

General

Pressure switches

Pressure switches are typically used to maintain pressure in a tank (or similar closed system) between a pre-set upper and lower pressure value. In a "standard action" or Normally Closed (NC) pressure switch application, the upper pressure value at which a pressure switch breaks an electric circuit is called the cut-out pressure. The lower pressure value by which the pressure switch makes an electric circuit is called the cut-in pressure. Both cut-out and cut-in pressures within a given range can be adjusted on the pressure switch.

In a "reverse action" or Normally Open (NO) pressure switch application, the upper setting point makes an electric circuit and the lower setting point breaks the electric circuit. The pressure switch related difference between cut-in and cut-out pressures is called "hysteresis". Every pressure switch allows the natural differential or hysteresis to be increased by a differential adjustment screw. An easy two-point control with a pressure switch is thus feasible.

Control pressure switches

Control pressure switches represent a special group within pressure switches. These devices are especially suitable for monitoring and controlling purposes.

Depending on the model, SPDT's with or without gold flashed contacts, for example, for PLC applications or isolated NO and NC contacts are available. Depending on the pressure switch type, loads with a max. power consumption of 1.1 kW can be started directly.

Unloader valves- (EV) and delayed unloader valves (AEV)

Air compressor applications particularly reciprocating compressors, often use what is called an unloader valve.. The function of the unloader valve is to remove the pressure from the piston of a compressor so that when it re-starts it can move freely and prevent the motor from stalling. The delayed unloader valve, on the other hand, additionally assists the motor when starting in that it remains open until a certain pressure (approx. 2 bars) is reached, thus giving the motor additional time to reach its full speed and torque.

The Installation instructions for our unloader valves, containing all the technical data and variations, are available for download on our homepage.

Pressure switch settings

Please make sure all power is disconnected before attempting to adjust pressure settings! When calibrating the pressure switch it will be necessary to apply pressure to the device. Use a calibrated pressure gage to adjust the switches set points.

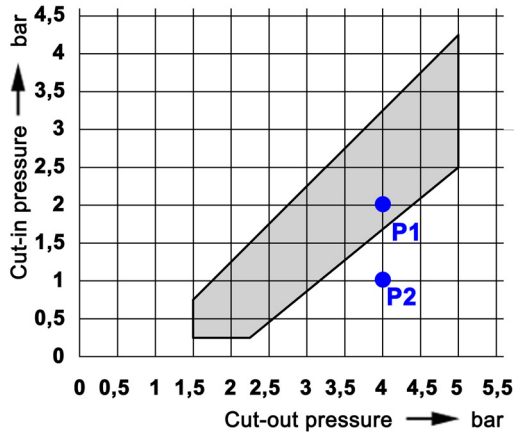
When the main pressure spring is adjusted, the cut-in and cut-out value of all pressure switches change proportionally. In other words, the differential pressure remains the same. If the range between cut-in and cut-out value is to be increased, the differential pressure screw must be used.

When carrying out a differential pressure adjustment on the pressure switch types MDR 1, MDR 11, MDR 2 and MDR 21 the cut-out pressure value changes and the cut-in pressure value remains constant. (Notice: As a standard, the MDR 1 / MDR 11 are delivered without a differential adjustment screw but a differential adjustment screw is available as an accessory).

For all other pressure switch types the cut-in pressure value changes and the cut-out pressure value remains constant.

In the pressure diagram, each pair of cut-in and cut-values are represented by a point. If the point is within the shaded area of the diagram, then these pair of values can be set on the pressure switch. If the point is outside the shaded area, then these pair of values cannot be set on the pressure switch.

Example of a pressure setting using the MDR 5 pressure diagram



The coordinates of a cut-out pressure of 4 bar and a cut-in pressure of 2 bar intersect at a point P1 which lies within the shaded pressure range (pressure diagram of the respective pressure switch). These two values can be adjusted on the pressure switch MDR 5/5. The coordinates of a cut-out pressure of 4 bar and a cut-in pressure of 1 bar intersect at a point P2 which lies outside the shaded pressure range of the diagram. Accordingly, this pair of pressure values cannot be adjusted on the pressure switch MDR 5/5.

