1.2 Minicontactors and auxiliary minicontactors

1.2.1 Minicontactors

Minicontactors are designed for frequent switching, mainly in the circuits of three-phase induction motors. Auxiliary minicontactors derived from the same design can usually operate in auxiliary and/or control circuits. Due to their compact size, both minicontactors and auxiliary contactors are suitable for devices with limited inner space. Textile, printing, or food processing machines, as well as medical or mobile devices may be appropriate for such contactors.

1.2.2 Table-No. 6 - Rating

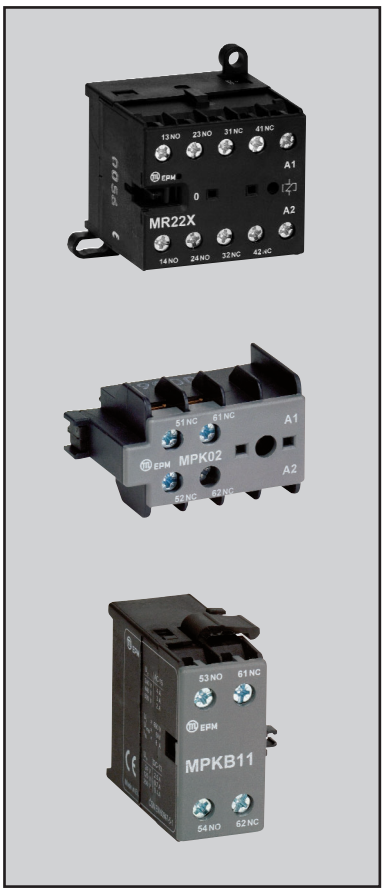


Rating	MC09.■■
Rated insulation voltage U_i [V]	690
Impulse withstand voltage U_{imp} [kV]	6
Conventional free air thermal current I_{th} [A]	20
Rated operational current I_e in the category	
AC-1 at 230 V [A]	20
AC-1 at 400 V [A]	20
AC-1 at 500 V [A]	12
AC-1 at 690 V [A]	6
AC-3 at 230 V [A]	9
AC-3 at 400 V [A]	9
Max. output power of controlled motor in AC-3	
at 230 V [kW]	**2,2**
at 400 V [kW]	**4**
at 500 V [kW]	**4**
at 690 V [kW]	**3**
Max. number of max. on-load op. cycles per hour	
in AC-1 [op. cycles/h]	300
in AC-3 [op. cycles/h]	600
Electrical durability in AC-1 at 400 V / 20 A [op. cycles]	$0,1x10^6$
in AC-3 at 400 V / 9 A [op. cycles]	$0,3x10^6$
Recommended fuse char. aM [A]	20
Type of co-ordination with SCPD	2
Mechanical durability [op. cycles]	$10x10^6$
Auxiliary contacts	
Rated insulation voltage U_i [V]	690
Conventional free air thermal current I_{th} [A]	6
Rated operational current I_e AC-15 at 230 V [A]	4
at 400 V [A]	3
at 500 V [A]	2
Control circuit	
AC coil control voltage from 40 up to 450 Hz [V]	220..240
Input power of AC control coil, ±10 % [VA]	3,5
DC coil control voltage [V]	24
Input power of DC control coil, ±10 % [W]	3,5
Mass [kg]	0,18
Outline dimensions [mm]	47,5x57,5x46,5
Degree of protection	IP20/IP10

1.2.3 Auxiliary minicontactors

Auxiliary minicontactors derive their design from the "MC" series minicontactors. All four poles have the same rating and appropriate terminal markings.
Auxiliary contactors have either four poles (versions MR40E, MR31X, MR22X), or six poles when they are equipped with either MPK11, MPK02, or MPK20 front mounted auxiliary contact blocks, or with the MPKB11 side mounted block.

1.2.4 Table-No. 7 - Rating



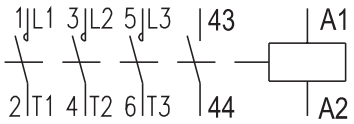
Rating	Base unit MR■■	Auxiliary contacts MPK■■	Auxiliary contacts MPKB11
Rated insulation voltage U_i [V]	690	690	690
Impulse withstand voltage U_{imp} [kV]	6	6	6
Conventional free air thermal current I_{th} [A]	6	6	6
Rated operational current I_e in AC-15			
at 240 V [A]	4	4	4
at 440 V [A]	3	3	3
at 500 V [A]	2	2	2
Rated operational current I_e in DC-13			
at 24 V [A]	2,5	2,5	2,5
at 125 V [A]	0,7	0,7	0,7
at 250 V [A]	0,4	0,4	0,4
Max. number of max. on-load op. cycles per hour	600	600	600
Mechanical durability [op. cycles]	$10x10^6$	$10x10^6$	$10x10^6$
Control circuit			
AC coil control voltage from 40 up to 450 Hz [V]	220..240		
Input power of AC control coil, ±10 % [VA]	3,5		
DC coil control voltage [V]	24		
Input power of DC control coil, ±10 % [W]	3,5		
Mechanically linked contact device acc. to EN 60947-5-1, App L	yes	yes	yes
Mass [kg]	0,18	0,03	0,035
Outline dimensions [mm]	47,5x57,5x46,5	47,5x28x26,5	15,5x42x46,5
Degree of protection acc. to VDE 0106, part 100	IP20/IP10	IP20/IP10	IP20/IP10

