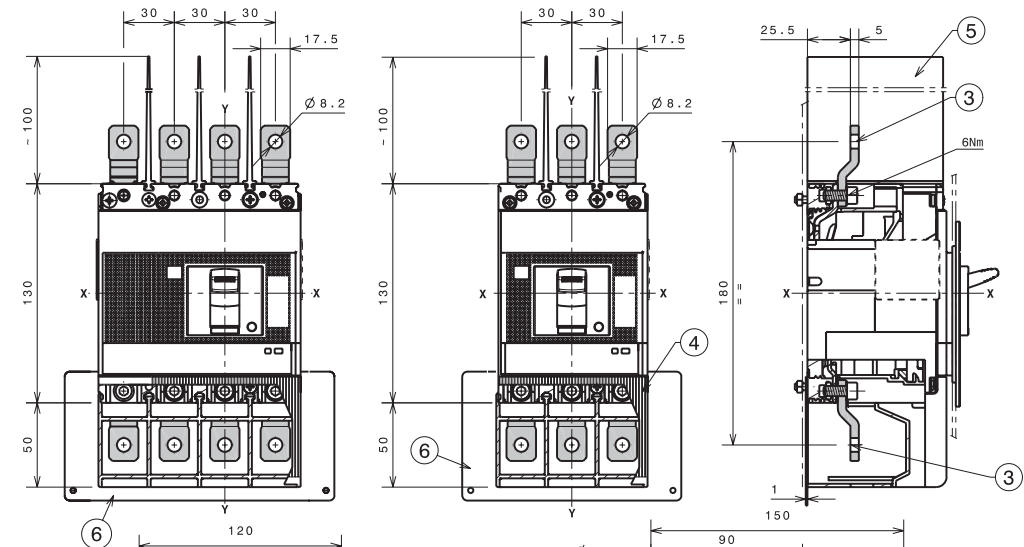
Terminals F

Key

- 1 Phase separators 25mm
- 2 Front terminals for busbars connection

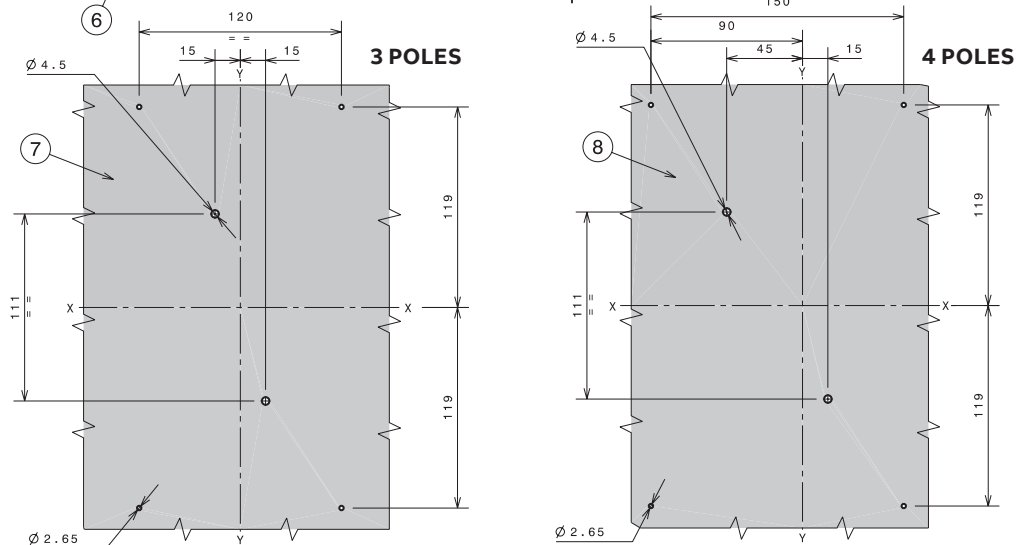


Terminals EF



Key

- 3 Front extended terminals
- 4 Terminal covers with degree of protection IP40
- 5 Phase separators 100mm
- 6 Insulated plate
- 7 Drilling template for 3p circuit-breaker Ue>440V
- 8 Drilling template for 4p circuit-breaker Ue>440V



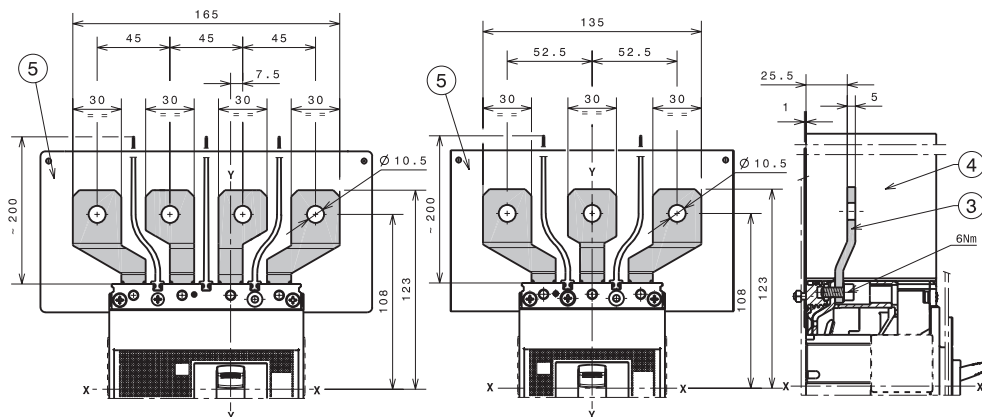
Tmax XT2 – Installation

Terminals for fixed circuit-breaker

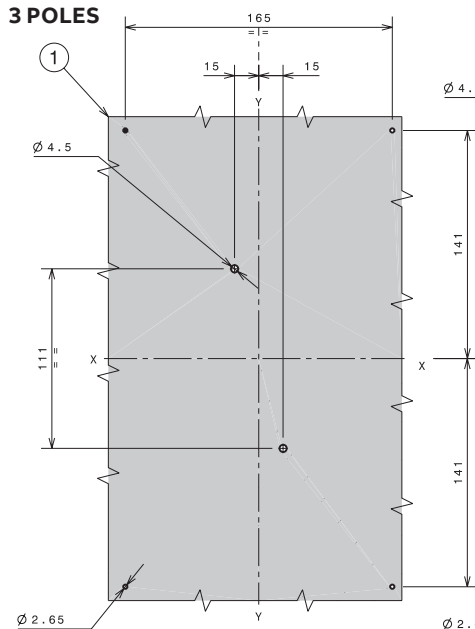
Terminals ES

Key

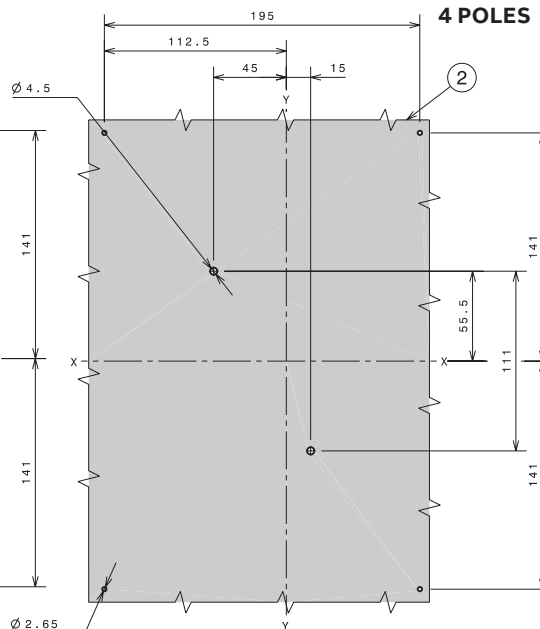
- 1 Drilling template for 3p circuit-breaker Ue>440V
- 2 Drilling template for 4p circuit-breaker Ue>440V
- 3 Front extended spread terminals
- 4 Phase separators 200mm
- 5 Insulated plate



3 POLES



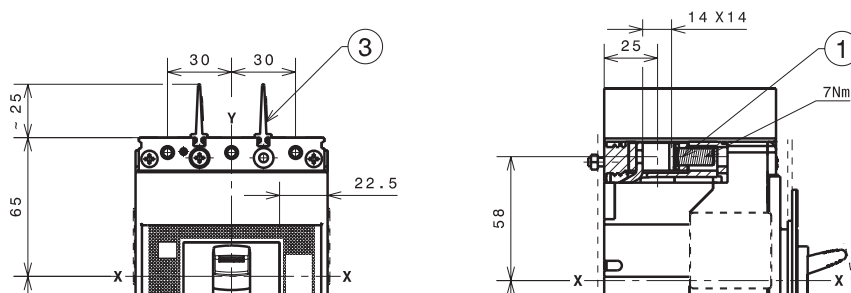
4 POLES



1x1...95mm² terminals FCCuAl

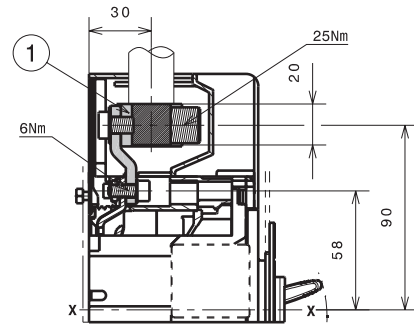
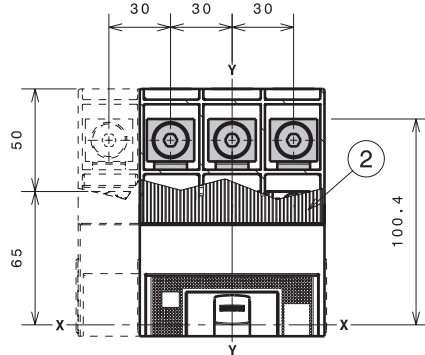
Key

- 1 1x1...95mm² terminals FCCuAl
- 3 Phase separators 25mm

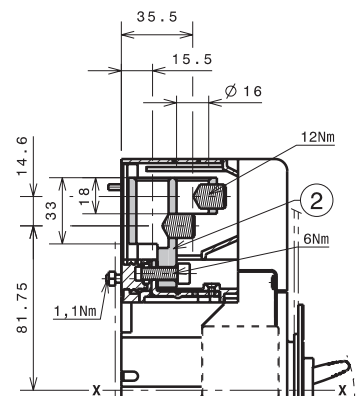
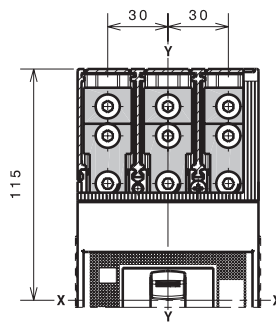
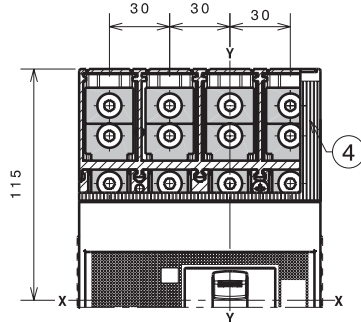


1x70...185mm² terminals FCCuAl—
Key

- 1 External terminal FCCuAl
- 2 High terminal covers with degree of protection IP40

2x35...70mm² terminals FCCuAl—
Key

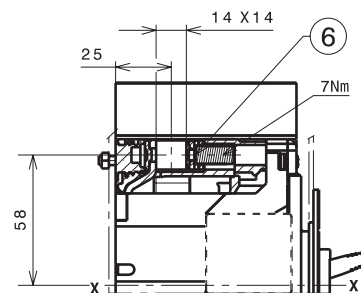
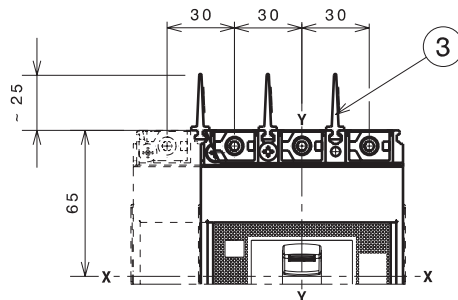
- 2 2x35...70mm² terminals FCCuAl
- 4 Terminal covers with degree of protection IP40



Terminals FCCu

—
Key

- 3 Phase separators 25mm
- 6 Terminals FCCu

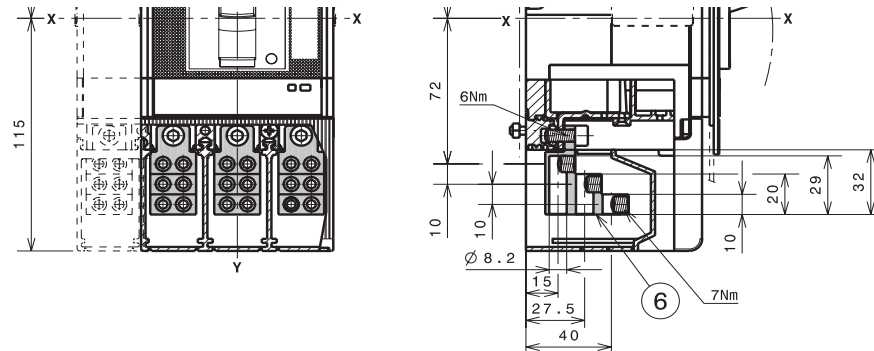


Tmax XT2 – Installation

Terminals for fixed circuit-breaker

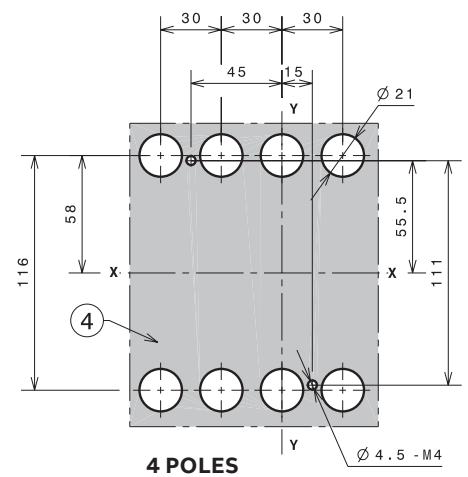
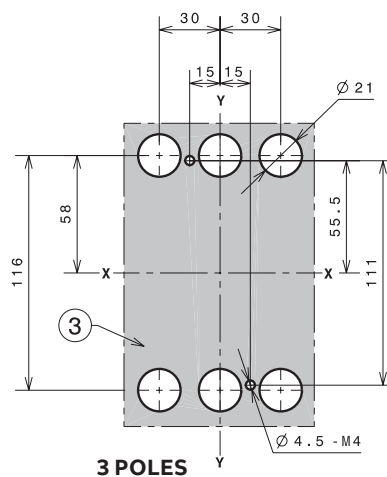
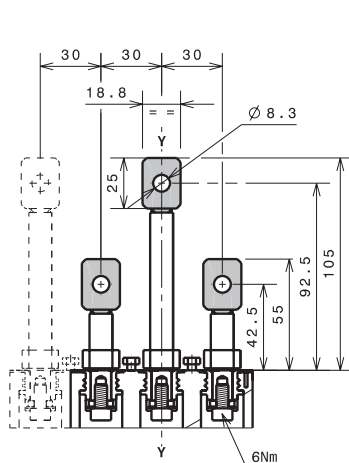
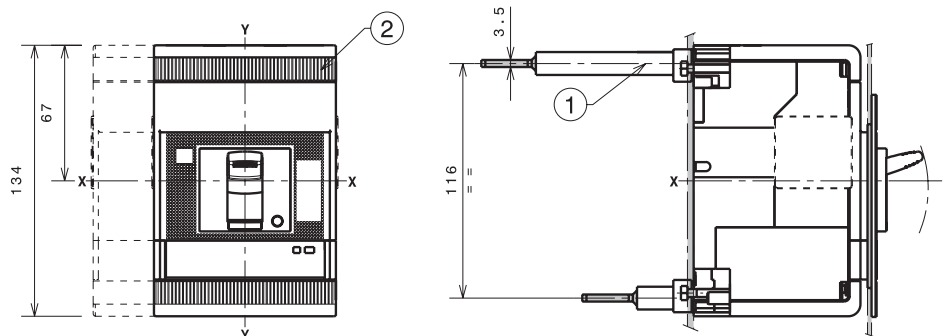
Terminals MC

- Key
6 Multicable terminals



Terminals R

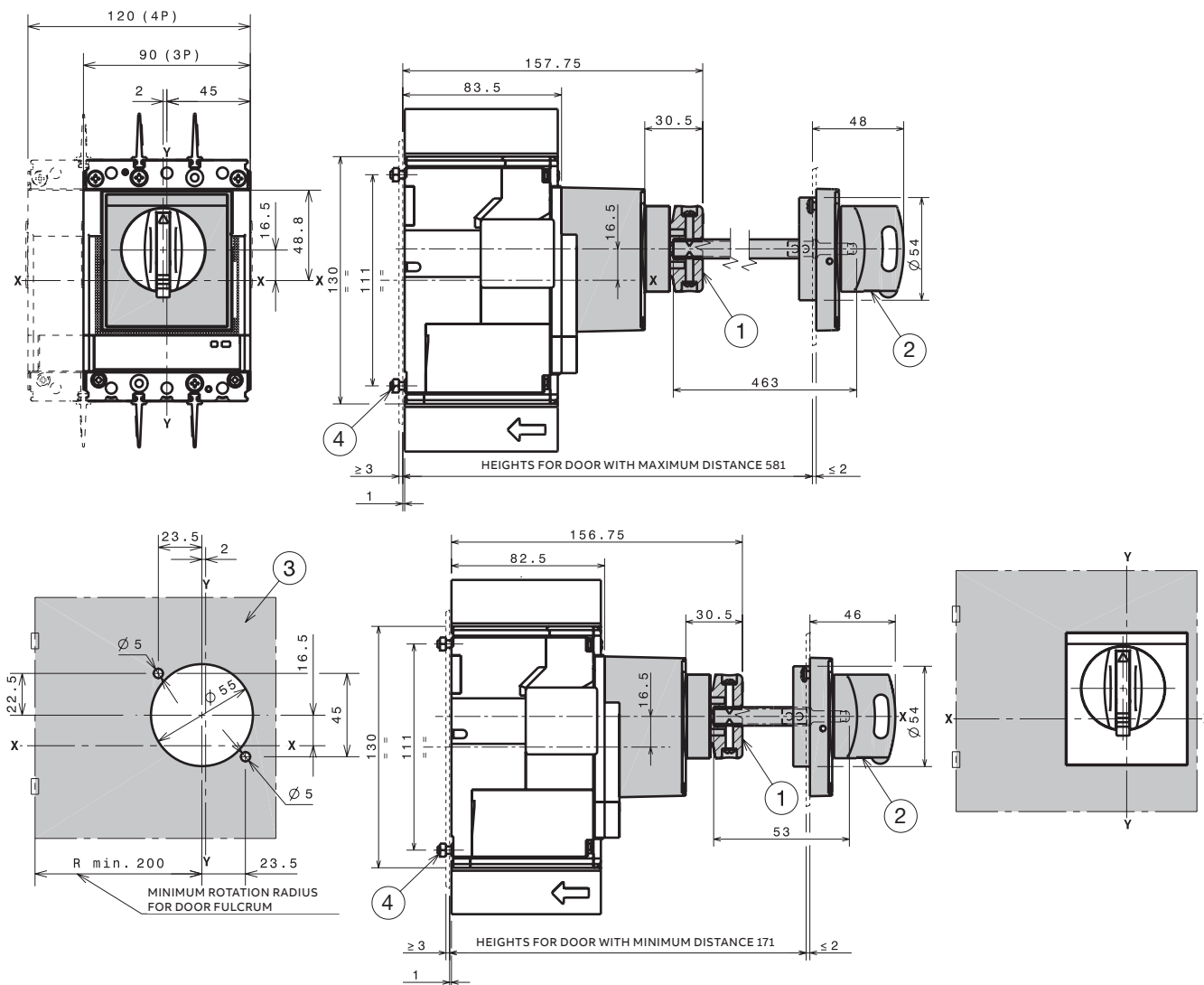
- Key
1 Rear adjustable terminals
2 Bottom terminal covers with degree of protection IP30
3 Drilling template for circuit-breaker 3p fixing on sheet
4 Drilling template for circuit-breaker 4p fixing on sheet



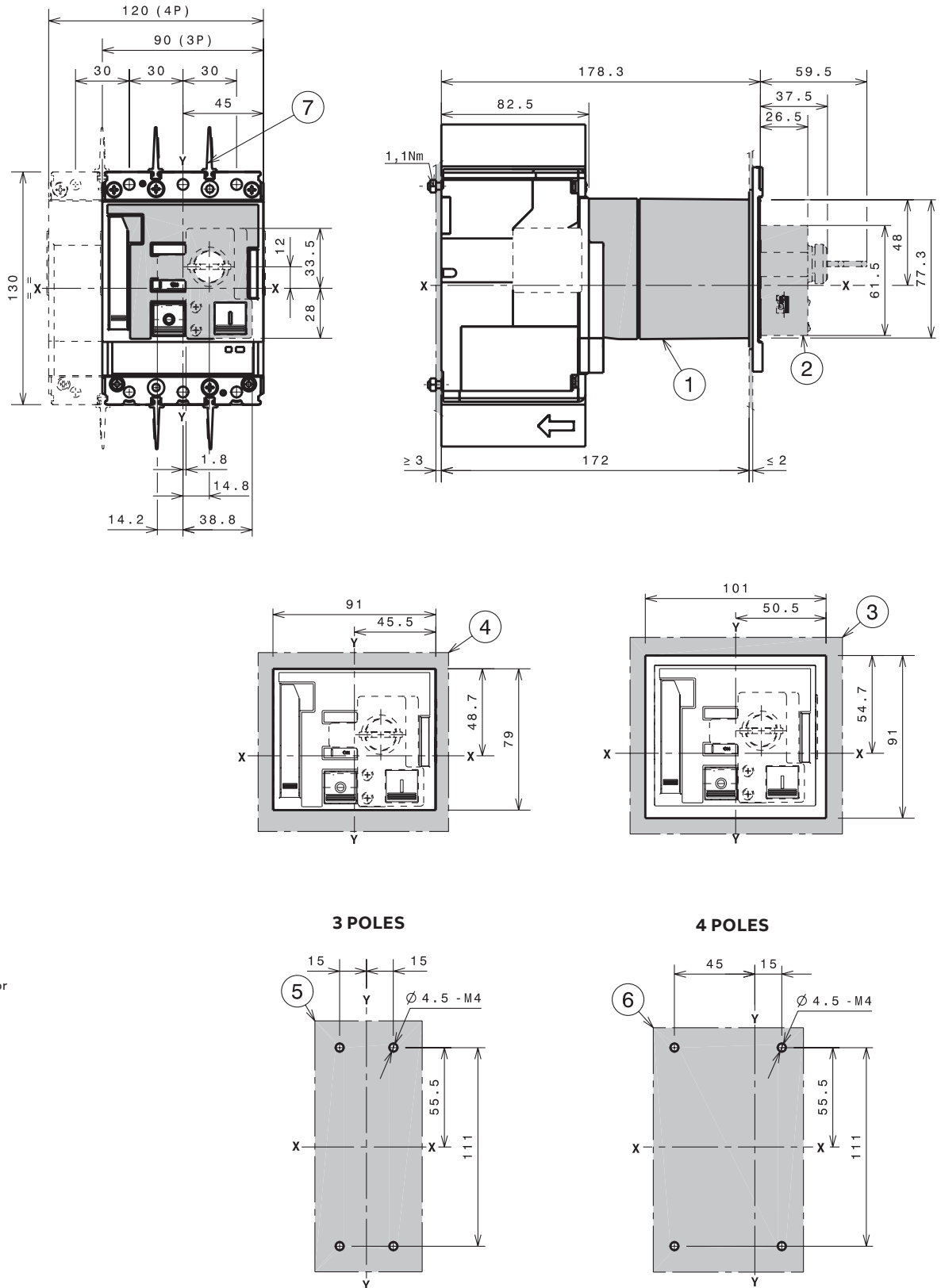
Tmax XT2 – Installation

Accessories for fixed circuit-breaker

Rotary handle operating mechanism on the compartment door (RHE)



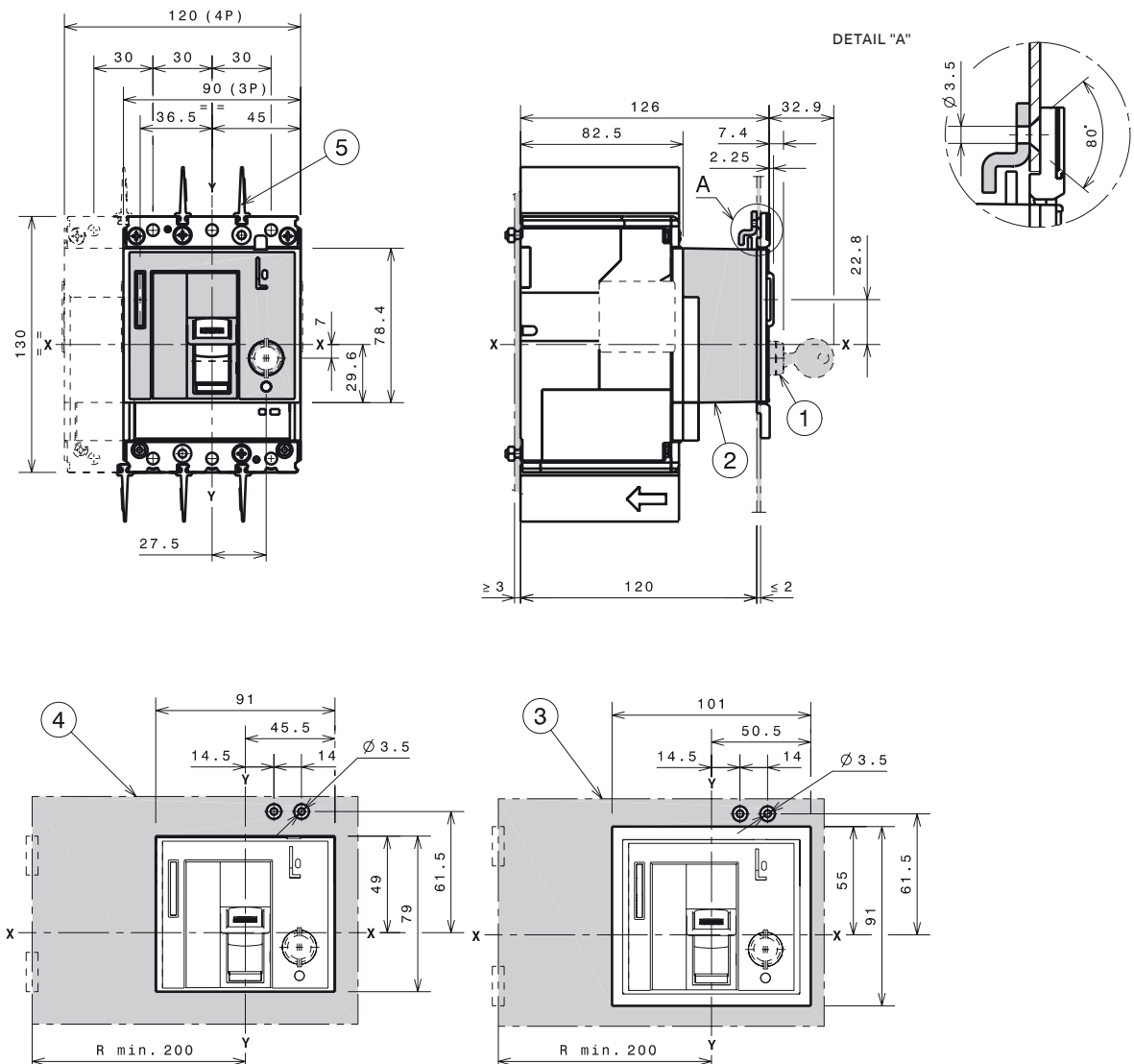
Stored energy motor operator (MOE)



Tmax XT2 – Installation

Accessories for fixed circuit-breaker

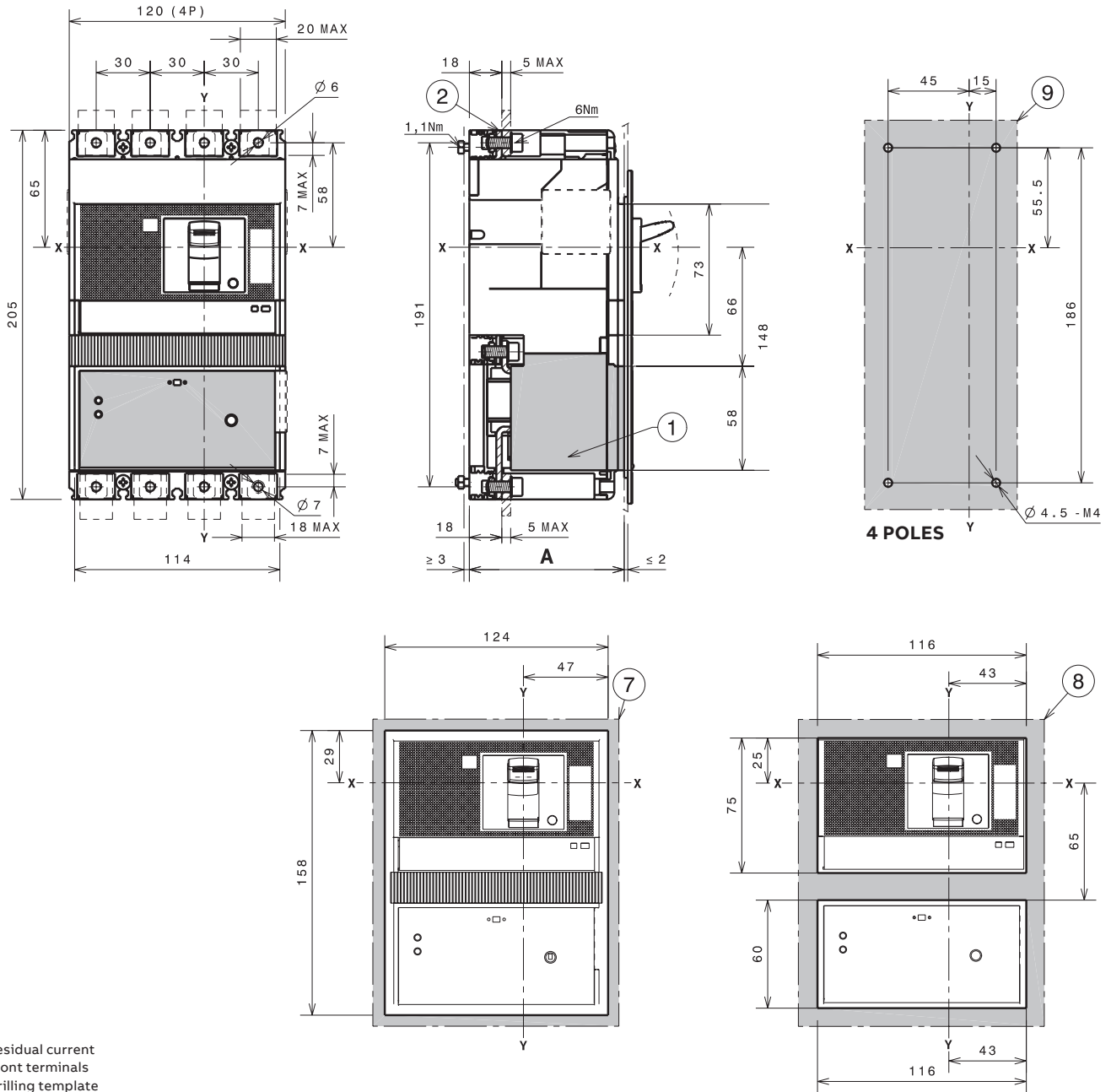
Front for lever operating mechanism (FLD)



Key

- 1 Key lock
- 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 Phase separators 25mm

Residual current RC Sel



Key

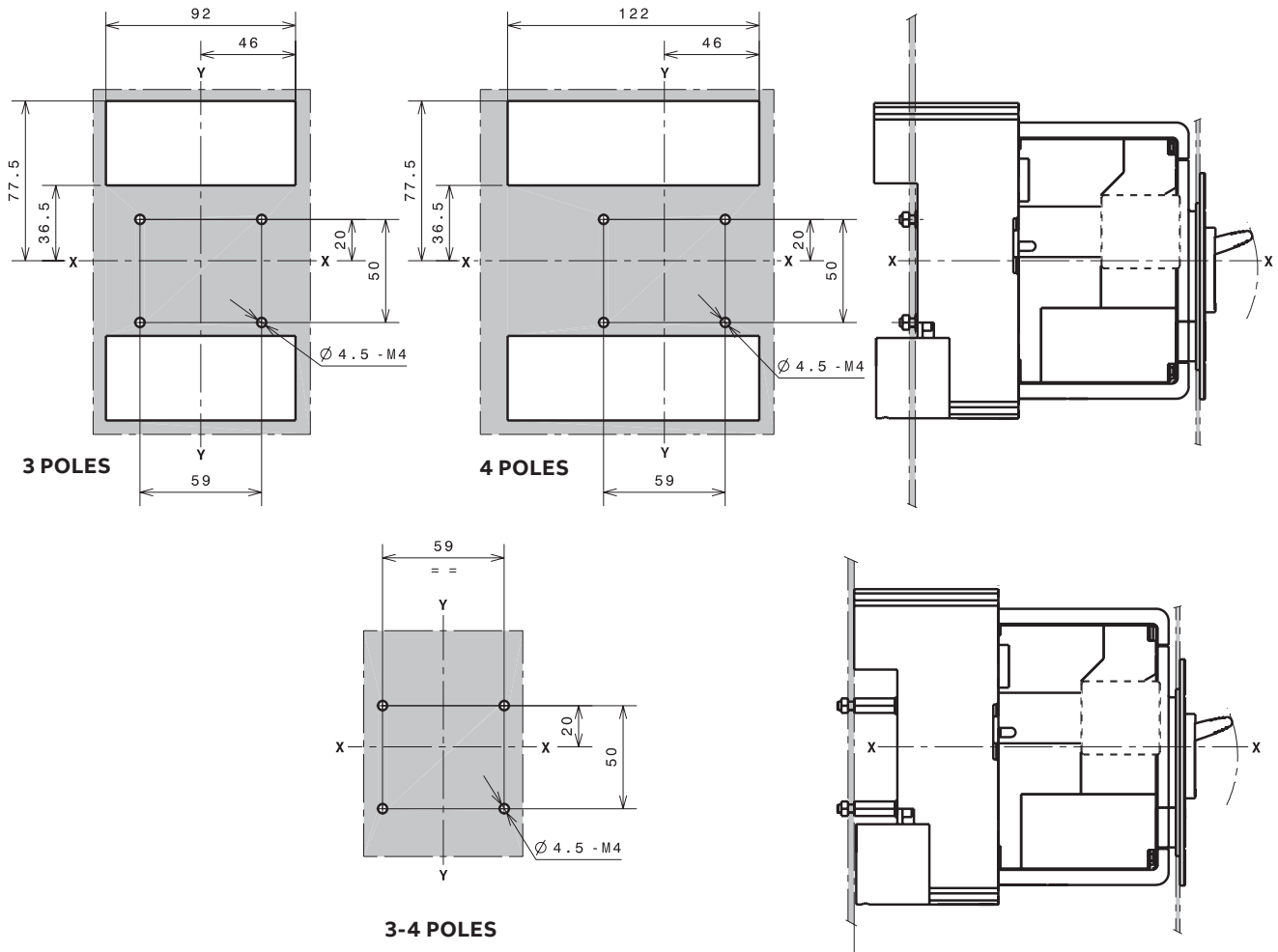
- 1 Residual current
- 2 Front terminals
- 7 Drilling template of door with direct rotary handle and fixing with flange
- 8 Drilling template of door with direct rotary handle and fixing without flange
- 9 Drilling template for circuit-breaker fixing on sheet

	A	
With standard flange	4p	86
Without flange	4p	83.5

Tmax XT2 – Installation

Installation for plug-in circuit-breaker

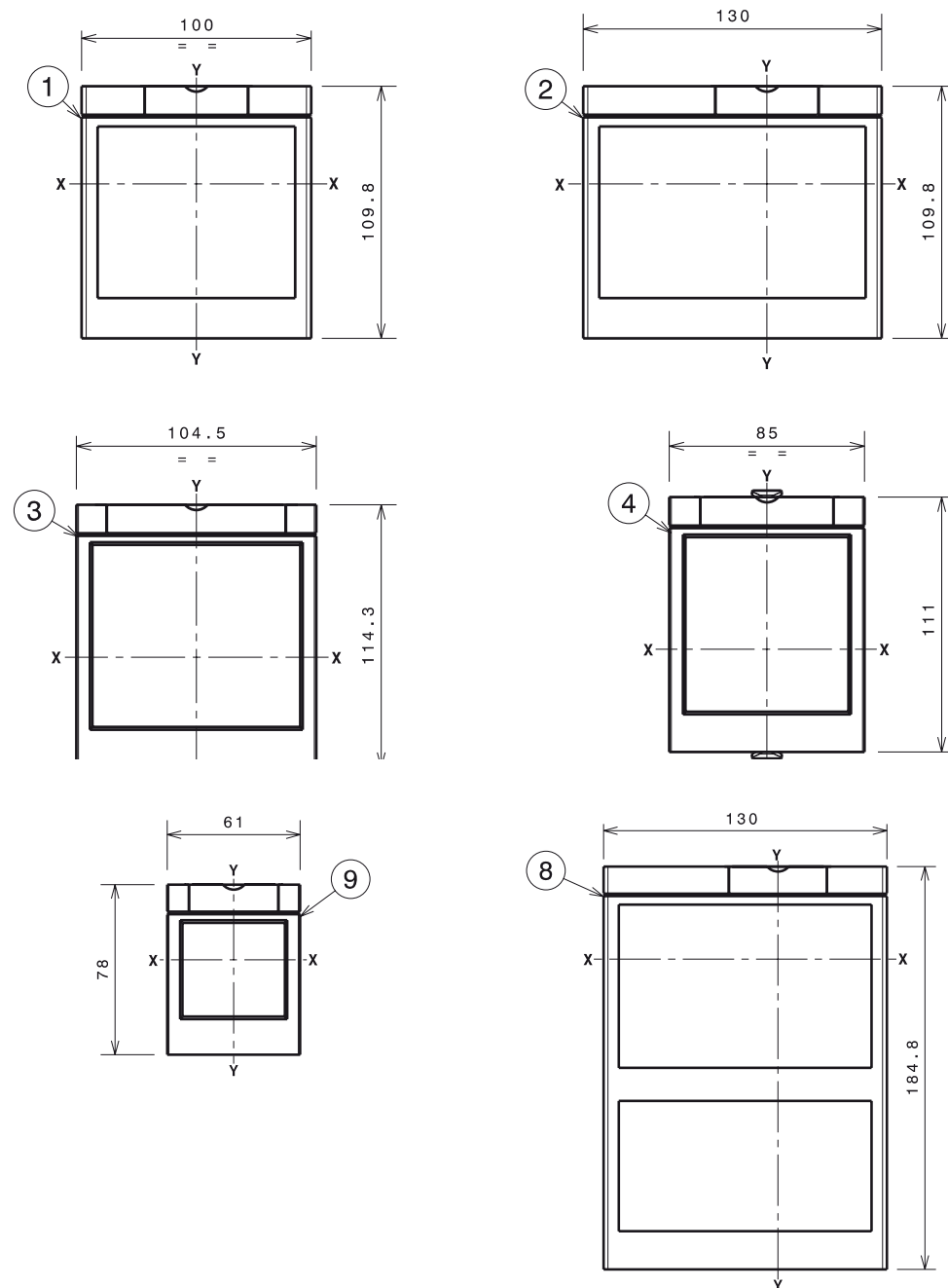
Drilling templates for support sheet



Tmax XT2 – Installation

Installation for plug-in circuit-breaker

Flanges

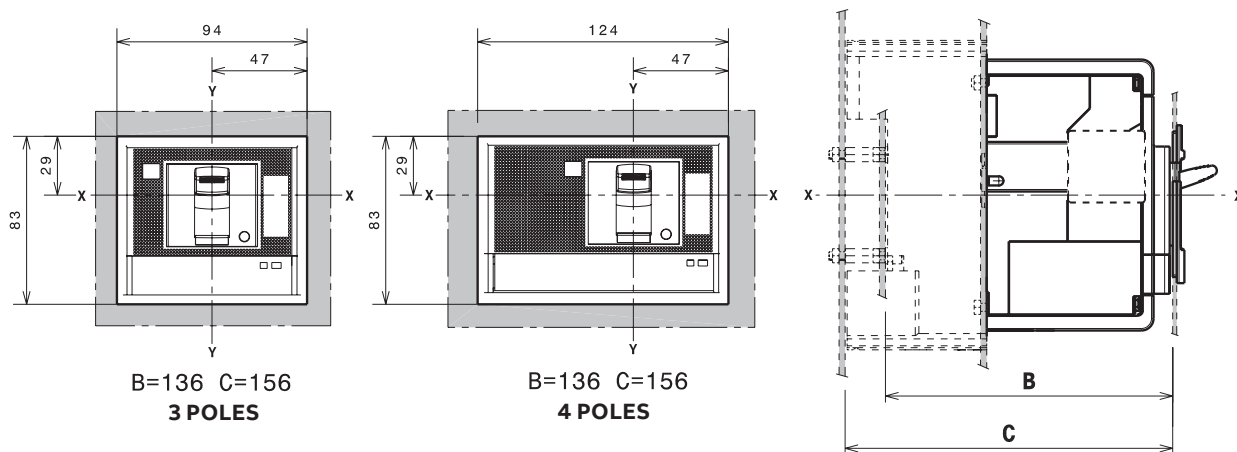


Key

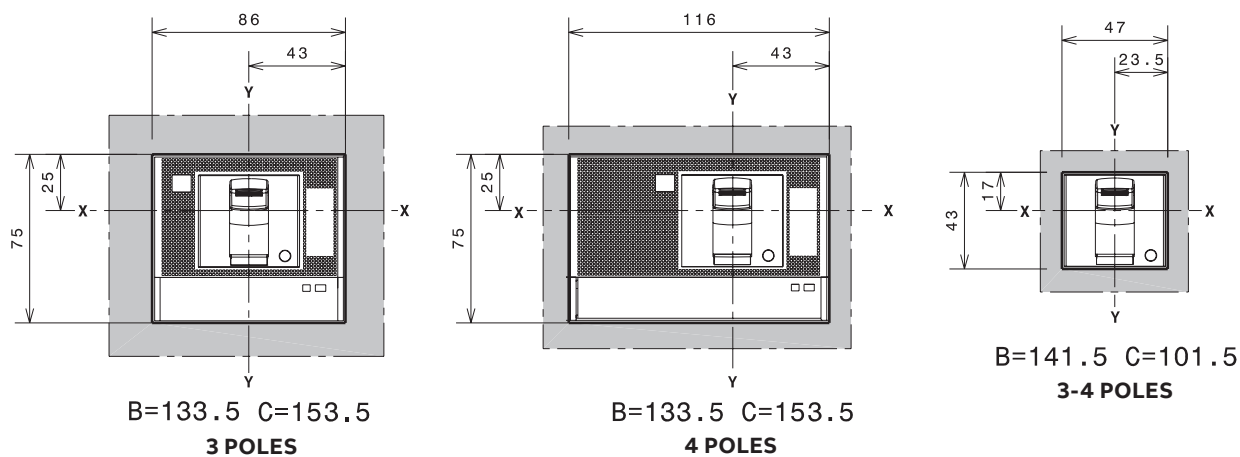
- 1 Flange for removable circuit-breaker 3p
- 2 Flange for circuit-breaker 4p
- 3 Flange for plug-in circuit-breaker 3p-4p with MOE and FLD
- 4 Flange for circuit-breaker 3p-4p with direct rotary handle (RHD)
- 8 Flange for circuit-breaker 4p with residual current and plug-in with front terminals
- 9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

Compartment door drilling templates

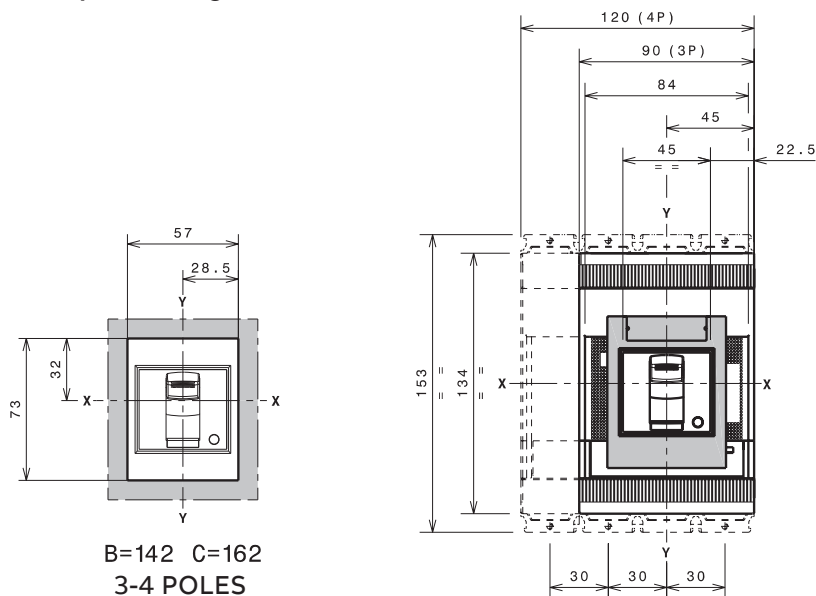
With standard flange



Without flange



With optional flange

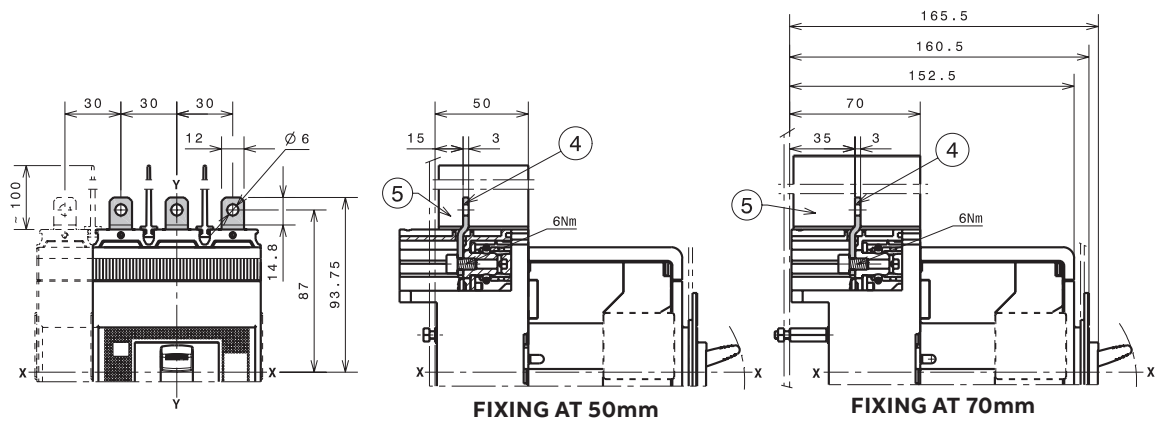


Tmax XT2 – Installation

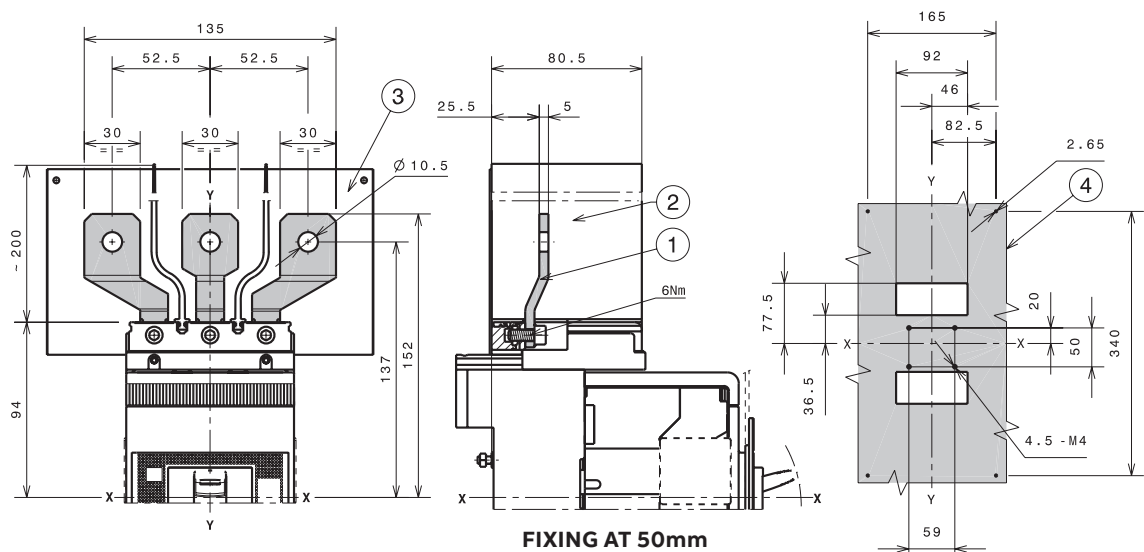
Terminals for plug-in circuit-breaker

Terminals EF

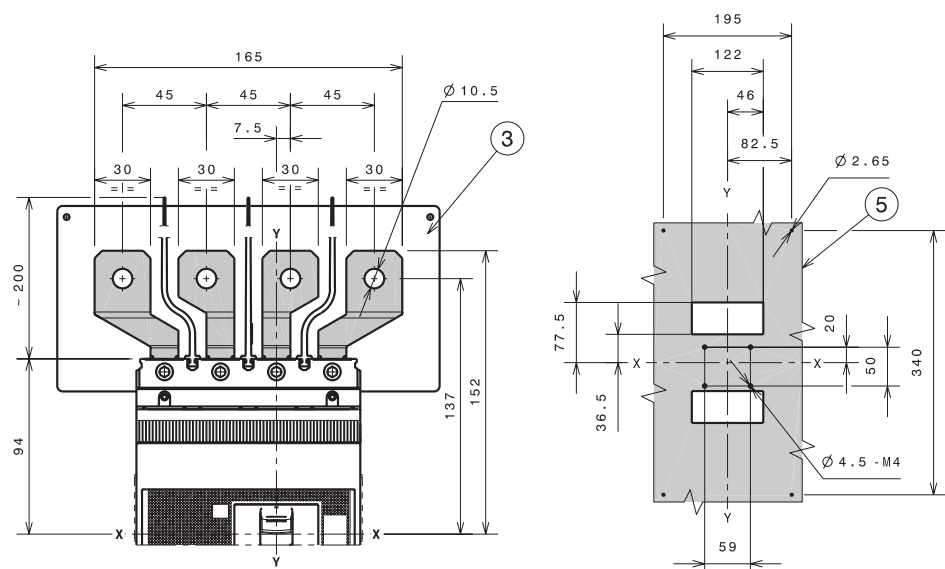
- Key
4 Front extended
terminals
5 Phase separators
100mm



Terminals ES



- Key
1 Front extended
spread terminals
2 Phase separators
200mm
3 Insulated plate
4 Drilling template
for 3p circuit-
breaker Ue>440V
5 Drilling template
for 4p circuit-
breaker Ue>440V

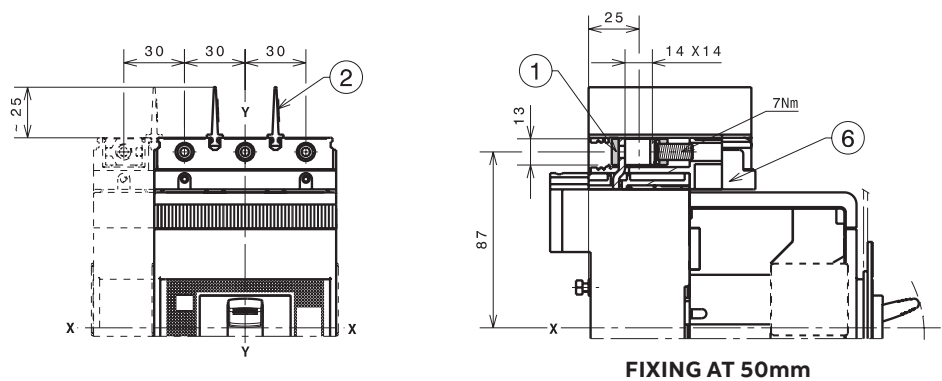


1x1...95mm² terminals FCCuAl

—

Key

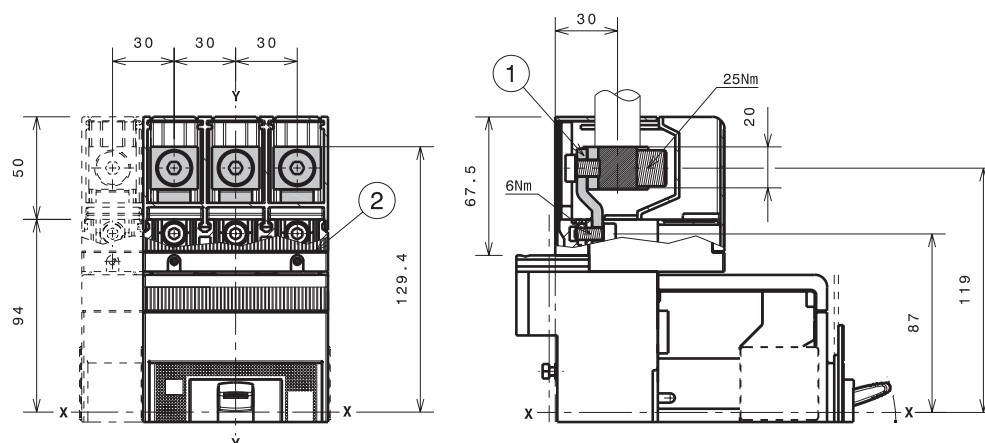
- 1 1x1...95mm² front terminal FCCuAl
- 2 Phase separators 25mm
- 6 Adaptor

1x70...185mm² terminals FCCuAl

—

Key

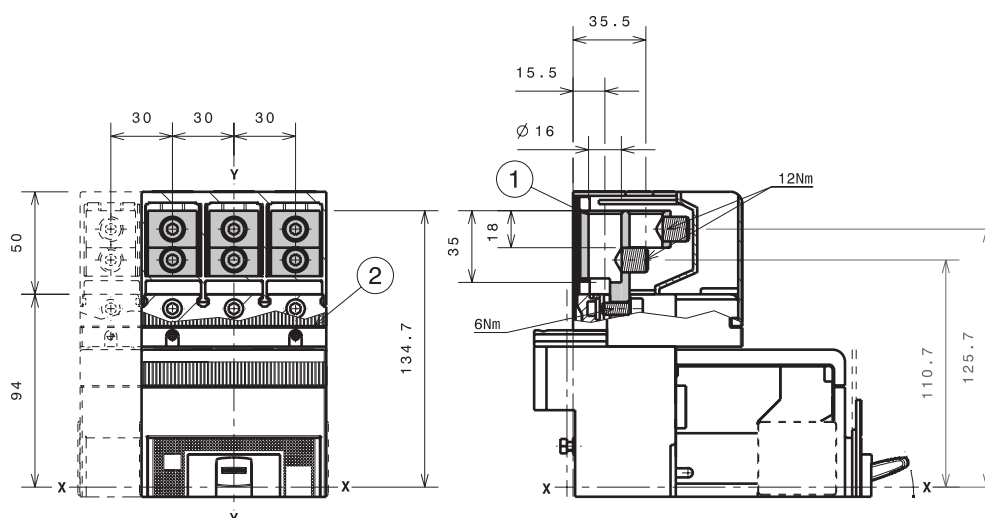
- 1 External terminal FCCuAl
- 2 High terminal covers with degree of protection IP40

2x35...70mm² terminals FCCuAl

—

Key

- 1 External terminal FCCuAl
- 2 High terminal covers with degree of protection IP40



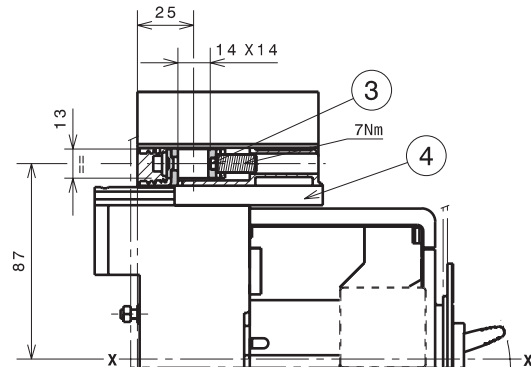
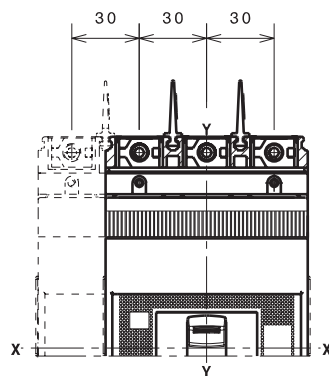
Tmax XT2 – Installation

Terminals for plug-in circuit-breaker

Terminals FCCu

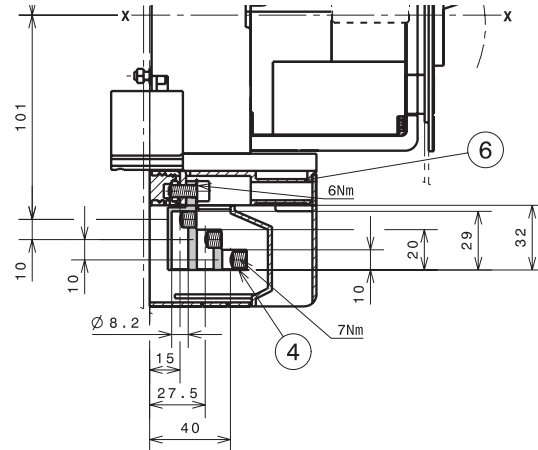
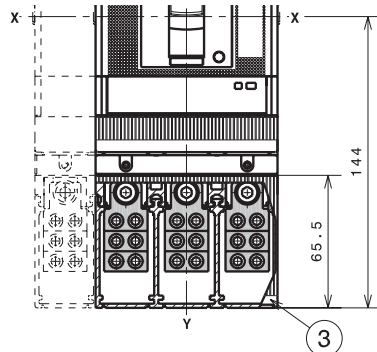
- Key
3 Terminals FCCu
4 Adaptor

Note:
Phase separators 25mm



FIXING AT 50mm

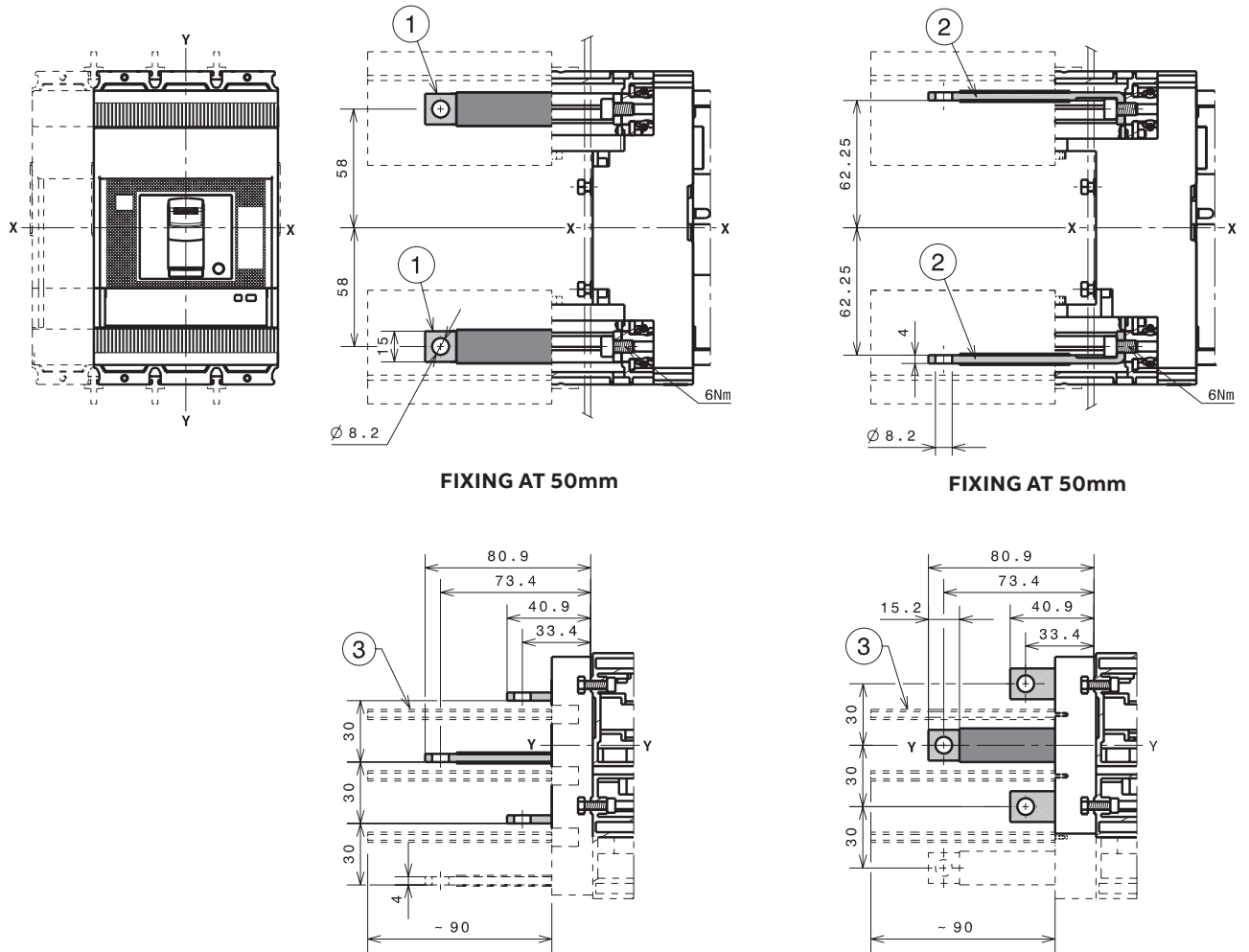
Terminals MC



FIXING AT 50mm

- Key
3 High terminal covers
with degree of
protection IP40
4 Multicable terminals
6 Adaptor

Terminals HR/VR

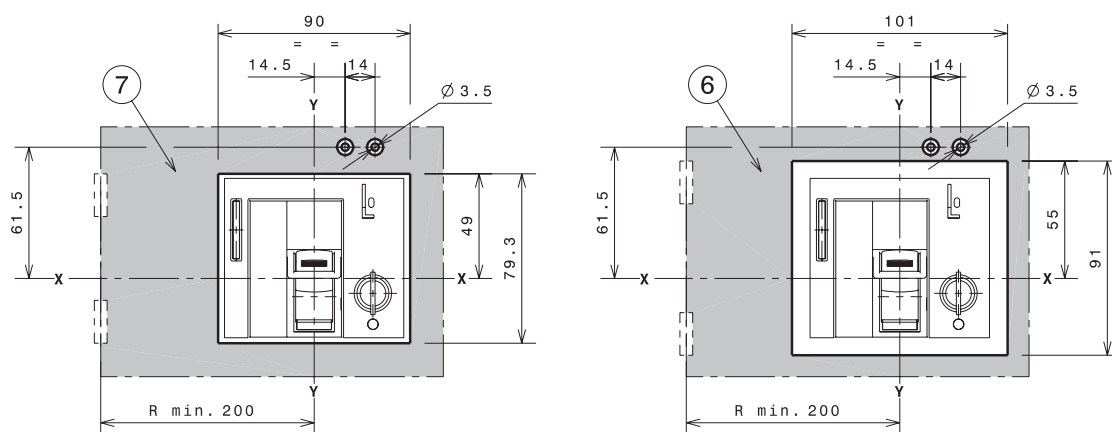
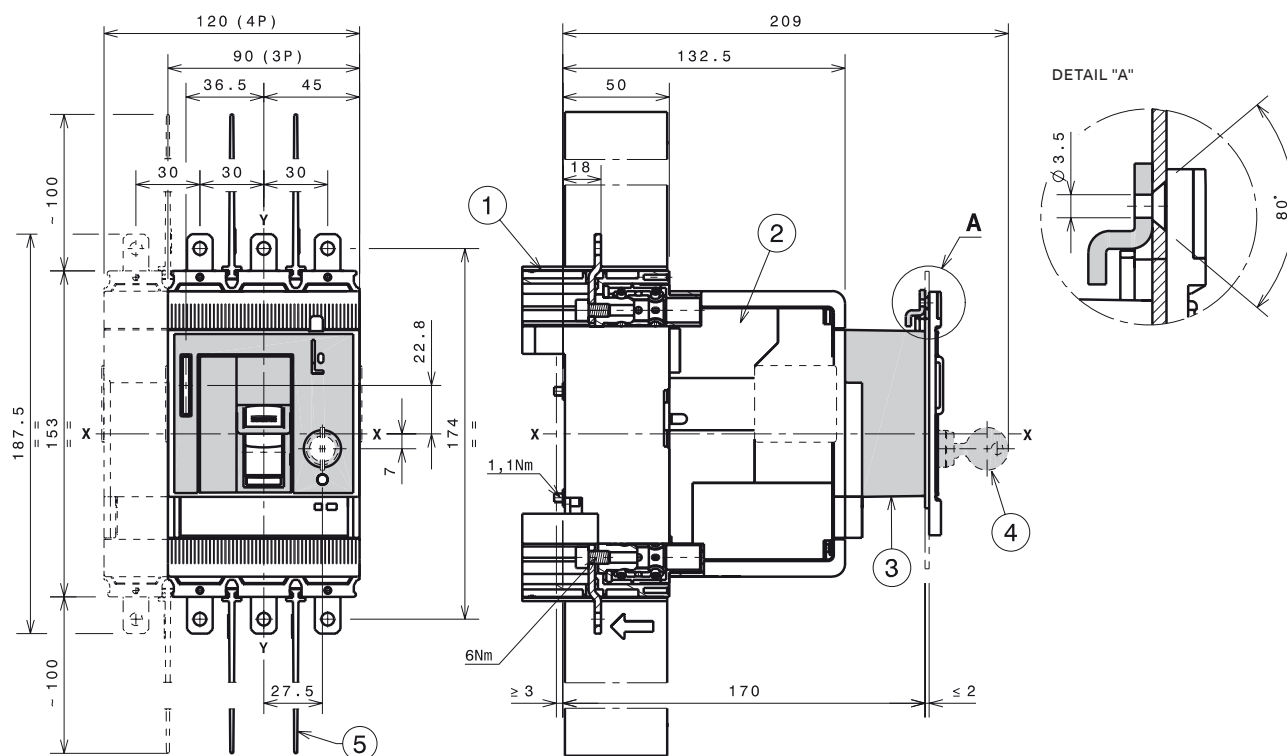


Key

- 1 Rear vertical terminals
- 2 Rear horizontal terminals
- 3 Rear phase separators 90mm

- | Key | |
|-----|---|
| 1 | Fixed part |
| 2 | Moving part |
| 3 | MOE |
| 4 | Key lock |
| 5 | Phase separators
100mm |
| 6 | Drilling template
of door with direct
rotary handle
with flange |
| 7 | Drilling template
of door with direct
rotary handle
without flange |

Front for lever operating mechanism (FLD)

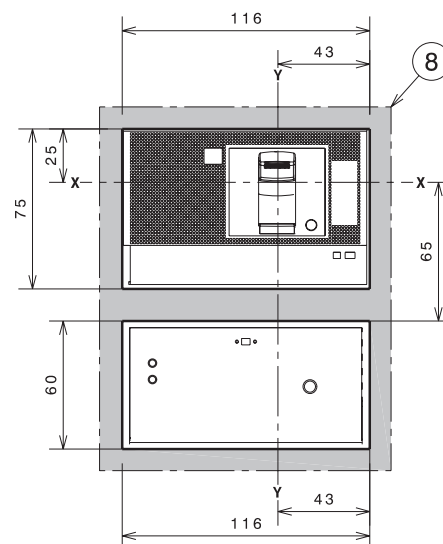
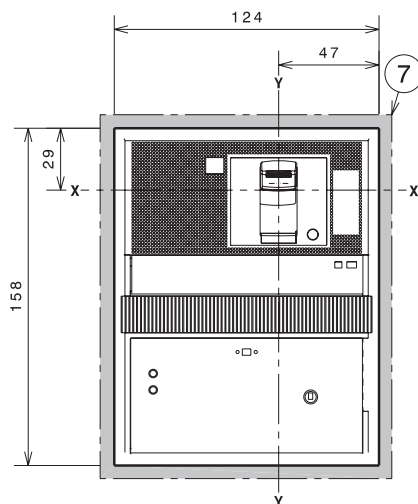
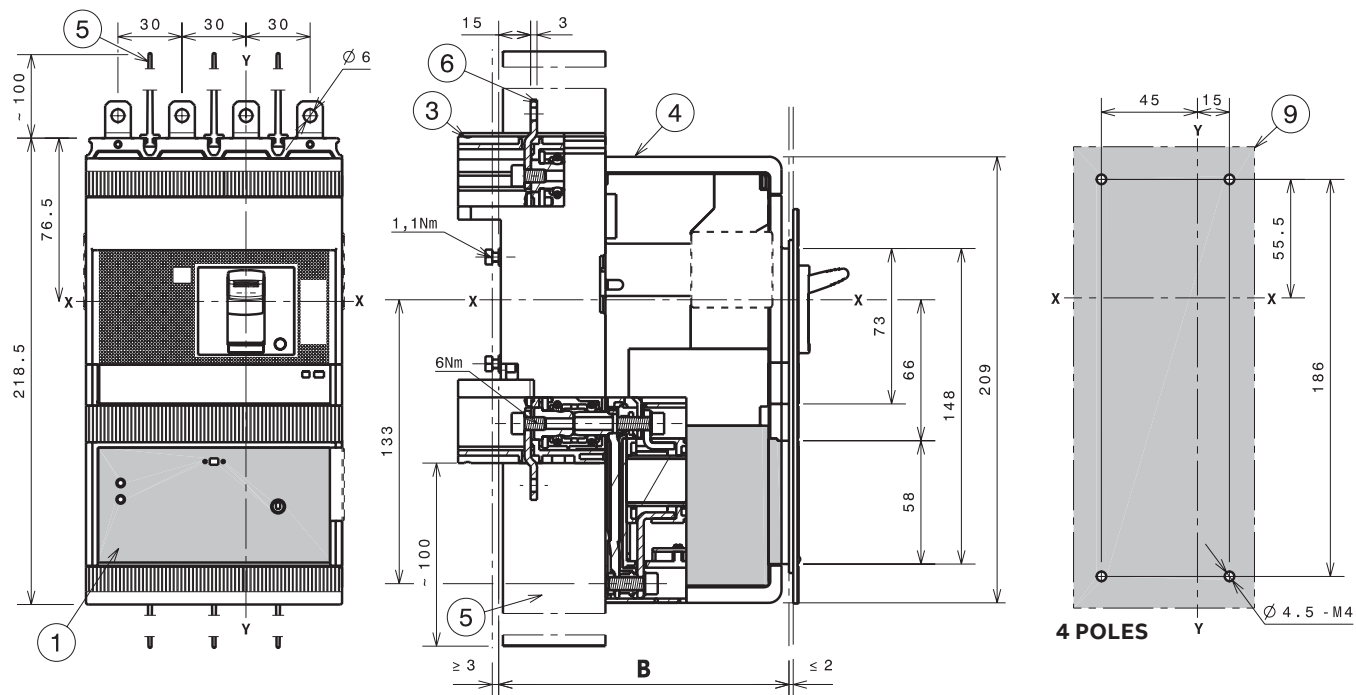


- Key
- 1 Fixed part
 - 2 Moving part
 - 3 Front for lever operating mechanism (FLD)
 - 4 Key lock
 - 5 Phase separators 100mm
 - 6 Drilling template of door with direct rotary handle with flange
 - 7 Drilling template of door with direct rotary handle without flange

Tmax XT2 – Installation

Accessories for plug-in circuit-breaker

Residual current RC Sel



Key

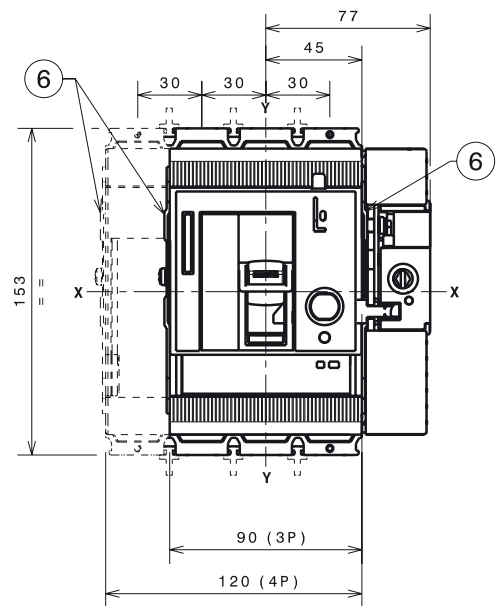
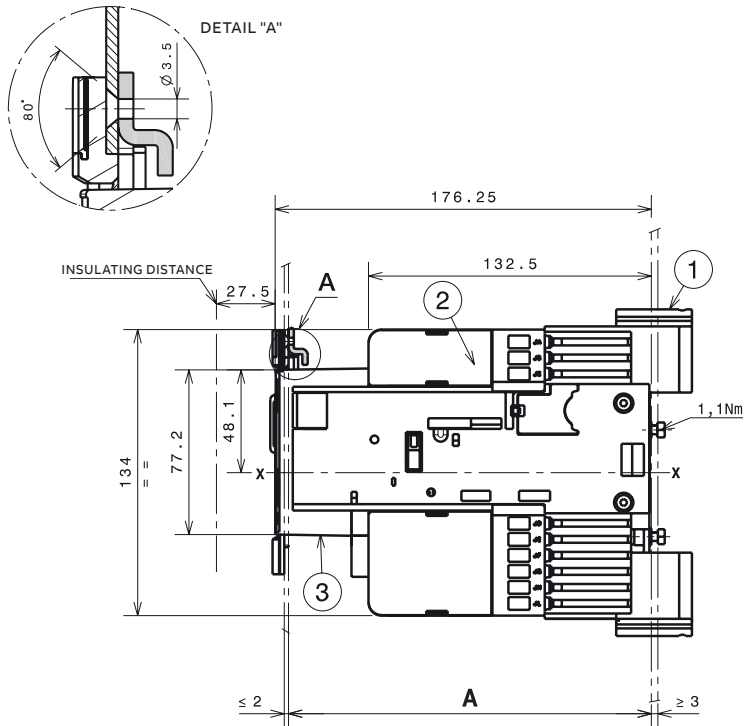
- 1 Residual current
- 3 Fixed part
- 4 Moving part
- 5 Phase separators 100mm
- 6 Extended terminals
- 7 Drilling template of door with direct rotary handle and fixing with flange
- 8 Drilling template of door with direct rotary handle and fixing without flange
- 9 Drilling template for circuit-breaker fixing on sheet

A		
With standard flange	4p	136
Without flange	4p	133.5

Tmax XT2 – Installation

Installation for withdrawable circuit-breaker

Fixing on sheet

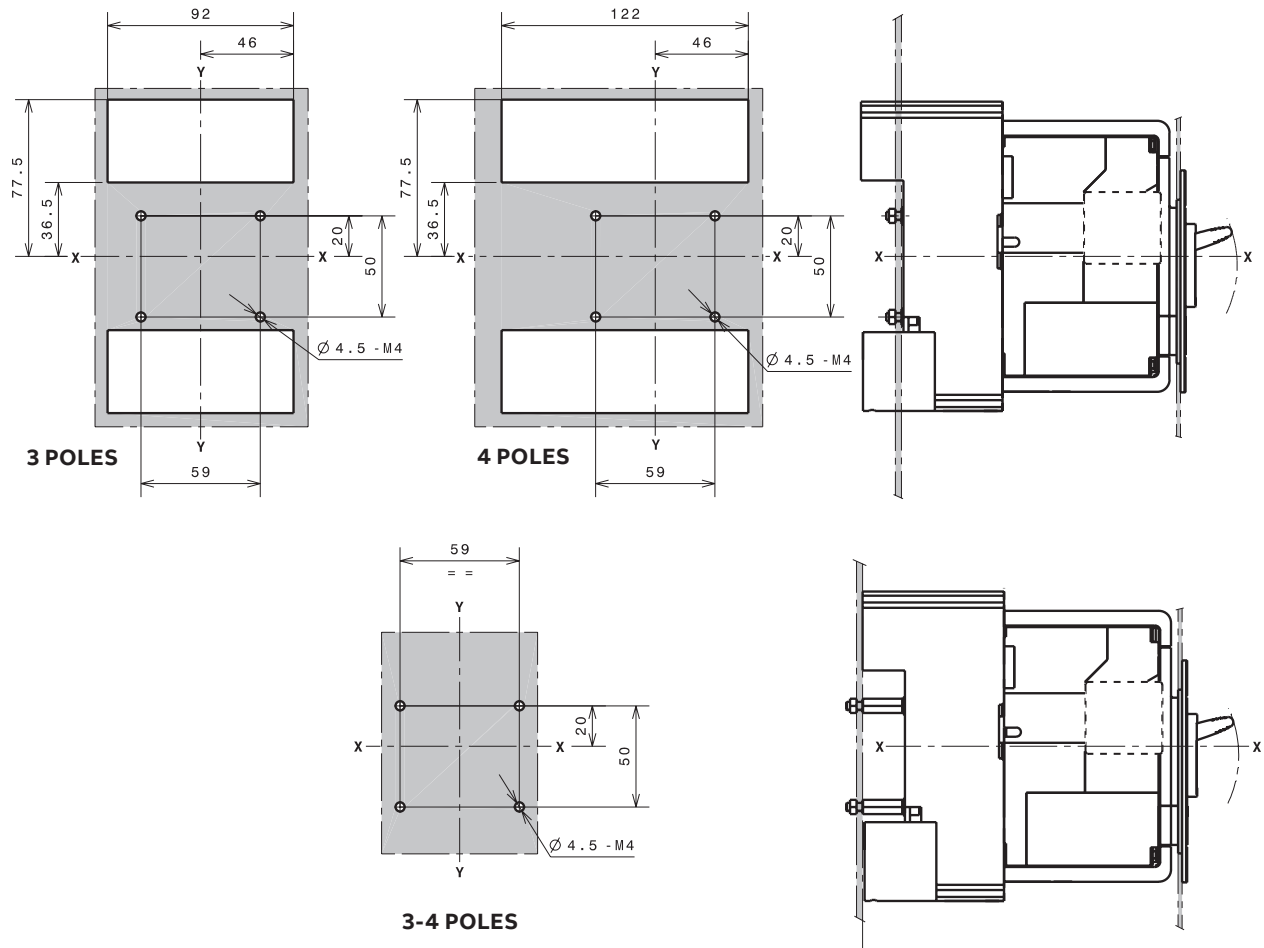


			A
With standard flange	3p - 4p	Fixing at 50mm	170
	3p - 4p	Fixing at 70mm for extended front terminals	190

Key

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

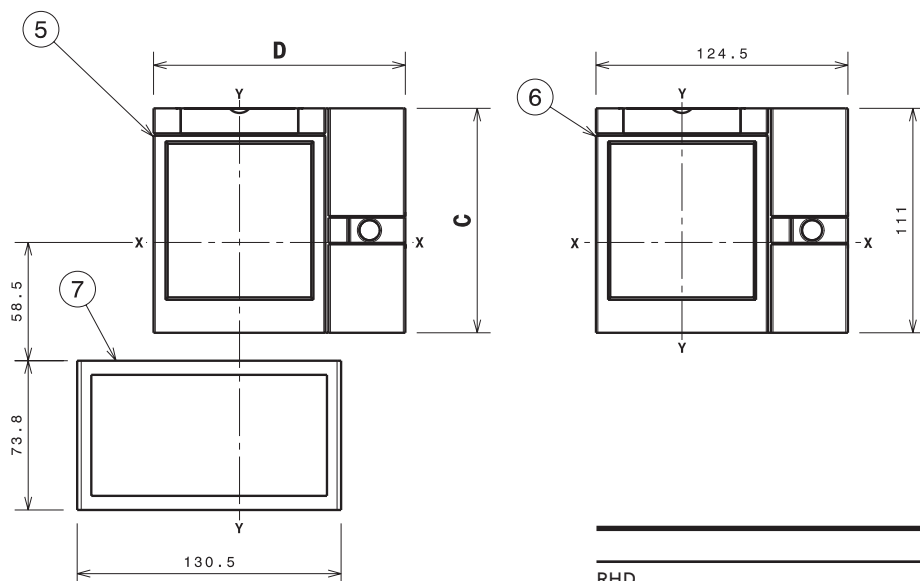
Drilling templates for support sheet



Flanges

Key

- 5 Flange for circuit-breaker 3p-4p withdrawable
- 6 Flange for circuit-breaker withdrawable 3p-4p with direct rotary handle RHD
- 7 Flange for residual current release (4p) with front extended terminals



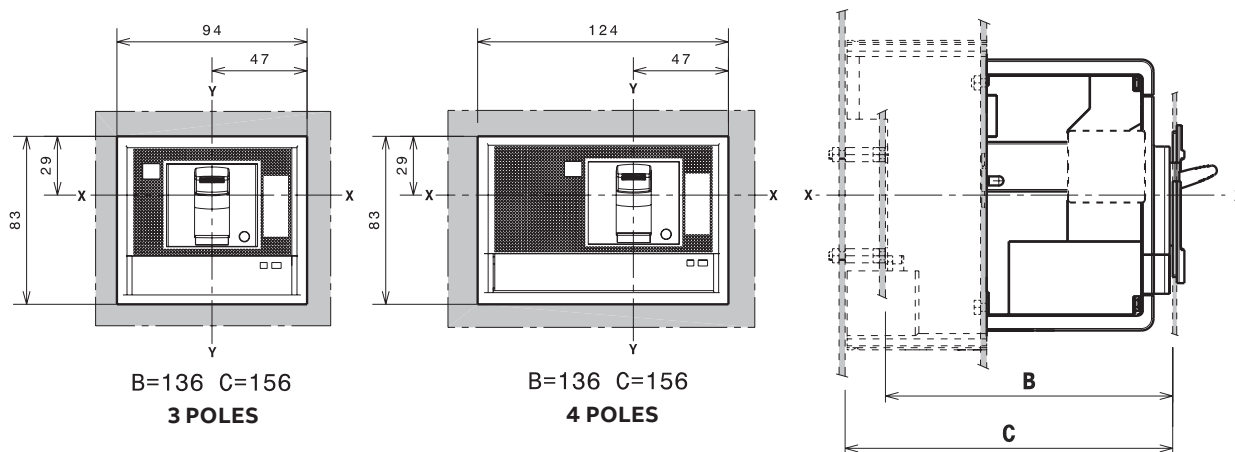
	C	D
RHD	111	124.5
FLD - MOE	114.3	134.5

Tmax XT2 – Installation

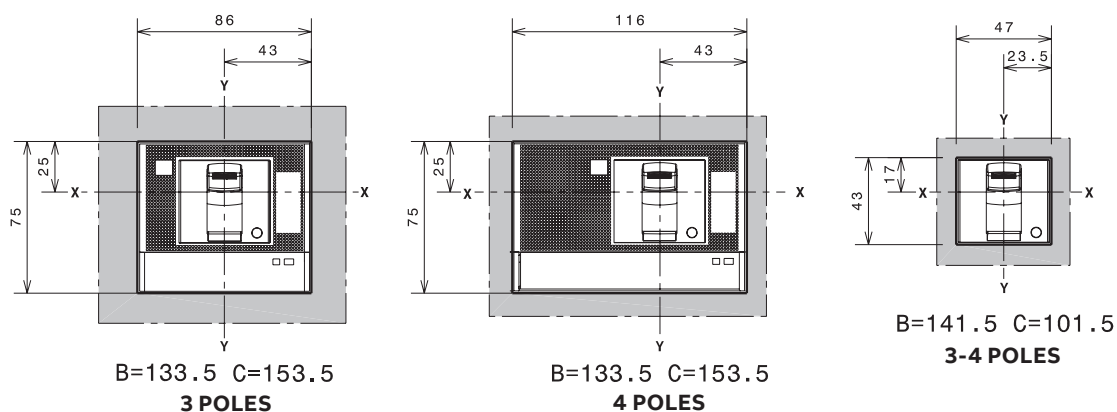
Installation for withdrawable circuit-breaker

Compartment door drilling templates

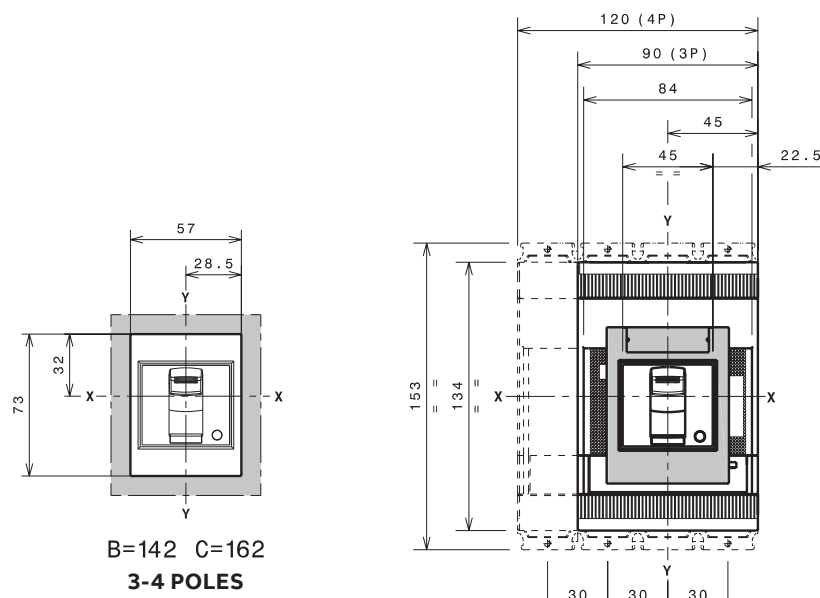
With standard flange



Without flange



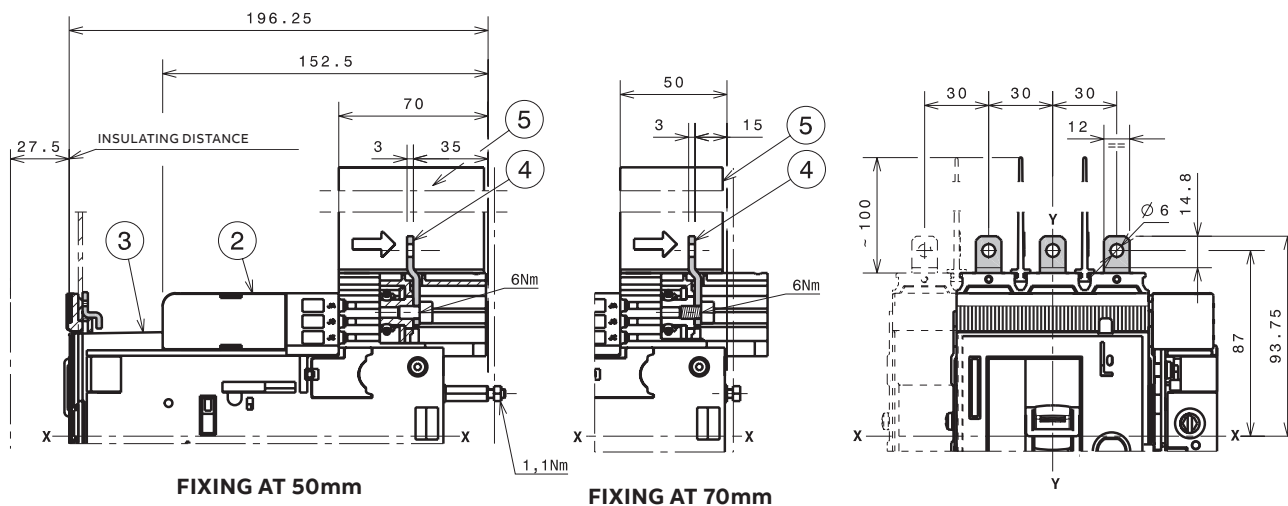
With standard flange



Tmax XT2 – Installation

Terminals for withdrawable circuit-breaker

Terminals EF



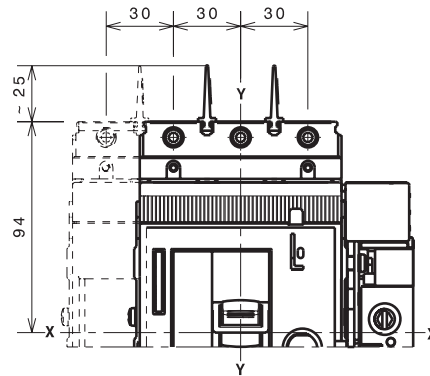
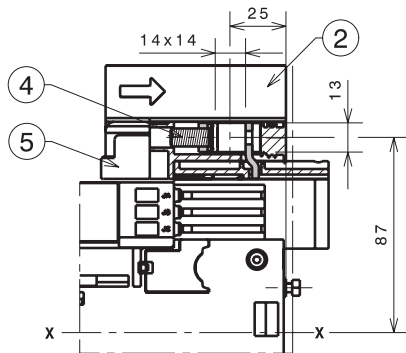
Key

- 2 Moving part
- 3 FLD (FLD or RHD or RHE or MOE) mandatory for withdrawable version
- 4 Front extended terminals
- 5 Phase separators 100mm

Note:
insulated plate

1x1...95mm² terminals FCCuAl

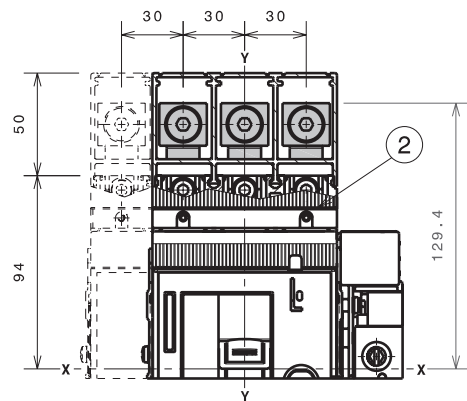
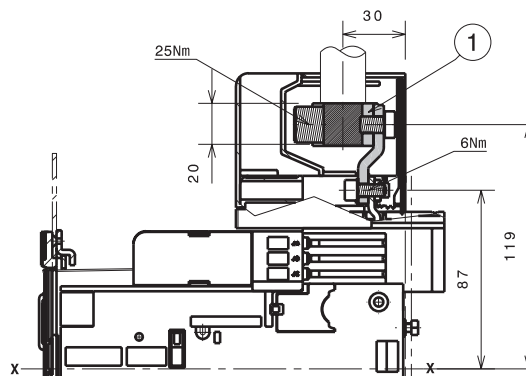
- Key
- 2 Phase separators
25mm
 - 4 1x1...95mm² front
terminals FCCuAl
 - 5 Adaptor



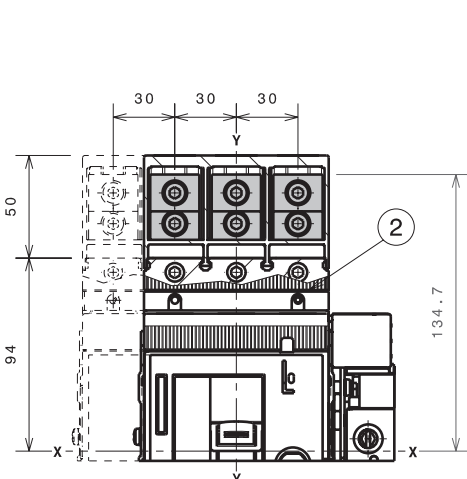
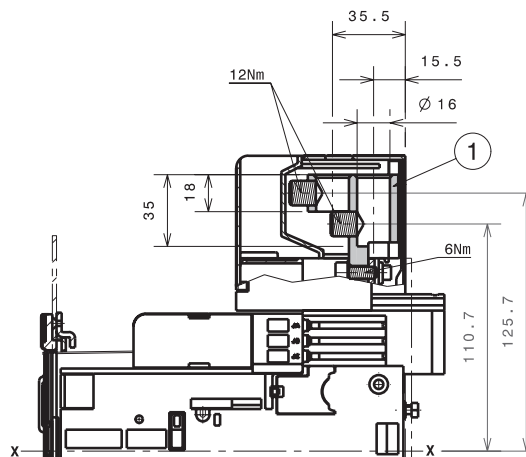
FIXING AT 50mm

1x70...185mm² terminals FCCuAl

- Key
- 1 External terminal
FCCuAl
 - 2 High terminal covers
with degree of
protection IP40

2x35...70mm² terminals FCCuAl

- Key
- 1 External terminal
FCCuAl 2x70mm²
 - 2 High terminal covers
with degree of
protection IP40

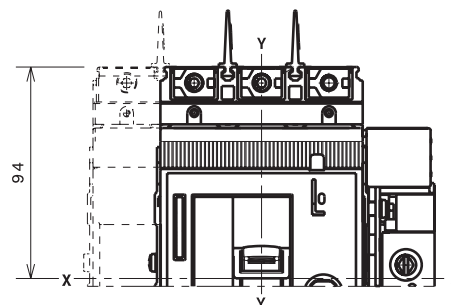
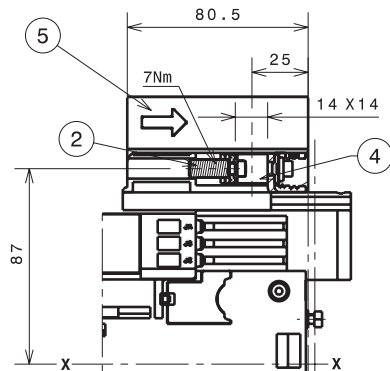


Tmax XT2 – Installation

Terminals for withdrawable circuit-breaker

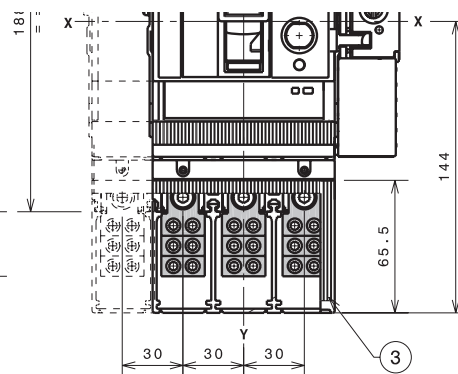
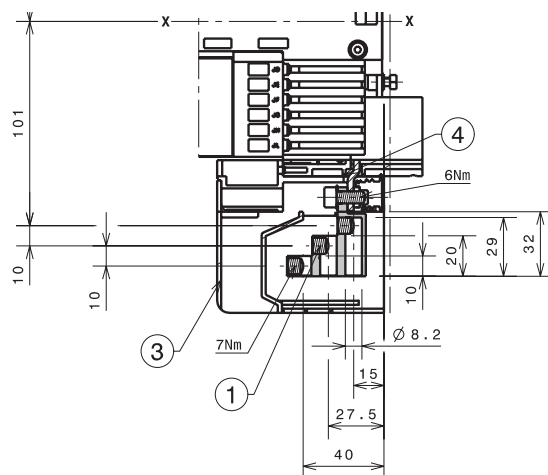
Terminals FCCu

- Key
- 2 Terminals FCCu
 - 4 Adaptor
 - 5 Phase separators 25mm

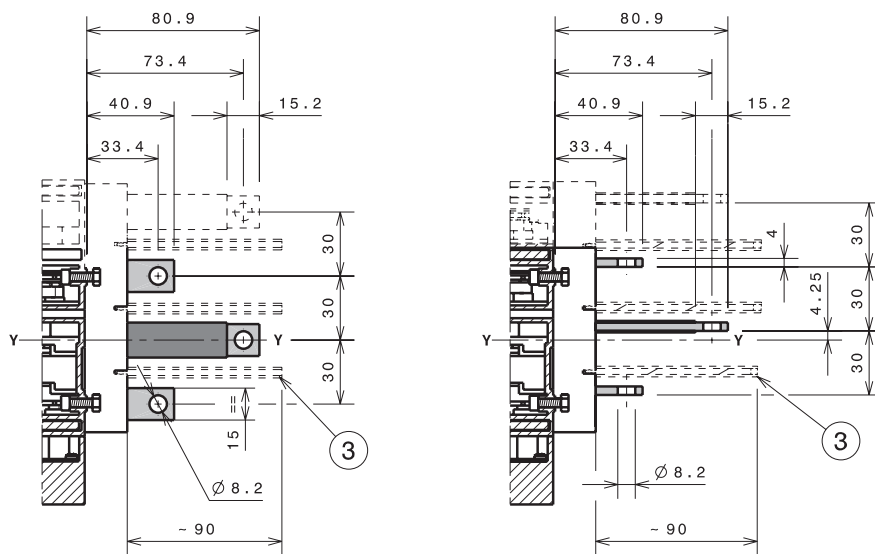
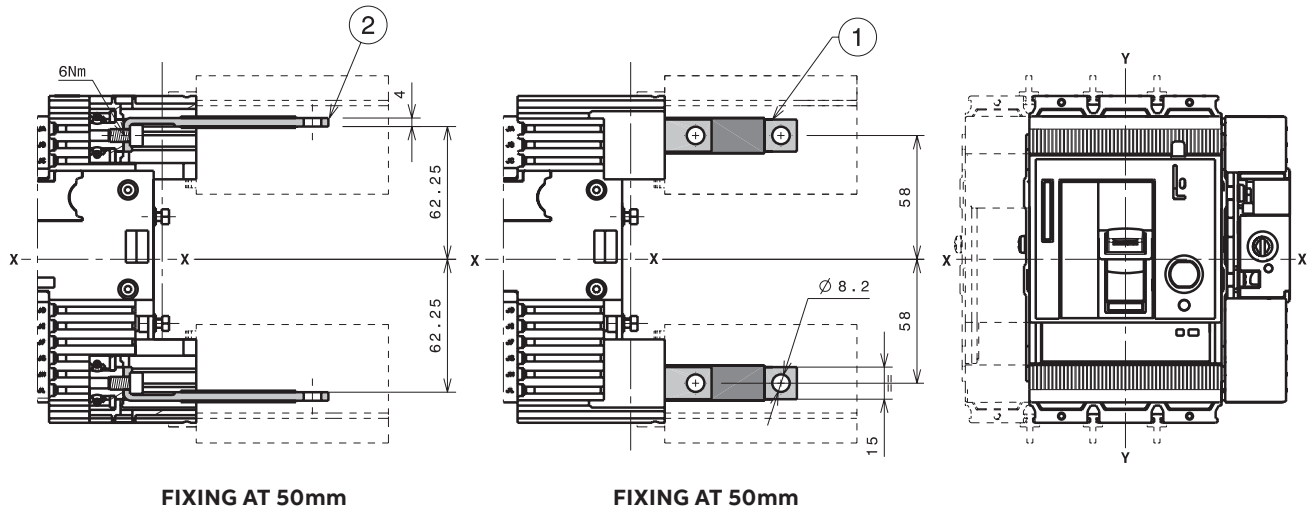


Terminals MC

- Key
- 1 Multicable terminals
 - 3 High terminal covers with degree of protection IP40
 - 4 Adaptor



Terminals HR/VR



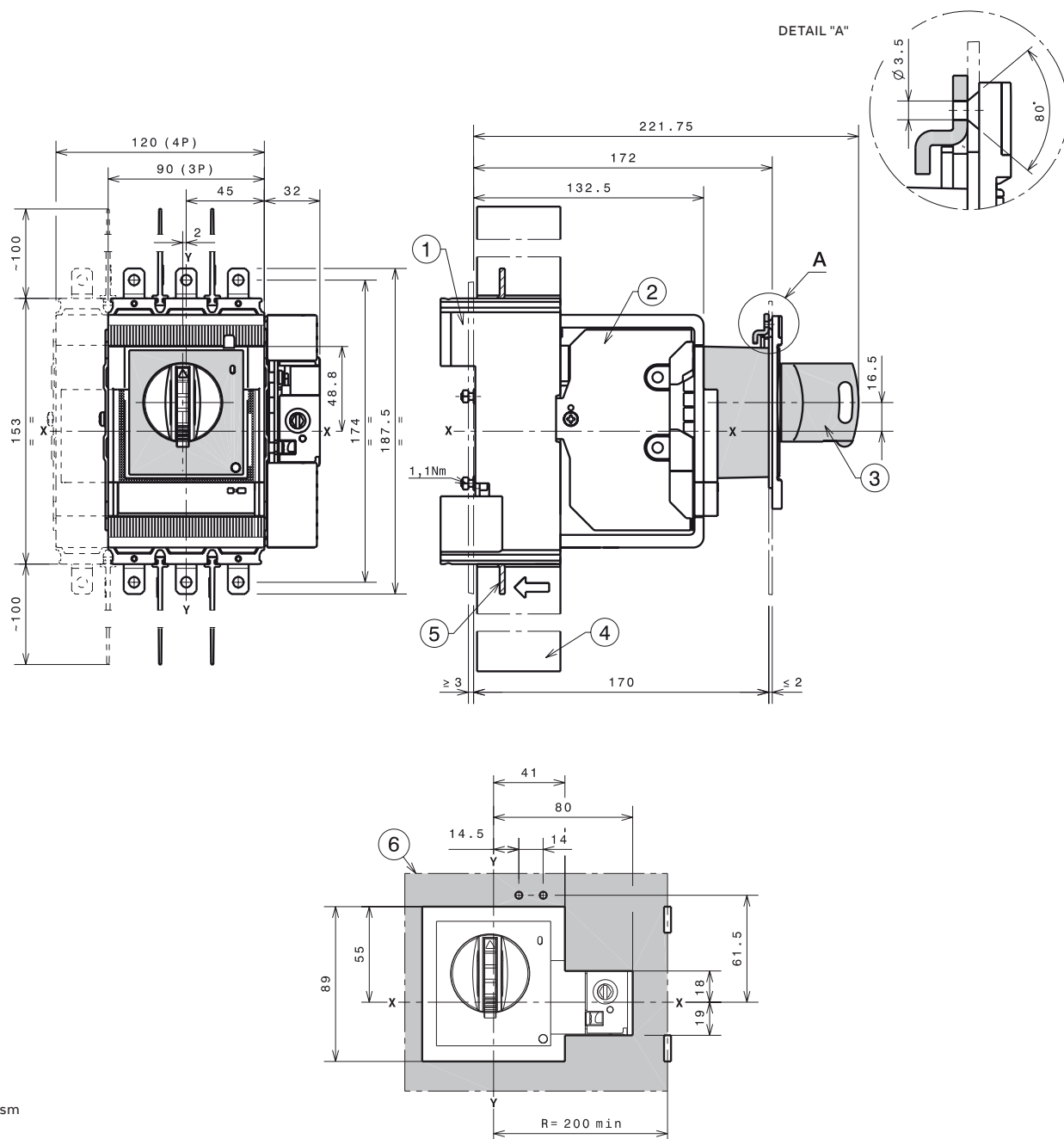
Key

- 1 Rear vertical terminals
- 2 Rear horizontal terminals
- 3 Rear phase separators 90mm

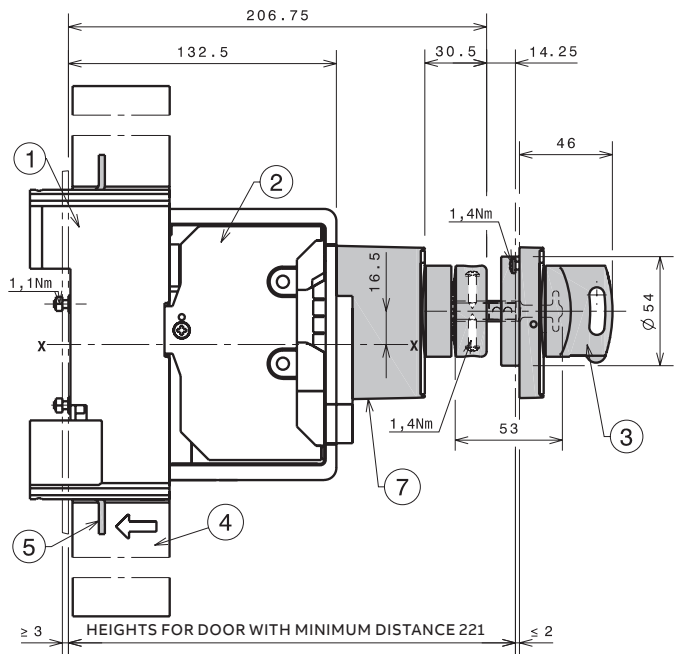
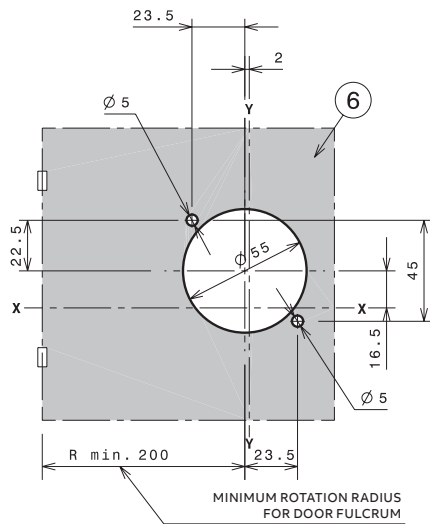
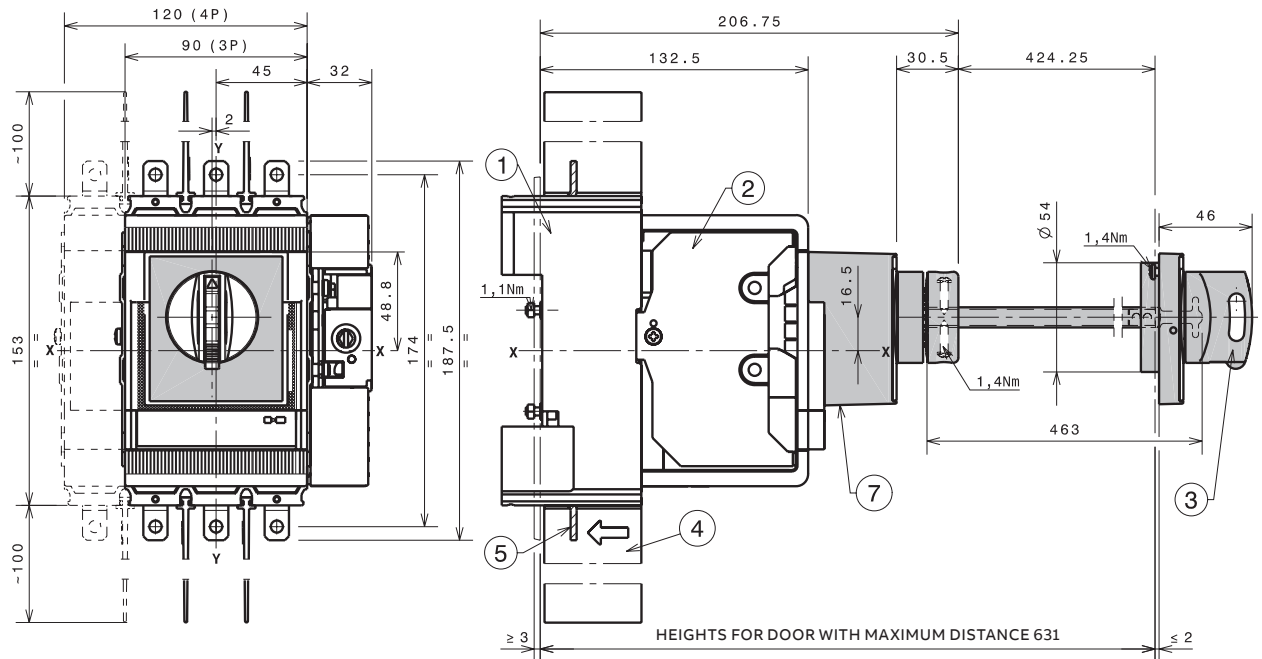
Tmax XT2 – Installation

Accessories for withdrawable circuit-breaker

Rotary handle operating mechanism on circuit-breakers (RHD)

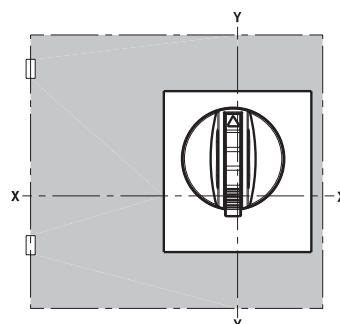


Rotary handle operating mechanism on the compartment door (RHE)



