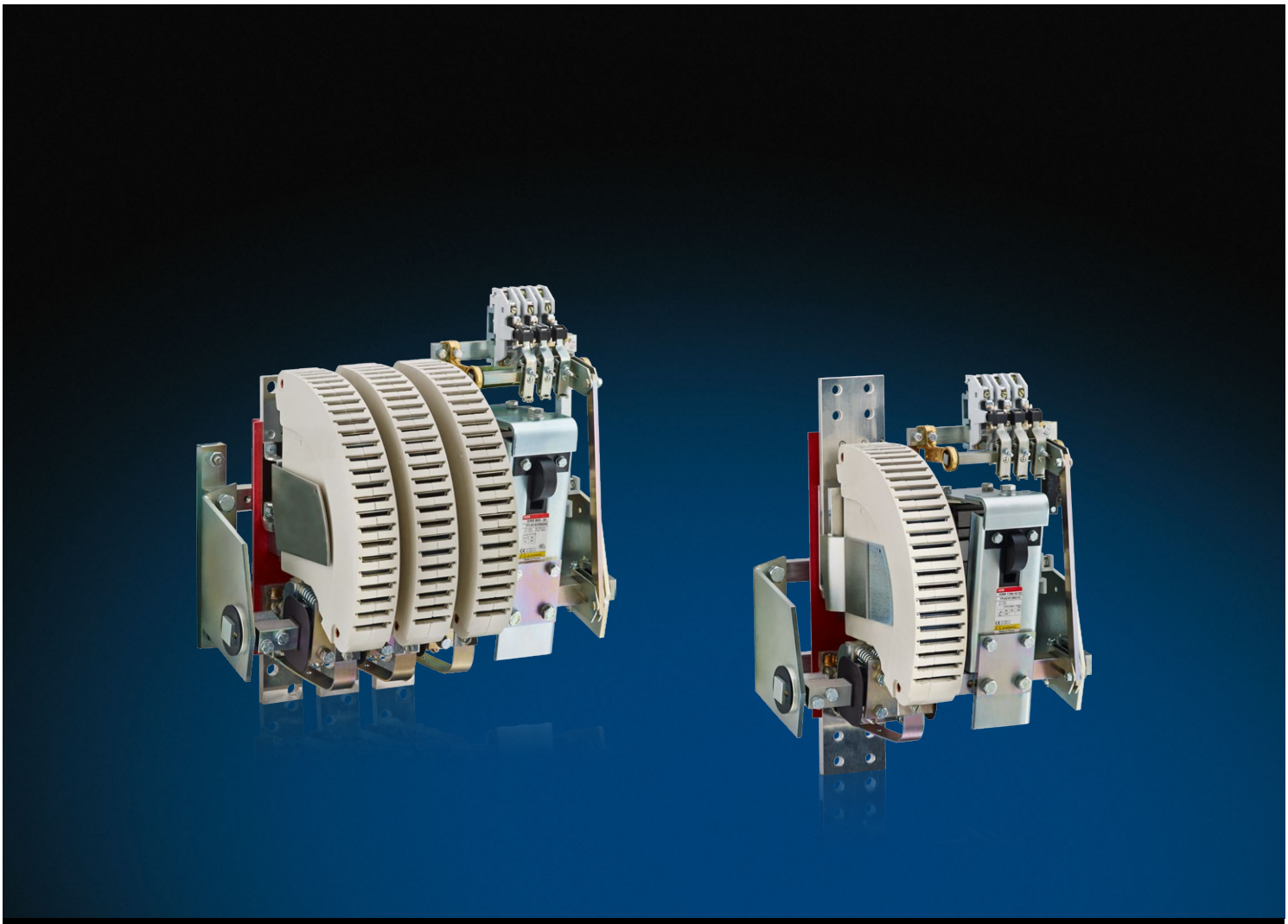

Main catalog

R contactors
Control of AC and DC power circuits up to 5000 A

Power and productivity
for a better world™

Motor rated operational powers and currents

The currents given below concern standard three-phase four-pole cage motors (1500 r.p.m. at 50 Hz 1800 r.p.m. at 60 Hz). These values are given for guidance and may vary according to the motor manufacturer and depending on the number of poles.

IEC	Motor nominal current: standardized values in blue colour (according to IEC 60947-4-1 Annex G)									
Motor power	220 V	230 V	240 V	380 V	400 V	415 V	440 V	500 V	660 V	690 V
kW	A	A	A	A	A	A	A	A	A	A
0.06	0.37	0.35	0.34	0.21	0.2	0.19	0.18	0.16	0.13	0.12
0.09	0.54	0.52	0.50	0.32	0.3	0.29	0.26	0.24	0.18	0.17
0.12	0.73	0.7	0.67	0.46	0.44	0.42	0.39	0.32	0.24	0.23
0.18	1	1	1	0.63	0.6	0.58	0.53	0.48	0.37	0.35
0.25	1.6	1.5	1.4	0.9	0.85	0.82	0.74	0.68	0.51	0.49
0.37	2.0	1.9	1.8	1.2	1.1	1.1	1	0.88	0.67	0.64
0.55	2.7	2.6	2.5	1.6	1.5	1.4	1.3	1.2	0.91	0.87
0.75	3.5	3.3	3.2	2.0	1.9	1.8	1.7	1.5	1.15	1.1
1.1	4.9	4.7	4.5	2.8	2.7	2.6	2.4	2.2	1.7	1.6
1.5	6.6	6.3	6	3.8	3.6	3.5	3.2	2.9	2.2	2.1
2.2	8.9	8.5	8.1	5.2	4.9	4.7	4.3	3.9	2.9	2.8
3	11.8	11.3	10.8	6.8	6.5	6.3	5.7	5.2	4	3.8
4	15.7	15	14.4	8.9	8.5	8.2	7.4	6.8	5.1	4.9
5.5	20.9	20	19.2	12.1	11.5	11.1	10.1	9.2	7	6.7
7.5	28.2	27	25.9	16.3	15.5	14.9	13.6	12.4	9.3	8.9
11	39.7	38	36.4	23.2	22	21.2	19.3	17.6	13.4	12.8
15	53.3	51	48.9	30.5	29	28	25.4	23	17.8	17
18.5	63.8	61	58.5	36.8	35	33.7	30.7	28	22	21
22	75.3	72	69	43.2	41	39.5	35.9	33	25.1	24
30	100	96	92	57.9	55	53	48.2	44	33.5	32
37	120	115	110	69	66	64	58	53	40.8	39
45	146	140	134	84	80	77	70	64	49.1	47
55	177	169	162	102	97	93	85	78	59.6	57
75	240	230	220	139	132	127	116	106	81	77
90	291	278	266	168	160	154	140	128	97	93
110	355	340	326	205	195	188	171	156	118	113
132	418	400	383	242	230	222	202	184	140	134
160	509	487	467	295	280	270	245	224	169	162
200	637	609	584	368	350	337	307	280	212	203
250	782	748	717	453	430	414	377	344	261	250
315	983	940	901	568	540	520	473	432	327	313
355	1109	1061	1017	642	610	588	535	488	370	354
400	1255	1200	1150	726	690	665	605	552	418	400
500	1545	1478	1416	895	850	819	745	680	515	493
560	1727	1652	1583	1000	950	916	832	760	576	551
630	1928	1844	1767	1116	1060	1022	929	848	643	615
710	2164	2070	1984	1253	1190	1147	1043	952	721	690
800	2446	2340	2243	1417	1346	1297	1179	1076	815	780
900	2760	2640	2530	1598	1518	1463	1330	1214	920	880
1000	3042	2910	2789	1761	1673	1613	1466	1339	1014	970

UL / CSA	Motor nominal current: standardized values (according to IEC 60947-4-1 Annex G and UL 508)				
Motor power	208 V	220-240 V	380-415 V	440-480 V	550-600 V
hp	A	A	A	A	A
1/2	2.4	2.2	1.3	1.1	0.9
3/4	3.5	3.2	1.8	1.6	1.3
1	4.6	4.2	2.3	2.1	1.7
1-1/2	6.6	6	3.3	3	2.4
2	7.5	6.8	4.3	3.4	2.7
3	10.6	9.6	6.1	4.8	3.9
5	16.7	15.2	9.7	7.6	6.1
7-1/2	24.2	22	14	11	9
10	30.8	28	18	14	11
15	46.2	42	27	21	17
20	59.4	54	34	27	22
25	74.8	68	44	34	27
30	88	80	51	40	32
40	114	104	66	52	41
50	143	130	83	65	52
60	169	154	103	77	62
75	211	192	128	96	77
100	273	248	165	124	99
125	343	312	208	156	125
150	396	360	240	180	144
200	528	480	320	240	192
250	–	604	403	302	242
300	–	722	482	361	289
350	–	828	560	414	336
400	–	954	636	477	382
450	–	1030	–	515	412
500	–	1180	786	590	472

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R contactors
Control of AC and DC power circuits up to 5000 A

Summary_1

R contactors
Tailored to your needs

1

With over 100 years of experience in control, ABB has designed its R contactors to meet the particular requirements of power applications from 63 A up to 5000 A in AC and DC.

With a variable number of poles and advanced features, these tailor-made bar mounted contactors remain the most flexible solution. Robustness and reliability bring our technology far beyond the limits of standard contactors. Our know-how enables us to offer R contactors perfectly suited to your applications whatever the environment.

Performance

- High making and breaking capacity
- Current up to 5000 A
- Voltage up to 1000 V AC or 1500 V DC.

Flexibility

- Variable number of poles
- Combination of N.O. and N.C. poles
- Adjustable number of auxiliary contacts.

Reliability

- Robust construction
- Durability up to 5 millions of operating cycles
- Experienced and proven for years.

... you can trust

Easy maintenance

– Direct access to all the contactor parts for inspection or replacement
– Complete and didactic instruction manual for installation, inspection or maintenance
– Dedicated R contactors service support available by ABB.

From standard to tailor-made solution

– Pre-sales support to identify and define customer requirements
– Customized support with development of solutions from specifications
– Specialists available to optimize your configuration.

Sustainability of control for a wide variety of applications

– Iron and steel industries
– Mining
– Cranes
– Induction furnaces
– Hydroelectric power stations
– Photovoltaic power plants
– Power distribution
– Energy storage
– Railway substation
– Lighting equipment
– Pump stations.

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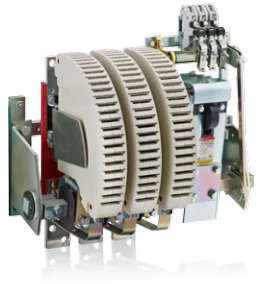
R contactors
Get the right product

Conventional applications

AC circuit switching

Up to 500 V AC
IOR contactors

From 500 up to 1000 V AC
IOR..MT contactors



AC-1 Rated operational current up to 5000 A
AC-3 Rated power up to 1500 kW (1520 A - 440 V)

DC circuit switching

Up to 1500 V DC with poles in series
IOR..CC contactors

DC-1 Rated operational current up to 5000 A
DC-3 / DC-5 operational current up to 2000 A

Advanced applications

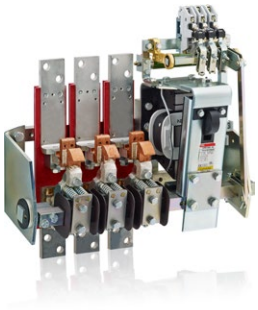
N.O./N.C. main poles combination

AC circuit switching
NOR..MT contactors

DC circuit switching
NOR..CC contactors

Power circuit coupling

Up to 1000 V AC / 1500 V DC
LOR couplers

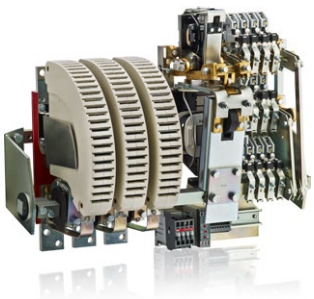


Slip-ring motor control

Uer up to 5000 V AC
FOR contactors

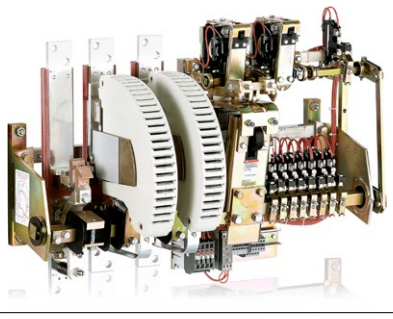
Energy saving and safety requirements

Equipped with latching
..AMA, ..AME contactor types



Alternator field discharge

Umax 2250 V DC
AM-CC-JORE contactors



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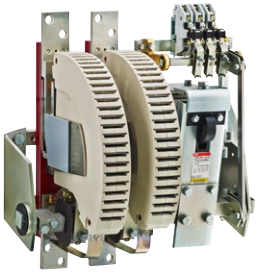
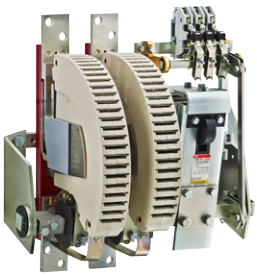
R contactors for AC circuit switching

Rated operational voltage
Ue from 500 up to **1000 V AC**

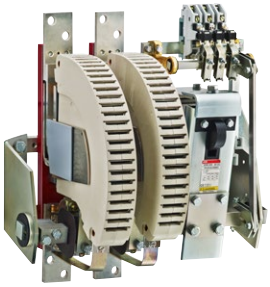


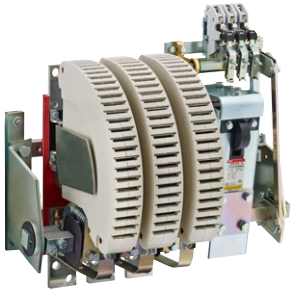
Contactor type	AC control circuit	~	IORR63..MT	IORR125..MT	IORR200..MT	IORR400..MT	IORR500..MT	IORR800..MT
	DC control circuit	⎓	IORE63..MT	IORE125..MT	IORE200..MT	IORE400..MT	IORE500..MT	IORE800..MT
Categories		**Ue**						
AC-1	at 40 °C		**Ie**	85 A	170 A	260 A	400 A	550 A	800 A
AC-3		690 V AC	**Ie**	85 A	160 A	260 A	400 A	550 A	800 A
		1000 V AC max.	**Ie**	56 A	105 A	180 A	280 A	380 A	580 A
AC-3		690 V AC	**Power**	**80 kW**	**150 kW**	**240 kW**	**400 kW**	**540 kW**	**780 kW**

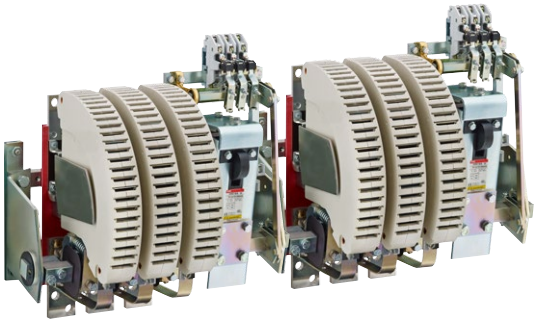
Rated operational voltage
Ue up to **500 V AC**



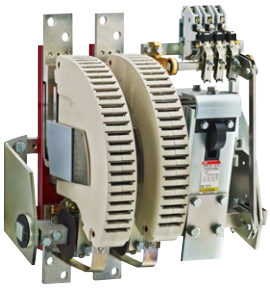
Contactor type	AC control circuit	~	–	IORR800
	DC control circuit	⎓	–	IORE800
Categories		**Ue**		
AC-1	at 40 °C		**Ie**	From 85 A to 550 A, select above IOR..-MT	900 A
AC-3		380-415-440 V AC	**Ie**	–	800 A
		500 V AC max.	**Ie**	–	800 A
AC-3		400 V AC	**Power**	–	**450 kW**

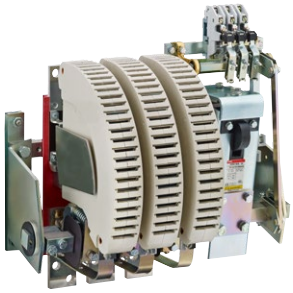


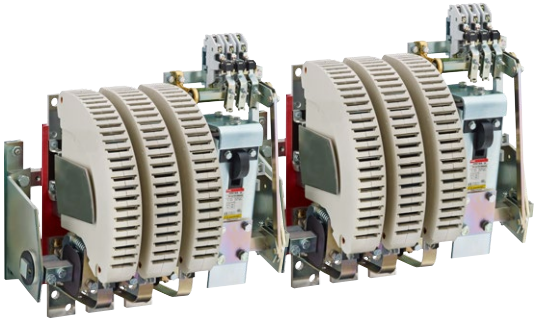




IORR1400..MT	IORR1700..MT	IORR2100..MT	IORR2500..MT	IORR3200..MT	IORR3800..MT	IORR4500..MT	IORR5100..MT
IORE1400..MT	IORE1700..MT	IORE2100..MT	IORE2500..MT	IORE3200..MT	IORE3800..MT	IORE4500..MT	IORE5100..MT
1250 A	1650 A	1850 A	2200 A	3000 A	3500 A	4000 A	4500 A
970 A	1170 A	1270 A	–	–	–	–	–
610 A	680 A	810 A	–	–	–	–	–
1000 kW	**1200 kW**	**1300 kW**	–	–	–	–	–







IORR1000	IORR1400	IORR1700	IORR2100	IORR2500	IORR3200	IORR3800	IORR4500	IORR5100
IORE1000	IORE1400	IORE1700	IORE2100	IORE2500	IORE3200	IORE3800	IORE4500	IORE5100
1000 A	1350 A	1650 A	2000 A	2400 A	3200 A	3800 A	4500 A	5000 A
800 A	1080 A	1260 A	1520 A	–	–	–	–	–
800 A	1080 A	1220 A	1340 A	–	–	–	–	–
450 kW	**630 kW**	**750 kW**	**900 kW**	–	–	–	–	–

1SBC104002S0201 - Rev. A

R contactors for DC circuit switching

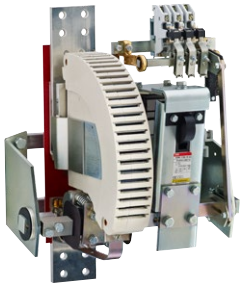
Rated operational voltage
Ue up to **1500 V DC**

Contactor type	AC control circuit	~	IORR63..CC	IORR125..CC	IORR200..CC	IORR400..CC	IORR500..CC
	DC control circuit	⎓	IORE63..CC	IORE125..CC	IORE200..CC	IORE400..CC	IORE500..CC
Number of poles in series	**Categories**	**Ue max.**					
1 pole	**DC-1**	500 V DC	**Ie**	85 A	170 A	275 A	400 A	550 A
	DC-3 / DC-5	500 V DC	**Ie**	68 A	125 A	205 A	350 A	500 A
2 poles	**DC-1**	1000 V DC	**Ie**	85 A	170 A	275 A	400 A*	550 A*
	DC-3 / DC-5	1000 V DC	**Ie**	68 A	125 A	205 A	350 A	500 A
3 poles	**DC-1**	1500 V DC	**Ie**	85 A*	170 A*	275 A*	400 A*	550 A*
	DC-3 / DC-5	1500 V DC	**Ie**	68 A*	125 A*	205 A*	350 A*	500 A*

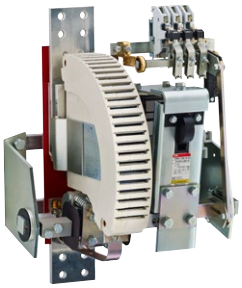
* Ue max. = 1500 V DC, version with increased insulation for 1000 V DC < Ue ≤ 1500 V DC, please consult us.

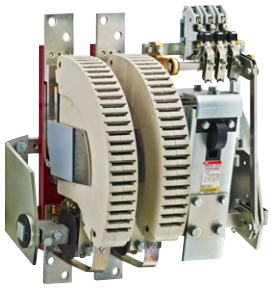
Contactors
UL / CSA approved

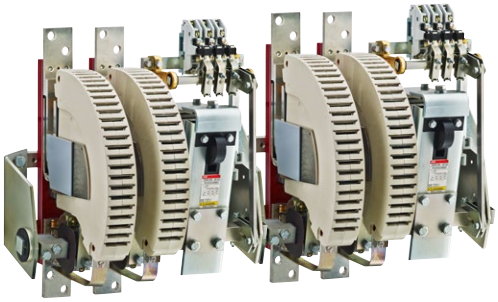
Rated operational voltage
Ue up to **600 V DC**



Contactor type	AC control circuit	~	IORR800-10-CC	IORR1000-10-CC	IORR1400-10-CC	IORR1700-10-CC	IORR2100-10-CC
	DC control circuit	⎓	IORE800-10-CC	IORE1000-10-CC	IORE1400-10-CC	IORE1700-10-CC	IORE2100-10-CC
		U max.					
1 pole	**General use**	600 V DC	**Ie**	800 A	1000 A	1300 A	1700 A	2000 A

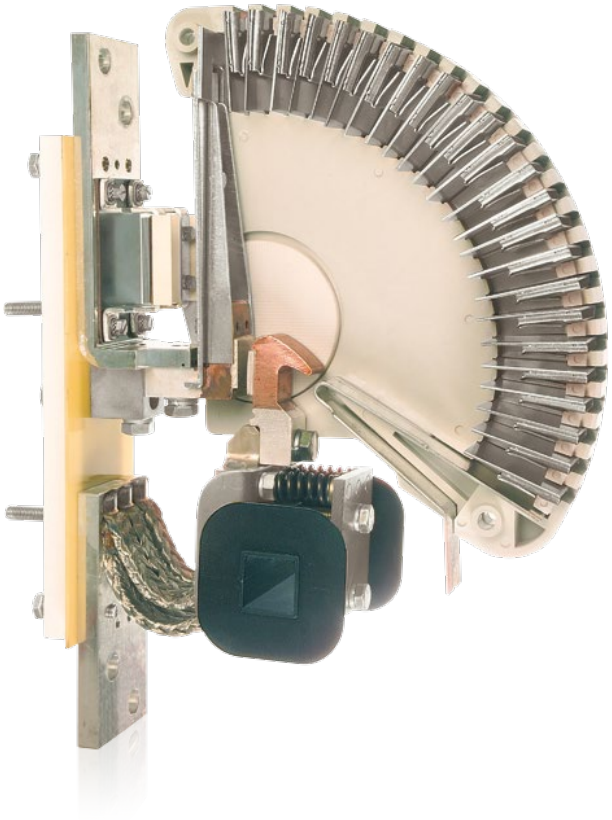






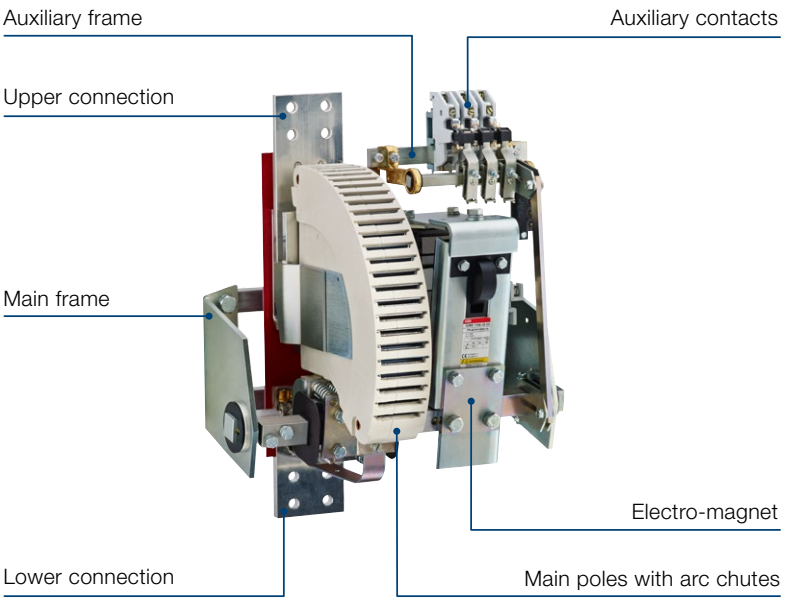
	IORR800..CC	IORR1000..CC	IORR1400..CC	IORR1700..CC	IORR2100..CC	IORR2500..CC	IORR3200..CC	IORR3800..CC	IORR4500..CC	IORR5100..CC
	IORE800..CC	IORE1000..CC	IORE1400..CC	IORE1700..CC	IORE2100..CC	IORE2500..CC	IORE3200..CC	IORE3800..CC	IORE4500..CC	IORE5100..CC
Ue max.										
750 V DC	800 A	1000 A	1250 A	1600 A	2000 A	2300 A	3200 A	3800 A	4500 A	5000 A
600 V DC	720 A	1000 A	1250 A	1600 A	2000 A	On request	On request	On request	On request	On request
1500 V DC	800 A	1000 A	1250 A	1600 A	2000 A	2300 A	3200 A	3800 A	4500 A	5000 A
1000 V DC	720 A	1000 A	1250 A	1600 A	2000 A	On request	On request	On request	On request	On request
1500 V DC	800 A	1000 A	1250 A	1600 A	2000 A	2300 A	3200 A	3800 A	4500 A	5000 A
1500 V DC	720 A	1000 A	1250 A	1600 A	2000 A	On request	On request	On request	On request	On request

1SBC104001S0201 - Rev. A



Construction characteristics

Construction characteristics



This design offers a great flexibility with standard types as well as special variants

Flexible design

R contactors are built with a main frame supporting main poles, electro-magnet, auxiliary contacts and propose:

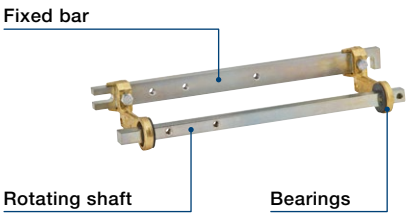
- Variable number of N.O. and N.C. poles, with or without blowout coils
- Large number of N.O. and N.C. auxiliary contacts
- Control circuit for standard and specific voltages
- Mechanical or magnetical latching available.

All parts are easily accessible and removable from the front.

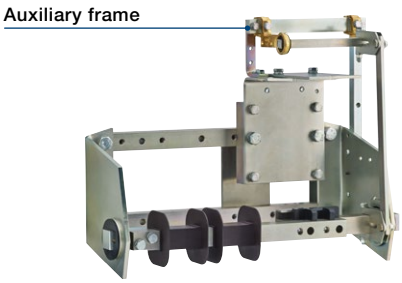
Main frame

The main frame is designed with a fixed bar and a rotating shaft linked by 2 bearings.
All parts (poles, electro-magnet, auxiliary contacts) are mounted on this frame.

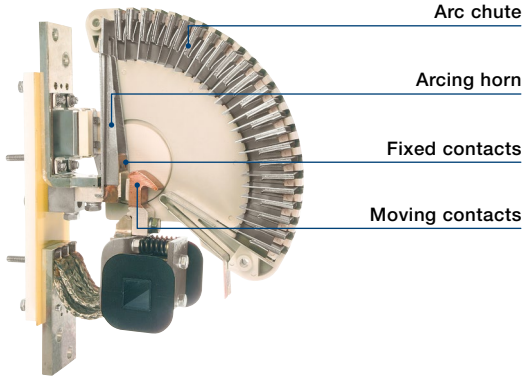
Small frame for R63 ... R500 contactors



Large frame for R800 ... R5100 contactors



Main poles



Each pole is designed with:

Fixed and moving contacts
The fixed contacts are mounted on an insulated support screwed onto the fixed bar.

The moving contacts are similarly mounted and move directly with the rotating shaft.

A blowout coil
The standard blowout coil is rated to carry the total current flowing through the poles.

Arc chutes
It ensures a rapid extinction of the arcs. Quick and easy removal of the arc chutes allows an easy inspection of the contacts and their replacement if necessary.

Arcing horn
It assists the elongation and breaking of the electric arc (not applicable to LOR couplers).

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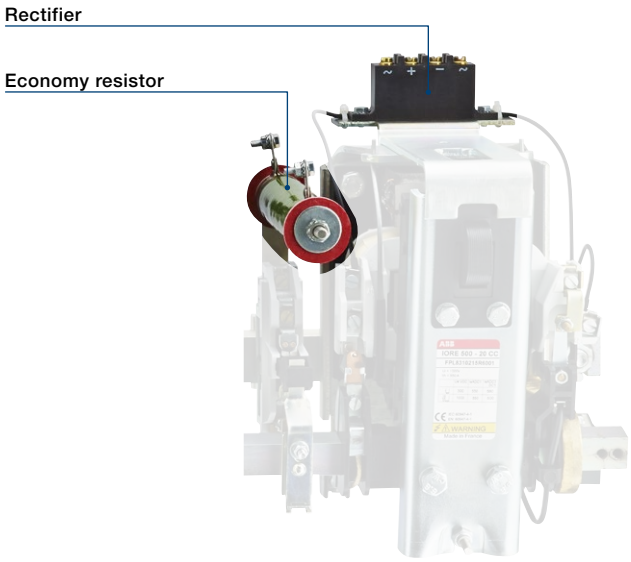
Construction characteristics

Low current breaking for DC circuits

R63 … R2100 contactors

If the breaking current is lower than 50 % of the contactor rating, permanent magnet must be added. Please consult us.
Refer to blowout code table in DC circuit switching

Control circuit



The electro-magnet is built with a magnetic circuit and a coil. It is mounted on the right side or on the frame center, in standard. It can be mounted on the left side on request.

AC control circuit supply:
RR electro-magnet

The coil is fed from an AC supply via a rectifier and an economy resistor.
The control supply frequency is 50/60 Hz in standard.
For others frequencies, please consult us.

DC control circuit supply:
RE electro-magnet

The coil is fed from a DC supply via an economy resistor.

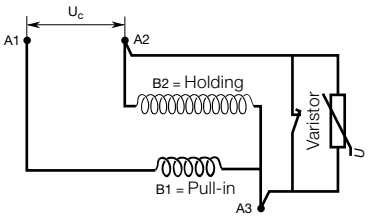
Latching version
(see following pages)

Magnetical latching for R63 … R200
Mechanical latching for R500 … R5100

Low consumption coil for R63 … R500 contactors (on request)

- Up to 6 times less in control power consumption at holding
- Reduced width up to 15 % compared to standard R contactors
- Control voltage available:
  - 24…440 V 50 / 60 Hz
  - 24…250 V DC
- Example of type: IORE63..-LC.

Principle



A varistor and a lagging contact for holding winding insertion are factory mounted.

Only a part of the winding (B1) is energized at closing. After opening the NC contact, the complete coil (B1 + B2) is used for contactor holding.

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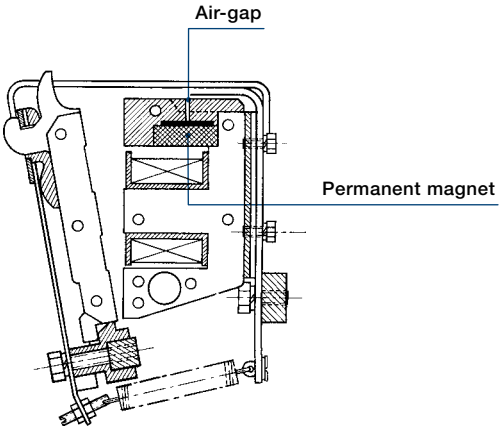
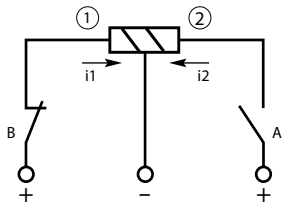
Contactors with magnetical latching ..AMA type



Electro-magnet of contactors ..AMA



Block diagram

For R63 ... R200 contactors

Description

Contactors with magnetical latching are very similar to standard contactor in construction and dimensions. Only the electro-magnet and the coil have a specific design.

AC operated: ..RR..AMA
DC operated: ..R..AMA

A permanent magnet is mounted in the upper part of the fixed laminated circuit.
The double-winding coil is always fed from d.c. supply (from rectifier for IORR..AMA type) and has:
– 1 terminal for "De-latching" + marked "A1" (red)
– 1 terminal for "Latching" + marked "A2" (red)
– 1 common terminal (blue).
Coil windings are only energized at the point of opening and closing of the contactor.
1 N.O. auxiliary contact is fitted as standard. For additional auxiliary contact, refer to "Auxiliary contact fitting details".

Applications

– Contactors which remain permanently closed, that allows energy saving
– Installations where the control circuits are fed from batteries and where it's needed to reduce the power consumption
– In case of accidental supply failure, the user knows the state (ON or OFF) of the contactor when the failure occurred
– Contactors which must remain closed for safety reasons, even if the control circuit current decreases
– Contactors in distribution circuits. The contactor is used as an isolating switch
– Protection against accidental failure of the main supply.

Operation

Contactor closing (latching)
The electro-magnet being open, the coil winding (1) is fed via the contact B with a current i1. The strength and direction of the magnetic field produced in this winding is the same as that produced by the permanent magnet.

Contactor opening (de-latching)
The electro-magnet being closed, the coil winding (2) is fed via the contact A with a current i2. The direction of the field produced by current i2, open the contactor.

Contactor opening and closing
On opening and closing of the contactor, the coil is immediately de-energized by auxiliary contacts B and A mounted on the contactor.

Mechanical durability
0.2 millions of operating cycles.

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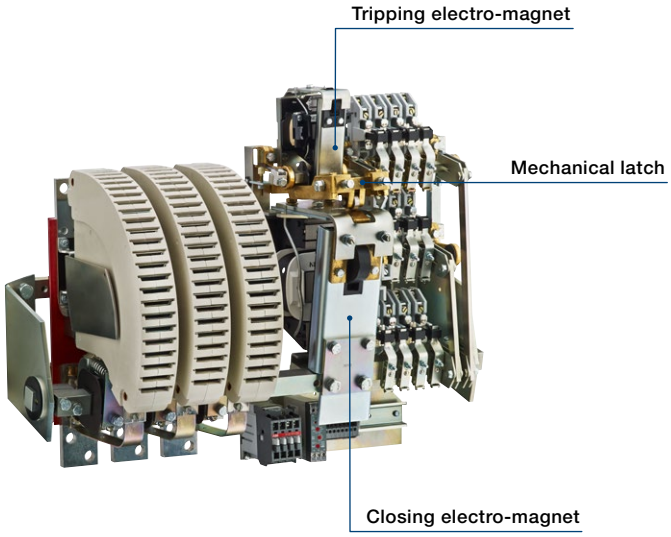
Contactors with mechanical latching ..AME type



For R500 ... R5100 contactors

Description

Contactors with mechanical latching differ from standard contactor by a double electro-magnet (with closing and tripping electro-magnet, electrically separated).
A mechanical latch is mounted above the closing electro-magnet. The tripping electro-magnet releases the mechanical latch.
No auxiliary contact are fitted as standard for ..AME types.
For additional auxiliary contacts, refer to "Auxiliary contact fitting details".

AC operated: ..RR..AME
DC operated: ..RE..AME

Applications

- Contactors which remain permanently closed, that allows energy saving
- Installations where the control circuits are fed from batteries and where it's needed to reduce the power consumption
- In case of accidental supply failure, the user knows the state (ON or OFF) of the contactor when the failure occurred
- Contactors which must remain closed for safety reasons, even if the control circuit current decreases
- Contactors in distribution circuits. The contactor is used as an isolating switch
- Protection against accidental failure of the main supply.

Operation

Contactor closing (latching)
Once the closing coil is energized, the contactor closes. It remains in this position by the mechanical latch action.
The closing coil is de-energized by an electrical interlocking contact.

Contactor opening (de-latching)
Once the tripping coil is energized, the mechanical latch is released and the contactor opens.
The tripping coil is de-energized by an electrical interlocking contact.

Mechanical durability
0.2 millions of operating cycles.

Variant
AMF types with 2 tripping coils are available on request.

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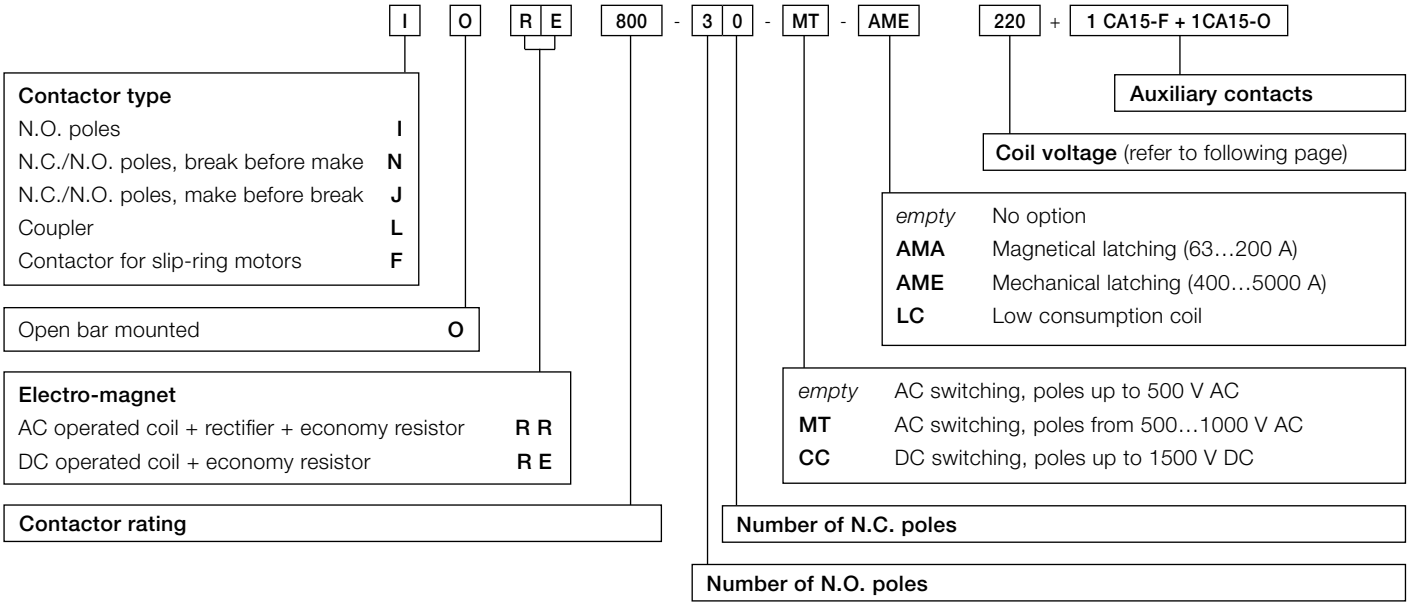
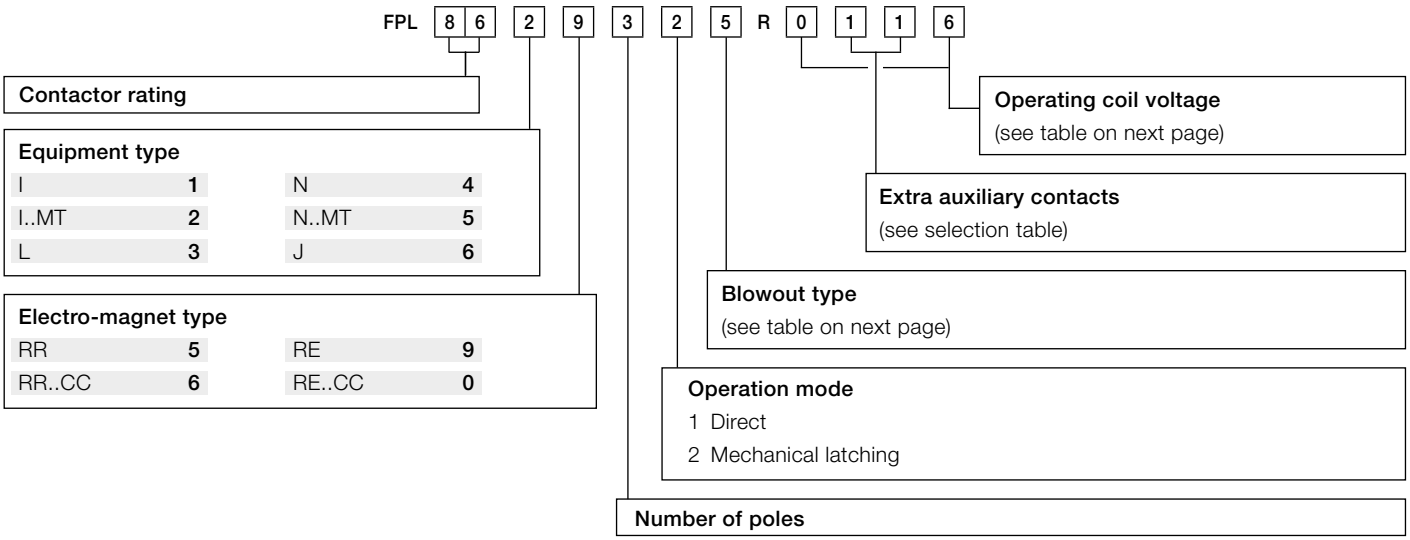
Type and order code for R contactors

Example:
IORE800-30-MT-AME, 220 V DC coil + 1 CA15-F + 1 CA15-O
R contactor with RE electro-magnet and circuit for DC operation via an economy resistor, 800 A rating, 3 N.O. main poles, 0 N.C. main pole, with mechanical latching, 220 V DC coil + 1 extra CA15-F (N.O.) auxiliary contact block + 1 extra CA15-O (N.C.) auxiliary contact (total auxiliary contacts: 1 N.O. + 1 N.C.)

Type



Order code



Notes:
– Additional auxiliary contacts can be ordered separately and mounted by the user if the fixed dimension F doesn't increase (see Auxiliary contact fitting details table).
– Order code or contactor rating must be specified when the CA15 auxiliary contact are ordered separately.

Coil voltage and blowout type
Selection table

Complete the boxes □ by the codes indicated in the tables.

Coil voltage code table

Type		Code
RR RR..AMA RR..AME	RE R..AMA RE..AME	
V 50-60 Hz	V DC	R□_ _□
24 (1)	24 (1)	R**0**_ _**1**
-	30 (1)	R**1**_ _**4**
32 (1)	-	R**1**_ _**5**
-	36 (1)	R**1**_ _**6**
42 (1)	42 (1)	R**0**_ _**2**
48	48	R**1**_ _**7**
-	60	R**0**_ _**3**
60	-	R**1**_ _**9**
-	75	R**2**_ _**0**
100	-	R**2**_ _**2**
110-115	110	R**0**_ _**4**
120	120	R**2**_ _**3**
-	125-130	R**0**_ _**5**
127	-	R**2**_ _**4**
-	185	R**2**_ _**7**
200	-	R**2**_ _**8**
210	-	R**4**_ _**5**
220-230	220	R**0**_ _**6**
-	230	R**4**_ _**6**
230-240	240	R**2**_ _**9**
250	250	R**4**_ _**0**
380-400	380	R**0**_ _**7**
400	400	R**3**_ _**9**
400-415	-	R**3**_ _**4**
440	440	R**3**_ _**5**
500 (2)	500 (2)	R**0**_ _**8**
550 (2)	550 (2)	R**3**_ _**6**
600 (2)(3)	600 (2)	R**3**_ _**7**

Note: In the cases below, select another coil according to the indicated values for Uc voltage.
(1) RR..AME and RE..AME: 48 V ≤ Uc ≤ 250 V 50/60 Hz or DC
RR2500 ... RR5100: 48 V min
RE2500 ... RE5100: 48 V min.
(2) RR..AMA and R..AMA: 440 V 50/60 Hz or DC, max.
(3) RR800 ... RR5100: 550 V 50/60 Hz, max.
RR63..MT ... RR5100..MT: 550 V 50/60 Hz, max.
RR63..CC ... RR5100..CC: 550 V 50/60 Hz, max.

Blowout code table in DC circuit switching

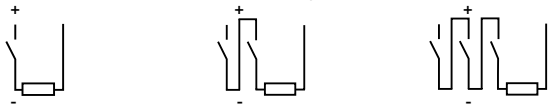
Standard electromagnetic blowout coil (bidirectional)
Used to stretch and break the electric arc from contacts gap to the arc chute.
Blowout coil rating according to the operational current.

Rating					Code
63 A	125 A	200 A	400 A	500 A	
A	A	A	A	A	□R
32	–	–	–	–	**4**R
40	170	260	400	550	**5**R
85	–	–	–	–	**6**R

Permanent magnets blowout (unidirectional)
If breaking current < 50% of contactor rating, the electromagnetic field remains too weak to blow the arc, therefore permanent magnets must be added.

Rating	Code
from 63 to 2100 A	
	□R
Permanent magnets blowout	**7**R

Pole polarization with permanent magnet



1-pole 2-pole 3-pole

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Auxiliary contacts
Main characteristics

For R63 ... R500 contactors

CARB, 1-pole auxiliary contact

- 1 N.O. auxiliary contact, generally used for "hold-in"
- Ith = 6 A
- Fitted on the left side.

CAOVE, 1-pole auxiliary contact

- 1 N.C. auxiliary contact, generally used for electrical interlocking (adjustable)
- Ith = 6 A
- Fitted on the right side.

CA12, 2-pole auxiliary contact blocks

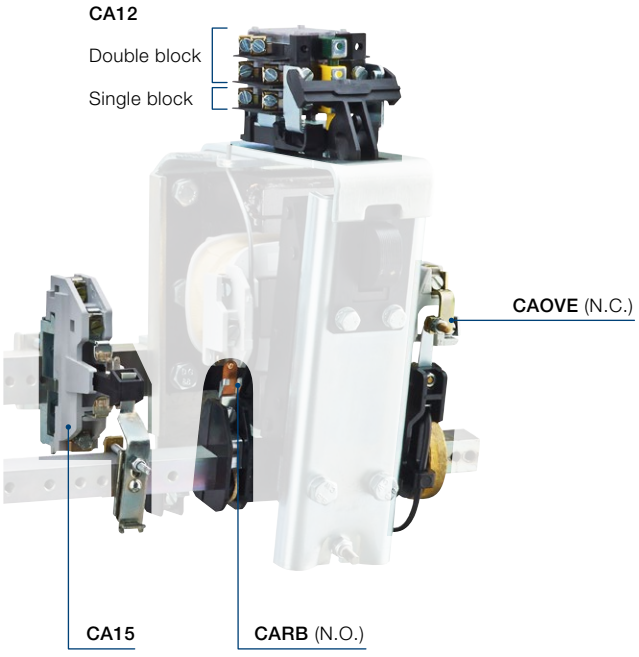
Single block			
CA12-1	1 N.O. + 1 N.C.		
CA12-2	2 N.O.		
Double block			
CA12-11	2x CA12-1	=	2x (1 N.O. + 1 N.C.)
CA12-12	1x CA12-1 + 1x CA12-2	=	(1 N.O + 1 N.C.) + 2 N.O.
CA12-22	2x CA12-2	=	2x 2 N.O.

- Ith = 12 A
- Fitted on the upper part of the electro-magnet.

For CA12 contact limitation, please refer to Auxiliary contact fitting details table.

For R63 ... R5100 contactors

Small frame for R63 ... R500 contactors

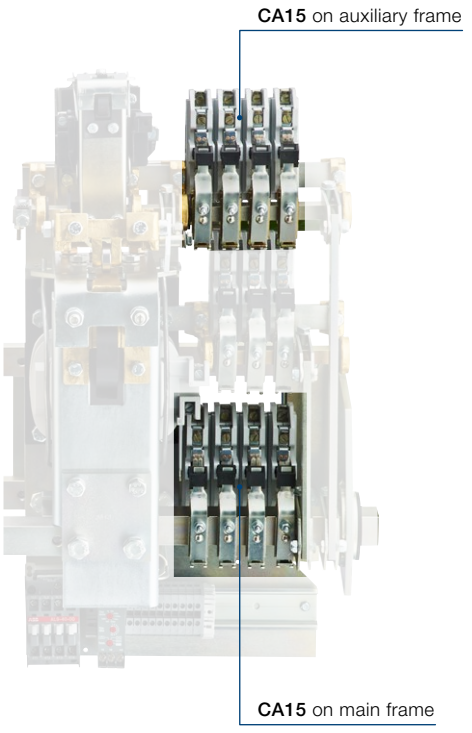


CA15, 1-pole adjustable auxiliary contacts

CA15-F	1 N.O.
CA15-O	1 N.C.

- For R63 ... R500 contactors: auxiliary contact are mounted between the main pole and the electro-magnet
- For R800 ... R5100 contactors: auxiliary contact are mounted on the auxiliary frame. If more CA15 are needed, they are mounted on the main frame
- Ith = 15 A.

Large frame for R800 ... R5100 contactors



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Auxiliary contacts
Selection tables

Extra auxiliary contact code tables

F fixing dimension can change according to the number of CA15 auxiliary contacts. Refer to table below and "Dimensions" section.

Type **RR, RE** (63...500 A) (1) **R..AMA** (63...200 A) (2) **CA12-1** N.O. + N.C.	**CA12-2** 2 x N.O.	**CA15F** N.O.	**CA15O** N.C.	Code **R_□□_**
–	–	–	–	R_**00**_
1	–	–	–	R_**11**_
1	–	–	1	R_**12**_
1	–	–	2	R_**13**_
–	1	–	–	R_**20**_
1	–	1	–	R_**21**_
2	–	–	–	R_**22**_
–	1	1	–	R_**30**_
1	1	–	–	R_**31**_
3	–	–	–	R_**33**_
–	2	–	–	R_**40**_
2	1	–	–	R_**42**_
1	2	–	–	R_**51**_
–	3	–	–	R_**60**_
1	–	1	1	R_**61**_
1	–	2	2	R_**62**_
–	1	1	1	R_**63**_
–	1	2	–	R_**64**_
–	1	2	2	R_**65**_
–	1	4	–	R_**66**_
–	1	3	1	R_**67**_

Type **RR, RE, RR..AME, RE..AME** (≥ 800 A) **RR..AMA** (63...200 A) **CA15F** N.O.	**CA15O** N.C.	Code **R_□□_**
–	–	R_**00**_
–	1	R_**01**_
–	2	R_**02**_
–	3	R_**03**_
–	4	R_**04**_
1	–	R_**10**_
1	1	R_**11**_
1	2	R_**12**_
2	–	R_**20**_
2	1	R_**21**_
2	2	R_**22**_
3	–	R_**30**_
3	1	R_**31**_
3	2	R_**32**_
3	3	R_**33**_
4	–	R_**40**_
4	1	R_**41**_
4	2	R_**42**_
4	3	R_**43**_
5	–	R_**50**_
5	1	R_**51**_
6	–	R_**60**_

(1) IORR63 ... IORR500 : code R_33_, R_42_, R_51_, R_60_ not allowed.
(2) IOR63..AMA ... IOR200..AMA : code R_22_, R_31_, R_33_, R_40_, R_42_, R_51_, R_60_ not allowed.

The above tables indicate the main auxiliary contact combinations. For other combinations, please consult us.

Auxiliary contact fitting details

Contactor types	Rating A	Auxiliary contacts fitted as standard				Additionnal auxiliary contacts without increasing dimension **F** (3) **CA15**		**CA12** **Single block** (incl. 2 contacts)		**CA12** **Double block** (incl. 4 contacts)
IORR IORE	800...5100	1 CA15-F	+	1 CA15-O	+	2 max.		-		-
IORR..MT	63...500	1 CARB	+	1 CAOVE		-		-	+	1 max.
IORR..CC	800...5100	1 CA15-F	+	1 CA15-O	+	2 max.		-		-
IORE..MT	63...500	1 CARB	+	1 CAOVE		-	+	1 max.	+	1 max.
	800...5100	1 CA15-F	+	1 CA15-O	+	2 max.		-		-
IORE..CC	63...500	1 CARB	+	1 CAOVE		-	+	1 max.	+	1 max.
	800...5100	1 CA15-F	+	1 CA15-O	+	2 max.		-		-
IOR..AMA	63...200	1 CARB		-		-	+	1 max.		-
IORR..AMA	63...200	1 CARB		-		-		-		-
IORR..AME	400...500	-		-		1 max.		-		-
IORE..AME	800...5100	-		-		5 max.		-		-
NORR..MT	63...200	1 CARB	+	1 CAOVE		-		-	+	1 max.
NORR..CC	800	1 CA15-F	+	1 CA15-O	+	2 max.		-		-
NORE..MT	63...200	1 CARB	+	1 CAOVE		-	+	1 max.	+	1 max.
NORE..CC	800	1 CA15-F	+	1 CA15-O	+	2 max.		-		-

(3) More CA15 auxiliary contacts can be fitted with increasing dimension F. See fixing dimension F in "Dimensions" section.

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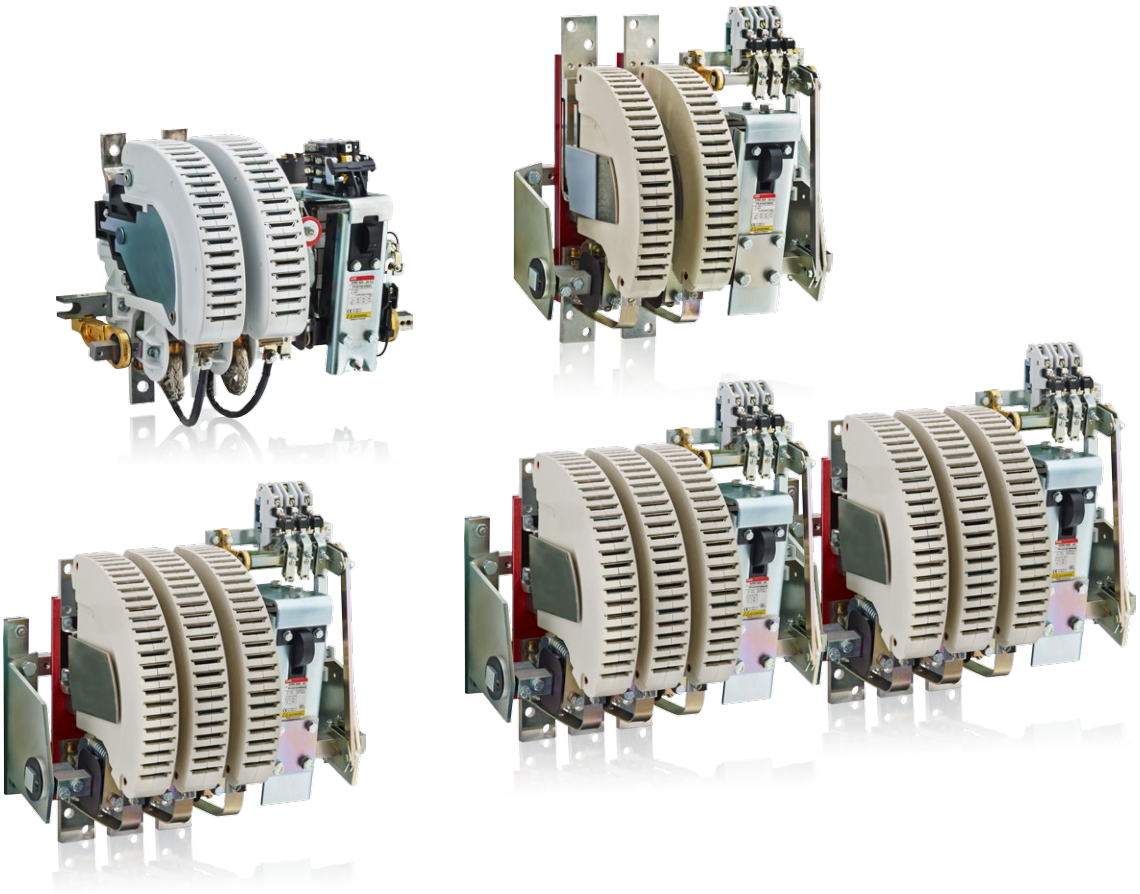
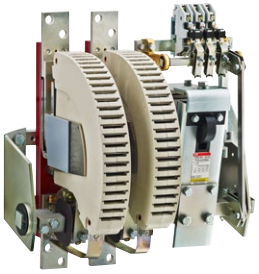


AC circuit switching

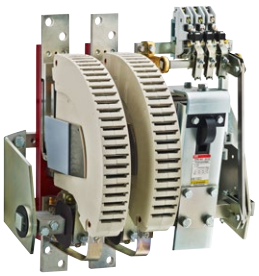
R contactors for AC circuit switching

Rated operational voltage
Ue from 500 up to **1000 V AC**

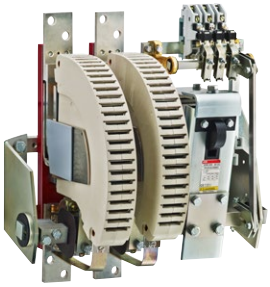


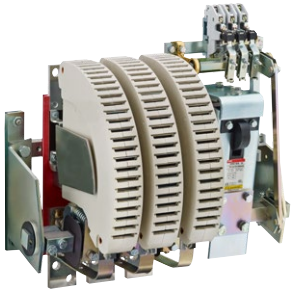
Contactor type	AC control circuit	~	IORR63..MT	IORR125..MT	IORR200..MT	IORR400..MT	IORR500..MT	IORR800..MT
	DC control circuit	⎓	IORE63..MT	IORE125..MT	IORE200..MT	IORE400..MT	IORE500..MT	IORE800..MT
Categories		**Ue**						
AC-1	at 40 °C		**Ie**	85 A	170 A	260 A	400 A	550 A	800 A
AC-3		690 V AC	**Ie**	85 A	160 A	260 A	400 A	550 A	800 A
		1000 V AC max.	**Ie**	56 A	105 A	180 A	280 A	380 A	580 A
AC-3		690 V AC	**Power**	**80 kW**	**150 kW**	**240 kW**	**400 kW**	**540 kW**	**780 kW**

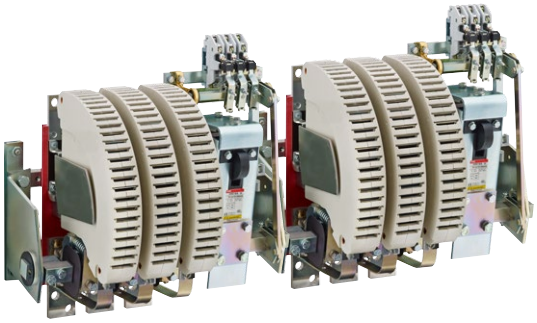
Rated operational voltage
Ue up to **500 V AC**



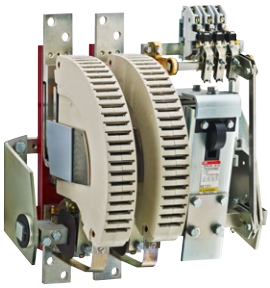
Contactor type	AC control circuit	~	–	IORR800
	DC control circuit	⎓	–	IORE800
Categories		**Ue**		
AC-1	at 40 °C		**Ie**	From 85 A to 550 A, select above IOR..-MT	900 A
AC-3		380-415-440 V AC	**Ie**	–	800 A
		500 V AC max.	**Ie**	–	800 A
AC-3		400 V AC	**Power**	–	**450 kW**

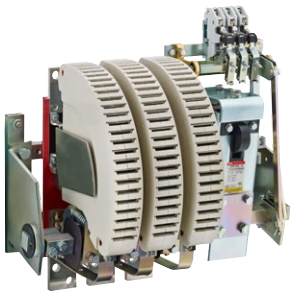


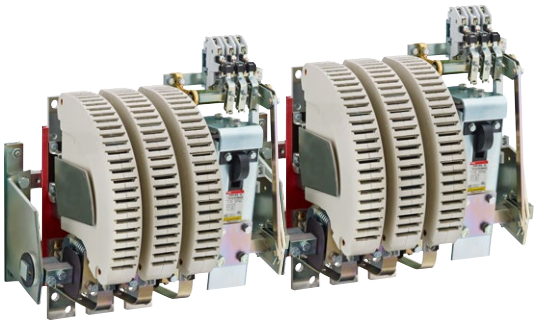




IORR1400..MT	IORR1700..MT	IORR2100..MT	IORR2500..MT	IORR3200..MT	IORR3800..MT	IORR4500..MT	IORR5100..MT
IORE1400..MT	IORE1700..MT	IORE2100..MT	IORE2500..MT	IORE3200..MT	IORE3800..MT	IORE4500..MT	IORE5100..MT
1250 A	1650 A	1850 A	2200 A	3000 A	3500 A	4000 A	4500 A
970 A	1170 A	1270 A	–	–	–	–	–
610 A	680 A	810 A	–	–	–	–	–
1000 kW	**1200 kW**	**1300 kW**	–	–	–	–	–







IORR1000	IORR1400	IORR1700	IORR2100	IORR2500	IORR3200	IORR3800	IORR4500	IORR5100
IORE1000	IORE1400	IORE1700	IORE2100	IORE2500	IORE3200	IORE3800	IORE4500	IORE5100
1000 A	1350 A	1650 A	2000 A	2400 A	3200 A	3800 A	4500 A	5000 A
800 A	1080 A	1260 A	1520 A	–	–	–	–	–
800 A	1080 A	1220 A	1340 A	–	–	–	–	–
450 kW	**630 kW**	**750 kW**	**900 kW**	–	–	–	–	–

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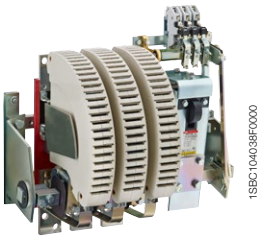
IORR contactors
Power circuit up to 500 V AC
AC operated



IORR800-30

3

Description

IORR contactors are used for controlling AC power circuits up to 500 V AC.

These contactors are designed with:

– variable number of poles according to the application
– control circuit: AC operated
– 1 N.O. and 1 N.C. auxiliary contacts available, as standard.

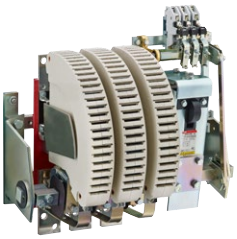
Ordering details

AC-3				AC-1	Number of poles	Rated control circuit voltage Uc (1)	Auxiliary contacts fitted (2)	Type	Order code		Weight
Rated operational power			current								Pkg (1 pce)
380 V 400 V 415 V	440 V	500 V	≤ 440 V	θ ≤ 40 °C							
kW	kW	kW	A	A		V 50/60 Hz					kg
450	500	560	800	900	2	220...230	1 1	IORR800-20	FPL8615215R0006		38
					3		1 1	IORR800-30	FPL8615315R0006		48
					4		1 1	IORR800-40	FPL8615415R0006		58
-	-	-	-	1000	2	220...230	1 1	IORR1000-20	FPL8715215R0006		38
					3		1 1	IORR1000-30	FPL8715315R0006		48
					4		1 1	IORR1000-40	FPL8715415R0006		58
630	710	800	1080	1350	2	220...230	1 1	IORR1400-20	FPL6115215R0006		40
					3		1 1	IORR1400-30	FPL6115315R0006		50
					4		1 1	IORR1400-40	FPL6115415R0006		63
750	800	900	1260	1650	2	220...230	1 1	IORR1700-20	FPL6215215R0006		44
					3		1 1	IORR1700-30	FPL6215315R0006		56
					4		1 1	IORR1700-40	FPL6215415R0006		72
900	1000	1000	1520	2000	2	220...230	1 1	IORR2100-20	FPL6315215R0006		48
					3		1 1	IORR2100-30	FPL6315315R0006		62
					4		1 1	IORR2100-40	FPL6315415R0006		78
-	-	-	-	2400	2	220...230	1 1	IORR2500-20	FPL6715215R0006		On
					3		1 1	IORR2500-30	FPL6715315R0006		request
-	-	-	-	3200	2	220...230	1 1	IORR3200-20	FPL6515215R0006		On
					3		1 1	IORR3200-30	FPL6515315R0006		request
-	-	-	-	3800	2	220...230	1 1	IORR3800-20	FPL6615215R0006		On
					3		1 1	IORR3800-30	FPL6615001R0006		request
-	-	-	-	4500	2	220...230	1 1	IORR4500-20	FPL6815215R0006		On
					3		1 1	IORR4500-30	FPL6815001R0006		request
-	-	-	-	5000	2	220...230	1 1	IORR5100-20	FPL6915001R0006		On
					3		1 1	IORR5100-30	FPL6915002R0006		request

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.

