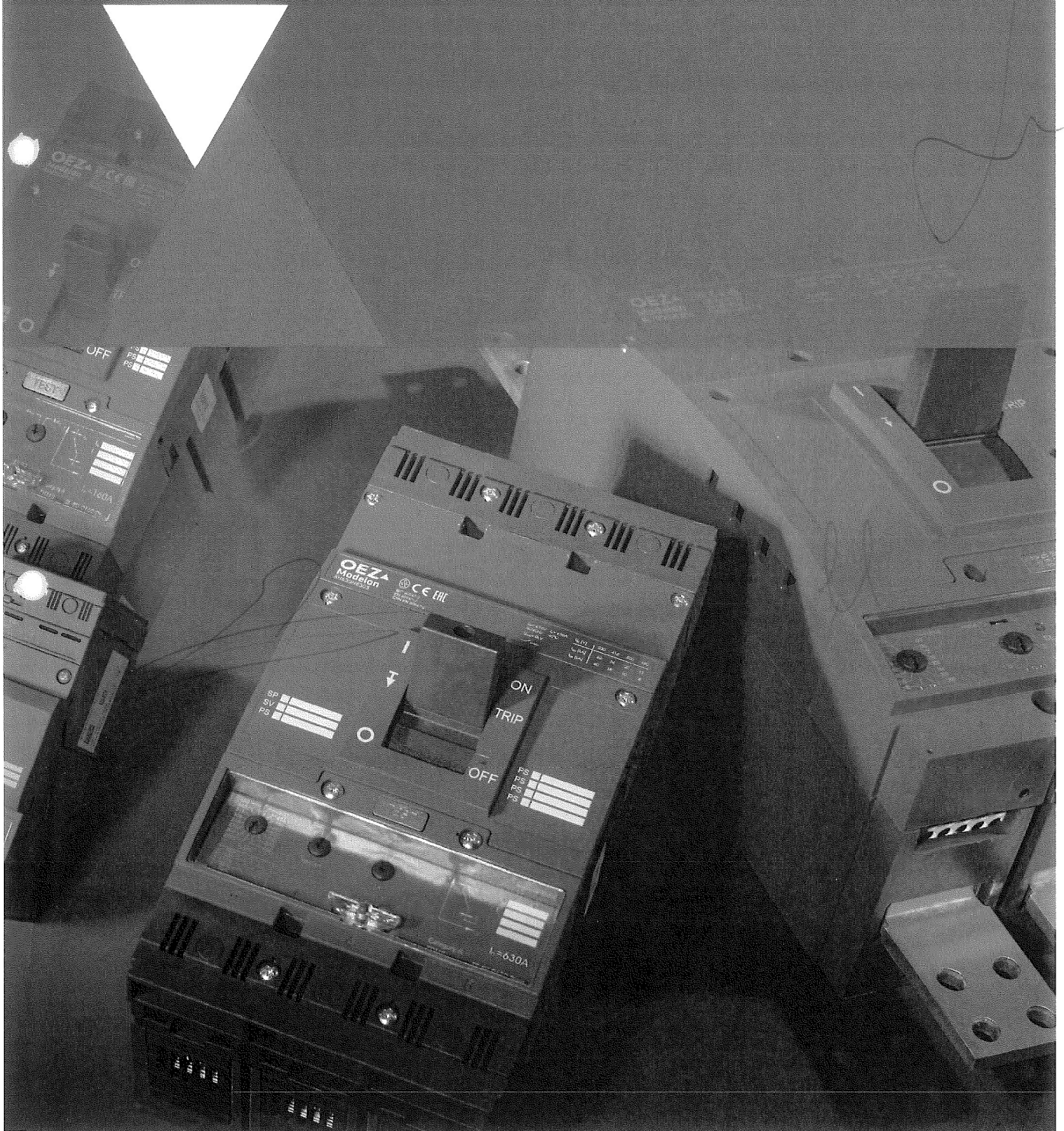
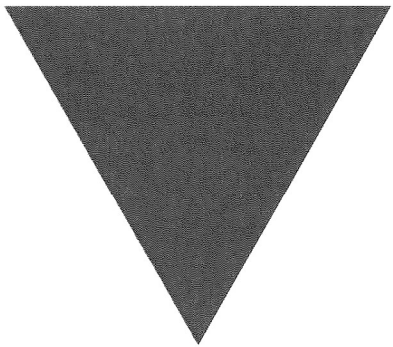


OEZA

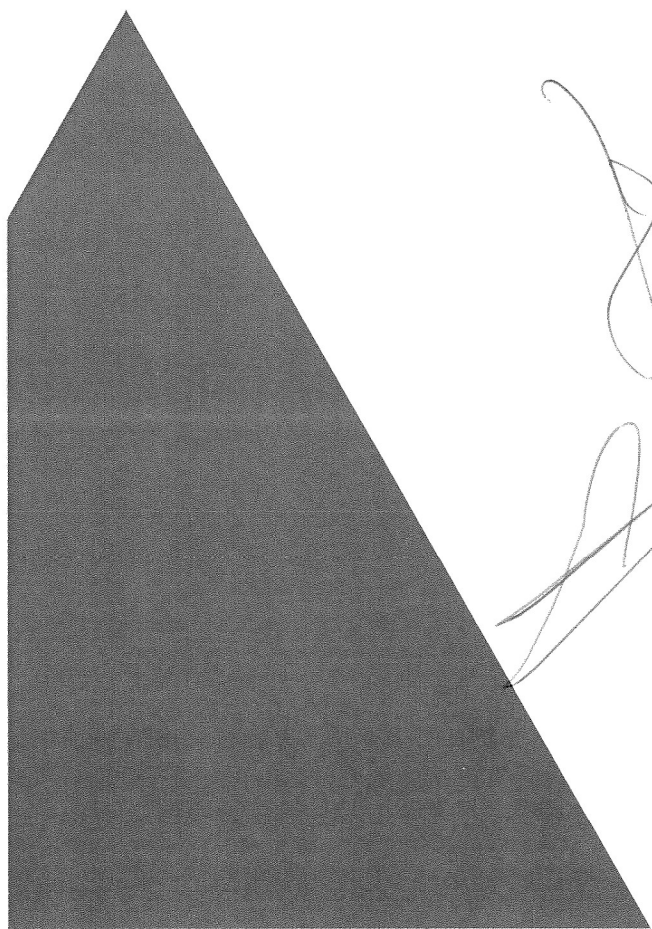
Modeion

Moulded case circuit breakers



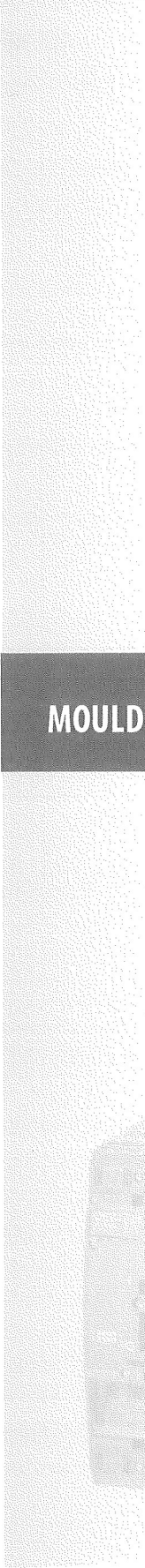
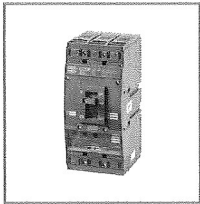


OEZ▲



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MOULDED CASE CIRCUIT BREAKERS BD250N, BD250S



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COMMERCIAL INFORMATION

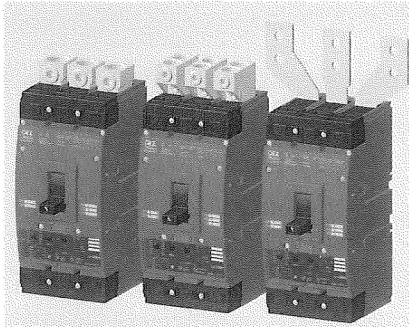
3P 4P

- Switching units, plug-in device, withdrawable deviceE4
- Overcurrent releases, switch-disconnector unitE6
- Residual current monitorE7
- Current transformers for residual current monitorE7
- Connecting setsE7
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- Delay unitE11
- Hand drivesE12
- Mechanical interlocking and parallel switchingE13
- Motor drivesE13
- Control relayE13
- AccessoriesE14

TECHNICAL INFORMATION

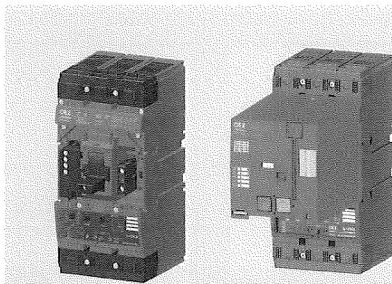
- Circuit breakers, switch-disconnectors**
 - specificationsE15
 - diagramE16
 - connecting, mountingE18
 - deionization spacesE22
 - dimensionsE24
- Plug-in device** - description, specifications, diagramE50
- Withdrawable device** - description, specifications, diagramE52
- Overcurrent releases**
 - DTV3 - distribution**
 - description, specificationsE54
 - MTV8 - motor**
 - description, specificationsE55
 - L001 - lines**
 - description, specificationsE57
 - MTV9 - motor with adjustable timing selectivity**
 - description, specificationsE58
 - 4D01 - distribution with N-pole protection**
 - description, specificationsE60
- Connecting sets** - specificationsE19
- Switches** - specifications, diagramE61
- Shunt trips** - specifications, diagramE62
- Undervoltage releases** - specifications, diagramE64
- Hand drives** - description, specificationsE66
- Mechanical interlocking and parallel switching** - description, specifications, dimensionsE67
- Motor drives** - description, specifications, diagramE69

PROPERTIES OF BD250 CIRCUIT BREAKERS



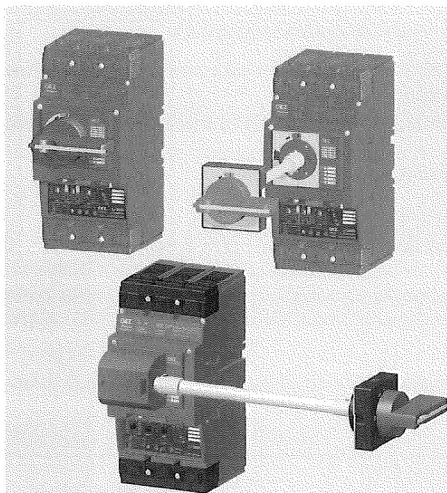
Easy connection

- Circuit breakers can be connected by means of busbars, flexibars and cables directly or via cable lugs.
- Besides the standard connection directly to the circuit breaker, it is possible to select from a wide range of connecting sets as needed.
- Connection of Cu/Al cable of cross section 10 to 240 mm².
- Connection of 2 cables of cross section up to 240 mm².
- Direct connection of all conductors can be done by one electrician.
- Connecting sets for quick solution of replacements of previously manufactured OEZ circuit breakers.



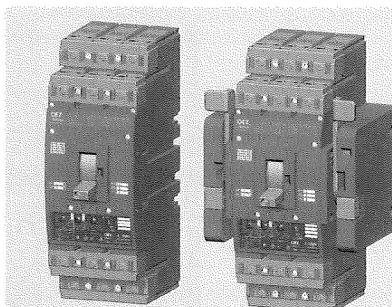
Remote control and signalling

- Signalling of all circuit breaker states for use in automation.
- Fast and safe circuit breaker switching off by the undervoltage release in 20 ms - suitable for switching off by the STOP button.
- Quick remote switching on of the circuit breaker via motor drive in 50 ms - trouble-free solution of standby operation.
- Control voltage range AC/DC 24 ÷ 230 V.



Local control

- For manual control of circuit breakers especially in working machines.
- Black or red lever locked in the off position.
- Black or yellow bearing - possible combination of yellow bearing and red lever as the main switch.
- Safe control from the front on the switchboard door or from the side of the switchboard.

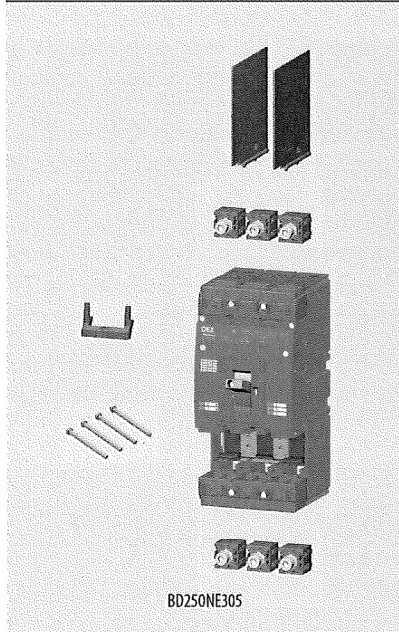


Plug-in and withdrawable design

- The possibility of a quick and easy replacement of the circuit breaker.
- In the case of the withdrawable design, a secure visible disconnection of the main circuit.
- The inspection position of the withdrawable design is intended for the inspection of the auxiliary circuits (revisions).

SWITCHING UNITS

3P



Type	Order code	I_n [A]	I_{cs} [kA]	Weight [kg]	Package [pc]
BD250NE305	OEZ:14414	250	36	2.84	1
BD250SE305	OEZ:14415	250	65	2.84	1

- TECHNICAL INFORMATION, see page E15
 - the method of power circuit connection must observe recommendations, see page E18 as well as deionization space, see page E23

Switching unit: includes

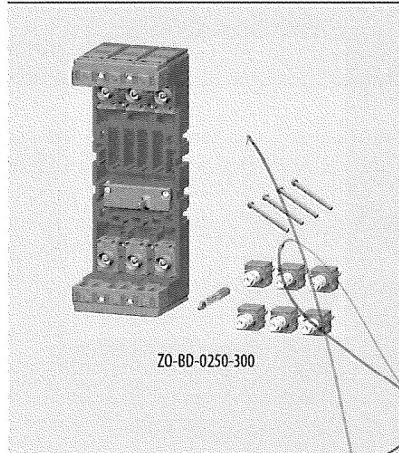
- 2 CS-BD-A011 connecting sets - for connecting busbars or cable lugs¹⁾
- insulating barriers OD-BHD-KS02
- mounting bolts set OD-BD-MS01 (4x M4x35)
- conductor holder OD-BD-DV01

must be fitted with - by overcurrent release SE-BD... (circuit breaker)
 or switch-disconnector SE-BD-0250-V001 (switch-disconnector)

¹⁾ for connecting in another way, it is necessary to use CS-BD-... connecting sets, see page E8

PLUG-IN DEVICE

3P



Type	Order code	Name	Weight [kg]	Package [pc]
ZO-BD-0250-300	OEZ:14558	Plug-in device	1.593	1

- TECHNICAL INFORMATION, see page page E50

Plug-in device: includes

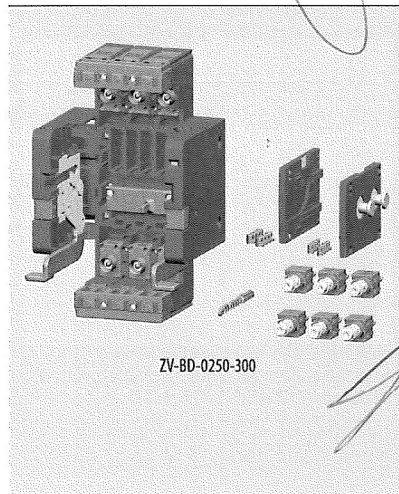
- complete accessories for assembly circuit breakers/switch-disconnectors in plug-in design
- mounting bolts set (4x M4x40) - for affixing switching unit to plug-in device

must be fitted with - switching unit BD250..305

- for connecting plug-in device with busbars or cable lugs, connecting sets CS-BD-A011 can be used, that are included in the package of the BD250..305 switching unit - for connecting in another way, it is necessary to use CS-BD-... connecting sets, see page E8

WITHDRAWABLE DEVICE

3P



Type	Order code	Name	Weight [kg]	Package [pc]
ZV-BD-0250-300	OEZ:14557	Withdrawable device	2.692	1

- TECHNICAL INFORMATION, see page E52

Withdrawable device: includes

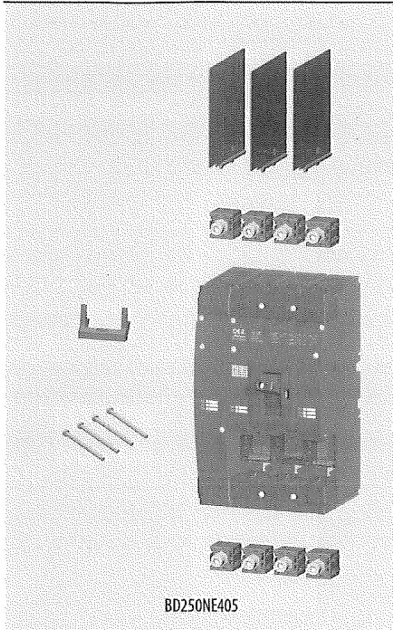
- complete accessories for assembly circuit breakers/switch-disconnectors in withdrawable design

must be fitted with - switching unit BD250..305

- for connecting withdrawable device with busbars or cable lugs, connecting sets CS-BD-A011 can be used, that are included with the BD250..305 switching unit - for connecting in another way, it is necessary to use CS-BD-... connecting sets, see page E8

SWITCHING UNITS

4P



BD250NE405

Type	Order code	I_n [A]	I_{cu} [kA]		Weight [kg]	Package [pc]
BD250NE405	OEZ:19571	250	36	3P + N -conductor switching	3.7	1
BD250SE405	OEZ:19573	250	65	3P + N -conductor switching	3.7	1
BD250NE406	OEZ:19572	250	36	4P -conductor protection	3.9	1
BD250SE406	OEZ:19574	250	65	4P -conductor protection	3.9	1

- TECHNICAL INFORMATION, see page E15

- the method of power circuit connection must observe recommendations, see page E18 as well as deionization space, see page E23

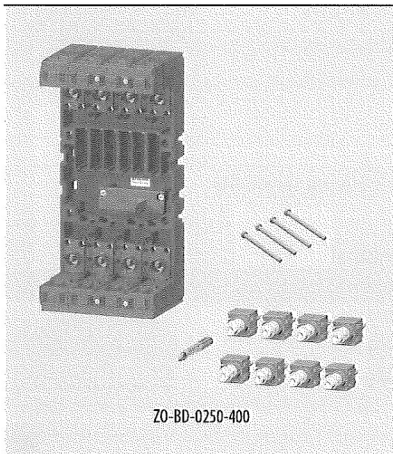
- Switching unit: includes**
- 2 connecting sets - for connecting busbars or cable lugs ¹⁾
 - insulating barriers
 - mounting bolts set OD-BD-MS01 (4x M4x35)
 - conductor holder OD-BD-DV01

must be fitted with - by overcurrent release SE-BD-... (circuit breaker)
or switch-disconnector unit SE-BD-0250-V001 (switch-disconnector)

¹⁾ for connecting in another way, it is necessary to use CS-BD-... connecting sets, see page E8

PLUG-IN DEVICE

4P



ZO-BD-0250-400

Type	Order code	Name	Weight [kg]	Package [pc]
ZO-BD-0250-400	OEZ:20651	Plug-in device	2.1	1

- TECHNICAL INFORMATION, see page E50

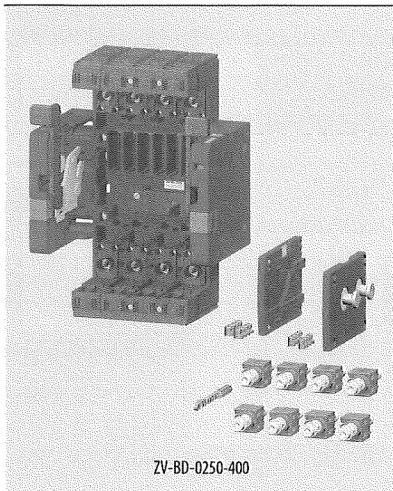
- Plug-in device: includes**
- complete accessories for assembly circuit breakers/switch-disconnectors in plug-in design
 - mounting bolts set (4x M4x40) - for affixing switching unit to plug-in device

must be fitted with - switching unit BD250..405 or BD250..406

- for connecting plug-in device with busbars or cable lugs, connecting sets can be used, that are included in the package of the BD250..40.. switching unit - for connecting in another way, it is necessary to use CS-BD-... connecting sets, see page E8

WITHDRAWABLE DEVICE

4P



ZV-BD-0250-400

Type	Order code	Name	Weight [kg]	Package [pc]
ZV-BD-0250-400	OEZ:20652	Withdrawable device	3.2	1

- TECHNICAL INFORMATION, see page E52

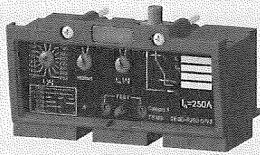
- Withdrawable device: includes**
- complete accessories for assembling breaker/switch-disconnector in withdrawable design

must be fitted with - switching unit BD250..405 or BD250..406

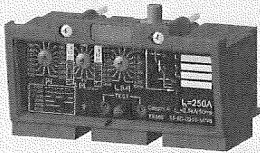
- for connecting withdrawable device with busbars or cable lugs, connecting sets can be used, that are included with the BD250..40.. switching unit - for connecting in another way, it is necessary to use CS-BD-... connecting sets, see page E8

OVERCURRENT RELEASES

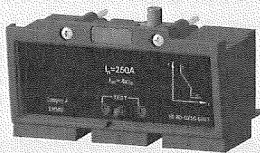
3P 4P



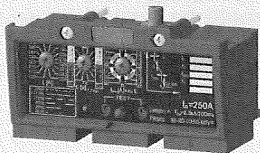
SE-BD-0250-DTV3



SE-BD-0250-MTV8



SE-BD-0250-L001



SE-BD-0250-MTV9

DTV3 - characteristic D - distribution

■ protection lines and transformers

I_n [A]	Type	Order code	Description	Weight [kg]	Package [pc]
100	SE-BD-0100-DTV3	OEZ:24300	I_n setting = 40 ÷ 100 A	0.317	1
160	SE-BD-0160-DTV3	OEZ:24200	I_n setting = 63 ÷ 160 A	0.317	1
250	SE-BD-0250-DTV3	OEZ:24100	I_n setting = 100 ÷ 250 A	0.317	1

- TECHNICAL INFORMATION, see page E54

MTV8 - characteristic M - motor

■ direct protection for motors and generators

■ suitable also for protection lines and transformers

I_n [A]	Type	Order code	Description	Weight [kg]	Package [pc]
100	SE-BD-0100-MTV8	OEZ:24310	I_n setting = 40 ÷ 100 A	0.317	1
160	SE-BD-0160-MTV8	OEZ:24210	I_n setting = 63 ÷ 160 A	0.317	1
250	SE-BD-0250-MTV8	OEZ:24110	I_n setting = 100 ÷ 250 A	0.317	1

- TECHNICAL INFORMATION, see page E55

L001 - characteristic L - lines

■ protection lines with low starting currents

■ without I_n setting

I_n [A]	Type	Order code	Description	Weight [kg]	Package [pc] ¹⁾
160	SE-BD-0160-L001	OEZ:20612	Without I_n setting	0.317	1
200	SE-BD-0200-L001	OEZ:20666	Without I_n setting	0.317	1
250	SE-BD-0250-L001	OEZ:20613	Without I_n setting	0.317	1

- TECHNICAL INFORMATION, see page E57

MTV9 - characteristic M - motor with adjustable timing selectivity

■ direct protection for motors and generators

■ suitable also for protection lines and transformers

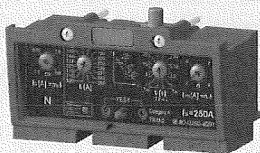
■ enables setting delay of independent release to 0, 100, 200 or 300 ms

I_n [A]	Type	Order code	Description	Weight [kg]	Package [pc]
100	SE-BD-0100-MTV9	OEZ:17304	I_n setting = 40 ÷ 100 A	0.317	1
160	SE-BD-0160-MTV9	OEZ:19569	I_n setting = 63 ÷ 160 A	0.317	1
250	SE-BD-0250-MTV9	OEZ:19570	I_n setting = 100 ÷ 250 A	0.317	1