Key

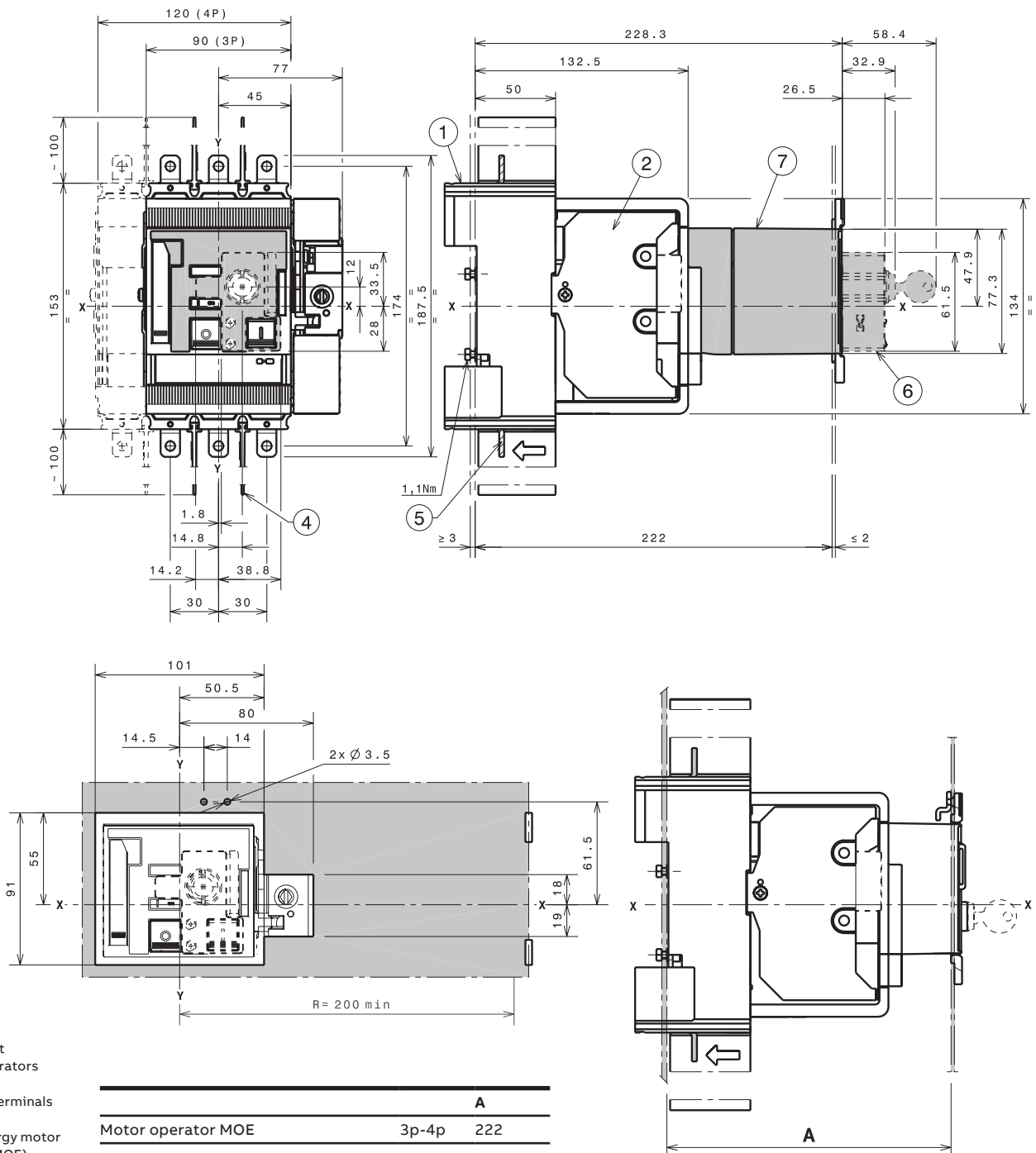
- 1 Fixed part
- 2 Moving part
- 3 Rotary handle operating mechanism on the compartment door (RHE)
- 4 Phase separators 100mm
- 5 Extended terminals
- 6 Door drilling template with transmitted rotary handle
- 7 Transmission unit



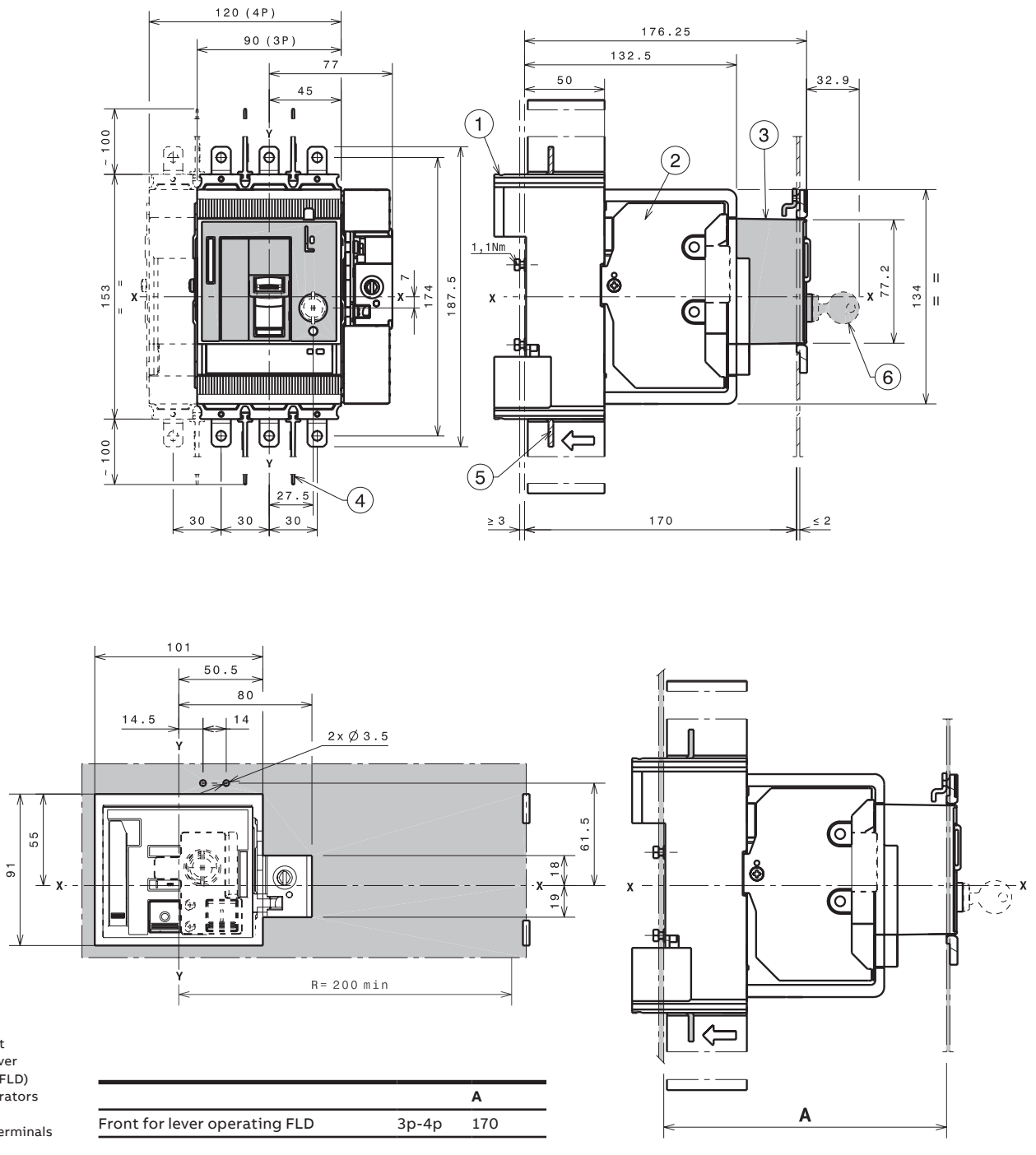
Tmax XT2 – Installation

Accessories for withdrawable circuit-breaker

Stored energy motor operator (MOE)



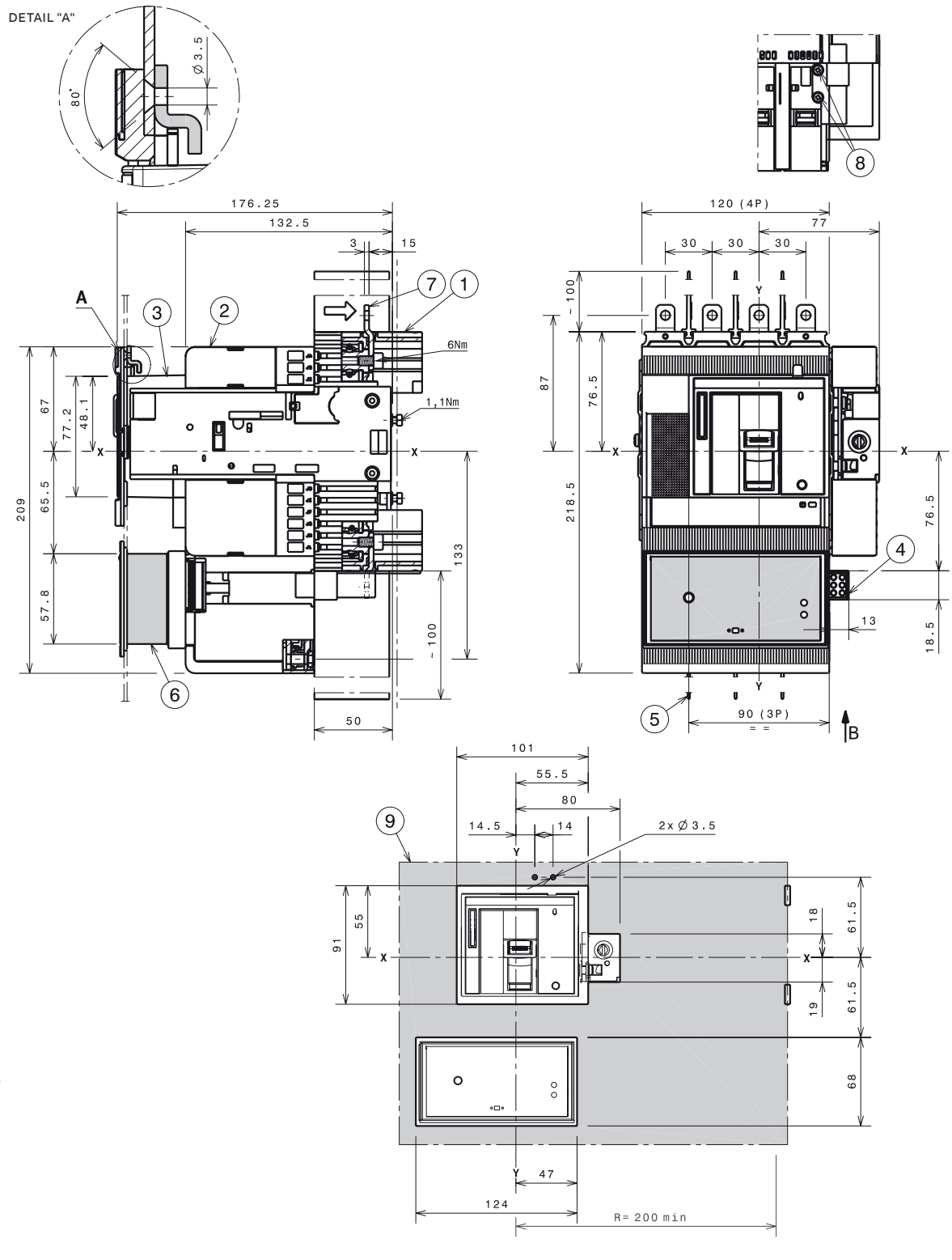
Front for lever operating (FLD)



Tmax XT2 – Installation

Accessories for withdrawable circuit-breaker

Residual current RC Sel 4 poles



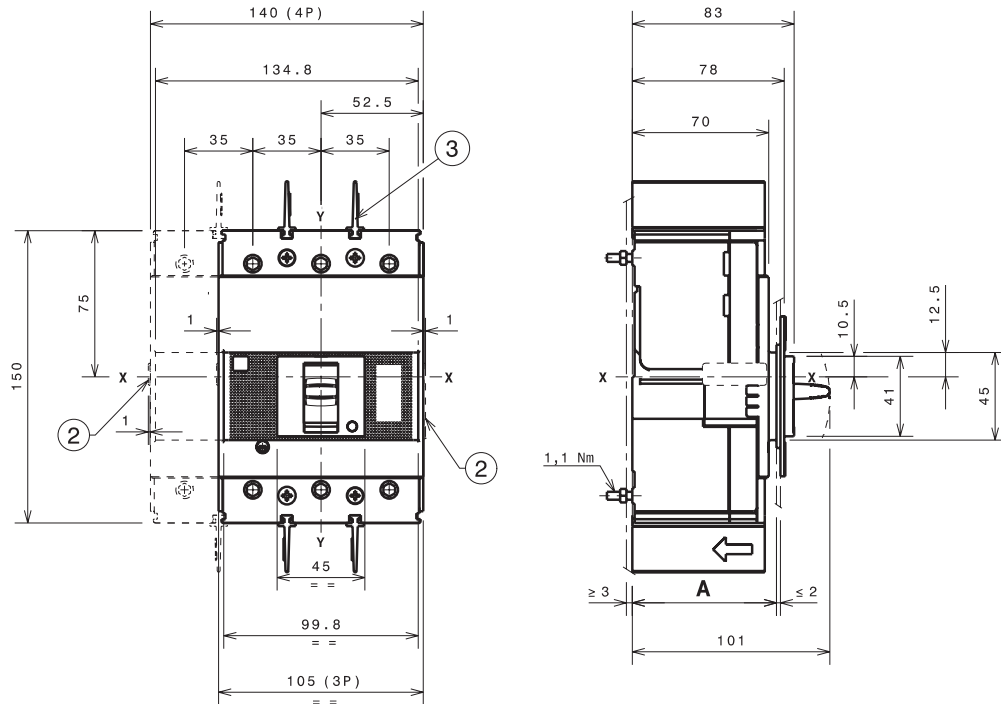
Tmax XT3 – Installation

Installation for fixed circuit-breaker

Fixing on sheet

Key

- 2 Overall dimensions of optional wiring ducts
- 3 Phase separators 25mm

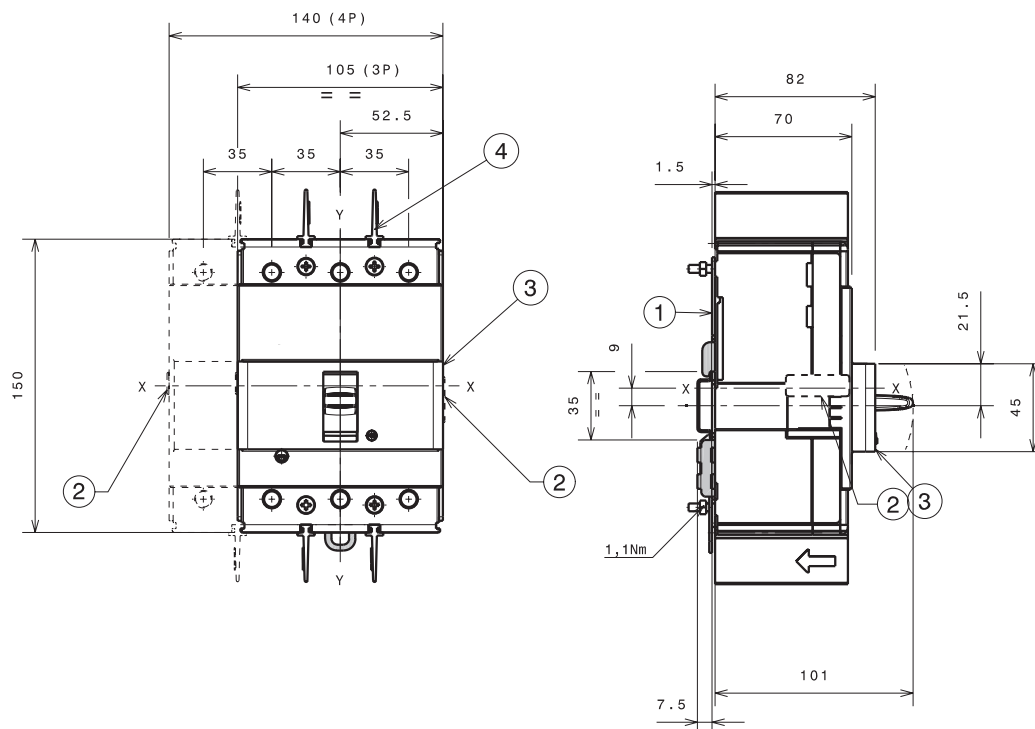


A		
With standard flange	3p - 4p	74
Without flange	3p - 4p	71
	3p - 4p	79

Fixing on DIN EN 50022 rail

Key

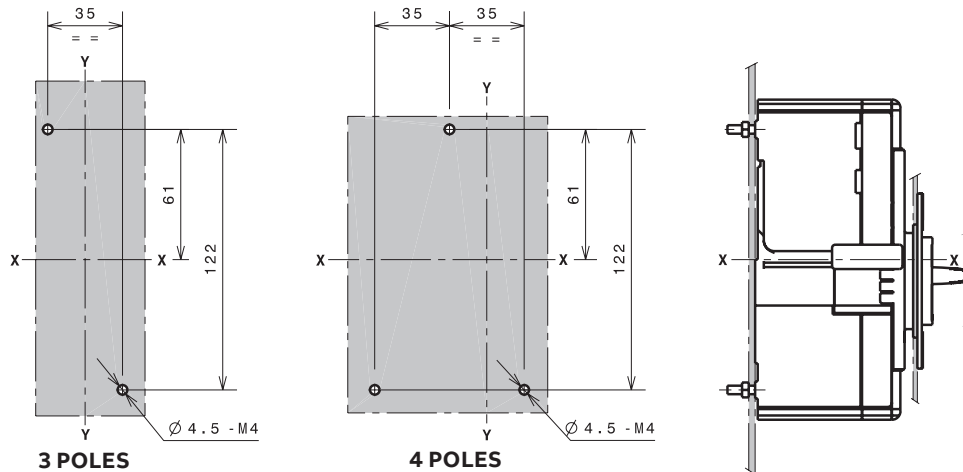
- 1 Bracket for fixing
- 2 Optional wiring ducts
- 3 Optional front cover for DIN rail
- 4 Phase separators 25mm



Tmax XT3 – Installation

Installation for fixed circuit-breaker

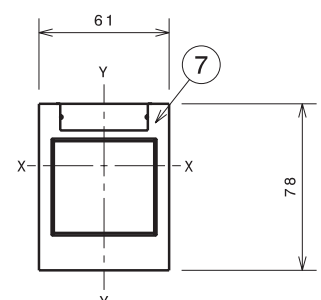
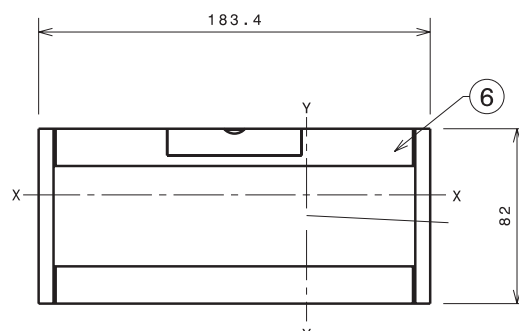
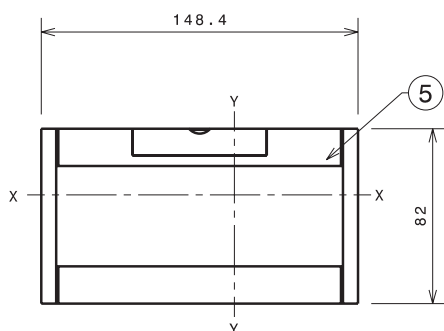
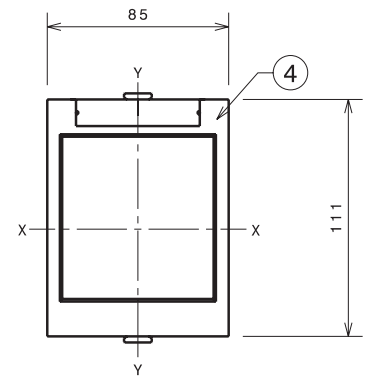
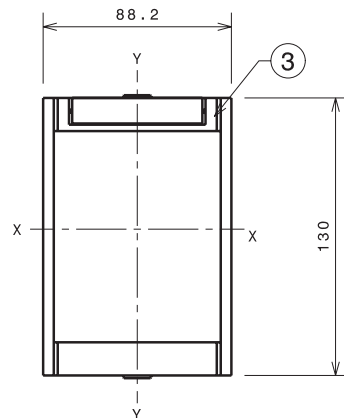
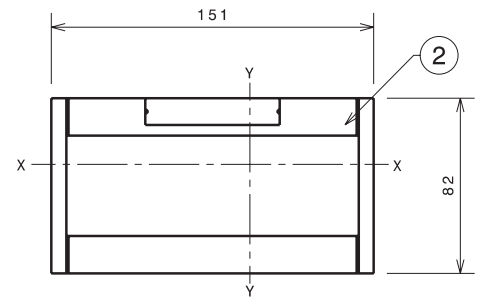
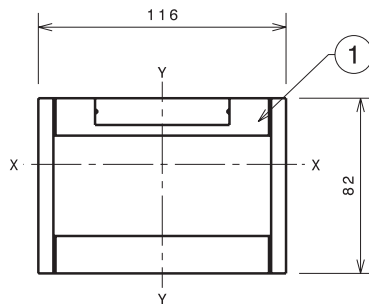
Drilling templates for circuit-breaker fixing



Flanges

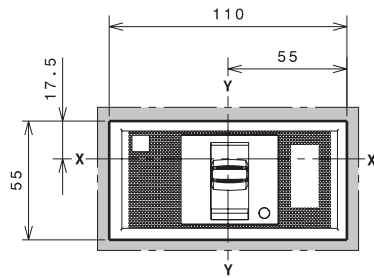
Key

- 1 Flange for fixed circuit-breaker 3p
- 2 Flange for fixed circuit-breaker 4p
- 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 3p with residual current
- 6 Flange for circuit-breaker 4p with residual current
- 7 Optional flange

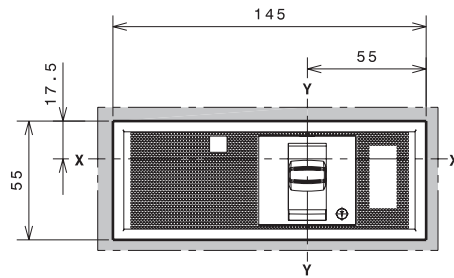


Compartment door drilling templates

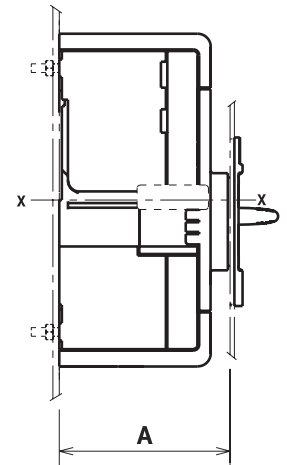
With standard flange



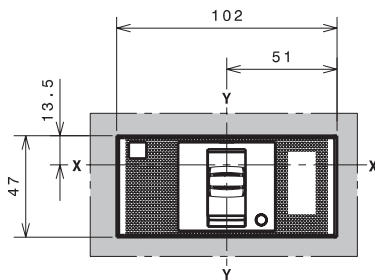
A=74
3 POLES



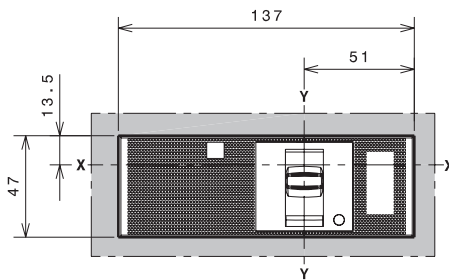
A=74
4 POLES



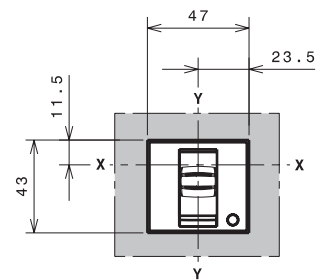
Without flange



A=71
3 POLES

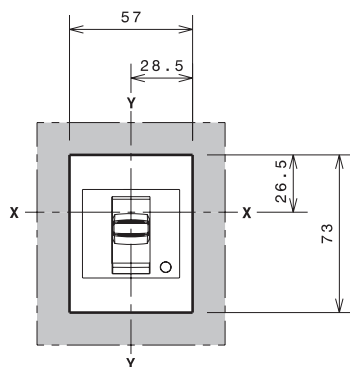


A=71
4 POLES

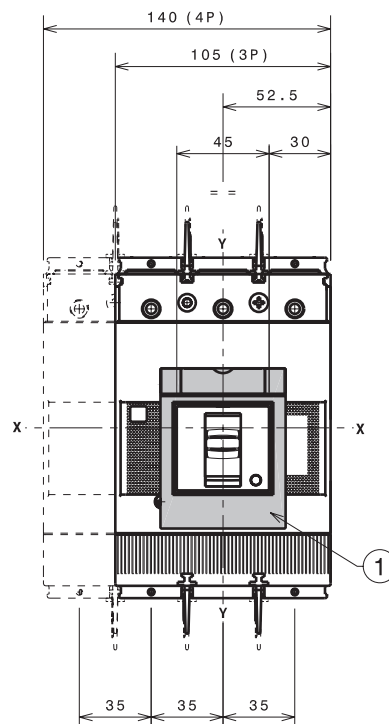


A=79
3-4 POLES

With optional flange



A=79
3-4 POLES



Key
1 Optional flange

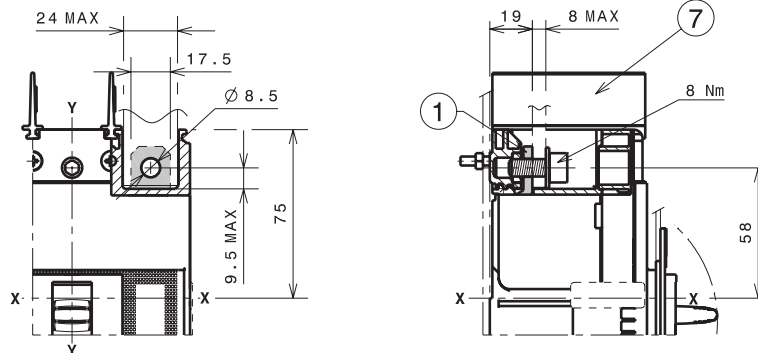
Tmax XT3 – Installation

Terminals for fixed circuit-breaker

Terminals F

Key

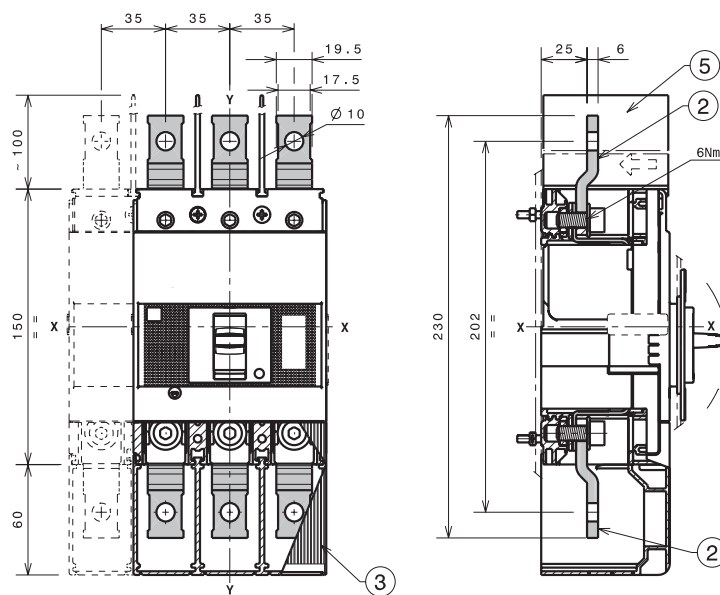
- 1 Front terminals for busbars connection
- 7 Phase separators 25mm



Terminals EF

Key

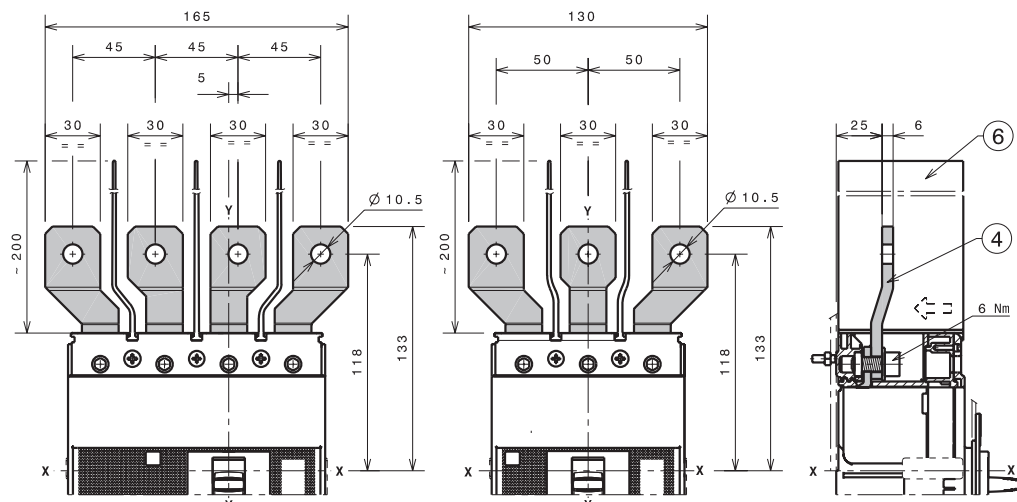
- 2 Front extended terminals
- 3 Terminal covers with degree of protection IP40 (optional) not provided
- 5 Phase separators 100mm



Terminals ES

Key

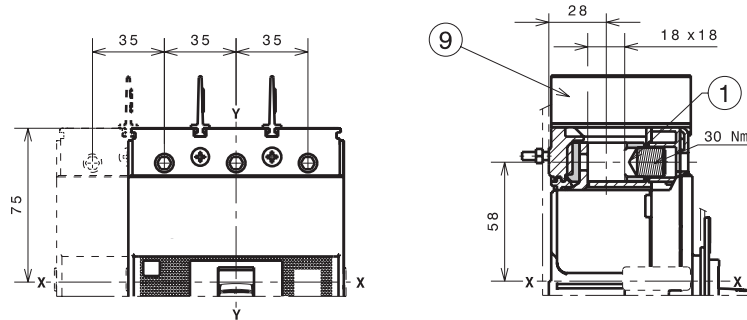
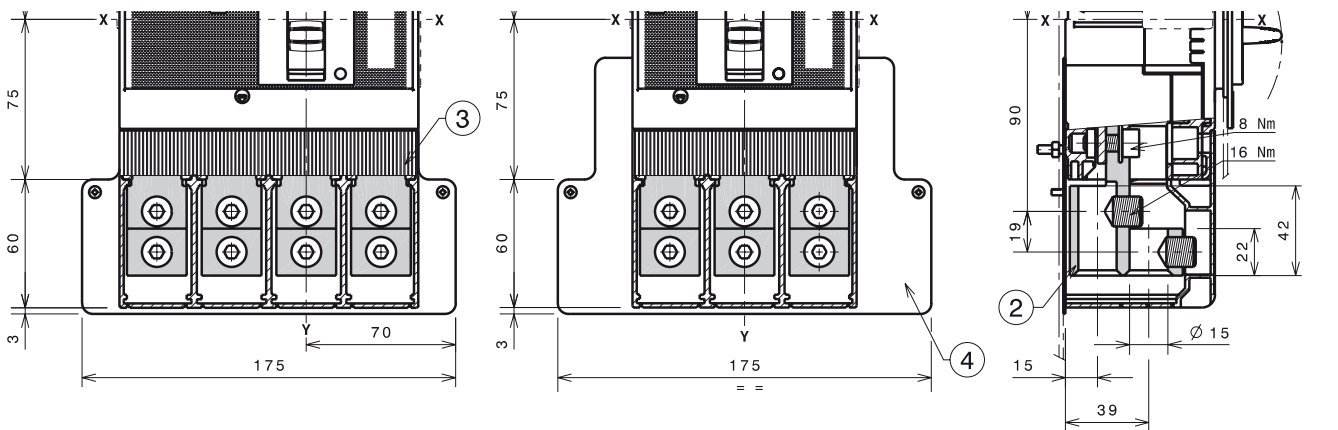
- 4 Front extended spread terminals for busbars connection
- 6 Phase separators 200mm



1x95...185mm² terminals FCCuAl

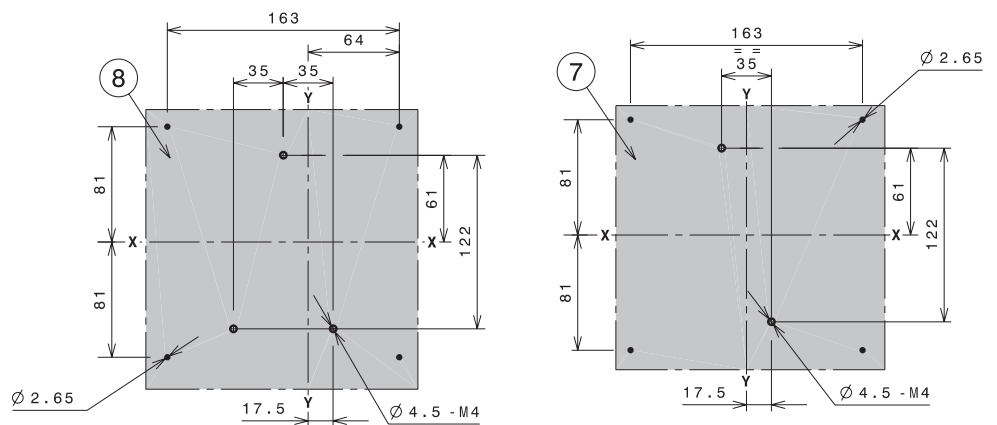
Key

- 1 1x95...185mm² terminals FCCuAl
- 9 Phase separators 25mm

2x35...120mm² terminals FCCuAl

Key

- 2 2x35...120mm² terminals FCCuAl
- 3 Terminal covers with degree of protection IP40
- 4 Rear insulated plate
- 7 Drilling template for circuit-breaker fixing on sheet 3p with rear insulated plate
- 8 Drilling template for circuit-breaker fixing on sheet 4p with rear insulated plate

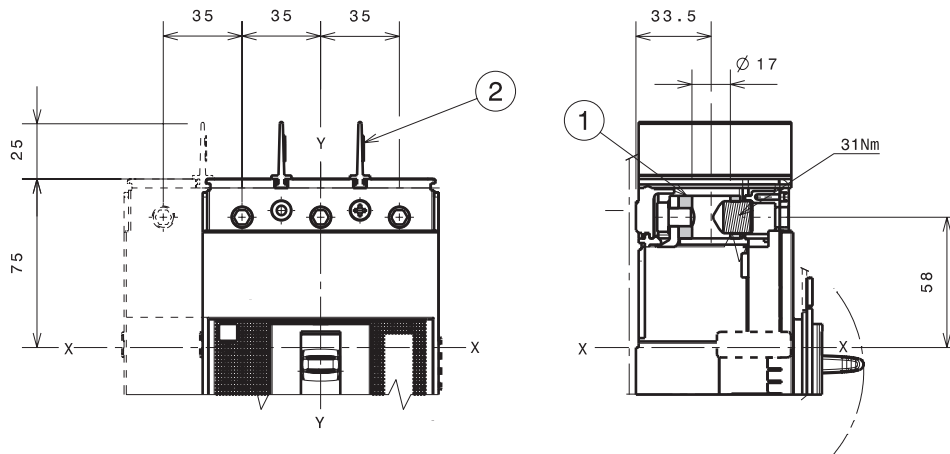


Tmax XT3 – Installation

Terminals for fixed circuit-breaker

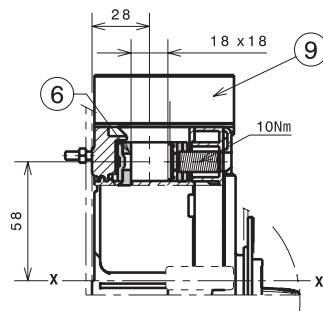
30...150mm² terminals FCCuAl

- Key
1 30...150mm²
terminals FCCuAl
2 Phase separators
25mm



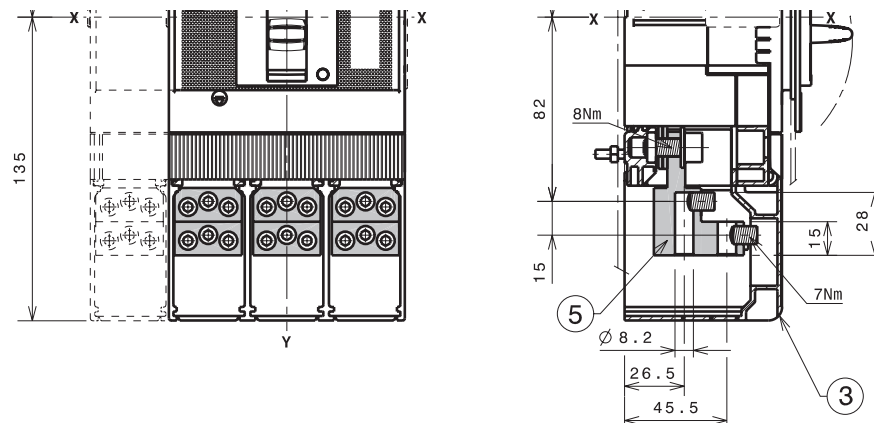
Terminals FCCu

- Key
6 Front terminals FCCu
9 Phase separators
25mm

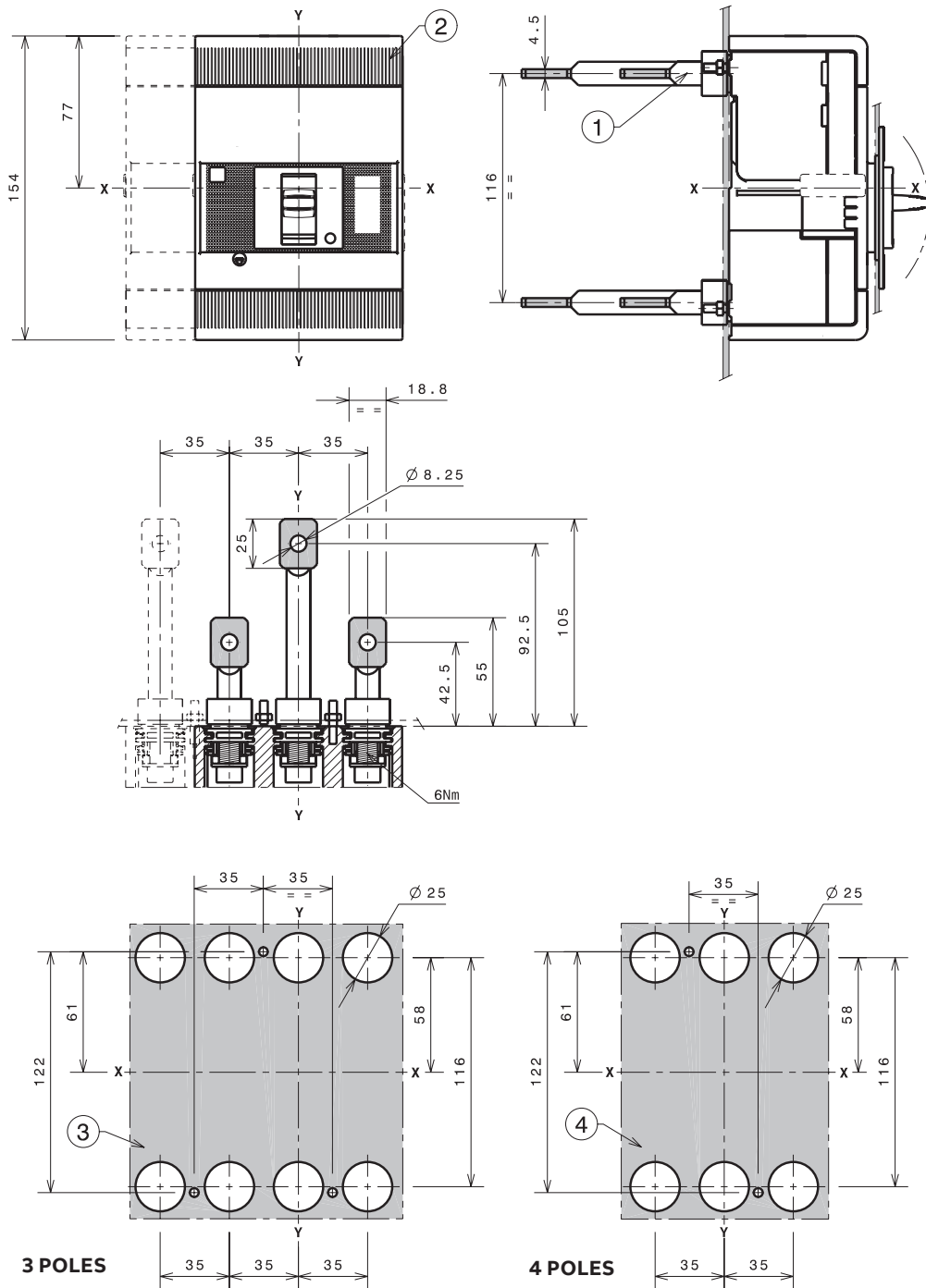


Terminals MC

- Key
3 Terminal covers
with degree of
protection IP40
5 Front terminal
for multicable
connection



Terminals R



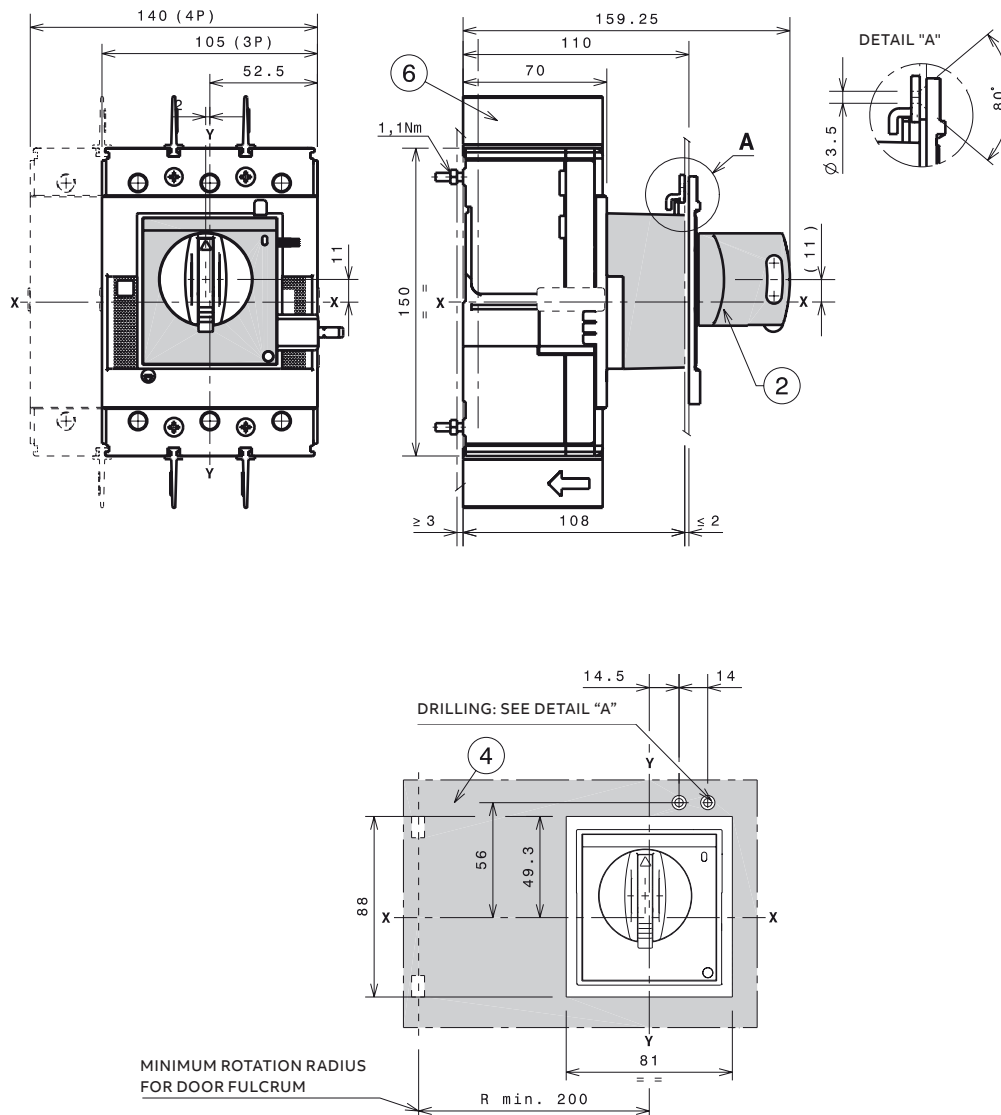
Key

- 1 Adjustable rear terminals
- 2 Bottom terminal covers with degree of protection IP30
- 3 Drilling template for circuit-breaker 4p fixing on sheet
- 4 Drilling template for circuit-breaker 3p fixing on sheet

Tmax XT3 – Installation

Accessories for fixed circuit-breaker

Rotary handle operating mechanism on circuit-breaker (RHD)



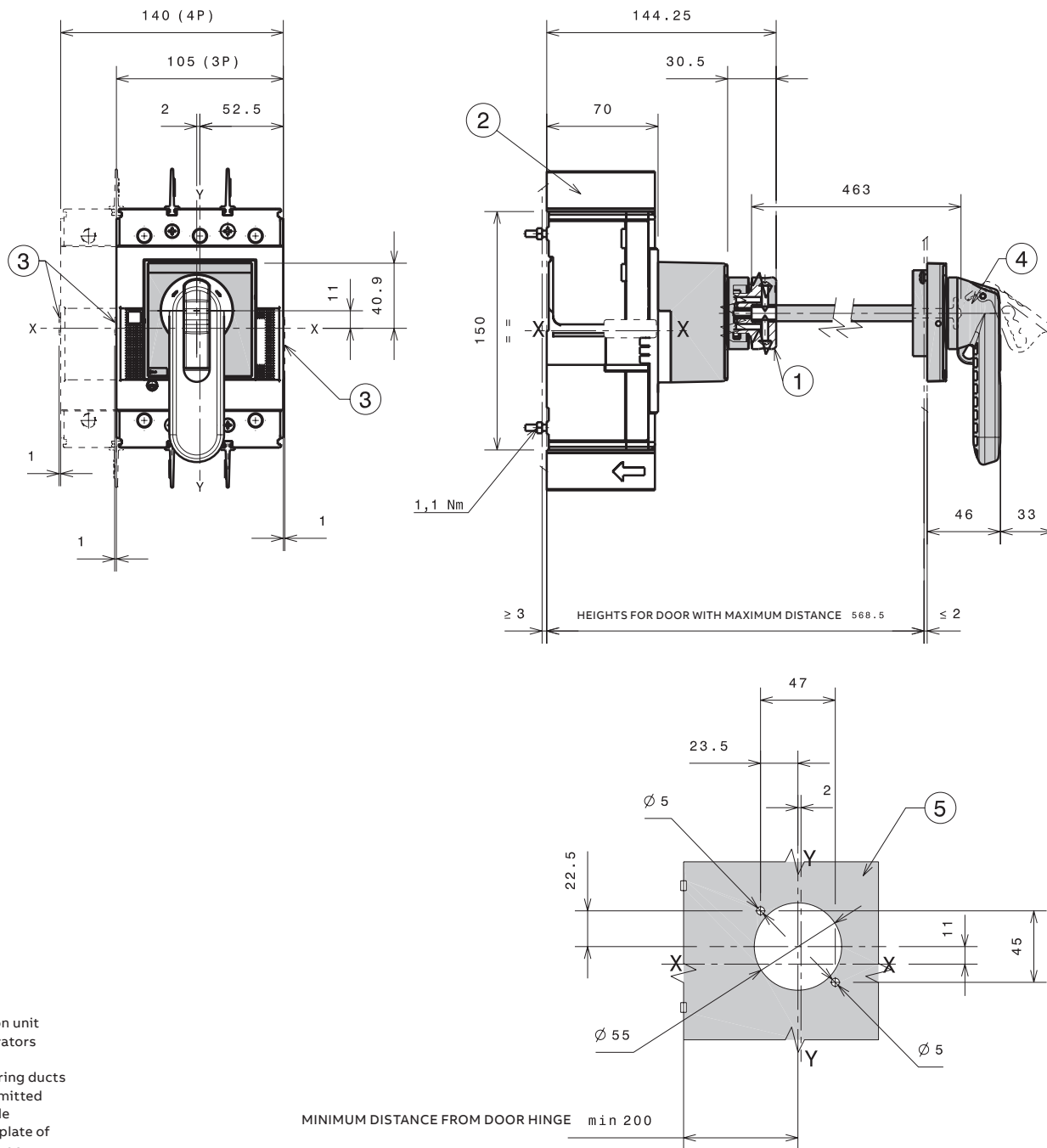
Key

- 2 Rotary handle operating mechanism on circuit-breaker RHD
- 4 Drilling template of door with direct rotary handle
- 6 Phase separators 25mm

Tmax XT3 – Installation

Accessories for fixed circuit-breaker

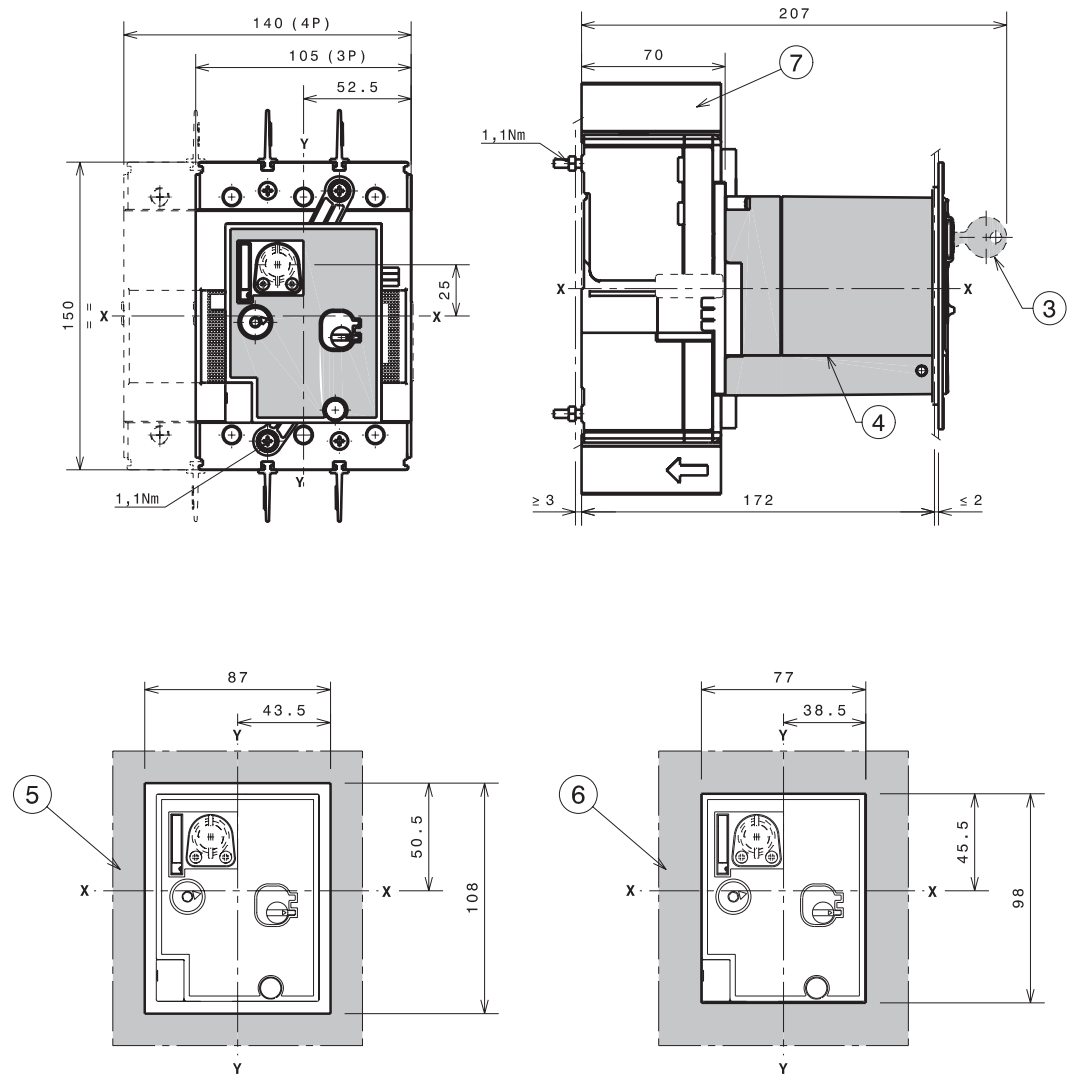
Large rotary handle operating mechanism on the compartment door (RHE-LH)



Key

- 1 Transmission unit
- 2 Phase separators 25mm
- 3 Optional wiring ducts
- 4 Large transmitted rotary handle
- 5 Drilling template of door with large transmitted rotary handle

Direct motor operator (MOD)



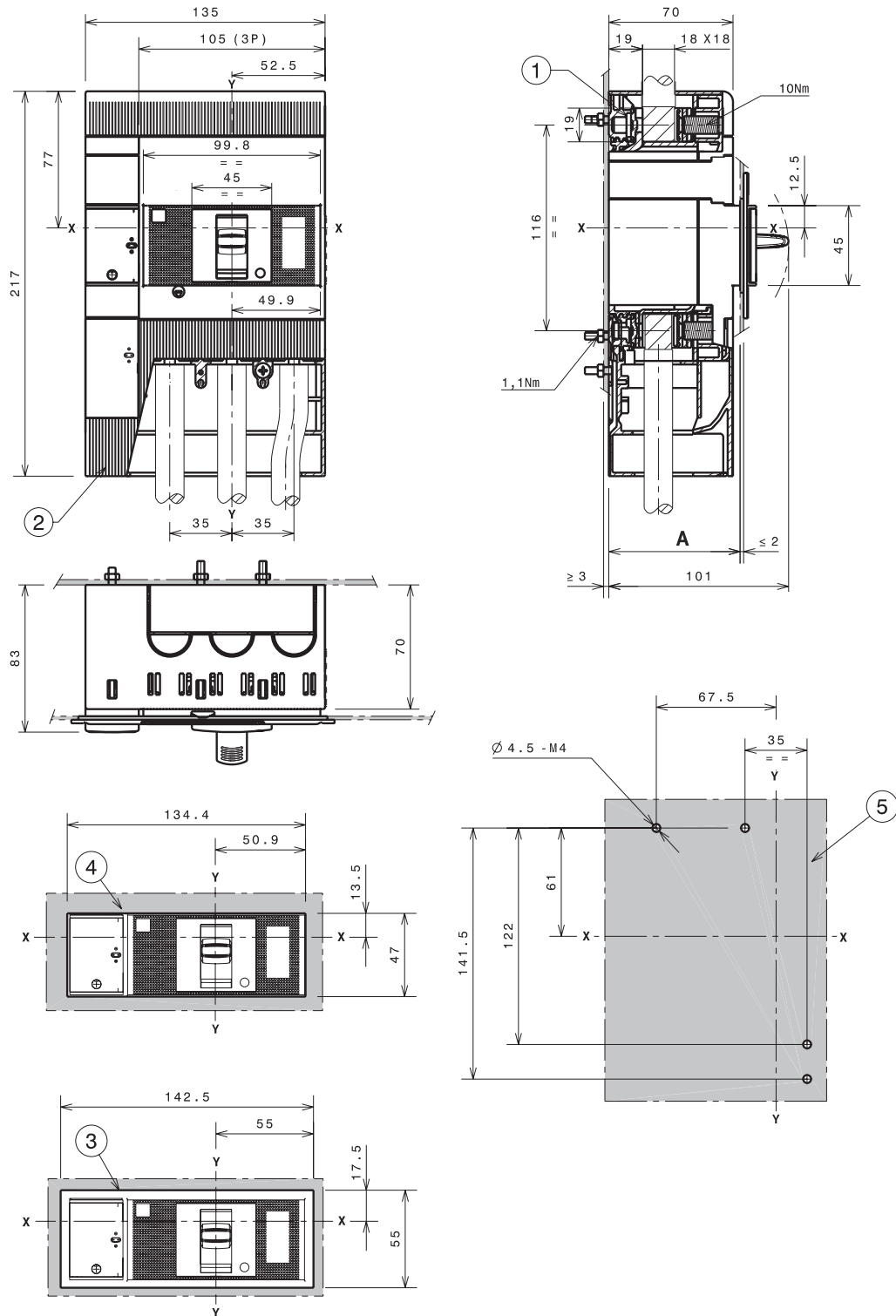
Key

- 3 Key lock
- 4 Direct motor operator MOD
- 5 Drilling template of door with MOD with flange
- 6 Drilling template of door with MOD without flange
- 7 Phase separators 25mm

Tmax XT3 – Installation

Accessories for fixed circuit-breaker

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

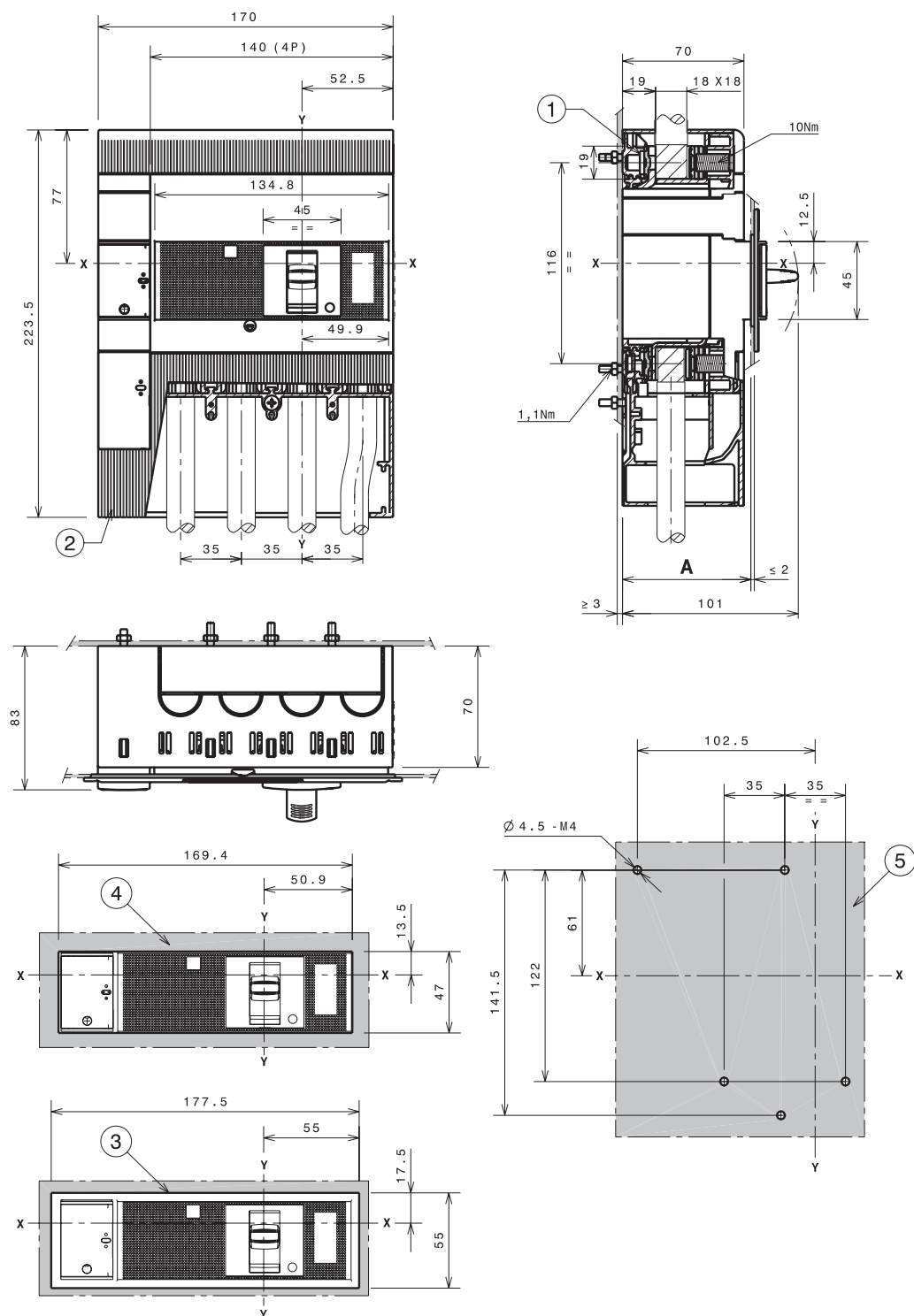


Key

- 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	3p	74
Without flange	3p	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

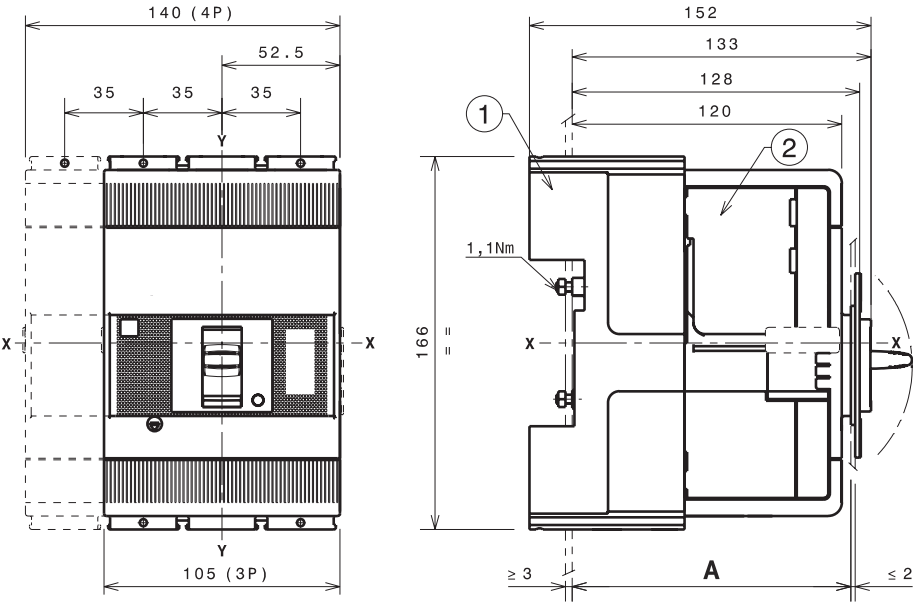
		A
With standard flange	4p	74
Without flange	4p	71



Tmax XT3 – Installation

Installation for plug-in circuit-breaker

Fixing on support sheet

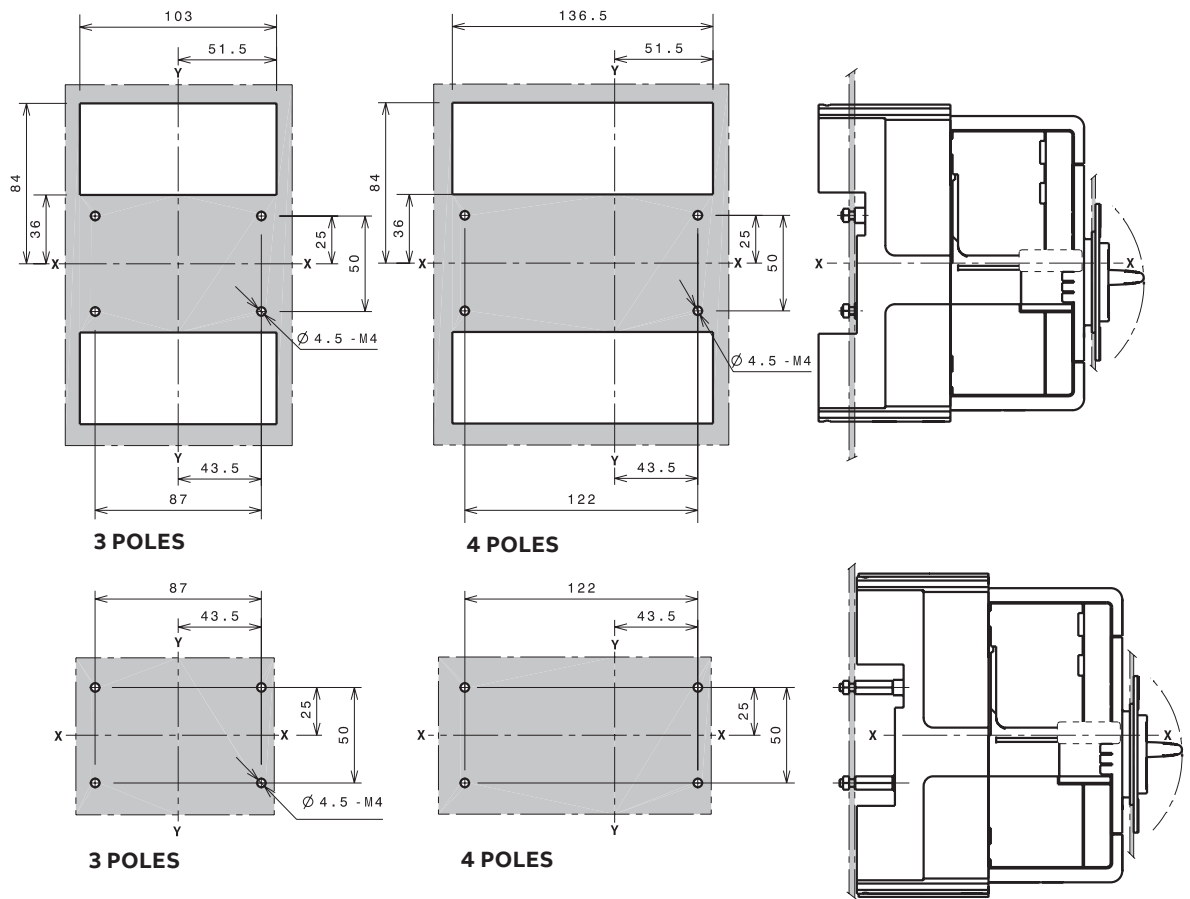


Fixing at 50mm		A
With standard flange	3p-4p	124
Without flange	3p-4p	121
	3p-4p	129

Fixing at 70mm for extended front terminals		A
With standard flange	3p-4p	144
Without flange	3p-4p	141
	3p-4p	149

- Key
1 Fixed part
2 Moving part

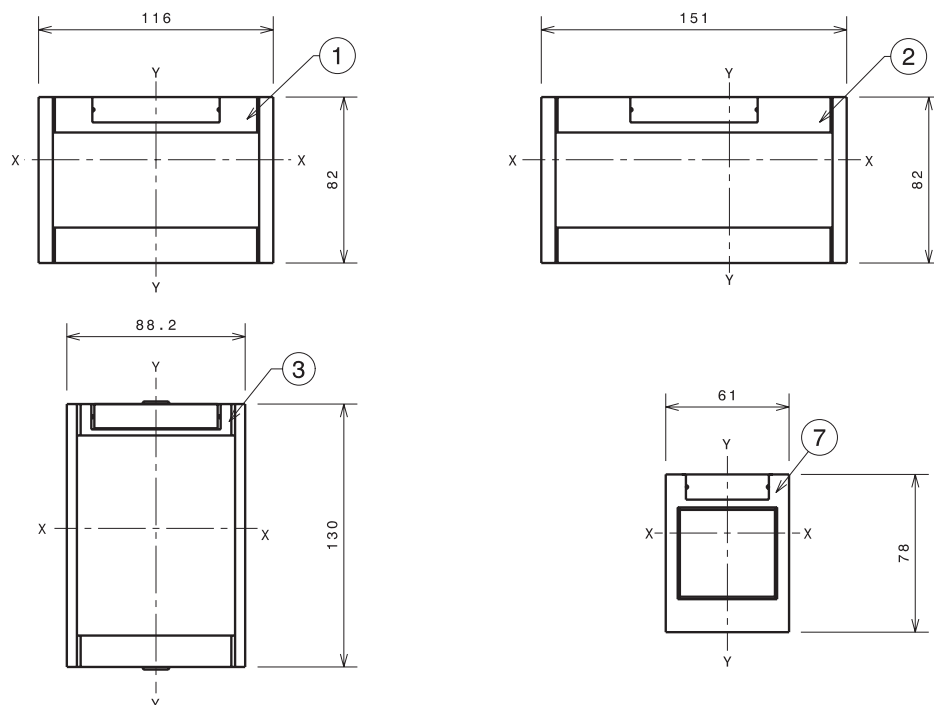
Drilling templates for support sheet



Flanges

Key

- 1 Flange for plug-in circuit-breaker 3p
- 2 Flange for plug-in circuit-breaker 4p
- 3 Flange for plug-in circuit-breaker with direct motor operator MOD
- 7 Optional flange

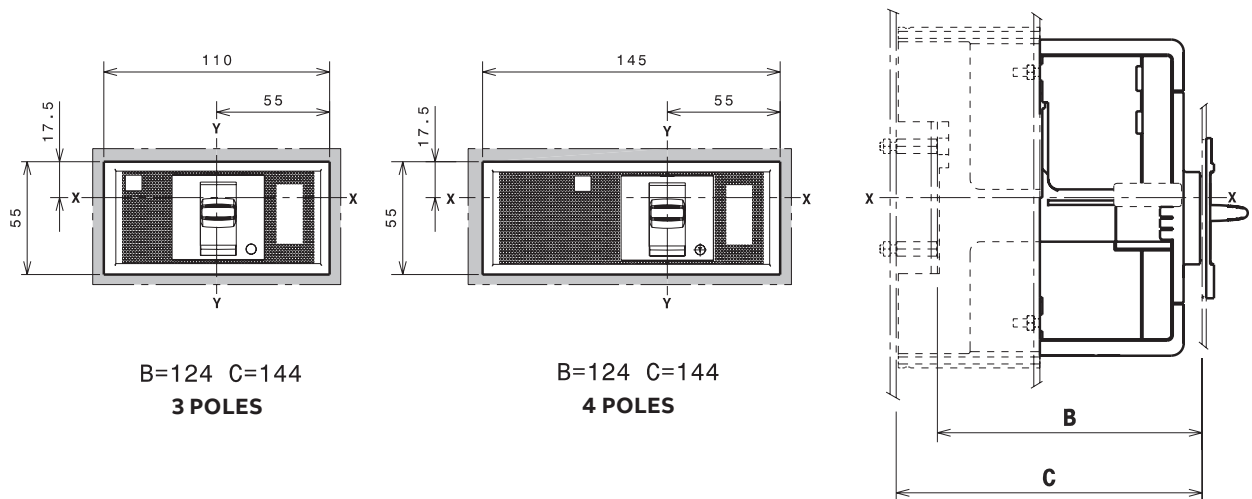


Tmax XT3 – Installation

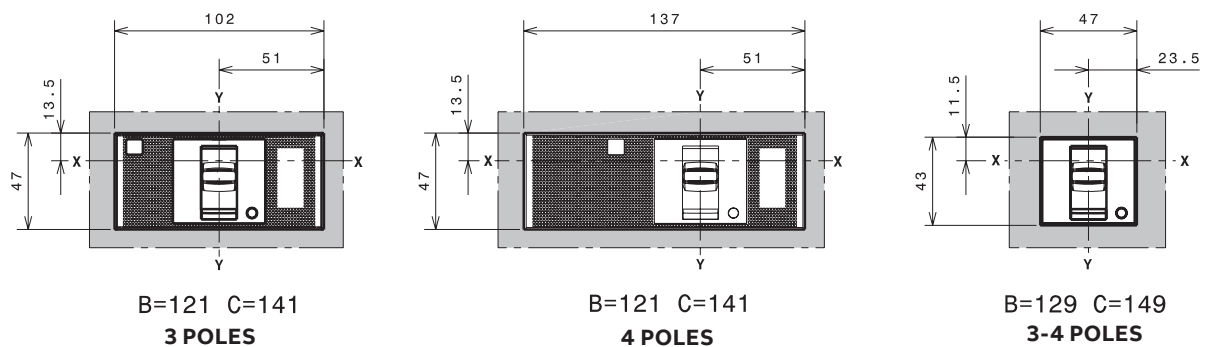
Installation for plug-in circuit-breaker

Compartment door drilling templates

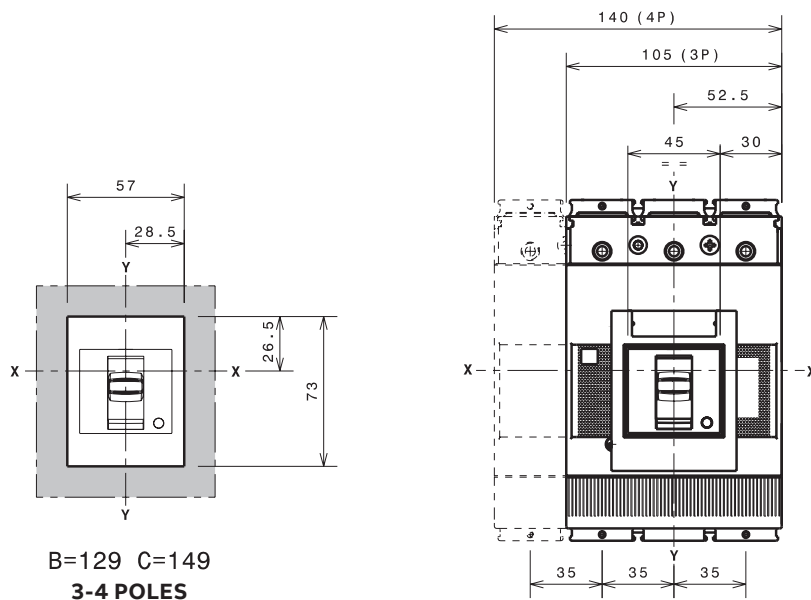
With standard flange



Without flange



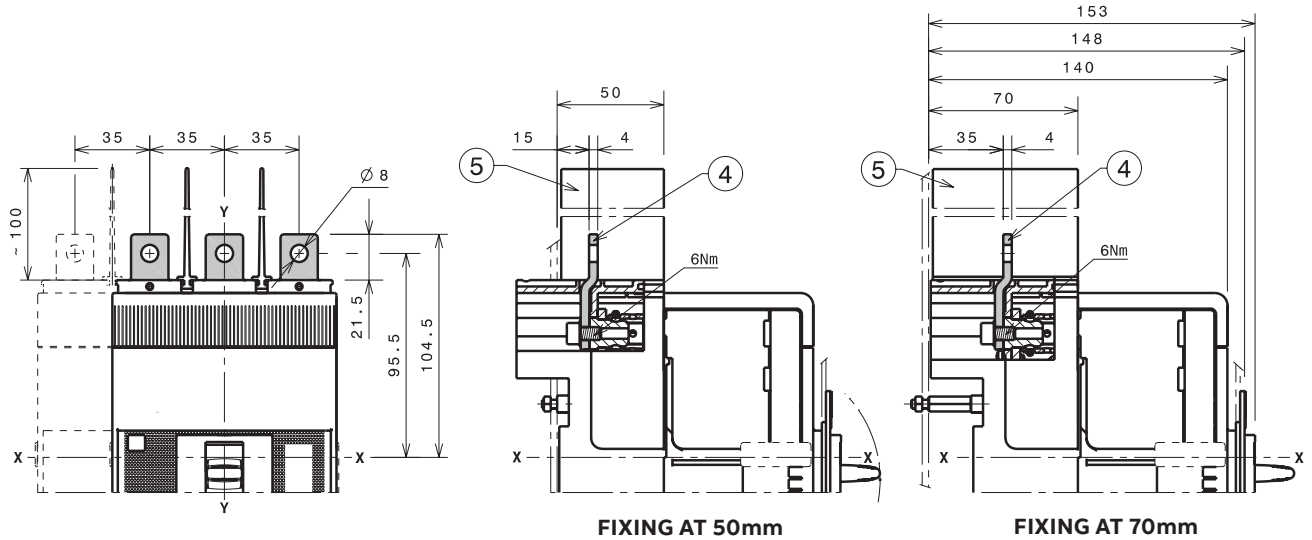
With optional flange



Tmax XT3 – Installation

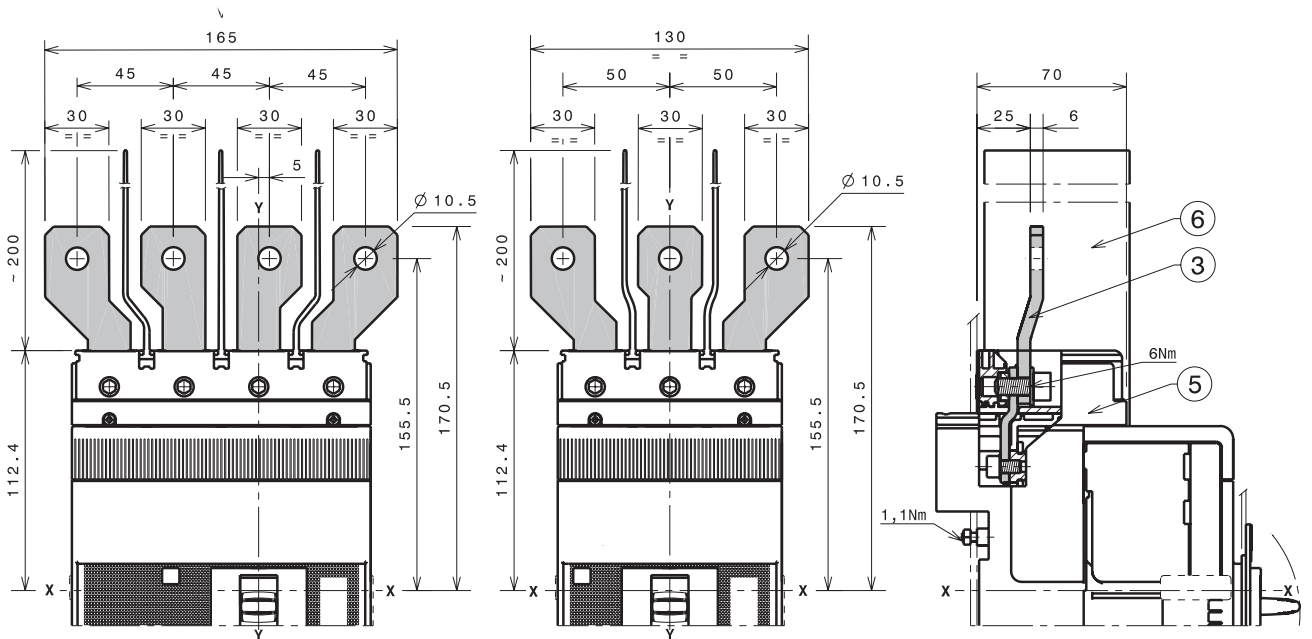
Terminals for plug-in circuit-breaker

Terminals EF



- Key
- 4 Front extended terminals
 - 5 Phase separators 100mm

Terminals ES



- Key
- 3 Front extended spread terminals for busbars connection
 - 5 Adapter for fixed part (compulsory) not provided
 - 6 Phase separators 200mm

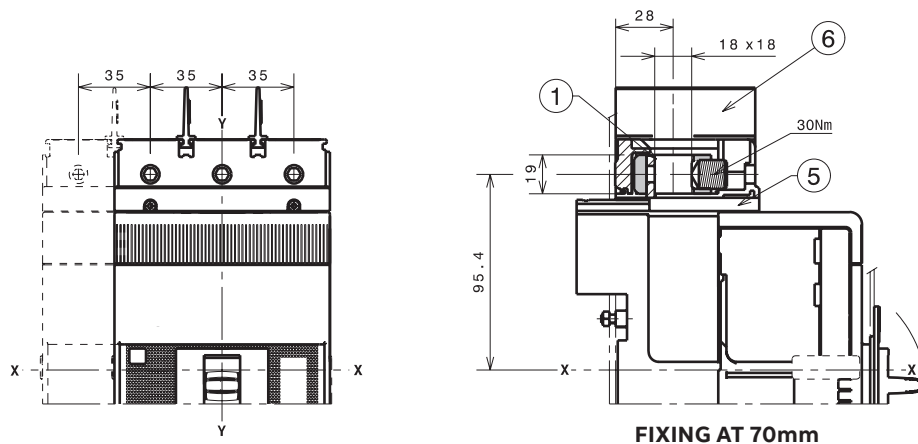
Tmax XT3 – Installation

Terminals for plug-in circuit-breaker

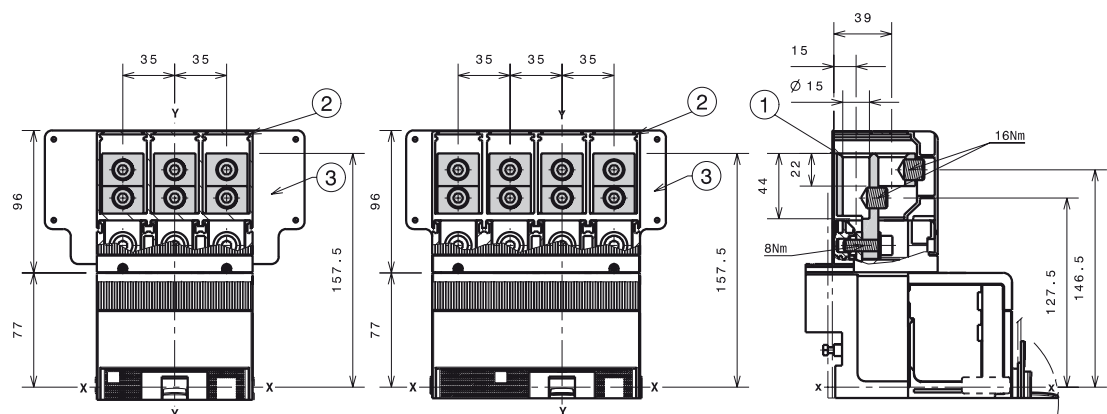
1x95...185mm² terminals FCCuAl

Key

- 1 1x95...185mm² front terminal FCCuAl
- 5 Adapter for fixed part
- 6 Phase separators 25mm

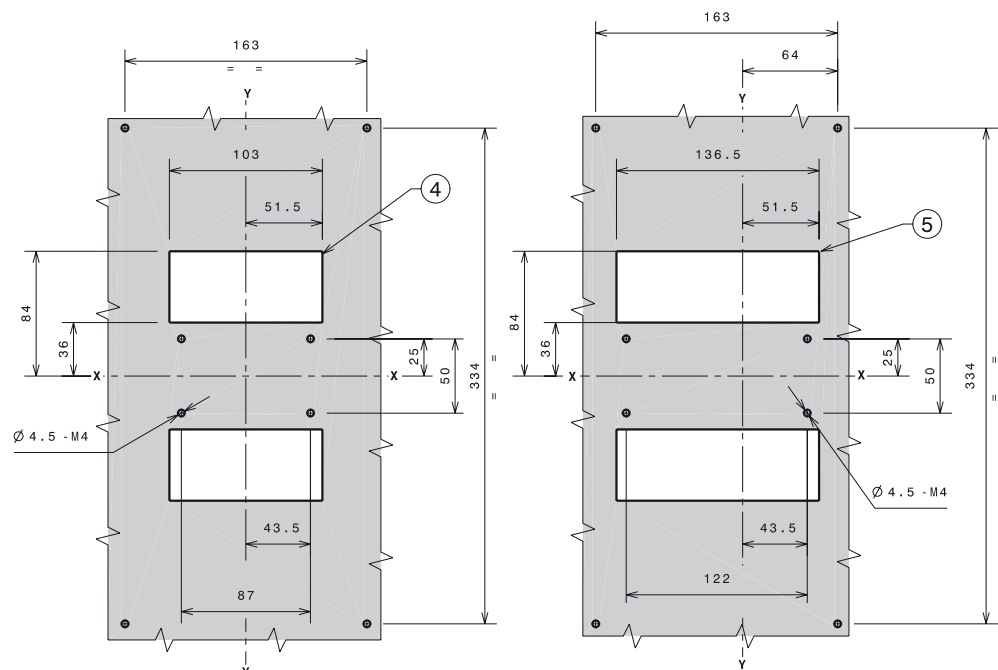


2x35...120mm² terminals FCCuAl



Key

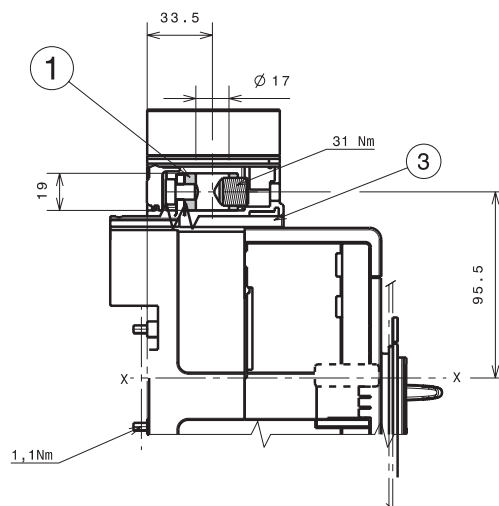
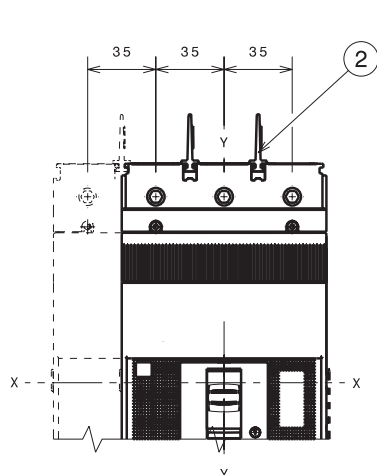
- 1 2x35...120 mm² external terminal FCCuAl
- 2 High terminal covers with degree of protection IP40
- 3 Rear insulated plate
- 4 Drilling template for fixing circuit-breaker 3p with rear insulated plate
- 5 Drilling template for fixing circuit-breaker 4p with rear insulated plate



30...150mm² terminals FCCuAl

Key

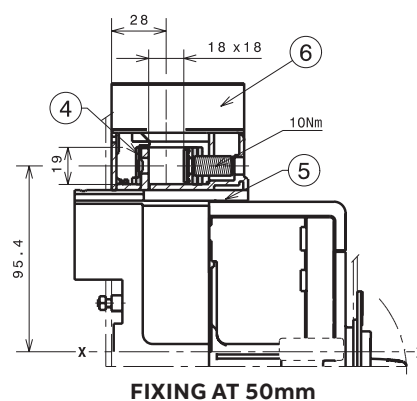
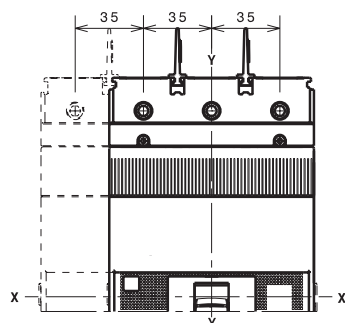
- 1 30...150mm² terminals FCCuAl
- 2 Phase separators 25mm
- 3 Adapter for fixed part



Terminals FCCu

Key

- 4 Front terminals FCCu
- 5 Adapter for fixed part
- 6 Phase separators 25mm

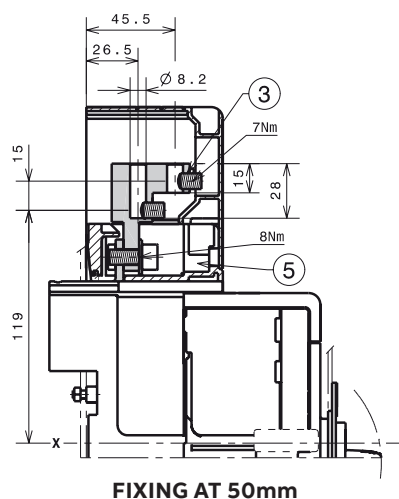
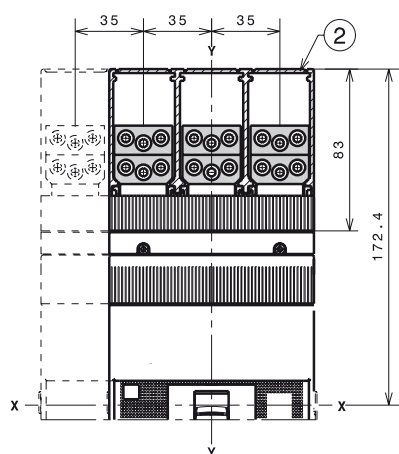


FIXING AT 50mm

Terminals MC

Key

- 2 High terminal covers with degree of protection IP40
- 3 Front terminal for multicable connection
- 5 Adapter for fixed part

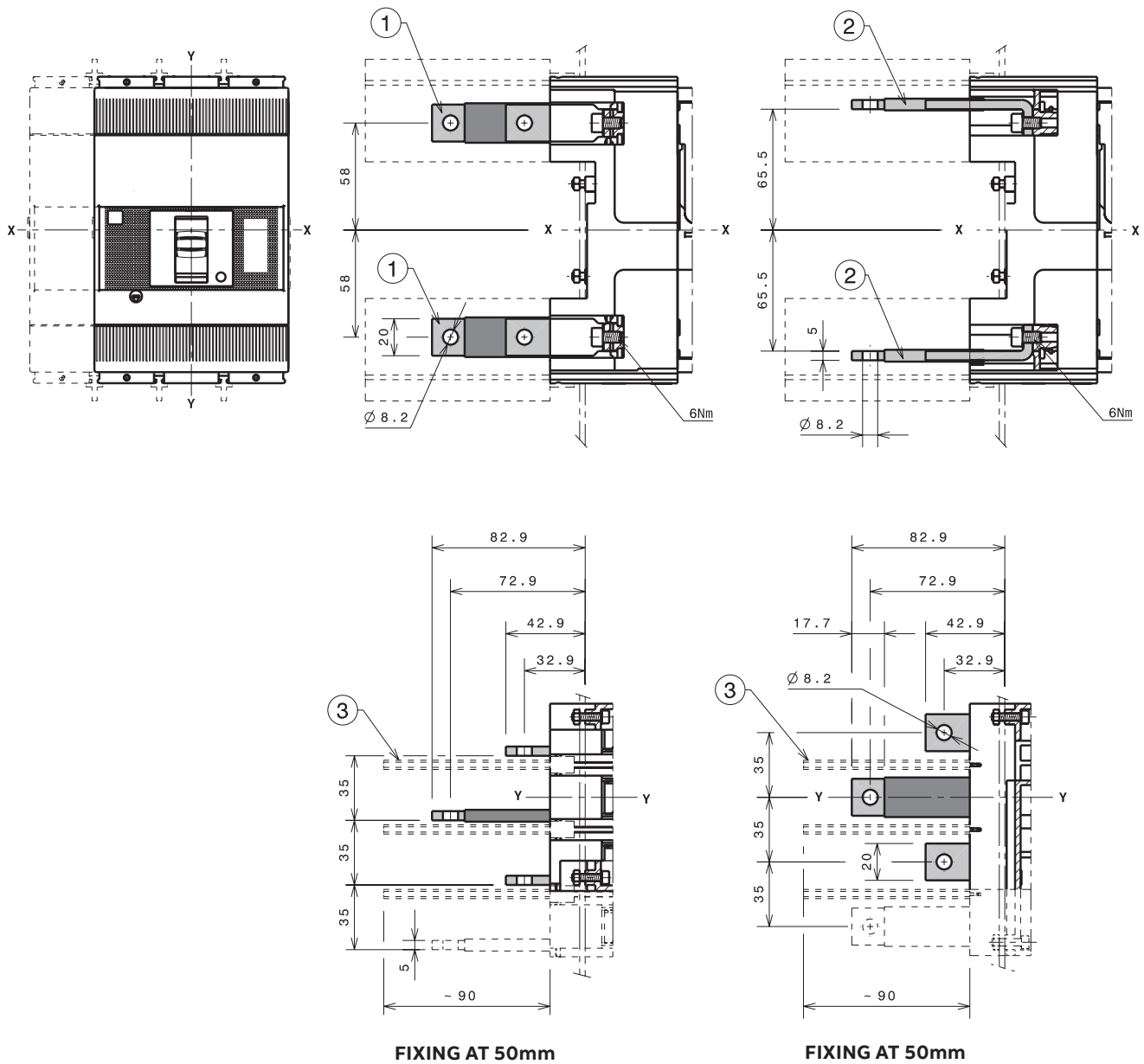


FIXING AT 50mm

Tmax XT3 – Installation

Terminals for plug-in circuit-breaker

Terminals HR/VR



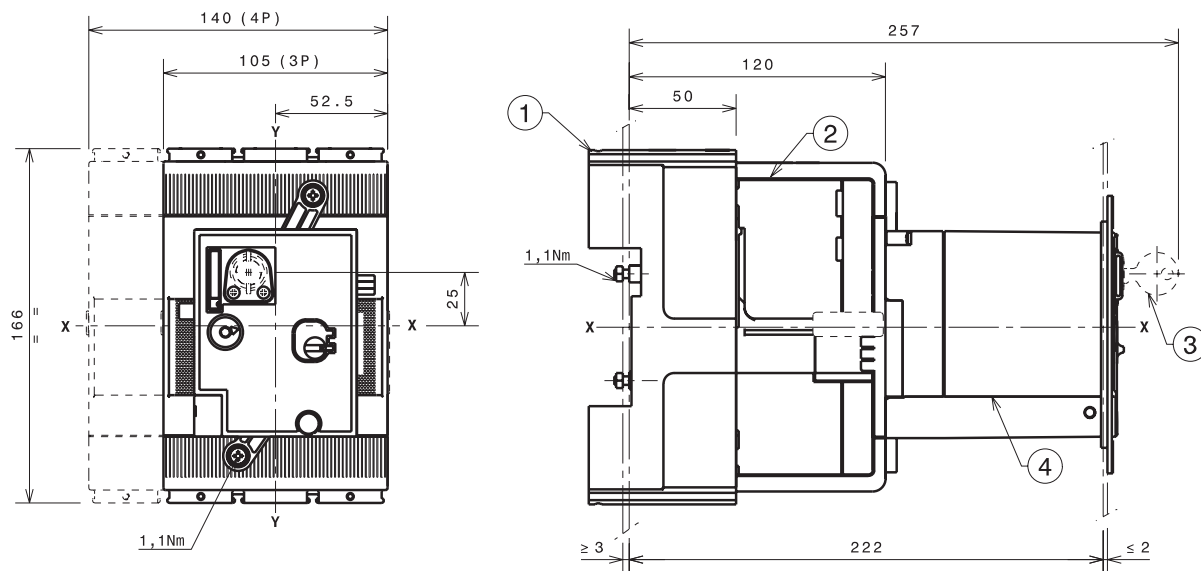
Key

- 1 Rear vertical terminals
- 2 Rear horizontal terminals
- 3 Rear phase separators 90mm

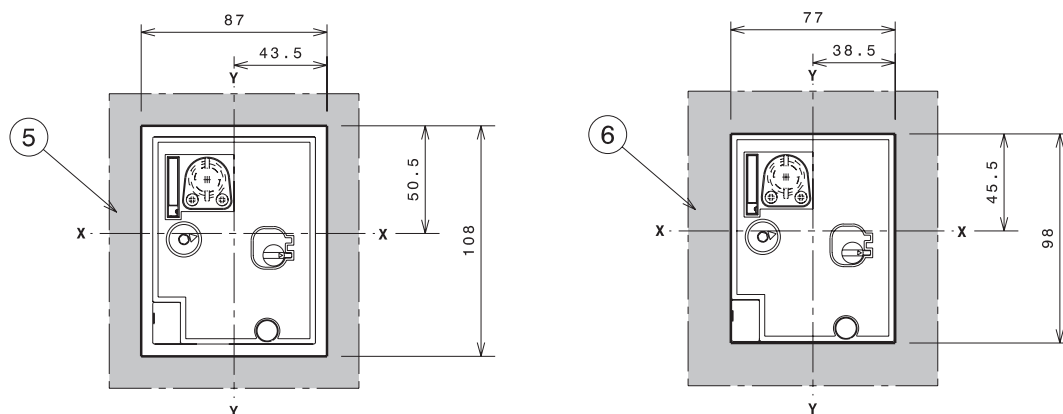
Tmax XT3 – Installation

Accessories for plug-in circuit-breaker

Direct motor operator (MOD)



FIXING AT 50mm



Key

- 1 Fixed part
- 2 Moving part
- 3 Key lock
- 4 Direct motor operator MOD
- 5 Drilling template of door with MOD with flange
- 6 Drilling template of door with MOD without flange

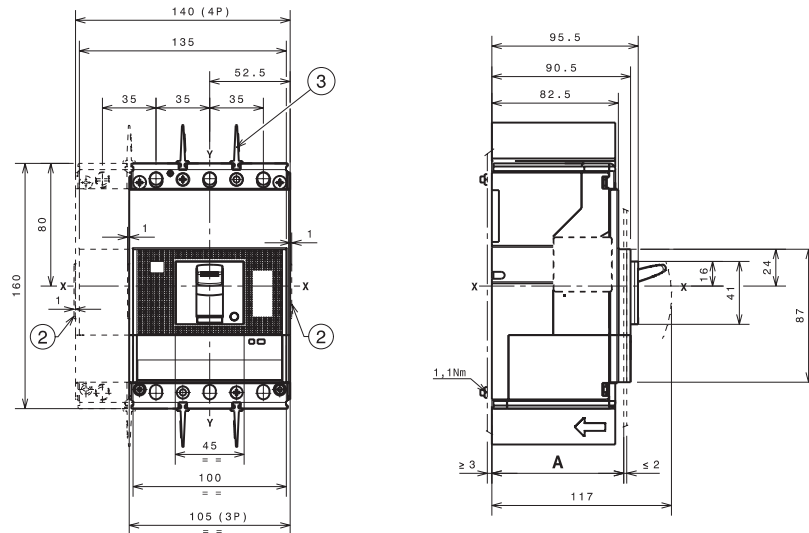
Tmax XT4 – Installation

Installation for fixed circuit-breaker

Fixing on sheet

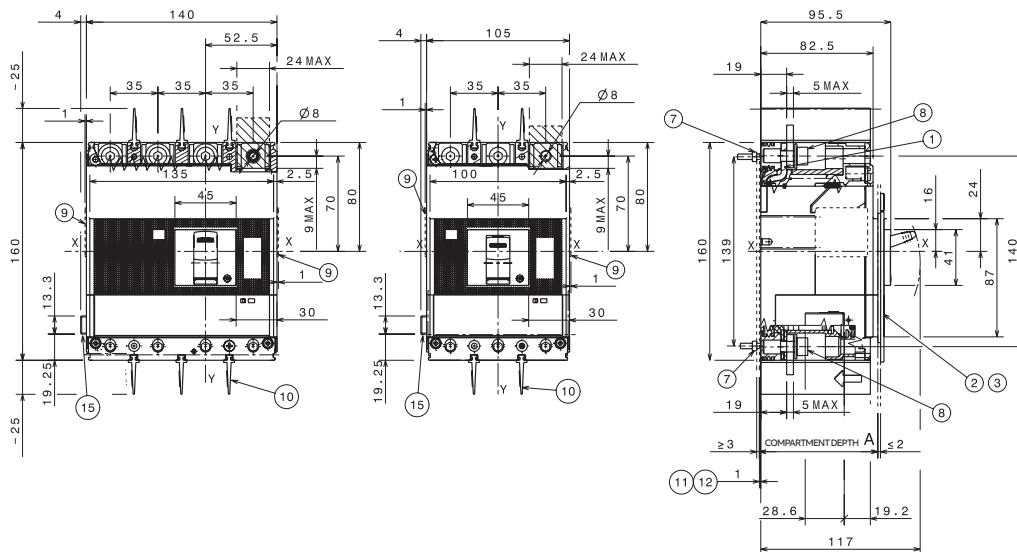
- Key
- 2 Overall dimensions of optional wiring ducts
 - 3 Phase separators 25mm

A	
With standard 3p-4p 86 flange	
Without 3p-4p 83.5 flange	
Without 3p-4p 91.5 flange	



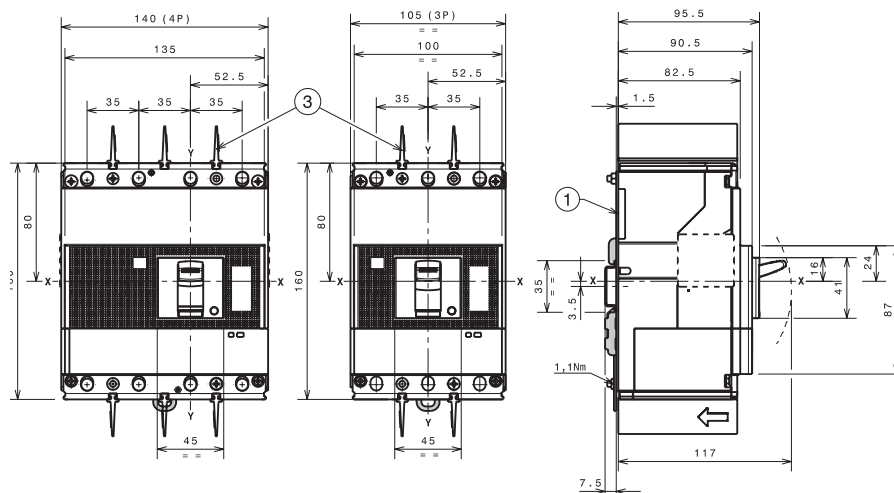
With side connector for Ekip Touch trip units

- Key
- 1 Front terminals
 - 2 Flange for 4p circuit-breaker
 - 3 Flange for 3p circuit-breaker
 - 7 Tightening torque 1,1 Nm - 10 In.Lbs
 - 8 Tightening torque 8 Nm - 70.3 In.Lbs
 - 9 Optional wiring duct 25mm
 - 10 Phase separators
 - 11 Rear plate insulating 3p (only ul version)
 - 12 Rear plate insulating 4p (only ul version)
 - 15 Connection kit F/P IntBus/ExtNeut/Sel

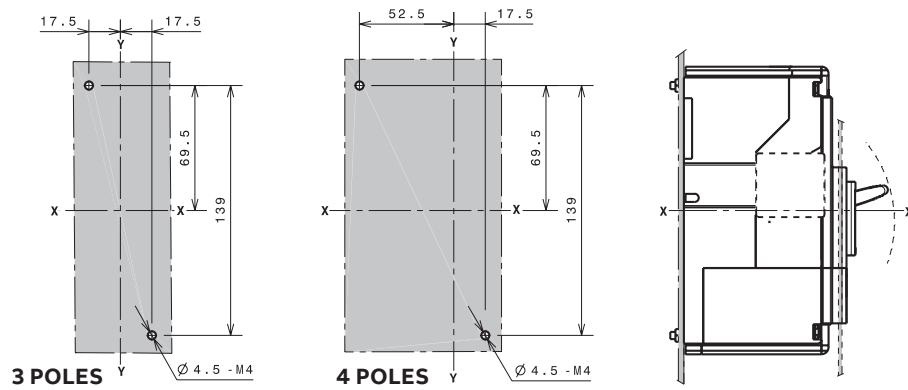


Fixing on DIN 50022 rail

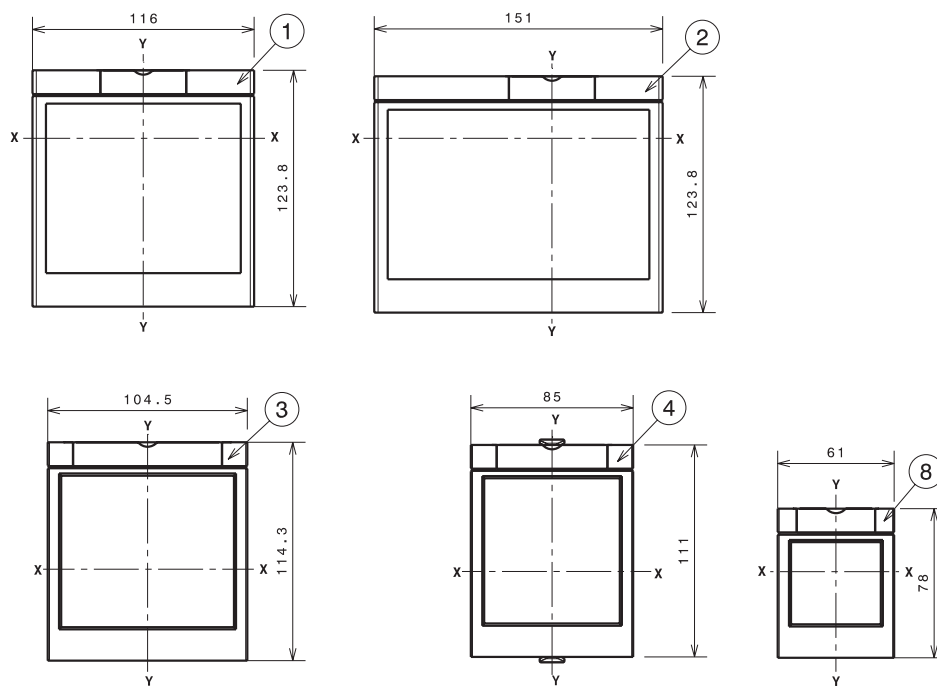
- Key
- 1 Bracket for fixing
 - 3 Phase separators 25mm



Drilling templates for support sheet

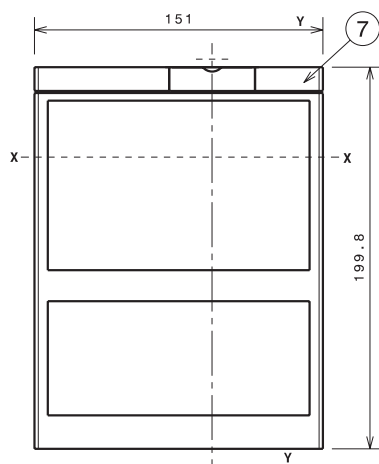


Flanges



Key

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

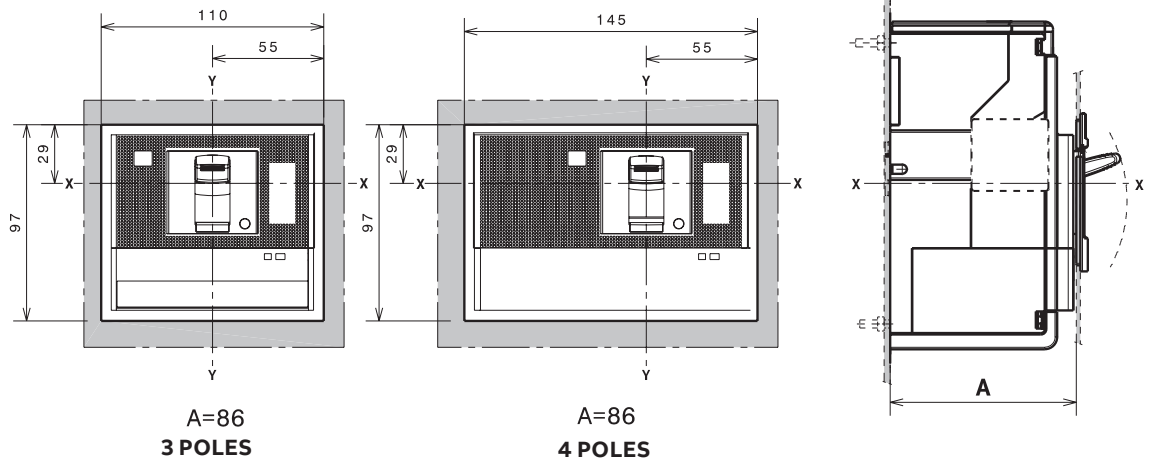


Tmax XT4 – Installation

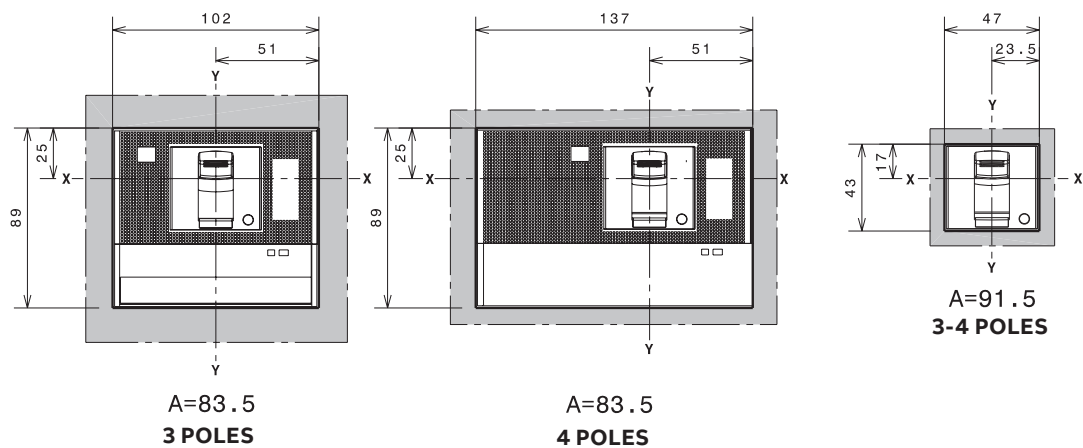
Installation for fixed circuit-breaker

Compartment door drilling templates

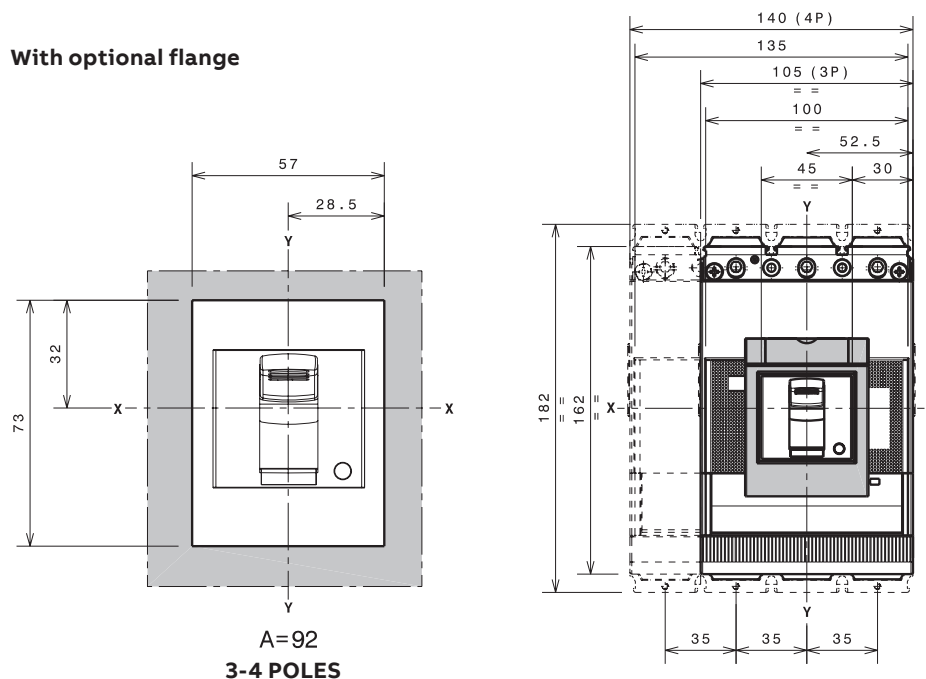
With standard flange



Without flange



With optional flange



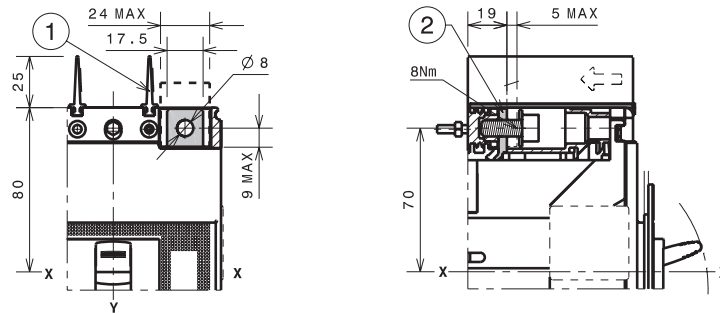
Tmax XT4 – Installation

Terminals for fixed circuit-breaker

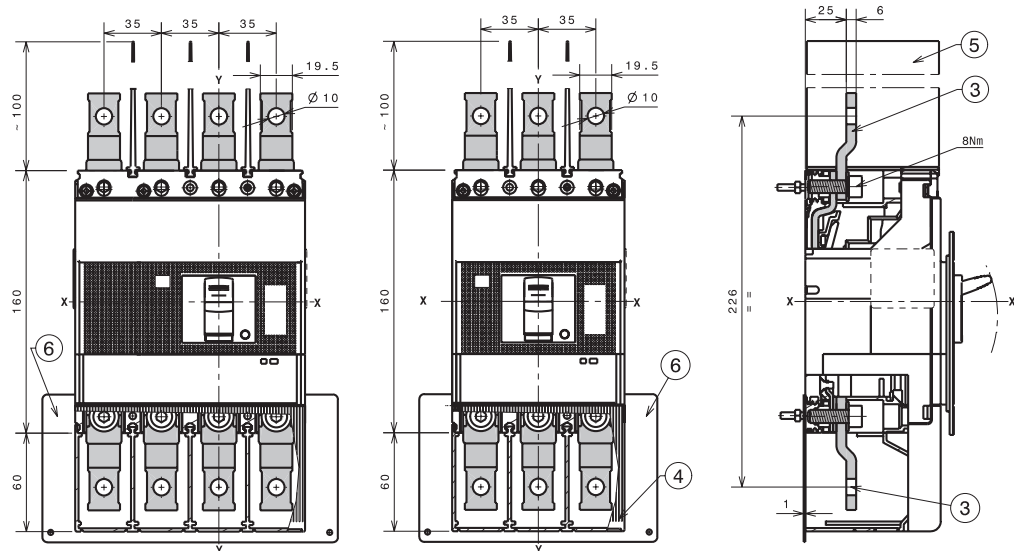
Terminals F

Key

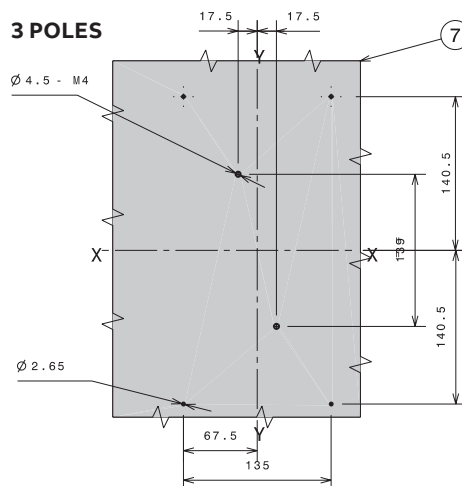
- 1 Phase separators 25mm
- 2 Top terminal covers with degree of protection IP30



