MANUAL

Mounting of the "Ex-cable entries", supplied by R.STAHL DE or CMP Products Ltd UK, on the electromotor terminal box of the A.M series supplied by EM Brno s.r.o. in the "Ex d" flame proof enclosure.

Description of the entries construction:

- The „Ex-cable entries" described, i.e. explosion proof designed entries which fulfil, when properly mounted, the parameters of an „Ex d" flame proof enclosure. The entries are tested separately from the electromotor's flame proof enclosure, i.e. they are independently certified devices and therefore can be connected to the flame proof enclosure of an electromotor terminal box at the time of installation.
- The ex-cable entries of „A2F" type designation are used for non-armoured or unscreened cables. The E1F*/* entries are used for armoured or screened cables.
- The entry flame proof enclosure consists of a connecting part with an external thread, and of a highly elastometric sealing ring placed in the connecting part. The other parts ensure correct cable sealing and, in the case of the E1F*/* type designation entries, also reliable concentric armour coupling or screening with inactive parts (framework) of the electromotor which is of an advantage, especially when ensuring good parameters of electromagnetic compatibility of electromotors supplied by frequency converters.
- The entries are designed for fixed cable mounting exclusively, i.e. the cables must be fixed by outer means in such a way that the outer mechanical forces cannot effectuate the pulling of the cables out of the entry or wrenching in the entry.

Mounting:

- It is necessary to check whether the connecting cable diameter corresponds with the entry size, i.e. that the real cable diameter corresponds with the range marked on the sealing ring placed in the connecting part of the entry. The table parameters given at the end of this manual may slightly differ from those marked on the sealing rings, however, the binding value is marked on the entry sealing ring.
- The „A2F" type entries are usually mounted and their connecting part is prevented from spontaneous wrenching by the electromotor manufacturer.
- The „E1F*/*" type entries are usually supplied as non-mounted in order to prevent them from being damaged during transport and storage. To be able to screw on the entry connection part, check the inner thread integrity on the electromotor terminal box before mounting. If satisfactory, use the connecting part to screw on the entry over a safety washer, tighten to an adequate torque depending on the entry material and, at a suitable position, fix the connecting part up to prevent it from spontaneous releasing by flanging the adjacent part of the safety washer as shown in the under mentioned picture "ENTRY SECURING"
- Split the connecting cable end to an optimum length so that it is possible to connect its individual wires to the inner terminals and ensure that the cable mantel (in case of armoured and screened cables the inner mantel respectively) does not get damaged where it passes the entry. Regarding the armoured or screened cables meant for the E1F*/* entries, the outer mantel and the armouring or screening itself is to be split in accordance with the structural length of the applied entry – this operation requires concentrated attention in order to meet the mounting dimensions.
- The individual entry parts are to be gradually disconnected from the connecting part and mounted on the prepared precisely split cable which is subsequently to be passed through an opening in the connecting part. To be able to create the flame proof enclosure, push in the sealing ring into the connecting part to the end-stop. Push a nylon unloading ring onto it and screw on the next entry part. Tighten it in such a way that the inner diameter of the sealing ring spans the outer part of the cable at its whole axial length, in order to create the flame proof enclosure.

- As for the E1F*/* entry type, continue with a careful mounting of subsequent rings and parts, i.e. connect the armouring or screening and the entry part with another flexible ring to span the outer cable mantel in such a way that the connecting part of the flame proof enclosure does not get excessively mechanically worn. The outer cable diameter must be in accordance with the value indicated on the flexible ring in the outer nut.
- The outer part of the cable is to be mechanically secured at an appropriate position so that the electromotor cable output is sufficiently protected from possible outer forces which could cause the cable to be pulled out of the entry, or wrenched in the entry.