- TECHNICAL INFORMATION, see page E58

OVERCURRENT RELEASES

4P



SE-BD-0250-4D01

4D01 - characteristic D - distribution with N-pole protection

■ protection lines and transformers in TN-C-S and TN-S networks

I_n [A]	Type	Order code	Description	Weight [kg]	Package [pc]
100	SE-BD-0100-4D01	OEZ:33423	I_n setting = 40 ÷ 100 A	0.327	1
160	SE-BD-0160-4D01	OEZ:33424	I_n setting = 63 ÷ 160 A	0.327	1
250	SE-BD-0250-4D01	OEZ:33425	I_n setting = 100 ÷ 250 A	0.327	1

- TECHNICAL INFORMATION, see page E60

- intended for BD250..406 switching unit

SWITCH-DISCONNECTOR UNIT

3P 4P



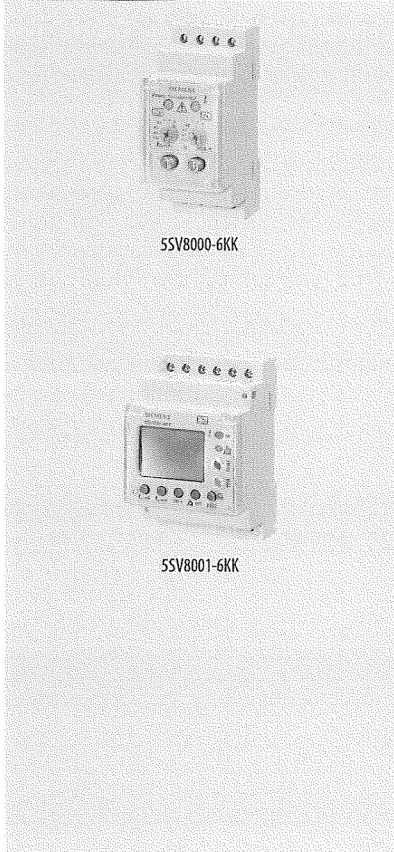
SE-BD-0250-V001

I_n [A]	Type	Order code	Name	Weight [kg]	Package [pc]
250	SE-BD-0250-V001	OEZ:24120	Switch-disconnector unit	0.267	1

- TECHNICAL INFORMATION, see page E15

RESIDUAL CURRENT MONITOR

3P 4P



Type	Order code	Description	Weight [kg]	Package [set]
5SV8000-6KK	OEZ:42658	Analogue design, $I_{\Delta n}$ and $t_{\Delta n}$ setting	0.18	1

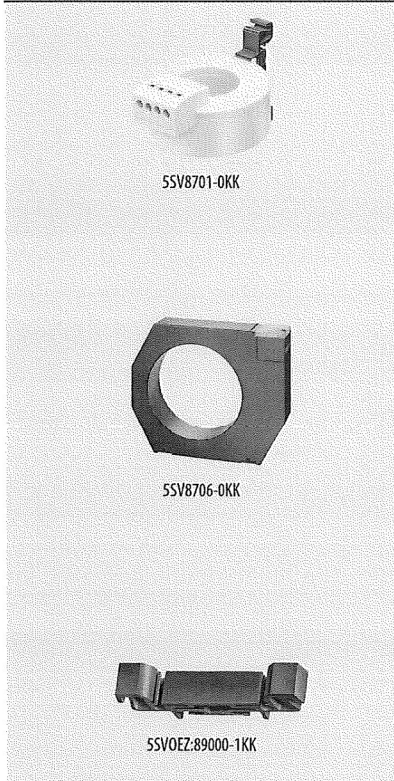
- TECHNICAL INFORMATION, see page P4

Type	Order code	Description	Weight [kg]	Package [set]
5SV8001-6KK	OEZ:42659	Digital design, $I_{\Delta n}$ and $t_{\Delta n}$ setting	0.26	1
5SV8200-6KK	OEZ:42660	Digital design, $I_{\Delta n}$ and $t_{\Delta n}$ setting, 4 channels	0.26	1

- TECHNICAL INFORMATION, see page P4

CURRENT TRANSFORMERS FOR RESIDUAL CURRENT MONITOR

3P 4P



Type	Order code	Description	Weight [kg]	Package [set]
5SV8700-0KK	OEZ:42661	Internal diameter 20 mm, including holder on "U" rail according to EN OEZ:60715 wide 35 mm	0.09	1
5SV8701-0KK	OEZ:42662	Internal diameter 30 mm, including holder on "U" rail according to EN OEZ:60715 wide 35 mm	0.11	1

- TECHNICAL INFORMATION, see page P4

Type	Order code	Description	Weight [kg]	Package [set]
5SV8702-0KK	OEZ:42663	Internal diameter 35 mm, including holder on the panel	0.2	1
5SV8703-0KK	OEZ:42664	Internal diameter 70 mm, including holder on the panel	0.31	1
5SV8704-0KK	OEZ:42665	Internal diameter 105 mm, including holder on the panel	0.6	1
5SV8705-0KK	OEZ:42666	Internal diameter 140 mm, including holder on the panel	1.35	1
5SV8706-0KK	OEZ:42667	Internal diameter 210 mm, including holder on the panel	1.25	1

- TECHNICAL INFORMATION, see page P4

Type	Order code	Description	Weight [kg]	Package [set]
5SV8 900-1KK	OEZ:42668	Holder on "U" rail according to EN OEZ:60715 wide 35 mm for current transformers with internal diameter up to and including 105 mm	0.01	2

- TECHNICAL INFORMATION, see page P4

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E7

CONNECTING SETS

3P 4P



CS-BD-T011



CS-BD-B011



CS-BD-B012



CS-BD-B022



CS-BD-B014



CS-BD-A021



CS-BD-PS01



CS-BD-A011



CS-BD-T411



CS-BD-B411



CS-BD-B412

3 terminals

Type	Order code	Description	S [mm ²]	Method of connection	Weight [kg]	Package [set] ¹⁾
CS-BD-T011	OEZ:24810	Clamp terminals	16 ÷ 150	Cu cables, flexibars	0.24	1

- TECHNICAL INFORMATION, see page E19

CS-BD-B011	OEZ:24751	Block terminals	25 ÷ 150	Cu/Al cables	0.21	1
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- TECHNICAL INFORMATION, see page E19

CS-BD-B012	OEZ:17534	Block terminals	150 ÷ 240	Cu/Al cables	0.2	1
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- TECHNICAL INFORMATION, see page E19

- using the OD-BD-KS03 cover the degree of protection IP20 is fulfilled

CS-BD-B021	OEZ:24752	Double block terminals	2x (25 ÷ 150)	Cu/Al cables	0.51	1
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CS-BD-B022	OEZ:13808	Double block terminals	2x (150 ÷ 240)	Cu/Al cables	0.62	1
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- TECHNICAL INFORMATION, see page E19

- using the OD-BD-KS03 cover the degree of protection IP20 is fulfilled

CS-BD-B014	OEZ:20119	Block terminals - for 6 cables	6x (6 ÷ 35)	Cu/Al cables	0.3	1
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- TECHNICAL INFORMATION, see page E19

- using the OD-BD-KS03 cover the degree of protection IP20 is fulfilled

CS-BD-A021	OEZ:24770	Rear connection		Cu/Al busbars, cable lugs	0.237	1
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- TECHNICAL INFORMATION, see page E19

CS-BD-PS01	OEZ:13682	Potential terminals	1.5 ÷ 2.5; 4 ÷ 6	Cu flexible conductor	0.017	1
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- TECHNICAL INFORMATION, see page E19

CS-BD-A011	OEZ:24750	Front connection		Cu/Al busbars, cable lugs, flexibars	0.12	1
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- TECHNICAL INFORMATION, see page E19

- included in every supply of switching units

1 terminal

Type	Order code	Description	S [mm ²]	Method of connection	Weight [kg]	Package [set]
CS-BD-T411	OEZ:19578	Clamp terminal	16 ÷ 150	Cu cables, flexibars	0.08	1

- TECHNICAL INFORMATION, see page E19

CS-BD-B411	OEZ:19582	Block terminal	25 ÷ 150	Cu/Al cables	0.07	1
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- TECHNICAL INFORMATION, see page E19

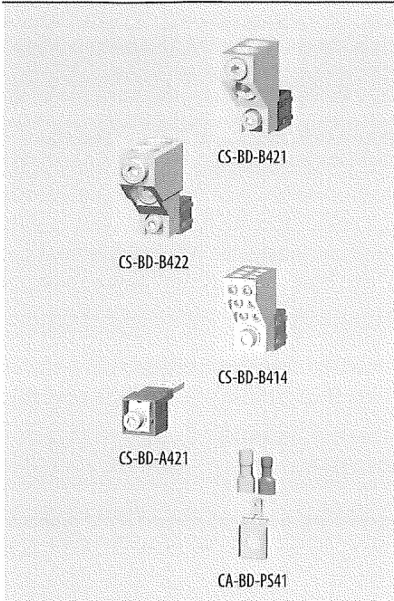
CS-BD-B412	OEZ:19577	Block terminal	150 ÷ 240	Cu/Al cables	0.07	1
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- TECHNICAL INFORMATION, see page E19

¹⁾ one set provides for connecting one side of the circuit breaker (set includes three terminals with necessary coupling elements)

CONNECTING SETS

3P 4P



1 terminal

Type	Order code	Description	S [mm ²]	Method of connection	Weight [kg]	Package [pc]
CS-BD-B421	OEZ:19579	Double block terminal 2x (25 ÷ 150)		Cu/Al cables	0.17	1

- TECHNICAL INFORMATION, see page E19

CS-BD-B422	OEZ:19580	Double block terminal 2x (150 ÷ 240)		Cu/Al cables	0.21	1
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- TECHNICAL INFORMATION, see page E19

CS-BD-B414	OEZ:21170	Block terminal - for 6 cables	6x (6 ÷ 35)	Cu/Al cables	0.1	1
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- TECHNICAL INFORMATION, see page E19

CS-BD-A421	OEZ:19581	Rear connection		Cu/Al busbars, cable lugs	0.08	1
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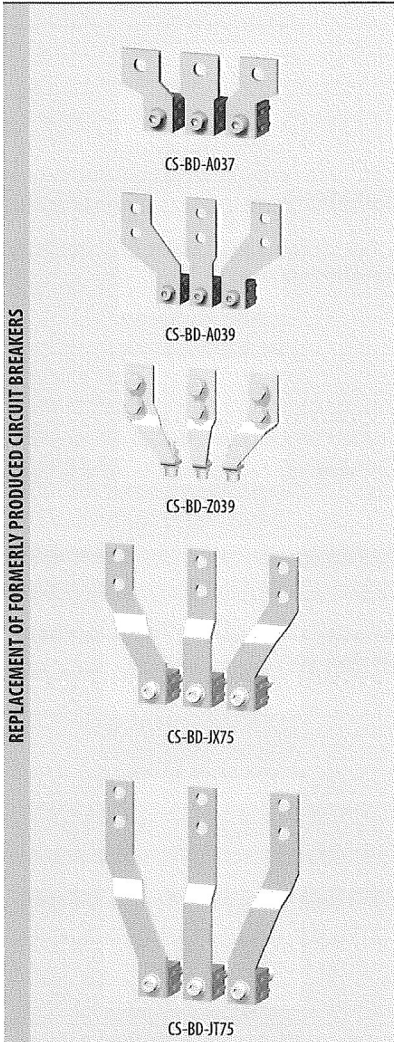
- TECHNICAL INFORMATION, see page E19

CS-BD-PS41	OEZ:36031	Potential terminal	1.5 ÷ 2.5/4 ÷ 6		0.005	1
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- TECHNICAL INFORMATION, see page E19

CONNECTING SETS

3P



REPLACEMENT OF FORMERLY PRODUCED CIRCUIT BREAKERS

3 terminals

Type	Order code	Description	Method of connection	Weight [kg]	Package [pc]
CS-BD-A037	OEZ:24772	Reduction for BA...*37-50 - front connection	Cu/Al busbars, cable lugs, flexibars	0.3	1

- TECHNICAL INFORMATION, see page E19

CS-BD-A039	OEZ:24771	Reduction for BA...*39-50 a J2UX50 - front connection	Cu/Al busbars, cable lugs, flexibars	0.447	1
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- TECHNICAL INFORMATION, see page E19

- for total replacement of BA... *39-50 or J2UX50 circuit breaker with front connection OD-BHD-MS39 connecting set is necessary

CS-BD-Z039	OEZ:18201	Reduction for BA...*39 a J2UX - rear connection	Cu/Al busbars, cable lugs, flexibars	0.739	1
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- TECHNICAL INFORMATION, see page E19

- for total replacement of BA... *39 or J2UX circuit breaker with rear connection OD-BD-MZ39 and CS-BD-A021 connecting sets are necessary

CS-BD-JX75	OEZ:18023	Reduction for BA...*39-75 and J2UX75 - front connection, withdrawable design	Cu/Al busbars, cable lugs, flexibars	0.558	1
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- TECHNICAL INFORMATION, see page E19

- for total replacement of BA... *39-75 or J2UX75T circuit breakers with front connection in withdrawable design OD-BHD-MS75 connecting set and ZO-BD-0250-300 plug-in device or ZV-BD-0250-300 withdrawable device are necessary

CS-BD-JT75	OEZ:18024	Reduction for J2UX75T - front connection, withdrawable design	Cu/Al busbars, cable lugs, flexibars	0.711	1
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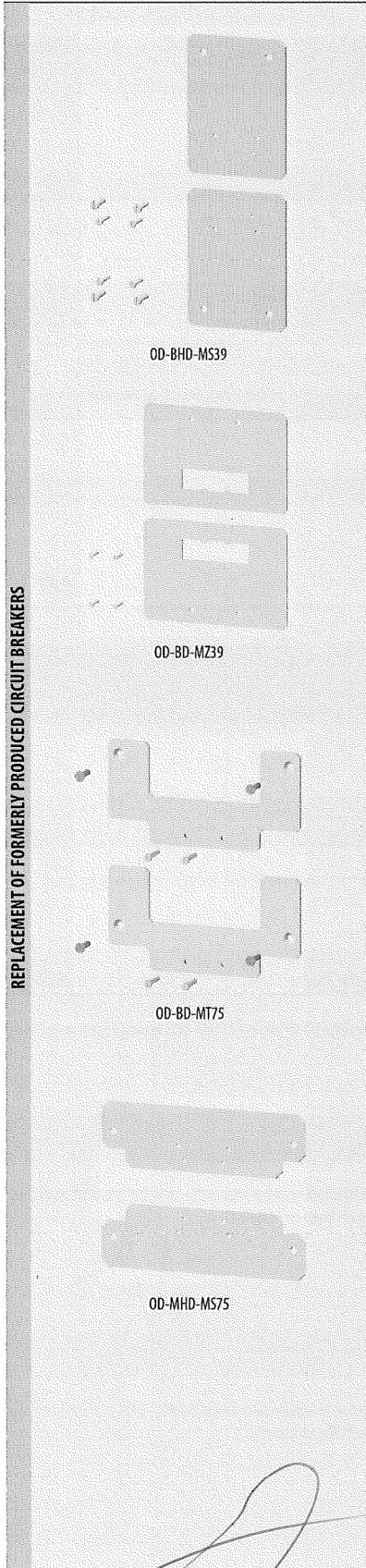
- TECHNICAL INFORMATION, see page E19

- for total replacement of J2UX75T circuit breaker with front connection in withdrawable design OD-BHD-MS75 connecting set and ZO-BD-0250-300 plug-in device or ZV-BD-0250-300 withdrawable device are necessary

MOUNTING SETS

3P

REPLACEMENT OF FORMERLY PRODUCED CIRCUIT BREAKERS



Type	Order code	Description	Weight [kg]	Package [set] ¹⁾
OD-BHD-MS39	OEZ:24741	Reduction for BA...*39-50 and J2UX50 - front connection	0.7	1

- DIMENSIONS see page E28
 - for total replacement of BA...*39-50 or J2UX50 circuit breaker with front connection 2 connecting sets CS-BD-A039 are necessary

OD-BD-MZ39	OEZ:18203	Reduction for BA...*39 and J2UX - rear connection	1.255	1
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- DIMENSIONS see page E28
 - for total replacement of BA...*39 or J2UX circuit breaker with rear connection 2 connecting sets CS-BD-Z039 and CS-BD-A021 are necessary

OD-BD-MT75	OEZ:33330	Reduction for J2UX75T - front connection, withdrawable design		1
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- DIMENSIONS see page E34, E38
 - for total replacement of J2UX75T circuit breaker with front connection in withdrawable design 2 connecting sets CS-BD-JT75 and Z0-BD-0250-300 plug-in device or ZV-BD-0250-300 withdrawable device are necessary

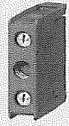
OD-BHD-MS75	OEZ:14563	Reduction for BA...*39-75 and J2UX75 - front connection, withdrawable design	0.446	1
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- DIMENSIONS see page E34, E37
 - for total replacement of BA...*39-75 or J2UX75 circuit breaker with front connection in withdrawable design 2 connecting sets CS-BD-JX75 and Z0-BD-0250-300 plug-in device or ZV-BD-0250-300 withdrawable device are necessary

¹⁾ - one set provides for replacing one circuit breaker (set includes coupling elements necessary to assemble circuit breaker and mounting set)

SWITCHES

3P 4P



PS-BHD-1000



PS-BHD-0100



PS-BHD-1100



PS-BHD-0010



SP-BHD-0002

Single make contacts

Type	Order code	Operating voltage	Contacts	Weight [kg]	Package [pc]
PS-BHD-1000	OEZ:24700	AC/DC 60 ÷ 500 V		0.012	1
PS-BHD-1000-Au	OEZ:24702	AC/DC 5 ÷ 60 V		0.012	1

Single break contacts

Type	Order code	Operating voltage	Contacts	Weight [kg]	Package [pc]
PS-BHD-0100	OEZ:24701	AC/DC 60 ÷ 500 V		0.013	1
PS-BHD-0100-Au	OEZ:24703	AC/DC 5 ÷ 60 V		0.013	1

Double

Type	Order code	Operating voltage	Contacts	Weight [kg]	Package [pc]
PS-BHD-0200	OEZ:13690	AC/DC 60 ÷ 500 V		0.026	1
PS-BHD-0200-Au	OEZ:13693	AC/DC 5 ÷ 60 V		0.026	1
PS-BHD-1100	OEZ:13691	AC/DC 60 ÷ 500 V		0.025	1
PS-BHD-1100-Au	OEZ:13694	AC/DC 5 ÷ 60 V		0.025	1
PS-BHD-2000	OEZ:13689	AC/DC 60 ÷ 500 V		0.024	1
PS-BHD-2000-Au	OEZ:13692	AC/DC 5 ÷ 60 V		0.024	1

Make-and-break

Type	Order code	Operating voltage	Contacts	Weight [kg]	Package [pc]
PS-BHD-0010	OEZ:18021	AC/DC 60 ÷ 250 V		0.013	1
PS-BHD-0010-Au	OEZ:18022	AC/DC 5 ÷ 60 V		0.013	1
PS-BHD-0020	OEZ:35893	AC/DC 60 ÷ 250 V		0.026	1
PS-BHD-0020-Au	OEZ:37467	AC/DC 5 ÷ 60 V		0.026	1

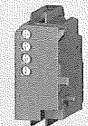
Early

Type	Order code	Description	Contacts	Weight [kg]	Package [pc]
SP-BHD-0002	OEZ:16169	Early contact		0.045	1

- TECHNICAL INFORMATION for all switch, see page E61

SHUNT TRIPS

3P 4P



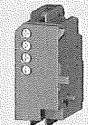
SV-BHD-X230

Type	Order code	Operating voltage	Weight [kg]	Package [pc]
SV-BHD-X024	OEZ:24650	AC/DC 24, 40, 48 V	0.14	1
SV-BHD-X110	OEZ:24630	AC/DC 110 V	0.14	1
SV-BHD-X230	OEZ:24620	AC 230, 400, 500 V / DC 220 V	0.14	1

- TECHNICAL INFORMATION, see page E62

UNDERVOLTAGE RELEASES

3P 4P



SP-BHD-X230

Type	Order code	Operating voltage	Description	Weight [kg]	Package [pc]
SP-BHD-X024	OEZ:24450	AC/DC 24, 40, 48 V		0.11	1
SP-BHD-X110	OEZ:24430	AC/DC 110 V		0.11	1
SP-BHD-X230	OEZ:24420	AC 230, 400, 500 V / DC 220 V		0.11	1
SP-BHD-X024-0001 ¹⁾	OEZ:24550	AC/DC 24, 40, 48 V	early contact	0.12	1
SP-BHD-X110-0001 ¹⁾	OEZ:24530	AC/DC 110 V	early contact	0.12	1
SP-BHD-X230-0001 ¹⁾	OEZ:24520	AC 230, 400, 500 V / DC 220 V	early contact	0.12	1

- TECHNICAL INFORMATION, see page E64

¹⁾ cannot be used in combination with motor drive MP-BD-X...

DELAY UNIT



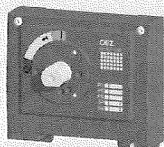
BZ-BX-X230-A

Type	Order code	Description	Weight [kg]	Package [pc]
BZ-BX-X230-A	OEZ:36696	enables to delay the undervoltage release tripping of circuit breakers Modeion	0.12	1

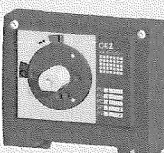
- TECHNICAL INFORMATION, see page P2

HAND DRIVES

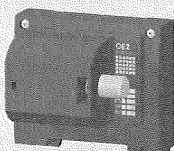
3P 4P



RP-BD-CK10



RP-BD-CK21



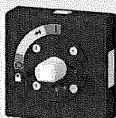
RP-BD-CK30



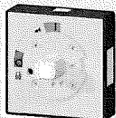
RP-BHD-CP10



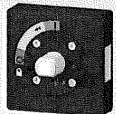
RP-BHD-CP21



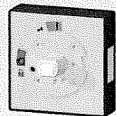
RP-BHD-CN40



RP-BHD-CN41



RP-BHD-CN60



RP-BHD-CN61

Type	Order code	Name - description	Weight [kg]	Package [pc]
RP-BD-CK10	OEZ:13651	Hand drive unit - without locking	0.223	1
RP-BD-CK20	OEZ:13652	Hand drive unit - with locking	0.223	1

- TECHNICAL INFORMATION, see page E66

Hand drive unit must be fitted with: ■ for control on circuit breaker - with the black hand drive lever RP-BHD-CP10 or RP-BHD-CP20
 ■ for control through the switchboard door - with the extension shaft RP-BHD-CH..
 - with the hand drive bearing RP-BHD-CN..
 - with the hand drive lever RP-BHD-CP..

RP-BD-CK21	OEZ:13684	Hand drive unit - yellow label - with locking	0.223	1
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- TECHNICAL INFORMATION, see page E66

Hand drive unit must be fitted with: ■ for control on circuit breaker - with the red hand drive lever RP-BHD-CP21
 ■ for control through the switchboard door - with the extension shaft RP-BHD-CH..
 - with the hand drive bearing RP-BHD-CN..
 - with the hand drive lever RP-BHD-CP..