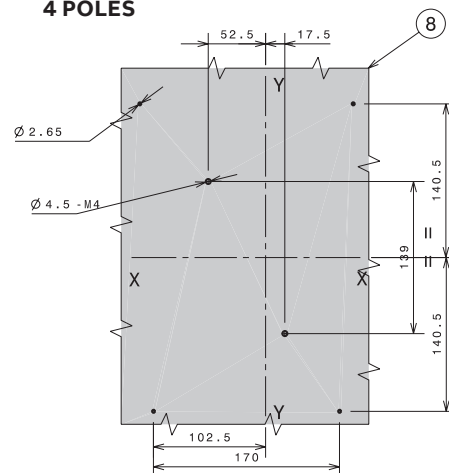
Terminals EF



3 POLES



4 POLES



Key

- 3 Front extended terminals
- 4 Terminal covers with degree of protection IP40
- 5 Phase separators 100mm
- 6 Insulated plate
- 7 Drilling template for 3p circuit-breaker
- 8 Drilling template for 4p circuit-breaker

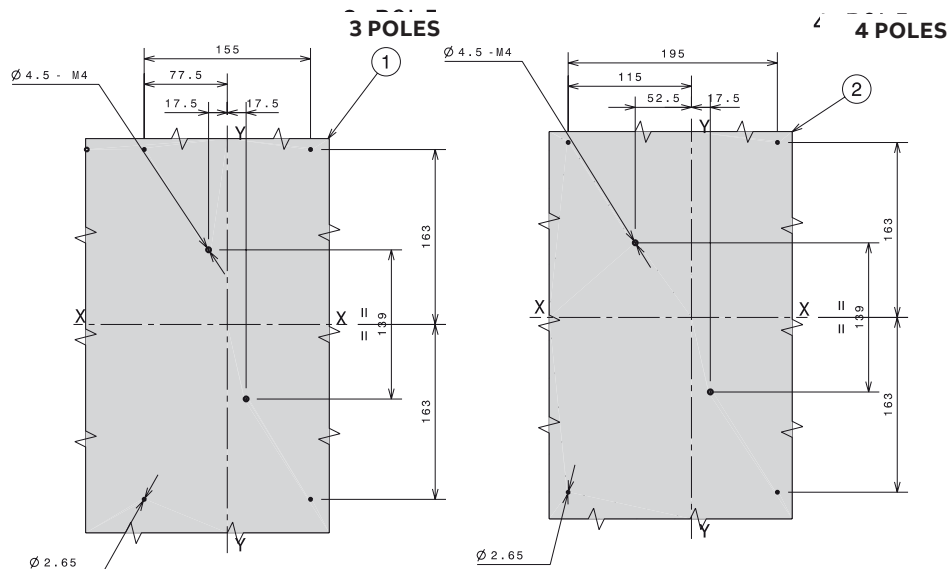
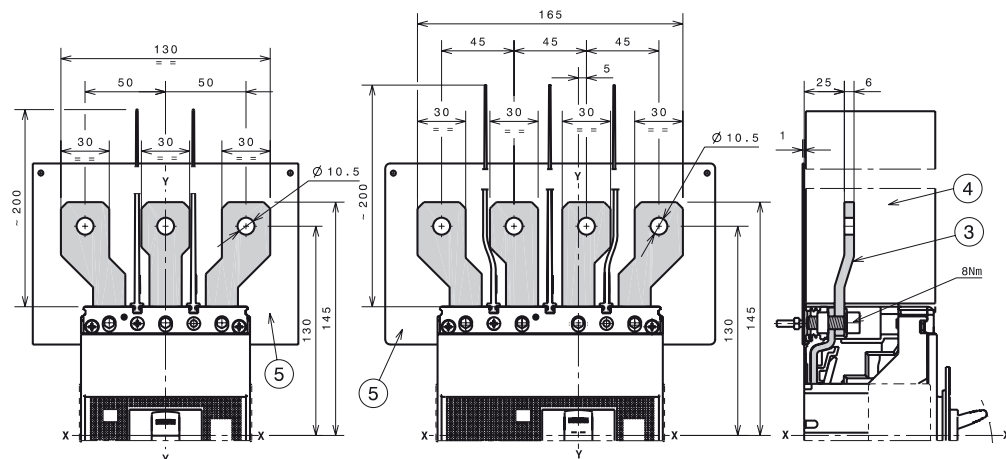
Tmax XT4 – Installation

Terminals for fixed circuit-breaker

Terminals ES

Key

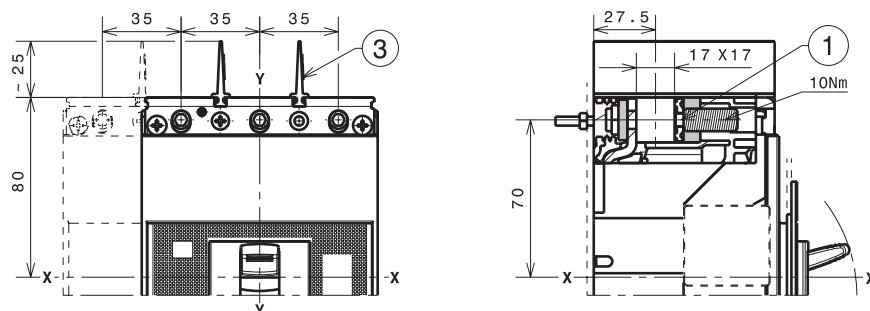
- 1 Drilling template for 3p circuit-breaker
- 2 Drilling template for 4p circuit-breaker
- 3 Front extended spread terminals
- 4 Phase separators 200mm
- 5 Insulating plate

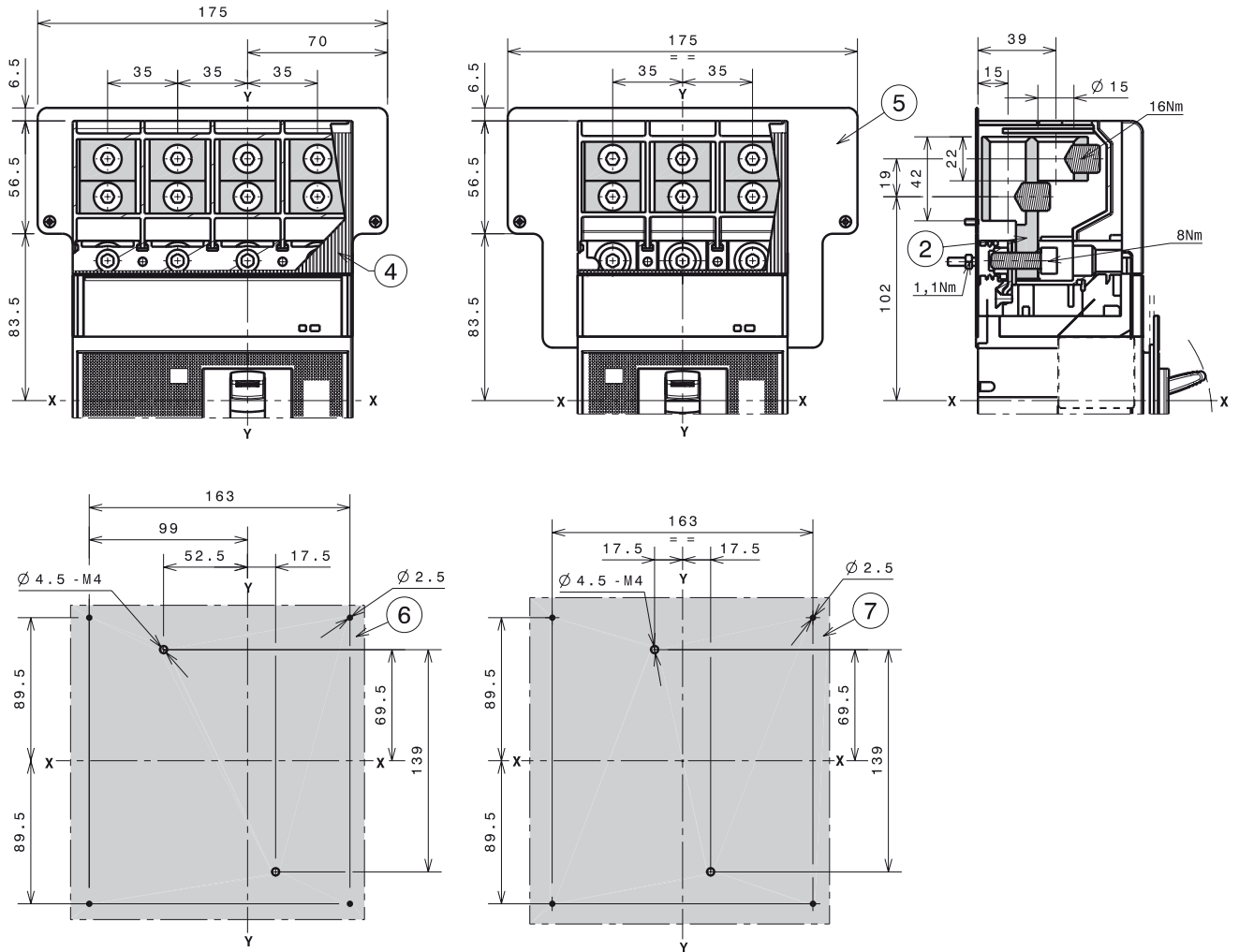


1x1...185mm² terminals FCCuAl

Key

- 1 1x1...185mm² terminals FCCuAl
- 3 Phase separators 25mm



2x35...120mm² terminals FCCuAl

Key

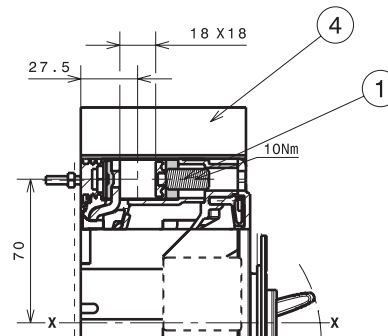
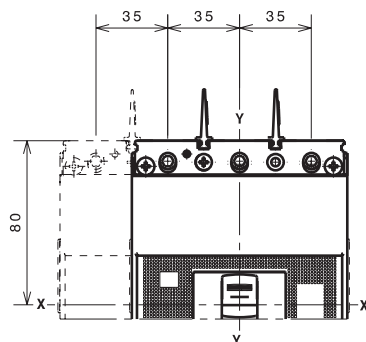
- 2 2x35...120mm² terminals FCCuAl
- 4 Terminal covers with degree of protection IP40
- 5 Rear insulated plate
- 6 Drilling template for circuit-breaker 4p fixing with insulating plate
- 7 Drilling template for circuit-breaker 3p fixing with insulating plate

Tmax XT4 – Installation

Terminals for fixed circuit-breaker

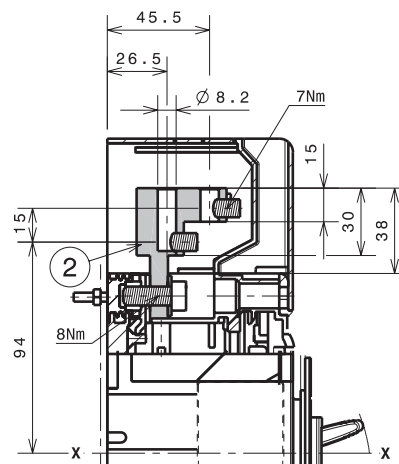
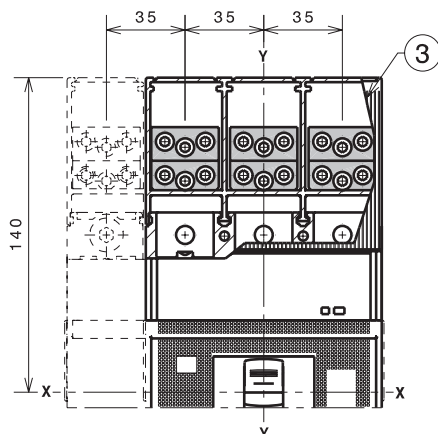
Terminals FCCu

- Key
- 1 Terminals FCCu
 - 4 Phase separators 25mm

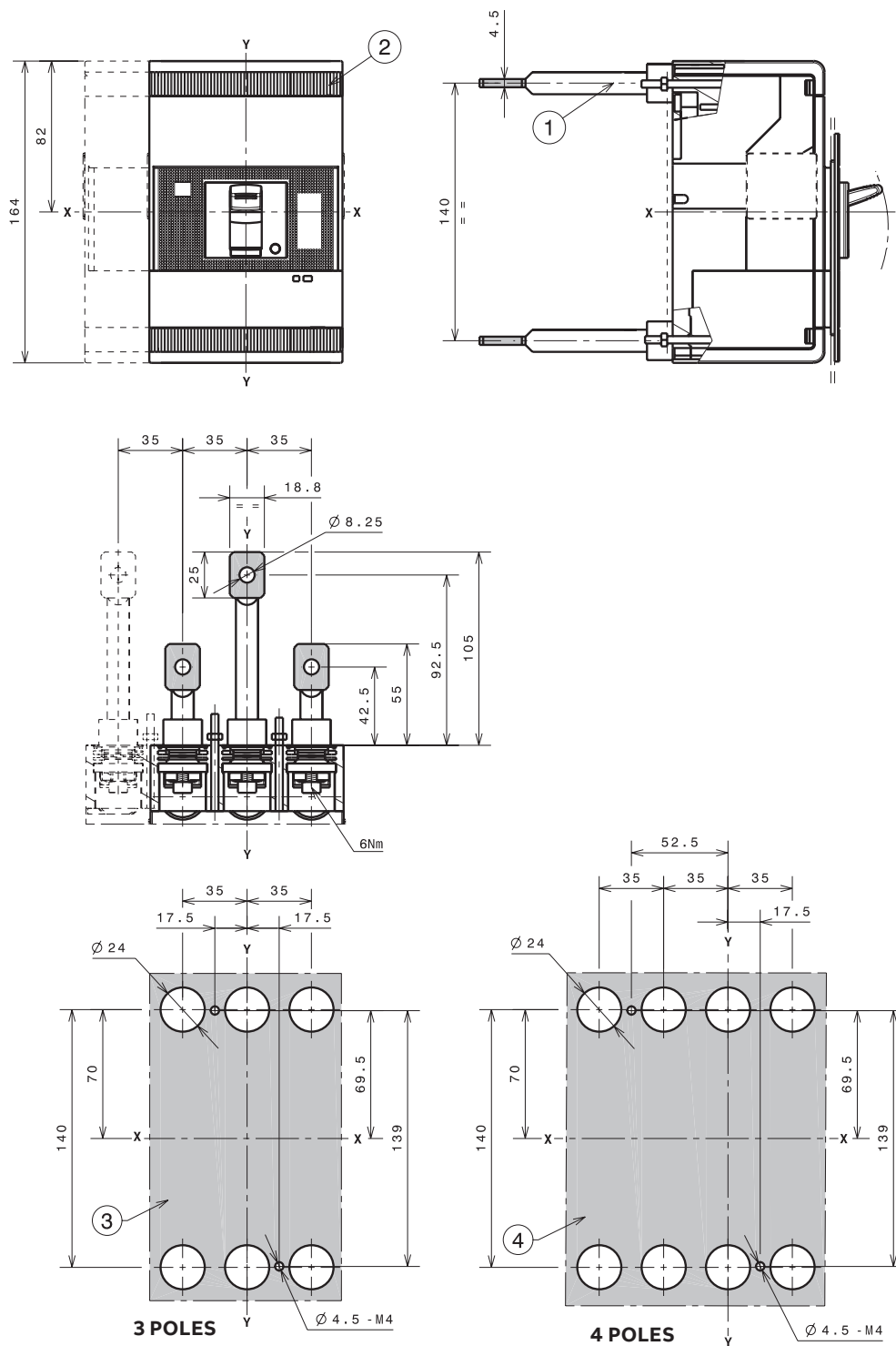


Terminals MC

- Key
- 2 Multicable terminals
 - 3 Terminal covers with degree of protection IP40



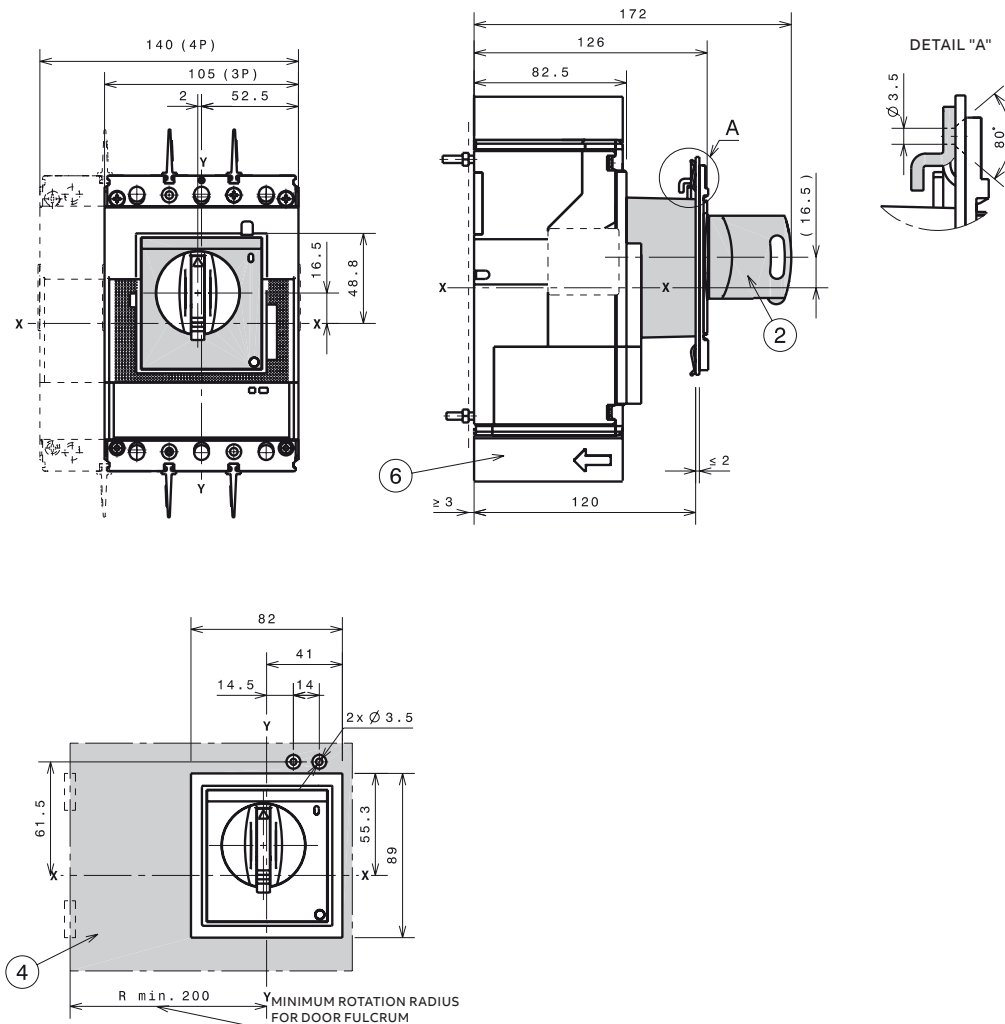
Terminals R



Tmax XT4 – Installation

Accessories for fixed circuit-breaker

Rotary handle operating mechanism on circuit-breaker (RHD)



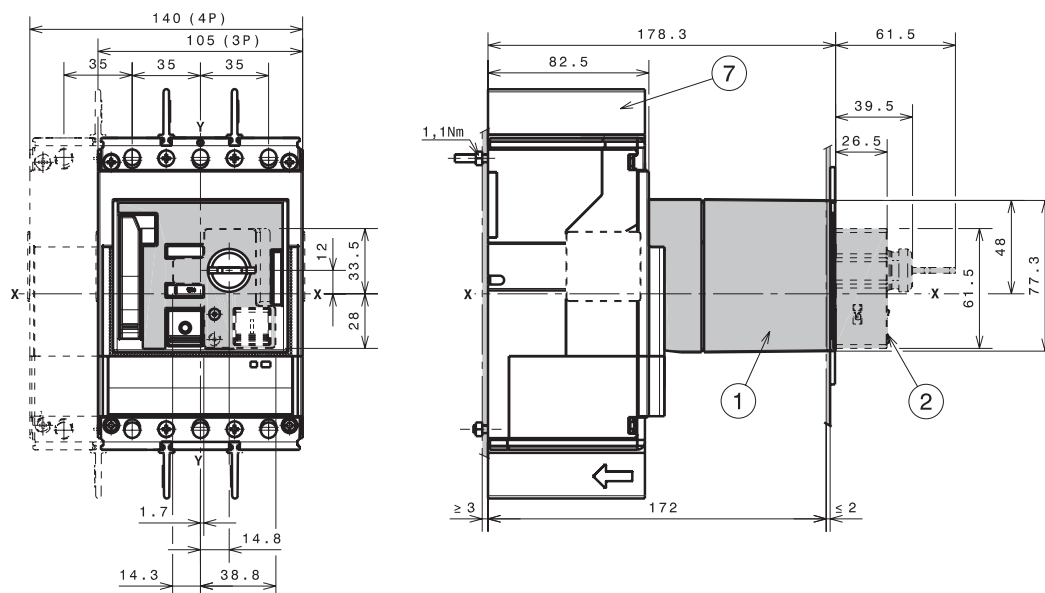
Key

- 2 Rotary handle operating mechanism on circuit-breaker
- 4 Drilling template of door with direct rotary handle
- 6 Phase separators 25mm

Tmax XT4 – Installation

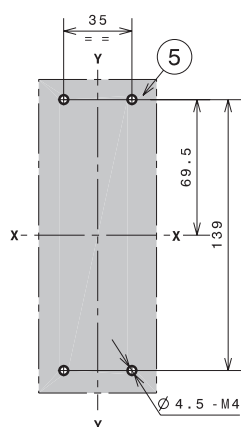
Accessories for fixed circuit-breaker

Stored energy motor operator (MOE)

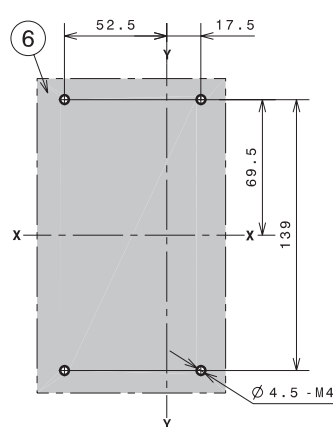


Key

- 1 Stored energy motor operator (MOE)
- 2 Key lock
- 3 Drilling template of door with flange (MOE)
- 4 Drilling template of door without flange (MOE)
- 5 Drilling template for circuit-breaker 3p fixing on sheet
- 6 Drilling template for circuit-breaker 4p fixing on sheet
- 7 Phase separators 25mm

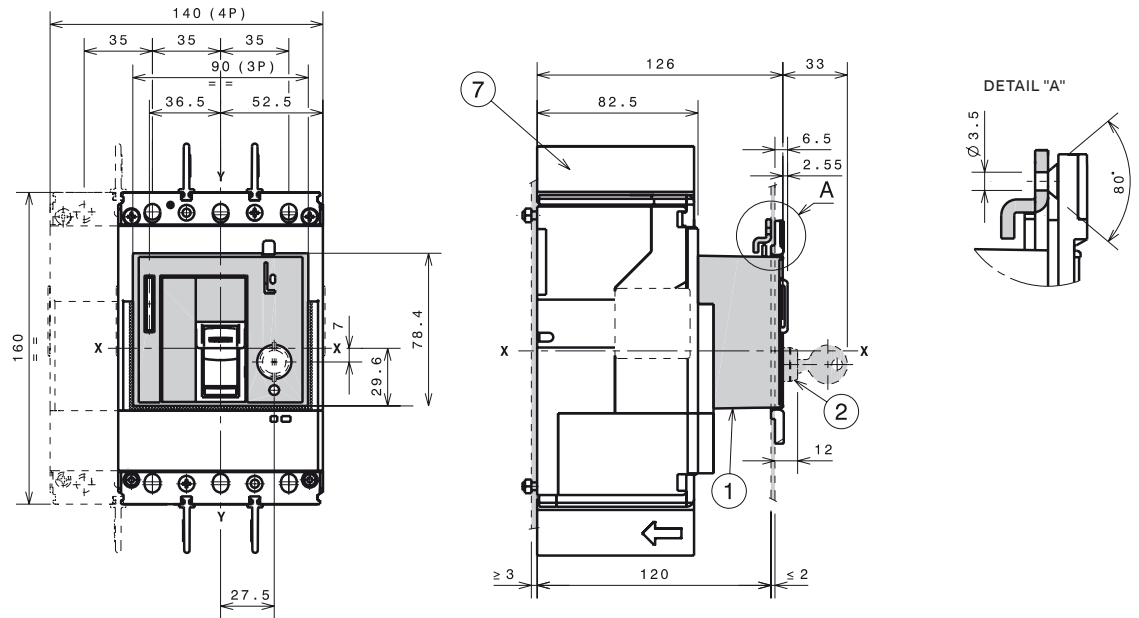


3 POLES



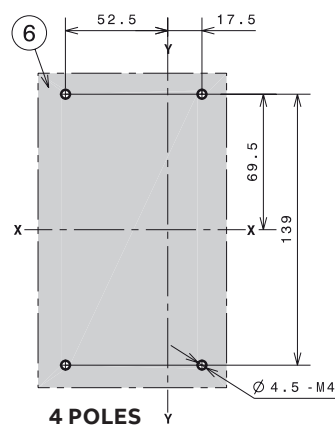
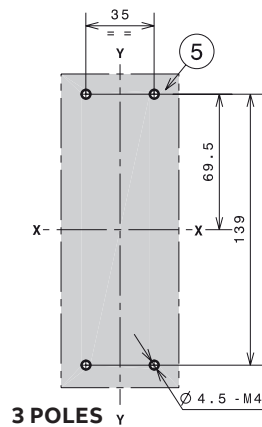
4 POLES

Front for lever operating mechanism (FLD)



Key

- 1 Front for lever operating mechanism (FLD)
- 2 Key lock
- 3 Drilling template of door with flange (FLD)
- 4 Drilling template of door without flange (FLD)
- 5 Drilling template for circuit-breaker 3p fixing on sheet
- 6 Drilling template for circuit-breaker 4p fixing on sheet
- 7 Phase separators 25mm

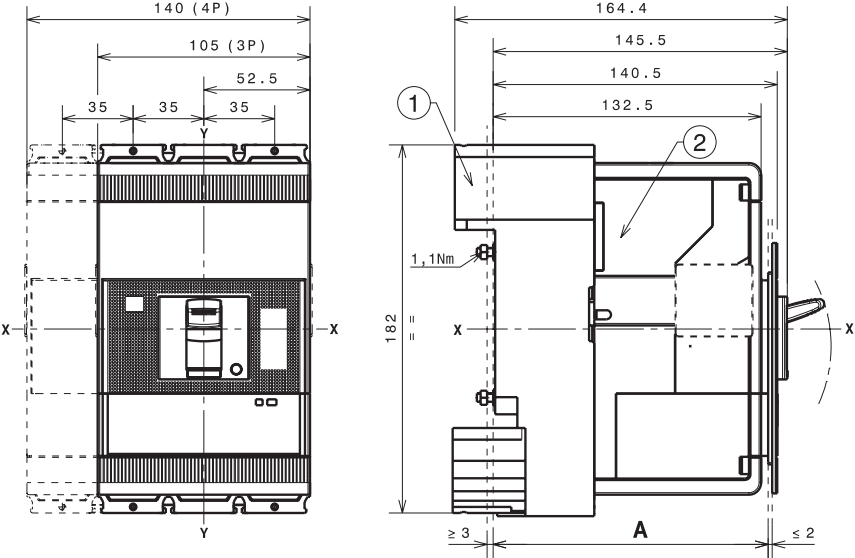


Tmax XT4 – Installation

Installation for plug-in circuit-breaker

Fixing on sheet

- Key
1 Fixed part
2 Moving part

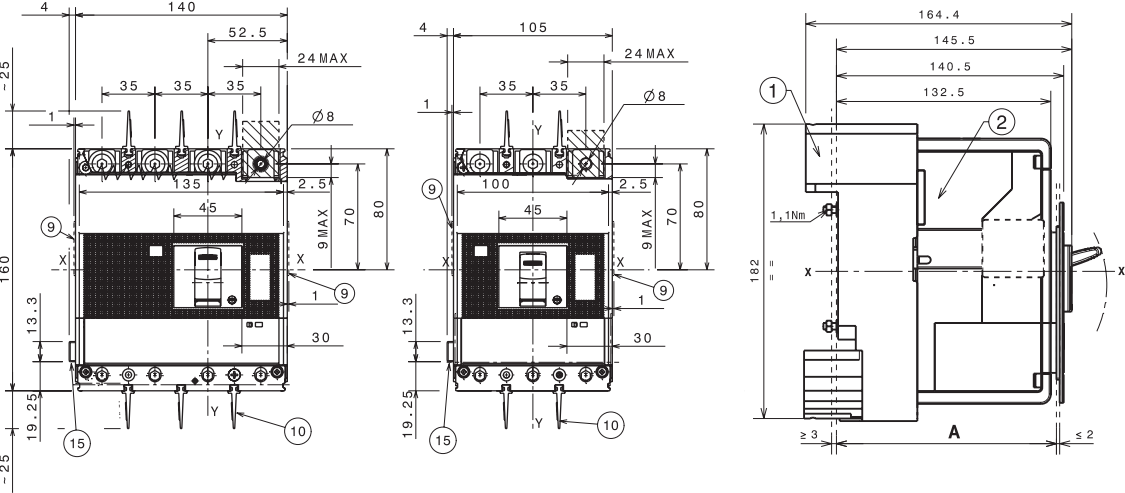


Fixing at 50mm		A
With standard flange	3p-4p	136
Without flange	3p-4p	133.5
	3p-4p	141.5

Fixing at 70mm for extended front terminals		A
With standard flange	3p-4p	156
Without flange	3p-4p	153.5
	3p-4p	161.5

With side connector for Ekip Touch trip units

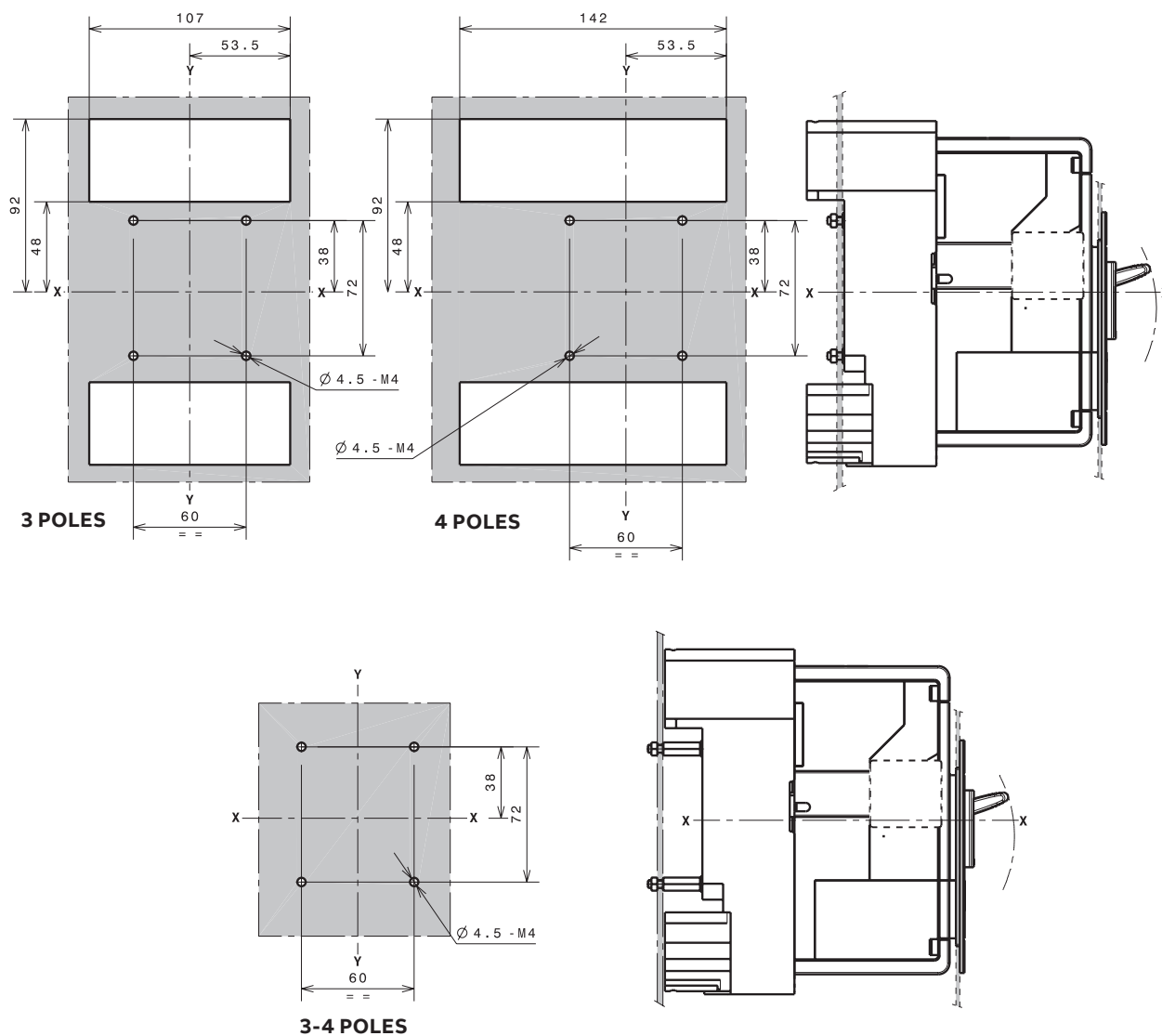
- Key
1 Front terminals
2 Flange for 4p circuit-breaker
9 Optional wiring duct
10 Phase separators 25mm
15 Connection kit F/P IntBus/ExtNeut/Sel



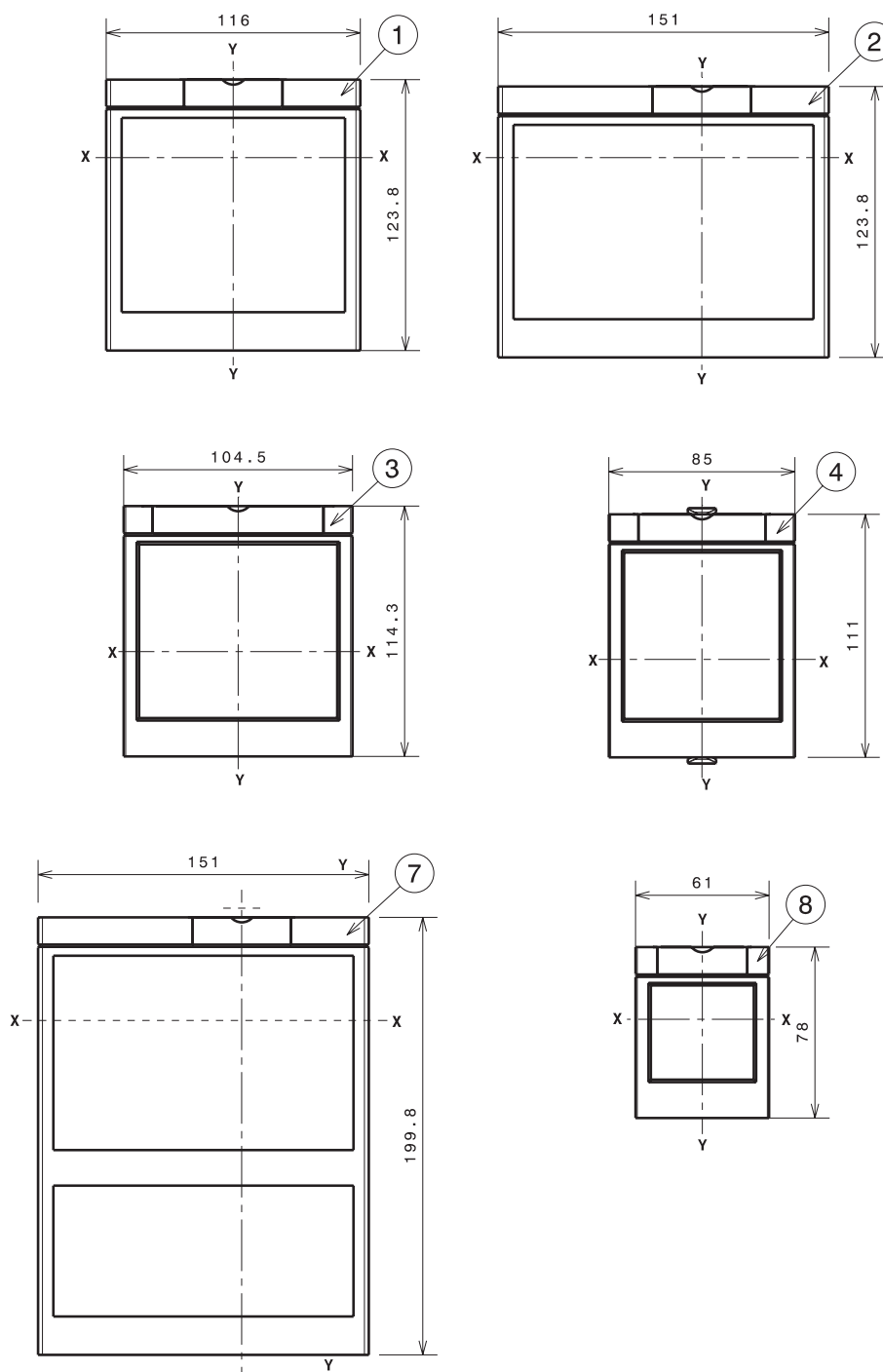
Tmax XT4 – Installation

Installation for plug-in circuit-breaker

Drilling templates for support sheet



Flanges



Key

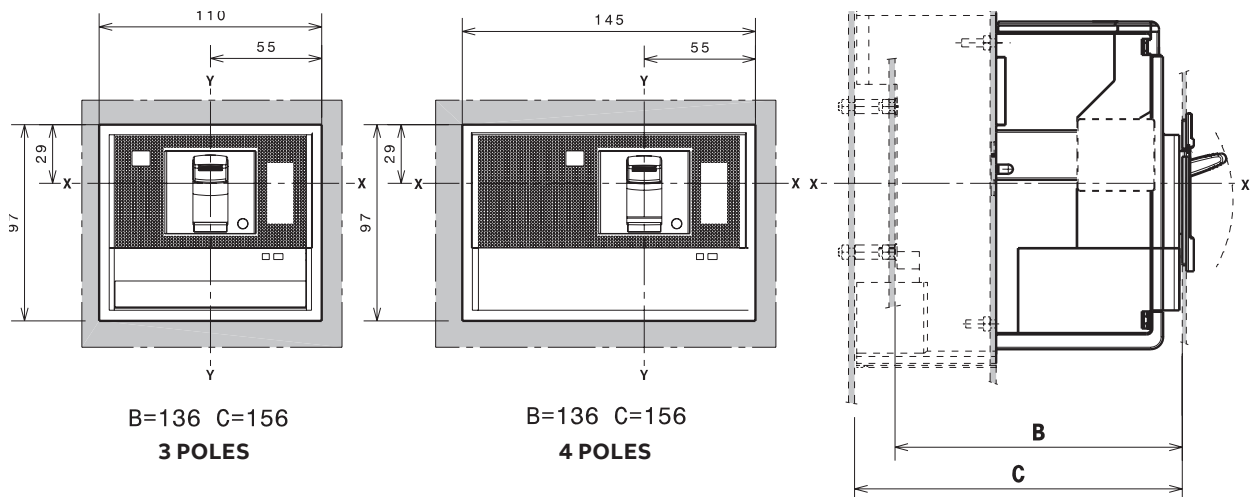
- 1 Flange for plug-in circuit-breaker 3p
- 2 Flange for plug-in circuit-breaker 4p
- 3 Flange for plug-in circuit-breaker 3p-4p with MOE and FLD
- 4 Flange for circuit-breaker 3p-4p with direct rotary handle
- 7 Flange for plug-in circuit-breaker 4p with front extended terminals and residual current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

Tmax XT4 – Installation

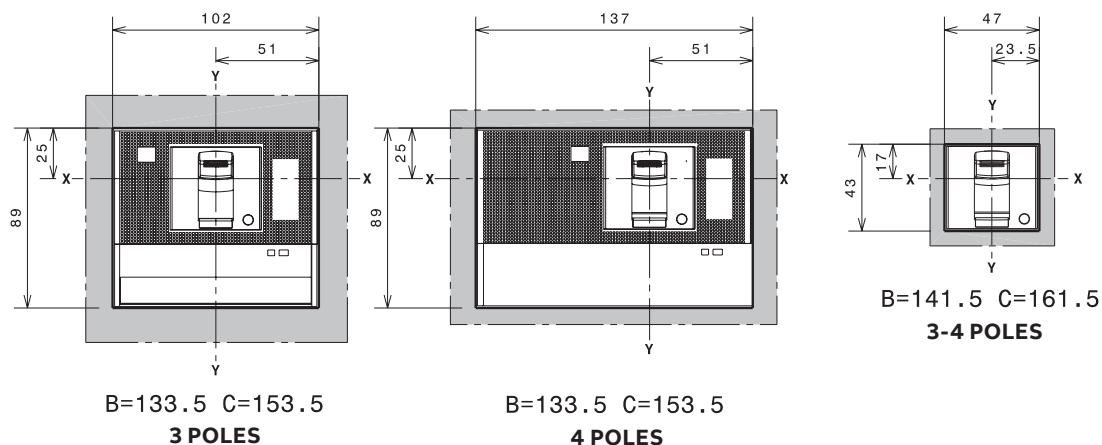
Installation for plug-in circuit-breaker

Compartment door drilling templates

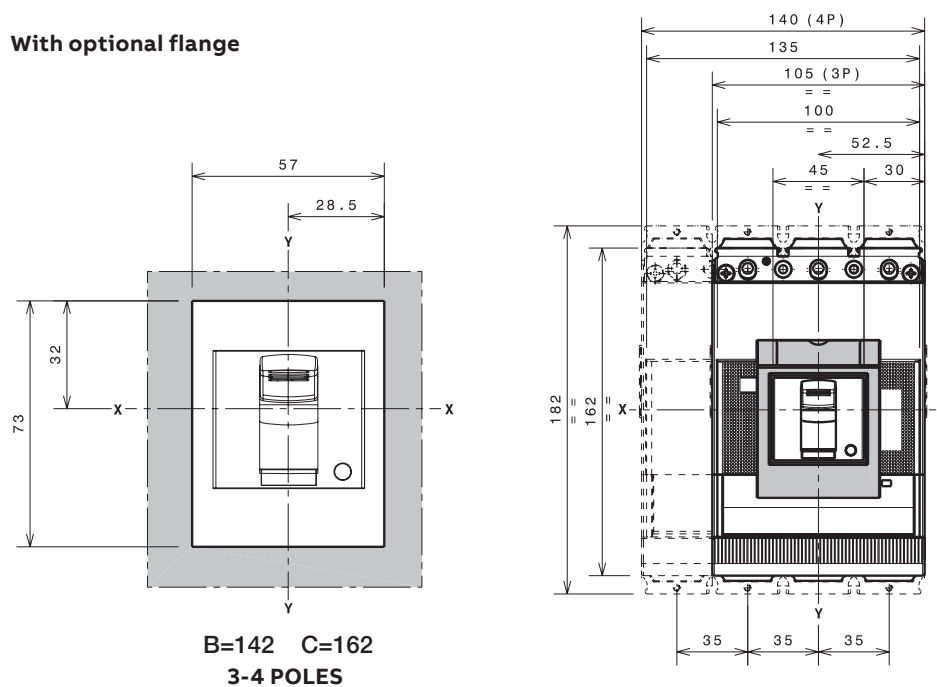
With standard flange



Without flange



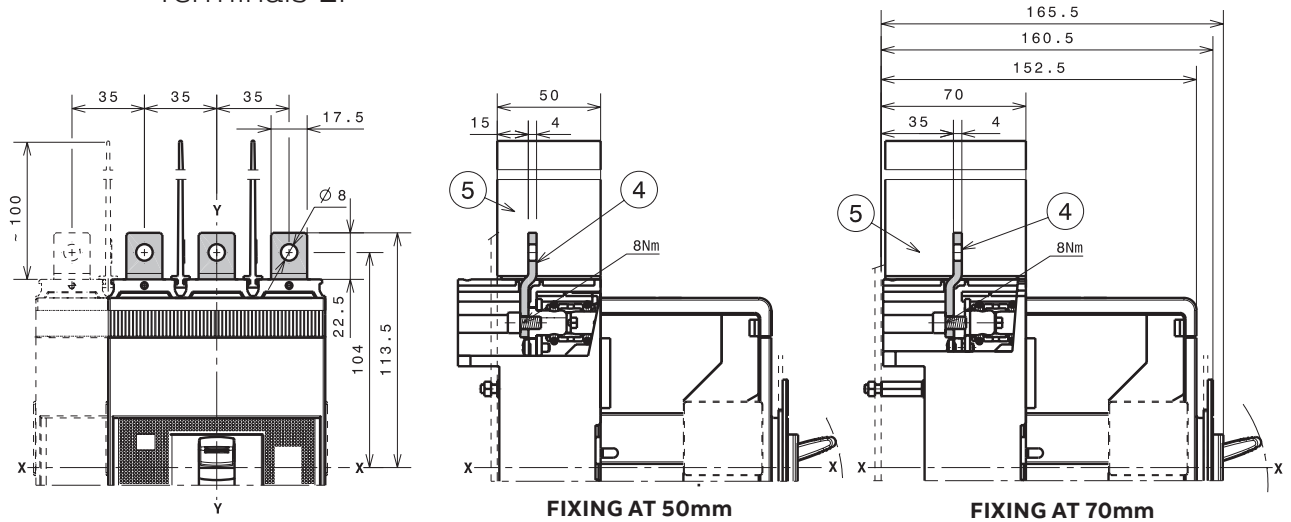
With optional flange



Tmax XT4 – Installation

Terminals for plug-in circuit-breaker

Terminals EF



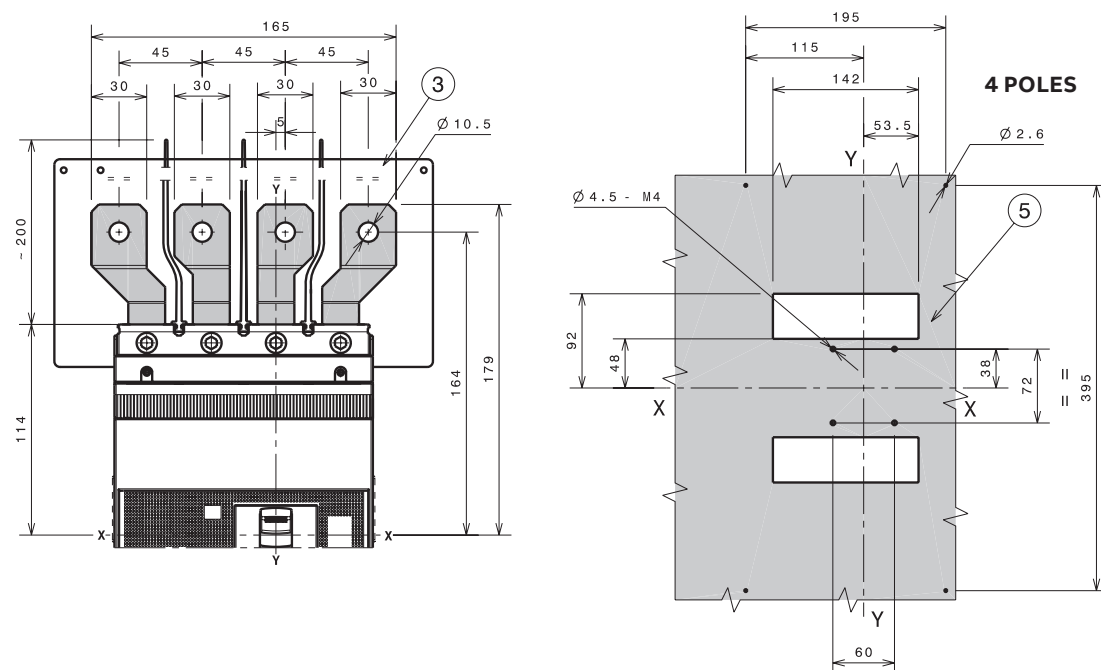
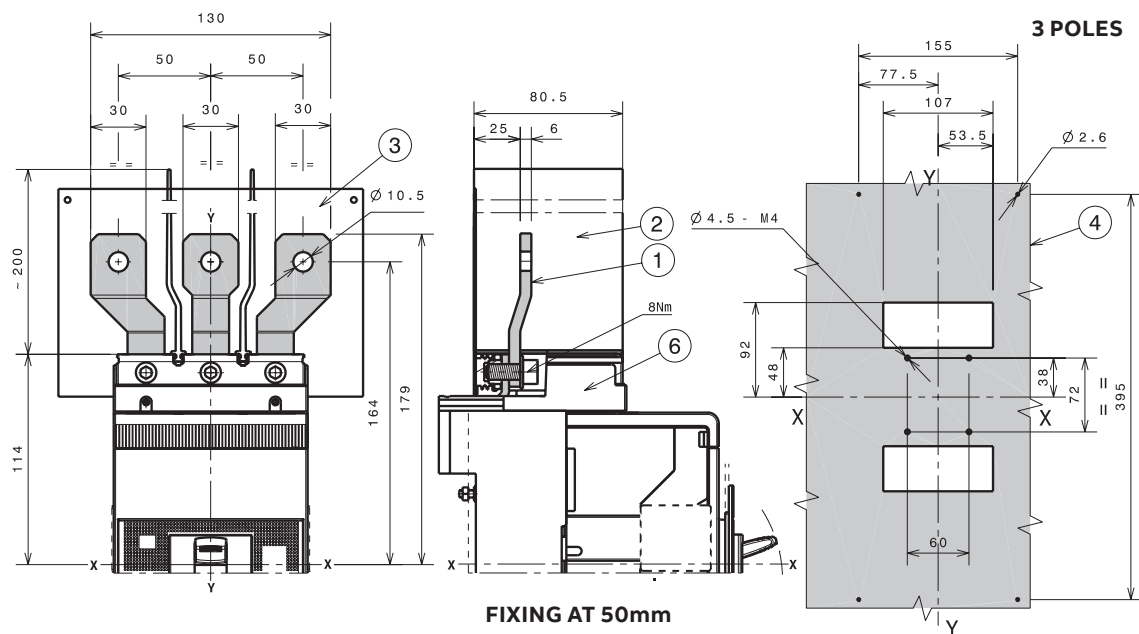
- Key
4 Front extended
terminals
5 Phase separators
100mm

—
Note:
insulated plate

Tmax XT4 – Installation

Terminals for plug-in circuit-breaker

Terminals ES



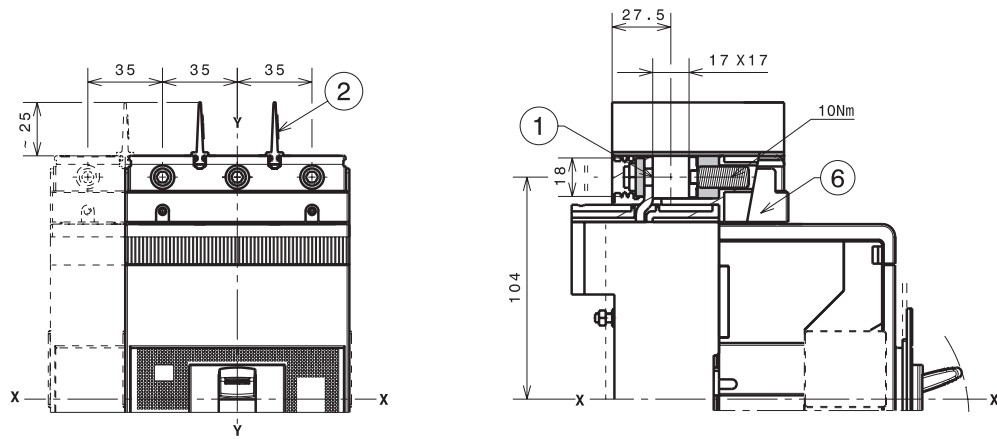
Key

- 1 Front extended spread terminals
- 2 Phase separators
- 3 Insulated plate provided
- 4 Drilling template for 3p circuit-breaker
- 5 Drilling template for 4p circuit-break
- 6 Adaptor

1x1...185mm² terminals FCCuAl

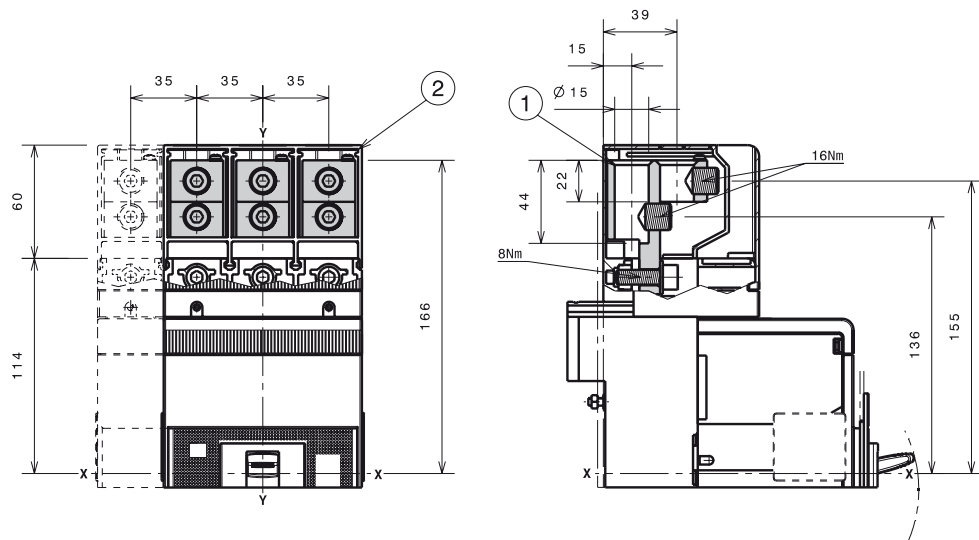
Key

- 1 1x1...185mm² front terminals FCCuAl
- 2 Phase separators 25mm
- 6 Adaptor

2x35...120mm² terminals FCCuAl

Key

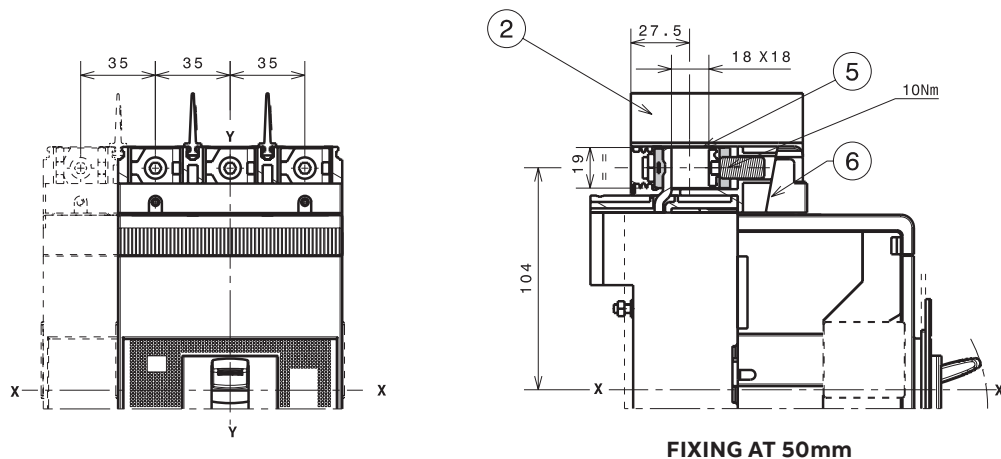
- 1 2x120mm² external terminal FCCuAl
- 2 High terminal covers with degree of protection IP40



Terminals FCCu

Key

- 2 Phase separators 25mm
- 5 Terminals FCCu
- 6 Adaptor



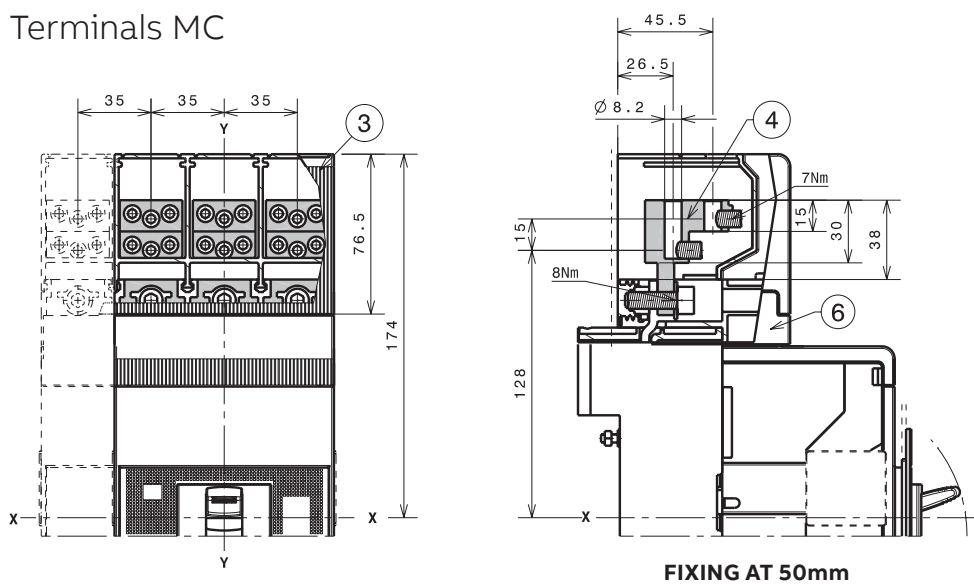
Tmax XT4 – Installation

Terminals for plug-in circuit-breaker

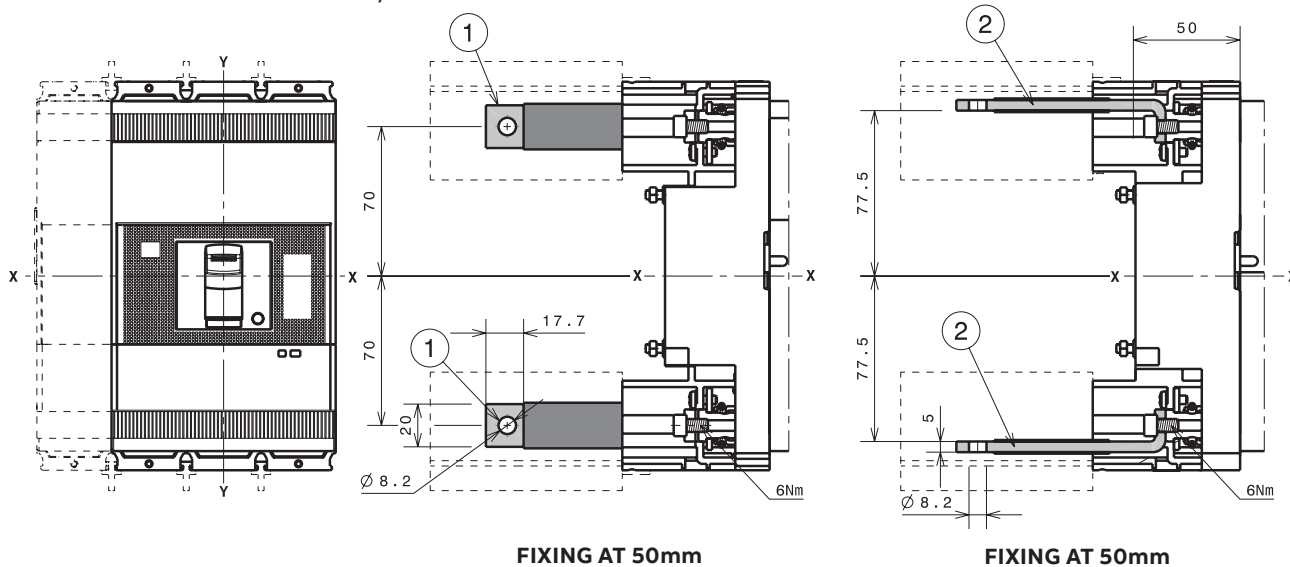
Terminals MC

Key

- 3 High terminal covers with degree of protection IP40
- 4 Multicable terminals
- 6 Adaptor

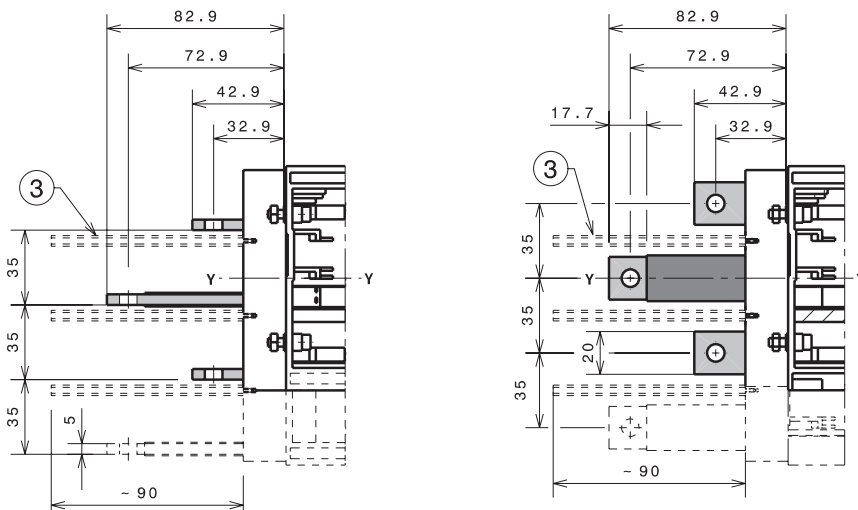


Terminals HR/VR



Key

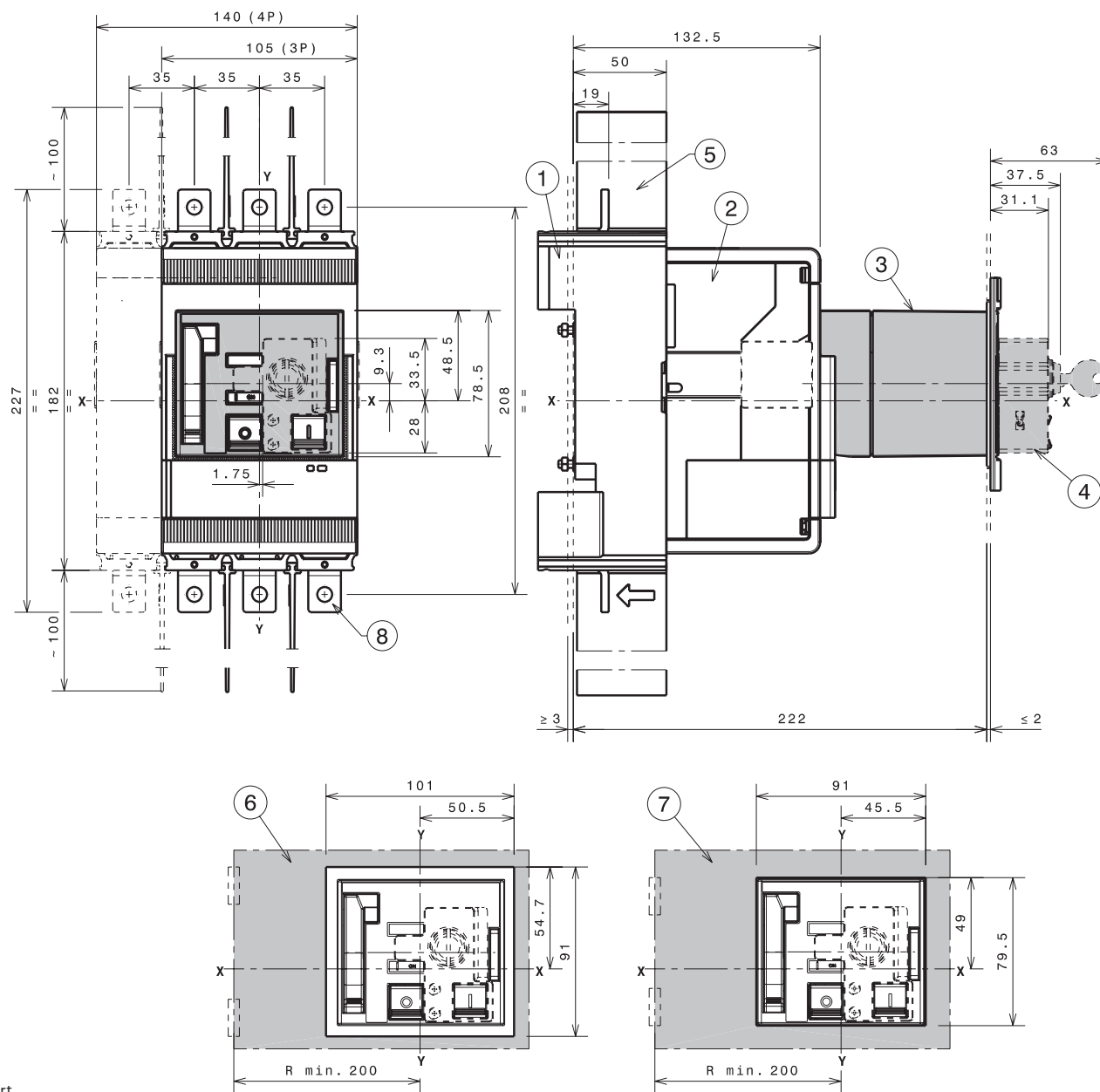
- 1 Rear vertical terminals
- 2 Rear horizontal terminals
- 3 Rear phase separators 90mm



Tmax XT4 – Installation

Accessories for plug-in circuit-breaker

Stored energy motor operator (MOE)



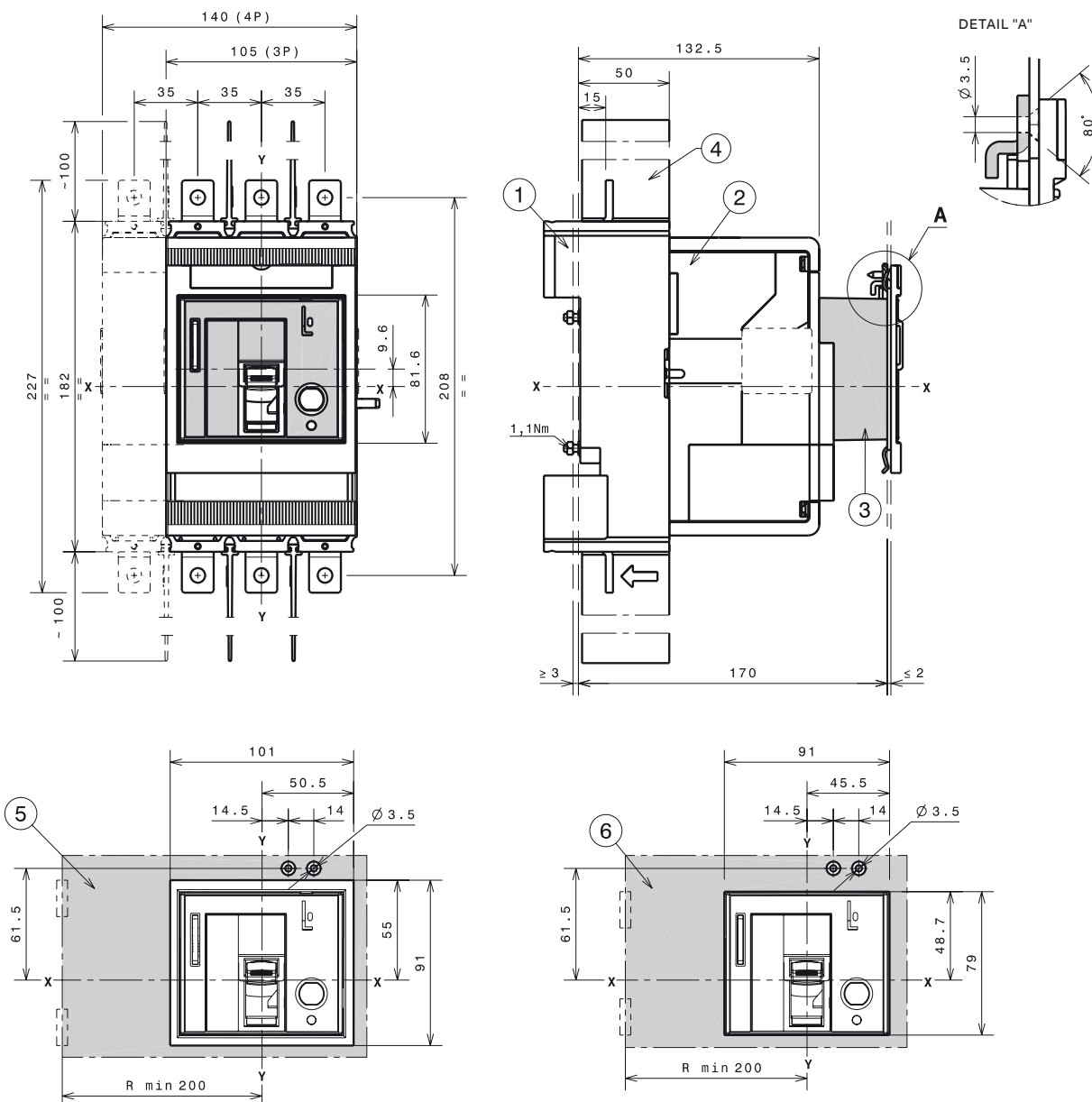
Key

- 1 Fixed part
- 2 Moving part
- 3 Stored energy motor operator (MOE)
- 4 Key lock
- 5 Phase separators 100mm
- 6 Drilling template of door with flange
- 7 Drilling template of door without flange
- 8 Extended terminals

Tmax XT4 – Installation

Accessories for plug-in circuit-breaker

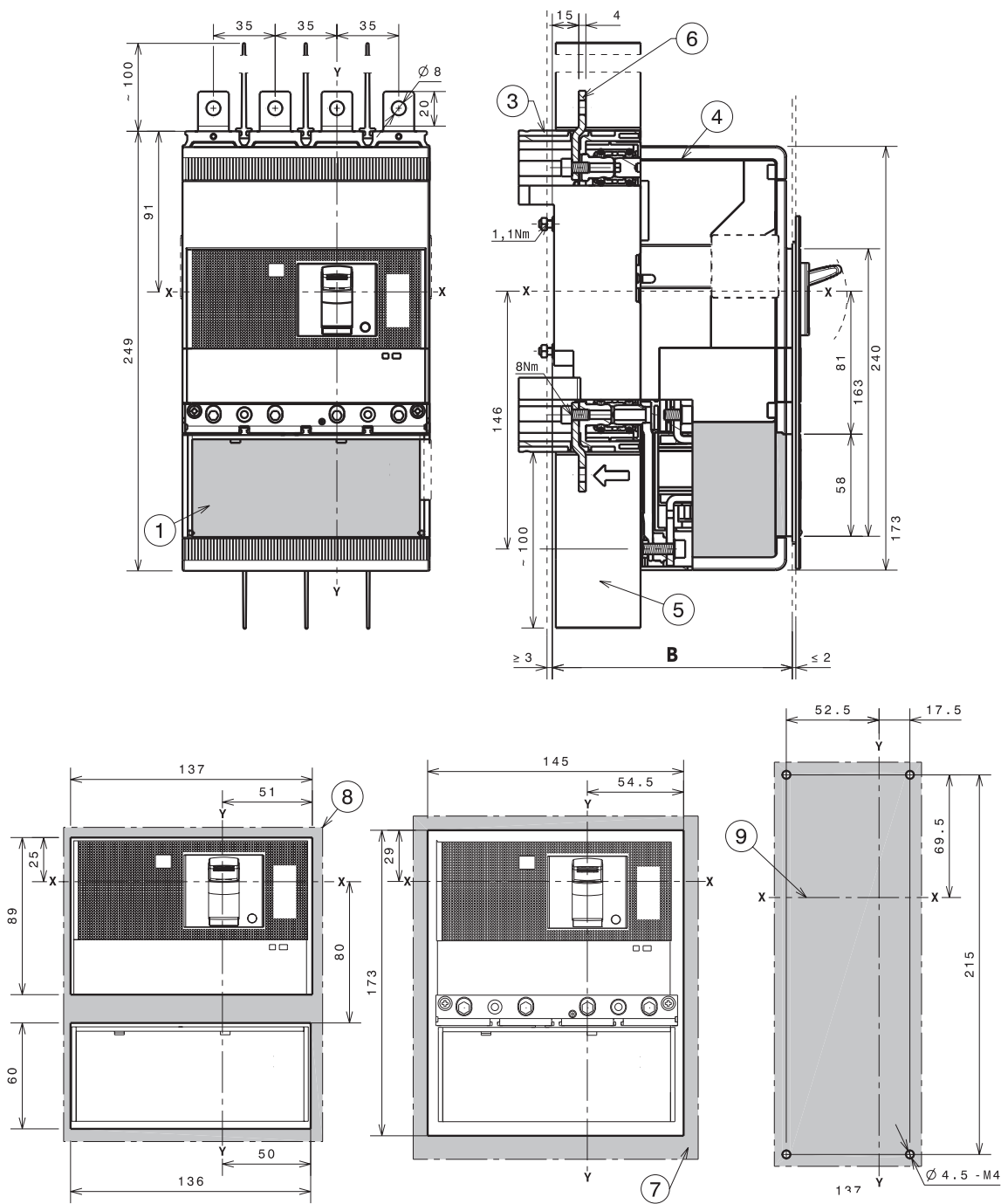
Front for lever operating mechanism (FLD)



Key

- 1 Fixed part
- 2 Moving part
- 3 Front for lever operating mechanism (FLD)
- 4 Phase separators 100mm
- 5 Drilling template of door with flange
- 6 Drilling template of door without flange

Residual current RC Sel



- Key
- 1 Residual current
 - 3 Fixed part
 - 4 Moving part
 - 5 Phase separators 100mm
 - 6 Extended terminals
 - 7 Drilling template of door with flange
 - 8 Drilling template of door without flange
 - 9 Drilling template for circuit-breaker fixing on sheet

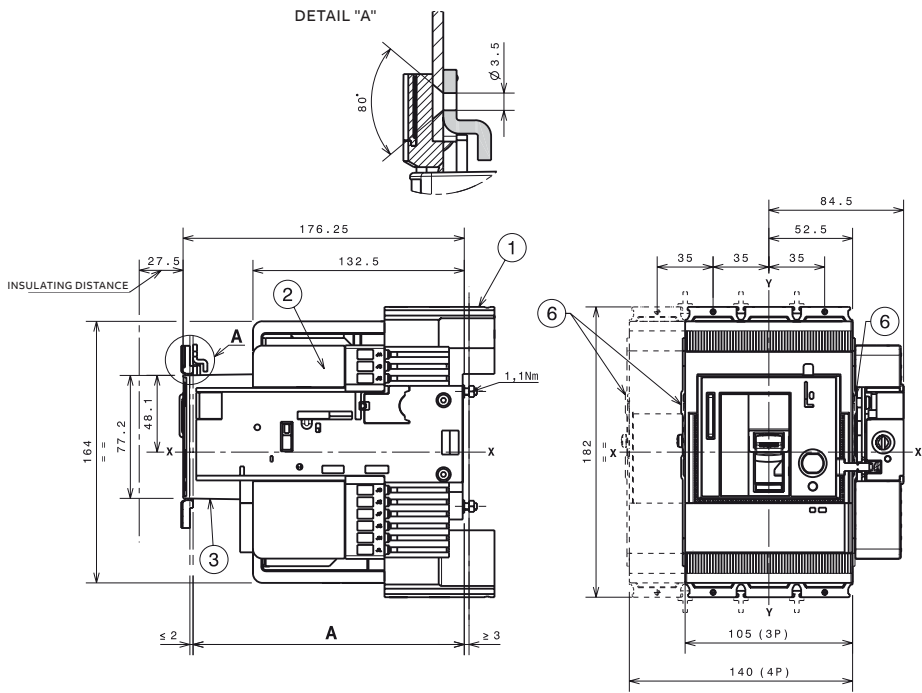
Fixing at 50mm		B
With standard flange	4p	136
Without flange	4p	133.5



Tmax XT4 – Installation

Installation for withdrawable circuit-breaker

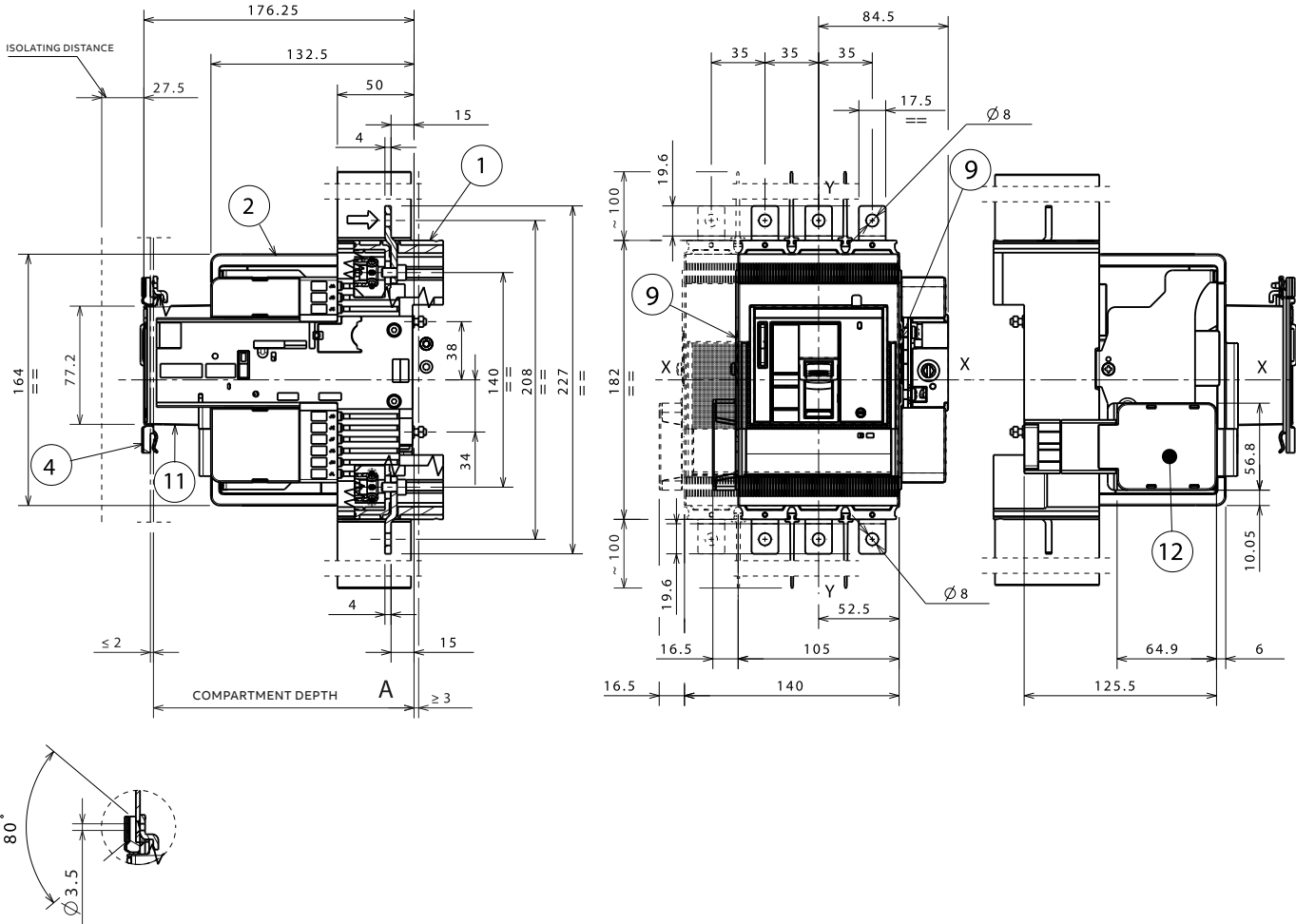
Fixing on sheet



A		
With standard flange	3p - 4p	Fixing at 50mm 170
	3p - 4p	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



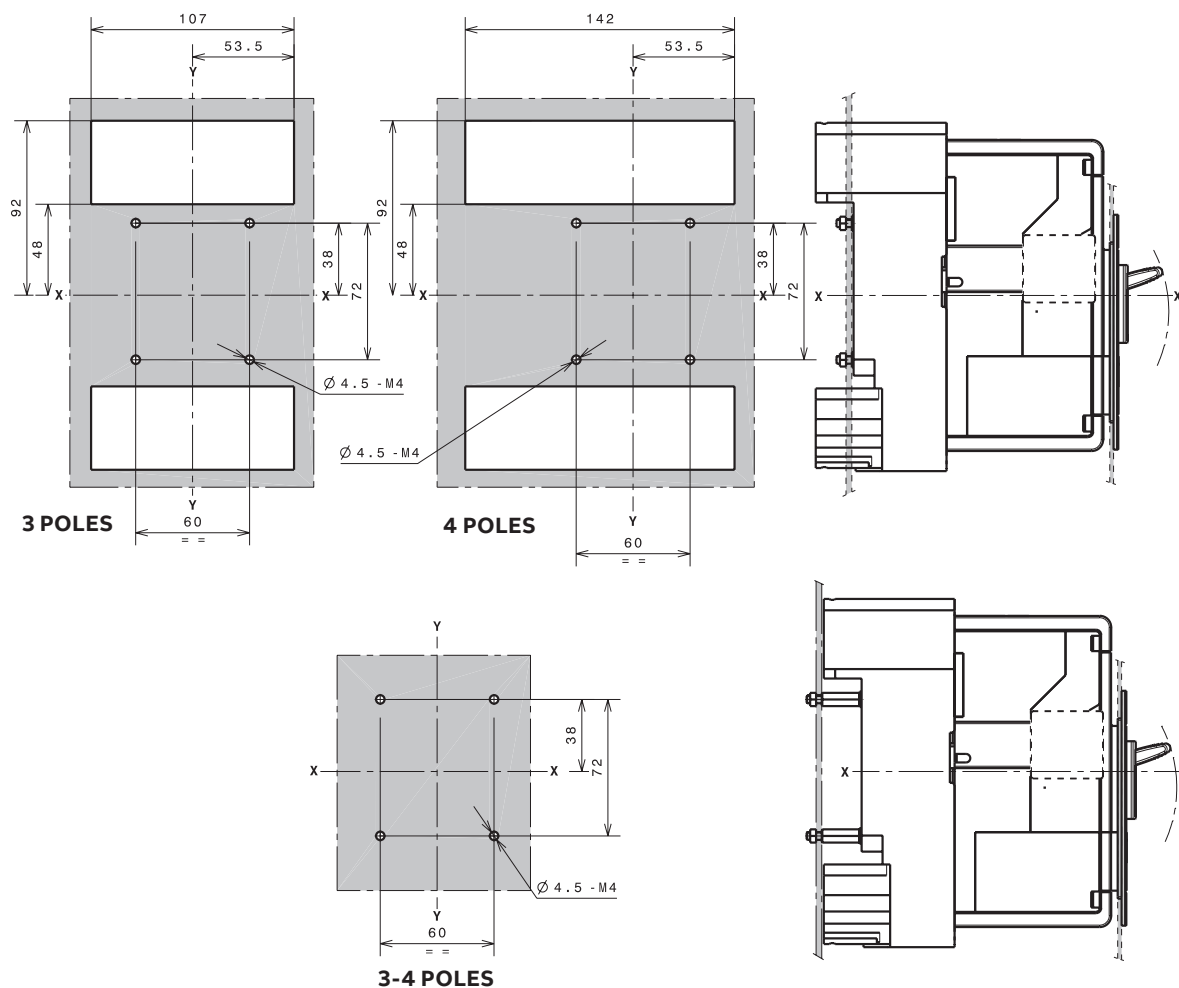
A		
With standard flange	3p - 4p	Fixing at 50mm 170
	3p - 4p	Fixing at 70mm for front extended terminals 190

- 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
 - 12 Connection kit W IntBus/ExtNeut/Sel

Tmax XT4 – Installation

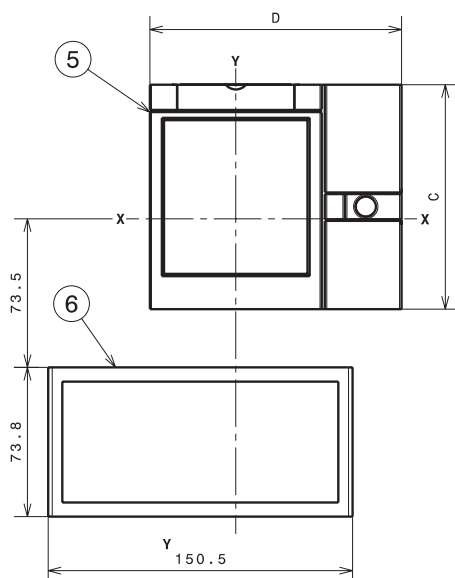
Installation for withdrawable circuit-breaker

Drilling templates for support sheet



Flanges

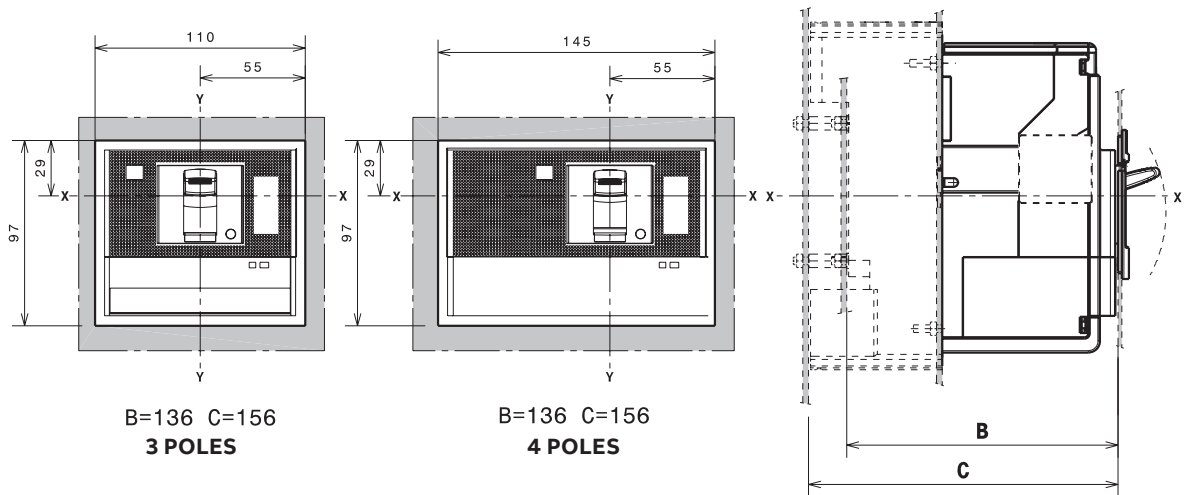
- Key
- 5 Flange for withdrawable circuit-breaker 3p-4p
 - 6 Flange for residual current release (withdrawable 4p circuit-breaker) with front extended terminals



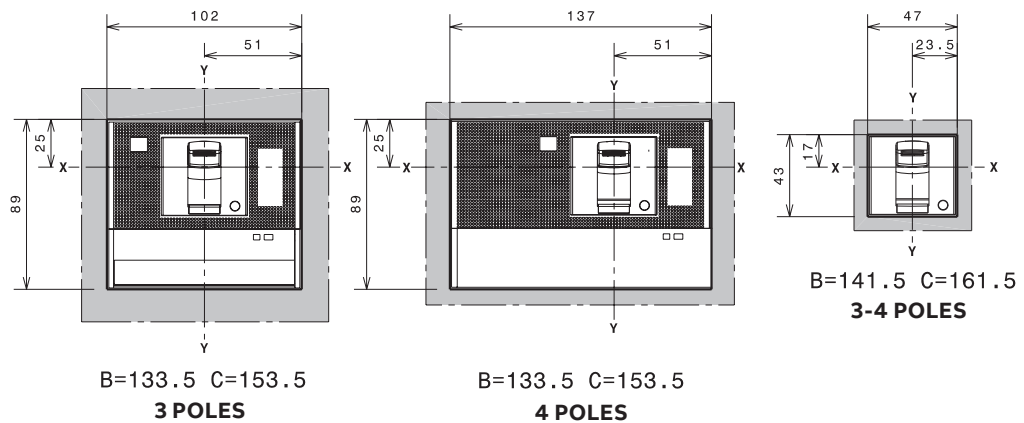
	C	D
RHD	111	124.5
FLD - MOE	114.3	134.5

Compartment door drilling templates

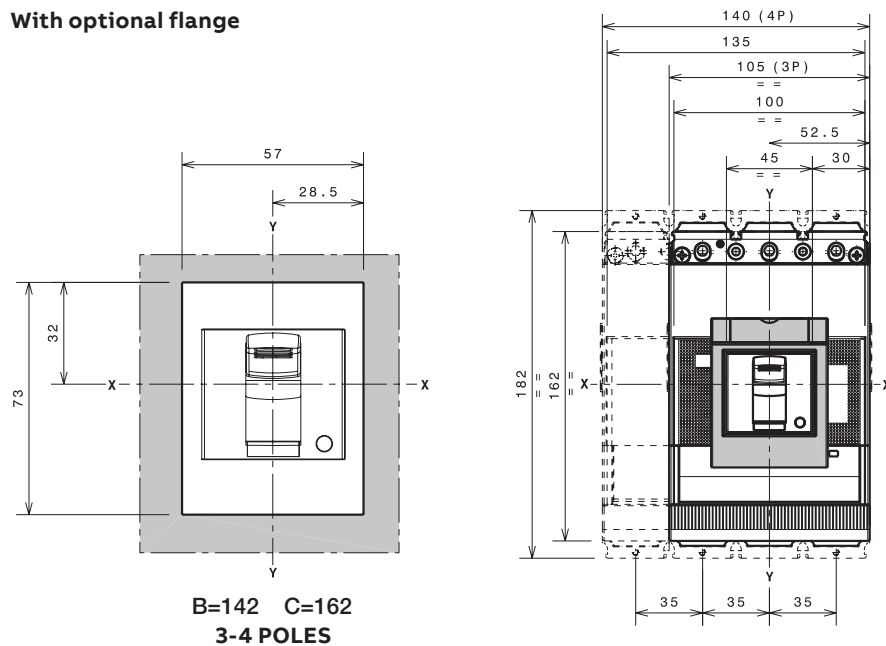
With standard flange



Without flange



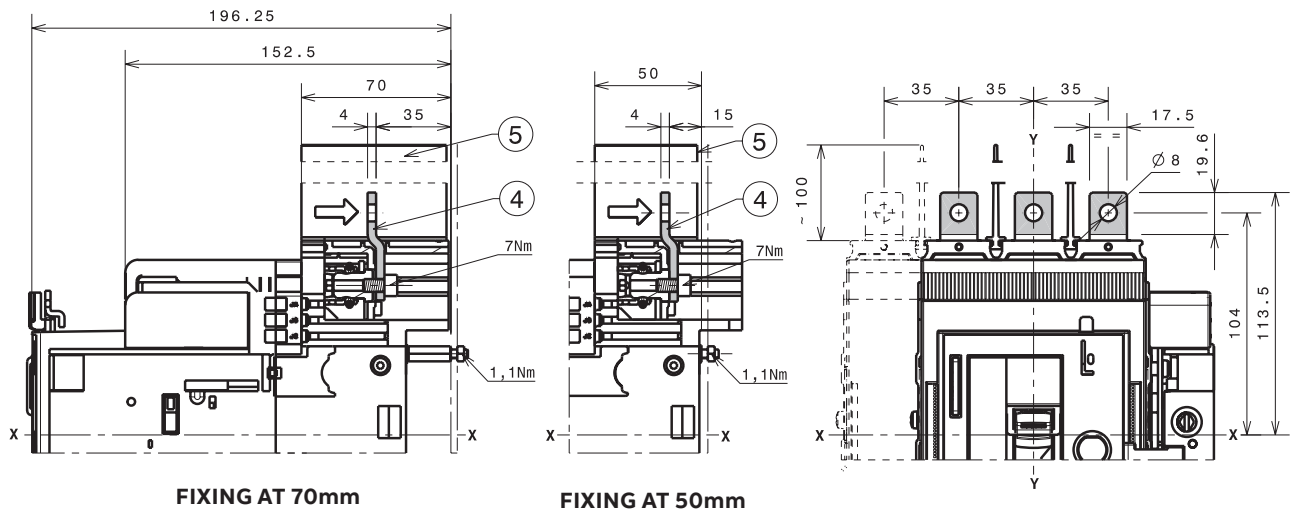
With optional flange



Tmax XT4 – Installation

Terminals for withdrawable circuit-breaker

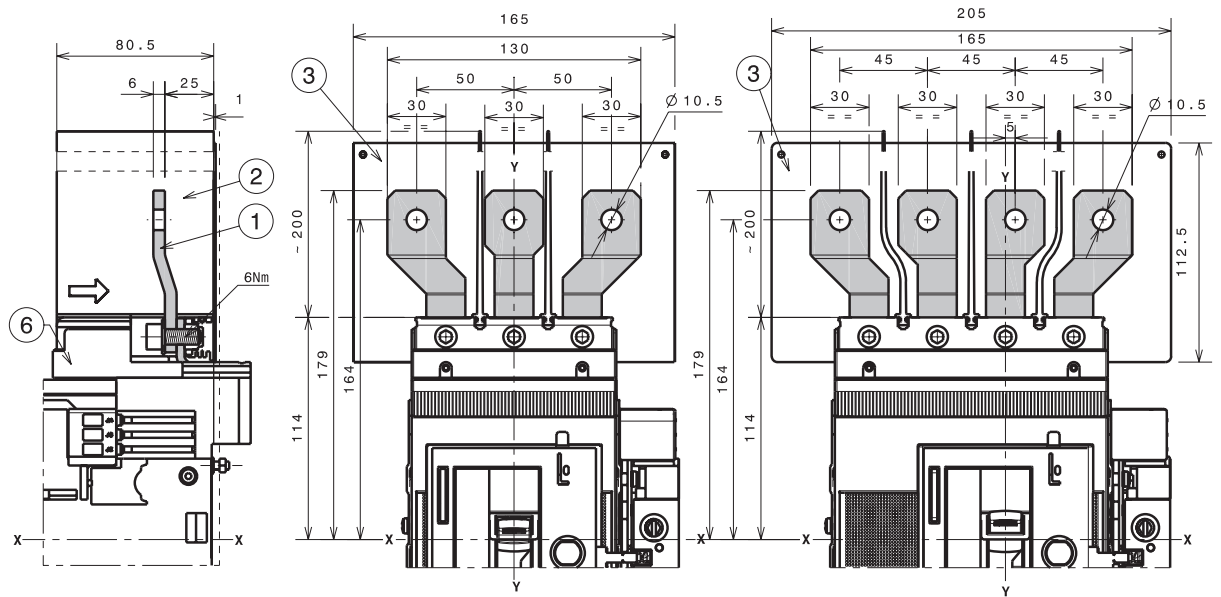
Terminals EF



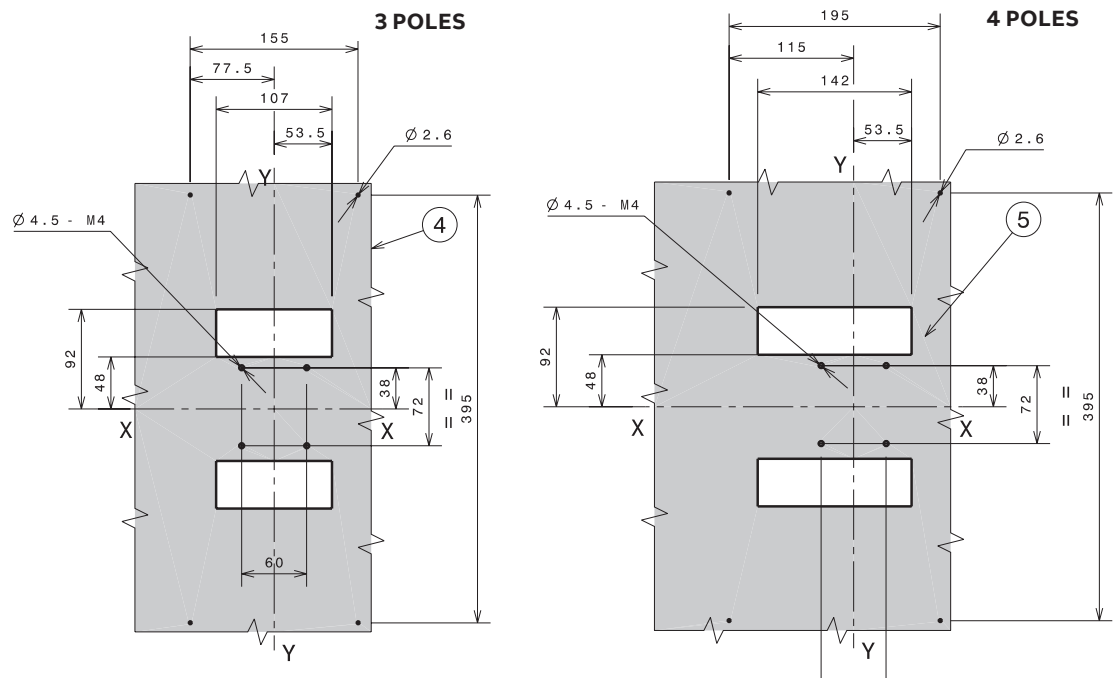
- Key
- 4 Front extended terminals
 - 5 Phase separators 100mm

—
Note:
insulated plate

Terminals ES



FIXING AT 50 mm



Key

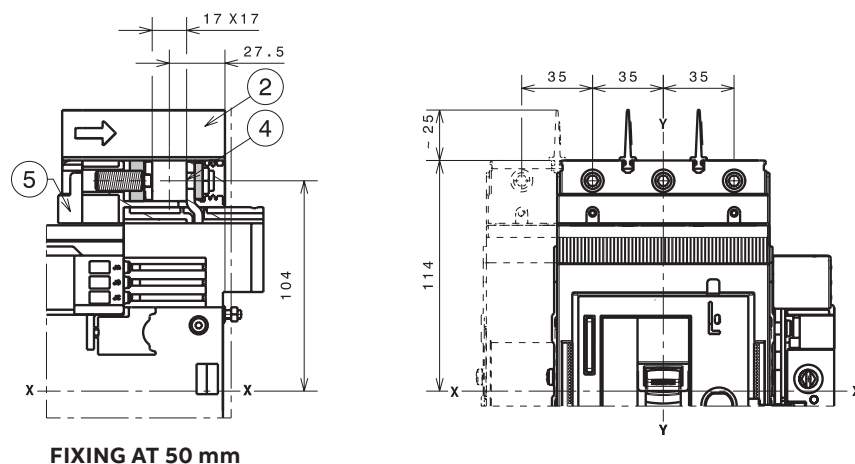
- 1 Front extended spread terminals
- 2 Phase separators 200mm
- 3 Insulated plate
- 4 Drilling template for 3p circuit-breaker
- 5 Drilling template for 4p circuit-breaker
- 6 Adaptor

Tmax XT4 – Installation

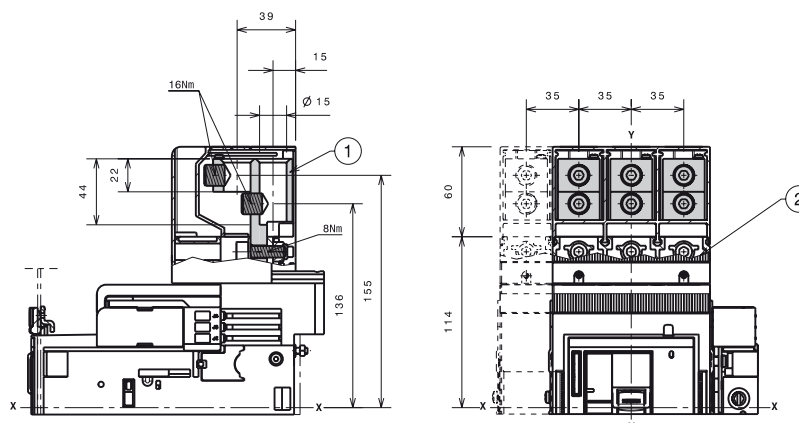
Terminals for withdrawable circuit-breaker

1x1...185mm² terminals FCCuAl

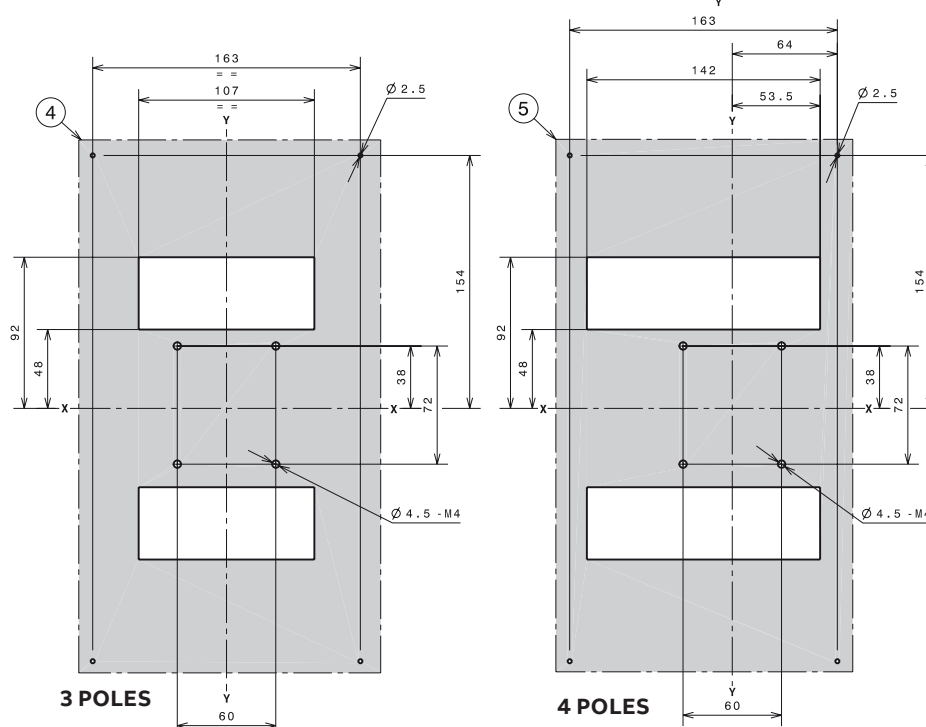
- Key
2 Phase separators
25mm
4 Front terminals
FCCuAl
5 Adaptor



2x35...120mm² terminals FCCuAl



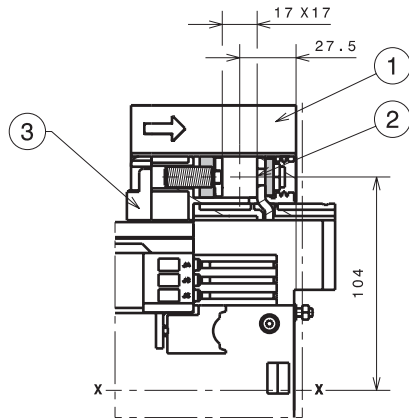
- Key
1 2x35...120mm²
terminals
FCCuAl
2 Terminal covers
with degree of
protection IP40
3 Rear insulated plate
4 Drilling template
for circuit-breaker
3p fixing with
insulating plate
5 Drilling template
for circuit-breaker
4p fixing with
insulating plate



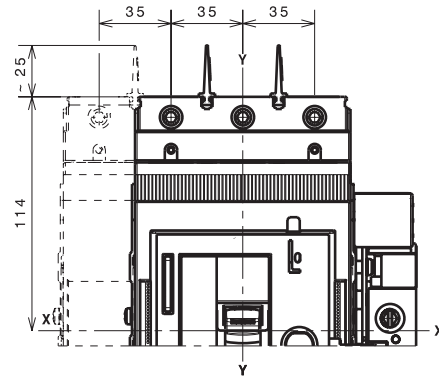
Terminals FCCu

Key

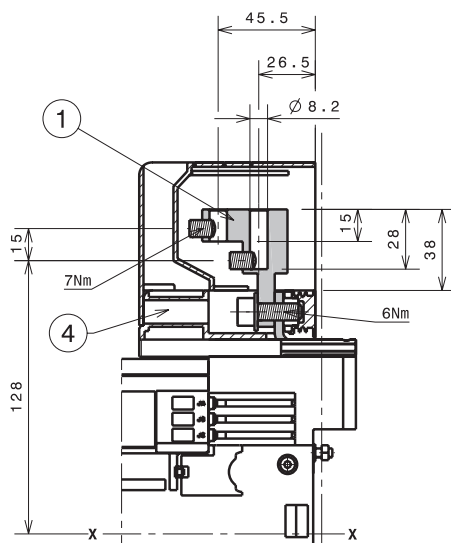
- 1 Phase separators 25mm
- 2 Terminals FCCu
- 3 Adaptor