ENTRY SECURING

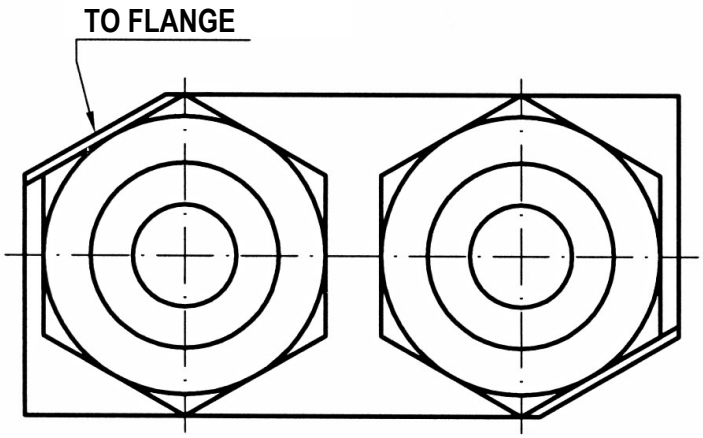
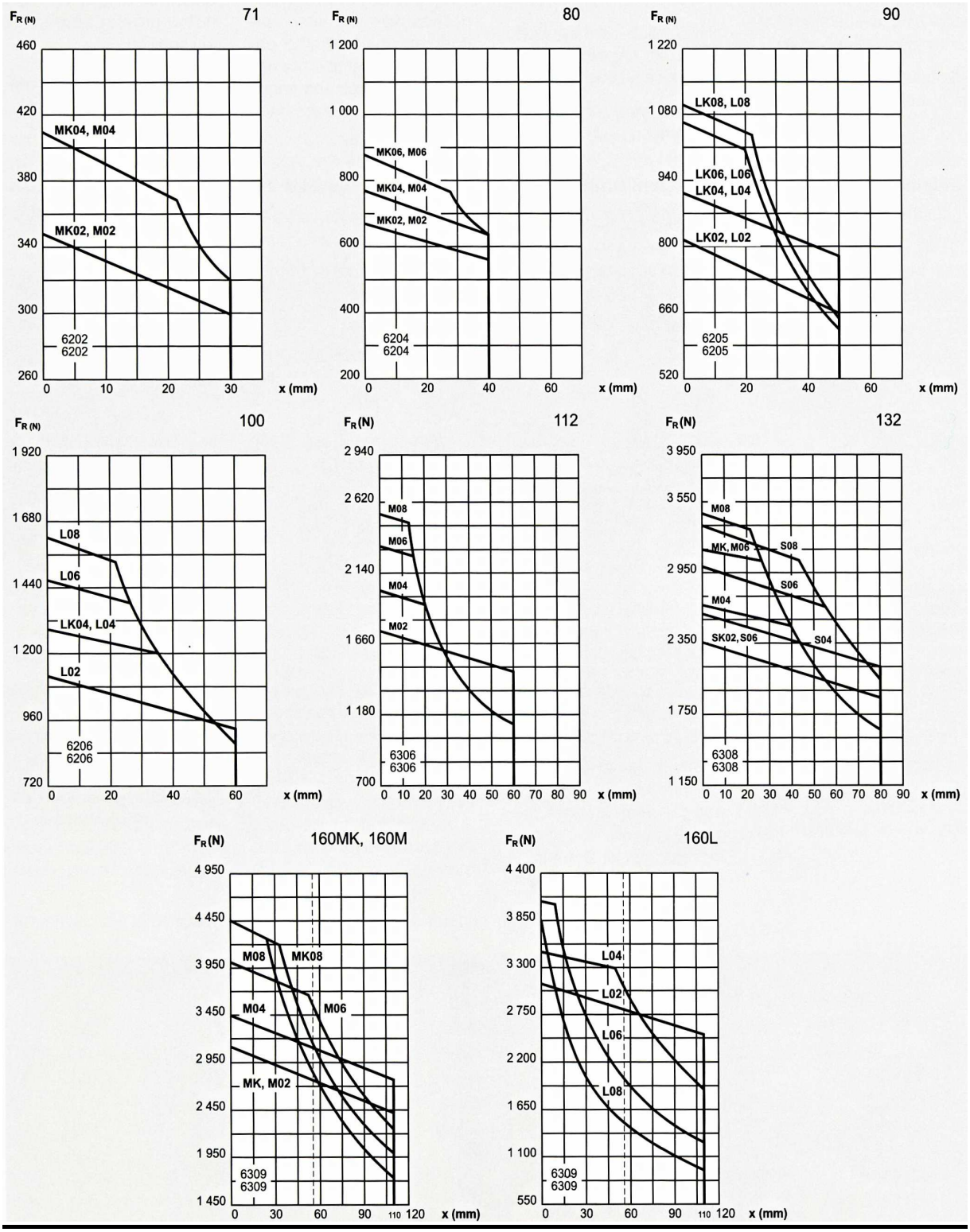


