

# **Direct current contactors**

## **with braking contacts**

**List 625E**

**Edition 01 / 2008**

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## Application

HOMA air-break contactors in this list are suited to disconnect excitation windings of synchronous generators and exciters and to immediately extinguish the stored magnetic energy via a negative contact (break contact) of the contactor, which is connected in series with a required braking resistor and parallel to the excitation winding.

## Design

The stationary main contact elements and the magnet core with its solenoid are mounted on a horizontal bar. The rotatable preshaft carries the mobile main contact elements and the hinged armature. Depending on the type of contactor, one- or multi-pin designs are available. The auxiliary switches are arranged below the magnet system. The positive main contact elements are of the single-break type and can be easily checked and replaced once they are worn after swinging back the arc blowout chimneys. The magnetic blowout installed in every main contact element drives the electric arc into the arc blowout chimneys after the contact has been broken and shortens its burning period. The negative contact (break contact) switches a braking resistor parallel to the excitation winding according to switching examples a) to f). The negative contact may only open again once the braking operation has been completed and the braking current has decayed.

## Drive

The solenoid-operated mechanism is fed with alternating current. Larger and multi-pole contactors require a direct current solenoid, which can be fed from the alternating current power system if a HOMA-Si-rectifier is interposed. If desired, it is also possible to supply all the contactors with a d.c solenoid with economy contact and economy resistor for connection to a direct current control voltage.

## Solenoids

According to VDE 0660, HOMA air-break contactors operate in the range between 0.85 and 1.1 times the nominal operating voltage. Non-standard installation conditions must be queried with us first.

## Insulation

Creepage distances and air-gaps are dimensioned acc. to VDE 0110 group C for a nominal insulation voltage of  $U_i = 1500V$ . (Nominal insulation voltage  $U_i = 3000V$  can be supplied on request).

## Main contacts

The contact facings consist of a silver compound alloy, and are suitable for permanent connection and frequent switching.

## Arc blowout chimneys

Depending on the operating voltage and the switching conditions, we supply our air-break contactors in the contactor groups described below:

Group A with fibre-reinforced concrete chimneys for a maximum switching voltage of 220V/pole

Group C with steatite DY-chimneys for a maximum switching voltage of 330V/pole

Group 1000V with steatite DY-chimneys and chimney tops for a maximum switching voltage of 500V/pole

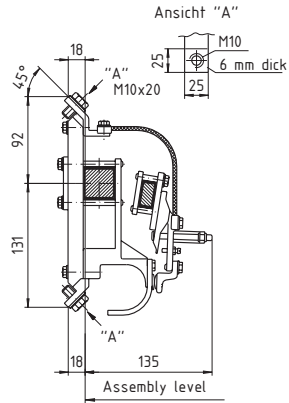
## Remark

Air-break contactors and switches with or for mechanical locking device, mechanical coupling, higher operating frequencies, increased operating temperatures, weatherproofing, on-board operation, foreign regulations, parallel connection of poles, mechanical service life, auxiliary switch design, special designs in the design as described in lists 350/1 and 549 are available.

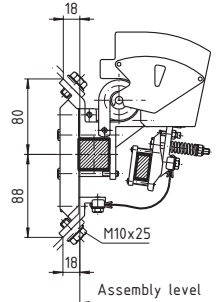
### Selection table for direct current contactor with braking contacts