FIXING AT 50 mm



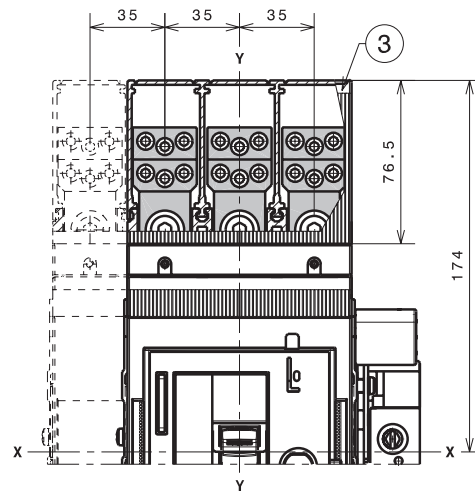
Terminals MC



FIXING AT 50 mm

Key

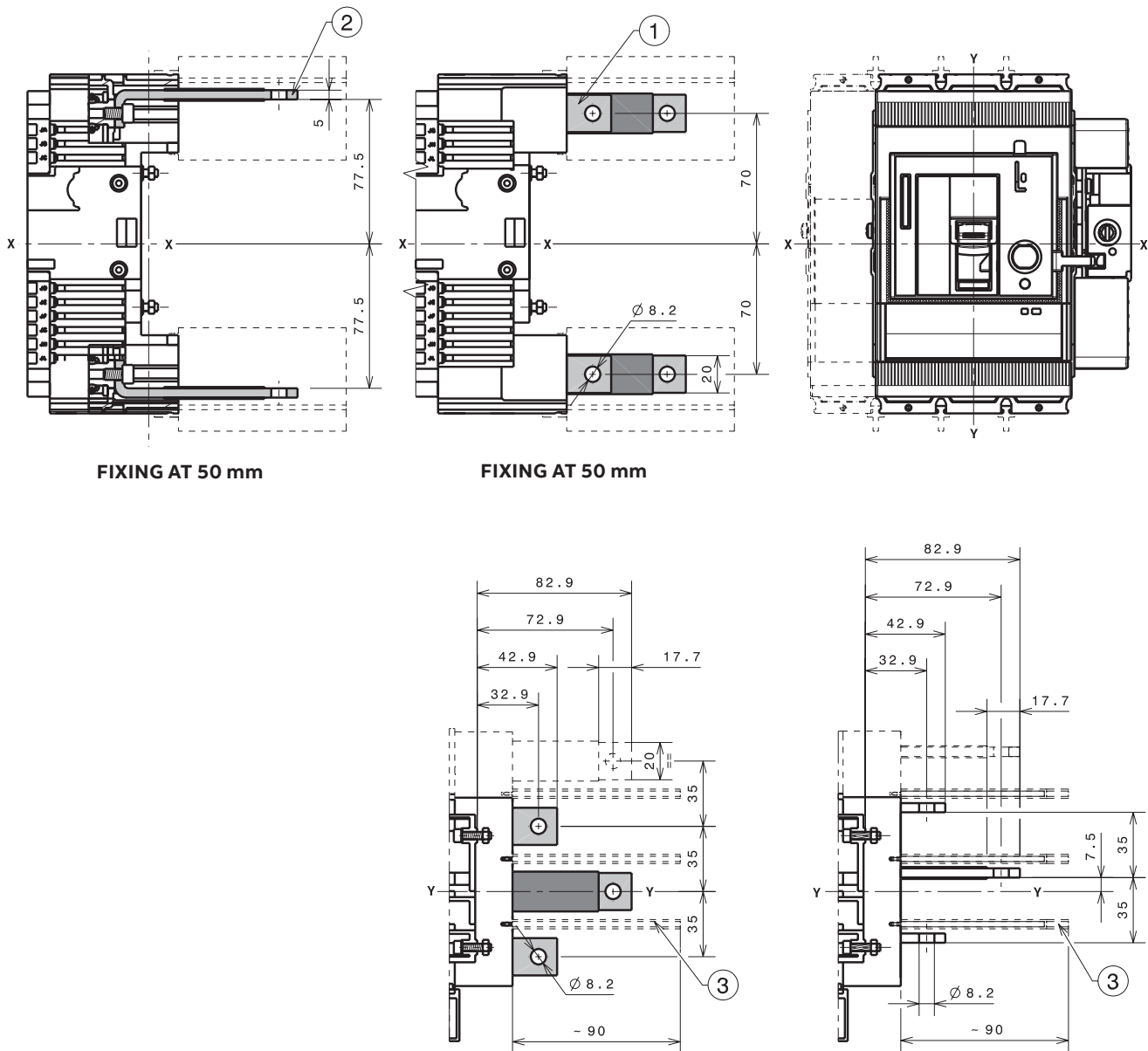
- 1 Multicable terminals
- 3 High terminal covers with degree of protection IP40
- 4 Adaptor



Tmax XT4 – Installation

Terminals for withdrawable circuit-breaker

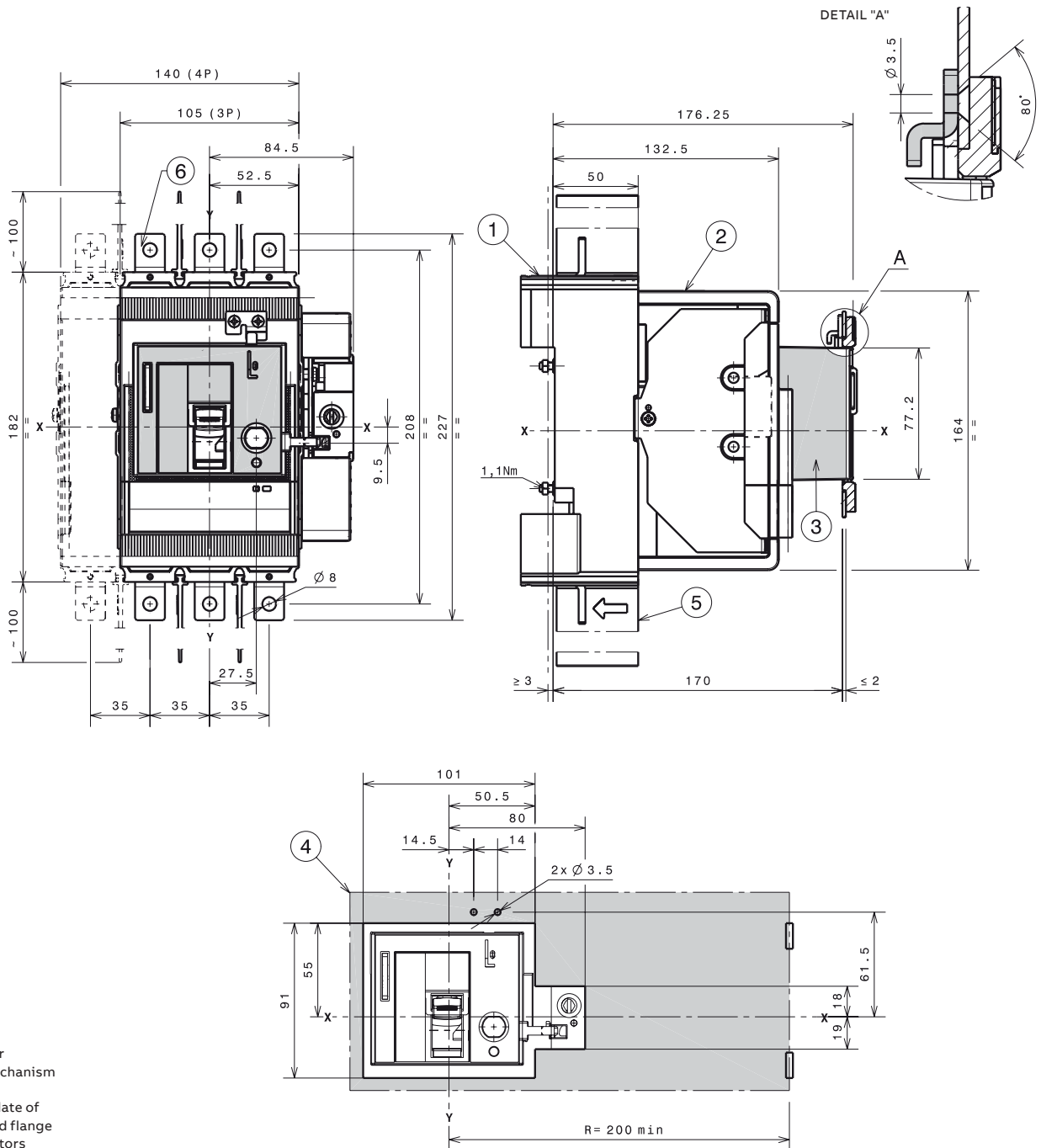
Terminals HR/VR



Tmax XT4 – Installation

Accessories for withdrawable circuit-breaker

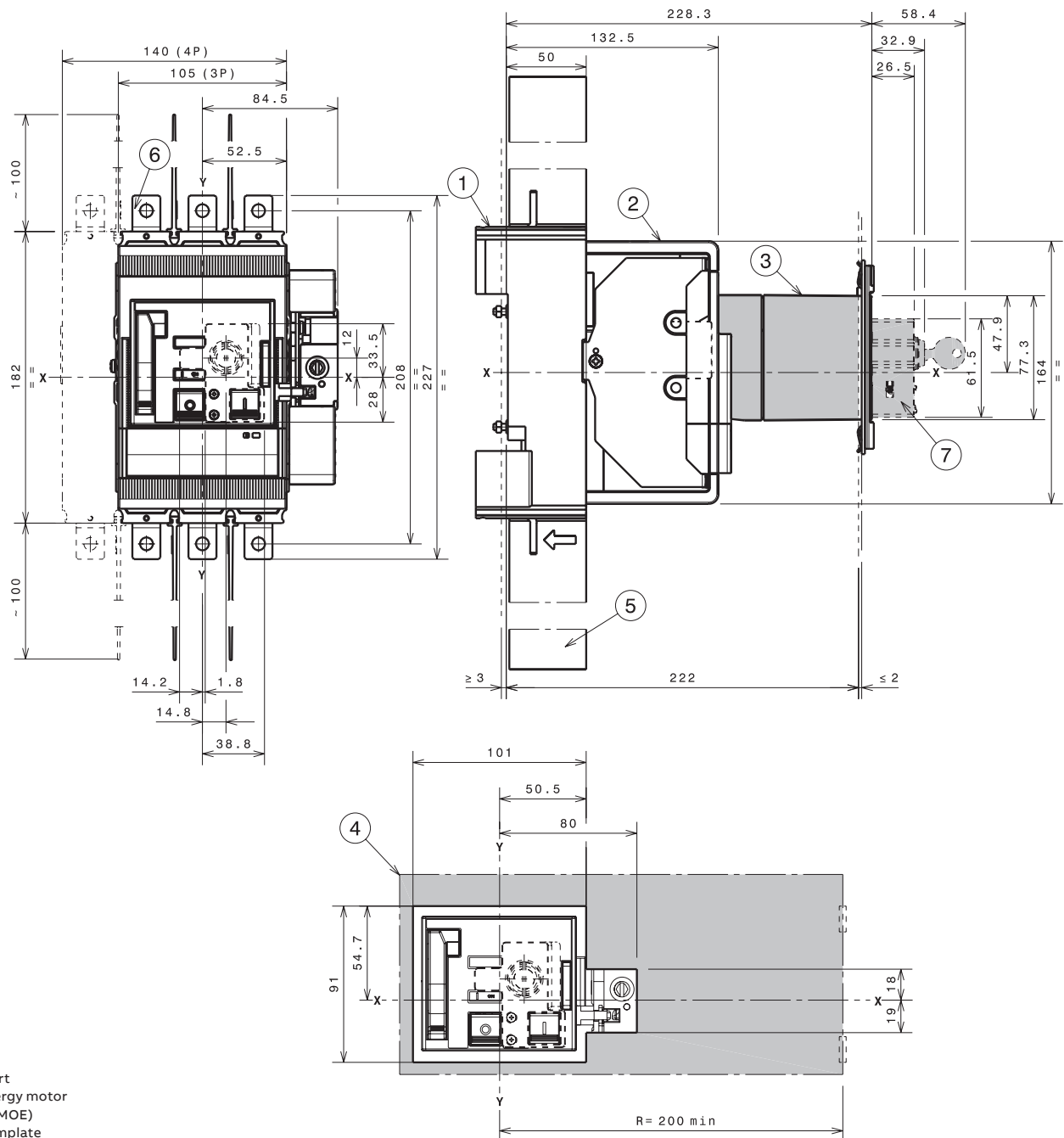
Front for lever operating mechanism (FLD)



Tmax XT4 – Installation

Accessories for withdrawable circuit-breaker

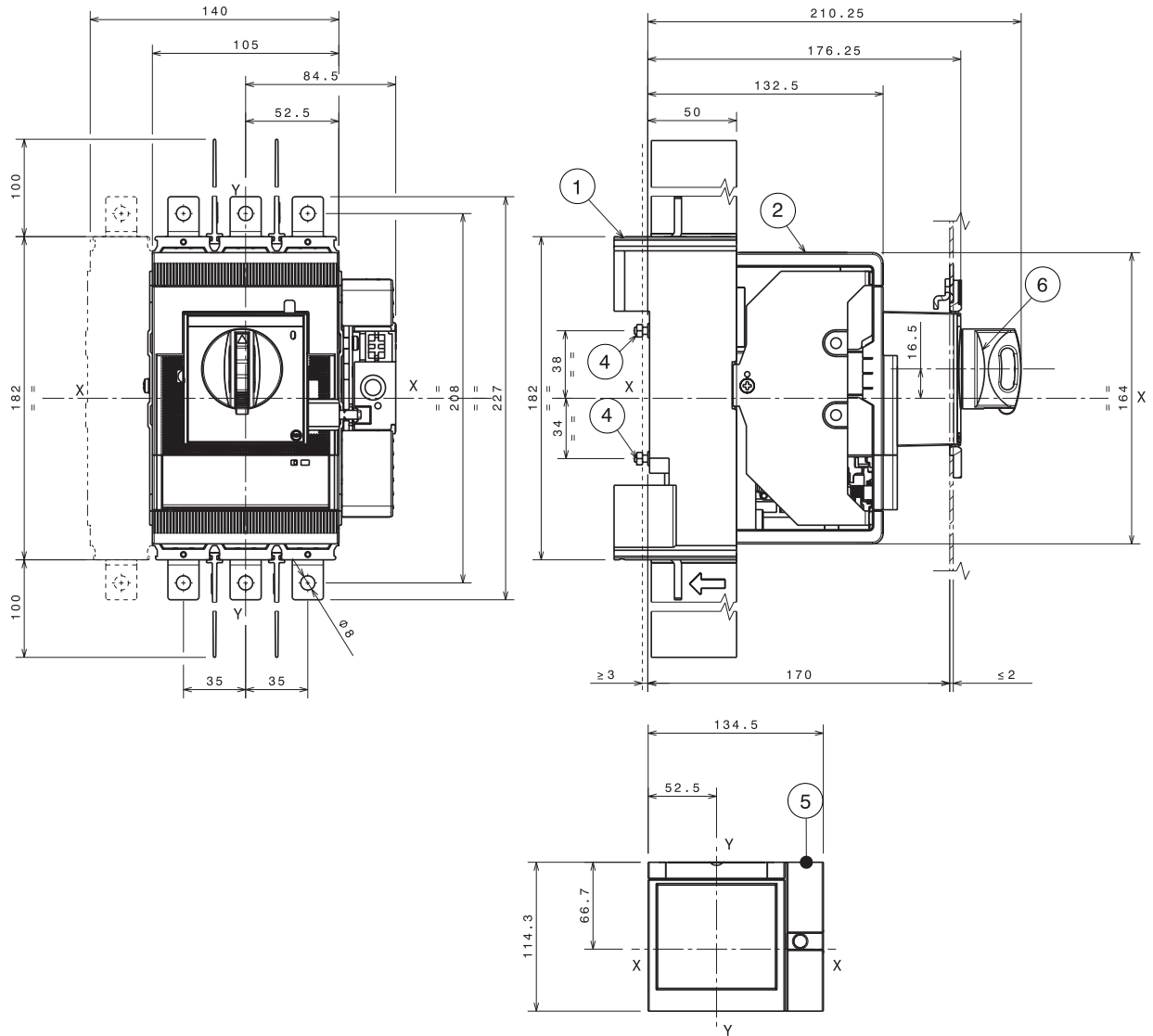
Stored energy motor operator (MOE)



Key

- 1 Fixed part
- 2 Moving part
- 3 Stored energy motor operator (MOE)
- 4 Drilling template of door with MOE and fixing flange
- 5 Phase separators 100mm
- 6 Extended terminals
- 7 Key lock

Rotary handle operating mechanism on circuit-breakers (RHD)



Key

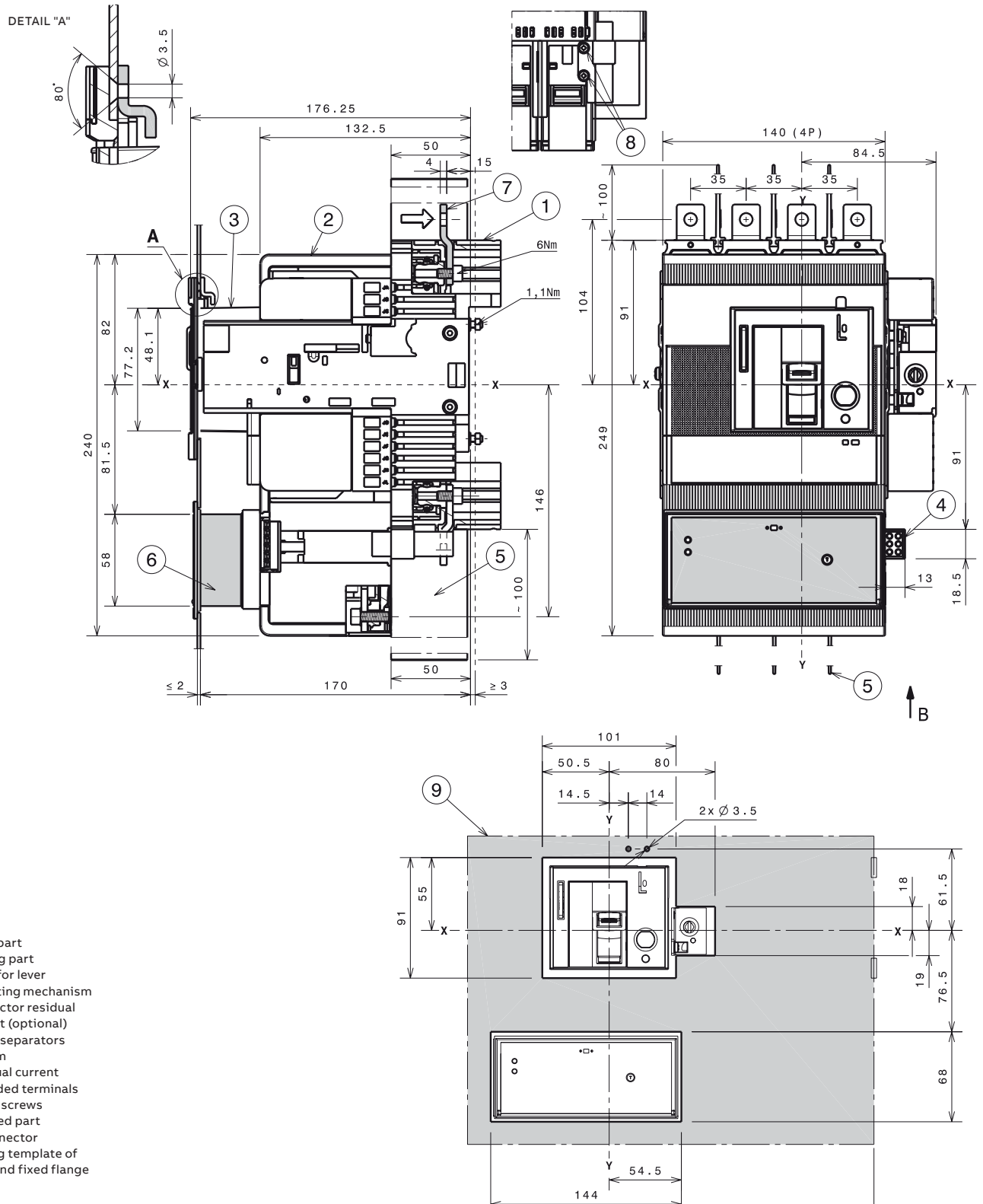
- 1 Fixed part
- 2 Moving part
- 4 Tightening
torque 1.1 Nm
- 5 Flange for the
compartment door
- 6 Rotary handle
operating mechanism
for circuit-breaker

Accessories for withdrawable circuit-breaker

[illegible]

Key	F
1 Fixed part	Fixing 3 poles
2 Moving part	107
3 Compartment door drilling template- for fixed part	Fixing 4 poles
4 Tightening torque 1.1 Nm	142
5 Tightening torque 1.4 Nm	
6 Transmission mechanism	
7 Rotary handle operating mechanism for compartment door	
8 Compartment door drilling template	

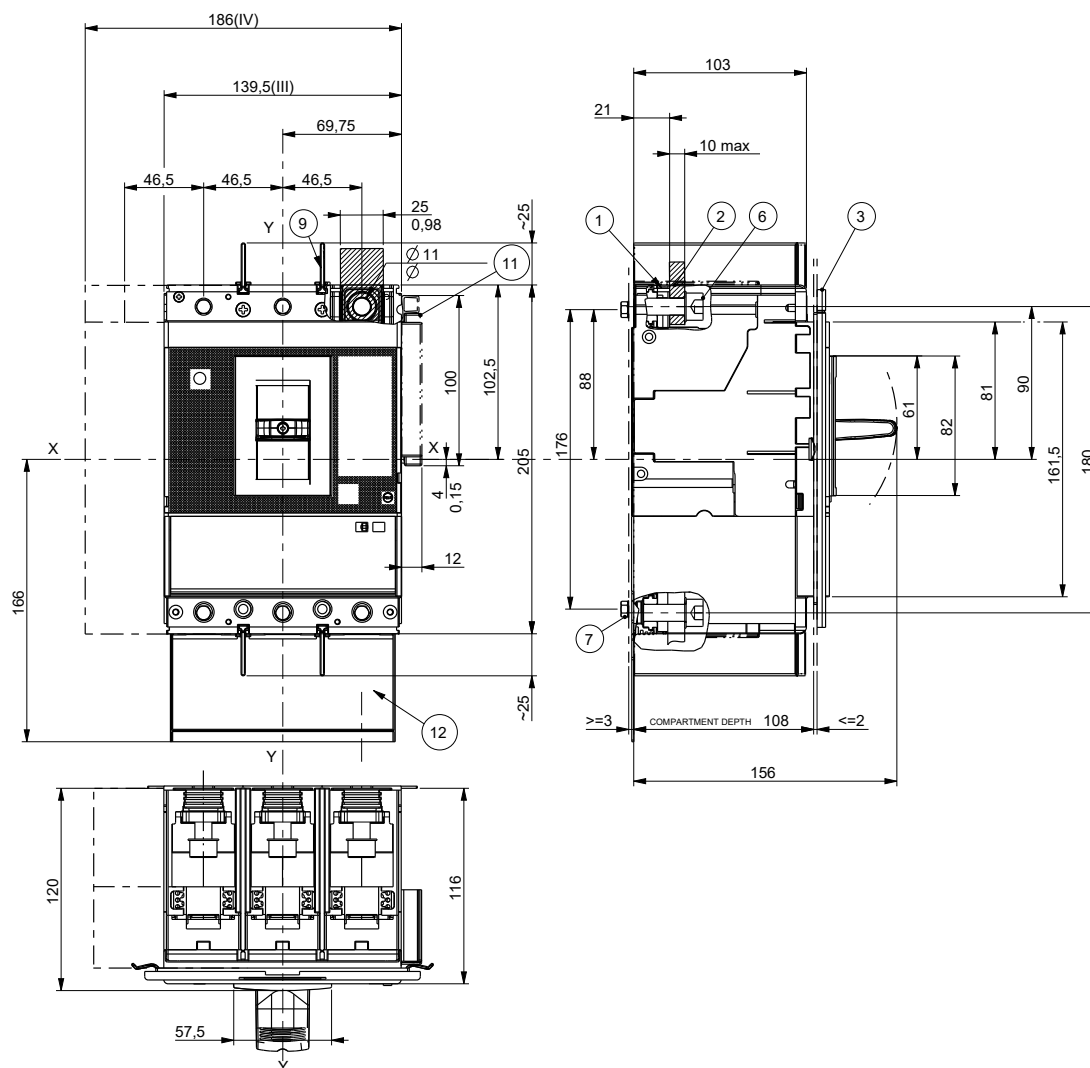
Residual current RC Sel 4 poles



Tmax XT5 – Installation

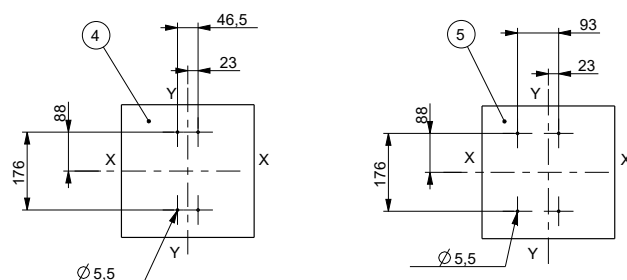
Installation for fixed circuit-breaker

Fixing on sheet



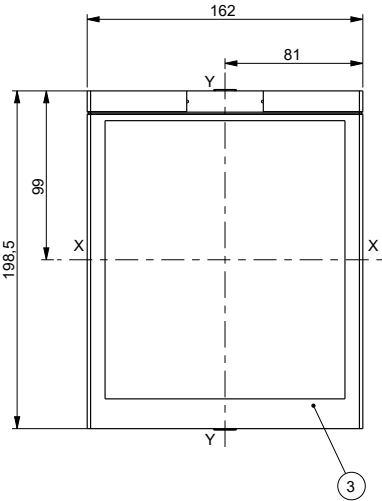
Drilling templates for support sheet

- Key
- 1 Front terminals for flat connection
 - 2 Busbar
 - 3 Flange without gasket for the compartment door
 - 4 Drilling template 3p
 - 5 Drilling template 4p
 - 6 Tightening torque 36Nm
 - 7 Tightening torque 2Nm
 - 9 Phase separators 25mm
 - 11 Cable rack
 - 12 Rear insulating plate



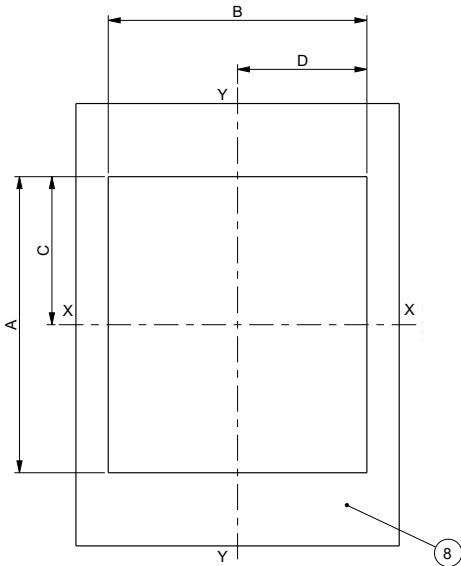
Flange

- Key
- 3 Flange without gasket for the compartment door



Drilling template compartment door

- Key
- 8 Compartment door drilling template with/without flange

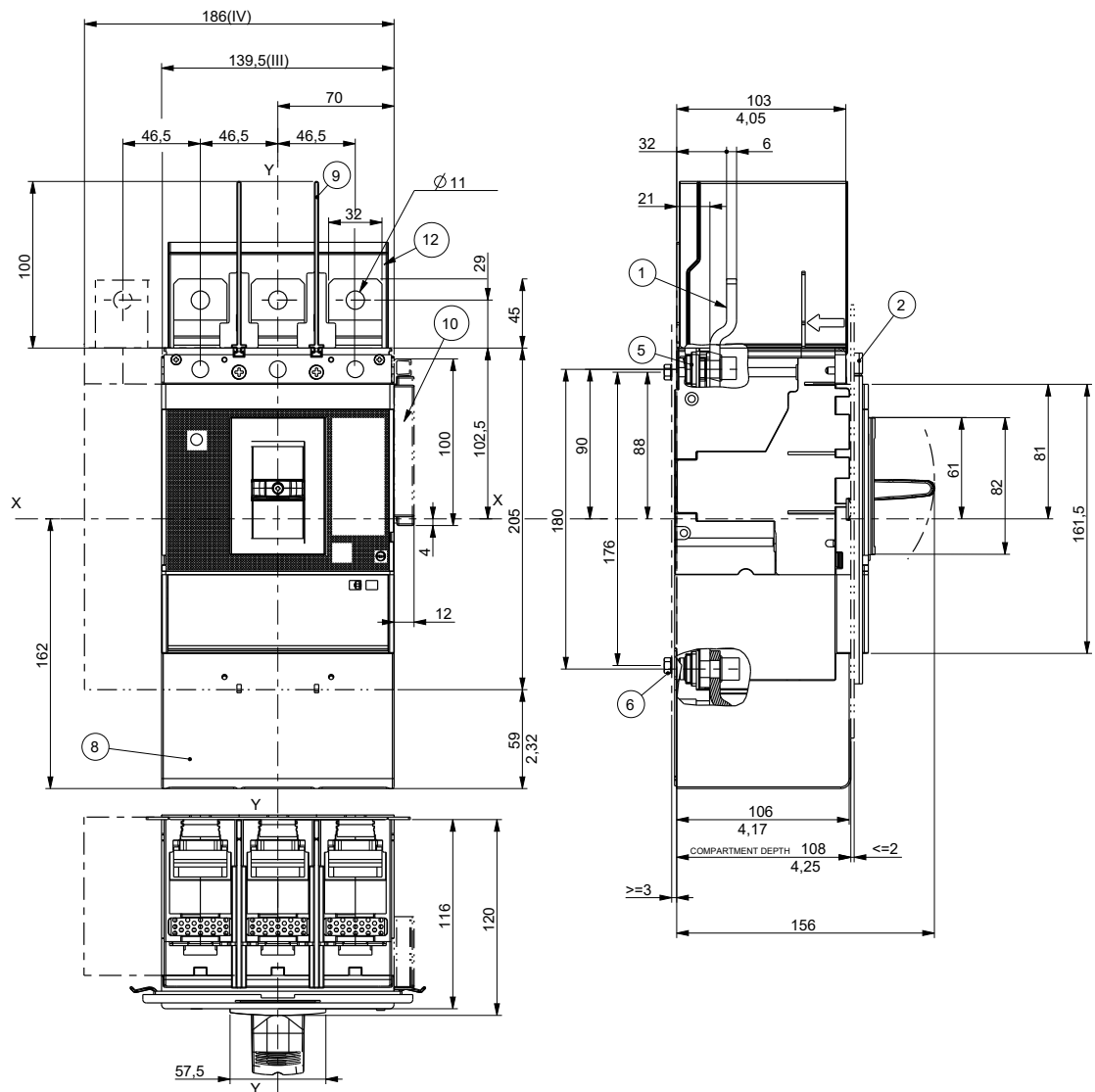


		A [mm]	B [mm]	C [mm]	D [mm]
With flange	3p - 4p	174	152	87	76
Without flange	3p - 4p	165	143	82.5	71.5

Tmax XT5 – Installation

Terminals for fixed circuit-breaker

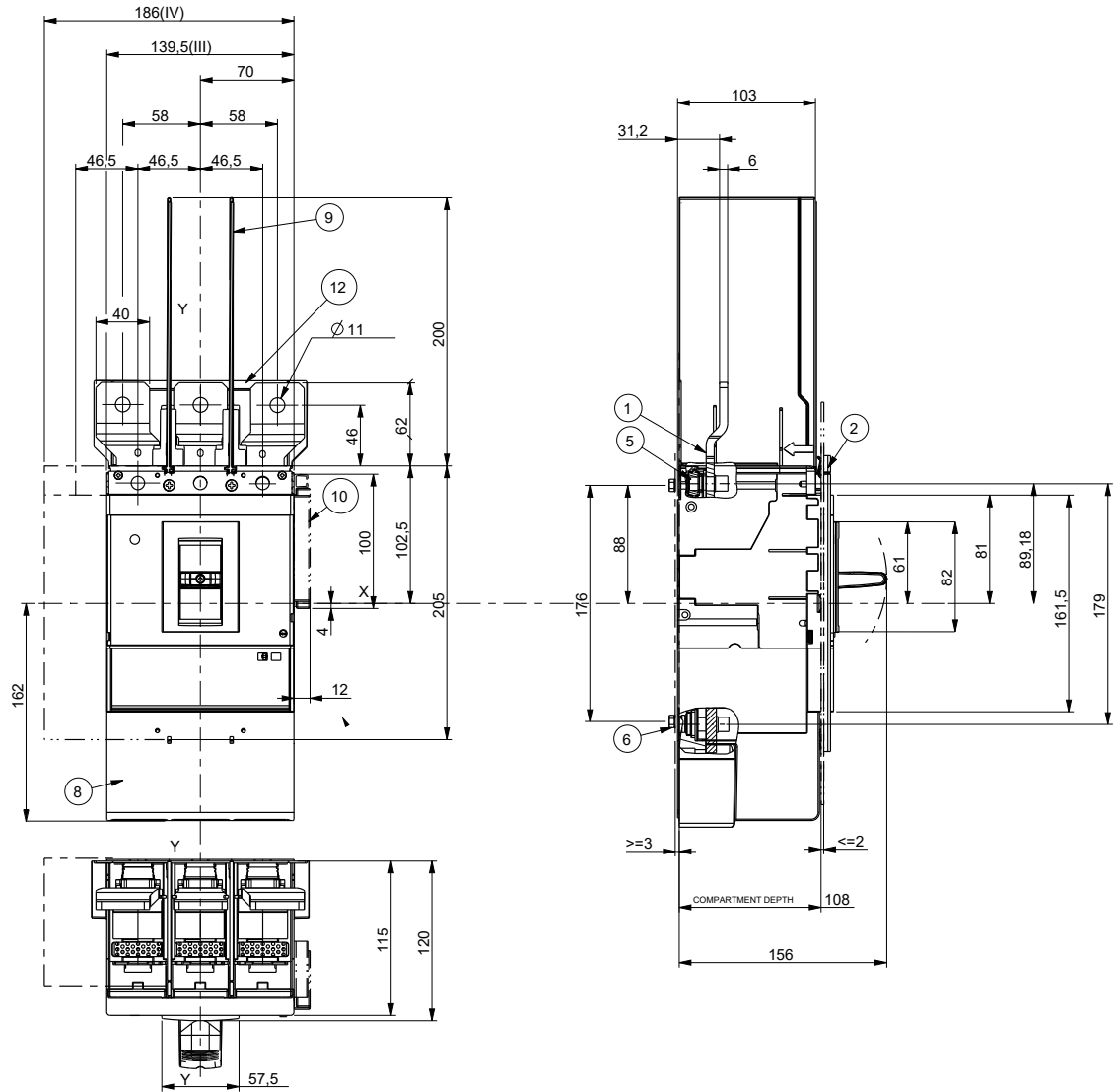
Terminals EF



Key

- 1 Extended front terminals
- 2 Flange for the compartment door
- 5 Tightening torque 36Nm
- 6 Tightening torque 2Nm
- 8 High terminal cover
- 9 Phase separators 100mm
- 10 Cable rack
- 12 Rear insulating plate

Terminals ES



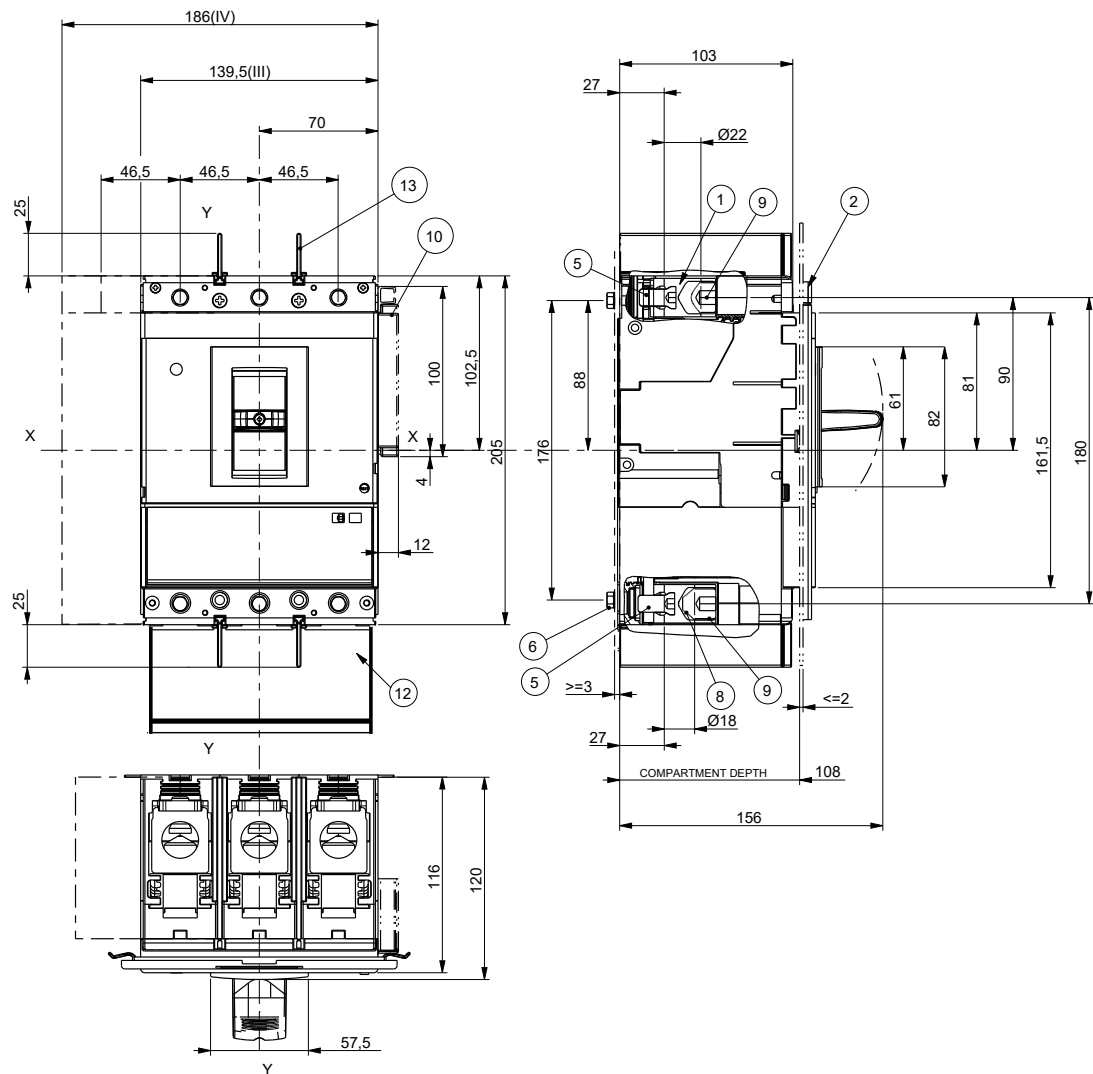
Key

- 1 Extended front terminals
- 2 Flange for the compartment door
- 5 Tightening torque 18Nm
- 6 Tightening torque 2Nm
- 8 Rear insulating plate
- 9 Phase separators 200mm
- 10 Cable rack
- 12 Rear insulating plate

Tmax XT5 – Installation

Terminals for fixed circuit-breaker

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



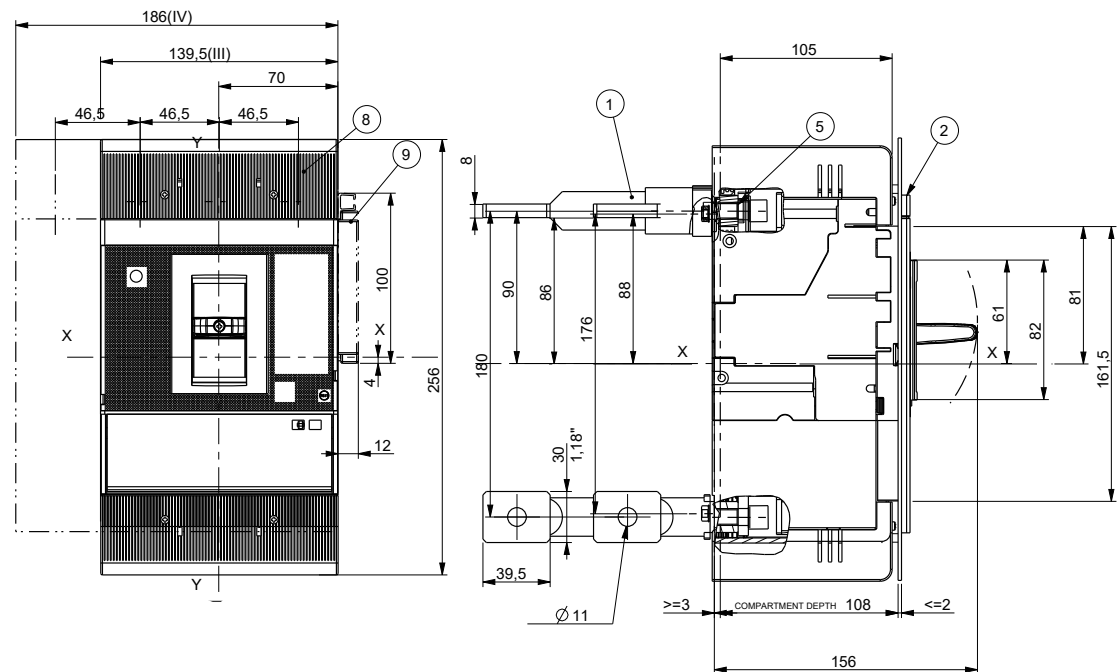
Key

- 1 Terminals FCCuAl
1x120...240mm²
- 2 Flange for the
compartment door
- 5 Tightening torque
23Nm
- 6 Tightening
torque 2Nm
- 8 Terminals FCCuAl
1x35...185mm²
- 9 Tightening torque
23Nm
- 10 Cable rack
- 12 Rear insulating plate
- 13 Phase separators
25mm

Tmax XT5 – Installation

Terminals for fixed circuit-breaker

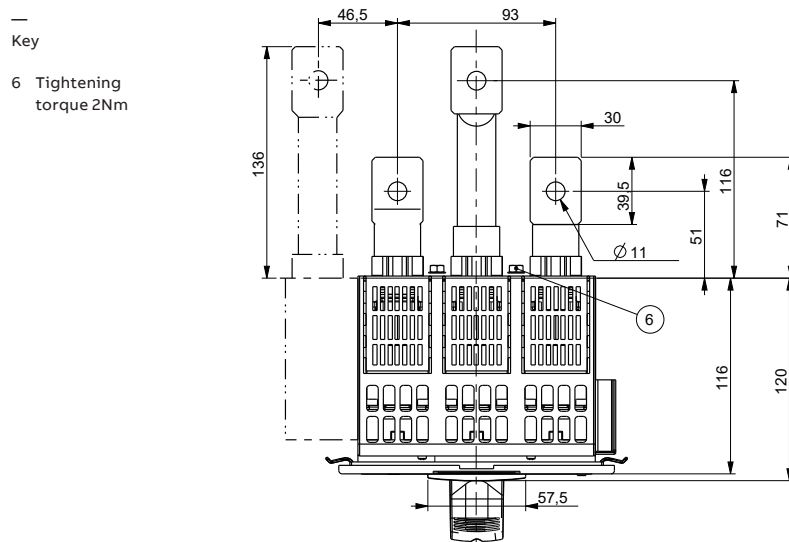
Terminals R



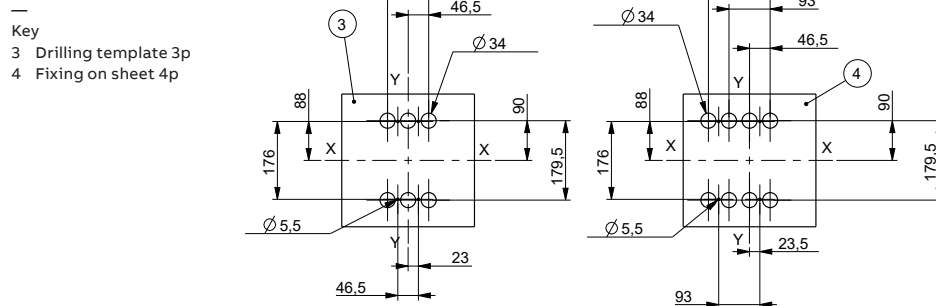
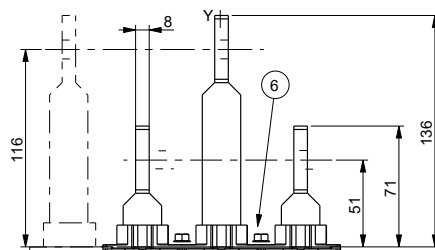
Key

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

Terminals HR upper



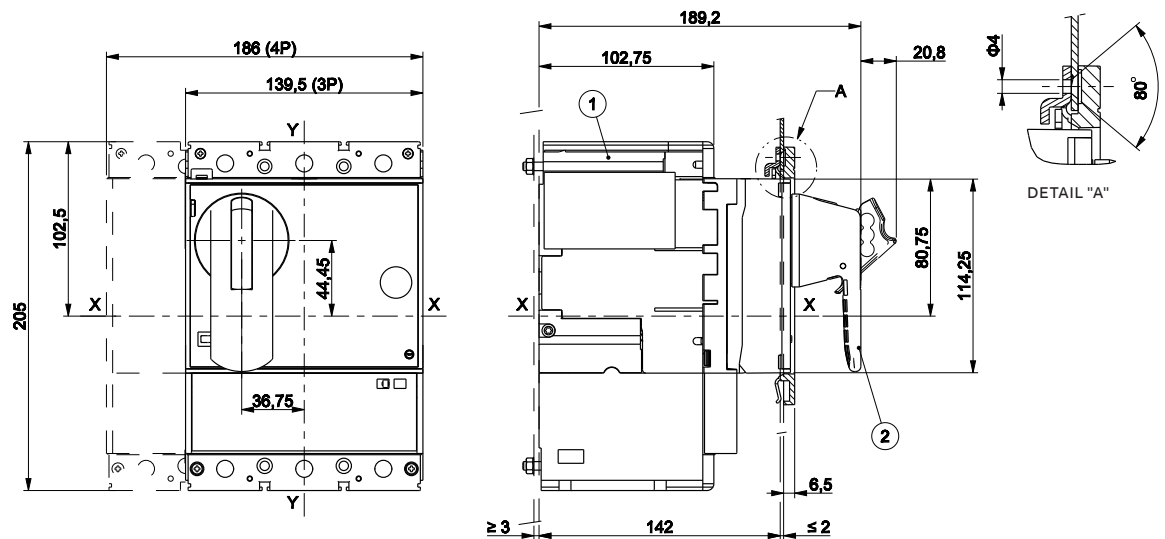
Terminals VR lower



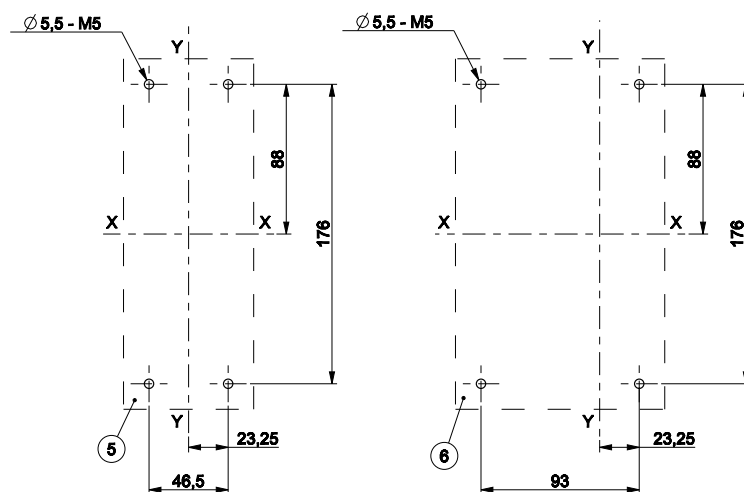
Tmax XT5 – Installation

Accessories for fixed circuit-breaker

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



Drilling templates for support sheet

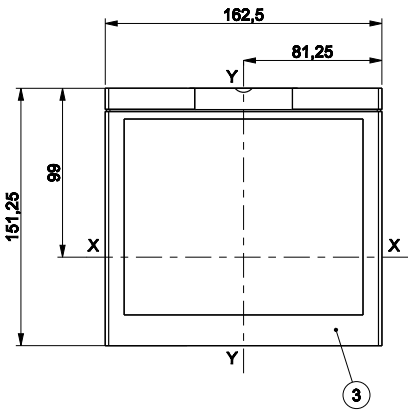


Key

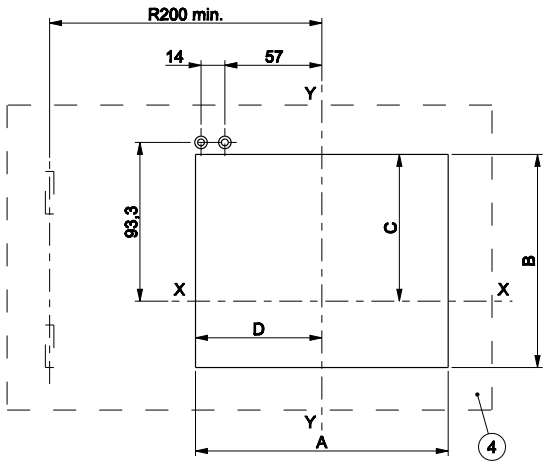
- 1 Circuit-breaker
- 2 Rotary handle operating mechanism on circuit-breaker
- 3 Flange for the compartment door
- 4 Compartment door drilling template with/without flange
- 5 Drilling template 3p
- 6 Drilling template 4p

Flange

- Key
3 Flange for the
compartment door
4 Compartment door
drilling template
with/without flange



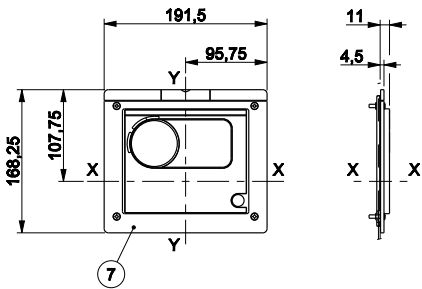
Drilling template compartment door



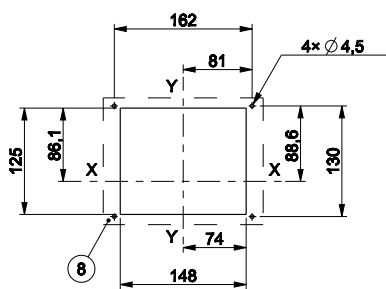
		A [mm]	B [mm]	C [mm]	D [mm]
With flange	3p - 4p	147.5	124.3	85.8	73.75
Without flange	3p - 4p	140.5	115.3	81.3	70.25

Flange IP54

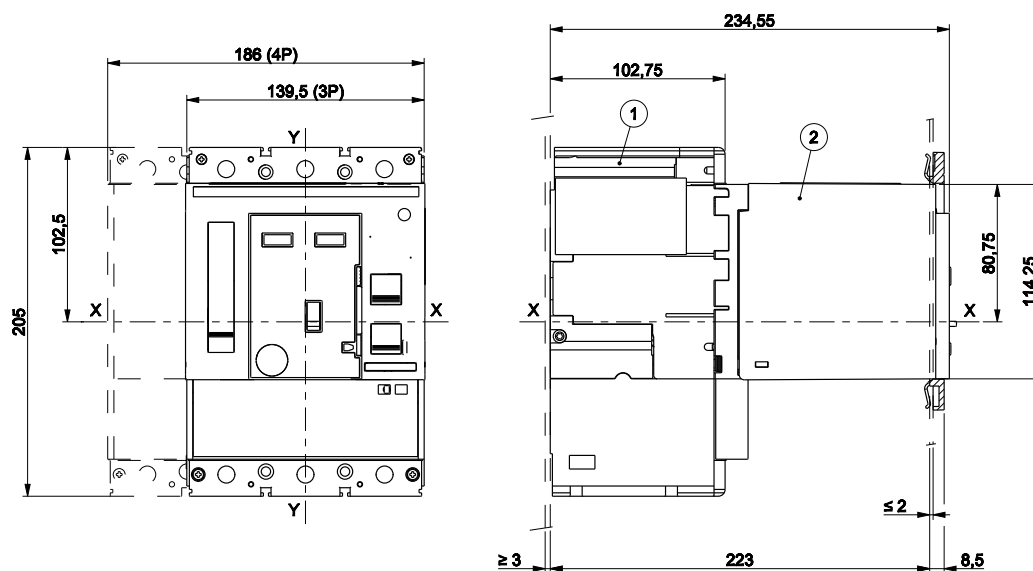
- Key
7 IP54 flange for the
compartment door
8 Compartment door
drilling template
with IP54 flange



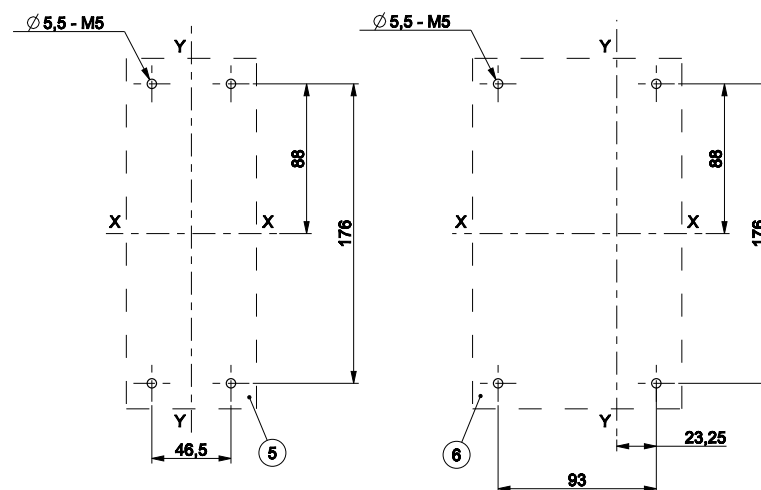
Drilling template compartment door with flange IP54



Stored energy motor operator (MOE)



Drilling templates for support sheet



Key

- 1 Circuit-breaker
- 2 Stored energy motor operator
- 3 Flange for the compartment door
- 4 Compartment door drilling template with/without flange
- 5 Drilling template 3p
- 6 Drilling template 4p

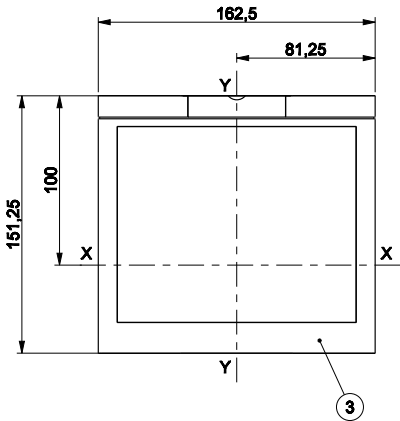


Tmax XT5 – Installation

Accessories for fixed circuit-breaker

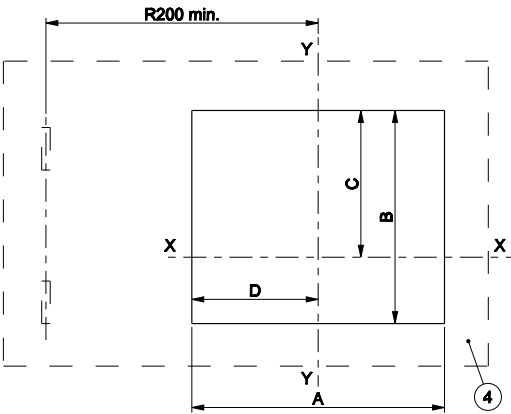
Flange

Key
8 Flange without gasket for the compartment door



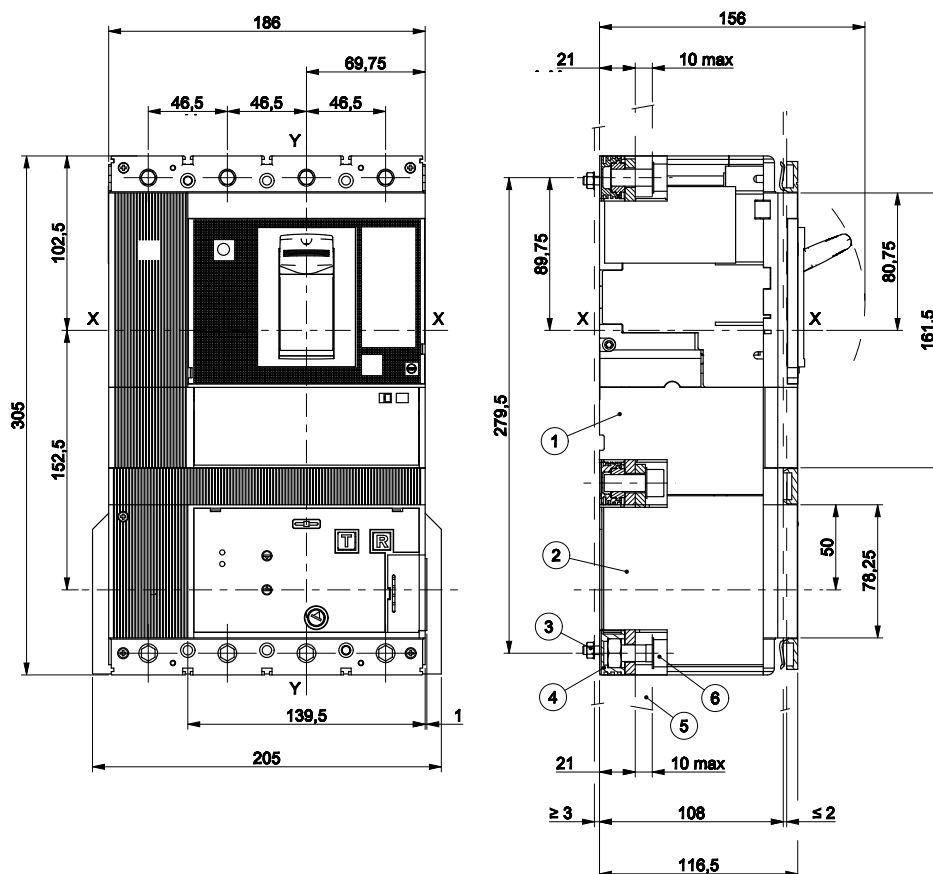
Drilling template compartment door

Key
4 Compartment door drilling template with/without flange

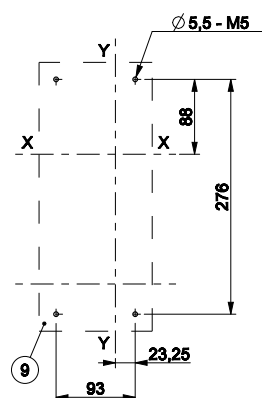


		A [mm]	B [mm]	C [mm]	D [mm]
With flange	3p - 4p	147.5	124.3	85.8	73.75
Without flange	3p - 4p	140.5	115.3	81.3	70.25

Residual current RC



Drilling template for support sheet



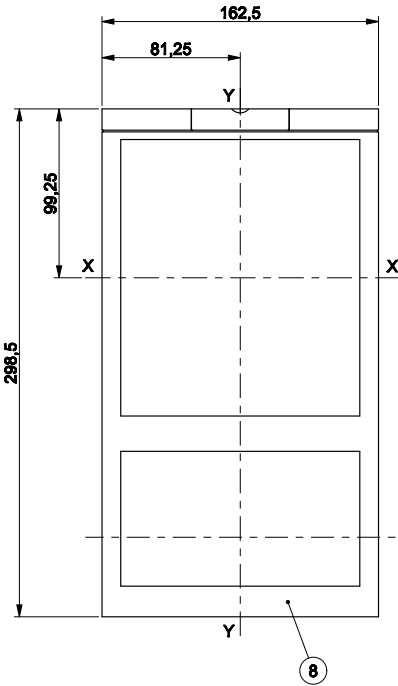


Tmax XT5 – Installation

Accessories for fixed circuit-breaker

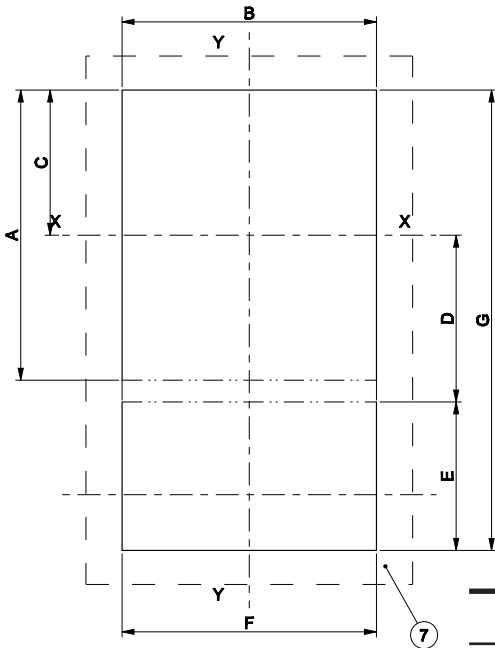
Flange

- Key
3 Flange for the compartment door



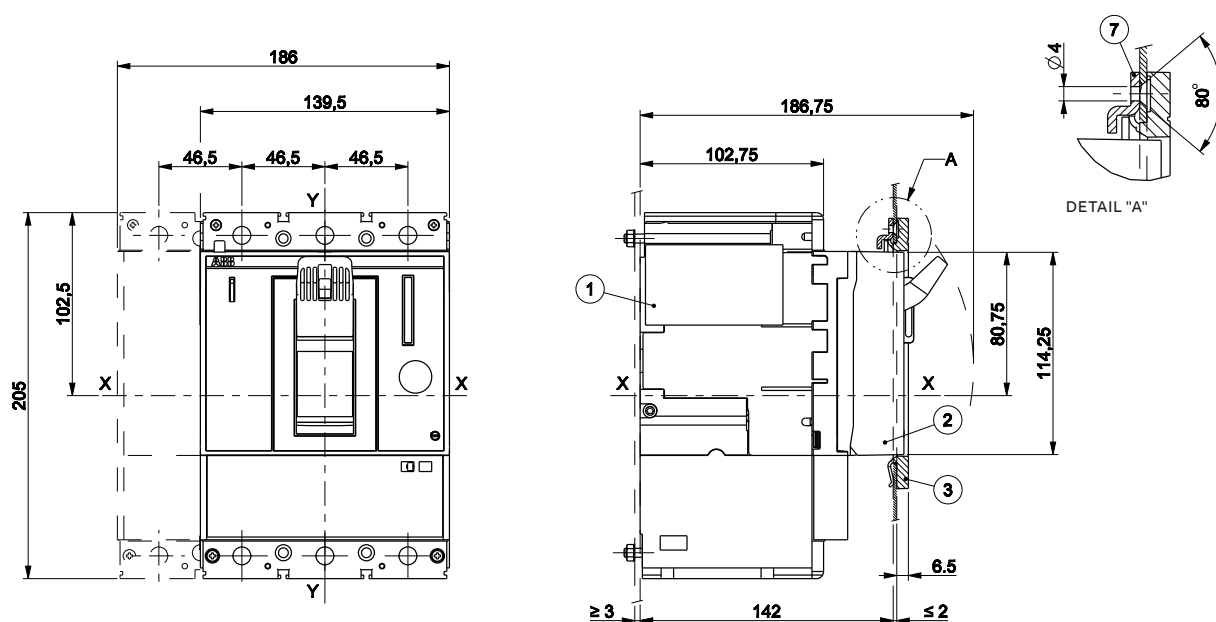
Drilling template compartment door

- Key
7 Compartment door drilling template with/without flange

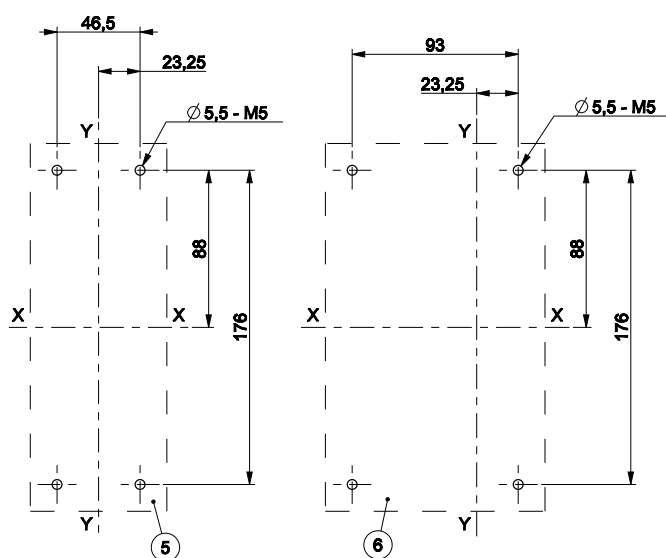


	A	B	C	D	E	F	G
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
With flange 3p - 4p -	147.5	84.8	-	-	147.5	269.5	
Without flange 3p - 4p	163.5	141.5	81.8	101.5	80.3	141.5	-

Front for lever operating mechanism (FLD)



Drilling templates for support sheet



Key

- 1 Circuit-breaker
- 2 Front for lever operating system (FLD)
- 3 Flange for the compartment door
- 4 Compartment door drilling template with/without flange
- 5 Drilling template 3p
- 6 Drilling template 4p
- 7 Door lock

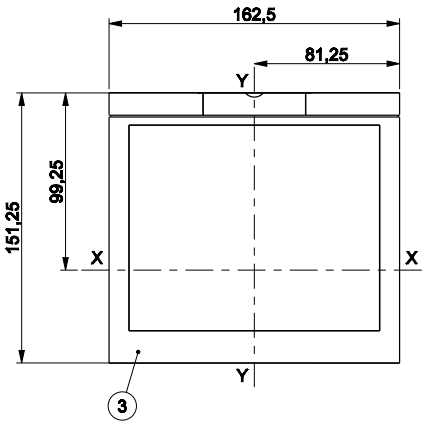


Tmax XT5 – Installation

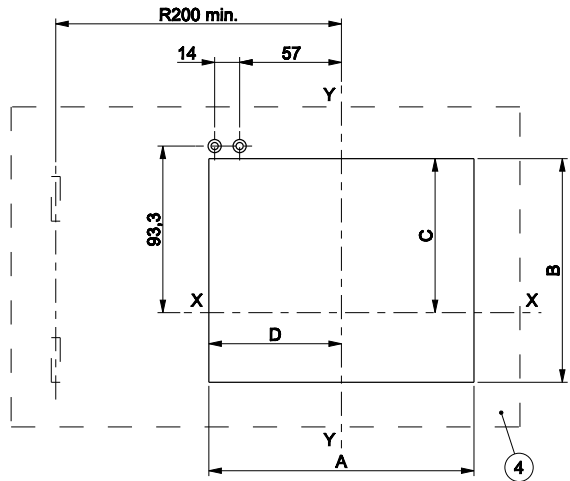
Accessories for fixed circuit-breaker

Flange

- Key
- 3 Flange for the compartment door
 - 4 Compartment door drilling template with/without flange

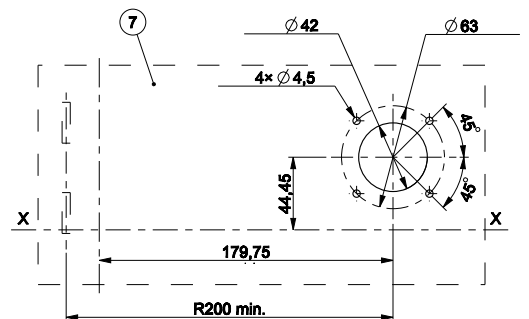
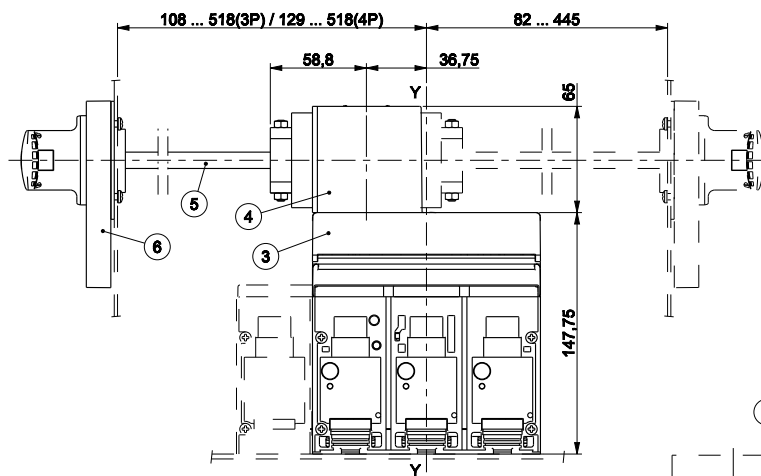
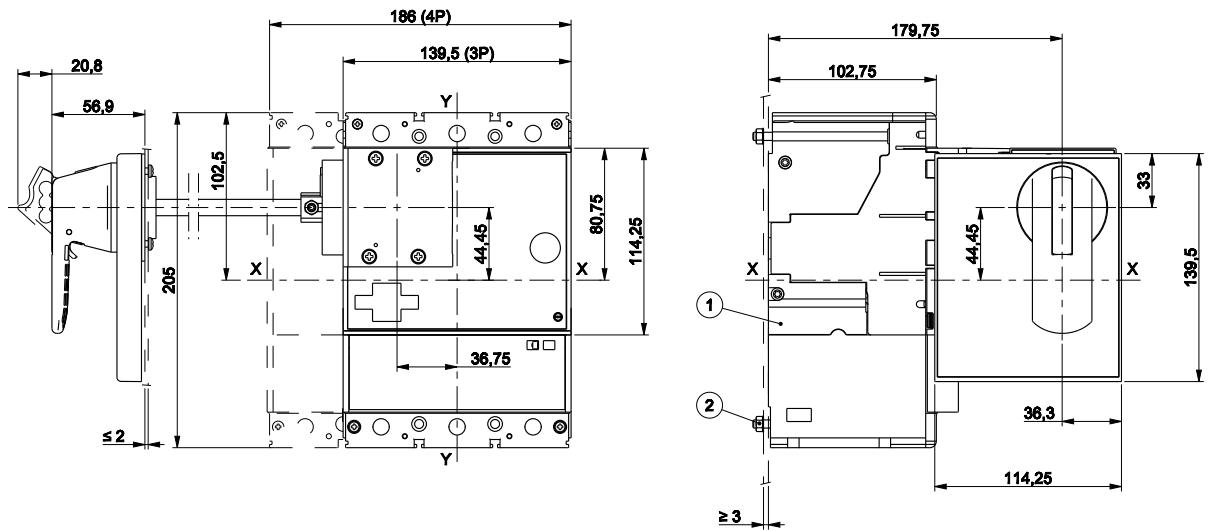


Drilling template compartment door



	A	B	C	D
With flange	3p - 4p 147.5	124.3	85.8	73.75
Without flange	3p - 4p 140.5	115.3	81.3	70.25

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



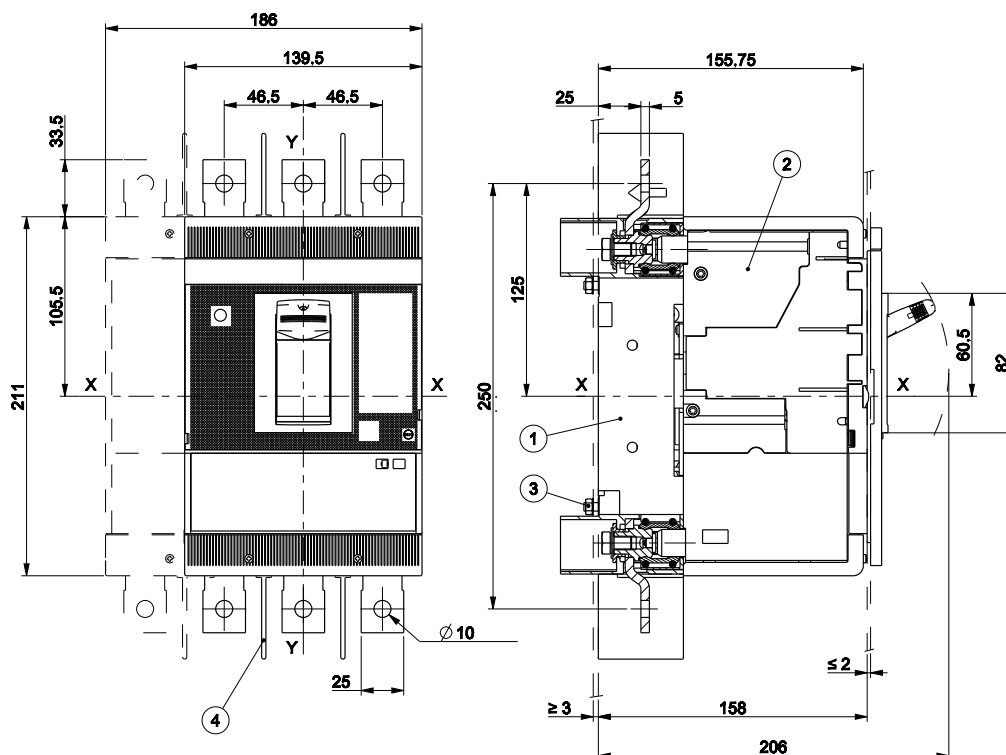
Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Phase separators 100mm
- 5 Base of rotary handle operating mechanism
- 6 Lateral handle
- 7 500mm connection rod
- 8 Rotary handle on compartment door
- 11 Compartment door drilling template

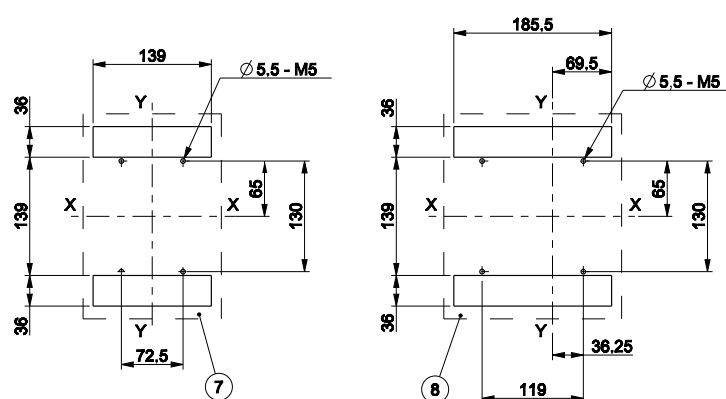
Tmax XT5 – Installation

Installation for plug-in circuit-breaker 400A

Fixing on sheet



Drilling templates for support sheet

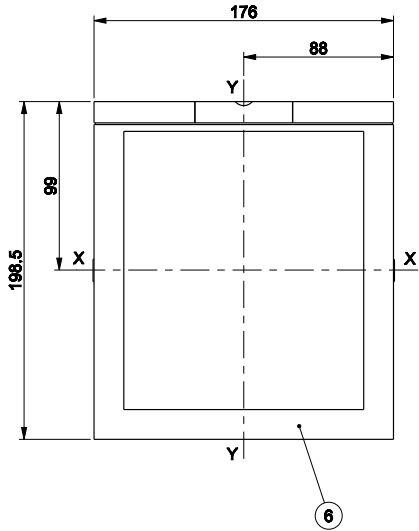


Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Phase separators 100mm
- 5 Compartment door drilling template with/without flange
- 6 Flange without gasket for the compartment door
- 7 Drilling template 3p
- 8 Drilling template 4p

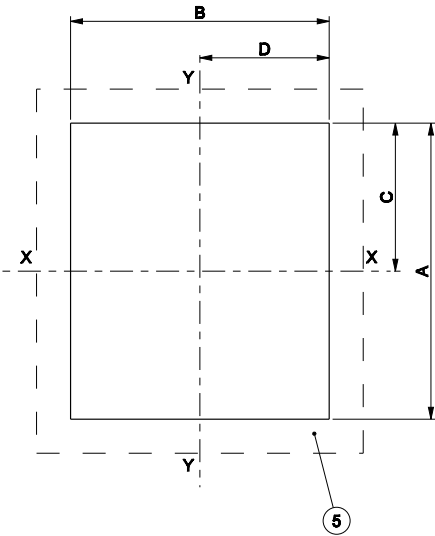
Flange

- Key
- 6 Flange without gasket for the compartment door



Drilling template compartment door

- Key
- 5 Compartment door drilling template with/without flange

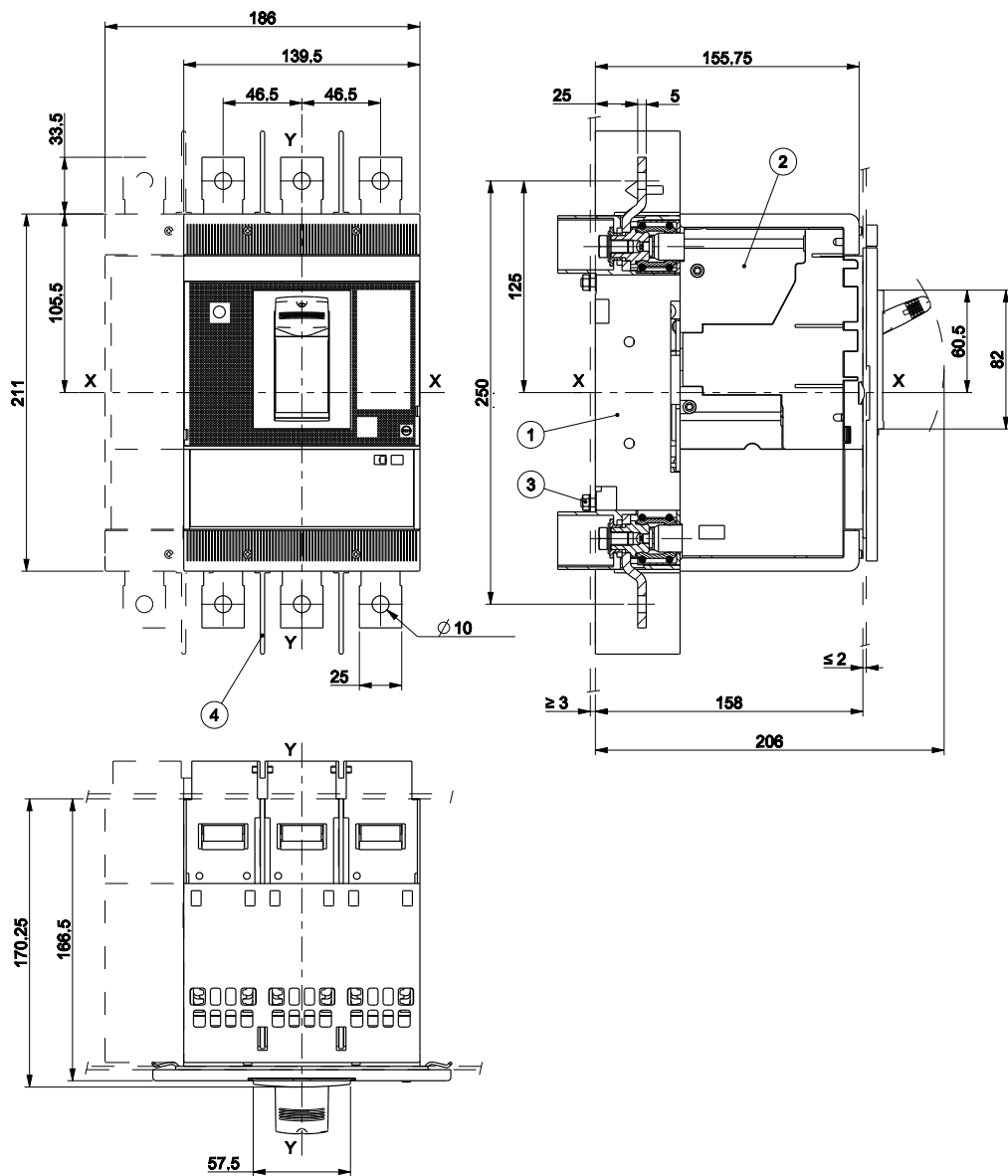


		A [mm]	B [mm]	C [mm]	D [mm]
With flange	3p - 4p	174	152	87	76
Without flange	3p - 4p	165	143	82.5	71.5

Tmax XT5 – Installation

Terminals for plug-in circuit-breaker 400A

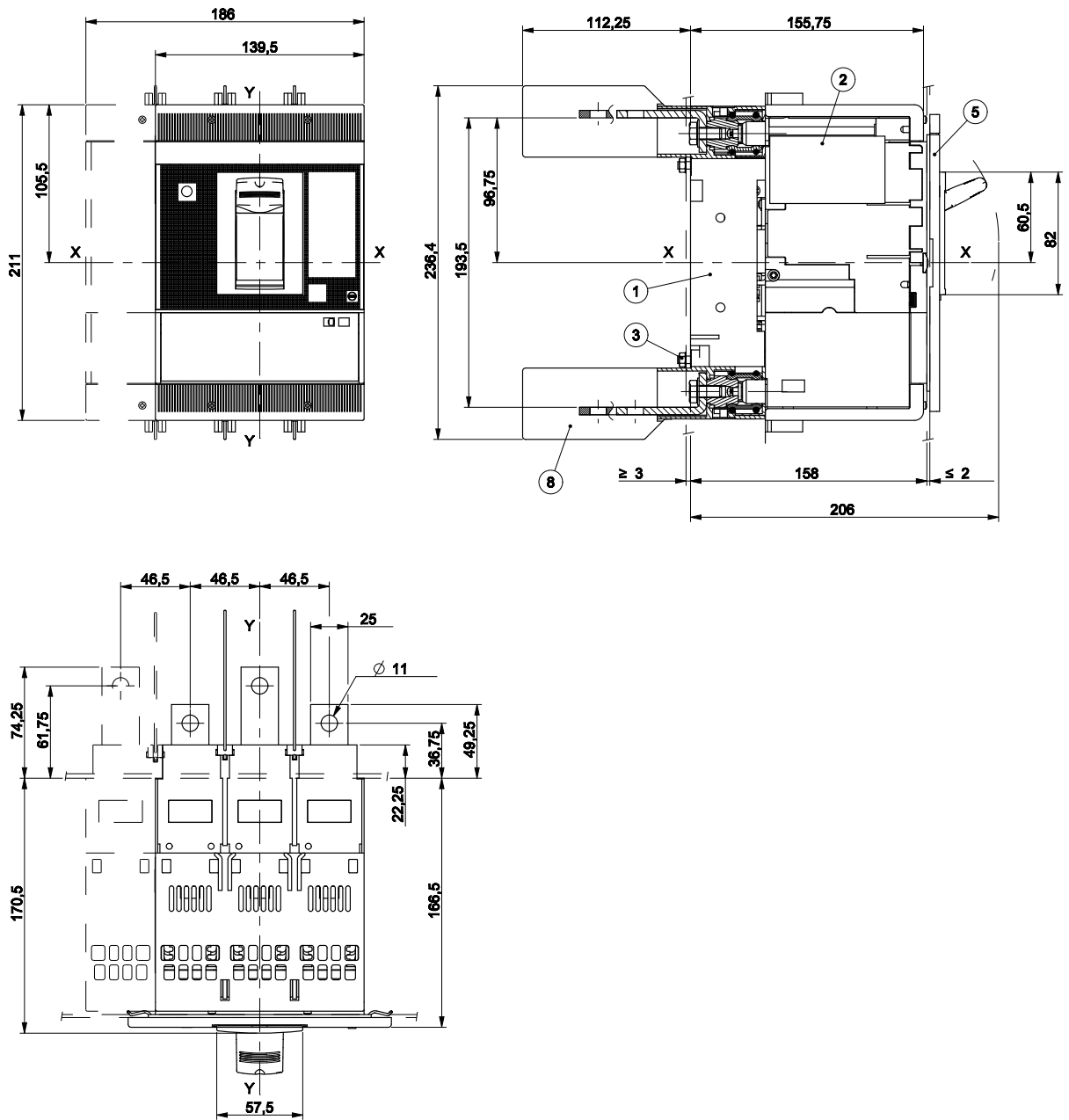
Terminals EF



Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Phase separators 100mm

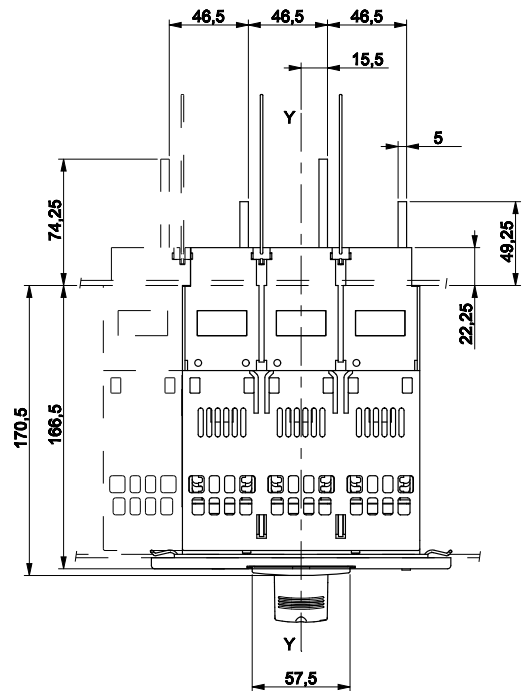
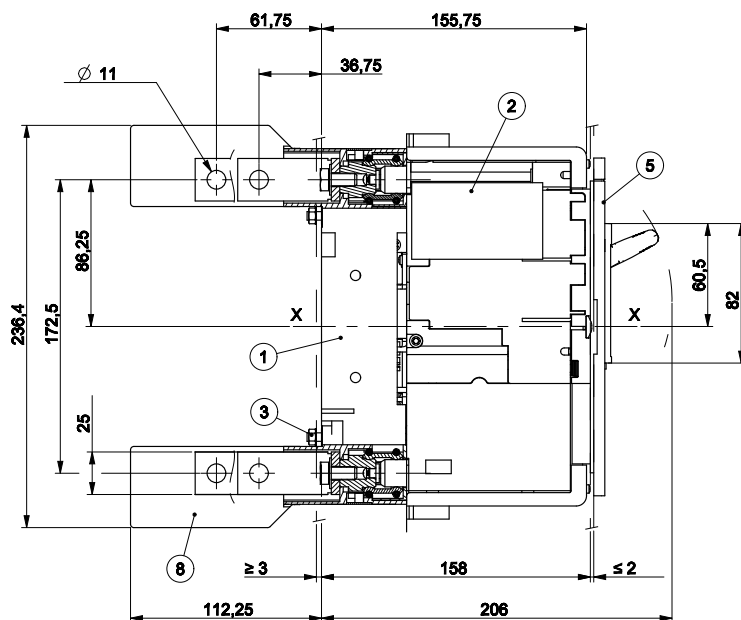
Terminals HR



Tmax XT5 – Installation

Terminals for plug-in circuit-breaker 400A

Terminals VR



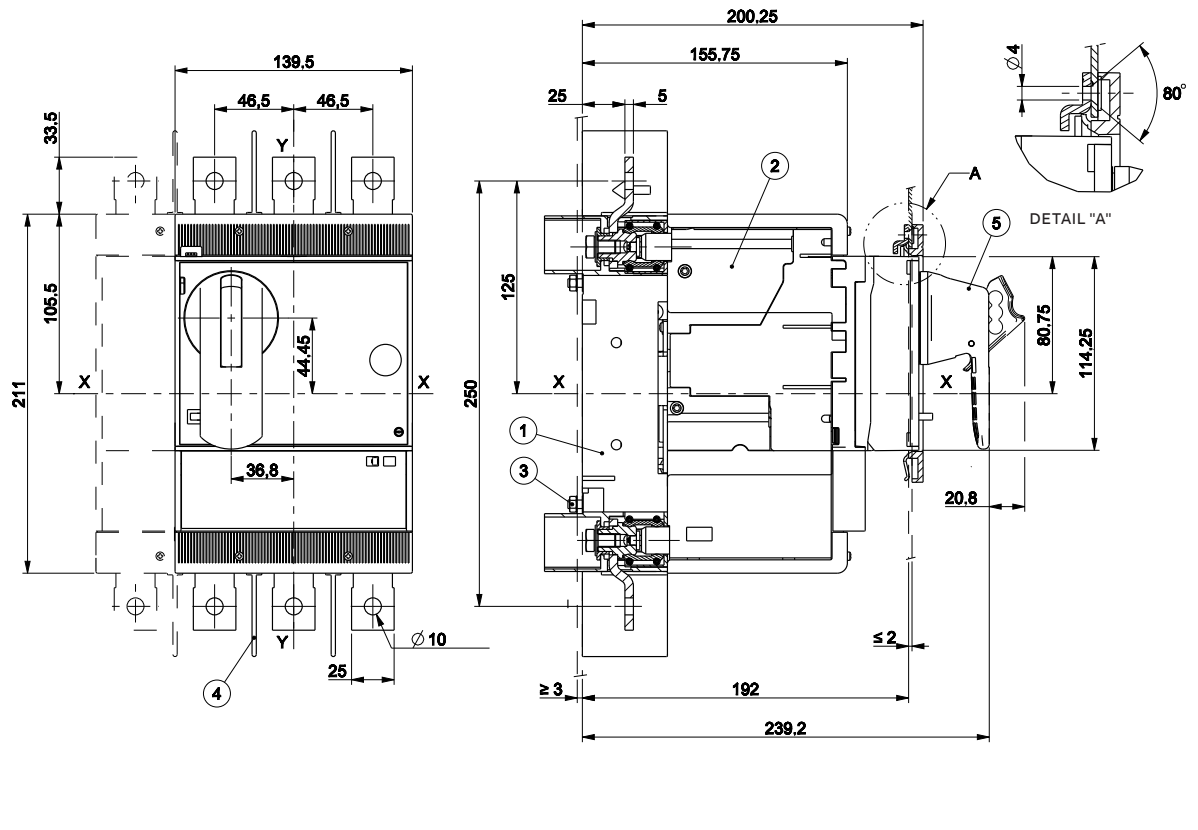
Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 5 Flange without gasket for the compartment door
- 8 Rear insulating barriers (optional except same length terminals)

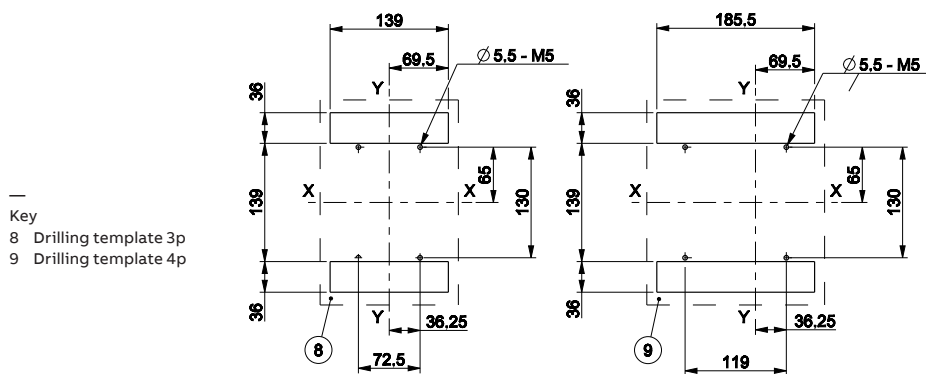
Tmax XT5 – Installation

Accessories for plug-in circuit-breaker 400A

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



Drilling templates for support sheet



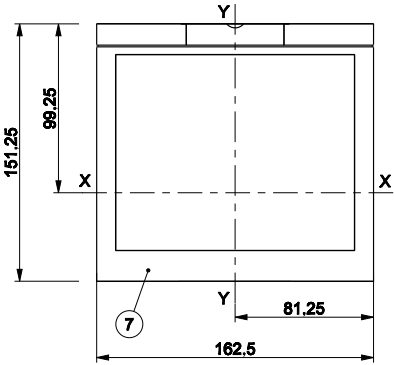


Tmax XT5 – Installation

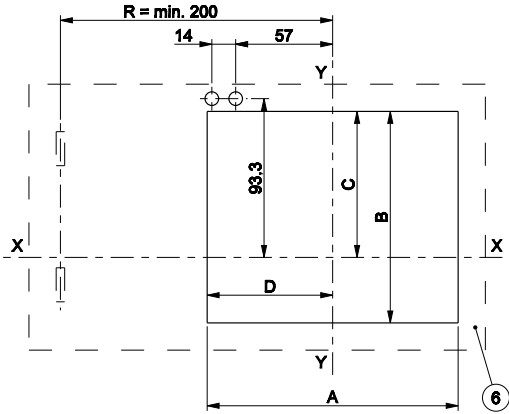
Accessories for plug-in circuit-breaker 400A

Flange

- Key
- 7 Flange for the compartment door
 - 8 Compartment door drilling template with/without flange



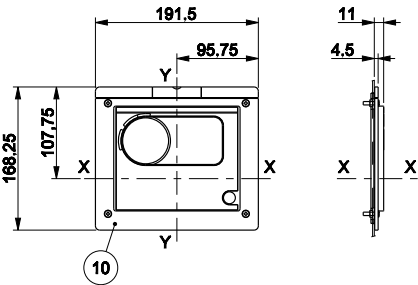
Drilling template compartment door



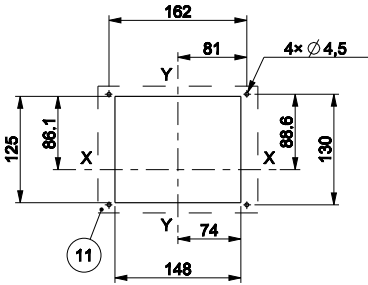
		A [mm]	B [mm]	C [mm]	D [mm]
With flange	3p - 4p	147.5	124.3	85.8	73.75
Without flange	3p - 4p	140.5	115.3	81.3	70.25

Flange IP54

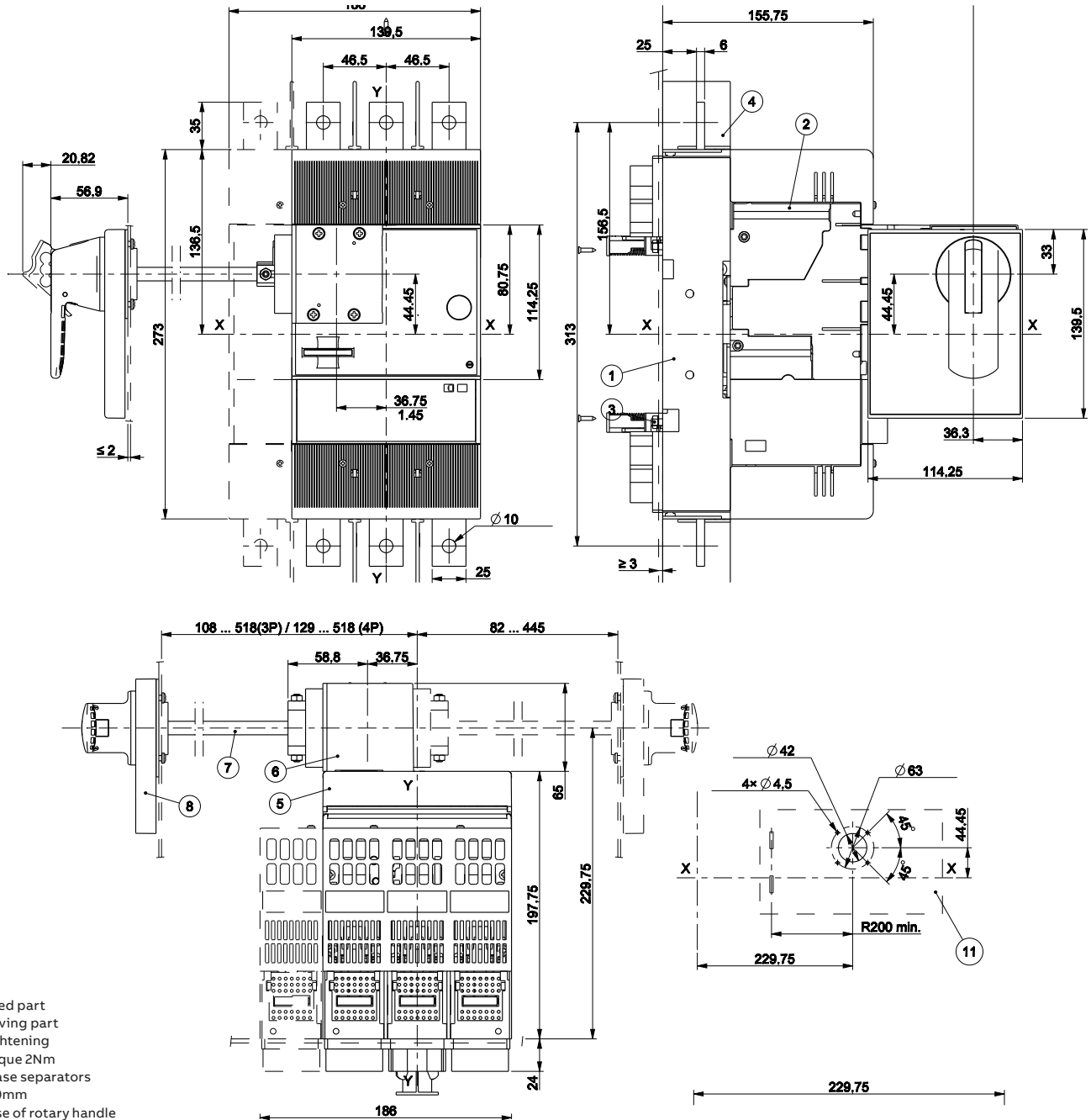
- Key
- 10 IP54 flange for the compartment door
 - 11 Compartment door drilling template with IP54 flange



Compartment door drilling template with flange IP54



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



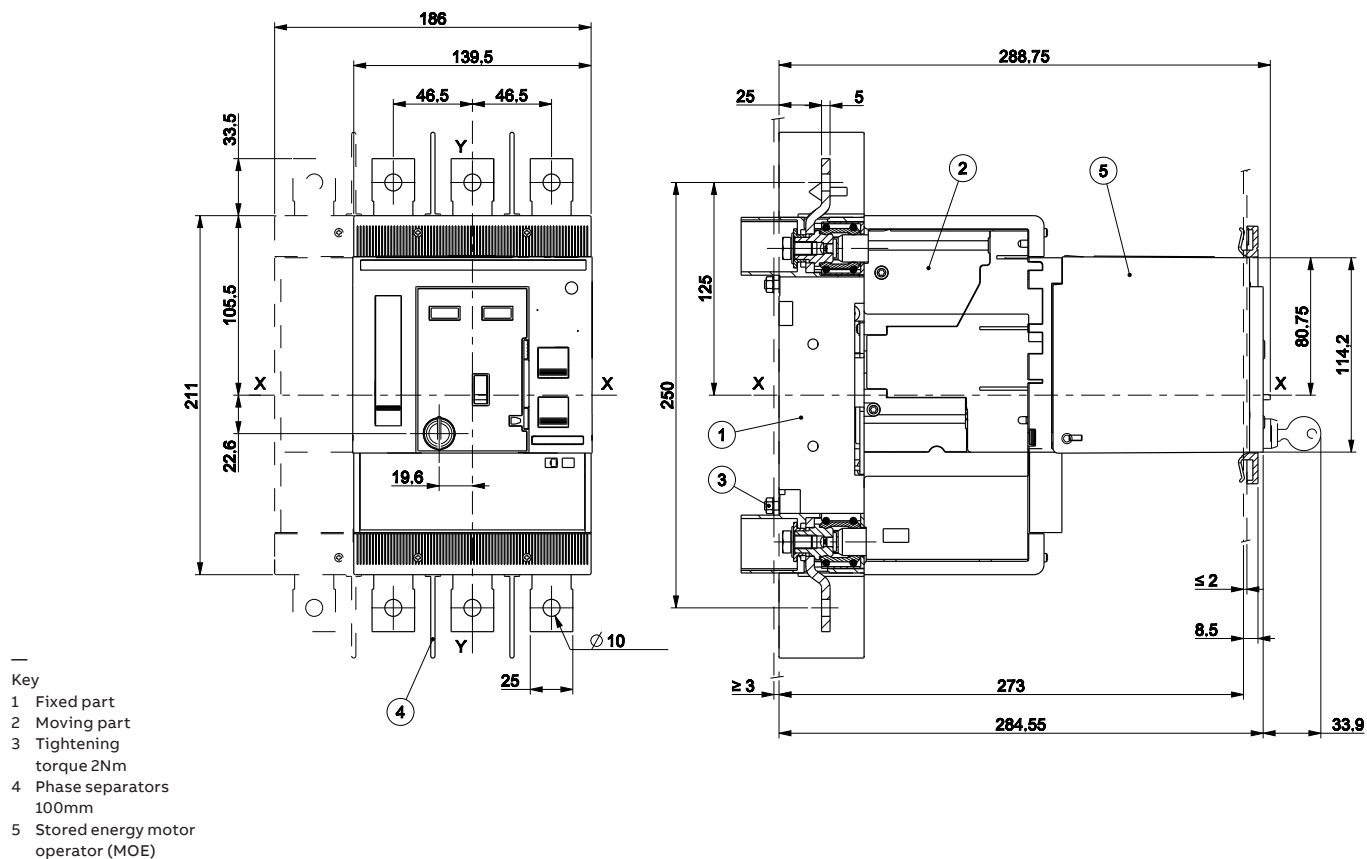
Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Phase separators 100mm
- 5 Base of rotary handle operating mechanism
- 6 Lateral handle
- 7 500mm connection rod
- 8 Rotary handle on compartment door
- 11 Compartment door drilling template

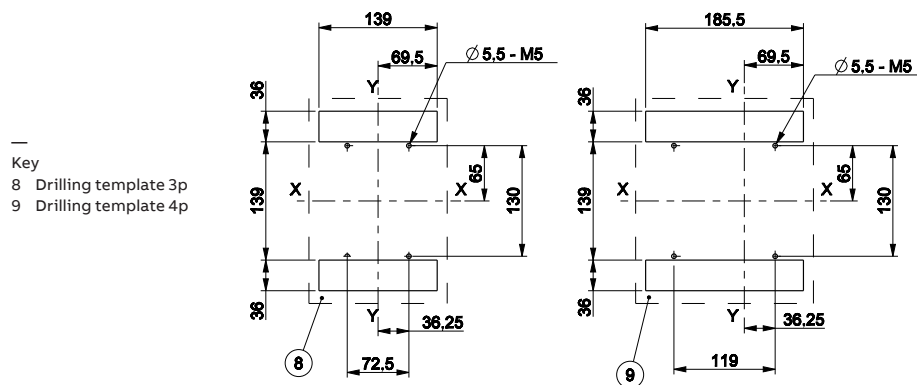
Tmax XT5 – Installation

Accessories for plug-in circuit-breaker 400A

Stored energy motor operator (MOE)

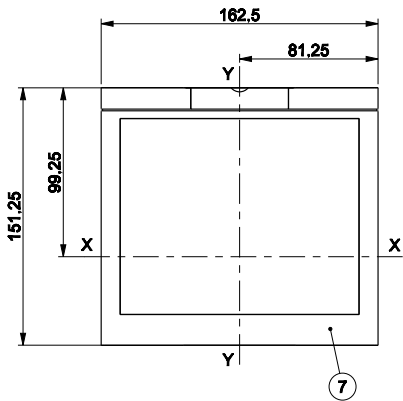


Drilling templates for support sheet



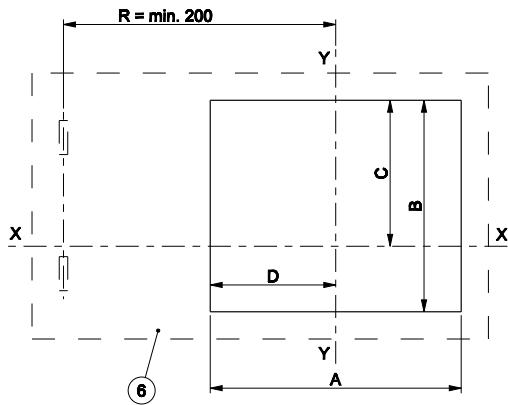
Flange

- Key
7 Flange without gasket for the compartment door



Drilling template compartment door

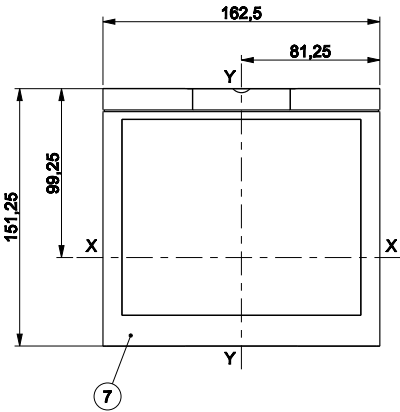
- Key
6 Compartment door drilling template with/without flange



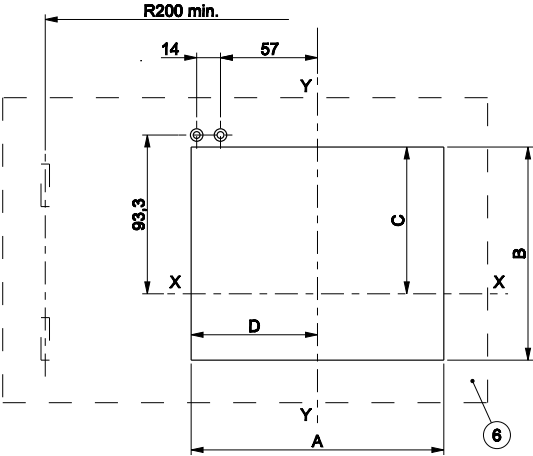
		A [mm]	B [mm]	C [mm]	D [mm]
With flange	3p - 4p	147.5	124.3	85.8	73.75
Without flange	3p - 4p	140.5	115.3	81.3	70.25

Flange

- Key
- 6 Compartment door drilling template with/without flange
 - 7 Flange without gasket for the compartment door



Drilling template compartment door

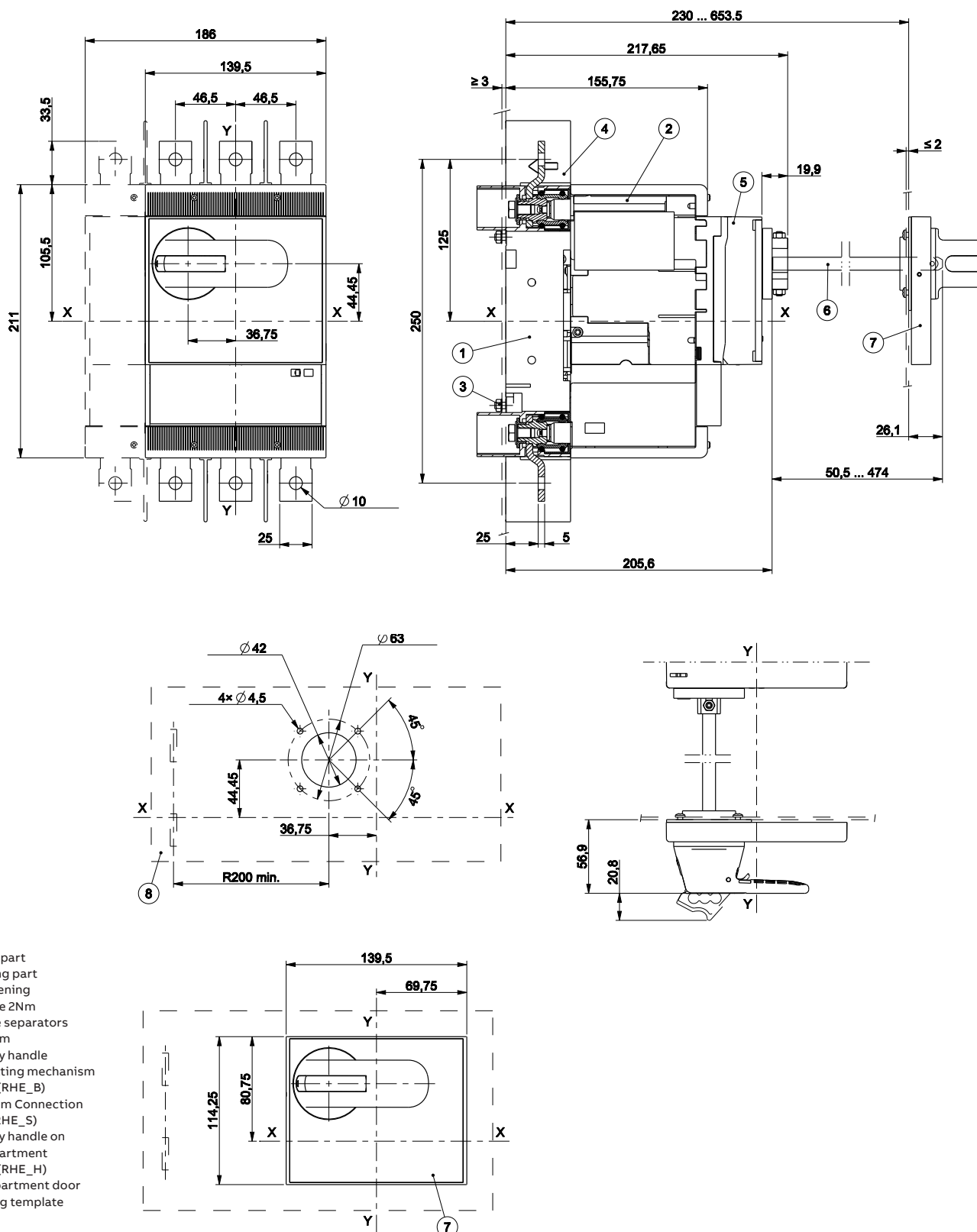


		A [mm]	B [mm]	C [mm]	D [mm]
With flange	3p - 4p	147.5	124.3	85.8	73.75
Without flange	3p - 4p	140.5	115.3	81.3	70.25