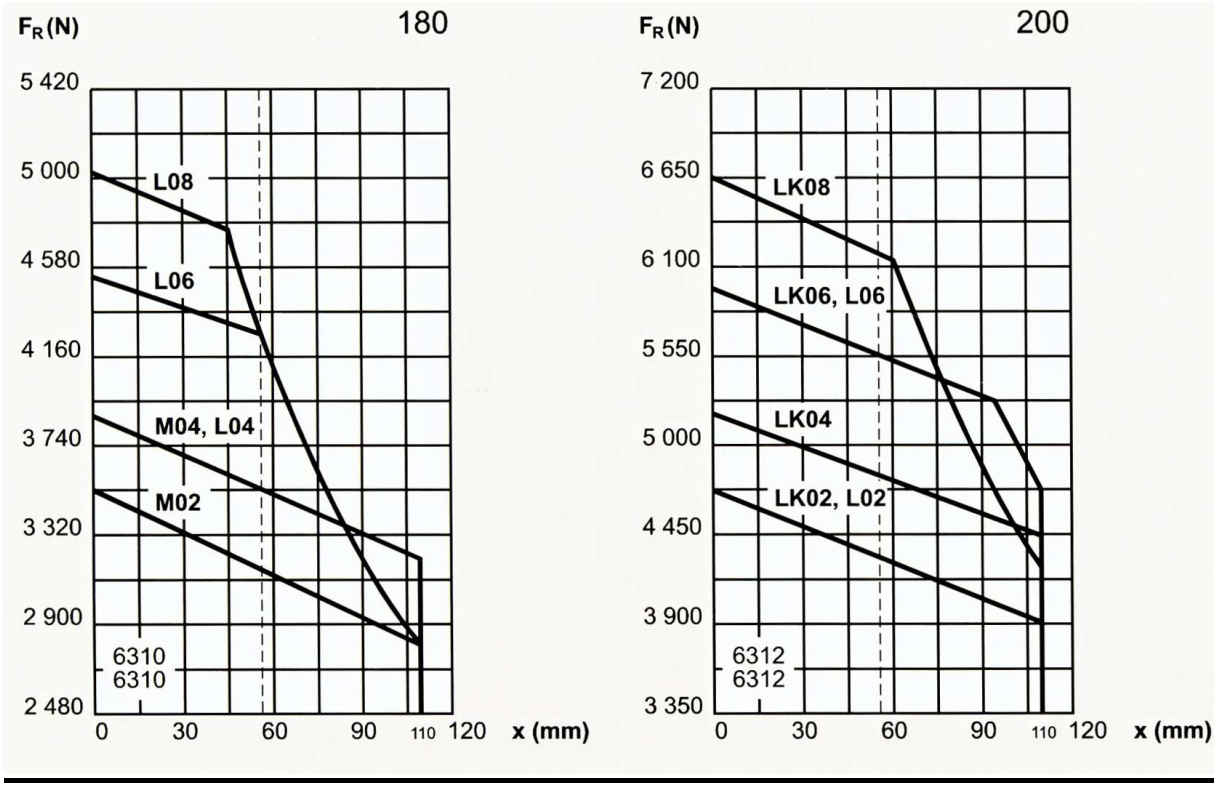
Table: Assignement of cable diameters to the size of entry to reach a satisfactory flame proof enclosure