Contactor type	Number of poles	Group of contactors	Contactors acc. Figure	Rated current [A]	Rated voltage [V]	Switching of the main contacts figure	Dimension A [mm]	Control circuit acc. figure	Net weight [kg]
G 200	I	Group A	1	200	220	a	300	1	9,0
	II		2		440	b	344	1	10,5
G 320	I		4	320	220	a	344	1	10,5
	II		5		440	b	432	1	13,8
G 500	I		6	500	220	a	385	1	23,9
	II		7		440	b	541	1	31,1
G 800	I		6	800	220	a	385	1	24,3
	II		7		440	b	541	2	31,9
G 1400	I		8	1400	220	a	541	2	31,9
	II		9		440	b	635	2	48,2
G 2000	I		10	2000	220	a	635	2	46,4
	II	11	440		b	885	3	67,2	
G 200	I	Group D	2	200	440	e	344	1	10,6
	II		3		660	f	490	2	17,0
G 320	I	Group C	4	320	330	a	344	1	11,1
	II		5		660	b	432	1	15,0
G 500	I		6	500	330	a	385	1	25,2
	II		7		660	b	541	1	33,7
G 800	I		6	800	330	a	385	1	25,5
	II		7		660	b	541	2	34,3
G 1400	I		8	1400	330	a	541	2	34,3
	II		9		660	b	635	2	53,0
G 2000	I		10	2000	330	a	635	2	50,0
	II		11		660	d	885	3	74,4
G 320	I		Group 1000V	4	320	500	a	344	2
	II	5		1000		b	432	2	17,2
G 500	I	6		500	500	a	385	1	26,3
	II	7			1000	b	541	1	35,9
G 800	I	6		800	500	a	385	1	26,8
	II	7			1000	b	541	2	36,9
G 1400	I	8		1400	500	a	541	2	36,9
	II	9			1000	b	635	2	58,2
G 2000	I	10		2000	500	a	635	2	53,9
	II	11			1000	d	885	3	82,2

Section a-b  
G 200 o.L.

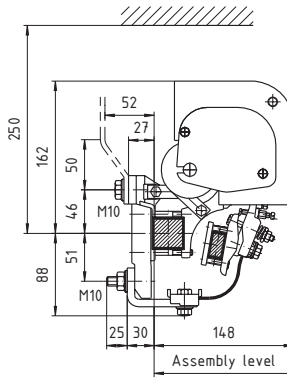


Section c-d  
group A



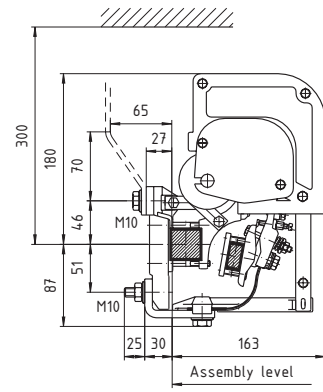
Area connection 25x25  
with tap hole M10

Section e-f  
group A



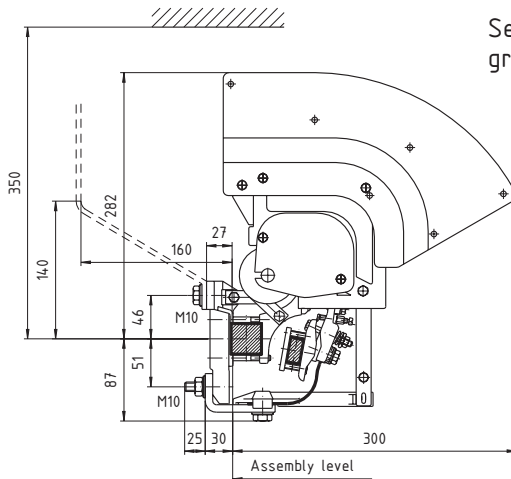
Area connection 30x30  
with tap hole M10

Section e-f  
group C



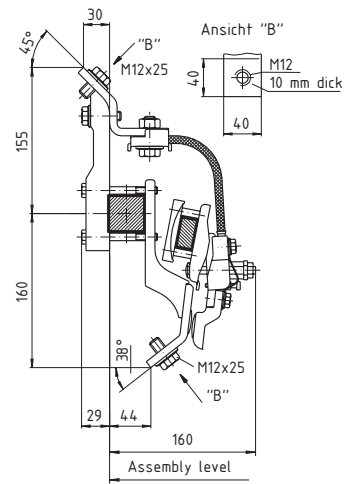
Area connection 30x30  
with tap hole M10

Section e-f  
group 1000V



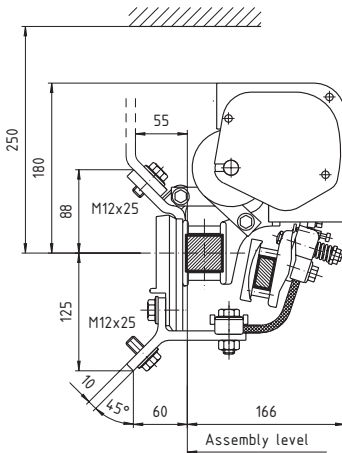
Area connection 30x30  
with tap hole M10

Section g-h  
G 500v o.L.