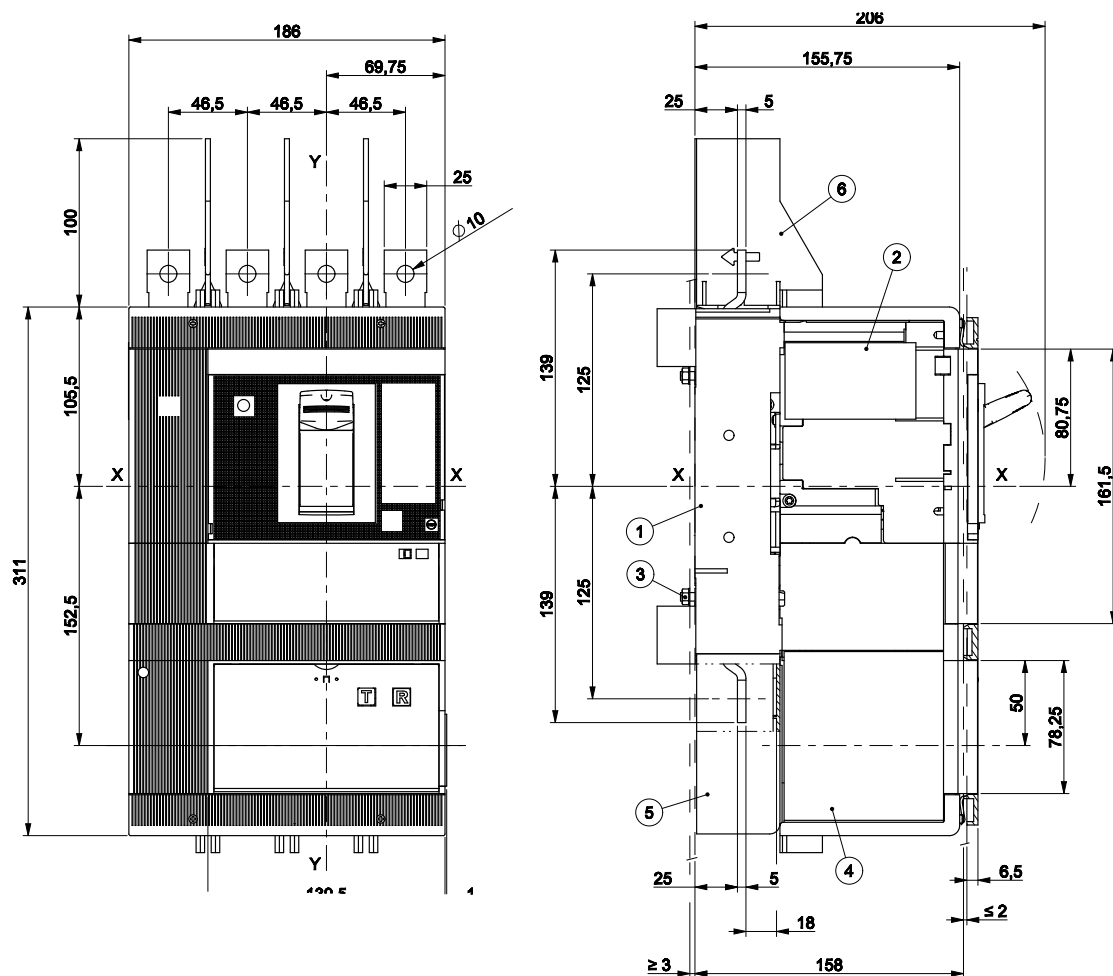
Tmax XT5 – Installation

Accessories for plug-in circuit-breaker 400A

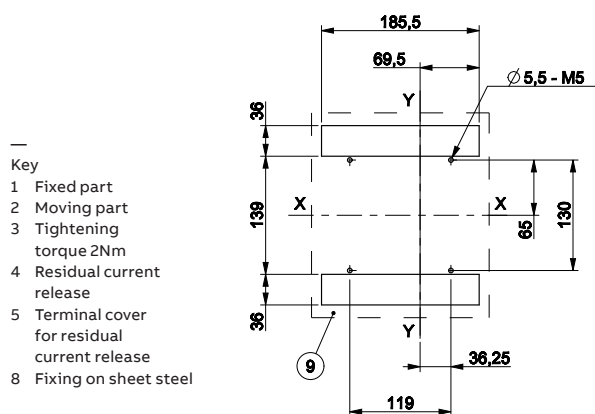
Rotary handle operating mechanism on the compartment door (RHE)



Residual current RC



Drilling template for support sheet



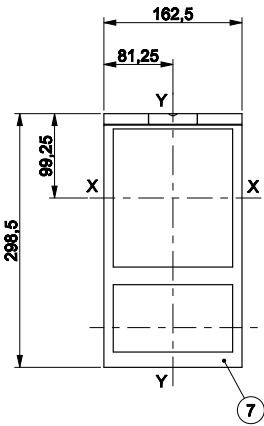


Tmax XT5 – Installation

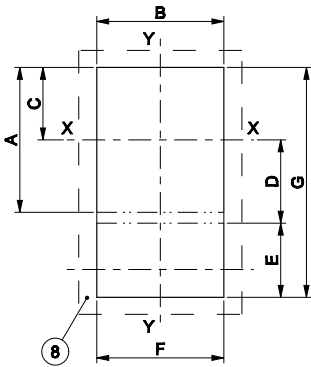
Accessories for plug-in circuit-breaker 400A

Flange

- Key
- 6 Flange for the compartment door
 - 7 Compartment door drilling template with/without flange



Drilling template compartment door

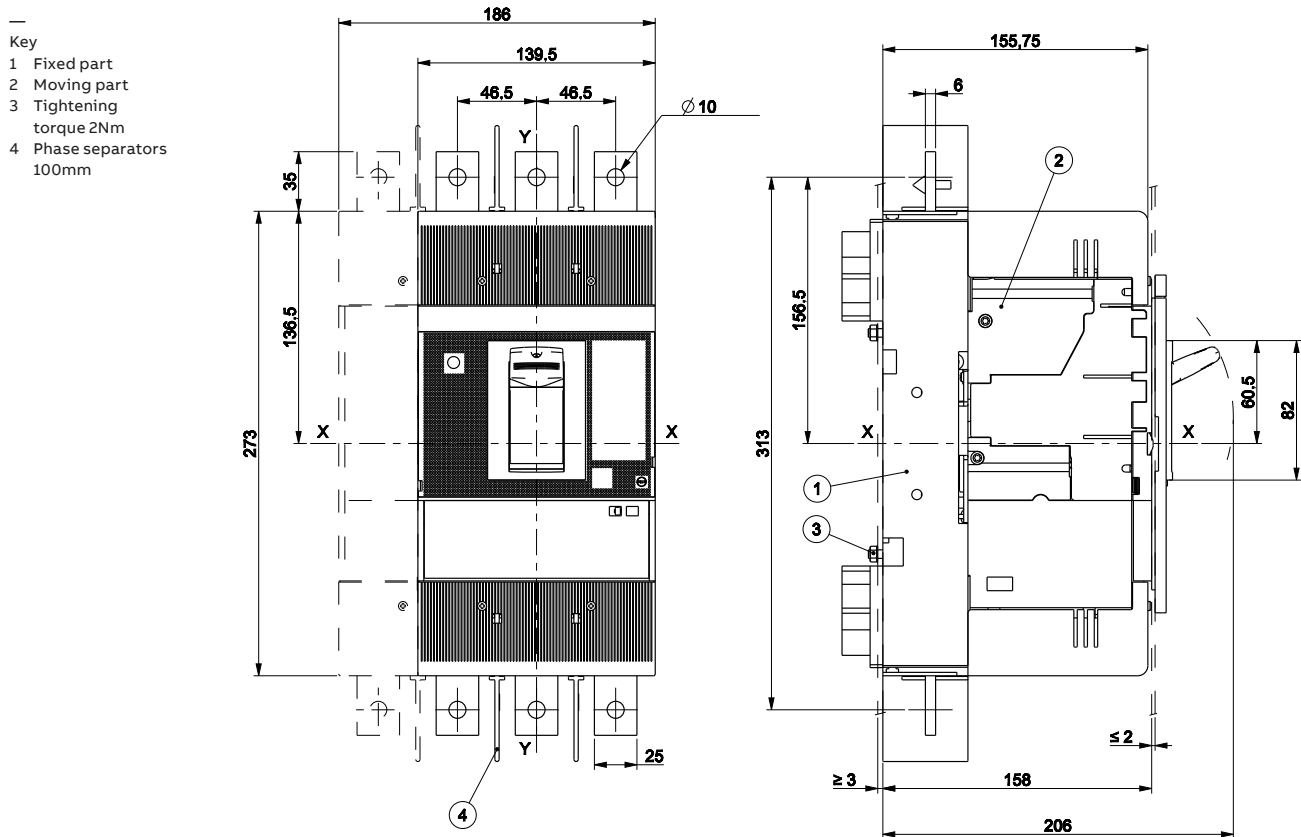


	A	B	C	D	E	F	G
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
With flange 3p - 4p -	147.5	84.8	-	-	147.5	269.5	
Without flange 3p - 4p	163.5	141.5	81.8	101.5	80.3	141.5	-

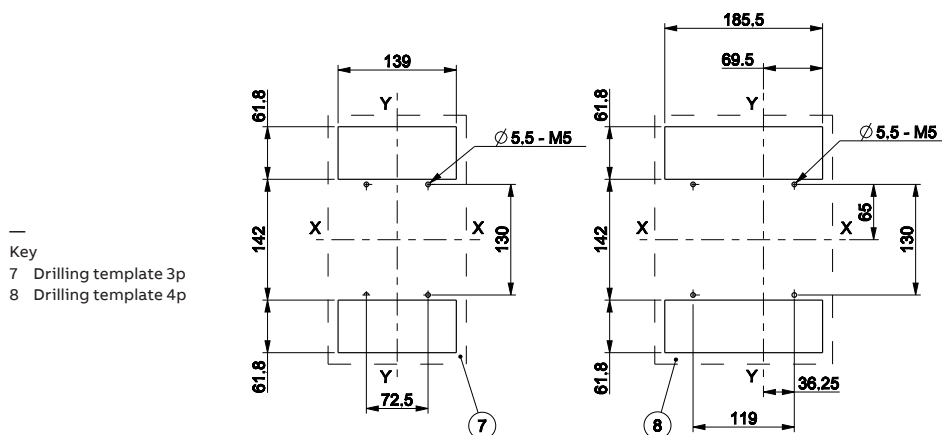
Tmax XT5 – Installation

Installation for plug-in circuit-breaker 630A

Fixing on sheet



Drilling templates for support sheet



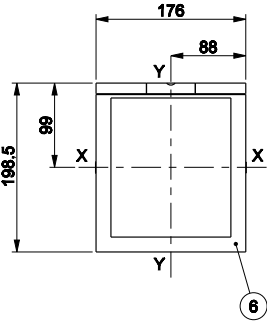


Tmax XT5 – Installation

Installation for plug-in circuit-breaker 630A

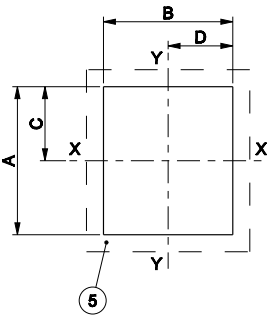
Flange

- Key
6 Flange without gasket for the compartment door



Drilling template compartment door

- Key
5 Compartment door drilling template with/without flange

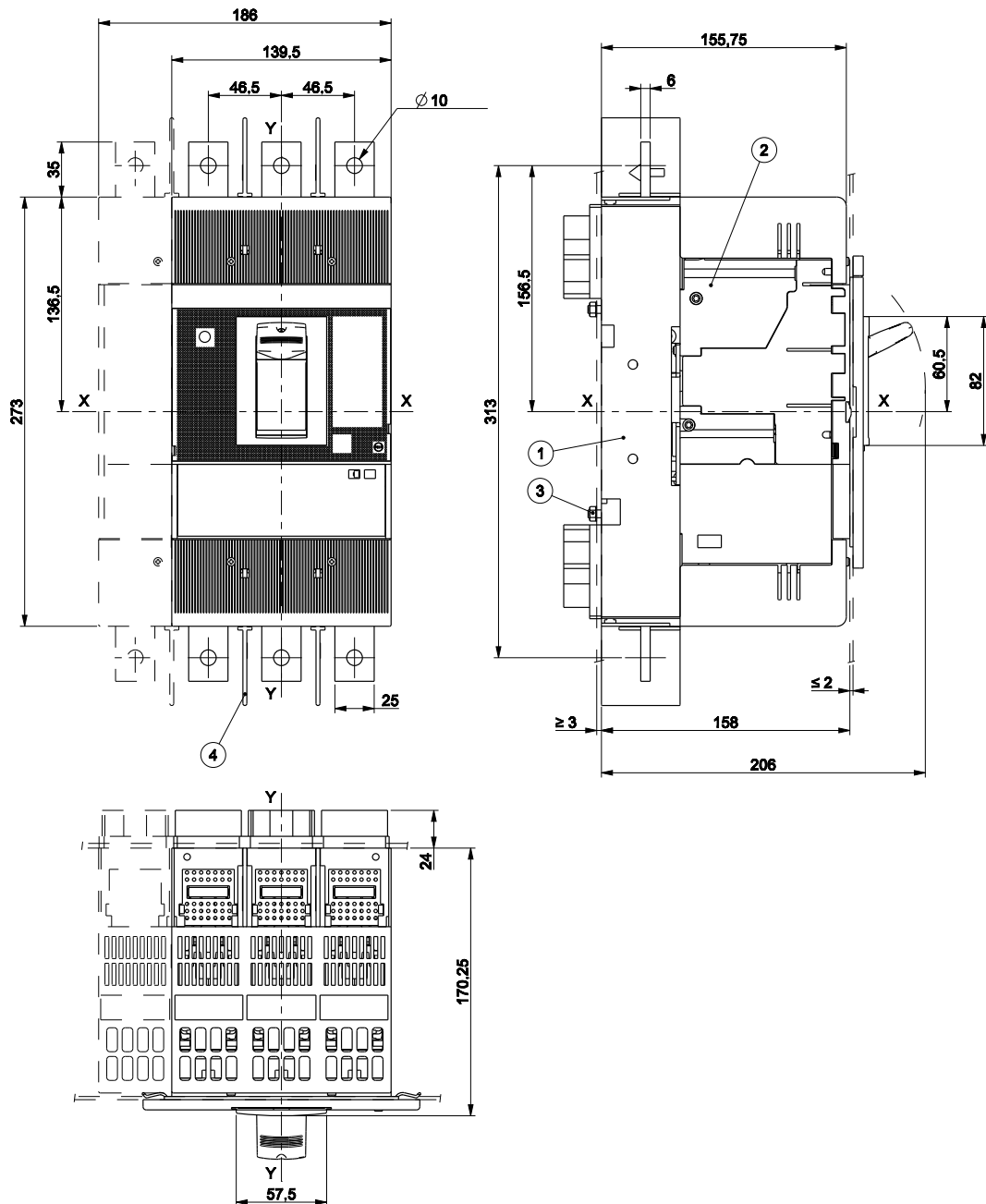


		A [mm]	B [mm]	C [mm]	D [mm]
With flange	3p - 4p	174	152	87	76
Without flange	3p - 4p	165	143	82.5	71.5

Tmax XT5 – Installation

Terminals for plug-in circuit-breaker 630A

Terminals EF



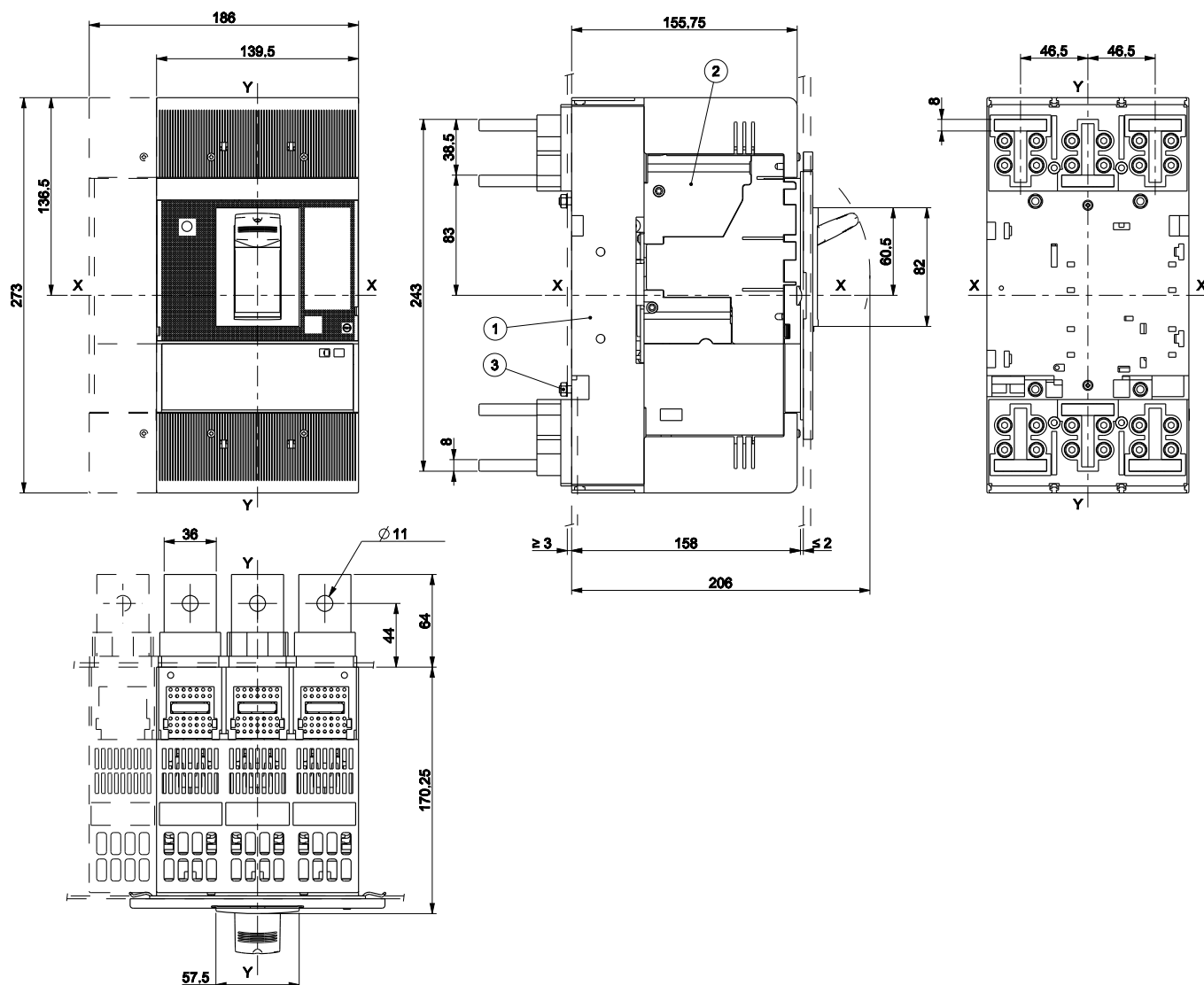
Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Phase separators 100mm

Tmax XT5 – Installation

Terminals for plug-in circuit-breaker 630A

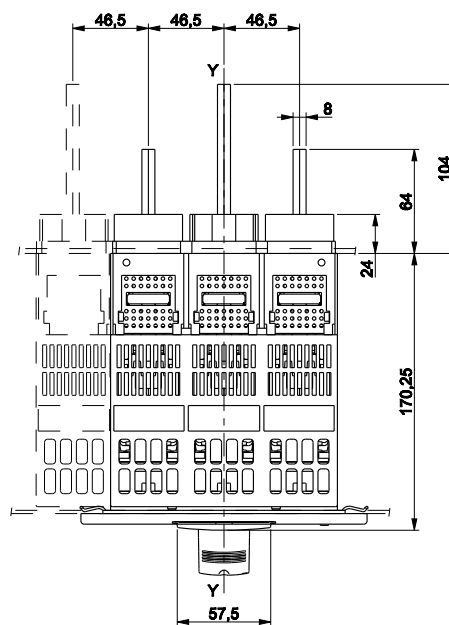
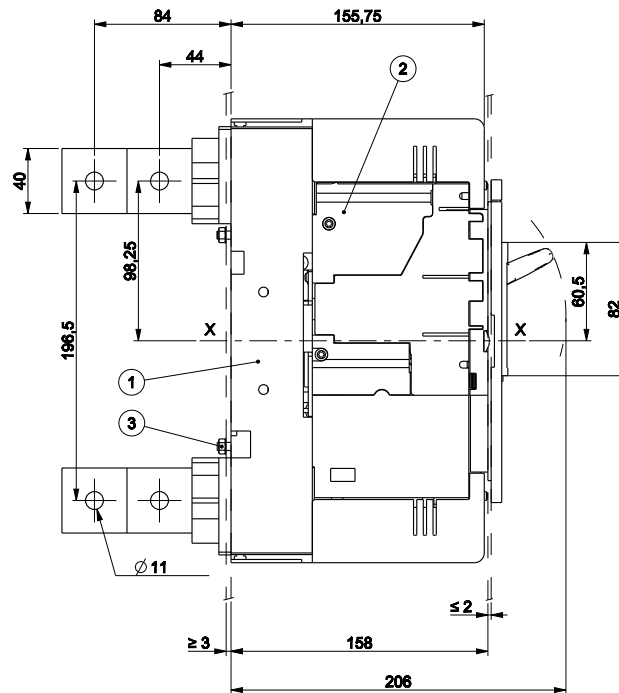
Terminals HR



Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm

Terminals VR

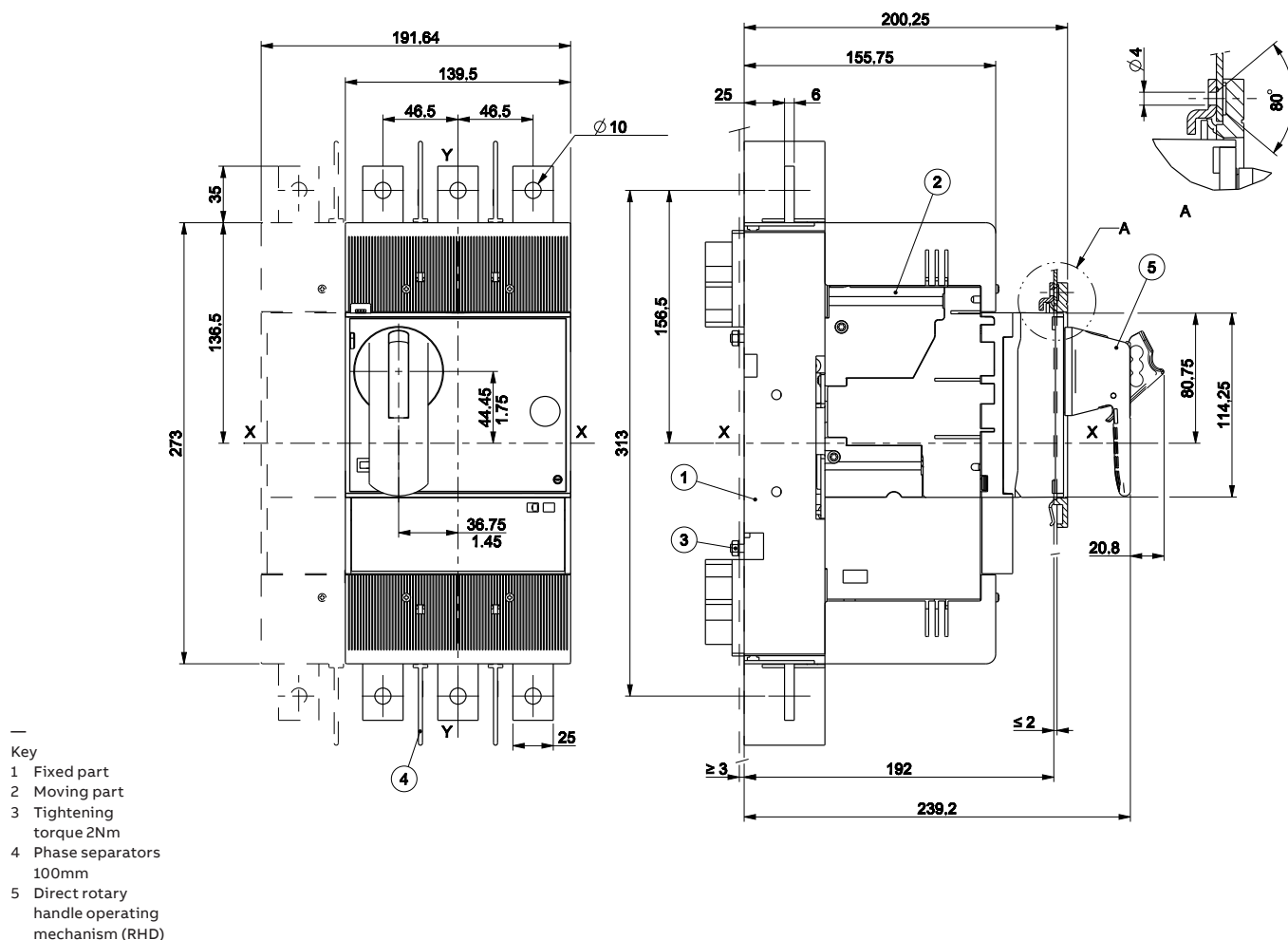


- Key
1 Fixed part
2 Moving part
3 Tightening
torque 2Nm

Tmax XT5 – Installation

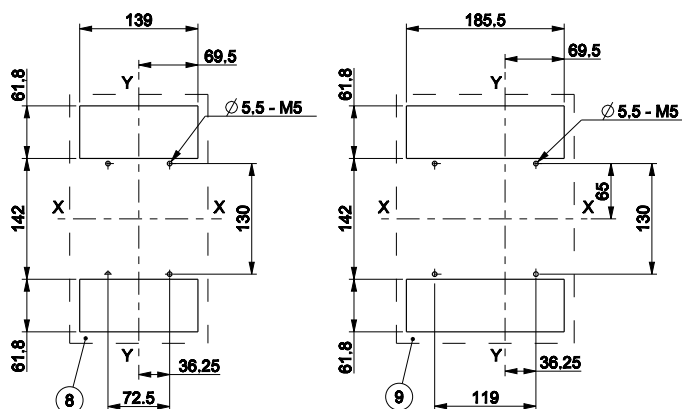
Accessories for plug-in circuit-breaker 630A

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



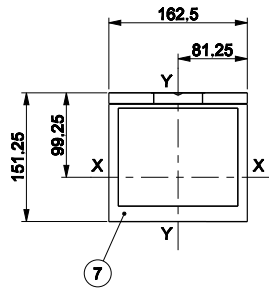
Drilling templates for support sheet

- Key:**
- 8 Drilling template 3p
 - 9 Drilling template 4p

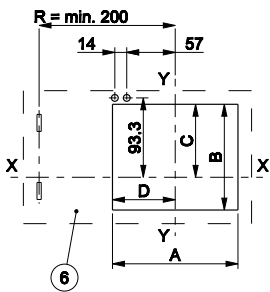


Flange

- Key
6 Compartment door
drilling template
with/without flange
7 Flange for the
compartment door



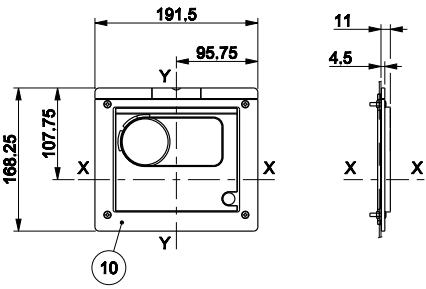
Drilling template compartment door



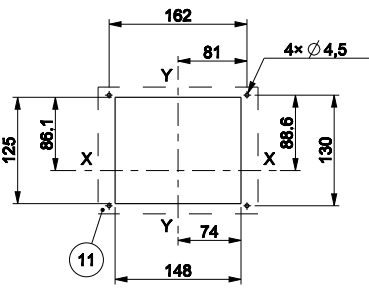
		A [mm]	B [mm]	C [mm]	D [mm]
With flange	3p - 4p	147.5	124.3	85.8	73.75
Without flange	3p - 4p	140.5	115.3	81.3	70.25

Flange IP54

- Key
10 IP54 flange for the
compartment door
11 Compartment door
drilling template
with IP54 flange



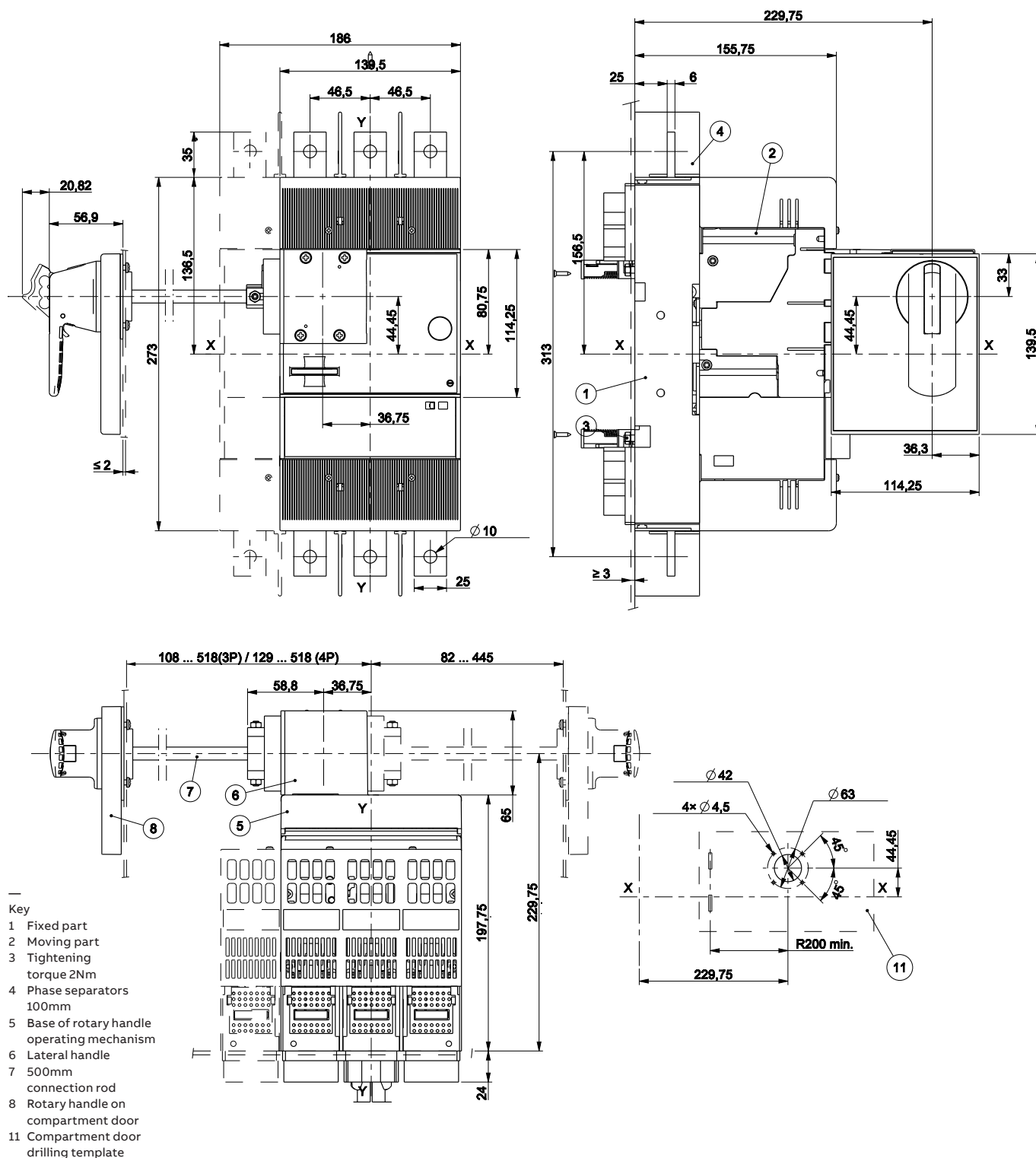
Drilling template compartment door
with flange IP54



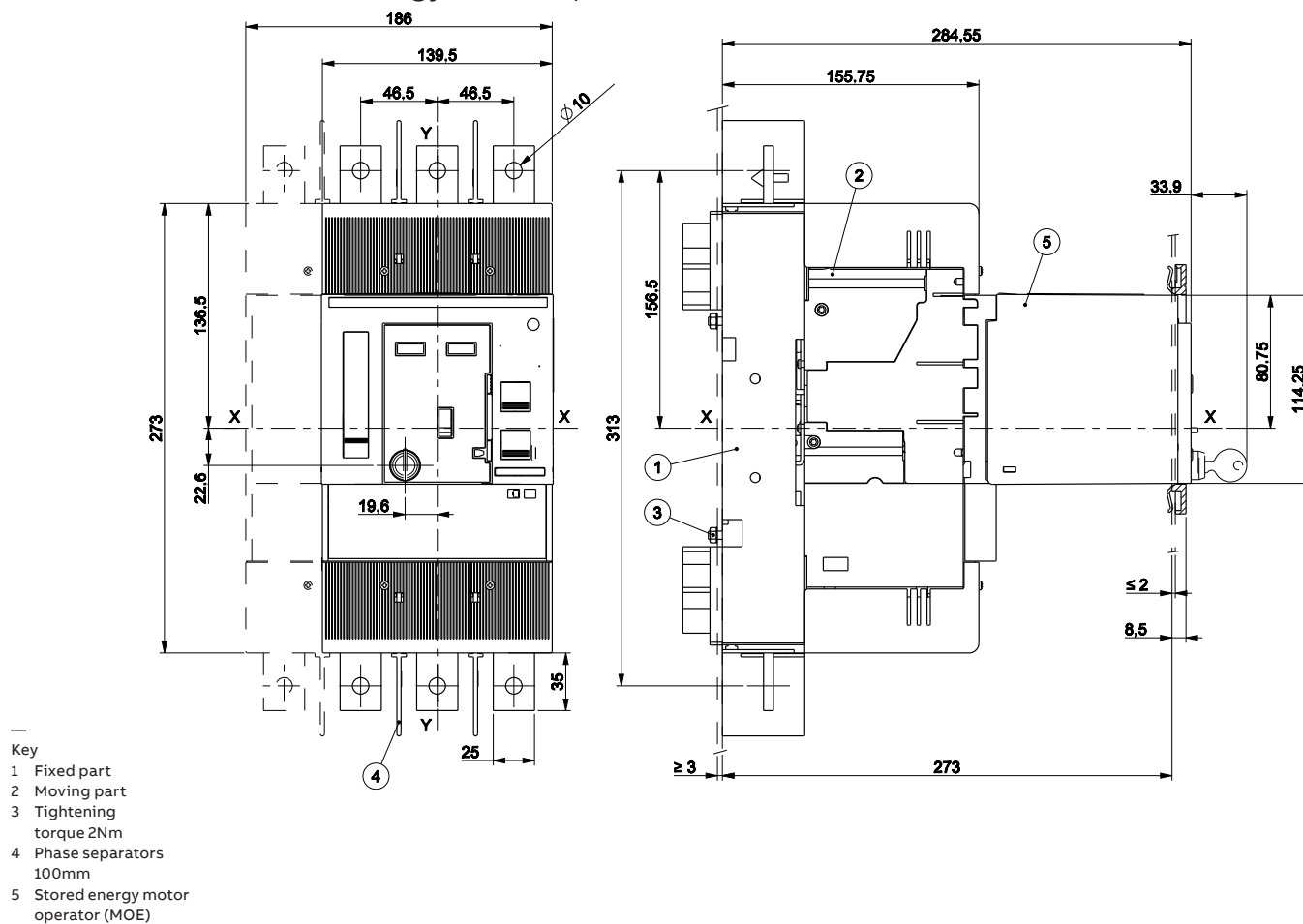
Tmax XT5 – Installation

Accessories for plug-in circuit-breaker 630A

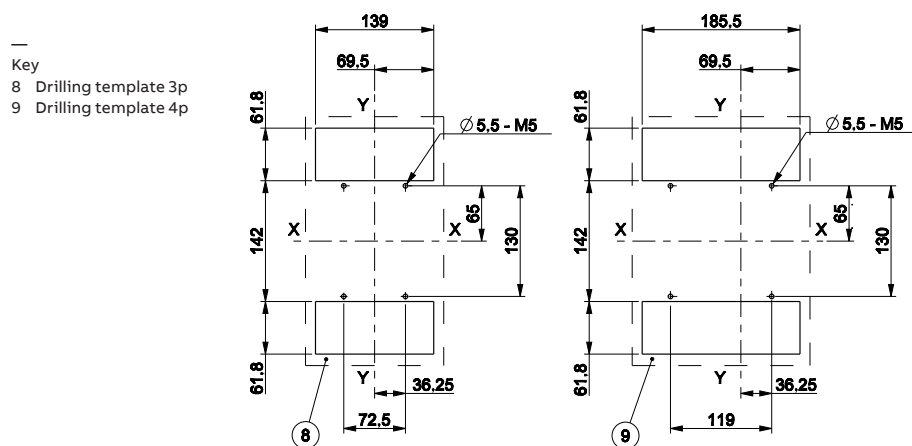
Lateral rotary handle operating mechanism on the compartment door (RHL)



Stored energy motor operator (MOE)



Drilling templates for support sheet



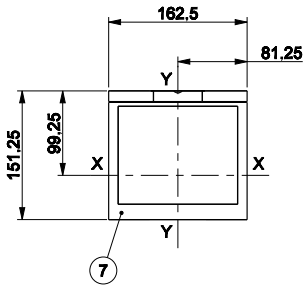


Tmax XT5 – Installation

Accessories for plug-in circuit-breaker 630A

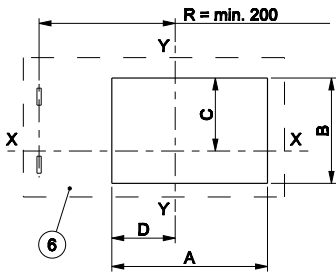
Flange

- Key
- 7 Flange without gasket for the compartment door



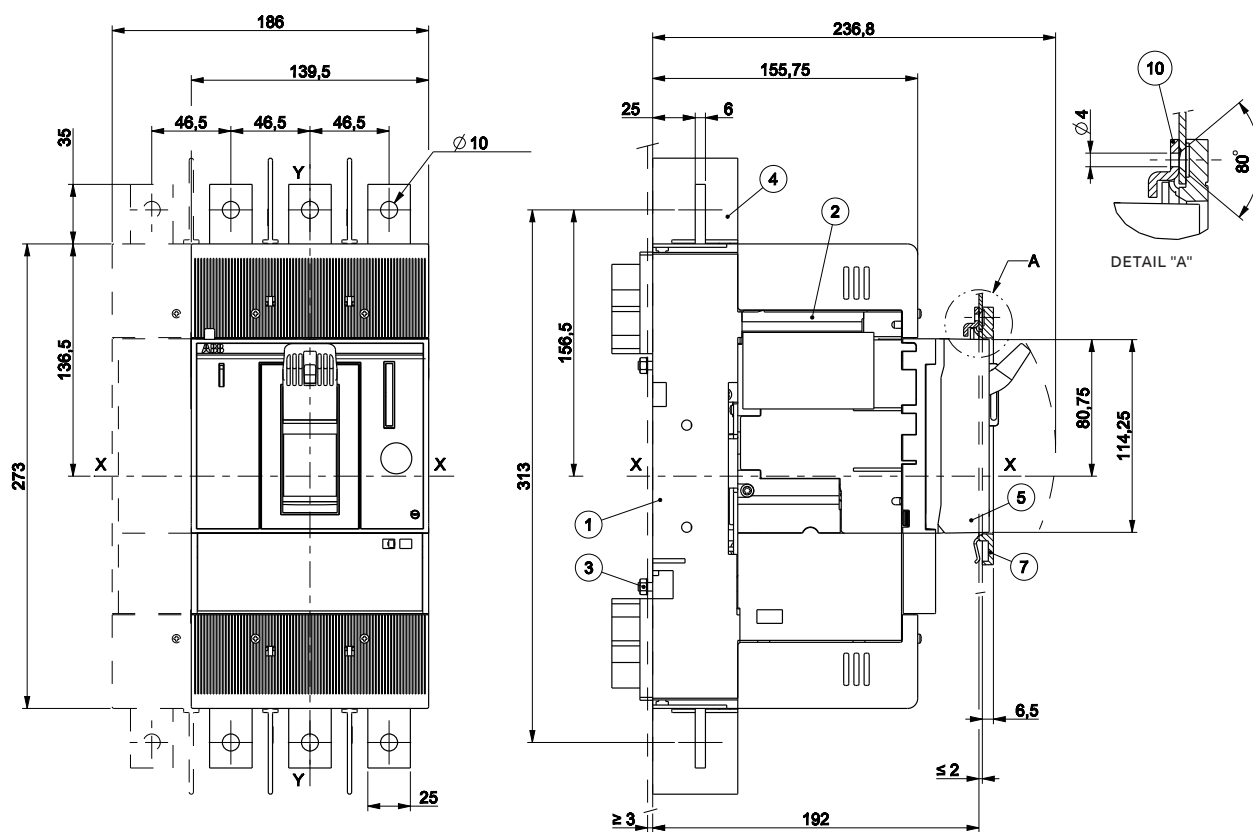
Drilling template compartment door

- Key
- 6 Compartment door drilling template with/without flange

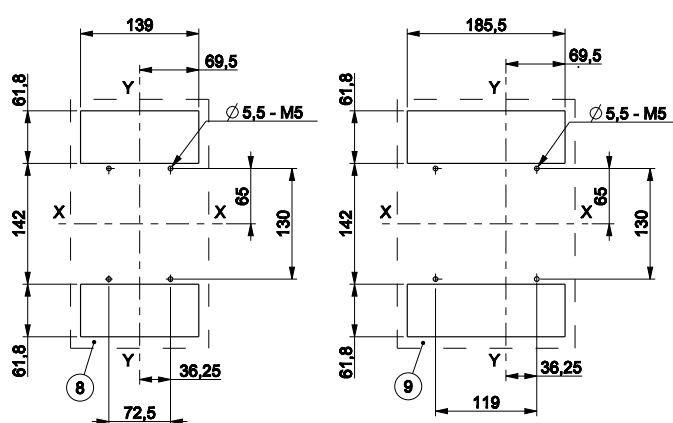


		A [mm]	B [mm]	C [mm]	D [mm]
With flange	3p - 4p	147.5	124.3	85.8	73.75
Without flange	3p - 4p	140.5	115.3	81.3	70.25

Front for lever operating mechanism (FLD)



Drilling templates for support sheet



Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Phase separators 100mm
- 5 Front for lever operating mechanism (FLD)
- 6 Compartment door drilling template with/without flange
- 7 Flange without gasket for the compartment door
- 8 Drilling template 3p
- 9 Drilling template 4p
- 10 Door lock

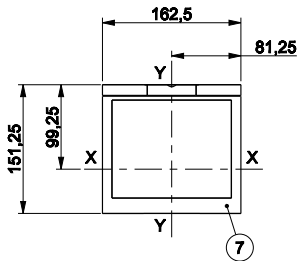


Tmax XT5 – Installation

Accessories for plug-in circuit-breaker 630A

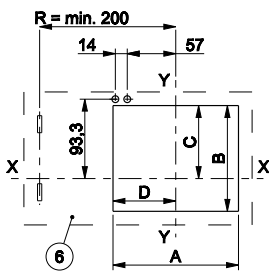
Flange

- Key
- 7 Flange without gasket for the compartment door



Drilling template compartment door

- Key
- 6 Compartment door drilling template with/without flange

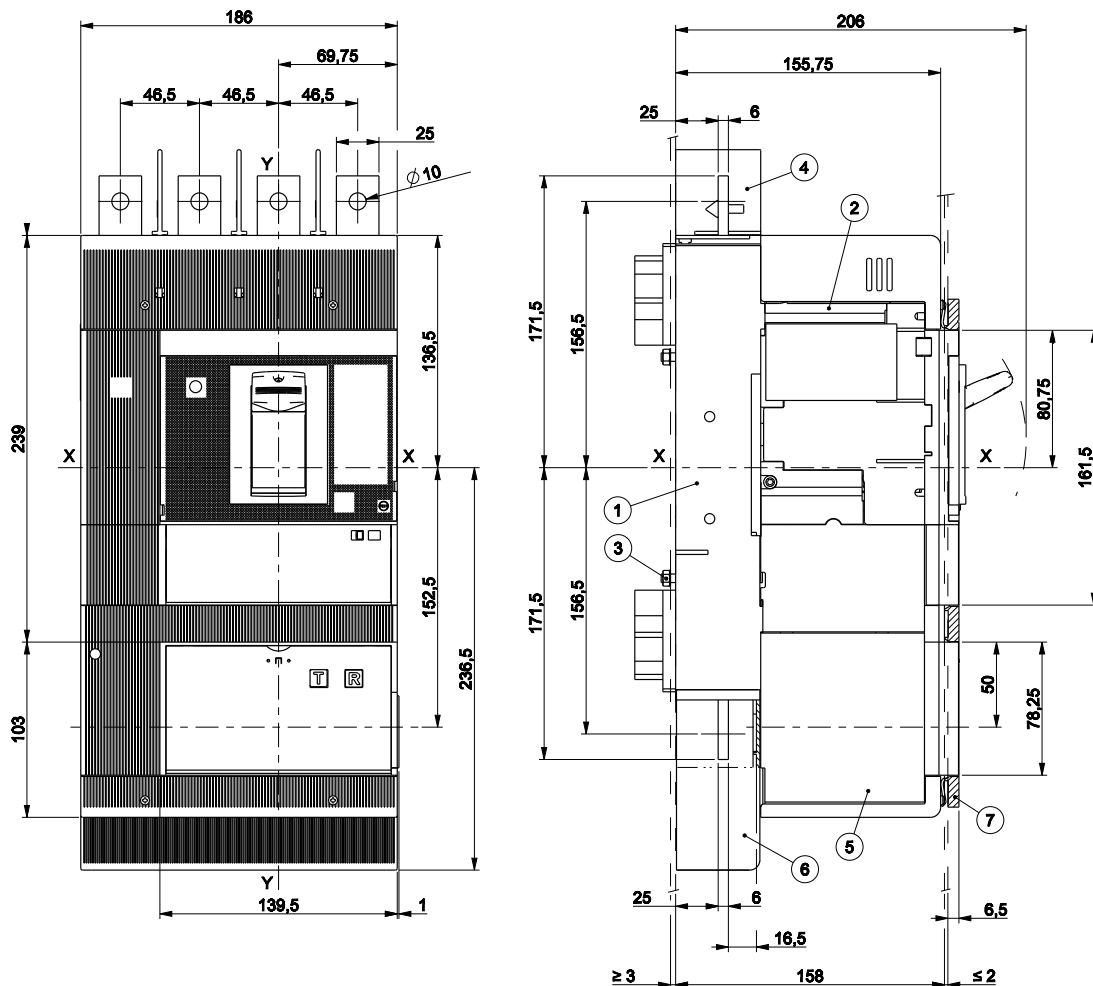


		A [mm]	B [mm]	C [mm]	D [mm]
With flange	3p - 4p	147.5	124.3	85.8	73.75
Without flange	3p - 4p	140.5	115.3	81.3	70.25

Tmax XT5 – Installation

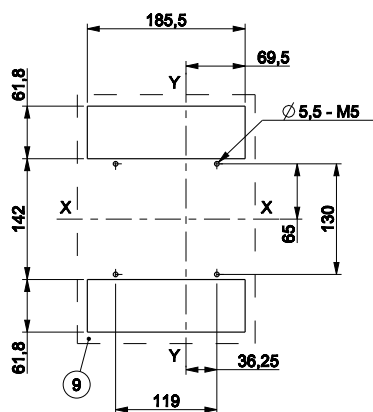
Accessories for plug-in circuit-breaker 630A

Residual current RC



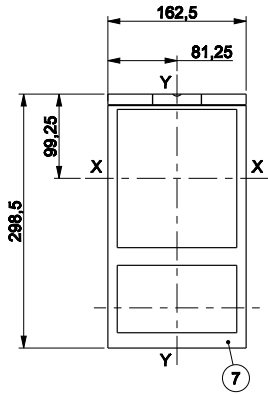
Drilling template for support sheet

- Key
- 1 Fixed part
 - 2 Moving part
 - 3 Tightening torque 2Nm
 - 4 Phase separators 100mm
 - 5 Residual current release
 - 6 Terminal cover for residual current release
 - 9 Fixing on sheet steel

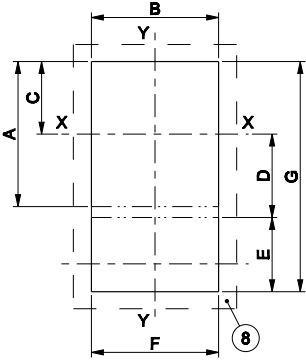


Flange

- Key
7 Flange for the
compartment door
8 Compartment door
drilling template
with/without flange



Drilling template compartment door

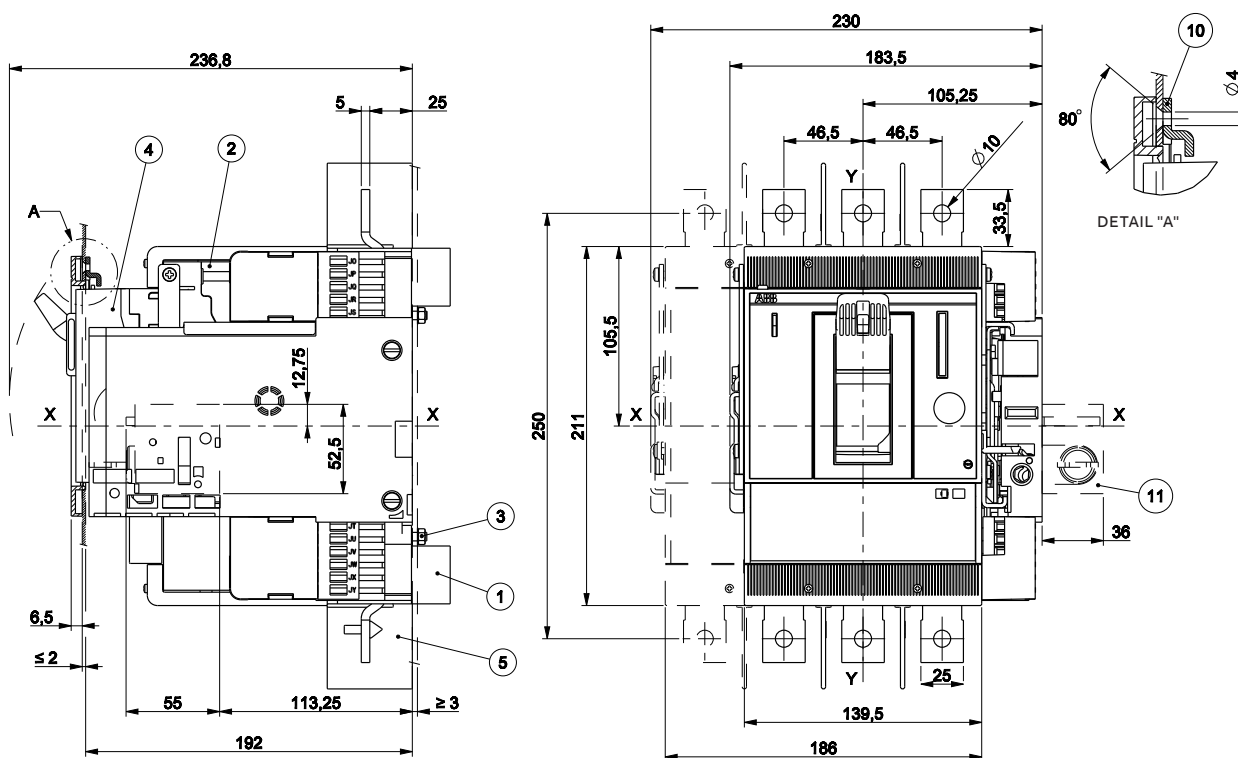


	A	B	C	D	E	F	G
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
With flange 3p - 4p -		147.5	84.8	-	-	147.5	269.5
Without flange 3p - 4p	163.5	141.5	81.8	101.5	80.3	141.5	-

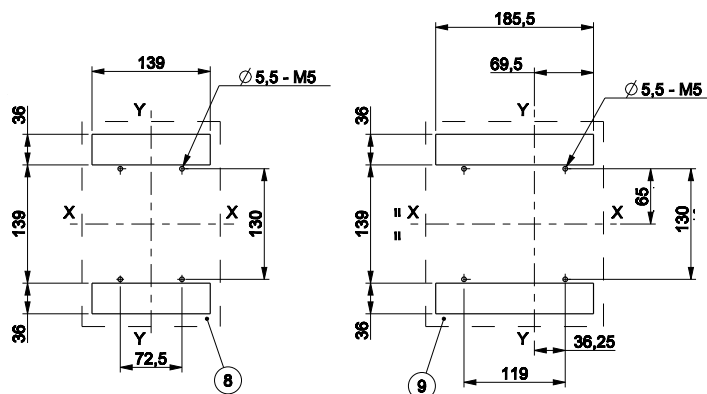
Tmax XT5 – Installation

Installation for withdrawable circuit-breaker 400A

Fixing on sheet



Drilling templates for support sheet

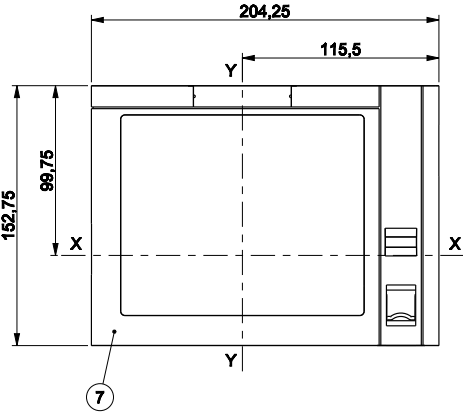


Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Front for lever operating mechanism (fld)
- 5 Phase separators 100mm
- 8 Drilling template 3p
- 9 Drilling template 4p
- 10 Door lock
- 11 Key lock for fixed part

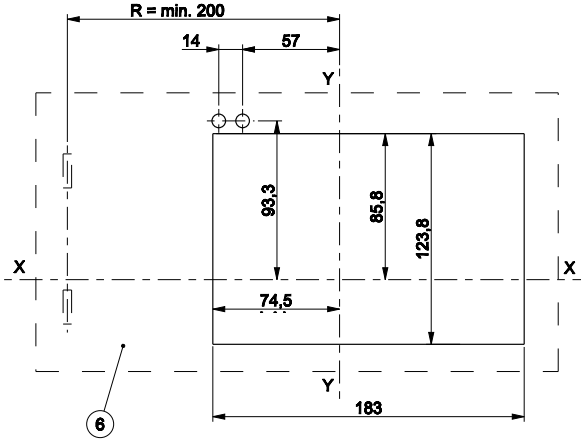
Flange

- Key
7 Flange without gasket for the compartment door



Drilling template compartment door

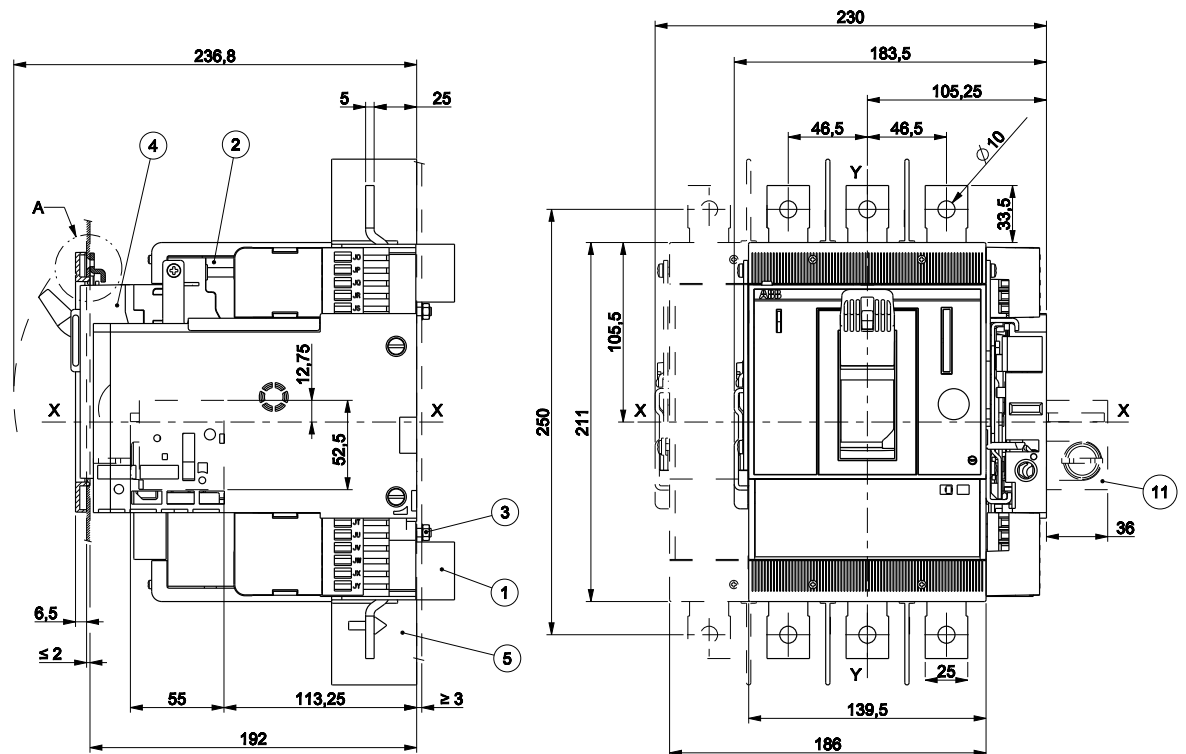
- Key
6 Compartment door drilling template with flange



Tmax XT5 – Installation

Terminals for withdrawable circuit-breaker 400A

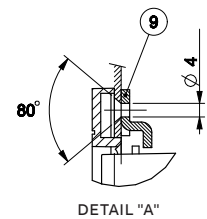
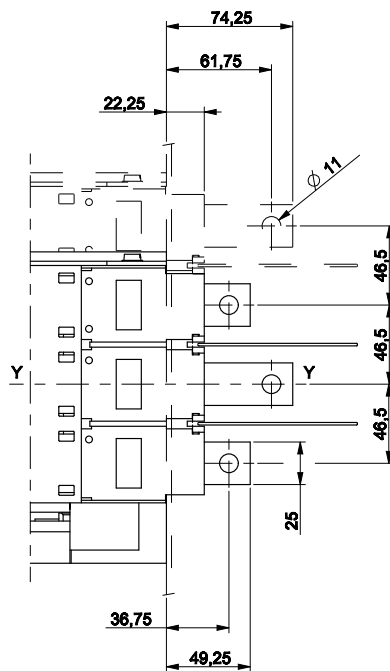
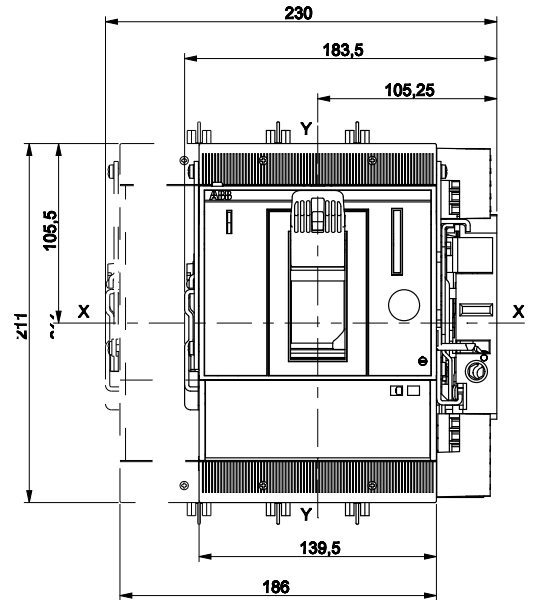
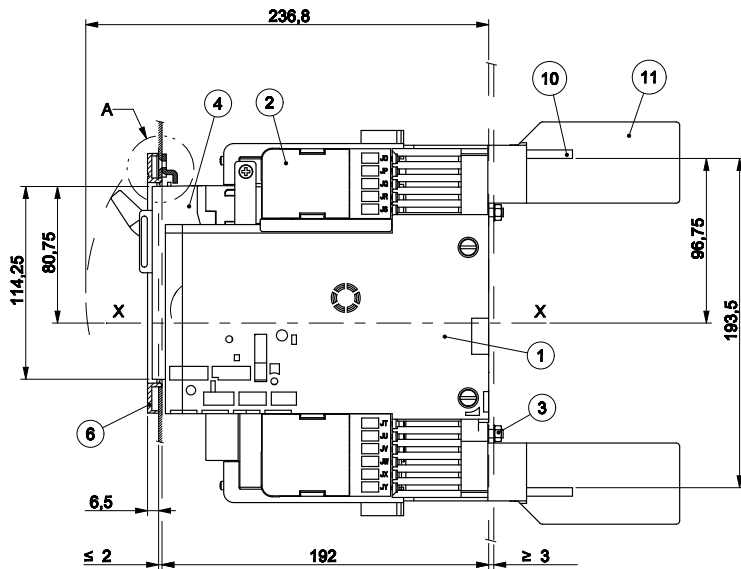
Terminals EF



Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Front for lever operating mechanism (fld)
- 5 Phase separators 100mm
- 10 Door lock
- 11 Key lock for fixed part

Terminals HR



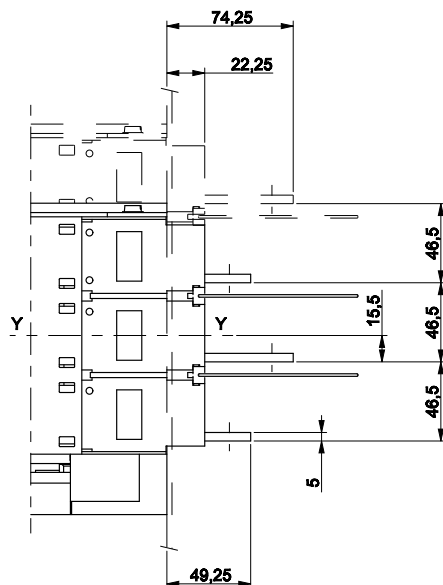
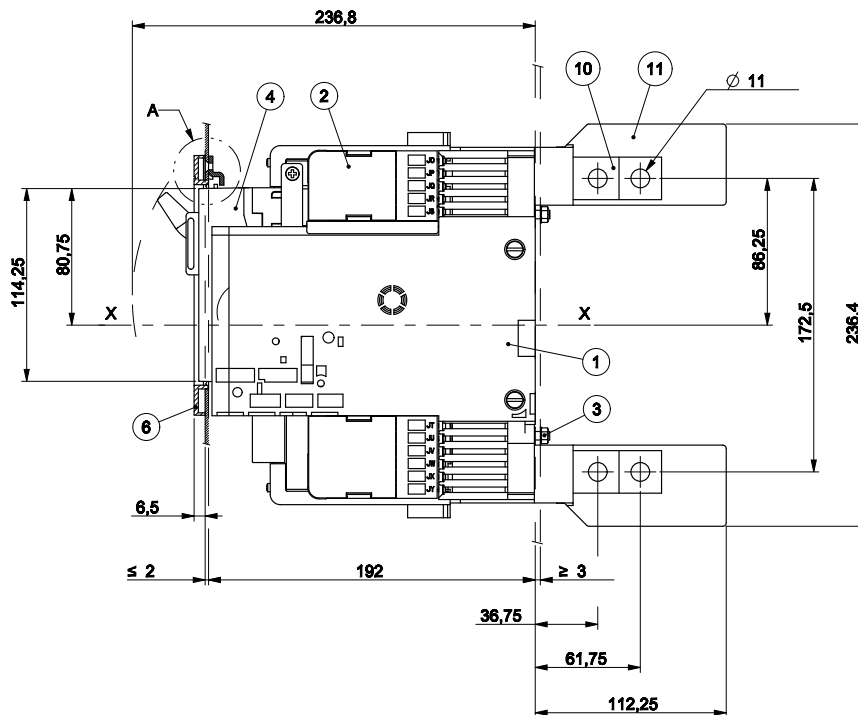
Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Front for lever operating mechanism (FLD)
- 6 Flange without gasket for compartment door
- 9 Door lock
- 10 Terminals for connection
- 11 Rear insulating barriers (optional except same length terminals)

Tmax XT5 – Installation

Terminals for withdrawable circuit-breaker 400A

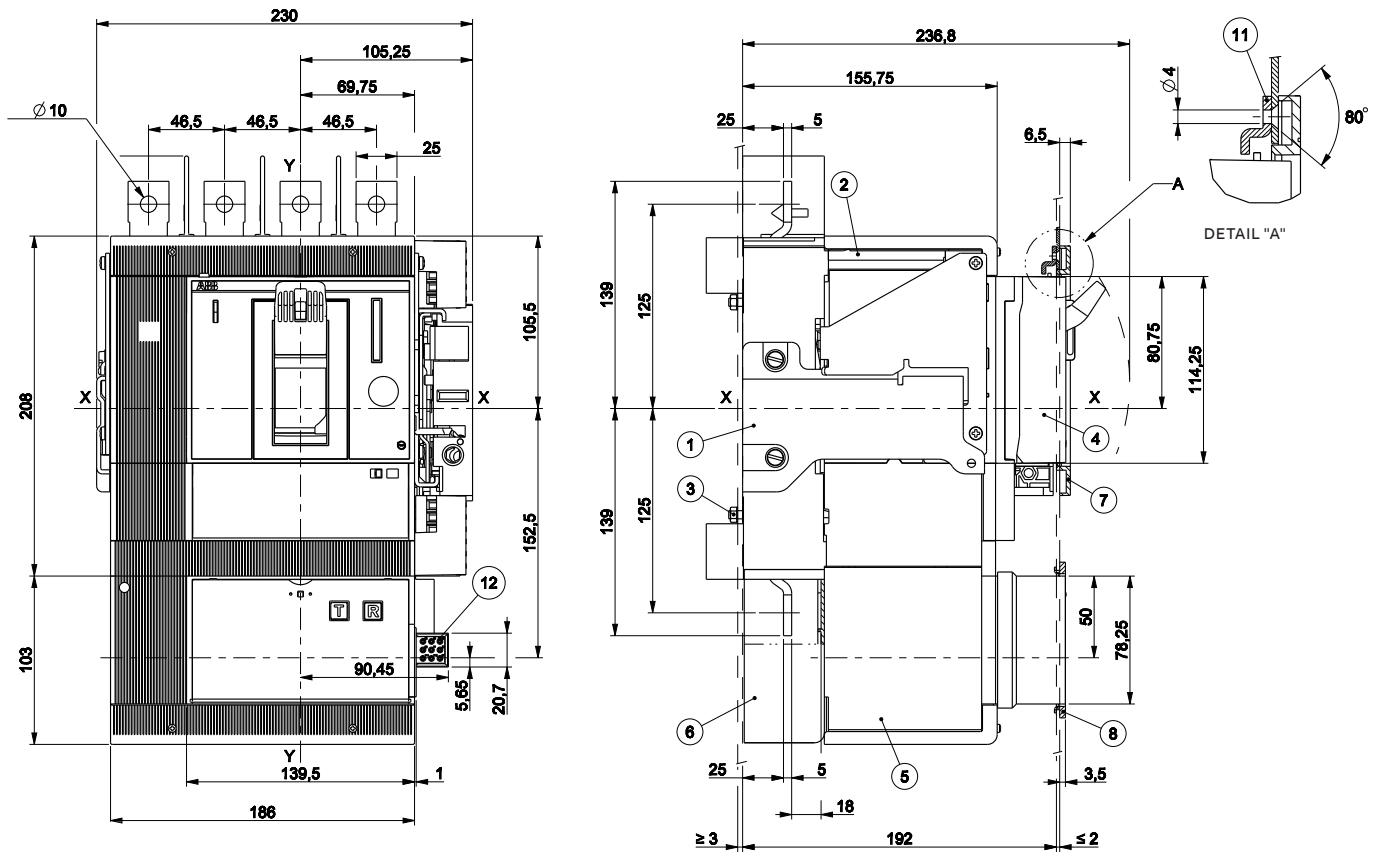
Terminals VR



Key

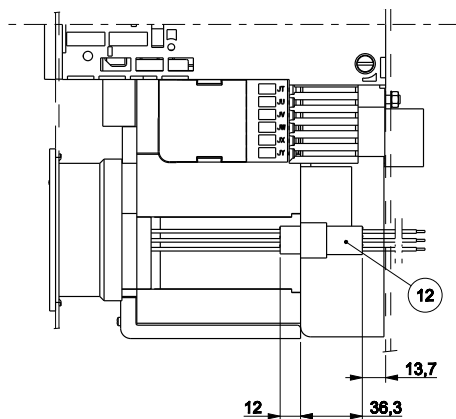
- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Front for lever operating mechanism (FLD)
- 6 Flange without gasket for compartment door
- 10 Terminals for connection
- 11 Rear insulating barriers (optional except same length terminals)

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



Key

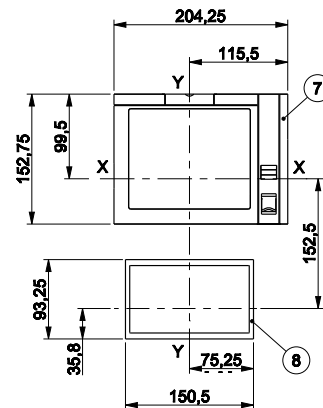
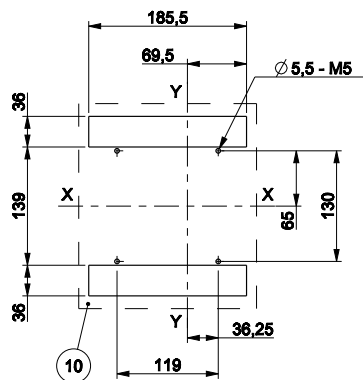
- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Front for operating lever mechanism
- 5 Residual current release
- 6 Terminal cover for residual current release
- 7 Flange for the compartment door
- 8 Flange for residual current release
- 11 Door lock plate
- 12 Plug and socket adapter for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



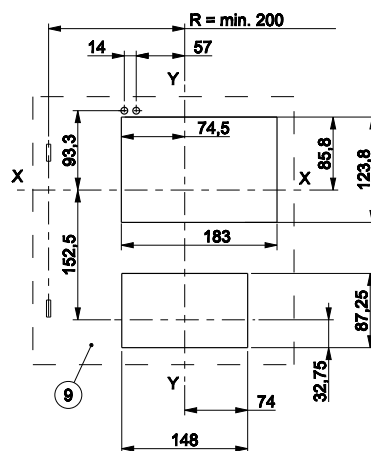
Tmax XT5 – Installation

Terminals for withdrawable circuit-breaker 400A

Drilling template for support sheet Flange



Drilling template compartment door



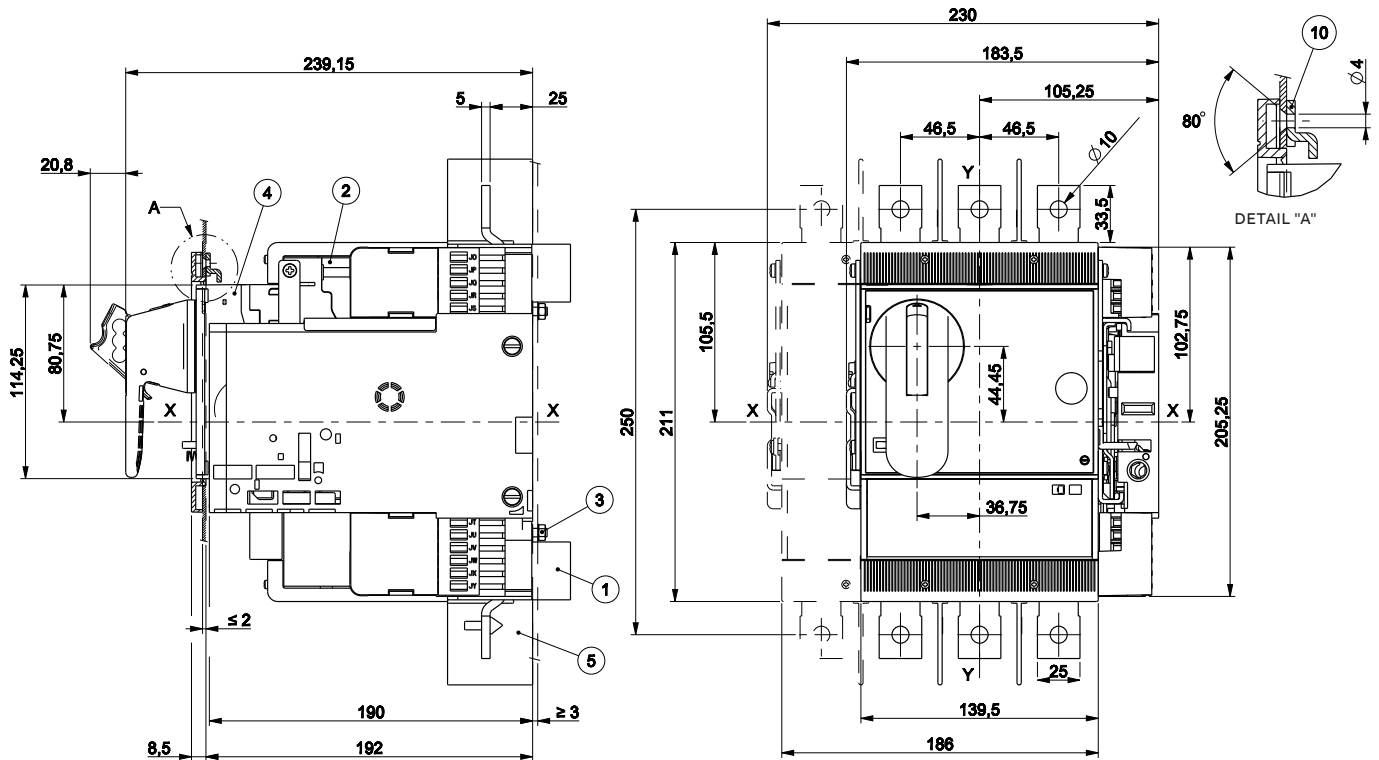
Key

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

Tmax XT5 – Installation

Accessories for withdrawable circuit-breaker 400A

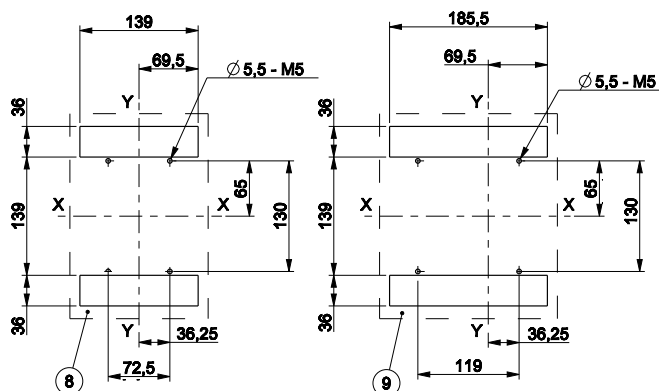
Rotary handle operating mechanism on the circuit-breaker (RHD)



Drilling templates for support sheet

Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Rotary handle operating mechanism (RHD)
- 5 Phase separators 100mm
- 8 Drilling template 3p
- 9 Drilling template 4p
- 10 Door lock

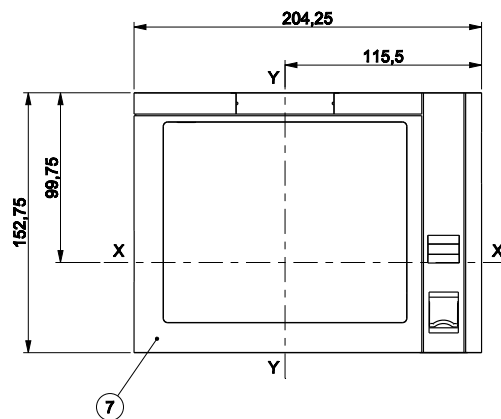


Tmax XT5 – Installation

Accessories for withdrawable circuit-breaker 400A

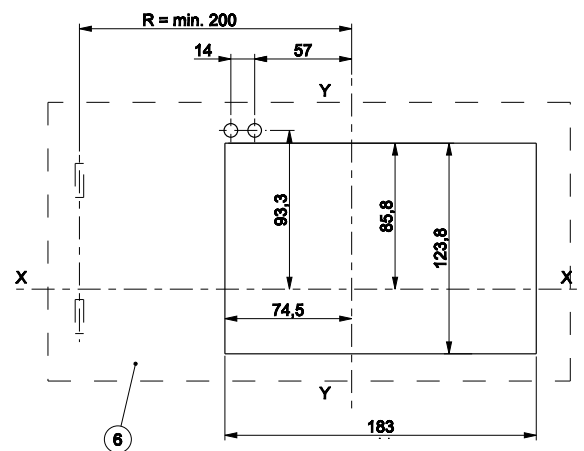
Flange

- Key
7 Flange without
gasket for the
compartment door

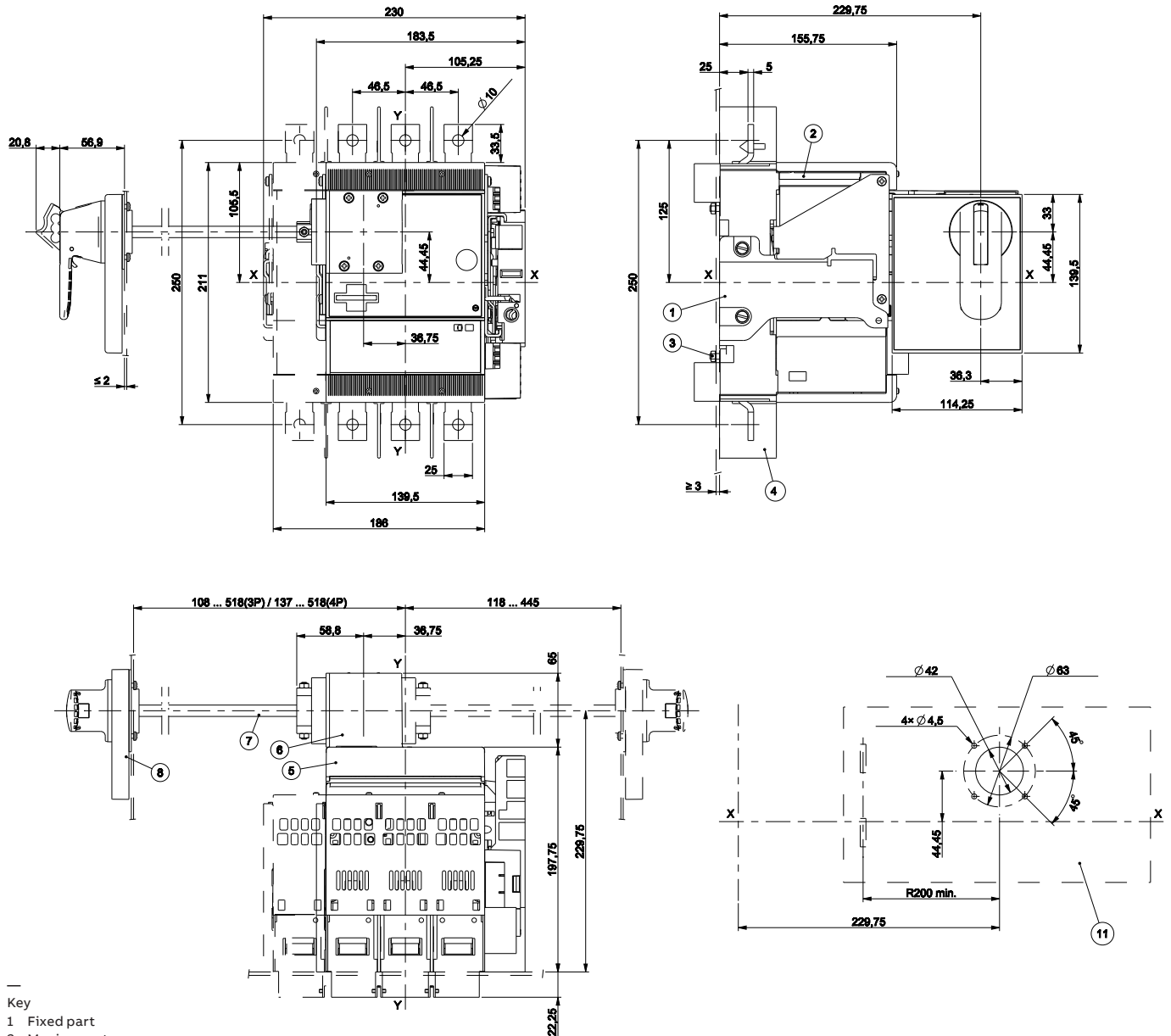


Drilling template compartment door

- Key
6 Compartment door
drilling template
with flange



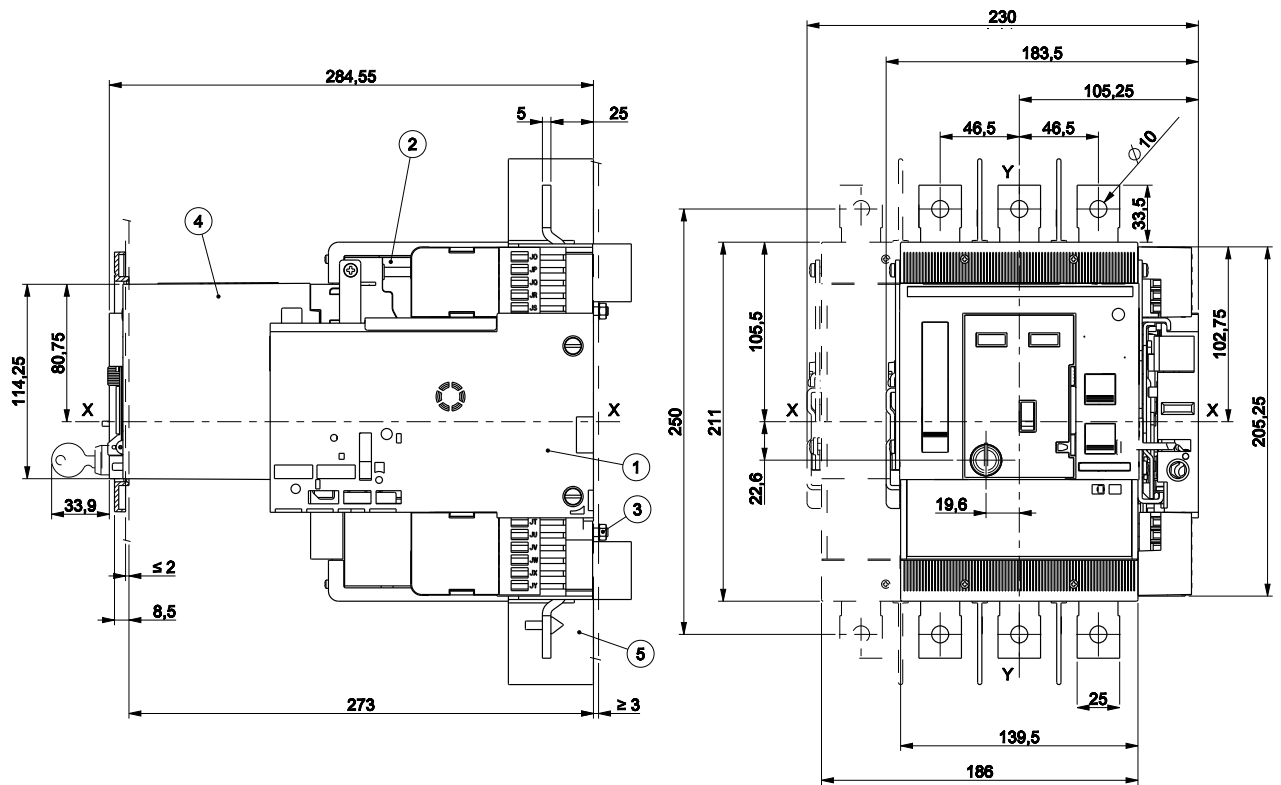
Lateral rotary handle operating mechanism on the compartment door (RHL)



Tmax XT5 – Installation

Accessories for withdrawable circuit-breaker 400A

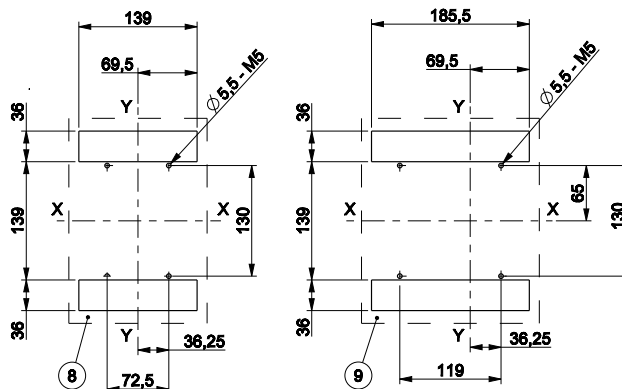
Stored energy motor operator (MOE)



Drilling templates for support sheet

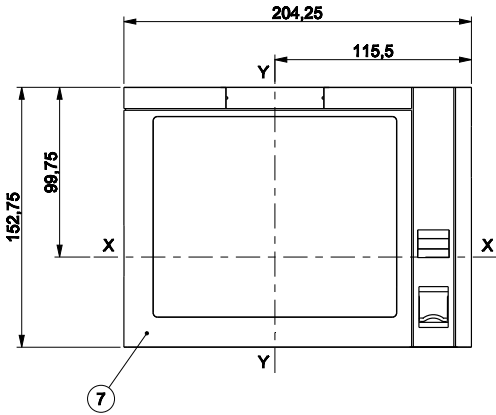
Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Stored energy motor operator (MOE)
- 5 Phase separators 100mm
- 8 Drilling template 3p
- 9 Drilling template 4p



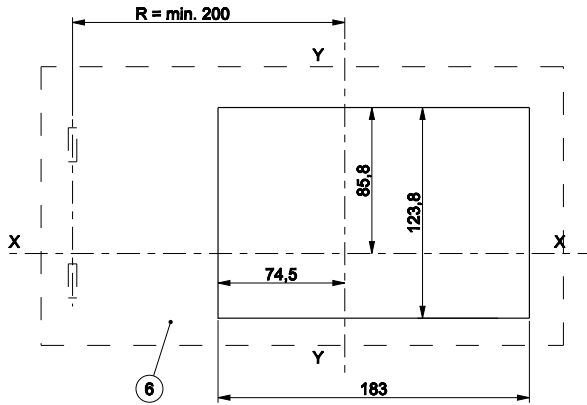
Flange

- Key
7 Flange without
gasket for the
compartment door



Drilling template compartment door

- Key
6 Compartment door
drilling template
with flange



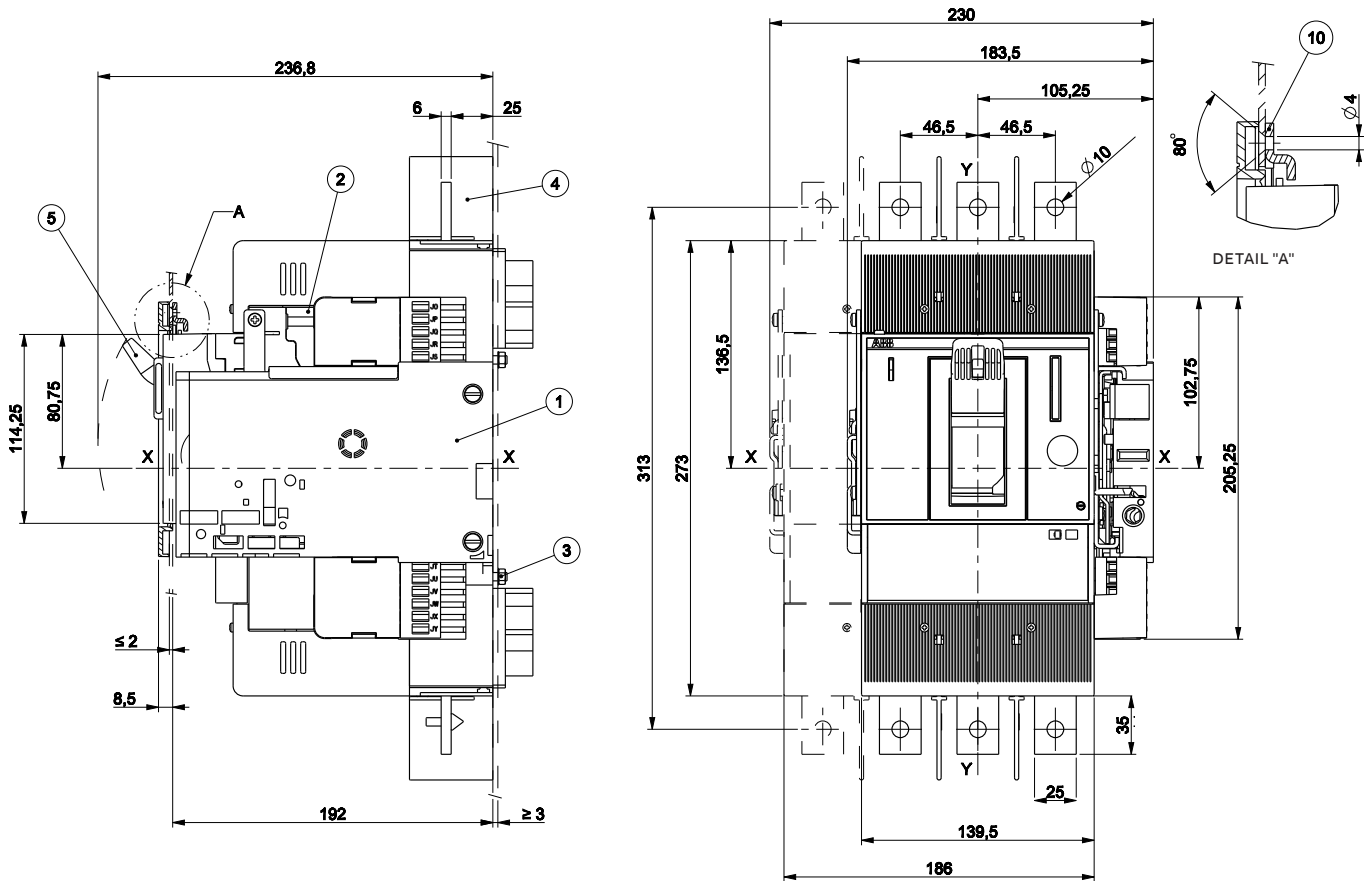
Accessories for withdrawable circuit-breaker 400A

[illegible]

Tmax XT5 – Installation

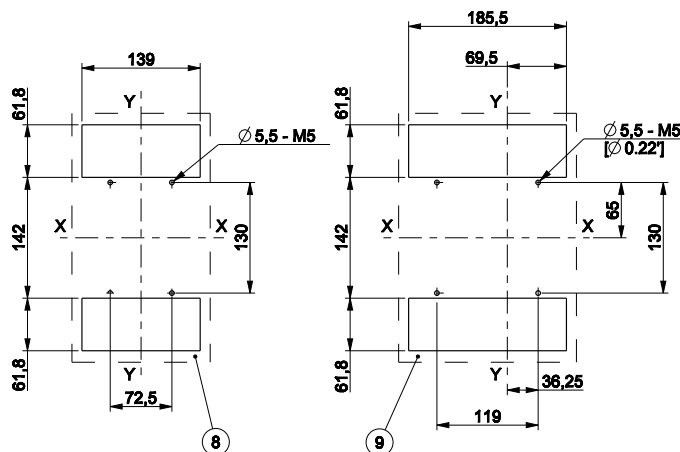
Installation for withdrawable circuit-breaker 630A

Fixing on sheet



Drilling templates for support sheet

- Key
- 1 Fixed part
 - 2 Moving part
 - 3 Tightening torque 2Nm
 - 4 Phase separators 100mm
 - 5 Front for lever operating mechanism
 - 8 Drilling template 3p
 - 9 Drilling template 4p
 - 10 Door lock

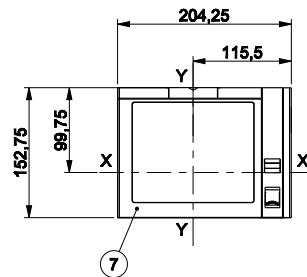


Tmax XT5 – Installation

Installation for withdrawable circuit-breaker 630A

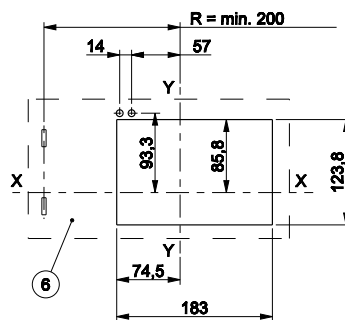
Flange

- Key
7 Flange without
gasket for the
compartment door



Drilling template compartment door

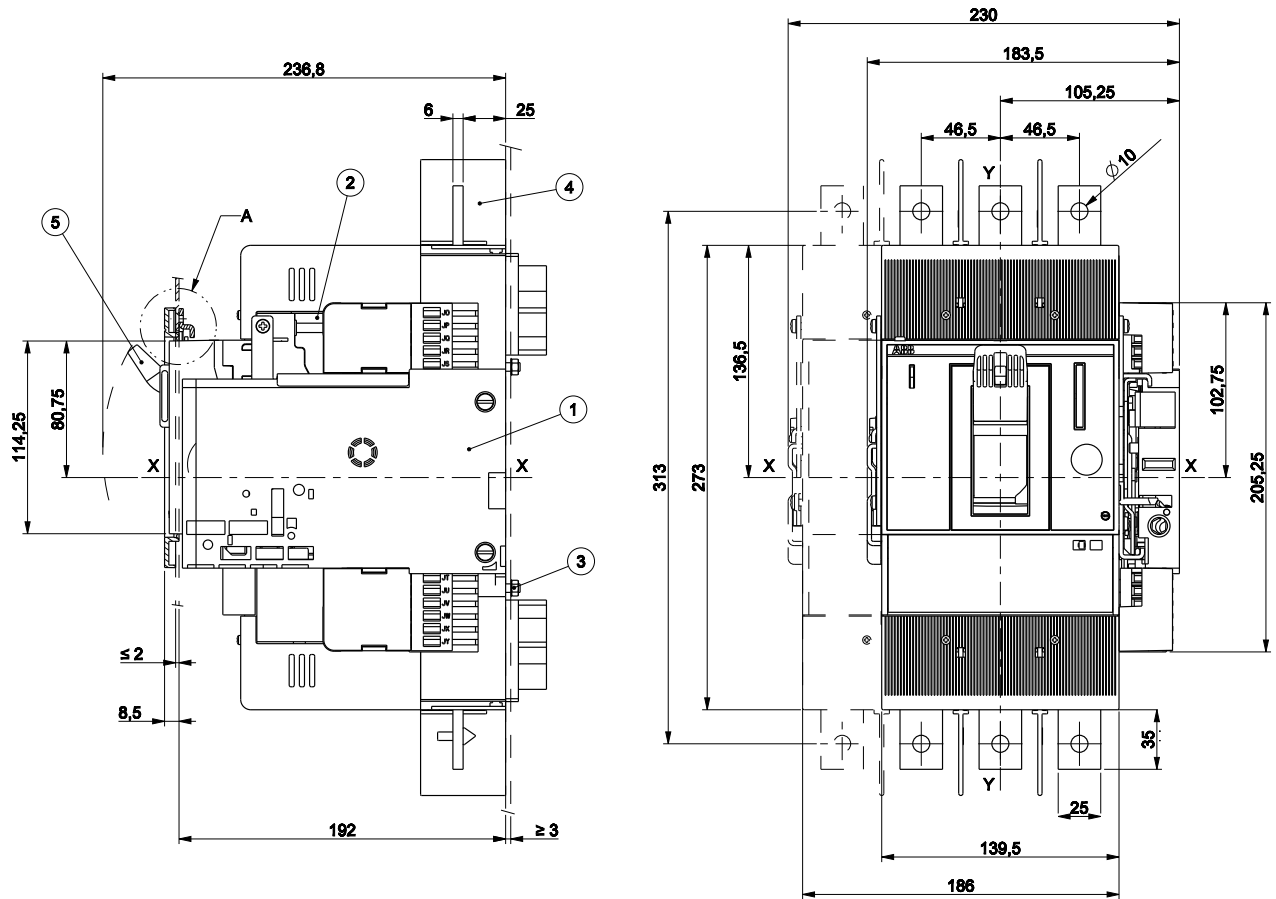
- Key
6 Compartment door
drilling template
with flange



Tmax XT5 – Installation

Terminals for withdrawable circuit-breaker 630A

Terminals EF



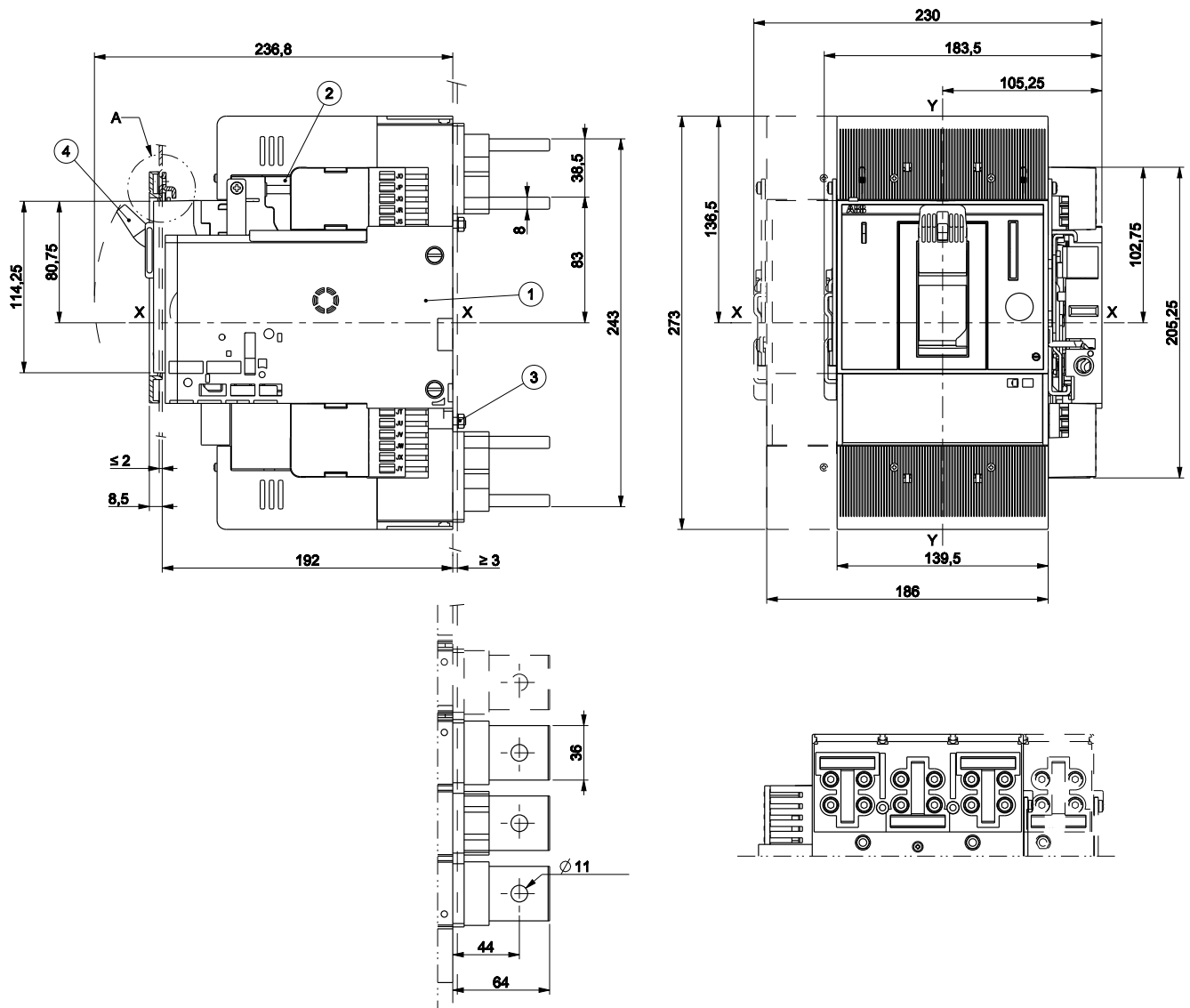
Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Phase separators 100mm
- 5 Front for lever operating mechanism

Tmax XT5 – Installation

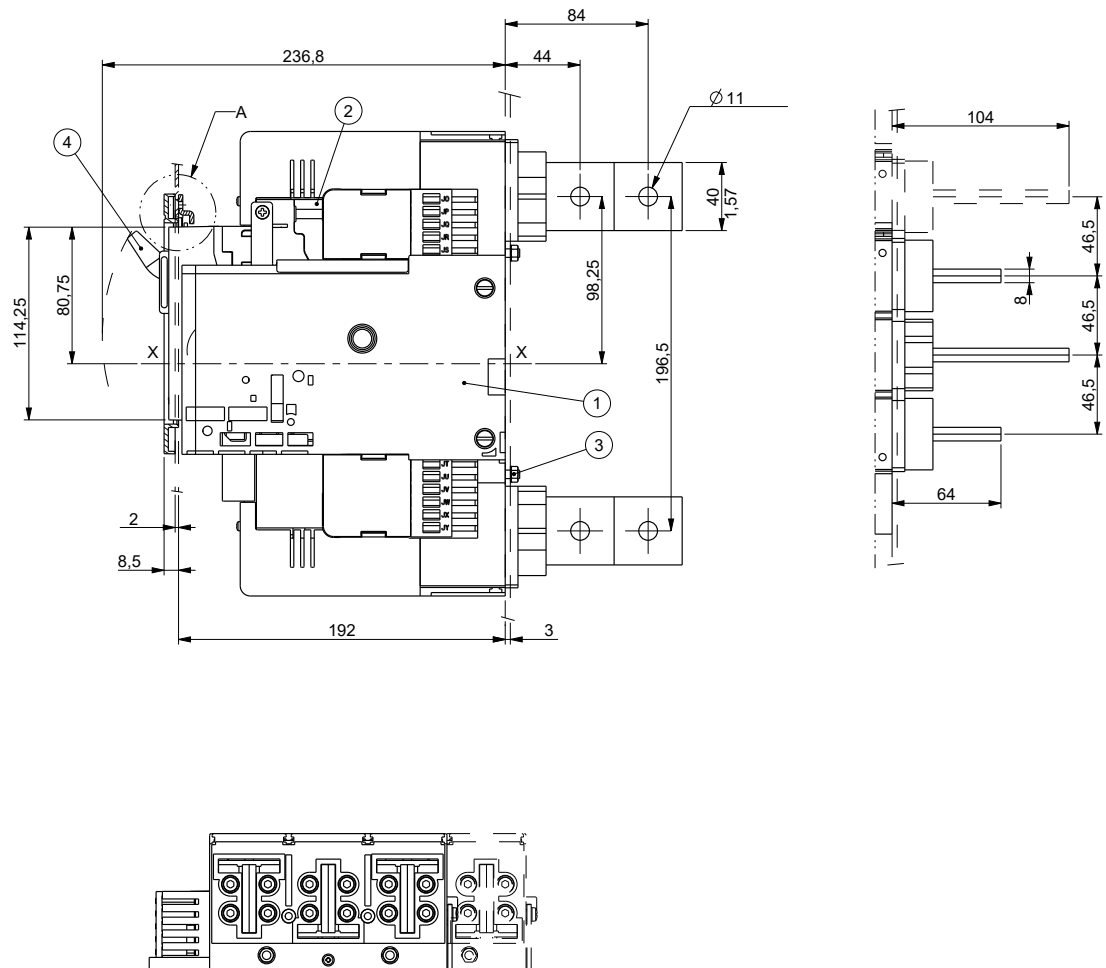
Terminals for withdrawable circuit-breaker 630A

Terminals HR



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

Terminals VR



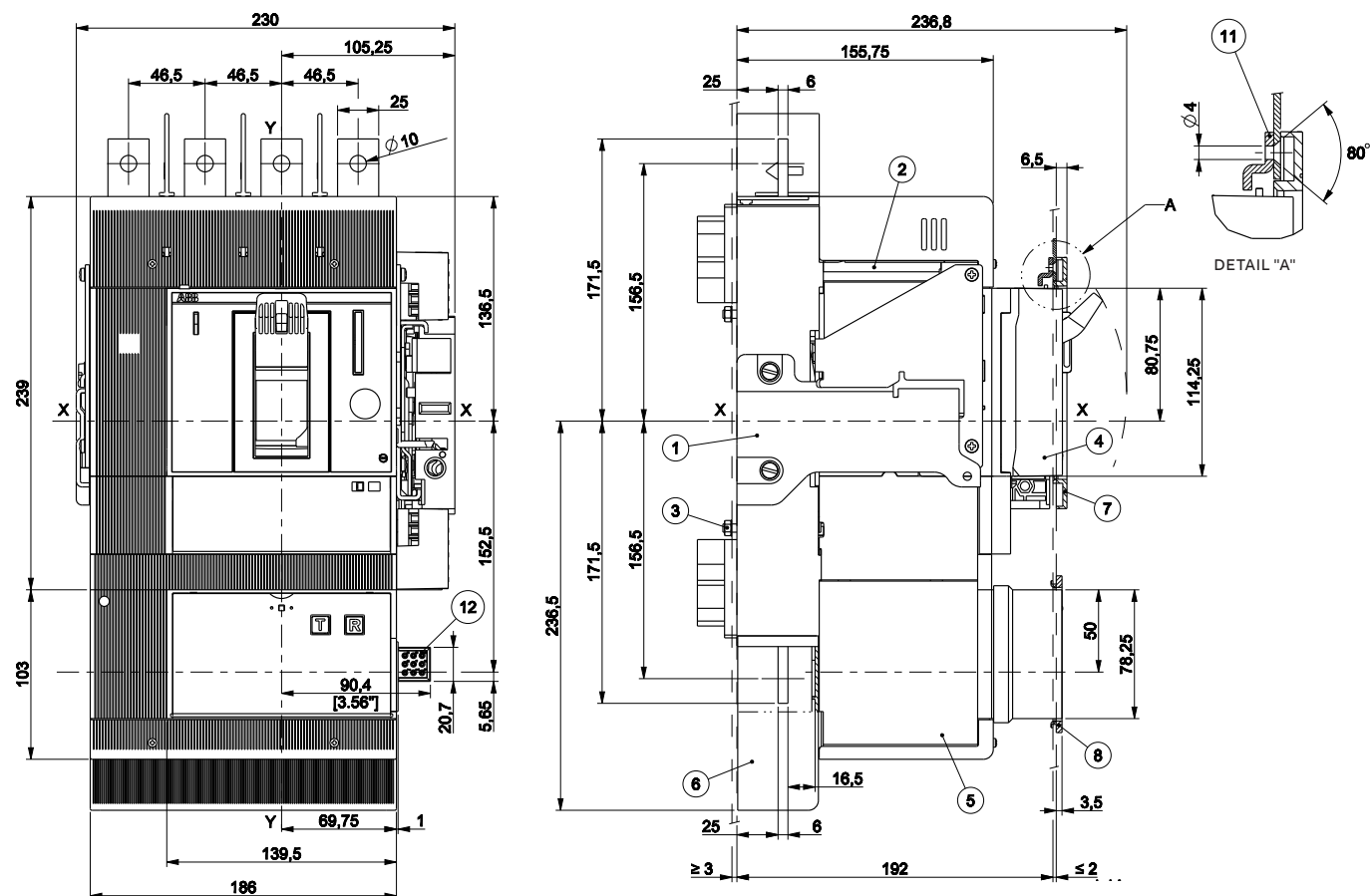
Key

- 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

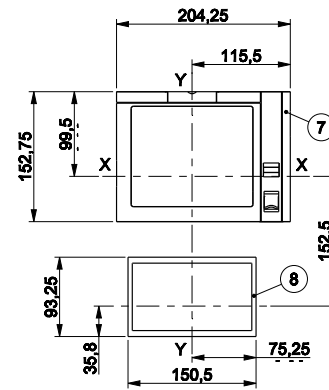
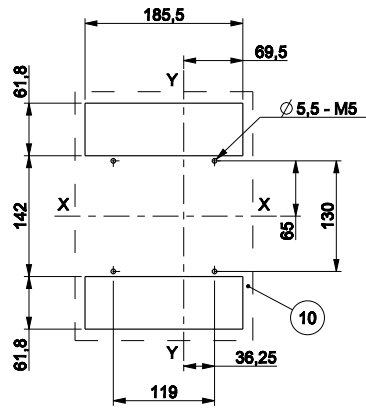
Residual current (RC) and Front for lever operating mechanism (FLD)



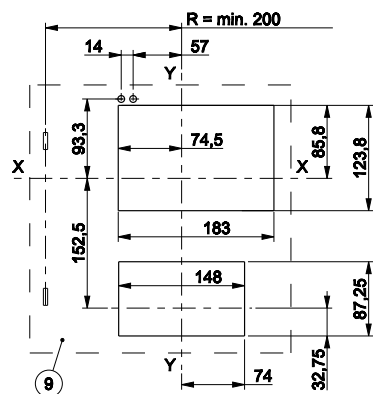
Key

- 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 Plug and socket adapter for residual current release