1SBC104061S0201 - Rev. A

IORE contactors
Power circuit up to 500 V AC
DC operated



IORE800-30

Description

IORE contactors are used for controlling AC power circuits up to 500 V AC.

These contactors are designed with:

– variable number of poles according to the application
– control circuit: DC operated
– 1 N.O. and 1 N.C. auxiliary contacts available, as standard.

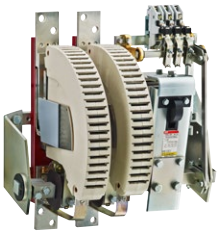
Ordering details

AC-3				AC-1	Number of poles	Rated control circuit voltage Uc (1)	Auxiliary contacts fitted (2)	Type	Order code		Weight
Rated operational power			current								
380 V 400 V 415 V	440 V	500 V	≤ 440 V	θ ≤ 40 °C							Pkg (1 pce)
kW	kW	kW	A	A		V DC					kg
450	500	560	800	900	2	220	1 1	IORE800-20	FPL8619215R0006		38
					3		1 1	IORE800-30	FPL8619315R0006		48
					4		1 1	IORE800-40	FPL8619415R0006		58
-	-	-	-	1000	2	220	1 1	IORE1000-20	FPL8719215R0006		38
					3		1 1	IORE1000-30	FPL8719315R0006		48
					4		1 1	IORE1000-40	FPL8719415R0006		58
630	710	800	1080	1350	2	220	1 1	IORE1400-20	FPL6119215R0006		40
					3		1 1	IORE1400-30	FPL6119315R0006		50
					4		1 1	IORE1400-40	FPL6119415R0006		63
750	800	900	1260	1650	2	220	1 1	IORE1700-20	FPL6219215R0006		44
					3		1 1	IORE1700-30	FPL6219315R0006		56
					4		1 1	IORE1700-40	FPL6219415R0006		72
900	1000	1000	1520	2000	2	220	1 1	IORE2100-20	FPL6319215R0006		48
					3		1 1	IORE2100-30	FPL6319315R0006		62
					4		1 1	IORE2100-40	FPL6319415R0006		78
-	-	-	-	2400	2	220	1 1	IORE2500-20	FPL6719215R0006		On request
					3		1 1	IORE2500-30	FPL6719315R0006		
-	-	-	-	3200	2	220	1 1	IORE3200-20	FPL6519215R0006		On request
					3		1 1	IORE3200-30	FPL6519315R0006		
-	-	-	-	3800	2	220	1 1	IORE3800-20	FPL6619215R0006		On request
					3		1 1	IORE3800-30	FPL6619001R0006		
-	-	-	-	4500	2	220	1 1	IORE4500-20	FPL6819215R0006		On request
					3		1 1	IORE4500-30	FPL6819001R0006		
-	-	-	-	5000	2	220	1 1	IORE5100-20	FPL6919001R0006		On request
					3		1 1	IORE5100-30	FPL6919002R0006		

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.

1SBC104062S0201 - Rev. A

IORR..MT contactors
Power circuit up to 1000 V AC
AC operated



IORR1400-20-MT

3

Description

IORR..MT contactors are used for controlling AC power circuits from 500 up to 1000 V AC.

These contactors are designed with:

– variable number of poles according to the application
– control circuit: AC operated
– 1 N.O. and 1 N.C. auxiliary contacts available, as standard.

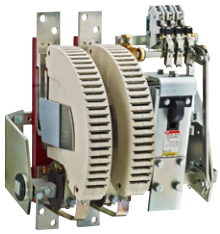
Ordering details

AC-3			AC-1	Number of poles	Rated control circuit voltage Uc (1)	Auxiliary contacts fitted (2)	Type	Order code		Weight
Rated operational power (3)		current								Pkg (1 pce)
690 V	1000 V	≤ 690 V	θ ≤ 40 °C							
kW	kW	A	A		V 50/60 Hz					kg
80	80	85	85	2	220...230	1 1	IORR63-20-MT	FPL7125216R0006		4.2
				3		1 1	IORR63-30-MT	FPL7125386R0006		5.2
				4		1 1	IORR63-40-MT	FPL7125416R0006		6.2
150	150	160	170	2	220...230	1 1	IORR125-20-MT	FPL7425215R0006		6.2
				3		1 1	IORR125-30-MT	FPL7425315R0006		8.2
				4		1 1	IORR125-40-MT	FPL7425415R0006		10.2
240	250	260	260	2	220...230	1 1	IORR200-20-MT	FPL7625215R0006		9.6
				3		1 1	IORR200-30-MT	FPL7625315R0006		12.6
				4		1 1	IORR200-40-MT	FPL7625415R0006		15.6
400	400	400	400	2	220...230	1 1	IORR400-20-MT	FPL9425215R0006		19.2
				3		1 1	IORR400-30-MT	FPL9425315R0006		25
				4		1 1	IORR400-40-MT	FPL9425415R0006		30.8
540	550	550	550	2	220...230	1 1	IORR500-20-MT	FPL8325215R0006		19.7
				3		1 1	IORR500-30-MT	FPL8325315R0006		25.5
				4		1 1	IORR500-40-MT	FPL8325415R0006		31.3
780	850	800	800	2	220...230	1 1	IORR800-20-MT	FPL8625215R0006		40
				3		1 1	IORR800-30-MT	FPL8625315R0006		51
				4		1 1	IORR800-40-MT	FPL8625415R0006		62
1000	900	970	1250	2	220...230	1 1	IORR1400-20-MT	FPL6125215R0006		42
				3		1 1	IORR1400-30-MT	FPL6125315R0006		52
				4		1 1	IORR1400-40-MT	FPL6125415R0006		65
1200	1000	1170	1650	2	220...230	1 1	IORR1700-20-MT	FPL6225215R0006		47
				3		1 1	IORR1700-30-MT	FPL6225315R0006		61
				4		1 1	IORR1700-40-MT	FPL6225415R0006		74
1300	1200	1270	1850	2	220...230	1 1	IORR2100-20-MT	FPL6325215R0006		52
				3		1 1	IORR2100-30-MT	FPL6325315R0006		68
				4		1 1	IORR2100-40-MT	FPL6325415R0006		82
-	-	-	2200	2	220...230	1 1	IORR2500-20-MT	FPL6725215R0006		71
				3		1 1	IORR2500-30-MT	FPL6725315R0006		On request
				4		1 1	IORR2500-40-MT	FPL6725415R0006		
-	-	-	3000	2	220...230	1 1	IORR3200-20-MT	FPL6525215R0006		83
				3		1 1	IORR3200-30-MT	FPL6525315R0006		On request
-	-	-	3500	2	220...230	1 1	IORR3800-20-MT	FPL6625215R0006		95
				3		1 1	IORR3800-30-MT	FPL6625001R0006		On request
-	-	-	4000	2	220...230	1 1	IORR4500-20-MT	FPL6825215R0006		On request
				3		1 1	IORR4500-30-MT	FPL6825002R0006		
-	-	-	4500	2	220...230	1 1	IORR5100-20-MT	FPL6925001R0006		On request
				3		1 1	IORR5100-30-MT	FPL6925002R0006		

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.
(3) Power circuit above 1000 V AC, please consult us.

1SBC104063S0201 - Rev. A

IORE..MT contactors
Power circuit up to 1000 V AC
DC operated



IORE1400-20-MT

Description

IORE..MT contactors are used for controlling AC power circuits from 500 up to 1000 V AC.

These contactors are designed with:

– variable number of poles according to the application
– control circuit: DC operated
– 1 N.O. and 1 N.C. auxiliary contacts available, as standard.

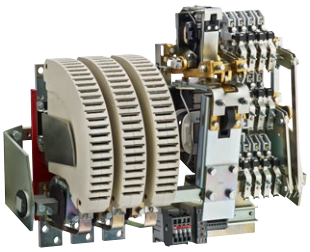
Ordering details

AC-3 Rated operational power (3) 690 V	AC-3 Rated operational power (3) 1000 V	AC-1 Rated operational current ≤ 690 V	AC-1 Rated operational current θ ≤ 40 °C	Number of poles	Rated control circuit voltage Uc (1)	Auxiliary contacts fitted (2)	Type	Order code	Weight Pkg (1 pce)
kW	kW	A	A		V DC				kg
80	80	85	85	2	220	1 1	IORE63-20-MT	FPL7129216R0006	4.2
				3		1 1	IORE63-30-MT	FPL7129386R0006	5.2
				4		1 1	IORE63-40-MT	FPL7129416R0006	6.2
150	150	160	170	2	220	1 1	IORE125-20-MT	FPL7429215R0006	6.2
				3		1 1	IORE125-30-MT	FPL7429315R0006	8.2
				4		1 1	IORE125-40-MT	FPL7429415R0006	10.2
240	250	260	260	2	220	1 1	IORE200-20-MT	FPL7629215R0006	9.6
				3		1 1	IORE200-30-MT	FPL7629315R0006	12.6
				4		1 1	IORE200-40-MT	FPL7629415R0006	15.6
400	400	400	400	2	220	1 1	IORE400-20-MT	FPL9429215R0006	19.2
				3		1 1	IORE400-30-MT	FPL9429315R0006	25
				4		1 1	IORE400-40-MT	FPL9429415R0006	30.8
540	550	550	550	2	220	1 1	IORE500-20-MT	FPL8329215R0006	19.7
				3		1 1	IORE500-30-MT	FPL8329315R0006	25.5
				4		1 1	IORE500-40-MT	FPL8329415R0006	31.3
780	850	800	800	2	220	1 1	IORE800-20-MT	FPL8629215R0006	40
				3		1 1	IORE800-30-MT	FPL8629315R0006	51
				4		1 1	IORE800-40-MT	FPL8629415R0006	62
1000	900	970	1250	2	220	1 1	IORE1400-20-MT	FPL6129215R0006	42
				3		1 1	IORE1400-30-MT	FPL6129315R0006	52
				4		1 1	IORE1400-40-MT	FPL6129415R0006	65
1200	1000	1170	1650	2	220	1 1	IORE1700-20-MT	FPL6229215R0006	47
				3		1 1	IORE1700-30-MT	FPL6229315R0006	61
				4		1 1	IORE1700-40-MT	FPL6229415R0006	74
1300	1200	1270	1850	2	220	1 1	IORE2100-20-MT	FPL6329215R0006	52
				3		1 1	IORE2100-30-MT	FPL6329315R0006	68
				4		1 1	IORE2100-40-MT	FPL6329415R0006	82
-	-	-	2200	2	220	1 1	IORE2500-20-MT	FPL6729215R0006	71
				3		1 1	IORE2500-30-MT	FPL6729315R0006	On request
				4		1 1	IORE2500-40-MT	FPL6729415R0006	
-	-	-	3000	2	220	1 1	IORE3200-20-MT	FPL6529215R0006	83
				3		1 1	IORE3200-30-MT	FPL6529315R0006	On request
-	-	-	3500	2	220	1 1	IORE3800-20-MT	FPL6629215R0006	95
				3		1 1	IORE3800-30-MT	FPL6629001R0006	On request
-	-	-	4000	2	220	1 1	IORE4500-20-MT	FPL6829215R0006	On request
				3		1 1	IORE4500-30-MT	FPL6829001R0006	
-	-	-	4500	2	220	1 1	IORE5100-20-MT	FPL6929001R0006	On request
				3		1 1	IORE5100-30-MT	FPL6929002R0006	

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.
(3) Power circuit above 1000 V AC, please consult us.

1SBC104064S0201 - Rev. A

IORR..AME contactors
Power circuit up to 500 V AC, with mechanical latching AC operated



IORR800-30-AME

3

Description

IORR..AME contactors are used for controlling AC power circuits up to 500 V AC.

These contactors are designed with:

– mechanical latching
– variable number of poles according to the application
– control circuit: AC operated
– 1 N.O. and 1 N.C. auxiliary contacts available.

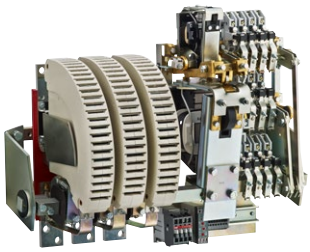
Ordering details

AC-3				AC-1	Nb of poles	Rated control circuit voltage Uc (1)	Auxiliary contacts fitted (2)	Type	Order code		Weight
Rated operational power			current								Pkg (1 pce)
380 V 400 V 415 V	440 V	500 V	≤ 440 V	θ ≤ 40 °C							
kW	kW	kW	A	A		V 50/60 Hz					kg
450	500	560	800	900	2	220...230	1 1	IORR800-20-AME	FPL8615225R0116		48
					3		1 1	IORR800-30-AME	FPL8615325R0116		58
					4		1 1	IORR800-40-AME	FPL8615425R0116		68
-	-	-	-	1000	2	220...230	1 1	IORR1000-20-AME	FPL8715225R0116		48
					3		1 1	IORR1000-30-AME	FPL8715325R0116		58
					4		1 1	IORR1000-40-AME	FPL8715425R0116		68
630	710	800	1080	1350	2	220...230	1 1	IORR1400-20-AME	FPL6115225R0116		50
					3		1 1	IORR1400-30-AME	FPL6115325R0116		60
					4		1 1	IORR1400-40-AME	FPL6115425R0116		73
750	800	900	1260	1650	2	220...230	1 1	IORR1700-20-AME	FPL6215225R0116		54
					3		1 1	IORR1700-30-AME	FPL6215325R0116		66
					4		1 1	IORR1700-40-AME	FPL6215425R0116		82
900	1000	1000	1520	2000	2	220...230	1 1	IORR2100-20-AME	FPL6315225R0116		58
					3		1 1	IORR2100-30-AME	FPL6315325R0116		72
					4		1 1	IORR2100-40-AME	FPL6315425R0116		88
-	-	-	-	2400	2	220...230	1 1	IORR2500-20-AME	FPL6715225R0116		On request
					3		1 1	IORR2500-30-AME	FPL6715325R0116		
-	-	-	-	3200	2	220...230	1 1	IORR3200-20-AME	FPL6515225R0116		On request
					3		1 1	IORR3200-30-AME	FPL6515325R0116		
-	-	-	-	3800	2	220...230	1 1	IORR3800-20-AME	FPL6615225R0116		On request
-	-	-	-	4500	2	220...230	1 1	IORR4500-20-AME	FPL6815225R0116		On request

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.

1SBC104065S0201

IORE..AME contactors
Power circuit up to 500 V AC, with mechanical latching DC operated


1SBC104044R0000

IORE800-30-AME

Description

IORE..-AME contactors are used for controlling AC power circuits up to 500 V AC.

These contactors are designed with:

– mechanical latching
– variable number of poles according to the application
– control circuit: DC operated
– 1 N.O. and 1 N.C. auxiliary contacts available.

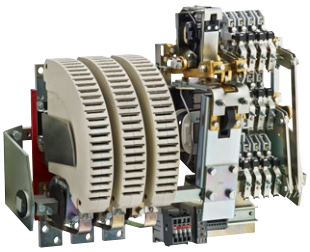
Ordering details

AC-3				AC-1	Nb of poles	Rated control circuit voltage Uc (1)	Auxiliary contacts fitted (2)		Type	Order code		Weight
Rated operational power			current									
380 V 400 V 415 V	440 V	500 V	≤ 440 V	θ ≤ 40 °C								Pkg (1 pce)
kW	kW	kW	A	A		V DC						kg
450	500	560	800	900	2	220	1	1	IORE800-20-AME	FPL8619225R0116		48
					3		1	1	IORE800-30-AME	FPL8619325R0116		58
					4		1	1	IORE800-40-AME	FPL8619425R0116		68
-	-	-	-	1000	2	220	1	1	IORE1000-20-AME	FPL8719225R0116		48
					3		1	1	IORE1000-30-AME	FPL8719325R0116		58
					4		1	1	IORE1000-40-AME	FPL8719425R0116		68
630	710	800	1080	1350	2	220	1	1	IORE1400-20-AME	FPL6119225R0116		50
					3		1	1	IORE1400-30-AME	FPL6119325R0116		60
					4		1	1	IORE1400-40-AME	FPL6119425R0116		73
750	800	900	1260	1650	2	220	1	1	IORE1700-20-AME	FPL6219225R0116		54
					3		1	1	IORE1700-30-AME	FPL6219325R0116		66
					4		1	1	IORE1700-40-AME	FPL6219425R0116		82
900	1000	1000	1520	2000	2	220	1	1	IORE2100-20-AME	FPL6319225R0116		58
					3		1	1	IORE2100-30-AME	FPL6319325R0116		72
					4		1	1	IORE2100-40-AME	FPL6319425R0116		88
-	-	-	-	2400	2	220	1	1	IORE2500-20-AME	FPL6719225R0116		On request
					3		1	1	IORE2500-30-AME	FPL6719325R0116		
-	-	-	-	3200	2	220	1	1	IORE3200-20-AME	FPL6519225R0116		On request
					3		1	1	IORE3200-30-AME	FPL6519325R0116		
-	-	-	-	3800	2	220	1	1	IORE3800-20-AME	FPL6619225R0116		On request
-	-	-	-	4500	2	220	1	1	IORE4500-20-AME	FPL6819225R0116		On request

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.

1SBC104066S0201

IORR..MT-AMA and IORR..MT-AME contactors
Power circuit up to 1000 V AC, with latching
AC operated



IORR800-30-MT-AME

3

Description

IORR..MT-AMA and IORR..MT-AME contactors are used for controlling AC power circuits from 500 up to 1000 V AC.

These contactors are designed with:
- magnetical latching, AMA types
- mechanical latching, AME types
- variable number of poles according to the application
- control circuit: AC operated
- 1 N.O. auxiliary contact available for AMA version, as standard.
- 1 N.O. and 1 N.C. auxiliary contacts available for AME version.

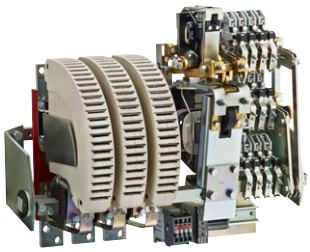
Ordering details

AC-3 Rated operational power (3) 690 V kW	AC-3 Rated operational power (3) 1000 V kW	AC-1 current ≤ 690 V A	AC-1 current θ ≤ 40 °C A	Number of poles	Rated control circuit voltage Uc (1) V 50/60 Hz	Auxiliary contacts fitted (2)	Type	Order code		Weight Pkg (1 pce) kg
Magnetical latching										
80	80	85	85	2	220...230	1 0	IORR63-20-MT-AMA	FPL7125236R0006		3.9
				3		1 0	IORR63-30-MT-AMA	FPL7125336R0006		4.9
				4		1 0	IORR63-40-MT-AMA	FPL7125436R0006		5.9
150	150	160	170	2	220...230	1 0	IORR125-20-MT-AMA	FPL7425235R0006		5.9
				3		1 0	IORR125-30-MT-AMA	FPL7425335R0006		7.9
				4		1 0	IORR125-40-MT-AMA	FPL7425435R0006		9.9
240	250	260	260	2	220...230	1 0	IORR200-20-MT-AMA	FPL7625235R0006		9.2
				3		1 0	IORR200-30-MT-AMA	FPL7625335R0006		12.2
				4		1 0	IORR200-40-MT-AMA	FPL7625435R0006		15.2
Mechanical latching										
400	400	400	400	2	220...230	1 1	IORR400-20-MT-AME	FPL9425225R0116		24.2
				3		1 1	IORR400-30-MT-AME	FPL9425325R0116		30
540	550	550	550	2	220...230	1 1	IORR500-20-MT-AME	FPL8325225R0116		24.2
				3		1 1	IORR500-30-MT-AME	FPL8325325R0116		30
780	850	800	800	2	220...230	1 1	IORR800-20-MT-AME	FPL8625225R0116		50
				3		1 1	IORR800-30-MT-AME	FPL8625325R0116		61
1000	900	970	1250	2	220...230	1 1	IORR1400-20-MT-AME	FPL6125225R0116		52
				3		1 1	IORR1400-30-MT-AME	FPL6125325R0116		62
1200	1000	1170	1650	2	220...230	1 1	IORR1700-20-MT-AME	FPL6225225R0116		57
				3		1 1	IORR1700-30-MT-AME	FPL6225325R0116		71
1300	1200	1270	1850	2	220...230	1 1	IORR2100-20-MT-AME	FPL6325225R0116		62
				3		1 1	IORR2100-30-MT-AME	FPL6325325R0116		78
-	-	-	2200	2	220...230	1 1	IORR2500-20-MT-AME	FPL6725225R0116		On request
				3		1 1	IORR2500-30-MT-AME	FPL6725325R0116		
-	-	-	3000	2	220...230	1 1	IORR3200-20-MT-AME	FPL6525225R0116		On request
				3		1 1	IORR3200-30-MT-AME	FPL6525325R0116		
-	-	-	3500	2	220...230	1 1	IORR3800-20-MT-AME	FPL6625225R0116		On request
				3		1 1	IORR3800-30-MT-AME	FPL6625325R0116		
-	-	-	4000	2	220...230	1 1	IORR4500-20-MT-AME	FPL6825225R0116		On request

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.
(3) Power circuit above 1000 V AC, please consult us.

1SBC104067S0201

IOR..MT-AMA and IORE..MT-AME contactors
Power circuit up to 1000 V AC, with latching
DC operated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IORE800-30-MT-AME

Description

IOR..MT-AMA and IORE..MT-AME contactors are used for controlling AC power circuits from 500 up to 1000 V AC.

These contactors are designed with:
- magnetical latching, AMA types
- mechanical latching, AME types
- variable number of poles according to the application
- control circuit: DC operated
- 1 N.O. auxiliary contact available for AMA version, as standard.
- 1 N.O. and 1 N.C. auxiliary contacts available for AME version.

Ordering details

AC-3			AC-1	Number of poles	Rated control circuit voltage Uc (1)	Auxiliary contacts fitted (2)	Type	Order code		Weight
Rated operational power (3)		current								Pkg (1 pce)
690 V	1000 V	≤ 690 V	θ ≤ 40 °C							
kW	kW	A	A		V DC					kg
Magnetical latching										
80	80	85	85	2	220	1 0	IOR63-20-MT-AMA	FPL7121236R0006		3.9
				3		1 0	IOR63-30-MT-AMA	FPL7121336R0006		4.9
				4		1 0	IOR63-40-MT-AMA	FPL7121436R0006		5.9
150	150	160	170	2	220	1 0	IOR125-20-MT-AMA	FPL7421235R0006		5.9
				3		1 0	IOR125-30-MT-AMA	FPL7421335R0006		7.9
				4		1 0	IOR125-40-MT-AMA	FPL7421435R0006		9.9
240	250	260	260	2	220	1 0	IOR200-20-MT-AMA	FPL7621235R0006		9.2
				3		1 0	IOR200-30-MT-AMA	FPL7621335R0006		12.2
				4		1 0	IOR200-40-MT-AMA	FPL7621435R0006		15.2
Mechanical latching										
400	400	400	400	2	220	1 1	IORE400-20-MT-AME	FPL9425925R0116		24.2
				3		1 1	IORE400-30-MT-AME	FPL9429325R0116		30
540	550	550	550	2	220	1 1	IORE500-20-MT-AME	FPL8329225R0116		24.2
				3		1 1	IORE500-30-MT-AME	FPL8329325R0116		30
780	850	800	800	2	220	1 1	IORE800-20-MT-AME	FPL8629225R0116		50
				3		1 1	IORE800-30-MT-AME	FPL8629325R0116		61
1000	900	970	1250	2	220	1 1	IORE1400-20-MT-AME	FPL6129225R0116		52
				3		1 1	IORE1400-30-MT-AME	FPL6129325R0116		62
1200	1000	1170	1650	2	220	1 1	IORE1700-20-MT-AME	FPL6229225R0116		57
				3		1 1	IORE1700-30-MT-AME	FPL6229325R0116		71
1300	1200	1270	1850	2	220	1 1	IORE2100-20-MT-AME	FPL6329225R0116		62
				3		1 1	IORE2100-30-MT-AME	FPL6329325R0116		78
-	-	-	2200	2	220	1 1	IORE2500-20-MT-AME	FPL6729225R0116		On request
				3		1 1	IORE2500-30-MT-AME	FPL6729325R0116		
-	-	-	3000	2	220	1 1	IORE3200-20-MT-AME	FPL6529225R0116		On request
				3		1 1	IORE3200-30-MT-AME	FPL6529325R0116		
-	-	-	3500	2	220	1 1	IORE3800-20-MT-AME	FPL6629225R0116		On request
				3		1 1	IORE3800-30-MT-AME	FPL6629325R0116		
-	-	-	4000	2	220	1 1	IORE4500-20-MT-AME	FPL6829225R0116		On request

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.
(3) Power circuit above 1000 V AC, please consult us.

1SBC104068S0201

IORR800 … IORR2100 and IORE800 … IORE2100 contactors
Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC operated	IORR800	IORR1000	IORR1400	IORR1700	IORR2100
	DC operated	IORE800	IORE1000	IORE1400	IORE1700	IORE2100
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1				
Rated operational voltage Ue max.		500 V				
Rated frequency (without derating)		25…60 Hz (for > 60...400 Hz please consult us)				
Number of poles		2...4				
Conventional free-air thermal current Ith						
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		1000 A	1100 A	1400 A	1700 A	2100 A
With conductor cross-sectional area		600 mm²	600 mm²	1000 mm²	1500 mm²	2000 mm²
AC-1 Utilization category						
For air temperature close to contactor						
Ie / Rated operational current AC-1	**θ ≤ 40 °C**	900 A	1000 A	1350 A	1650 A	2000 A
Ue max. ≤ 500 V, 50/60 Hz	**θ ≤ 55 °C**	840 A	930 A	1180 A	1450 A	1750 A
	θ ≤ 70 °C	720 A	800 A	1000 A	1250 A	1500 A
With conductor cross-sectional area		600 mm²	600 mm²	1000 mm²	1500 mm²	2000 mm²
AC-3 Utilization category						
For air temperature close to contactor θ ≤ 55 °C						
Ie / Max. rated operational current AC-3						
M 3~	**380-415-440 V**	800 A	-	1080 A	1260 A	1520 A
	500 V	800 A	-	1080 A	1220 A	1340 A
Rated operational power AC-3						
M 3~	**380-415 V**	450 kW	-	630 kW	750 kW	900 kW
	440 V	500 kW	-	710 kW	800 kW	1000 kW
	500 V	560 kW	-	800 kW	900 kW	1000 kW
Rated making capacity AC-3		10 x Ie AC-3 acc. to IEC 60947-4-1				
Rated breaking capacity AC-3		8 x Ie AC-3 acc. to IEC 60947-4-1				
Short-circuit protection device for contactors						
without thermal overload relay - Motor protection excluded						
Circuit breaker		1250 A	1250 A	1600 A	2000 A	2500 A
Rated short-time withstand current Icw	**1 s**	9000 A	9000 A	11000 A	13000 A	15000 A
at 40 °C ambient temperature,	**10 s**	8000 A	8000 A	9000 A	11000 A	12200 A
in free air from a cold state	**30 s**	4000 A	4000 A	5000 A	6000 A	7000 A
	1 min	3000 A	3000 A	3700 A	4400 A	5000 A
	15 min	1600 A	1600 A	2000 A	2400 A	2800 A
Maximum breaking capacity						
cos φ = 0.35	**at 500 V**	6400 A	6400 A	10000 A	13500 A	
Maximum making capacity		14000 A	14000 A	19000 A	21000 A	24000 A
Dynamical withstand of pole		14000 A	14000 A	19000 A	21000 A	24000 A
Impedance per pole		0.18 mΩ	0.18 mΩ	0.10 mΩ	0.09 mΩ	0.08 mΩ
Maximum electrical switching frequency	**AC-1**	300 cycles/h		150 cycles/h	120 cycles/h	
	AC-3	300 cycles/h	-	150 cycles/h	120 cycles/h	
	AC-4	150 cycles/h	-	-		
Mechanical durability						
Number of operating cycles		5 millions cycles		2 millions cycles		
Max. switching frequency		1200 cycles/h		600 cycles/h		

Note: These characteristics are suitable for IOR..AME contactor versions (except for mechanical durability = 0.2 millions of operating cycles).

1SBC104025S0201

IORR2500 … IORR5100 and IORE2500 … IORE5100 contactors
Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC operated	IORR2500	IORR3200	IORR3800	IORR4500	IORR5100
	DC operated	IORE2500	IORE3200	IORE3800	IORE4500	IORE5100
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1				
Rated operational voltage Ue max.		500 V				
Rated frequency (without derating)		25…60 Hz (for > 60…400 Hz please consult us)				
Number of poles		2…4				
Conventional free-air thermal current Ith						
acc. to IEC 60947-1, open contactors, θ ≤ 40 °C		2500 A	3200 A	3800 A	4500 A	5000 A
With conductor cross-sectional area		2000 mm²	3000 mm²	3000 mm²	4000 mm²	4000 mm²
AC-1 Utilization category						
For air temperature close to contactor						
Ie / Rated operational current AC-1	**θ ≤ 40 °C**	2400 A	3200 A	3800 A	4500 A	5000 A
Ue max. ≤ 500 V, 50/60 Hz	**θ ≤ 55 °C**	2100 A	2810 A	3330 A	3950 A	4390 A
	θ ≤ 70 °C	1760 A	2350 A	2790 A	3300 A	3670 A
With conductor cross-sectional area		2000 mm²	3000 mm²	3000 mm²	4000 mm²	4000 mm²
Rated making capacity AC-1		1.5 x Ie AC-1 acc. to IEC 60947-4-1				
Rated breaking capacity AC-1		1.5 x Ie AC-1 acc. to IEC 60947-4-1				
AC-3 Utilization category						
For air temperature close to contactor θ ≤ 55 °C						
Ie / Max. rated operational current AC-3						
M 3~	**380-415-440 V**	Please consult us				
	500 V	Please consult us				
Short-circuit protection device for contactors						
without thermal overload relay - Motor protection excluded						
Circuit breaker		-	-	-	-	-
Rated short-time withstand current Icw	**1 s**	20000 A	21000 A	24000 A	28000 A	30000 A
at 40 °C ambient temperature,	**10 s**	15000 A	18000 A	19000 A	21000 A	24000 A
in free air from a cold state	**30 s**	8000 A	10000 A	11000 A	12000 A	13000 A
	1 min	6000 A	7000 A	7500 A	8000 A	9000 A
	15 min	3000 A	4000 A	4500 A	5000 A	5500 A
Maximum making capacity		24000 A	26000 A	29000 A	32000 A	32000 A
Dynamical withstand of pole		24000 A	26000 A	29000 A	32000 A	32000 A
Impedance per pole		0.05 mΩ	0.045 mΩ	0.040 mΩ	0.030 mΩ	0.027 mΩ
Maximum electrical switching frequency	**AC-1**	60 cycles/h		40 cycles/h		
Mechanical durability						
Number of operating cycles		2 millions cycles		1 million cycles		
Max. switching frequency		600 cycles/h		300 cycles/h		

Note: These characteristics are suitable for IOR..AME contactor versions (except for mechanical durability = 0.2 millions of operating cycles).

1SBC104026S0201

IORR63..MT … IORR500..MT and IORE63..MT … IORE500..MT contactors
Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC operated	IORR63..MT	IORR125..MT	IORR200..MT	IORR400..MT	IORR500..MT
	DC operated	IORE63..MT	IORE125..MT	IORE200..MT	IORE400..MT	IORE500..MT
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1				
Rated operational voltage Ue max.		1000 V				
Rated frequency (without derating)		25…60 Hz (for > 60...400 Hz please consult us)				
Number of poles		2...4				
Conventional free-air thermal current Ith						
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		85 A	170 A	275 A	400 A	550 A
With conductor cross-sectional area		25 mm²	70 mm²	150 mm²	240 mm²	400 mm²
AC-1 Utilization category						
For air temperature close to contactor						
Ie / Rated operational current AC-1	**θ ≤ 40 °C**	85 A	170 A	260 A	400 A	550 A
Ue max. ≤ 1000 V, 50/60 Hz	**θ ≤ 55 °C**	76 A	150 A	230 A	350 A	490 A
	θ ≤ 70 °C	68 A	135 A	205 A	300 A	400 A
With conductor cross-sectional area		25 mm²	70 mm²	150 mm²	240 mm²	400 mm²
AC-3 Utilization category						
For air temperature close to contactor θ ≤ 55 °C						
Ie / Max. rated operational current AC-3						
M 3~	**690 V**	85 A	160 A	260 A	400 A	550 A
	1000 V	56 A	105 A	180 A	280 A	380 A
Rated operational power AC-3						
M 3~	**690 V**	80 kW	150 kW	240 kW	400 kW	540 kW
	1000 V	80 kW	150 kW	250 kW	400 kW	550 kW
Rated making capacity AC-3		10 x Ie AC-3 acc. to IEC 60947-4-1				
Rated breaking capacity AC-3		8 x Ie AC-3 acc. to IEC 60947-4-1				
Short-circuit protection device for contactors						
without thermal overload relay - Motor protection excluded						
Ue ≤ 1000 V AC - gG type fuse		100 A	200 A	315 A	500 A	630 A
Ue ≤ 1000 V AC - L type fuse		-	-	-	-	-
Rated short-time withstand current Icw	**1 s**	1150 A	2250 A	3800 A	6000 A	8400 A
at 40 °C ambient temperature,	**10 s**	680 A	1280 A	2080 A	3200 A	4400 A
in free air from a cold state	**30 s**	310 A	680 A	1040 A	1600 A	2200 A
	1 min	230 A	450 A	730 A	1200 A	1680 A
	15 min	120 A	250 A	390 A	600 A	840 A
Maximum breaking capacity						
cos φ = 0.45	**at 690 V**	680 A	1280 A	2100 A	4480 A	4480 A
(cos φ = 0.35 for Ie > 100 A)	**at 1000 V**	450 A	850 A	1450 A	3050 A	3050 A
Maximum making capacity		1300 A	2400 A	4000 A	7000 A	9000 A
Dynamical withstand of pole		1400 A	2500 A	4500 A	8000 A	10000 A
Impedance per pole		1.8 mΩ	1.20 mΩ	0.60 mΩ	0.40 mΩ	0.35 mΩ
Maximum electrical switching frequency	**AC-1**	300 cycles/h				
	AC-3	300 cycles/h				
	AC-4	150 cycles/h				
Mechanical durability						
Number of operating cycles		5 millions cycles				
Max. switching frequency		1200 cycles/h				

Note: These characteristics are suitable for IOR..MT-AMA and IOR..MT-AME contactors with latching versions (except for mechanical durability = 0.2 millions of operating cycles).

1SBC104027S0201

IORR800..MT … IORR2100..MT and IORE800..MT … IORE2100..MT contactors
Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC operated	IORR800..MT	IORR1400..MT	IORR1700..MT	IORR2100..MT
	DC operated	IORE800..MT	IORE1400..MT	IORE1700..MT	IORE2100..MT
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1			
Rated operational voltage Ue max.		1000 V			
Rated frequency (without derating)		25…60 Hz (for > 60…400 Hz please consult us)			
Number of poles		2…4			
Conventional free-air thermal current Ith					
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		800 A	1300 A	1700 A	1850 A
With conductor cross-sectional area		500 mm²	1000 mm²	1500 mm²	1500 mm²
AC-1 Utilization category					
For air temperature close to contactor					
Ie / Rated operational current AC-1	**θ ≤ 40 °C**	800 A	1250 A	1650 A	1850 A
Ue max. ≤ 690 V, 50/60 Hz	**θ ≤ 55 °C**	740 A	1100 A	1450 A	1620 A
	θ ≤ 70 °C	640 A	900 A	1250 A	1400 A
Ie / Rated operational current AC-1					
Ue max. ≤ 1000 V, 50/60 Hz	**θ ≤ 40 °C**	800 A	1220 A	1360 A	1620 A
With conductor cross-sectional area		500 mm²	1000 mm²	1500 mm²	1500 mm²
AC-3 Utilization category					
For air temperature close to contactor θ ≤ 55 °C					
Ie / Max. rated operational current AC-3					
M 3~	**690 V**	800 A	970 A	1170 A	1270 A
	1000 V	580 A	610 A	680 A	810 A
Rated operational power AC-3					
M 3~	**690 V**	780 kW	1000 KW	1200 kW	1300 kW
	1000 V	850 kW	900 kW	1000 kW	1200 kW
Rated making capacity AC-3		10 x Ie AC-3 acc. to IEC 60947-4-1			
Rated breaking capacity AC-3		8 x Ie AC-3 acc. to IEC 60947-4-1			
Short-circuit protection device for contactors					
without thermal overload relay - Motor protection excluded					
Circuit breaker		1250 A	1600 A	2000 A	2500 A
Rated short-time withstand current Icw	**1 s**	9000 A	11000 A	13000 A	15000 A
at 40 °C ambient temperature,	**10 s**	6400 A	9000 A	11000 A	12000 A
in free air from a cold state	**30 s**	3200 A	5000 A	6000 A	7000 A
	1 min	2100 A	3600 A	4200 A	4600 A
	15 min	1200 A	1900 A	2200 A	2600 A
Maximum breaking capacity					
cos φ = 0.45	**at 690 V**	6400 A	8500 A	11000 A	
(cos φ = 0.35 for Ie > 100 A)	**at 1000 V**	4650 A	5000 A	8500 A	
Maximum making capacity		14000 A	19000 A	21000 A	24000 A
Dynamical withstand of pole		14000 A	19000 A	21000 A	24000 A
Impedance per pole		0.28 mΩ	0.24 mΩ	0.18 mΩ	0.17 mΩ
Maximum electrical switching frequency	**AC-1**	300 cycles/h	150 cycles/h	120 cycles/h	
	AC-3	300 cycles/h	150 cycles/h	120 cycles/h	
Mechanical durability					
Number of operating cycles		5 millions cycles	2 millions cycles		
Max. switching frequency		1200 cycles/h	600 cycles/h		

Note: These characteristics are suitable for IOR..MT-AME contactor versions (except for mechanical durability = 0.2 millions of operating cycles).

1SBC104028S0201

IORR2500..MT … IORR5100..MT and IORE2500..MT … IORE5100..MT contactors
Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC operated	IORR2500..MT	IORR3200..MT	IORR3800..MT	IORR4500..MT	IORR5100..MT
	DC operated	IORE2500..MT	IORE3200..MT	IORE3800..MT	IORE4500..MT	IORE5100..MT
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1				
Rated operational voltage Ue max.		690 V				
Rated frequency (without derating)		25…60 Hz (for > 60...400 Hz please consult us)				
Number of poles		2...4				
Conventional free-air thermal current Ith						
acc. to IEC 60947-1, open contactors, θ ≤ 40 °C		2200 A	3000 A	3500 A	4000 A	4500 A
With conductor cross-sectional area		2000 mm²	3000 mm²	3000 mm²	4000 mm²	4000 mm²
AC-1 Utilization category						
For air temperature close to contactor						
Ie / Rated operational current AC-1	**θ ≤ 40 °C**	2200 A	3000 A	3500 A	4000 A	4500 A
Ue max. ≤ 690 V, 50/60 Hz	**θ ≤ 55 °C**	1930 A	2630 A	3070 A	3510 A	3950 A
	θ ≤ 70 °C	1620 A	2200 A	2570 A	2940 A	3300 A
With conductor cross-sectional area		2000 mm²	3000 mm²	3000 mm²	4000 mm²	4000 mm²
Rated making capacity AC-1		1.5 x Ie AC-1 acc. to IEC 60947-4-1				
Rated breaking capacity AC-1		1.5 x Ie AC-1 acc. to IEC 60947-4-1				
AC-3 Utilization category						
For air temperature close to contactor θ ≤ 55 °C						
Ie / Max. rated operational current AC-3						
M 3~	**690 V**	Please consult us				
Short-circuit protection device for contactors						
without thermal overload relay - Motor protection excluded						
Circuit breaker		-	-	-	-	-
Rated short-time withstand current Icw	**1 s**	20000 A	21000 A	24000 A	28000 A	30000 A
at 40 °C ambient temperature,	**10 s**	15000 A	18000 A	19000 A	21000 A	24000 A
in free air from a cold state	**30 s**	8000 A	10000 A	11000 A	12000 A	13000 A
	1 min	6000 A	7000 A	7500 A	8000 A	9000 A
	15 min	3000 A	4000 A	4500 A	5000 A	5500 A
Maximum making capacity		24000 A	26000 A	29000 A	32000 A	32000 A
Dynamical withstand of pole		24000 A	26000 A	29000 A	32000 A	32000 A
Impedance per pole		0.12 mΩ	0.09 mΩ	0.085 mΩ	0.06 mΩ	0.055 mΩ
Maximum electrical switching frequency	**AC-1**	60 cycles/h		40 cycles/h		
Mechanical durability						
Number of operating cycles		2 millions cycles		1 million cycles		
Max. switching frequency		600 cycles/h		300 cycles/h		

Note: These characteristics are suitable for IOR..MT-AME contactor versions (except for mechanical durability = 0.2 millions of operating cycles).

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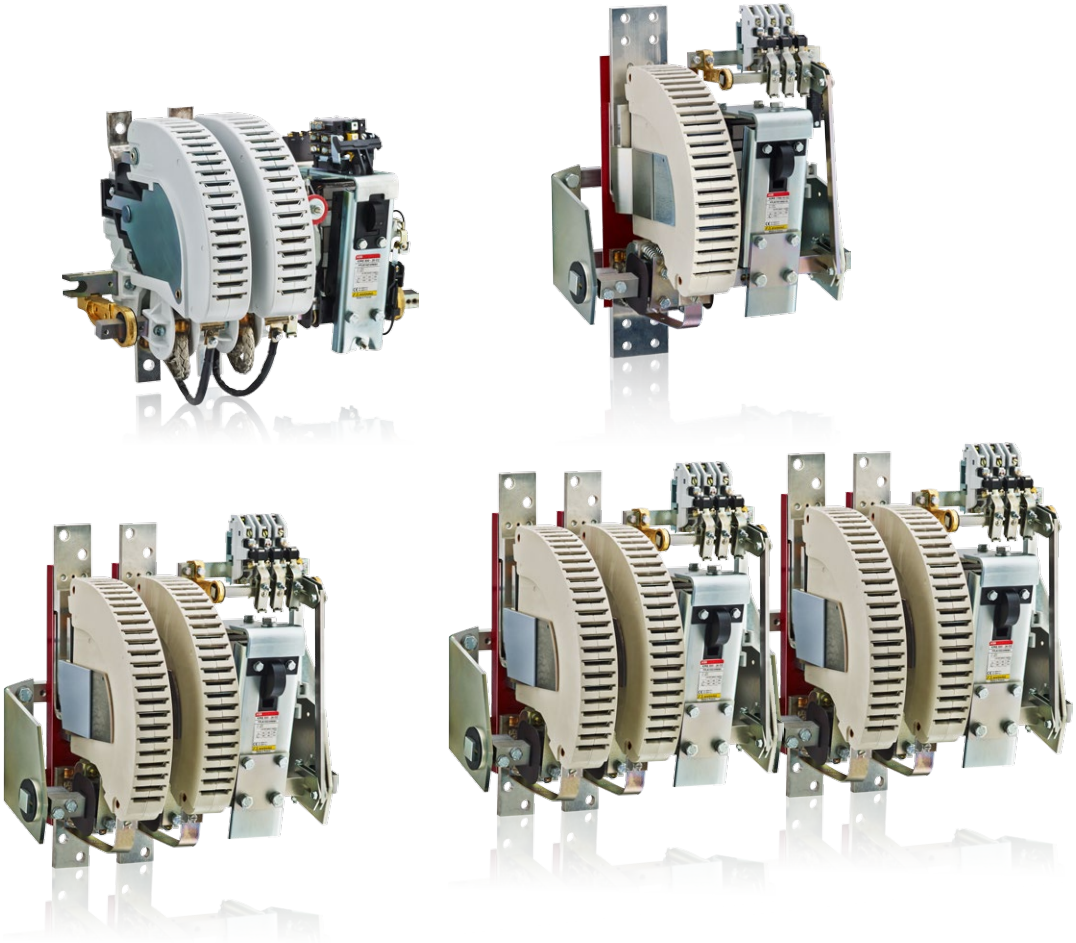
Notes



DC circuit switching

R contactors for DC circuit switching

Rated operational voltage
Ue up to **1500 V DC**

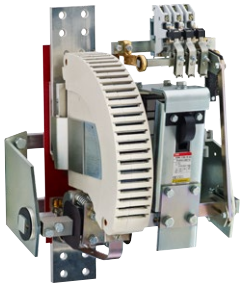
4

Contactor type	AC control circuit	~	IORR63..CC	IORR125..CC	IORR200..CC	IORR400..CC	IORR500..CC
	DC control circuit	⎓	IORE63..CC	IORE125..CC	IORE200..CC	IORE400..CC	IORE500..CC
Number of poles in series	**Categories**	**Ue max.**					
1 pole	**DC-1**	500 V DC	**Ie**	85 A	170 A	275 A	400 A	550 A
	DC-3 / DC-5	500 V DC	**Ie**	68 A	125 A	205 A	350 A	500 A
2 poles	**DC-1**	1000 V DC	**Ie**	85 A	170 A	275 A	400 A*	550 A*
	DC-3 / DC-5	1000 V DC	**Ie**	68 A	125 A	205 A	350 A	500 A
3 poles	**DC-1**	1500 V DC	**Ie**	85 A*	170 A*	275 A*	400 A*	550 A*
	DC-3 / DC-5	1500 V DC	**Ie**	68 A*	125 A*	205 A*	350 A*	500 A*

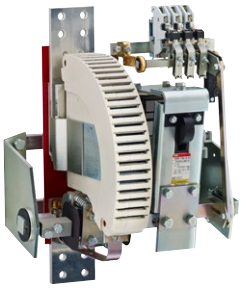
* Ue max. = 1500 V DC, version with increased insulation for 1000 V DC < Ue ≤ 1500 V DC, please consult us.

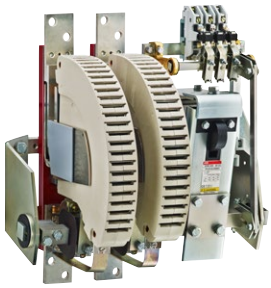
Contactors
UL / CSA approved

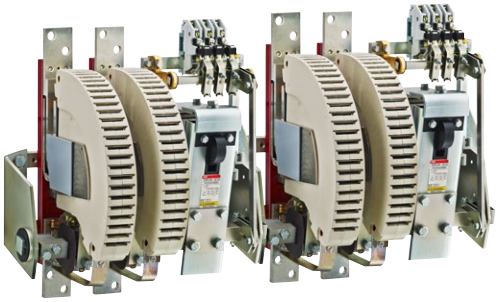
Rated operational voltage
Ue up to **600 V DC**



Contactor type	AC control circuit	~	IORR800-10-CC	IORR1000-10-CC	IORR1400-10-CC	IORR1700-10-CC	IORR2100-10-CC
	DC control circuit	⎓	IORE800-10-CC	IORE1000-10-CC	IORE1400-10-CC	IORE1700-10-CC	IORE2100-10-CC
		U max.					
1 pole	**General use**	600 V DC	**Ie**	800 A	1000 A	1300 A	1700 A	2000 A



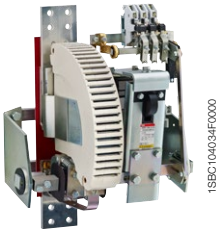




	IORR800..CC	IORR1000..CC	IORR1400..CC	IORR1700..CC	IORR2100..CC	IORR2500..CC	IORR3200..CC	IORR3800..CC	IORR4500..CC	IORR5100..CC
	IORE800..CC	IORE1000..CC	IORE1400..CC	IORE1700..CC	IORE2100..CC	IORE2500..CC	IORE3200..CC	IORE3800..CC	IORE4500..CC	IORE5100..CC
Ue max.										
750 V DC	800 A	1000 A	1250 A	1600 A	2000 A	2300 A	3200 A	3800 A	4500 A	5000 A
600 V DC	720 A	1000 A	1250 A	1600 A	2000 A	On request	On request	On request	On request	On request
1500 V DC	800 A	1000 A	1250 A	1600 A	2000 A	2300 A	3200 A	3800 A	4500 A	5000 A
1000 V DC	720 A	1000 A	1250 A	1600 A	2000 A	On request	On request	On request	On request	On request
1500 V DC	800 A	1000 A	1250 A	1600 A	2000 A	2300 A	3200 A	3800 A	4500 A	5000 A
1500 V DC	720 A	1000 A	1250 A	1600 A	2000 A	On request	On request	On request	On request	On request

1SBC104001S0201_dupli - Rev. A

IORR..CC contactors
Power circuit up to 1500 V DC
AC operated



IORR800-10-CC

4

Description

IORR..CC contactors are used for controlling DC power circuits up to 1500 V DC.

These contactors are designed with:

– variable number of poles according to the application
– control circuit: AC operated
– 1 N.O. and 1 N.C. auxiliary contacts available, as standard.

Blowout in DC circuit switching

If the breaking current is lower than 50 % of the contactor rating, permanent magnet must be added, see blowout code table.

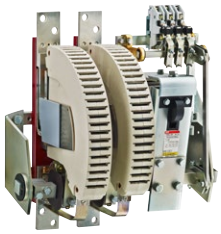
Ordering details

IEC DC-1 Rated operationnal current	voltage (3)	DC-3 / DC-5 Rated operationnal current	voltage (3)	Number of poles	Rated control circuit voltage Uc (1)	Auxiliary contacts fitted (2)	Type	Order code		Weight pkg (1 pce)
A	V DC	A	V DC		V 50/60 Hz					kg
85	500	68	500	1	220...230	1 1	IORR63-10-CC	FPL7116116R0006		3.2
	1000		1000	2		1 1	IORR63-20-CC	FPL7116216R0006		4.2
	1500		1500	3		1 1	IORR63-30-CC	On request		5.2
170	500	125	500	1	220...230	1 1	IORR125-10-CC	FPL7416115R0006		4.2
	1000		1000	2		1 1	IORR125-20-CC	FPL7416215R0006		6.2
	1500		1500	3		1 1	IORR125-30-CC	On request		8.2
275	500	205	500	1	220...230	1 1	IORR200-10-CC	FPL7616115R0006		6.6
	1000		1000	2		1 1	IORR200-20-CC	FPL7616215R0006		9.6
	1500		1500	3		1 1	IORR200-30-CC	On request		12.6
400	500	350	500	1	220...230	1 1	IORR400-10-CC	FPL9416115R0006		13.9
	1000		1000	2		1 1	IORR400-20-CC	FPL9416215R0006		19.7
	1500		1500	3		1 1	IORR400-30-CC	On request		25.5
550	500	500	500	1	220...230	1 1	IORR500-10-CC	FPL8316115R0006		13.9
	1000		1000	2		1 1	IORR500-20-CC	FPL8316215R0006		19.7
	1500		1500	3		1 1	IORR500-30-CC	On request		25.5
800	750	720	600	1	220...230	1 1	IORR800-10-CC	FPL8616115R0006		30
	1500		1000	2		1 1	IORR800-20-CC	FPL8616215R0006		40
	-		1500	3		1 1	IORR800-30-CC	FPL8616315R0006		51
1000	750	1000	600	1	220...230	1 1	IORR1000-10-CC	FPL8716115R0006		31
	1500		1000	2		1 1	IORR1000-20-CC	FPL8716215R0006		42
	-		1500	3		1 1	IORR1000-30-CC	FPL8716315R0006		50
1250	750	1250	600	1	220...230	1 1	IORR1400-10-CC	FPL6116115R0006		32
	1500		1000	2		1 1	IORR1400-20-CC	FPL6116215R0006		42
	-		1500	3		1 1	IORR1400-30-CC	FPL6116315R0006		52
1600	750	1600	600	1	220...230	1 1	IORR1700-10-CC	FPL6216185R0006		34
	1500		1000	2		1 1	IORR1700-20-CC	FPL6216215R0006		47
	-		1500	3		1 1	IORR1700-30-CC	FPL6216315R0006		61
2000	750	2000	600	1	220...230	1 1	IORR2100-10-CC	FPL6316185R0006		37
	1500		1000	2		1 1	IORR2100-20-CC	FPL6316215R0006		52
	-		1500	3		1 1	IORR2100-30-CC	FPL6316315R0006		68
2300	750	On request	On request	1	220...230	1 1	IORR2500-10-CC	FPL6716115R0006		45
	1500			2		1 1	IORR2500-20-CC	FPL6716215R0006		71
	-			3		1 1	IORR2500-30-CC	FPL6716315R0006		On request
3200	750	On request	On request	1	220...230	1 1	IORR3200-10-CC	FPL6516115R0006		52
	1500			2		1 1	IORR3200-20-CC	FPL6516215R0006		83
	-			3		1 1	IORR3200-30-CC	FPL6516315R0006		On request
3800	750	On request	On request	1	220...230	1 1	IORR3800-10-CC	FPL6616115R0006		58
	1500			2		1 1	IORR3800-20-CC	FPL6616215R0006		95
	-			3		1 1	IORR3800-30-CC	On request		On request
4500	750	On request	On request	1	220...230	1 1	IORR4500-10-CC	FPL6816115R0006		On request
	1500			2		1 1	IORR4500-20-CC	FPL6816215R0006		
	-			3		1 1	IORR4500-30-CC	On request		
5000	750	On request	On request	1	220...230	1 1	IORR5100-10-CC	FPL6916115R0006		On request
	1500			2		1 1	IORR5100-20-CC	On request		
	-			3		1 1	IORR5100-30-CC	On request		

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.
(3) Power circuit above 1500 V DC, please consult us.

1SBC104069S0201

IORE..CC contactors
Power circuit up to 1500 V DC
DC operated



IORE1400-20-CC

Description

IORE..CC contactors are used for controlling DC power circuits up to 1500 V DC.

These contactors are designed with:

– variable number of poles according to the application
– control circuit: DC operated
– 1 N.O. and 1 N.C. auxiliary contacts available, as standard.

Blowout in DC circuit switching

If the breaking current is lower than 50 % of the contactor rating, permanent magnet must be added, see blowout code table.

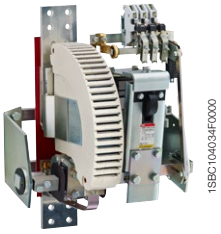
Ordering details

IEC DC-1 Rated operationnal current	voltage (3)	DC-3 / DC-5 Rated operationnal current	voltage (3)	Number of poles	Rated control circuit voltage Uc (1)	Auxiliary contacts fitted (2)		Type	Order code		Weight pkg (1 pce)
A	V DC	A	V DC		V DC						kg
85	500	68	500	1	220	1	1	IORE63-10-CC	FPL7110116R0006		3.2
	1000		1000	2		1	1	IORE63-20-CC	FPL7110216R0006		4.2
	1500		1500	3		1	1	IORE63-30-CC	On request		5.2
170	500	125	500	1	220	1	1	IORE125-10-CC	FPL7410115R0006		4.2
	1000		1000	2		1	1	IORE125-20-CC	FPL7410215R0006		6.2
	1500		1500	3		1	1	IORE125-30-CC	On request		8.2
275	500	205	500	1	220	1	1	IORE200-10-CC	FPL7610115R0006		6.6
	1000		1000	2		1	1	IORE200-20-CC	FPL7610215R0006		9.6
	1500		1500	3		1	1	IORE200-30-CC	On request		12.6
400	500	350	500	1	220	1	1	IORE400-10-CC	FPL9410115R0006		13.9
	1000		1000	2		1	1	IORE400-20-CC	FPL9410215R0006		19.7
	1500		1500	3		1	1	IORE400-30-CC	On request		25.5
550	500	500	500	1	220	1	1	IORE500-10-CC	FPL8310115R0006		13.9
	1000		1000	2		1	1	IORE500-20-CC	FPL8310215R0006		19.7
	1500		1500	3		1	1	IORE500-30-CC	On request		25.5
800	750	720	600	1	220	1	1	IORE800-10-CC	FPL8610115R0006		31
	1500		1000	2		1	1	IORE800-20-CC	FPL8610215R0006		40
	-		1500	3		1	1	IORE800-30-CC	FPL8610315R0006		51
1000	750	1000	600	1	220	1	1	IORE1000-10-CC	FPL8710115R0006		31
	1500		1000	2		1	1	IORE1000-20-CC	FPL8710215R0006		40
	-		1500	3		1	1	IORE1000-30-CC	FPL8710315R0006		50
1250	750	1250	600	1	220	1	1	IORE1400-10-CC	FPL6110115R0006		32
	1500		1000	2		1	1	IORE1400-20-CC	FPL6110215R0006		42
	-		1500	3		1	1	IORE1400-30-CC	FPL6110315R0006		52
1600	750	1600	600	1	220	1	1	IORE1700-10-CC	FPL6210185R0006		34
	1500		1000	2		1	1	IORE1700-20-CC	FPL6210215R0006		47
	-		1500	3		1	1	IORE1700-30-CC	FPL6210315R0006		61
2000	750	2000	600	1	220	1	1	IORE2100-10-CC	FPL6310185R0006		37
	1500		1000	2		1	1	IORE2100-20-CC	FPL6310215R0006		52
	-		1500	3		1	1	IORE2100-30-CC	FPL6310315R0006		68
2300	750	On request	On request	1	220	1	1	IORE2500-10-CC	FPL6710115R0006		45
	1500			2		1	1	IORE2500-20-CC	FPL6710215R0006		71
	-			3		1	1	IORE2500-30-CC	FPL6710315R0006		On request
3200	750	On request	On request	1	220	1	1	IORE3200-10-CC	FPL6510115R0006		52
	1500			2		1	1	IORE3200-20-CC	FPL6510215R0006		83
	-			3		1	1	IORE3200-30-CC	FPL6510315R0006		On request
3800	750	On request	On request	1	220	1	1	IORE3800-10-CC	FPL6610115R0006		58
	1500			2		1	1	IORE3800-20-CC	FPL6610215R0006		95
	-			3		1	1	IORE3800-30-CC	On request		On request
4500	750	On request	On request	1	220	1	1	IORE4500-10-CC	FPL6810115R0006		On request
	1500			2		1	1	IORE4500-20-CC	FPL6810215R0006		
	-			3		1	1	IORE4500-30-CC	On request		
5000	750	On request	On request	1	220	1	1	IORE5100-10-CC	FPL6910115R0006		On request
	1500			2		1	1	IORE5100-20-CC	On request		
	-					1	1	IORE5100-30-CC	On request		

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.
(3) Power circuit above 1500 V DC, please consult us.

1SBC104070S0201

IORR..CC-U contactors
Power circuit up to 600 V DC acc. to UL / CSA
AC operated



IORR800-10-CC-U

4

Description

IORR..CC-U contactors are used for controlling DC power circuits up to 600 V DC.

These contactors are designed with:

– 1 N.O. pole
– control circuit: AC operated
– 1 N.O. and 1 N.C. auxiliary contacts available, as standard.

For R800 … R2100 contactors, if the breaking current is lower than 50 % of the contactor rating, permanent magnet must be added (non UL type).

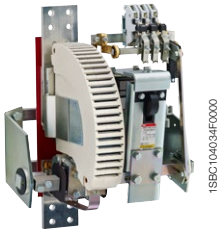
Ordering details

UL / CSA General use rating 600 V DC **A**	Number of poles	Rated control circuit voltage Uc (1) **V 50/60 Hz**	Auxiliary contacts fitted (2)	Type	Order code		Weight pkg (1 pce) **kg**
800	1	220...230	1 1	IORR800-10-CC-U	FPL8616195R0006		30
1000	1	220...230	1 1	IORR1000-10-CC-U	FPL8716195R0006		31
1300	1	220...230	1 1	IORR1400-10-CC-U	FPL6116195R0006		32
1700	1	220...230	1 1	IORR1700-10-CC-U	FPL6216195R0006		34
2000	1	220...230	1 1	IORR2100-10-CC-U	FPL6316195R0006		37

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.

1SBC104092S0201 - Rev. A

IORE..CC-U contactors
Power circuit up to 600 V DC acc. to UL / CSA
DC operated



IORE800-10-CC-U

Description

IORE..CC-U contactors are used for controlling DC power circuits up to 600 V DC.

These contactors are designed with:

– 1 N.O. pole
– control circuit: DC operated
– 1 N.O. and 1 N.C. auxiliary contacts available, as standard.

For R800 … R2100 contactors, if the breaking current is lower than 50 % of the contactor rating, permanent magnet must be added (non UL type).

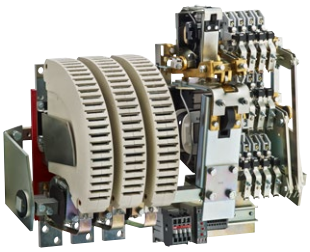
Ordering details

UL / CSA General use rating 600 V DC A	Number of poles	Rated control circuit voltage Uc (1) V DC	Auxiliary contacts fitted (2)	Type	Order code		Weight pkg (1 pce) kg
800	1	220	1 1	IORE800-10-CC-U	FPL8610195R0006		30
1000	1	220	1 1	IORE1000-10-CC-U	FPL8710195R0006		31
1300	1	220	1 1	IORE1400-10-CC-U	FPL6110195R0006		32
1700	1	220	1 1	IORE1700-10-CC-U	FPL6210195R0006		34
2000	1	220	1 1	IORE2100-10-CC-U	FPL6310195R0006		37

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.

1SBC104093S0201 - Rev. A

IORR..CC-AMA and IORR..CC-AME contactors
Power circuit up to 1500 V DC, with latching
AC operated



IORR800-30-CC-AME

4

Description

IORR..CC-AMA and IORR..CC-AME contactors are used for controlling DC power circuits up to 1500 V DC.

These contactors are designed with:

– magnetical latching, AMA types
– mechanical latching, AME types
– variable number of poles according to the application
– control circuit: AC operated
– 1 N.O. auxiliary contact available for AMA version, as standard
– 1 N.O. and 1 N.C. auxiliary contacts available for AME version.