1.2.5 Accessories to the minicontactors series MC and MR

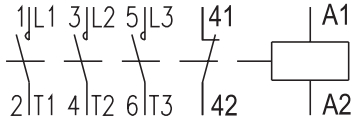
1. Front mounted auxiliary contact units MPK02, MPK11, MPK20
2. Side mounted auxiliary contact unit MPKB11
   The auxiliary contact blocks mentioned above are accessories to both the MC series minicontactors and the MR series auxiliary contactors.
   MC or MR series contactors are not allowed to be equipped together with two auxiliary contact blocks
3. Grand jumper LP6 for parallel connection of two adjacent terminals (attention – if connected, it reduces the degree of protection to IP00).

1.2.6 Circuit diagrams and terminal marking

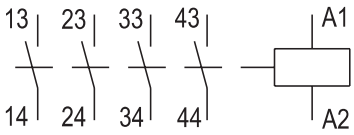
MC09.10



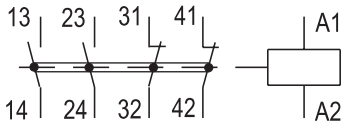
MC09.01



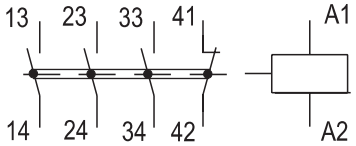
MR40E



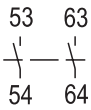
MR22X



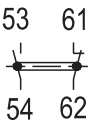
MR31X



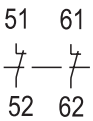
MPK20



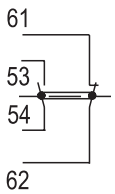
MPK11



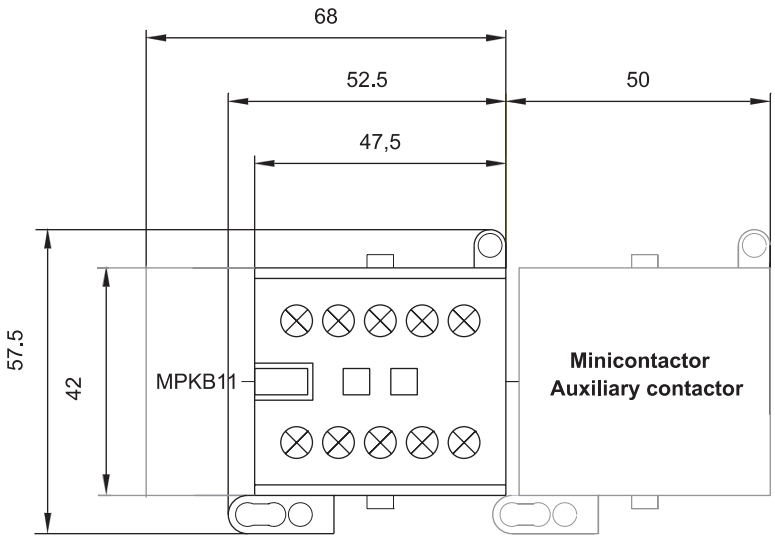
MPK02

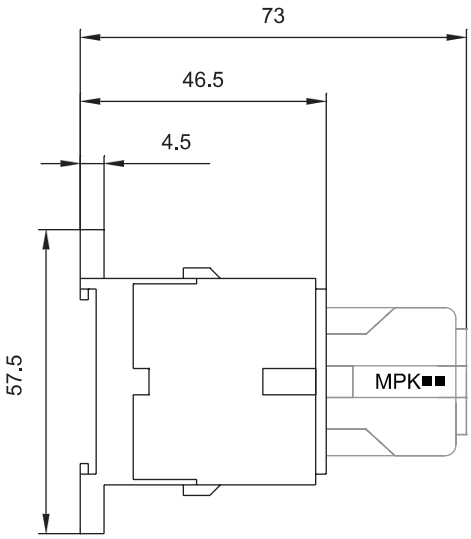


MPKB11



1.2.7 Outline drawings





1.2.8 Example of order

Minicontactor MC09.01	220..240 V AC	60 Ea
Auxiliary contact unit	MPKB11	30 Ea
Grand jumper	LP6	100 Ea
Auxiliary minicontactor	MR22 24 V DC	50 Ea