Drilling template for support sheet Flange



Drilling template compartment door



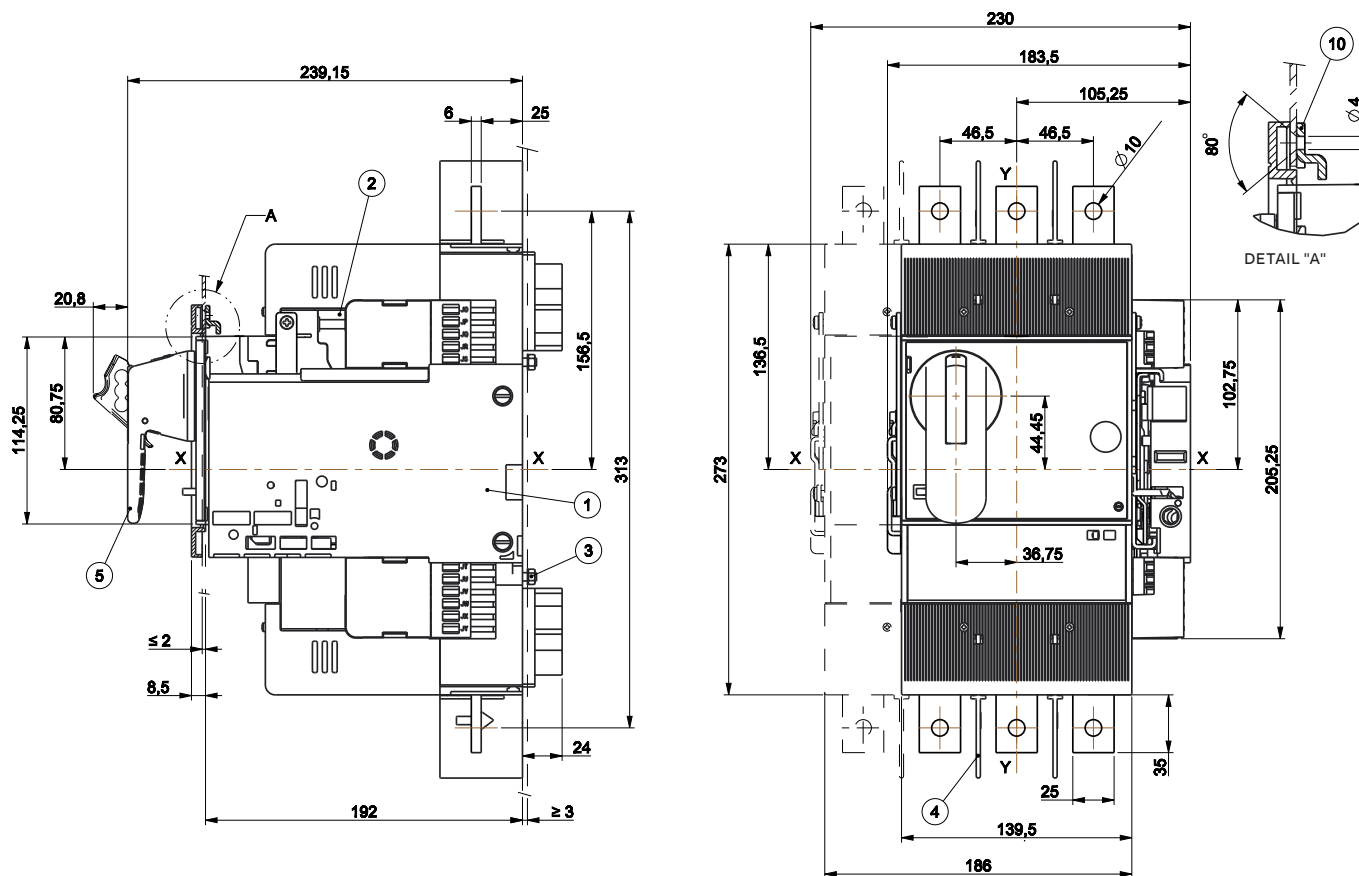
Key

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

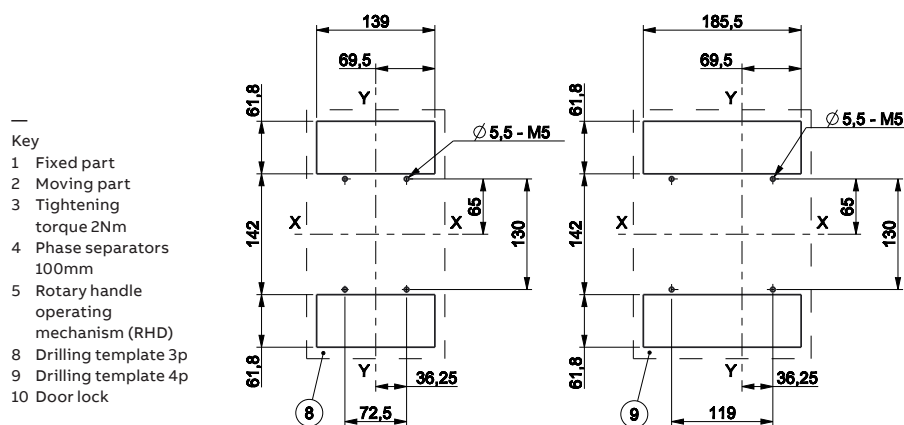
Tmax XT5 – Installation

Accessories for withdrawable circuit-breaker 630A

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

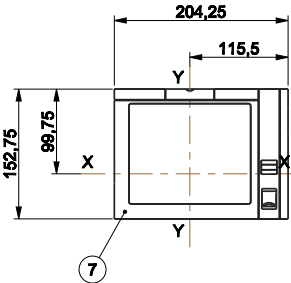


Drilling templates for support sheet



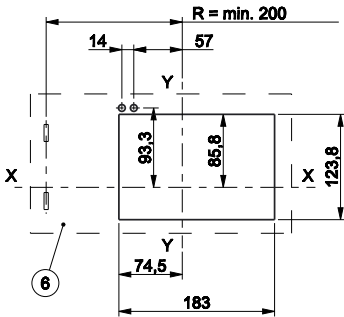
Flange

- Key
7 Flange without gasket for the compartment door



Drilling template compartment door

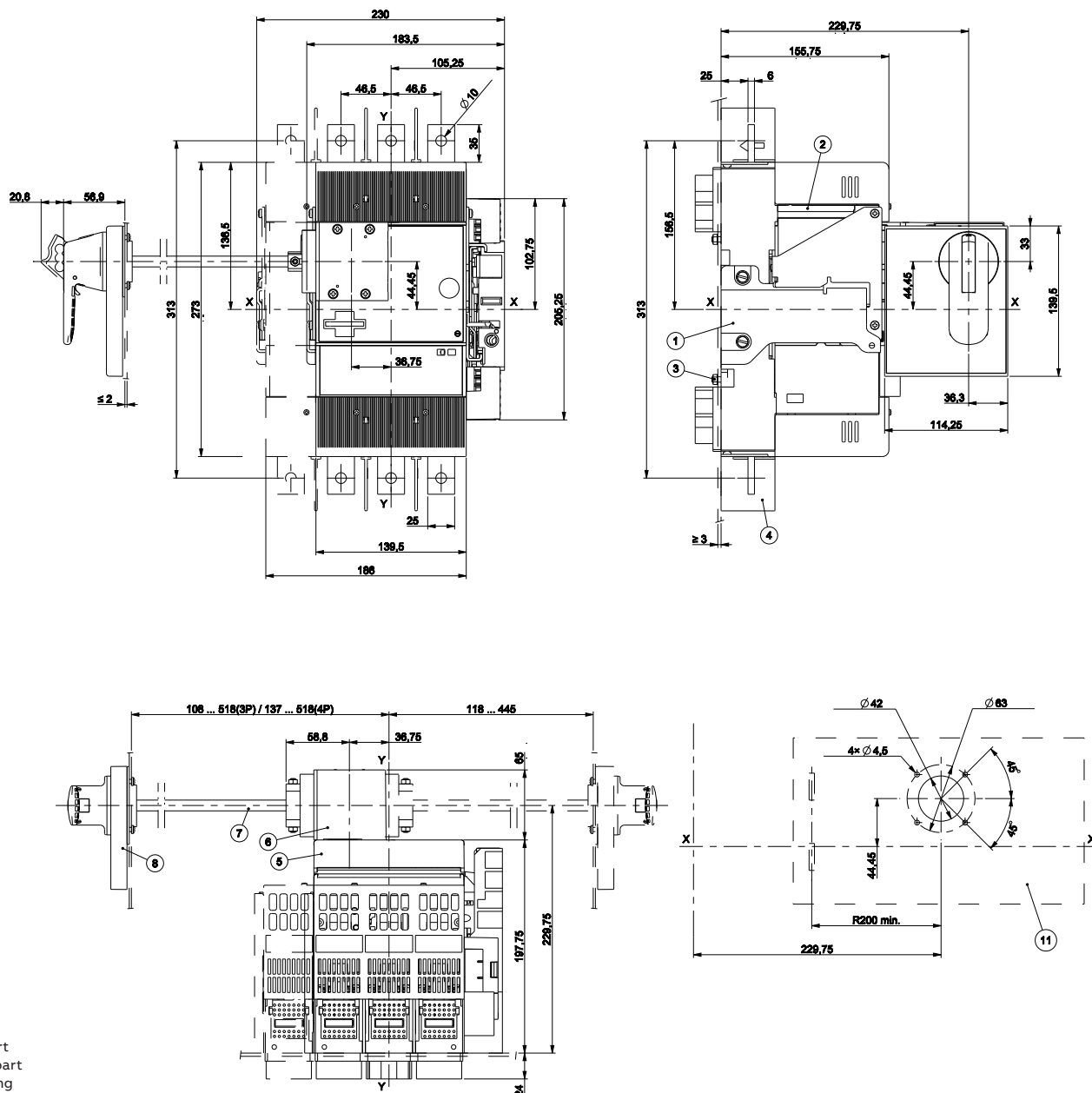
- Key
6 Compartment door drilling template with flange



Tmax XT5 – Installation

Accessories for withdrawable circuit-breaker 630A

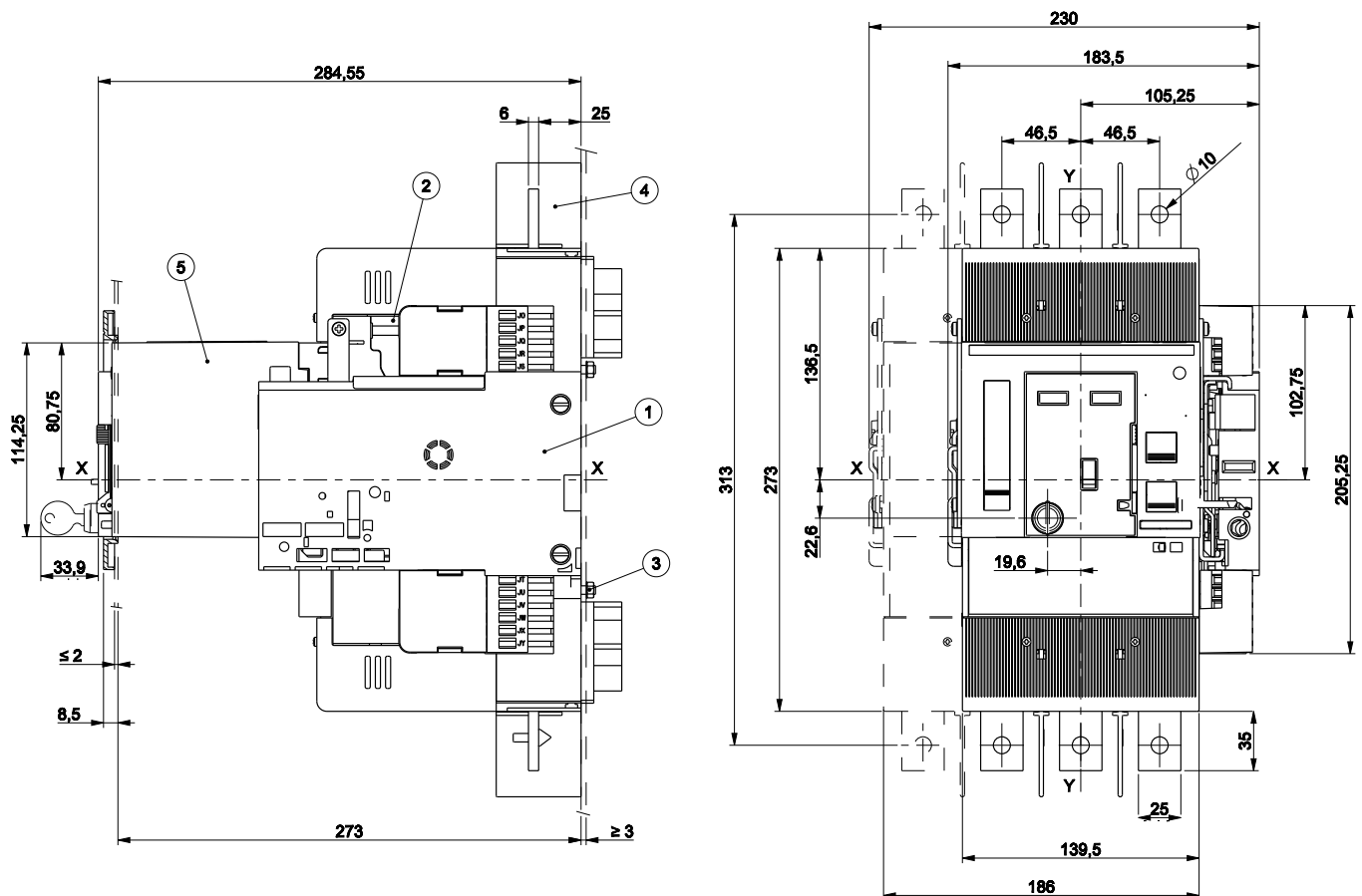
Lateral rotary handle operating mechanism on the compartment door (RHL)



Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Phase separators 100mm
- 5 Base of rotary handle operating mechanism
- 6 Lateral handle
- 7 500mm Connection rod
- 8 Rotary handle on compartment door
- 11 Compartment door drilling template

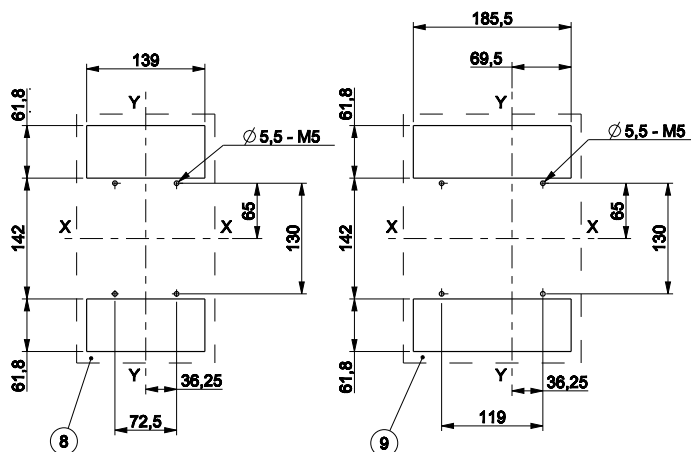
Stored energy motor operator (MOE)



Drilling templates for support sheet

Key

- 1 Fixed part
- 2 Moving part
- 3 Tightening torque 2Nm
- 4 Phase separators 100mm
- 5 Stored energy motor operator (MOE)
- 8 Drilling template 3p
- 9 Drilling template 4p

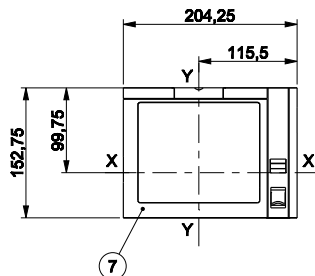


Tmax XT5 – Installation

Accessories for withdrawable circuit-breaker 630A

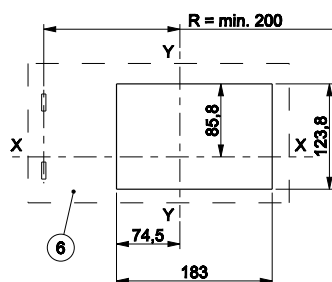
Flange

- Key
7 Flange without
gasket for the
compartment door

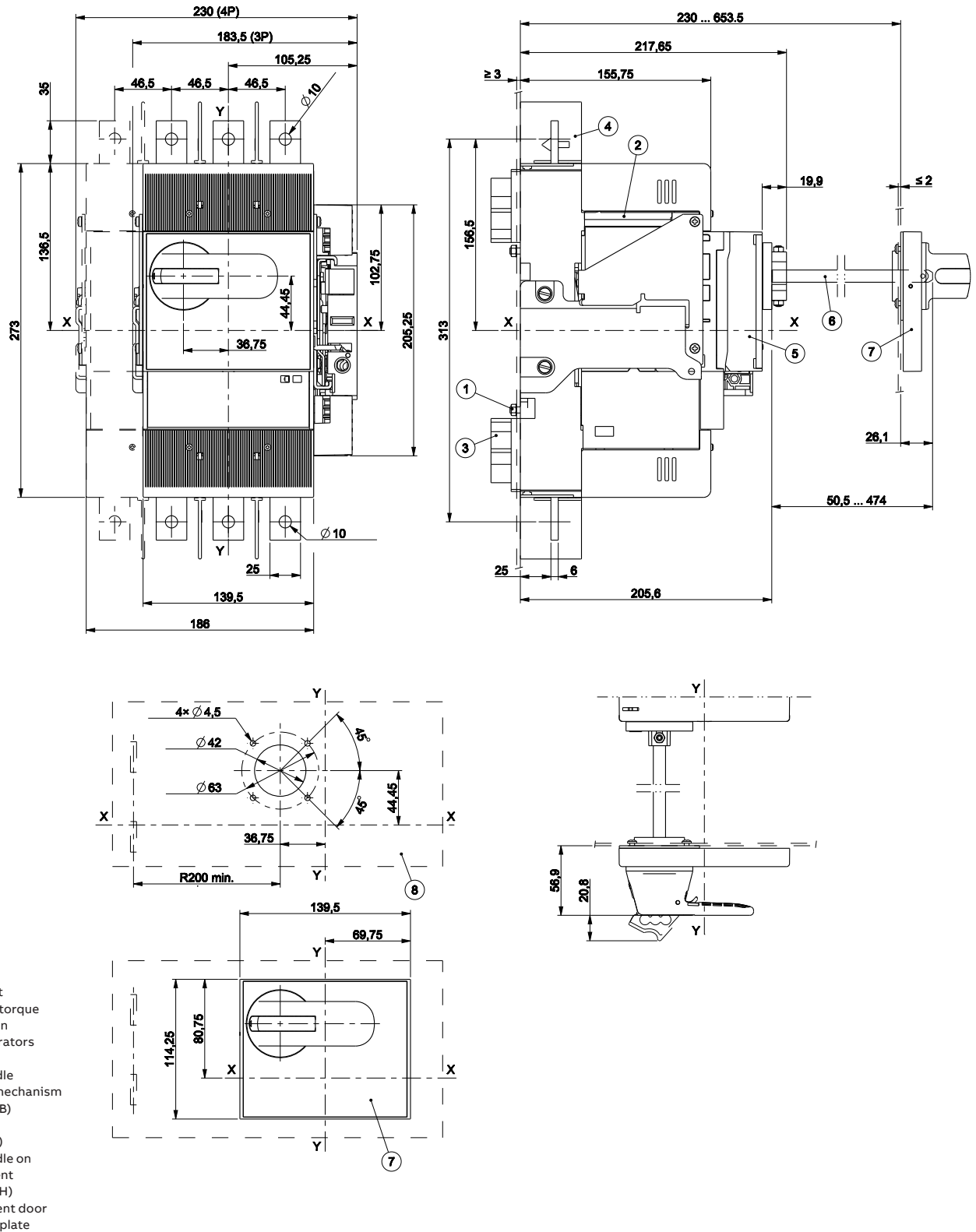


Drilling template compartment door

- Key
6 Compartment door
drilling template
with flange



Rotary handle operating mechanism on the compartment door (RHE)

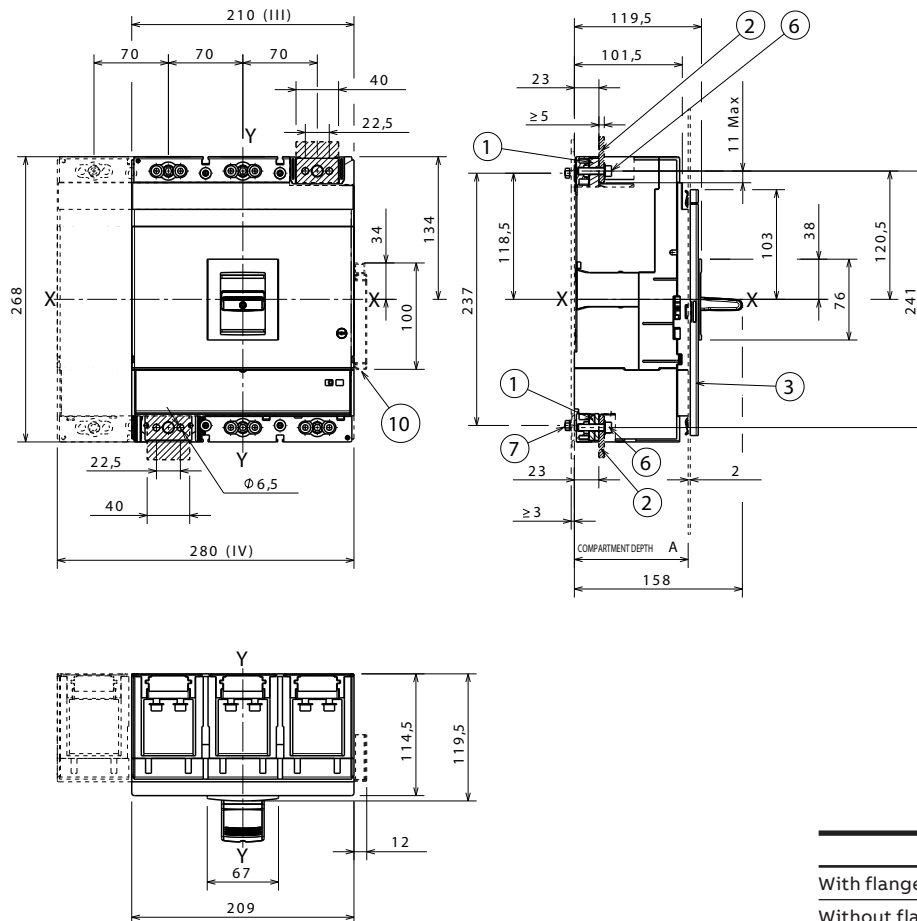


Tmax XT6 – Installation

Installation for fixed circuit-breaker

Fixing on sheet

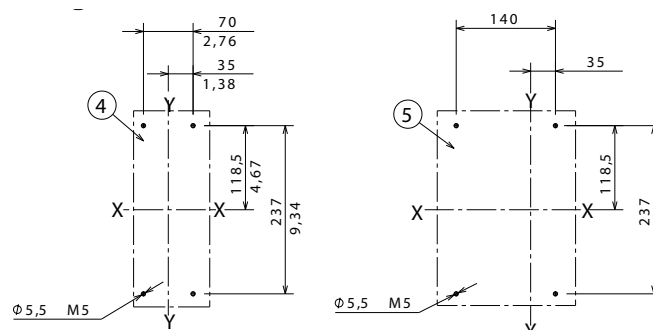
- Key
- 1 Front terminals for flat connection
 - 2 Busbar
 - 6 Tightening torque 9Nm
 - 7 Tightening torque 2Nm
 - 10 Cable rack



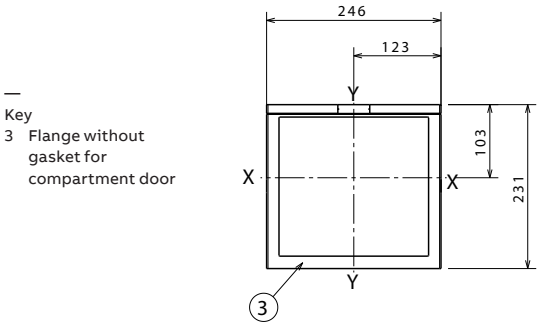
A [mm]		
With flange	3p - 4p	108
Without flange	3p - 4p	103.5

Drilling templates for support sheet

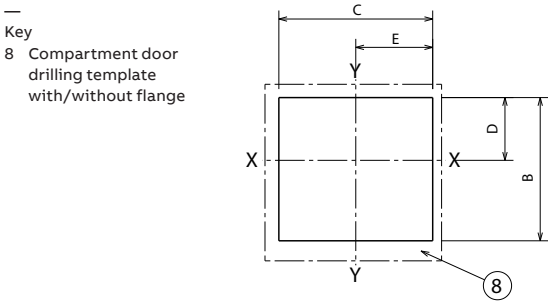
- Key
- 4 Drilling template 3p
 - 5 Drilling template 4p



Flange



Drilling template compartment door

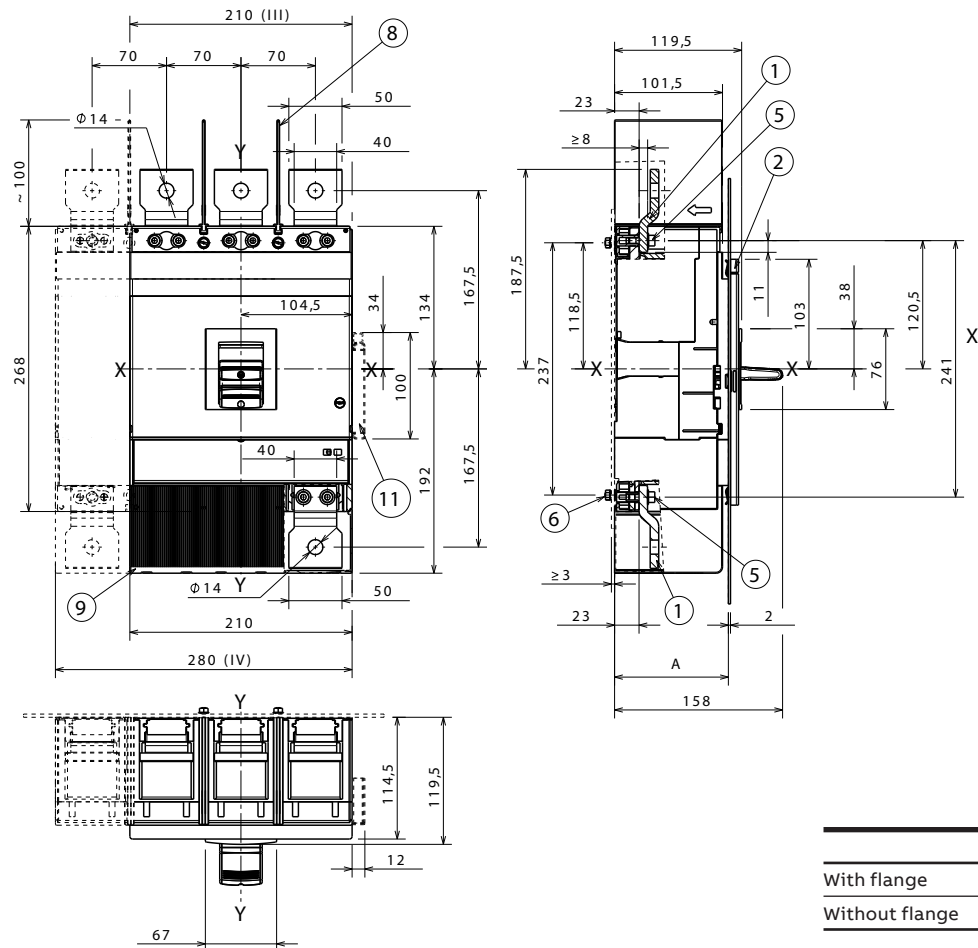


		A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
With flange	3p - 4p	108	202	217	88.5	108.5
Without flange	3p - 4p	103.5	197	212	86	106

Tmax XT6 – Installation

Terminals for fixed circuit-breaker

Terminals EF



A [mm]		
With flange	3p - 4p	108
Without flange	3p - 4p	103.5

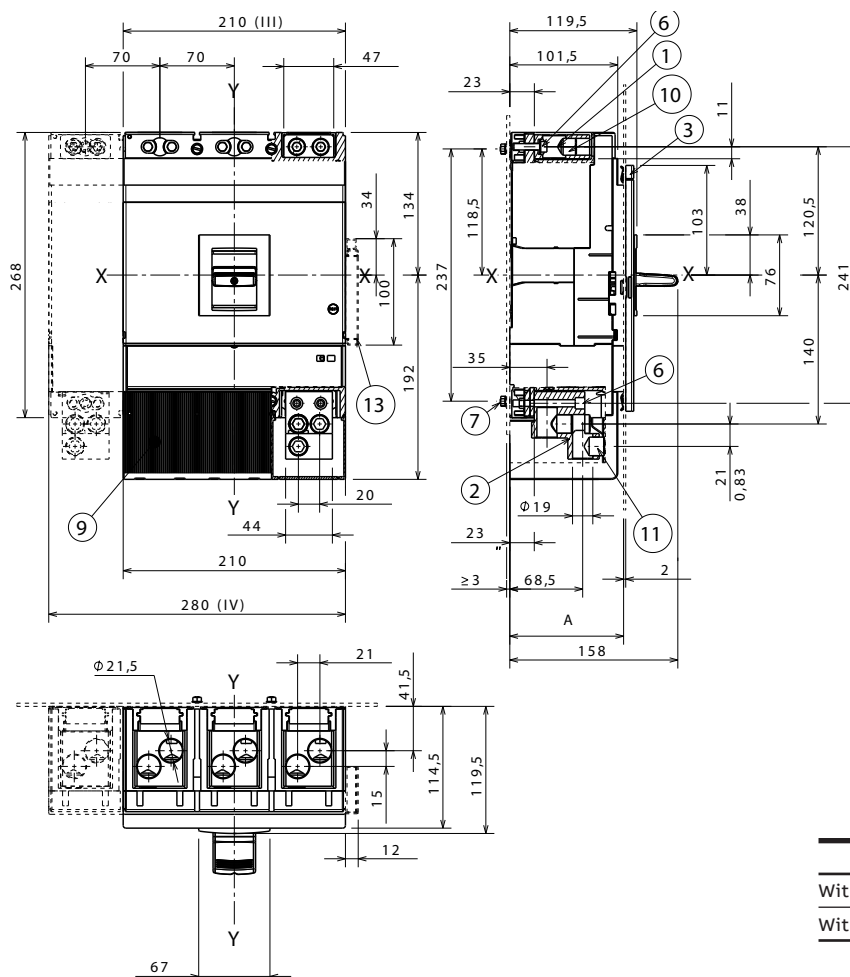
Key

- 1 Extended front terminals
- 5 Tightening torque 9Nm
- 6 Tightening torque 2Nm
- 8 Phase separators 100mm
- 9 High terminal cover with IP40 protection degree
- 11 Cable rack

Tmax XT6 – Installation

Terminals for fixed circuit-breaker

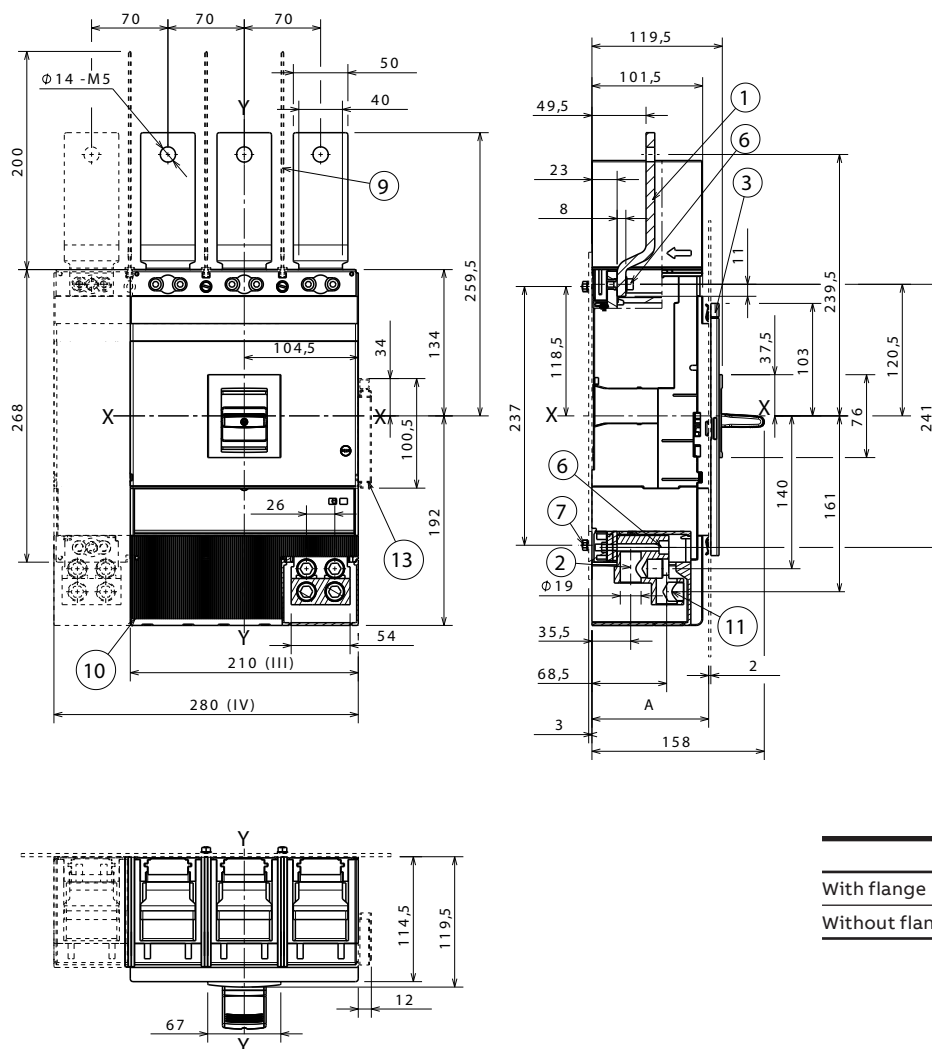
2 x 120...240mm² and 3 x 70...185mm² terminals FC CuAl



A [mm]		
With flange	3p - 4p	108
Without flange	3p - 4p	103.5

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 Cable rack

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

A [mm]		
With flange	3p - 4p	108
Without flange	3p - 4p	103.5

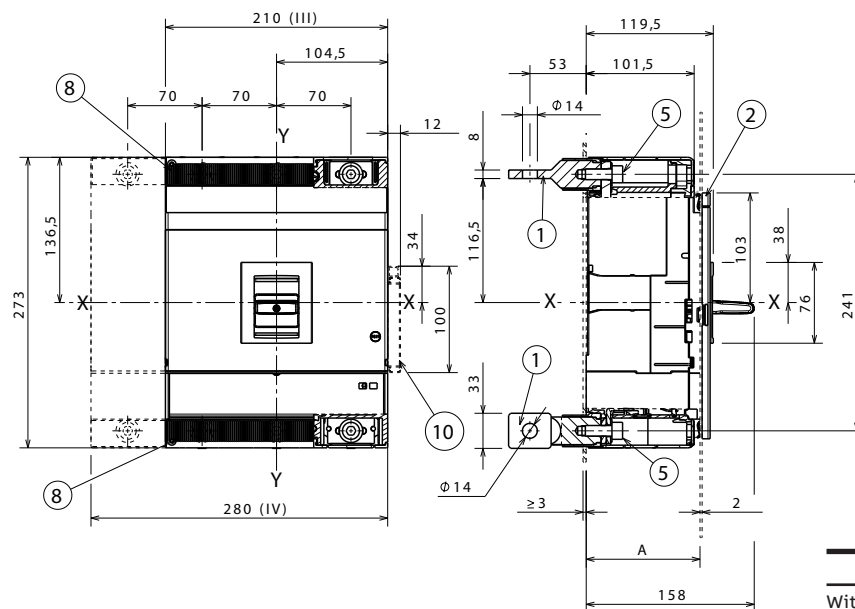
Key

- 1 Extended front terminals
- 2 Terminal FCCuAl 1000A
- 6 Tightening torque 9Nm
- 7 Tightening torque 2Nm
- 9 Phase separator 200mm
- 10 High terminal cover with IP40 protection degree
- 11 Tightening torque 43Nm
- 13 Cable rack

Tmax XT6 – Installation

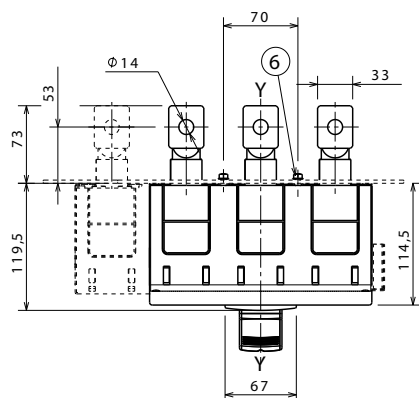
Terminals for fixed circuit-breaker

Terminals R



A [mm]		
With flange	3p - 4p	108
Without flange	3p - 4p	103.5

Terminals HR upper



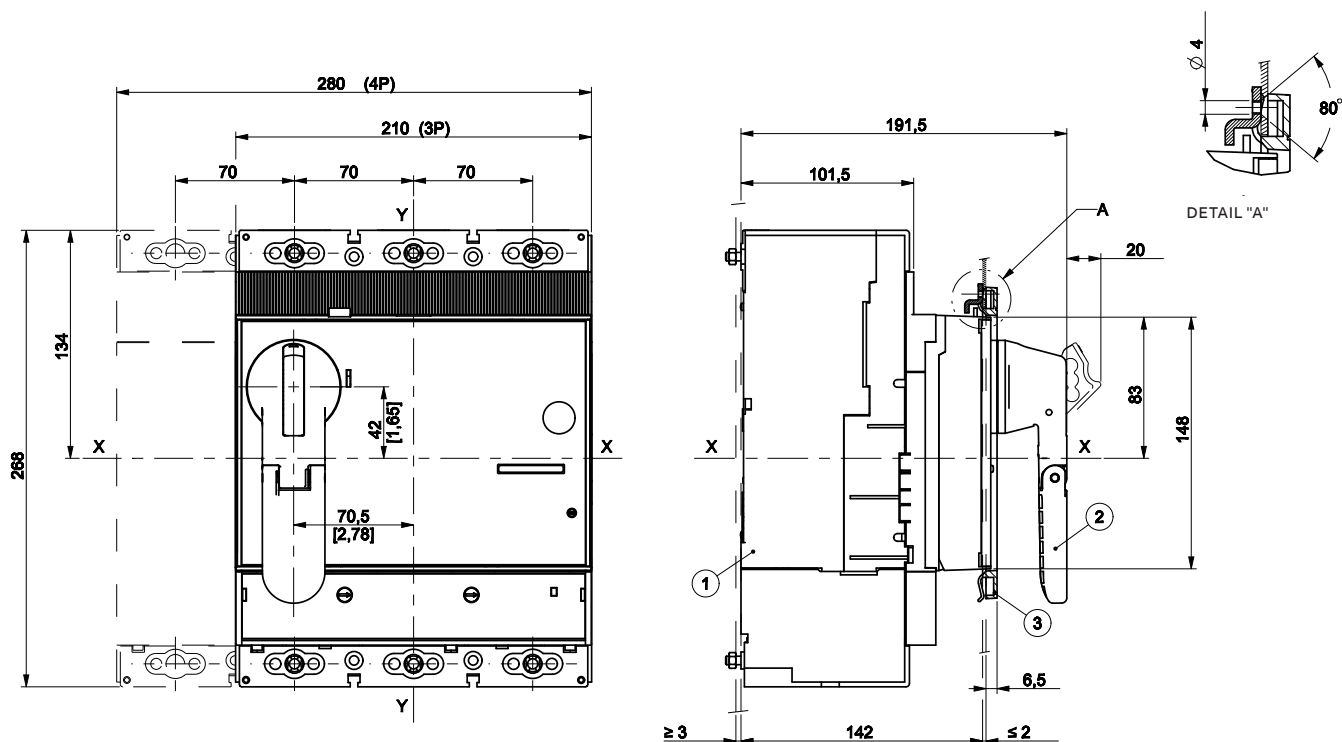
Key

- 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 Cable rack

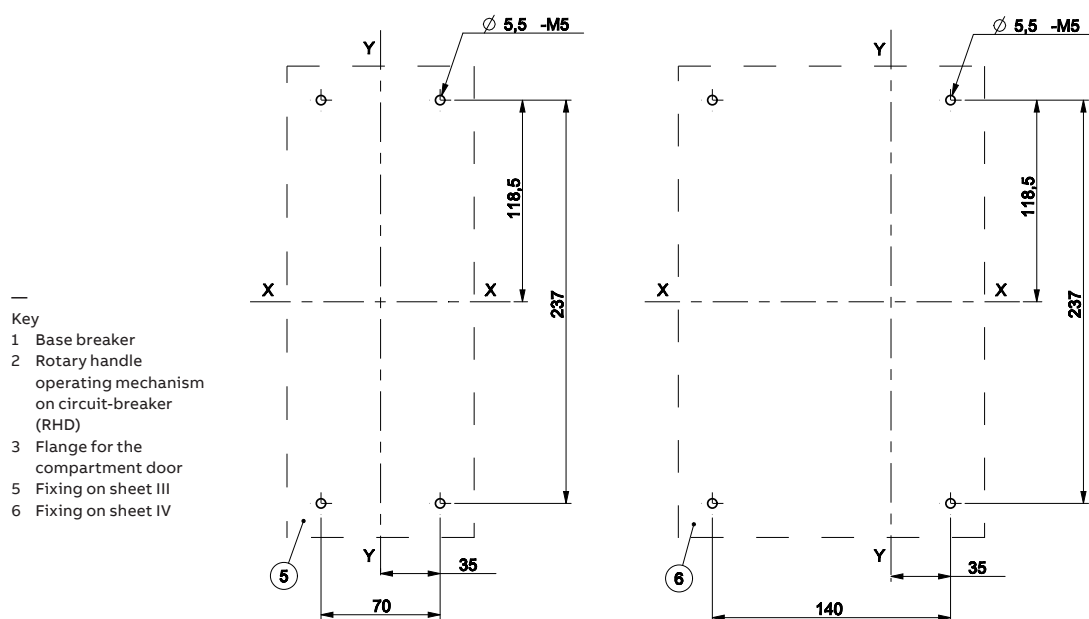
Tmax XT6 – Installation

Accessories for fixed circuit-breaker

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

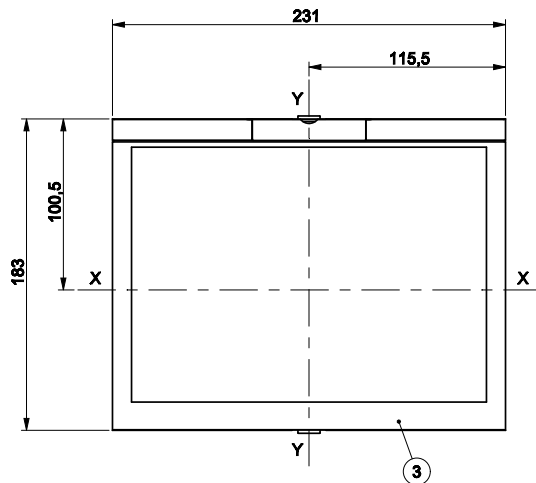


Drilling templates for support sheet



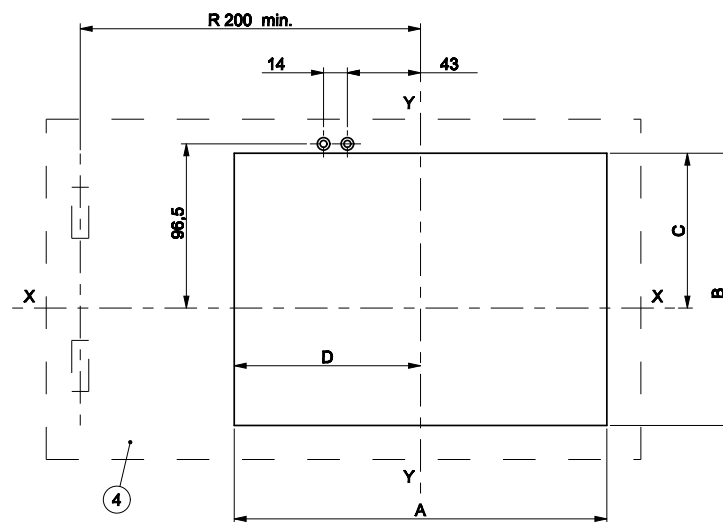
Flange

- Key
3 Flange for the
compartment door



Drilling template compartment door

- Key
4 Compartment door
drilling template with/
without flange

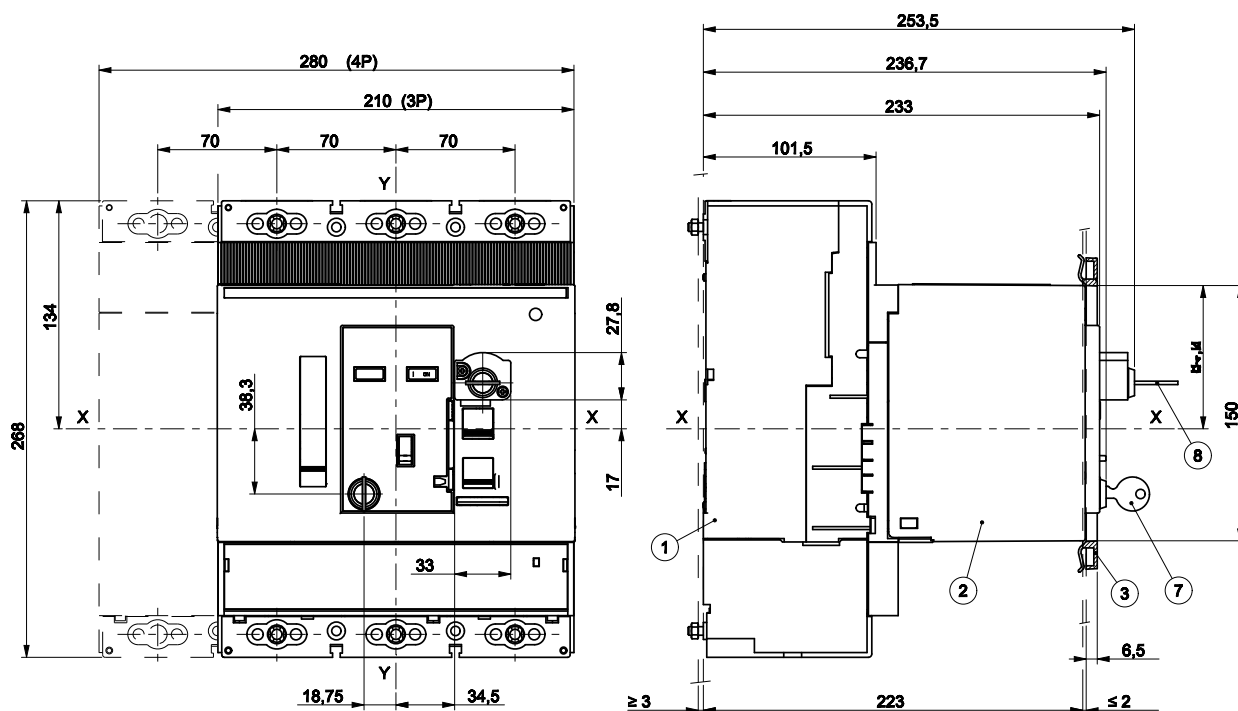


	A [mm]	B [mm]	C [mm]	D [mm]
With flange 3p - 4p 219	160	89	109.5	
Without flange 3p - 4p 209	149.8	83.9	104.5	

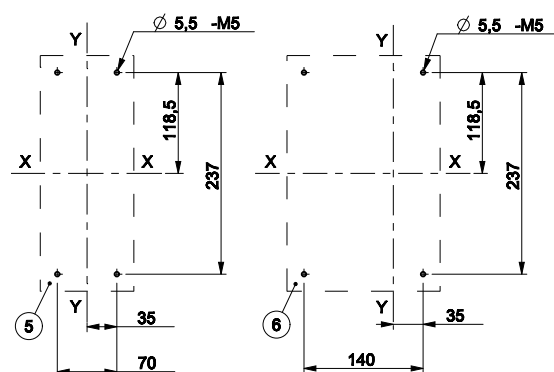
Tmax XT6 – Installation

Accessories for fixed circuit-breaker

Stored energy motor operator (MOE)



Drilling templates for support sheet

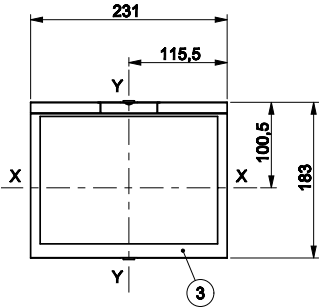


Key

- 1 Circuit-breaker
- 2 Rotary handle operating mechanism on circuit-breaker (RHD)
- 3 Flange for the compartment door
- 5 Fixing on sheet steel III
- 6 Fixing on sheet steel IV
- 7 Key lock for open position for stored energy motor operation (optional)
- 8 Key lock against manual operation for stored energy motor operator (optional)

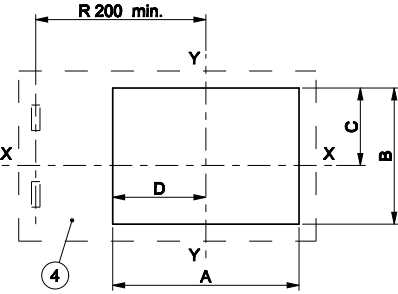
Flange

- Key
3 Flange for the compartment door



Drilling template compartment door

- Key
4 Compartment door drilling template with/without flange

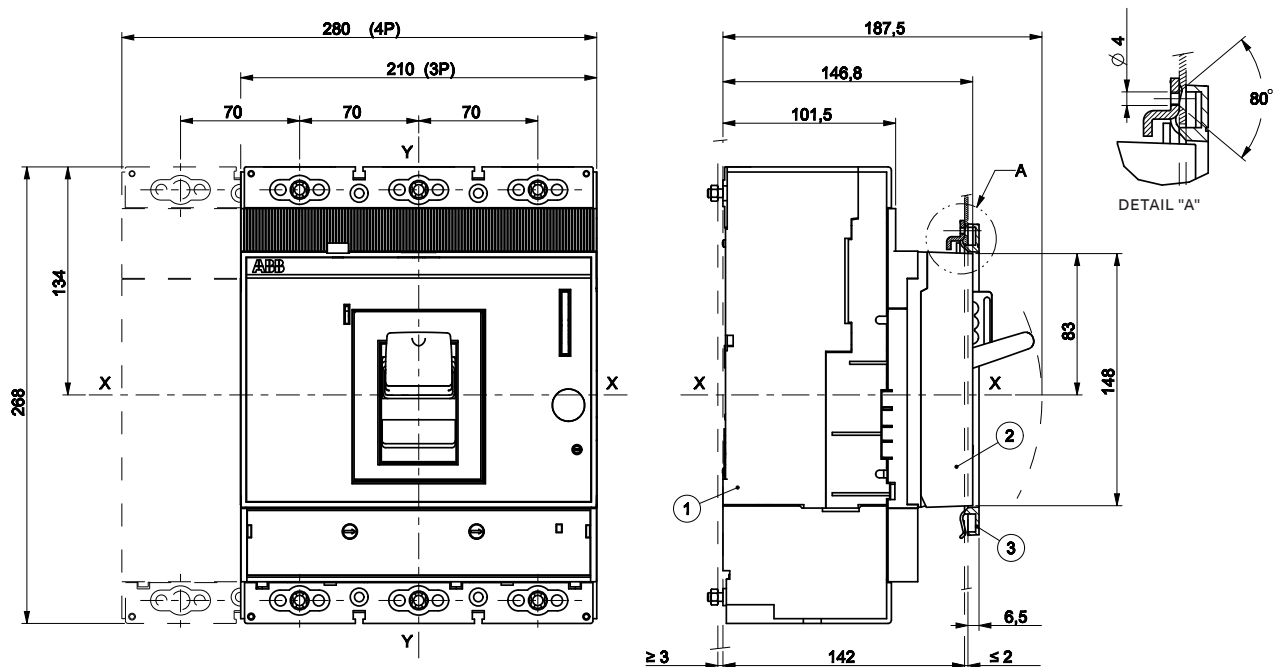


		A [mm]	B [mm]	C [mm]	D [mm]
With flange	3p - 4p	219	160	89	109.5
Without flange	3p - 4p	209	149.8	83.9	104.5

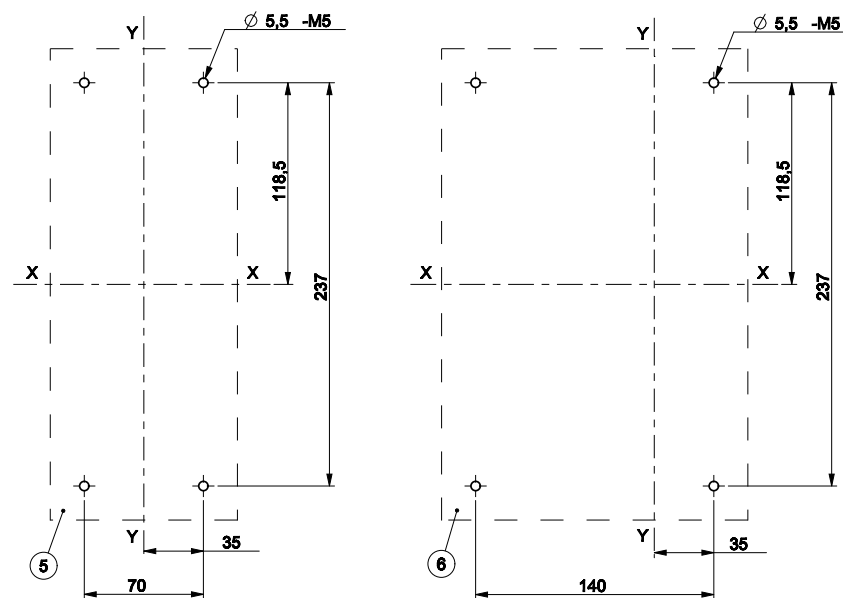
Tmax XT6 – Installation

Accessories for fixed circuit-breaker

Front for lever operating mechanism (FLD)



Drilling templates for support sheet

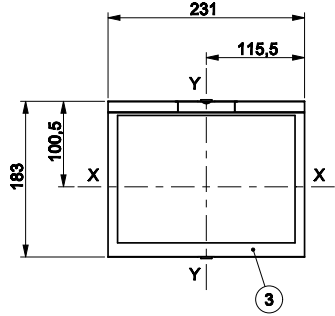


Key

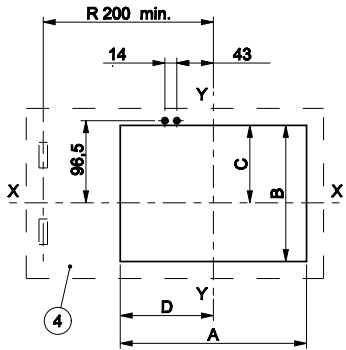
- 1 Circuit-breaker
- 2 Front for lever operating mechanism (FLD)
- 3 Flange for the compartment door
- 5 Fixing on sheet steel III
- 6 Fixing on sheet steel IV

Flange

- Key
3 Flange for the
compartment door
4 Compartment door
drilling template with
/ without flange



Drilling template compartment door

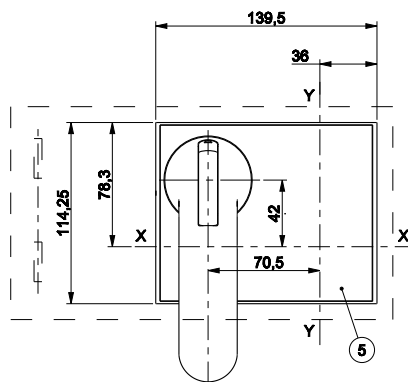
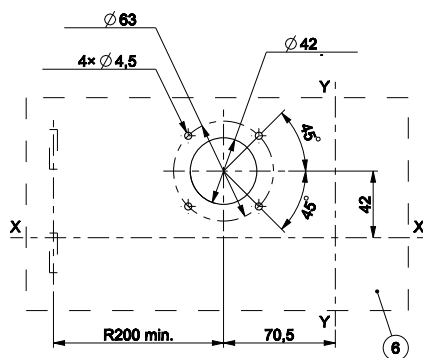
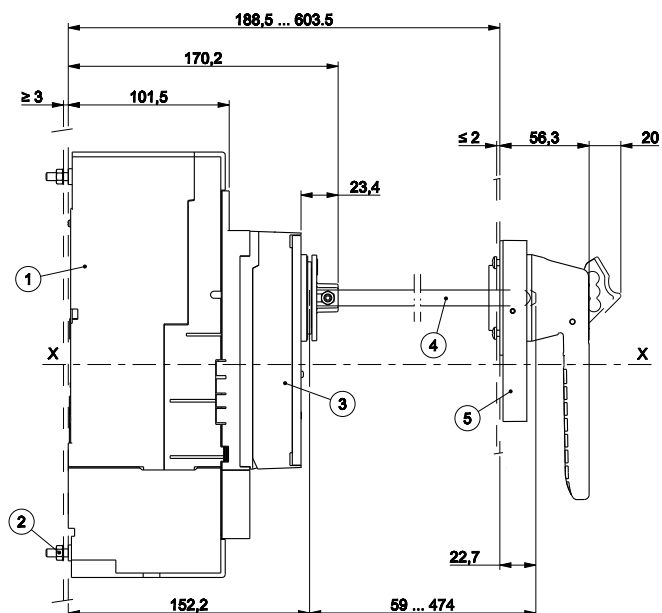
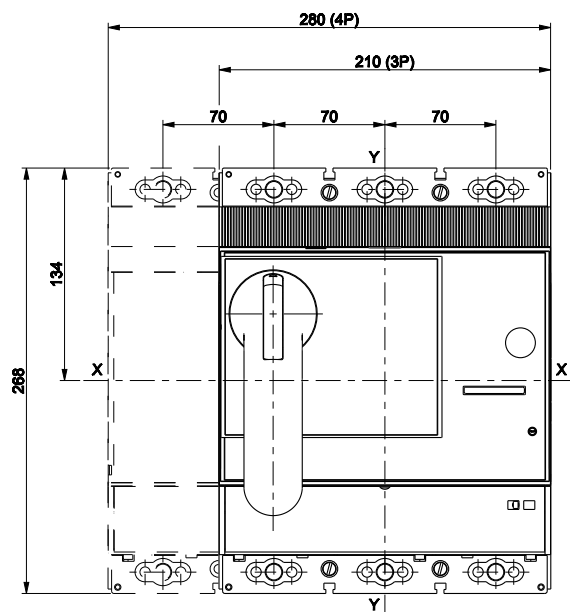


		A [mm]	B [mm]	C [mm]	D [mm]
With flange	3p - 4p	219	160	89	109.5
Without flange	3p - 4p	209	149.8	83.9	104.5

Tmax XT6 – Installation

Accessories for fixed circuit-breaker

Rotary handle operating mechanism on the compartment door (RHE)



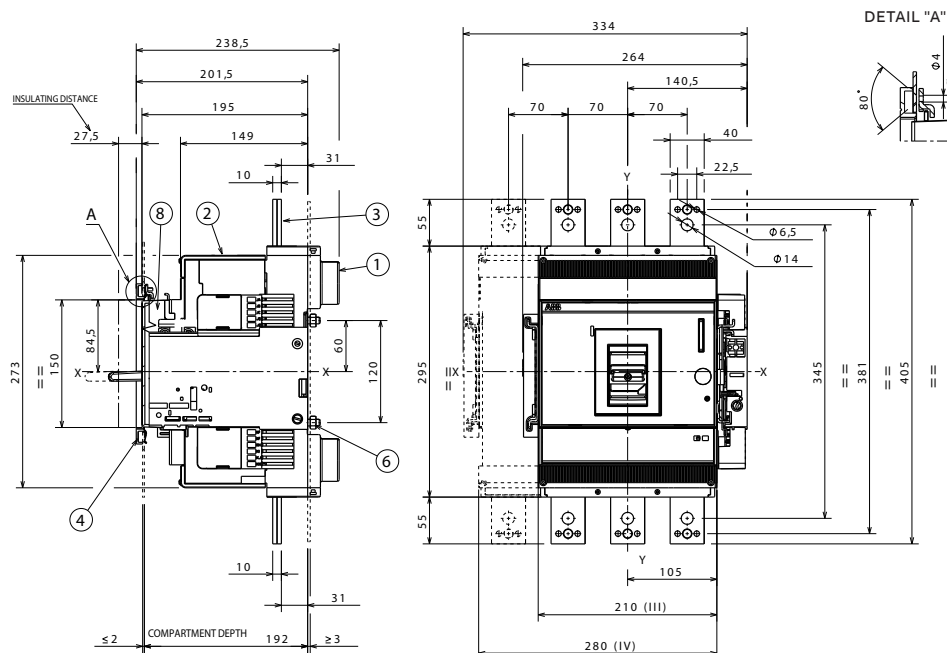
Key

- 1 Circuit-breaker
- 2 Tightening torque 2Nm
- 3 Base of rotary handle operating mechanism
- 4 Connection rod
- 5 Rotary handle operating mechanism of the compartment door
- 6 Compartment door drilling template

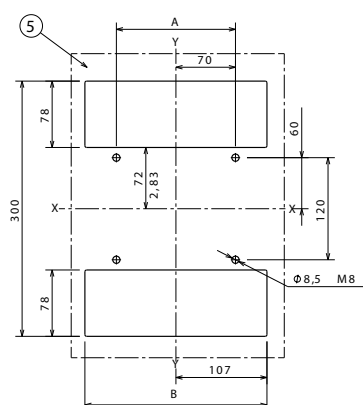
Tmax XT6 – Installation

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 Drilling template 3p-4p
 - 6 Tightening torque 8Nm
 - 8 FLD

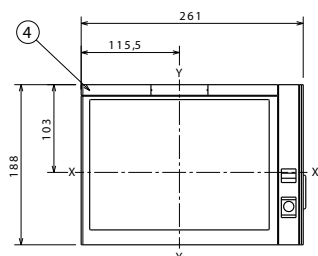
	A [mm]	B [mm]
3p	140	214
4p	210	284

Tmax XT6 – Installation

Installation for withdrawable circuit-breaker

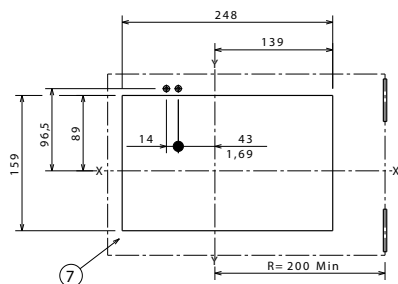
Flange

- Key
4 Drilling template 3p



Drilling template compartment door

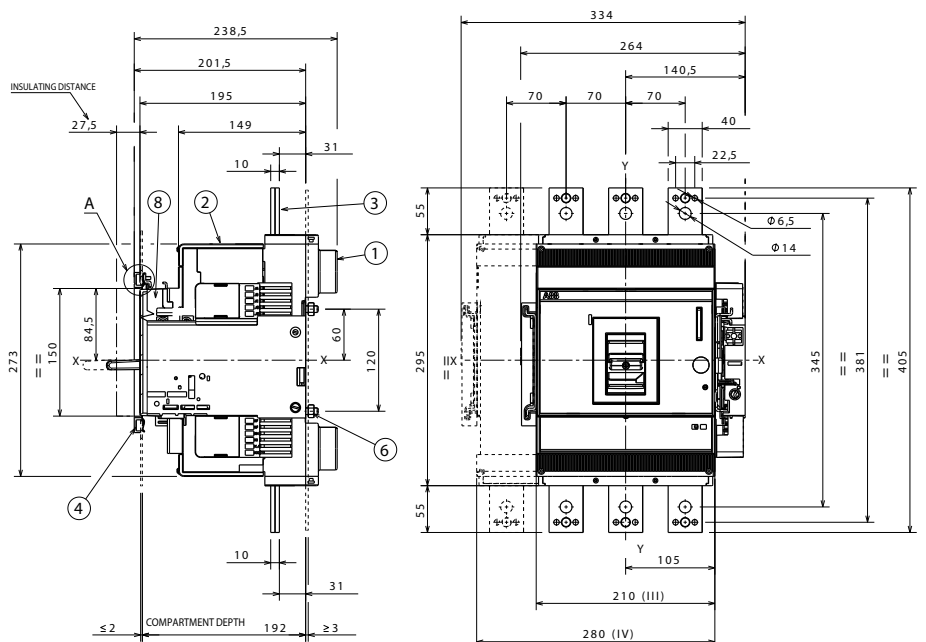
- Key
7 Compartment door
drilling template
with flange



Tmax XT6 – Installation

Terminals for withdrawable circuit-breaker

Terminals EF



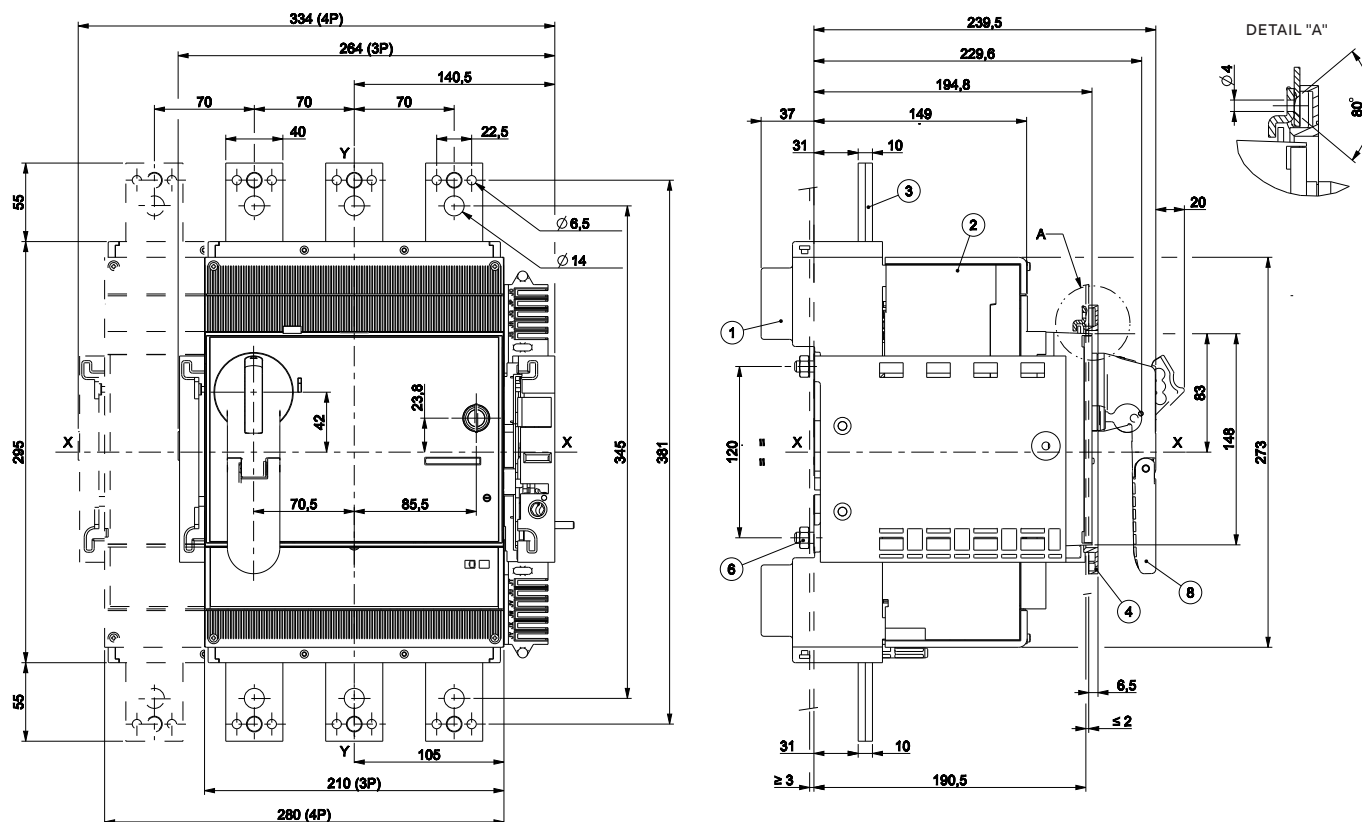
Key

- 1 Fixed part
- 2 Moving part
- 3 Extended front terminals
- 6 Tightening torque 8Nm
- 8 FLD

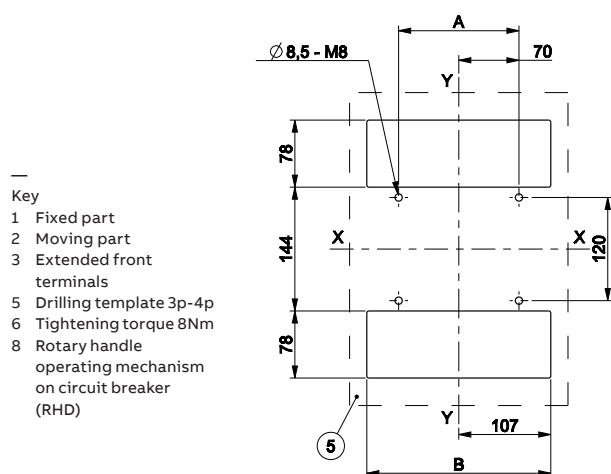
Tmax XT6 – Installation

Accessories for withdrawable circuit-breaker

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



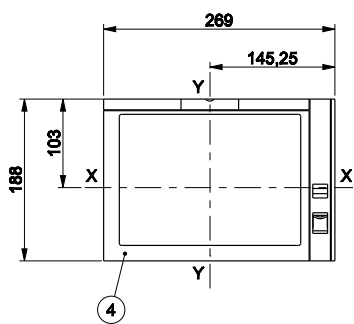
Drilling template for support sheet



	A [mm]	B [mm]
3p	140	214
4p	210	284

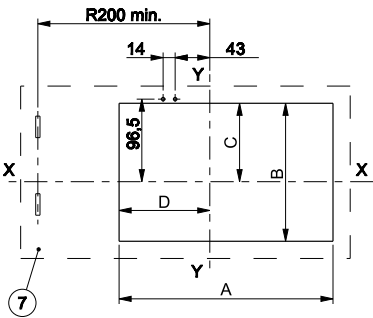
Flange

- Key
4 Flange for the compartment door



Drilling template compartment door

- Key
7 Compartment door drilling template with flange

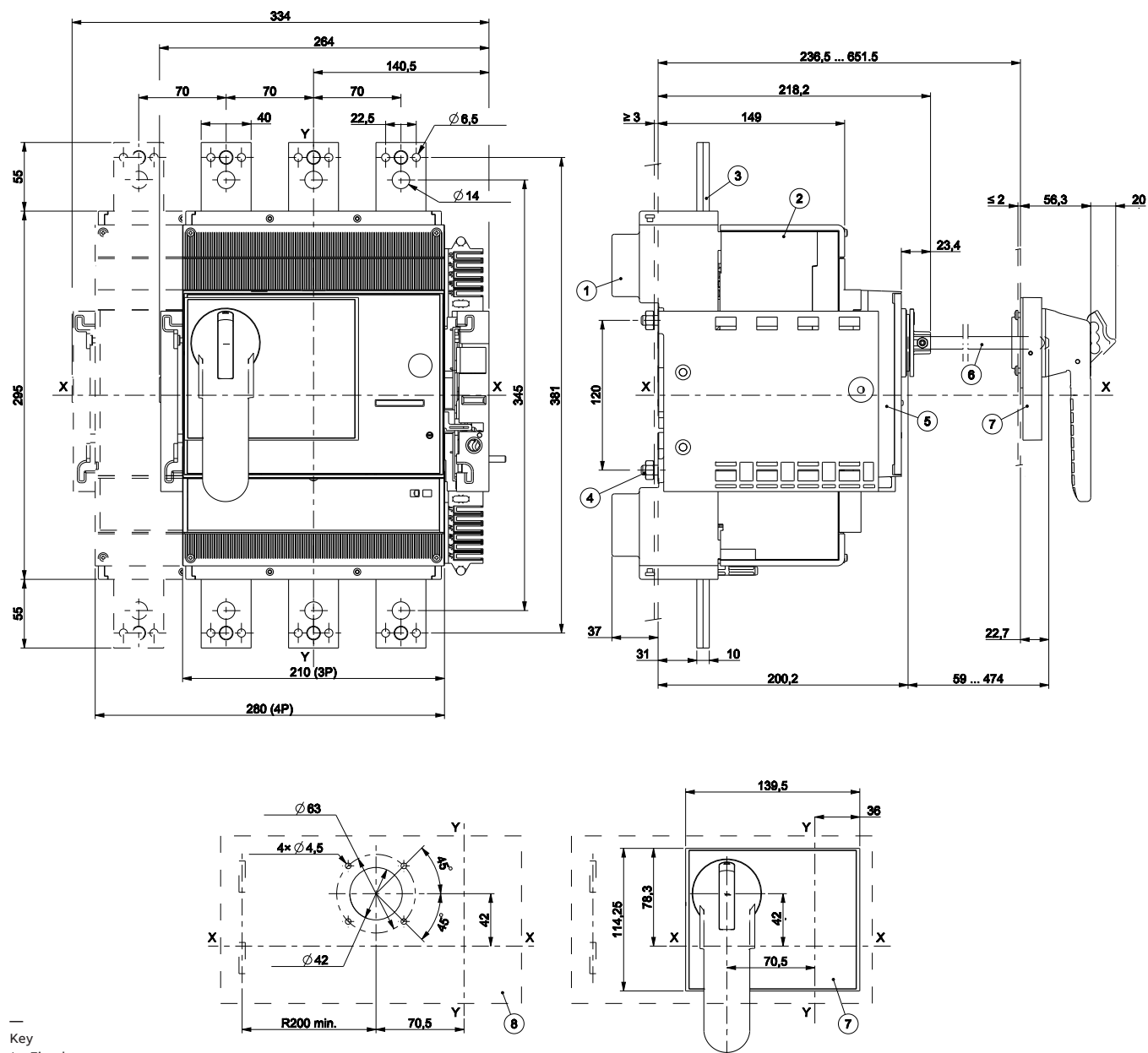


	A [mm]	B [mm]	C [mm]	D [mm]
With flange W	248	159	89	109

Tmax XT6 – Installation

Accessories for withdrawable circuit-breaker

Rotary handle operating mechanism on the compartment door (RHE)

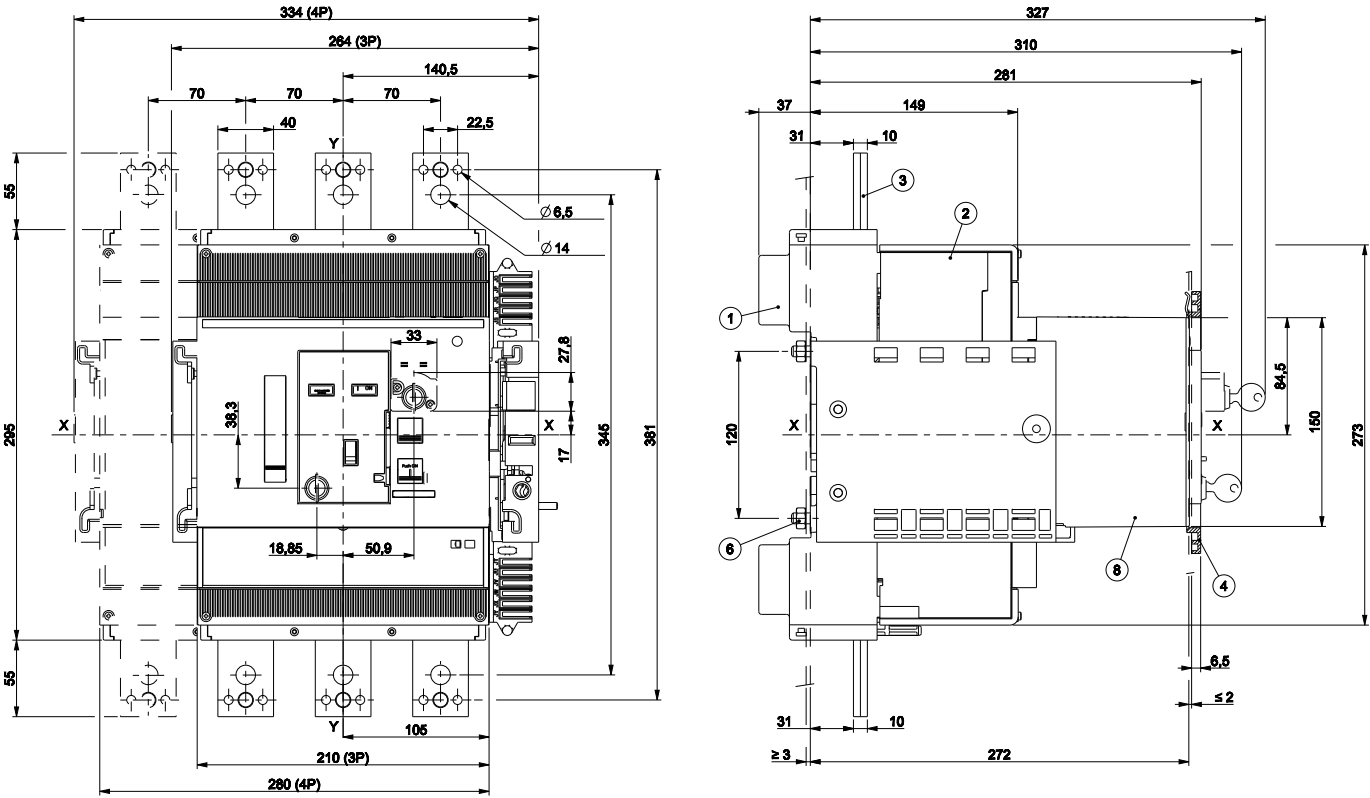


Key

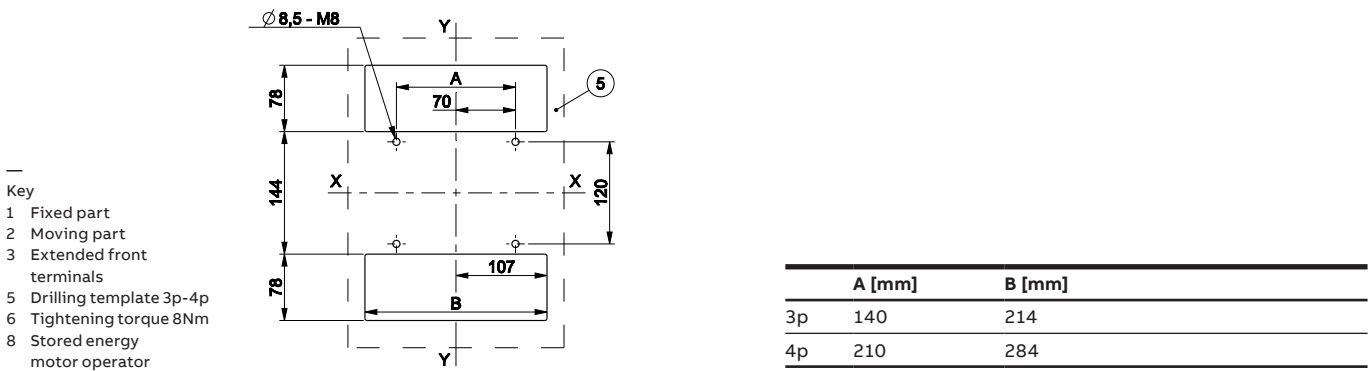
- 1 Fixed part
- 2 Moving part
- 3 Extended front terminals
- 4 Tightening torque 2Nm
- 5 Base of rotary handle operating mechanism
- 6 Connection rod
- 7 Rotary handle operating mechanism of the compartment door
- 8 Compartment door drilling template

	A [mm]	B [mm]
3p	140	214
4p	210	284

Stored energy motor operator (MOE)



Drilling template for support sheet

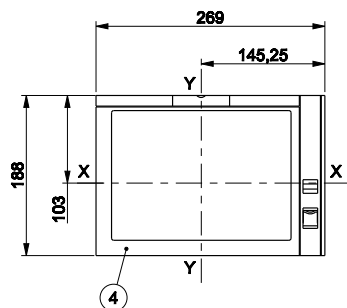


Tmax XT6 – Installation

Accessories for withdrawable circuit-breaker

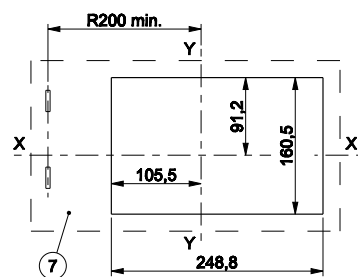
Flange

- Key
4 Flange for the
compartment door



Drilling template compartment door

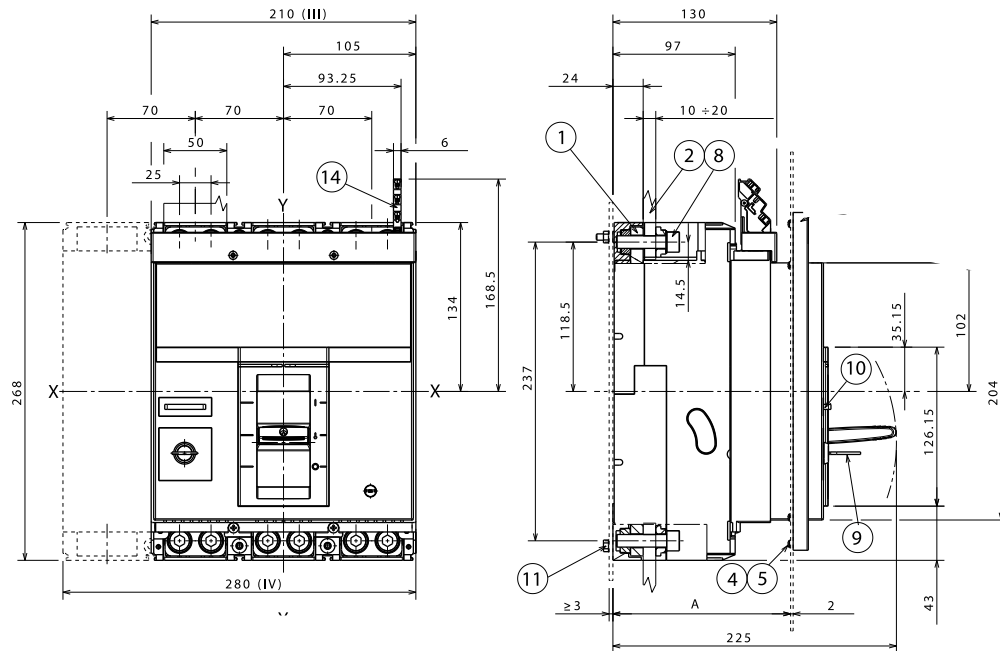
- Key
7 Compartment door
drilling template
with flange



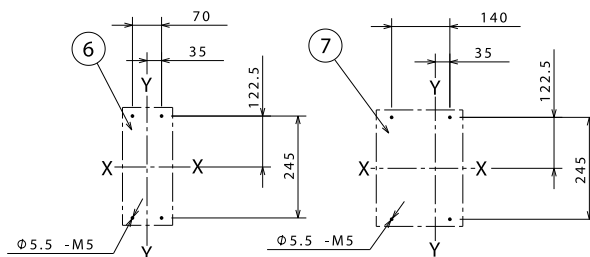
Tmax XT7 – Installation

Installation for fixed circuit-breaker

Fixing on sheet

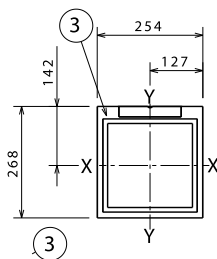


Drilling templates for support sheet

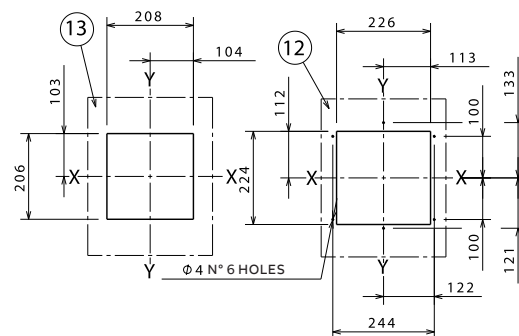


		A [mm]
With standard flange	3p-4p	130÷141
Without flange	3p-4p	147

Flange



Compartment door drilling templates



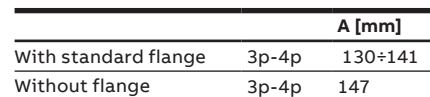
Key

- 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 Drilling template 3p
- 7 Drilling template 4p
- 8 Tightening torque 18 Nm - 159 lbs in
- 9 Key lock
- 10 Padlock device
- 11 Tightening torque 2 Nm - 18 lbs in
- 12 Compartment door drilling template for flange
- 13 Compartment door drilling template for 206x204 frontal
- 14 Clamp for auxiliary contacts

Terminals for fixed circuit-breaker

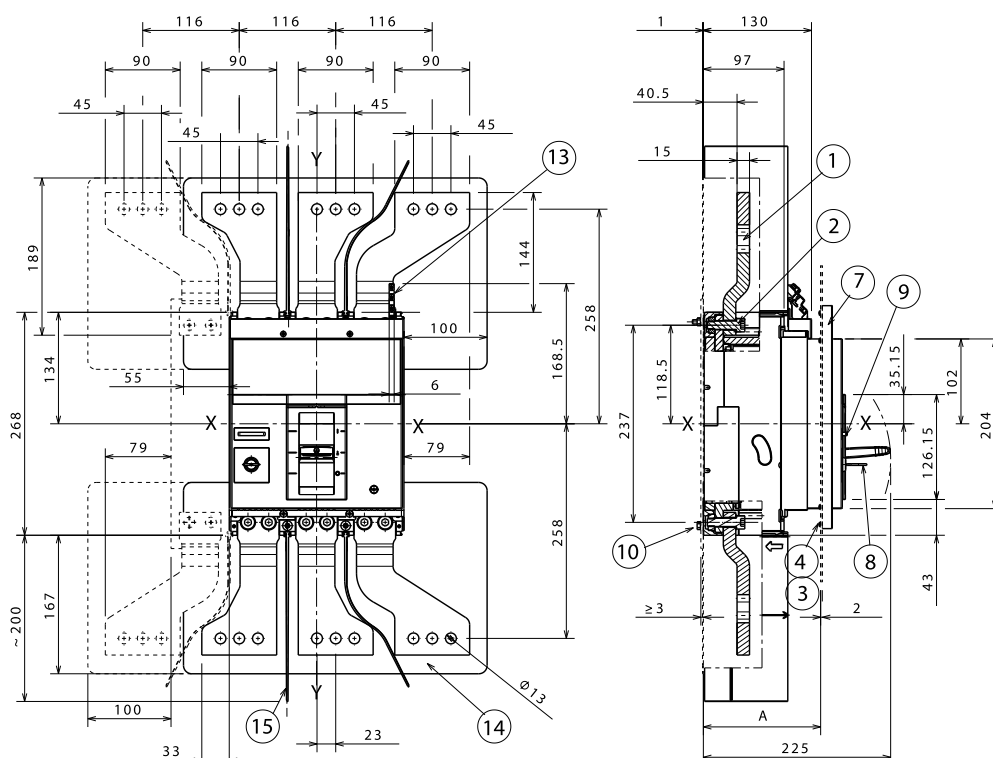
—
Key

- 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 lock
- 9 Padlock device
- 10 Tightening torque 2 Nm - 18 lbs in
- 13 Slot for external signaling
- 14 Insulating plate
- 15 Phase separators 100mm
- 16 High terminal cover with IP40 protection degree



Key

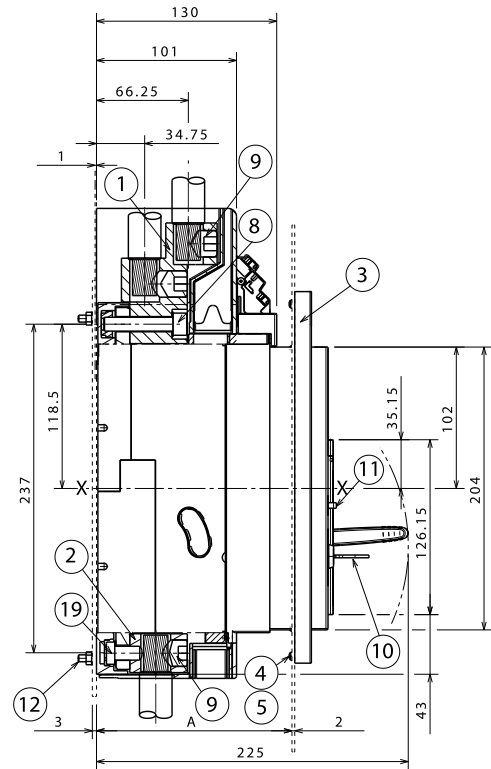
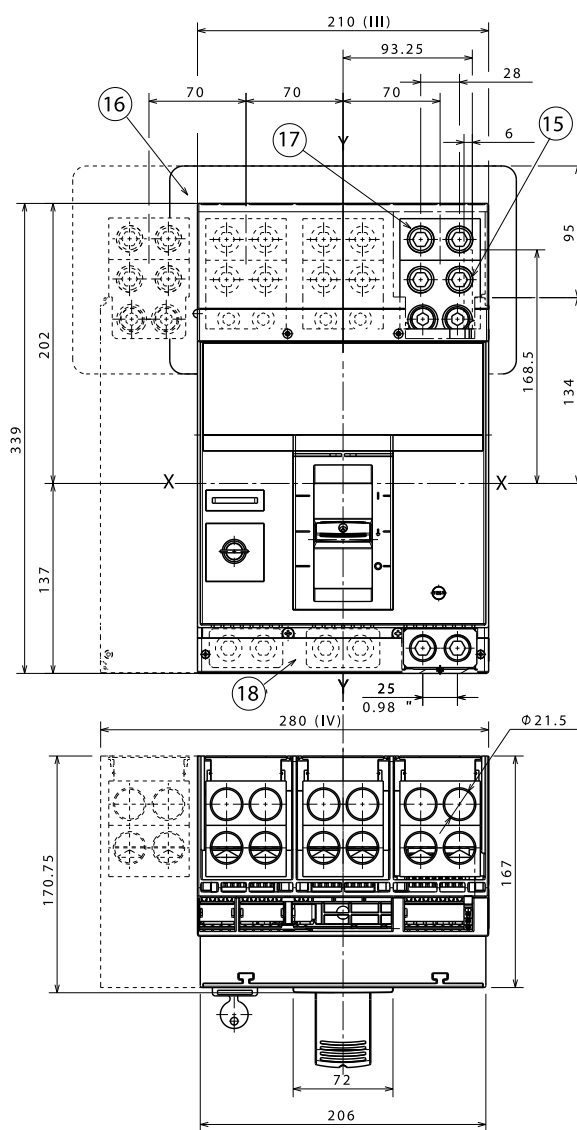
- 1 Spreadad extended front terminals ES
- 2 Flange for the compartment door
- 3 Flange fixing screws
- 4 Tightening torque 0.5 nm - 4.4 lbs in
- 7 Tightening torque 18 nm - 159 lbs in
- 8 Key lock
- 9 Padlock device
- 10 Tightening torque 2 Nm - 18 lbs in
- 13 Slot for external signaling
- 14 Insulating plate
- 15 Phase separators 200mm



—
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 lock
- 11 Padlock device
- 12 Tightening torque
2 Nm - 18 lbs in
- 15 Slot for external
signaling
- 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

4 x 380mm² and 2 x 240mm² FC CuAl

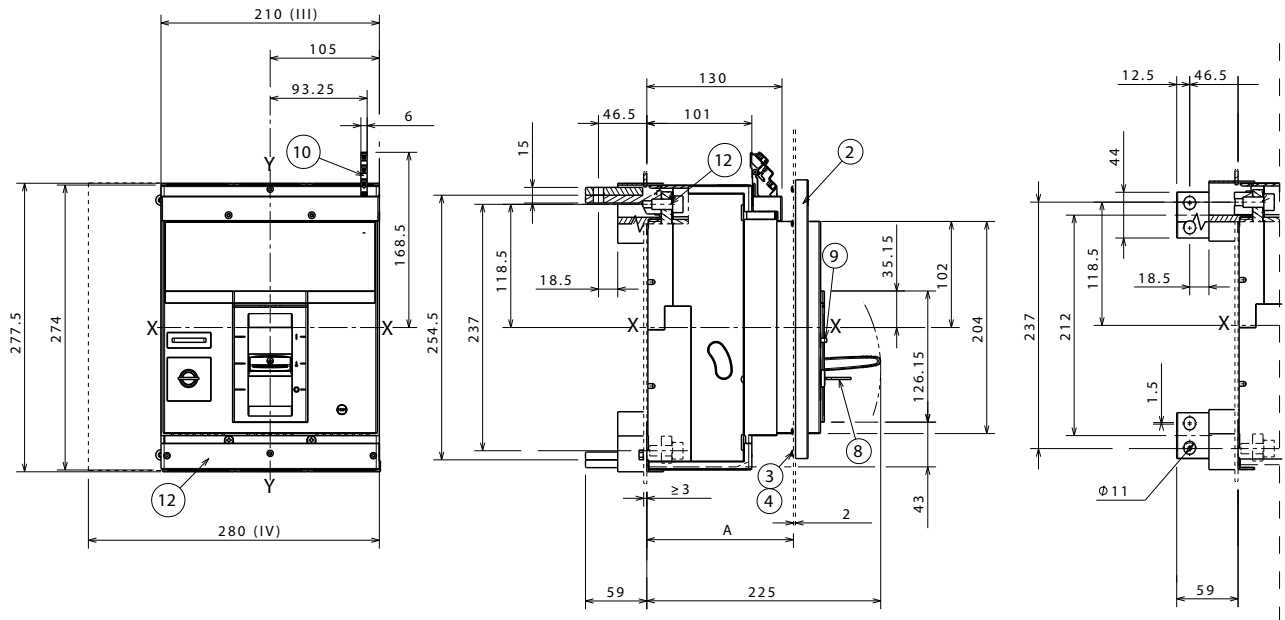


A [mm]		
With standard flange	3p-4p	130÷141
Without flange	3p-4p	147

Tmax XT7 – Installation

Terminals for fixed circuit-breaker

Terminals HR/VR adjustable

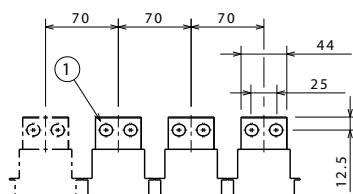


Key

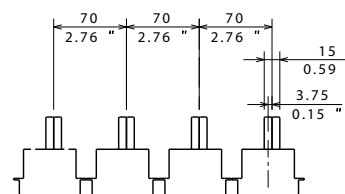
- 1 HR horizontal rear terminal HR
- 2 Flange for the compartment door
- 3 Flange fixing screws
- 4 Tightening torque 0,5 Nm - 4,4 lbs in
- 8 Key lock
- 9 Padlock
- 10 Slot for external signaling
- 12 Tightening torque 20 Nm - 177 lbs in
- 13 Tightening torque 2 Nm - 18 lbs in

A [mm]		
With standard flange	3p-4p	130÷141
Without flange	3p-4p	147

Terminals HR upper

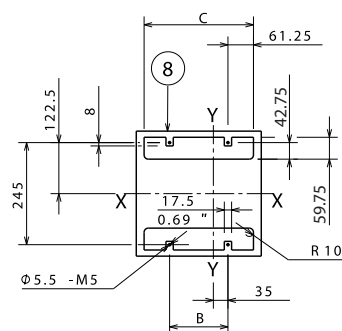


Terminals VR lower



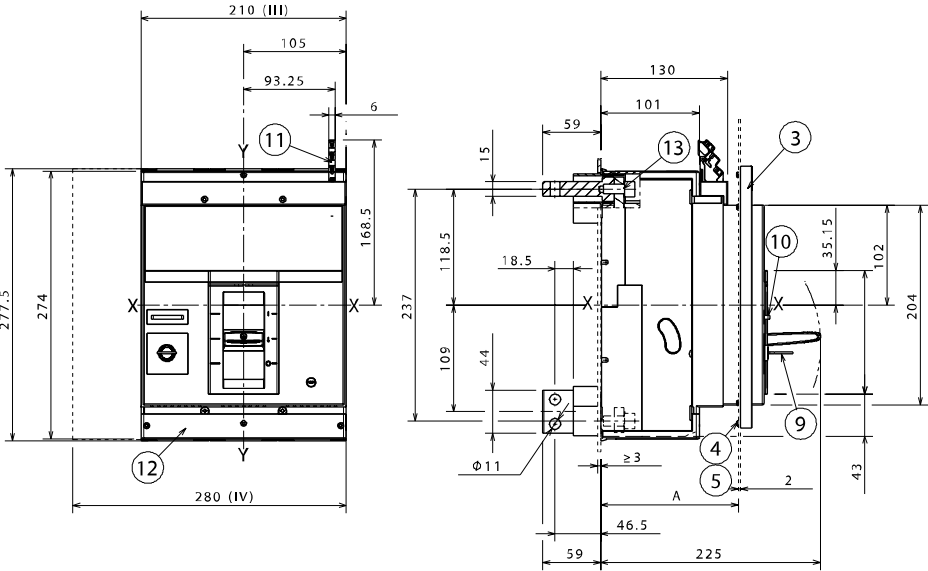
Key

- 8 Drilling template support plate



	3p	4p
B	70	140
C	192.5	262.5

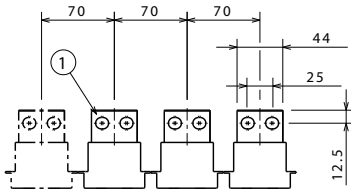
Terminals HR and VR



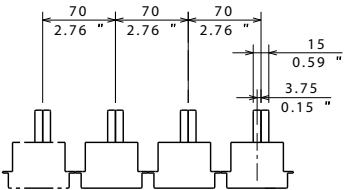
- Key
- 1 HR horizontal rear terminal HR
 - 2 VR vertical rear terminal VR
 - 3 Flange for the compartment door
 - 4 Flange fixing screws
 - 5 Tightening torque 0.5Nm - 4.4lbs in
 - 9 Key lock
 - 10 Padlock
 - 11 Clamp for auxiliary contacts
 - 11 Low protection cover with IP30 protection degree
 - 12 Tightening torque 9Nm

A [mm]		
With standard flange	3p-4p	130÷141
Without flange	3p-4p	147

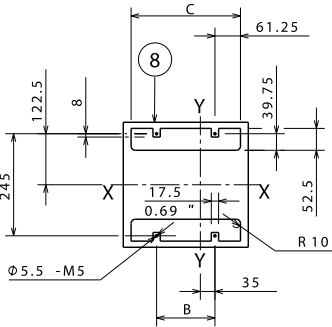
Terminals HR upper



Terminals VR lower



- Key
- 8 Drilling template support plate

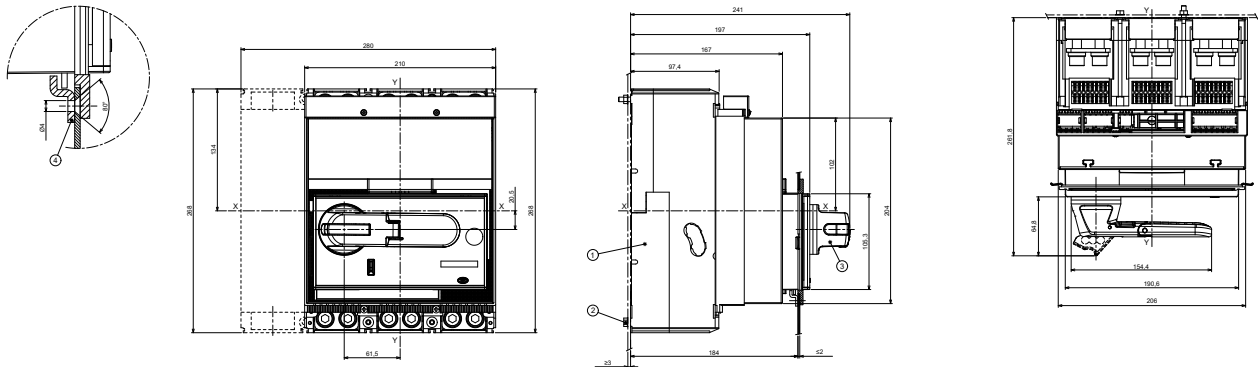


	3p	4p
B	70	140
C	192.5	262.5

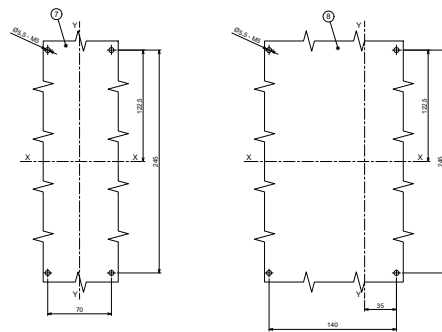
Tmax XT7 – Installation

Accessories for fixed circuit-breaker

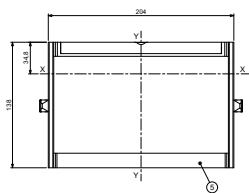
Rotary handle operating mechanism on the circuit-breaker (RHD)



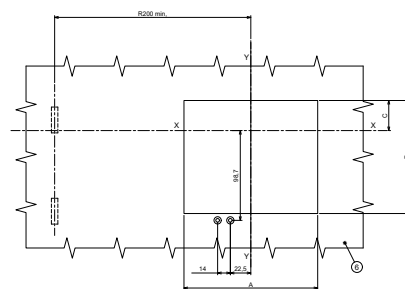
Drilling templates for support sheet



Flange



Drilling template compartment door

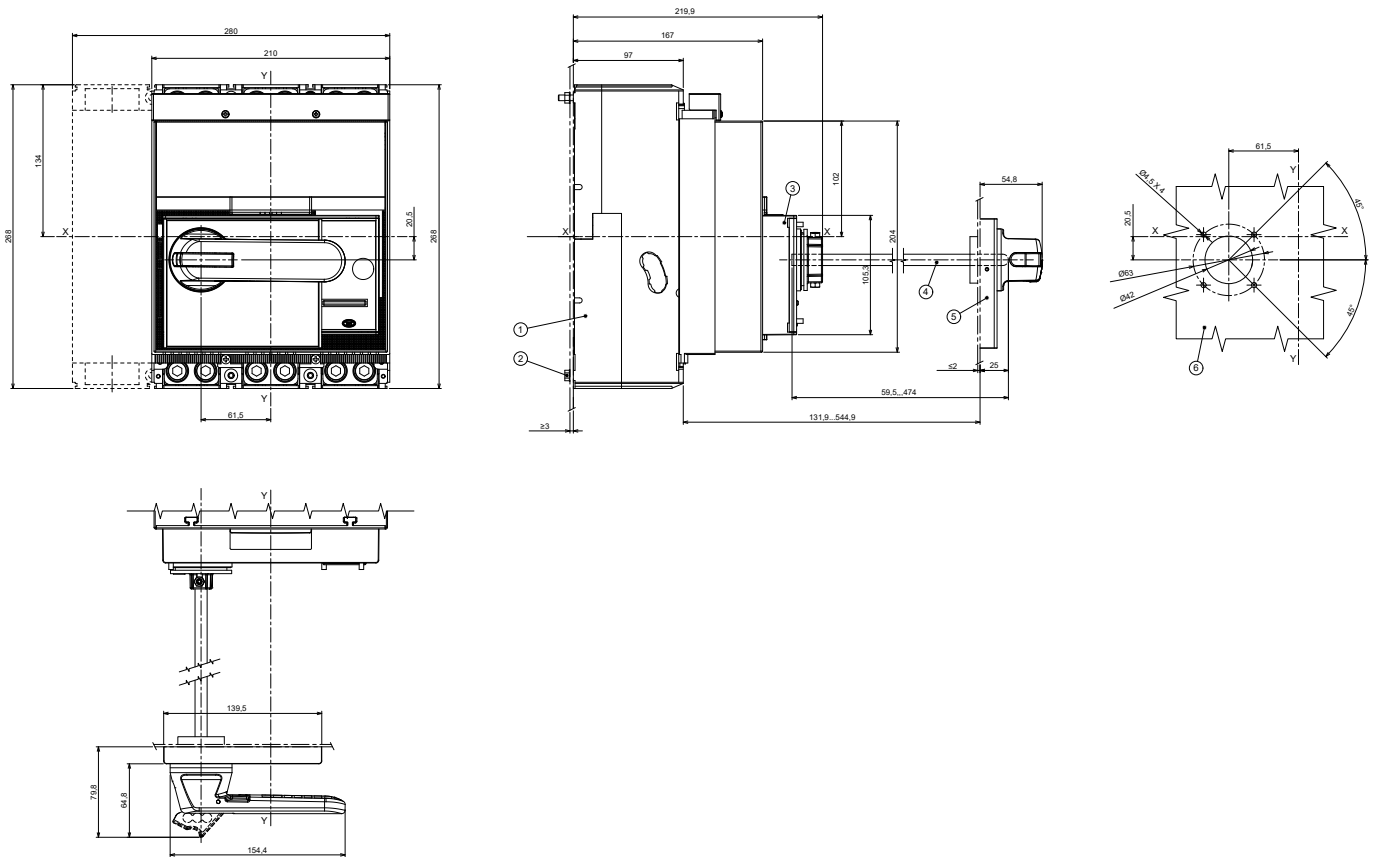


Key

- 1 Circuit-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 drilling template with/without flange
- 7 Drilling template 3p
- 8 Drilling template 4p

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

Rotary handle operating mechanism on the compartment door (RHE)



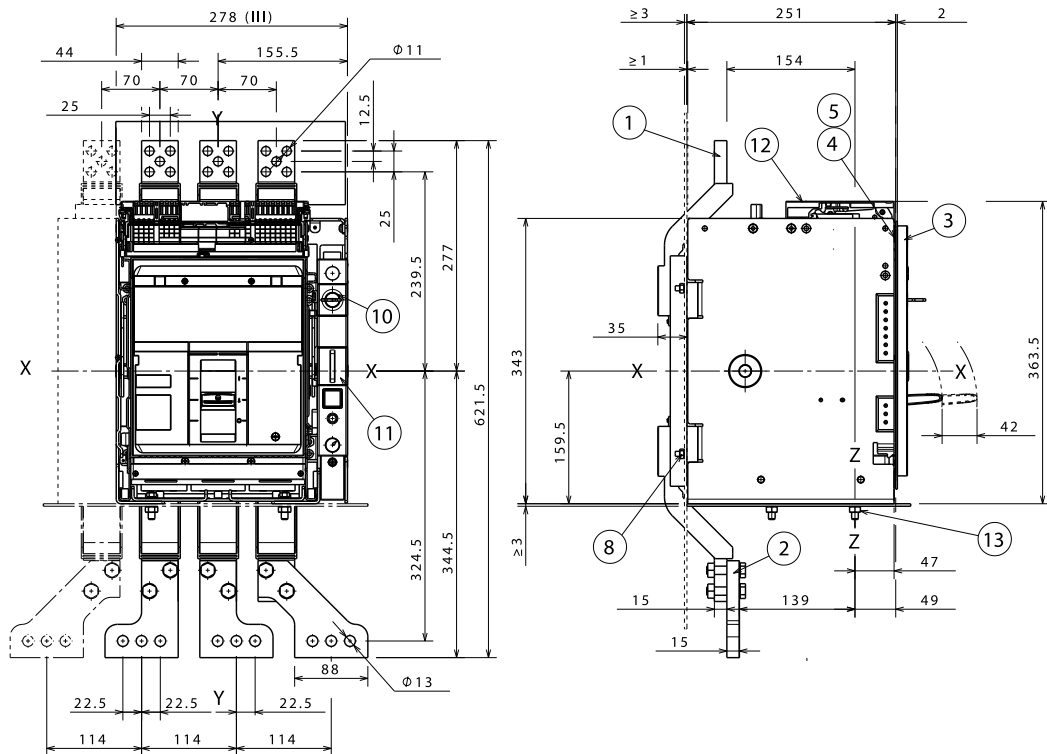
Key

- 1 Circuit-breaker
- 2 Tightening torque
2Nm
- 3 Base for rotary
handle operating
mechanism
- 4 500mm
Connection rod
- 5 Rotary handle
operating
mechanism of the
compartment door
- 6 Compartment door
drilling template

Tmax XT7 – Installation

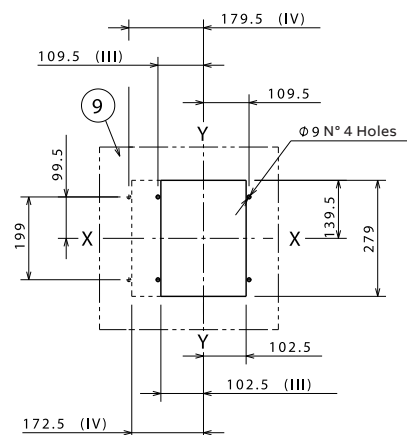
Terminals for withdrawable circuit-breaker

Terminals EF and ES

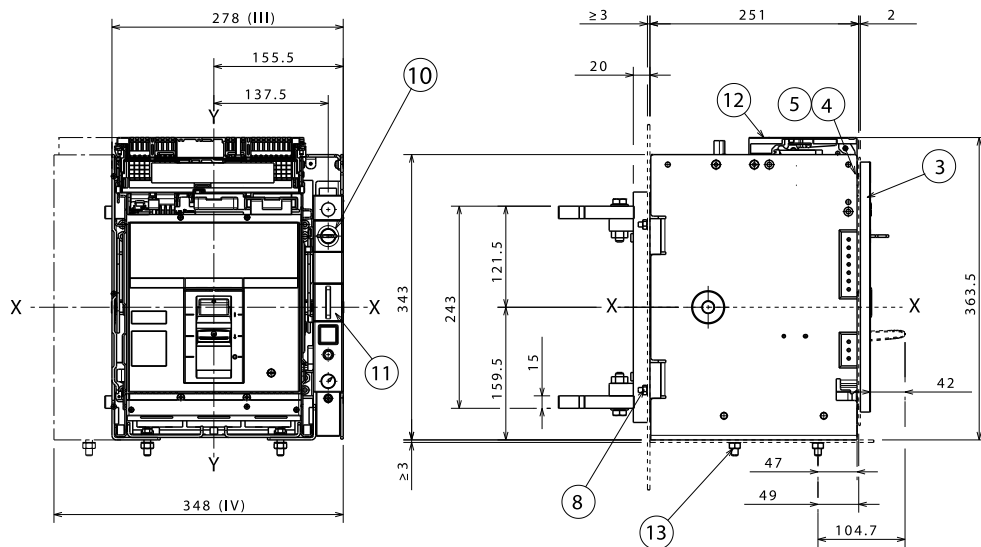


Key

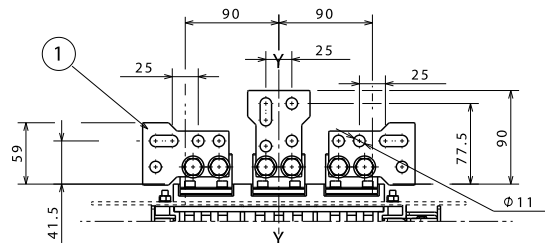
- 1 EF front terminal
- 2 ES front terminal
- 4 Flange fixing screws
- 5 Tightening torque
0.5 Nm - 4.4 lbs in
- 8 Tightening torque
9 Nm - 79.6 lbs in
- 10 Key lock
- 11 Padlock
- 12 Clamp for auxiliary
contacts
- 13 Tightening torque
9 Nm - 79.6 lbs in