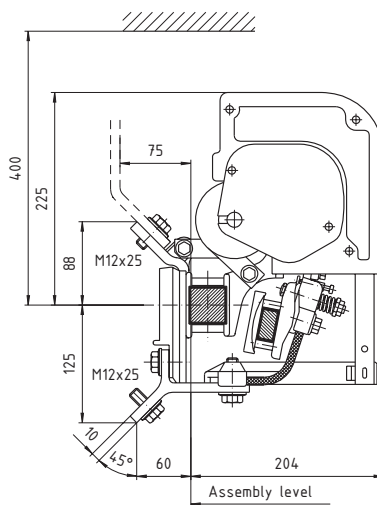
Assembly level

Section i-k  
group A



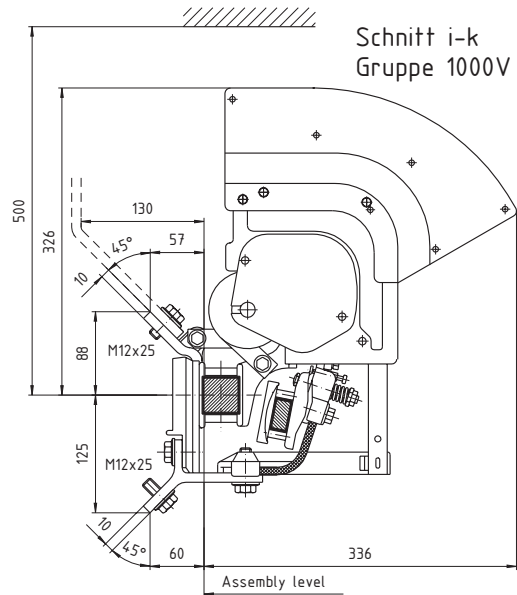
Missing dimensions as group 1000V  
Area connection 40x40  
with tap hole M12

Section i-k  
group C

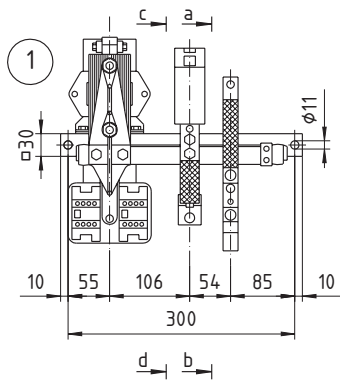


Missing dimensions as group 1000V  
Area connection 40x40  
with tap hole M12

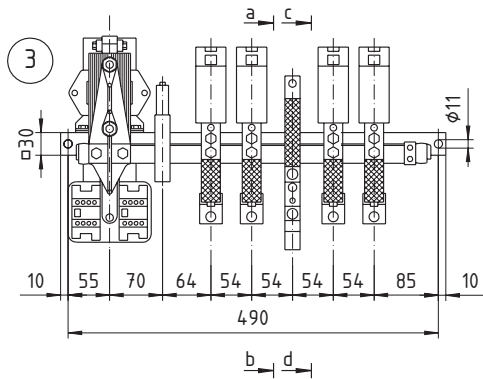
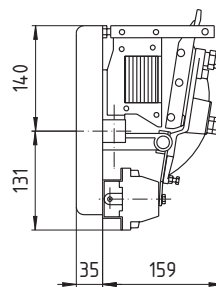
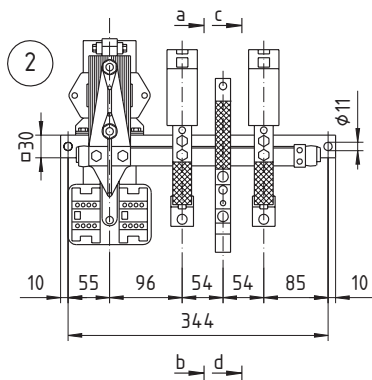
Schnitt i-k  
Gruppe 1000V