Entry size	Conn. thread	-A2F- unsreened cables		E1F*/* screened cables			
		min /mm/	max /mm/	inner diameter		outer diameter	
				min /mm/	max /mm/	min /mm/	Max /mm/
20s	M20 x 1,5	6,1	11,7	6,1	11,7	9,5	15,9
20	M20 x 1,5	6,5	14,0	6,5	14,0	12,5	20,9
25s	M25 x 1,5	-	-	11,1	20,0	14,0	22,0
25	M25 x 1,5	11,1	20,0	11,1	20,0	18,2	26,2
32	M32 x 1,5	17,0	26,3	17,0	26,3	23,7	33,9
40	M40 x 1,5	23,5	32,2	23,5	32,2	27,9	40,4

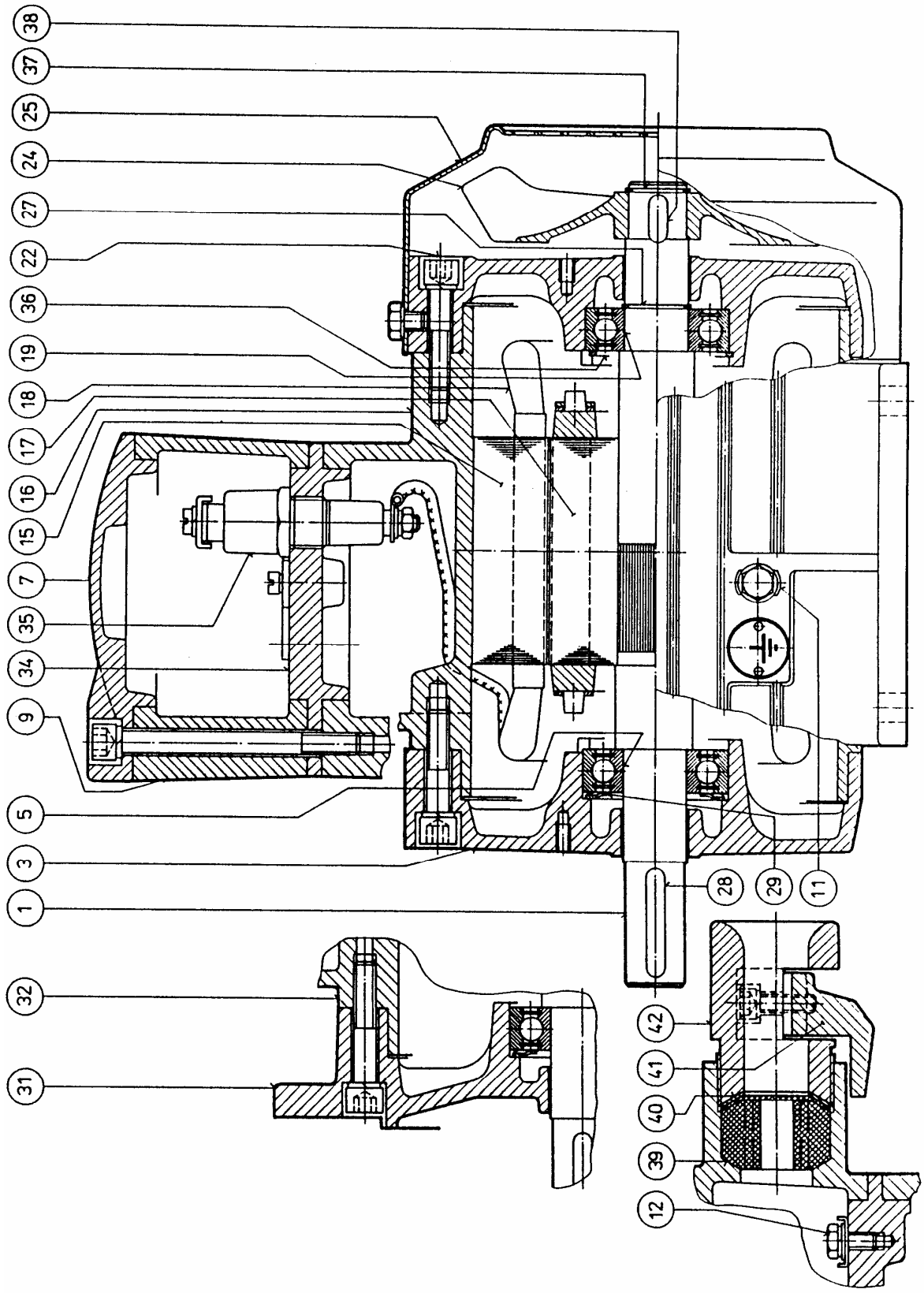
Accessible radial loading of shaft extensions