RP-BD-CK30	OEZ:37250	Hand drive unit for right side control	0.484	1
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RP-BD-CK31	OEZ:37251	Hand drive unit left side control	0.484	1
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- TECHNICAL INFORMATION, see page E66

RP-BHD-CP10	OEZ:13655	Hand drive lever - black - without locking	0.075	1
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RP-BHD-CP20	OEZ:13656	Hand drive lever - black - with locking	0.075	1
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- TECHNICAL INFORMATION, see page E66

RP-BHD-CP21	OEZ:13657	Hand drive lever - red - with locking	0.075	1
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- TECHNICAL INFORMATION, see page E66

RP-BHD-CN40	OEZ:37246	Hand drive bearing - degree of protection IP40	0.14	1
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- TECHNICAL INFORMATION, see page E66

- is used in combination with the black lever of RP-BHD-CP10, RP-BHD-CP20 hand drives

RP-BHD-CN41	OEZ:37247	Hand drive bearing - yellow label - degree of protection IP40	0.14	1
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- TECHNICAL INFORMATION, see page E66

- is used in combination with the red lever of RP-BHD-CP21 hand drive

RP-BHD-CN60	OEZ:37248	Hand drive bearing - degree of protection IP66	0.14	1
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- TECHNICAL INFORMATION, see page E66

- is used in combination with the black lever of RP-BHD-CP10, RP-BHD-CP20 hand drives

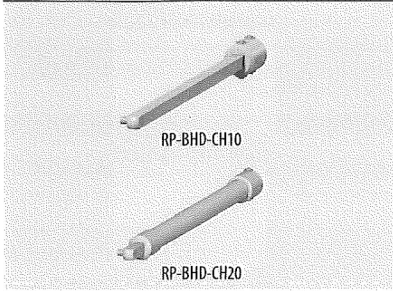
RP-BHD-CN61	OEZ:37249	Hand drive bearing - yellow label - degree of protection IP66	0.14	1
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- TECHNICAL INFORMATION, see page E66

- is used in combination with the red lever of RP-BHD-CP21 hand drive

HAND DRIVES

3P 4P



Type	Order code	Name - description	Weight (kg)	Package (pc)
RP-BHD-CH10	OEZ:13658	Extension shaft - length 365 mm, can be shortened	0.205	1

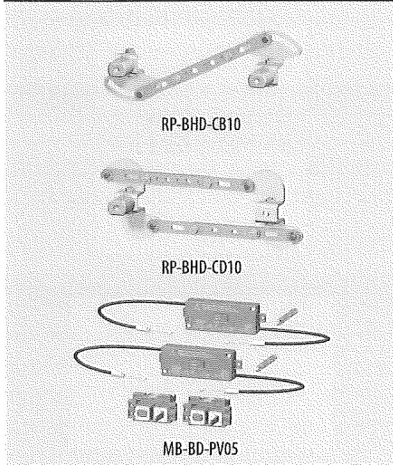
- TECHNICAL INFORMATION, see page E66

RP-BHD-CH20	OEZ:13659	Extension shaft - telescopic, length 252 ÷ 416 mm	0.255	1
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- TECHNICAL INFORMATION, see page E66

MECHANICAL INTERLOCKING AND PARALLEL SWITCHING

3P 4P



Type	Order code	Name - description	Weight (kg)	Package (pc)
RP-BHD-CB10	OEZ:18290	Mechanical interlocking - for fixed design	0.16	1

- TECHNICAL INFORMATION, see page E67
- mechanical interlocking must be fitted with: 2 hand drive units RP-BD-CK..
2 hand drive levers RP-BHD-CP..

RP-BHD-CD10	OEZ:18289	Mechanical parallel switching - for fixed design	0.23	1
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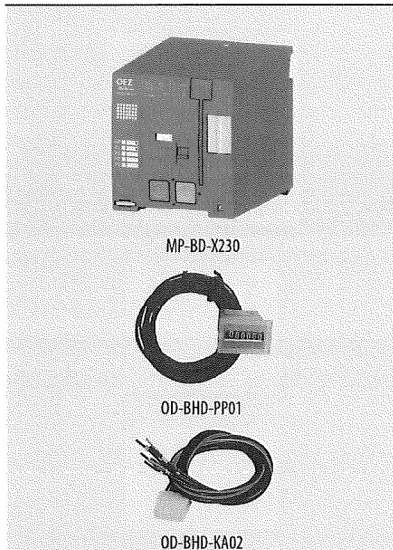
- TECHNICAL INFORMATION, see page E67
- mechanical parallel switching must be fitted with: 2 hand drive units RP-BD-CK..
the hand drive lever RP-BHD-CP..

MB-BD-PV05	OEZ:19612	Mechanical interlocking - for two circuit breakers BD250	0.448	1
MB-BHD-PV03	OEZ:19613	Mechanical interlocking - for one BD250 and one BH630 circuit breaker	0.448	1

- TECHNICAL INFORMATION, see page E67
- mechanical blocking with Bowden cable is intended for fixed, plug-in and withdrawable design

MOTOR DRIVES

3P 4P



Type	Order code	Name - description	Operating voltage	Weight (kg)	Package (pc)
MP-BD-X024 ¹⁾	OEZ:36884	Motor drive	AC/DC 24V	1.529	1
MP-BD-X048 ¹⁾	OEZ:19790	Motor drive	AC/DC 48V	1.529	1
MP-BD-X110	OEZ:13537	Motor drive	AC/DC 110V	1.529	1
MP-BD-X230	OEZ:13535	Motor drive	AC 230V / DC 220V	1.529	1
MP-BD-X048-P ¹⁾	OEZ:19791	Motor drive - with counter of cycles	AC/DC 48V	1.546	1
MP-BD-X110-P ¹⁾	OEZ:13686	Motor drive - with counter of cycles	AC/DC 110V	1.546	1
MP-BD-X230-P ¹⁾	OEZ:13538	Motor drive - with counter of cycles	AC 230V / DC 220V	1.546	1

- TECHNICAL INFORMATION, see page E69
- motor drive cannot be used in combination with SP-BHD-X...-0001
¹⁾ custom production

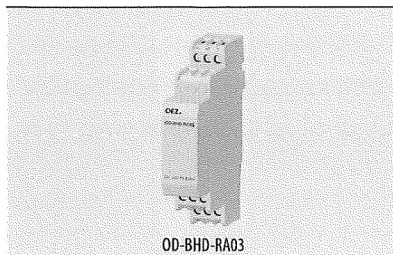
OD-BHD-PP01	OEZ:13688	Counter of cycles - cable length 1.1 m	0.08	1
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- DIMENSIONS see page E30

OD-BHD-KA02	OEZ:13809	Extension cable - to motor drive 12 wires, length 0.6 m	0.1	1
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- TECHNICAL INFORMATION, see page E69

CONTROL RELAY

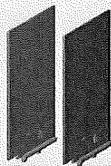


Type	Order code	Specifications	Weight (kg)	Package (pc)
OD-BHD-RX01	OEZ:37425	AC/DC 24V	0.06	1
OD-BHD-RX02	OEZ:37426	AC/DC 48V	0.06	1
OD-BHD-RA03	OEZ:37427	AC 110 ÷ 230V	0.06	1
OD-BHD-RD04	OEZ:37428	DC 110V	0.06	1

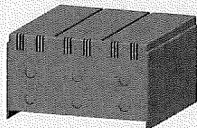
- TECHNICAL INFORMATION, see page P3

ACCESSORIES

3P 4P



OD-BHD-KS02



OD-BD-KS03



OD-BD-UP01



OD-BD-VP01



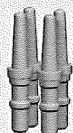
OD-BD-VP02



OD-BHD-KA01



SO-BHD-0010



OD-BD-KK01



OD-BHD-KT01

Type	Order code	Name - description	Weight [kg]	Package [pc]
OD-BHD-KS02	OEZ.24740	Insulating barriers - set (two pieces), for 3P and 4P design	0.077	1
OD-BHD-KS42	OEZ.19575	Insulating barrier - one piece, for 4P design	0.039	1

- included with each switching unit order
- in case circuit breaker/switch-disconnector connection is reversed (supply to terminals 2, 4, 6) it is necessary in most cases to install these barriers also on the lower side
- for more detailed information see page E22

OD-BD-KS03	OEZ.13534	Terminal cover - degree of protection IP20, for 3P design	0.098	1
OD-BD-KS43	OEZ.19576	Terminal cover - degree of protection IP20, for 4P design	0.141	1

- Increases degree of protection of connection point to IP20 when using CS-BD-B012, B021, B022 and B014 block type terminals
- intended for fixed, plug-in and withdrawable design

OD-BD-UP01	OEZ.13533	Lever with locking	0.009	1
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- enables to lock the circuit breaker in „switched off manually“ position (loaded)
- locking is possible using padlock with shank diameter 4 ÷ 6 mm

OD-BD-VP01	OEZ.15328	Bolt sealing insert	0.001	2
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- enables sealing for:
 - cover of cavities
 - terminal cover
 - overcurrent release
 - hand drive unit
 - motor drive

OD-BD-VP02	OEZ.18215	Additional cover for overcurrent release	0.08	1
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- enables sealing for overcurrent releases such as circuit breakers in the main meter switchboard

OD-BHD-KA01	OEZ.14555	Connecting cable - to connect the circuit breaker/switch-disconnector accessories in the plug-in/withdrawable design - 15 wires (It is possible for plug-in design and fixed design)	0.12	1
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SO-BHD-0010	OEZ.14560	Signalling of position - signals circuit breaker position in the plug-in or withdrawable device	0.018	1
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- TECHNICAL INFORMATION, see page E50, E52

OD-BD-KK01	OEZ.14559	Keying set - prevents inserting in the plug-in or withdrawable devices beyond the switching unit	0.002	1
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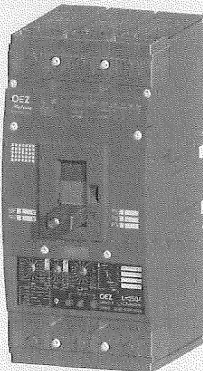
- TECHNICAL INFORMATION, see page E50, E52

OD-BHD-KT01	OEZ.14642	Cover of switch on button - for motor drive, cover can be sealed	0.002	1
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- TECHNICAL INFORMATION, see page E69

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

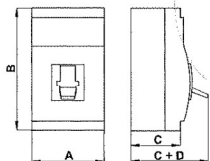
3P 4P



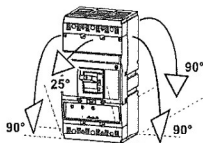
Circuit breaker



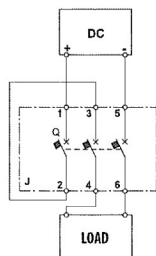
Switch-disconnector



Dimensions



Installation positions - fixed, plug-in and withdrawable design



Connection of switch-disconnector for DC circuits

Specifications

Specifications	CIRCUIT BREAKER		SWITCH-DISCONNECTOR	
	BD250N, BD250S			
Type	BD250N, BD250S			
Dimensions A x B x C + D (3P/4P design)	105/140 x 225 x 105 + 43 mm		105/140 x 225 x 105 + 43 mm	
Weight (3P/4P design)	3 kg/4 kg		3 kg/4 kg	
Standards	EN 60947-2, IEC 60947-2		EN 60947-3, IEC 60947-3	
Approval marks				
Number of poles	3, 4		3, 4	
Rated current	I_n	100, 160, 200, 250 A	-	
Rated normal current	I_u	250 A	250 A	
Rated operating current	I_c	-	250 A	
Rated operating voltage	U_e	max. AC 690 V	max. AC 690 V max. AC 440 V	
Rated frequency	f_n	50/60 Hz	50/60 Hz	
Rated impulse withstand voltage	U_{imp}	8 kV	8 kV	
Rated insulation voltage	U_i	690 V	690 V	
Utilization category (selectivity)	AC 690 V	A	-	
Utilization category (switching mode)	AC 690 V	-	AC-23B	
	DC 440 V	-	DC-23B	
Rated short-time withstand current at $U_e = AC 690 V$	I_{cw} / t	2.5 kA/1 s	3 kA/5 s	
Series		NORMAL BD250N	SUPERIOR BD250S	U_e -
Rated short-circuit ultimate breaking capacity (rms) ¹⁾	I_{cu}	60 kA	100 kA	AC 230V
		36 kA	65 kA	AC 415V
		16 kA	25 kA	AC 500V
		10 kA	13 kA	AC 690V
Rated short-circuit service breaking capacity (rms)	I_{cs}	30 kA	50 kA	AC 230V
		18 kA	36 kA	AC 415V
		8 kA	13 kA	AC 500V
		5 kA	8 kA	AC 690V
Rated short-circuit making capacity (peak value)	I_{cm} / U_e	75 kA	140 kA	AC 415V
Application in IT network	U_e	-	AC 690 V	-
Switching off time at I_{cu}			10 ms	-
Losses per 1 pole fixed/withdrawable design			18 W/25 W	18 W/25 W
Mechanical endurance		20 000 cycles	20 000 cycles	
Electrical endurance		3 000 cycles	3 000 cycles	
Switching frequency		120 cycles/hr	120 cycles/hr	
Control force		80 N	80 N	
Degree of protection from front side of the device		IP40	IP40	
Degree of protection of terminals		IP20	IP20	
Operating conditions				
Reference ambient temperature		40 °C	40 °C	
Ambient temperature range		-25 °C ÷ +55 °C	-25 °C ÷ +55 °C	
Working environment		dry and tropical climate	dry and tropical climate	
Climatic resistance		EN 60068	EN 60068	
Pollution degree		3	3	
Max. sea level		2 000 m	2 000 m	
Seismic resistance		3g (8 ÷ 50) Hz	3g (8 ÷ 50) Hz	
Design modifications				
Front/rear connection		o/o	o/o	
Plug-in design 3P/4P		o/o	o/o	
Withdrawable design 3P/4P		o/o	o/o	
Accessories				
Switches - auxiliary/relative/signal/early		o/o/o/o	o/o/o/o	
Shunt trip		•	•	
Undervoltage release/with early switch		o/o	o/o	
Front hand drive/with adjustable lever		o/o	o/o	
Mechanical interlocking-with Bowden cable/for hand drive		o/o	o/o	
Motor drive/with counter of cycles		o/o	o/o	
Lever with locking		•	•	
Bolt sealing insert/additional cover for overcurrent release		o/o	o/o	

o available, - unavailable

¹⁾ in case circuit breaker connection is reversed (input terminals 2, 4, 6, output terminals 1, 3, 5) I_{cu} does not change protection of Modeion switch-disconnectors, see page R10

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

Diagram

Circuit breaker with accessories (3-pole design)

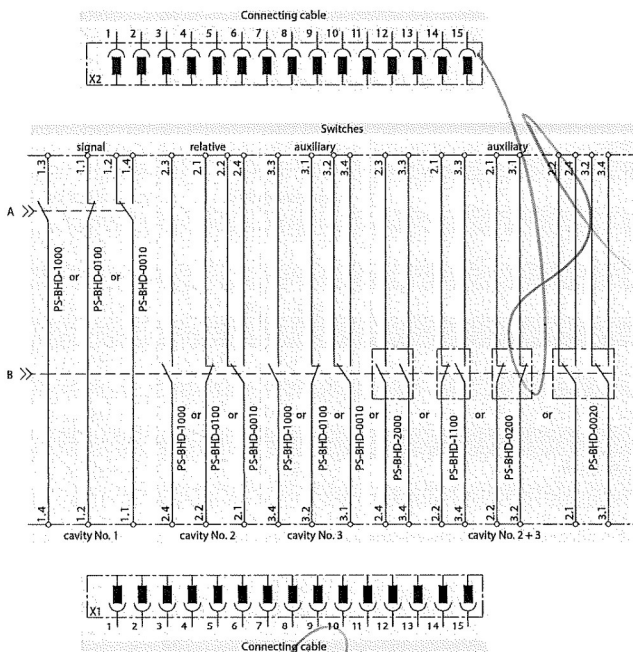
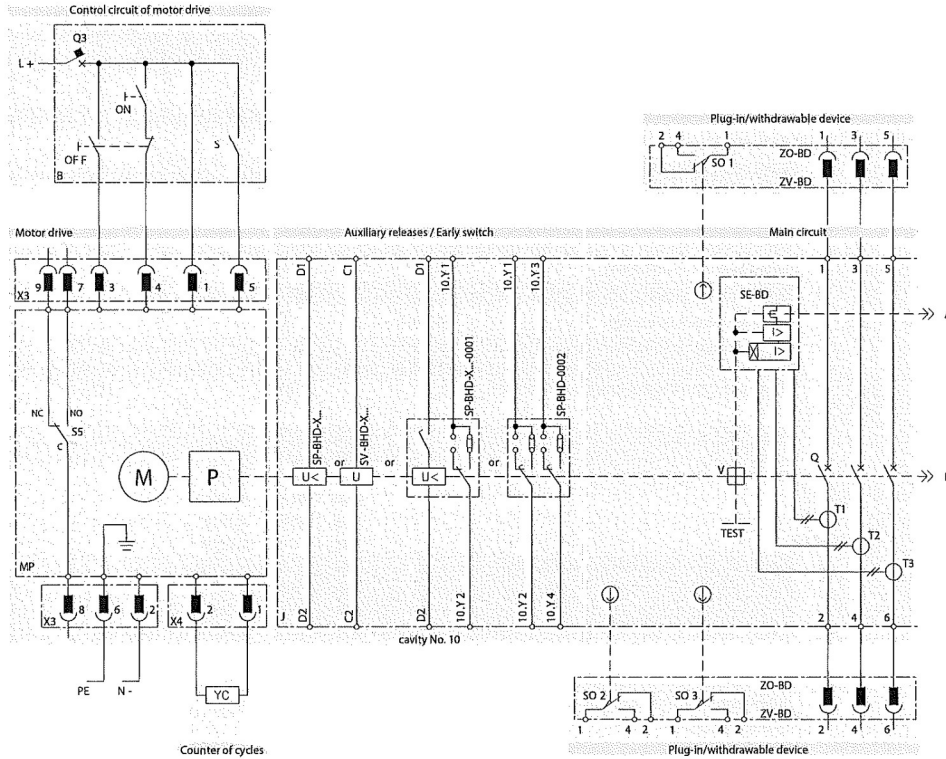


Diagram description (3P and 4P design)

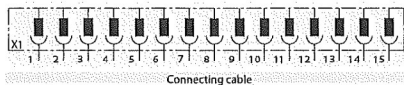
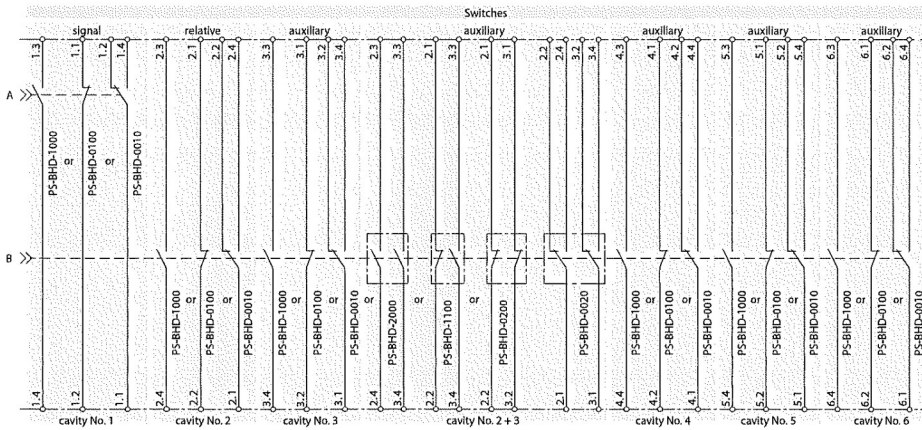
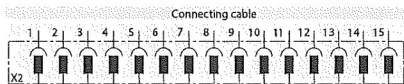
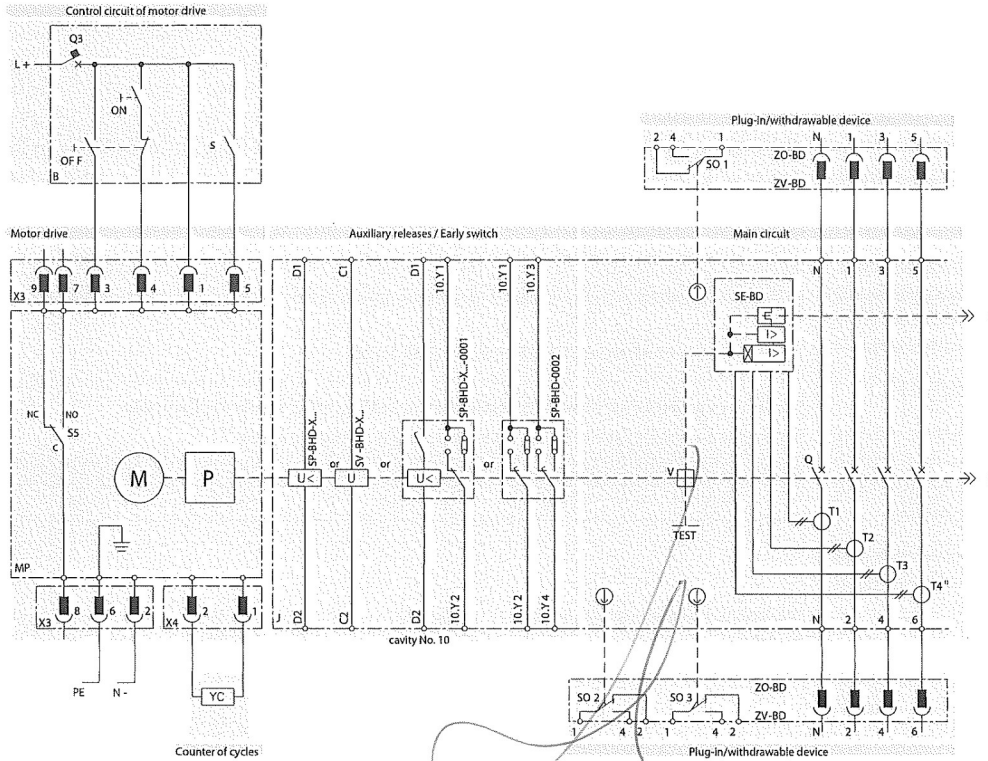
- MP motor drive - MP-BD-X...
- M motor
- P storage device
- X3 connector for connection of control circuits
- X4 connector for external counter of cycles
- S5 switch to indicate AUTO (NO-C) / MANUAL (NC-C) modes
- YC external counter of cycles - OD-BHD-PP01
- B recommended wiring of the control circuits - It is not a part of motor drive
- ON switch on button
- OFF switch off button
- S switch for energy storage (switched on = automatic storage, switch may be continuously switched on)
- Q3 motor drive circuit breaker - see page E69
- J switching unit - BD250..305
- Q main contacts
- T1, T2, T3, T4¹⁾ current transformers
- V trip-free mechanism
- SE-BD circuit breaker - overcurrent release - SE-BD-... switch-disconnector - switch-disconnector unit - SE-BD-0250-V001
- TEST push button to test release
- ZO-BD plug-in device - ZO-BD-0250-300
- ZV-BD withdrawable device - ZV-BD-0250-300
- X1, X2 connecting cable - OD-BHD-KA01
- SO1, SO2, SO3 contacts signalling circuit breaker/switch-disconnector position in plug-in or withdrawable device SO-BHD-0010 - for more detailed information see page E50, E52
- SP-BHD-X... undervoltage release
- SV-BHD-X... shunt trip
- SP-BHD-X... 0001 undervoltage release with early contact
- SP-BHD-0002 early contact

¹⁾ only for 4-pole design of BD250..406 switching unit

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Diagram

Circuit breaker with accessories (4-pole design)



CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P 4P

Connecting and installation

Power circuit

■ connected with Cu/Al busbars or cables and possibly cables with cable lugs

■ connection sets are produced to provide greater connecting options, see page E8

■ generally, conductors from the supply are connected to input terminals 1, 3, 5 and conductors from the load to terminals 2, 4, 6; however, it is possible to reverse the connection (exchanging input and output terminals without limiting rated short-circuit ultimate breaking capacity I_{cu})

■ in case of reversed connection, in the majority of cases, circuit breaker/switch-disconnector must be fitted with OD-BHD-KS02 insulating barriers also on the side of terminals 2, 4, 6, for more detailed information see page E22

■ we recommend painting the connecting busbars

■ input and output conductors/busbars must be mechanically reinforced in order to avoid transferring electrodynamic forces to the circuit breaker/switch-disconnector during short-circuiting

■ the method of connecting the power circuit must observe the deionization spaces of the circuit breaker/switch-disconnector, see page E23

Auxiliary circuits

■ switches, shunt trips or undervoltage releases are connected using flexible Cu conductors with cross-section 0.5 ÷ 1 mm² directly to terminals on these devices

■ motor drive and auxiliary circuits of the plug-in or withdrawable design are connected using a connector

Recommended min. cross-sections of cables, busbars and flexibars for fixed, plug-in and withdrawable designs

$I_n(I_c)$ (A)	Cables S [mm ²]		Busbars W x H [mm]	
	Cu	Al	Cu	Al
40	10	16	-	-
50	10	16	-	-
63	16	25	-	-
80	25	35	-	-
100	35	50	20 x 2	25 x 2
125	50	70	25 x 2	25 x 3
160	70	95	25 x 3	25 x 4
200	95	120	25 x 4	25 x 5
250	120	150	25 x 5	25 x 6