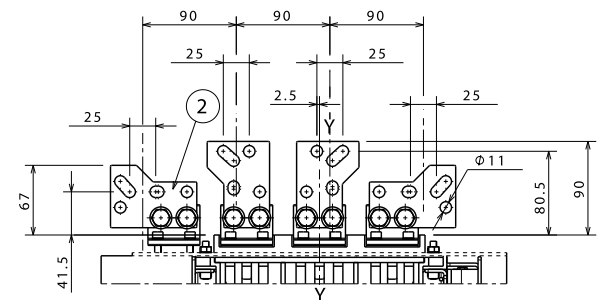
Terminals SHR



Terminals VR upper

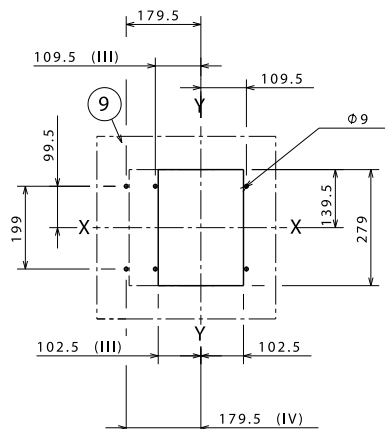


Terminals HR lower



Key

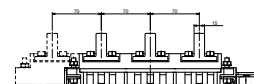
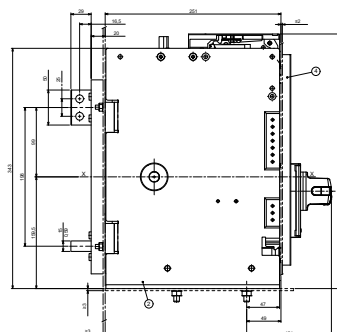
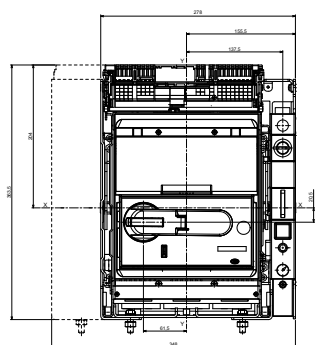
- 1 SHR rear side terminals (3p)
- 2 SHR rear side terminals (4p)
- 3 Flange for the compartment door
- 4 Flange fixing screws
- 5 Tightening torque 0.5 Nm - 4.4 lbs in
- 8 Tightening torque 9 Nm - 79.6 lbs in
- 9 Mounting at wall
- 10 Key lock
- 11 Padlock
- 12 Slot for external signaling
- 13 Tightening torque 9 Nm - 79.6 lbs in



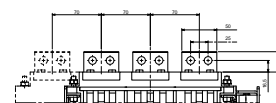
Tmax XT7 – Installation

Accessories for withdrawable circuit-breaker

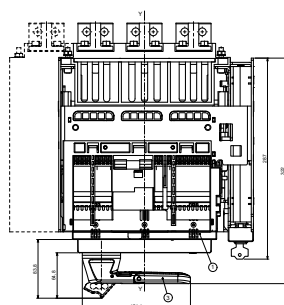
Rotary handle operating mechanism on the circuit-breaker (RHD)



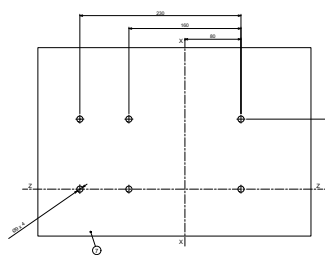
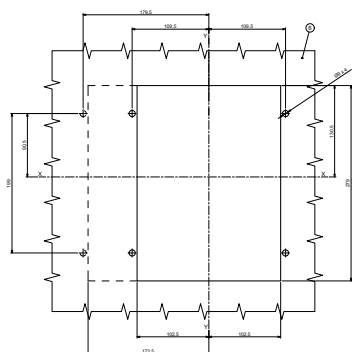
Terminals VR upper



Terminals HR lower



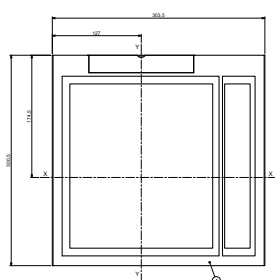
Drilling templates for support sheet



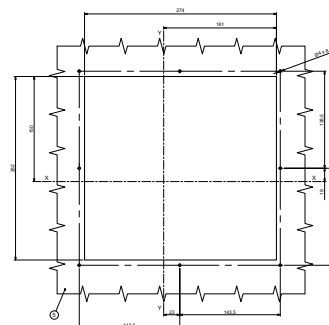
Key

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

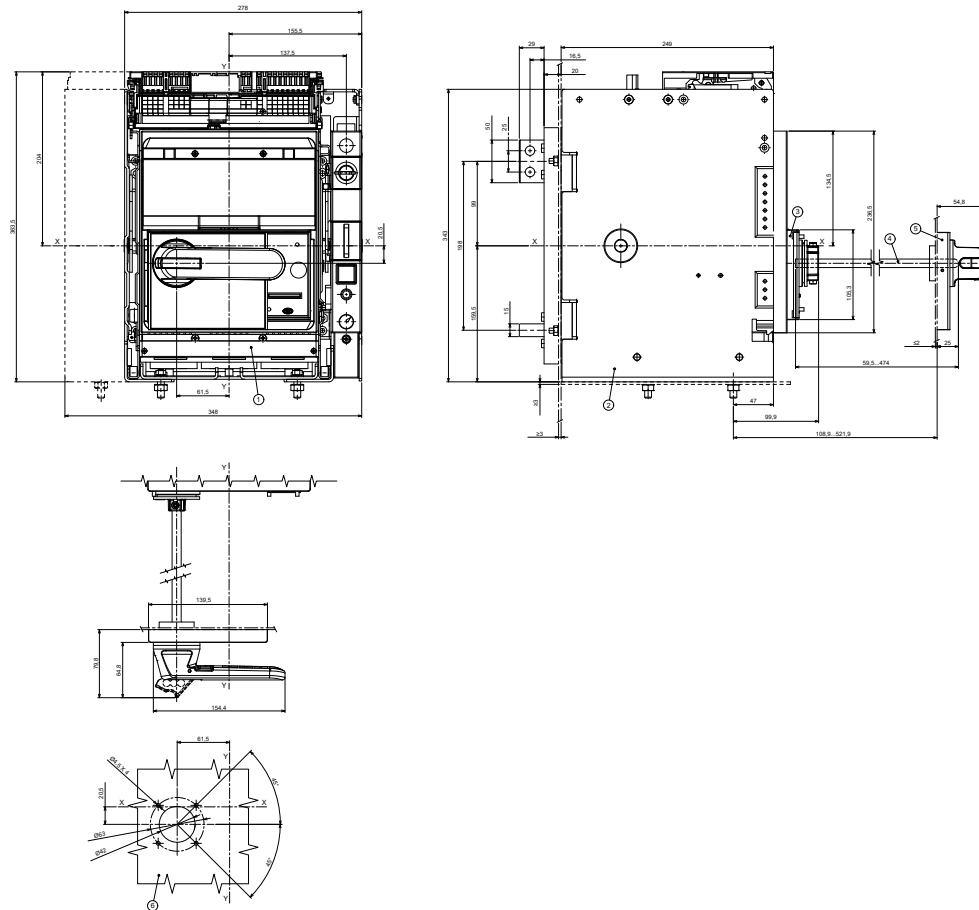
Flange



Drilling template compartment door



Rotary handle operating mechanism on the compartment door (RHE)



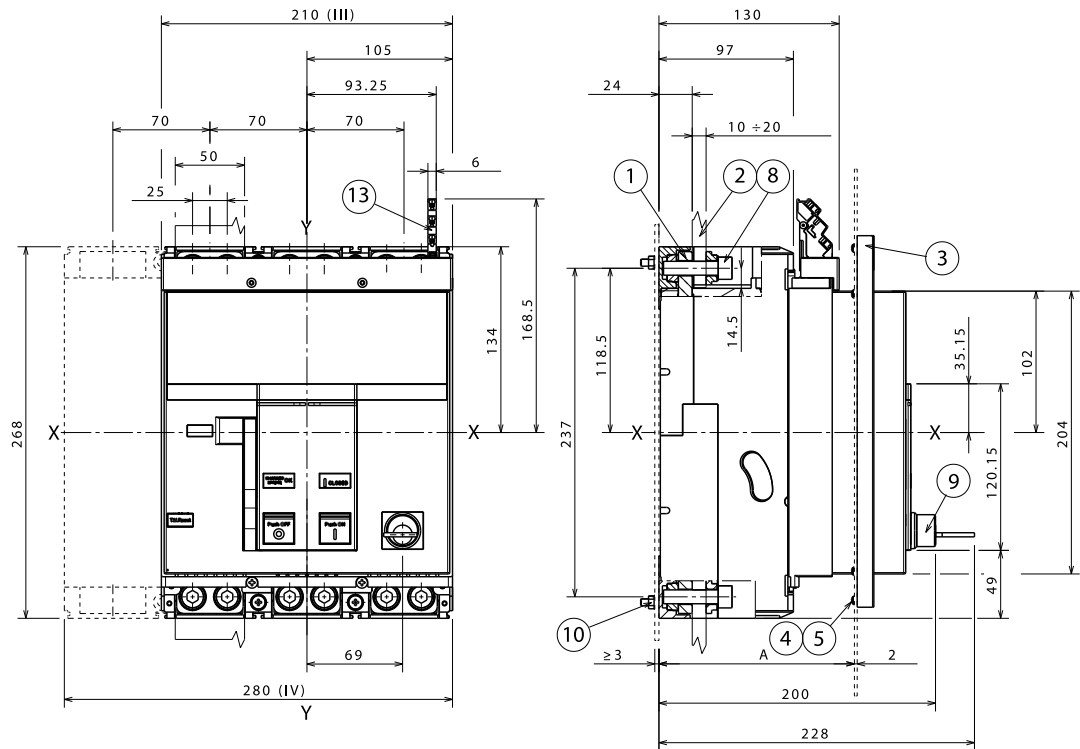
Key

- 1 Circuit-breaker
- 2 Fixed part
- 3 Base for rotary handle operating mechanism
- 4 500mm Connection rod
- 5 Rotary handle operating mechanism of the compartment door
- 6 Compartment door drilling template

Tmax XT7 M – Installation

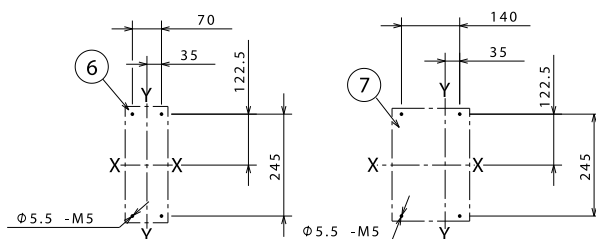
Installation for fixed circuit-breaker

Fixing on sheet



A [mm]		
With standard flange	3p-4p	130÷141
Without flange	3p-4p	147

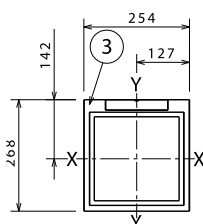
Drilling templates for support sheet



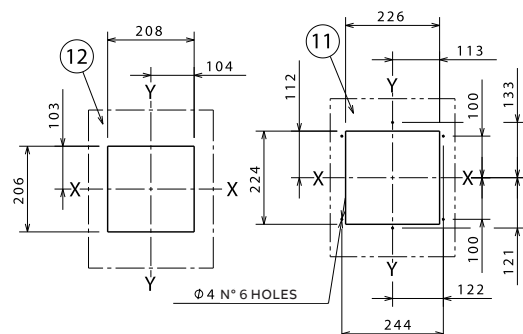
Key

- 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 Drilling template 3p
- 7 Drilling template 4p
- 8 Tightening torque 18 Nm - 159 lbs in
- 9 Key lock
- 10 Tightening torque 2 Nm - 18 lbs in
- 11 Compartment door drilling template for flange
- 12 Compartment door drilling template for 206x204 frontal
- 13 Clamp for auxiliary contacts

Flange



Compartment door drilling templates



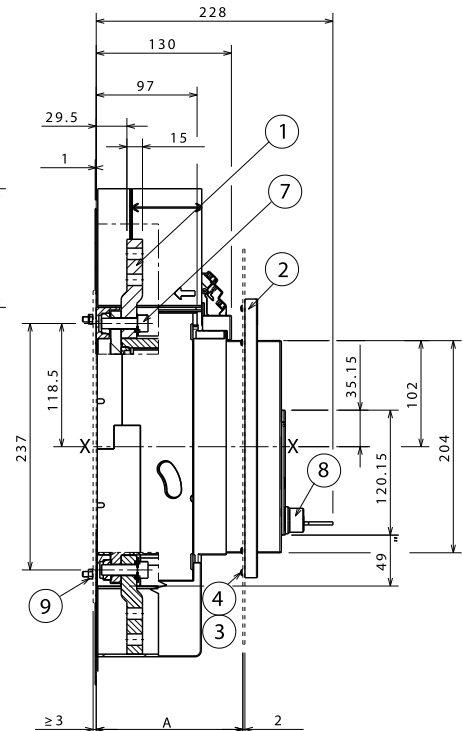
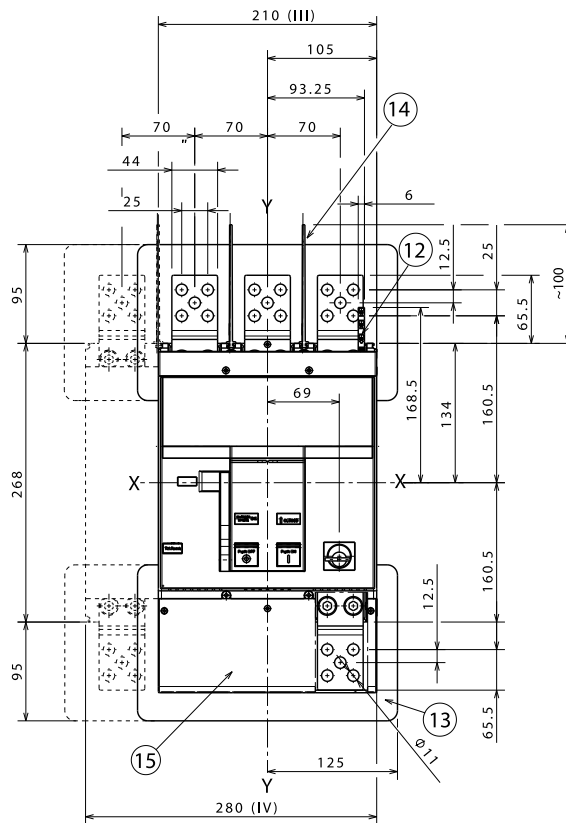
Tmax XT7 M – Installation

Terminals for fixed circuit-breaker

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 lock
- 9 Tightening torque 2Nm - 18 lbs in
- 12 Slot for external signaling
- 13 Insulating plate
- 14 Phase separators 100mm
- 15 High terminal cover with IP40 protection degree

Terminals EF

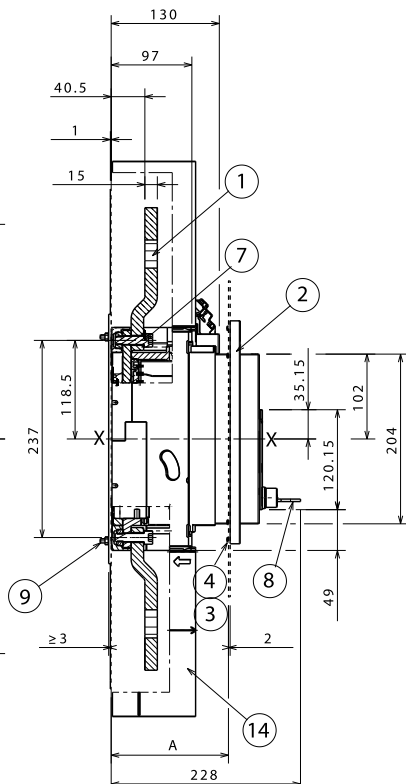
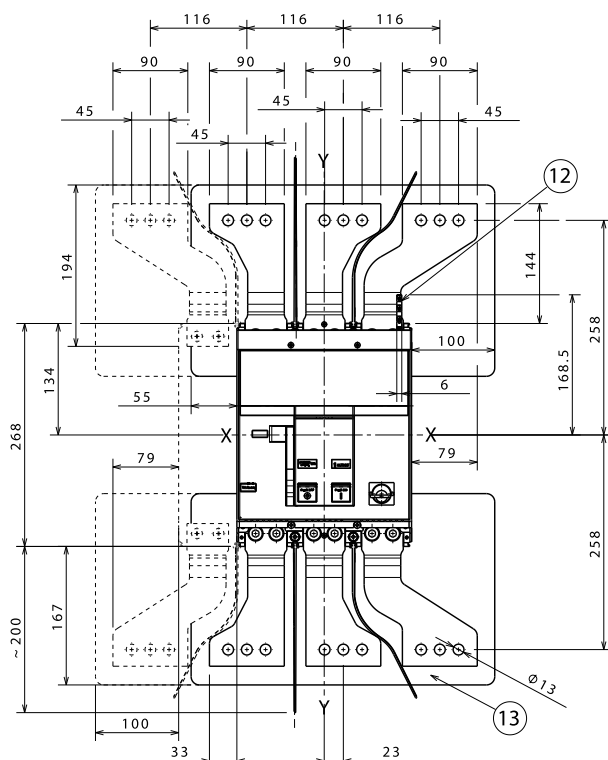


A [mm]		
With standard flange	3p-4p	130÷141
Without flange	3p-4p	147

Terminals ES

Key

- 1 Spreadad 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 lock
- 9 Tightening torque 2 Nm - 18 lbs in
- 12 Slot for external signaling
- 13 Insulating plate



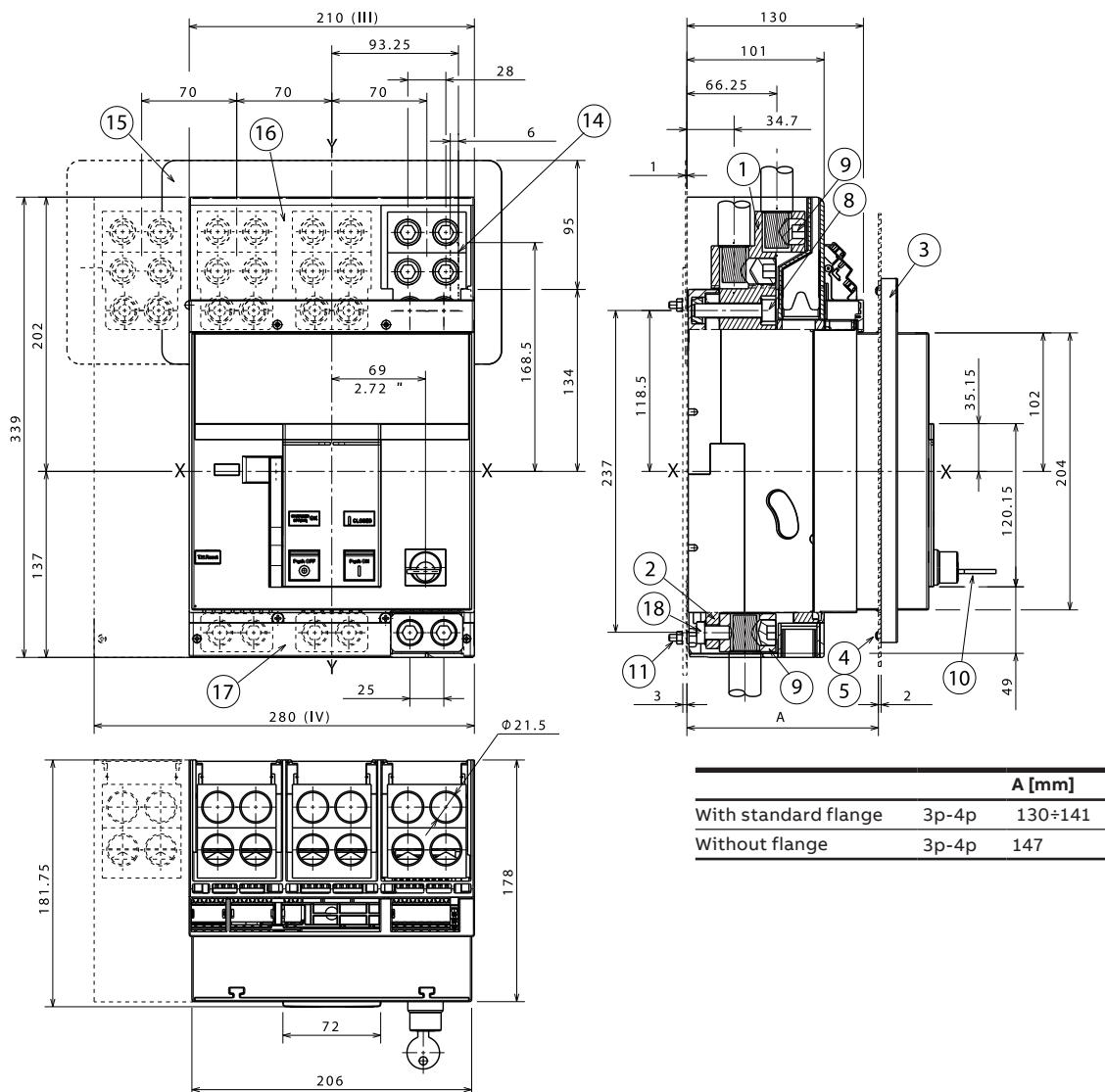
Tmax XT7 M – Installation

Terminals for fixed circuit-breaker

— 4 x 380mm² and 2 x 240mm² FC CuAl

Key

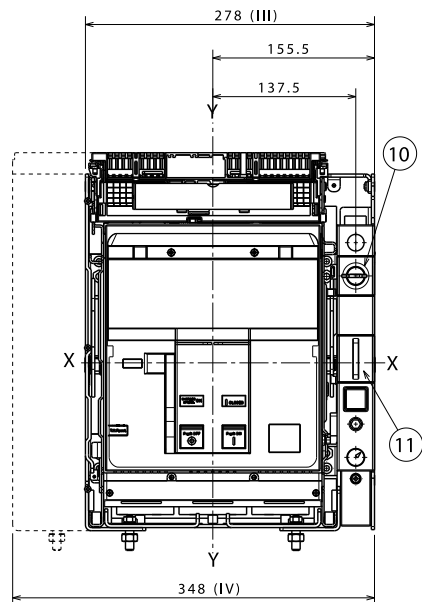
- 1 Fc Cu-Al terminal
4x240mm²
- 2 Fc Cu-Al terminal
2x240mm²
- 3 Flange for the
compartment door
- 4 Flange fixing screws
- 5 Tightening torque
0.5 Nm - 4.4 lbs in
- 8 Tightening torque
18 Nm - 159 lbs in
- 9 Tightening torque
43 Nm - 380 lbs in
- 10 Key lock
- 11 Tightening torque
2 Nm - 18 lbs in
- 14 Slot for external
signaling
- 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



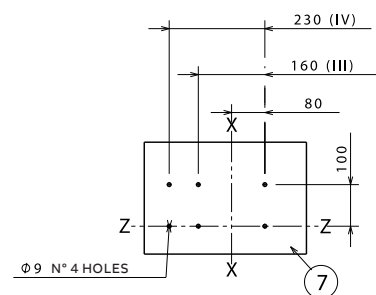
Tmax XT7 M – Installation

Installation for withdrawable circuit-breaker

Fixing on sheet



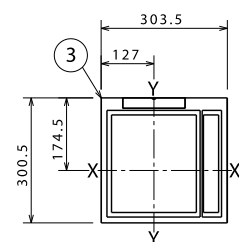
Drilling template for support sheet



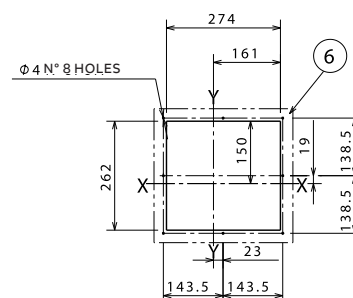
—
Key

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

Flange



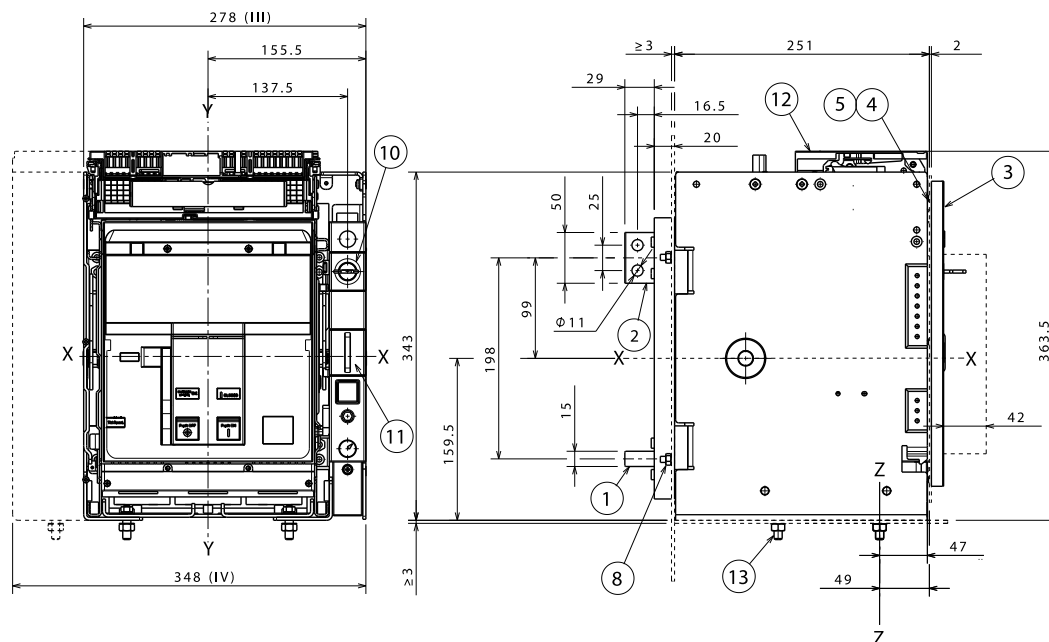
Drilling template compartment door



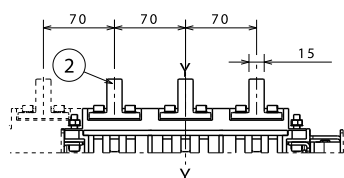
Tmax XT7 M – Installation

Terminals for withdrawable circuit-breaker

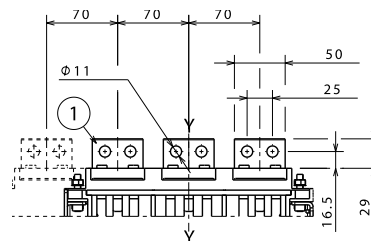
Terminals R



Terminals VR lower

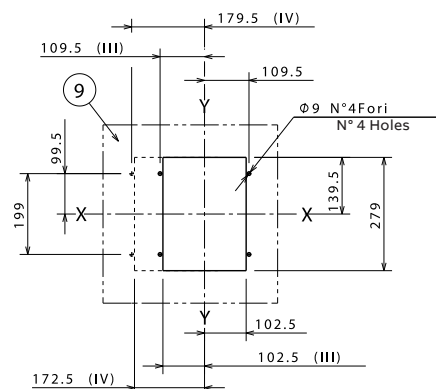


Terminals HR lower



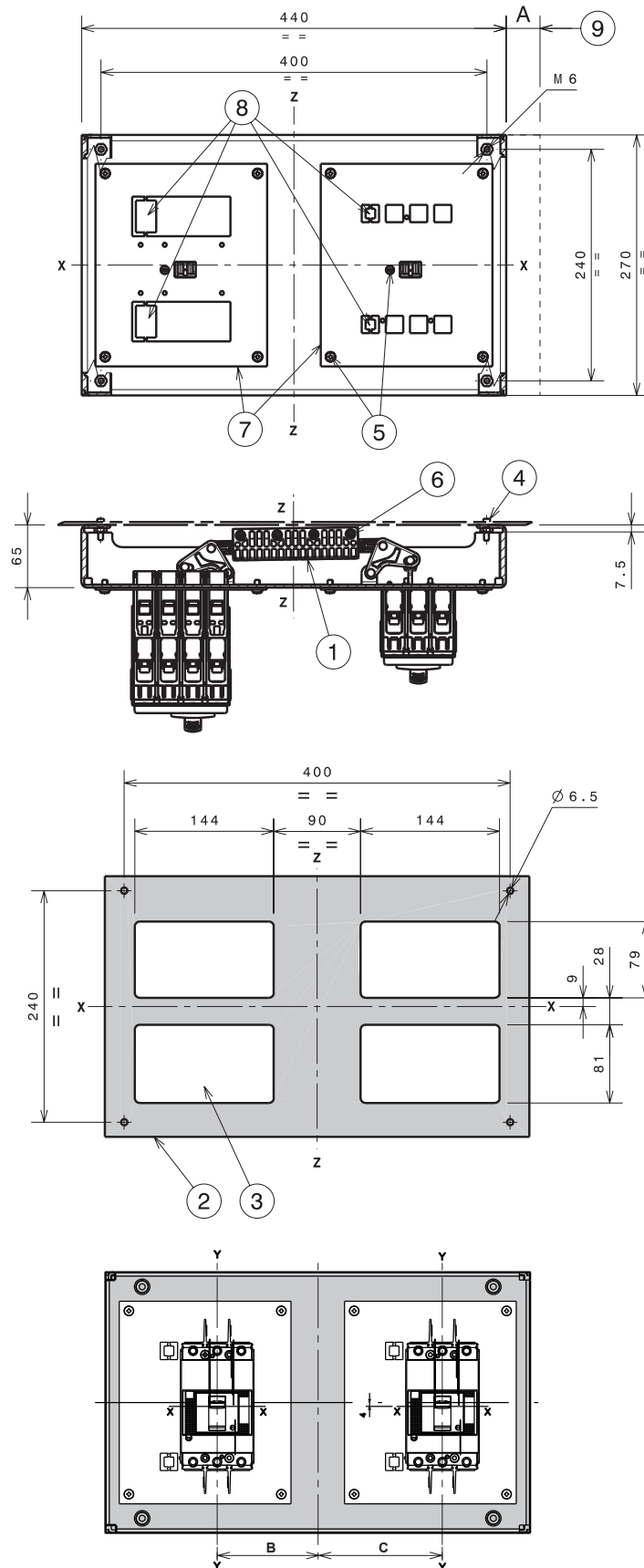
Key

- 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
- 11 Padlock
- 12 Slot for external signaling
- 13 Tightening torque 9 Nm - 79.6 lbs in



Tmax XT – Common accessories

Horizontal interlock XT series



Key

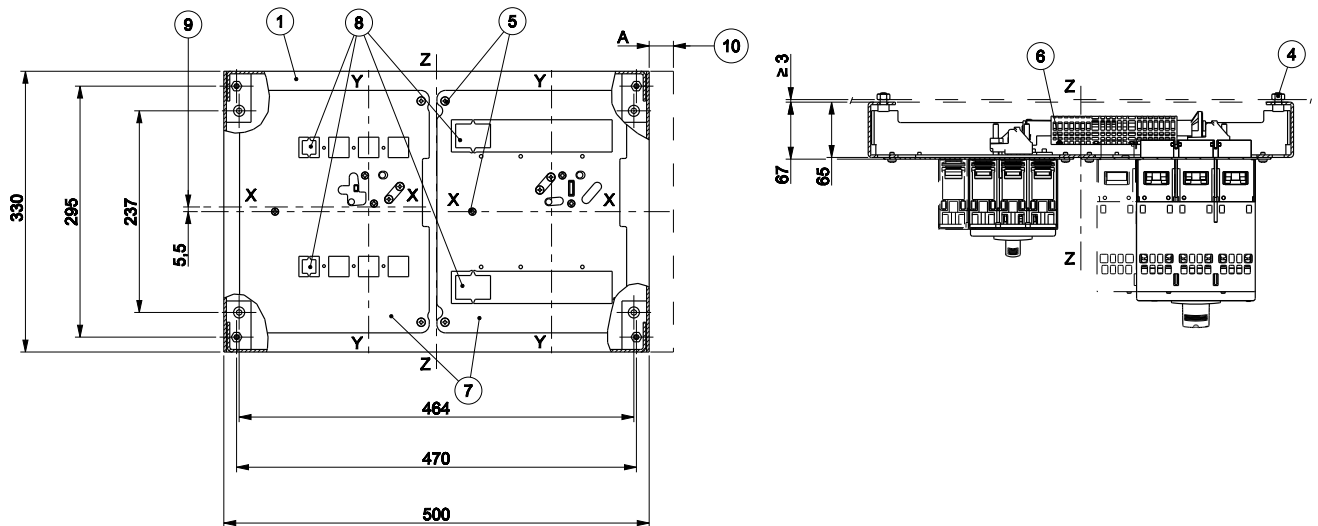
- 1 Interlocking mechanism
- 2 Drilling template for fixing interlocking system
- 3 Drilling template for all version with rear terminals
- 4 Tightening torque 3.7Nm
- 5 Tightening torque 3Nm
- 6 Tightening torque 2.5Nm
- 7 Interlocking plate for circuit breakers
- 8 Provision for 4p circuit-breaker
- 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

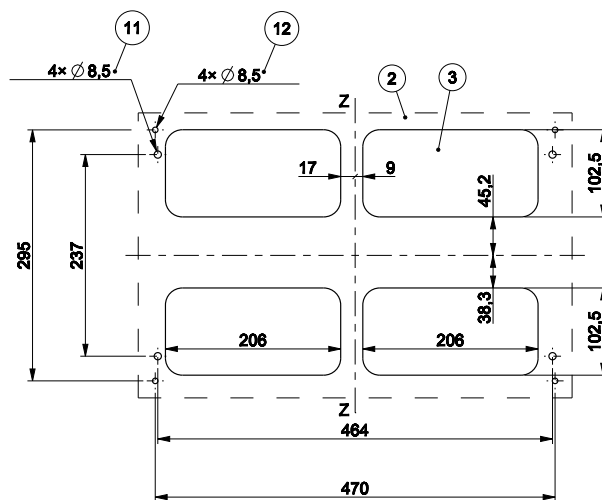
Tmax XT – Common accessories

Horizontal interlock XT series

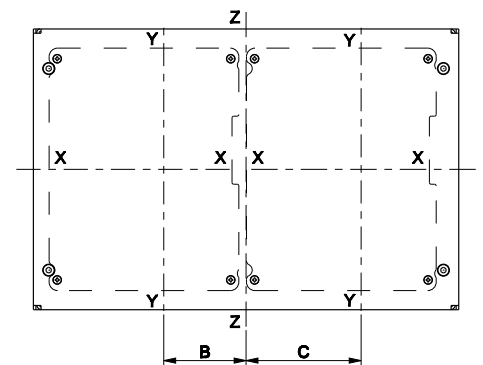
Horizontal interlock between two circuit breakers (MIR-H)



Drilling template



Interlocking plate

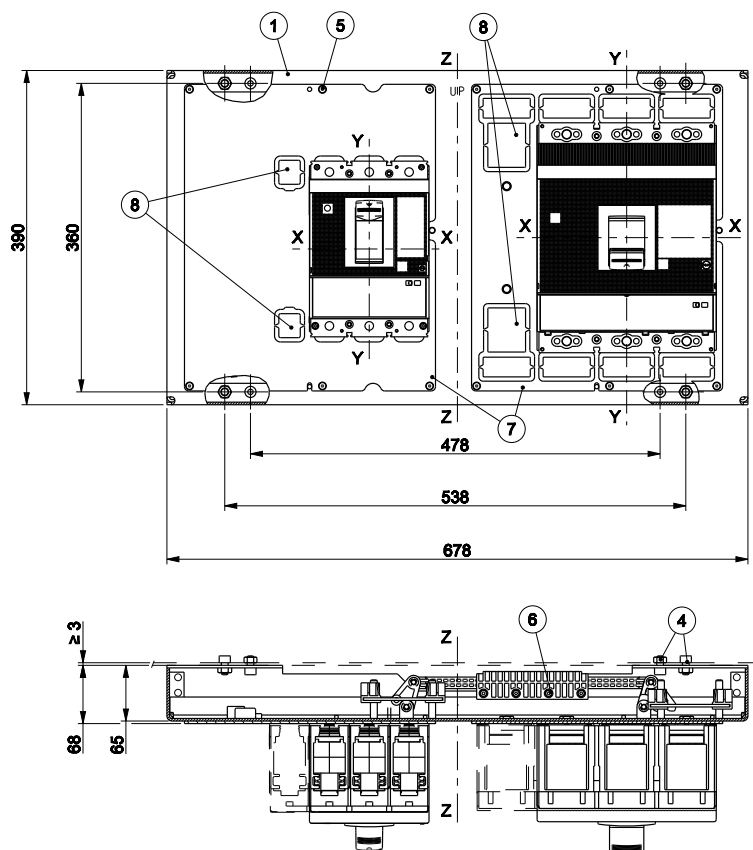


Key

- 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 Provision for 4p circuit-breaker
- 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)



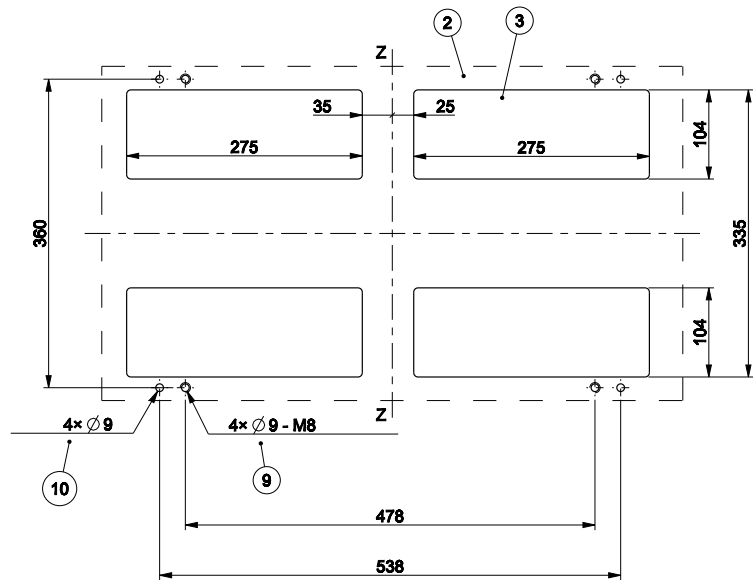
Key

- 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 Provision for 4p circuit-breaker

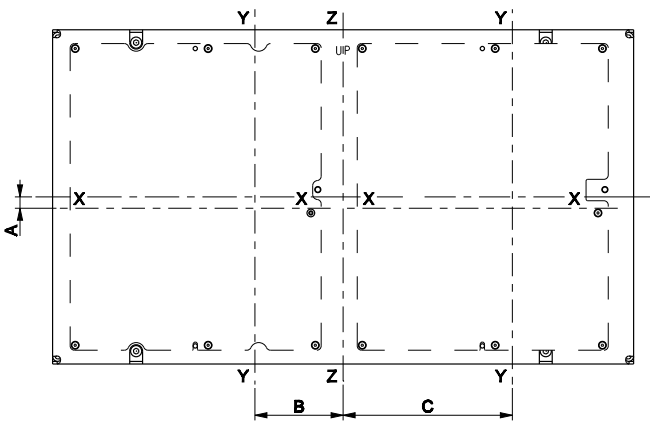
Tmax XT – Common accessories

Horizontal interlock XT series

Drilling template



Interlocking plate

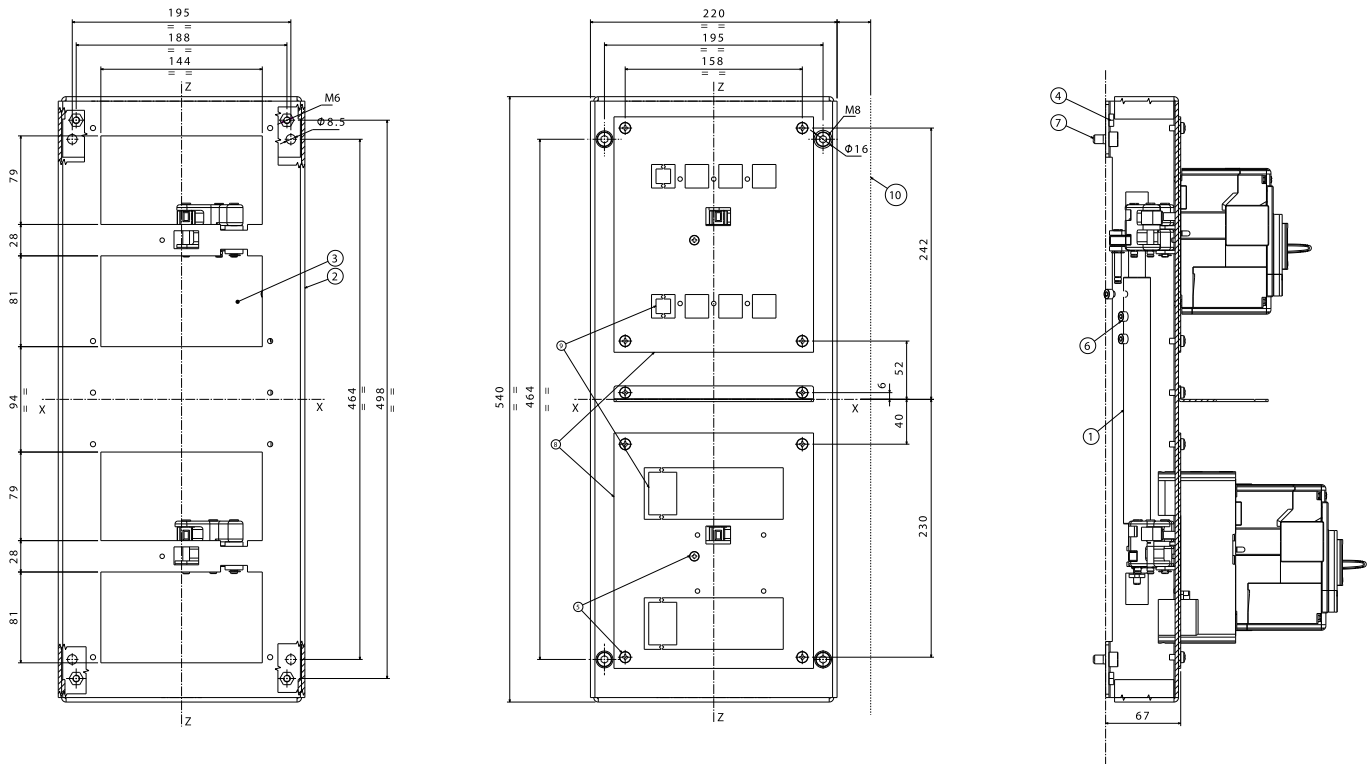


—
Key
9 - 4xØ9-M8 hole for
front mounting only
10 - 4xØ9 hole for rear
mounting only

Coupling 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 Provision for 4p circuit-breaker
- 10 A=35mm for XT4 fixed part
Withdrawable with padlock device
A=30mm for XT2 fixed part
withdrawable with padlock device

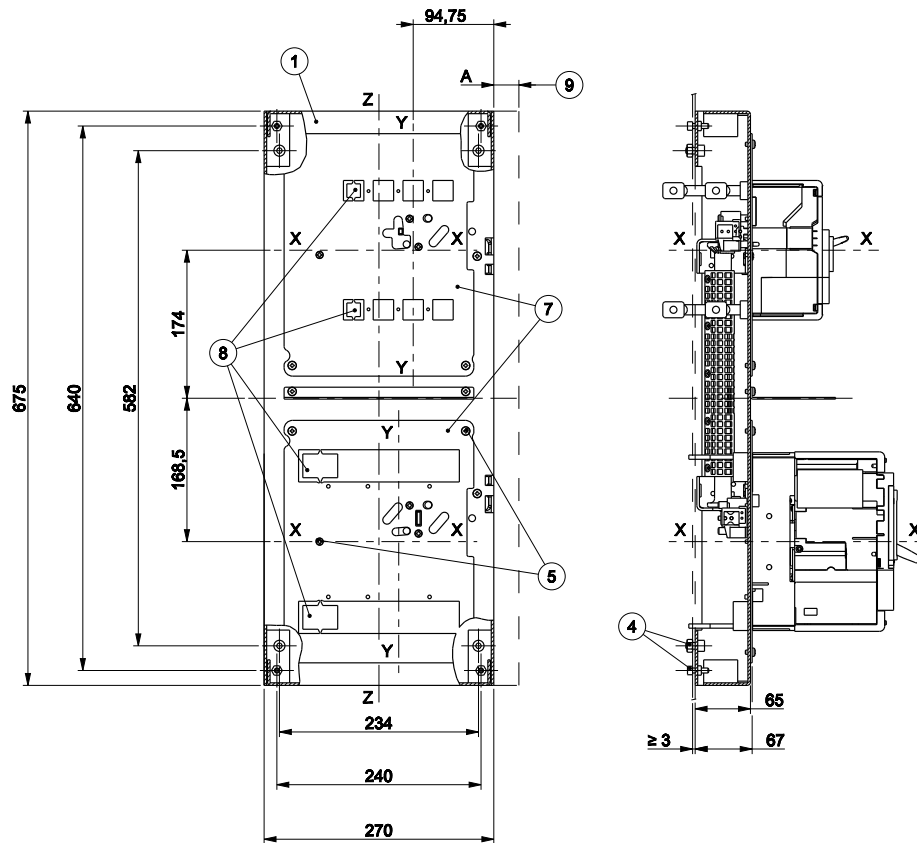
Note:

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

Tmax XT – Common accessories

Vertical interlock XT series

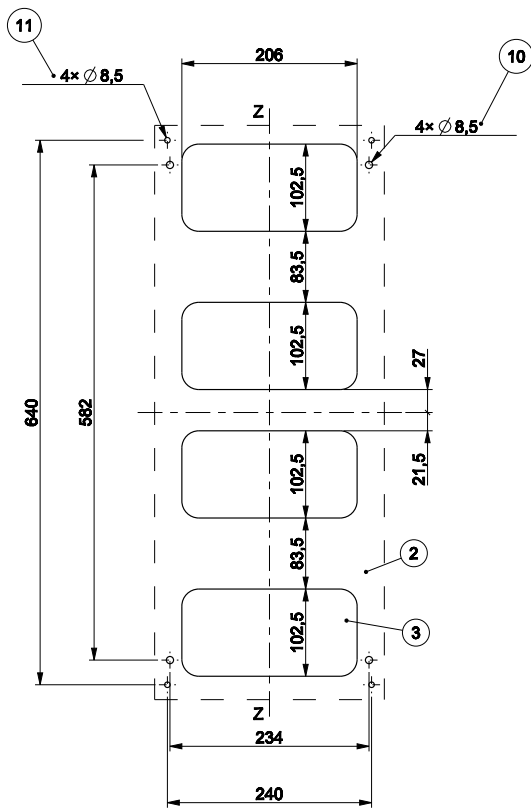
Vertical interlock between two circuit breakers (MIR-V)



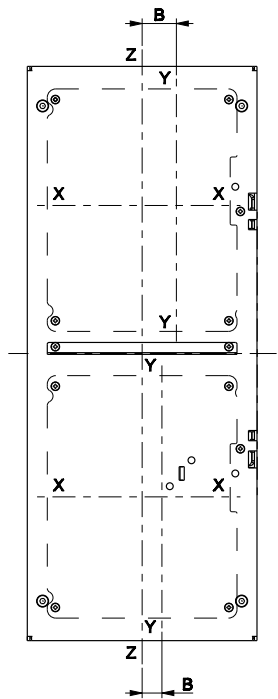
Key

- 1 Interlocking mechanism
- 4 Tightening torque 3,7Nm
- 5 Tightening torque 3Nm
- 6 Tightening torque 2,5Nm
- 7 Interlocking plate for circuit-breakers
- 8 Provision for 4p circuit-breaker
- 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



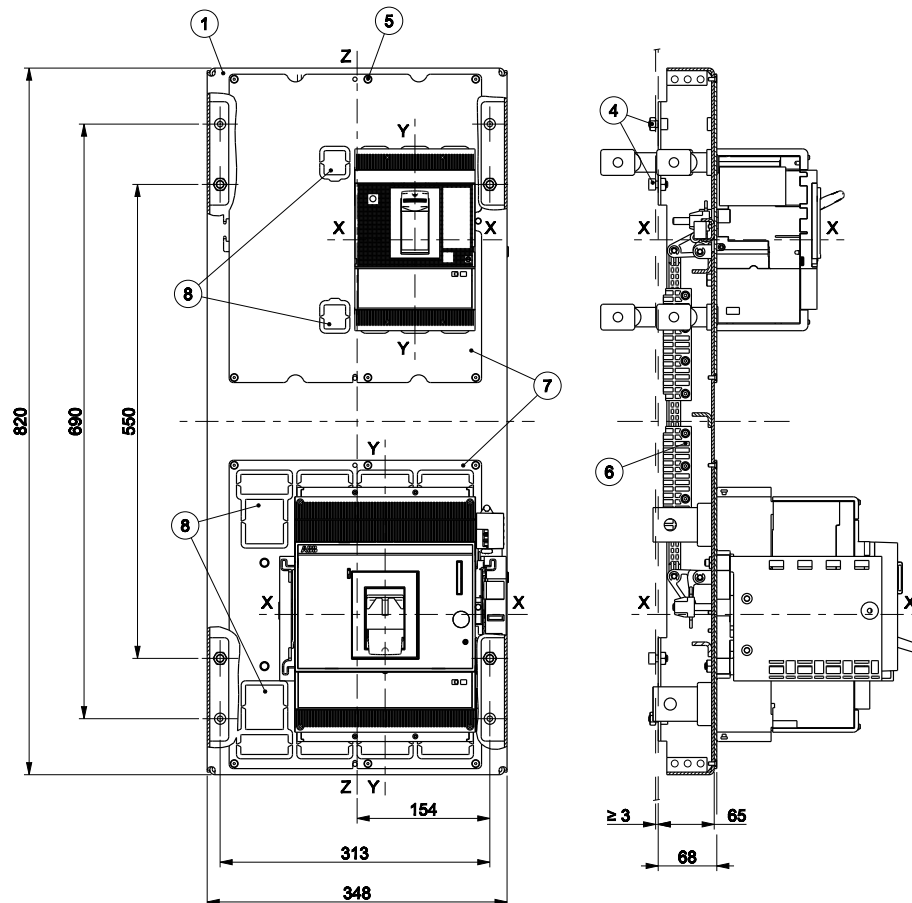
- Key
- 2 Drilling template for fixing interlocking system
 - 3 Drilling template for all version with rear terminals
 - 10 Hole for front mounting only
 - 11 Hole for rear mounting only

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

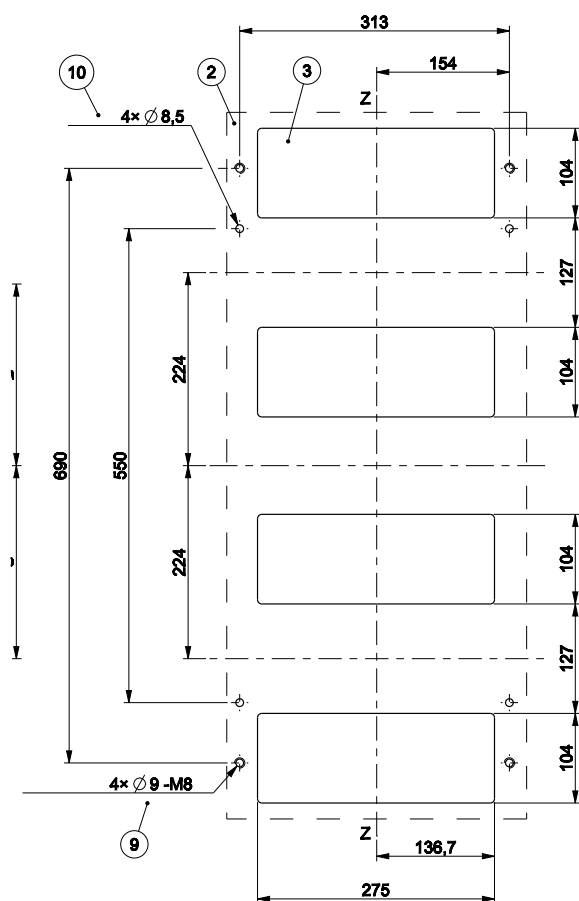
Vertical interlock between two circuit breakers (MIR-V)



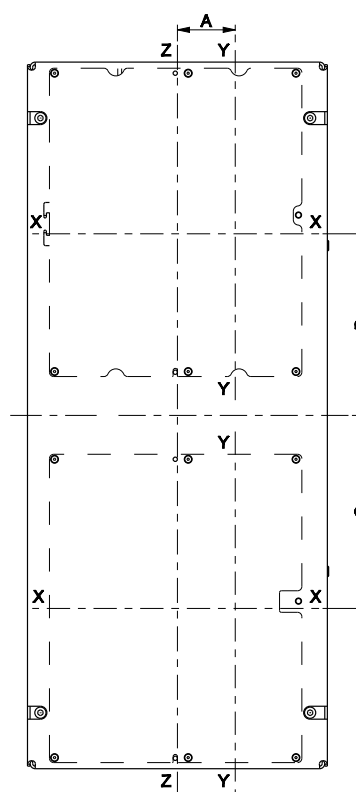
Key

- 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 4xØ9-M8 hole for
front mounting only
- 10 4xØ9 hole for rear
mounting only

Coupling 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

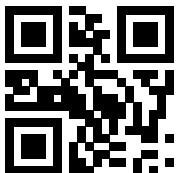
Wiring diagrams

Reading information

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

Wiring diagrams

- 3/13** Diagrams for XT1...XT4
- 3/17** Diagrams for XT5-XT6
- 3/37** Diagrams for XT7 and XT7 M
- 3/61** XT2-XT4-XT5-XT7-XT7 M modules
- 3/70**



To access the full set of wiring diagrams in ABB Library scan the QR code or enter through the following link: to.abb/Z4hPKw-D

Reading information

Graphical symbols for electrical diagrams (60617 IEC STANDARDS)

Graphical symbols for electrical diagrams (Standards IEC 60617)

	Thermal effect		Conductors with corded cables (example two conductors)		Three-phase asynchronous motor, with short-circuited rotor (cage)
	Electromagnetic effect		Key operating mechanism		Current transformer
	Timing		Cam operating mechanism		Current transformer with primary consisting of 4 passing conductors and with wound secondary, with socket
	Mechanical connection		Ground (general symbol)		Closing contact
	Manual mechanical operating mechanism (general case)		Connection of conductors		Voltmeter
	Rotary handle operating mechanism		Terminal or clamp		Opening contact
	Pushbutton operating mechanism		Socket and plug (female and male)		Changeover contact with momentary break
	Converter separated galvanically		Resistor (general symbol)		Closing position contact (limit switch)
	Conductors in shielded cable (example two conductors)		Resistor dependent on the temperature		Opening position contact (limit switch)
	Watt-hour meter		Motor (general symbol)		Changeover contact with momentary break (limit switch)

	Contactor (closing contact)		Overcurrent release with long inverse adjustable time delay characteristic		Brush
	Power cut-off of switch- disconnecter power with automatic opening		Overcurrent release for earth fault with short inverse time characteristic		Wattmeter
	Switch-disconnector		Current relay for unbalance between phases		Screen, shield (it may be drawn in any convenient shape)
	Control coil (general symbol)		Residual current release		Ideal current source
	Thermal trip unit		Relay for detecting lack of phase in a three-phase system		Three connections
	Instantaneous overcurrent release		Relay for detecting blocked rotor by means of current measurement		Voltage transformer
	Ammeter		Lamp, general symbol		Winding of three-phase transformer, connection star
	Overcurrent release with short adjustable time delay characteristic		Motor with excitation in series		Primary cell, secondary cell, battery of primary cell or secondary cell
	Overcurrent release with short inverse adjustable time delay characteristic				

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
- | 41...43 51...53 = Analog inputs from temperature sensor
- | 44-54 = Analog inputs from 4-20mA sensor
- | Pt100 = Analog input from Pt100 temperature sensor of motor
- I reset = Digital input for resetting tripped motor 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 (110-240VAC/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	W2	= Serial interface with internal bus (local bus)
S75E/1-2	= Contacts for signaling circuit-breaker in withdrawn position (only applicable to withdrawable circuit-breaker versions)	W9...14	= Connector RJ45 for interface unit and for communication modules
S75I/1-2-5	= Contacts for signaling circuit-breaker in racked-in position (only applicable to withdrawable or plug-in circuit-breaker versions)	W9R...12R	= Connector RJ45 for redundant communication modules
S87/1	= Contact for electrical signaling of residual current relay prealarm	X3-X4-X8	= Protection relay connectors
S87/2	= Contact for electrical signaling of residual current relay alarm	X41	= Connector of current circuit for external neutral
S87/3	= Contact for electrical signaling of circuit-breaker open due to residual current relay trip	XB..	= Three-way connector for auxiliary circuits of plug-in circuit-breaker
SC	= Pushbutton or contact for closing the circuit-breaker	XC..	= Six-way connector for auxiliary circuits of plug-in circuit-breaker
SC3	= Motor start pushbutton	XC2-3	= Six-way connector for auxiliary circuits of plug-in circuit-breaker for voltage up to 400V
SD	= Residual current relay supply disconnecter	XCT1-2	= Terminal box of Ekip DIN Rail Cartridge Basic or Ekip DIN Rail Cartridge
SO	= Pushbutton or contact for opening circuit-breaker	XD..	= Nine-way connector for auxiliary circuits of plug-in circuit-breaker
SO3	= Motor stop pushbutton	XE..	= Fifteen-way connector for auxiliary circuits of plug-in circuit-breaker
SR	= Electrical reset pushbutton or contact	XF..	= Ekip Com type interface unit connector
SY/1...3	= Contacts for signaling circuit-breaker open due to tripped overcurrent protection relay, thermomagnetic release and coils Y0, Y01, Y02, YU (tripped position)	XG	= Protection relay connector
TI	= Toroidal current transformer	XH1	= Protection relay connector
TI/L1-L2-L3	= L1-L2-L3 phase current transformer	XK7	= Connector of contact S75I/5
TI/N	= Current transformer on neutral	XM	= MOE-E actuator unit connector
TU2	= Insulation voltage transformer (outside circuit-breaker)	XV	= Terminal box of circuit-breaker applications
Uaux	= Auxiliary supply voltage	YC	= Closing coil of stored energy motor operator
V1	= Circuit-breaker applications	YO	= Opening coil
V2	= Motor operator applications	YO1	= Coil for opening due to overcurrent
V4	= Indicative switchgear and connections for operation and signaling, outside circuit-breaker	YO2	= Opening coil of residual current relay
V5	= Ekip DIN Rail Cartridge Basic or Ekip DIN Rail Cartridge applications	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 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. 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.
- O) 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 1SDCO0741ZGO201 "Communication with SACE Emax 2 circuit-breakers" for further details.
- V) Use Belden 3084A cables or equivalent. Consult White Paper 1SDCO07412G0201 "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 thermocouples 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	K51/TEMP=	Temperature monitoring
A12	= Ekip Com type Interface unit	K87	= Residual current release type RC Inst, RC Sel, RC Sel 200, RC B Type
A13	= Ekip Signaling 10K type signaling unit	KO	= Auxiliary opening relay
A14	= MOE-E type stored energy motor operator actuating unit	M	= Motor for opening circuit-breaker and loading closing springs
A15	= Ekip Multimeter type measurement unit	0 01-11...32	= Programmable signaling contacts
A16	= Ekip Micro Module I/O type interface unit	OCI	= Contact for motor starting contactor operating mechanism
A17	= MOE type stored energy motor operator actuating unit	O SC	= Synchronism monitoring contact
A18	= Ekip DIN Rail Cartridge Basic	Q	= Main circuit-breaker
A19	= Ekip DIN Rail Cartridge	Q/0..7	= Auxiliary contacts of the circuit-breaker open/closed
BUS1	= Serial interface with external bus	Q/26	= Open/Close auxiliary used internally by protection release
BUS2	= Redundant serial interface with external bus	R	= Resistor
LINK BUS	= Interface with external Link bus	R2	= Pt100 temperature sensor of motor
D	= Electronic time delay device for undervoltage release coil YU, outside circuit-breaker (only for voltages up to 250V)	S1	= Contact controlled by the motor operator cam
H2	= Signaling lamp for stored energy motor operator blocked	S3/1-2	= Contacts controlled by Auto/Manual selector switch and key lock of motor
I 01-11...32	= Programmable digital inputs	S4/1-2	= Early auxiliary contacts
I 41-51	= Analog inputs from 4-20mA sensor	S4/1-4	= Early auxiliary contacts operated by circuit-breaker mounted crank handle
I 42-44 52...54	= Analog inputs temperature sensor	S51	= Contact for signaling circuit-breaker open due to tripped thermomagnetic overcurrent protection release or electronic relay
I Pt 100	= Analog input from Pt 100 temperature sensor of motor	S52	= YU/YO trip signaling contact (for voltage up to 250V)
I reset	= Digital input for resetting tripped motor startin contactor operating unit	S75E/1	= Contact for signaling circuit-breaker in racked out position (only applicable to withdrawable circuit-breaker versions)
J...	= Connectors for auxiliary circuits of a withdrawable circuit-breaker. Withdrawal of connectors occurs at the same time as that of circuit-breaker	S75E/1-2-3	= Contacts for signaling circuit-breaker in racked-in position (only applicable to withdrawable or plug-in circuit-breaker versions)
K	= Motor starting contactor	S75T/1	= Contact for signaling circuit-breaker in test position (only applicable to withdrawable circuit-breaker versions)
K51	= Ekip type electronic relay for overcurrent protection	S87/1	= Contact for electrical signaling of residual current relay prealarm
K51/CI	= Motor starting contactor operator module	S87/2	= Contact for electrical signaling of residual current relay alarm
K51/COM	= Communication module		
K51/SIGN	= Signaling module		
K51/SUPPLY	= Auxiliary supply module (110-240VAC/DC and 24-48Vdc)		
K51/SYNC	= Synchronizing module		

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	XCT1-2	= Terminal box of Ekip DIN Rail Cartridge Basic or Ekip DIN Rail Cartridge
SC	= Pushbutton or contact for closing the circuit- breaker	XD..	= Nine-way connector for auxiliary circuits of plug-in circuit-breaker
SC3	= Motor start pushbutton	XE..	= Fifteen-way connector for auxiliary circuits of plug-in circuit-breaker
SD	= Residual current relay supply disconnecter	XF..	= Ekip Corn type interface unit connector
SO	= Pushbutton or contact for opening circuit-breaker	XH1	= Protection relay connector
S03	= Motor stop pushbutton	XV	= Terminal box of circuit-breaker applications
SR	= Electrical reset pushbutton or contact	YC	= Closing coil of stored energy motor operator
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)	YO	= Opening coil
TI	= Toroidal current transformer	Y01	= Coil for opening due to overcurrent
TI/L1-L2-L3	= L1-L2-L3 phase current transformer	Y02	= Opening coil of residual current relay
TI/N	= Current transformer on neutral	YU	= Undervoltage coil
TU2	= Insulation voltage transformer (outside circuit-breaker)	YU/0	= Undervoltage and opening coil (Combo)
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		

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

SZo(DFo)	= Zone selectivity output for S protection or output in "forward" direction for D protection
TI/L1-L2-L3	= Current transformer phase L1-L2-L3
TI/N	= Current transformer on neutral
TU1-2	= Insulation voltage transformer (outside circuit-breaker)
Uaux	= Auxiliary supply voltage
UI/L1-L2-L3	= Current sensor phase L1-L2-L3
UI/N	= Current sensor on neutral
UI/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

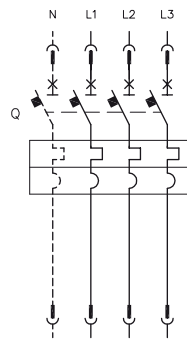
- A) Auxiliary power supply must be present for zone selectivity and local bus functions (consult Fig. 31-32).
- B) When there are mixed auxiliary contacts, 01 and 02 are 400V, while 03-04 are 24V.
- C) Always supplied with Ekip Com module.
- D) Always supplied with motor for loading closing springs 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

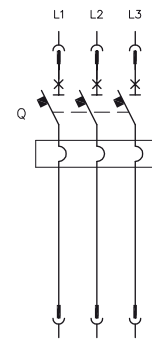
Information on how to read the diagrams

- 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 1'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.

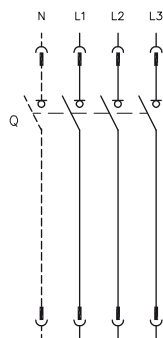
Wiring diagrams



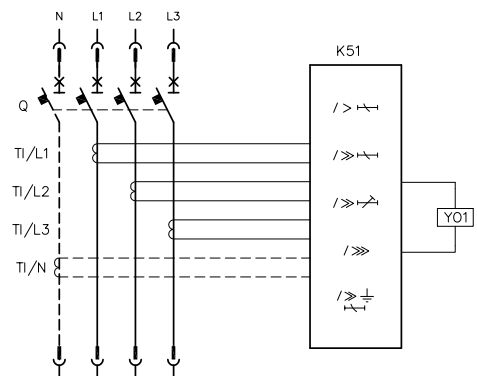
Three-pole or four-pole circuit-breaker with thermal magnetic trip unit



Three-pole circuit-breaker with magnetic trip unit

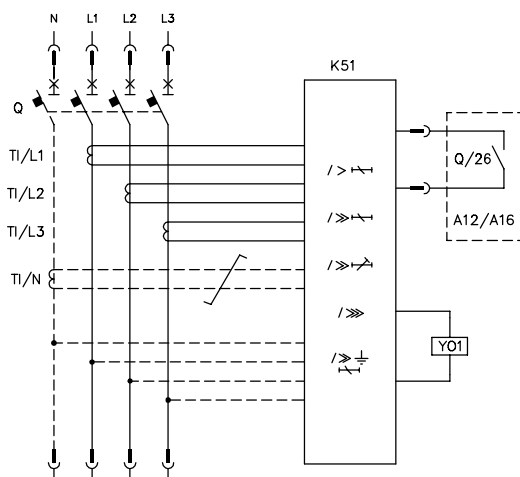


Three-pole or four-pole switch-disconnector

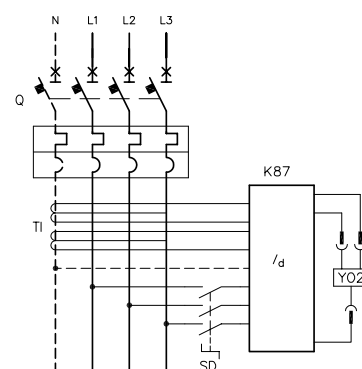


Three-pole or four-pole version circuit-breaker with Ekip Dip trip unit

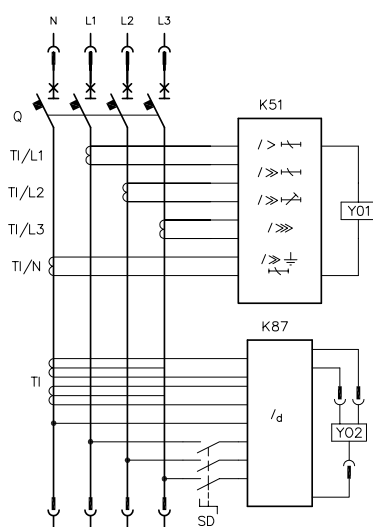
Wiring diagrams



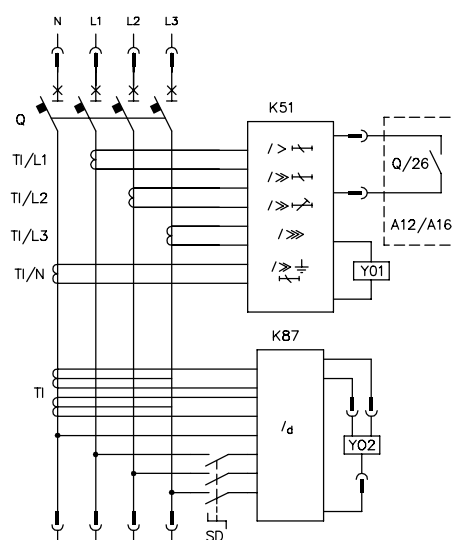
Three-pole or four-pole version circuit-breaker
XT5-XT6 with Ekip Touch trip unit



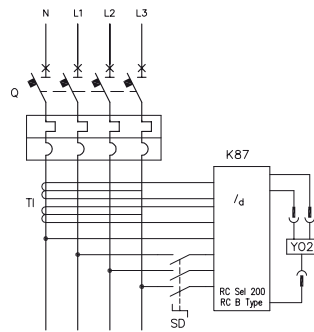
Three-pole or four-pole version circuit-breaker
with thermal magnetic trip unit and residual
current device



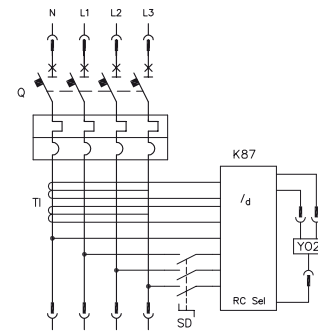
Three-pole or four-pole version circuit-breaker
with Ekip Dip trip unit and residual current device



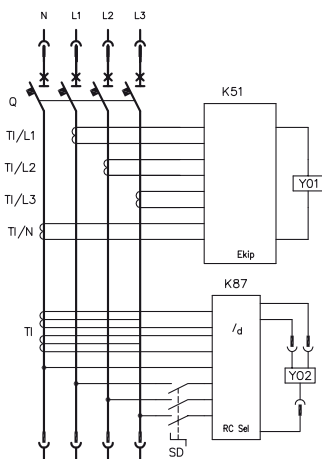
Three-pole or four-pole version circuit-breaker
with Ekip Touch trip unit and residual current
device



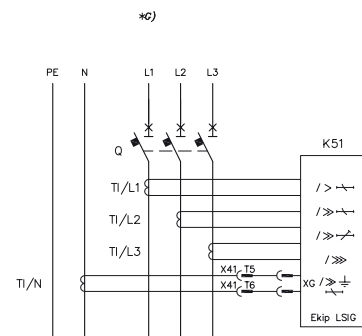
Four-pole circuit-breaker with thermal magnetic trip unit and RC Sel 200 or RC B type residual current release



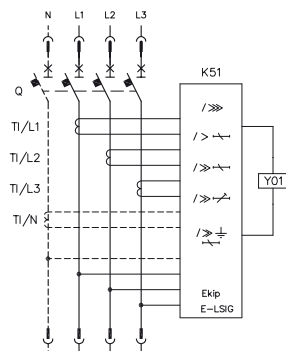
Four-pole circuit-breaker with thermal magnetic trip unit and RC Sel residual current release



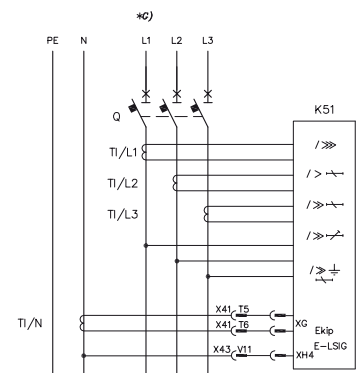
Four-pole circuit-breaker with electronic trip unit and RC Sel residual current release



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

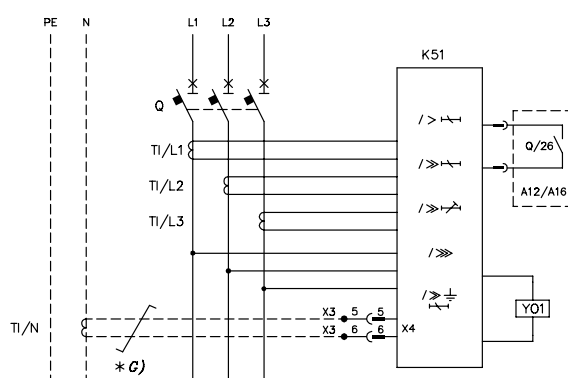


Three-pole or four-pole XT4 circuit-breaker with Ekip E-LSIG microprocessor based release

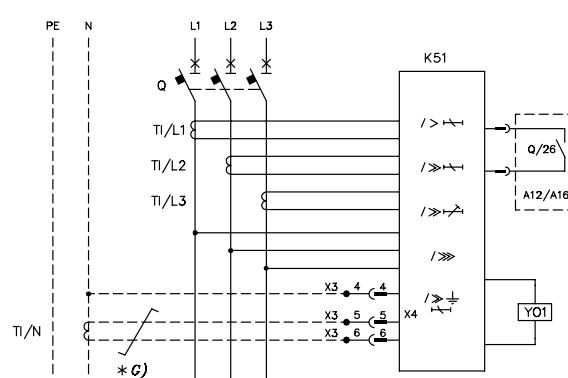


Fixed version three-pole XT4 circuit-breaker with Ekip E-LSIG with current transformer on neutral conductor, external to circuit-breaker

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

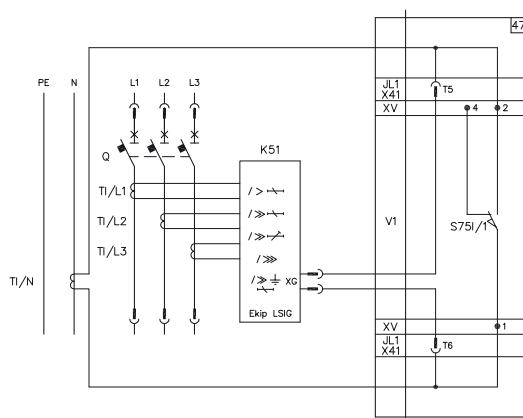
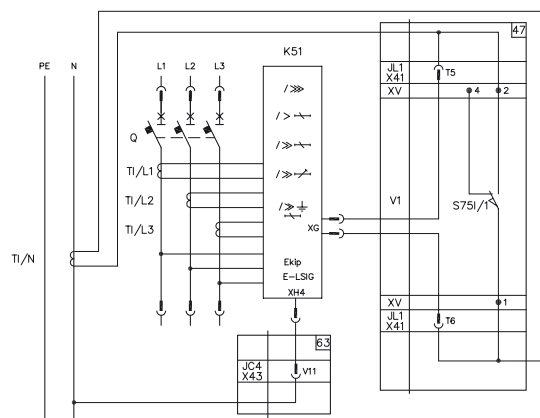


Diagram recommended for three-pole plug-in or withdrawable version circuit-breakers with Ekip Dip trip unit with current sensor on the neutral conductor outside the circuit-breaker

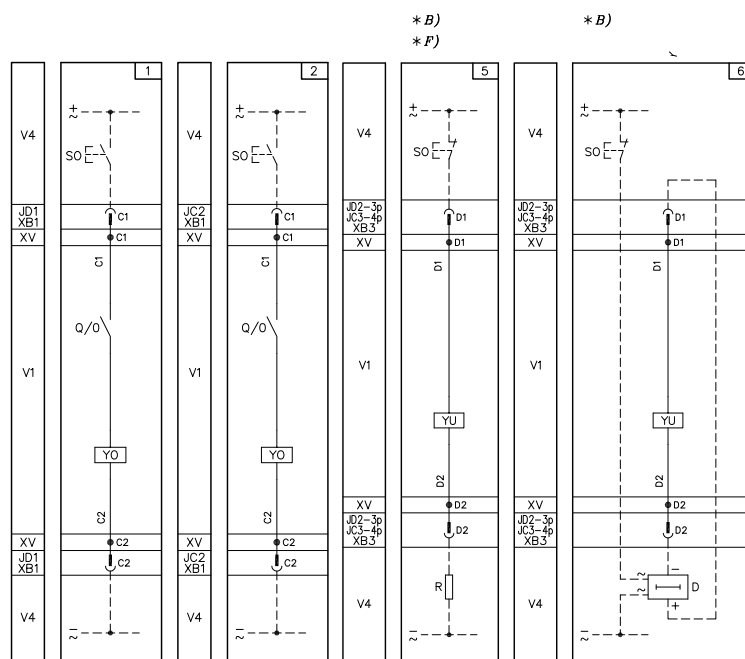


Recommended diagram for plug-in or withdrawable version three-pole circuit-breakers with Ekip Dip trip unit, current transformer and voltage connection on neutral conductor, external to circuit-breaker

Wiring diagrams

Diagrams for XT1...XT4

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



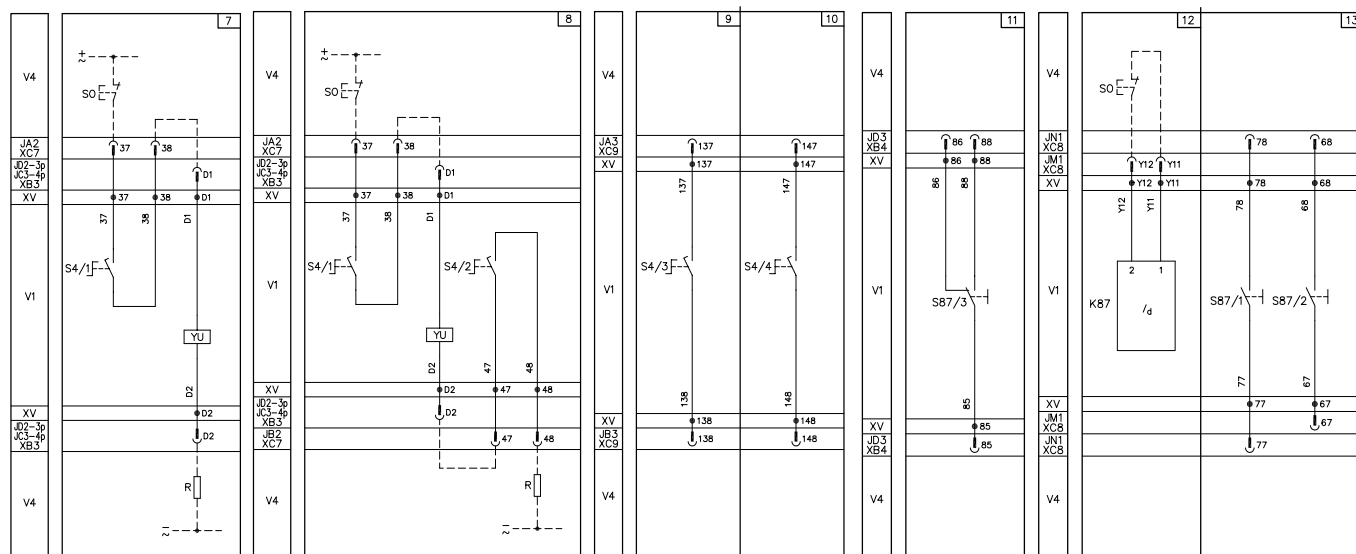
Wiring diagrams

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.

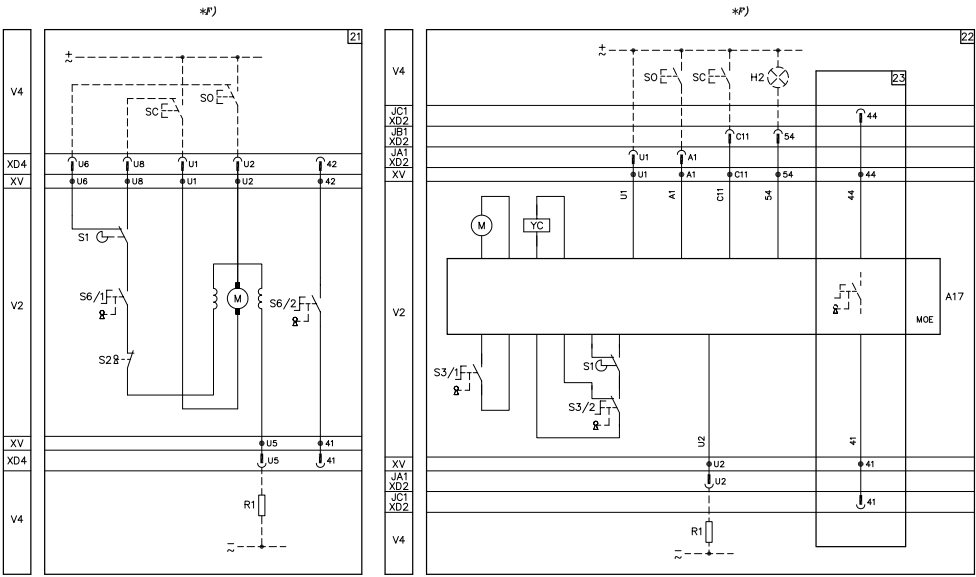
* B)
* C)
* F)

* B)
* C)
* F)



Motor operator

- 21) Direct control motor operator (MOD) (only for XT1 and XT3 fixed or plug-in circuit-breakers)
(see note I).
- 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.



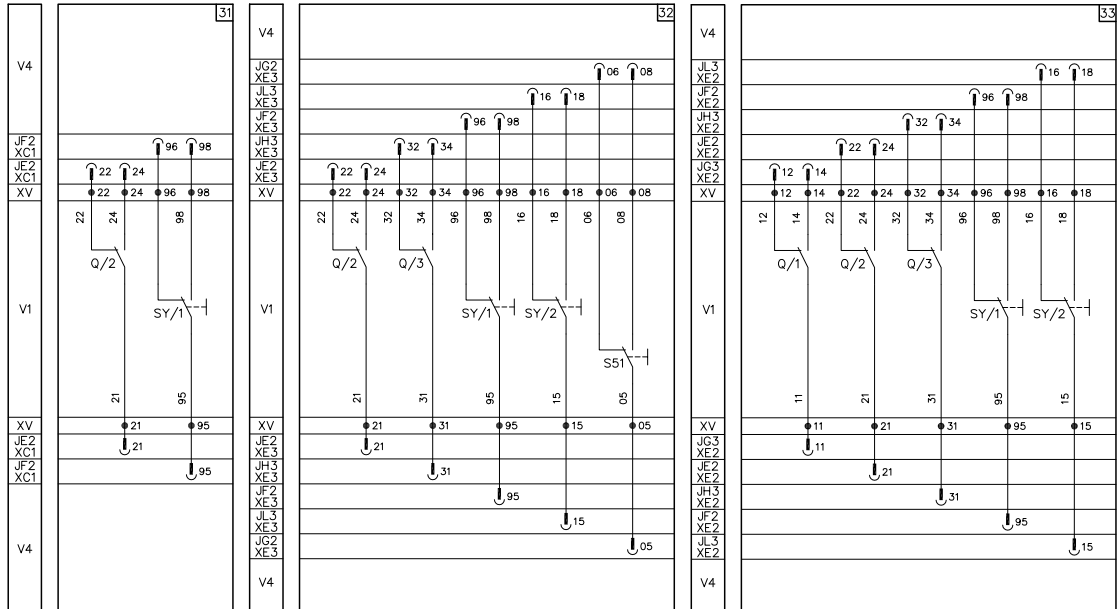
Wiring diagrams

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 thermal magnetic 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).

*I) *E)

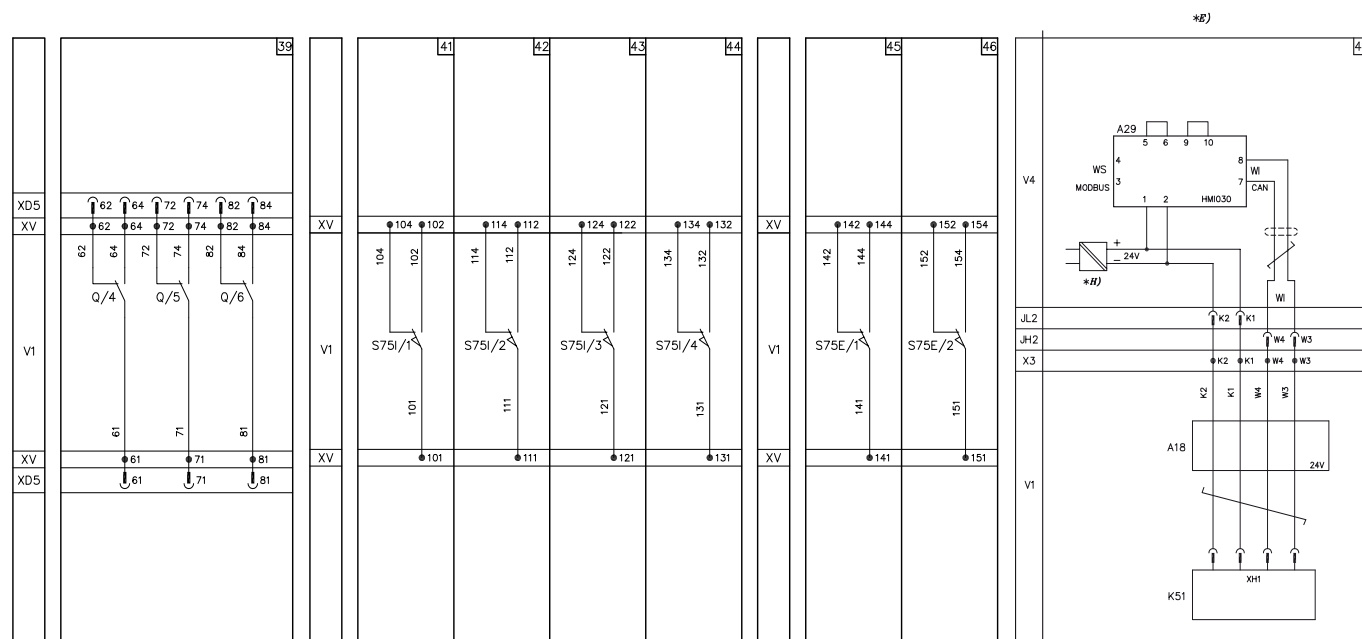


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Wiring diagrams

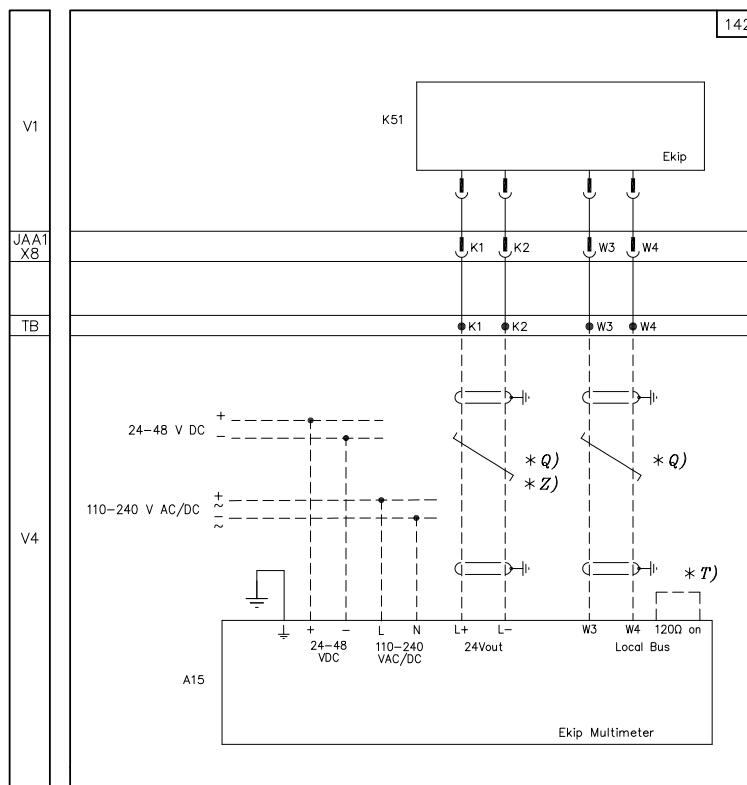
Diagrams for XT1...XT4

- 43) Three supplementary changeover contacts for electrical signaling of circuit-breaker open or closed (only for fixed or plug-in version circuit-breakers).
- 44) First changeover position contact of the circuit-breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit-breakers).
- 45) Second changeover position contact of the circuit-breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit-breakers).
- 46) Third changeover position contact of the circuit-breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit-breakers).
- 47) Fourth changeover position contact of the circuit-breaker, for electrical signaling of connected (only for plug-in or withdrawable version circuit-breakers).
- 48) First changeover position contact of the circuit-breaker, for electrical signaling of isolated (only for withdrawable version circuit-breakers).
- 49) Second changeover position contact of the circuit-breaker, for electrical signaling of isolated (only for withdrawable version circuit-breakers).



Signaling contacts

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

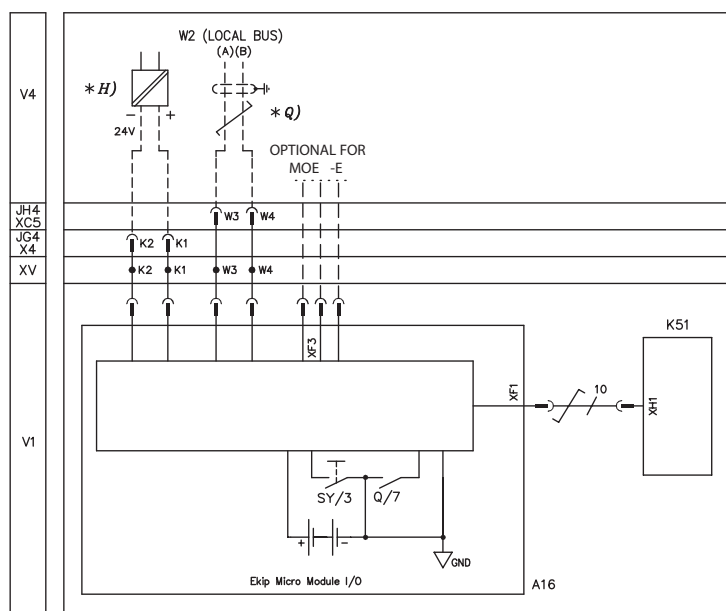


Wiring diagrams

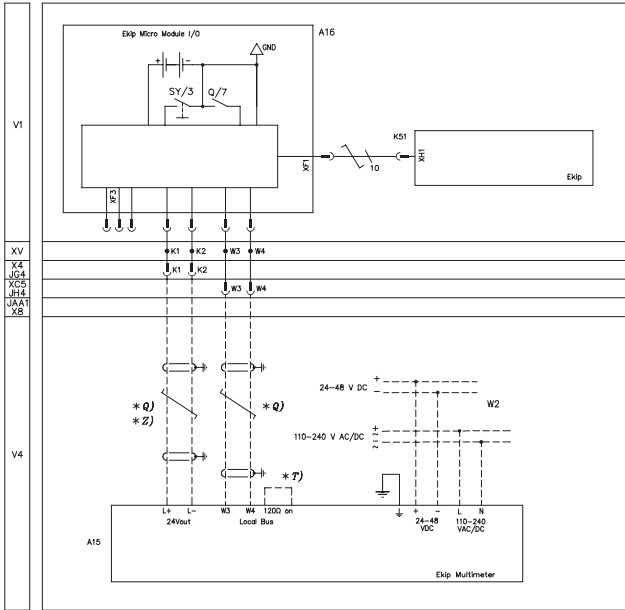
Diagrams for XT1...XT4

Electronic trip unit Touch/Hi-Touch with connections through Slim Micro I/O

Ekip Touch/Hi-Touch with Slim Micro I/O



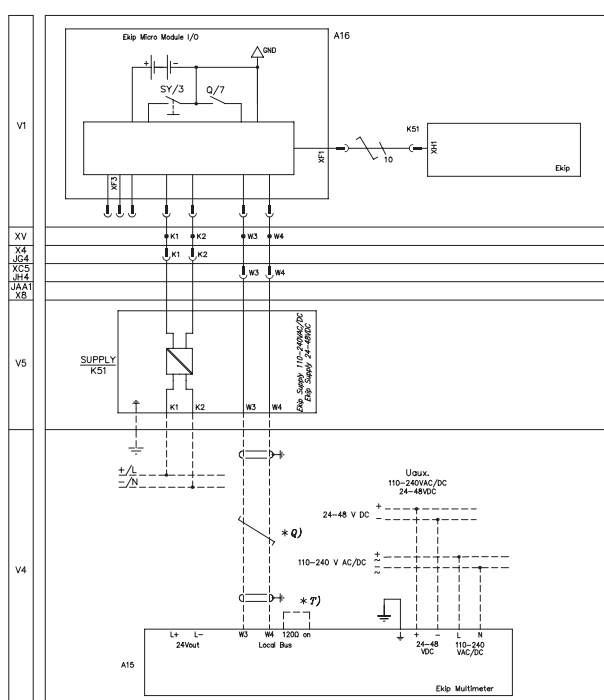
Ekip Touch/Hi-Touch with Slim Micro I/O and Ekip Multimeter



Wiring diagrams

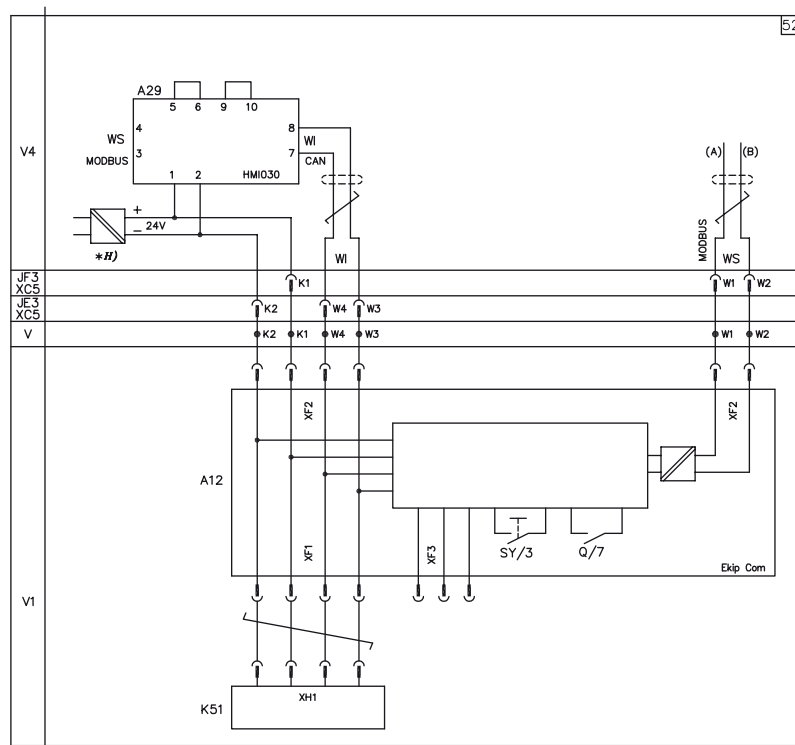
Diagrams for XT1...XT4

Ekip Touch/Hi-Touch with Slim Micro I/O, Ekip Cartridge and Ekip Multimeter



Auxiliary circuit of Ekip-Com

52) Auxiliary circuits of the Ekip Com type interface unit.

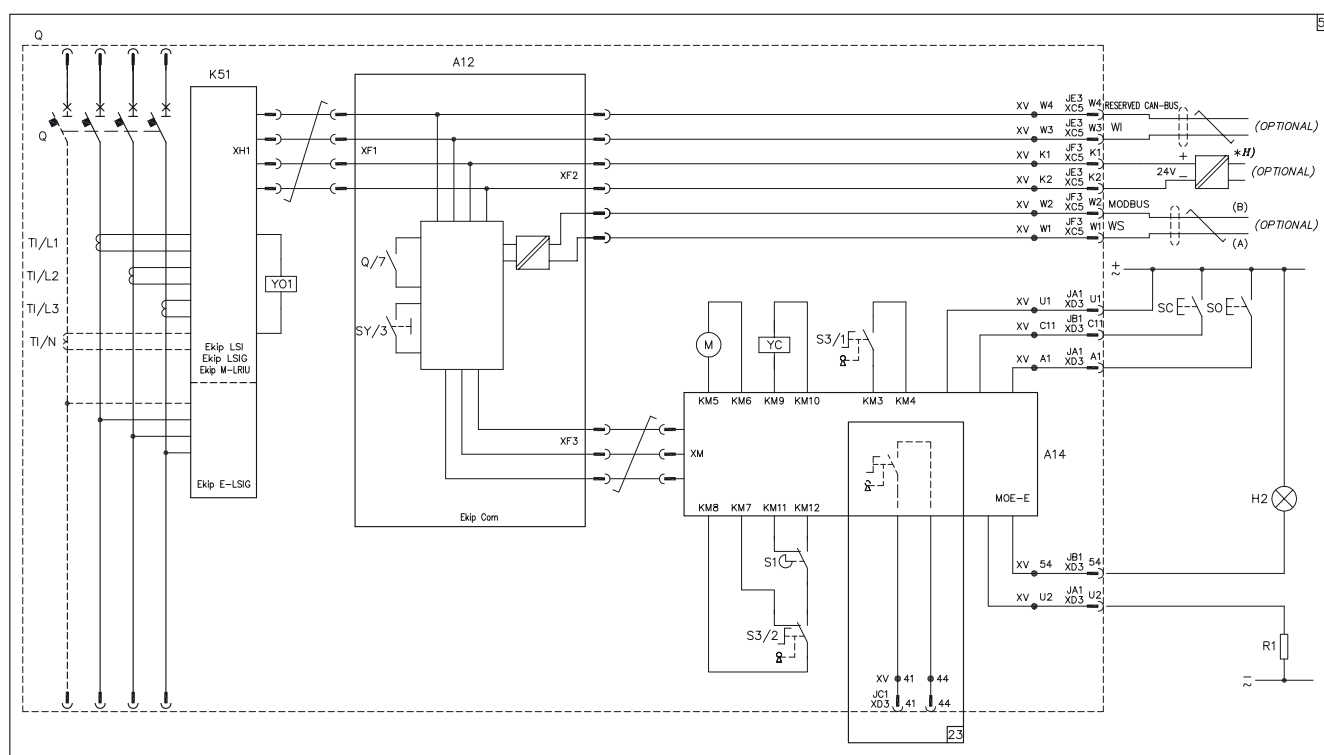


Wiring diagrams

Diagrams for XT1...XT4

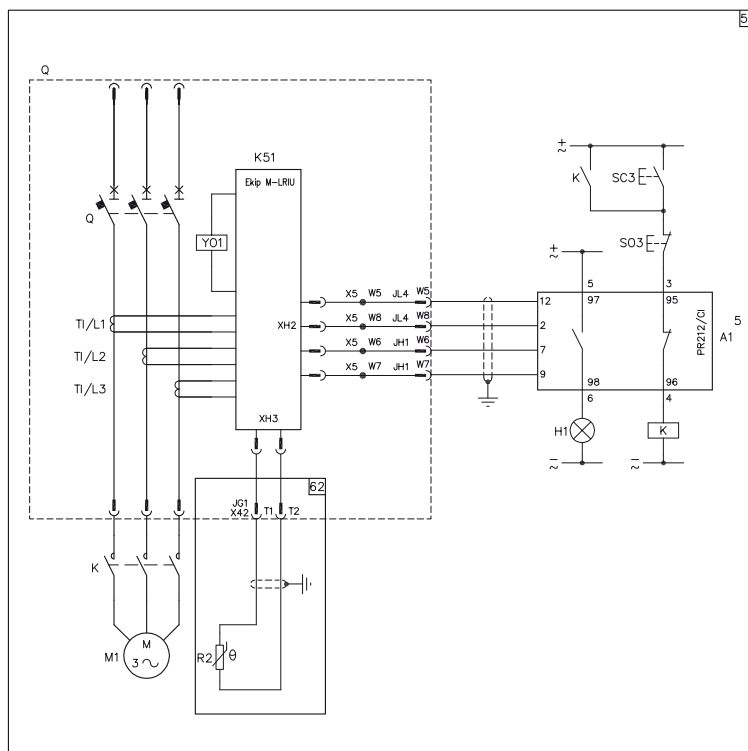
Electronic trip unit Ekip Ekip C Dip LSI/LSIG and Ekip Dip Measuring LSI/LSIG connected to interface unit Ekip Com and with actuator unit type MOE-E for the stored energy motor operator

- 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 C Dip LSI/LSIG and Ekip Dip Measuring LSI/LSIG connected to interface unit type Ekip Com and with actuator unit type MOE-E for the stored energy motor operator.



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 PR212/CI (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 SO2. 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.

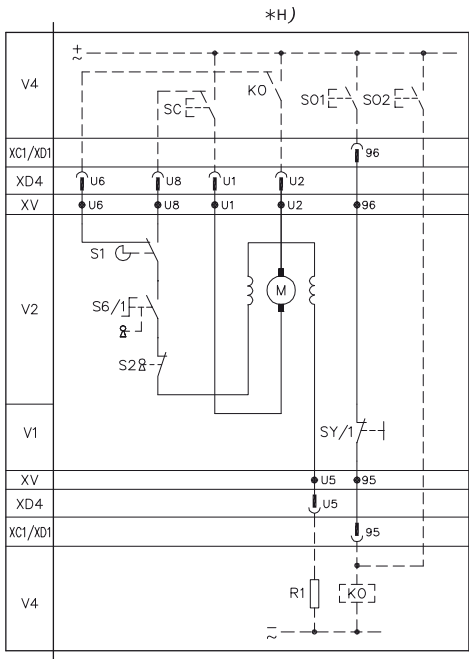
3. Electrical resetting always allowed

To be wired (by the customer): contact SO1, SO2, contact SY/1 and the auxiliary relay KO (only for MOD).

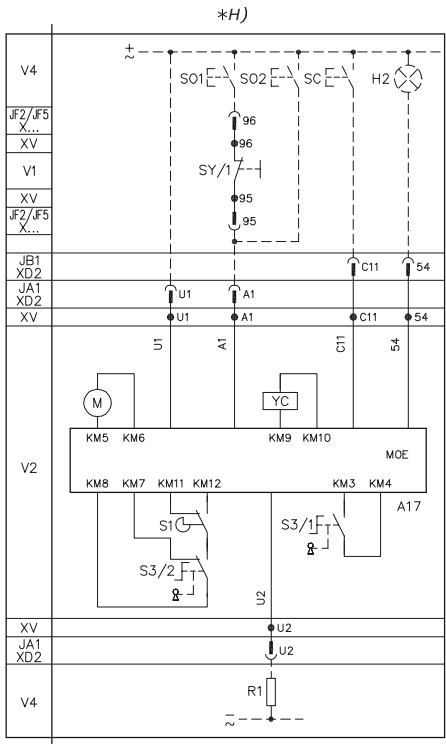
Opening is always allowed by means of contact SO2.