x – distance from the ball bearing shaft rib

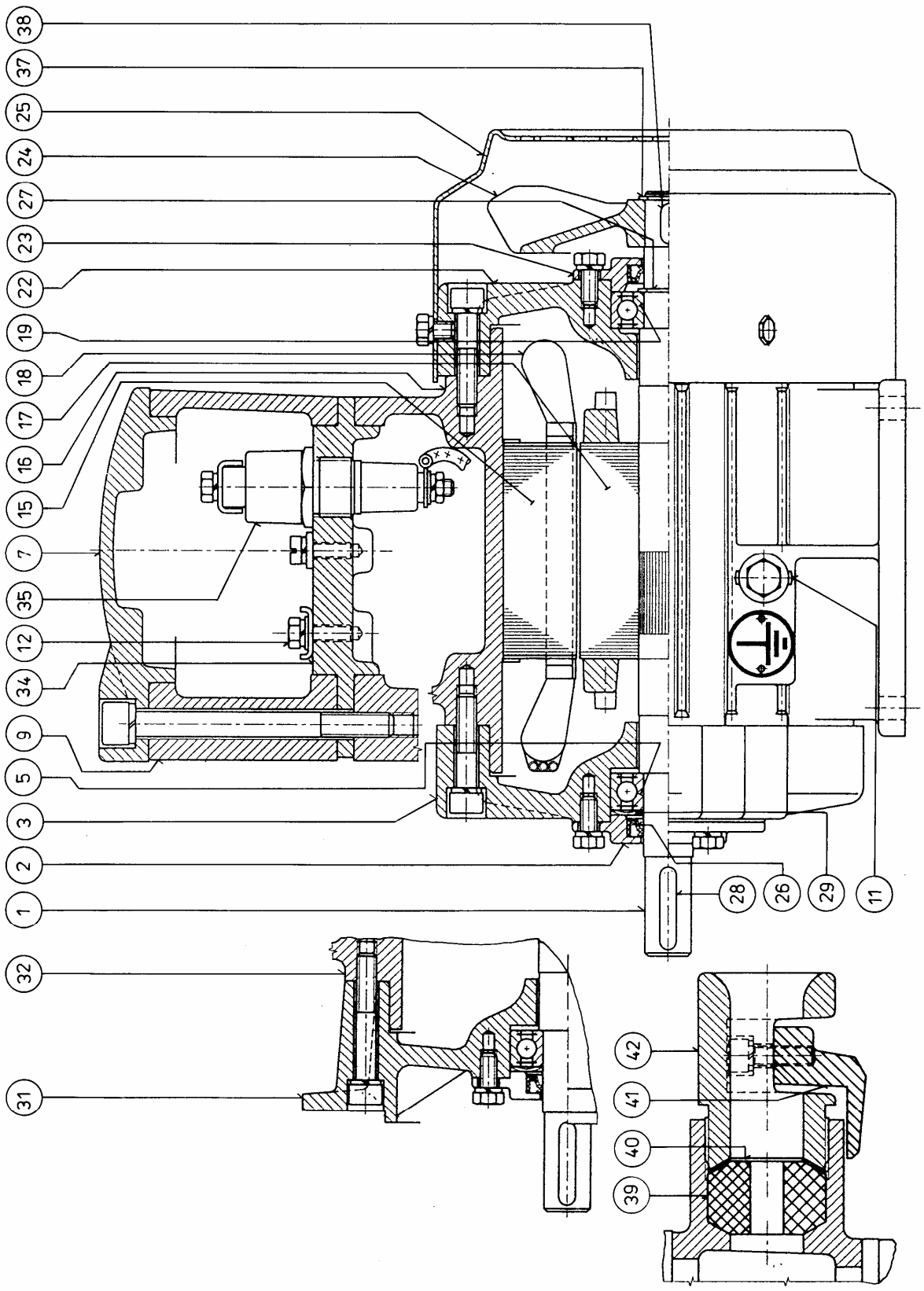



180
F_R (N)
5 420
5 000
4 580
4 160
3 740
3 320
2 900
2 480
L08
L06
M04, L04
M02
6310
6310
0
30
60
90
110
120
x (mm)
200
F_R (N)