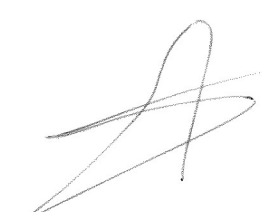
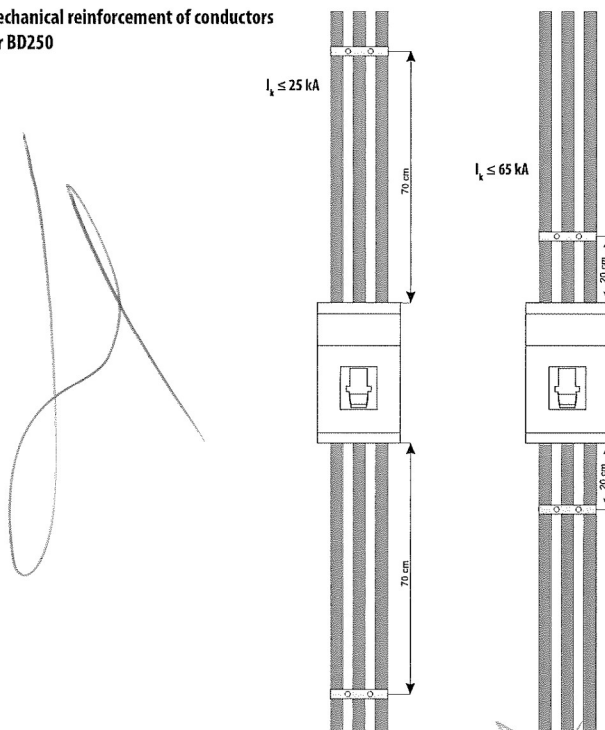
- it is necessary to follow the relevant valid standards when cables are designed

Maximum circuit breaker/switch-disconnector loads in accordance with ambient temperature

Circuit breaker/switch-disconnector BD250 - connection by Cu cable 1x 120 mm² per pole

50 °C	55 °C	60 °C	65 °C	70 °C
250 A	250 A	250 A	250 A	250 A

Mechanical reinforcement of conductors for BD250



CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

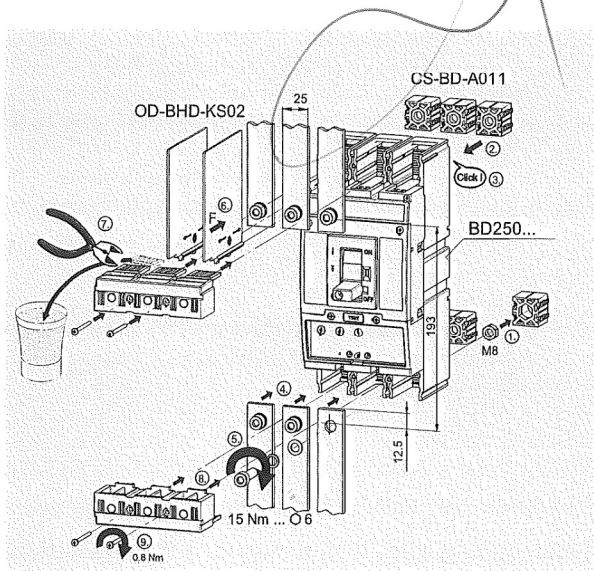
3P 4P

Connecting and installation

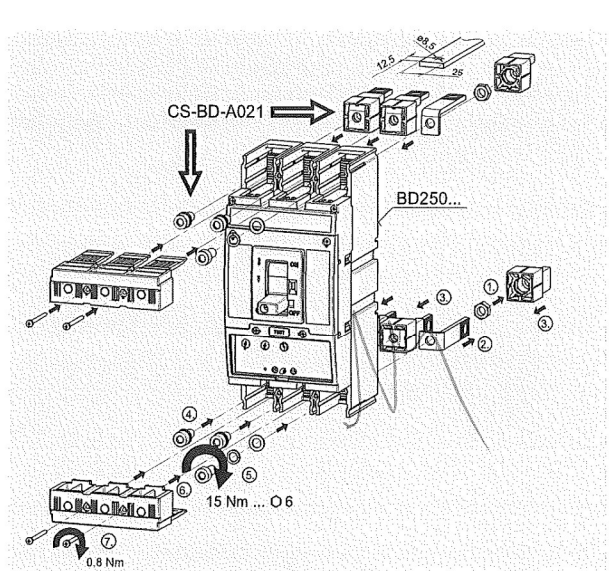
Connecting set specifications

Type	I _{max} [A]	Cable - ranges of connection cross-sections S [mm ²]				Busbars and cable lugs W x H [mm]	Dimensional drawing 3P/4P
		Type of cable	sector stranded	sector solid	round stranded		
CS-BD-A011	250					25 x ...	
CS-BD-A021	250					25 x ...	page E27, E41
CS-BD-B421	250						
CS-BD-T011	250		16 ÷ 150 Cu	10 ÷ 150 Cu	16 ÷ 150 Cu	10 ÷ 150 Cu	
CS-BD-T411	250						
CS-BD-B011	250		25 ÷ 150 Cu/Al	16 ÷ 150 Cu/Al	25 ÷ 150 Cu/Al	16 ÷ 150 Cu/Al	
CS-BD-B411	250						
CS-BD-B012	250		150 ÷ 240 Cu/Al	120 ÷ 240 Cu/Al	150 ÷ 240 Cu/Al	120 ÷ 240 Cu/Al	page E24, E39
CS-BD-B412	250						
CS-BD-B021	250		2x (25 ÷ 150) Cu/Al	2x (16 ÷ 150) Cu/Al	2x (25 ÷ 150) Cu/Al	2x (16 ÷ 150) Cu/Al	page E24, E39
CS-BD-B421	250						
CS-BD-B022	250		2x (150 ÷ 240) Cu/Al	2x (120 ÷ 240) Cu/Al	2x (150 ÷ 240) Cu/Al	2x (120 ÷ 240) Cu/Al	page E25, E40
CS-BD-B422	250						
CS-BD-B014	250		6x (6 ÷ 35) Cu/Al	6x (6 ÷ 35) Cu/Al	6x (6 ÷ 35) Cu/Al	6x (6 ÷ 35) Cu/Al	page E26, E40
CS-BD-B414	250						
CS-BD-A037	250	Reduction for circuit breaker BA...*37 with front connection					page E26, E41
CS-BD-A039	250	Reduction for circuit breaker BA...*39 and J2UX with front connection					page E27
CS-BD-Z039	250	Reduction for circuit breaker BA...*39 and J2UX with rear connection					page E28
CS-BD-JX75	250	Reduction for circuit breaker BA...39-75 and J2UX75 with front connection in plug-in or withdrawable device					page E28
CS-BD-JT75	250	Reduction for circuit breaker J2UX75T with front connection in plug-in or withdrawable device					page E34, E38
CS-BD-PS01	10/16				1.5 ÷ 2.5/4 ÷ 6 Cu flexible conductor		
CS-BD-PS41	10/16				1.5 ÷ 2.5/4 ÷ 6 Cu flexible conductor		

Front connection - Cu/Al busbars



Rear connection - Cu/Al busbars

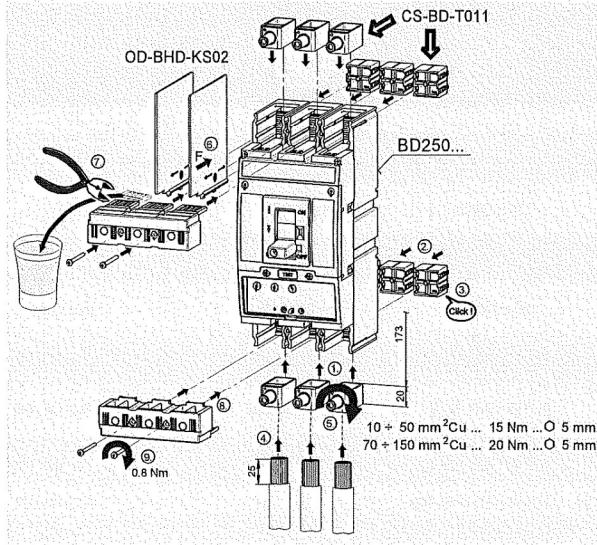


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

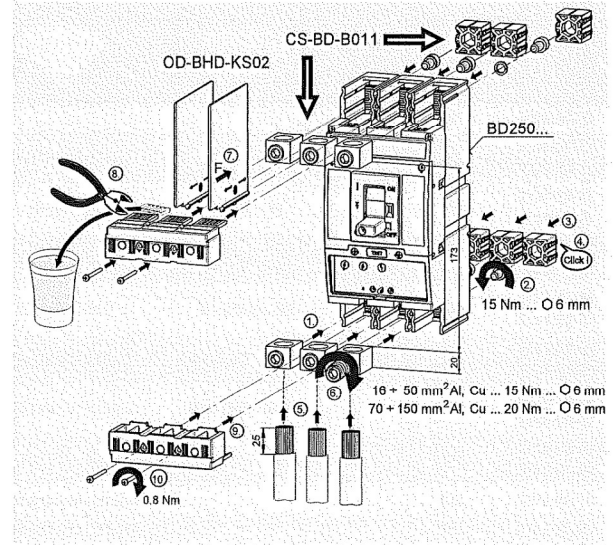
3P 4P

Connecting and installation

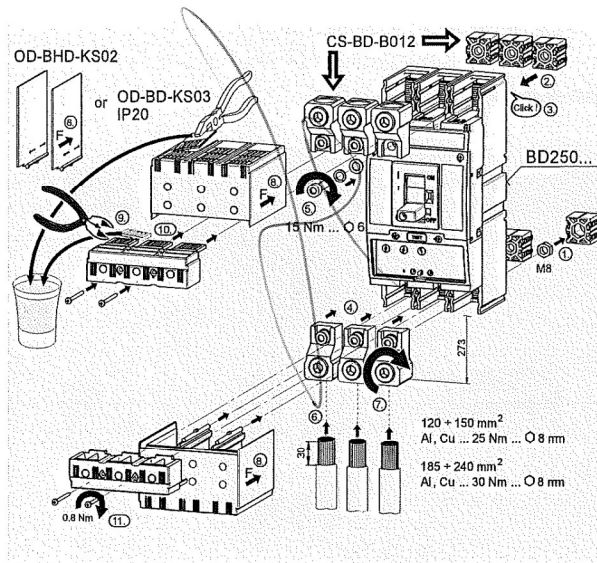
Front connection - Cu cables



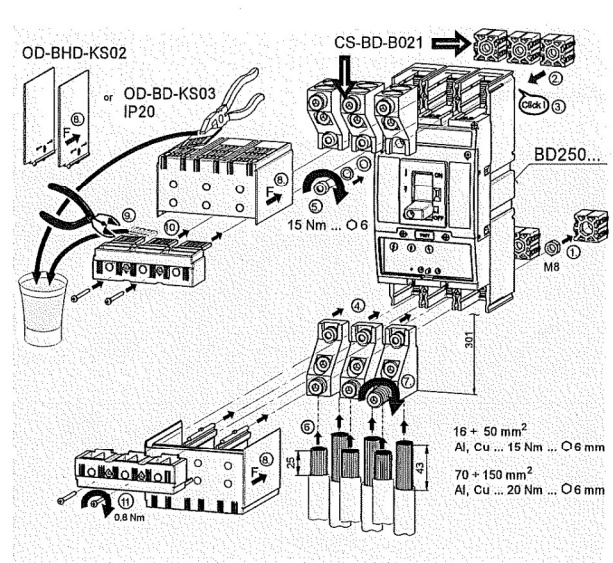
Front connection - Cu/Al cables cables - up to 150 mm²



Front connection - Cu/Al cables up to 240 mm²



Front connection - 2 Cu/Al cables

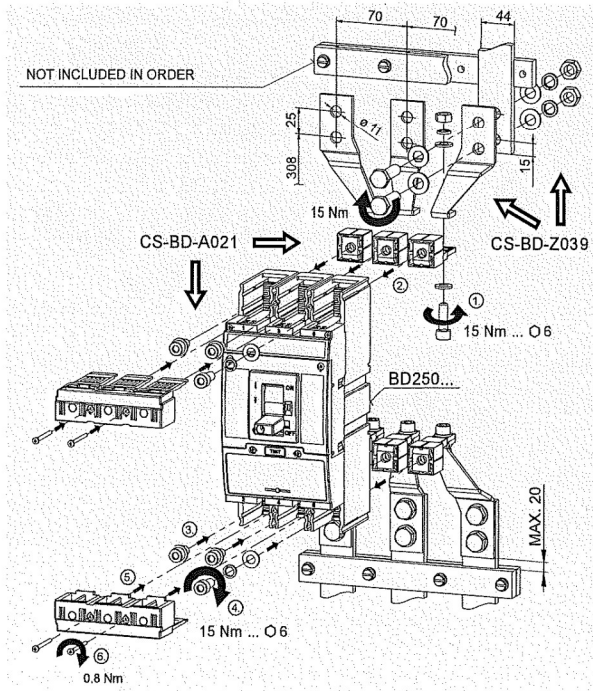


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P 4P

Connecting and installation

Rear connection - BD reduction for circuit breaker BA...*39 and J2UX with rear connection



Deionization spaces

USE OF INSULATING BARRIERS AND TERMINAL COVERS WITH CIRCUIT BREAKERS AND SWITCH-DISCONNECTORS

■ FIXED DESIGN

- front connection

- terminals 1, 3, 5 (upper side) a) if $U_e \geq AC 415 V$, it is necessary to use OD-BHD-KS02 insulating barriers or a OD-BHD-KS03 terminal cover

b) if insulated conductors are not used for connecting power circuit to terminals 1, 3, 5, flexibars or rear connection, it is necessary to use OD-BHD-KS02 insulating barriers or a OD-BHD-KS03 terminal cover

- terminals 2, 4, 6 (lower side) only in case that circuit breaker/switch-disconnector is connected to the source using terminals 2, 4, 6 and furthermore:

a) if $U_e \geq AC 415 V$, it is necessary to use OD-BHD-KS02 insulating barriers or a OD-BHD-KS03 terminal cover

b) if insulated conductors are not used for connecting power circuit to terminals 2, 4, 6, flexibars or rear connection, it is necessary to use OD-BHD-KS02 insulating barriers or a OD-BHD-KS03 terminal cover

- rear connection

- insulating barriers and terminal covers need not be used

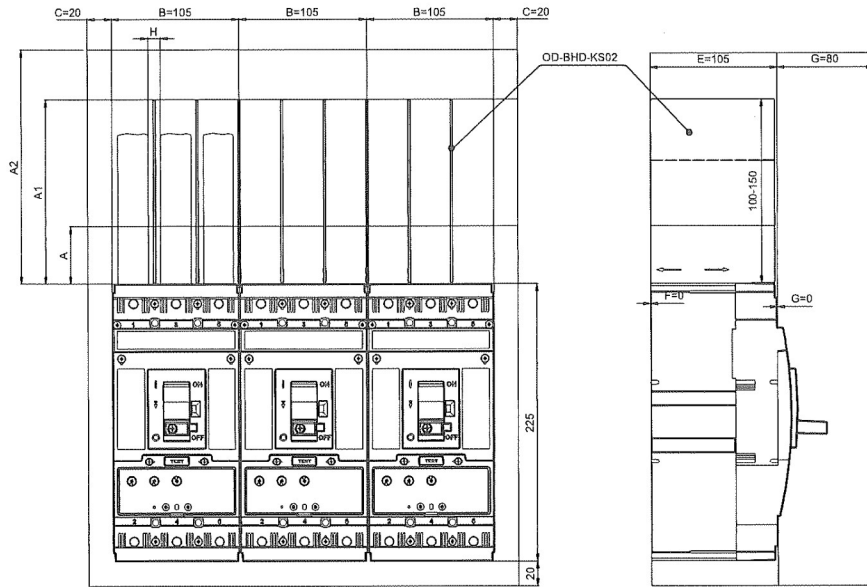
■ PLUG-IN AND WITHDRAWABLE DEVICE

- insulating barriers and terminal covers need not be used

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P 4P

Deionization spaces



A... minimum distance between the circuit breaker/switch-disconnector and uninsulated earthed wall (applicable for connection using insulated conductors, cables, flexibars or with rear connection)

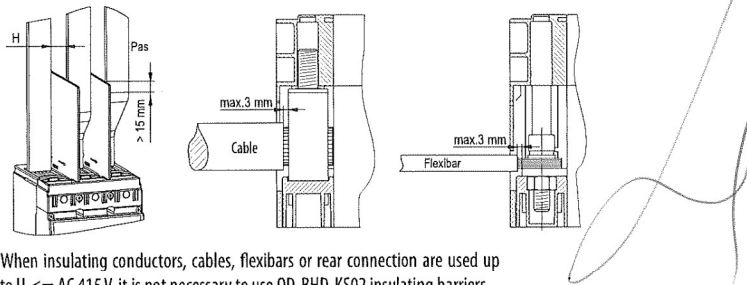
A1... minimum insulation length of bare conductors (using OD-BHD-KS02 insulating barriers from 100 mm to max. 150 mm, or by adding additional insulation for the conductors with barriers to obtain at least A1 value)

- A2... minimum distance:
- between the circuit breaker/switch-disconnector and uninsulated earthed wall (applicable for uninsulated conductors and busbars)
 - between the circuit breaker/switch-disconnector and busbar
 - between two circuit breakers/switch-disconnectors situated vertically above one another
 - between uninsulated connections of two circuit breakers/switch-disconnectors above one another

C, D, E, F, G... minimum distance between the circuit breaker/switch-disconnector and uninsulated earthed wall

H... minimum distance between uninsulated conductors

■ minimum distance of circuit breakers without using of uninsulated barriers is 50 mm



When insulating conductors, cables, flexibars or rear connection are used up to $U \leq AC 415 V$, it is not necessary to use OD-BHD-KS02 insulating barriers.

		U [V]	230	415	500	690	
BD250S wired with I_n		[kA]	≤ 100	$> 36 \div 65$	≤ 36	≤ 25	≤ 13
BD250N wired with I_n		[kA]	≤ 60		≤ 36	≤ 16	≤ 10
G [mm]	H [mm]						
< 80	≥ 10	A [mm]	50	50	50	50	50
		A1 [mm]	100	150	100	150	150
		A2 [mm]	200	250	200	250	250
	≥ 30	A [mm]	50	50	50	50	50
		A1 [mm]	100	150	100	150	150
		A2 [mm]	150	200	150	200	200
≥ 80	≥ 10	A [mm]	50	50	50	50	50
		A1 [mm]	100	150	100	150	150
		A2 [mm]	150	200	150	200	200

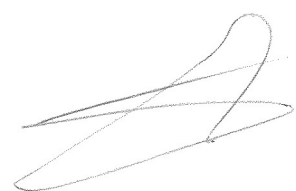
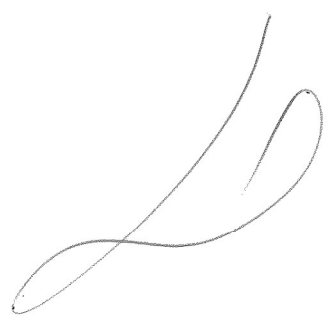
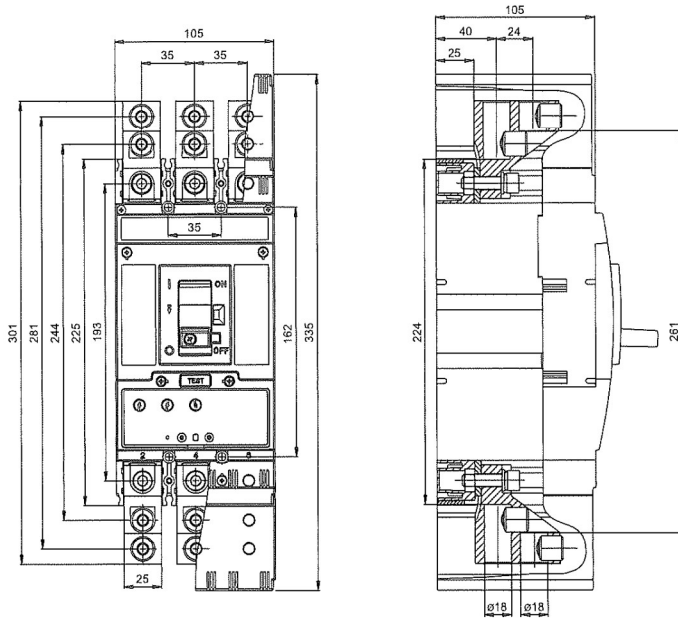
Note: I_n - max. short-circuit current in the protected circuit (rms)

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

Dimensions

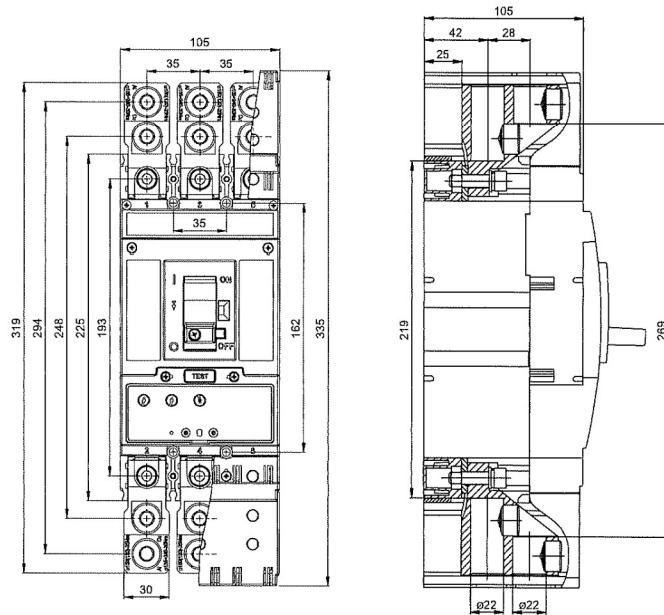
Fixed design, front connection (CS-BD-B021 connecting set)



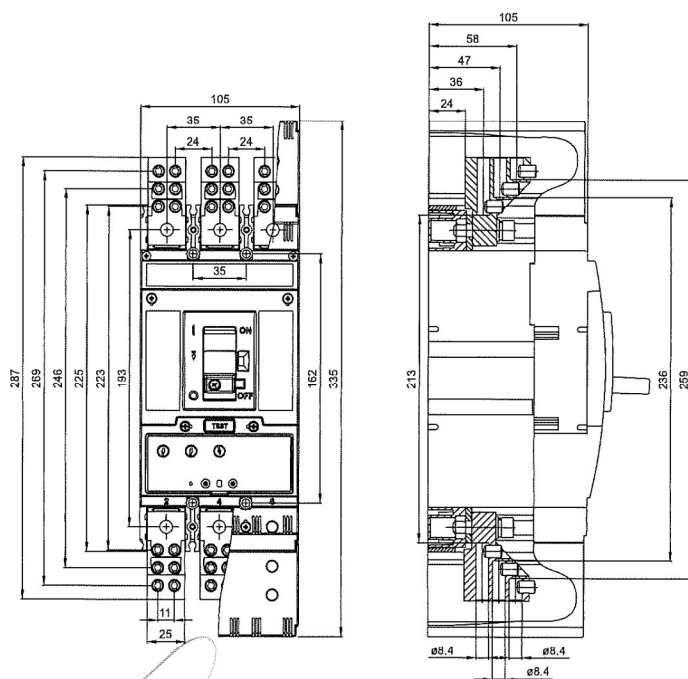
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

Fixed design, front connection (CS-BD-B022 connecting set)



Fixed design, front connection (CS-BD-B014 connecting set)

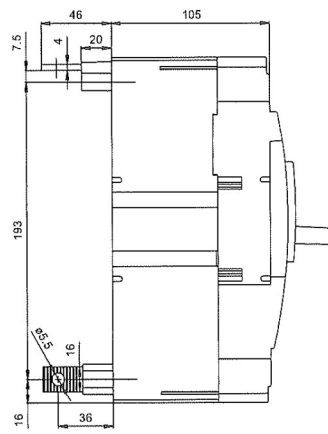
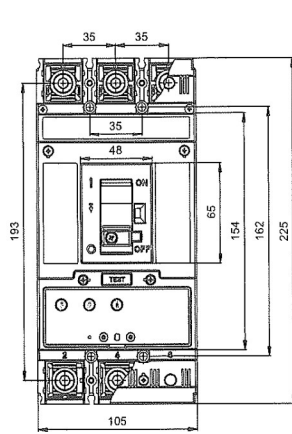