Flange versions

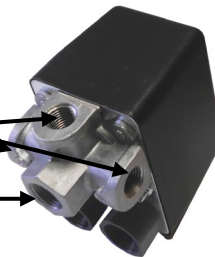
Many pressure switches are available with different flanges. The (first) dimension refers always to the main pressure port. All other ports are always 1/4" ports. The name F4 1/2" means that there is a flange with 4 ports, in which the main pressure port is 1/2" female and the remaining 3 ports are 1/4" female. The example illustrates this fact:

Flange F4 1/2"

=> 4 ports

3 x 1/4"

1 x 1/2" - Main pressure port



Repeatability

The permissible tolerance of the switching values (repeatability) is < 3% less than the upper range value.

Service

Our service offers you the possibility of carrying out pressure settings depending on your requirements.

Of course, we can also mount any accessories you may need on demand, profiting at the same time from a complete warranty.



Pressure switch MDR 2

Single phase
Switching capacity 2.2 kW
Max. cut-out pressure 12 bar
2-pole (N.C.)
Acc. to EN 60947

Type overview MDR 2

Order reference	ON / OFF Rotary knob	Pressure range P _{OFF} in bar	Flange	Weight in g	Part No.
MDR-2 DBA AAAA 015A030 XAA XXX	EA	1,5 - 7	1/4"	300	212164
MDR-2 GBA AAAA 070A090 XAA XXX	EA	4 - 12	1/4"	300	212171
MDR-2 GEA AAAA 070A090 XAA XXX	EA	4 - 12	F4 1/4"	320	212188
MDR-2 GFA AAAA 070A090 XAA XXX	EA	4 - 12	F4 3/8"	320	212195
MDR-2 GDA AAAA 070A090 XAA XXX	EA	4 - 12	F4 1/2"	320	212201
MDR-2 DBA BAAA 015A030 XAA XXX	-	1,5 - 7	1/4"	300	217381
MDR-2 GBA BAAA 070A090 XAA XXX	-	4 - 12	1/4"	300	217404
MDR-2 GEA BAAA 070A090 XAA XXX	-	4 - 12	F4 1/4"	320	219408
MDR-2 GFA BAAA 070A090 XAA XXX	-	4 - 12	F4 3/8"	320	226888
MDR-2 GDA BAAA 070A090 XAA XXX	-	4 - 12	F4 1/2"	320	226895

Unloader valves and cable glands for retrofitting, see accessories!

Technical Data MDR 2

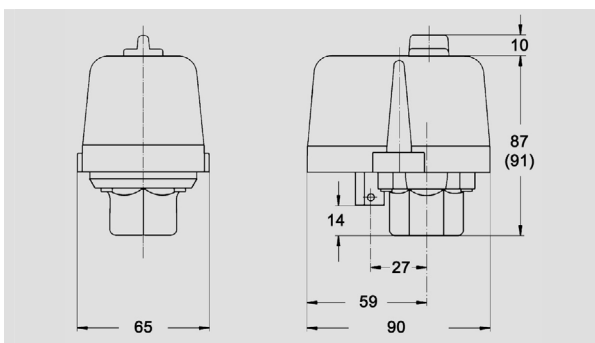
Technical Data MDR 2 acc. to 60947	
Rated insulation voltage U _i	500 V
Motor switching capacity (AC 3) U _e =240 V (1~)	2.2 kW
Electrical life (AC 3) Cycles	> 1 x 10 ⁵
Mechanical life Cycles	> 5 x 10 ⁵
Max. electrical cycles Cycles/h	120
Max. mechanical cycles Cycles/h	600
Rated operational current I _e at 240 V AC	20 A
Bursting strength P _z	> 35 bar
Permissible medium temperature Air	- 5...+ 80 °C

Technical Data MDR 2 acc. to 60947	
Permissible medium temperature Water	+ 80 °C
Degree of Protection acc. to EN 60529	IP 44
Conductor cross-section 1 .. fine stranded cable 1 x / 2 x	2.5 / 2.5mm ²
Conductor cross-section 1 rigid cable 1 x / 2 x	2.5 / 2.5mm ²