7 200
6 650
6 100
5 550
5 000
4 450
3 900
3 350
LK08
LK06, L06
LK04
LK02, L02
6312
6312
0
30
60
90
110
120
x (mm)

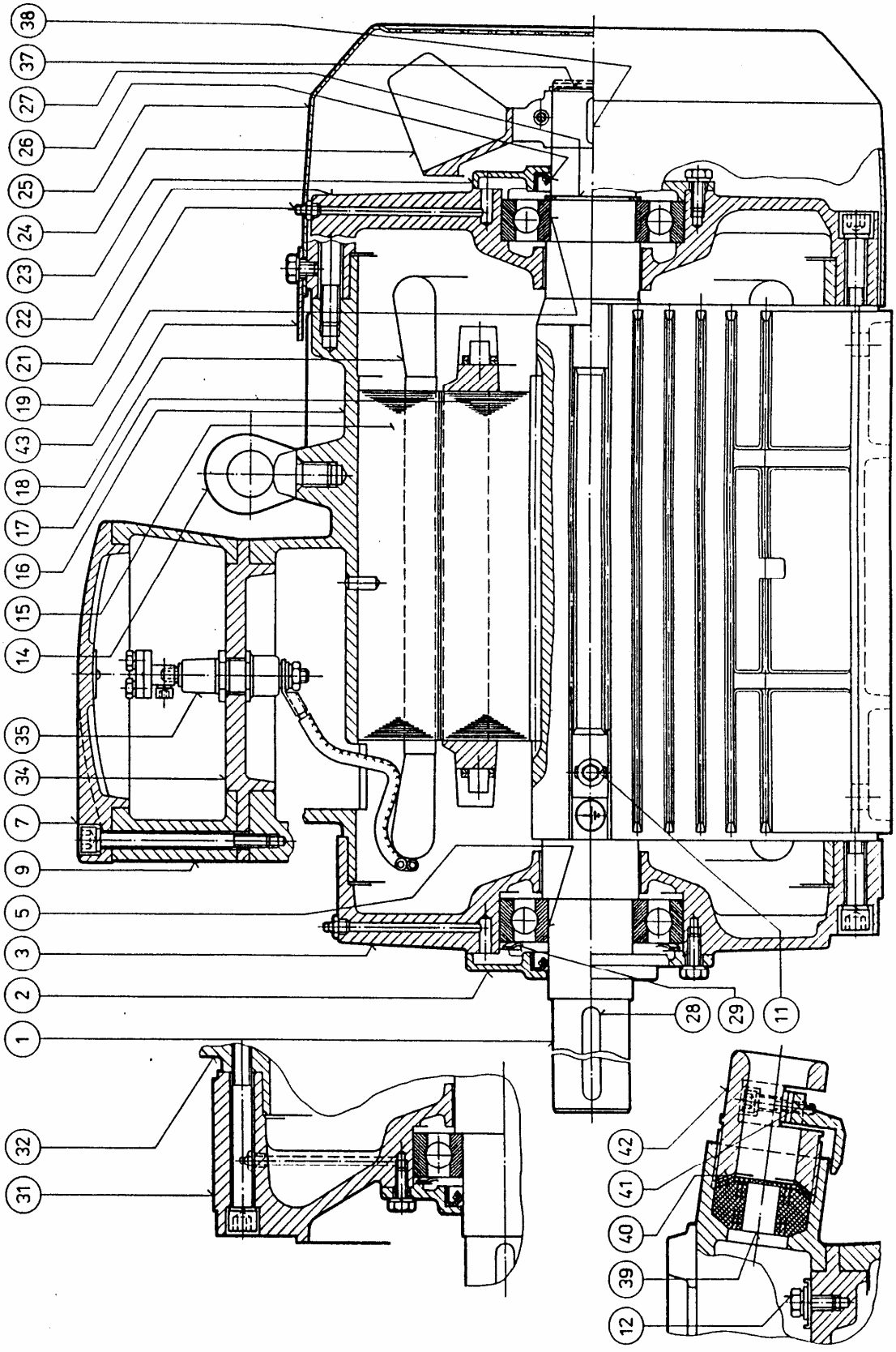
AOM – IM1001; AKM – IM2001; AVM – IM3001; IP54; H = 71 ÷ 100