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

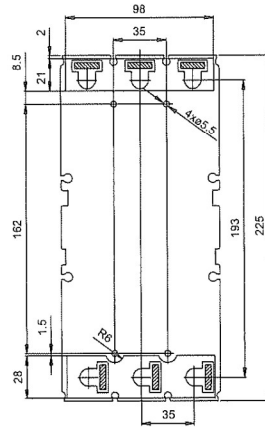
3P

Dimensions

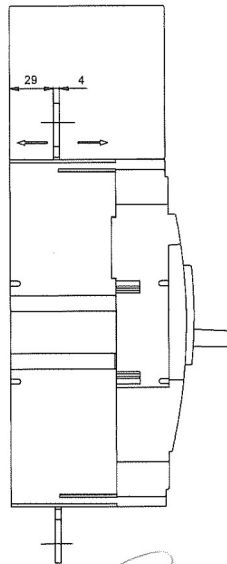
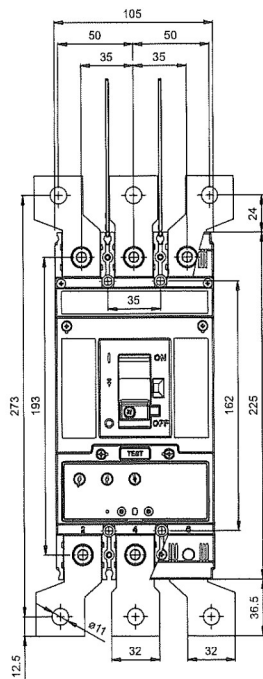
Fixed design, rear connection (CS-BD-A021 connecting set)



Drilling diagram



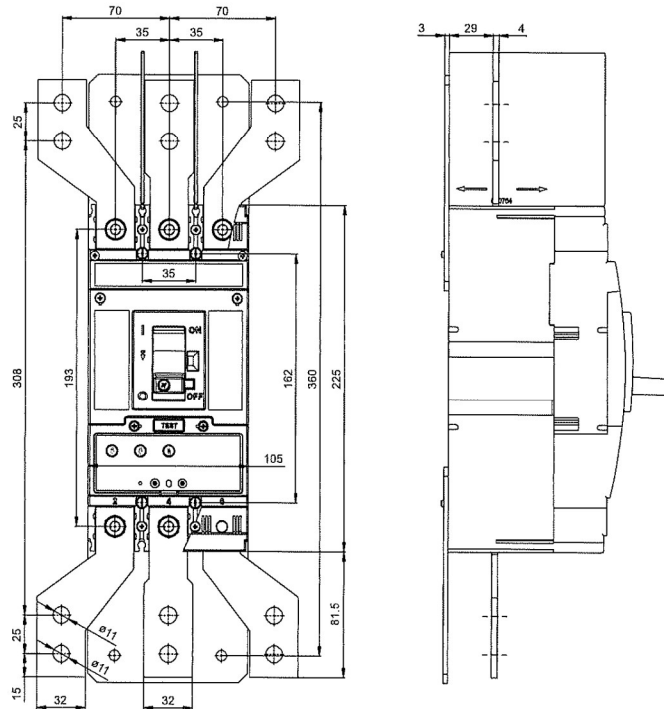
Fixed design, front connection (CS-BD-A037 connecting set)



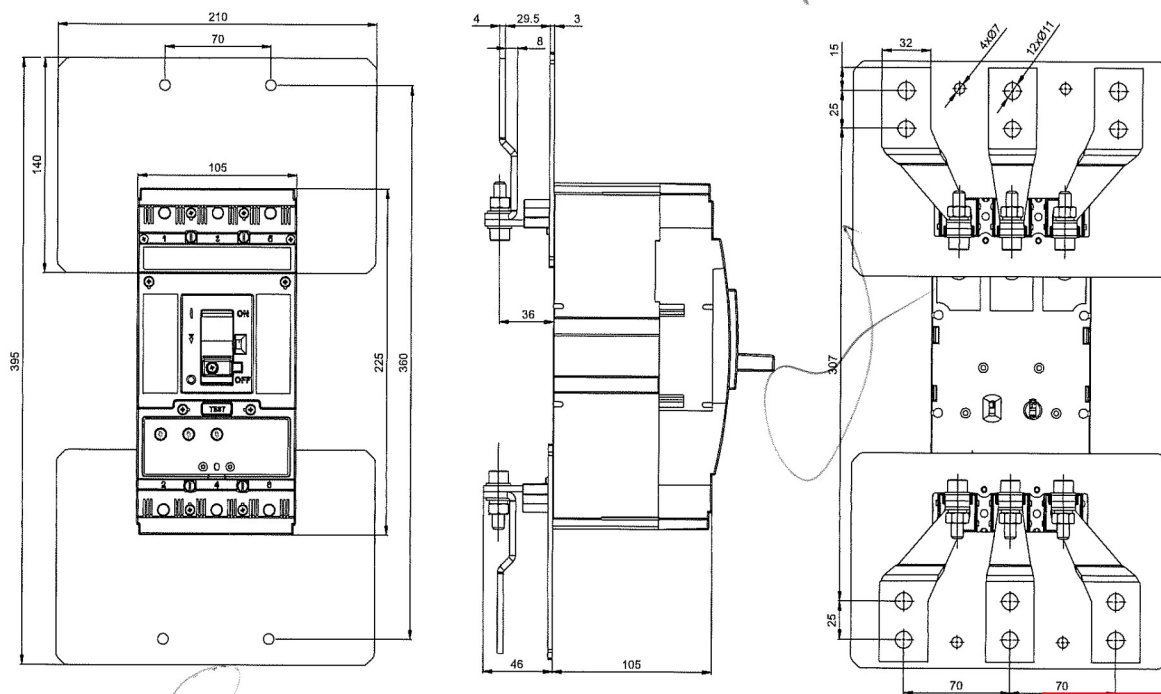
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

Fixed design, front connection (CS-BD-A039 connecting set, OD-BHD-MS39 mounting set)



Fixed design, rear connection (CS-BD-Z039 connecting set, OD-BD-MZ39 mounting set)



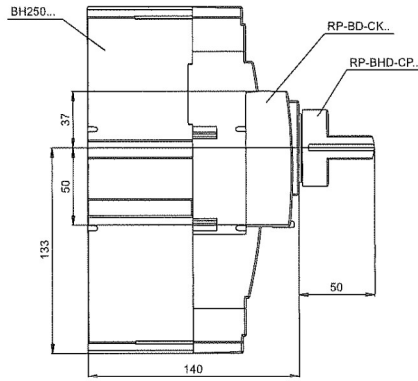
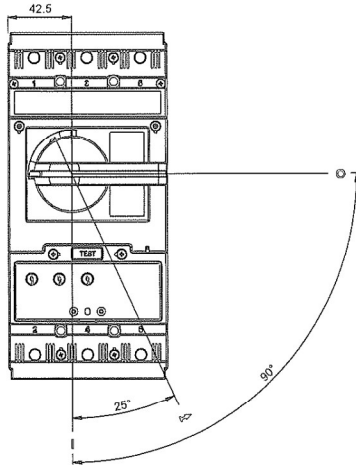
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ЗОН

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

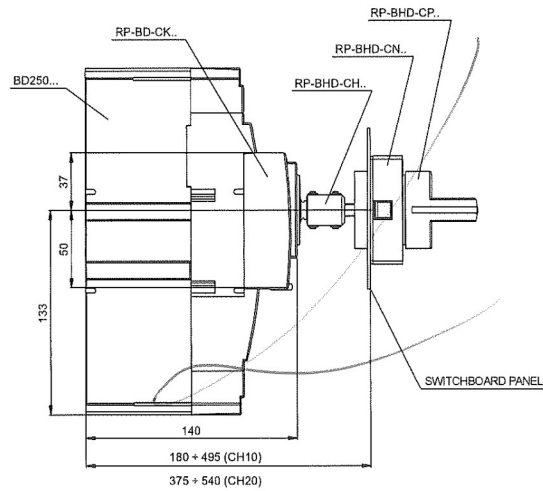
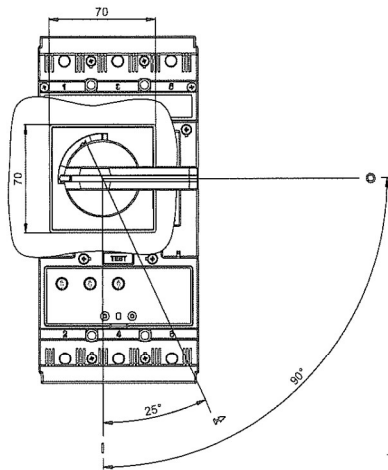
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Dimensions

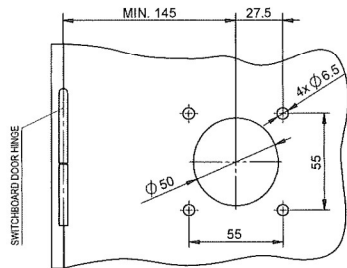
Fixed design, hand drive



Fixed design, hand drive - front, with adjustable lever



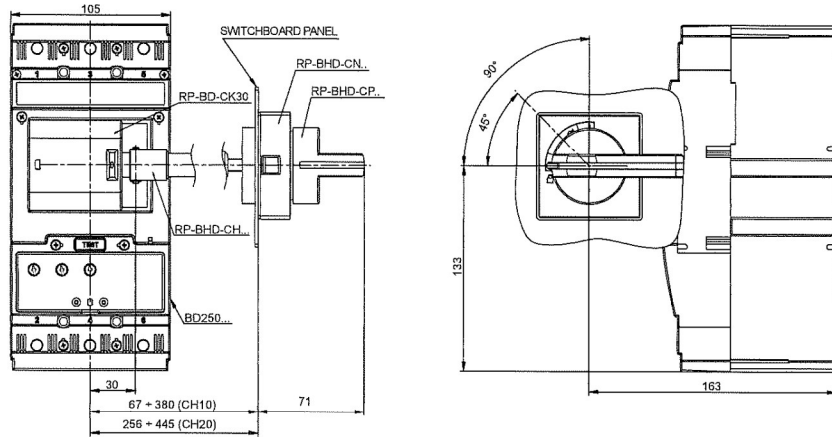
Switchboard door modification



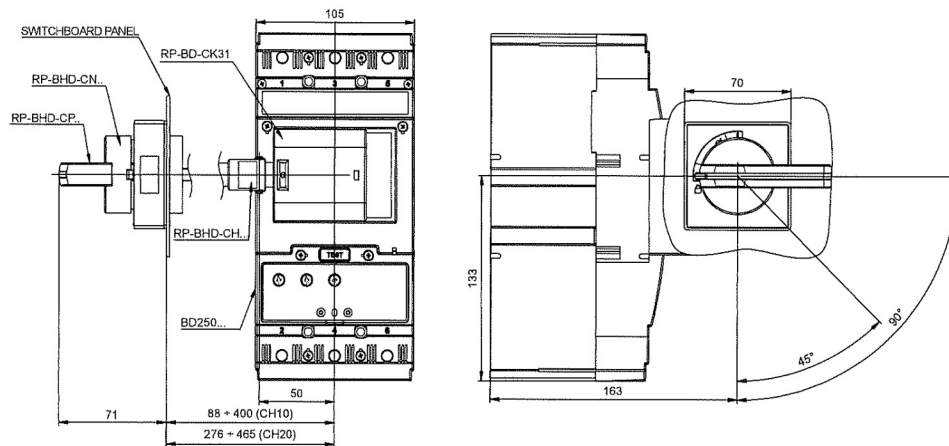
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

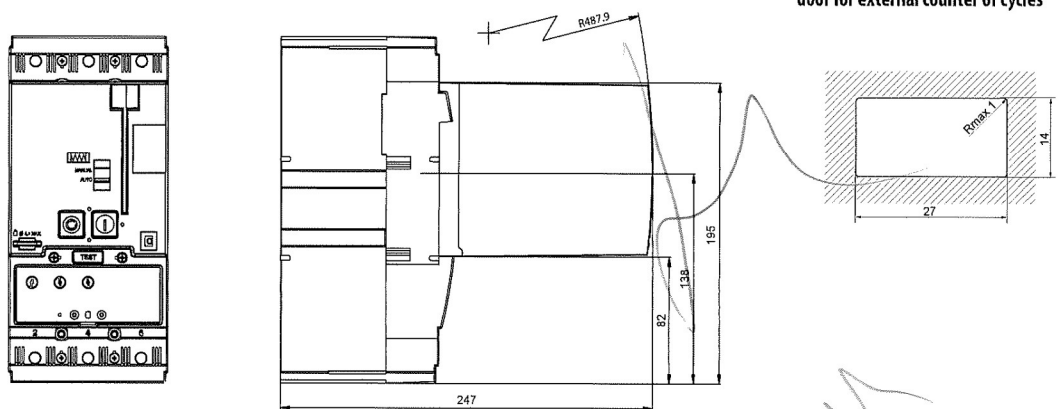
Fixed design, hand drive - control on right side, with adjustable lever



Fixed design, hand drive - control on left side, with adjustable lever



Fixed design, MP-BD-X... motor drive



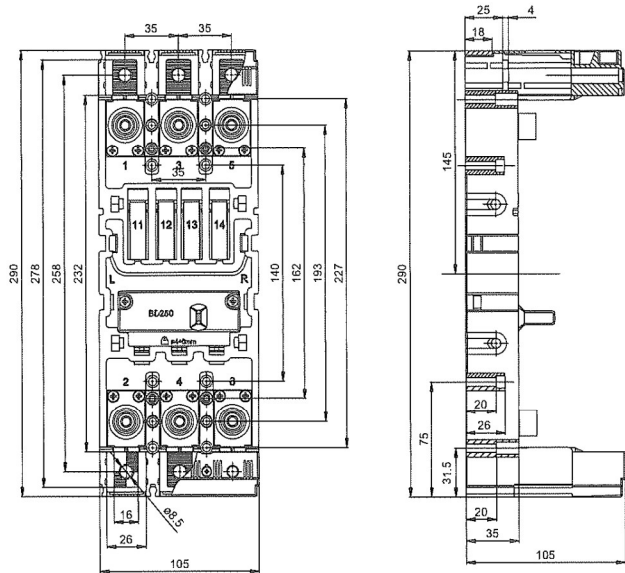
E30

CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

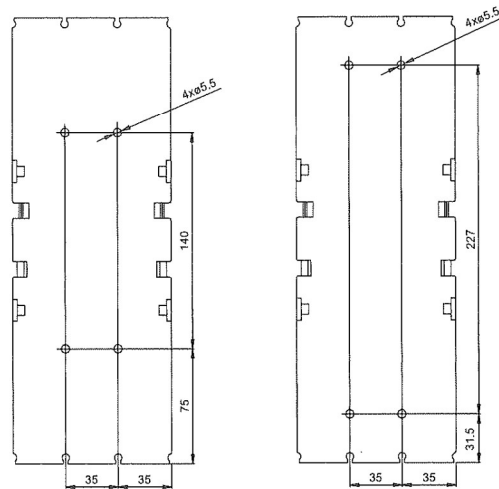
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Dimensions

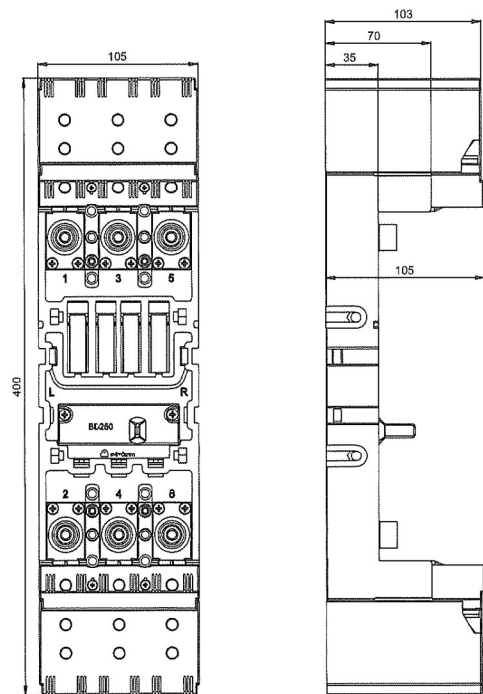
Plug-in device



Drilling diagram



Plug-in device, OD-BD-KS03 terminal cover



Handwritten signature

Handwritten signature

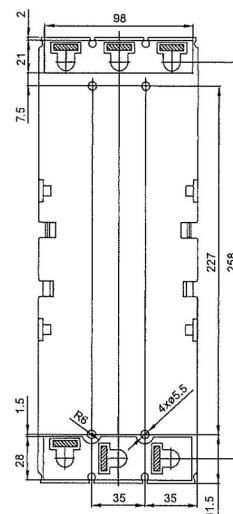
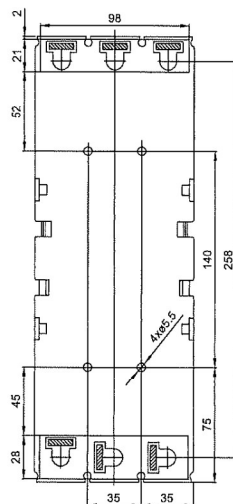
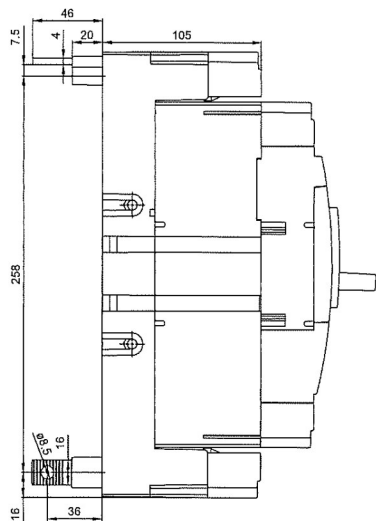
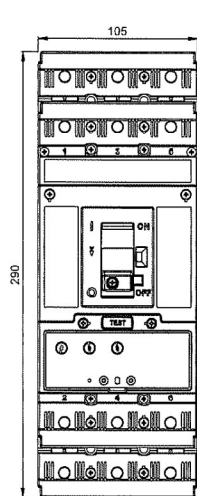
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

3P

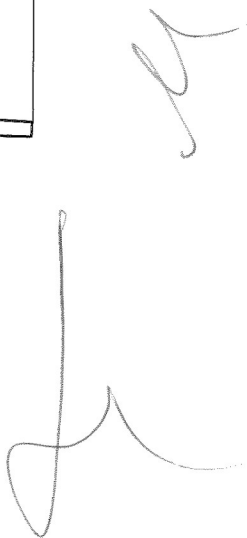
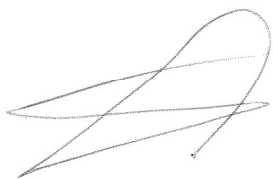
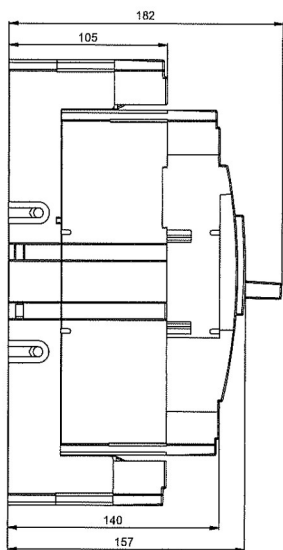
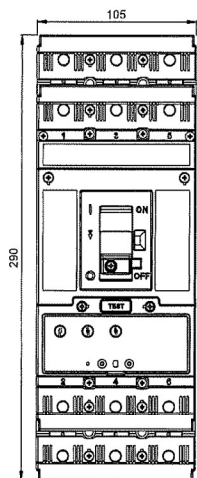
Dimensions

Plug-in design

Drilling diagram



Plug-in design

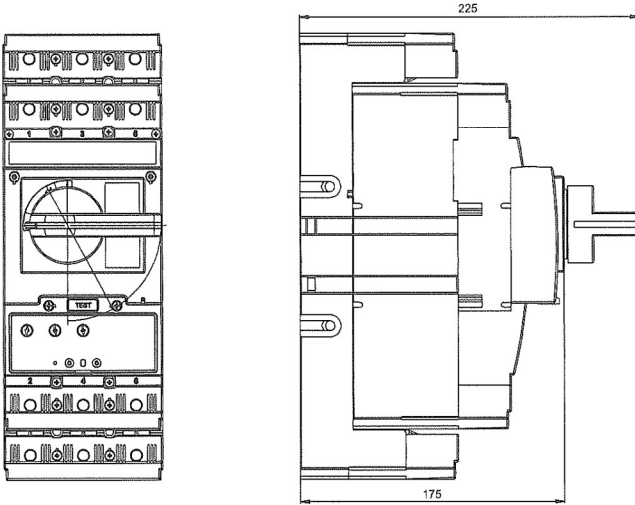


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

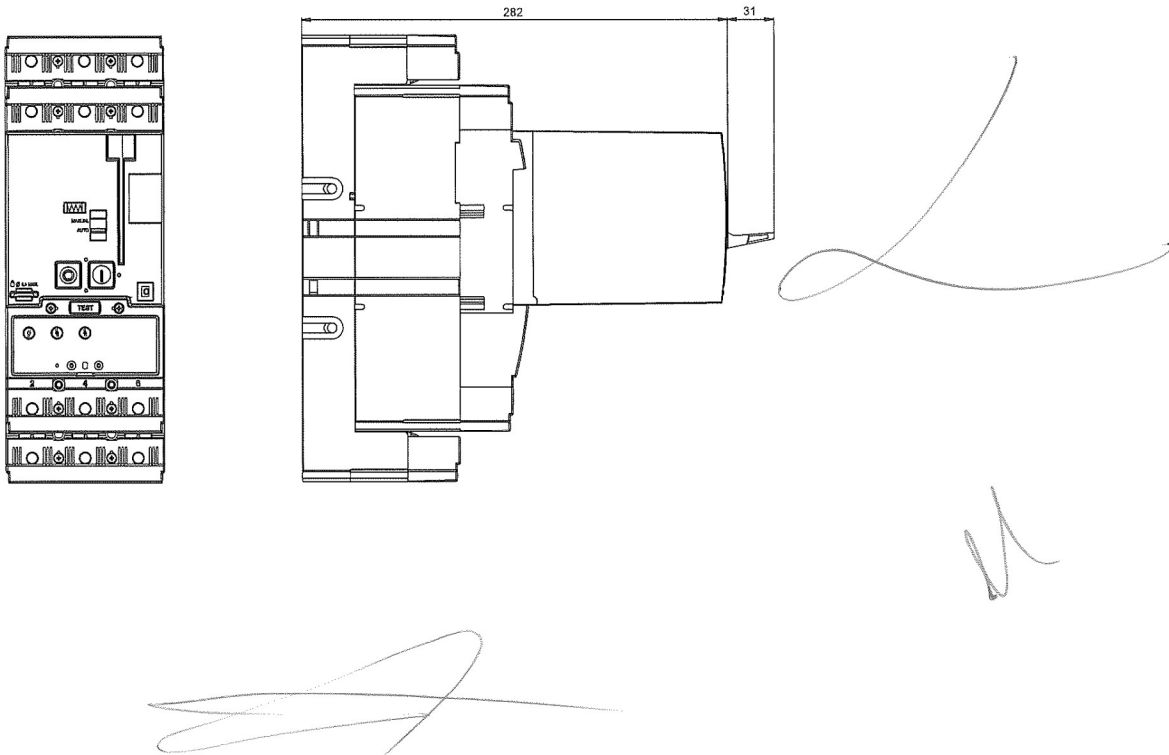
3P

Dimensions

Plug-in design, hand drive



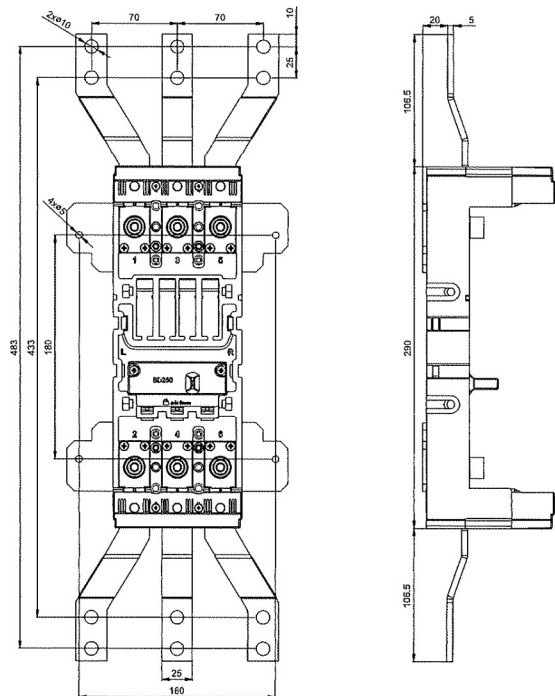
Plug-in design, motor drive



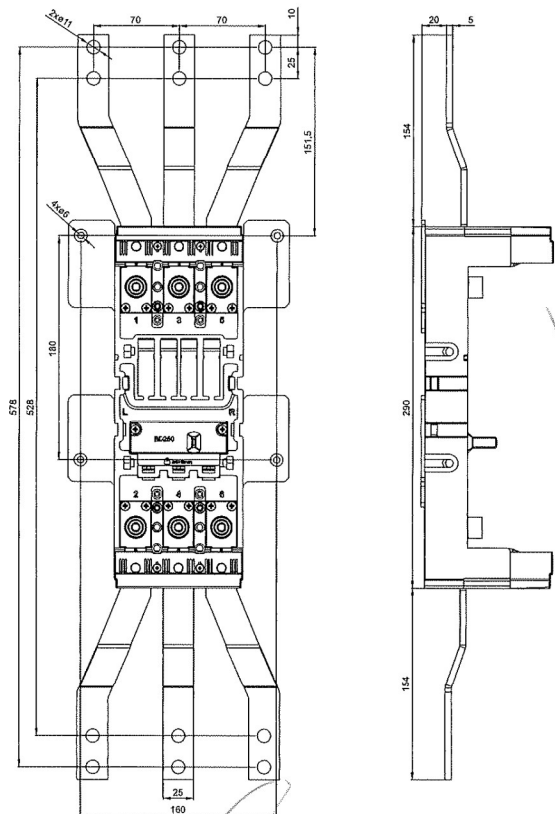
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