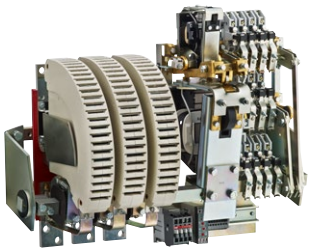
Ordering details

IEC				Number of poles	Rated control circuit voltage Uc (1)	Auxiliary contacts fitted (2)		Type	Order code		Weight
DC-1 Rated operationnal current	voltage (3)	DC-3 / DC-5 Rated operationnal current	voltage (3)								pkg (1 pce)
A	V DC	A	V DC		V 50/60 Hz						kg
Magnetical latching											
85	500	68	500	1	220...230	1	0	IORR63-10-CC-AMA	FPL7116136R0006		2.9
	1000		1000	2		1	0	IORR63-20-CC-AMA	FPL7116236R0006		3.9
	1500		1500	3		1	0	IORR63-30-CC-AMA	On request		4.9
170	500	125	500	1	220...230	1	0	IORR125-10-CC-AMA	FPL7416135R0006		3.9
	1000		1000	2		1	0	IORR125-20-CC-AMA	FPL7416235R0006		5.9
	1500		1500	3		1	0	IORR125-30-CC-AMA	On request		7.9
275	500	205	500	1	220...230	1	0	IORR200-10-CC-AMA	FPL7616135R0006		6.2
	1000		1000	2		1	0	IORR200-20-CC-AMA	FPL7616235R0006		9.2
	1500		1500	3		1	0	IORR200-30-CC-AMA	On request		12.2
Mechanical latching											
400	500	350	500	1	220...230	1	1	IORR400-10-CC-AME	FPL9416125R0116		18.4
	1000		1000	2		1	1	IORR400-20-CC-AME	FPL9416225R0116		24.2
	1500		1500	3		1	1	IORR400-30-CC-AME	On request		30
550	500	500	500	1	220...230	1	1	IORR500-10-CC-AME	FPL8316125R0116		18.4
	1000		1000	2		1	1	IORR500-20-CC-AME	FPL8316225R0116		24.2
	1500		1500	3		1	1	IORR500-30-CC-AME	On request		30
800	750	720	600	1	220...230	1	1	IORR800-10-CC-AME	FPL8616125R0116		40
	1500		1000	2		1	1	IORR800-20-CC-AME	FPL8616225R0116		50
	-		1500	3		1	1	IORR800-30-CC-AME	FPL8616325R0116		61
1000	750	720	600	1	220...230	1	1	IORR1000-10-CC-AME	FPL8716125R0116		40
	1500		1000	2		1	1	IORR1000-20-CC-AME	FPL8716225R0116		50
	-		1500	3		1	1	IORR1000-30-CC-AME	FPL8716325R0116		61
1250	750	720	600	1	220...230	1	1	IORR1400-10-CC-AME	FPL6116125R0116		42
	1500		1000	2		1	1	IORR1400-20-CC-AME	FPL6116225R0116		52
	-		1500	3		1	1	IORR1400-30-CC-AME	FPL6116325R0116		62
1600	750	720	600	1	220...230	1	1	IORR1700-10-CC-AME	FPL6216125R0116		43
	1500		1000	2		1	1	IORR1700-20-CC-AME	FPL6216225R0116		57
	-		1500	3		1	1	IORR1700-30-CC-AME	FPL6216325R0116		71
2000	750	720	600	1	220...230	1	1	IORR2100-10-CC-AME	FPL6316125R0116		46
	1500		1000	2		1	1	IORR2100-20-CC-AME	FPL6316225R0116		62
	-		1500	3		1	1	IORR2100-30-CC-AME	FPL6316325R0116		78
2300	750	On request	On request	1	220...230	1	1	IORR2500-10-CC-AME	FPL6716125R0116		On request
	1500			2		1	1	IORR2500-20-CC-AME	FPL6716225R0116		
	-			3		1	1	IORR2500-30-CC-AME	FPL6716325R0116		
3200	750	On request	On request	1	220...230	1	1	IORR3200-10-CC-AME	FPL6516125R0116		On request
	1500			2		1	1	IORR3200-20-CC-AME	FPL6516225R0116		
	-			3		1	1	IORR3200-30-CC-AME	FPL6516325R0116		
3800	750	On request	On request	1	220...230	1	1	IORR3800-10-CC-AME	FPL6616125R0116		On request
	1500			2		1	1	IORR3800-20-CC-AME	FPL6616225R0116		
4500	750	On request	On request	1	220...230	1	1	IORR4500-10-CC-AME	FPL6816125R0116		On request
	1500			2		1	1	IORR4500-20-CC-AME	FPL6816225R0116		
5000	750	On request	On request	1	220...230	1	1	IORR5100-10-CC-AME	FPL6916125R0116		On request

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.
(3) Power circuit above 1500 V DC, please consult us.

1SBC104071S0201 - Rev. A

IOR..CC-AMA and IORE..CC-AME contactors
Power circuit up to 1500 V DC, with latching
DC operated


1SBC104044R0000

IORE800-30-CC-AME

Description

IOR..CC-AMA and IORE..CC-AME contactors are used for controlling DC power circuits up to 1500 V DC.

These contactors are designed with:

– magnetical latching, AMA types
– mechanical latching, AME types
– variable number of poles according to the application
– control circuit: DC operated
– 1 N.O. auxiliary contact available for AMA version, as standard
– 1 N.O. and 1 N.C. auxiliary contacts available for AME version.

Ordering details

IEC DC-1 Rated operationnal Current	IEC DC-1 Rated operationnal Voltage (3)	IEC DC-3 / DC-5 Rated operationnal Current	IEC DC-3 / DC-5 Rated operationnal Voltage (3)	Number of poles	Rated control circuit voltage Uc (1)	Auxiliary contacts fitted (2)	Type	Order code		Weight pkg (1 pce)
A	V DC	A	V DC		V DC					kg
Magnetical latching										
85	500	68	500	1	220	1 0	IOR63-10-CC-AMA	FPL7112136R0006		2.9
	1000		1000	2		1 0	IOR63-20-CC-AMA	FPL7112236R0006		3.9
	1500		1500	3		1 0	IOR63-30-CC-AMA	On request		4.9
170	500	125	500	1	220	1 0	IOR125-10-CC-AMA	FPL7412135R0006		3.9
	1000		1000	2		1 0	IOR125-20-CC-AMA	FPL7412235R0006		5.9
	1500		1500	3		1 0	IOR125-30-CC-AMA	On request		7.9
275	500	205	500	1	220	1 0	IOR200-10-CC-AMA	FPL7612135R0006		6.2
	1000		1000	2		1 0	IOR200-20-CC-AMA	FPL7612235R0006		9.2
	1500		1500	3		1 0	IOR200-30-CC-AMA	On request		12.2
Mechanical latching										
400	500	350	500	1	220	1 1	IORE400-10-CC-AME	FPL9410125R0116		18.4
	1000		1000	2		1 1	IORE400-20-CC-AME	FPL9410225R0116		24.2
	1500		1500	3		1 1	IORE400-30-CC-AME	On request		30
550	500	500	500	1	220	1 1	IORE500-10-CC-AME	FPL8310125R0116		18.4
	1000		1000	2		1 1	IORE500-20-CC-AME	FPL8310225R0116		24.2
	1500		1500	3		1 1	IORE500-30-CC-AME	On request		30
800	750	720	600	1	220	1 1	IORE800-10-CC-AME	FPL8610125R0116		40
	1500		1000	2		1 1	IORE800-20-CC-AME	FPL8610225R0116		50
	-		1500	3		1 1	IORE800-30-CC-AME	FPL8610325R0116		61
1000	750	720	600	1	220	1 1	IORE1000-10-CC-AME	FPL8710125R0116		40
	1500		1000	2		1 1	IORE1000-20-CC-AME	FPL8710225R0116		50
	-		1500	3		1 1	IORE1000-30-CC-AME	FPL8710325R0116		61
1250	750	720	600	1	220	1 1	IORE1400-10-CC-AME	FPL6110125R0116		42
	1500		1000	2		1 1	IORE1400-20-CC-AME	FPL6110225R0116		52
	-		1500	3		1 1	IORE1400-30-CC-AME	FPL6110325R0116		62
1600	750	720	600	1	220	1 1	IORE1700-10-CC-AME	FPL6210125R0116		43
	1500		1000	2		1 1	IORE1700-20-CC-AME	FPL6210225R0116		57
	-		1500	3		1 1	IORE1700-30-CC-AME	FPL6210325R0116		71
2000	750	720	600	1	220	1 1	IORE2100-10-CC-AME	FPL6310125R0116		46
	1500		1000	2		1 1	IORE2100-20-CC-AME	FPL6310225R0116		62
	-		1500	3		1 1	IORE2100-30-CC-AME	FPL6310325R0116		78
2300	750	On request	On request	1	220	1 1	IORE2500-10-CC-AME	FPL6710125R0116		On request
	1500			2		1 1	IORE2500-20-CC-AME	FPL6710225R0116		
	-			3		1 1	IORE2500-30-CC-AME	FPL6710325R0116		
3200	750	On request	On request	1	220	1 1	IORE3200-10-CC-AME	FPL6510125R0116		On request
	1500			2		1 1	IORE3200-20-CC-AME	FPL6510225R0116		
	-			3		1 1	IORE3200-30-CC-AME	FPL6510325R0116		
3800	750	On request	On request	1	220	1 1	IORE3800-10-CC-AME	FPL6610125R0116		On request
	1500			2		1 1	IORE3800-20-CC-AME	FPL6610225R0116		
4500	750	On request	On request	1	220	1 1	IORE4500-10-CC-AME	FPL6810125R0116		On request
	1500			2		1 1	IORE4500-20-CC-AME	FPL6810225R0116		
5000	750	On request	On request	1	220	1 1	IORE5100-10-CC-AME	FPL6910125R0116		On request

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.
(3) Power circuit above 1500 V DC, please consult us.

1SBC104072S0201 - Rev. A

IORR63..CC … IORR500..CC and IORE63..CC … IORE500..CC contactors
Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC operated	IORR63..CC	IORR125..CC	IORR200..CC	IORR400..CC	IORR500..CC
	DC operated	IORE63..CC	IORE125..CC	IORE200..CC	IORE400..CC	IORE500..CC
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1				
Rated operational voltage Ue max.		1000 V DC (1500 V DC with increased insulation (1))				
Number of poles		1…4				
Conventional free-air thermal current Ith						
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		85 A	170 A	275 A	400 A	550 A
With conductor cross-sectional area		25 mm²	70 mm²	150 mm²	240 mm²	400 mm²
DC-1 Utilization category, L/R ≤ 1 ms						
Ie / Rated operational current DC-1						
1 pole						
	≤ 500 V	85 A	170 A	275 A	400 A	550 A
2 poles in series						
	≤ 1000 V	85 A	170 A	275 A	400 A	550 A
	≤ 1500 V (1)	-	-	-	400 A	550 A
3 poles in series						
	≤ 1500 V (1)	85 A	170 A	275 A	400 A	550 A
DC-3 Utilization category, L/R ≤ 2 ms						
Ie / Rated operational current DC-3						
1 pole						
	≤ 500 V	68 A	125 A	205 A	350 A	500 A
2 poles in series						
	≤ 1000 V	68 A	125 A	205 A	350 A	500 A
3 poles in series						
	≤ 1500 V (1)	68 A	125 A	205 A	350 A	500 A
DC-5 Utilization category, L/R ≤ 7.5 ms						
Ie / Rated operational current DC-5						
1 pole						
	≤ 500 V	68 A	125 A	205 A	350 A	500 A
2 poles in series						
	≤ 1000 V	68 A	125 A	205 A	350 A	500 A
3 poles in series						
	≤ 1500 V (1)	68 A	125 A	205 A	350 A	500 A
Rated short-time withstand current Icw	**1 s**	1150 A	2250 A	3800 A	6000 A	8400 A
at 40 °C ambient temperature,	**10 s**	680 A	1280 A	2080 A	3200 A	4400 A
in free air from a cold state	**30 s**	310 A	680 A	1040 A	1600 A	2200 A
	1 min	230 A	450 A	730 A	1200 A	1680 A
	15 min	120 A	250 A	390 A	600 A	840 A
Rated breaking capacity						
(L/R ≤ 15 ms)	**1 pole 500 V**	272 A	500 A	820 A	1400 A	2000 A
	2 poles 1000 V	272 A	500 A	820 A	1400 A	2000 A
	3 poles 1500 V	272 A	500 A	820 A	1400 A	2000 A
Maximum making capacity		1300 A	2400 A	4000 A	7000 A	9000 A
Dynamical withstand of pole		1400 A	2500 A	4500 A	8000 A	10000 A
Impedance per pole		1.8 mΩ	1.20 mΩ	0.60 mΩ	0.40 mΩ	0.35 mΩ
Maximum electrical switching frequency		120 cycles/h				
Mechanical durability						
Number of operating cycles		5 millions cycles				
Maximum switching frequency		1200 cycles/h				

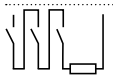
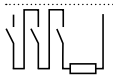
(1) Version with increased insulation for 1000 V < Ue < 1500 V, please consult us.

Notes: - The arc switching on DC is more difficult than on AC
- For information, typical time constant values are quoted hereafter: non inductive loads such as resistance furnaces: L/R < 1 ms; inductive loads such as shunt motor: L/R < 2 ms; series motor: L/R < 7.5 ms
- The addition of a resistor in parallel with an inductive winding helps in the elimination of the arcs
- All the poles required for breaking must be connected, in series, between the load and the source polarity not linked to the earth
- Connection of the poles in series by the user, according to the above diagrams. The connection of the poles in series helps in the elimination of the arcs
- These characteristics are suitable for IOR..CC-AMA and IOR..CC-AME contactor latching versions (except for mechanical durability = 0.2 millions of operating cycles).

1SBC104034S0201

IORR800..CC … IORR2100..CC and IORE800..CC … IORE2100..CC contactors
Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC operated	IORR800..CC	IORR1000..CC	IORR1400..CC	IORR1700..CC	IORR2100..CC
	DC operated	IORE800..CC	IORE1000..CC	IORE1400..CC	IORE1700..CC	IORE2100..CC
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1				
Rated operational voltage Ue max.		1500 V DC				
Number of poles		1…4				
Conventional free-air thermal current Ith						
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		800 A	1000 A	1300 A	1700 A	2000 A
With conductor cross-sectional area		500 mm²	600 mm²	1000 mm²	1500 mm²	1500 mm²
DC-1 Utilization category, L/R ≤ 1 ms						
Ie / Rated operational current DC-1						
 1 pole						
≤ 750 V		800 A	1000 A	1250 A	1600 A	2000 A
 2 poles in series						
≤ 1000 V		800 A	1000 A	1250 A	1600 A	2000 A
≤ 1500 V		800 A	1000 A	1250 A	1600 A	2000 A
DC-3 Utilization category, L/R ≤ 2 ms						
Ie / Rated operational current DC-3						
 1 pole						
≤ 600 V		720 A	1000 A	1250 A	1600 A	2000 A
 2 poles in series						
≤ 1000 V		720 A	1000 A	1250 A	1600 A	2000 A
 3 poles in series						
≤ 1500 V		720 A	1000 A	1250 A	1600 A	2000 A
DC-5 Utilization category, L/R ≤ 7.5 ms						
Ie / Rated operational current DC-5						
 1 pole						
≤ 600 V		720 A	1000 A	1250 A	1600 A	2000 A
 2 poles in series						
≤ 1000 V		720 A	1000 A	1250 A	1600 A	2000 A
 3 poles in series						
≤ 1500 V		720 A	1000 A	1250 A	1600 A	2000 A
Rated short-time withstand current Icw	**1 s**	9000 A	9000 A	11000 A	13000 A	15000 A
at 40 °C ambient temperature,	**10 s**	6400 A	6400 A	9000 A	11000 A	12000 A
in free air from a cold state	**30 s**	3200 A	3200 A	5000 A	6000 A	7000 A
	1 min	2100 A	2100 A	3600 A	4200 A	4600 A
	15 min	1200 A	1200 A	1900 A	2200 A	2600 A
Rated breaking capacity						
(L/R ≤ 15 ms)	**1 pole 600 V**	2880 A	4000 A	5000 A	6400 A	8000 A
	2 poles 1000 V	2880 A	4000 A	5000 A	6400 A	8000 A
	3 poles 1500 V	2880 A	4000 A	5000 A	6400 A	8000 A
Maximum making capacity		14000 A	14000 A	19000 A	21000 A	24000 A
Dynamical withstand of pole		14000 A	14000 A	19000 A	21000 A	24000 A
Impedance per pole		0.28 mΩ	0.24 mΩ	0.18 mΩ	0.12 mΩ	0.10 mΩ
Maximum electrical switching frequency		120 cycles/h		60 cycles/h		
Mechanical durability						
Number of operating cycles		5 millions cycles		2 millions cycles		
Maximum switching frequency		1200 cycles/h		600 cycles/h		

Notes: - The arc switching on DC is more difficult than on AC
- For information, typical time constant values are quoted hereafter: non inductive loads such as resistance furnaces: L/R < 1 ms; inductive loads such as shunt motor: L/R < 2 ms; series motor: L/R < 7.5 ms
- The addition of a resistor in parallel with an inductive winding helps in the elimination of the arcs
- All the poles required for breaking must be connected, in series, between the load and the source polarity not linked to the earth
- Connection of the poles in series by the user, according to the above diagrams. The connection of the poles in series helps in the elimination of the arcs
- These characteristics are suitable for IOR..CC-AME contactor latching versions (except for mechanical durability = 0.2 millions of operating cycles).

1SBC104035S0201

IORR2500..CC … IORR5100..CC and IORE2500..CC … IORE5100..CC contactors
Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC operated	IORR2500..CC	IORR3200..CC	IORR3800..CC	IORR4500..CC	IORR5100..CC
	DC operated	IORE2500..CC	IORE3200..CC	IORE3800..CC	IORE4500..CC	IORE5100..CC
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1				
Rated operational voltage Ue max.		1500 V DC				
Number of poles		1…4				
Conventional free-air thermal current Ith						
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		2300 A	3200 A	3800 A	4500 A	5000 A
With conductor cross-sectional area		2000 mm²	3000 mm²	3000 mm²	4000 mm²	4000 mm²
DC-1 Utilization category, L/R ≤ 1 ms						
Ie / Rated operational current DC-1						
1 pole						
	≤ 750 V	2300 A	3200 A	3800 A	4500 A	5000 A
2 poles in series						
	≤ 1000 V	2300 A	3200 A	3800 A	4500 A	5000 A
	≤ 1500 V	2300 A	3200 A	3800 A	4500 A	5000 A
DC-3 Utilization category, L/R ≤ 2 ms						
Ie / Rated operational current DC-3						
For voltage up to 1500 V		Please consult us				
DC-5 Utilization category, L/R ≤ 7.5 ms						
Ie / Rated operational current DC-5						
For voltage up to 1500 V		Please consult us				
Rated short-time withstand current Icw	**1 s**	20000 A	21000 A	24000 A	28000 A	30000 A
at 40 °C ambient temperature,	**10 s**	15000 A	18000 A	19000 A	21000 A	24000 A
in free air from a cold state	**30 s**	8000 A	10000 A	11000 A	12000 A	13000 A
	1 min	6000 A	7000 A	7500 A	8000 A	9000 A
	15 min	3000 A	4000 A	4500 A	5000 A	5500 A
Maximum making capacity		24000 A	26000 A	29000 A	32000 A	32000 A
Dynamical withstand of pole		24000 A	26000 A	29000 A	32000 A	32000 A
Impedance per pole		0.09 mΩ	0.06 mΩ	0.05 mΩ	0.04 mΩ	0.03 mΩ
Maximum electrical switching frequency		60 cycles/h		40 cycles/h		
Mechanical durability						
Number of operating cycles		2 millions cycles		1 million cycles		
Maximum switching frequency		600 cycles/h		300 cycles/h		

Notes: - The arc switching on DC is more difficult than on AC
- For information, typical time constant values are quoted hereafter: non inductive loads such as resistance furnaces: L/R < 1 ms; inductive loads such as shunt motor: L/R < 2 ms; series motor: L/R < 7.5 ms
- The addition of a resistor in parallel with an inductive winding helps in the elimination of the arcs
- All the poles required for breaking must be connected, in series, between the load and the source polarity not linked to the earth
- Connection of the poles in series by the user, according to the above diagrams. The connection of the poles in series helps in the elimination of the arcs
- These characteristics are suitable for IOR..CC-AME contactor latching versions (except for mechanical durability = 0.2 millions of operating cycles).

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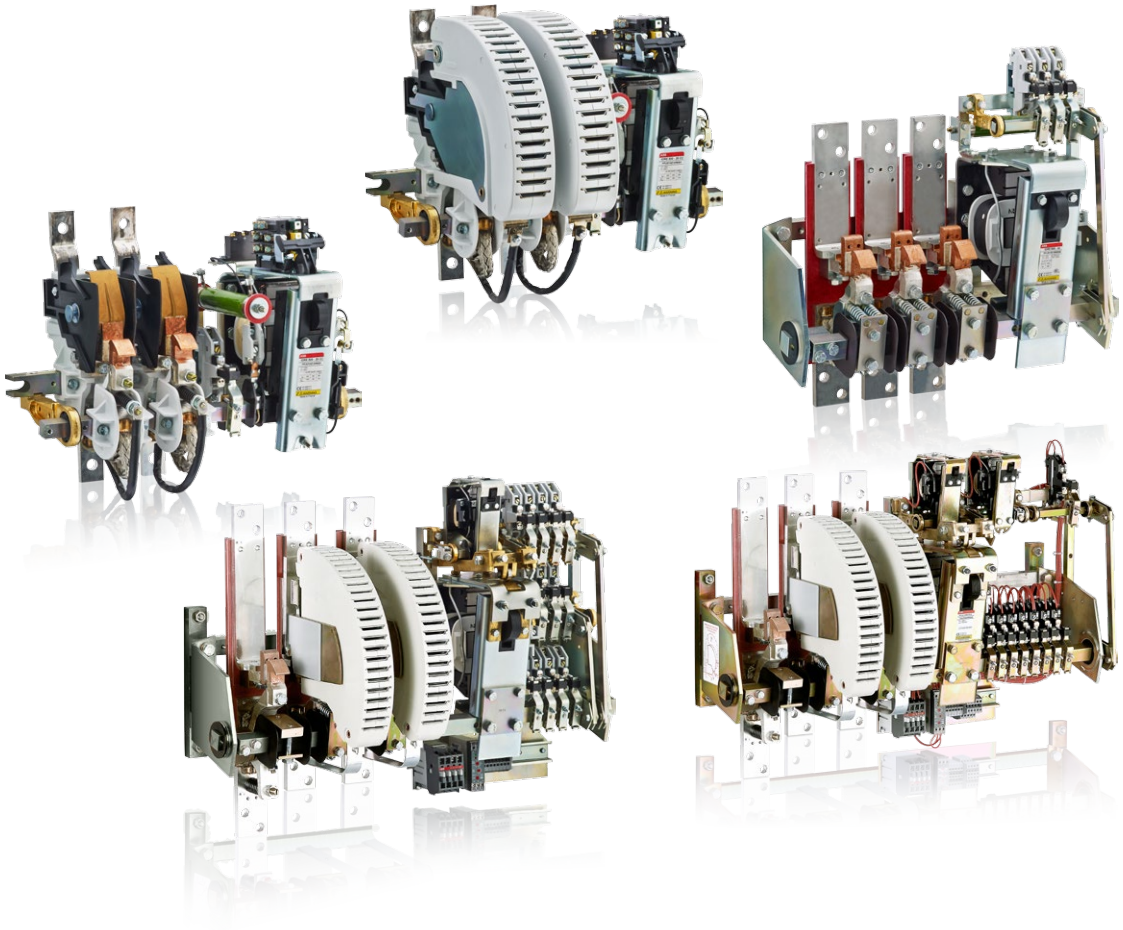
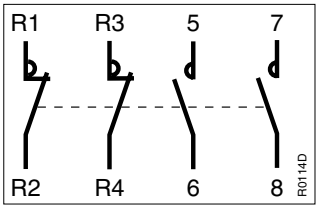
Notes



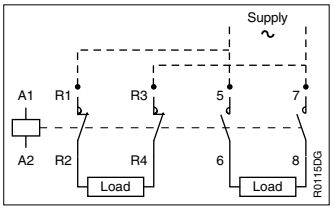
Advanced applications

N.O. / N.C. main poles combination
NOR contactors

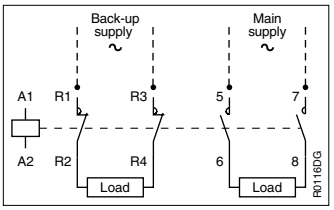
5



2 N.C. poles + 2 N.O. poles



Single supply and 2 separate loads



2 separate supplies and 2 separate loads

Description
NOR contactors are built with a combination of N.O. and N.C. poles:
– AC switching: NOR..MT up to 690 V AC
– DC switching: NOR..CC up to 1500 V DC in standard.
For low current breaking, permanent magnet must be added.
1 N.O and 1 N.C. auxiliary contacts are fitted as standard. For additional auxiliary contacts refer to "Auxiliary contact fitting details".

Example of use :
Change-over contactor with 2 N.C. poles + 2 N.O. poles.

Block diagrams
These contactors are suitable for controlling 2 separate circuits, i.e. 2 loads with 2 separate supplies, or 1 circuit including 2 separate loads with a single supply (diagrams on left column).
When the contactor operates there is no mechanical overlapping between the N.O. poles and the N.C. poles: BREAK before MAKE operation.

⚠ These contactors are not suitable for a reversing starter or star-delta starter, or for controlling a single load from 2 separate supplies.

Operation
The N.O. and N.C. poles are set-up without any mechanical overlap:
– as the electro-magnet closes, the N.C. pole(s) BREAK before the N.O. pole(s) MAKE
– as the electro-magnet opens, the N.O. pole(s) BREAK before the N.C. pole(s) MAKE.

The breaking and making capacities of the N.C. poles are identical to those of the N.O. poles.

Other variants
Please consult us for :
– NOR..AMA and NOR..AME with latching
– JOR types: version with overlapping between N.O. and N.C. main poles.

1SBC104082S0201 - Rev. A

NORR, NORE, NORR..MT and NORE..MT contactors
Power circuit up to 690 V AC
AC or DC operated

NORR125-02-MT

Description

NORR..MT and NORE..MT contactors with N.O. and N.C. main poles are used for controlling AC power circuits up to 690 V AC.

NORR400 ... NORR800 and NORE400 ... NORE800 contactors with N.O. and N.C. main poles are used for controlling AC power circuits up to 500 V AC.

These contactors are designed with:

– variable number of poles according to the application
– control circuit: AC or DC operated
– 1 N.O. and 1 N.C. auxiliary contacts available, as standard.

AC operated

IEC Rated operationnal current θ ≤ 40 °C AC-1 A	voltage (3) V AC	Number of poles (4)	Rated control circuit voltage Uc (1) V 50/60 Hz	Auxiliary contacts fitted (2)	Type	Order code		Weight pkg (1 pce) kg
63	690	0 2	220...230	1 1	NORR63-02-MT	FPL7155216R0006		4.2
		2 1		1 1	NORR63-21-MT	FPL7155516R0006		3.9
		3 1		1 1	NORR63-31-MT	FPL7155716R0006		4.9
125	690	0 2	220...230	1 1	NORR125-02-MT	FPL7455215R0006		6.2
		2 1		1 1	NORR125-21-MT	FPL7455515R0006		8.2
		3 1		1 1	NORR125-31-MT	FPL7455715R0006		9
200	690	0 2	220...230	1 1	NORR200-02-MT	FPL7655215R0006		9.6
		2 1		1 1	NORR200-21-MT	FPL7655515R0006		10
		3 1		1 1	NORR200-31-MT	FPL7655715R0006		12.2
315	500	0 2	220...230	1 1	NORR400-02	FPL9445215R0006		12
		2 1		1 1	NORR400-21	FPL9445515R0006		15
		3 1		1 1	NORR400-31	FPL9445715R0006		18
800	500	0 2	220...230	1 1	NORR800-02	FPL8645215R0006		38
		2 1		1 1	NORR800-21	FPL8645515R0006		48
		3 1		1 1	NORR800-31	FPL8645715R0006		58
	690	0 2	220...230	1 1	NORR800-02-MT	FPL8655215R0006		40
		2 1		1 1	NORR800-21-MT	FPL8655515R0006		51
		3 1		1 1	NORR800-31-MT	FPL8655715R0006		62

DC operated

IEC Rated operationnal current θ ≤ 40 °C AC-1 A	voltage (3) V AC	Number of poles (4)	Rated control circuit voltage Uc (1) V DC	Auxiliary contacts fitted (2)	Type	Order code		Weight pkg (1 pce) kg
63	690	0 2	220	1 1	NORE63-02-MT	FPL7159216R0006		4.2
		2 1		1 1	NORE63-21-MT	FPL7159516R0006		3.9
		3 1		1 1	NORE63-31-MT	FPL7159716R0006		4.9
125	690	0 2	220	1 1	NORE125-02-MT	FPL7459215R0006		6.2
		2 1		1 1	NORE125-21-MT	FPL7459515R0006		8.2
		3 1		1 1	NORE125-31-MT	FPL7459715R0006		9
200	690	0 2	220	1 1	NORE200-02-MT	FPL7659215R0006		9.6
		2 1		1 1	NORE200-21-MT	FPL7659515R0006		10
		3 1		1 1	NORE200-31-MT	FPL7659715R0006		12.2
315	500	0 2	220	1 1	NORE400-02	FPL9449215R0006		12
		2 1		1 1	NORE400-21	FPL9449515R0006		15
		3 1		1 1	NORE400-31	FPL9449715R0006		18
800	500	0 2	220	1 1	NORE800-02	FPL8649215R0006		38
		2 1		1 1	NORE800-21	FPL8649515R0006		48
		3 1		1 1	NORE800-31	FPL8649715R0006		58
	690	0 2	220	1 1	NORE800-02-MT	FPL8659215R0006		40
		2 1		1 1	NORE800-21-MT	FPL8659515R0006		51
		3 1		1 1	NORE800-31-MT	FPL8659715R0006		62

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.
(3) Power circuit above 690 V AC, please consult us.
(4) Other main pole combinations, please consult us.

1SBC104074S0201 - Rev. A

NORR, NORE, NORR..CC and NORE..CC contactors
Power circuit up to 1500 V DC
AC or DC operated

NORR125-02-CC

Description

NORR..CC and NORE..CC contactors with N.O. and N.C. main poles are used for controlling DC power circuits up to 1500 V DC. NORR and NORE400 up to 440 V DC.

These contactors are designed with:
- variable number of poles according to the application
- control circuit: AC or DC operated
- 1 N.O. and 1 N.C. auxiliary contacts available, as standard.

AC operated

IEC Rated operationnal current DC-1 A	DC-3 DC-5 A	voltage (3) V DC	V DC	Number of poles (4)	Rated control circuit voltage Uc (1) V 50/60 Hz	Auxiliary contacts fitted (2)	Type	Order code	Weight pkg (1 pce) kg
63	63	-	500	0 1	220...230	1 1	NORR63-01-CC	FPL7146116R0006	3.2
		-	1000	0 2		1 1	NORR63-02-CC	FPL7146216R0006	4.2
		1000	500	2 1		1 1	NORR63-21-CC	FPL7146516R0006	3.9
		1000	500	3 1		1 1	NORR63-31-CC	FPL7146716R0006	4.9
125	125	-	500	0 1	220...230	1 1	NORR125-01-CC	FPL7446115R0006	4.2
		-	1000	0 2		1 1	NORR125-02-CC	FPL7446215R0006	6.2
		1000	500	2 1		1 1	NORR125-21-CC	FPL7446515R0006	8.2
		1000	500	3 1		1 1	NORR125-31-CC	FPL7446715R0006	9
200	200	-	500	0 1	220...230	1 1	NORR200-01-CC	FPL7646115R0006	6.6
		-	1000	0 2		1 1	NORR200-02-CC	FPL7646215R0006	9.6
		1000	500	2 1		1 1	NORR200-21-CC	FPL7646515R0006	10
		1000	500	3 1		1 1	NORR200-31-CC	FPL7646715R0006	12.2
315	315	-	220	0 1	220...230	1 1	NORR400-01	FPL9445115R0006	9
		-	440	0 2		1 1	NORR400-02	FPL9445215R0006	12
		440	220	2 1		1 1	NORR400-21	FPL9445515R0006	15
		440	220	3 1		1 1	NORR400-31	FPL9445715R0006	18
800	720	-	500	0 1	220...230	1 1	NORR800-01-CC	FPL8646115R0006	28.6
		-	1000	0 2		1 1	NORR800-02-CC	FPL8646215R0006	40
		1000	500	2 1		1 1	NORR800-21-CC	FPL8646515R0006	51
		1500	500	3 1		1 1	NORR800-31-CC	FPL8646715R0006	62

DC operated

IEC Rated operationnal current DC-1 A	DC-3 DC-5 A	voltage (3) V DC	V DC	Number of poles (4)	Rated control circuit voltage Uc (1) V DC	Auxiliary contacts fitted (2)	Type	Order code	Weight pkg (1 pce) kg
63	63	-	500	0 1	220	1 1	NORE63-01-CC	FPL7140116R0006	3.2
		-	1000	0 2		1 1	NORE63-02-CC	FPL7140216R0006	4.2
		1000	500	2 1		1 1	NORE63-21-CC	FPL7140516R0006	3.9
		1000	500	3 1		1 1	NORE63-31-CC	FPL7140716R0006	4.9
125	125	-	500	0 1	220	1 1	NORE125-01-CC	FPL7440115R0006	4.2
		-	1000	0 2		1 1	NORE125-02-CC	FPL7440215R0006	6.2
		1000	500	2 1		1 1	NORE125-21-CC	FPL7440515R0006	8.2
		1000	500	3 1		1 1	NORE125-31-CC	FPL7440715R0006	9
200	200	-	500	0 1	220	1 1	NORE200-01-CC	FPL7640115R0006	6.6
		-	1000	0 2		1 1	NORE200-02-CC	FPL7640215R0006	9.6
		1000	500	2 1		1 1	NORE200-21-CC	FPL7640515R0006	10
		1000	500	3 1		1 1	NORE200-31-CC	FPL7640715R0006	12.2
315	315	-	220	0 1	220	1 1	NORE400-01	FPL9449115R0006	9
		-	440	0 2		1 1	NORE400-02	FPL9449215R0006	12
		440	220	2 1		1 1	NORE400-21	FPL9449515R0006	15
		440	220	3 1		1 1	NORE400-31	FPL9449715R0006	18
800	720	-	500	0 1	220	1 1	NORE800-01-CC	FPL8640115R0006	28.6
		-	1000	0 2		1 1	NORE800-02-CC	FPL8640215R0006	40
		1000	500	2 1		1 1	NORE800-21-CC	FPL8640515R0006	51
		1500	500	3 1		1 1	NORE800-31-CC	FPL8640715R0006	62

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.
(3) Please consult us for power circuit above:
- 1000 V DC for ratings 63…500 A
- 1500 V DC for ratings 800 A.

(4) Other main pole combinations, please consult us.

1SBC104073S0201

NORR63..MT … NORR800..MT and NORE63..MT … NORE800..MT contactors
Technical data

Main pole - Utilization characteristics according to IEC

Contactor types		AC operated	NORR63..MT	NORR125..MT	NORR200..MT	NORR800..MT	NORR400	NORR800
		DC operated	NORE63..MT	NORE125..MT	NORE200..MT	NORE800..MT	NORE400	NORE800
Standards			IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1					
Rated operational voltage Ue max.			690 V				500 V	
Rated frequency (without derating)			25…60 Hz (for > 60…400 Hz please consult us)					
Number of poles			2…4					
Conventional free-air thermal current Ith								
acc. to IEC 60947-1, open contactors, θ ≤ 40 °C			63 A	125 A	200 A	800 A	315 A	800 A
With conductor cross-sectional area			16 mm²	50 mm²	95 mm²	500 mm²	185 mm²	500 mm²
AC-1 Utilization category								
For air temperature close to contactor								
Ie / Rated operational current AC-1	**θ ≤ 40 °C**		63 A	125 A	200 A	800 A	315 A	800 A
Ue max. ≤ 690 V, 50/60 Hz	**θ ≤ 55 °C**		56 A	110 A	180 A	710 A	280 A	710 A
	θ ≤ 70 °C		50 A	100 A	160 A	640 A	250 A	640 A
With conductor cross-sectional area			16 mm²	50 mm²	95 mm²	500 mm²	185 mm²	500 mm²
Rated making capacity AC-1			1.5 x Ie AC-1 acc. to IEC 60947-4-1					
Rated breaking capacity AC-1			1.5 x Ie AC-1 acc. to IEC 60947-4-1					
AC-3 Utilization category								
For air temperature close to contactor θ ≤ 55 °C								
Ie / Max. rated operational current AC-3								
M 3~	**690 V**		Please consult us					
Short-circuit protection device for contactors								
without thermal overload relay - Motor protection excluded								
Ue ≤ 1000 V AC - gG type fuse			80 A	160 A	250 A	1000 A	630 A	1000 A
Ue ≤ 1000 V AC - L type fuse			-	-	-	-	-	-
Rated short-time withstand current Icw	**1 s**		850 A	2250 A	3800 A	7500 A	5000 A	7500 A
at 40 °C ambient temperature,	**10 s**		500 A	1280 A	2080 A	6000 A	2500 A	6000 A
in free air from a cold state	**30 s**		250 A	680 A	1040 A	3000 A	1250 A	3000 A
	1 min		230 A	450 A	730 A	2000 A	870 A	2000 A
	15 min		120 A	250 A	390 A	1200 A	460 A	1200 A
Impedance per pole			1.8 mΩ	1.20 mΩ	0.60 mΩ	0.28 mΩ	0.40 mΩ	0.18 mΩ
Maximum electrical switching frequency	**AC-1**		300 cycles/h				300 cycles/h	
Mechanical durability								
Number of operating cycles			3 millions cycles			1 million cycles	3 millions cycles	1 million cycles
Maximum switching frequency			1200 cycles/h				1200 cycles/h	

Note: These characteristics are suitable for NOR..MT-AMA and NOR..MT-AME contactors with latching versions (except for mechanical durability = 0.2 millions of operating cycles).

5

1SBC104038S0201

NORR63..CC … NORR800..CC and NORE63..CC … NORE800..CC contactors
Technical data

Main pole - Utilization characteristics according to IEC

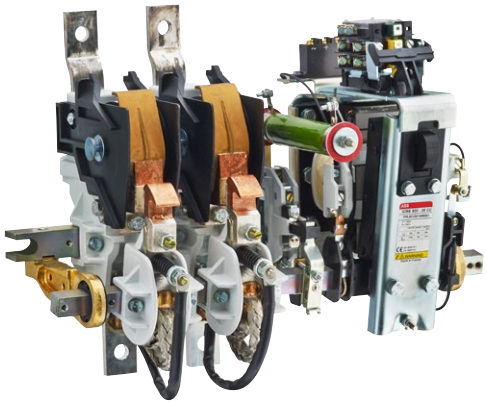
Contactor types	AC operated	NORR63..CC	NORR125..CC	NORR200..CC	NORR800..CC	NORR400
	DC operated	NORE63..CC	NORE125..CC	NORE200..CC	NORE800..CC	NORE400
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1				
Rated operational voltage Ue max.		1000 V DC (1500 V DC with increased insulation (1))				440 V DC
Number of poles		1…4				
Conventional free-air thermal current Ith						
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		63 A	125 A	200 A	800 A	315 A
With conductor cross-sectional area		16 mm²	50 mm²	95 mm²	500 mm²	185 mm²
DC-1 Utilization category, L/R ≤ 1 ms						
Ie / Rated operational current DC-1						
1 pole						
	≤ 220 V	-	-	-	-	315 A
	≤ 500 V	63 A	125 A	200 A	800 A	-
2 poles in series	**≤ 440 V**	-	-	-	-	315 A
	≤ 1000 V	63 A	125 A	200 A	800 A	-
	≤ 1500 V	-	-	-	800 A	-
3 poles in series						
	≤ 1500 V (1)	63 A	125 A	200 A	800 A	-
DC-3 Utilization category, L/R ≤ 2 ms						
Ie / Rated operational current DC-3						
1 pole						
	≤ 220 V	-	-	-	-	315 A
	≤ 500 V	63 A	125 A	200 A	720 A	-
2 poles in series						
	≤ 440 V	-	-	-	-	315 A
	≤ 1000 V	63 A	125 A	200 A	720 A	-
3 poles in series						
	≤ 1500 V (1)	63 A	125 A	200 A	720 A	-
DC-5 Utilization category, L/R ≤ 7.5 ms						
Ie / Rated operational current DC-5						
1 pole						
	≤ 220 V	-	-	-	-	315 A
	≤ 500 V	63 A	125 A	200 A	720 A	-
2 poles in series						
	≤ 440 V	-	-	-	-	315 A
	≤ 1000 V	63 A	125 A	200 A	720 A	-
3 poles in series						
	≤ 1500 V (1)	63 A	125 A	200 A	720 A	-
Rated short-time withstand current Icw	**1 s**	850 A	1700 A	3100 A	9000 A	5000 A
at 40 °C ambient temperature,	**10 s**	500 A	900 A	1600 A	6400 A	2500 A
in free air from a cold state	**30 s**	250 A	450 A	800 A	3200 A	1250 A
	1 min	170 A	310 A	560 A	2100 A	870 A
	15 min	90 A	180 A	300 A	1200 A	460 A
Rated breaking capacity						
(L/R ≤ 15 ms)	**1 pole 500 V**	252 A	500 A	800 A	2880 A	1260 A (220 V)
	2 poles 1000 V	252 A	500 A	800 A	2880 A	1260 A (440 V)
	3 poles 1500 V	252 A	500 A	800 A	2880 A	-
Impedance per pole		1.8 mΩ	1.20 mΩ	0.60 mΩ	0.18 mΩ	0.40 mΩ
Maximum electrical switching frequency		120 cycles/h				120 cycles/h
Mechanical durability						
Number of operating cycles		3 millions cycles			1 million cycles	3 million cycles
Maximum switching frequency		1200 cycles/h				1200 cycles/h

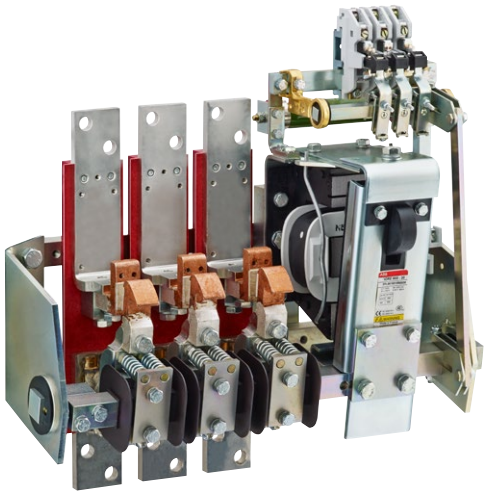
(1) NOR63 ... NOR200: version with increased insulation for 1000 V < Ue < 1500 V, please consult us.

Notes:
- The arc switching on DC is more difficult than on AC
- For selecting a contactor, it is essential to determine the current, the voltage, an the L/R time constant of the controlled load
- For information, typical time constant values are quoted hereafter: non inductive loads such as resistance furnaces: L/R < 1 ms; inductive loads such as shunt motor: L/R < 2 ms; series motor: L/R < 7.5 ms
- The addition of a resistor in parallel with an inductive winding helps in the elimination of the arcs
- All the poles required for breaking must be connected, in series, between the load and the source polarity not linked to the earth
- Connection of the poles in series by the user, according to the above diagrams. The connection of the poles in series helps in the elimination of the arcs
- These characteristics are suitable for NOR..CC-AMA and NOR..CC-AME contactor latching versions (except for mechanical durability = 0.2 millions of operating cycles).

1SBC104037S0201

Power circuit coupling
LOR couplers





Description
LOR couplers are built without blowout coil and arc chutes. They are not suitable for breaking on-load at voltages above 24 V AC or DC.
- AC switching up to 1000 V AC
- DC switching up to:
  - 1000 V DC for R85 … R550
  - 1500 V DC for R800 … R5100

For other voltages, please consult us.

1 N.O and 1 N.C. auxiliary contacts are fitted as standard. For additional auxiliary contact, refer to "Auxiliary contact fitting details".

Example of use
- Automatic short-circuiting of the starting resistances of a slip-ring or DC motors without the possibility of opening on-load
- Electrolytic installations and electro-plating plants
- Induction furnaces (please consult us).

Other variants:
Please consult us for:
- LOR couplers with N.C. poles
- LOR..AMA and LOR..AME couplers with latching.

1SBC104091S0201

LORR couplers
Power circuit up to 1000 V AC or 1500 V DC
AC operated

LORR550-20

Description

LORR are used for controlling:
- AC power circuits up to 1000 V AC
- DC power circuits up to:
  - 1000 V DC for ratings 85…550 A
  - 1500 V DC for ratings 800…5100 A.

They are not suitable for breaking on-load at voltages above 24 V AC or DC.

These contactors are designed with:
- variable number of poles according to the application
- control circuit: AC operated
- 1 N.O. and 1 N.C. auxiliary contacts available, as standard.

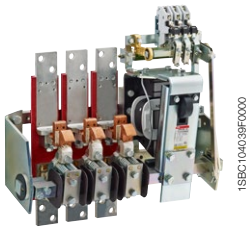
Ordering details

Conventional thermal current Ith (θ ≤ 40 °C)	Rated operational voltage		Number of poles	Rated control circuit voltage Uc (1)	Auxiliary contacts fitted (2)	Type	Order code		Weight
									pkg (1 pce)
A	V AC	V DC (3)		V 50/60 Hz					kg
90	1000	1000	1	220...230	1 1	LORR85-10	FPL7235110R0006		2.6
			2		1 1	LORR85-20	FPL7235210R0006		3
			3		1 1	LORR85-30	FPL7235310R0006		3.4
			4		1 1	LORR85-40	FPL7235410R0006		3.8
185	1000	1000	1	220...230	1 1	LORR170-10	FPL7535110R0006		3.2
			2		1 1	LORR170-20	FPL7535210R0006		4.1
			3		1 1	LORR170-30	FPL7535310R0006		5
			4		1 1	LORR170-40	FPL7535410R0006		5.9
300	1000	1000	1	220...230	1 1	LORR260-10	FPL7835110R0006		4.7
			2		1 1	LORR260-20	FPL7835210R0006		5.9
			3		1 1	LORR260-30	FPL7835310R0006		7.1
			4		1 1	LORR260-40	FPL7835410R0006		8.3
420	1000	1000	1	220...230	1 1	LORR400-10	FPL9435110R0006		11.4
			2		1 1	LORR400-20	FPL9435210R0006		14.7
			3		1 1	LORR400-30	FPL9435310R0006		18
			4		1 1	LORR400-40	FPL9435410R0006		21.3
630	1000	1000	1	220...230	1 1	LORR550-10	FPL8435110R0006		11.4
			2		1 1	LORR550-20	FPL8435210R0006		14.7
			3		1 1	LORR550-30	FPL8435310R0006		18
			4		1 1	LORR550-40	FPL8435410R0006		21.3
1100	1000	1000	1	220...230	1 1	LORR800-10	FPL8635110R0006		29
		1500	2		1 1	LORR800-20	FPL8635210R0006		34
		1500	3		1 1	LORR800-30	FPL8635310R0006		42
		1500	4		1 1	LORR800-40	FPL8635410R0006		54
1400	1000	1000	1	220...230	1 1	LORR1400-10	FPL6135110R0006		30
		1500	2		1 1	LORR1400-20	FPL6135210R0006		36
		1500	3		1 1	LORR1400-30	FPL6135310R0006		44
		1500	4		1 1	LORR1400-40	FPL6135410R0006		56
1700	1000	1000	1	220...230	1 1	LORR1700-10	FPL6235110R0006		34
		1500	2		1 1	LORR1700-20	FPL6235210R0006		42
		1500	3		1 1	LORR1700-30	FPL6235310R0006		50
		1500	4		1 1	LORR1700-40	FPL6235410R0006		66
2100	1000	1000	1	220...230	1 1	LORR2100-10	FPL6335110R0006		36
		1500	2		1 1	LORR2100-20	FPL6335210R0006		44
		1500	3		1 1	LORR2100-30	FPL6335310R0006		52
		1500	4		1 1	LORR2100-40	FPL6335410R0006		68
2500	1000	1000	1	220...230	1 1	LORR2500-10	FPL6735110R0006		On
		1500	2		1 1	LORR2500-20	FPL6735210R0006		request
		1500	3		1 1	LORR2500-30	FPL6735310R0006		
		1500	4		1 1	LORR2500-40	FPL6735410R0006		
3200	1000	1000	1	220...230	1 1	LORR3200-10	FPL6535110R0006		On
		1500	2		1 1	LORR3200-20	FPL6535210R0006		request
		1500	3		1 1	LORR3200-30	FPL6535310R0006		
		1500	4		1 1	LORR3200-40	FPL6535001R0006		
3800	1000	1000	1	220...230	1 1	LORR3800-10	FPL6635110R0006		On
		1500	2		1 1	LORR3800-20	FPL6635210R0006		request
		1500	3		1 1	LORR3800-30	FPL6635002R0006		
		1500	4		1 1	LORR3800-40	FPL6635003R0006		
4500	1000	1000	1	220...230	1 1	LORR4500-10	FPL6835110R0006		On
		1500	2		1 1	LORR4500-20	FPL6835210R0006		request
		1500	3		1 1	LORR4500-30	FPL6835001R0006		
5100	1000	1000	1	220...230	1 1	LORR5100-10	FPL6935110R0006		On
		1500	2		1 1	LORR5100-20	FPL6935001R0006		request

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.
(3) Please consult us for power circuit above 1000 V AC or 1500 V DC.

1SBC104075S0201 - Rev. A

LORE couplers
Power circuit up to 1000 V AC or 1000 V DC
DC operated



LORE800-30

Description

LORE couplers are used for controlling:
- AC power circuits up to 1000 V AC
- DC power circuits up to:
  - 1000 V DC for ratings 85…550 A
  - 1500 V DC for ratings 800…5100 A.

They are not suitable for breaking on-load at voltages above 24 V AC or DC.

These contactors are designed with:
- variable number of poles according to the application
- control circuit: DC operated
- 1 N.O. and 1 N.C. auxiliary contacts available, as standard.

Ordering details

Conventional thermal current Ith (θ ≤ 40 °C)	Rated operational voltage		Number of poles	Rated control circuit voltage Uc (1)	Auxiliary contacts fitted (2)	Type	Order code		Weight pkg (1 pce)
A	V AC	V DC (3)		V DC					kg
90	1000	1000	1	220	1 1	LORE85-10	FPL7239110R0006		2.6
			2		1 1	LORE85-20	FPL7239210R0006		3
			3		1 1	LORE85-30	FPL7239310R0006		3.4
			4		1 1	LORE85-40	FPL7239410R0006		3.8
185	1000	1000	1	220	1 1	LORE170-10	FPL7539110R0006		3.2
			2		1 1	LORE170-20	FPL7539210R0006		4.1
			3		1 1	LORE170-30	FPL7539310R0006		5
			4		1 1	LORE170-40	FPL7539410R0006		5.9
300	1000	1000	1	220	1 1	LORE260-10	FPL7839110R0006		4.7
			2		1 1	LORE260-20	FPL7839210R0006		5.9
			3		1 1	LORE260-30	FPL7839310R0006		7.1
			4		1 1	LORE260-40	FPL7839410R0006		8.3
420	1000	1000	1	220	1 1	LORE400-10	FPL9439110R0006		11.4
			2		1 1	LORE400-20	FPL9439210R0006		14.7
			3		1 1	LORE400-30	FPL9439310R0006		18
			4		1 1	LORE400-40	FPL9439410R0006		21.3
630	1000	1000	1	220	1 1	LORE550-10	FPL8439110R0006		11.4
			2		1 1	LORE550-20	FPL8439210R0006		14.7
			3		1 1	LORE550-30	FPL8439310R0006		18
			4		1 1	LORE550-40	FPL8439410R0006		21.3
1100	1000	1000	1	220	1 1	LORE800-10	FPL8639110R0006		29
		1500	2		1 1	LORE800-20	FPL8639210R0006		34
		1500	3		1 1	LORE800-30	FPL8639310R0006		42
		1500	4		1 1	LORE800-40	FPL8639410R0006		54
1400	1000	1000	1	220	1 1	LORE1400-10	FPL6139110R0006		30
		1500	2		1 1	LORE1400-20	FPL6139210R0006		36
		1500	3		1 1	LORE1400-30	FPL6139310R0006		44
		1500	4		1 1	LORE1400-40	FPL6139410R0006		56
1700	1000	1000	1	220	1 1	LORE1700-10	FPL6239110R0006		34
		1500	2		1 1	LORE1700-20	FPL6239210R0006		42
		1500	3		1 1	LORE1700-30	FPL6239310R0006		50
		1500	4		1 1	LORE1700-40	FPL6239410R0006		66
2100	1000	1000	1	220	1 1	LORE2100-10	FPL6339110R0006		36
		1500	2		1 1	LORE2100-20	FPL6339210R0006		44
		1500	3		1 1	LORE2100-30	FPL6339310R0006		52
		1500	4		1 1	LORE2100-40	FPL6339410R0006		68
2500	1000	1000	1	220	1 1	LORE2500-10	FPL6739110R0006		On request
		1500	2		1 1	LORE2500-20	FPL6739210R0006		
		1500	3		1 1	LORE2500-30	FPL6739310R0006		
		1500	4		1 1	LORE2500-40	FPL6739410R0006		
3200	1000	1000	1	220	1 1	LORE3200-10	FPL6539110R0006		On request
		1500	2		1 1	LORE3200-20	FPL6539210R0006		
		1500	3		1 1	LORE3200-30	FPL6591310R0006		
		1500	4		1 1	LORE3200-40	FPL6539001R0006		
3800	1000	1000	1	220	1 1	LORE3800-10	FPL6639110R0006		On request
		1500	2		1 1	LORE3800-20	FPL6639210R0006		
		1500	3		1 1	LORE3800-30	FPL6639002R0006		
		1500	4		1 1	LORE3800-40	FPL6639003R0006		
4500	1000	1000	1	220	1 1	LORE4500-10	FPL6839110R0006		On request
		1500	2		1 1	LORE4500-20	FPL6839210R0006		
		1500	3		1 1	LORE4500-30	FPL6839001R0006		
5100	1000	1000	1	220	1 1	LORE5100-10	FPL6939110R0006		On request
		1500	2		1 1	LORE5100-20	FPL6939001R0006		

(1) Other control voltages see voltage code table.
(2) Other auxiliary contact arrangements, see auxiliary contact code table.
(3) Please consult us for power circuit above 1000 V AC or 1500 V DC.

1SBC104076S0201 - Rev. A

LORR85 ... LORR550 and LORE85 ... LORE550 couplers
Technical data

Main pole - Utilization characteristics according to IEC

Couplers types		AC operated	LORR85	LORR170	LORR260	LORR400	LORR550
		DC operated	LORE85	LORE170	LORE260	LORE400	LORE550
Standards			IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1				
Rated operational voltage Ue max.			1000 V				
Rated frequency (without derating)			25…60 Hz (for > 60...400 Hz please contact us)				
Number of poles			1...4				
Conventional free-air thermal current Ith							
acc. to IEC 60947-1-1, open couplers, θ ≤ 40 °C			90 A	185 A	300 A	420 A	630 A
With conductor cross-sectional area			35 mm²	95 mm²	185 mm²	300 mm²	400 mm²
AC-1 / DC-1 Utilization category							
For air temperature close to couplers							
Ie / Rated operational current AC-1 / DC-1	**θ ≤ 40 °C**		90 A	185 A	300 A	420 A	630 A
Ue max. ≤ 690 V, 50/60 Hz	**θ ≤ 55 °C**		82 A	170 A	270 A	370 A	570 A
	θ ≤ 70 °C		72 A	150 A	240 A	330 A	500 A
With conductor cross-sectional area			35 mm²	95 mm²	185 mm²	300 mm²	400 mm²
Rated making capacity AC-1 / DC-1	**1000 V max.**		1.5 x Ie / AC-1 or DC-1 acc. to IEC 60947-4-1				
Rated breaking capacity AC-1 / DC-1	**24 V max.**		1.5 x Ie / AC-1 or DC-1 acc. to IEC 60947-4-1				
Short-circuit protection device for couplers							
without thermal overload relay - Motor protection excluded							
Ue ≤ 1000 V AC - gG type fuse			100 A	200 A	315 A	500 A	700 A
Ue ≤ 1000 V AC - L type fuse			-	-	-	-	-
Rated short-time withstand current Icw	**1 s**		1150 A	2250 A	3800 A	6000 A	8400 A
at 40 °C ambient temperature,	**10 s**		680 A	1200 A	1920 A	2960 A	4400 A
in free air from a cold state	**30 s**		310 A	680 A	1040 A	1480 A	2200 A
	1 min		230 A	450 A	730 A	1100 A	1680 A
	15 min		120 A	250 A	390 A	600 A	840 A
Impedance per pole			1.80 mΩ	1.20 mΩ	0.60 mΩ	0.40 mΩ	0.35 mΩ
Maximum electrical switching frequency	**AC-1**		300 cycles/h				
Mechanical durability							
Number of operating cycles			5 millions cycles				
Maximum switching frequency			1200 cycles/h				

Note: - Technical data applicable for N.O. main poles. For N.C. main poles, please consult us.
- These characteristics are suitable for LOR..AMA and LOR..AME contactor versions (except for mechanical durability = 0.2 millions of operating cycles).

1SBC104039S0201

LORR800 ... LORR5100 and LORE800 ... LORE5100 couplers
Technical data

Main pole - Utilization characteristics according to IEC

Couplers types	AC operated	LORR800	LORR1400	LORR1700	LORR2100	LORR2500	LORR3200	LORR3800	LORR4500	LORR5100
	DC operated	LORE800	LORE1400	LORE1700	LORE2100	LORE2500	LORE3200	LORE3800	LORE4500	LORE5100
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1								
Rated operational voltage Ue max.		1000 V								
Rated frequency (without derating)		25...60 Hz (for > 60...400 Hz please consult us)								
Number of poles		1...4								
Conventional free-air thermal current Ith										
acc. to IEC 60947-4-1, open couplers, θ ≤ 40 °C		1100 A	1400 A	1700 A	2100 A	2500 A	3200 A	3800 A	4500 A	5100 A
With conductor cross-sectional area		800 mm²	1000 mm²	1500 mm²	1500 mm²	2000 mm²	3000 mm²	3000 mm²	4000 mm²	4000 mm²
AC-1 / DC-1 Utilization category										
For air temperature close to couplers										
Ie / Rated operational current AC-1 / DC-1	**θ ≤ 40 °C**	1100 A	1400 A	1700 A	2100 A	2500 A	3200 A	3800 A	4500 A	5100 A
Ue max. ≤ 690 V, 50/60 Hz	**θ ≤ 55 °C**	1000 A	1230 A	1500 A	1840 A	2200 A	2800 A	3330 A	3950 A	4470 A
	θ ≤ 70 °C	900 A	1030 A	1250 A	1540 A	1830 A	2350 A	2780 A	3300 A	3740 A
With conductor cross-sectional area		800 mm²	1000 mm²	1500 mm²	1500 mm²	2000 mm²	3000 mm²	3000 mm²	4000 mm²	4000 mm²
Rated making capacity AC-1 / DC-1	**1000 V max.**	1.5 x Ie / AC-1 or DC-1 acc. to IEC 60947-4-1								
Rated breaking capacity AC-1 / DC-1	**24 V max.**	1.5 x Ie / AC-1 or DC-1 acc. to IEC 60947-4-1								
Short-circuit protection device for couplers										
without thermal overload relay - Motor protection excluded										
Ue ≤ 1000 V AC - Circuit breaker		1250 A	1600 A	2000 A	2500 A	-	-	-	-	-
Rated short-time withstand current Icw	**1 s**	9000 A	11000 A	13000 A	15000 A	20000 A	21000 A	24000 A	28000 A	29000 A
at 40 °C ambient temperature,	**10 s**	8000 A	9000 A	11000 A	12200 A	15000 A	18000 A	19000 A	21000 A	22000 A
in free air from a cold state	**30 s**	4000 A	5000 A	6000 A	7000 A	8000 A	10000 A	11000 A	12000 A	13000 A
	1 min	3000 A	3700 A	4400 A	5000 A	6000 A	7000 A	7500 A	8000 A	8500 A
	15 min	1600 A	2000 A	2400 A	2800 A	3000 A	4000 A	4500 A	5000 A	5500 A
Impedance per pole		0.18 mΩ	0.10 mΩ	0.090 mΩ	0.080 mΩ	0.05 mΩ	0.045 mΩ	0.04 mΩ	0.03 mΩ	0.027 mΩ
Maximum electrical switching frequency	**AC-1**	300 cycles/h	150 cycles/h	120 cycles/h		60 cycles/h		40 cycles/h		
Mechanical durability										
Number of operating cycles		5 millions cycles				2 millions cycles		1 million cycles		
Maximum switching frequency		1200 cycles/h				600 cycles/h		300 cycles/h		

Note: - Technical data applicable for N.O. main poles. For N.C. main poles, please consult us.
- These characteristics are suitable for LOR..AME contactor versions (except for mechanical durability = 0.2 millions of operating cycles).

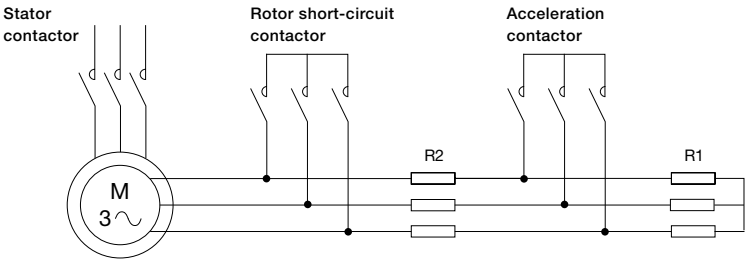
1SBC104040S0201

Slip-ring motor control with rheostats
FOR contactors

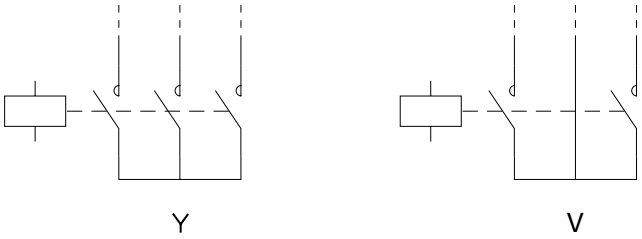
Application

Three kinds of contactors are used to control three-phase slip-ring motors: the stator contactor, the acceleration contactor(s), and the rotor short-circuit contactor.

Example of a three-stroke starter (star (Y) connection diagram)



The starting resistances should be star (Y) or V connected acc. to the following wiring diagrams. Contactors have to be selected accordingly.



Stator contactor

The standard R contactor selection is based on the motor rated current acc. to the AC-2 utilization category, as well as on the rated operational voltage and the on-load factor.

Acceleration contactor and rotor short-circuit contactor

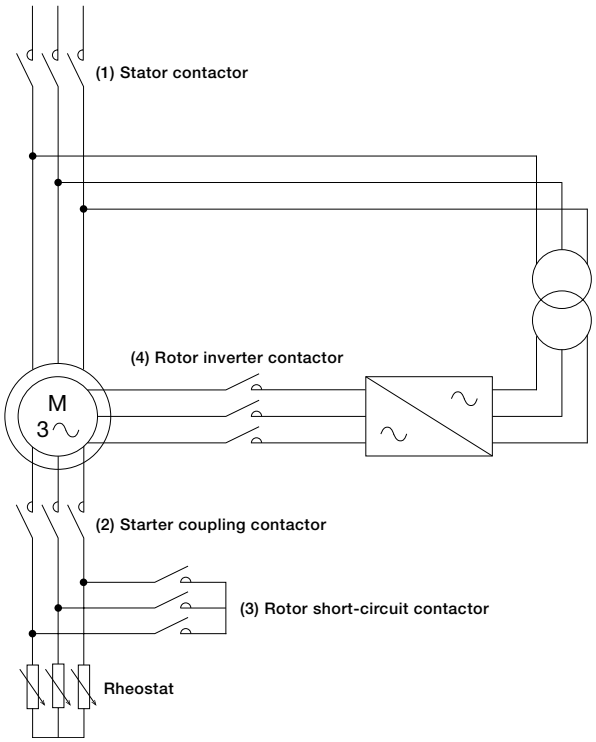
FOR contactor selection is based on the contactor rated operational current Ie acc. to the AC-1 utilization category.