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



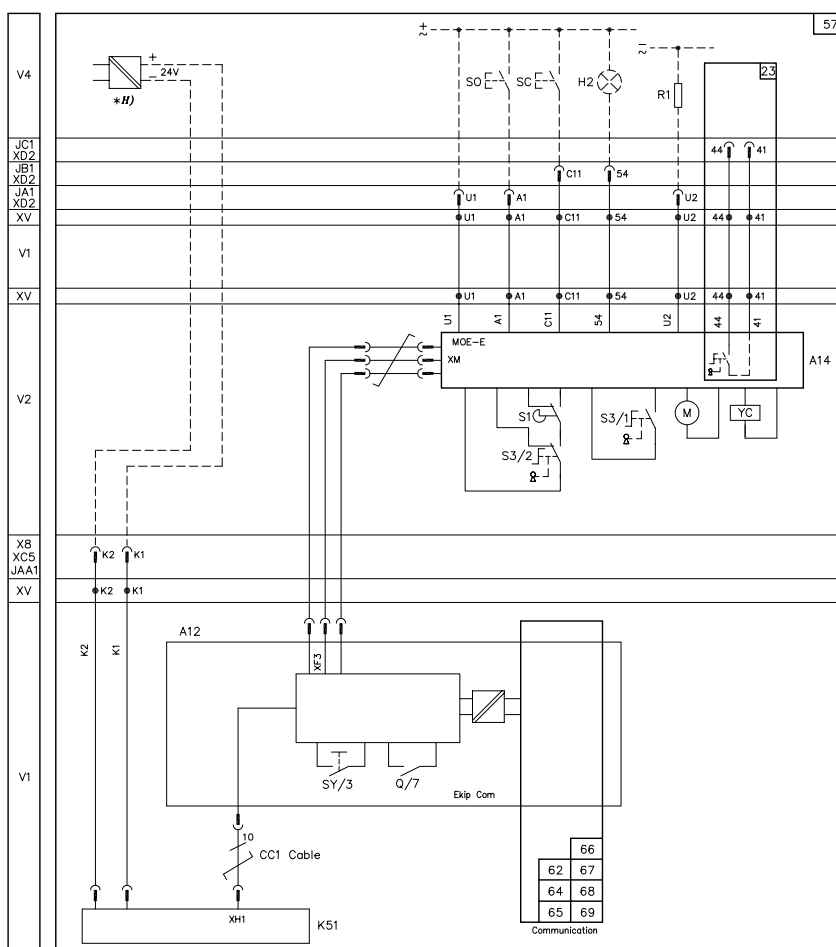
MOE or MOE-E



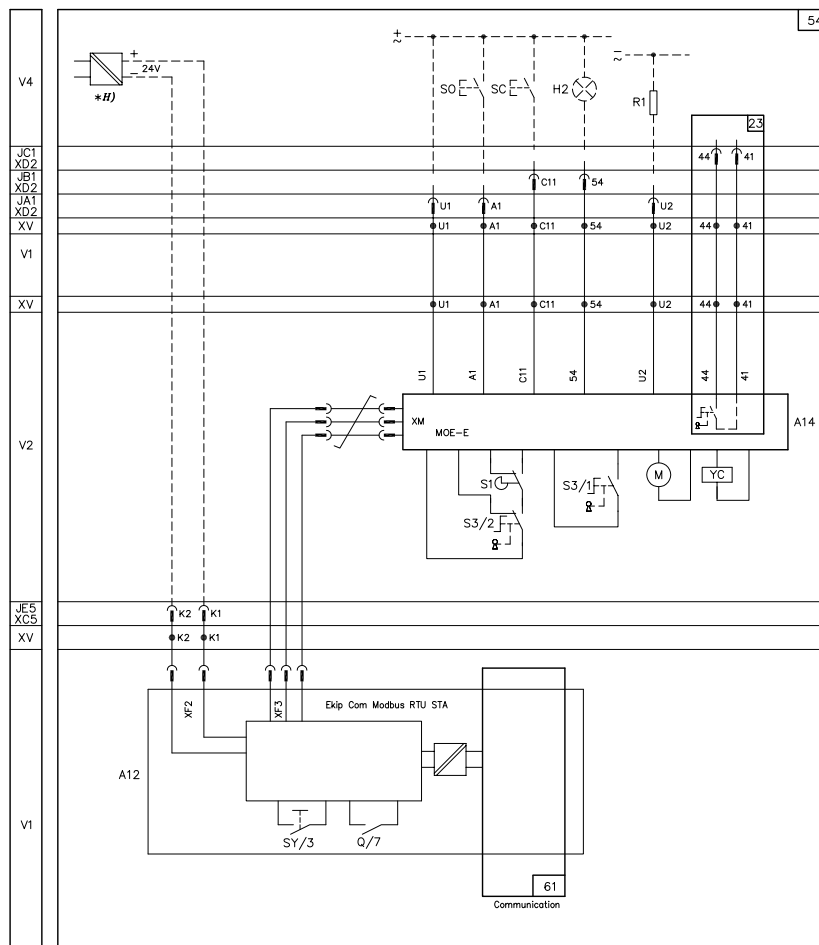
Wiring diagrams

Diagrams for XT1...XT4

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



54) 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

62) Modbus RTU interface of Ekip Com Unit to be installed inside the circuit-breaker

63) 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

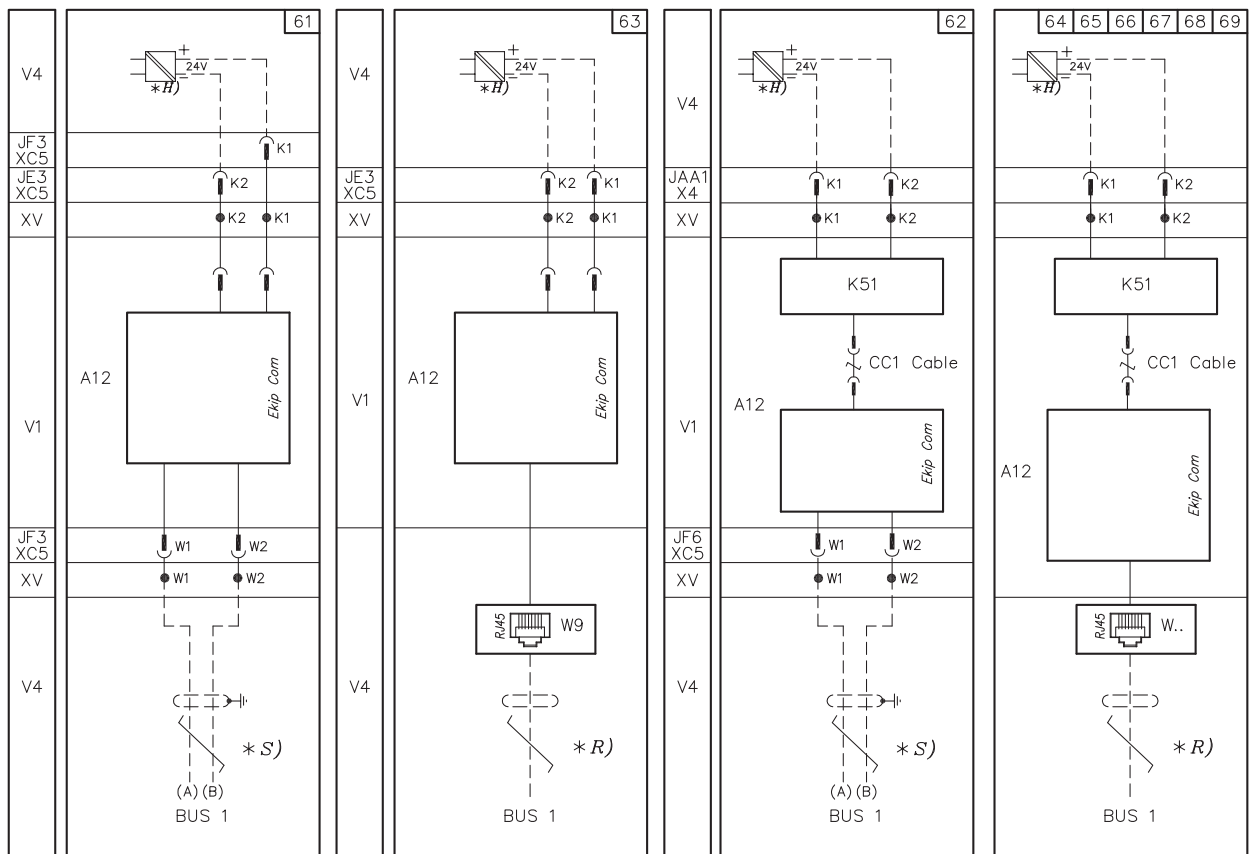
66) Ethernet IP interface of Ekip Com Unit to be installed inside the circuit-breaker

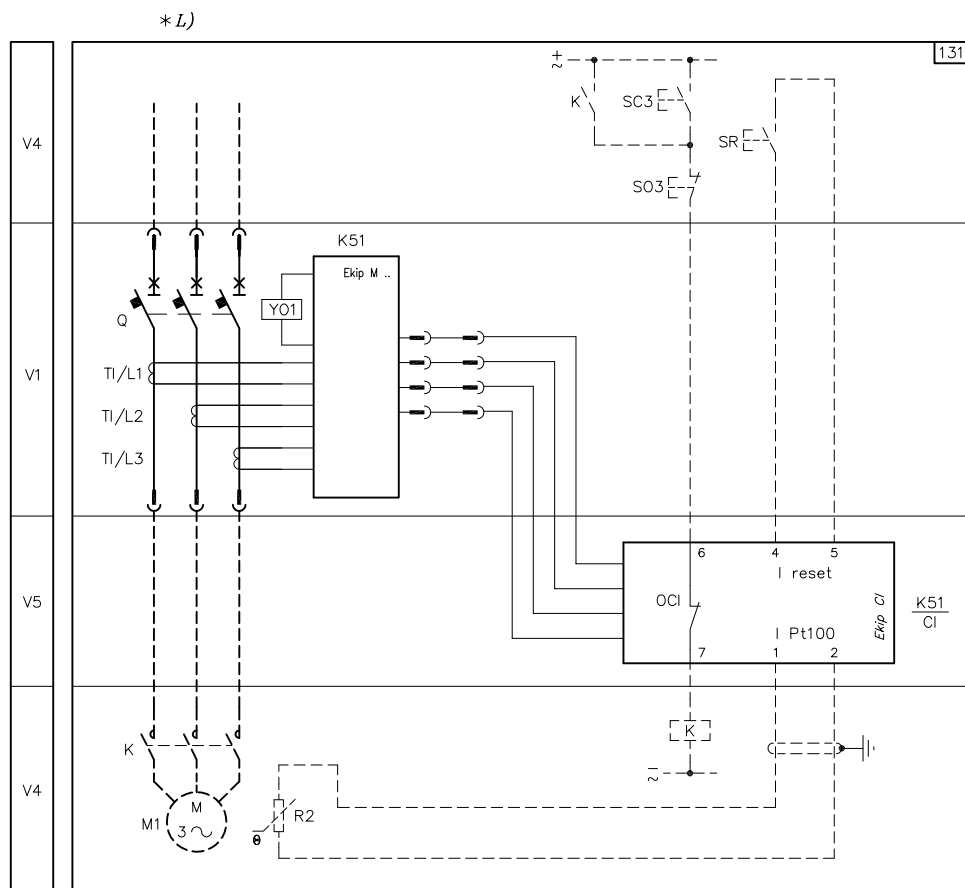
67) IEC61850 interface of Ekip Com Unit to be installed inside the circuit-breaker

68) Ekip Link interface of Ekip Com Unit to be installed inside the circuit-breaker

69) ABB Ability™ Edge Industrial Gateway interface of Ekip Com Unit to be installed inside the circuit-breaker

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

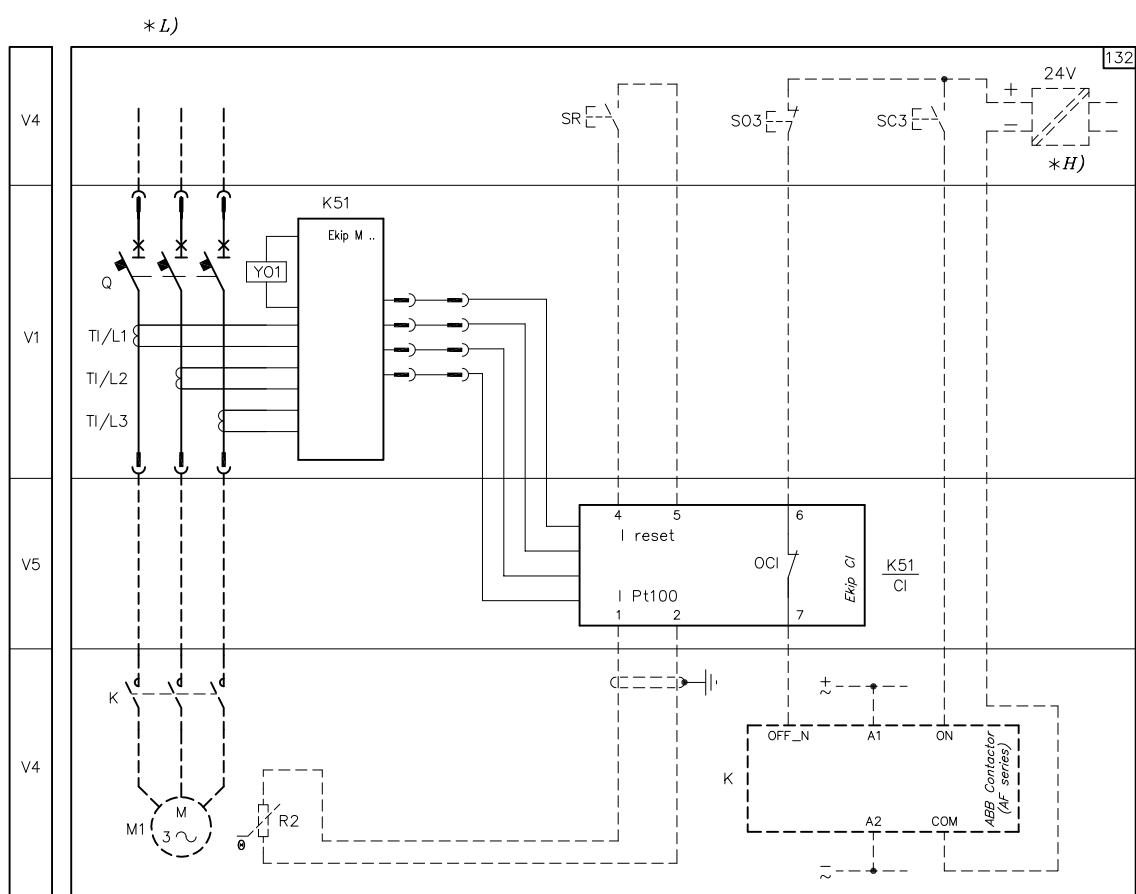


131) Motor starting module Ekip CI

Wiring diagrams

Diagrams for XT1...XT4

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

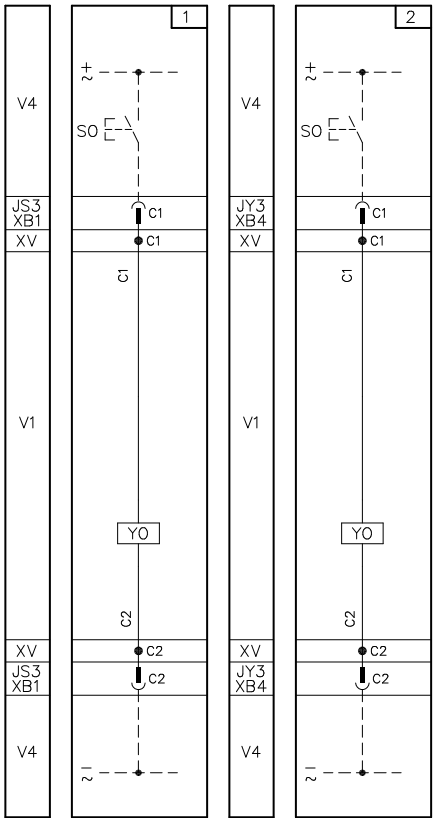




Wiring diagrams

Diagrams for XT5 and XT6

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



(1) Up to 380-440V YO version

Diagrams for XT5 and XT6

- *B)**

***C)**

The diagrams illustrate the electrical control circuit for a three-phase motor, showing the connection of the main switch (SO), the thermal relay (YU), and the contactors (D1, D2) through the interlocking devices (JS2, XB2).

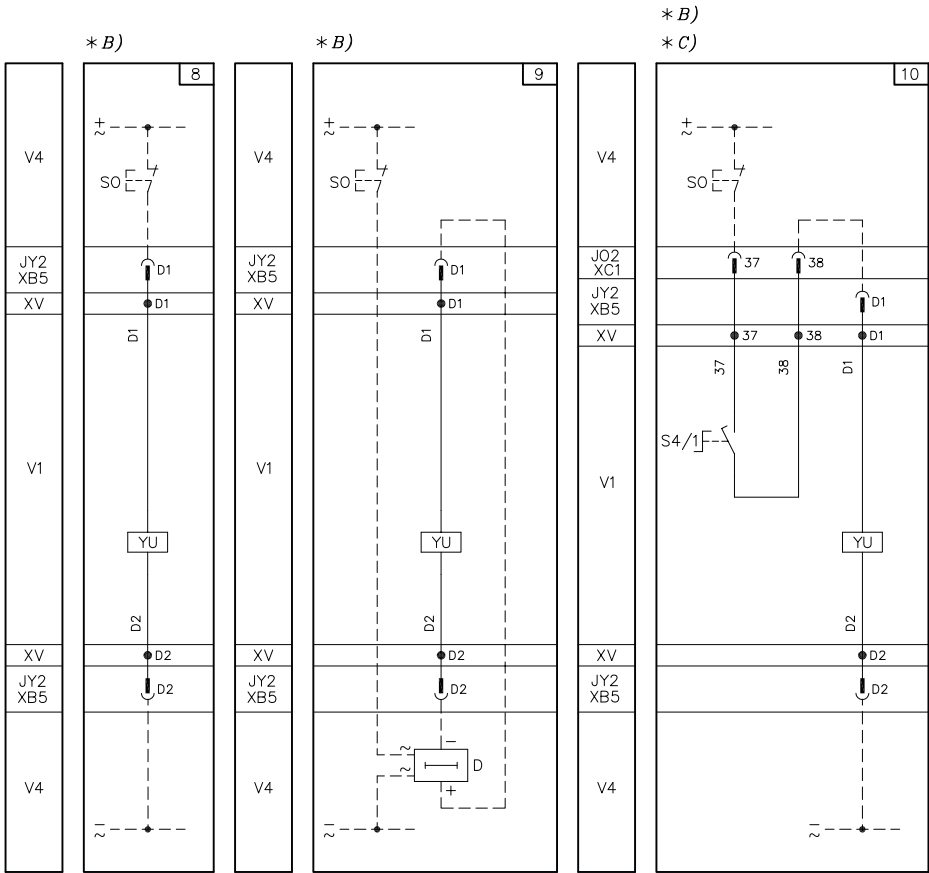
***B)** The circuit is a standard forward starting circuit. The main switch (SO) is connected to the three-phase supply (V4). The thermal relay (YU) is connected in series with the contactors (D1, D2). The interlocking devices (JS2, XB2) are connected in parallel with the contactors (D1, D2).

***C)** The circuit is a forward starting circuit with a stop button (D1) and a reset button (D2). The stop button (D1) is connected in series with the thermal relay (YU) and the contactors (D1, D2). The reset button (D2) is connected in parallel with the contactors (D1, D2).

***C)** The circuit is a forward starting circuit with a stop button (D1) and a reset button (D2). The stop button (D1) is connected in series with the thermal relay (YU) and the contactors (D1, D2). The reset button (D2) is connected in parallel with the contactors (D1, D2).

(1) Up to 380-440V YU version
(2) Up to 250V YU version

- 8) Instantaneous right undervoltage coil - YU⁽¹⁾
- 9) Right undervoltage coil with electronic time-delay device outside the circuit-breaker - YU⁽²⁾
- 10) Instantaneous right undervoltage coil in the version for machine tools with a contact in series - YU⁽¹⁾

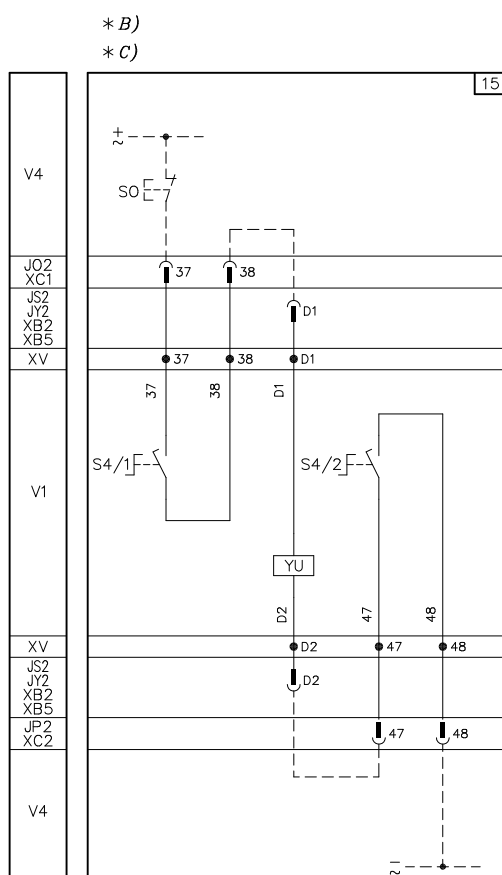


(1) Up to 380-440V YU version

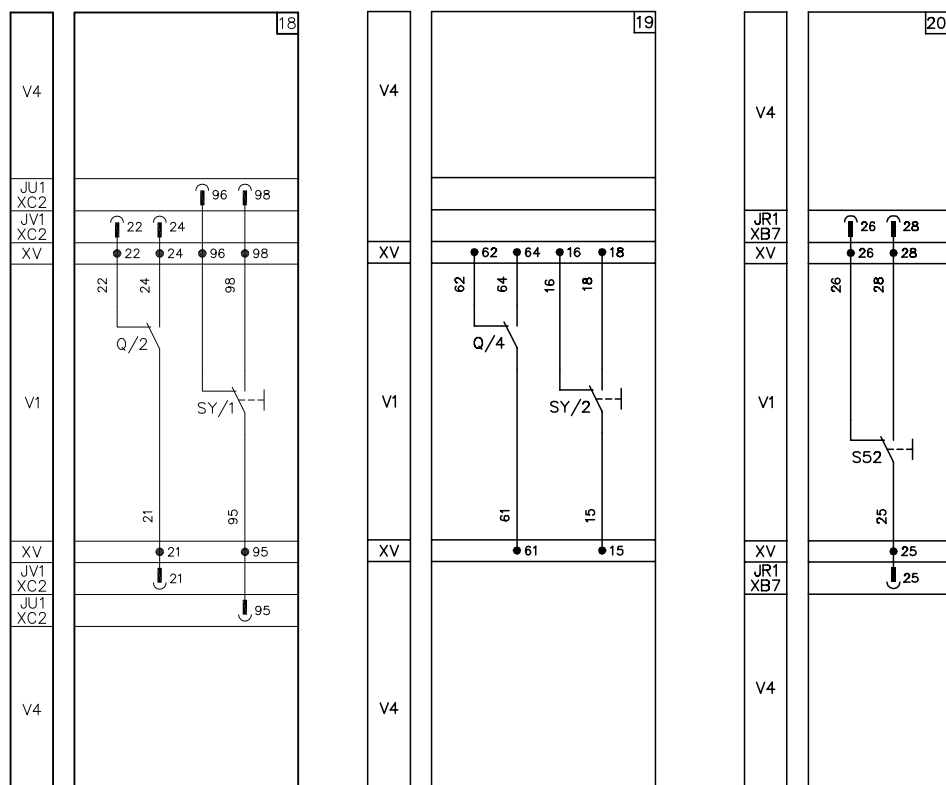
(2) Up to 250V YU version

Diagrams for XT5 and XT6

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



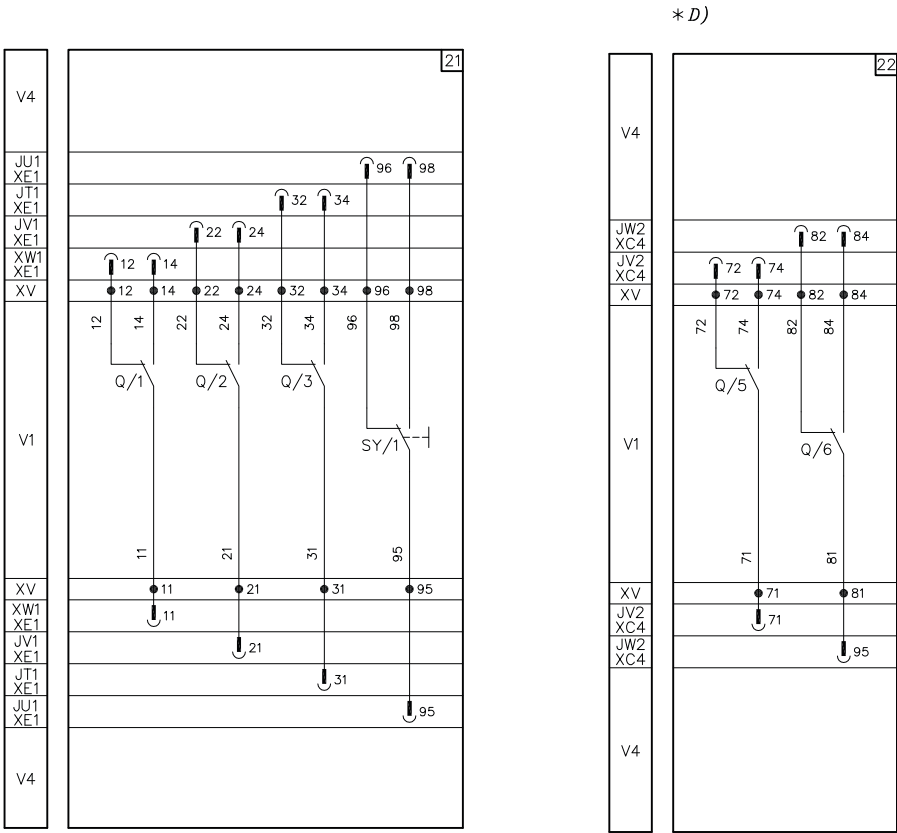
- 18) Open/closed circuit-breaker signalling contact and circuit-breaker tripped signalling contact (for voltage up to 250V)
- 19) Open/closed circuit-breaker signalling contact and circuit-breaker tripped signalling contact (for voltage up to 250V) left position
- 20) Signalling contact for minimum voltage relay tripping



Wiring diagrams

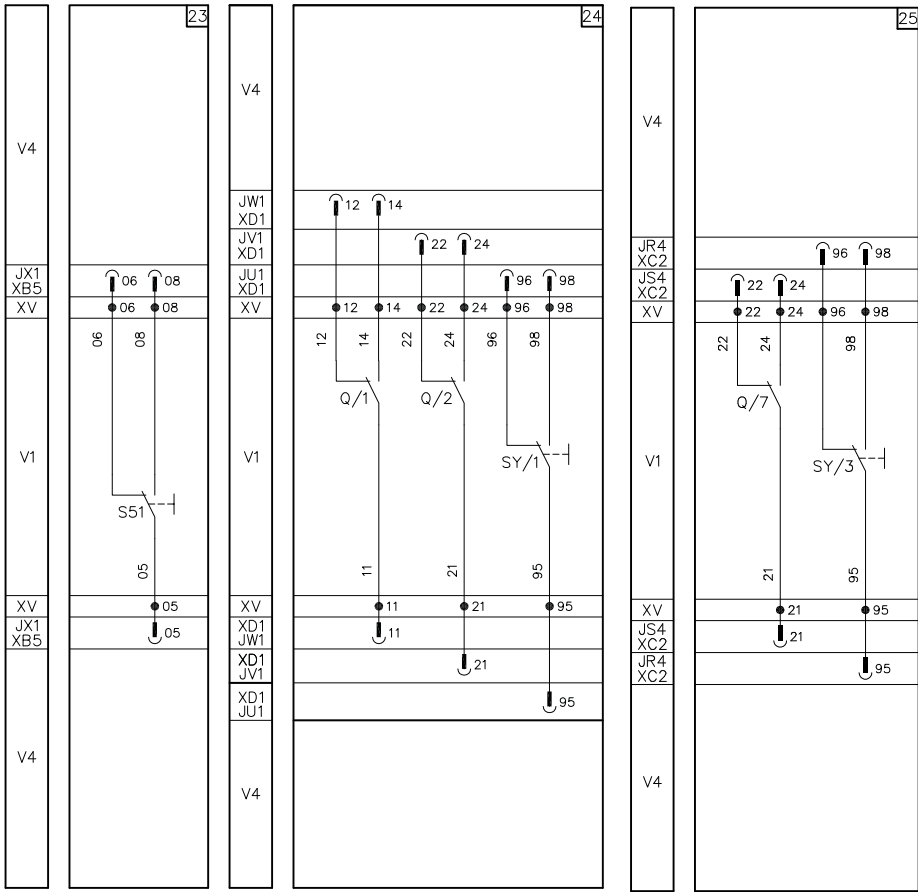
Diagrams for XT5 and XT6

- 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)

* E)



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

—

28 - 29

Only for withdrawable

version circuit-breaker

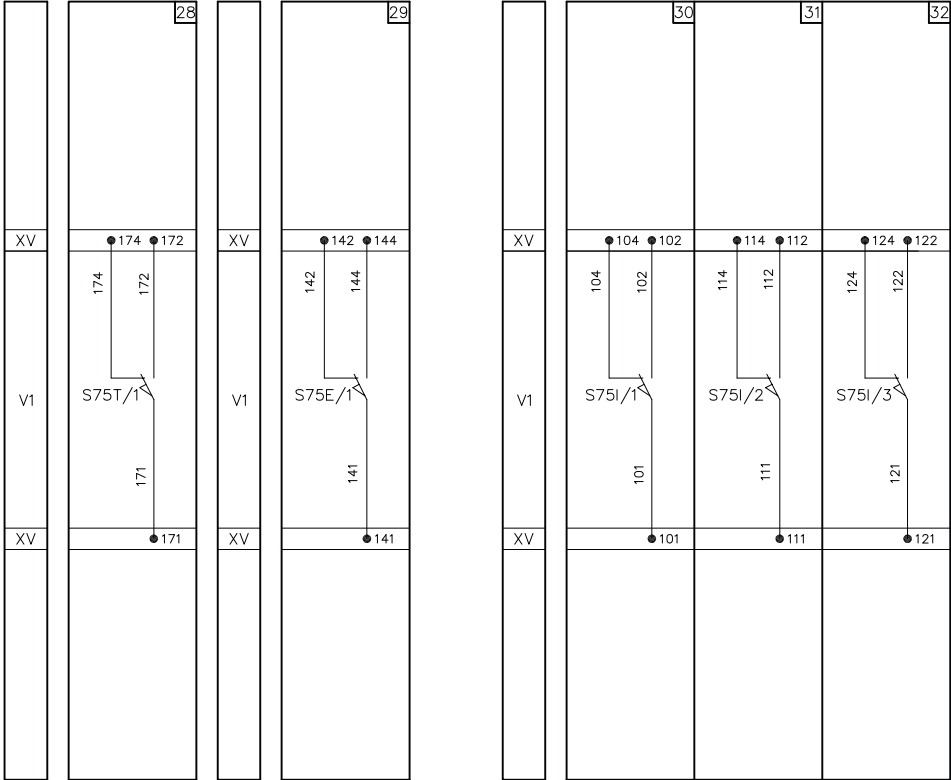
—

30 - 31 - 32

Only for plug-in or

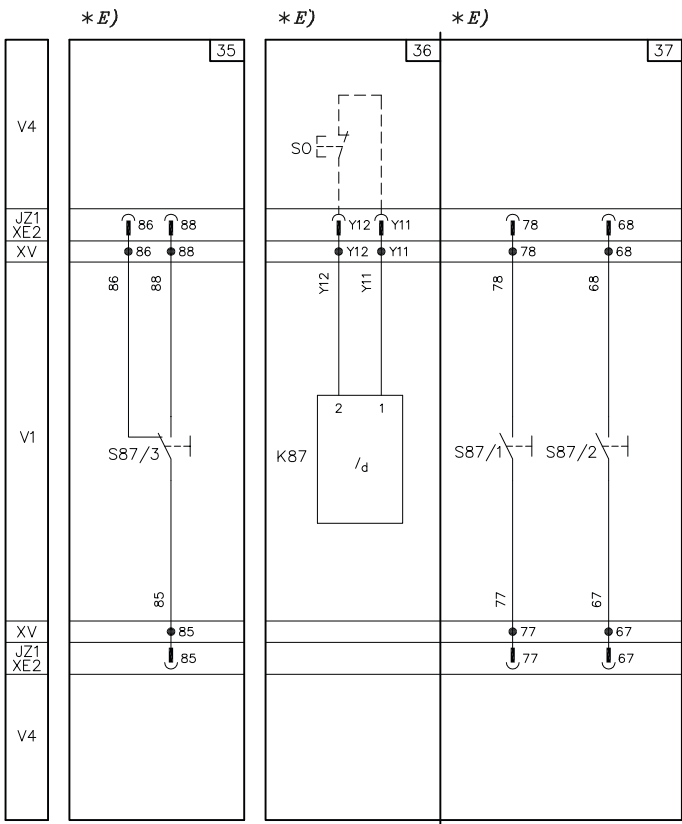
withdrawable version

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

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

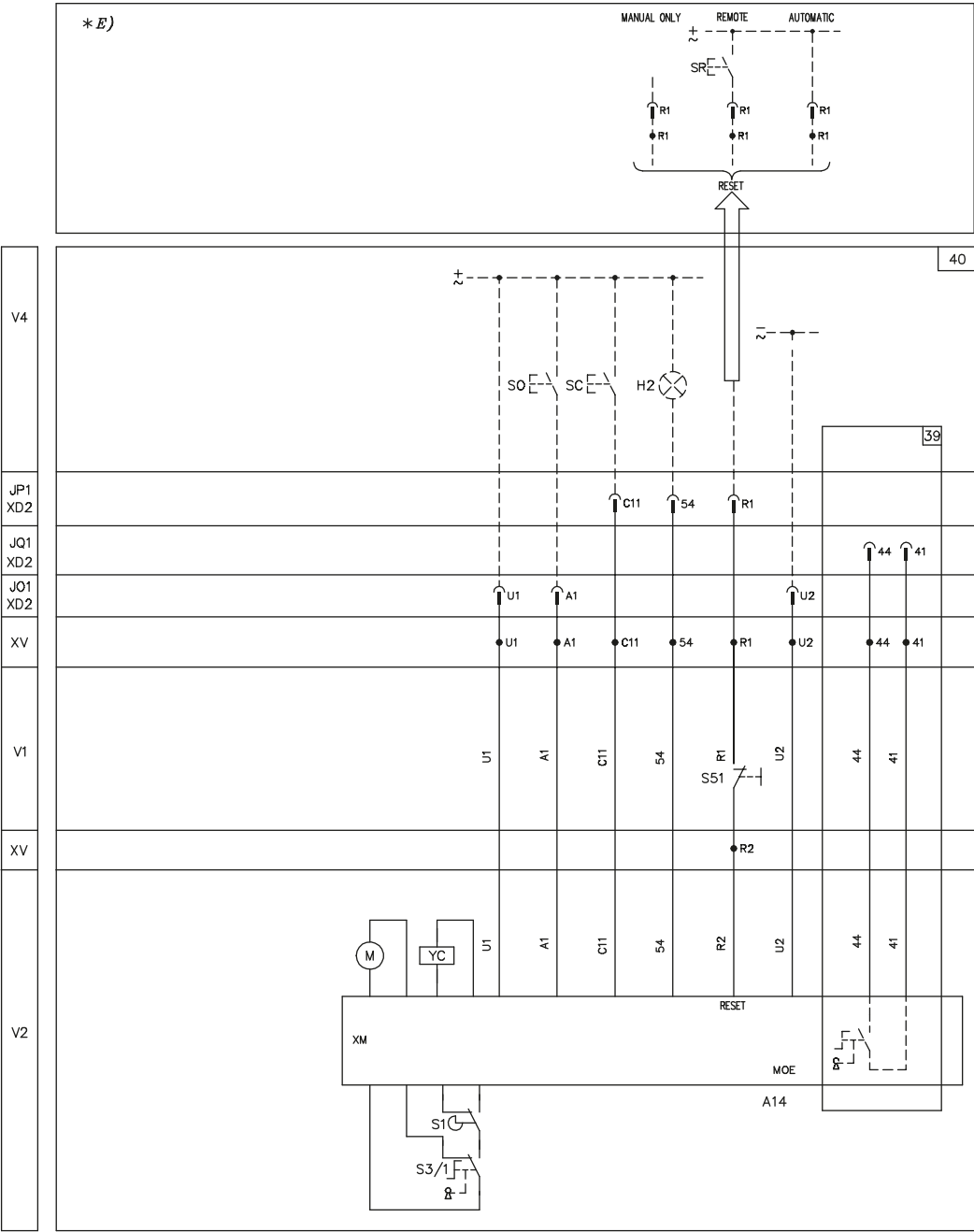


Wiring diagrams

Diagrams for XT5 and XT6

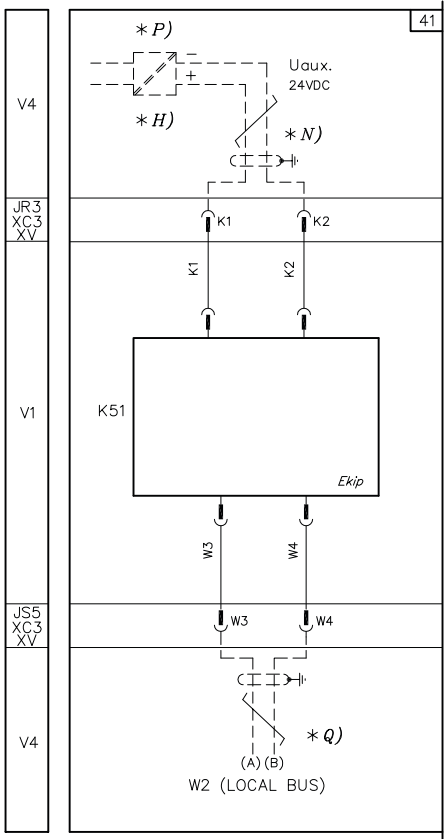
- 39) Auto/manual/lock status feedback

40) Stored energy motor operator (MOE)



41) Direct auxiliary supply 24Vdc and local bus

* E)
* A)

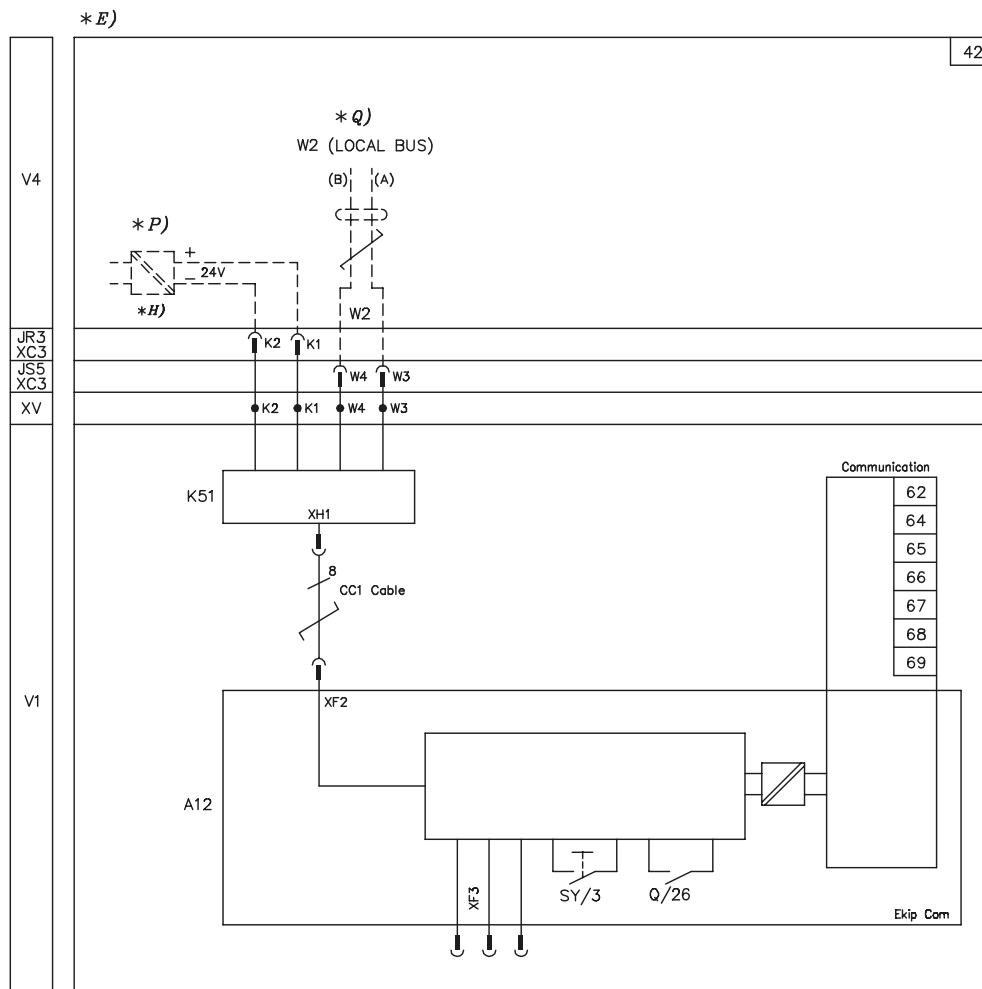


As an alternative
to figure 78

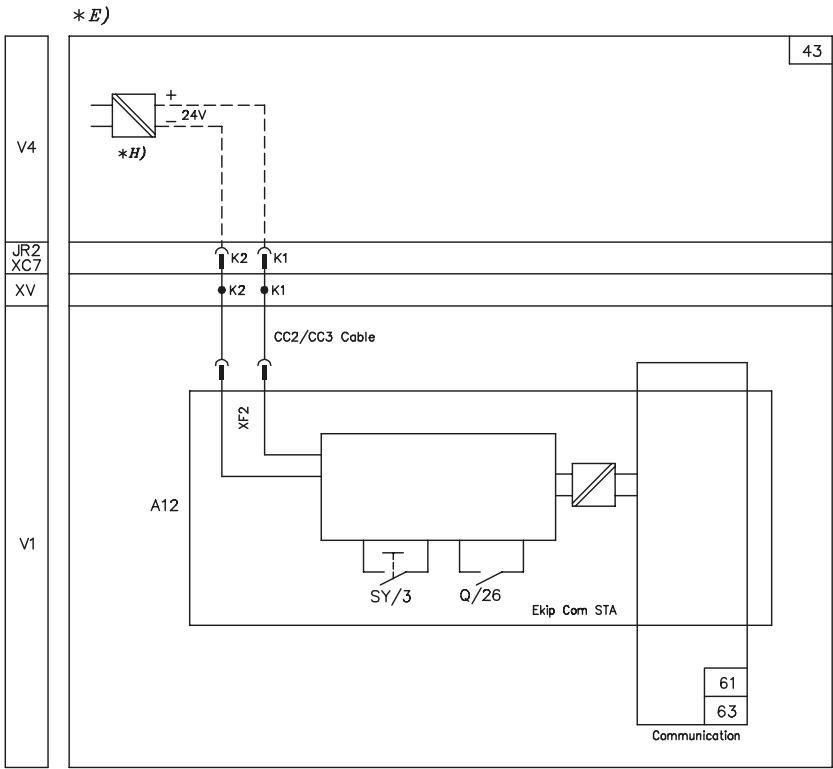
Wiring diagrams

Diagrams for XT5 and XT6

42) Interface unit type Ekip Com



43) Stand alone interface unit type Ekip Com

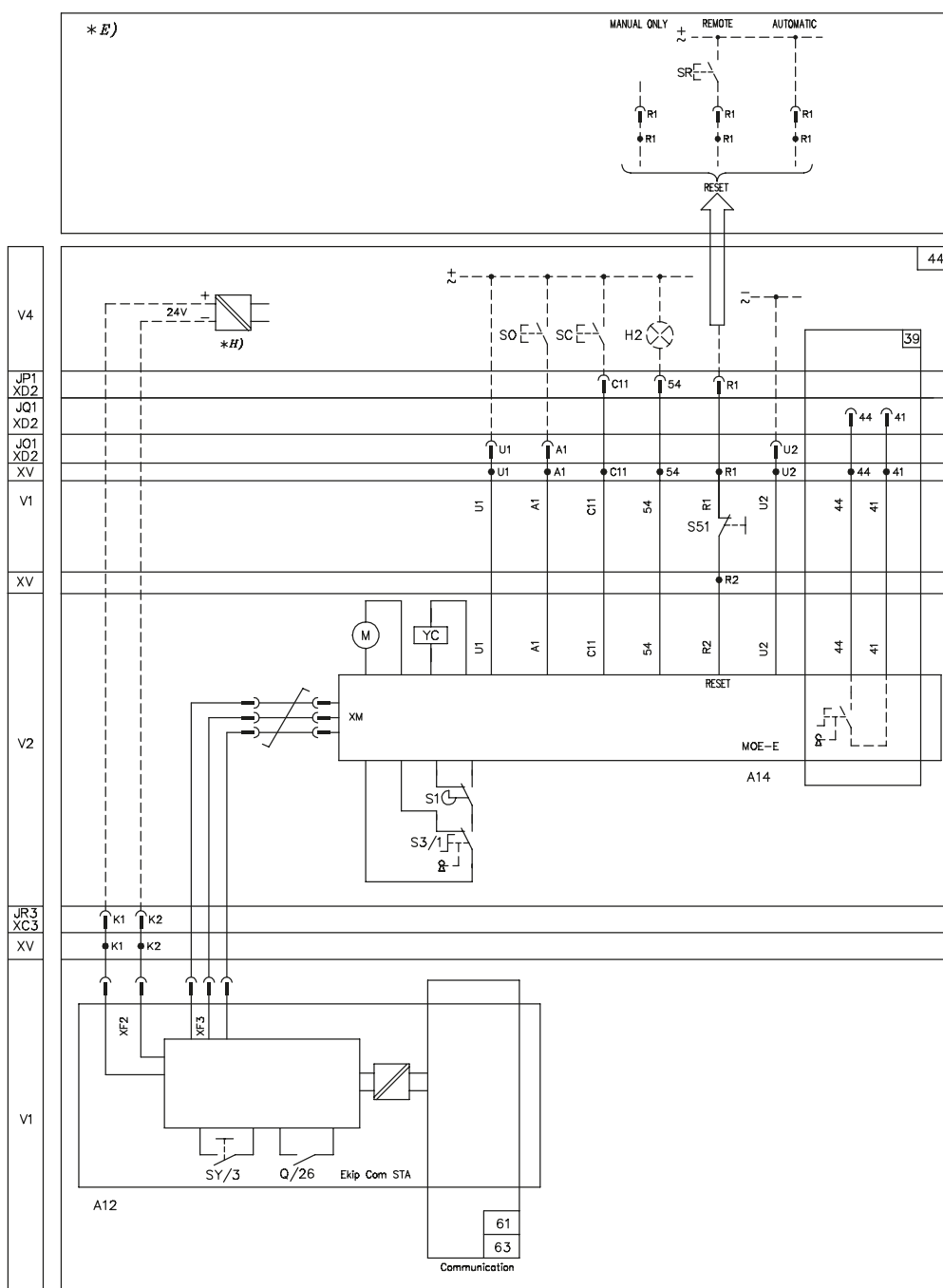


Wiring diagrams

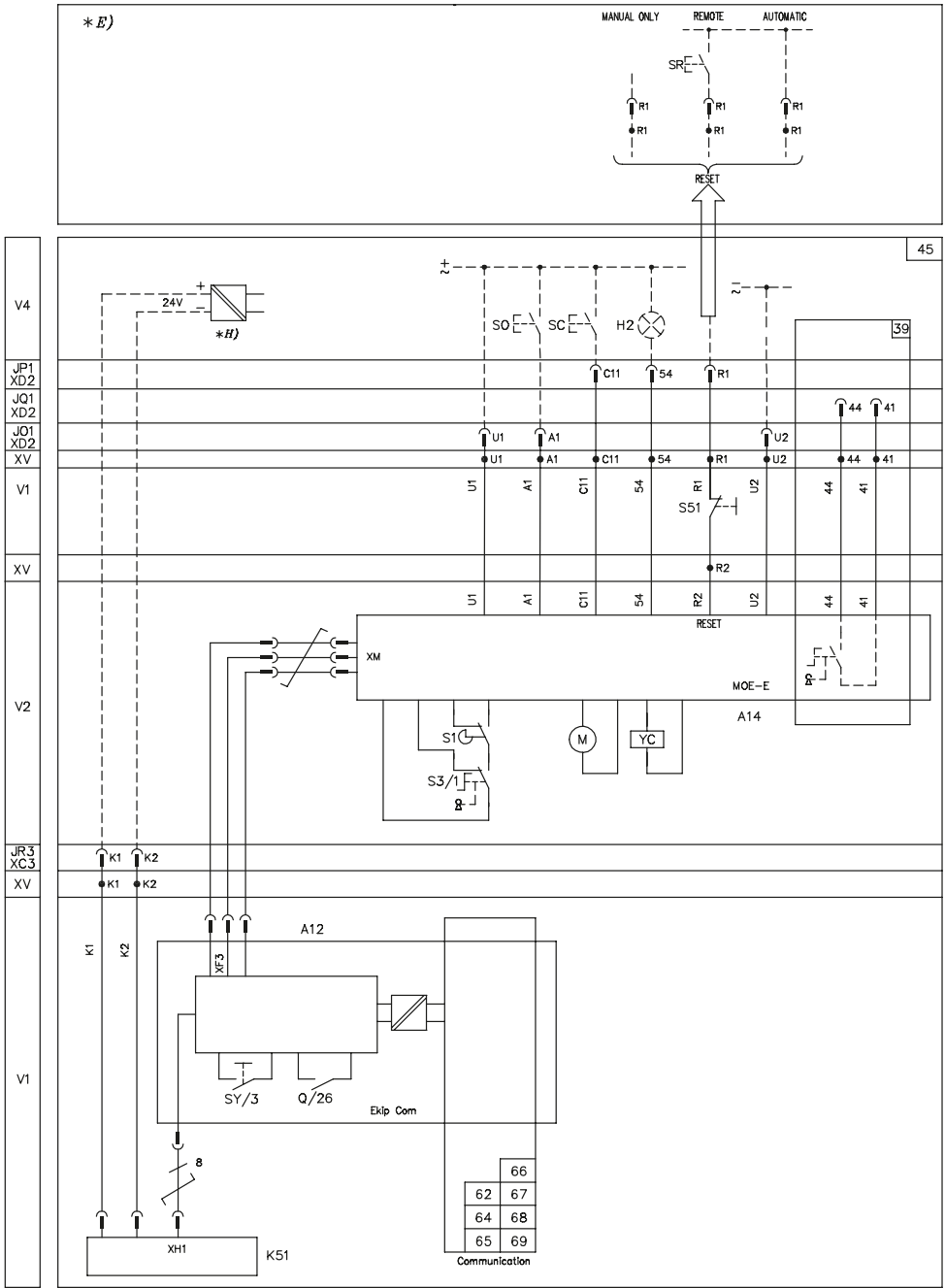
Diagrams for XT5 and XT6

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



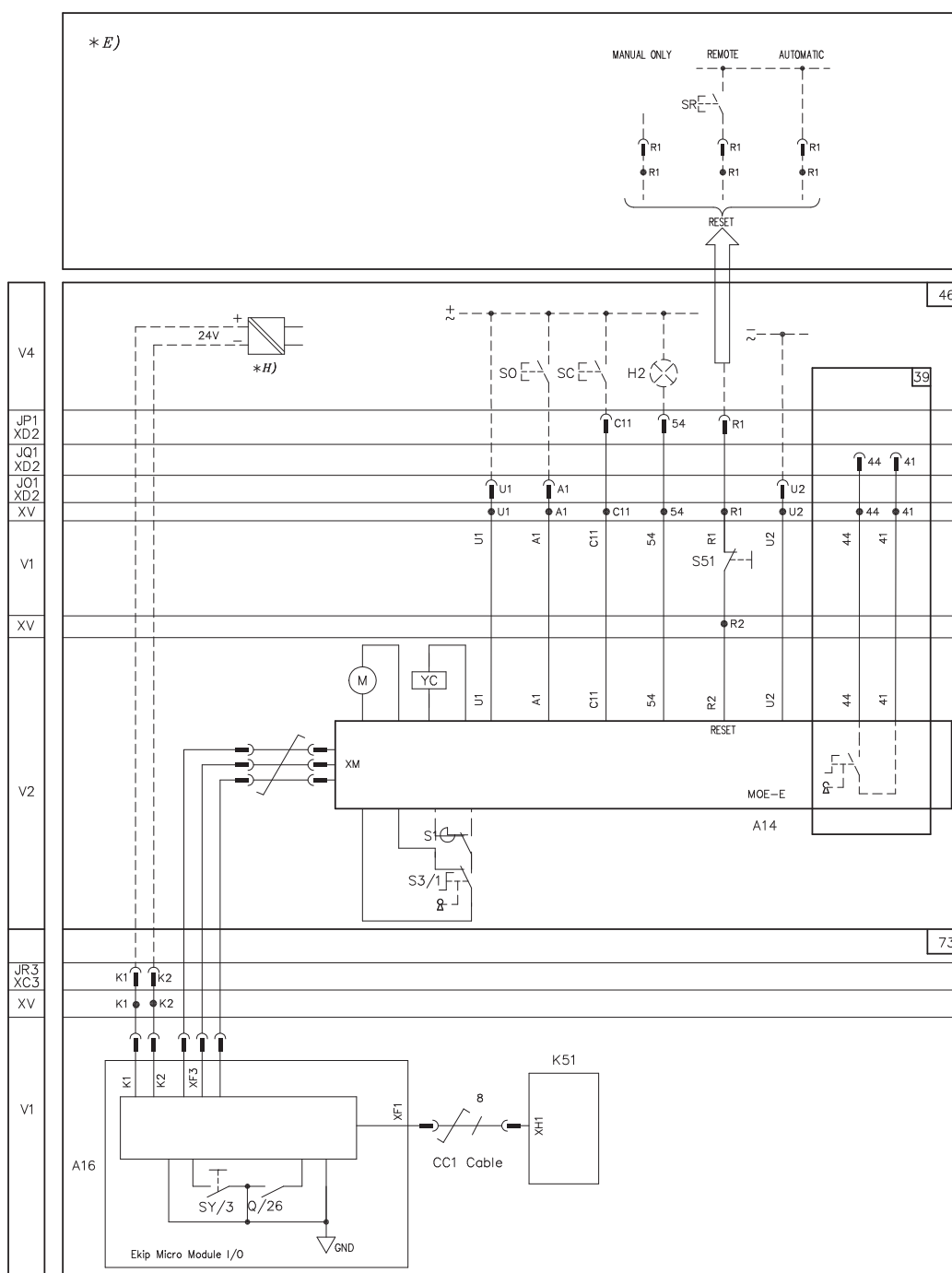
Wiring diagrams

Diagrams for XT5 and XT6

39) Auto/manual/lock status feedback

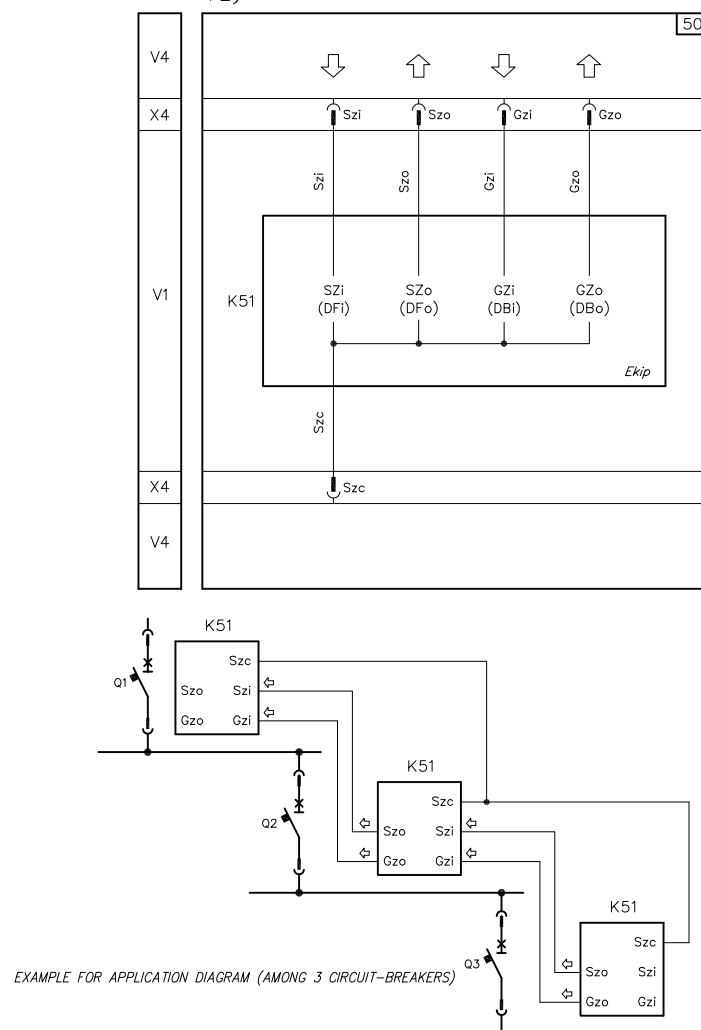
46) Interface unit type Ekip Micro Module I/O with MOE-E motor operator

73) Ekip Micro Module I/O



50) Zone selectivity

- * A)
- * AB)
- * E)



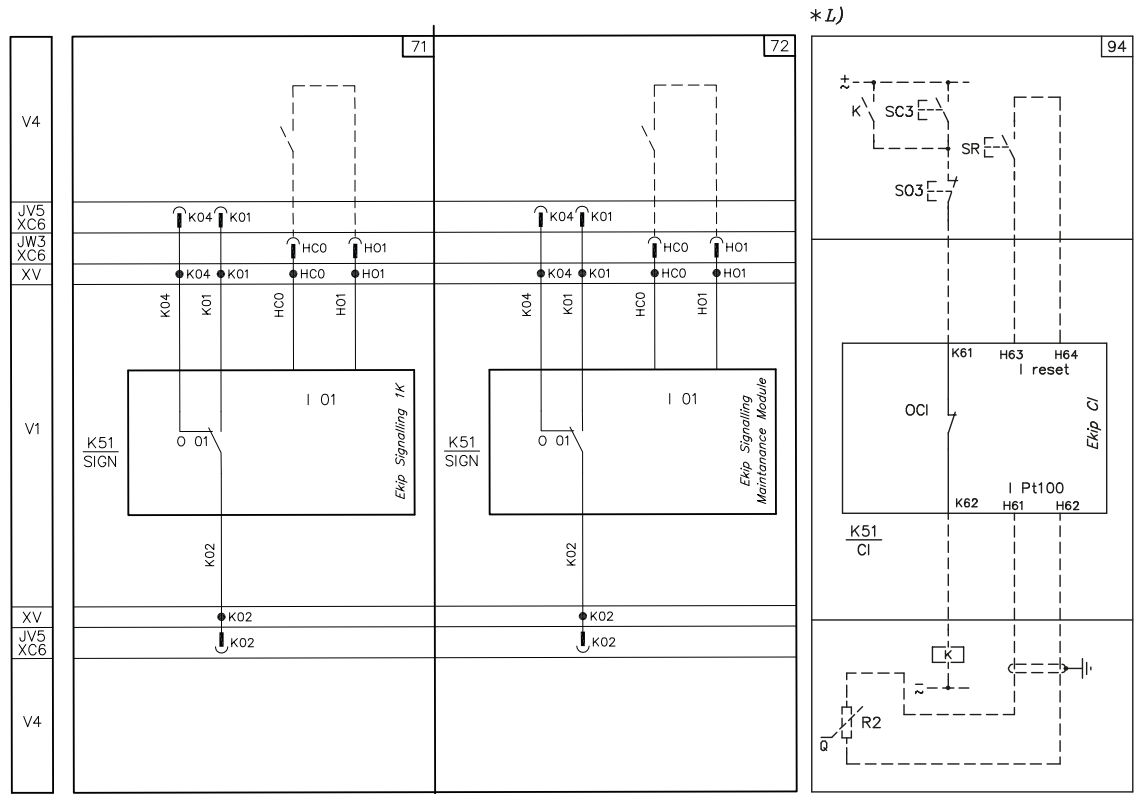
Diagrams for XT5 and XT6

69) Communication interface of Ekip Com unit (see table below)

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

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

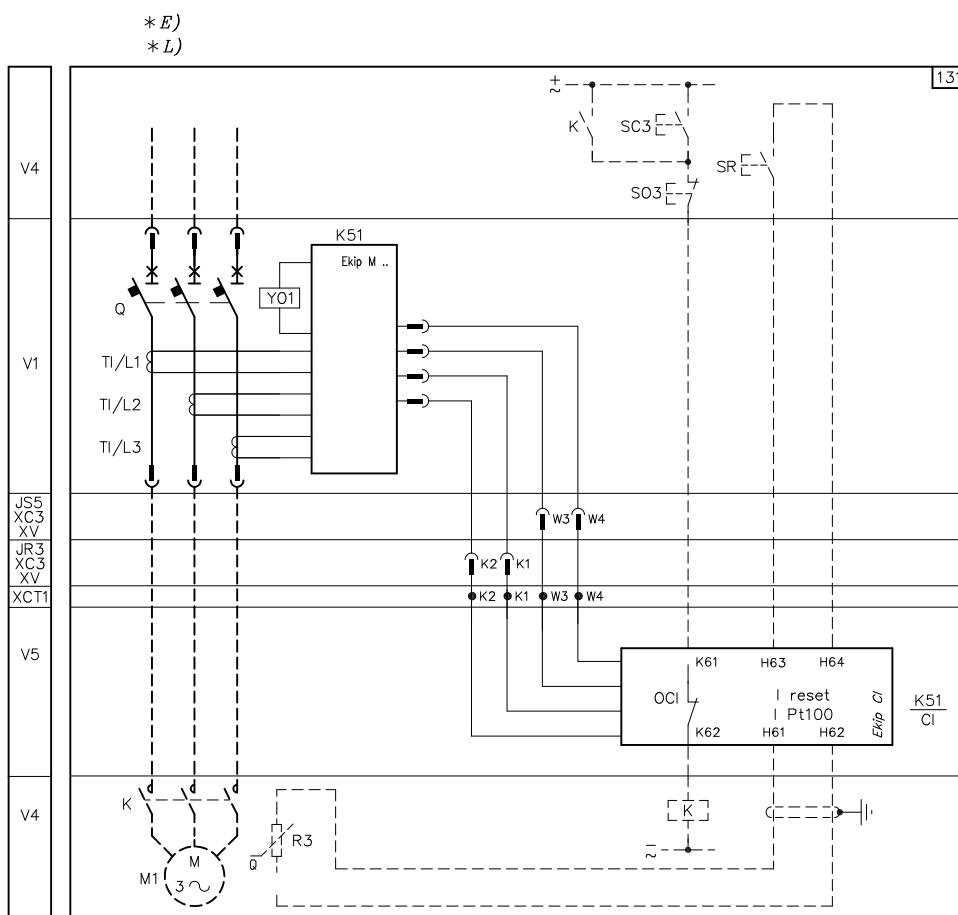
71 - 72
As in alternative
to each other



Wiring diagrams

Diagrams for XT5 and XT6

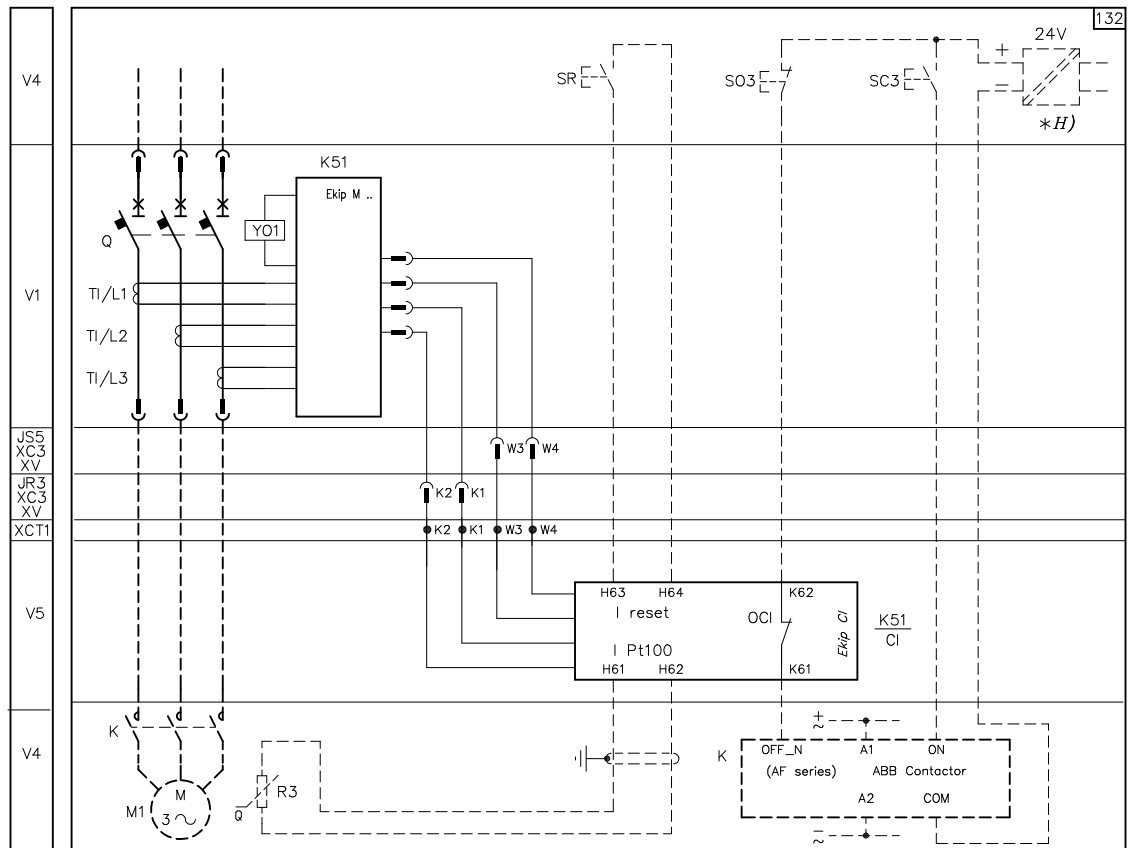
131) Motor starting module Ekip CI



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

* E)

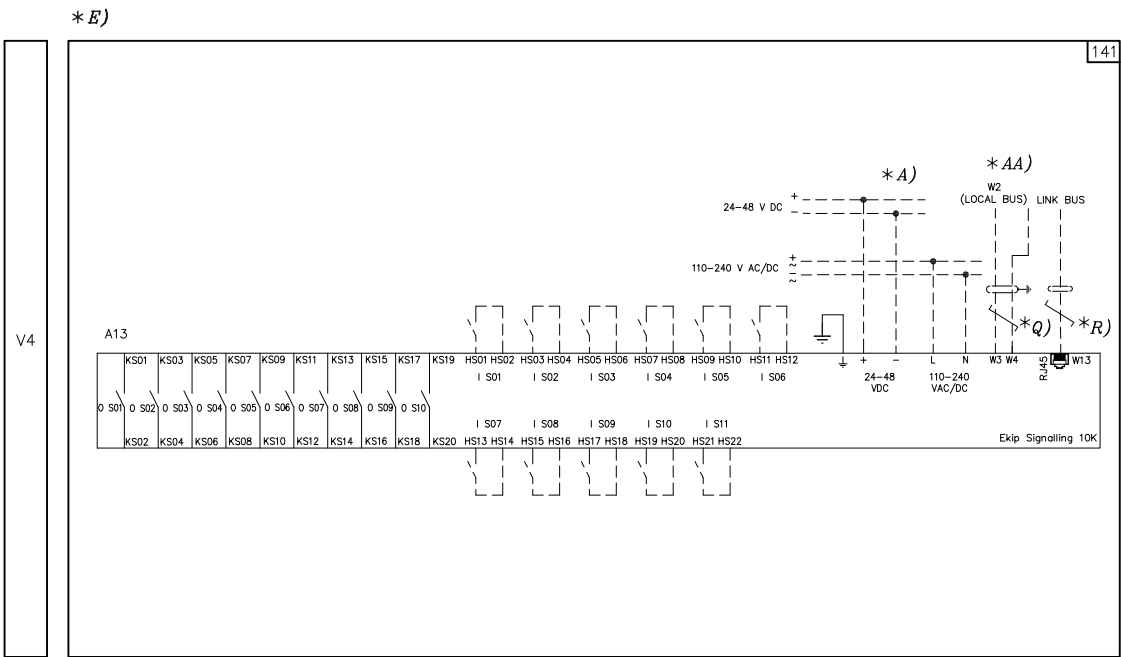
* L)



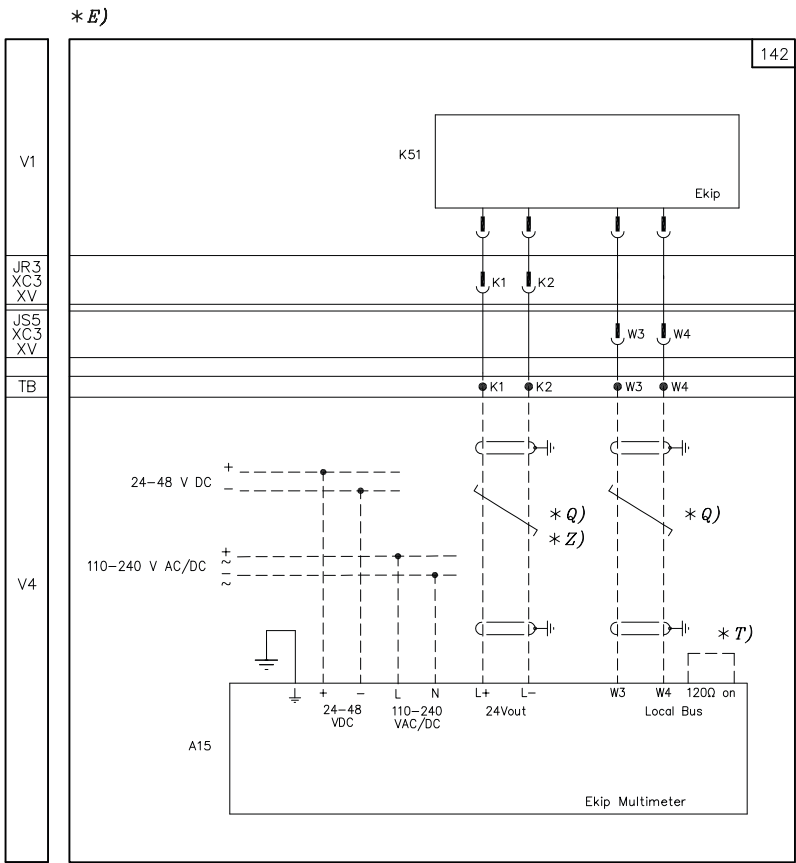
Wiring diagrams

Diagrams for XT5 and XT6

141) Ekip signalling 10K signalling unit



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

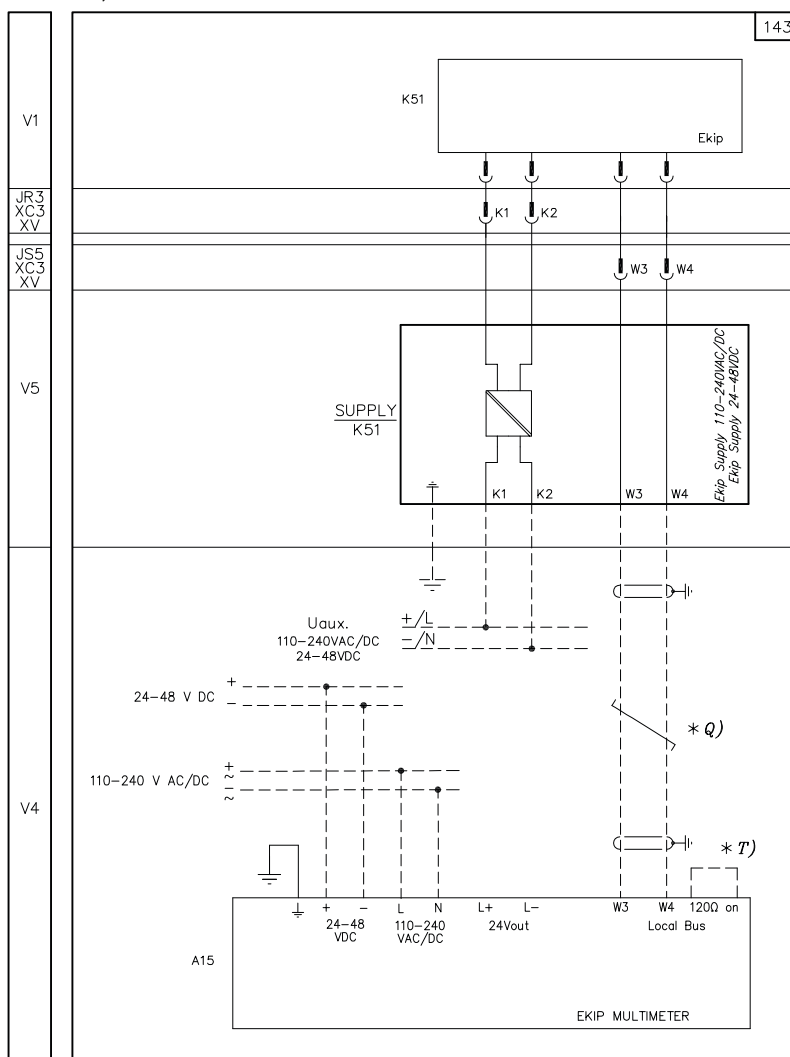


Wiring diagrams

Diagrams for XT5 and XT6

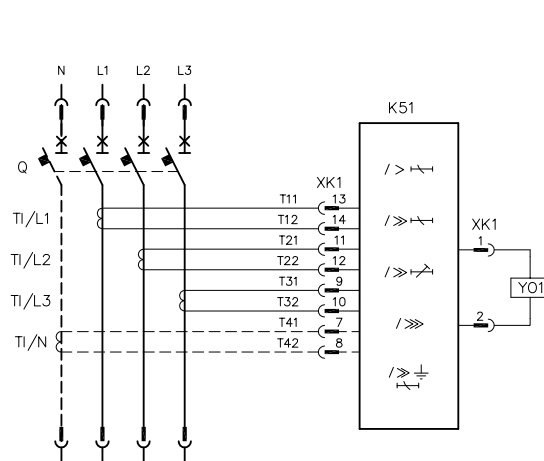
143) Ekip Multimeter unit with relay and auxiliary supply through module 110-240Vac/dc or 24-48Vdc

* E)

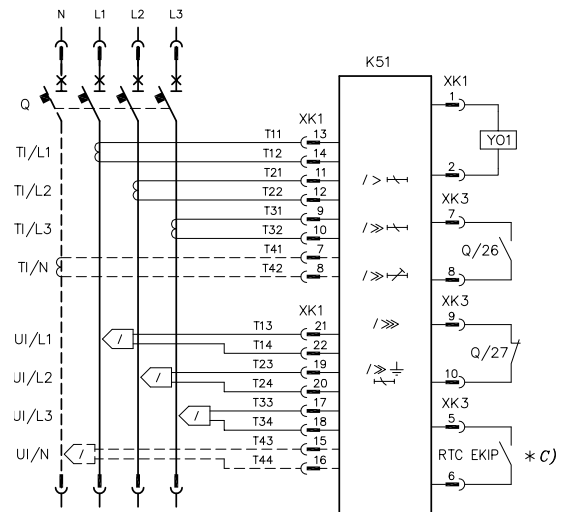


Wiring diagrams

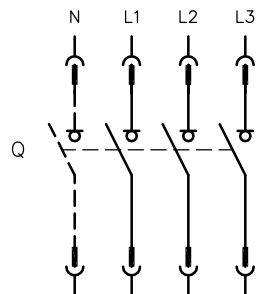
Diagrams for XT7 and XT7 M



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



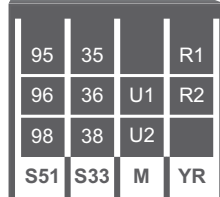
Three-pole or four-pole circuit-breaker with Ekip Touch trip unit



Three-pole or four-pole switch-disconnector

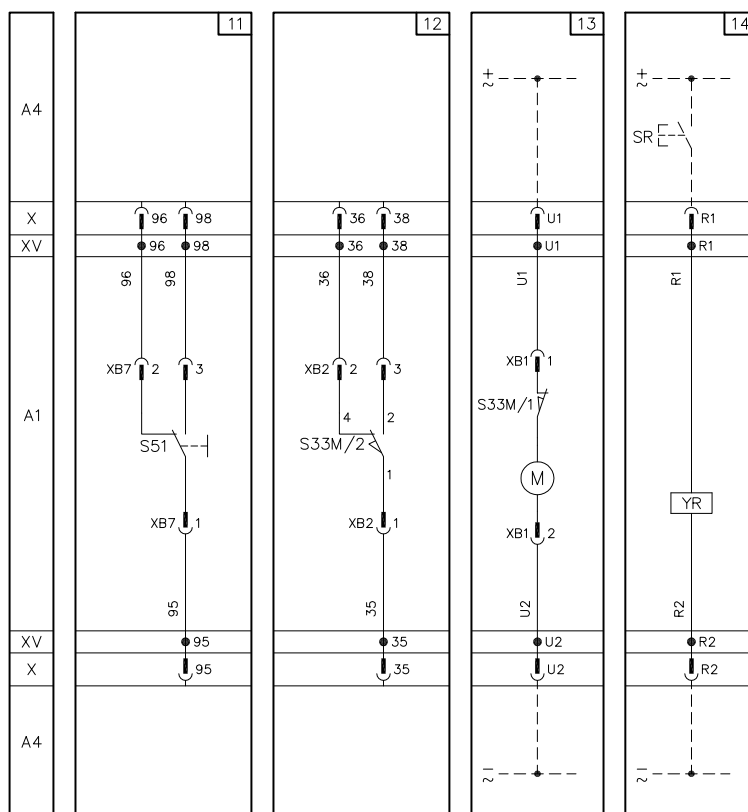
Wiring diagrams

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

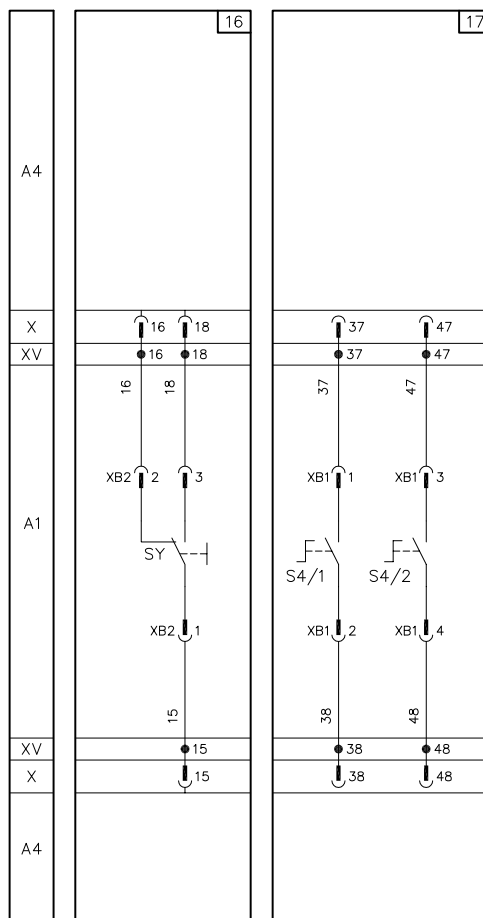
12 - 13 - 14 only for XT7 M circuit-breakers





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

16 - 17 only for XT7
circuit-breakers



Diagrams for XT7 and XT7 M



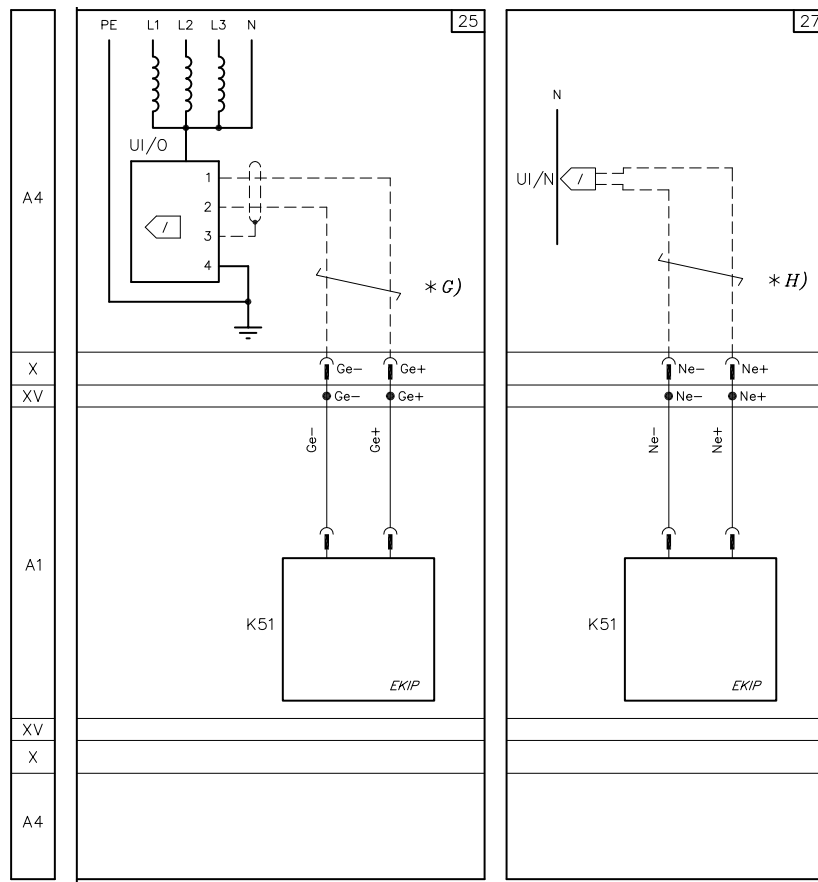
A4		
X		
XV		
A1		
XV		
X		
A4		



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

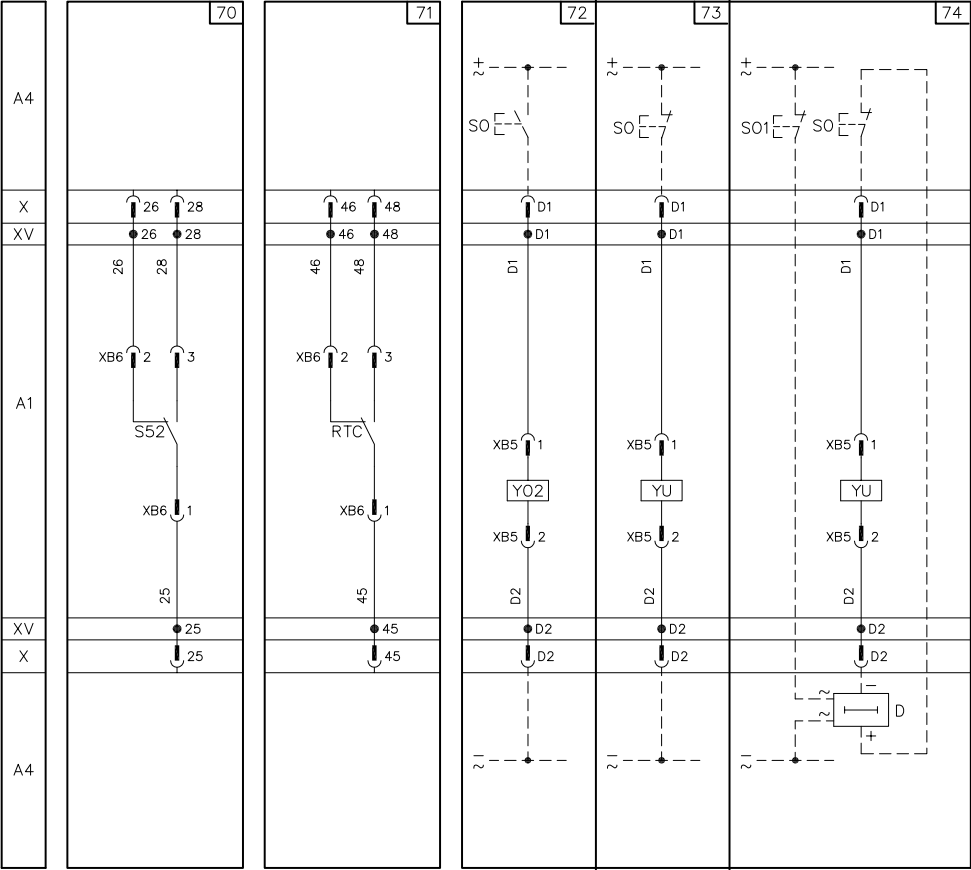


- 70) Y02/YU opening coil state signaling contact – S52
- 71) Ready to close contact – RTC
- 72) Second opening coil – YO2
- 73) Undervoltage coil – YU
- 73) Undervoltage coil with externa time-lag device YU, D

70 only for XT7
circuit-breakers

71 only for XT7 M
circuit-breakers

72 - 73 - 74 as an
alternative to each other



72

~+

SO

D1

D1

D1

D2

D2

~1

XB5

1

2

Y02

73

~+

SO

D1

D1

D1

D2

D2

~1

XB5

1

2

YU

74

~+

SO1

SO

D1

D1

D1

D2

D2

~1

XB5

1

2

YU

D

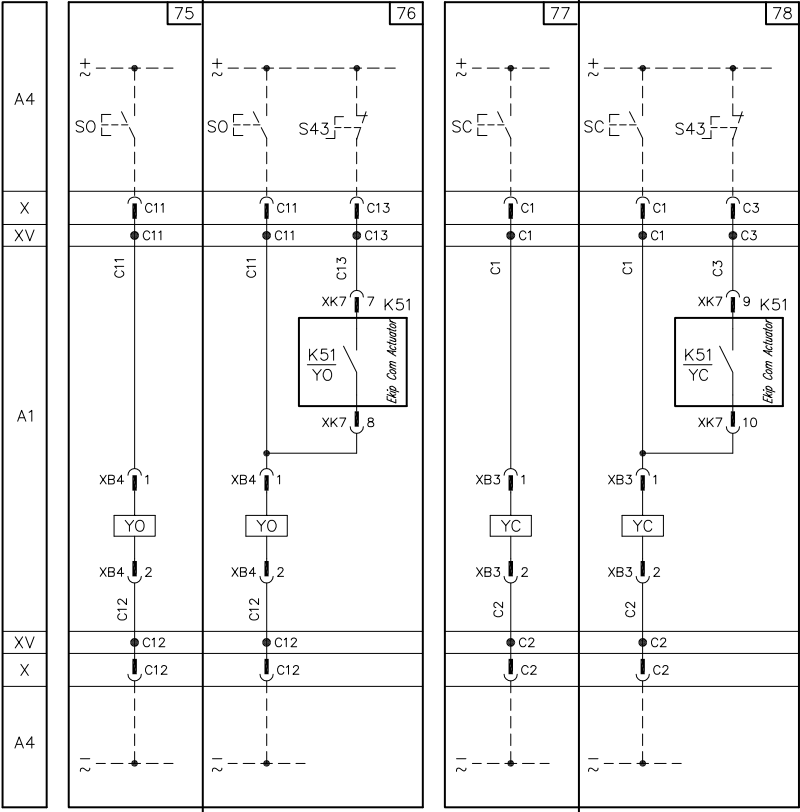


- 75) First opening coil – YO
- 76) First opening coil with control from protection trip unit – YO, Ekip Com Actuator
- 77) First closing coil – YC
- 78) First opening coil with control from protection trip unit – YC, Ekip Com Actuator

75 - 76 as an alternative to each other

77 - 78 only for XT7 M circuit-breakers

77 - 78 as an alternative to each other

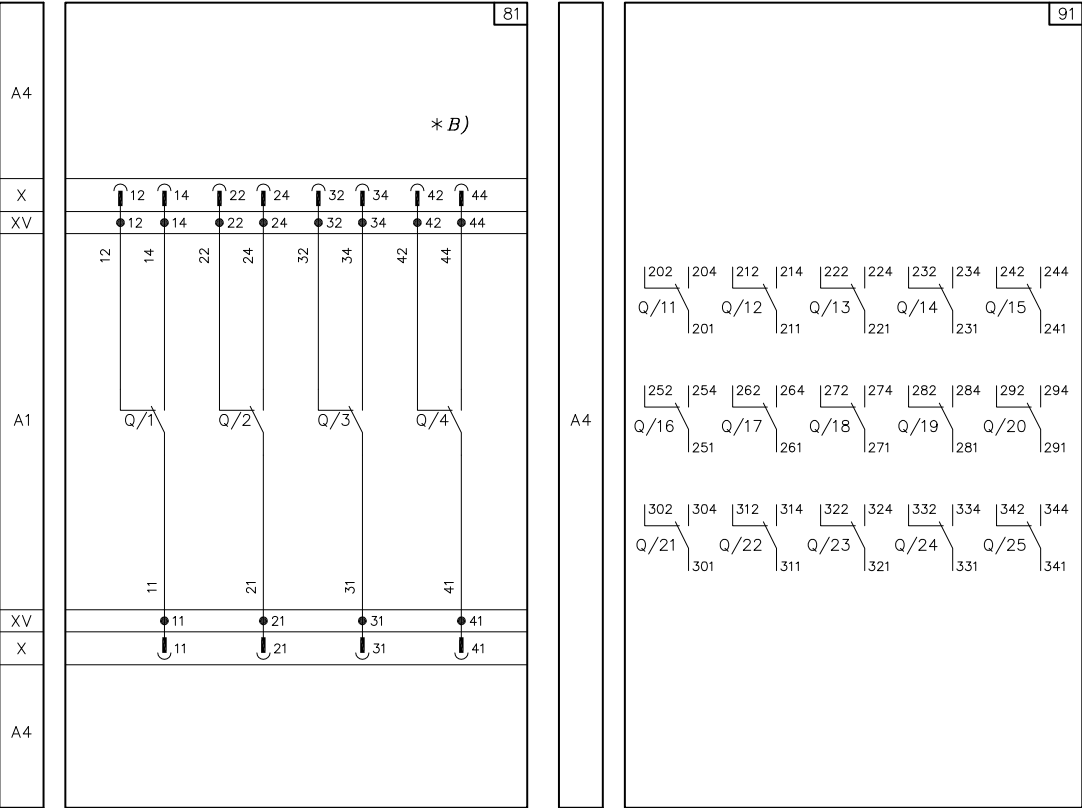


Wiring diagrams

Diagrams for XT7 and XT7 M

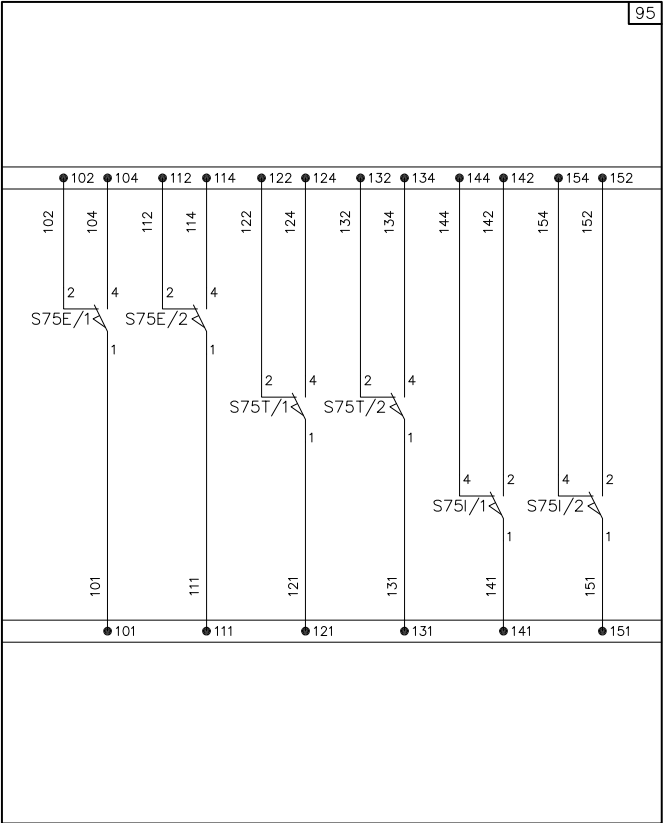


81) Open/Close auxiliary contacts of the circuit-breaker (first set)
91a) Supplementary open/close auxiliary contacts outside the circuit-breaker



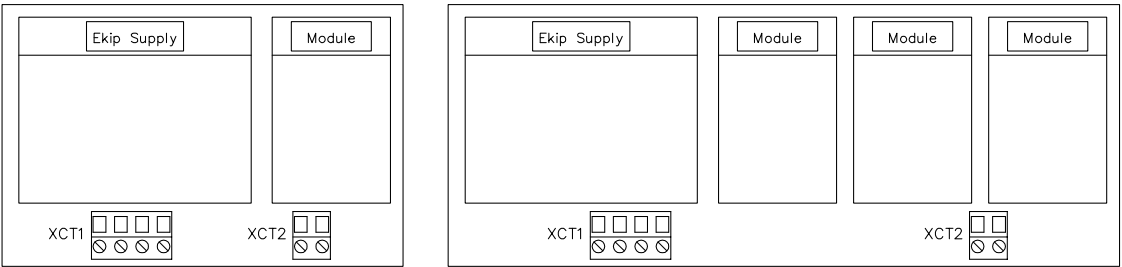
95a) Contacts for signaling of circuit-breaker in racked-in, test, racked-out position

—
only for withdrawable
version



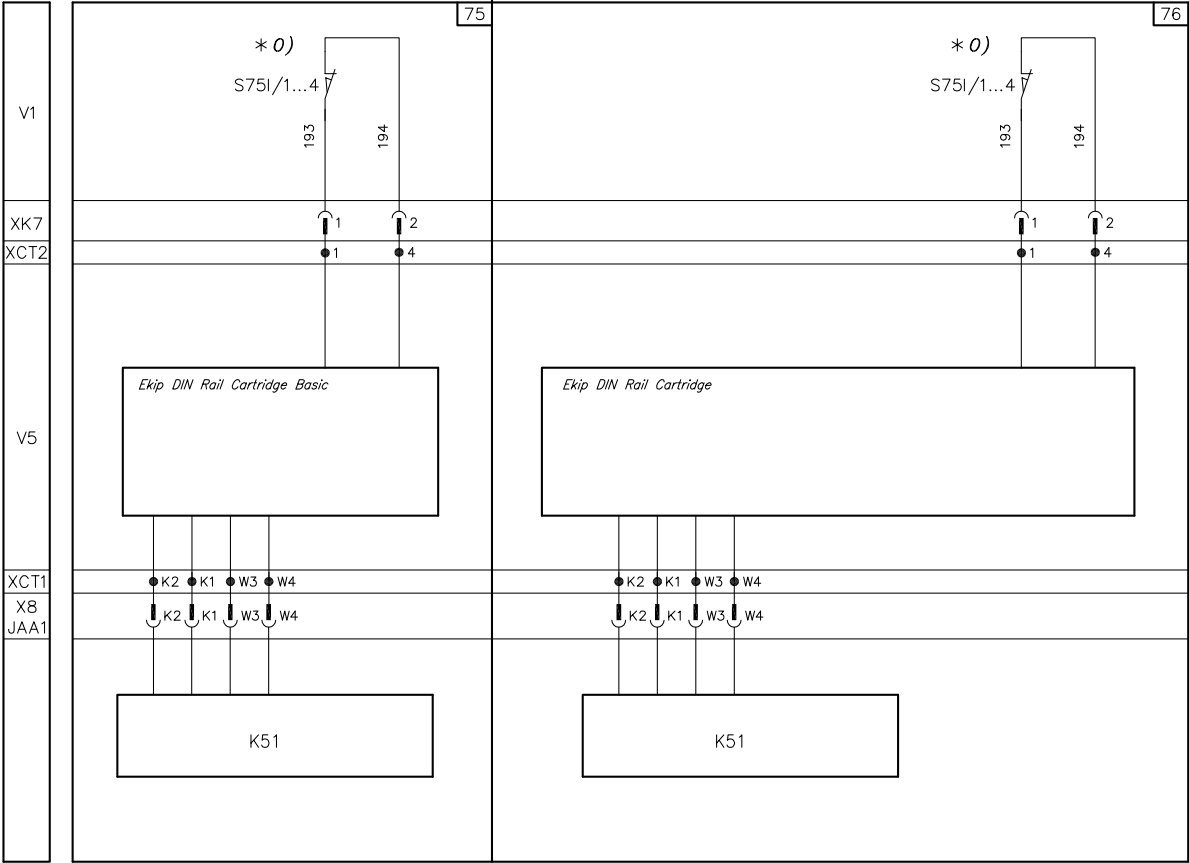
Wiring diagrams

XT2-XT4-XT5-XT7-XT7 M modules



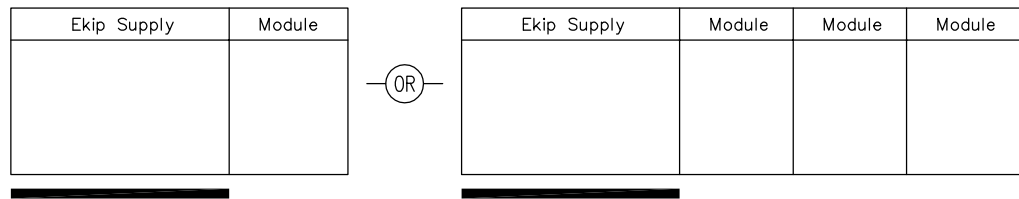
75) Ekip Cartridge for one module and one Ekip Supply
76) Ekip Cartridge for three modules and one Ekip Supply

75 - 76 as an alternative to each other



Installation slot

For XT2-XT4-XT5 Ekip Cartiridge

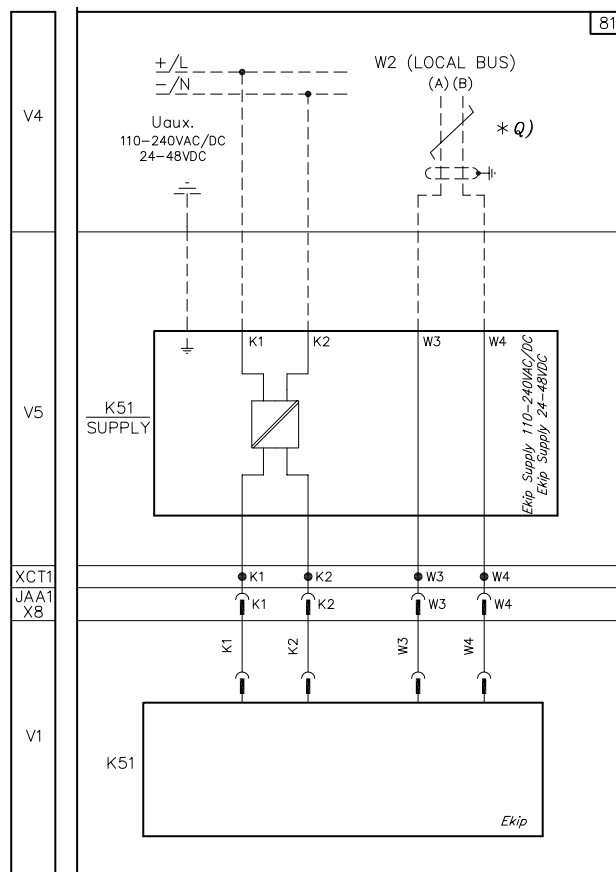


For XT7-X7M terminal box



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

81 as an alternative
to figure 49

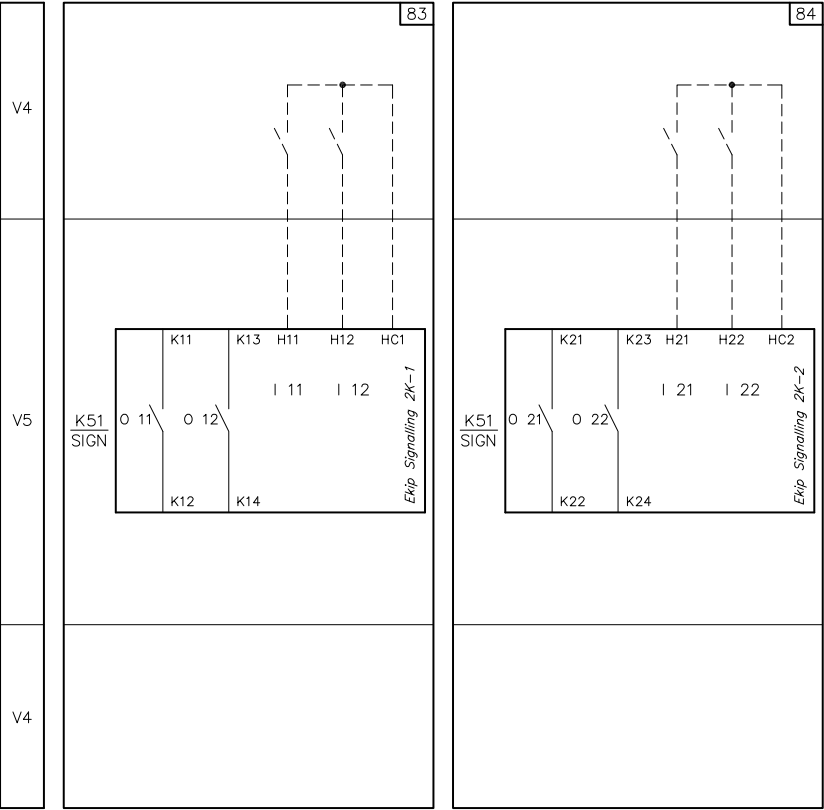




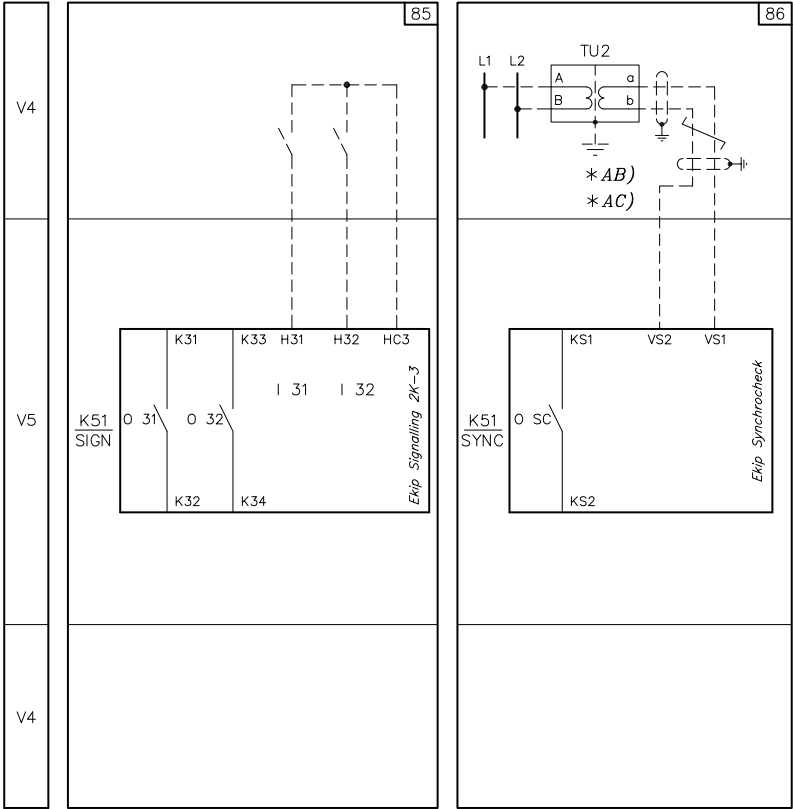
Wiring diagrams

XT2-XT4-XT5-XT7-XT7 M modules

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



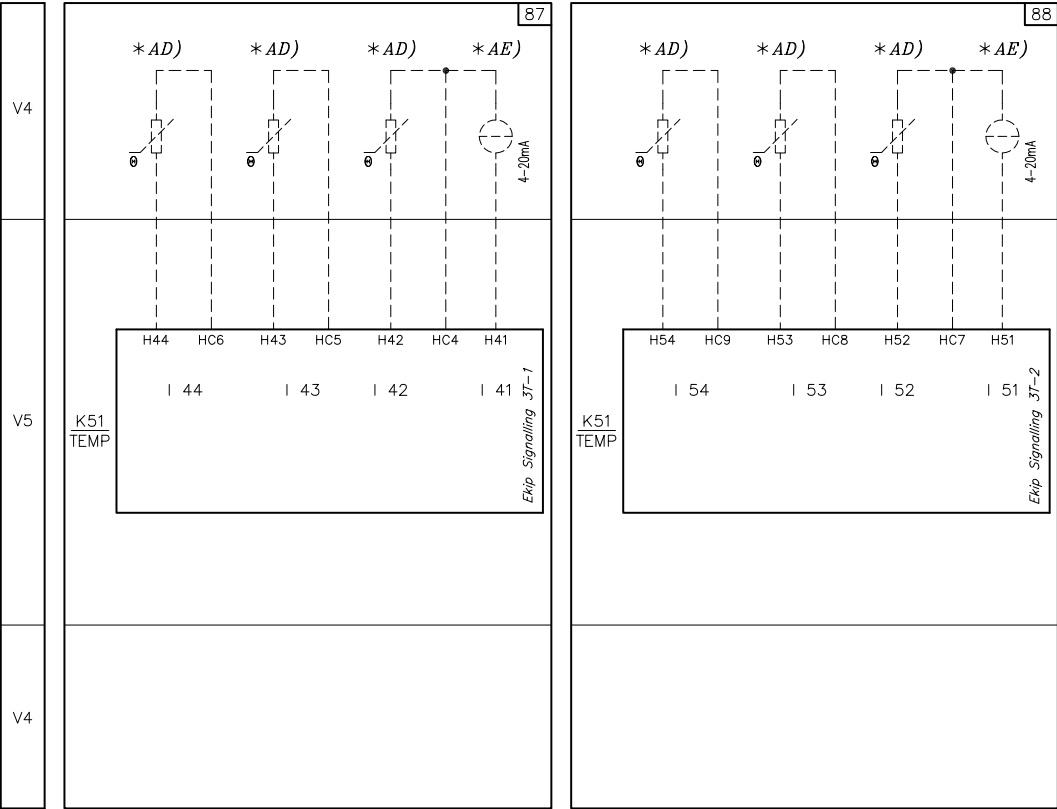
85) Ekip Signalling 2K-3
86) Ekip Synchrocheck



Wiring diagrams

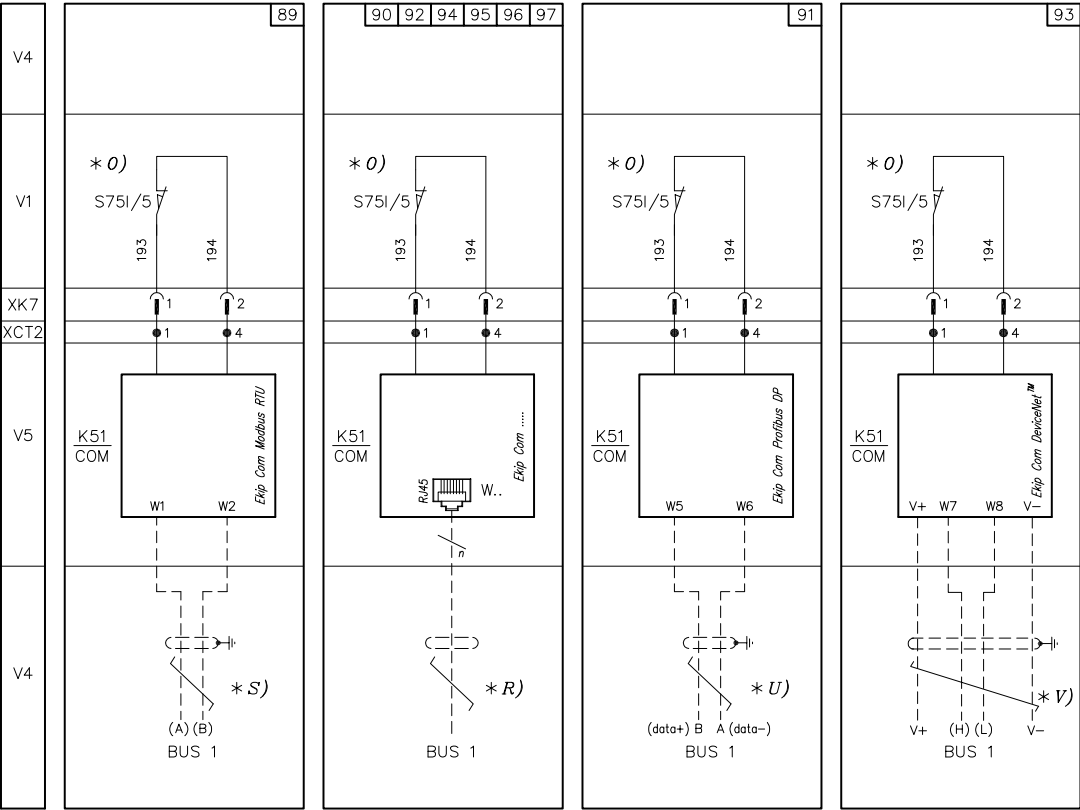
XT2-XT4-XT5-XT7-XT7 M modules

- 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) ABB Ability™ Edge Industrial Gateway
- 97) Ekip Com Profinet
- 91) Ekip Com Profibus DP
- 93) Ekip Com DeviceNet

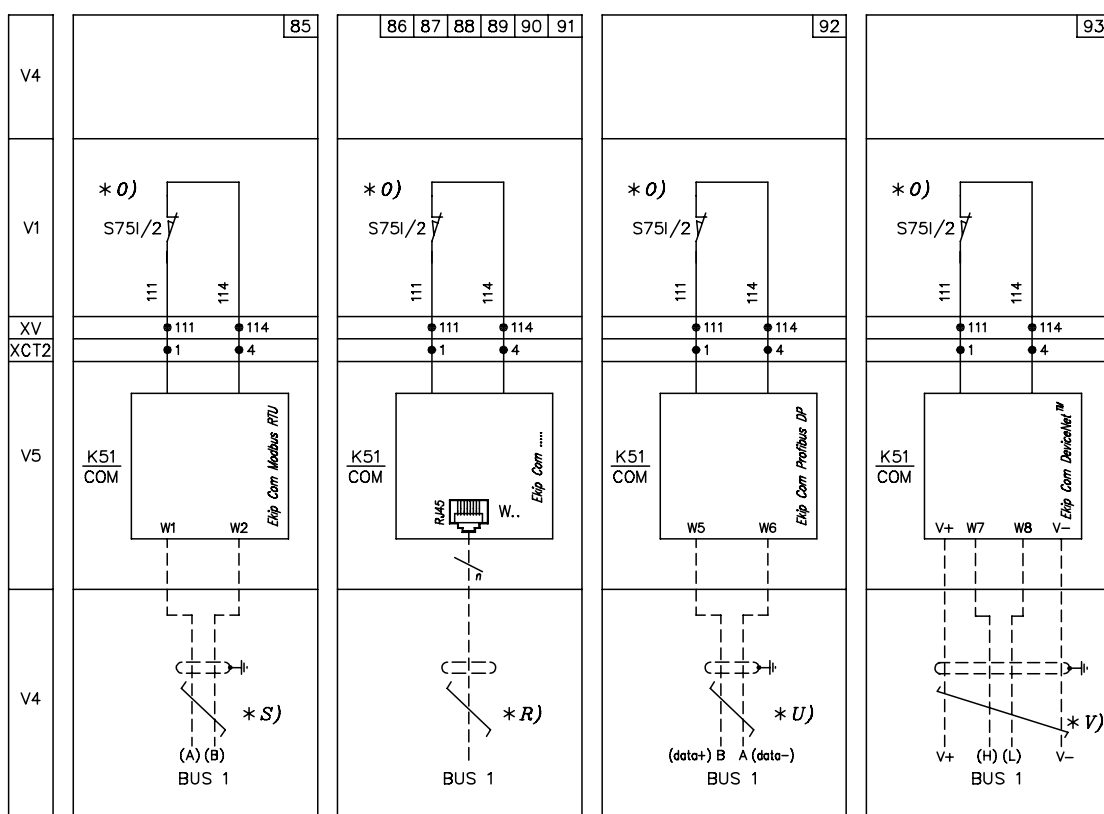


Wiring diagrams

XT2-XT4-XT5-XT7-XT7 M modules

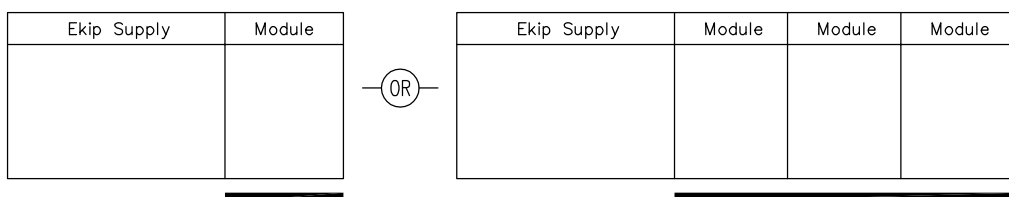
XT5

- 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) ABB Ability™ Edge Industrial Gateway
- 92) Ekip Com Profibus DP
- 93) Ekip Com DeviceNet™

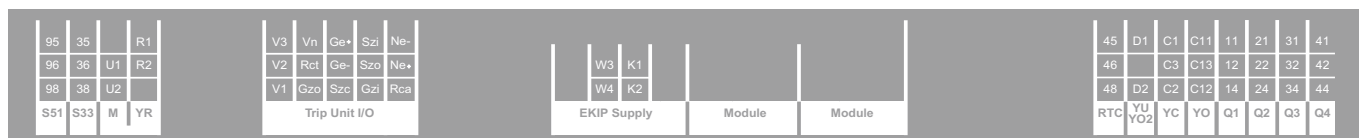


Installation slot

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

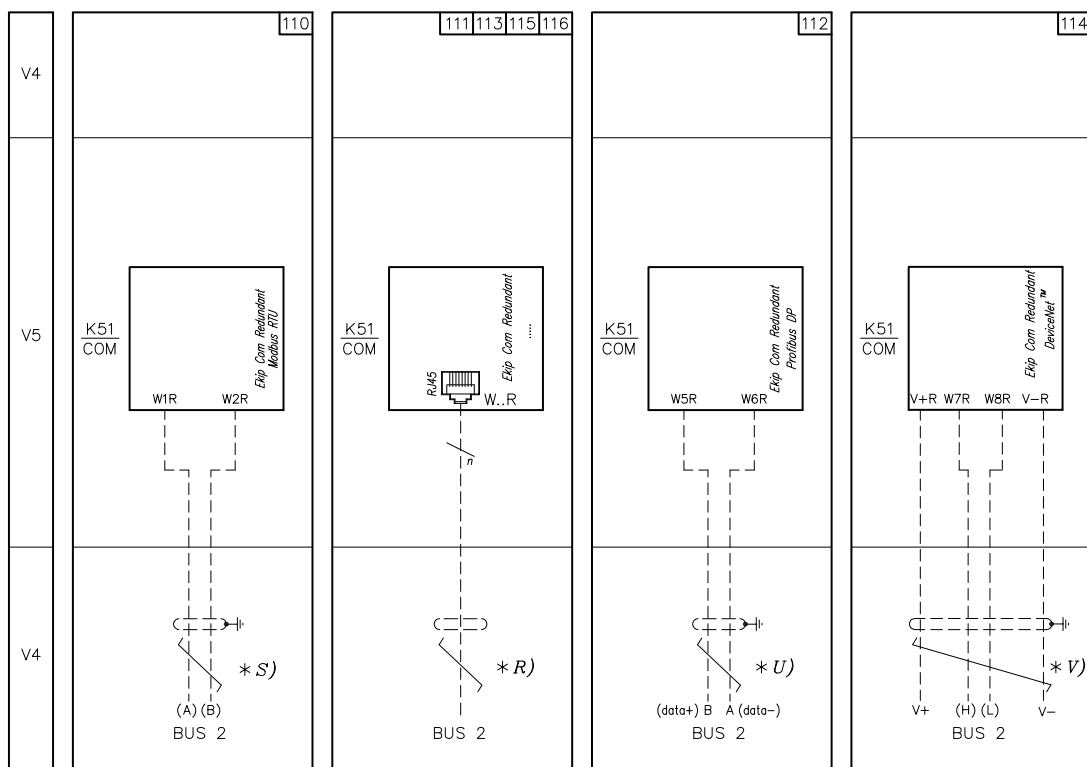




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