Plug-in device (CS-BD-JX75 connecting set, OD-BHD-MS75 mounting set)



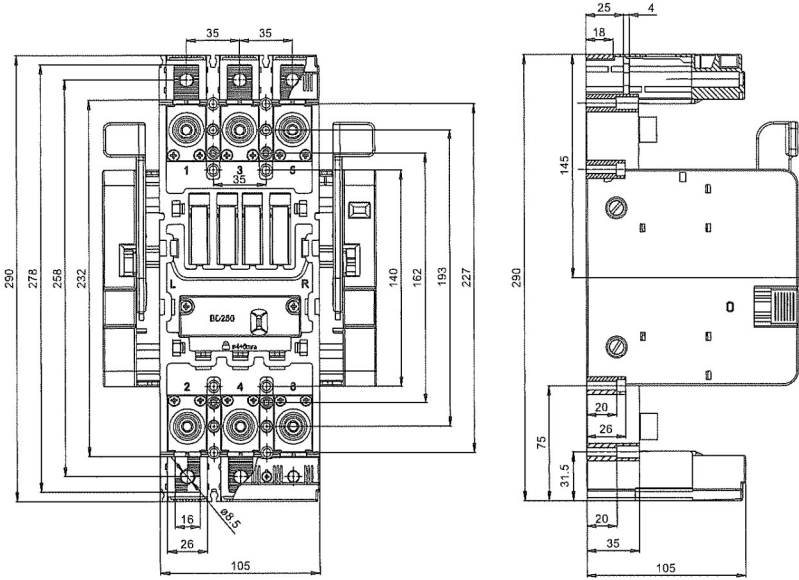
Plug-in device (CS-BD-JT75 connecting set, OD-BD-MT75 mounting set)



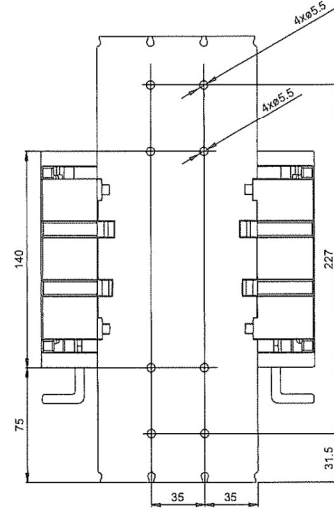
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

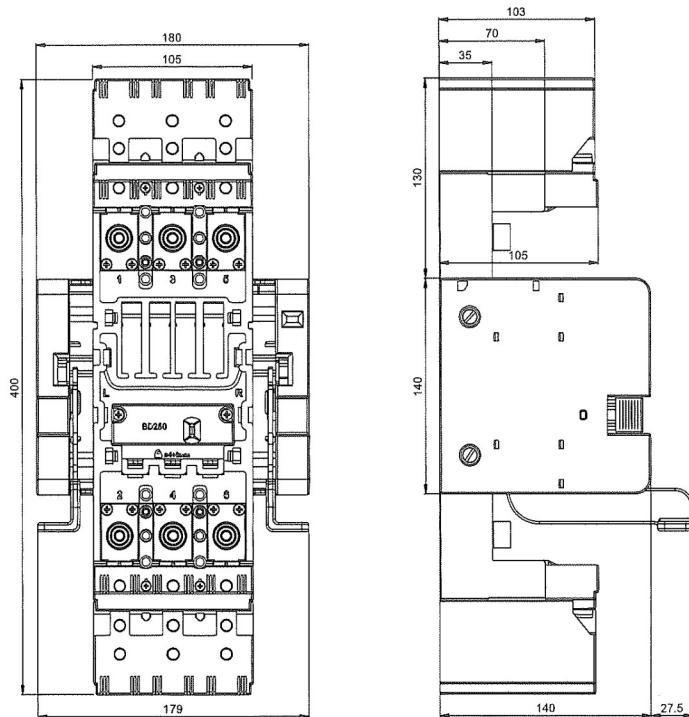
Withdrawable device



Drilling diagram



Withdrawable device, OD-BD-K503 terminal cover



M

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CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

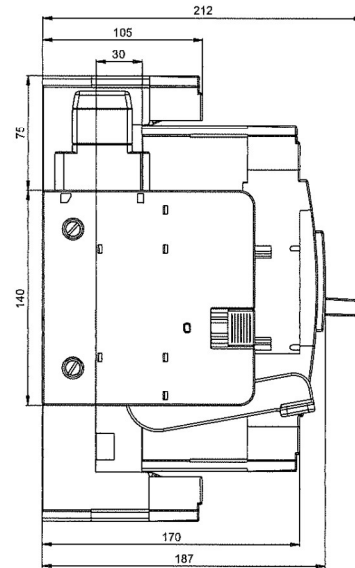
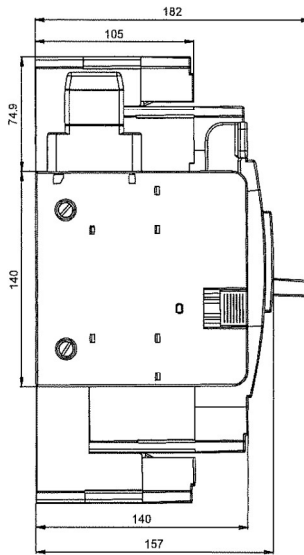
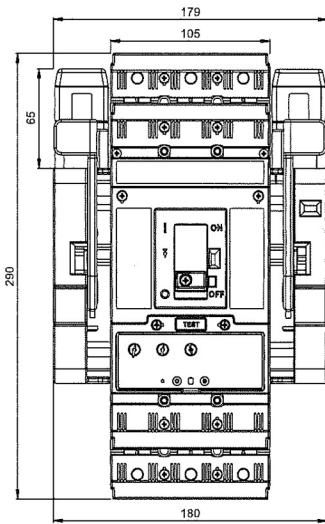
3P

Dimensions

Withdrawable design

Working position

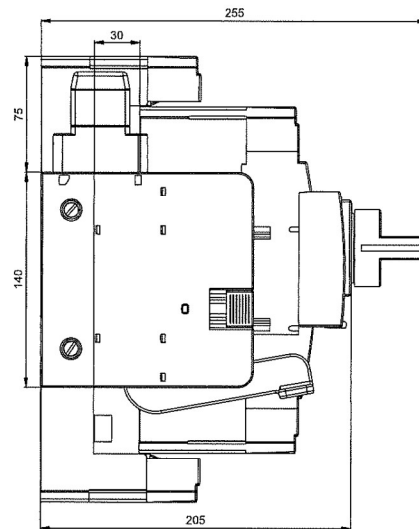
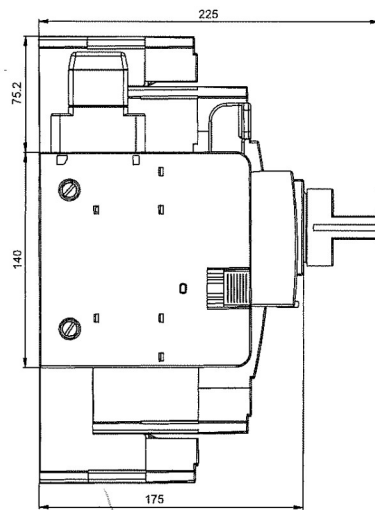
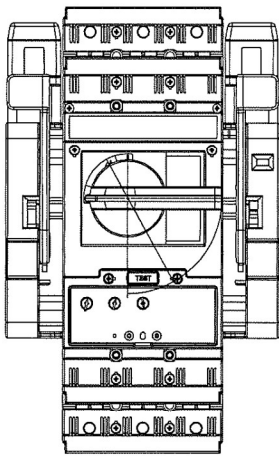
Inspection position



Withdrawable design, hand drive

Working position

Inspection position



CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

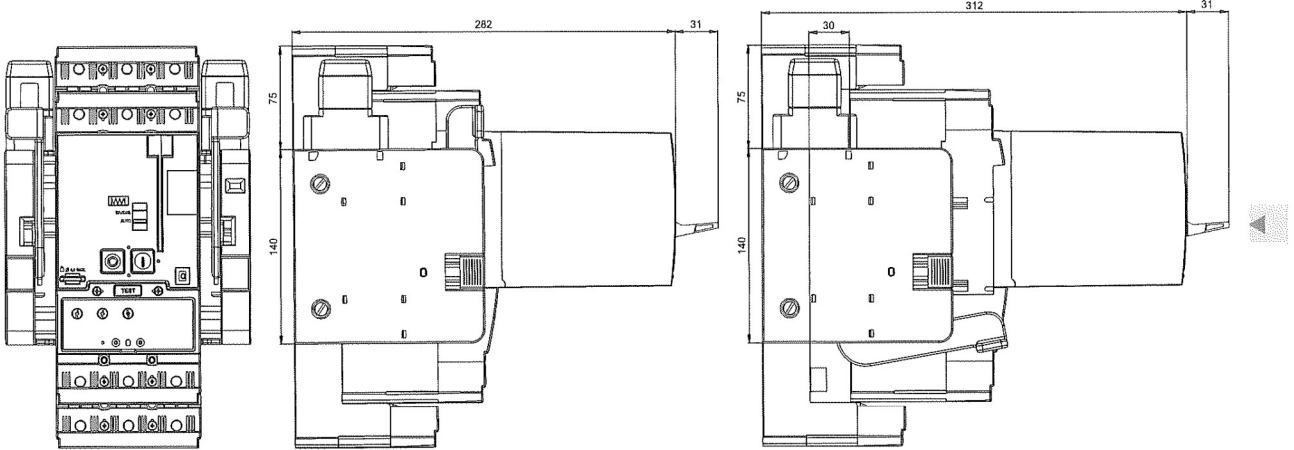
3P

Dimensions

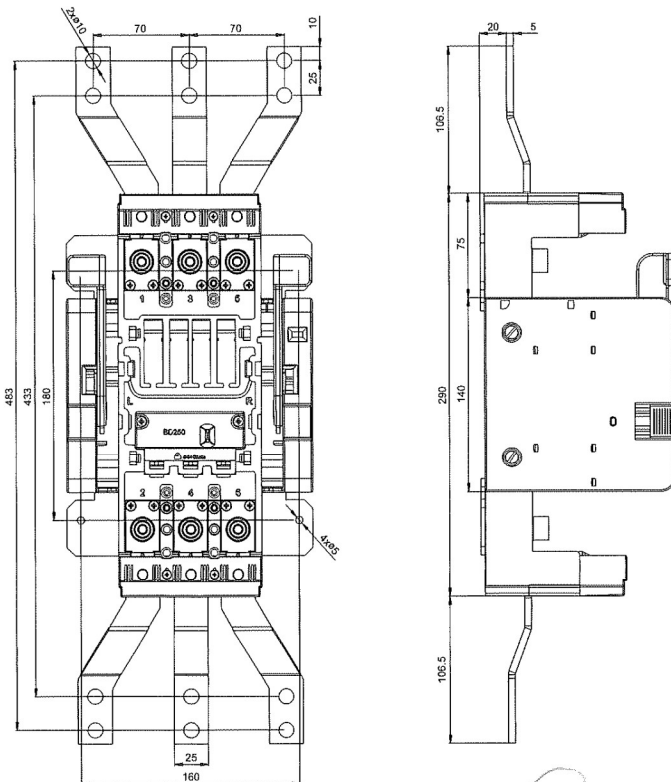
Withdrawable design, motor drive

Working position

Inspection position



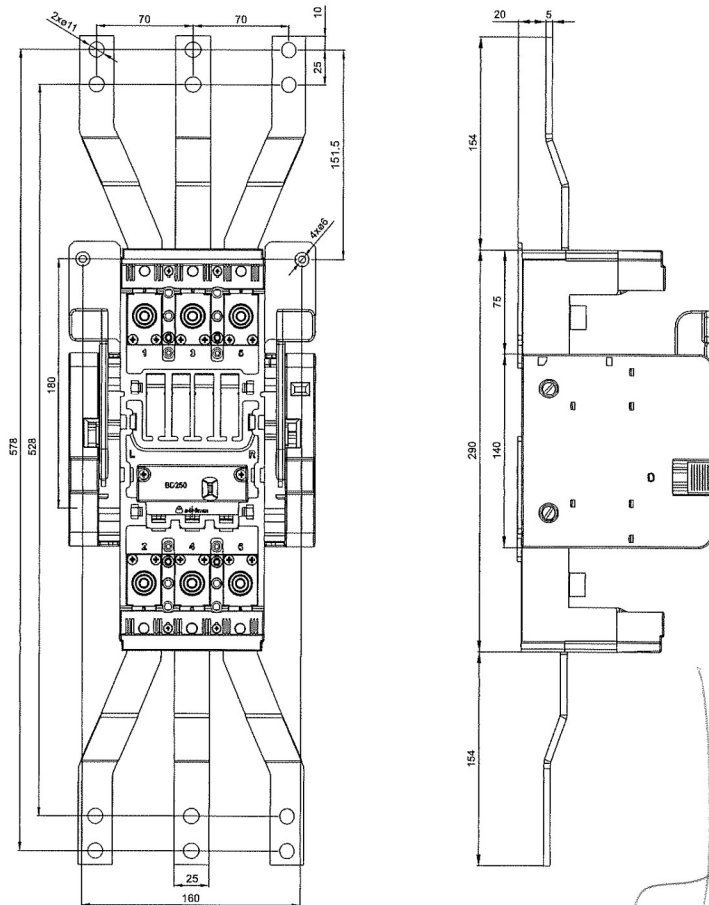
Withdrawable device (CS-BD-JX75 connecting set, OD-BHD-MS75 mounting set)



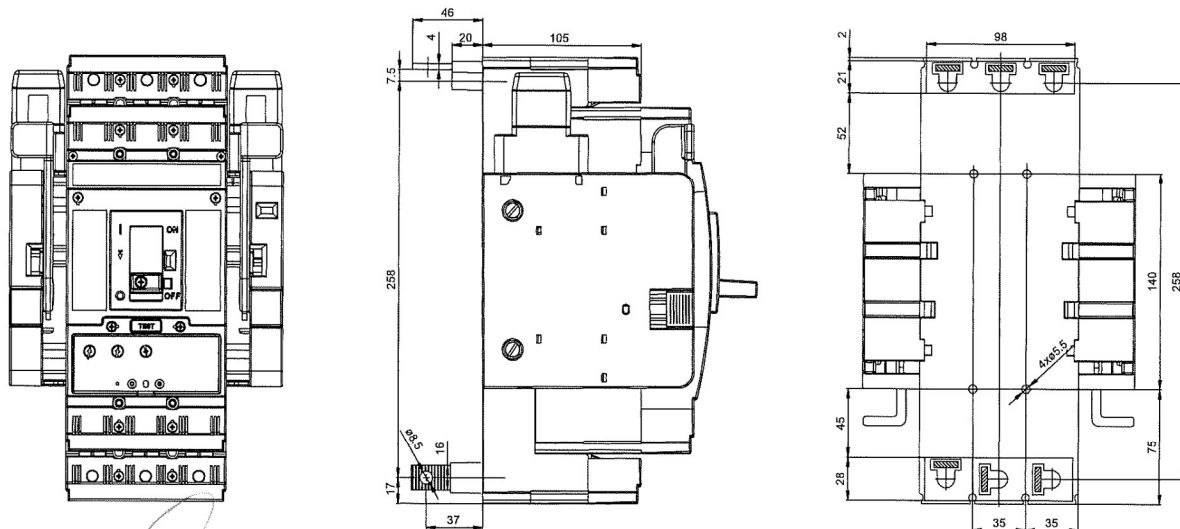
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

Withdrawable device (CS-BD-JT75 connecting set, OD-BD-MT75 mounting set)



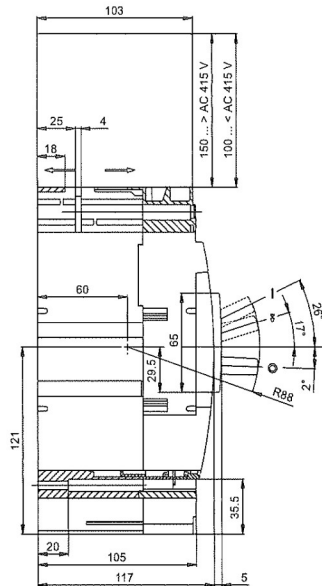
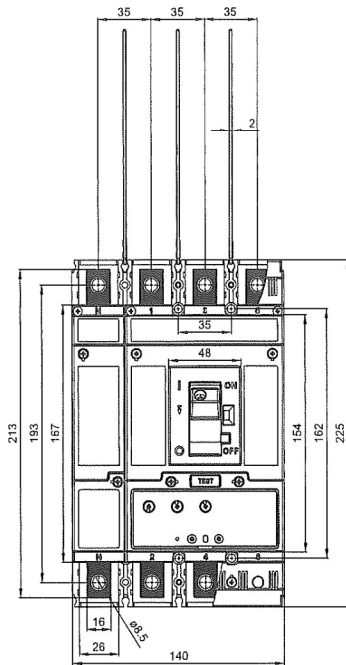
Withdrawable device, rear connection (CS-BD-A021 connecting set)



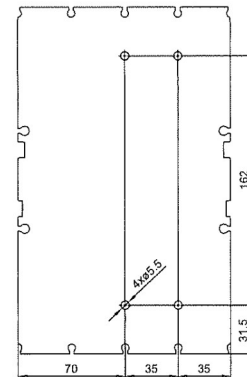
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

Dimensions

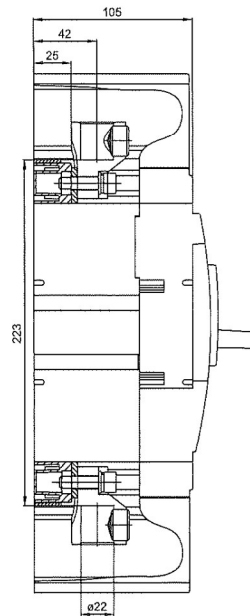
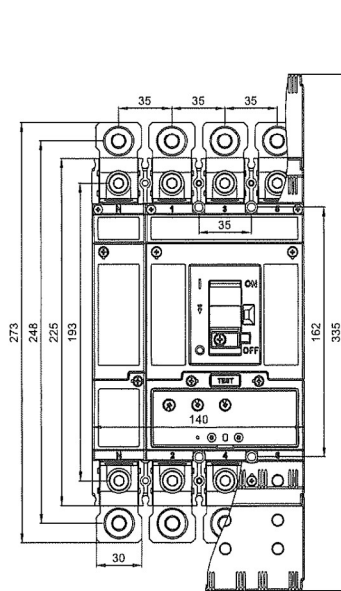
Fixed design, front connection



Drilling diagram



Fixed design, front connection (CS-BD-B012 + CS-BD-B412 connecting sets)

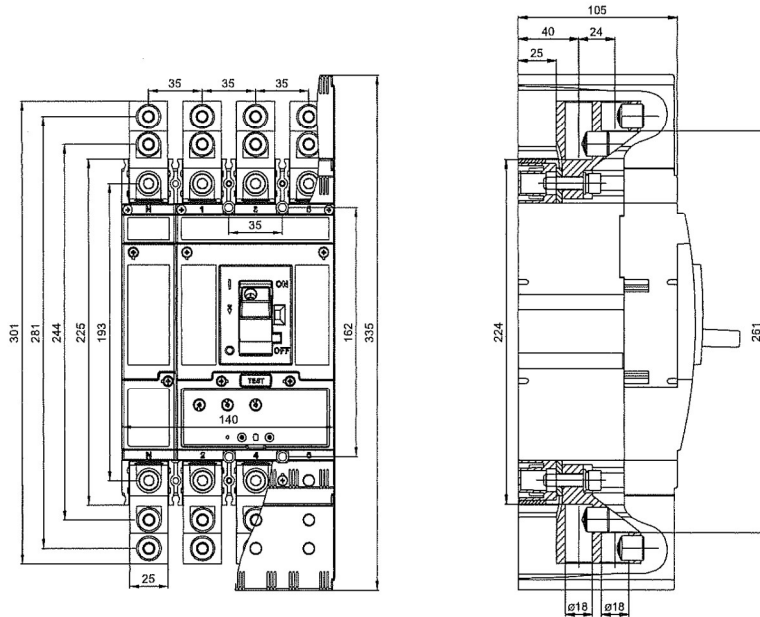


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

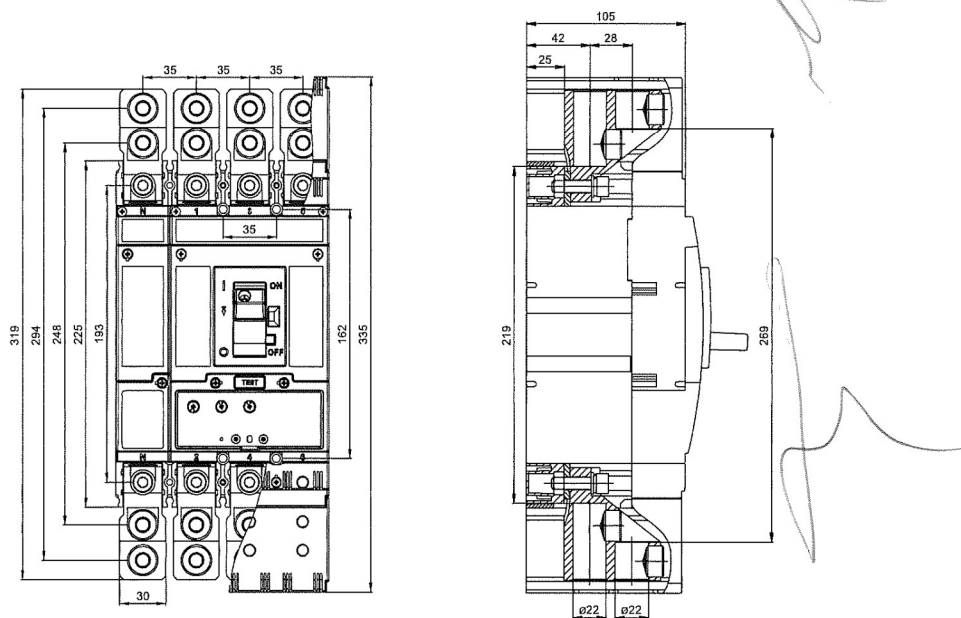
4P

Dimensions

Fixed design, front connection (CS-BD-B021 + CS-BD-B421 connecting sets)



Fixed design, front connection (CS-BD-B022 + CS-BD-B422 connecting sets)