At the time of slip-ring motor starting and as soon as the motor nominal speed is reached, these contactors are used for the short-circuiting of the rotor current limitation starting resistances (e.g. vapour-liquid rheostats).
These contactors are derived from the standard R contactors and are available in 2, 3, 4 or 6-pole versions acc. to the applicable connection diagram required (Y, V).
They can control rotor currents up to 3800 A and rotor voltages up to 4200 V (with increased insulation) acc. to the IEC 60947-4-1 standard requirements. For rotor voltages ≥ 4200 V, please consult us.
Although the breaking of the rotor circuit is normally carried out in "off-load" conditions, the contactors are equipped with blow-out devices and can occasionally break "on-load".
Ordering details, dimensions : please consult us.

The LOR couplers may be used for applications where equipment is breaking in "Off-load" conditions only.

Slip-ring motor control with variable frequency drive
FOR contactors

Application
This variant is used to start a slip-ring motor which will be then controlled by a variable frequency drive.



Description
A liquid rheostat is used to start and accelerate the motor after closing of the starter coupling contactor (2) and then the stator contactor (1). When the nominal speed is reached, the rotor short-circuit contactor (3) closes.
Then the rotor inverter contactor closes (4) and the starter coupling contactor (2) opens.
The speed of the motor is controlled by the variable frequency drive.

FOR contactors are suitable for starter coupling (2), rotor short-circuiting (3) and rotor inverter (4) contactor.
IOR contactors must be used for stator contactor (1).

1SBC104042S0201

FORR1000 … FORR3800 and FORE1000 … FORE3800 contactors
Rotor voltages up to 1500 V AC

Main pole - Utilization characteristics according to IEC (Y and V connection diagram)

Contactor types	AC operated	FORR1000	FORR1400	FORR1700	FORR2100	FORR2500	FORR3200	FORR3800
	DC operated	FORE1000	FORE1400	FORE1700	FORE2100	FORE2500	FORE3200	FORE3800
Rated rotor operational voltage Uer		1500 V						
Rated frequency (without derating)		0.1...60 Hz (for > 60 Hz consult us)						
Conventional free-air thermal current Ith								
acc. to IEC 60947-4-1, θ ≤ 40 °C		1000 A	1400 A	1700 A	2100 A	2500 A	3200 A	3800 A
With conductor cross-sectional area		600 mm²	1000 mm²	1500 mm²	2000 mm²	2000 mm²	3000 mm²	3000 mm²
Rated rotor operational current Ier								
For air temperature close to contactor								
	θ ≤ 40 °C	1000 A	1400 A	1700 A	2100 A	2500 A	3200 A	3800 A
	θ ≤ 55 °C	930 A	1180 A	1450 A	1750 A	2200 A	2800 A	3200 A
	θ ≤ 70 °C	800 A	1000 A	1250 A	1500 A	1830 A	2350 A	2780 A
With conductor cross-sectional area		600 mm²	1000 mm²	1500 mm²	2000 mm²	2000 mm²	3000 mm²	3000 mm²
Maximum making capacity		14000 A	19000 A	21000 A	24000 A	24000 A	26000 A	29000 A
Maximum breaking capacity at								
cos φ = 0.80 and 1000 V		1500 A	2100 A	2600 A	3200 A	3800 A	4800 A	5700 A
Rated short-time withstand current Icw	**1 s**	9000 A	11000 A	13000 A	15000 A	20000 A	21000 A	24000 A
at 40 °C ambient temperature,	**10 s**	8000 A	9000 A	11000 A	12200 A	15000 A	18000 A	19000 A
in free air from a cold state	**30 s**	4000 A	5000 A	6000 A	7000 A	8000 A	10000 A	11000 A
	1 min	3000 A	3700 A	4400 A	5000 A	6000 A	7000 A	7500 A
	15 min	1600 A	2000 A	2400 A	2800 A	3000 A	4000 A	4500 A
Impedance per pole		0.18 mΩ	0.10 mΩ	0.09 mΩ	0.08 mΩ	0.05 mΩ	0.045 mΩ	0.04 mΩ
Maximum electrical switching frequency		120 cycles/h						
Mechanical durability								
Number of operating cycles		5 millions cycles	2 millions cycles					
Max. switching frequency		600 cycles/h						

Note: Altitude ≥ 2000 m, dimension drawings: please consult us.

1SBC104030S0201

FORR1000S ... FORR2100S and FORE1000S ... FORE2100S contactors
Rotor voltages up to 2500 V AC

Main pole - Utilization characteristics according to IEC (Y and V connection diagram)

Contactor types	AC operated	FORR1000S	FORR1400S	FORR1700S	FORR2100S	FORR2500S	FORR3200S	FORR3800S
	DC operated	FORE1000S	FORE1400S	FORE1700S	FORE2100S	FORE2500S	FORE3200S	FORE3800S
Rated rotor operational voltage Uer		2500 V						
Rated frequency (without derating)		0.1...60 Hz (for > 60 Hz consult us)						
Conventional free-air thermal current Ith								
acc. to IEC 60947-4-1, θ ≤ 40 °C		1000 A	1400 A	1700 A	2100 A	2500 A	3200 A	3800 A
With conductor cross-sectional area		600 mm²	1000 mm²	1500 mm²	2000 mm²	2000 mm²	3000 mm²	3000 mm²
Rated rotor operational current Ier								
For air temperature close to contactor								
	θ ≤ 40 °C	1000 A	1400 A	1700 A	2100 A	2500 A	3200 A	3800 A
	θ ≤ 55 °C	930 A	1180 A	1450 A	1750 A	2200 A	2800 A	3200 A
	θ ≤ 70 °C	800 A	1000 A	1250 A	1500 A	1830 A	2350 A	2780 A
With conductor cross-sectional area		600 mm²	1000 mm²	1500 mm²	2000 mm²	2000 mm²	3000 mm²	3000 mm²
Maximum making capacity		14000 A	19000 A	21000 A	24000 A	24000 A	26000 A	29000 A
Maximum breaking capacity at								
cos φ = 0.80 and 1000 V		1500 A	2100 A	2600 A	3200 A	3800 A	4800 A	5700 A
Rated short-time withstand current Icw	**1 s**	9000 A	11000 A	13000 A	15000 A	20000 A	21000 A	24000 A
at 40 °C ambient temperature,	**10 s**	8000 A	9000 A	11000 A	12200 A	15000 A	18000 A	19000 A
in free air from a cold state	**30 s**	4000 A	5000 A	6000 A	7000 A	8000 A	10000 A	11000 A
	1 min	3000 A	3700 A	4400 A	5000 A	6000 A	7000 A	7500 A
	15 min	1600 A	2000 A	2400 A	2800 A	3000 A	4000 A	4500 A
Impedance per pole		0.18 mΩ	0.10 mΩ	0.09 mΩ	0.08 mΩ	0.05 mΩ	0.045 mΩ	0.04 mΩ
Maximum electrical switching frequency		120 cycles/h						
Mechanical durability								
Number of operating cycles		5 millions cycles	2 millions cycles					
Max. switching frequency		600 cycles/h						

Note: Altitude ≥ 2000 m, dimension drawings: please consult us.

1SBC104031S0201

FORR1000NSP … FORR2100NSP and FORE1000NSP … FORE2100NSP contactors
Rotor voltages up to 3500 V AC

Main pole - Utilization characteristics according to IEC (Y and V connection diagram)

Contactor types	AC operated	FORR1000NSP	FORR1400NSP	FORR1700NSP	FORR2100NSP	FORR2500NSP	FORR3200NSP	FORR3800NSP
	DC operated	FORE1000NSP	FORE1400NSP	FORE1700NSP	FORE2100NSP	FORE2500NSP	FORE3200NSP	FORE3800NSP
Rated rotor operational voltage Uer		3500 V						
Rated frequency (without derating)		0.1…60 Hz (for > 60 Hz consult us)						
Conventional free-air thermal current Ith								
acc. to IEC 60947-4-1, θ ≤ 40 °C		1000 A	1400 A	1700 A	2100 A	2500 A	3200 A	3800 A
With conductor cross-sectional area		600 mm²	1000 mm²	1500 mm²	2000 mm²	2000 mm²	3000 mm²	3000 mm²
Rated rotor operational current Ier								
For air temperature close to contactor								
	θ ≤ 40 °C	1000 A	1400 A	1700 A	2100 A	2500 A	3200 A	3800 A
	θ ≤ 55 °C	930 A	1180 A	1450 A	1750 A	2200 A	2800 A	3200 A
	θ ≤ 70 °C	800 A	1000 A	1250 A	1500 A	1830 A	2350 A	2780 A
With conductor cross-sectional area		600 mm²	1000 mm²	1500 mm²	2000 mm²	2000 mm²	3000 mm²	3000 mm²
Maximum making capacity		14000 A	19000 A	21000 A	24000 A	24000 A	26000 A	29000 A
Maximum breaking capacity at								
cos φ = 0.80 and 1000 V		1500 A	2100 A	2600 A	3200 A	3800 A	4800 A	5700 A
Rated short-time withstand current Icw	**1 s**	9000 A	11000 A	13000 A	15000 A	20000 A	21000 A	24000 A
at 40 °C ambient temperature,	**10 s**	8000 A	9000 A	11000 A	12200 A	15000 A	18000 A	19000 A
in free air from a cold state	**30 s**	4000 A	5000 A	6000 A	7000 A	8000 A	10000 A	11000 A
	1 min	3000 A	3700 A	4400 A	5000 A	6000 A	7000 A	7500 A
	15 min	1600 A	2000 A	2400 A	2800 A	3000 A	4000 A	4500 A
Impedance per pole		0.18 mΩ	0.10 mΩ	0.09 mΩ	0.08 mΩ	0.05 mΩ	0.045 mΩ	0.04 mΩ
Maximum electrical switching frequency		120 cycles/h						
Mechanical durability								
Number of operating cycles		5 millions cycles	2 millions cycles					
Max. switching frequency		600 cycles/h						

Note: Altitude ≥ 2000 m, dimension drawings: please consult us.

1SBC104032S0201

FORR1000SPE ... FORR2100SPE and FORE1000SPE ... FORE2100SPE contactors
Rotor voltages up to 4200 V AC

Main pole - Utilization characteristics according to IEC (Y only connection diagram)

Contactor types	AC operated	FORR1000SPE	FORR1400SPE	FORR1700SPE	FORR2100SPE	FORR2500SPE	FORR3200SPE	FORR3800SPE
	DC operated	FORE1000SPE	FORE1400SPE	FORE1700SPE	FORE2100SPE	FORE2500SPE	FORE3200SPE	FORE3800SPE
Rated rotor operational voltage Uer		4200 V						
Rated frequency (without derating)		0.1...60 Hz (for > 60 Hz consult us)						
Conventional free-air thermal current Ith								
acc. to IEC 60947-4-1, $\theta \leq 40$ °C		1000 A	1400 A	1700 A	2100 A	2500 A	3200 A	3800 A
With conductor cross-sectional area		600 mm²	1000 mm²	1500 mm²	2000 mm²	2000 mm²	3000 mm²	3000 mm²
Rated rotor operational current Ier								
For air temperature close to contactor								
	$\theta \leq 40$ °C	1000 A	1400 A	1700 A	2100 A	2500 A	3200 A	3800 A
	$\theta \leq 55$ °C	930 A	1180 A	1450 A	1750 A	2200 A	2800 A	3200 A
	$\theta \leq 70$ °C	800 A	1000 A	1250 A	1500 A	1830 A	2350 A	2780 A
With conductor cross-sectional area		600 mm²	1000 mm²	1500 mm²	2000 mm²	2000 mm²	3000 mm²	3000 mm²
Maximum making capacity		14000 A	19000 A	21000 A	24000 A	24000 A	26000 A	29000 A
Maximum breaking capacity at								
cos φ = 0.80 and 1000 V		1500 A	2100 A	2600 A	3200 A	3800 A	4800 A	5700 A
Rated short-time withstand current Icw	**1 s**	9000 A	11000 A	13000 A	15000 A	20000 A	21000 A	24000 A
at 40 °C ambient temperature,	**10 s**	8000 A	9000 A	11000 A	12200 A	15000 A	18000 A	19000 A
in free air from a cold state	**30 s**	4000 A	5000 A	6000 A	7000 A	8000 A	10000 A	11000 A
	1 min	3000 A	3700 A	4400 A	5000 A	6000 A	7000 A	7500 A
	15 min	1600 A	2000 A	2400 A	2800 A	3000 A	4000 A	4500 A
Impedance per pole		0.18 mΩ	0.10 mΩ	0.09 mΩ	0.08 mΩ	0.05 mΩ	0.045 mΩ	0.04 mΩ
Maximum electrical switching frequency		120 cycles/h						
Mechanical durability								
Number of operating cycles		5 millions cycles	2 millions cycles					
Max. switching frequency		600 cycles/h						

Note: - Uer > 4200 V AC, please consult us.
- Altitude ≥ 2000 m, dimension drawings: please consult us.

1SBC104033S0201

Closed transition star-delta starting of three-phase asynchronous motors
R contactor selection

Application

R contactors can be used for closed transition star-delta starting of three-phase asynchronous motors up to 1300 kW.

Description

This starting method, mainly used for large motor powers, prevents the speed drop during the "star-delta" transition time and maintains the resulting current peak at a relatively low value.

For this purpose the extra **KM4** transition contactor closes first before the **KM2** star contactor opens. When the **KM4** contactor closes, the motor windings are automatically delta connected, via resistances, to compensate the lack of current during the transition time. Thus the motor speed remains basically the same. The final delta connection step is then achieved by the **KM3** delta contactor closing which switches-off the coil supply to the **KM4** transition contactor. As in the basic star-delta starting mode, the closed transition star-delta starting mode is restricted to low resistive torque machines.

It is advisable, especially for big masses of inertia, to observe that the connection is made in acc. to the clockwise or anticlockwise rotation direction, as indicated in the block diagram shown below, in order to prevent damages due to torque throbs.

5

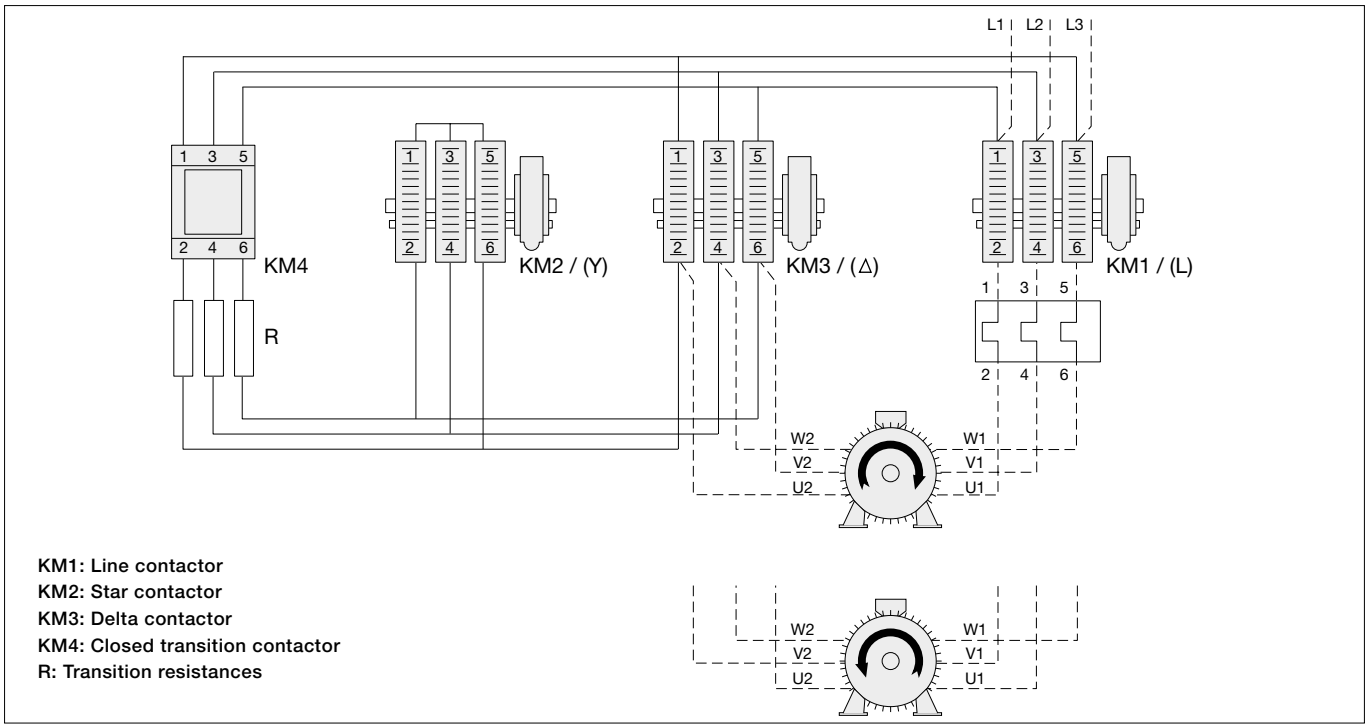
Equipment sizing

- **KM1** main contactor and **KM3** delta contactor: rating = 0.58 x In for both contactors
- **KM2** star contactor: compared with a star contactor that would be used for a basic open transition star-delta starter the present **KM2** star contactor has to be over-rated as it is intended to break the star current (0.34 x In) and the transition current too.
- **KM4** transition contactor: the rating is based on the calculation of the short permissible current duration (Icw).
  The value of the current flow is about 1.5 x In and the current flow duration < 100 ms.
  A block type contactor in the AF series can be selected for this step.
- Transition resistances: empiric value, generally as follows, $R\ (\Omega) = \frac{0.4 \times Ue}{In}$

  Watt dissipation values for the transition resistances:

  - for 12 cycles/h max. $P\ (W) = \frac{Ue^2}{1200 \times R}$
  - for 30 cycles/h max. $P\ (W) = \frac{Ue^2}{500 \times R}$

Block Diagram



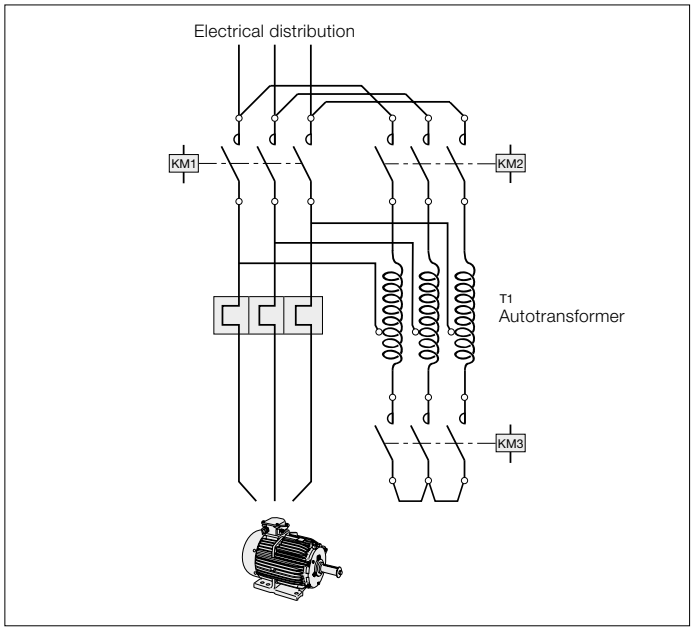
KM1: Line contactor
KM2: Star contactor
KM3: Delta contactor
KM4: Closed transition contactor
R: Transition resistances

1SBC104041S0201 - Rev. A

Autotransformer starters

General

An autotransformer starter allows to start a squirel cage motor with a reduced starting current due to the reduced voltage within the accelerating duration.
At the contrary of the star-delta wiring, this autotransformer starting method needs three wires and three terminals on the motor.
At the starting period, the motor is wired to the auto-transformer taps: the "KM3" star contactor and the "KM2" autotransformer contactor are closed, the motor is under reduced voltage. Consequently, the torque is reduced as the square of the applied voltage. The autotransformers are generally equipped of three taps at each phase in order to adapt the starting parameters to the field requirements.
When the motor reaches 80...95% of its nominal speed, the star contactor opens. Then, the "KM1" line contactor is making and the autotransformer contactor is opening. This starting process is done without any network interruption.



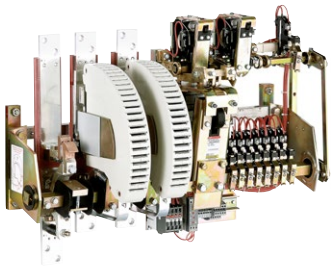
Selection table (Id starting current / In nominal current < 8 - Acceleration time < 20 s - 30 cycles / h max.)

Motor ratings 50/60 Hz 440 V	Contactors KM1	KM2 Autotransformer taps				KM3 Autotransformer taps		
	Line							
kW		90 %	80 %	70 %	60 %	90 %	80 %	60-70 %
500	IOR..800	IOR..800	IOR..500..MT	IOR..400..MT	IOR..400..MT	IOR..200..MT	IOR..400..MT	IOR..500..MT
560	IOR..1400	IOR..800	IOR..500..MT	IOR..500..MT	IOR..400..MT	IOR..200..MT	IOR..400..MT	IOR..500..MT
630	IOR..1400	IOR..800	IOR..800	IOR..500..MT	IOR..400..MT	IOR..200..MT	IOR..400..MT	IOR..800
710	IOR..1400	IOR..1400	IOR..800	IOR..500..MT	IOR..400..MT	IOR..200..MT	IOR..500..MT	IOR..800
800	IOR..1700	IOR..1400	IOR..800	IOR..800	IOR..500..MT	IOR..400..MT	IOR..500..MT	IOR..800
900	IOR..2100	IOR..1700	IOR..1400..MT	IOR..800	IOR..500..MT	IOR..400..MT	IOR..800	IOR..1400
1000	IOR..2100	IOR..1700	IOR..1400..MT	IOR..800	IOR..500..MT	IOR..400..MT	IOR..800	IOR..1400

1SBC104077S0201

Notes

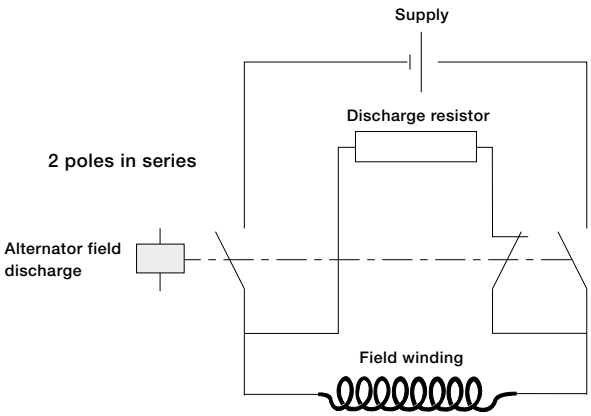
Alternator field discharge
AM-CC-NOR, AM-CC-JORE and AMF-CC-JORE contactors



AMF-CC-JORE 800-21

Application
Alternator field discharge (or field circuit breakers) are used to control the field winding of synchronous machines or exciter machines. In case of disturbances, the contactors ensure a definite disconnection from the supply source and the subsequent discharge of the energy stored in the machine magnetic circuit via a discharge resistor.

Diagram



Description
These contactors are designed with:
- 2 or 3 N.O. main poles with blowout devices, suitable for 2250 V DC max. operational voltage and circuit time constant L/R ≤ 15 ms
- 1 N.C. main pole, without blowout device, named "discharge pole" and set MAKE before BREAK with regard to the N.O. main poles. For N.C. main pole with breaking capacity, please consult us.

Electro-magnet
AM-CC-JOR and **AMF-CC-JOR** alternator field discharge are equipped with a latching device:
- magnetical latch for R63 ... R200
- mechanical latch for R550 ... R4500.

AC or DC control circuit.
The **AMF-CC-JOR** type is equipped with 2 tripping coils (double de-latching control).

Auxiliary contacts
- AM-CC: 5 auxiliary contacts as standard (3 N.O. + 2 N.C.)
- AMF-CC: 4 auxiliary contacts as standard (2 N.O. + 2 N.C.)
- Up to 16 auxiliary contacts max. on request.

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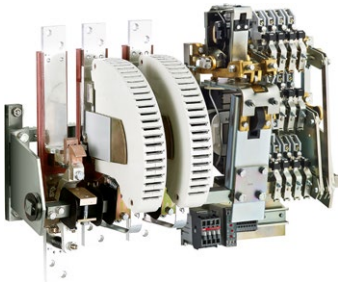
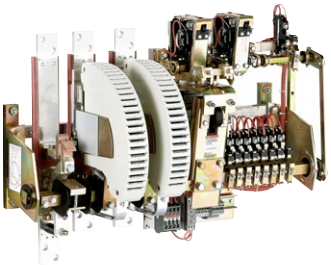
AM-CC alternator field discharge contactors
For DC circuit switching



Magnetical latch

Contactor type	Single tripping coil		AM-CC-NOR63	AM-CC-NOR125	AM-CC-NOR200
	Double tripping coil		–	–	–
		Ue (L/R ≤ 5 ms)			
2-pole in series					
Rated operational current	θ ≤ 40 °C	600 V DC	85 A	150 A	250 A
		1500 V DC max.			
3-pole in series					
Rated operational current	θ ≤ 40 °C	1000 V DC	85 A	150 A	250 A
		2250 V DC max.			



Mechanical latch

Contactor type	Single tripping coil		AM-CC-JORE550	AM-CC-JORE800	AM-CC-JORE1000	AM-CC-JORE1400
	Double tripping coil		AMF-CC-JORE550	AMF-CC-JORE800	AMF-CC-JORE1000	AMF-CC-JORE1400
		Ue (L/R ≤ 15 ms)				
2-pole in series						
Rated operational current	θ ≤ 40 °C	750 V DC	550 A	800 A	1000 A	1300 A
		1500 V DC max.				
3-pole in series						
Rated operational current	θ ≤ 40 °C	1000 V DC	550 A	800 A	1000 A	1300 A
		2250 V DC max.				

AM-CC alternator field discharge contactors
For DC circuit switching

AM-CC-JORE1700	AM-CC-JORE2100	AM-CC-JORE2500	AM-CC-JORE3200	AM-CC-JORE3800	AM-CC-JORE4500
AMF-CC-JORE1700	AMF-CC-JORE2100	AMF-CC-JORE2500	AMF-CC-JORE3200	AMF-CC-JORE3800	AMF-CC-JORE4500
1600 A	2000 A	2300 A	3200 A	3800 A	4500 A
1600 A	2000 A	2300 A	3200 A	3800 A	–

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AM-CC-NOR63 alternator field discharge contactors
Technical data

N.O. main pole - Utilization characteristics

Types	Single tripping coil	AM-CC-NOR63-21	AM-CC-NOR63-31
Number of N.O. poles in series		2	3
Rated operational voltage Ue		600 V DC	1000 V DC
Maximum breaking voltage		1500 V DC	2250 V DC
Conventional free-air thermal current Ith			
Open contactors	**θ ≤ 40 °C**	85 A	
With conductor cross-sectional area		25 mm²	
Ie / Rated operational current	**θ ≤ 40 °C**	85 A	
	θ ≤ 50 °C	75 A	
Rated short-time withstand current Icw	**1 s**	1150 A	
at 40 °C ambient temperature,	**10 s**	680 A	
in free air from a cold state	**30 s**	310 A	
	1 min	230 A	
	15 min	120 A	
Maximum breaking capacity at Ue	**500 V**	1200 A	1200 A
(L / R ≤ 5 ms)	**600 V**	1200 A	1200 A
	900 V	1000 A	-
	1 000 V	-	1200 A
	1 500 V	800 A	1000 A
	2 250 V	-	800 A
Maximum making capacity		1300 A	
Dynamical withstand of pole		1400 A	
Impedance per pole		1.80 mΩ	

N.C. de-energisation pole - Utilization characteristics

Types	Single tripping coil	AM-CC-NOR63-21	AM-CC-NOR63-31
Number of N.C. de-energisation pole		1	
Conventional free-air thermal current Ith			
Open contactors	**θ ≤ 40 °C**	85 A	
With conductor cross-sectional area		25 mm²	
Maximum making capacity		500 A	
Rated short time current	**0.5 s**	1000 A	
	15 s	250 A	
Maximum breaking capacity at Ue		No breaking capacity	
Impedance per pole		1.80 mΩ	

General technical data

Types	Single tripping coil	AM-CC-NOR63-21	AM-CC-NOR63-31
Rated impulse withstand voltage Uimp.		8 kV	
Dielectric test voltage / 1 min		5500 V AC 50 Hz	6000 V AC 50 Hz
Ambient air temperature close to contactor			
Operation in free air		-20…+55 °C	
Storage		-20…+80 °C	
Climatic withstand		Standard version for industrial environment and atmospheres	
Maximum operating altitude (without derating)		2000 m	
Mechanical durability			
Number of operating cycles		200000 cycles	

Construction characteristics

Types	Single tripping coil	AM-CC-NOR63-21		AM-CC-NOR63-31
Standard combination of auxiliary contacts		3 N.O. + 2 N.C.: 1 CARB (N.O.) + 1 CA12-1 (N.O. + N.C.) + 1 CA15-F (N.O.) + 1 CA15-O (N.C.)		
Maximum number of auxiliary contacts		6	12	5
Fixing dimensions (F)		345 mm	540 mm	445 mm
Width		368 mm	563 mm	468 mm
Weight		4.1 kg	4.9 kg	5 kg

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AM-CC-NOR63 alternator field discharge contactors
Technical data

Magnet system characteristics

Types	Single tripping coil	AM-CC-NOR63-21	AM-CC-NOR63-31
Coil operating limits			
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc	
DC control voltage			
Rated control circuit voltage Uc		24…220 V DC	
Coil consumption	**Average pull-in value**	250 W	250 W
	Tripping	150 W	150 W
Operating time (average values for Uc)			
Closing time		30 ms	
Opening time		20 ms	

Mounting characteristics

Types	Single tripping coil	AM-CC-NOR63-21	AM-CC-NOR63-31
Fixing by screws (not supplied)		2 x M6	2 x M6

Connecting characteristics

Types	Single tripping coil	AM-CC-NOR63-21	AM-CC-NOR63-31
Connection capacity (min. ... max.)			
Main conductors (poles)			
Terminal plates width		16 mm	
Terminal screw (not supplied)		M6 x 20	
Drilling holes (without thread)		-	
Auxiliary conductors			
(built-in auxiliary terminals + coil terminals)			
Rigid solid	**1 or 2 x**	1…2.5 mm²	
Flexible with non insulated ferrule	**1 or 2 x**	1…2.5 mm²	
Tightening torque			
Coil terminals		1.5 Nm	
Built-in auxiliary terminals		1.5 Nm	
Screw terminals			
Main terminals		Screws and bolts	
Coil terminals		M4 with cable clamps	
Built-in auxiliary terminals		M4 with cable clamps	

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AM-CC-NOR125 alternator field discharge contactors
Technical data

N.O. main pole - Utilization characteristics

Types	Single tripping coil	AM-CC-NOR125-21	AM-CC-NOR125-31
Number of N.O. poles in series		2	3
Rated operational voltage Ue		600 V DC	1000 V DC
Maximum breaking voltage		1500 V DC	2250 V DC
Conventional free-air thermal current Ith			
Open contactors	**θ ≤ 40 °C**	150 A	
With conductor cross-sectional area		50 mm²	
Ie / Rated operational current	**θ ≤ 40 °C**	150 A	
	θ ≤ 50 °C	135 A	
Rated short-time withstand current Icw at 40 °C ambient temperature, in free air from a cold state	**1 s**	2250 A	
	10 s	1280 A	
	30 s	680 A	
	1 min	450 A	
	15 min	250 A	
Maximum breaking capacity at Ue (L / R ≤ 5 ms)	**500 V**	2000 A	2000 A
	600 V	2000 A	2000 A
	900 V	1600 A	-
	1 000 V	-	2000 A
	1 500 V	1400 A	1600 A
	2 250 V	-	1400 A
Maximum making capacity		2400 A	
Dynamical withstand of pole		2500 A	
Impedance per pole		1.20 mΩ	

N.C. de-energisation pole - Utilization characteristics

Types	Single tripping coil	AM-CC-NOR125-21	AM-CC-NOR125-31
Number of N.C. de-energisation pole		1	
Conventional free-air thermal current Ith			
Open contactors	**θ ≤ 40 °C**	125 A	
With conductor cross-sectional area		50 mm²	
Maximum making capacity		1000 A	
Rated short time current	**0.5 s**	1700 A	
	15 s	450 A	
Maximum breaking capacity at Ue		No breaking capacity	
Impedance per pole		1.20 mΩ	

General technical data

Types	Single tripping coil	AM-CC-NOR125-21	AM-CC-NOR125-31
Rated impulse withstand voltage Uimp.		8 kV	
Dielectric test voltage / 1 min		5500 V AC 50 Hz	6000 V AC 50 Hz
Ambient air temperature close to contactor			
Operation in free air		-20…+55 °C	
Storage		-20…+80 °C	
Climatic withstand		Standard version for industrial environment and atmospheres	
Maximum operating altitude (without derating)		2000 m	
Mechanical durability			
Number of operating cycles		200000 cycles	

Construction characteristics

Types	Single tripping coil	AM-CC-NOR125-21		AM-CC-NOR125-31
Standard combination of auxiliary contacts		3 N.O. + 2 N.C.: 1 CARB (N.O.) + 1 CA12-1 (N.O. + N.C.) + 1 CA15-F (N.O.) + 1 CA15-O (N.C.)		
Maximum number of auxiliary contacts		5	12	5
Fixing dimensions (F)		385 mm	-	445 mm
Width		414 mm	-	474 mm
Weight		4.1 kg	4.9 kg	5 kg

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AM-CC-NOR125 alternator field discharge contactors
Technical data

Magnet system characteristics

Types	Single tripping coil	AM-CC-NOR125-21	AM-CC-NOR125-31
Coil operating limits			
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc	
DC control voltage			
Rated control circuit voltage Uc		24…220 V DC	
Coil consumption	**Average pull-in value**	250 W	250 W
	Tripping	150 W	150 W
Operating time (average values for Uc)			
Closing time		30 ms	
Opening time		20 ms	

Mounting characteristics

Types	Single tripping coil	AM-CC-NOR125-21	AM-CC-NOR125-31
Fixing by screws (not supplied)		2 x M6	2 x M6

Connecting characteristics

Types	Single tripping coil	AM-CC-NOR125-21	AM-CC-NOR125-31
Connection capacity (min. ... max.)			
Main conductors (poles)			
Terminal plates width		20 mm	
Terminal screw (not supplied)		M8 x 20	
Drilling holes (without thread)		-	
Auxiliary conductors			
(built-in auxiliary terminals + coil terminals)			
Rigid solid	**1 or 2 x**	1…2.5 mm²	
Flexible with non insulated ferrule	**1 or 2 x**	1…2.5 mm²	
Tightening torque			
Coil terminals		1.5 Nm	
Built-in auxiliary terminals		1.5 Nm	
Screw terminals			
Main terminals		Screws and bolts	
Coil terminals		M4 with cable clamps	
Built-in auxiliary terminals		M4 with cable clamps	

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AM-CC-NOR200 alternator field discharge contactors
Technical data

N.O. main pole - Utilization characteristics

Types	Single tripping coil	AM-CC-NOR200-21	AM-CC-NOR200-31
Number of N.O. poles in series		2	3
Rated operational voltage Ue		600 V DC	1000 V DC
Maximum breaking voltage		1500 V DC	2250 V DC
Conventional free-air thermal current Ith			
Open contactors	**θ ≤ 40 °C**	250 A	
With conductor cross-sectional area		150 mm²	
Ie / Rated operational current	**θ ≤ 40 °C**	250 A	
	θ ≤ 50 °C	225 A	
Rated short-time withstand current Icw at 40 °C ambient temperature, in free air from a cold state	**1 s**	3800 A	
	10 s	2080 A	
	30 s	1040 A	
	1 min	730 A	
	15 min	390 A	
Maximum breaking capacity at Ue (L / R ≤ 5 ms)	**500 V**	3500 A	3500 A
	600 V	3500 A	3500 A
	900 V	2600 A	-
	1 000 V	-	3500 A
	1 500 V	2000 A	2600 A
	2 250 V	-	2000 A
Maximum making capacity		4000 A	
Dynamical withstand of pole		4500 A	
Impedance per pole		0.6 mΩ	

N.C. de-energisation pole - Utilization characteristics

Types	Single tripping coil	AM-CC-NOR200-21	AM-CC-NOR200-31
Number of N.C. de-energisation pole		1	
Conventional free-air thermal current Ith			
Open contactors	**θ ≤ 40 °C**	200 A	
With conductor cross-sectional area		95 mm²	
Maximum making capacity		1200 A	
Rated short time current	**0.5 s**	2500 A	
	15 s	600 A	
Maximum breaking capacity at Ue		No breaking capacity	
Impedance per pole		0.6 mΩ	

General technical data

Types	Single tripping coil	AM-CC-NOR200-21	AM-CC-NOR200-31
Rated impulse withstand voltage Uimp.		8 kV	
Dielectric test voltage / 1 min		5500 V AC 50 Hz	6000 V AC 50 Hz
Ambient air temperature close to contactor			
Operation in free air		-20…+55 °C	
Storage		-20…+80 °C	
Climatic withstand		Standard version for industrial environment and atmospheres	
Maximum operating altitude (without derating)		2000 m	
Mechanical durability			
Number of operating cycles		200000 cycles	

Construction characteristics

Types	Single tripping coil	AM-CC-NOR200-21		AM-CC-NOR200-31
Standard combination of auxiliary contacts		3 N.O. + 2 N.C.: 1 CARB (N.O.) + 1 CA12-1 (N.O. + N.C.) + 1 CA15-F (N.O.) + 1 CA15-O (N.C.)		
Maximum number of auxiliary contacts		5	10	5
Fixing dimensions (F)		445 mm	540 mm	540 mm
Width		464 mm	559 mm	559 mm
Weight		10.5 kg	12 kg	12.5 kg

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AM-CC-NOR200 alternator field discharge contactors
Technical data

Magnet system characteristics

Types	Single tripping coil	AM-CC-NOR200-21	AM-CC-NOR200-31
Coil operating limits			
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc	
DC control voltage			
Rated control circuit voltage Uc		24…220 V DC	
Coil consumption	**Average pull-in value**	500 W	500 W
	Tripping	250 W	250 W
Operating time (average values for Uc)			
Closing time		40 ms	
Opening time		20 ms	

Mounting characteristics

Types	Single tripping coil	AM-CC-NOR200-21	AM-CC-NOR200-31
Fixing by screws (not supplied)		2 x M8	2 x M8

Connecting characteristics

Types	Single tripping coil	AM-CC-NOR200-21	AM-CC-NOR200-31
Connection capacity (min. ... max.)			
Main conductors (poles)			
Terminal plates width		25 mm	
Terminal screw (not supplied)		M10 x 25	
Drilling holes (without thread)		-	
Auxiliary conductors			
(built-in auxiliary terminals + coil terminals)			
Rigid solid	**1 or 2 x**	1…2.5 mm²	
Flexible with non insulated ferrule	**1 or 2 x**	1…2.5 mm²	
Tightening torque			
Coil terminals		1.5 Nm	
Built-in auxiliary terminals		1.5 Nm	
Screw terminals			
Main terminals		Screws and bolts	
Coil terminals		M4 with cable clamps	
Built-in auxiliary terminals		M4 with cable clamps	

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AM-CC-JORE550 and AMF-CC-JORE550 alternator field discharge contactors
Technical data

N.O. main pole - Utilization characteristics

Types	Single tripping coil	AM-CC-JORE550-21		AM-CC-JORE550-31	
	Double tripping coil		AMF-CC-JORE550-21		AMF-CC-JORE550-31
Number of N.O. poles in series		2		3	
Rated operational voltage Ue		750 V DC		1000 V DC	
Maximum breaking voltage		1500 V DC		2250 V DC	
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	550 A			
With conductor cross-sectional area		400 mm²			
Ie / Rated operational current	θ ≤ 40 °C	550 A			
	θ ≤ 50 °C	500 A			
Rated short-time withstand current Icw at 40 °C ambient temperature, in free air from a cold state	1 s	8400 A			
	10 s	4400 A			
	30 s	2200 A			
	1 min	1680 A			
	15 min	840 A			
Maximum breaking capacity at Ue (L / R ≤ 15 ms)	550 V	7000 A		7000 A	
	750 V	7000 A		7000 A	
	1000 V	6500 A		7000 A	
	1 500 V	5000 A		6500 A	
	2 250 V	-		5000 A	
Maximum making capacity		9000 A			
Dynamical withstand of pole		10000 A			
Impedance per pole		0.35 mΩ			

N.C. de-energisation pole - Utilization characteristics

Types	Single tripping coil	AM-CC-JORE550-21		AM-CC-JORE550-31	
	Double tripping coil		AMF-CC-JORE550-21		AMF-CC-JORE550-31
Number of N.C. de-energisation pole		1			
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	550 A			
With conductor cross-sectional area		400 mm²			
Maximum making capacity		7000 A			
Rated short time current	0.5 s	8400 A			
	15 s	3500 A			
Maximum breaking capacity at Ue		No breaking capacity			
Impedance per pole		0.35 mΩ			

General technical data

Types	Single tripping coil	AM-CC-JORE550-21		AM-CC-JORE550-31	
	Double tripping coil		AMF-CC-JORE550-21		AMF-CC-JORE550-31
Rated impulse withstand voltage Uimp.		8 kV			
Dielectric test voltage / 1 min		5500 V AC 50 Hz		6000 V AC 50 Hz	
Ambient air temperature close to contactor					
Operation in free air		-20…+55 °C			
Storage		-20…+80 °C			
Climatic withstand		Standard version for industrial environment and atmospheres			
Maximum operating altitude (without derating)		2000 m			
Mechanical durability					
Number of operating cycles		200000 cycles			

Construction characteristics

Types	Single tripping coil	AM-CC-JORE550-21		AM-CC-JORE550-31	
	Double tripping coil		AMF-CC-JORE550-21		AMF-CC-JORE550-31
Standard combination of auxiliary contacts		3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)	2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)	3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)	2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)
Maximum number of auxiliary contacts		5 / 12	5 / 12	5 / 8	5 / 8
Fixing dimensions (F)		635 mm / 760 mm	635 mm / 760 mm	760 mm / 760 mm	760 mm / 760 mm
Width		664 mm / 789 mm	664 mm / 789 mm	789 mm / 789 mm	789 mm / 789 mm
Weight		30 kg / 32 kg	31 kg / 33 kg	36 kg / 38 kg	37 kg / 39

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AM-CC-JORE550 and AMF-CC-JORE550 alternator field discharge contactors
Technical data

Magnet system characteristics

Types					
	Single tripping coil	AM-CC-JORE550-21		AM-CC-JORE550-31	
	Double tripping coil		AMF-CC-JORE550-21		AMF-CC-JORE550-31
Coil operating limits					
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc			
DC control voltage					
Rated control circuit voltage Uc		24…220 V DC			
Coil consumption	Average pull-in value	550 W		550 W	
	Tripping	110 W		110 W	
Operating time (average values for Uc)					
Closing time		60 ms			
Opening time		40 ms			

Mounting characteristics

Types					
	Single tripping coil	AM-CC-JORE550-21		AM-CC-JORE550-31	
	Double tripping coil		AMF-CC-JORE550-21		AMF-CC-JORE550-31
Fixing by screws (not supplied)		2 x M12		2 x M12	

Connecting characteristics

Types					
	Single tripping coil	AM-CC-JORE550-21		AM-CC-JORE550-31	
	Double tripping coil		AMF-CC-JORE550-21		AMF-CC-JORE550-31
Connection capacity (min. ... max.)					
Main conductors (poles)					
Terminal plates width		30 mm			
Terminal screw (not supplied)		-			
Drilling holes (without thread)		1 x ø13 mm			
Auxiliary conductors					
(built-in auxiliary terminals + coil terminals)					
Rigid solid	**1 or 2 x**	1…2.5 mm²			
Flexible with non insulated ferrule	**1 or 2 x**	1…2.5 mm²			
Tightening torque					
Coil terminals		1.5 Nm			
Built-in auxiliary terminals		1.5 Nm			
Screw terminals					
Main terminals		Screws and bolts			
Coil terminals		M4 with cable clamps			
Built-in auxiliary terminals		M4 with cable clamps			

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AM-CC-JORE800 and AMF-CC-JORE800 alternator field discharge contactors Technical data

N.O. main pole - Utilization characteristics

Types	Single tripping coil	AM-CC-JORE800-21		AM-CC-JORE800-31	
	Double tripping coil		AMF-CC-JORE800-21		AMF-CC-JORE800-31
Number of N.O. poles in series		2		3	
Rated operational voltage Ue		750 V DC		1000 V DC	
Maximum breaking voltage		1500 V DC		2250 V DC	
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	800 A			
With conductor cross-sectional area		500 mm²			
Ie / Rated operational current	θ ≤ 40 °C	800 A			
	θ ≤ 50 °C	700 A			
Rated short-time withstand current Icw at 40 °C ambient temperature, in free air from a cold state	1 s	9000 A			
	10 s	6400 A			
	30 s	3200 A			
	1 min	2100 A			
	15 min	1200 A			
Maximum breaking capacity at Ue (L / R ≤ 15 ms)	550 V	22000 A		22000 A	
	750 V	16000 A		20000 A	
	1000 V	11000 A		17000 A	
	1 500 V	8000 A		10000 A	
	2 250 V	-		7000 A	
Maximum making capacity		14000 A			
Dynamical withstand of pole		14000 A			
Impedance per pole		0.28 mΩ			

N.C. de-energisation pole - Utilization characteristics

Types	Single tripping coil	AM-CC-JORE800-21		AM-CC-JORE800-31	
	Double tripping coil		AMF-CC-JORE800-21		AMF-CC-JORE800-31
Number of N.C. de-energisation pole		1			
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	1000 A			
With conductor cross-sectional area		500 mm²			
Maximum making capacity		9000 A			
Rated short time current	0.5 s	10000 A			
	15 s	6000 A			
Maximum breaking capacity at Ue		No breaking capacity			
Impedance per pole		0.18 mΩ			

General technical data

Types	Single tripping coil	AM-CC-JORE800-21		AM-CC-JORE800-31	
	Double tripping coil		AMF-CC-JORE800-21		AMF-CC-JORE800-31
Rated impulse withstand voltage Uimp.		8 kV			
Dielectric test voltage / 1 min		5500 V AC 50 Hz		6000 V AC 50 Hz	
Ambient air temperature close to contactor					
Operation in free air		-20…+55 °C			
Storage		-20…+80 °C			
Climatic withstand		Standard version for industrial environment and atmospheres			
Maximum operating altitude (without derating)		2000 m			
Mechanical durability					
Number of operating cycles		200000 cycles			

Construction characteristics

Types	Single tripping coil	AM-CC-JORE800-21		AM-CC-JORE800-31		
	Double tripping coil		AMF-CC-JORE800-21			AMF-CC-JORE800-31
Standard combination of auxiliary contacts		3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)	2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)		3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)	2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)
Maximum number of auxiliary contacts		5	20	16	5	20	16
Fixing dimensions (F)		540 mm	570 mm	570 mm	540 mm	640 mm	640 mm
Width		630 mm	660 mm	660 mm	630 mm	730 mm	730 mm
Weight		58 kg	58 kg	59 kg	70 kg	70 kg	71 kg

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AM-CC-JORE800 and AMF-CC-JORE800 alternator field discharge contactors
Technical data

Magnet system characteristics

Types					
	Single tripping coil	AM-CC-JORE800-21		AM-CC-JORE800-31	
	Double tripping coil		AMF-CC-JORE800-21		AMF-CC-JORE800-31
Coil operating limits					
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc			
DC control voltage					
Rated control circuit voltage Uc		24…220 V DC			
Coil consumption	Average pull-in value	650 W		650 W	
	Tripping	265 W		265 W	
Operating time (average values for Uc)					
Closing time		100 ms			
Opening time		55 ms			

Mounting characteristics

Types					
	Single tripping coil	AM-CC-JORE800-21		AM-CC-JORE800-31	
	Double tripping coil		AMF-CC-JORE800-21		AMF-CC-JORE800-31
Fixing by screws (not supplied)		4 x M12		4 x M12	

Connecting characteristics

Types					
	Single tripping coil	AM-CC-JORE800-21		AM-CC-JORE800-31	
	Double tripping coil		AMF-CC-JORE800-21		AMF-CC-JORE800-31
Connection capacity (min. ... max.)					
Main conductors (poles)					
Terminal plates width		48 mm			
Terminal screw (not supplied)		-			
Drilling holes (without thread)		2 x ø13 mm			
Auxiliary conductors					
(built-in auxiliary terminals + coil terminals)					
Rigid solid	**1 or 2 x**	1…2.5 mm²			
Flexible with non insulated ferrule	**1 or 2 x**	1…2.5 mm²			
Tightening torque					
Coil terminals		1.5 Nm			
Built-in auxiliary terminals		1.5 Nm			
Screw terminals					
Main terminals		Screws and bolts			
Coil terminals		M4 with cable clamps			
Built-in auxiliary terminals		M4 with cable clamps			

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AM-CC-JORE1000 and AMF-CC-JORE1000 alternator field discharge contactors Technical data

N.O. main pole - Utilization characteristics

Types		AM-CC-JORE1000-21		AM-CC-JORE1000-31	
Single tripping coil					
Double tripping coil			AMF-CC-JORE1000-21		AMF-CC-JORE1000-31
Number of N.O. poles in series		2		3	
Rated operational voltage Ue		750 V DC		1000 V DC	
Maximum breaking voltage		1500 V DC		2250 V DC	
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	1000 A			
With conductor cross-sectional area		600 mm²			
Ie / Rated operational current	θ ≤ 40 °C	1000 A			
	θ ≤ 50 °C	850 A			
Rated short-time withstand current Icw at 40 °C ambient temperature, in free air from a cold state	1 s	9000 A			
	10 s	6400 A			
	30 s	3200 A			
	1 min	2100 A			
	15 min	1200 A			
Maximum breaking capacity at Ue (L / R ≤ 15 ms)	550 V	22000 A		22000 A	
	750 V	16000 A		20000 A	
	1000 V	11000 A		17000 A	
	1 500 V	8000 A		10000 A	
	2 250 V	-		7000 A	
Maximum making capacity		14000 A			
Dynamical withstand of pole		14000 A			
Impedance per pole		0.24 mΩ			

N.C. de-energisation pole - Utilization characteristics

Types		AM-CC-JORE1000-21		AM-CC-JORE1000-31	
Single tripping coil					
Double tripping coil			AMF-CC-JORE1000-21		AMF-CC-JORE1000-31
Number of N.C. de-energisation pole		1			
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	1000 A			
With conductor cross-sectional area		500 mm²			
Maximum making capacity		9000 A			
Rated short time current	0.5 s	10000 A			
	15 s	6000 A			
Maximum breaking capacity at Ue		No breaking capacity			
Impedance per pole		0.18 mΩ			

General technical data

Types		AM-CC-JORE1000-21		AM-CC-JORE1000-31	
Single tripping coil					
Double tripping coil			AMF-CC-JORE1000-21		AMF-CC-JORE1000-31
Rated impulse withstand voltage Uimp.		8 kV			
Dielectric test voltage / 1 min		5500 V AC 50 Hz		6000 V AC 50 Hz	
Ambient air temperature close to contactor					
Operation in free air		-20…+55 °C			
Storage		-20…+80 °C			
Climatic withstand		Standard version for industrial environment and atmospheres			
Maximum operating altitude (without derating)		2000 m			
Mechanical durability					
Number of operating cycles		200000 cycles			

Construction characteristics

Types		AM-CC-JORE1000-21			AM-CC-JORE1000-31		
Single tripping coil							
Double tripping coil				AMF-CC-JORE1000-21			AMF-CC-JORE1000-31
Standard combination of auxiliary contacts		3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)		2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)	3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)		2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)
Maximum number of auxiliary contacts		5	20	16	5	20	16
Fixing dimensions (F)		550 mm	650 mm	650 mm	650 mm	760 mm	760 mm
Width		640 mm	740 mm	740 mm	740 mm	850 mm	850 mm
Weight		59 kg	59 kg	60 kg	71 kg	71 kg	72 kg

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AM-CC-JORE1000 and AMF-CC-JORE1000 alternator field discharge contactors
Technical data

Magnet system characteristics

Types	Single tripping coil	AM-CC-JORE1000-21		AM-CC-JORE1000-31	
	Double tripping coil		AMF-CC-JORE1000-21		AMF-CC-JORE1000-31
Coil operating limits					
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc			
DC control voltage					
Rated control circuit voltage Uc		24…220 V DC			
Coil consumption	Average pull-in value	650 W		650 W	
	Tripping	265 W		265 W	
Operating time (average values for Uc)					
Closing time		100 ms			
Opening time		55 ms			

Mounting characteristics

Types	Single tripping coil	AM-CC-JORE1000-21		AM-CC-JORE1000-31	
	Double tripping coil		AMF-CC-JORE1000-21		AMF-CC-JORE1000-31
Fixing by screws (not supplied)		4 x M12		4 x M12	

Connecting characteristics

Types	Single tripping coil	AM-CC-JORE1000-21		AM-CC-JORE1000-31	
	Double tripping coil		AMF-CC-JORE1000-21		AMF-CC-JORE1000-31
Connection capacity (min. ... max.)					
Main conductors (poles)					
Terminal plates width		48 mm			
Terminal screw (not supplied)		-			
Drilling holes (without thread)		2 x ø13 mm			
Auxiliary conductors					
(built-in auxiliary terminals + coil terminals)					
Rigid solid	**1 or 2 x**	1…2.5 mm²			
Flexible with non insulated ferrule	**1 or 2 x**	1…2.5 mm²			
Tightening torque					
Coil terminals		1.5 Nm			
Built-in auxiliary terminals		1.5 Nm			
Screw terminals					
Main terminals		Screws and bolts			
Coil terminals		M4 with cable clamps			
Built-in auxiliary terminals		M4 with cable clamps			

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AM-CC-JORE1400 and AMF-CC-JORE1400 alternator field discharge contactors
Technical data

N.O. main pole - Utilization characteristics

Types	Single tripping coil	AM-CC-JORE1400-21		AM-CC-JORE1400-31	
	Double tripping coil		AMF-CC-JORE1400-21		AMF-CC-JORE1400-31
Number of N.O. poles in series		2		3	
Rated operational voltage Ue		750 V DC		1000 V DC	
Maximum breaking voltage		1500 V DC		2250 V DC	
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	1300 A			
With conductor cross-sectional area		800 mm²			
Ie / Rated operational current	θ ≤ 40 °C	1300 A			
	θ ≤ 50 °C	1200 A			
Rated short-time withstand current Icw at 40 °C ambient temperature, in free air from a cold state	1 s	11000 A			
	10 s	9000 A			
	30 s	5000 A			
	1 min	3600 A			
	15 min	1900 A			
Maximum breaking capacity at Ue (L / R ≤ 15 ms)	550 V	22000 A		22000 A	
	750 V	16000 A		20000 A	
	1000 V	11000 A		17000 A	
	1 500 V	8000 A		10000 A	
	2 250 V	-		7000 A	
Maximum making capacity		19000 A			
Dynamical withstand of pole		19000 A			
Impedance per pole		0.18 mΩ			

N.C. de-energisation pole - Utilization characteristics

Types	Single tripping coil	AM-CC-JORE1400-21		AM-CC-JORE1400-31	
	Double tripping coil		AMF-CC-JORE1400-21		AMF-CC-JORE1400-31
Number of N.C. de-energisation pole		1			
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	1000 A			
With conductor cross-sectional area		500 mm²			
Maximum making capacity		9000 A			
Rated short time current	0.5 s	10000 A			
	15 s	6000 A			
Maximum breaking capacity at Ue		No breaking capacity			
Impedance per pole		0.18 mΩ			

General technical data

Types	Single tripping coil	AM-CC-JORE1400-21		AM-CC-JORE1400-31	
	Double tripping coil		AMF-CC-JORE1400-21		AMF-CC-JORE1400-31
Rated impulse withstand voltage Uimp.		8 kV			
Dielectric test voltage / 1 min		5500 V AC 50 Hz		6000 V AC 50 Hz	
Ambient air temperature close to contactor					
Operation in free air		-20…+55 °C			
Storage		-20…+80 °C			
Climatic withstand		Standard version for industrial environment and atmospheres			
Maximum operating altitude (without derating)		2000 m			
Mechanical durability					
Number of operating cycles		200000 cycles			

Construction characteristics

Types	Single tripping coil	AM-CC-JORE1400-21		AM-CC-JORE1400-31		
	Double tripping coil		AMF-CC-JORE1400-21			AMF-CC-JORE1400-31
Standard combination of auxiliary contacts		3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)	2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)		3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)	2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)
Maximum number of auxiliary contacts		5	20	16	5	20	16
Fixing dimensions (F)		550 mm	650 mm	650 mm	650 mm	760 mm	760 mm
Width		640 mm	740 mm	740 mm	740 mm	850 mm	850 mm
Weight		60 kg	60 kg	61 kg	72 kg	72 kg	73 kg

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AM-CC-JORE1400 and AMF-CC-JORE1400 alternator field discharge contactors
Technical data

Magnet system characteristics

Types	Single tripping coil	AM-CC-JORE1400-21		AM-CC-JORE1400-31	
	Double tripping coil		AMF-CC-JORE1400-21		AMF-CC-JORE1400-31
Coil operating limits					
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc			
DC control voltage					
Rated control circuit voltage Uc		24…220 V DC			
Coil consumption	Average pull-in value	650 W		950 W	
	Tripping	265 W		265 W	
Operating time (average values for Uc)					
Closing time		100 ms			
Opening time		50 ms			

Mounting characteristics

Types	Single tripping coil	AM-CC-JORE1400-21		AM-CC-JORE1400-31	
	Double tripping coil		AMF-CC-JORE1400-21		AMF-CC-JORE1400-31
Fixing by screws (not supplied)		4 x M12		4 x M12	

Connecting characteristics

Types	Single tripping coil	AM-CC-JORE1400-21		AM-CC-JORE1400-31	
	Double tripping coil		AMF-CC-JORE1400-21		AMF-CC-JORE1400-31
Connection capacity (min. ... max.)					
Main conductors (poles)					
Terminal plates width		60 mm			
Terminal screw (not supplied)		-			
Drilling holes (without thread)		2 x ø13 mm			
Auxiliary conductors					
(built-in auxiliary terminals + coil terminals)					
Rigid solid	**1 or 2 x**	1…2.5 mm²			
Flexible with non insulated ferrule	**1 or 2 x**	1…2.5 mm²			
Tightening torque					
Coil terminals		1.5 Nm			
Built-in auxiliary terminals		1.5 Nm			
Screw terminals					
Main terminals		Screws and bolts			
Coil terminals		M4 with cable clamps			
Built-in auxiliary terminals		M4 with cable clamps			

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AM-CC-JORE1700 and AMF-CC-JORE1700 alternator field discharge contactors
Technical data

N.O. main pole - Utilization characteristics

Types			AM-CC-JORE1700-21		AM-CC-JORE1700-31	
	Double tripping coil			AMF-CC-JORE1700-21		AMF-CC-JORE1700-31
Number of N.O. poles in series			2		3	
Rated operational voltage Ue			750 V DC		1000 V DC	
Maximum breaking voltage			1500 V DC		2250 V DC	
Conventional free-air thermal current Ith						
Open contactors		θ ≤ 40 °C	1600 A			
With conductor cross-sectional area			1000 mm²			
Ie / Rated operational current		θ ≤ 40 °C	1 600 A			
		θ ≤ 50 °C	1 500 A			
Rated short-time withstand current Icw at 40 °C ambient temperature, in free air from a cold state		1 s	13000 A			
		10 s	11000 A			
		30 s	6000 A			
		1 min	4200 A			
		15 min	2200 A			
Maximum breaking capacity at Ue (L / R ≤ 15 ms)		550 V	22000 A		22000 A	
		750 V	18000 A		22000 A	
		1000 V	12000 A		18000 A	
		1 500 V	8000 A		12000 A	
		2 250 V	-		8000 A	
Maximum making capacity			21000 A			
Dynamical withstand of pole			21000 A			
Impedance per pole			0.12 mΩ			

N.C. de-energisation pole - Utilization characteristics

Types			AM-CC-JORE1700-21		AM-CC-JORE1700-31	
	Double tripping coil			AMF-CC-JORE1700-21		AMF-CC-JORE1700-31
Number of N.C. de-energisation pole			1			
Conventional free-air thermal current Ith						
Open contactors		θ ≤ 40 °C	1000 A			
With conductor cross-sectional area			500 mm²			
Maximum making capacity			9000 A			
Rated short time current		0.5 s	10000 A			
		15 s	6000 A			
Maximum breaking capacity at Ue			No breaking capacity			
Impedance per pole			0.18 mΩ			

General technical data

Types		AM-CC-JORE1700-21		AM-CC-JORE1700-31	
	Double tripping coil		AMF-CC-JORE1700-21		AMF-CC-JORE1700-31
Rated impulse withstand voltage Uimp.		8 kV			
Dielectric test voltage / 1 min		5500 V AC 50 Hz		6000 V AC 50 Hz	
Ambient air temperature close to contactor					
Operation in free air		-20…+55 °C			
Storage		-20…+80 °C			
Climatic withstand		Standard version for industrial environment and atmospheres			
Maximum operating altitude (without derating)		2000 m			
Mechanical durability					
Number of operating cycles		200000 cycles			

Construction characteristics

Types		AM-CC-JORE1700-21		AM-CC-JORE1700-31		
	Double tripping coil		AMF-CC-JORE1700-21			AMF-CC-JORE1700-31
Standard combination of auxiliary contacts		3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)	2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)	3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)		2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)
Maximum number of auxiliary contacts		5	20	16	5	20	16
Fixing dimensions (F)		635 mm	760 mm	760 mm	820 mm	920 mm	920 mm
Width		725 mm	850 mm	850 mm	910 mm	1010 mm	1010 mm
Weight		72 kg	72 kg	73 kg	90 kg	90 kg	91 kg

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AM-CC-JORE1700 and AMF-CC-JORE1700 alternator field discharge contactors
Technical data

Magnet system characteristics

Types	Single tripping coil	AM-CC-JORE1700-21		AM-CC-JORE1700-31	
	Double tripping coil		AMF-CC-JORE1700-21		AMF-CC-JORE1700-31
Coil operating limits					
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc			
DC control voltage					
Rated control circuit voltage Uc		24…220 V DC			
Coil consumption	Average pull-in value	950 W		950 W	
	Tripping	265 W		265 W	
Operating time (average values for Uc)					
Closing time		85 ms			
Opening time		50 ms			

Mounting characteristics

Types	Single tripping coil	AM-CC-JORE1700-21		AM-CC-JORE1700-31	
	Double tripping coil		AMF-CC-JORE1700-21		AMF-CC-JORE1700-31
Fixing by screws (not supplied)		4 x M12		4 x M12	