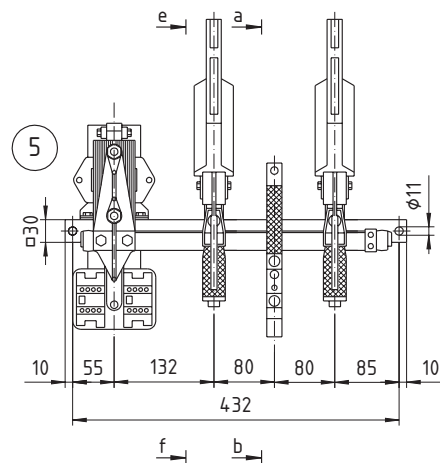
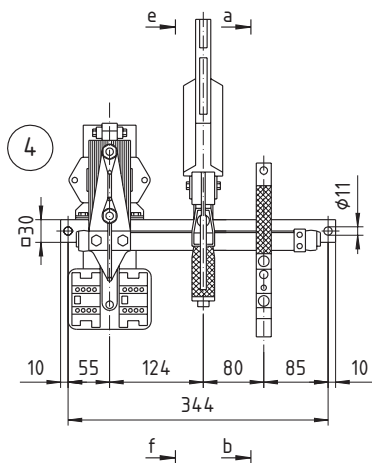
Area connection 40x40  
with tap hole M12

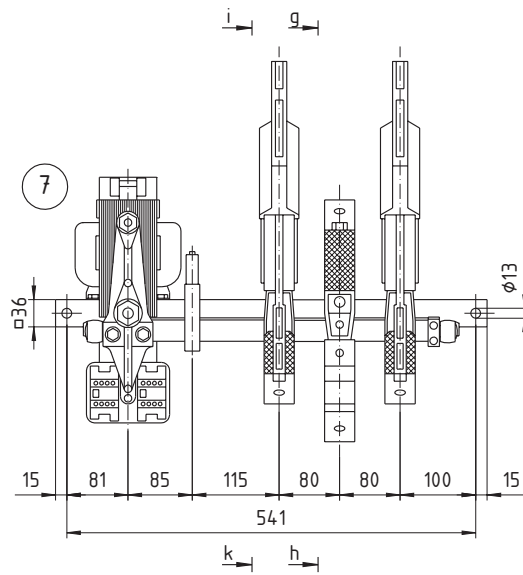
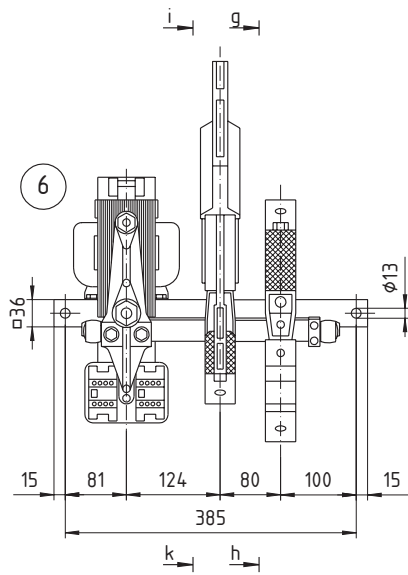


Side view fig. 1-5  
(Shown without switching poles)

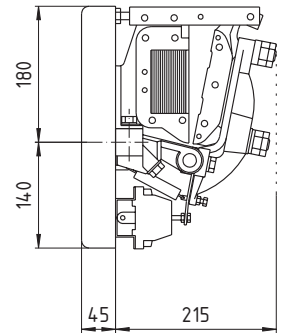


Sections see Page 3  
figure 4 and 5 are  
in the group 1000V  
not shown.