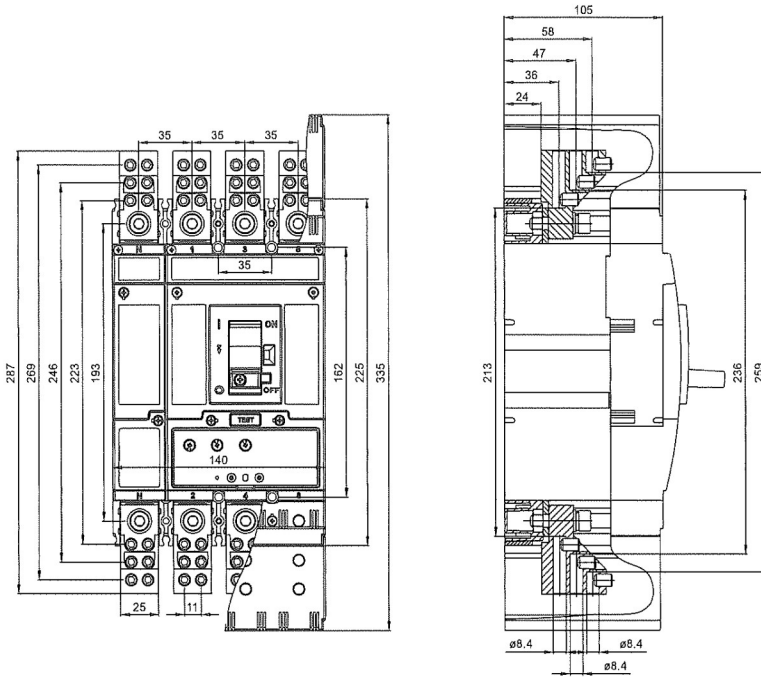


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

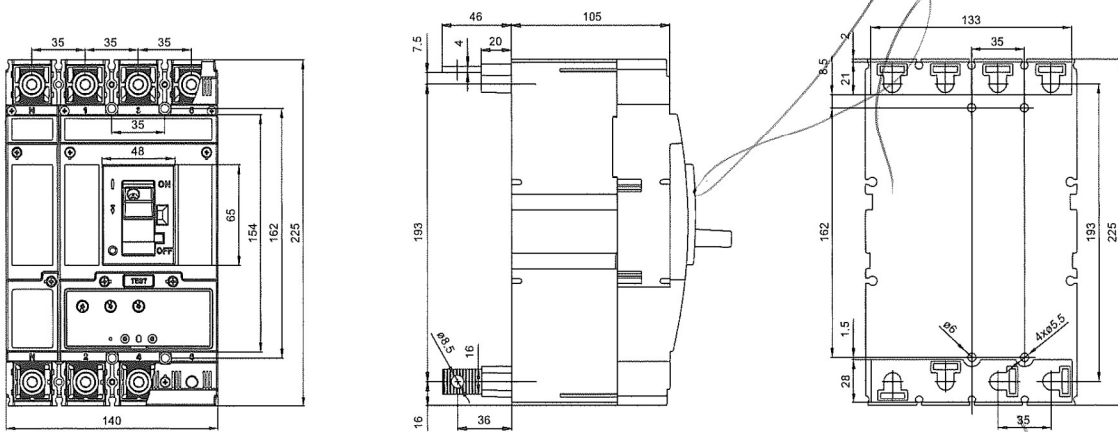
4P

Dimensions

Fixed design, front connection (CS-BD-B014 + CS-BD-B414 connecting sets)



Fixed design, rear connection (CS-BD-A021 + CS-BD-A421 connecting sets)

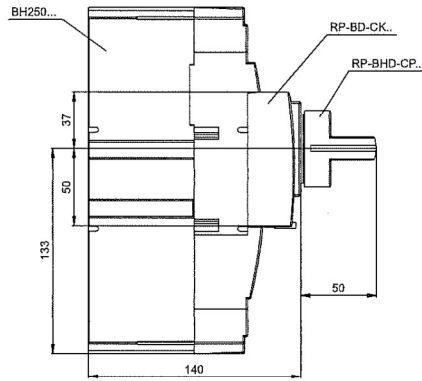
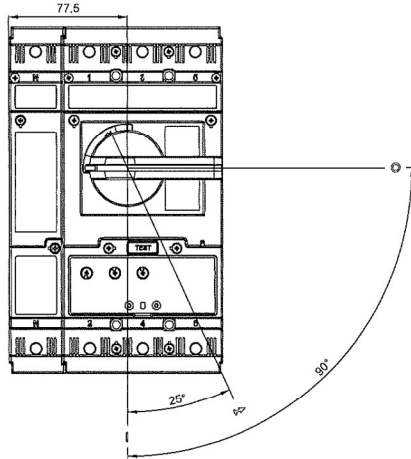


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

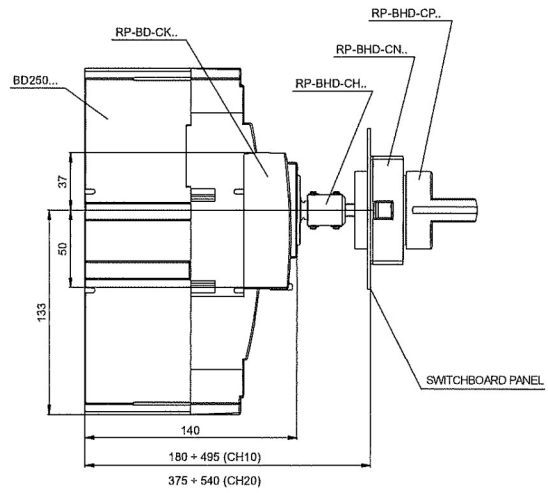
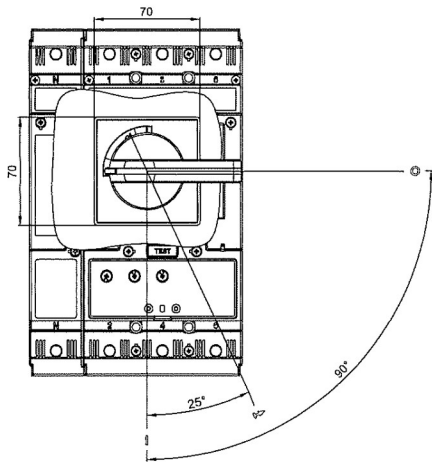
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Dimensions

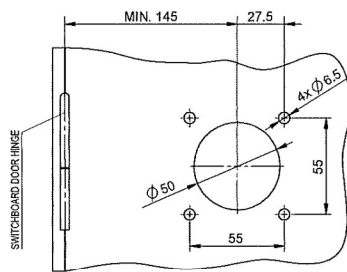
Fixed design, hand drive



Fixed design, hand drive - front, with adjustable lever



Switchboard door modification

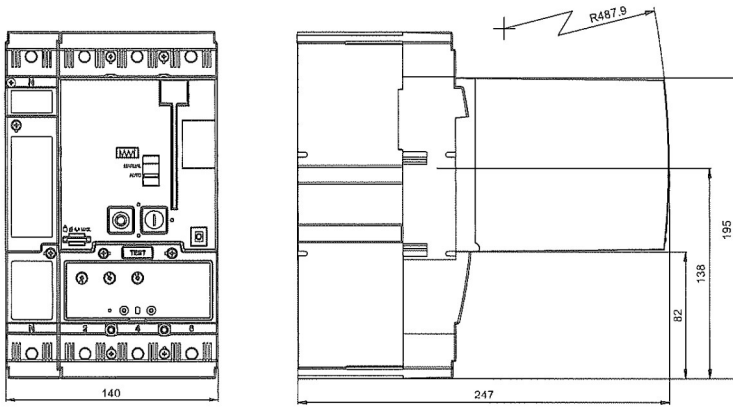


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

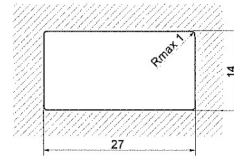
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Dimensions

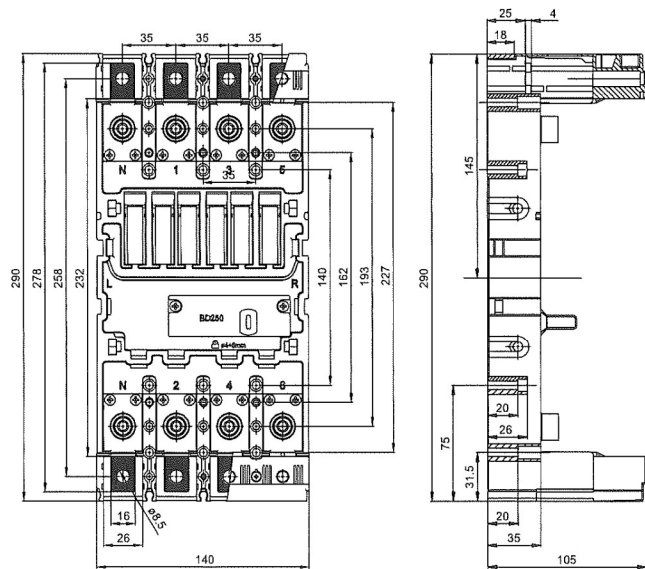
Fixed design, motor drive



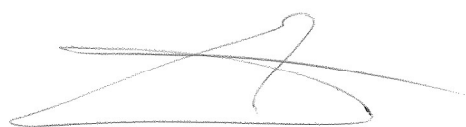
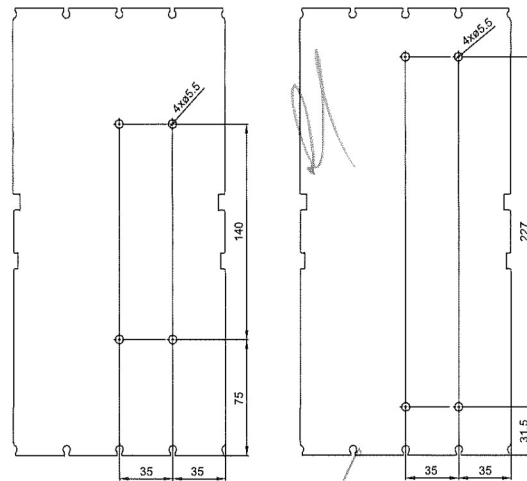
Opening dimensions in switchboard door for external counter of cycles



Plug-in device



Drilling diagram

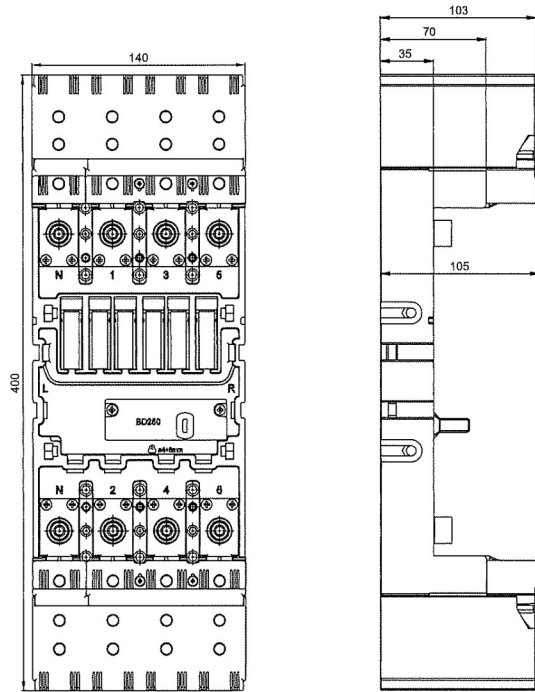


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

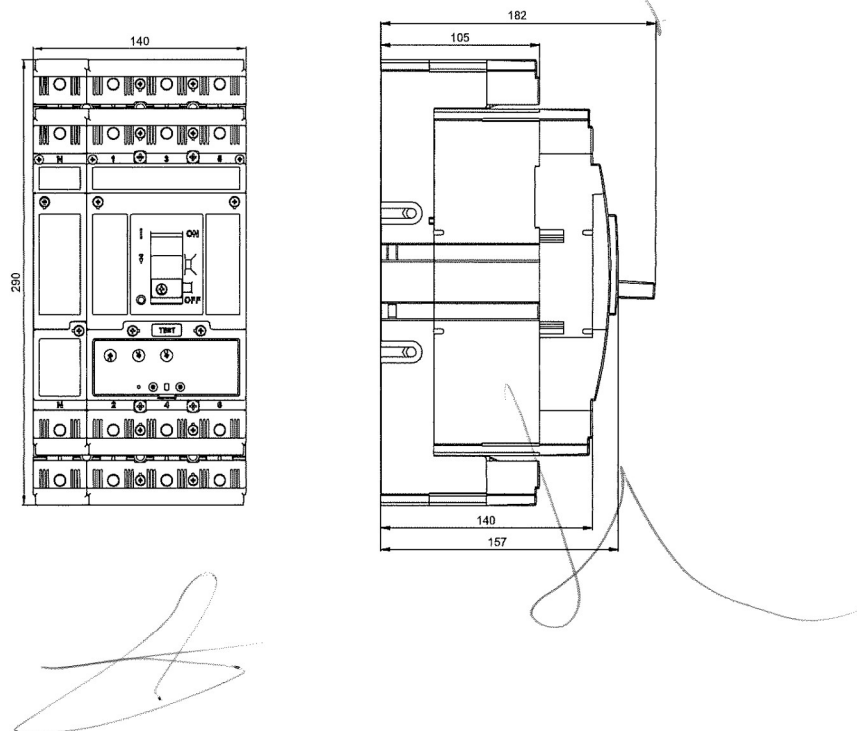
4P

Dimensions

Plug-in device, OD-BD-KS43 terminal cover



Plug-in design



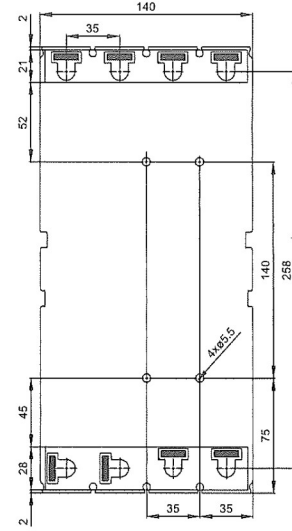
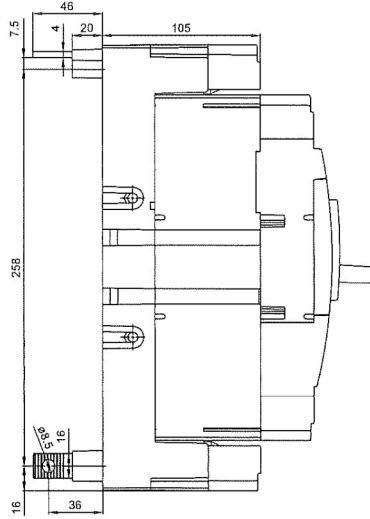
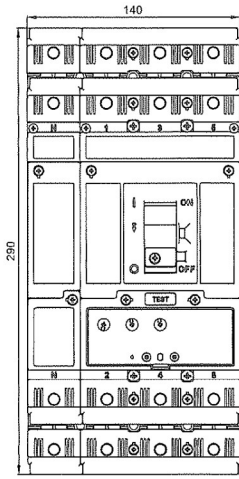
CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

4P

Dimensions

Plug-in design, rear connection (CS-BD-A021 + CS-BD-A421 connecting sets)

Drilling diagram

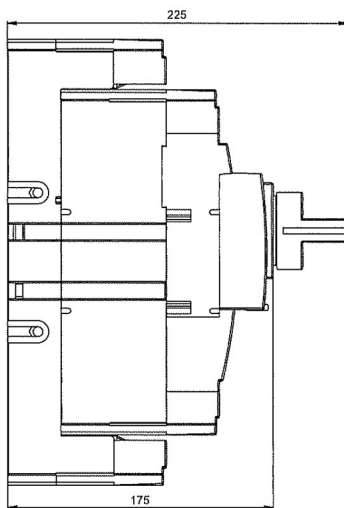
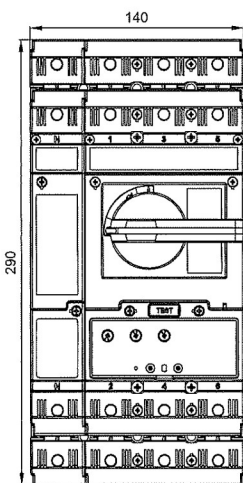


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

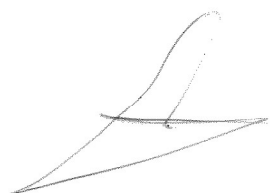
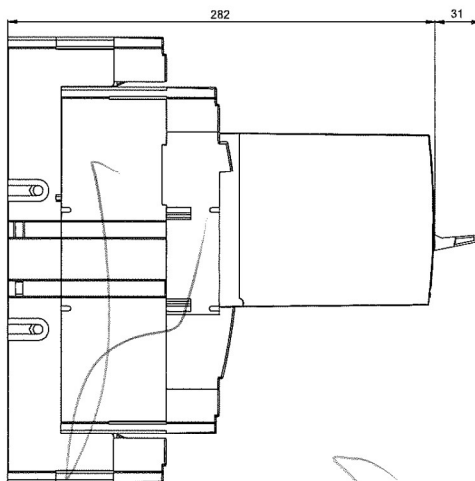
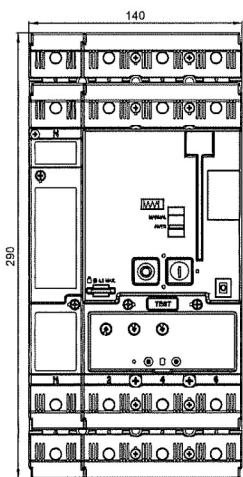
4P

Dimensions

Plug-in design, hand drive



Plug-in design, motor drive

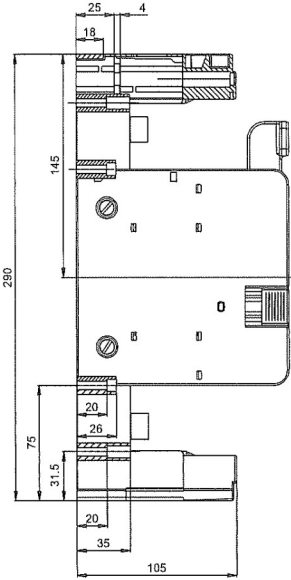
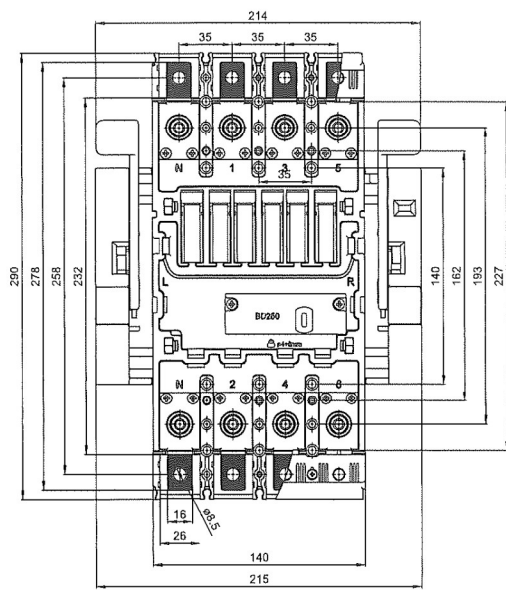


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

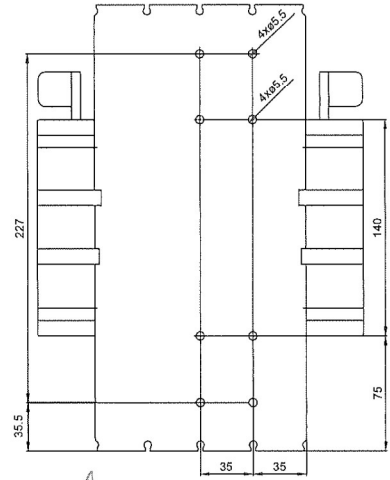
4P

Dimensions

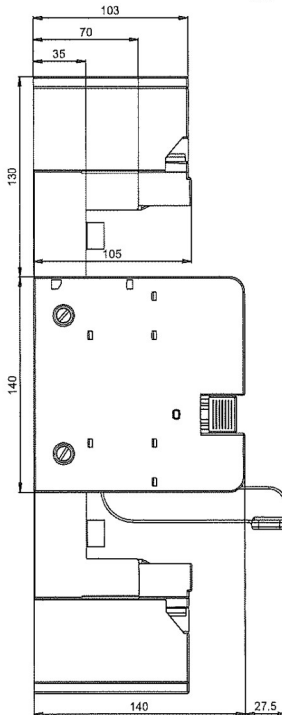
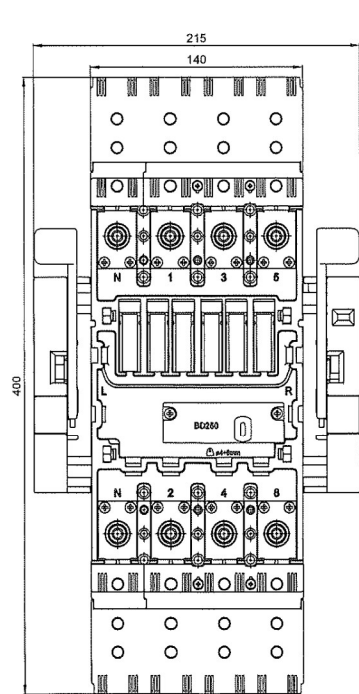
Withdrawable device



Drilling diagram



Withdrawable device, OD-BD-KS43 terminal cover



CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

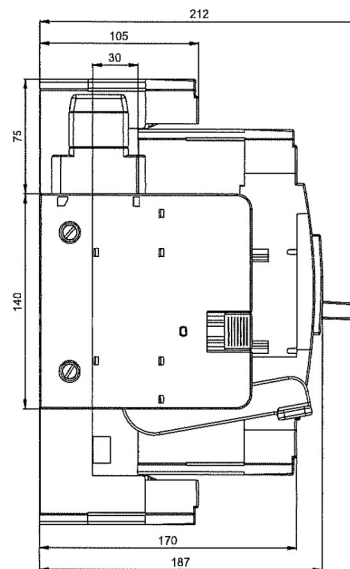
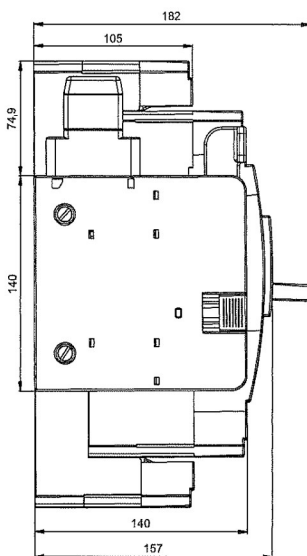
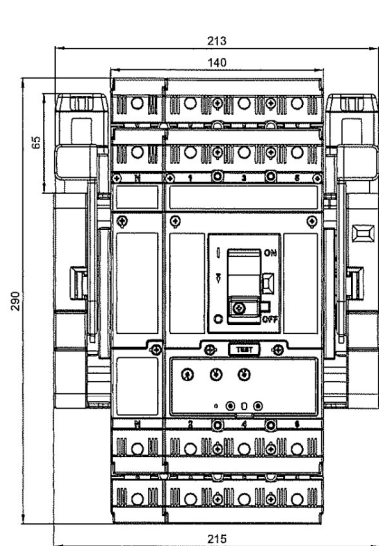
4P

Dimensions

Withdrawable design

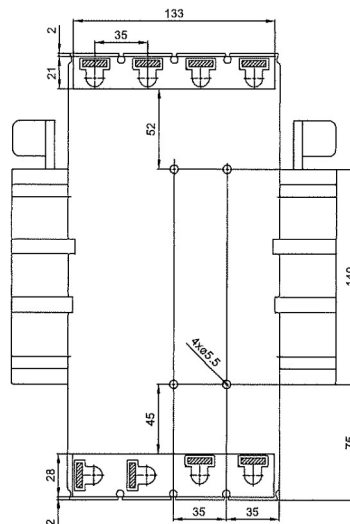
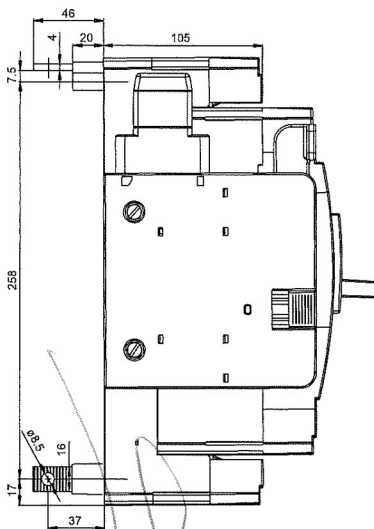
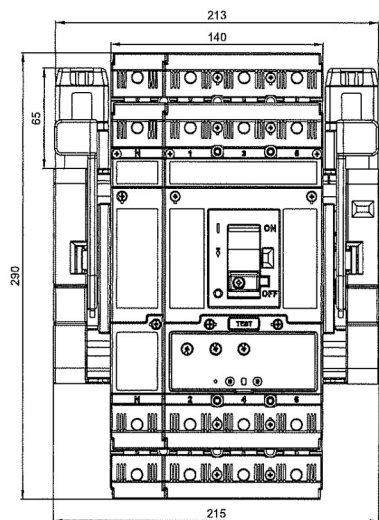
Working position