Connecting characteristics

Types	Single tripping coil	AM-CC-JORE1700-21		AM-CC-JORE1700-31	
	Double tripping coil		AMF-CC-JORE1700-21		AMF-CC-JORE1700-31
Connection capacity (min. ... max.)					
Main conductors (poles)					
Terminal plates width		80 mm			
Terminal screw (not supplied)		-			
Drilling holes (without thread)		4 x ø11 mm			
Auxiliary conductors					
(built-in auxiliary terminals + coil terminals)					
Rigid solid	**1 or 2 x**	1…2.5 mm²			
Flexible with non insulated ferrule	**1 or 2 x**	1…2.5 mm²			
Tightening torque					
Coil terminals		1.5 Nm			
Built-in auxiliary terminals		1.5 Nm			
Screw terminals					
Main terminals		Screws and bolts			
Coil terminals		M4 with cable clamps			
Built-in auxiliary terminals		M4 with cable clamps			

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AM-CC-JORE2100 and AMF-CC-JORE2100 alternator field discharge contactors
Technical data

N.O. main pole - Utilization characteristics

Types	Single tripping coil	AM-CC-JORE2100-21		AM-CC-JORE2100-31	
	Double tripping coil		AMF-CC-JORE2100-21		AMF-CC-JORE2100-31
Number of N.O. poles in series		2		3	
Rated operational voltage Ue		750 V DC		1000 V DC	
Maximum breaking voltage		1500 V DC		2250 V DC	
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	2000 A			
With conductor cross-sectional area		1500 mm²			
Ie / Rated operational current	θ ≤ 40 °C	2000 A			
	θ ≤ 50 °C	1750 A			
Rated short-time withstand current Icw at 40 °C ambient temperature, in free air from a cold state	1 s	15000 A			
	10 s	12000 A			
	30 s	7000 A			
	1 min	4600 A			
	15 min	2600 A			
Maximum breaking capacity at Ue (L / R ≤ 15 ms)	550 V	22000 A		22000 A	
	750 V	18000 A		22000 A	
	1000 V	12000 A		18000 A	
	1 500 V	8000 A		12000 A	
	2 250 V	-		8000 A	
Maximum making capacity		24000 A			
Dynamical withstand of pole		24000 A			
Impedance per pole		0.10 mΩ			

N.C. de-energisation pole - Utilization characteristics

Types	Single tripping coil	AM-CC-JORE2100-21		AM-CC-JORE2100-31	
	Double tripping coil		AMF-CC-JORE2100-21		AMF-CC-JORE2100-31
Number of N.C. de-energisation pole		1			
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	1000 A			
With conductor cross-sectional area		500 mm²			
Maximum making capacity		9000 A			
Rated short time current	0.5 s	10000 A			
	15 s	6000 A			
Maximum breaking capacity at Ue		No breaking capacity			
Impedance per pole		0.8 mΩ			

General technical data

Types	Single tripping coil	AM-CC-JORE2100-21		AM-CC-JORE2100-31	
	Double tripping coil		AMF-CC-JORE2100-21		AMF-CC-JORE2100-31
Rated impulse withstand voltage Uimp.		8 kV			
Dielectric test voltage / 1 min		5500 V AC 50 Hz		6000 V AC 50 Hz	
Ambient air temperature close to contactor					
Operation in free air		-20…+55 °C			
Storage		-20…+80 °C			
Climatic withstand		Standard version for industrial environment and atmospheres			
Maximum operating altitude (without derating)		2000 m			
Mechanical durability					
Number of operating cycles		200000 cycles			

Construction characteristics

Types	Single tripping coil	AM-CC-JORE2100-21		AM-CC-JORE2100-31		
	Double tripping coil		AMF-CC-JORE2100-21			AMF-CC-JORE2100-31
Standard combination of auxiliary contacts		3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)	2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)		3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)	2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)
Maximum number of auxiliary contacts		5	20	16	5	20	16
Fixing dimensions (F)		635 mm	760 mm	760 mm	820 mm	920 mm	920 mm
Width		725 mm	850 mm	850 mm	910 mm	1010 mm	1010 mm
Weight		80 kg	80 kg	81 kg	100 kg	100 kg	101 kg

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AM-CC-JORE2100 and AMF-CC-JORE2100 alternator field discharge contactors
Technical data

Magnet system characteristics

Types	Single tripping coil	AM-CC-JORE2100-21		AM-CC-JORE2100-31	
	Double tripping coil		AMF-CC-JORE2100-21		AMF-CC-JORE2100-31
Coil operating limits					
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc			
DC control voltage					
Rated control circuit voltage Uc		24…220 V DC			
Coil consumption	Average pull-in value	950 W		950 W	
	Tripping	265 W		265 W	
Operating time (average values for Uc)					
Closing time		85 ms			
Opening time		45 ms			

Mounting characteristics

Types	Single tripping coil	AM-CC-JORE2100-21		AM-CC-JORE2100-31	
	Double tripping coil		AMF-CC-JORE2100-21		AMF-CC-JORE2100-31
Fixing by screws (not supplied)		4 x M12		4 x M12	

Connecting characteristics

Types	Single tripping coil	AM-CC-JORE2100-21		AM-CC-JORE2100-31	
	Double tripping coil		AMF-CC-JORE2100-21		AMF-CC-JORE2100-31
Connection capacity (min. ... max.)					
Main conductors (poles)					
Terminal plates width		100 mm			
Terminal screw (not supplied)		-			
Drilling holes (without thread)		4 x ø11 mm			
Auxiliary conductors					
(built-in auxiliary terminals + coil terminals)					
Rigid solid	**1 or 2 x**	1…2.5 mm²			
Flexible with non insulated ferrule	**1 or 2 x**	1…2.5 mm²			
Tightening torque					
Coil terminals		1.5 Nm			
Built-in auxiliary terminals		1.5 Nm			
Screw terminals					
Main terminals		Screws and bolts			
Coil terminals		M4 with cable clamps			
Built-in auxiliary terminals		M4 with cable clamps			

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AM-CC-JORE2500 and AMF-CC-JORE2500 alternator field discharge contactors
Technical data

N.O. main pole - Utilization characteristics

Types	Single tripping coil	AM-CC-JORE2500-21		AM-CC-JORE2500-31	
	Double tripping coil		AMF-CC-JORE2500-21		AMF-CC-JORE2500-31
Number of N.O. poles in series		2		3	
Rated operational voltage Ue		750 V DC		1000 V DC	
Maximum breaking voltage		1500 V DC		2250 V DC	
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	2300 A			
With conductor cross-sectional area		2000 mm²			
Ie / Rated operational current	θ ≤ 40 °C	2300 A			
	θ ≤ 50 °C	2100 A			
Rated short-time withstand current Icw at 40 °C ambient temperature, in free air from a cold state	1 s	20000 A			
	10 s	15000 A			
	30 s	8000 A			
	1 min	6000 A			
	15 min	3000 A			
Maximum breaking capacity at Ue (L / R ≤ 15 ms)	550 V	23000 A		23000 A	
	750 V	18000 A		23000 A	
	1000 V	14000 A		18000 A	
	1 500 V	8000 A		14000 A	
	2 250 V	-		8000 A	
Maximum making capacity		24000 A			
Dynamical withstand of pole		24000 A			
Impedance per pole		0.09 mΩ			

N.C. de-energisation pole - Utilization characteristics

Types	Single tripping coil	AM-CC-JORE2500-21		AM-CC-JORE2500-31	
	Double tripping coil		AMF-CC-JORE2500-21		AMF-CC-JORE2500-31
Number of N.C. de-energisation pole		1			
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	1000 A			
With conductor cross-sectional area		500 mm²			
Maximum making capacity		9000 A			
Rated short time current	0.5 s	10000 A			
	15 s	6000 A			
Maximum breaking capacity at Ue		No breaking capacity			
Impedance per pole		0.18 mΩ			

General technical data

Types	Single tripping coil	AM-CC-JORE2500-21		AM-CC-JORE2500-31	
	Double tripping coil		AMF-CC-JORE2500-21		AMF-CC-JORE2500-31
Rated impulse withstand voltage Uimp.		8 kV			
Dielectric test voltage / 1 min		5500 V AC 50 Hz		6000 V AC 50 Hz	
Ambient air temperature close to contactor					
Operation in free air		-20…+55 °C			
Storage		-20…+80 °C			
Climatic withstand		Standard version for industrial environment and atmospheres			
Maximum operating altitude (without derating)		2000 m			
Mechanical durability					
Number of operating cycles		200000 cycles			

Construction characteristics

Types	Single tripping coil	AM-CC-JORE2500-21			AM-CC-JORE2500-31		
	Double tripping coil			AMF-CC-JORE2500-21			AMF-CC-JORE2500-31
Standard combination of auxiliary contacts		3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)		2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)	3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)		2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)
Maximum number of auxiliary contacts		5	20	16	5	20	16
Fixing dimensions (F)		885 mm	985 mm	985 mm	1150 mm	1250 mm	1250 mm
Width		975 mm	1075 mm	1075 mm	1240 mm	1340 mm	1340 mm
Weight		85 kg	85 kg	86 kg	120 kg	122 kg	123 kg

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AM-CC-JORE2500 and AMF-CC-JORE2500 alternator field discharge contactors
Technical data

Magnet system characteristics

Types	Single tripping coil	AM-CC-JORE2500-21		AM-CC-JORE2500-31	
	Double tripping coil		AMF-CC-JORE2500-21		AMF-CC-JORE2500-31
Coil operating limits					
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc			
DC control voltage					
Rated control circuit voltage Uc		24…220 V DC			
Coil consumption	Average pull-in value	950 W		950 W	
	Tripping	265 W		265 W	
Operating time (average values for Uc)					
Closing time		85 ms			
Opening time		50 ms			

Mounting characteristics

Types	Single tripping coil	AM-CC-JORE2500-21		AM-CC-JORE2500-31	
	Double tripping coil		AMF-CC-JORE2500-21		AMF-CC-JORE2500-31
Fixing by screws (not supplied)		4 x M12		4 x M12	

Connecting characteristics

Types	Single tripping coil	AM-CC-JORE2500-21		AM-CC-JORE2500-31	
	Double tripping coil		AMF-CC-JORE2500-21		AMF-CC-JORE2500-31
Connection capacity (min. ... max.)					
Main conductors (poles)					
Terminal plates width		150 mm			
Terminal screw (not supplied)		-			
Drilling holes (without thread)		8 x ø9 mm			
Auxiliary conductors					
(built-in auxiliary terminals + coil terminals)					
Rigid solid	**1 or 2 x**	1…2.5 mm²			
Flexible with non insulated ferrule	**1 or 2 x**	1…2.5 mm²			
Tightening torque					
Coil terminals		1.5 Nm			
Built-in auxiliary terminals		1.5 Nm			
Screw terminals					
Main terminals		Screws and bolts			
Coil terminals		M4 with cable clamps			
Built-in auxiliary terminals		M4 with cable clamps			

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AM-CC-JORE3200 and AMF-CC-JORE3200 alternator field discharge contactors
Technical data

N.O. main pole - Utilization characteristics

Types	Single tripping coil	AM-CC-JORE3200-21		AM-CC-JORE3200-31	
	Double tripping coil		AMF-CC-JORE3200-21		AMF-CC-JORE3200-31
Number of N.O. poles in series		2		3	
Rated operational voltage Ue		750 V DC		1000 V DC	
Maximum breaking voltage		1500 V DC		2250 V DC	
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	3200 A			
With conductor cross-sectional area		3000 mm²			
Ie / Rated operational current	θ ≤ 40 °C	3200 A			
	θ ≤ 50 °C	3000 A			
Rated short-time withstand current Icw at 40 °C ambient temperature, in free air from a cold state	1 s	21000 A			
	10 s	18000 A			
	30 s	10000 A			
	1 min	7000 A			
	15 min	4000 A			
Maximum breaking capacity at Ue (L / R ≤ 15 ms)	550 V	25000 A		25000 A	
	750 V	22000 A		25000 A	
	1000 V	20000 A		22000 A	
	1 500 V	9000 A		18000 A	
	2 250 V	-		9000 A	
Maximum making capacity		26000 A			
Dynamical withstand of pole		26000 A			
Impedance per pole		0.06 mΩ			

N.C. de-energisation pole - Utilization characteristics

Types	Single tripping coil	AM-CC-JORE3200-21		AM-CC-JORE3200-31	
	Double tripping coil		AMF-CC-JORE3200-21		AMF-CC-JORE3200-31
Number of N.C. de-energisation pole		1			
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	1000 A			
With conductor cross-sectional area		500 mm²			
Maximum making capacity		9000 A			
Rated short time current	0.5 s	10000 A			
	15 s	6000 A			
Maximum breaking capacity at Ue		No breaking capacity			
Impedance per pole		0.18 mΩ			

General technical data

Types	Single tripping coil	AM-CC-JORE3200-21		AM-CC-JORE3200-31	
	Double tripping coil		AMF-CC-JORE3200-21		AMF-CC-JORE3200-31
Rated impulse withstand voltage Uimp.		8 kV			
Dielectric test voltage / 1 min		5500 V AC 50 Hz		6000 V AC 50 Hz	
Ambient air temperature close to contactor					
Operation in free air		-20…+55 °C			
Storage		-20…+80 °C			
Climatic withstand		Standard version for industrial environment and atmospheres			
Maximum operating altitude (without derating)		2000 m			
Mechanical durability					
Number of operating cycles		200000 cycles			

Construction characteristics

Types	Single tripping coil	AM-CC-JORE3200-21		AM-CC-JORE3200-31		
	Double tripping coil		AMF-CC-JORE3200-21			AMF-CC-JORE3200-31
Standard combination of auxiliary contacts		3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)	2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)	3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)		2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)
Maximum number of auxiliary contacts		5	20	16	5	20	16
Fixing dimensions (F)		885 mm	985 mm	985 mm	1150 mm	1250 mm	1250 mm
Width		975 mm	1075 mm	1075 mm	1240 mm	1340 mm	1340 mm
Weight		102 kg	104 kg	105 kg	120 kg	122 kg	123 kg

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AM-CC-JORE3200 and AMF-CC-JORE3200 alternator field discharge contactors
Technical data

Magnet system characteristics

Types	Single tripping coil	AM-CC-JORE3200-21		AM-CC-JORE3200-31	
	Double tripping coil		AMF-CC-JORE3200-21		AMF-CC-JORE3200-31
Coil operating limits					
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc			
DC control voltage					
Rated control circuit voltage Uc		24…220 V DC			
Coil consumption	Average pull-in value	985 W		985 W	
	Tripping	265 W		265 W	
Operating time (average values for Uc)					
Closing time		90 ms		135 ms	
Opening time		45 ms		45 ms	

Mounting characteristics

Types	Single tripping coil	AM-CC-JORE3200-21		AM-CC-JORE3200-31	
	Double tripping coil		AMF-CC-JORE3200-21		AMF-CC-JORE3200-31
Fixing by screws (not supplied)		4 or 6 x M12		4 or 6 x M12	

Connecting characteristics

Types	Single tripping coil	AM-CC-JORE3200-21		AM-CC-JORE3200-31	
	Double tripping coil		AMF-CC-JORE3200-21		AMF-CC-JORE3200-31
Connection capacity (min. ... max.)					
Main conductors (poles)					
Terminal plates width		180 mm			
Terminal screw (not supplied)		-			
Drilling holes (without thread)		8 x ø13 mm			
Auxiliary conductors					
(built-in auxiliary terminals + coil terminals)					
Rigid solid	**1 or 2 x**	1…2.5 mm²			
Flexible with non insulated ferrule	**1 or 2 x**	1…2.5 mm²			
Tightening torque					
Coil terminals		1.5 Nm			
Built-in auxiliary terminals		1.5 Nm			
Screw terminals					
Main terminals		Screws and bolts			
Coil terminals		M4 with cable clamps			
Built-in auxiliary terminals		M4 with cable clamps			

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AM-CC-JORE3800 and AMF-CC-JORE3800 alternator field discharge contactors
Technical data

N.O. main pole - Utilization characteristics

Types	Single tripping coil	AM-CC-JORE3800-21		AM-CC-JORE3800-31	
	Double tripping coil		AMF-CC-JORE3800-21		AMF-CC-JORE3800-31
Number of N.O. poles in series		2		3	
Rated operational voltage Ue		750 V DC		1000 V DC	
Maximum breaking voltage		1500 V DC		2250 V DC	
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	3800 A			
With conductor cross-sectional area		4000 mm²			
Ie / Rated operational current	θ ≤ 40 °C	3800 A			
	θ ≤ 50 °C	3500 A			
Rated short-time withstand current Icw at 40 °C ambient temperature, in free air from a cold state	1 s	24000 A			
	10 s	19000 A			
	30 s	11000 A			
	1 min	7500 A			
	15 min	4500 A			
Maximum breaking capacity at Ue (L / R ≤ 15 ms)	550 V	25000 A		25000 A	
	750 V	22000 A		25000 A	
	1000 V	20000 A		22000 A	
	1 500 V	9000 A		18000 A	
	2 250 V	-		9000 A	
Maximum making capacity		29000 A			
Dynamical withstand of pole		29000 A			
Impedance per pole		0.05 mΩ			

N.C. de-energisation pole - Utilization characteristics

Types	Single tripping coil	AM-CC-JORE3800-21		AM-CC-JORE3800-31	
	Double tripping coil		AMF-CC-JORE3800-21		AMF-CC-JORE3800-31
Number of N.C. de-energisation pole		1			
Conventional free-air thermal current Ith					
Open contactors	θ ≤ 40 °C	1000 A			
With conductor cross-sectional area		500 mm²			
Maximum making capacity		9000 A			
Rated short time current	0.5 s	10000 A			
	15 s	6000 A			
Maximum breaking capacity at Ue		No breaking capacity			
Impedance per pole		0.18 mΩ			

General technical data

Types	Single tripping coil	AM-CC-JORE3800-21		AM-CC-JORE3800-31	
	Double tripping coil		AMF-CC-JORE3800-21		AMF-CC-JORE3800-31
Rated impulse withstand voltage Uimp.		8 kV			
Dielectric test voltage / 1 min		5500 V AC 50 Hz		6000 V AC 50 Hz	
Ambient air temperature close to contactor					
Operation in free air		-20…+55 °C			
Storage		-20…+80 °C			
Climatic withstand		Standard version for industrial environment and atmospheres			
Maximum operating altitude (without derating)		2000 m			
Mechanical durability					
Number of operating cycles		200000 cycles			

Construction characteristics

Types	Single tripping coil	AM-CC-JORE3800-21		AM-CC-JORE3800-31		
	Double tripping coil		AMF-CC-JORE3800-21			AMF-CC-JORE3800-31
Standard combination of auxiliary contacts		3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)	2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)	3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)		2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)
Maximum number of auxiliary contacts		5	20	16	5	20	16
Fixing dimensions (F)		950 mm	1050 mm	1050 mm	1200 mm	1300 mm	1300 mm
Width		1040 mm	1140 mm	1140 mm	1290 mm	1390 mm	1390 mm
Weight		110 kg	112 kg	113 kg	129 kg	131 kg	132 kg

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AM-CC-JORE3800 and AMF-CC-JORE3800 alternator field discharge contactors
Technical data

Magnet system characteristics

Types	Single tripping coil	AM-CC-JORE3800-21		AM-CC-JORE3800-31	
	Double tripping coil		AMF-CC-JORE3800-21		AMF-CC-JORE3800-31
Coil operating limits					
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc			
DC control voltage					
Rated control circuit voltage Uc		24…220 V DC			
Coil consumption	Average pull-in value	985 W		1250 W	
	Tripping	265 W		265 W	
Operating time (average values for Uc)					
Closing time		100 ms		140 ms	
Opening time		45 ms		40 ms	

Mounting characteristics

Types	Single tripping coil	AM-CC-JORE3800-21		AM-CC-JORE3800-31	
	Double tripping coil		AMF-CC-JORE3800-21		AMF-CC-JORE3800-31
Fixing by screws (not supplied)		4 or 6 x M12		4 or 6 x M12	

Connecting characteristics

Types	Single tripping coil	AM-CC-JORE3800-21		AM-CC-JORE3800-31	
	Double tripping coil		AMF-CC-JORE3800-21		AMF-CC-JORE3800-31
Connection capacity (min. ... max.)					
Main conductors (poles)					
Terminal plates width		220 mm			
Terminal screw (not supplied)		-			
Drilling holes (without thread)		8 x ø13 mm			
Auxiliary conductors					
(built-in auxiliary terminals + coil terminals)					
Rigid solid	**1 or 2 x**	1…2.5 mm²			
Flexible with non insulated ferrule	**1 or 2 x**	1…2.5 mm²			
Tightening torque					
Coil terminals		1.5 Nm			
Built-in auxiliary terminals		1.5 Nm			
Screw terminals					
Main terminals		Screws and bolts			
Coil terminals		M4 with cable clamps			
Built-in auxiliary terminals		M4 with cable clamps			

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AM-CC-JORE4500 and AMF-CC-JORE4500 alternator field discharge contactors
Technical data

N.O. main pole - Utilization characteristics

Types		AM-CC-JORE4500-21	
	Double tripping coil		AMF-CC-JORE4500-21
Number of N.O. poles in series		2	
Rated operational voltage Ue		750 V DC	
Maximum breaking voltage		1500 V DC	
Conventional free-air thermal current Ith			
Open contactors	θ ≤ 40 °C	4500 A	
With conductor cross-sectional area		4000 mm²	
Ie / Rated operational current	θ ≤ 40 °C	4500 A	
	θ ≤ 50 °C	4100 A	
Rated short-time withstand current Icw at 40 °C ambient temperature, in free air from a cold state	1 s	28000 A	
	10 s	21000 A	
	30 s	12000 A	
	1 min	8000 A	
	15 min	5000 A	
Maximum breaking capacity at Ue (L / R ≤ 15 ms)	550 V	25000 A	
	750 V	22000 A	
	1000 V	20000 A	
	1 500 V	10000 A	
	2 250 V	-	
Maximum making capacity		32000 A	
Dynamical withstand of pole		32000 A	
Impedance per pole		0.04 mΩ	

N.C. de-energisation pole - Utilization characteristics

Types		AM-CC-JORE4500-21	
	Double tripping coil		AMF-CC-JORE4500-21
Number of N.C. de-energisation pole		1	
Conventional free-air thermal current Ith			
Open contactors	θ ≤ 40 °C	1000 A	
With conductor cross-sectional area		500 mm²	
Maximum making capacity		9000 A	
Rated short time current	0.5 s	10000 A	
	15 s	6000 A	
Maximum breaking capacity at Ue		No breaking capacity	
Impedance per pole		0.18 mΩ	

General technical data

Types		AM-CC-JORE4500-21	
	Double tripping coil		AMF-CC-JORE4500-21
Rated impulse withstand voltage Uimp.		8 kV	
Dielectric test voltage / 1 min		5500 V AC 50 Hz	
Ambient air temperature close to contactor			
Operation in free air		-20…+55 °C	
Storage		-20…+80 °C	
Climatic withstand		Standard version for industrial environment and atmospheres	
Maximum operating altitude (without derating)		2000 m	
Mechanical durability			
Number of operating cycles		200000 cycles	

Construction characteristics

Types		AM-CC-JORE4500-21		
	Double tripping coil			AMF-CC-JORE4500-21
Standard combination of auxiliary contacts		3 N.O. + 2 N.C.: 3 CA15-F (N.O.) + 2 CA15-O (N.C.)		2 N.O. + 2 N.C.: 2 CA15-F (N.O.) + 2 CA15-O (N.C.)
Maximum number of auxiliary contacts		5	20	16
Fixing dimensions (F)		1100 mm	1200 mm	1200 mm
Width		1190 mm	1290 mm	1290 mm
Weight		135 kg	136 kg	137 kg

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AM-CC-JORE4500 and AMF-CC-JORE4500 alternator field discharge contactors
Technical data

Magnet system characteristics

Types	**Single tripping coil**	**AM-CC-JORE4500-21**	
	Double tripping coil		**AMF-CC-JORE4500-21**
Coil operating limits			
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc	
DC control voltage			
Rated control circuit voltage Uc		24…220 V DC	
Coil consumption	**Average pull-in value**	1250 W	
	Tripping	265 W	
Operating time (average values for Uc)			
Closing time		140 ms	
Opening time		40 ms	

Mounting characteristics

Types	**Single tripping coil**	**AM-CC-JORE4500-21**	
	Double tripping coil		**AMF-CC-JORE4500-21**
Fixing by screws (not supplied)		4 or 6 x M12	

Connecting characteristics

Types	**Single tripping coil**	**AM-CC-JORE4500-21**	
	Double tripping coil		**AMF-CC-JORE4500-21**
Connection capacity (min. ... max.)			
Main conductors (poles)			
Terminal plates width		280 mm	
Terminal screw (not supplied)		-	
Drilling holes (without thread)		12 x ø11 mm	
Auxiliary conductors			
(built-in auxiliary terminals + coil terminals)			
Rigid solid	**1 or 2 x**	1…2.5 mm²	
Flexible with non insulated ferrule	**1 or 2 x**	1…2.5 mm²	
Tightening torque			
Coil terminals		1.5 Nm	
Built-in auxiliary terminals		1.5 Nm	
Screw terminals			
Main terminals		Screws and bolts	
Coil terminals		M4 with cable clamps	
Built-in auxiliary terminals		M4 with cable clamps	

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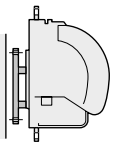
General technical data

R contactors
Technical data

General technical data

Contactor types	IOR, LOR, NOR contactors
Standards	IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1
Rated insulation voltage Ui	
acc. to IEC 60947-4-1 and EN 60947-4-1	
R63 ... R500	1000 V AC or 1000 V DC (1500 V DC with increased insulation)
R800 ... R5100	1000 V AC or 1500 V DC
Rated impulse withstand voltage Uimp.	8 kV
Ambient air temperature close to contactor	
Operation	-20...+70 °C
Storage	-20...+80 °C
Climatic withstand	Standard version for industrial environment and atmospheres
Maximum operating altitude (without derating)	2000 m

Mounting characteristics and condition for use

Contactor types	IOR, LOR, NOR contactors
Mounting positions	Position 1 (horizontal bar)  Maximum angle of inclination, in any direction : ±22° 30'
Mounting distances	See "Dimensions"

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R contactors
Technical data

Types		IORR63..MT IORR63..CC LORR85	IORR125..MT IORR125..CC LORR170	IORR200..MT IORR200..CC LORR260	IORR400..MT IORR400..CC LORR400	IORR500..MT IORR500..CC LORR550
Magnet system characteristics						
Coil operating limits						
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc				
AC control voltage 50/60 Hz						
Rated control circuit voltage Uc		24…550 V AC				
Coil consumption	**Average pull-in value**	290 VA	460 VA	410 VA	540 VA	540 VA
	Average holding value	25 VA	45 VA	45 VA	65 VA	65 VA
Drop-out voltage		20...75 % of Uc				
Operating time (average values for Uc)						
Between coil energization and N.O. contact closing		30 ms	30 ms	40 ms	60 ms	60 ms
Between coil de-energization and N.O. contact opening		20 ms	20 ms	20 ms	50 ms	50 ms

Types		IORE63..MT IORE63..CC LORE85	IORE125..MT IORE125..CC LORE170	IORE200..MT IORE200..CC LORE260	IORE400..MT IORE400..CC LORE400	IORE500..MT IORE500..CC LORE550
Magnet system characteristics						
Coil operating limits						
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc				
DC control voltage						
Rated control circuit voltage Uc		24…600 V DC				
Coil consumption	**Average pull-in value**	265 W	330 W	330 W	360 W	360 W
	Average holding value	30 W	45 W	45 W	50 W	50 W
Drop-out voltage		10...75 % of Uc				
Operating time (average values for Uc)						
Between coil energization and N.O. contact closing		30 ms	30 ms	40 ms	60 ms	60 ms
Between coil de-energization and N.O. contact opening		20 ms	20 ms	20 ms	45 ms	45 ms

Types		IORR/IORE63..MT IORR/IORE63..CC LORR/LORE85	IORR/IORE125..MT IORR/IORE125..CC LORR/LORE170	IORR/IORE200..MT IORR/IORE200..CC LORR/LORE260	IORR/IORE400..MT IORR/IORE400..CC LORR/LORE400	IORR/IORE500..MT IORR/IORE500..CC LORR/LORE550
Mounting characteristics						
Fixing by screws (not supplied)		2 x M6	2 x M6	2 x M8	2 x M12	2 x M12

Connecting characteristics						
Main terminals		Terminal plates for lugs or bars				
Connection capacity (min. ... max.)						
Main conductors (poles)						
Terminal plates width		16 mm	20 mm	25 mm	30 mm	30 mm
Terminal screw (not supplied)		M6 x 20	M8 x 20	M10 x 25	-	-
Drilling holes (without thread)		-	-	-	1 x ø13 mm	1 x ø13 mm
Auxiliary conductors						
(built-in auxiliary terminals + coil terminals)						
Rigid solid	**1 or 2 x**	1...2.5 mm²				
Flexible without ferrule	**1 or 2 x**	1...2.5 mm²				
Tightening torque						
Coil terminals		1.5 Nm				
Built-in auxiliary terminals		1.5 Nm				
Screw terminals						
Main terminals		Screws and bolts				
Coil terminals		M4 with cable clamps				
Built-in auxiliary terminals		M4 with cable clamps				

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R contactors
Technical data

Types	IORR800 LORR800 IORR800..MT IORR800..CC	IORR1000 IORR1000..CC FORR1000	IORR1400 LORR1400 IORR1400..MT IORR1400..CC FORR1400	IORR1700 LORR1700 IORR1700..MT IORR1700..CC FORR1700	IORR2100 LORR2100 IORR2100..MT IORR2100..CC FORR2100

Magnet system characteristics

Coil operating limits						
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85...1.1 x Uc				
AC control voltage 50/60 Hz						
Rated control circuit voltage Uc		24…550 V AC				
Coil consumption	**Average pull-in value**	610 VA		2 and 3 poles: 610 VA 4 poles: 925 VA	2...4 poles: 925 VA	
	Average holding value	55 VA		2 and 3 poles: 55 VA 4 poles: 130 VA	2...4 poles: 130 VA	
Drop-out voltage		20...75 % of Uc				
Operating time (average values for Uc)						
Between coil energization and N.O. contact closing		100 ms	100 ms	100 ms	90 ms	90 ms
Between coil de-energization and N.O. contact opening		55 ms	55 ms	55 ms	40 ms	30 ms

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Types	IORE800 LORE800 IORE800..MT IORE800..CC	IORE1000 IORE1000..CC FORE1000	IORE1400 LORE1400 IORE1400..MT IORE1400..CC FORE1400	IORE1700 LORE1700 IORE1700..MT IORE1700..CC FORE1700	IORE2100 LORE2100 IORE2100..MT IORE2100..CC FORE2100

Magnet system characteristics

Coil operating limits						
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85...1.1 x Uc				
DC control voltage						
Rated control circuit voltage Uc		24…600 V DC				
Coil consumption	**Average pull-in value**	700 W		2...4 poles: 930 W		
	Average holding value	55 W		2...4 poles: 110 W		
Drop-out voltage		10...75 % of Uc				
Operating time (average values for Uc)						
Between coil energization and N.O. contact closing		70 ms	70 ms	100 ms	90 ms	90 ms
Between coil de-energization and N.O. contact opening		50 ms	50 ms	55 ms	40 ms	30 ms

Types	IORR/IORE800 LORR/LORE800 IORR/IORE800..MT IORR/IORE800..CC	IORR/IORE1000 IORR/IORE1000..CC FORR/FORE1000	IORR/IORE1400 LORR/LORE1400 IORR/IORE1400..MT IORR/IORE1400..CC FORR/FORE1400	IORR/IORE1700 LORR/LORE1700 IORR/IORE1700..MT IORR/IORE1700..CC FORR/FORE1700	IORR/IORE2100 LORR/LORE2100 IORR/IORE2100..MT IORR/IORE2100..CC FORR/FORE2100

Mounting characteristics

Fixing by screws (not supplied)	4 x M12

Connecting characteristics

Main terminals		Terminal plates for lugs or bars				
Connection capacity (min. ... max.)						
Main conductors (poles)						
Terminal plates width		48 mm	48 mm	60 mm	80 mm	100 mm
Drilling holes (without thread)		2 x ø13 mm	2 x ø13 mm	2 x ø13 mm	4 x ø11 mm	4 x ø11 mm
Auxiliary conductors						
(built-in auxiliary terminals + coil terminals)						
Rigid solid	**1 or 2 x**	1...2.5 mm²				
Flexible without ferrule	**1 or 2 x**	1...2.5 mm²				
Tightening torque						
Coil terminals		1.5 Nm				
Built-in auxiliary terminals		1.5 Nm				
Screw terminals						
Main terminals		Screws and bolts				
Coil terminals		M4 with cable clamps				
Built-in auxiliary terminals		M4 with cable clamps				

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R contactors
Technical data

Types		IORR2500 LORR2500 IORR2500..MT IORR2500..CC FORR2500	IORR3200 LORR3200 IORR3200..MT IORR3200..CC FORR3200	IORR3800 LORR3800 IORR3800..MT IORR3800..CC FORR3800	IORR4500 LORR4500 IORR4500..MT IORR4500..CC	IORR5100 LORR5100 IORR5100..MT IORR5100..CC
Magnet system characteristics						
Coil operating limits						
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85...1.1 x Uc				
AC control voltage 50/60 Hz						
Rated control circuit voltage Uc		48...550 V AC				
Coil consumption	**Average pull-in value**	1...4 poles: 925 VA	1...3 poles: 925 VA	1 and 2 poles: 925 VA	1 and 2 poles: 925 VA	1 pole: 925 VA
	Average holding value	1...4 poles: 130 VA	1...3 poles: 130 VA	1 and 2 poles: 130 VA	1 and 2 poles: 130 VA	1 pole: 130 VA
Drop-out voltage		20...75 % of Uc				
Operating time (average values for Uc)						
Between coil energization and N.O. contact closing		-				
Between coil de-energization and N.O. contact opening		-				

Types		IORE2500 LORE2500 IORE2500..MT IORE2500..CC FORE2500	IORE3200 LORE3200 IORE3200..MT IORE3200..CC FORE3200	IORE3800 LORE3800 IORE3800..MT IORE3800..CC FORE3800	IORE4500 LORE4500 IORE4500..MT IORE4500..CC	IORE5100 LORE5100 IORE5100..MT IORE5100..CC
Magnet system characteristics						
Coil operating limits						
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85...1.1 x Uc				
DC control voltage						
Rated control circuit voltage Uc		48...600 V DC				
Coil consumption	**Average pull-in value**	1...4 poles: 930 W	1...3 poles: 930 W	1 and 2 poles: 930 W	1 and 2 poles: 930 W	1 pole: 930 W
	Average holding value	1...4 poles: 110 W	1...3 poles: 110 W	1 and 2 poles: 110 W	1 and 2 poles: 110 W	1 pole: 110 W
Drop-out voltage		10...75 % of Uc				
Operating time (average values for Uc)						
Between coil energization and N.O. contact closing		-				
Between coil de-energization and N.O. contact opening		-				

Types		IORR/IORE2500 LORR/LORE2500 IORR/IORE2500..MT IORR/IORE2500..CC FORR/FORE2500	IORR/IORE3200 LORR/LORE3200 IORR/IORE3200..MT IORR/IORE3200..CC FORR/FORE3200	IORR/IORE3800 LORR/LORE3800 IORR/IORE3800..MT IORR/IORE3800..CC FORR/FORE3800	IORR/IORE4500 LORR/LORE4500 IORR/IORE4500..MT IORR/IORE4500..CC	IORR/IORE5100 LORR/LORE5100 IORR/IORE5100..MT IORR/IORE5100..CC
Mounting characteristics						
Fixing by screws (not supplied)		4 x M12	4 or 6 x M12			
Connecting characteristics						
Main terminals		Terminal plates for lugs or bars				
Connection capacity (min. ... max.)						
Main conductors (poles)						
Terminal plates width		150 mm	180 mm	220 mm	280 mm	340 mm
Drilling holes (without thread)		8 x ø9 mm	8 x ø13 mm	8 x ø13 mm	12 x ø11 mm	14 x ø13 mm
Auxiliary conductors						
(built-in auxiliary terminals + coil terminals)						
Rigid solid	**1 or 2 x**	1...2.5 mm²				
Flexible without ferrule	**1 or 2 x**	1...2.5 mm²				
Tightening torque						
Coil terminals		1.5 Nm				
Built-in auxiliary terminals		1.5 Nm				
Screw terminals						
Main terminals		Screws and bolts				
Coil terminals		M4 with cable clamps				
Built-in auxiliary terminals		M4 with cable clamps				

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R contactors
Technical data

Types		NORR63..MT NORR63..CC	NORR125..MT NORR125..CC	NORR200..MT NORR200..CC	NORR400	NORR800..MT NORR800..CC NORR800
Magnet system characteristics						
Coil operating limits						
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc				
AC control voltage 50/60 Hz						
Rated control circuit voltage Uc		24…550 V AC				
Coil consumption	**Average pull-in value**	290 VA	460 VA	410 VA	540 VA	610 VA
	Average holding value	25 VA	45 VA	45 VA	65 VA	55 VA
Drop-out voltage		20...75 % of Uc				
Operating time (average values for Uc)						
For N.O. poles of the NORR						
Between coil energization and N.O. contact closing		30 ms	30 ms	40 ms	60 ms	100 ms
Between coil de-energization and N.O. contact opening		20 ms	20 ms	20 ms	50 ms	55 ms
For N.C. poles of the NORR						
Between coil energization and N.C. contact opening		27 ms	27 ms	37 ms	55 ms	85 ms
Between coil de-energization and N.C. contact closing		23 ms	23 ms	23 ms	28 ms	60 ms

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Types		NORE63..MT NORE63..CC	NORE125..MT NORE125..CC	NORE200..MT NORE200..CC	NORE400	NORE800..MT NORE800..CC NORE800
Magnet system characteristics						
Coil operating limits						
acc. to IEC 60947-4-1		At θ ≤ 55 °C 0.85…1.1 x Uc				
DC control voltage						
Rated control circuit voltage Uc		24…600 V DC				
Coil consumption	**Average pull-in value**	265 W	330 W	330 W	360 W	700 W
	Average holding value	30 W	45 W	45 W	50 W	55 W
Drop-out voltage		10...75 % of Uc				
Operating time (average values for Uc)						
For N.O. poles of the NORR						
Between coil energization and N.O. contact closing		30 ms	30 ms	40 ms	60 ms	70 ms
Between coil de-energization and N.O. contact opening		20 ms	20 ms	20 ms	45 ms	50 ms
For N.C. poles of the NORR						
Between coil energization and N.C. contact opening		27 ms	27 ms	37 ms	57 ms	62 ms
Between coil de-energization and N.C. contact closing		23 ms	23 ms	23 ms	28 ms	53 ms

Types		NORR/NORE63..MT NORR/NORE63..CC	NORR/NORE125..MT NORR/NORE125..CC	NORR/NORE200..MT NORR/NORE200..CC	NORR/NORE400	NORR/NORE800..MT NORR/NORE800..CC NORR/NORE800
Mounting characteristics						
Fixing by screws (not supplied)		2 X M6	2 x M6	2 x M8	2 x M12	4 x M12
Connecting characteristics						
Main terminals		Terminal plates for lugs or bars				
Connection capacity (min. ... max.)						
Main conductors (poles)						
Terminal plates width		16 mm	20 mm	25 mm	30 mm	48 mm
Terminal screw (not supplied)		2 x M6	2 x M6	2 x M8	-	-
Drilling holes (without thread)		-	-	-	1 x ø13 mm	2 x ø13 mm
Auxiliary conductors						
(built-in auxiliary terminals + coil terminals)						
Rigid solid	**1 or 2 x**	1...2.5 mm²				
Flexible without ferrule	**1 or 2 x**	1...2.5 mm²				
Tightening torque						
Coil terminals		1.5 Nm				
Built-in auxiliary terminals		1.5 Nm				
Screw terminals						
Main terminals		Screws and bolts				
Coil terminals		M4 with cable clamps				
Built-in auxiliary terminals		M4 with cable clamps				

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R contactors
Electrical durability and utilization categories

General
Utilization categories determine the current making and breaking conditions relating to the characteristics of the loads to be controlled by the contactors. International standard IEC 60947-4-1 and European standard EN 60947-4-1 are the standards to be referred to.

If Ic is the current to be broken by the contactor and Ie the rated operational current normally drawn by the load, then:

– Categories AC-1 and AC-3: Ic = Ie
– Category AC-2: Ic = 2.5 x Ie
– Category AC-4: Ic = 6 x Ie

Generally speaking Ic = m x Ie where m is a multiple of the load operational current.

On next pages, the curves corresponding to categories AC-1, AC-3, AC-2 and AC-4 represent the electrical durability variation of standard contactors in relation to the breaking current Ic.

Electrical durability is expressed in millions of operating cycles.

Curve utilization mode
Electrical durability forecast and contactor selection for categories AC-1, AC-2, AC-3 or AC-4

- Note the characteristics of the load to be controlled:
– Operational voltage ..... Ue
– Current normally drawn ..... Ie (Ue / Ie / kW relation for motors, see "Motor rated operational powers and currents").
– Utilization category ..... AC-1, AC-2, AC-3 or AC-4
– Breaking current ..... Ic = Ie for AC-1 and for AC-3 ; Ic = 2.5 x Ie for AC-2 ; Ic = 6 x Ie for AC-4
- Define the number of operating cycles N required.
- On the diagram corresponding to the operational category, select the contactor with the curve immediately above the intersection point (Ic ; N).

Electrical durability forecast and contactor selection for mixed duty motor control: AC-3 (Ic = Ie) type switching off while "motor running" and, occasionally, AC-4 (Ic = 6 x Ie) type switching off while "motor accelerating"

- Note the characteristics of the motor to be controlled:
– Operational voltage ..... Ue
– Current normally drawn while "motor running" ..... Ie (Ue / Ie / kW relation for motors, see "Motor rated operational powers and currents")
– Breaking current for AC-3 ..... Ic = Ie
– Breaking current for AC-4 while "motor accelerating" ..... Ic = 6 x Ie
– Percentage of AC-4 operating cycles ..... K (on the basis of the total number of operating cycles)
- Define the total number of operating cycles N required.
- Note the smallest contactor rating compatible for AC-3 (Ue / Ie) on Main pole utilization characteristic table (see “Technical data”).
- For the selected contactor make a note of the following in relation to the voltage using diagram AC-3 in next pages:
– The number of operating cycles A for Ic = Ie (AC-3)
– The number of operating cycles B for Ic = 6 x Ie (AC-4)
- Calculate the estimated number of cycles N’ (N’ is always below A)

$$N' = \frac{A}{1 + 0.01\ K\ (A/B - 1)}$$

- If N' is too low in relation to the target N, calculate the estimated number of cycles for a higher contactor rating.

Case of uninterrupted duty
For uninterrupted duty, some verifications of preventing maintenance are necessary to check the functionality of the concerned product (consult us). The combined effect of environmental conditions and the proper temperature of the product may require some disposals. As a matter of fact, for this duty, the use duration prevails over the number of operating cycles.

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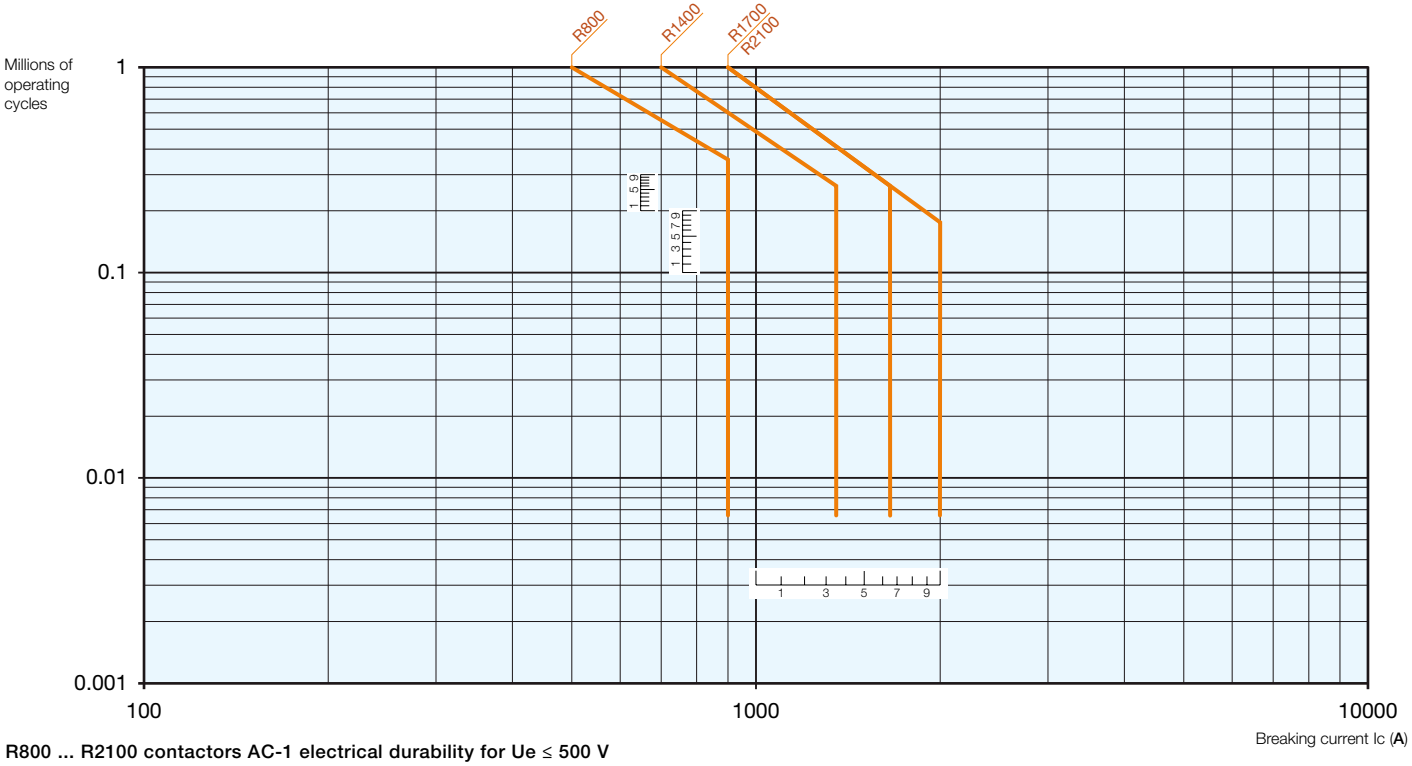
R800 ... R2100 contactors
Electrical durability

Electrical durability for AC-1 utilization category - Ue ≤ 500 V

Switching non-inductive or slightly inductive loads. The breaking current Ic for AC-1 is equal to the rated operational current of the load.

Maximum electrical switching frequency: see "Technical data".



R800 ... R2100 contactors AC-1 electrical durability for Ue ≤ 500 V

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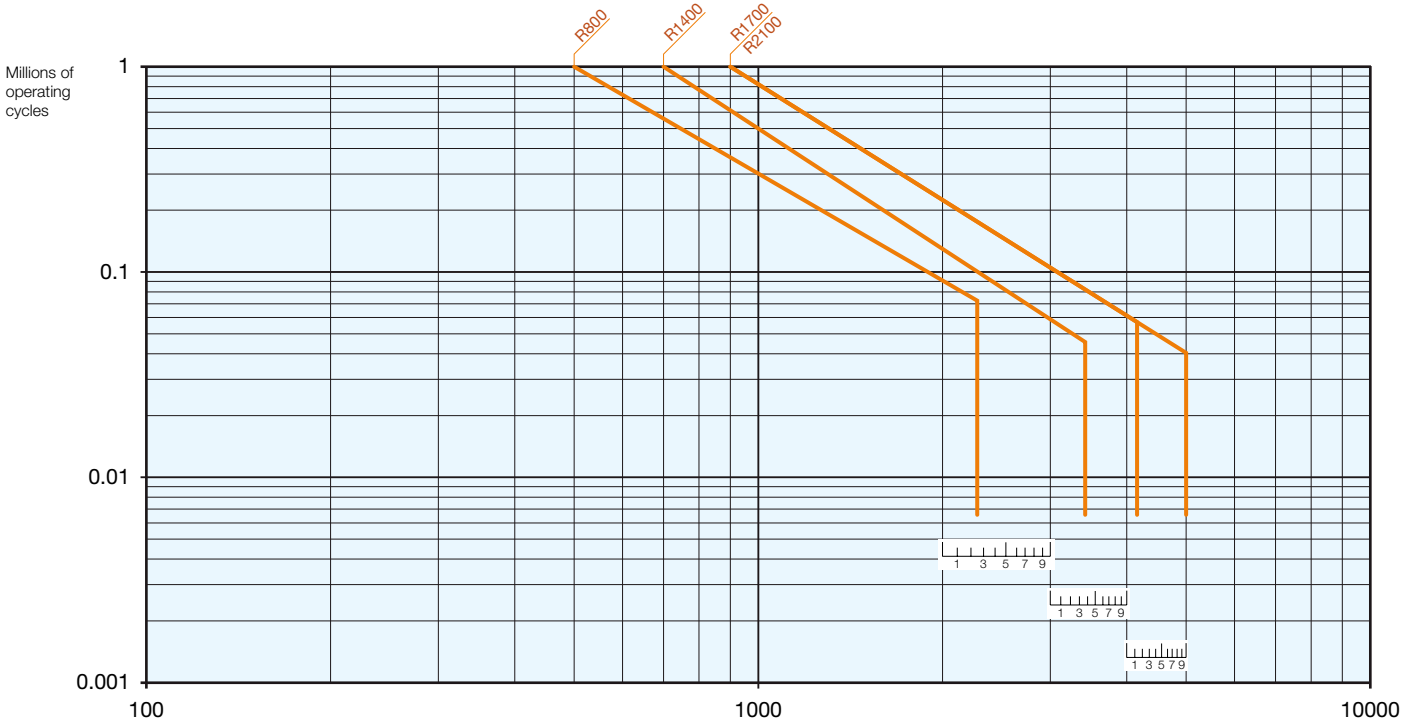
R800 ... R2100 contactors
Electrical durability

Electrical durability for AC-2 or AC-4 utilization category

Switching cage motors: starting, reverse operation and step-by-step operation. The breaking current Ic is equal to 2.5 x Ie for AC-2 and 6 x Ie for AC-4, keeping in mind that Ie is the motor rated operational current (Ie = motor full-load current).

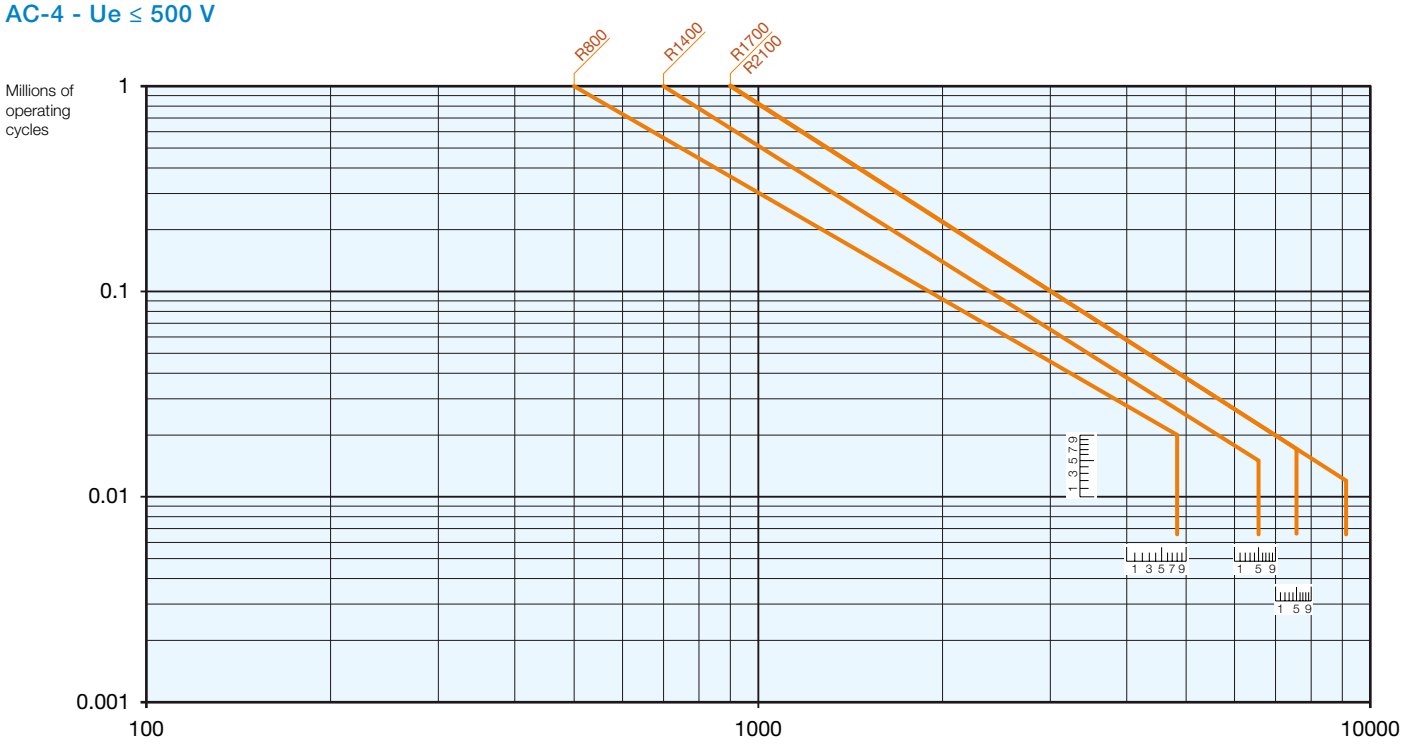
Maximum electrical switching frequency: see "Technical data".

AC-2 - Ue ≤ 500 V



R800 ... R2100 contactors AC-2 electrical durability for Ue ≤ 500 V

AC-4 - Ue ≤ 500 V



R800 ... R2100 contactors AC-2 electrical durability for Ue ≤ 500 V

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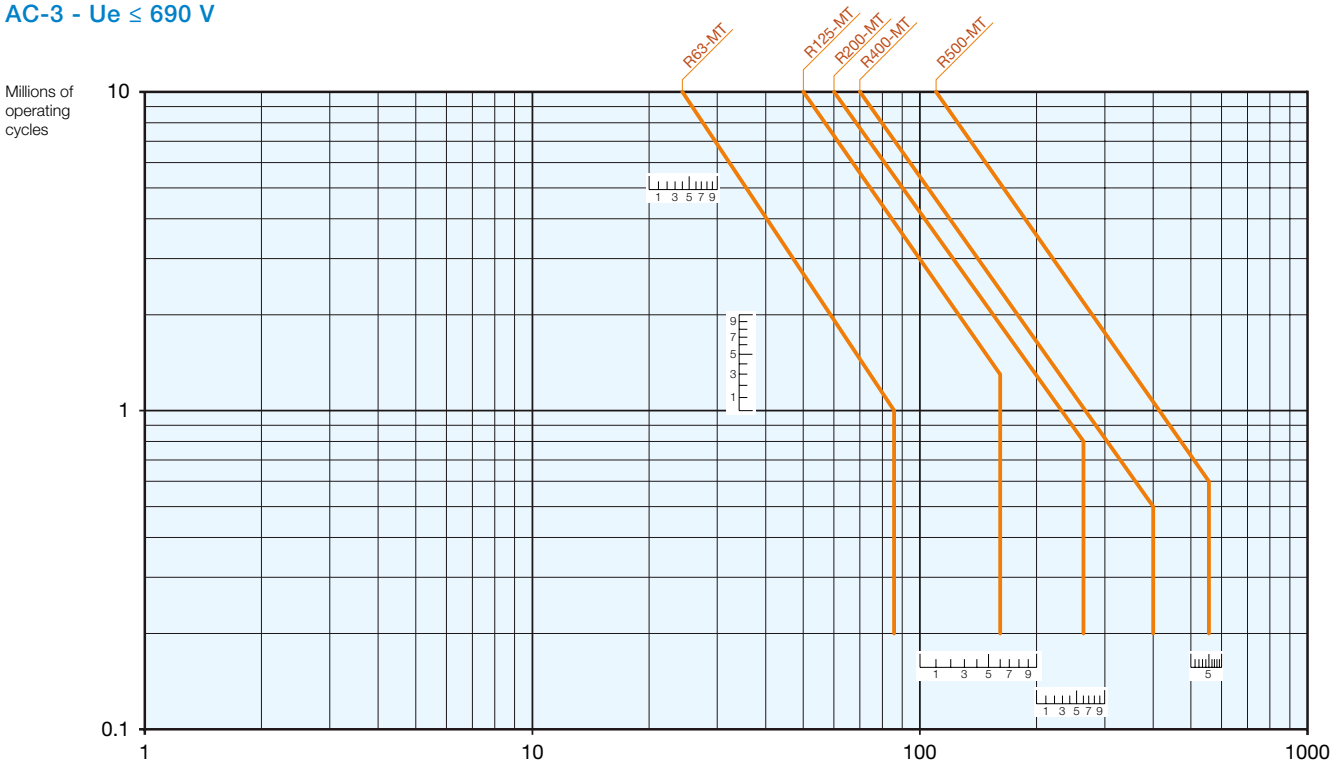
R63-MT ... R500-MT contactors
Electrical durability

Electrical durability for AC-3 utilization category

Switching cage motors: starting and switching off running motors. The breaking current Ic for AC-3 is equal to the rated operational current Ie (Ie = motor full load current). Maximum electrical switching frequency: see "Technical data".

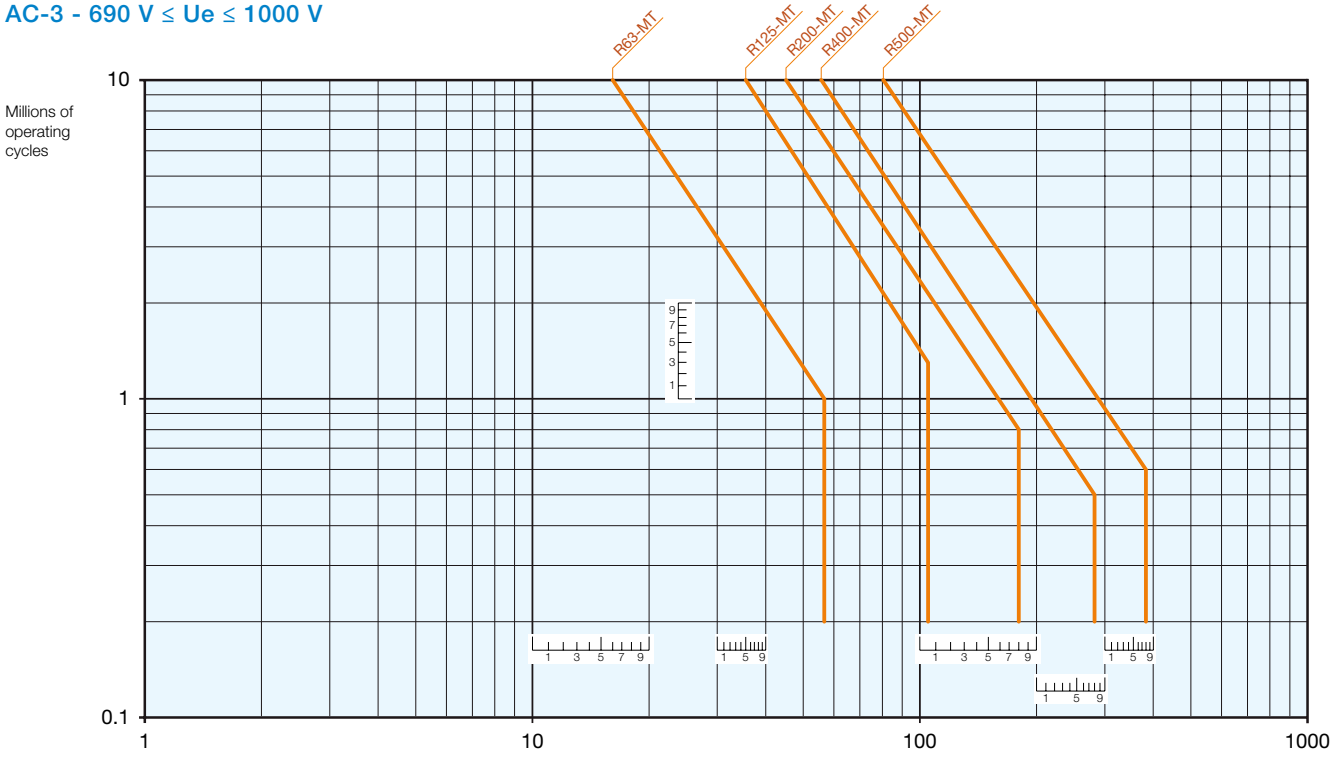
AC-3 - Ue ≤ 690 V



R63-MT ... R500-MT contactors AC-3 electrical durability for Ue ≤ 690 V

Breaking current Ic (**A**)

AC-3 - 690 V ≤ Ue ≤ 1000 V



R63-MT ... R500-MT contactors AC-3 electrical durability for 690 V ≤ Ue ≤ 1000 V

Breaking current Ic (**A**)

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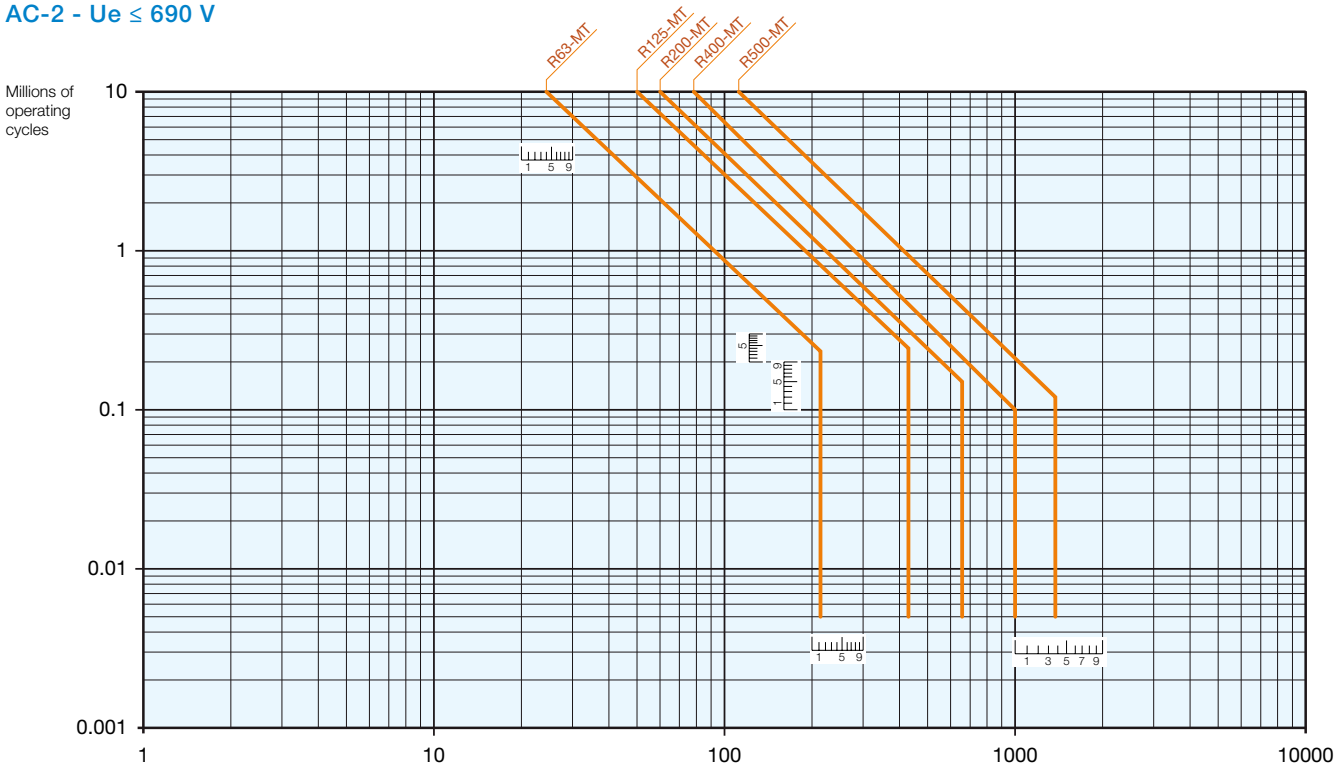
R63-MT ... R500-MT contactors
Electrical durability

Electrical durability for AC-2 or AC-4 utilization category

Switching cage motors: starting, reverse operation and step-by-step operation. The breaking current Ic is equal to 2.5 x Ie for AC-2 and 6 x Ie for AC-4, keeping in mind that Ie is the motor rated operational current (Ie = motor full-load current).