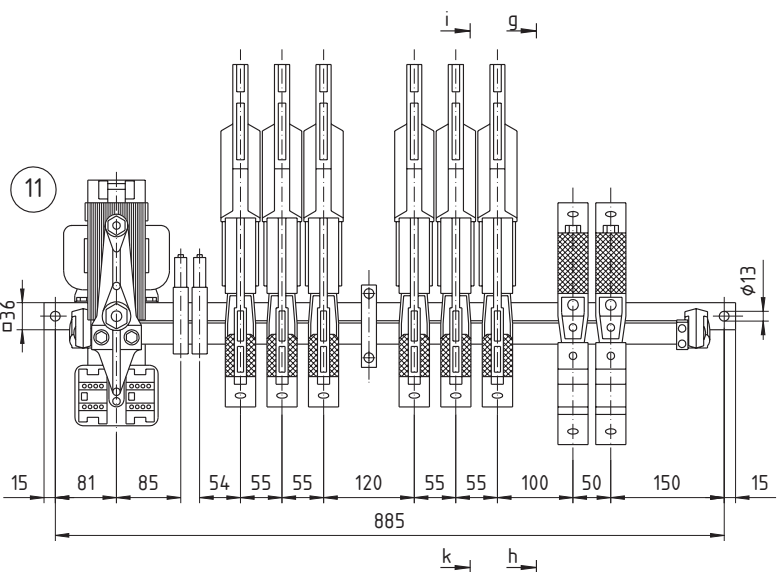
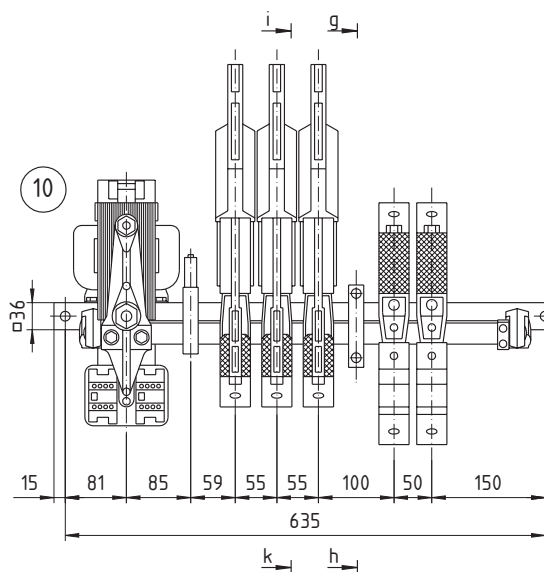
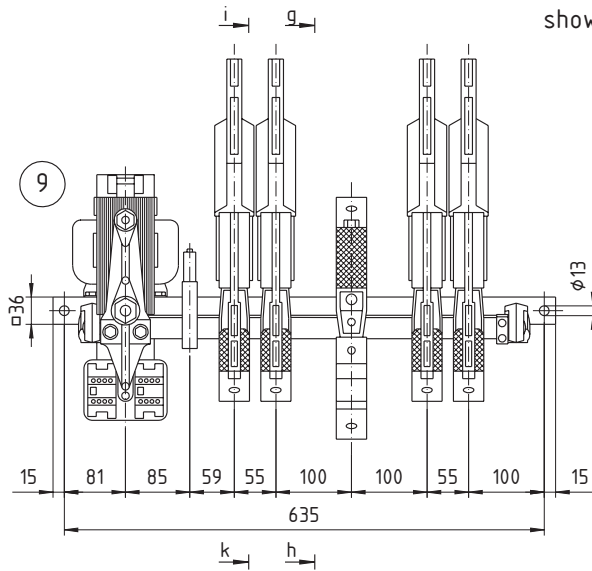
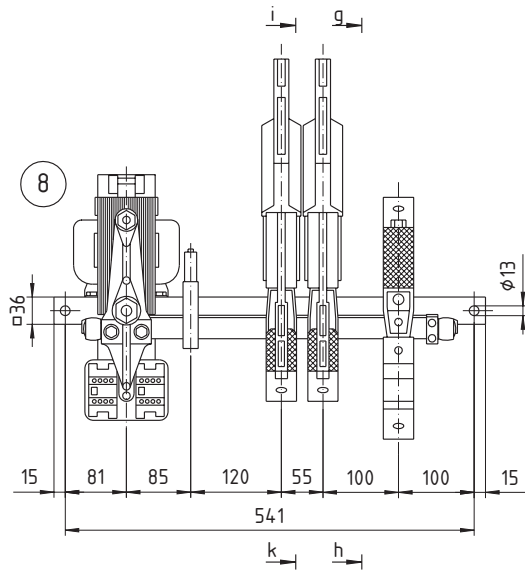