Inspection position



Withdrawable design, rear connection (CS-BD-A021 + CS-BD-A421 connecting sets)

Drilling diagram

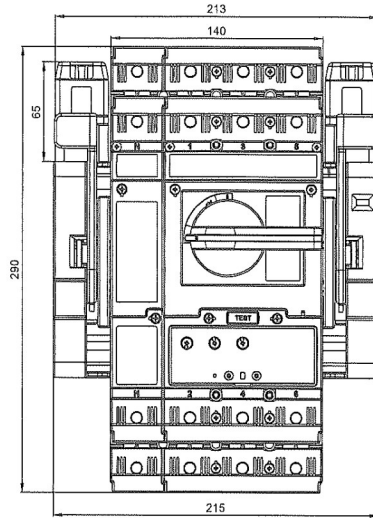


CIRCUIT BREAKERS, SWITCH-DISCONNECTORS

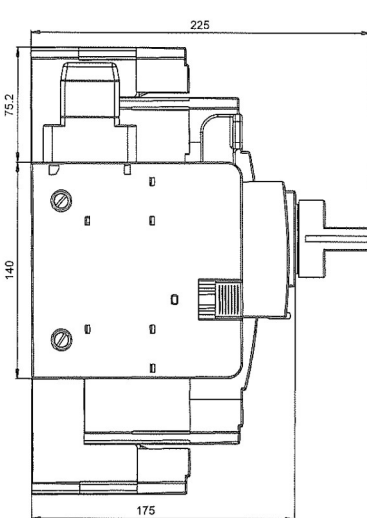
4P

Dimensions

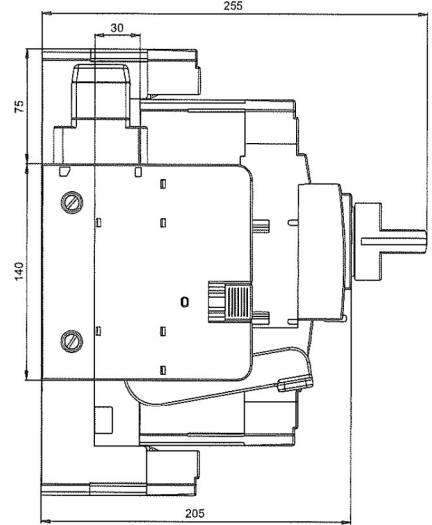
Withdrawable design, hand drive



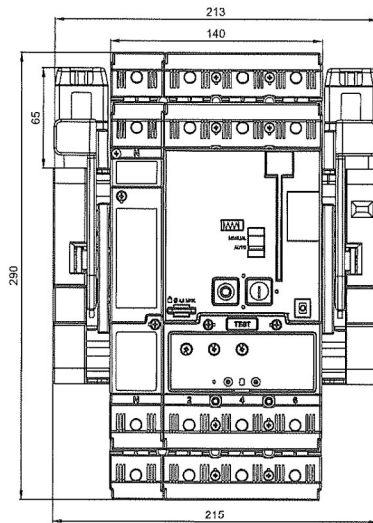
Working position



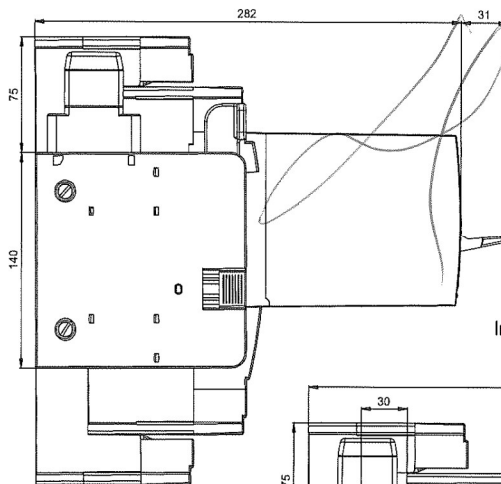
Inspection position



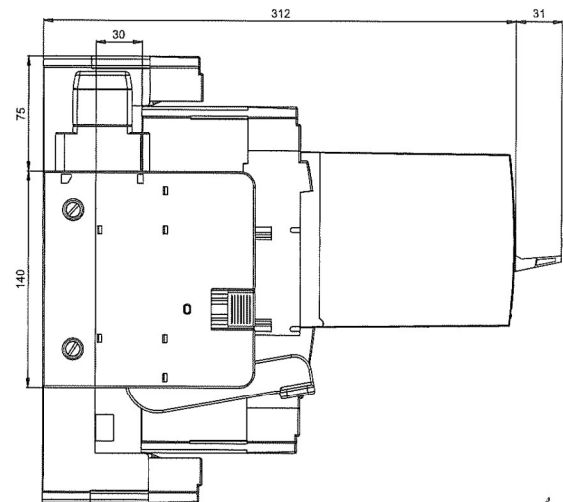
Withdrawable design, motor drive



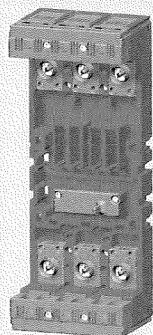
Working position



Inspection position

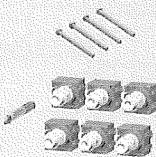


PLUG-IN DEVICE

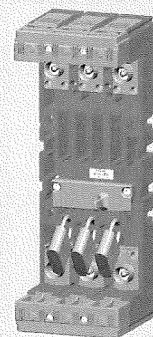


Plug-in device

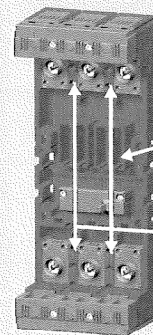
ZO-BD-0250-300



Circuit breaker in plug-in design



Locking plug-in device against inserting circuit breaker



Position of cavities for switch 50-BHD-0010 in plug-in device

11, 12, 13, 14

Keying set OD-BD-KK01

Description

Plug-in design of the circuit breaker/switch-disconnector is intended for demanding industrial applications where rapid exchange of the circuit breaker along with both visual and conductive disconnection of the circuit are needed.

- plug-in device includes complete accessories for assembling circuit breaker/switch-disconnector in plug-in design from the originally fixed design
- components of the plug-in device are:
 - base of the plug-in device
 - 2 connecting sets (total of 6 terminals) - for fitting onto the switching unit
 - interlocking connecting rod (ensures automatic switching off of the circuit breaker for handling – inserting and removal)
 - set of mounting bolts - for affixing circuit breaker to plug-in device (set of mounting bolts is used to fasten the plug-in device into the switchboard, that is included in delivery of switching unit)

Circuit breaker positions

Circuit breaker in plug-in design has two positions:

1. inserted (working position)
2. removed

Power circuit

- connecting set CS-BD-A011 is used for connecting with busbars or cable lugs, what is included in delivery of BD250... switching unit
- for connecting in another way, it is necessary to use connecting sets, see page E8
- connection must comply with our recommendations, see page E18

Auxiliary circuits

These are connected using 15-wire cable OD-BHD-KA01.

States of switches 50-BHD-0010 in plug-in device according to circuit breaker position

Cavity	11, 12, 13, 14 (19, 20) ¹⁾
Circuit breaker position	
Inserted	0 1
Removed	1 0

note: 0 - contact open, 1 - contact closed
¹⁾ cavities 19 and 20 are only for 4-pole design

Specifications 50-BHD-0010

Type	50-BHD-0010	
Rated operating voltage	U_e	AC 400 V DC 220 V
Rated insulation voltage	U_i	AC 500 V
Rated frequency	f_n	50/60 Hz
Rated operating current	I_n / U_e AC-13 I_n / U_e DC-15	3 A / AC 400 V 3.5 A / DC 24 V, 1 A / DC 48 V, 0.3 A / DC 110 V, 0.15 A / DC 220 V
Thermal current	I_{th}	6 A
Arrangement of contacts		001
Connection cross-section	S	0.5 ÷ 1 mm ²
Degree of protection of terminals (connected switch)		IP20
Ambient temperature range		-25 °C ÷ +55 °C

For wiring diagram of circuit breaker in plug-in device with accessories see page E16.

Signalling of position 50-BHD-0010

Plug-in device may be fitted with a maximum of four switches (for 4-pole design, max. 6 switches) for signalling the inserted/removed position.

Keying set OD-BD-KK01

Plug-in device and circuit breaker can be fitted with keying set, which prevents inserting any other circuit breaker into the plug-in device.

Circuit breaker accessories in plug-in design

Circuit breaker in plug-in design has the same accessories as the fixed circuit breaker.

Advantages and enhanced safety for operator:

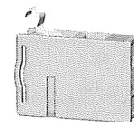
- unambiguous remote signalling of the circuit breaker position
- option to lock plug-in device with padlocks to prevent inserting of circuit breaker
- visible and conductive disconnection of the power circuit
- easy exchange of circuit breakers in case of failure
- IP20 degree of protection of all termination points
- plug-in device does not need earthing



OD-BD-KK01



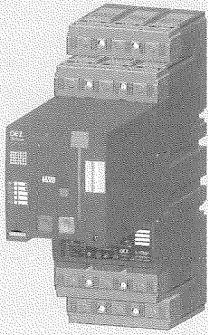
OD-BHD-KA01



50-BHD-0010

PLUG-IN DEVICE

3P 4P



Circuit breaker in plug-in design with motor drive

Recommended circuit breaker manipulation

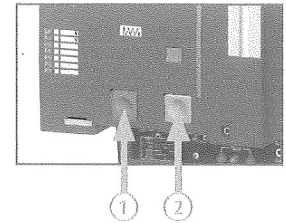
During the manipulation with circuit breaker in plug-in design with motor drive, the circuit breaker may reach the state, in which the first attempt at switching on by motor drive is unsuccessful. Switching on is executed after repeated make impulse. To avoid this effect, some of the following steps may be done:

- 1) To keep the process of manipulation with the circuit breaker, see „Recommended circuit breaker manipulation“ below
- 2) To connect OD-BHD-R... control relay into the motor drive circuit according to wiring diagram, see page E73

Recommended process of manipulation

After every manipulation with circuit breaker in plug-in design is necessary to accomplish the operations in following sequence, after repeated insertion into the plug-in device:

- 1) press the switch off button (red) on the motor drive, see fig.
- 2) press the switch on button (green) on the motor drive, see fig.



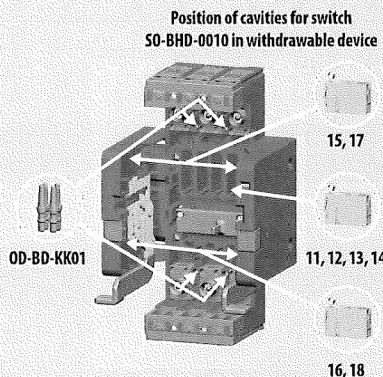
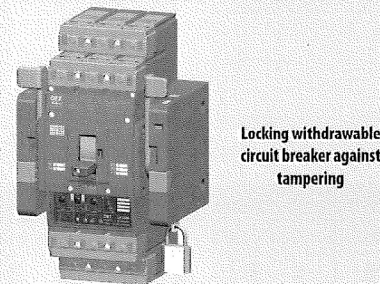
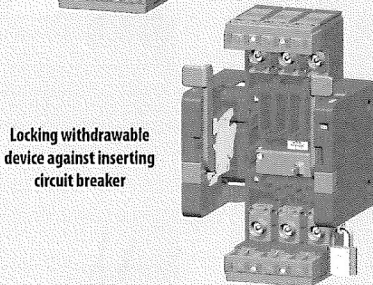
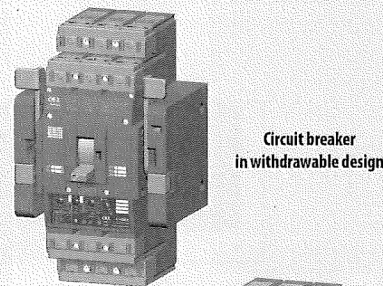
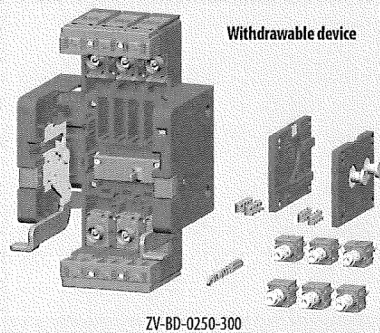
Changes in states of switches in cavities of switching unit when removing circuit breaker

State of circuit breaker before removing			State of switches before removing - inserted position						State of switches after removing - withdrawn position					
Circuit breaker lever position	State of the main contacts		Cavity 1		2		3 (4, 5, 6) ¹⁾		1		2		3 (4, 5, 6) ¹⁾	
			PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100
			40 30	20 10	40 30	20 10	40 30	20 10	40 30	20 10	40 30	20 10	40 30	20 10
Switched on	⏏	1	1	0	0	1	1	0	1	0	1	0	0	1
Switched off manually or by motor drive electrically (loaded state)	⊙	0	1	0	0	1	0	1	1	0	1	0	0	1
Switched off by overcurrent release	⚡	0	0	1	1	0	0	1	0	1	1	0	0	1
Switched off from switched on state: by auxiliary release, or by TEST push button or by the switch off button on the motor drive	⚡	0	1	0	1	0	0	1	1	0	1	0	0	1

note: 0 - contact open, 1 - contact closed
¹⁾ cavities 4, 5, 6 are only for 4-pole design

WITHDRAWABLE DEVICE

3P 4P



Description

Withdrawable design of the circuit breaker/switch-disconnector is intended for demanding industrial applications where rapid exchange of the circuit breaker, frequent checking and both visual and conductive disconnection of the circuit are needed.

- withdrawable device includes complete accessories for assembling circuit breaker/switch-disconnector in withdrawable design from the originally fixed design
- components of the withdrawable device are:
 - base of the withdrawable device
 - 2 movable side plates
 - 2 connecting sets (total of 6 terminals) - for fitting onto the switching unit
 - interlocking connecting rod (ensures automatic switching off of the circuit breaker for handling – inserting and withdrawing)
 - set of mounting bolts is used to fasten the withdrawable device into the switchboard, that is included in delivery of switching unit

Circuit breaker positions

Circuit breaker in withdrawable design has three positions:

1. inserted (working position)
2. withdrawn (inspection position)
3. removed

Keying set OD-BD-KK01

Withdrawable device and circuit breaker can be fitted with keying set, which prevents inserting any other circuit breaker into the withdrawable device.

States of switches SO-BHD-0010 in withdrawable device according to circuit breaker and arrestment positions

Cavity	11, 12, 13, 14 (19, 20) ¹⁾	15, 17 (19, 20) ¹⁾	16, 18
Circuit breaker and arrestment position	2 0 0 4	2 0 0 4	2 0 0 4
Inserted and not arrested	0 1	1 0	0 1
Inserted and arrested	0 1	1 0	1 0
Withdrawn and not arrested	1 0	0 1	0 1
Withdrawn and arrested	1 0	0 1	1 0
Removed and not arrested	1 0	1 0	0 1
Removed and arrested	1 0	1 0	1 0

note: 0 - contact open, 1 - contact closed
 - operating state is always in arrested position
 - in arrested position it is possible to lock the withdrawable device (for more information see „Advantages and enhanced safety for operator“)
¹⁾ cavities 19 and 20 are only for 4-pole design

Specifications SO-BHD-0010

Type	SO-BHD-0010	
Rated operating voltage	U_e	AC 400 V DC 220 V
Rated insulation voltage	U_i	AC 500 V
Rated frequency	f_n	50/60 Hz
Rated operating current	I_e / U_e I_n / U_e	AC-13 3 A / AC 400 V DC-15 3.5 A / DC 24 V, 1 A / DC 48 V, 0.3 A / DC 110 V, 0.15 A / DC 220 V
Thermal current	I_{th}	6 A
Arrangement of contacts		001
Connection cross-section	S	0.5 ÷ 1 mm ²
Degree of protection of terminals (connected switch)		IP20
Ambient temperature range		-25 °C ÷ +55 °C

For wiring diagram of circuit breaker in withdrawable device with accessories see page E16.

Signalling of position SO-BHD-0010

Withdrawable device can be fitted with the switches for signalling the position of the circuit breaker inserted/withdrawn/removed.

Power circuit

- connecting set CS-BD-A011 is used for connecting with busbars or cable lugs, that is included in delivery of BD250.. switching unit
- for connecting in another way, it is necessary to use connecting sets, see page E8
- connection must comply with our recommendations, see page E18

Auxiliary circuits

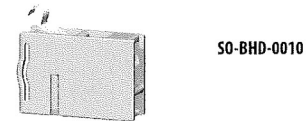
These are connected using 15-wire cable OD-BHD-KA01.

Circuit breaker accessories in withdrawable design

Circuit breaker in withdrawable design has the same accessories as fixed circuit breaker.

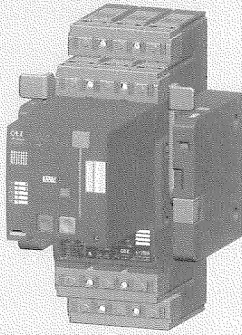
Advantages and enhanced safety for operator:

- unambiguous remote and local signalling of the circuit breaker and arrestment positions
- checking of circuit breaker and accessories function in the inspection position
- locking withdrawable device against inserting circuit breaker, locking of circuit breaker in inserted (operating) position, locking of circuit breaker in withdrawn (checking) position - locking by means of padlocks
- visible and conductive disconnection of the power circuit
- easy exchange of circuit breakers in case of failure
- IP20 degree of protection of all termination points
- withdrawable device does not need earthing



WITHDRAWABLE DEVICE

3P 4P



Circuit breaker in withdrawable design with motor drive

Recommended circuit breaker manipulation

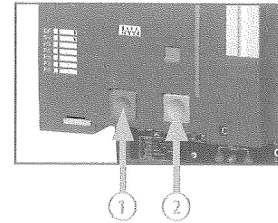
During the manipulation with circuit breaker in withdrawable design with motor drive, the circuit breaker may reach the state, in which the first attempt at switching on by motor drive is unsuccessful. Switching on is executed after repeated make impulse. To avoid this effect, some of the following steps may be done:

- 1) To keep the process of manipulation with the circuit breaker, see „Recommended circuit breaker manipulation“ below
- 2) To connect OD-BHD-R... control relay into the motor drive circuit according to wiring diagram, see page E73

Recommended process of manipulation

After every manipulation with circuit breaker in withdrawable design is necessary to accomplish the operations in following sequence, after repeated insertion into the plug-in device:

- 1) press the switch off button (red) on the motor drive, see fig.
- 2) press the switch on button (green) on the motor drive, see fig.



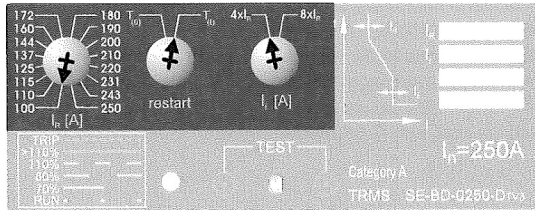
Changes in states of switches in cavities of switching unit when inserting and withdrawing circuit breaker

		State before insertion/withdrawal						State after insertion/withdrawal					
State of circuit breaker before insertion		State of switches before insertion - withdrawn position						State of switches after insertion - inserted position					
State of circuit breaker before withdrawal		State of switches before withdrawal - inserted position						State of switches after withdrawal - withdrawn position					
Circuit breaker lever position	State of the main contacts	Cavity 1		Cavity 2		3 (4, 5, 6) ¹⁾		1		2		3 (4, 5, 6) ¹⁾	
		PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100	PS-BHD-1000	PS-BHD-0100
Switched on	⏏	1	0	0	1	1	0	1	0	1	0	0	1
Switched off manually or by motor drive electrically (loaded state)	⊙	1	0	0	1	0	1	1	0	1	0	0	1
Switched off by overcurrent release	⚡	0	1	1	0	0	1	0	1	1	0	0	1
Switched off from switched on state: by auxiliary release, or by TEST push button or by the switch off button on the motor drive	⚡	1	0	1	0	0	1	1	0	1	0	0	1

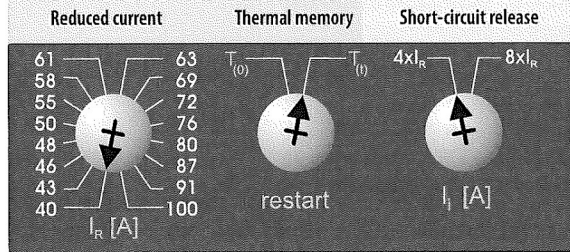
note: 0 - contact open, 1 - contact closed
¹⁾ cavities 4, 5, 6 are only for 4-pole design

OVERCURRENT RELEASES - DTV3

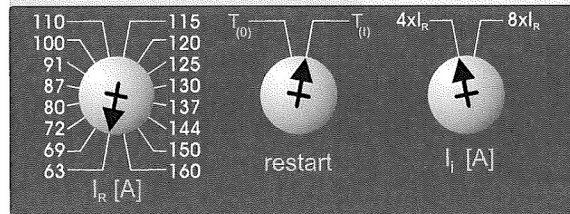
3P 4P



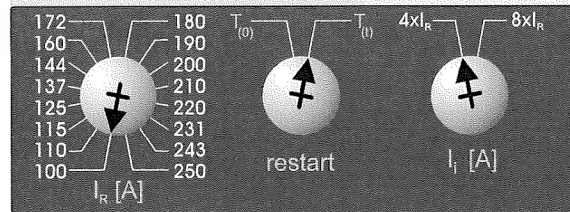
I_n = 100 A
SE-BD-0100-DTV3



I_n = 160 A
SE-BD-0160-DTV3



I_n = 250 A
SE-BD-0250-DTV3

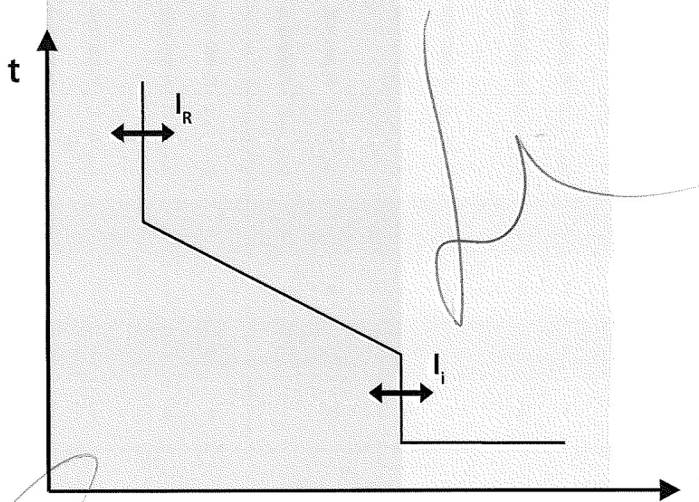


Properties

- suitable for protection of lines and distribution transformers
- protects against both overcurrent and short circuit
- reduced current setting $I_R = 0.4 \div 1 I_n$
- thermal memory can be switched on/off (ON = $T_{(0)}$, OFF = $T_{(1)}$)
- setting of the value of the short-circuit release I_I in two steps, $4 I_R$ or $8 I_R$
- setting of I_R and I_I by means of the rotary switches is stepwise
- the overcurrent release indicates operating state and the value of the passing current by means of LED
- the values of parameters of the overcurrent release are set by the manufacturer to minimum

Data for the project

Switching unit	BD250...
Overcurrent release	SE-BD-...
Overcurrent release setting	
Reduced current	I_R ... A
Thermal memory	T ...
Short-circuit release current	I_I ... A (... x I_R)



IMPORTANT

- thermal memory must be switched on in protection of transformers and lines - thus the transformer or the line will be protected against repeated overload