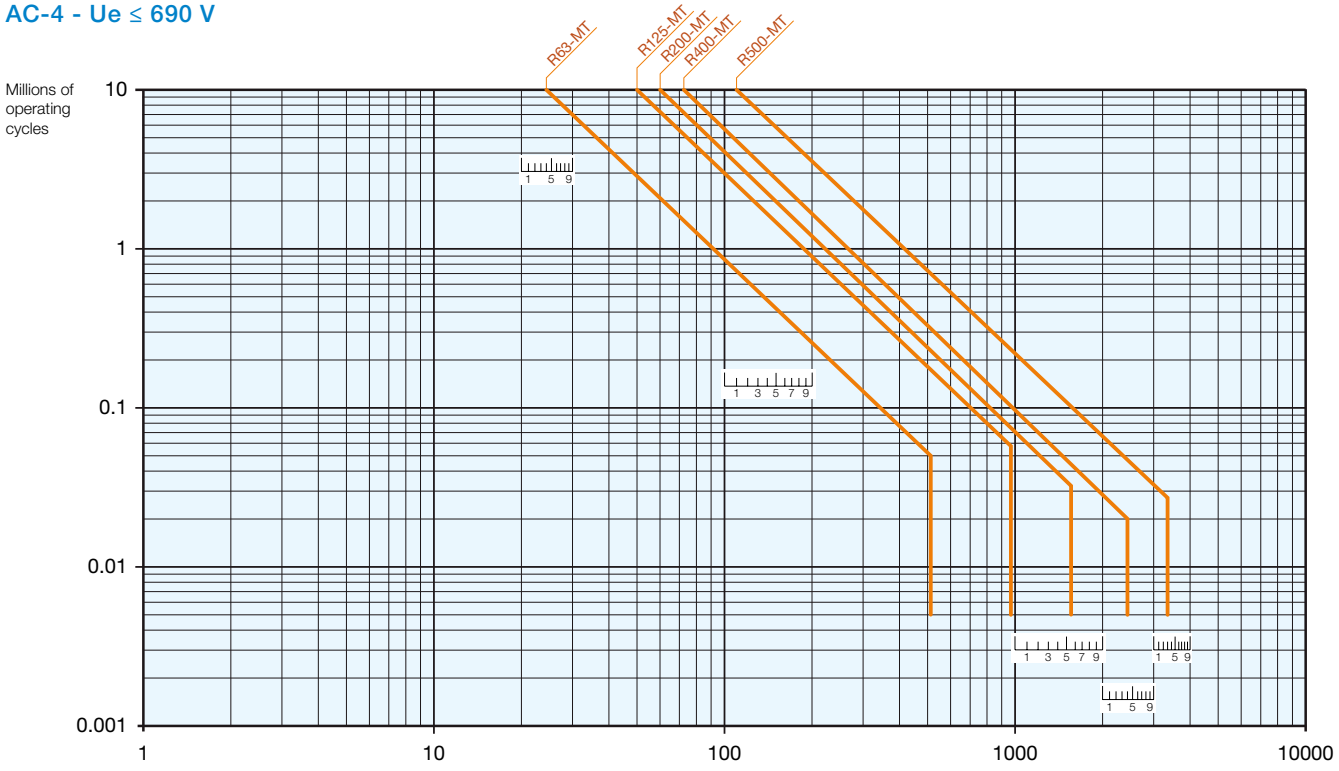
Maximum electrical switching frequency: see "Technical data".

AC-2 - Ue ≤ 690 V



R63-MT ... R500-MT contactors AC-2 electrical durability for Ue ≤ 690 V

AC-4 - Ue ≤ 690 V



R63-MT ... R500-MT contactors AC-4 electrical durability for Ue ≤ 690 V

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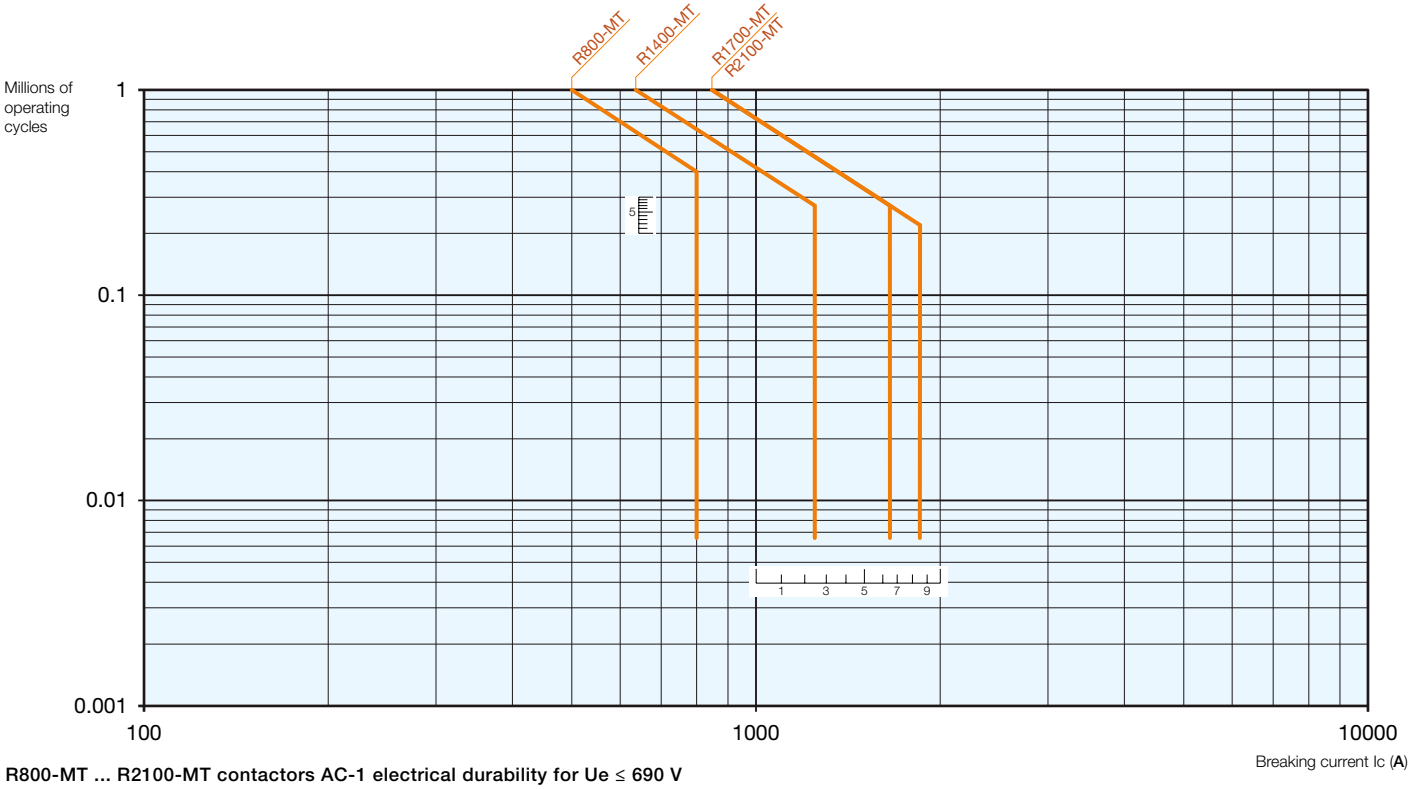
R800-MT ... R2100-MT contactors
Electrical durability

Electrical durability for AC-1 utilization category - Ue ≤ 690 V

Switching non-inductive or slightly inductive loads. The breaking current Ic for AC-1 is equal to the rated operational current of the load.

Maximum electrical switching frequency: see "Technical data".



R800-MT ... R2100-MT contactors AC-1 electrical durability for Ue ≤ 690 V

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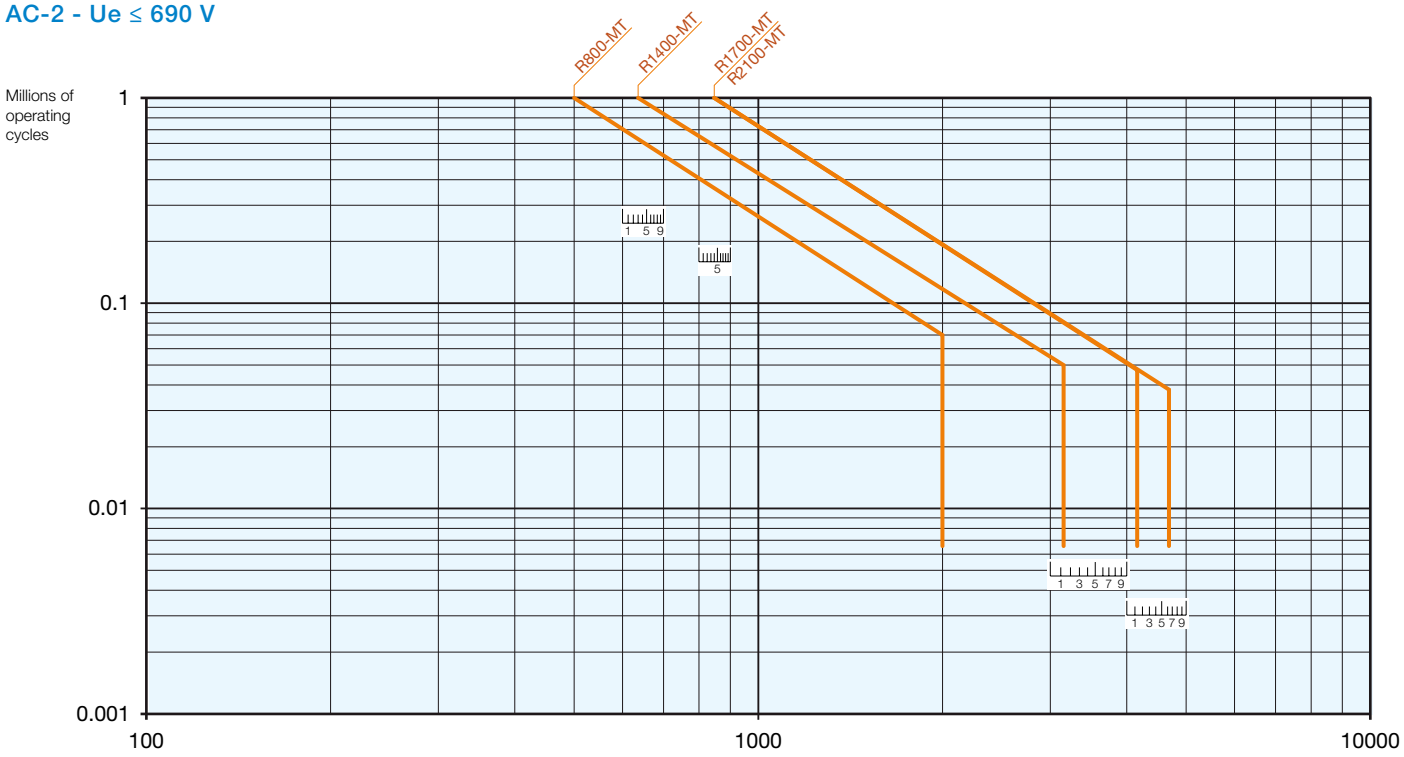
R800-MT ... R2100-MT contactors
Electrical durability

Electrical durability for AC-2 or AC-4 utilization category

Switching cage motors: starting, reverse operation and step-by-step operation. The breaking current Ic is equal to 2.5 x Ie for AC-2 and 6 x Ie for AC-4, keeping in mind that Ie is the motor rated operational current (Ie = motor full-load current).

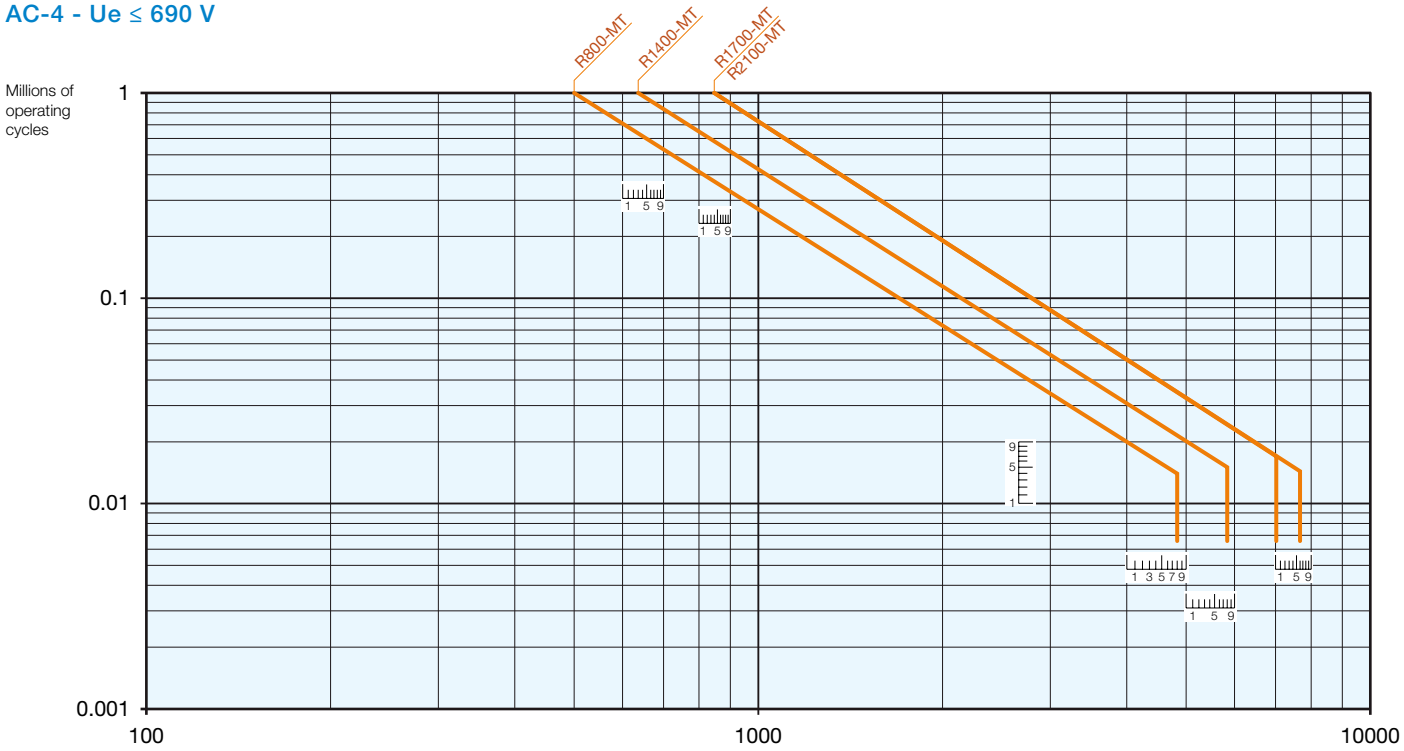
Maximum electrical switching frequency: see "Technical data".

AC-2 - Ue ≤ 690 V



R800-MT ... R2100-MT contactors AC-2 electrical durability for Ue ≤ 690 V

AC-4 - Ue ≤ 690 V



R800-MT ... R2100-MT contactors AC-2 electrical durability for Ue ≤ 690 V

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Accessories and spare parts

Auxiliary contacts

CA12-1

Auxiliary contact blocks type CA12

Description

CA12 auxiliary contact blocks 2 or 4-pole are mounted on a support bracket, above the electro-magnet.

The R contactors type R and RE can be equipped with:

– 1 or 2 x 2-pole blocks

– 1 x 2-pole block + 1 x 4-pole blocks.

The R contactors type RR can be equipped with 1 or 2 x 2-pole blocks.

Ordering details

For R contactors type R, RE, RR (RC excluded)	Auxiliary contacts		Type	Order code		Pkg qty	Weight (1 pce) kg
Auxiliary contact blocks							
63 ... 550	1	1	CA12-1	FPTN410004R0001		1	0.050
	2	0	CA12-2	FPTN410005R0001		1	0.050
	2	2	CA12-11	FPTN410013R0001		1	0.090
	3	1	CA12-12	FPTN410016R0001		1	0.090
	4	0	CA12-22	FPTN410012R0001		1	0.090
Support bracket							
63 ... 260			Support bracket	FPTN410056R0001		1	0.060
315 ... 550			Support bracket	FPTN410056R0002		1	0.060

CA15-F

CA15-O

Auxiliary contacts type CA15

Description

CA15 auxiliary contacts are mounted on a mounting kit, on the frame.

Ordering details

For R contactors type R, RE, RR, RC	Auxiliary contacts		Type	Order code		Pkg qty	Weight (1 pce) kg
Auxiliary contact with screw terminals							
63 ... 5100	1	0	CA15-F	FPTN410008R0004		1	0.070
	0	1	CA15-O	FPTN410007R0006		1	0.070
Auxiliary contact for railway							
63 ... 5100	1	0	CA15-F	FPTN210382R0003		1	0.070
	0	1	CA15-O	FPTN210382R0004		1	0.070
Mounting kit							
63 ... 170, 315 ... 550, auxiliary frame ≥ 800			Universal mounting kit	FPTN410054R0016		1	On request
200 ... 260			Mounting kit	FPTN410054R0017		1	
Main frame ≥ 800			Mounting kit	FPTN410213R0006		1	

Special auxiliary contact blocks

Please contact your local sales organization (order code of R contactor needed).

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Auxiliary contact blocks
Technical data

CA auxiliary contact blocks

Types		CA12	CA15
Rated operational voltage Ue max.		690 V	
Rated frequency (without derating)		25...400 Hz	
Conventional free-air thermal current Ith			
acc. to IEC 60947-4-1, open couplers, $\theta \leq 40$ °C		12 A	15 A
Ie / Rated operational current AC-15			
acc. to IEC 60947-5-1	**24-48 V 50/60 Hz**	8 A	10 A
	110-127 V 50/60 Hz	8 A	10 A
	220-240 V 50/60 Hz	5 A	6 A
	380-440 V 50/60 Hz	3 A	3.5 A
	500-600 V 50/60 Hz	2 A	2.5 A
Making capacity acc. to IEC 60947-5-1		10 x Ie / AC-15	
Breaking capacity acc. to IEC 60947-5-1		10 x Ie / AC-15	
Ie / Rated operational current DC-13			
acc. to IEC 60947-5-1	**24 V DC**	6 A	
	48 V DC	2.8 A	
	72 V DC	1 A	
	110-125 V DC	0.55 A	
	220-250 V DC	0.3 A	
Short-circuit protection device gG type fuse		10 A	16 A

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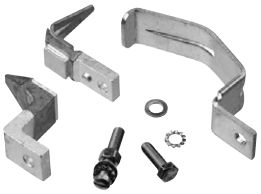
Main poles



Contacts sets for N.O. or N.C. main poles

Description

The contact sets include 1 fixed contact, 1 moving contact, 1 arcing horn (according to table below) and screws.

The quantities needed are defined per ratings as follow:

– 1 set per pole for R63….R800, R1000, R1400, R1700, R2100
– 2 sets per pole for R1250, R1500, R2500, R3200, R3800
– 3 sets per pole for R2000, R4500, R5100
– 4 sets per pole for R3150
– 5 sets per pole for R4000.

Ordering details

For R contactors type		Order code		Pkg qty	Weight (1 pce) kg
Contact set with arcing horn					
IOR, NOR, JOR, FOR	63, 85	FPTN410389R0001		1 set	0.050
	125, 170	FPTN410389R0002		1 set	0.150
	200, 260	FPTN410389R0003		1 set	0.250
	315, 400 (1), 420	FPTN410389R0004		1 set	0.400
	400 (2), 500, 550, 630	FPTN410389R0005		1 set	0.480
Contact set without arcing horn					
LOR	85	FPTN410390R0001		1 set	0.040
	170	FPTN410390R0002		1 set	0.090
	260	FPTN410390R0003		1 set	0.180
	420	FPTN410390R0004		1 set	0.250
	400, 550	FPTN410390R0005		1 set	0.470
IOR, NOR, JOR, FOR, LOR	800, 1000, 1250, 1500, 2000, 3150, 4000	FPTN410391R0001		1 set	0.520
	1400, 2500	FPTN410503R0001		1 set	0.520
	1700, 2100, 3200, 3800, 4500, 5100	FPTN410506R0001		1 set	0.830

(1) For NOR and JOR types, N.C. poles.
(2) For IOR, NOR, JOR, N.O. poles.

Arcing horns for N.O. or N.C. main poles

Ordering details

For R contactors type IOR, NOR, JOR, FOR	Order code		Pkg qty	Weight (1 pce) kg
800, 1000, 1250, 1500, 2000, 3150, 4000	FPTN410446R0001		1	0.200
1400, 2500	FPTN410446R0001		1	0.200
1700, 2100, 3200, 3800, 4500, 5100	FPTN410508R0001		1	0.280

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Main poles

Equipotential connections

Description

Equipotential connections must be ordered separately for ratings ≥ 800 A.

Ordering details

For R contactors type IOR, NOR, JOR and FOR	Type	Order code		Pkg qty	Weight (1 pce) kg
800 ... 5100	NO poles	FPTN410176R0006		1	0.500
800 ... 4000	NC poles	FPTN410176R0007		1	0.530

Arc chutes

Description

De-ion arc chutes replace basic arc chutes except for 315 and 420 A ratings.

Ordering details

For R contactors type IOR, NOR, JOR and FOR	Type	Order code		Pkg qty	Weight (1 pce) kg
63, 85	De-ion arc chute	FPTN401938R0002		1	0.470
125, 170	De-ion arc chute	FPTN401939R0002		1	0.930
200, 260	De-ion arc chute	FPTN401940R0002		1	1.360
315, 400 (1),420	Basic arc chute	FPTN401936R0002		1	1.300
400 (2), 500, 550	De-ion arc chute	FPTN401941R0002		1	3.600
800, 1000, 1250, 1500, 2000, 3150, 4000	De-ion arc chute	FPTN410067R0002		1	2.570
1400, 2500	De-ion arc chute	FPTN410067R0002		1	2.570
1700, 2100, 3200, 3800, 4500, 5100	De-ion arc chute	FPTN410507R0001		1	3.150

(1) For NOR and JOR types, N.C. poles.
(2) For IOR, NOR, JOR types, N.O. poles.

Pressure springs, insulated supports, complete poles and other spare parts

Please contact your local sales organisation (order code for R contactor needed).

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Control circuits


1SBC104030F0014

Surge suppressors for contactor coils

Ordering details

For R contactors type IOR, NOR , JOR, LOR and FOR	Rated control circuit voltage Uc V	AC	DC	Type	Order code		Pkg qty	Weight (1 pce) kg
63 ... 5100	24...60	●	–	RV-R1/60	FPTN410463R6001		1	0.050
	60...133	●	–	RV-R1/133	FPTN410463R6002		1	0.050
	110...250	●	–	RV-R1/250	FPTN410463R6003		1	0.050
	250...440	●	–	RV-R1/440	FPTN410463R6004		1	0.050
	440...660	●	–	RV-R1/660	FPTN410463R6005		1	0.050
	24...90	–	●	RV-R1/60	FPTN410463R6001		1	0.050
	60...180	–	●	RV-R1/133	FPTN410463R6002		1	0.050
	110...320	–	●	RV-R1/250	FPTN410463R6003		1	0.050
	250...550	–	●	RV-R1/440	FPTN410463R6004		1	0.050
	440...660	–	●	RV-R1/660	FPTN410463R6005		1	0.050


1SBC104029F0014

Rectifiers

Ordering details

For R contactors type IORR, NORR, JORR, LORR and FORR	Rated control circuit voltage Uc	Order code		Pkg qty	Weight (1 pce) kg
63 ... 5100	< 440 V AC	TRE2614501		1	0.050
	≥ 440 V AC	TRE2720801		1	0.050

Complete control circuit kit

Including:
- 1 coil
- 1 economy resistor
- 1 surge suppressor
- 1 rectifier.

For complete kit, please contact your local sales organization (order code of R contactor needed).

Magnet circuits

Ordering details

For R contactors type IORR, NORR, JORR, LORR, and FORR IORE, NORE, JORE, LORE, and FORE	Order code		Pkg qty	Weight (1 pce) kg
63, 85	FPTN410437R0001		1	1.500
125, 170	FPTN410438R0001		1	1.500
200, 260	FPTN410439R0001		1	1.500
400 ... 630	FPTN410441R0001		1	2.500
≥ 800	FPTN410200R0006		1	8.000

For tripping electro-magnet circuit AME or AM(F)-CC > 800 A: use 63, 85 A electro-magnet circuit.
For IOR and IOR..AMA versions, please consult your local sales organization (order code of R contactor needed).

Coils, economy resistors and other specific parts

Please contact your local sales organization (order code of R contactor needed).

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Mechanical interlock units

VM

Description

The VM mechanical interlock units are designed for the interlocking of two R contactors of the same rating. The mounting between 2 contactors of a same rating doesn't affect their fixing centres or their overall dmensions.

Ordering details

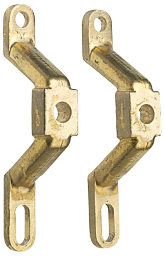
For R contactors type IOR, NOR , JOR, LOR and FOR	Rating	Fixing center mm	Type	Order code		Pkg qty	Weight (1 pce) kg
IOR...-CC, IOR...-MT, NOR...-CC, NOR...-MT, LOR...	63	220	VM21/24	FPL7101403R0001		1	0.140
	125	260	VM25	FPL7401404R0001		1	0.180
	200	320	VM27	FPL8001401R0001		1	0.260
IOR...-CC, IOR...-MT, NOR...400, LOR...	400 ... 500	520	VM15-SP	FPL8301401R0002		1	0.500
IOR..., LOR...800, NOR...800, FOR...1000	800 ... 1000	520	VM16	FPL8601401R0001		1	0.600
IOR...-CC, IOR...-MT	800 ... 1000	640	VM17/18	FPL8801401R0001		1	0.700
IOR..., LOR..., FOR...	1400, 1700, 2100	640					
IOR...-CC, IOR...-MT	1400, 1700, 2100	680	VM19	FPL9001401R0001		1	0.800

Note: For special versions, please consult us:
- interlocking between contactors with N.O. + N.C. poles or with latching
- interlocking between 2 contactors of different ratings
- interlocking between 3 contactors.

1SBC104094S0201

Mounting feet - Shaft extensions

4NMW1009/1039



4NMW1041

Mounting feet

Description

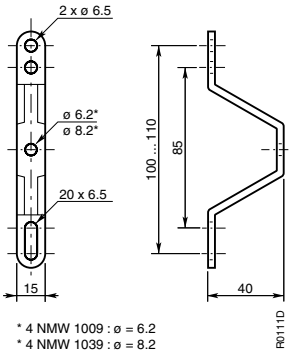
When the contactors are to be fitted on a back plate the mounting feets provide an increased clearence behind the contactor for easier cabling.

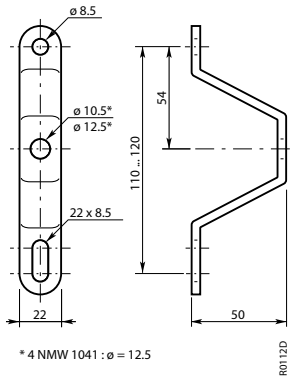
Two pieces are required for one contactor.

Ordering details

For R contactors	Drilling for bar fixing Ø mm	Fixing centres for vertical wall mounting mm	Type	Order code		Pkg qty	Weight (2 pce) kg
63 ... 170	6.2	85 / 100...110	4NMW1009	FPL7108201P0001		2	0.060
200, 260	8.2	85 / 100...110	4NMW1039	FPL7608201P0001		2	0.060
400, 500, 550	12.5	110...120	4NMW1041	FPL8308201P0001		2	0.320

Main dimensions mm





Shaft extensions

Description

For 3 or 4 pole reversing or changeover pairs built with two contactors of different ratings, vertically mounted above one another. Fitting on the shaft of the contactor having the smaller frame size.

Ordering details

For R contactors	Type	Order code		Pkg qty	Weight (1 pce) kg
63 ... 170	-	FPTN410111R0001		1	(1)
200 ... 420	-	FPTN410111R0002		1	(1)
400, 500, 550	-	FPTN410111R0003		1	(1)

(1) On request.

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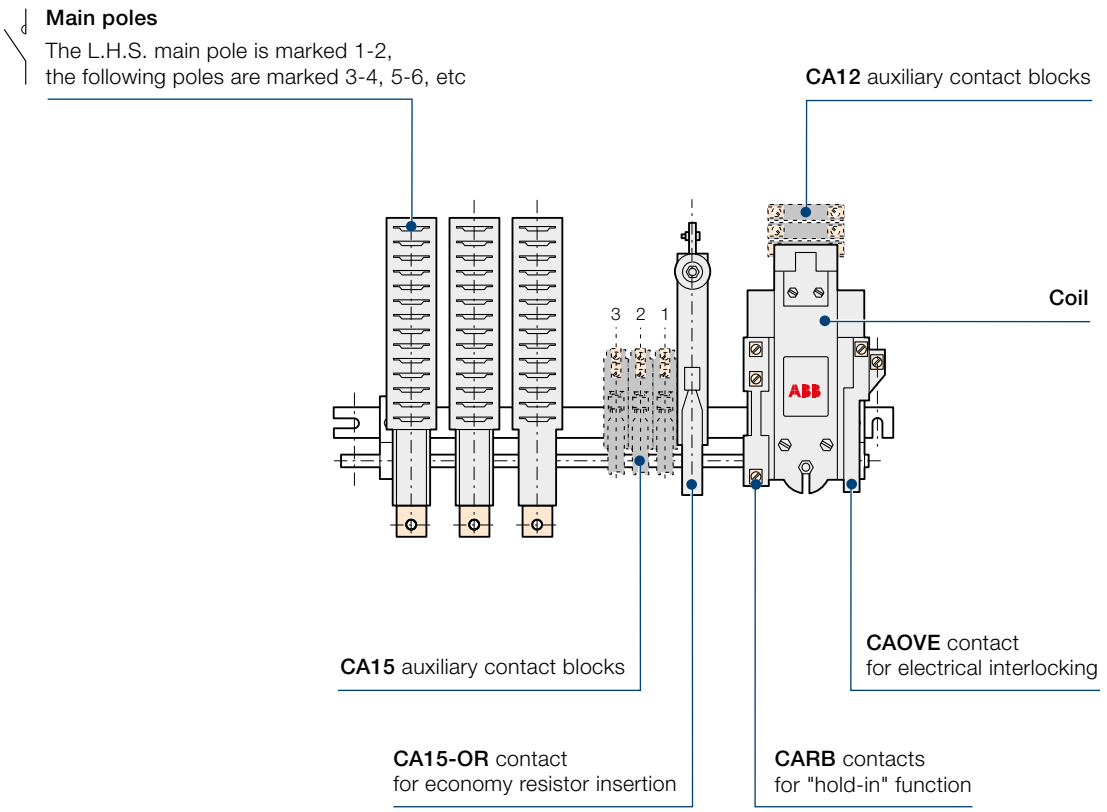
Notes

Terminal marking and wiring diagrams

IORR, IORE, NORR, NORE, LORR, LORE, FORR and FORE types
Terminal marking and positioning

R63 ... R500 (the main poles in variable number)



Main poles	N.O. main poles are respectively marked 1-2, 3-4, 5-6, 7-8 For N.C. main poles the letter R precedes the figures								
Coil	AC coil: the terminals are marked A1 and A2 DC coil: the terminals are marked A1 (-) and A2 (+)								
CAOVE contact	N.C. contact, adjustable, intended for electrical interlocking. Terminal marking: 21-22								
CARB contact	N.O. contact, intended for "hold-in" function. Terminal marking: 13-14								
CA15-OR contact	N.C. contact, factory wired. It is intended for insertion of economy resistor. Terminal marking: 15-16								
CA12 auxiliary contacts	**1 NO + 1 NC**	**2 NO**	**2 NO + 2 NC**	**3 NO + 1 NC**	**4 NO**	**3 NO + 3 NC**	**4 NO + 2 NC**	**5 NO + 1 NC**	**6 NO**
Block No 3						83 71 / 84 72	83 73 / 84 74	83 73 / 84 74	83 73 / 84 74
Block No 2			63 51 / 64 52	63 53 / 64 54	63 53 / 64 54	63 51 / 64 52	63 51 / 64 52	63 53 / 64 54	63 53 / 64 54
Block No 1	43 31 / 44 32	43 33 / 44 34	43 31 / 44 32	43 31 / 44 32	43 33 / 44 34	43 31 / 44 32	43 31 / 44 32	43 31 / 44 32	43 33 / 44 34
CA15 extra auxiliary contacts	**No "n"**	**No 8**	**No 7**	**No 6**	**No 5**	**No 4**	**No 3**	**No 2**	**No 1**
CA15-F (N.O.)	..3 / ..4	173 / 174	163 / 164	153 / 154	143 / 144	133 / 134	123 / 124	113 / 114	103 / 104
or CA15-O (N.C.)	..1 / ..2	171 / 172	161 / 162	151 / 152	141 / 142	131 / 132	121 / 122	111 / 112	101 / 102

The CA15 auxiliary contacts are fitted from the right on the contactor frame according to this marking.

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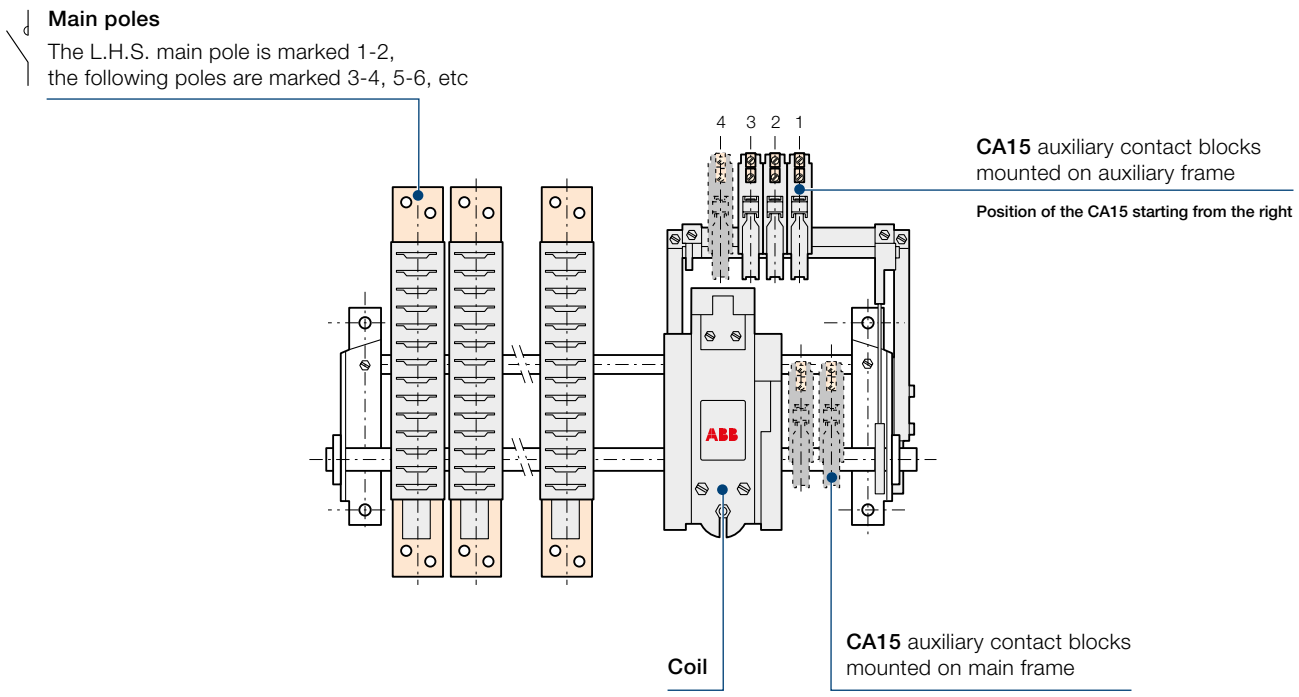
IORR, IORE, NORR, NORE, LORR, LORE, FORR and FORE types
Terminal marking and positioning

R800 ... R5100 (the main poles in variable number, can be distributed on both sides of the electro-magnet)



Main poles		N.O. main poles are respectively marked 1-2, 3-4, 5-6, 7-8 For N.C. main poles the letter R precedes the figures							
Coil		AC coil: the terminals are marked A1 and A2 DC coil: the terminals are marked A1 (-) and A2 (+)							
CA15 auxiliary contact	**No 1**	CA15-O (N.C.) contact intended for electrical interlocking. Terminal marking: 21-22							
	No 2	CA15-F (N.O.) contact intended for "hold-in" function. Terminal marking: 13-14							
	No 3	CA15-OR (N.C.). This contact is factory wired. It is intended for insertion of economy resistor. Terminal marking: 15-16							
CA15 extra auxiliary contacts		**No "n"**	**No 11**	**No 10**	**No 9**	**No 8**	**No 7**	**No 6**	**No 5**	**No 4**
	CA15-F (N.O.)	..3 / ..4	173 / 174	163 / 164	153 / 154	143 / 144	133 / 134	123 / 124	113 / 114	103 / 104
or	CA15-O (N.C.)	..1 / ..2	171 / 172	161 / 162	151 / 152	141 / 142	131 / 132	121 / 122	111 / 112	101 / 102

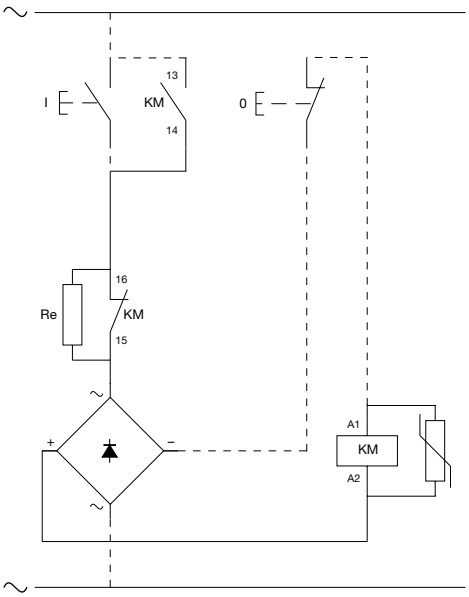
The CA15 auxiliary contacts are fitted from the right, first on the auxiliary frame and next on the main frame of the contactor, according to this marking.

1SBC104046S0201 - Rev. A

R contactors and couplers
Wiring diagrams

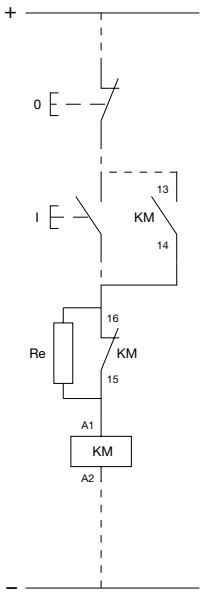
Control by 2 impulse pushbuttons and hold-in contact

AC operated



IORR, IORR-MT, IORR-CC, NORR-MT, NORR-CC, LORR

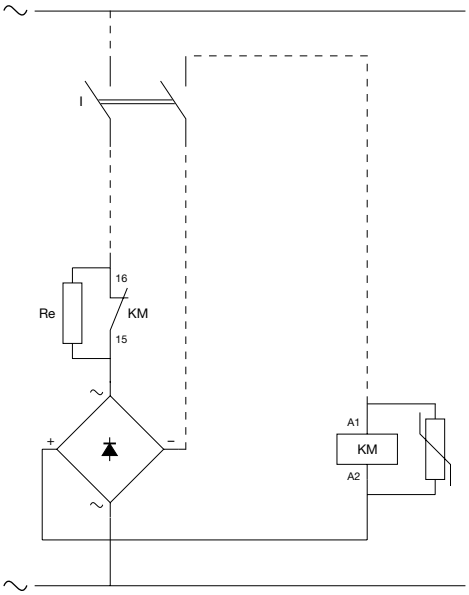
DC operated



IORE, IORE-MT, IORE-CC, NORE-MT, NORE-CC, LORE

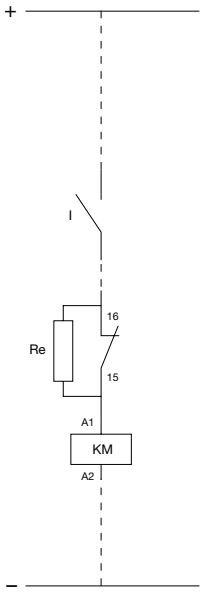
Control by switch

AC operated



IORR, IORR-MT, IORR-CC, NORR-MT, NORR-CC, LORR
Note: remove the factory wired strap 14-16

DC operated



IORE, IORE-MT, IORE-CC, NORE-MT, NORE-CC, LORE
Note : remove the factory wired strap 14-16

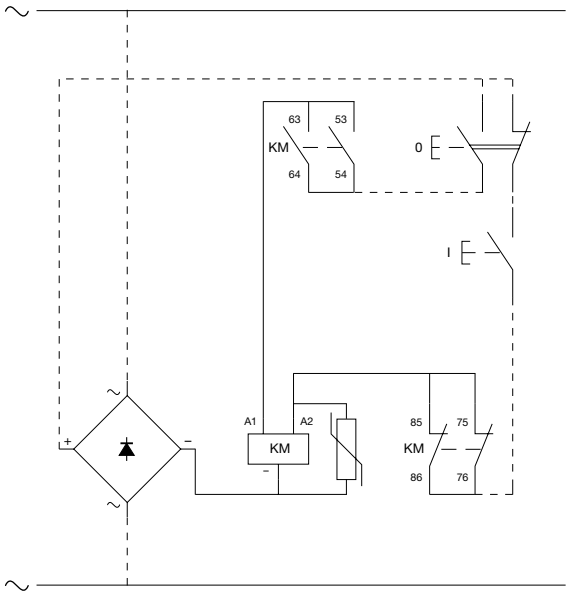
1SBC104047S0201

R magnetically latched contactors
Contactors and couplers
Wiring diagrams

Control by 2 impulse pushbuttons

AC operated

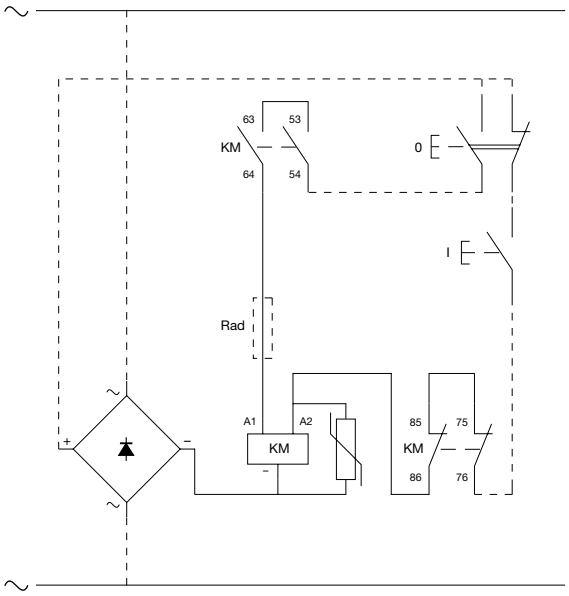
Control voltage Uc ≤ 110 V AC



IORR-CC-AMA, IORR-MT-AMA, NORR-CC-AMA, NORR-MT-AMA, LORR-AMA

AC operated

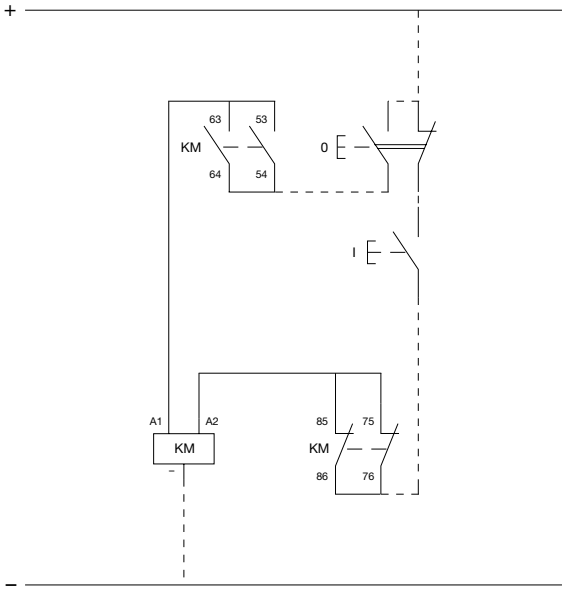
Control voltage Uc > 110 V AC



IORR-CC-AMA, IORR-MT-AMA, NORR-CC-AMA, NORR-MT-AMA, LORR-AMA

DC operated

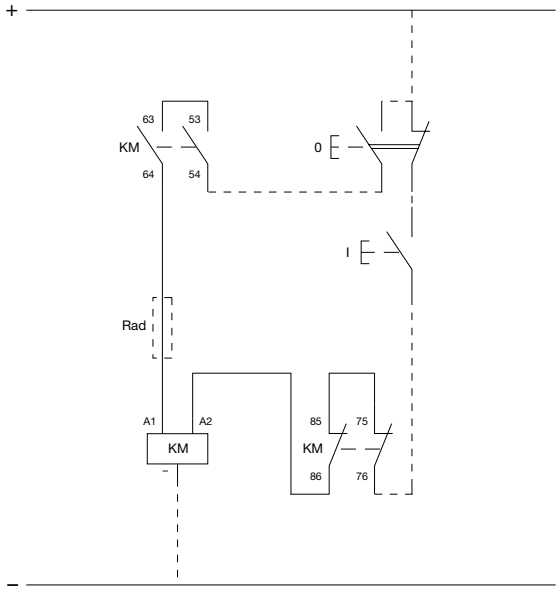
Control voltage Uc ≤ 110 V AC



IOR-CC-AMA, IOR-MT-AMA, NOR-CC-AMA, NOR-MT-AMA, LOR-AMA

DC operated

Control voltage Uc > 110 V AC



IOR-CC-AMA, IOR-MT-AMA, NOR-CC-AMA, NOR-MT-AMA, LOR-AMA

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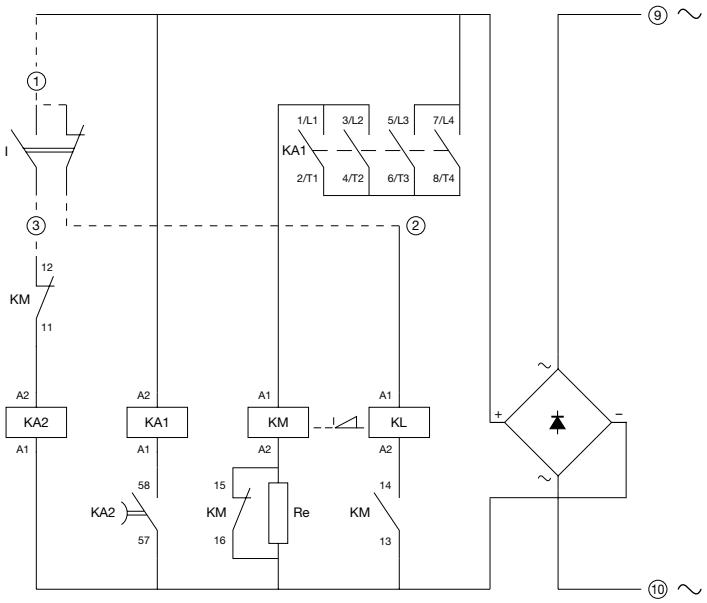
1SBC104048S0201

R mechanically latched contactors
Contactors and couplers
Wiring diagrams

Control by switch

AC operated

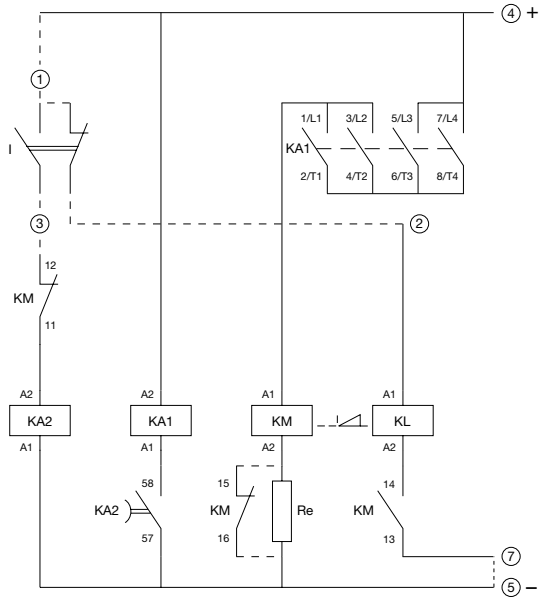


KM = Closing coil
KL = Tripping coil
KA1 = Contactor relay
KA2 = Timed contactor relay
Re = Economy resistor

Supply between ⑨ and ⑩
Closing between ① and ③
Tripping between ① and ②

IORR-AME, IORR-MT-AME, IORR-CC-AME, NORR-CC-AME, NORR-MT-AME, LORR-AME

DC operated



KM = Closing coil
KL = Tripping coil
KA1 = Contactor relay
KA2 = Timed contactor relay
Re = Economy resistor

Supply between ④ and ⑤
Closing between ① and ③
Tripping between ① and ②

If the closing coil voltage and the tripping coil voltage are different remove the strap between terminals ⑤ and ⑦.

IORE-AME, IORE-MT-AME, IORE-CC-AME, NORE-CC-AME, NORE-MT-AME, LORE-AME

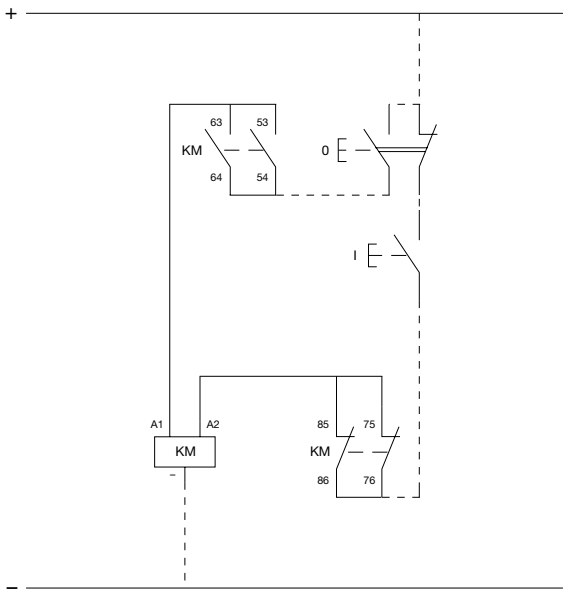
1SBC104049S0201

Alternator field discharge with magnetical latching
Wiring diagrams

Control by 2 impulse pushbuttons

DC operated

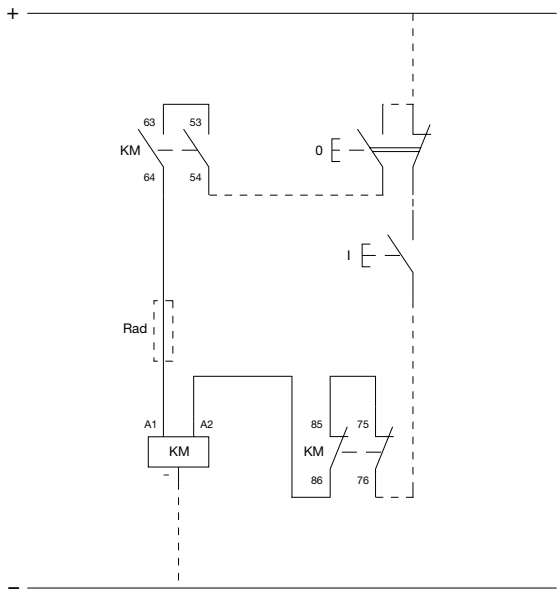
Control voltage Uc ≤ 110 V AC



AM-CC-NOR63-21 ... AM-CC-NOR200-21
AM-CC-NOR63-31 ... AM-CC-NOR200-31

DC operated

Control voltage Uc > 110 V AC

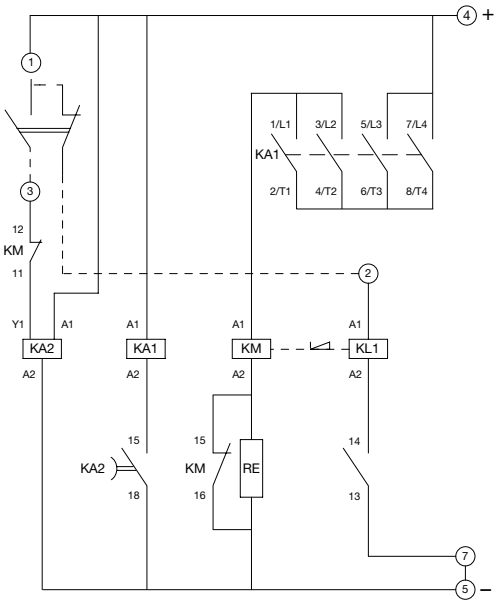


AM-CC-NOR63-21 ... AM-CC-NOR200-21
AM-CC-NOR63-31 ... AM-CC-NOR200-31

1SBC104112S0201

Alternator field discharge with mechanical latching
Wiring diagrams

DC operated

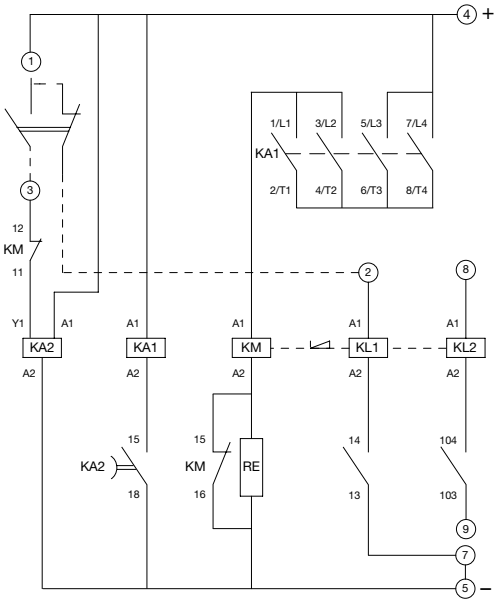


AM-CC-JORE550-21 ... AM-CC-JORE2100-21
AM-CC-JORE550-31 ... AM-CC-JORE2100-31

KM = Closing coil
KL1 = Tripping coil
KA1 = Contactor relay
KA2 = Timed contactor relay
RE = Economy resistor

Supply between ④ and ⑤
Closing between ① and ③
Tripping KL1 between ① and ②

If the closing coil voltage and the tripping coil voltage are different, remove the strap between ⑤ and ⑦.



AMF-CC-JORE550-21 ... AMF-CC-JORE2100-21
AMF-CC-JORE550-31 ... AMF-CC-JORE2100-31

KM = Closing coil
KL1 = Tripping coil
KL2 = Tripping coil
KA1 = Contactor relay
KA2 = Timed contactor relay
RE = Economy resistor

Supply between ④ and ⑤
Closing between ① and ③
Tripping KL1 between ① and ②
Tripping KL2 between ⑧ and ⑨

If the closing coil voltage and the tripping coil voltage are different, remove the strap between ⑤ and ⑦.