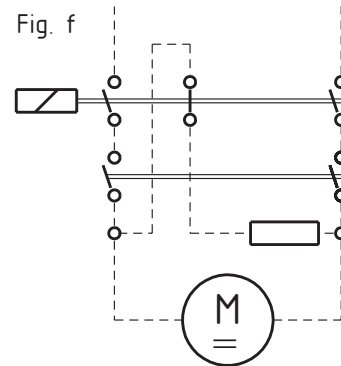
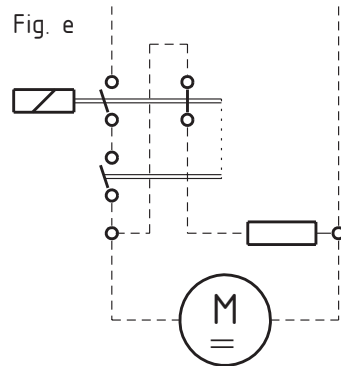
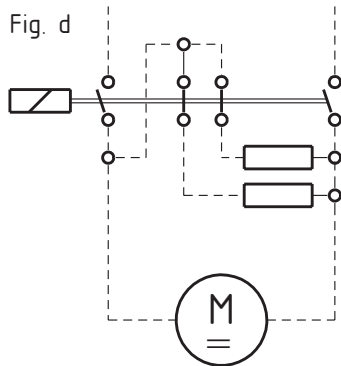
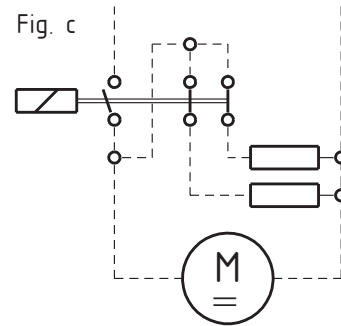
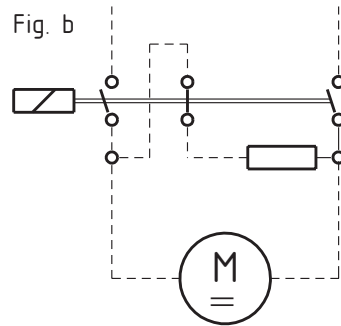
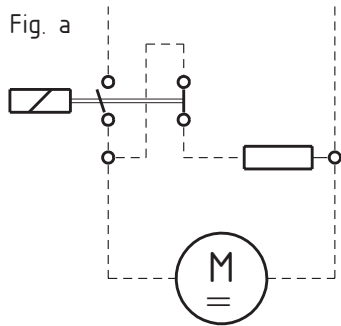
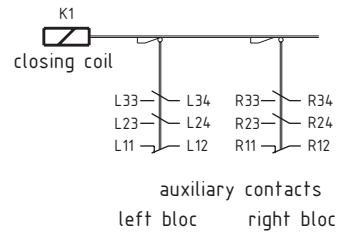
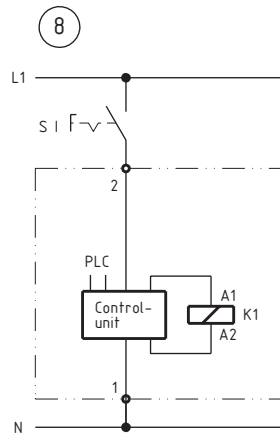
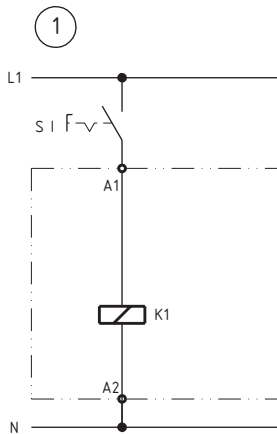
Side view fig. 6-11  
(Shown without switching pole)



Sections see page 3.  
Fig. 6 bis 11 are  
in the group 1000V  
shown.



### Coil circuit and arrangement for auxiliary contacts



## Manufacturing-program

026/1	pole-changing switches, change over switches, circuit breakers
145	NF and MF high-current switches (air-cooled)
280	NF and MF contactors for off-load switching
282	Damping resistors
350/1	DC- and NF-contactors for on-load switching
421	Prism-contacts (air- and water-cooled)
427	NF and MF high-current switches (watercooled)
460	insulator-supports and bus-bar-supports
467	MF-contactors for on-load switching
475/1	Prism-contacts (air-cooled)
502	cable (air- and water-cooled)
506	discharge- and dropping-resistors
507	capacitor-contactor for on-load switching
549	contactors with NC-contacts for on-load switching
559	Prism-contacts for the electrode-position
560	spare parts
600	pole-changing switches, with motor-drive (water-cooled)
615	NF and MF high-current circuit breaker for off-load switching (water-cooled)
617	NF and MF high-current circuit breaker for off-load switching (air-cooled)
624	contactors with NC-contacts off-load switching
<b>625</b>	<b><i>DC-contactors with brake-contacts</i></b>
641	Air-cooled-current-carrying leads