AOM – IM1001; AKM – IM2001; AVM – IM3001; IP55; H = 71 ÷ 100



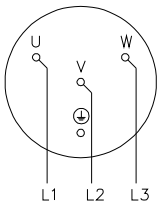
AOM – IM1001; AKM – IM2001; AVM – IM3001; IP55; H = 112 ÷ 200



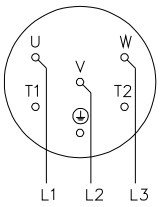
Connection terminals

Position and designation of the connection terminals with single-pole bushings

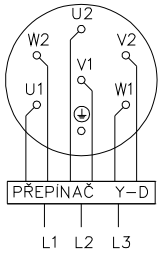
Conn. Y or D
3 terminals



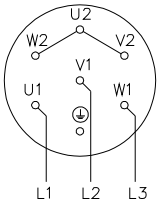
Conn. Y or D
5 terminals



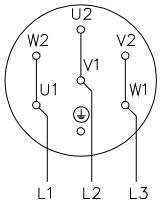
Conn. Y / D
6 terminals



Conn. Y
6 terminals



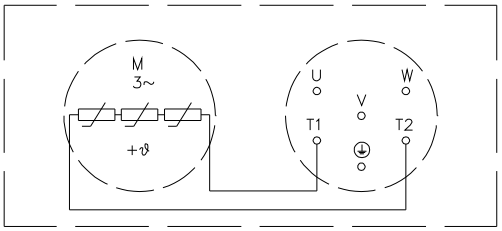
Conn. D
6 terminals



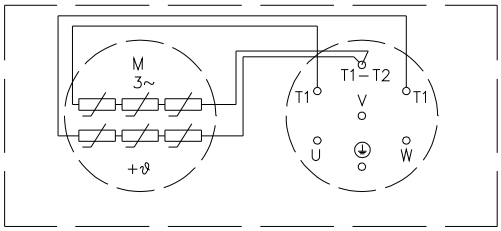
Wiring diagrams of PTC and anti-condensation elements

Single-pole bushings

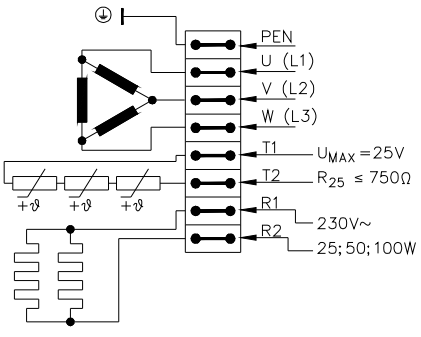
1 circuit = 5 terminals



2 circuit = 6 terminals



Multipole bushing GENERI
and WAGO terminals



Multipole bushing BARTEC