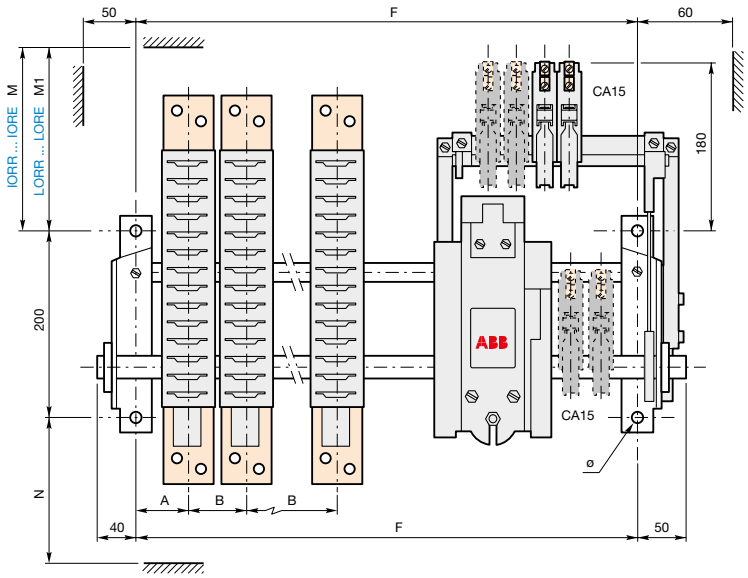
1SBC104096S0201

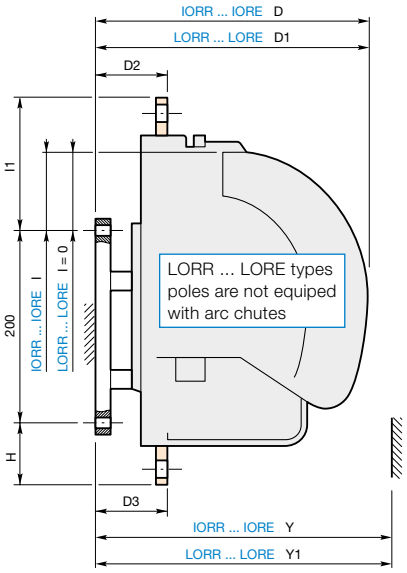
Notes

Main dimensions

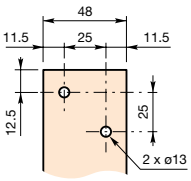
IORR ... IORE and LORR ... LORE types R800 ... R2100

Main dimensions mm

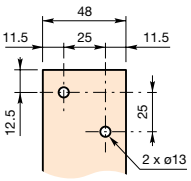




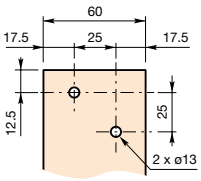
Terminal plate details



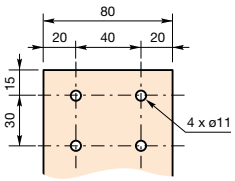
R800



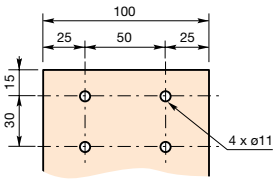
R1000



R1400



R1700



R2100

Terminal plate thickness: top terminal plates = 10 mm, bottom terminal plates = 12 mm

1SBC104012S0201 - Rev. A

IORR ... IORE and LORR ... LORE types
R800 ... R2100

Contactor types	Number of poles	Fixing dimension - F acc. to number of additional auxiliary contacts (refer to Auxiliary contact fitting details table, section 2):											Fixing holes
		0	1	2	3	4	5	6	7	8	9	10	ø
R800	1	245	245	245	285	285	285	285	345	345	345	345	4 x ø13
	2	345	345	345	385	385	385	385	445	445	445	445	
	3	385	385	385	445	445	445	445	540	540	540	540	
R1000	1	245	245	245	285	285	285	285	345	345	345	345	4 x ø13
	2	345	345	345	385	385	385	385	445	445	445	445	
	3	385	385	385	445	445	445	445	540	540	540	540	
R1400	1	285	285	285	345	345	345	345	385	385	385	385	4 x ø13
	2	385	385	385	445	445	445	445	540	540	540	540	
	3	540	540	540	635	635	635	635	635	635	635	635	
R1700	1	300	300	300	345	345	345	345	385	385	385	385	4 x ø13
	2	445	445	445	540	540	540	540	540	540	540	540	
	3	540	540	540	635	635	635	635	635	635	635	635	
R2100	1	300	300	300	345	345	345	345	385	385	385	385	4 x ø13
	2	445	445	445	540	540	540	540	540	540	540	540	
	3	540	540	540	635	635	635	635	635	635	635	635	

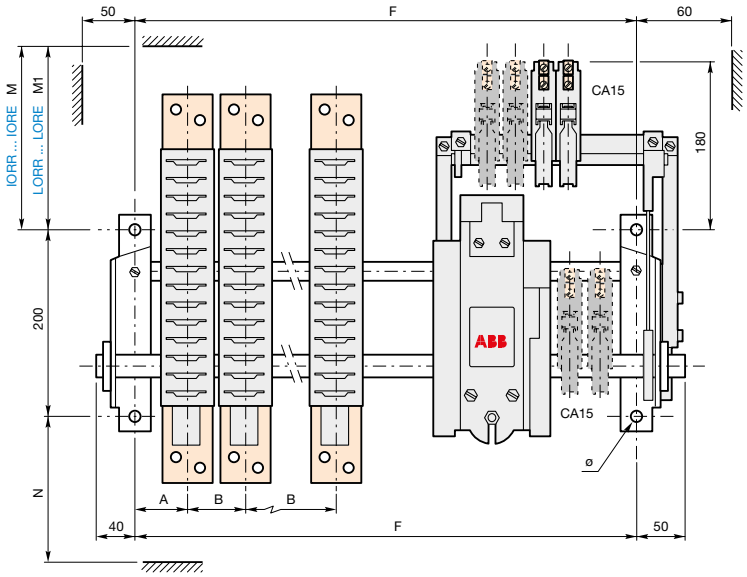
Contactor types	Number of poles	Dimensions													
		A	B	D	D1	D2	D3	H	I	I1	M	M1	N	Y	Y1
R800	1	60	-	325	260	75	77	70	108	98	158	115	85	345	280
	2	60	90	325	260	75	77	70	108	98	158	115	85	345	280
	3	60	70	325	260	75	77	70	108	98	158	115	85	345	280
R1000	1	60	-	325	260	75	77	70	108	98	158	115	85	345	280
	2	60	90	325	260	75	77	70	108	98	158	115	85	345	280
	3	60	70	325	260	75	77	70	108	98	158	115	85	345	280
R1400	1	85	-	325	260	75	77	70	108	98	228	165	100	400	280
	2	85	110	325	260	75	77	70	108	98	228	165	100	400	280
	3	85	120	325	260	75	77	70	108	98	228	165	100	400	280
R1700	1	85	-	325	260	75	77	84	108	112	258	165	125	425	280
	2	85	140	325	260	75	77	84	108	112	258	165	125	425	280
	3	85	120	325	260	75	77	84	108	112	258	165	125	425	280
R2100	1	85	-	325	260	75	77	84	108	112	258	165	125	425	280
	2	85	140	325	260	75	77	84	108	112	258	165	125	425	280
	3	85	120	325	260	75	77	84	108	112	258	165	125	425	280

Fixing - Dimensions - Clearing distances - Connecting

1SBC104012S0201 - Rev. A

IORR ... IORE and LORR ... LORE types R2500 ... R5100

Main dimensions mm



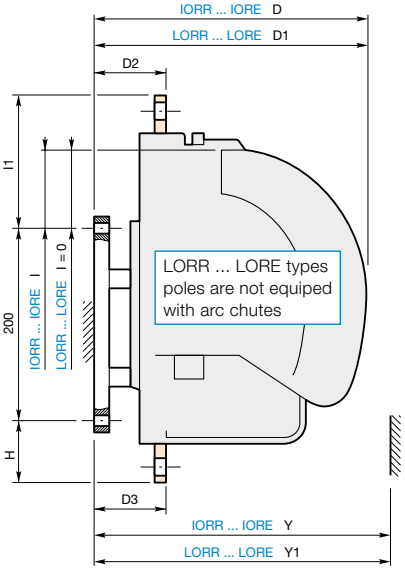


Fig 1 = right electro-magnet (see table in the following page)

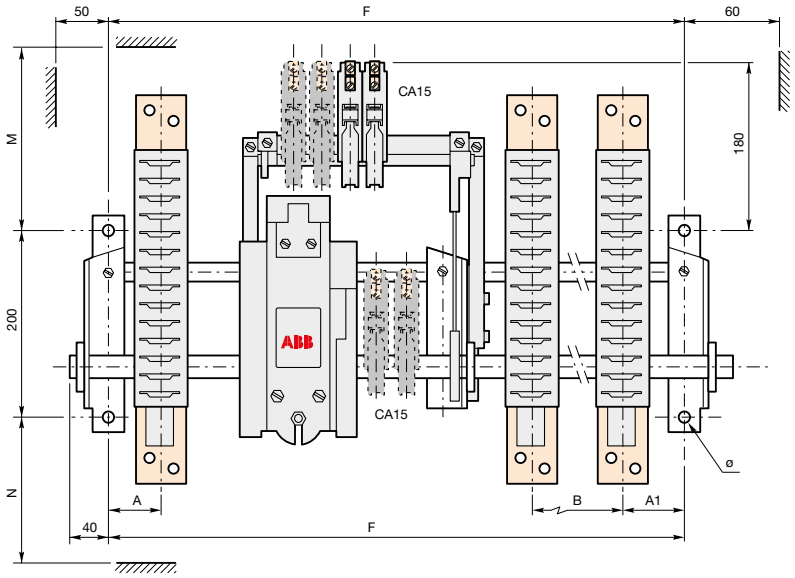
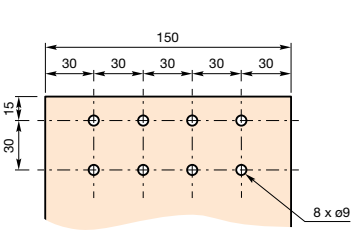
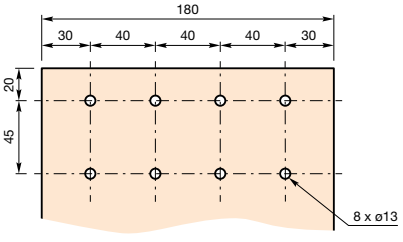


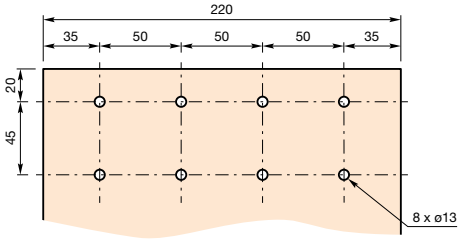
Fig 2 = central electro-magnet (see table in the following page)



R2500



R3200



R3800

Terminal plate thickness for R2500 ... R5100: top and bottom terminal plates = 10 mm

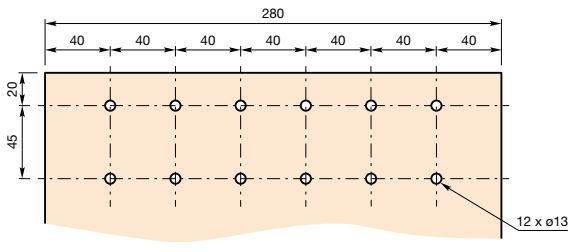
1SBC104013S0201 - Rev. A

IORR ... IORE and LORR ... LORE types
R2500 ... R5100

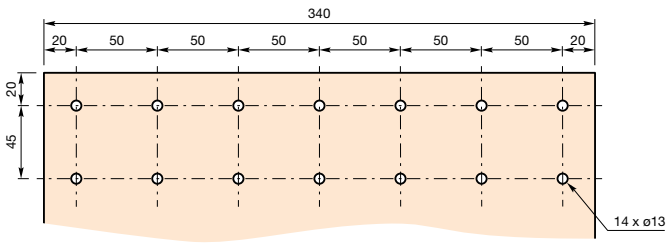
Contactor types	Number of poles	Fixing dimension - F acc. to number of additional auxiliary contacts (refer to Auxiliary contact fitting details table, section 2):											Fixing holes
		0	1	2	3	4	5	6	7	8	9	10	ø
R2500	1	385	385	385	445	445	445	445	540	540	540	540	4 x ø13
	2	635	635	635	635	635	635	635	-	-	-	-	
	3	950	950	950	1050	1050	1050	1050	1050	1050	1050	1050	
R3200	1	445	445	445	540	540	540	540	540	540	540	540	4 x ø13
	2	760	760	760	760	760	760	760	885	885	885	885	
	3	950	950	950	1050	1050	1050	1050	1050	1050	1050	1050	
R3800	1	445	445	445	540	540	540	540	540	540	540	540	4 x ø13
	2	760	760	760	885	885	885	885	885	885	885	885	
R4500	1	540	540	540	540	540	540	540	635	635	635	635	4 x ø13
	2	950	950	950	950	950	950	950	1050	1050	1050	1050	
R5100	1	540	540	540	635	635	635	635	635	635	635	635	4 x ø13

Contactor types	Number of poles	Dimensions															
		A	A1	B	D	D1	D2	D3	H	I	I1	M	M1	N	Y	Y1	Fig
R2500	1	130	-	-	325	260	85	87	135	108	161	258	245	152	425	280	1
	2	135	-	220	325	260	85	87	135	108	161	258	245	152	425	280	1
	3	135	135	-	325	260	85	87	135	108	161	258	245	152	425	280	2
R3200	1	150	-	-	325	260	99	87	174	108	202	300	245	215	450	280	1
	2	135	135	-	325	260	99	87	174	108	202	300	245	215	450	280	2
	3	135	135	-	325	260	99	87	174	108	202	300	245	215	450	280	2
R3800	1	160	-	-	325	260	99	87	174	108	202	300	245	215	450	280	1
	2	145	145	-	325	260	99	87	174	108	202	300	245	215	450	280	2
R4500	1	185	-	-	325	260	99	87	174	108	202	300	245	215	450	280	1
	2	185	180	-	325	260	99	87	174	108	202	300	245	215	450	280	2
R5100	1	210	-	-	325	260	99	87	174	108	202	300	245	215	465	280	1

Fixing - Dimensions - Clearing distances - Connecting



R4500



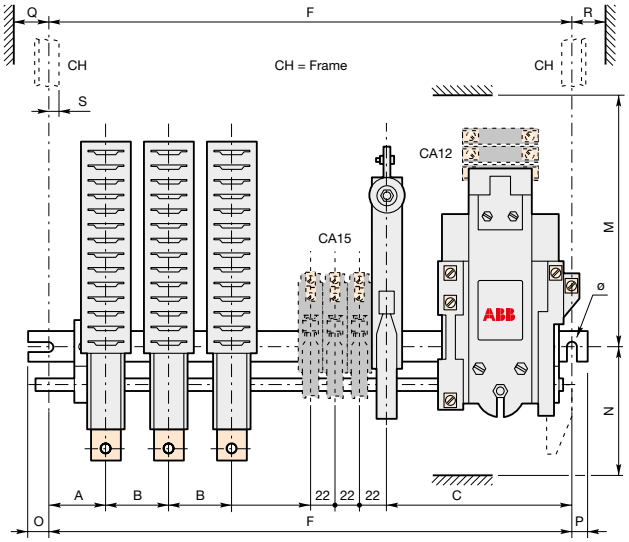
R5100

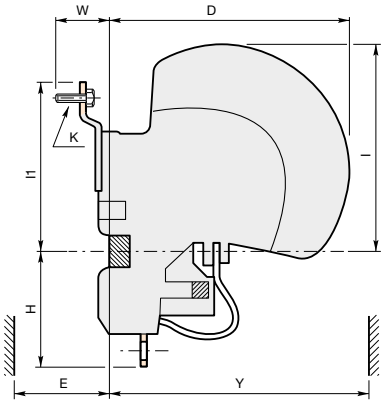
Terminal plate thickness for R2500 ... R5100: top and bottom terminal plates = 10 mm

1SBC104013S0201 - Rev. A

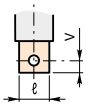
IORR..MT … IORE..MT and IORR..CC … IORE..CC types R63 … R500

Main dimensions mm





Terminal plate details



Lower terminal plate

Upper terminal plate

9

1SBC104007S0201 - Rev. A

IORR..MT … IORE..MT and IORR..CC … IORE..CC types
R63 … R500

Contactor types	Number of poles	Fixing dimension - F acc. to number of additional auxiliary contacts (refer to Auxiliary contact fitting details table, section 2):											Fixing holes
		0	1	2	3	4	5	6	7	8	9	10	ø
R63	1	205	245	245	285	285	345	345	345	-	-	-	2 x ø7
	2	245	285	285	345	345	385	385	445	-	-	-	
	3	285	345	345	385	385	445	445	445	-	-	-	
	4	345	385	385	445	445	540	540	540	-	-	-	
R125	1	205	245	245	285	345	345	345	385	-	-	-	2 x ø7
	2	285	285	345	345	385	385	445	445	-	-	-	
	3	345	345	385	385	445	445	540	540	-	-	-	
	4	385	445	445	445	540	540	540	540	-	-	-	
R200	1	245	285	285	345	345	385	385	445	-	-	-	2 x ø9
	2	345	345	385	385	445	445	445	540	-	-	-	
	3	385	445	445	445	540	540	540	540	-	-	-	
	4	445	540	540	540	540	-	-	-	-	-	-	
R400	1	345	345	385	385	445	445	445	540	-	-	-	2 x ø13
	2	445	445	445	540	540	540	540	635	-	-	-	
	3	540	540	540	540	635	635	635	635	-	-	-	
	4	635	635	635	635	-	-	-	-	-	-	-	
R500	1	345	345	385	385	445	445	445	540	-	-	-	2 x ø13
	2	445	445	445	540	540	540	540	635	-	-	-	
	3	540	540	540	540	635	635	635	635	-	-	-	
	4	635	635	635	635	-	-	-	-	-	-	-	

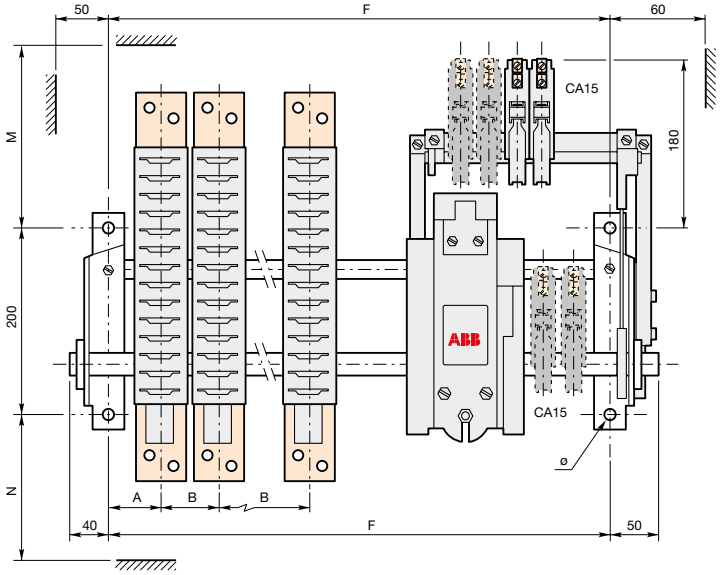
Contactor types	Number of poles	Dimensions																				
		A	B	C	D	E	H	I	I1	K	ℓ	M	N	O	P	Q	R	S	V	W	Y	Z
R63	1	45	-	93	148	36	63	114	101	M6 x 20	16	164	83	12.5	10.5	53	23	15	8	16	178	8
	2	45	50	93	148	36	63	114	101	M6 x 20	16	164	83	12.5	10.5	53	23	15	8	16	178	8
	3	45	50	93	148	36	63	114	101	M6 x 20	16	164	83	12.5	10.5	53	23	15	8	16	178	8
R125	1	57	-	93	153	40	76	138	130	M8 x 20	20	188	96	12.5	10.5	53	23	15	10	20	183	10
	2	57	61	93	153	40	76	138	130	M8 x 20	20	188	96	12.5	10.5	53	23	15	10	20	183	10
	3	57	61	93	153	40	76	138	130	M8 x 20	20	188	96	12.5	10.5	53	23	15	10	20	183	10
R200	1	69	-	116	190	40	93	140	123	M10 x 25	25	190	116	9	10	53	20	25	13	20	220	12
	2	69	68	116	190	40	93	140	123	M10 x 25	25	190	116	9	10	53	20	25	13	20	220	12
	3	69	68	116	190	40	93	140	123	M10 x 25	25	190	116	9	10	53	20	25	13	20	220	12
R400	1	79	-	160	260	100	118	230	195	ø13	30	253	150	15	14	53	20	20	20	46	290	20
	2	79	80	160	260	100	118	230	195	ø13	30	253	150	15	14	53	20	20	20	46	290	20
	3	79	80	160	260	100	118	230	195	ø13	30	253	150	15	14	53	20	20	20	46	290	20
R500	1	79	-	160	260	100	118	230	195	ø13	30	253	150	15	14	53	20	20	20	46	290	20
	2	79	80	160	260	100	118	230	195	ø13	30	253	150	15	14	53	20	20	20	46	290	20
	3	79	80	160	260	100	118	230	195	ø13	30	253	150	15	14	53	20	20	20	46	290	20

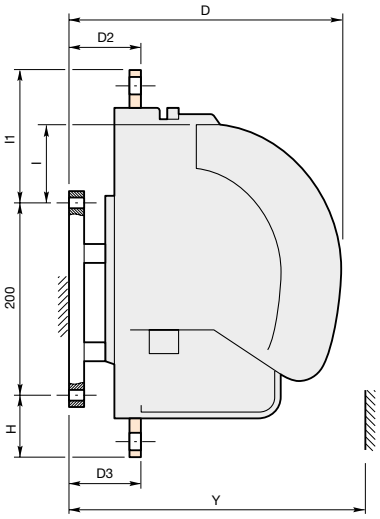
Fixing - Dimensions - Clearing distances - Connecting

1SBC104007S0201 - Rev. A

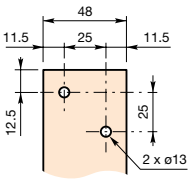
IORR..MT ... IORE..MT and IORR..CC ... IORE..CC types R800 ... R2100

Main dimensions mm

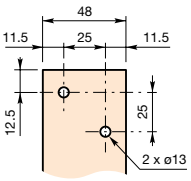




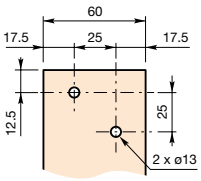
Terminal plate details



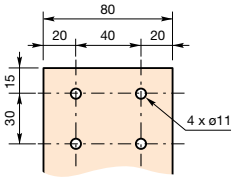
R800



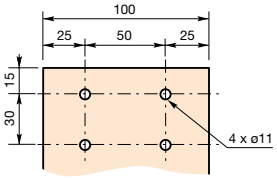
R1000



R1400



R1700



R2100

Terminal plate thickness: top terminal plates = 10 mm, bottom terminal plates = 12 mm

1SBC104008S0201 - Rev. A

IORR..MT … IORE..MT and IORR..CC … IORE..CC types
R800 … R2100

Contactor types	Number of poles	Fixing dimension - F acc. to number of additional auxiliary contacts (refer to Auxiliary contact fitting details table, section 2):											Fixing holes
		0	1	2	3	4	5	6	7	8	9	10	ø
R800	1	245	245	245	285	285	285	285	345	345	345	345	4 x ø13
	2	345	345	345	385	385	385	385	445	445	445	445	
	3	385	385	385	445	445	445	445	540	540	540	540	
R1000	1	285	285	285	345	345	345	345	345	345	345	345	4 x ø13
CC type only	2	345	345	345	385	385	385	385	445	445	445	445	
	3	445	445	445	540	540	540	540	540	540	540	540	
R1400	1	285	285	285	345	345	345	345	385	385	385	385	4 x ø13
	2	385	385	385	445	445	445	445	540	540	540	540	
	3	540	540	540	635	635	635	635	635	635	635	635	
R1700	1	300	300	300	345	345	345	345	385	385	385	385	4 x ø13
	2	445	445	445	540	540	540	540	540	540	540	540	
	3	540	540	540	635	635	635	635	635	635	635	635	
R2100	1	300	300	300	345	345	345	345	385	385	385	385	4 x ø13
	2	445	445	445	540	540	540	540	540	540	540	540	
	3	540	540	540	635	635	635	635	635	635	635	635	

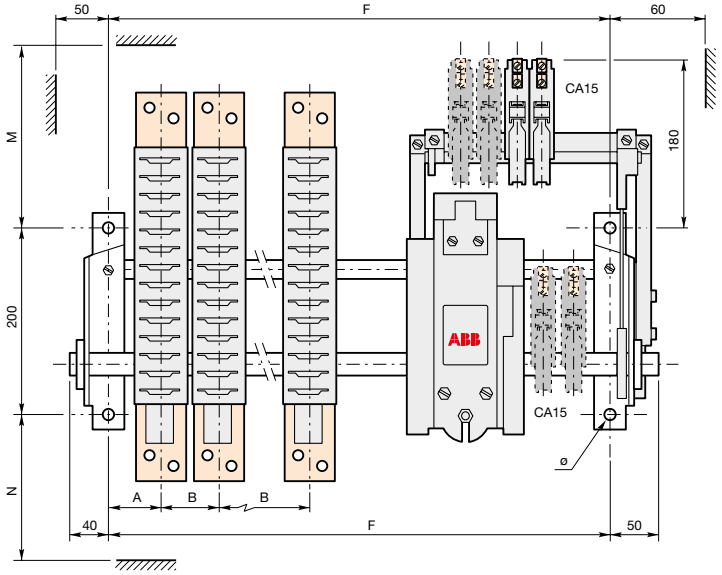
Contactor types	Number of poles	Dimensions										
		A	B	D	D2	D3	H	I	I1	M	N	Y
R800	1	60	-	325	76	77	70	108	175	195	90	375
	2	60	90	325	76	77	70	108	175	195	90	375
	3	60	70	325	76	77	70	108	175	195	90	375
R1000	1	60	-	325	76	77	70	108	175	195	90	375
	2	60	90	325	76	77	70	108	175	195	90	375
	3	60	80	325	76	77	70	108	175	195	90	375
R1400	1	80	-	325	76	77	70	108	175	258	100	425
	2	80	110	325	76	77	70	108	175	258	100	425
	3	85	120	325	76	77	70	108	175	258	100	425
R1700	1	85	-	325	89	77	84	108	189	288	125	450
	2	85	140	325	89	77	84	108	189	288	125	450
	3	85	120	325	89	77	84	108	189	288	125	450
R2100	1	85	-	325	89	77	84	108	189	288	125	450
	2	85	140	325	89	77	84	108	189	288	125	450
	3	85	120	325	89	77	84	108	189	288	125	450

Fixing - Dimensions - Clearing distances - Connecting

1SBC104008S0201 - Rev. A

IORR..MT ... IORE..MT and IORR..CC ... IORE..CC types R2500 ... R5100

Main dimensions mm



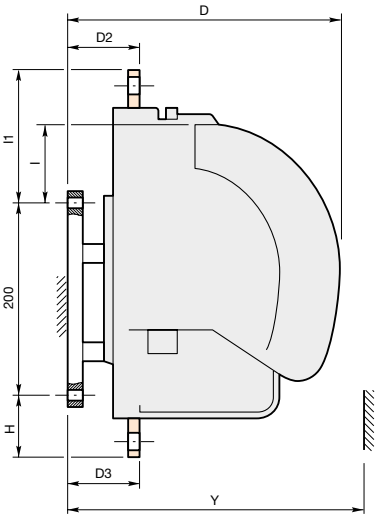


Fig 1 = right electro-magnet (see table in the following page)

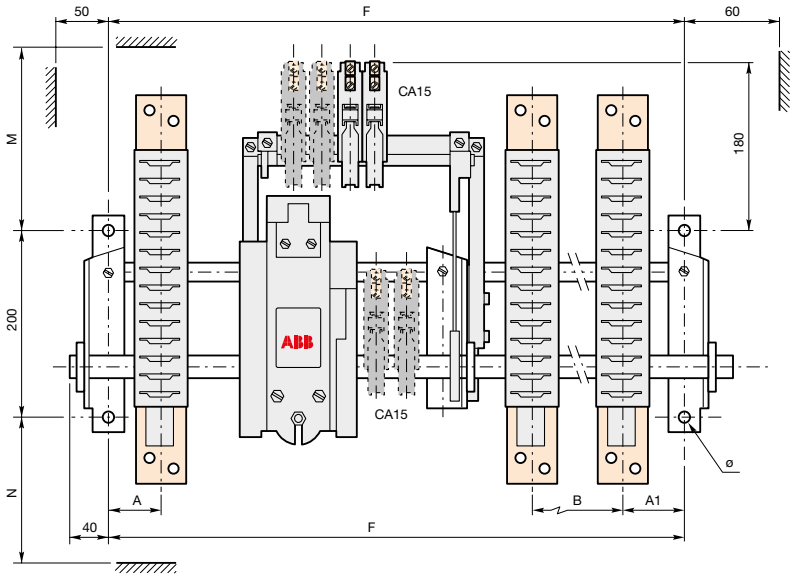
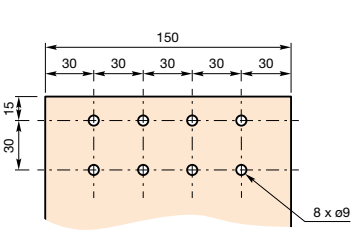
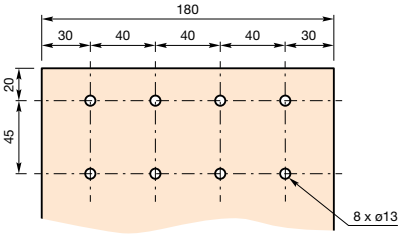


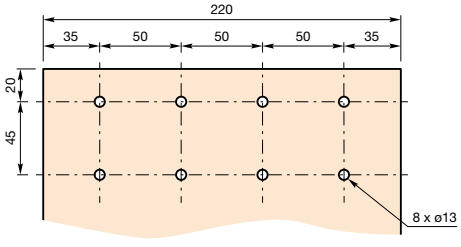
Fig 2 = central electro-magnet (see table in the following page)



R2500



R3200



R3800

Terminal plate thickness for R2500 ... R5100: top and bottom terminal plates = 10 mm

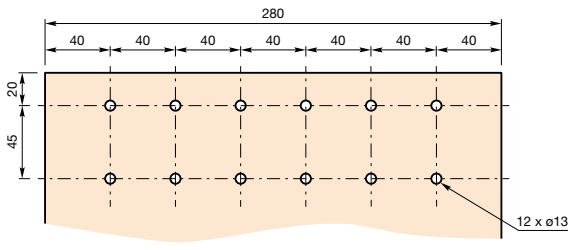
1SBC104009S0201 - Rev. A

IORR..MT ... IORE..MT and IORR..CC ... IORE..CC types
R2500 ... R5100

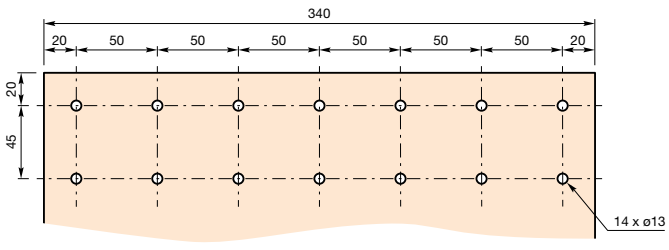
Contactor types	Number of poles	Fixing dimension - F acc. to number of additional auxiliary contacts (refer to Auxiliary contact fitting details table, section 2):											Fixing holes
		0	1	2	3	4	5	6	7	8	9	10	ø
R2500	1	385	385	385	445	445	445	445	540	540	540	540	4 x ø13
	2	635	635	635	635	635	635	635	-	-	-	-	
	3	950	950	950	1050	1050	1050	1050	1050	1050	1050	1050	
R3200	1	445	445	445	540	540	540	540	540	540	540	540	4 x ø13
	2	760	760	760	760	760	760	760	885	885	885	885	
	3	950	950	950	1050	1050	1050	1050	1050	1050	1050	1050	
R3800	1	445	445	445	540	540	540	540	540	540	540	540	4 x ø13
	2	760	760	760	885	885	885	885	885	885	885	885	
R4500	1	540	540	540	540	540	540	540	635	635	635	635	4 x ø13
	2	950	950	950	950	950	950	950	1050	1050	1050	1050	
R5100	1	540	540	540	635	635	635	635	635	635	635	635	4 x ø13

Contactor types	Number of poles	Dimensions												
		A	A1	B	D	D2	D3	H	I	I1	M	N	Y	Fig
R2500	1	130	-	-	325	85	87	135	108	238	258	152	425	1
	2	135	-	220	325	85	87	135	108	238	258	152	425	1
	3	135	135	-	325	85	87	135	108	238	258	152	425	2
R3200	1	150	-	-	325	99	87	174	108	279	300	215	450	1
	2	135	135	-	325	99	87	174	108	279	300	215	450	2
	3	135	135	-	325	99	87	174	108	279	300	215	450	2
R3800	1	160	-	-	325	99	87	174	108	279	300	215	450	1
	2	145	145	-	325	99	87	174	108	279	300	215	450	2
R4500	1	185	-	-	325	99	87	174	108	279	300	215	450	1
	2	185	180	-	325	99	87	174	108	279	300	215	450	2
R5100	1	210	-	-	325	99	87	174	108	279	300	215	465	1

Fixing - Dimensions - Clearing distances - Connecting



R4500



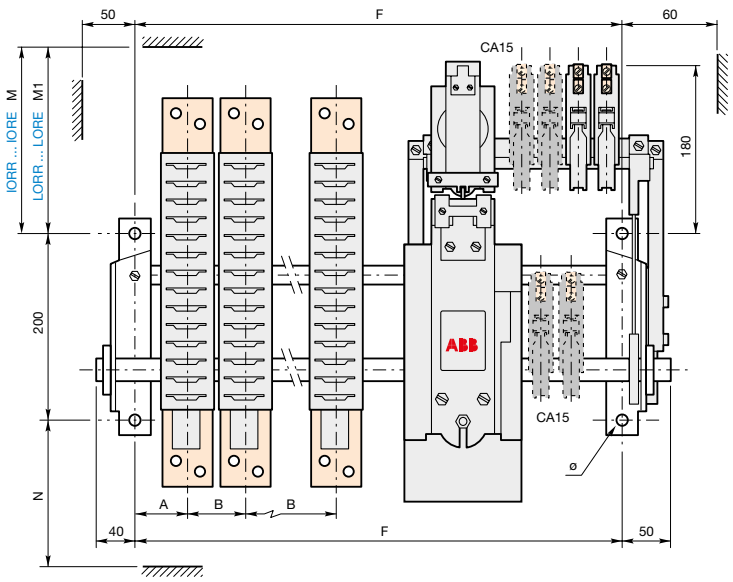
R5100

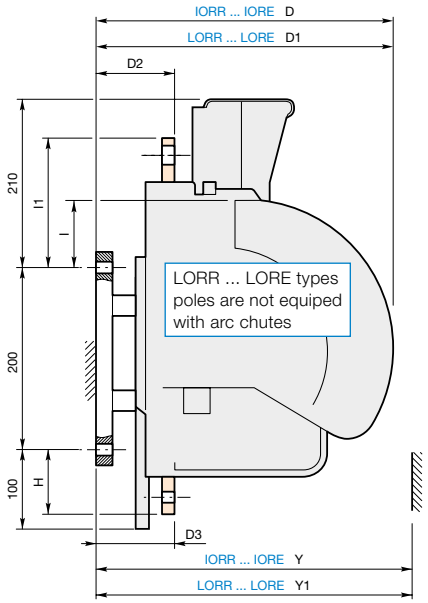
Terminal plate thickness for R2500 ... R5100: top and bottom terminal plates = 10 mm

1SBC104009S0201 - Rev. A

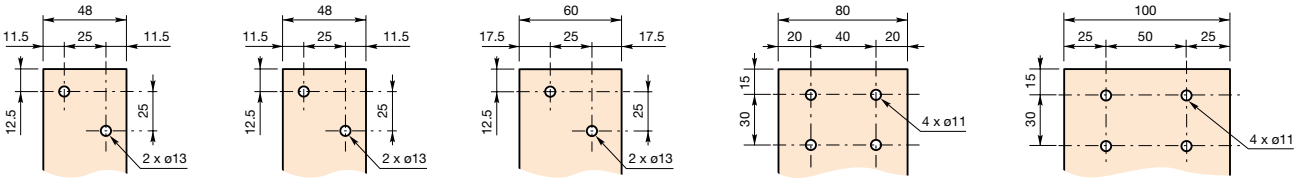
IORR..AME … IORE..AME and LORR..AME … LORE..AME types R800 … R2100

Main dimensions mm





Terminal plate details



R800 **R1000** **R1400** **R1700** **R2100**

Terminal plate thickness: top terminal plates = 10 mm, bottom terminal plates = 12 mm

1SBC104016S0201 - Rev. A

IORR..AME ... IORE..AME and LORR..AME ... LORE..AME types
R800 ... R2100

Contactor types	Number of poles	Fixing dimension - F acc. to number of additional auxiliary contacts (refer to Auxiliary contact fitting details table, section 2):											Fixing holes
		0	1	2	3	4	5	6	7	8	9	10	ø
R800	1	345	345	345	345	345	345	-	-	-	-	-	4 x ø13
	2	445	445	445	445	445	445	-	-	-	-	-	
	3	540	540	540	540	540	540	-	-	-	-	-	
R1000	1	345	345	345	345	345	345	-	-	-	-	-	4 x ø13
	2	445	445	445	445	445	445	-	-	-	-	-	
	3	540	540	540	540	540	540	-	-	-	-	-	
R1400	1	385	385	385	385	385	385	-	-	-	-	-	4 x ø13
	2	540	540	540	540	540	540	-	-	-	-	-	
	3	635	635	635	635	635	635	-	-	-	-	-	
R1700	1	385	385	385	385	385	385	-	-	-	-	-	4 x ø13
	2	540	540	540	540	540	540	-	-	-	-	-	
	3	635	635	635	635	635	635	-	-	-	-	-	
R2100	1	385	385	385	385	385	385	-	-	-	-	-	4 x ø13
	2	540	540	540	540	540	540	-	-	-	-	-	
	3	635	635	635	635	635	635	-	-	-	-	-	

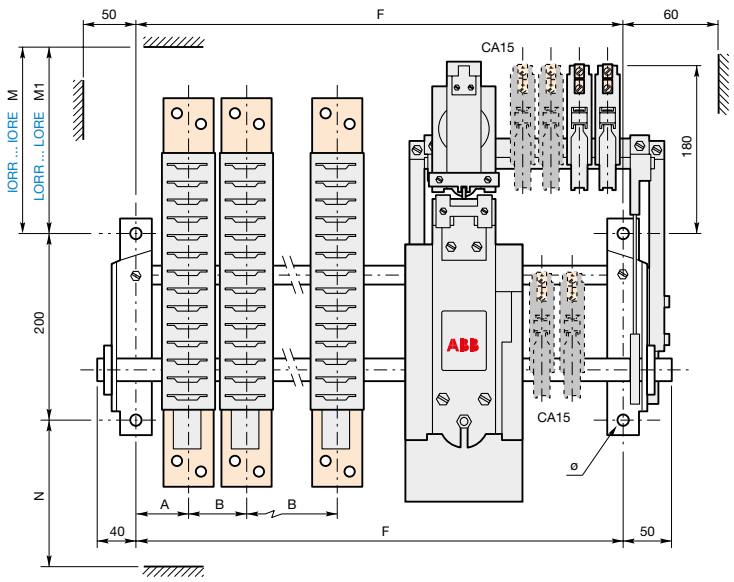
Contactor types	Number of poles	Dimensions													
		A	B	D	D1	D2	D3	H	I	I1	M	M1	N	Y	Y1
R800	1	60	-	325	260	75	77	70	108	98	245	245	90	345	280
	2	60	90	325	260	75	77	70	108	98	245	245	90	345	280
	3	60	70	325	260	75	77	70	108	98	245	245	90	345	280
R1000	1	60	-	325	260	75	77	70	108	98	245	245	90	345	280
	2	60	90	325	260	75	77	70	108	98	245	245	90	345	280
	3	60	70	325	260	75	77	70	108	98	245	245	90	345	280
R1400	1	80	-	325	260	76	77	70	108	98	258	245	100	400	280
	2	80	110	325	260	76	77	70	108	98	258	245	100	400	280
	3	85	120	325	260	76	77	70	108	98	258	245	100	400	280
R1700	1	85	-	325	260	75	77	84	108	112	288	245	125	425	280
	2	85	140	325	260	75	77	84	108	112	288	245	125	425	280
	3	85	120	325	260	75	77	84	108	112	288	245	125	425	280
R2100	1	85	-	325	260	75	77	84	108	112	288	245	125	425	280
	2	85	140	325	260	75	77	84	108	112	288	245	125	425	280
	3	85	120	325	260	75	77	84	108	112	288	245	125	425	280

Fixing - Dimensions - Clearing distances - Connecting

1SBC104016S0201 - Rev. A

IORR..AME … IORE..AME and LORR..AME … LORE..AME types R2500 … R5100

Main dimensions mm



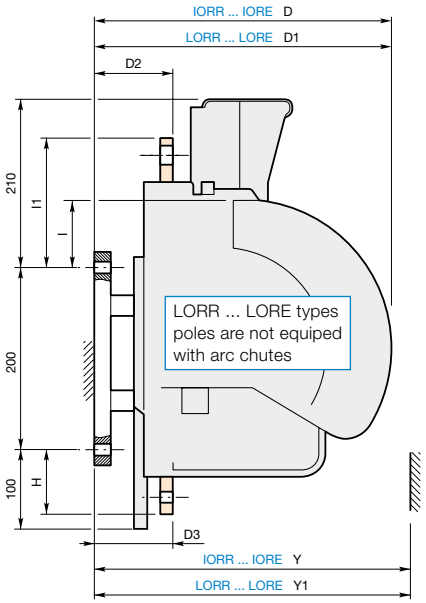


Fig 1 = right electro-magnet (see table in the following page)

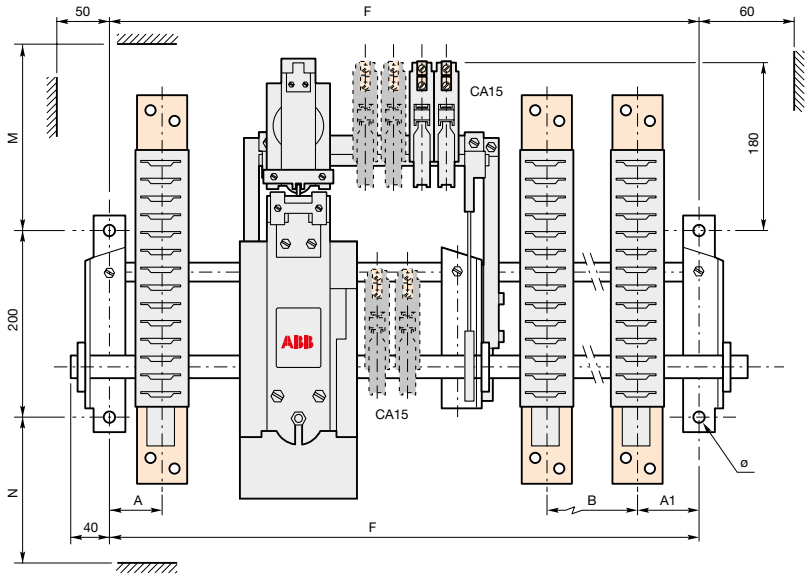
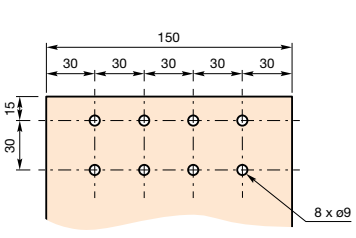
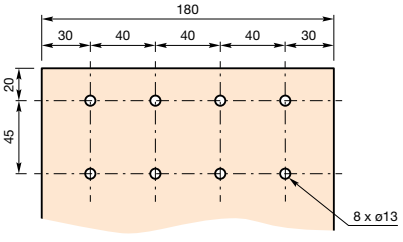


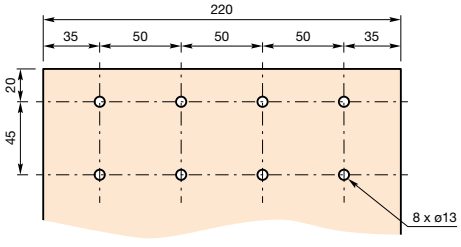
Fig 2 = central electro-magnet (see table in the following page)



R2500



R3200



R3800

Terminal plate thickness for R2500 ... R5100: top and bottom terminal plates = 10 mm

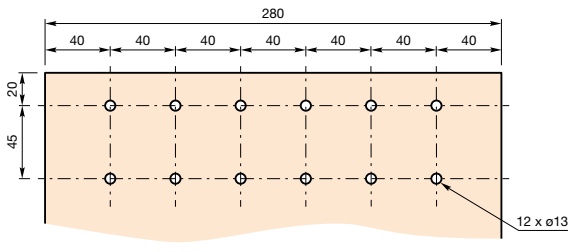
1SBC104017S0201 - Rev. A

IORR..AME ... IORE..AME and LORR..AME ... LORE..AME types
R2500 ... R5100

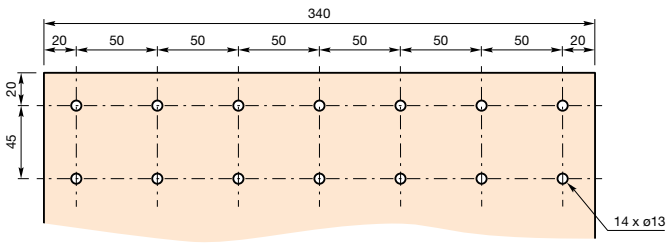
Contactor types	Number of poles	Fixing dimension - F acc. to number of additional auxiliary contacts (refer to Auxiliary contact fitting details table, section 2):											Fixing holes
		0	1	2	3	4	5	6	7	8	9	10	ø
R2500	1	540	540	540	540	540	540	-	-	-	-	-	4 x ø13
	2	685	685	685	685	685	685	-	-	-	-	-	
	3	1050	1050	1050	1050	1050	1050	-	-	-	-	-	
R3200	1	540	540	540	540	540	540	-	-	-	-	-	4 x ø13
	2	885	885	885	885	885	885	-	-	-	-	-	
	3	1050	1050	1050	1050	1050	1050	-	-	-	-	-	
R3800	1	540	540	540	540	540	540	-	-	-	-	-	4 x ø13
	2	885	885	885	885	885	885	-	-	-	-	-	
R4500	1	635	635	635	635	635	635	-	-	-	-	-	4 x ø13
	2	1050	1050	1050	1050	1050	1050	-	-	-	-	-	
R5100	1	635	635	635	635	635	635	-	-	-	-	-	4 x ø13

Contactor types	Number of poles	Dimensions															
		A	A1	B	D	D1	D2	D3	H	I	I1	M	M1	N	Y	Y1	Fig
R2500	1	130	-	-	325	260	85	87	135	108	161	258	245	152	425	280	1
	2	135	-	220	325	260	85	87	135	108	161	258	245	152	425	280	1
	3	135	135	-	325	260	85	87	135	108	161	258	245	152	425	280	2
R3200	1	150	-	-	325	260	99	87	174	108	202	300	245	215	450	280	1
	2	135	135	-	325	260	99	87	174	108	202	300	245	215	450	280	2
	3	135	135	-	325	260	99	87	174	108	202	300	245	215	450	280	2
R3800	1	160	-	-	325	260	99	87	174	108	202	300	245	215	450	280	1
	2	145	145	-	325	260	99	87	174	108	202	300	245	215	450	280	2
R4500	1	185	-	-	325	260	99	87	174	108	202	300	245	215	450	280	1
	2	185	180	-	325	260	99	87	174	108	202	300	245	215	450	280	2
R5100	1	210	-	-	325	260	99	87	174	108	202	300	245	215	465	280	1

Fixing - Dimensions - Clearing distances - Connecting



R4500



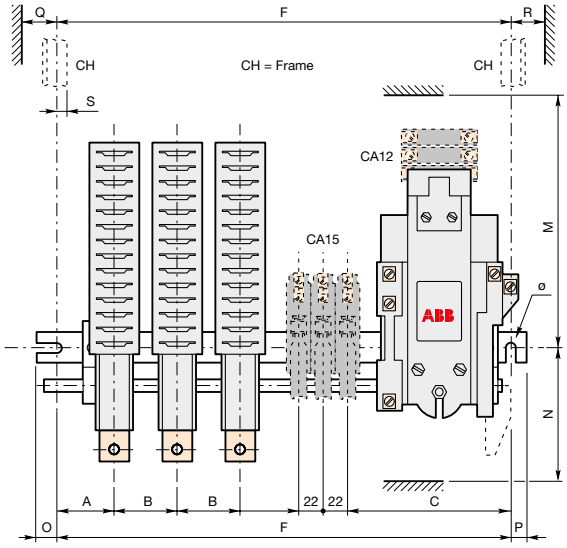
R5100

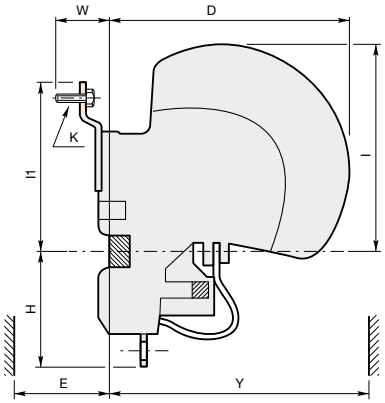
Terminal plate thickness for R2500 ... R5100: top and bottom terminal plates = 10 mm

1SBC104017S0201 - Rev. A

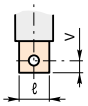
IORR..MT-AMA … IOR..MT-AMA and IORR..CC-AMA … IOR..CC-AMA types R63 … R200

Main dimensions mm





Terminal plate details



Lower terminal plate

Upper terminal plate

1SBC104014S0201 - Rev. A

IORR..MT-AMA … IOR..MT-AMA and IORR..CC-AMA … IOR..CC-AMA types
R63 … R200

Contactor types	Number of poles	Fixing dimension - F acc. to number of additional auxiliary contacts (refer to Auxiliary contact fitting details table, section 2):											Fixing holes
		0	1	2	3	4	5	6	7	8	9	10	ø
R63	1	175	245	245	245	285	285	345	345	-	-	-	2 x ø7
	2	245	245	285	285	345	345	385	385	-	-	-	
	3	285	345	345	345	385	385	445	-	-	-	-	
	4	345	345	385	385	445	-	-	-	-	-	-	
R125	1	205	205	245	285	285	345	345	345	-	-	-	2 x ø7
	2	245	285	285	345	345	385	385	-	-	-	-	
	3	345	345	345	385	385	445	445	-	-	-	-	
	4	385	385	445	-	-	-	-	-	-	-	-	
R200	1	245	245	285	345	345	345	385	385	-	-	-	2 x ø9
	2	285	345	345	385	385	445	445	445	-	-	-	
	3	385	385	445	445	445	540	540	-	-	-	-	
	4	445	445	540	-	-	-	-	-	-	-	-	

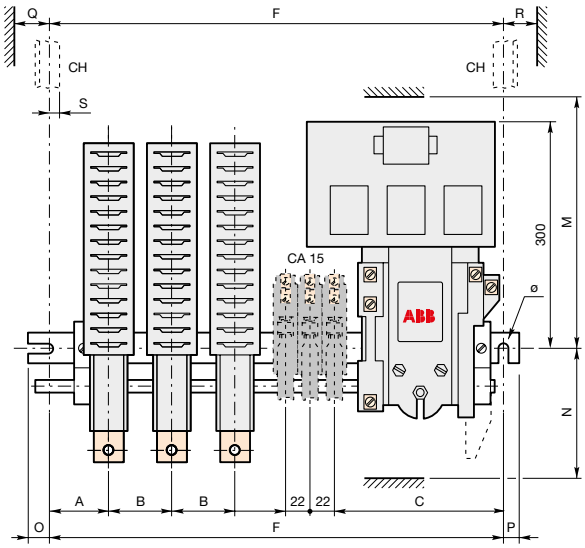
Contactor types	Number of poles	Dimensions																				
		A	B	C	D	E	H	I	I1	K	ℓ	M	N	O	P	Q	R	S	V	W	Y	Z
R63	1	45	-	93	148	36	63	114	101	M6 x 20	16	164	83	12.5	10.5	53	23	15	8	16	178	8
	2	45	50	93	148	36	63	114	101	M6 x 20	16	164	83	12.5	10.5	53	23	15	8	16	178	8
	3	45	50	93	148	36	63	114	101	M6 x 20	16	164	83	12.5	10.5	53	23	15	8	16	178	8
R125	1	57	-	93	153	40	76	138	130	M8 x 20	20	188	96	12.5	10.5	53	23	15	10	20	183	10
	2	57	61	93	153	40	76	138	130	M8 x 20	20	188	96	12.5	10.5	53	23	15	10	20	183	10
	3	57	61	93	153	40	76	138	130	M8 x 20	20	188	96	12.5	10.5	53	23	15	10	20	183	10
R200	1	69	-	116	190	40	93	140	123	M10 x 25	25	190	116	9	10	53	20	25	13	20	220	12
	2	69	68	116	190	40	93	140	123	M10 x 25	25	190	116	9	10	53	20	25	13	20	220	12
	3	69	68	116	190	40	93	140	123	M10 x 25	25	190	116	9	10	53	20	25	13	20	220	12

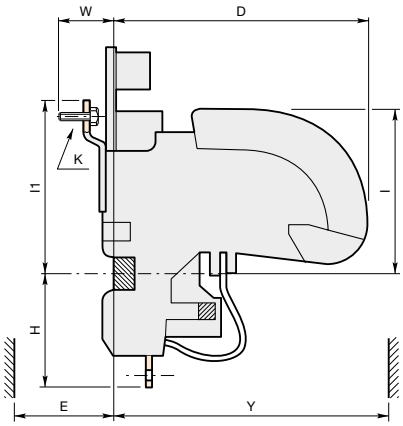
Fixing - Dimensions - Clearing distances - Connecting

1SBC104014S0201 - Rev. A

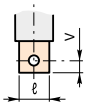
IORR..MT-AME … IORE..MT-AME and IORR..CC-AME … IORE..CC-AME types R400 … R500

Main dimensions mm





Terminal plate details



Lower terminal plate

Upper terminal plate

9

1SBC104015S0201 - Rev. A

IORR..MT-AME … IORE..MT-AME and IORR..CC-AME … IORE..CC-AME types
R400 … R500

Contactor types	Number of poles	Fixing dimension - F acc. to number of additional auxiliary contacts (refer to Auxiliary contact fitting details table, section 2):											Fixing holes
		0	1	2	3	4	5	6	7	8	9	10	ø
R400	1	345	345	385	385	445	445	445	540	540	-	-	2 x ø13
	2	445	445	445	540	540	540	540	635	635	-	-	
	3	540	540	540	540	635	635	635	635	760	-	-	
	4	635	635	635	635	-	-	-	-	-	-	-	
R500	1	345	345	385	385	445	445	445	540	540	-	-	2 x ø13
	2	445	445	445	540	540	540	540	635	635	-	-	
	3	540	540	540	540	635	635	635	635	760	-	-	
	4	635	635	635	635	-	-	-	-	-	-	-	

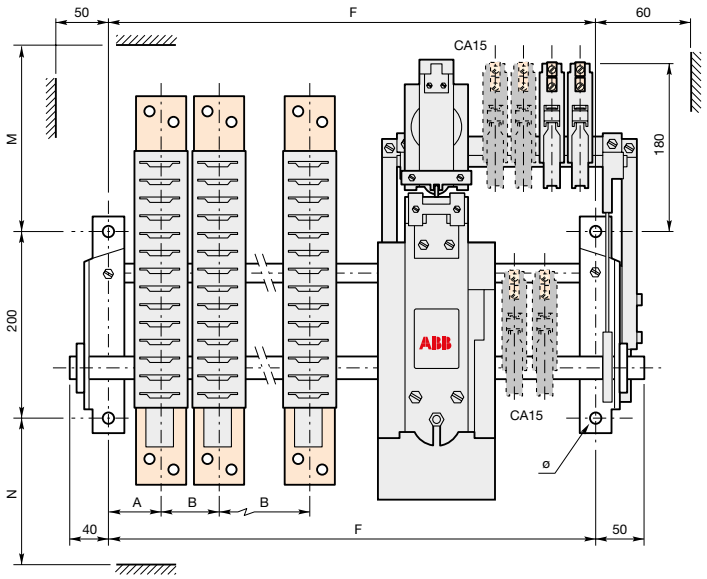
Contactor types	Number of poles	Dimensions																				
		A	B	C	D	E	H	I	I1	K	ℓ	M	N	O	P	Q	R	S	V	W	Y	Z
R400	1	79	-	160	260	100	118	230	195	ø13	30	313	150	15	14	53	20	20	20	46	335	20
	2	79	80	160	260	100	118	230	195	ø13	30	313	150	15	14	53	20	20	20	46	335	20
	3	79	80	160	260	100	118	230	195	ø13	30	313	150	15	14	53	20	20	20	46	335	20
R500	1	79	-	160	260	100	118	230	195	ø13	30	313	150	15	14	53	20	20	20	46	335	20
	2	79	80	160	260	100	118	230	195	ø13	30	313	150	15	14	53	20	20	20	46	335	20
	3	79	80	160	260	100	118	230	195	ø13	30	313	150	15	14	53	20	20	20	46	335	20

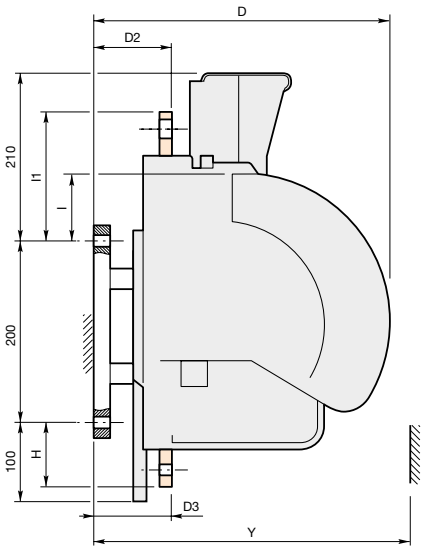
Fixing - Dimensions - Clearing distances - Connecting

1SBC104015S0201 - Rev. A

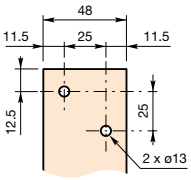
IORR..MT-AME … IORE..MT-AME and IORR..CC-AME … IORE..CC-AME types R800 … R2100

Main dimensions mm

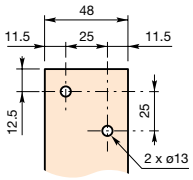




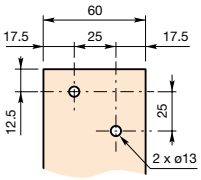
Terminal plate details



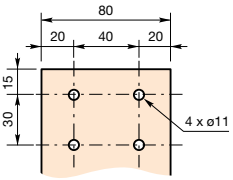
R800



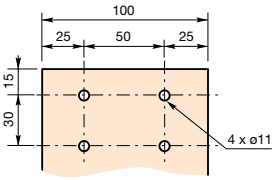
R1000



R1400



R1700



R2100

Terminal plate thickness: top terminal plates = 10 mm, bottom terminal plates = 12 mm

1SBC104018S0201 - Rev. A

IORR..MT-AME … IORE..MT-AME and IORR..CC-AME … IORE..CC-AME types
R800 … R2100

Contactor types	Number of poles	Fixing dimension - F acc. to number of additional auxiliary contacts (refer to Auxiliary contact fitting details table, section 2):											Fixing holes
		0	1	2	3	4	5	6	7	8	9	10	ø
R800	1	345	345	345	345	345	345	-	-	-	-	-	4 x ø13
	2	445	445	445	445	445	445	-	-	-	-	-	
	3	540	540	540	540	540	540	-	-	-	-	-	
R1000	1	345	345	345	345	345	345	-	-	-	-	-	4 x ø13
CC type only	2	445	445	445	445	445	445	-	-	-	-	-	
	3	540	540	540	540	540	540	-	-	-	-	-	
R1400	1	385	385	385	385	385	385	-	-	-	-	-	4 x ø13
	2	540	540	540	540	540	540	-	-	-	-	-	
	3	635	635	635	635	635	635	-	-	-	-	-	
R1700	1	385	385	385	385	385	385	-	-	-	-	-	4 x ø13
	2	540	540	540	540	540	540	-	-	-	-	-	
	3	635	635	635	635	635	635	-	-	-	-	-	
R2100	1	385	385	385	385	385	385	-	-	-	-	-	4 x ø13
	2	540	540	540	540	540	540	-	-	-	-	-	
	3	635	635	635	635	635	635	-	-	-	-	-	

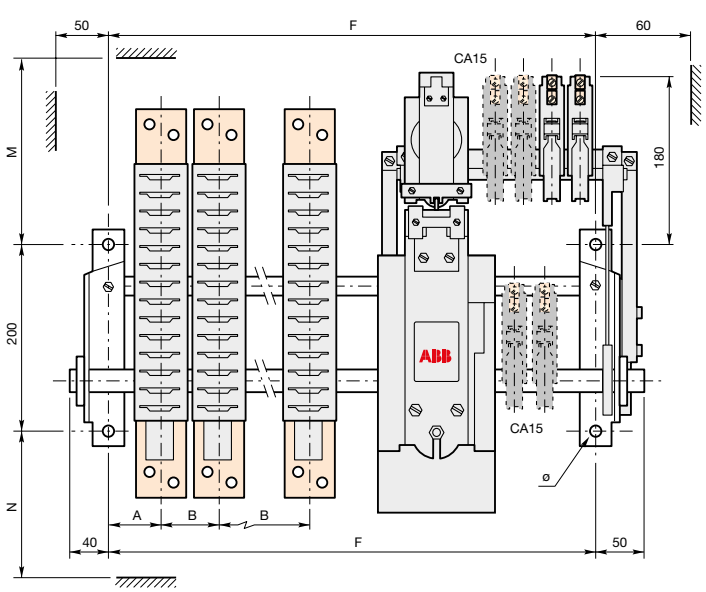
Contactor types	Number of poles	Dimensions										
		A	B	D	D2	D3	H	I	I1	M	N	Y
R800	1	60	-	325	76	77	70	108	175	245	90	375
	2	60	90	325	76	77	70	108	175	245	90	375
	3	60	70	325	76	77	70	108	175	245	90	375
R1000	1	60	-	325	76	77	70	108	175	245	90	375
	2	60	90	325	76	77	70	108	175	245	90	375
	3	60	80	325	76	77	70	108	175	245	90	375
R1400	1	80	-	325	76	77	70	108	175	258	100	425
	2	80	100	325	76	77	70	108	175	258	100	425
	3	85	120	325	76	77	70	108	175	258	100	425
R1700	1	85	-	325	89	77	84	108	189	288	125	450
	2	85	140	325	89	77	84	108	189	288	125	450
	3	85	120	325	89	77	84	108	189	288	125	450
R2100	1	85	-	325	89	77	84	108	189	288	125	450
	2	85	140	325	89	77	84	108	189	288	125	450
	3	85	120	325	89	77	84	108	189	288	125	450

Fixing - Dimensions - Clearing distances - Connecting

1SBC104018S0201 - Rev. A

IORR..MT-AME … IORE..MT-AME and IORR..CC-AME … IORE..CC-AME types R2500 … R5100

Main dimensions mm



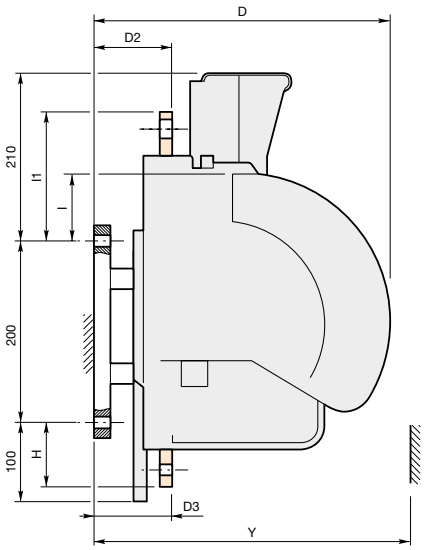


Fig 1 = right electro-magnet (see table in the following page)

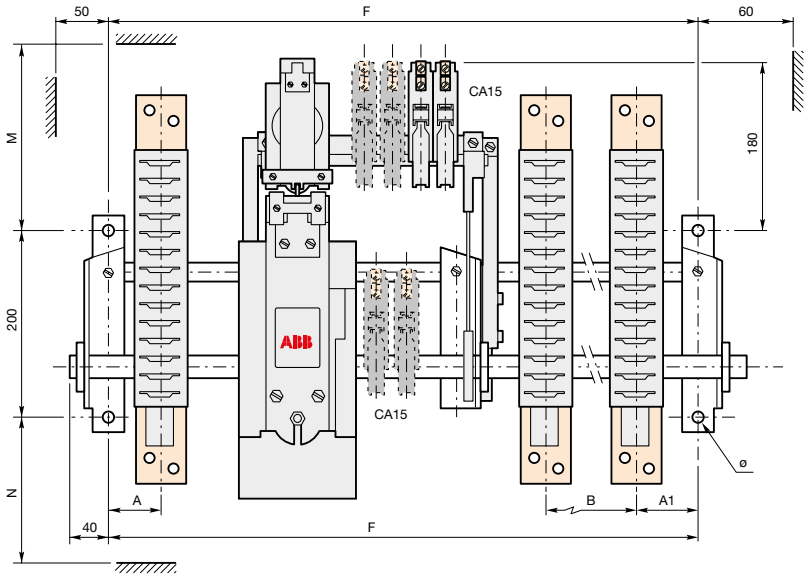
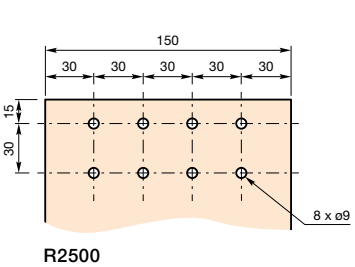
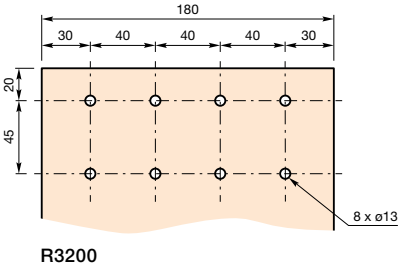


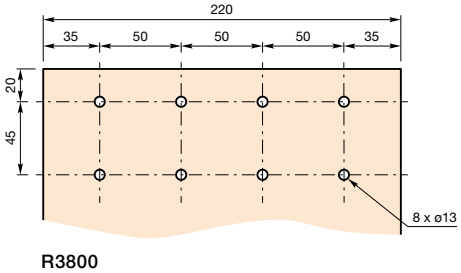
Fig 2 = central electro-magnet (see table in the following page)



R2500



R3200



R3800

Terminal plate thickness for R2500 ... R5100: top and bottom terminal plates = 10 mm

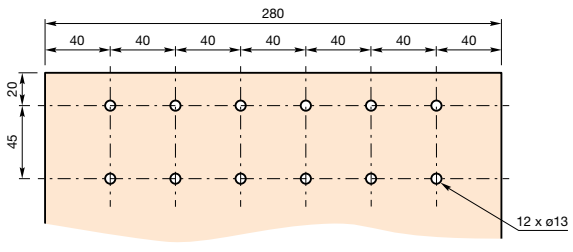
1SBC104019S0201 - Rev. A

IORR..MT-AME … IORE..MT-AME and IORR..CC-AME … IORE..CC-AME types
R2500 … R5100

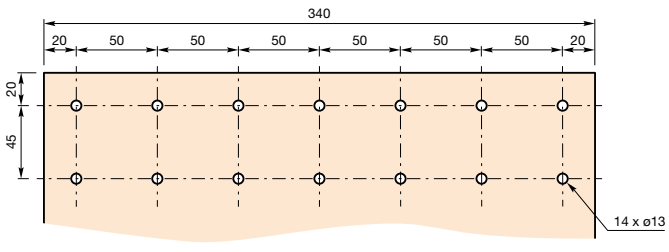
Contactor types	Number of poles	Fixing dimension - F acc. to number of additional auxiliary contacts (refer to Auxiliary contact fitting details table, section 2):											Fixing holes
		0	1	2	3	4	5	6	7	8	9	10	ø
R2500	1	540	540	540	540	540	540	-	-	-	-	-	4 x ø13
	2	685	685	685	685	685	685	-	-	-	-	-	
	3	1050	1050	1050	1050	1050	1050	-	-	-	-	-	
R3200	1	540	540	540	540	540	540	-	-	-	-	-	4 x ø13
	2	885	885	885	885	885	885	-	-	-	-	-	
	3	1050	1050	1050	1050	1050	1050	-	-	-	-	-	
R3800	1	540	540	540	540	540	540	-	-	-	-	-	4 x ø13
	2	885	885	885	885	885	885	-	-	-	-	-	
R4500	1	635	635	635	635	635	635	-	-	-	-	-	4 x ø13
	2	1050	1050	1050	1050	1050	1050	-	-	-	-	-	
R5100	1	635	635	635	635	635	635	-	-	-	-	-	4 x ø13

Contactor types	Number of poles	Dimensions													
		A	A1	B	D	B1	D2	D3	H	I	I1	M	N	Y	Fig
R2500	1	130	-	-	325	-	85	87	135	108	238	258	152	425	1
	2	135	-	220	325	-	85	87	135	108	238	258	152	425	1
	3	135	135	220	325	-	85	87	135	108	238	258	152	425	2
R3200	1	150	-	-	325	-	99	87	174	108	279	300	215	450	1
	2	135	135	-	325	-	99	87	174	108	279	300	215	450	2
	3	135	-	-	325	-	99	87	174	108	279	300	215	450	2
R3800	1	160	-	-	325	-	99	87	174	108	279	300	215	450	1
	2	145	145	-	325	-	99	87	174	108	279	300	215	450	2
R4500	1	185	-	-	325	-	99	87	174	108	279	300	215	450	1
	2	185	180	-	325	-	99	87	174	108	279	300	215	450	2
R5100	1	210	-	-	325	-	99	87	174	108	279	300	215	465	1

Fixing - Dimensions - Clearing distances - Connecting



R4500



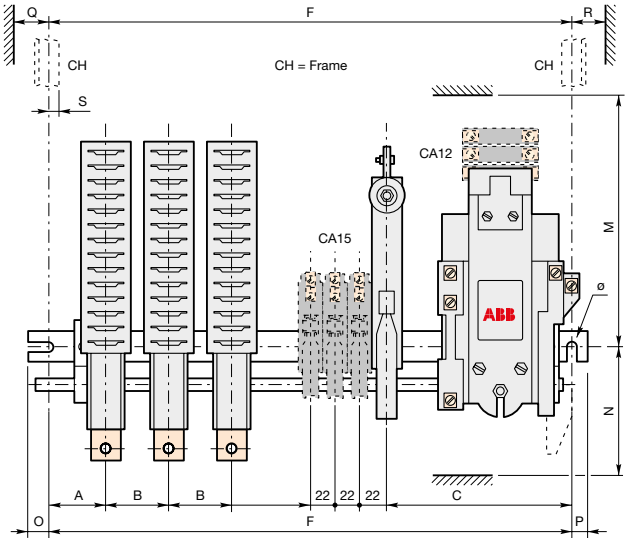
R5100

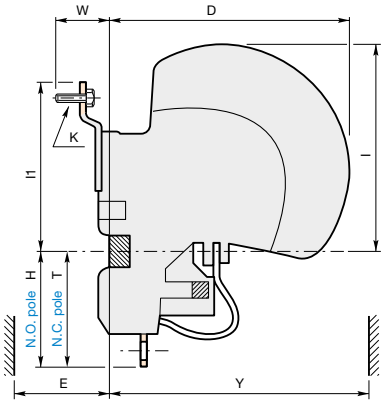
Terminal plate thickness for R2500 ... R5100: top and bottom terminal plates = 10 mm

1SBC104019S0201 - Rev. A

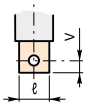
NORR..MT … NORE..MT and NORR..CC … NORE..CC types R63 … R200

Main dimensions mm





Terminal plate details



Lower terminal plate

Upper terminal plate

1SBC104011S0201 - Rev. A

NORR..MT … NORE..MT and NORR..CC … NORE..CC types
R63 … R200

Contactor types	Number of poles	Fixing dimension - F acc. to number of additional auxiliary contacts (refer to Auxiliary contact fitting details table, section 2):											Fixing holes
		0	1	2	3	4	5	6	7	8	9	10	ø
R63	1	205	245	245	285	285	345	345	345	-	-	-	2 x ø7
	2	245	285	285	345	345	385	385	445	-	-	-	
	3	285	345	345	385	385	445	445	445	-	-	-	
	4	345	385	385	445	445	540	540	540	-	-	-	
R125	1	205	245	245	285	345	345	345	385	-	-	-	2 x ø7
	2	285	285	345	345	385	385	445	445	-	-	-	
	3	345	345	385	385	445	445	540	540	-	-	-	
	4	385	445	445	445	540	540	540	540	-	-	-	
R200	1	245	285	285	345	345	385	385	445	-	-	-	2 x ø9
	2	345	345	385	385	445	445	445	540	-	-	-	
	3	385	445	445	445	540	540	540	540	-	-	-	
	4	445	540	540	540	540	-	-	-	-	-	-	

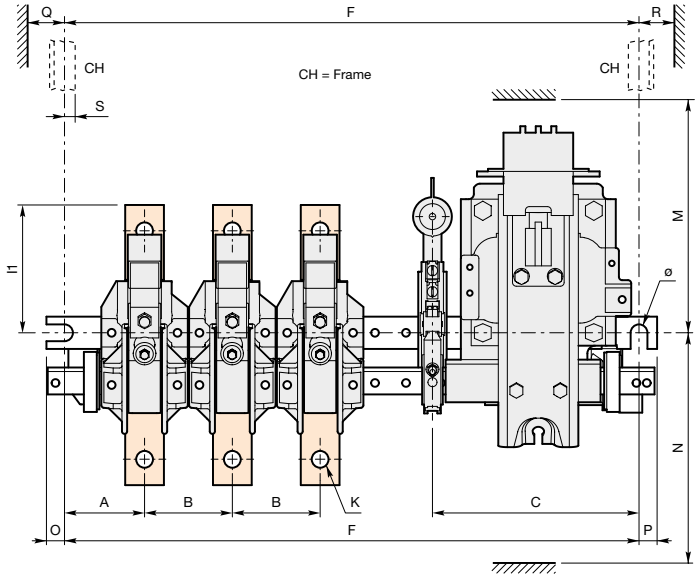
Contactor types	Number of poles	Dimensions																					
		A	B	C	D	E	H	I	I1	K	ℓ	M	N	O	P	Q	R	S	T	V	W	Y	Z
R63	1	45	-	93	148	36	63	114	101	M6 x 20	16	164	111	12.5	10.5	53	23	15	96	8	16	178	8
	2	45	50	93	148	36	63	114	101	M6 x 20	16	164	111	12.5	10.5	53	23	15	96	8	16	178	8
	3	45	50	93	148	36	63	114	101	M6 x 20	16	164	111	12.5	10.5	53	23	15	96	8	16	178	8
	4	45	50	93	148	36	63	114	101	M6 x 20	16	164	111	12.5	10.5	53	23	15	96	8	16	178	8
R125	1	57	-	93	153	40	76	138	130	M8 x 20	20	188	126	12.5	10.5	53	23	15	111	10	20	183	10
	2	57	61	93	153	40	76	138	130	M8 x 20	20	188	126	12.5	10.5	53	23	15	111	10	20	183	10
	3	57	61	93	153	40	76	138	130	M8 x 20	20	188	126	12.5	10.5	53	23	15	111	10	20	183	10
	4	57	61	93	153	40	76	138	130	M8 x 20	20	188	126	12.5	10.5	53	23	15	111	10	20	183	10
R200	1	69	-	116	190	40	93	140	123	M10 x 25	25	190	143	9	10	53	20	25	125	13	20	220	12
	2	69	68	116	190	40	93	140	123	M10 x 25	25	190	143	9	10	53	20	25	125	13	20	220	12
	3	69	68	116	190	40	93	140	123	M10 x 25	25	190	143	9	10	53	20	25	125	13	20	220	12
	4	69	68	116	190	40	93	140	123	M10 x 25	25	190	143	9	10	53	20	25	125	13	20	220	12

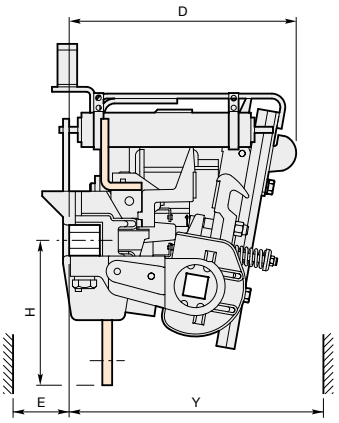
Fixing - Dimensions - Clearing distances - Connecting

1SBC104011S0201 - Rev. A

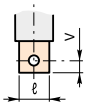
LORR and LORE types
R85 … R550

Main dimensions mm





Terminal plate details



Lower terminal plate

Upper terminal plate

9

1SBC104010S0201 - Rev. A

LORR and LORE types
R85 ... R550

Contactor types	Number of poles	Fixing dimension - F acc. to number of additional auxiliary contacts (refer to Auxiliary contact fitting details table, section 2):											Fixing holes
		0	1	2	3	4	5	6	7	8	9	10	ø
R85	1	175	205	245	245	285	285	345	345	-	-	-	2 x ø7
	2	205	245	245	285	285	345	345	345	-	-	-	
	3	245	285	285	345	345	345	385	445	-	-	-	
	4	345	385	385	345	445	540	540	540	-	-	-	
R170	1	175	205	245	245	285	285	345	345	-	-	-	2 x ø7
	2	245	245	285	345	345	345	385	385	-	-	-	
	3	285	345	345	345	385	385	445	445	-	-	-	
	4	345	345	385	385	445	445	445	540	-	-	-	
R260	1	205	245	285	285	345	345	345	385	-	-	-	2 x ø9
	2	285	285	345	345	385	385	445	445	-	-	-	
	3	345	345	385	385	445	445	540	540	-	-	-	
	4	385	445	445	445	540	540	540	540	-	-	-	
R400	1	345	345	345	345	385	445	445	445	-	-	-	2 x ø13
	2	385	385	445	445	445	540	540	540	-	-	-	
	3	445	445	540	540	540	540	635	635	-	-	-	
	4	540	540	540	635	635	635	635	-	-	-	-	
R550	1	345	345	345	345	385	445	445	445	-	-	-	2 x ø13
	2	385	385	445	445	445	540	540	540	-	-	-	
	3	445	445	540	540	540	540	635	635	-	-	-	
	4	540	540	540	635	635	635	635	-	-	-	-	

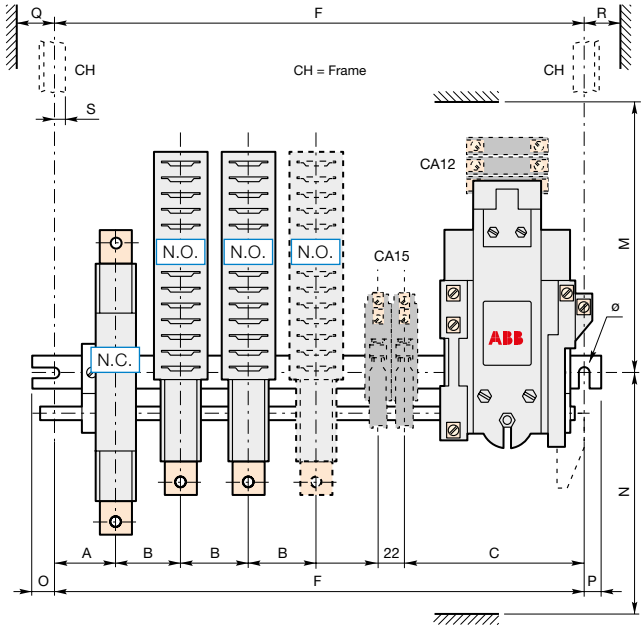
Contactor types	Number of poles	Dimensions																	
		A	B	C	D	E	H	l1	K	ℓ	M	N	O	P	Q	R	S	V	Y	Z
R85	1	35	-	93	110	36	63	101	M6 x 20	16	150	83	12.5	10.5	53	23	15	8	125	8
	2	35	37	93	110	36	63	101	M6 x 20	16	150	83	12.5	10.5	53	23	15	8	125	8
	3	35	37	93	110	36	63	101	M6 x 20	16	150	83	12.5	10.5	53	23	15	8	125	8
	4	35	37	93	110	36	63	101	M6 x 20	16	150	83	12.5	10.5	53	23	15	8	125	8
R170	1	41	-	93	110	40	76	130	M8 x 20	20	150	96	12.5	10.5	53	23	15	10	125	10
	2	41	46	93	110	40	76	130	M8 x 20	20	150	96	12.5	10.5	53	23	15	10	125	10
	3	41	46	93	110	40	76	130	M8 x 20	20	150	96	12.5	10.5	53	23	15	10	125	10
	4	41	46	93	110	40	76	130	M8 x 20	20	150	96	12.5	10.5	53	23	15	10	125	10
R260	1	48	-	116	130	40	93	123	M10 x 25	25	167	116	9	10	53	20	25	13	145	12
	2	45	54.5	116	130	40	93	123	M10 x 25	25	167	116	9	10	53	20	25	13	145	12
	3	48	54.5	116	130	40	93	123	M10 x 25	25	167	116	9	10	53	20	25	13	145	12
	4	48	54.5	116	130	40	93	123	M10 x 25	25	167	116	9	10	53	20	25	13	145	12
R400	1	62	-	160	178	100	118	195	ø13	30	142	150	15	14	53	20	20	20	193	20
	2	62	68	160	178	100	118	195	ø13	30	142	150	15	14	53	20	20	20	193	20
	3	62	68	160	178	100	118	195	ø13	30	142	150	15	14	53	20	20	20	193	20
	4	62	68	160	178	100	118	195	ø13	30	142	150	15	14	53	20	20	20	193	20
R550	1	62	-	160	178	100	118	195	ø13	30	142	150	15	14	53	20	20	20	193	20
	2	62	68	160	178	100	118	195	ø13	30	142	150	15	14	53	20	20	20	193	20
	3	62	68	160	178	100	118	195	ø13	30	142	150	15	14	53	20	20	20	193	20
	4	62	68	160	178	100	118	195	ø13	30	142	150	15	14	53	20	20	20	193	20

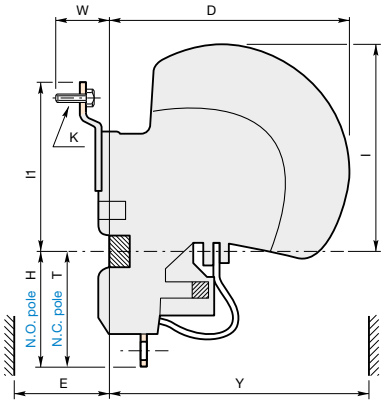
Fixing - Dimensions - Clearing distances - Connecting

1SBC104010S0201 - Rev. A

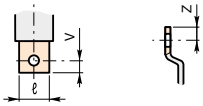
AM-CC-NOR..21 and AM-CC-NOR..31 types
R63 … R200

Main dimensions mm





Terminal plate details



Lower terminal plate

Upper terminal plate

1SBC104115S0201 - Rev. A

AM-CC-NOR..21 and AM-CC-NOR..31 types
R63 ... R200

Contactor types	Number of poles	Fixing dimension - F acc. to number of CA15 auxiliary contacts:				Fixing holes
		5	6	8	10	ø
R63	21	345	445	445	540	2 x ø7
	31	445	-	-	-	
R125	21	385	-	-	-	2 x ø7
	31	445	-	-	-	
R200	21	445	540	540	540	2 x ø9
	31	540	-	-	-	

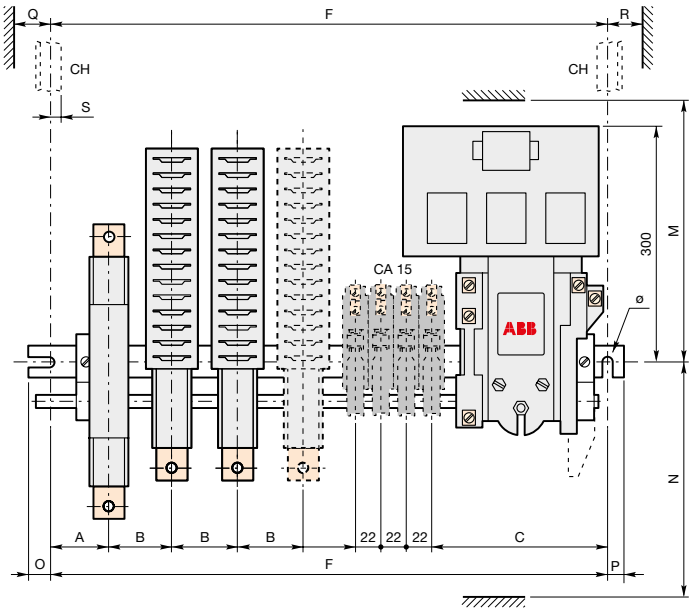
Contactor types	Number of poles	Dimensions																				
		A	B	C	D	E	H	I	I1	K	ℓ	M	N	O	P	Q	R	S	T	V	W	Y	Z
R63	21	45	50	93	148	36	63	114	101	M6 x 20	16	164	130	12.5	10.5	25	23	15	96	8	16	178	8
	31	45	50	93	148	36	63	114	101	M6 x 20	16	164	130	12.5	10.5	25	23	15	96	8	16	178	8
R125	21	57	61	93	153	40	76	138	130	M8 x 20	20	188	145	12.5	10.5	25	23	15	111	10	20	183	10
	31	57	61	93	153	40	76	138	130	M8 x 20	20	188	145	12.5	10.5	25	23	15	111	10	20	183	10
R200	21	69	68	116	190	40	93	140	123	M10 x 25	25	190	145	9	10	20	20	25	125	13	20	220	12
	31	69	68	116	190	40	93	140	123	M10 x 25	25	190	145	9	10	20	20	25	125	13	20	220	12

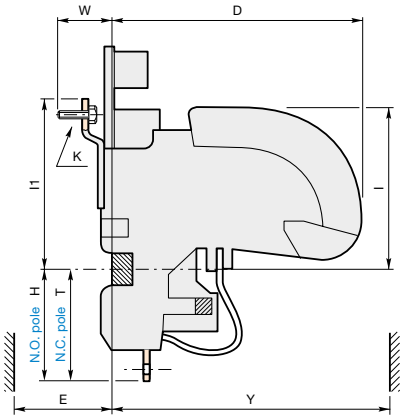
Fixing - Dimensions - Clearing distances - Connecting

1SBC104115S0201 - Rev. A

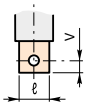
AM-CC-JORE..21/31 and AMF-CC-JORE..21/31 types
R550

Main dimensions mm





Terminal plate details



Lower terminal plate

Upper terminal plate

9

1SBC104116S0201 - Rev. A

AM-CC-JORE..21/31 and AMF-CC-JORE..21/31 types
R550

Contactor types	Number of poles	Fixing dimension - F acc. to number of CA15 auxiliary contacts:			Fixing holes
		5	8	12	ø
R550	21	635	760	760	2 x ø13
	31	760	760	760	

Contactor types	Number of poles	Dimensions																				
		A	B	C	D	E	H	I	I1	K	ℓ	M	N	O	P	Q	R	S	T	V	W	Y	Z
R550	21	77	80	160	260	100	118	230	195	ø13	30	313	150	15	14	53	20	20	177	20	46	335	20
	31	77	80	160	260	100	118	230	195	ø13	30	313	150	15	14	53	20	20	177	20	46	335	20

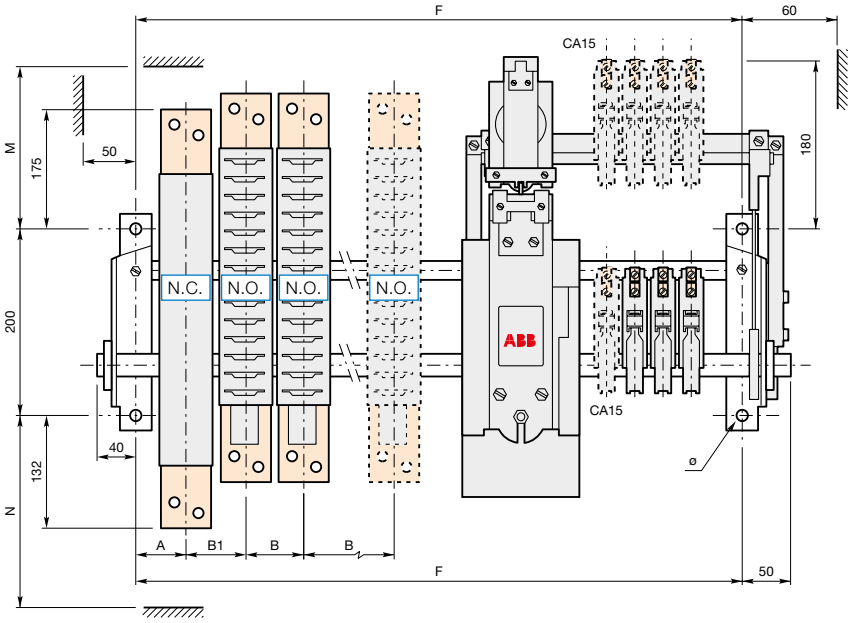
Fixing - Dimensions - Clearing distances - Connecting

9

1SBC104116S0201 - Rev. A

AM-CC-JORE..21 and AM-CC-JORE..31 types
R800 ... R2100

Main dimensions mm



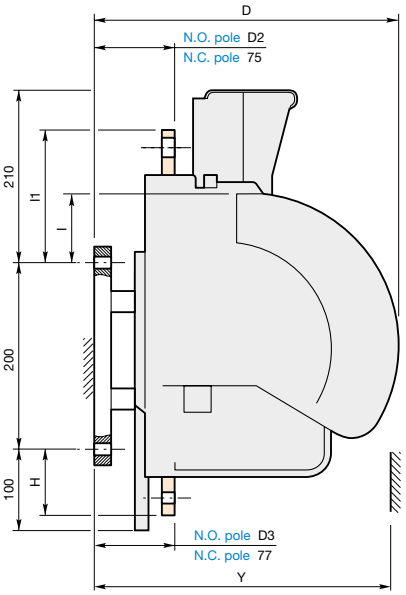


Fig 1 = right electro-magnet (see table in the following page)

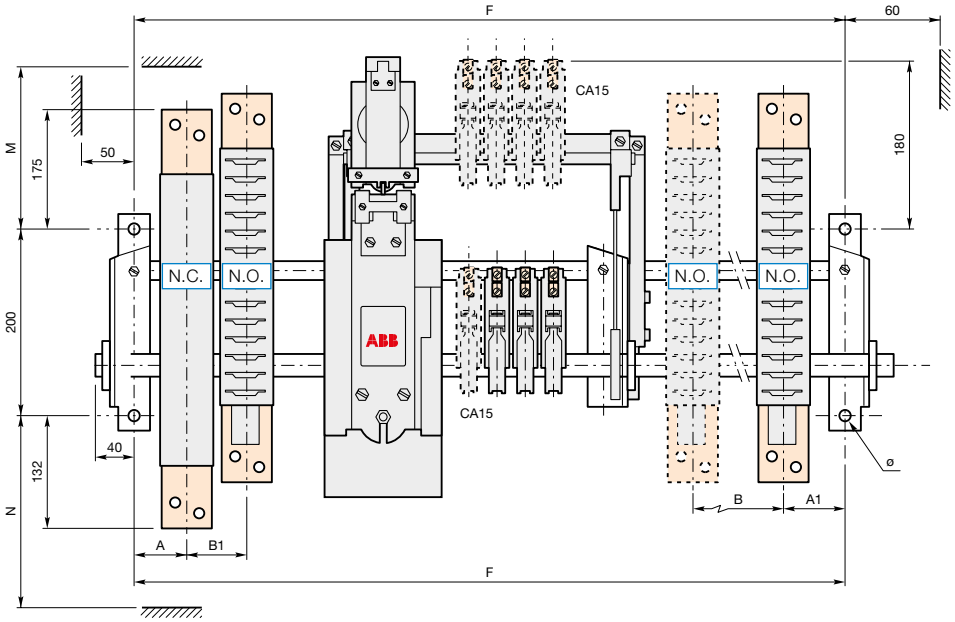
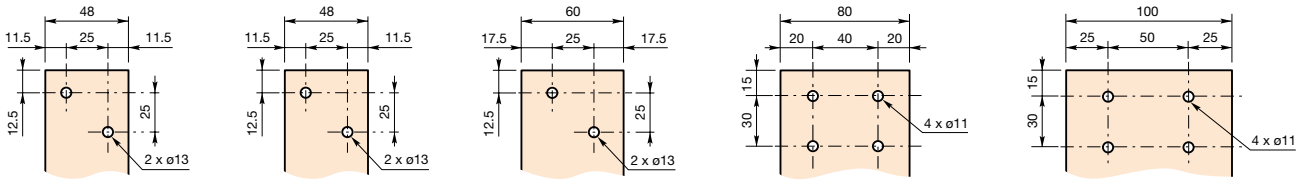


Fig 2 = central electro-magnet (see table in the following page)

Terminal plate details



R800 (N.O. / N.C.)
R1000 ... R2100 (N.C.)

R1000 (N.O.)

R1400 (N.O.)

R1700 (N.O.)

R2100 (N.O.)

Terminal plate thickness: top terminal plates = 10 mm, bottom terminal plates = 12 mm

1SBC104097S0201

AM-CC-JORE..21 and AM-CC-JORE..31 types
R800 ... R2100

Contactor types	Number of poles	Fixing dimension - F acc. to number of CA15 auxiliary contacts:							Fixing holes
		5	6	8	10	12	16	20	ø
R800	21	540	540	540	570	570	570	570	
	31	540	540	540	640	640	640	640	
R1000	21	550	550	550	650	650	650	650	
	31	650	650	650	760	760	760	760	
R1400	21	550	550	550	650	650	650	650	
	31	650	650	650	760	760	760	760	
R1700	21	635	635	635	760	760	760	760	
	31	820	820	820	920	920	920	920	
R2100	21	635	635	635	760	760	760	760	
	31	820	820	820	920	920	920	920	

Contactor types	Number of poles	Dimensions												
		A	B	B1	D	D2	D3	H	I	I1	M	N	Y	Fig
R800	21	60	70	70	325	75	77	70	108	175	245	152	385	1 or 2
	31	60	70	70	325	75	77	70	108	175	245	152	385	1 or 2
R1000	21	60	100	85	325	76	77	70	108	175	258	152	425	1 or 2
	31	60	100	85	325	76	77	70	108	175	258	152	425	1 or 2
R1400	21	60	100	85	325	76	77	70	108	175	258	152	425	1 or 2
	31	60	100	85	325	76	77	70	108	175	258	152	425	1 or 2
R1700	21	60	140	125	325	89	77	84	108	189	288	152	425	1 or 2
	31	60	120	95	325	89	77	84	108	189	288	152	425	1 or 2
R2100	21	60	140	125	325	89	77	84	108	189	288	152	425	1 or 2
	31	60	120	95	325	89	77	84	108	189	288	152	425	1 or 2

Fixing - Dimensions - Clearing distances - Connecting

1SBC104097S0201

AMF-CC-JORE..21 and AMF-CC-JORE..31 types R800 ... R2100

Main dimensions mm

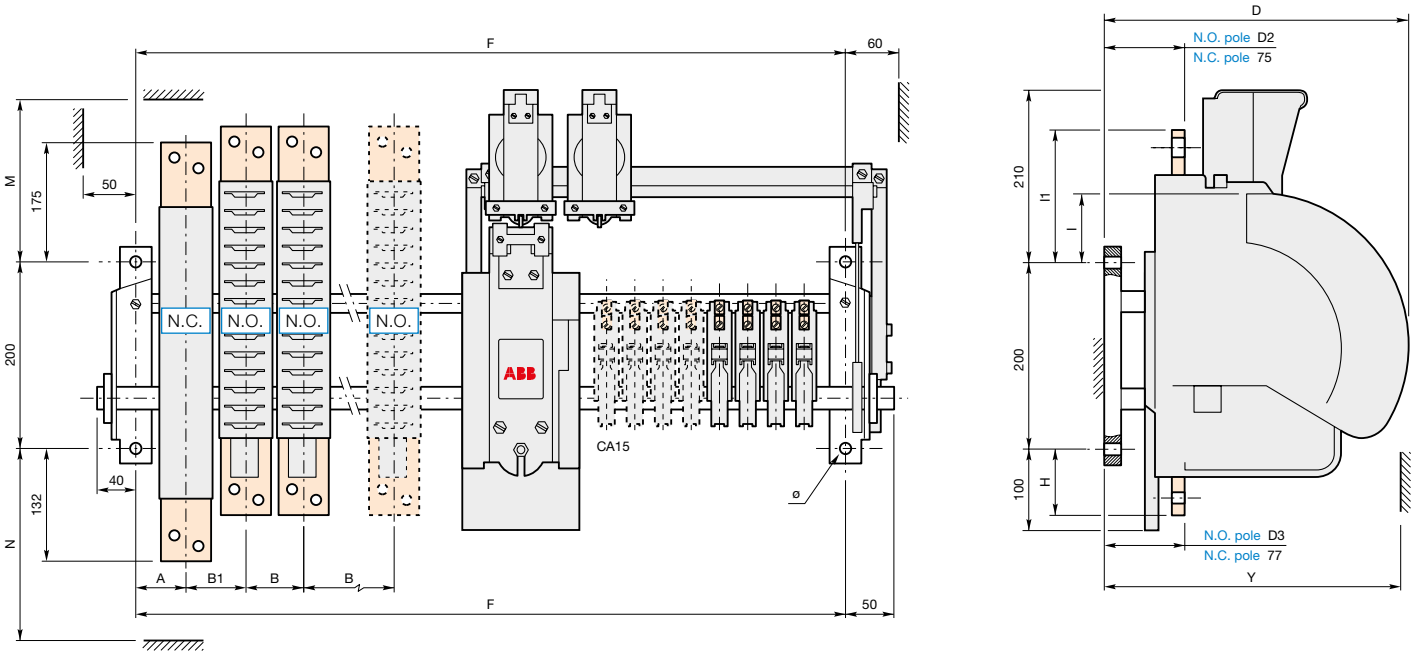


Fig 1 = right electro-magnet (see table in the following page)

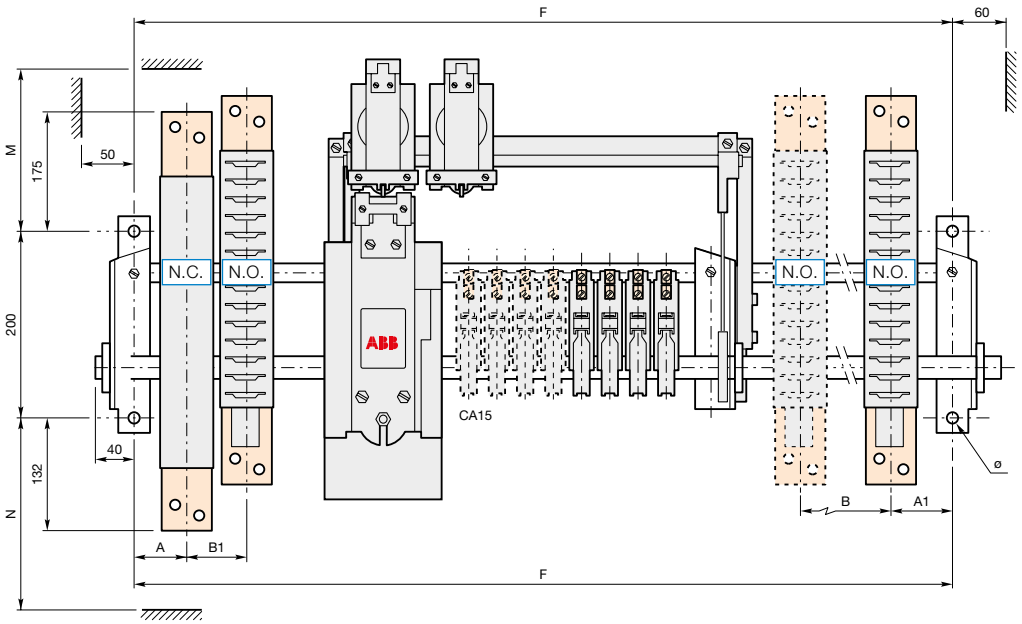
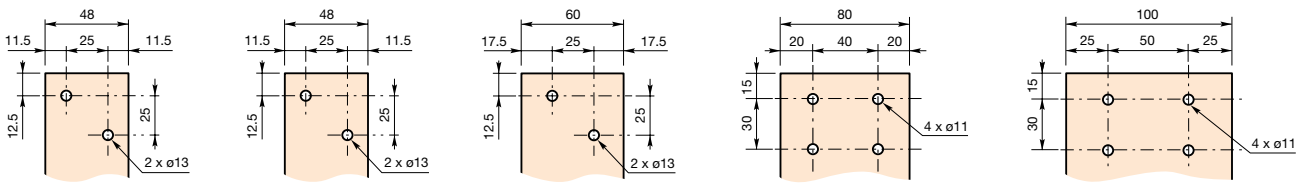


Fig 2 = central electro-magnet (see table in the following page)

Terminal plate details



R800 (N.O. / N.C.)
R1000 ... R2100 (N.C.)

R1000 (N.O.)

R1400 (N.O.)

R1700 (N.O.)

R2100 (N.O.)

Terminal plate thickness: top terminal plates = 10 mm, bottom terminal plates = 12 mm

1SBC104113S0201

AMF-CC-JORE..21 and AMF-CC-JORE..31 types
R800 ... R2100

Contactor types	Number of poles	Fixing dimension - F acc. to number of CA15 auxiliary contacts:						Fixing holes
		5	6	8	10	12	16	ø
R800	21	570	570	570	570	570	570	
	31	640	640	640	640	640	640	
R1000	21	650	650	650	650	650	650	
	31	760	760	760	760	760	760	
R1400	21	650	650	650	650	650	650	
	31	760	760	760	760	760	760	
R1700	21	760	760	760	760	760	760	
	31	920	920	920	920	920	920	
R2100	21	760	760	760	760	760	760	
	31	920	920	920	920	920	920	

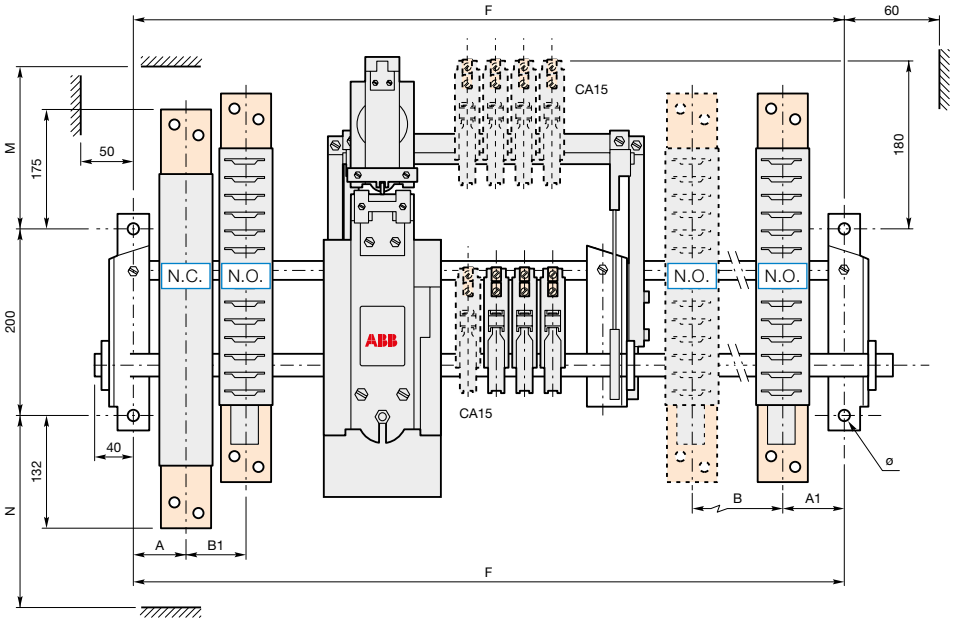
Contactor types	Number of poles	Dimensions												
		A	B	B1	D	D2	D3	H	I	I1	M	N	Y	Fig
R800	21	60	70	70	325	75	77	70	108	175	245	152	375	1 or 2
	31	60	70	70	325	75	77	70	108	175	245	152	375	1 or 2
R1000	21	60	100	85	325	76	77	70	108	175	245	152	425	1 or 2
	31	60	100	85	325	76	77	70	108	175	245	152	425	1 or 2
R1400	21	60	100	85	325	76	77	70	108	175	245	152	425	1 or 2
	31	60	100	85	325	76	77	70	108	175	245	152	425	1 or 2
R1700	21	60	140	125	325	89	77	84	108	189	288	152	450	1 or 2
	31	60	120	95	325	89	77	84	108	189	288	152	450	1 or 2
R2100	21	60	140	125	325	89	77	84	108	189	288	152	450	1 or 2
	31	60	120	95	325	89	77	84	108	189	288	152	450	1 or 2

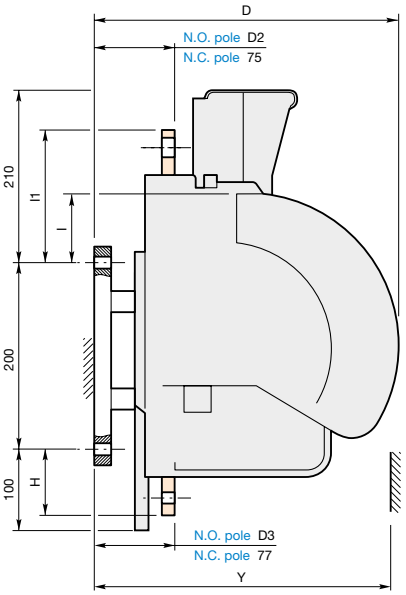
Fixing - Dimensions - Clearing distances - Connecting

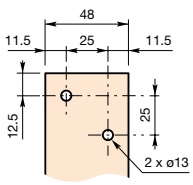
1SBC104113S0201

AM-CC-JORE..21 and AM-CC-JORE..31 types
R2500 ... R4500

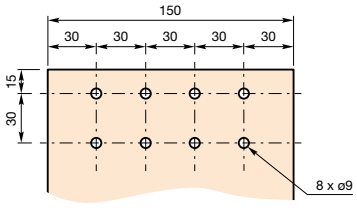
Main dimensions mm



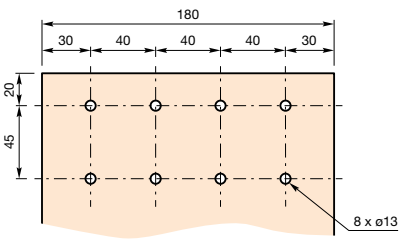




R2500 ... R4500 (N.C.)



R2500 (N.O.)



R3200 (N.O.)

Terminal plate thickness for R2500 ... R5100: top and bottom terminal plates = 10 mm

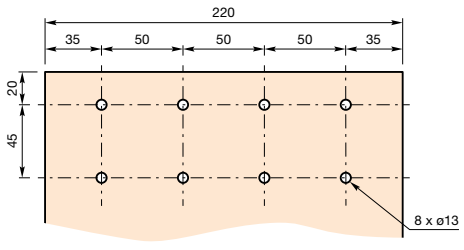
1SBC104098S0201

AM-CC-JORE..21 and AM-CC-JORE..31 types
R2500 ... R4500

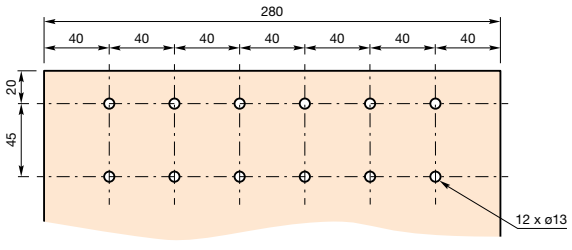
Contactor types	Number of poles	Fixing dimension - F acc. to number of CA15 auxiliary contacts:							Fixing holes
		5	6	8	10	12	16	20	ø
R2500	21	885	885	885	985	985	985	985	
	31	1150	1150	1150	1250	1250	1250	1250	
R3200	21	885	885	885	985	985	985	985	
	31	1150	1150	1150	1250	1250	1250	1250	
R3800	21	950	950	950	1050	1050	1050	1050	
	31	1200	1200	1200	1300	1300	1300	1300	
R4500	21	1100	1100	1100	1200	1200	1200	1200	

Contactor types	Number of poles	Dimensions												
		A	A1	B	B1	D	D2	D3	H	I	I1	M	N	Y
R2500	21	60	135	-	145	325	86	87	133	108	238	258	152	425
	31	60	135	220	145	340	101	102	133	108	238	300	215	425
R3200	21	60	135	-	145	325	99	87	174	108	279	300	215	450
	31	60	135	220	145	340	114	102	174	108	279	300	215	450
R3800	21	60	145	-	165	325	99	87	174	108	279	300	215	450
	31	60	145	250	170	340	114	102	174	108	279	300	215	450
R4500	21	60	195	-	200	340	114	102	174	108	279	300	215	450

Fixing - Dimensions - Clearing distances - Connecting



R3800 (N.O.)



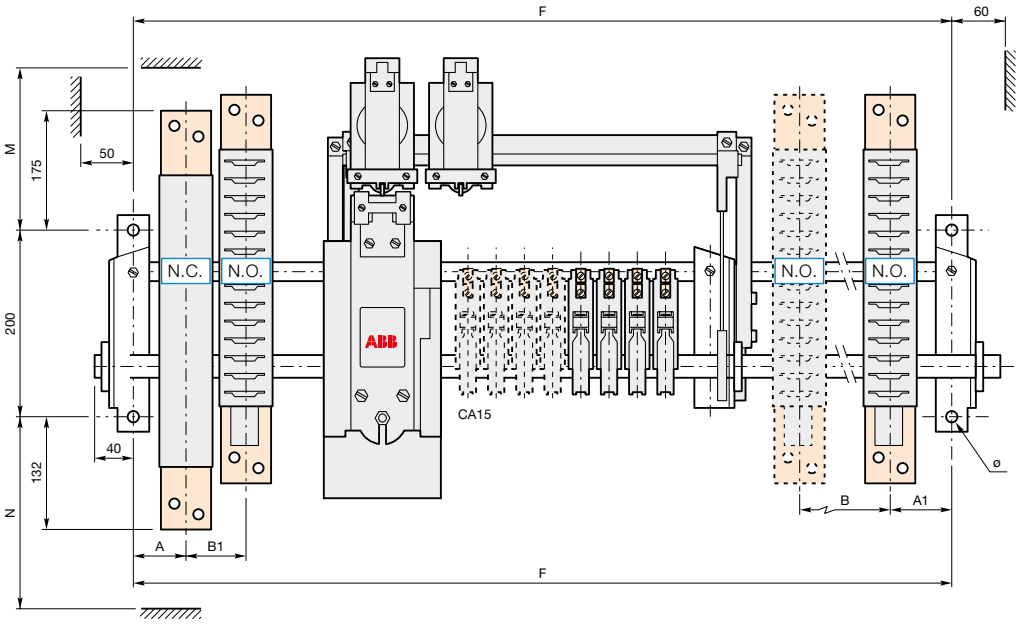
R4500 (N.O.)

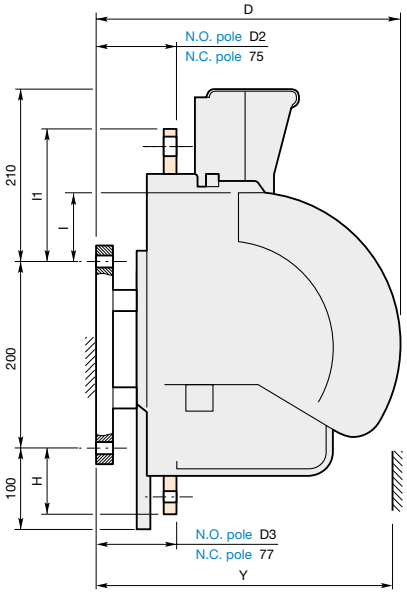
Terminal plate thickness for R2500 ... R5100: top and bottom terminal plates = 10 mm

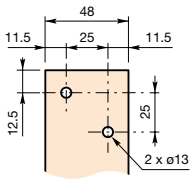
1SBC104098S0201

AMF-CC-JORE..21 and AMF-CC-JORE..31 types
R2500 ... R4500

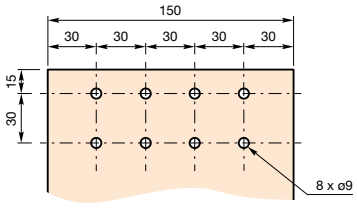
Main dimensions mm



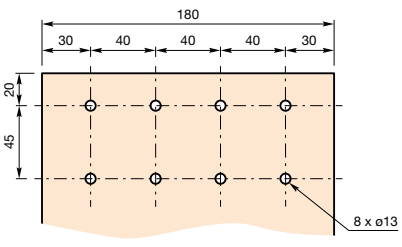




R2500 ... R4500 (N.C.)



R2500 (N.O.)



R3200 (N.O.)

Terminal plate thickness for R2500 ... R5100: top and bottom terminal plates = 10 mm

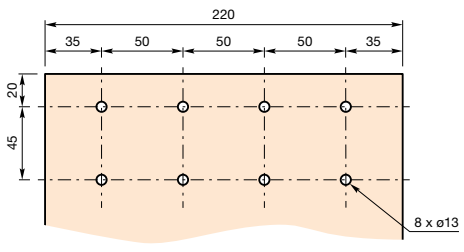
1SBC104114S0201

AMF-CC-JORE..21 and AMF-CC-JORE..31 types
R2500 ... R4500

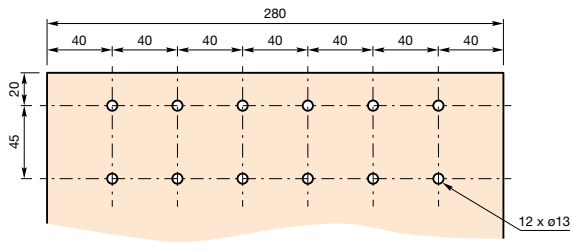
Contactor types	Number of poles	Fixing dimension - F acc. to number of CA15 auxiliary contacts:						Fixing holes
		5	6	8	10	12	16	ø
R2500	21	985	985	985	985	985	985	
	31	1250	1250	1250	1250	1250	1250	
R3200	21	985	985	985	985	985	985	
	31	1250	1250	1250	1250	1250	1250	
R3800	21	1050	1050	1050	1050	1050	1050	
	31	1300	1300	1300	1300	1300	1300	
R4500	21	1200	1200	1200	1200	1200	1200	

Contactor types	Number of poles	Dimensions												
		A	A1	B	B1	D	D2	D3	H	I	I1	M	N	Y
R2500	21	60	135	-	145	325	86	87	135	108	238	258	152	425
	31	60	135	-	145	325	86	87	135	108	238	258	152	425
R3200	21	60	135	-	145	325	99	87	174	108	279	300	215	450
	31	60	135	220	145	325	99	87	174	108	279	300	215	450
R3800	21	60	145	-	165	325	99	87	174	108	279	300	215	450
	31	60	145	250	170	325	99	87	174	108	279	300	215	450
R4500	21	60	195	-	200	325	99	87	174	108	279	300	215	450

Fixing - Dimensions - Clearing distances - Connecting



R3800 (N.O.)



R4500 (N.O.)

Terminal plate thickness for R2500 ... R5100: top and bottom terminal plates = 10 mm

1SBC104114S0201

Terms and definition

Specifications, standards and certifying

Definitions

ABB low voltage devices are developed and manufactured according to the rules set out in IEC international publications and in EN european specifications.

In most countries, low voltage apparatus is built according to such rules with checking being the responsibility of the manufacturer. The devices are therefore not subject to any further obligation for approval. A test report from our laboratories can be remitted to our customers, on request, for presentation to different qualified local organizations.

Prescriptions and standards

International specifications

The International Electrotechnical Commission, IEC, which is part of the International Standards Organization, ISO, publishes IEC publications which act as a basis for the world market.

European specifications and national specifications

The European Committee for Electrotechnical Standardization (CENELEC), which groups together 18 European countries, publishes EN standards. These European standards differ very little from IEC international standards and have similar numbering.

The same applies for national standards which use, without exception, the same numbering and reproduce the texts of these unified standards in their entirety. Contradicting national standards are withdrawn.

European directives

The guarantee of the free movement of goods within the European Community means that any regulatory differences between member states have been eliminated. The European directives set up common rules that are included in the legislation of each state while contradictory regulations are cancelled.

Three directives are essential:

- Low voltage directive 2006/95/EC concerns electrical equipment from 0 to 1000 V AC and from 75 to 1500 V DC
- This specifies that compliance with the requirements that it sets out is acquired if the equipment conforms to the standards harmonized on a european level: EN 60947-1 and EN 60947-4-1 for contactors
- Machines directive 2006/42/EC for safety specifications of machines and equipment on complete machines. Machines bearing the ce mark comply with these specifications
- Electromagnetic compatibility directive 2004/108/EC which concerns all devices able to create electromagnetic disturbance
- Standard EN 60947-4-1 does not set out any requirement concerning the level of emission or immunity of contactors which do not have any active electronic components. Owing to this fact, compliance with standard EN 60947-4-1 meets the requirements for ce marking, with respect to this directive.

CE Marking :

- must not be confused with a quality label
- is proof of conformity with the European Directives concerning the product
- is part of an administrative procedure and guarantees free movement of the product within the European Community.

International standards

IEC 60947-1	Low-voltage switchgear and controlgear – Part 1: General rules.
IEC 60947-4-1	Low-voltage switchgear and controlgear – Part 4: Contactors and motor starters.
	Section 1: Electromechanical contactors and motor starters.
IEC 60947-5-1	Low-voltage switchgear and controlgear – Part 5: Control circuit devices and switching elements.
	Section 1: Electromechanical control circuit devices.

European standards

EN 60947-1	Low-voltage switchgear and controlgear – Part 1: General rules.
EN 60947-4-1	Low-voltage switchgear and controlgear – Part 4: Contactors and motor starters.
	Section 1: Electromechanical contactors and motor starters.
EN 60947-5-1	Low-voltage switchgear and controlgear – Part 5: Control circuit devices and switching elements.
	Section 1: Electromechanical control circuit devices.

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Terms and technical definitions

Terminology

Altitude

Characterizes the place of use. It is expressed in metres above sea level.

Circuits

- Auxiliary circuit:
  All the conductive parts of a contactor designed to be inserted in a different circuit from the main circuit and the contactor control circuits.
- Control circuit:
  All the conductive parts of a contactor (other than the main circuit and the auxiliary circuit) used to control the contactor's closing operation or opening operation or both.
- Main circuit:
  All the conductive parts of a contactor designed to be inserted in the circuit that it controls.

Rated operational current Ie

Current rated by the manufacturer. It is mainly based on the rated operational voltage Ue, the rated frequency, the utilization category, the rated duty and the type of protective enclosure, if necessary.

Conventional free air thermal current Ith

Current that the contactor can withstand in free air for a duty time of 8 hours without the temperature rise of its various parts exceeding the maximum values given by the standard.

Electrical durability

Number of on-load operating cycles that the contactor is able to carry out. It depends on the utilization category.

Mechanical durability

Number of no-current operating cycles that a contactor is able to carry out.

Switching frequency

Number of switching cycles per hour.

Coil operating limits

Expressed in multiples of the nominal control circuit voltage Uc for the upper and lower limits.

Mounting position

Comply with the manufacturer's instructions.

Rated breaking or making capacity

Root mean square value (R.M.S.) Of the current that the contactor is able to break or make at a given voltage according to the conditions specified by standards and for a given utilization category.

Ambient temperature

Air temperature close to the contactor.

Time

- Time constant :
  Ratio of the inductance to the resistance (L/R = mh/Ω = ms).
- Short-time withstand current Icw:
  Current that the contactor is able to withstand in closed position for a short time interval and in specified conditions.
- Minimum switching time:
  This is the minimum closing or opening order time necessary for the contactor to reach complete closing or opening.
- Closing time:
  Time interval between the beginning of the closing operation and the instant the contacts touch on all the poles.
- Opening time:
  Time interval between the specified starting instant of the opening operation and the instant the arcing contacts separate on all the poles.

Rated control voltage Uc

Control voltage value for which the control circuit is sized.

Rated operational voltage Ue

Voltage to which the contactor's utilization characteristics refer. In three-phase it is the phase-to-phase voltage.

Rated insulation voltage Ui

Reference voltage for dielectric tests and creepage distances.

Rated impulse withstand voltage Uimp

Peak value of an impulse voltage, having a specified form and polarity, which does not cause breakdown in specific test conditions.

Shock withstand

Requirement for vehicles, crane drives, installations on board ships and plug-in equipment. The contactors must not change position and the overload relays must not trip.

Resistance to vibrations

Requirements for vehicles, boats and other means of transport. For the specified vibration amplitude and frequency values the device must remain able to operate.

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Utilization categories

Standards

IEC publications 60941-1, 60947-4-1 and 60947-5-1 should be referred to on an international level with respect to contactors.

A contactor's duty is characterised by the utilization category together with the rated operational voltage and current indicated.

Utilization categories for contactors according to IEC 60947-4-1

Alternating current:

- **AC-1** Non-inductive or slightly inductive loads, resistance furnaces
- **AC-2** Slip-ring motors: starting, switching off
- **AC-3** Cage motors: starting, switching off running motors
- **AC-4** Cage motors: starting, plugging, inching
- **AC-5a** Discharge lamp switching
- **AC-5b** Incandescent lamp switching
- **AC-6a** Transformer switching
- **AC-6b** Capacitor bank switching
- **AC-7a** Slightly inductive loads for domestic devices and similar applications
- **AC-7b** Motors for domestic applications
- **AC-8a** Hermetic refrigeration compressor motor control with manual resetting of overload releases
- **AC-8b** Hermetic refrigeration compressor motor control with automatic resetting of overload releases.

Direct current:

- **DC-1** Non inductive or slightly inductive loads, resistance furnaces
- **DC-3** Shunt motors: starting, plugging, inching, dynamic breaking of DC motors
- **DC-5** Series motors: starting, plugging, inching, dynamic breaking of DC motors
- **DC-6** Incandescent lamp switching.

Utilization categories for the auxiliary contacts according to IEC 60947-5-1

Alternating current:

- **AC-12** Control of resistive loads and static loads with opto-coupler isolation
- **AC-13** Control of static loads with transformer isolation
- **AC-14** Control of weak electromagnetic loads (≤ 72 VA)
- **AC-15** Control of electromagnetic loads (> 72 VA).

Direct current:

- **DC-12** Control of resistive loads and static loads with opto-coupler isolation
- **DC-13** Control of DC electromagnets
- **DC-14** Control of DC electromagnets having economy resistors.

In fact some applications, and the specific criteria characterizing the various loads controlled by contactors, may modify the utilization characteristics of the contactors.

DC power circuit switching

Arc suppression is more difficult in direct current than in alternating current and this is all the more true the higher the circuit time constant which is why it is necessary to connect several poles in series in order to improve breaking conditions.

AC high current circuit switching

Possibility of increasing performances by connecting poles in parallel (please consult us).

Influence of the length of the conductors used in the contactor control circuit

According to the operational voltages and the coil consumption, take line resistances and capacitances into consideration, for the length and the cross-sectional of the conductors.

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Utilization categories

Making and breaking conditions for utilization categories

Utilization category		Durability test conditions						Occasional operation					
		Making conditions			Breaking conditions			Making conditions			Breaking conditions		
		I/Ie	U/Ue	Cos. φ or L/R (ms)	I/Ie	U/Ue	Cos. φ or L/R (ms)	Ic/Ie	Ur/Ue	Cos. φ or L/R (ms)	Ic/Ie	Ur/Ue	Cos. φ or L/R (ms)
Contactors for AC circuit switching													
AC-1		1	1	0.95	1	1	0.95	1.5	1.05	0.8	1.5	1.05	0.8
AC-2		2.5	1	0.65	2.5	1	0.65	4	1.05	0.65	4	1.05	0.65
AC-3	Ie ≤ 100 A	6	1	0.35	1	0.17	0.35	10	1.05	0.45	8	1.05	0.45
	Ie > 100 A	6	1	0.35	1	0.17	0.35	10	1.05	0.35	8	1.05	0.35
AC-4	Ie ≤ 100 A	6	1	0.35	6	1	0.35	12	1.05	0.45	10	1.05	0.45
	Ie > 100 A	6	1	0.35	6	1	0.35	12	1.05	0.35	10	1.05	0.35
Contactors for DC circuit switching													
DC-1		1	1	1	1	1	1	1.5	1.05	1	1.5	1.05	1
DC-3		2.5	1	2	2.5	1	2	4	1.05	2.5	4	1.05	2.5
DC-5		2.5	1	7.5	2.5	1	7.5	4	1.05	15	4	1.05	15
Auxiliary contacts for AC circuit switching													
AC-14	(≤ 72 VA)	-	-	-	-	-	-	6	1.1	0.7	6	1.1	0.7
AC-15	(> 72 VA)	10	1	0.7	1	1	0.4	10	1.1	0.3	10	1.1	0.3

Auxiliary contacts for DC circuit switching

Utilization category	Standard operation						Occasional operation					
	Making conditions			Breaking conditions			Making conditions			Breaking conditions		
	I/Ie	U/Ue	T0.95	I/Ie	U/Ue	T0.95	I/Ie	U/Ue	T0.95	I/Ie	U/Ue	T0.95
DC-13	1	1	6 P (1)	1	1	6 P (1)	1.1	1.1	6 P (1)	1.1	1.1	6 P (1)
DC-14	-	-	-	-	-	-	10	1.1	15 ms	10	1.1	15 ms

(1) The value "6 x P" is the result of an empirical relation which is estimated to represent most DC magnetic loads up to the highest limit of P = 50 W (6 x P = 300 ms). It is accepted that loads having drawn energy above 50 W are made up of weaker loads in parallel. As a consequence, the 300 ms value must form the highest limit whatever the value of the power drawn.

Key:

U (I) = applied voltage (current)
Ur = recovery voltage
L/R = test circuit time constant
Ue (Ie) = rated operational voltage (current)
Ic = making and breaking current expressed in DC or in AC like the r.m.s. value of the symmetrical components
T0.95 = time required to reach 95 % of the current in steady-state conditions, expressed in milliseconds

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Climatic withstand of devices

General

The life time and dependability of devices are mainly influenced by a series of climatic factors which cause their corrosion.

In practice, besides climatic conditions, there are other factors which may damage equipment such as fungi, insects (termites), dust, work site dirt and aggressive environment (salty or sulphurous atmosphere, etc.) which can often only be identified at the place of installation.

The entrance of dust, insects, dirt, etc. in devices may be prevented if the appropriate degree of protection according to IEC 60529 is chosen.

ABB contactors have been used for many years in the most varied countries, with hot and humid climates for example: Brazil, Indonesia, India etc.

Experience has shown that ABB devices can be used in most countries throughout the world.

The climate of the country in which the device is installed is not the determining choice factor.

Account must be taken of:
- the immediate environment of the devices (sheltered, ventilated, temperature)
- the aggressivity of the immediate atmosphere at the place of installation
- the length and frequency of non operating periods.

In the case of frequent condensation (Ie the formation of steam caused by rapid changes in temperature), heating resistors must be installed in cubicles (100 to 250 W per m^3 of enclosure).

The table below gives the cases where heating is necessary.

Environment		Operating conditions	Climate	Internal heating of enclosure
Inside premises	no running water, no condensation	Continuous or not	All climates	Without
	with running water	Continuous	All climates	Without
		Frequent or long stops	Temperate	Without
			Tropical	With
Outside, sheltered	no running water, no condensation	Continuous or not	Temperate	Without
			Tropical	With
Outside or by the seaside	with running water	Continuous	All climates	Without
		Frequent or long stops	Temperate	Without
			Tropical	With

The standard R series contactors are suitable for industrial environment and tropical atmospheres.

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Notes

Questionnaire
Specification for R contactors

Customer .....
Contact person ..... Date .....
Tel. ..... e-mail .....

ABB .....
Contact person .....
Tel. .....

Quantity ..... Requested delivery date .....
Project / Application .....

Power circuit

AC switching

Application type
☐ AC-1 (resistive load)
☐ AC-3 (direct starting, switching off running motors)
☐ No load breaking
☐ Other .....
Number of poles: N.O. ..... N.C. .....
Rated operational current Ie ..... A
Max. making current ..... A
Max. breaking current ..... A
Rated operational voltage Ue ..... V ..... Hz

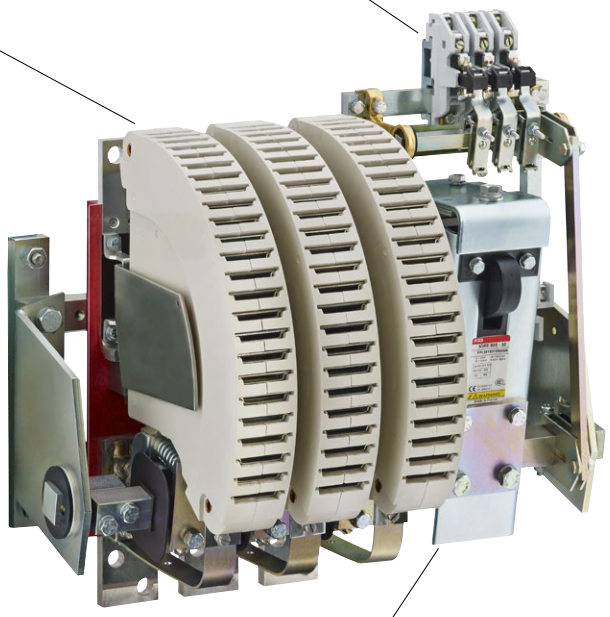
or

DC switching

Application type
☐ DC-1 (resistive load)
☐ DC-3 (shunt motors)
☐ DC-5 (series motors)
☐ No load breaking
☐ Other ..... L/R ..... ms
Number of poles: N.O. ..... N.C. .....
Rated operational current Ie ..... A
Making current ..... A
Breaking current min. ..... A max. ..... A
Rated operational voltage Ue ..... V DC

Auxiliary contacts

Number of N.O. auxiliary contacts .....
Number of N.C. auxiliary contacts .....



Control circuit (coil)

AC ☐ Voltage ..... V ..... Hz
DC ☐ Voltage ..... V DC

Options

☐ Latching (magnetical or mechanical latching acc. to contactor rating)

Operating conditions

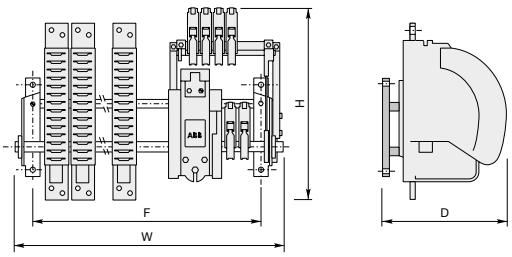
Switching frequency ..... cycles/h
Mech. durability required (millions of operating cycles) .....
Remarks .....

Accessories .....

Please add any other useful documents for further information e.g. technical specification, drawing, wiring diagram, etc.

Replacement of an existing contactor

Brand .....
Type .....
Fixing dimension F = ... mm
Overall dimensions W = ... mm
H = ... mm
D = ... mm



Questionnaire also available on the ABB Website:
www.abb.com/lowvoltage Section: Our offering Select: Control Products > Contactors > R bar contactors

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Questionnaire
Specification for R contactors

Other information / Application type

This document is used to define the contactor specification according to the complete information on the application

Questionnaire also available on the ABB Website:
www.abb.com/lowvoltage Section: Our offering Select: Control Products > Contactors > R bar contactors

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FPL6110215R0006	IORE1400-20-CC	4/5
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Documents

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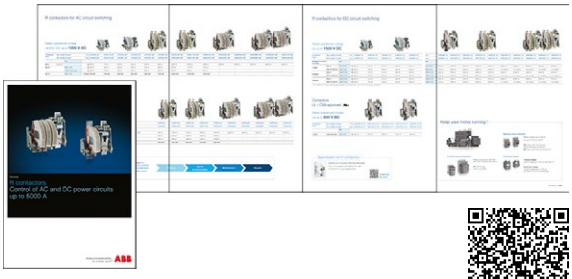

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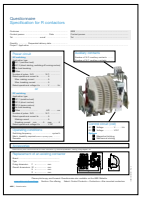

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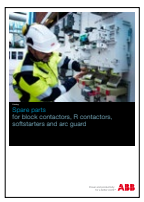

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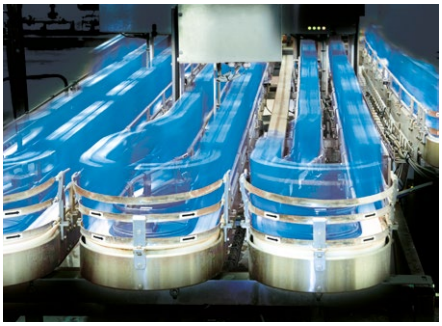

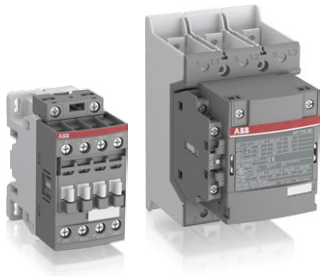

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