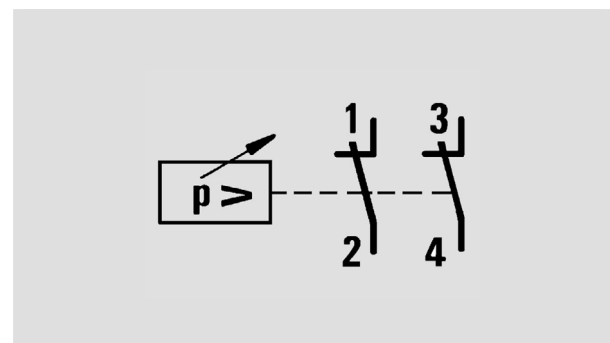
Diaphragm media resistance MDR 2	
Air, Water	resistant

A detailed overview of diaphragm media resistance for all pressure switches can be found on page 2.11.

Dimensions / Circuit Diagrams MDR 2



Pressure switch MDR-2



Accessories MDR 2

Order reference	Description	Weight in g	Part No.
Unloader valves			
EV 2	With screw connection for 6 mm plastic or copper discharge tubes	25	200666
EV 2S	With quick-connect for 6 mm plastic discharge tubes	25	200680
EV 2W	90° with screw connection for 6 mm plastic or discharge copper tubes	25	200697
EV 2Wi	90° with screw connection for 1/4" mm plastic or discharge copper tubes	15	200703
EV 2WS	90° with quick-connect for 6 mm plastic discharge tubes	15	200710
Delayed unloader valves			
AEV 2S	With quick-connect for 6 mm plastic discharge tubes	25	200741
AEV 2W	90° with screw connection for 6 mm plastic or copper discharge tubes	15	200758
AEV 2Wi	90° with screw connection for 1/4" mm plastic or copper discharge tubes	15	200765
AEV 2WS	90° with quick-connect for 6 mm plastic discharge tubes	15	200772
Cable glands			
WN	Grommet	6	200888
PG 11 G	Conduits for mounting of cable glands (Inner thread)	6	200895
PG 11 V	Cable gland complete	12	200901
PG 11 Z	With strain relief	12	200925
PG 11 ZK	With strain relief and cable support	12	200918
PG 13.5 G	Conduits for mounting of cable glands (Inner thread)	6	200963
PG 13.5 V	Cable gland complete	12	200932
PG 13.5 Z	With strain relief	12	200956
PG 13.5 ZK	With strain relief and cable support	12	200949
Cover			
H2 (Cover MDR 2)	Cover without On/Off lever (Neutral version without marking)	40	217510
H2-EA (Cover MDR 2+EA)	Cover with On/Off lever for manual On/Off (neutral version, without marking)	40	229445

* only for pneumatic tubes with outside tolerances according to e. g. Festo PAN 6x1mm

Unloader valves / Delayed unloader valves



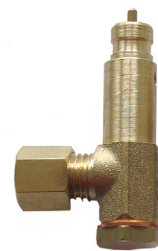
EV 2



EV 2S



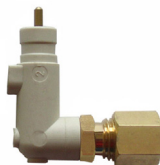
AEV 2S



AEV 2



EV 2W / EV 2Wi



AEV 2W / AEV 2Wi



EV 2WS



AEV 2WS

Cable glands MDR 2



WN



PG .. G



PG .. V

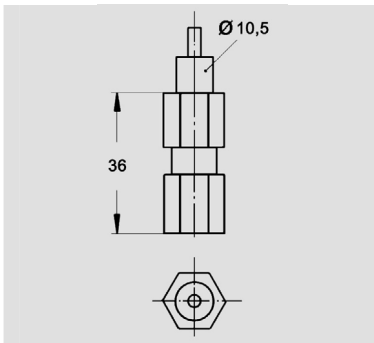


PG .. Z

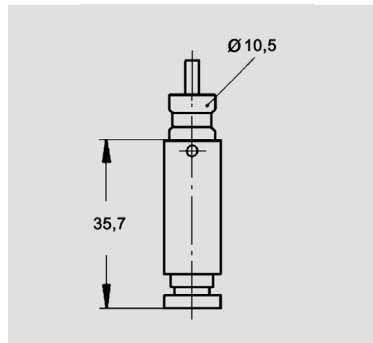


PG .. ZK

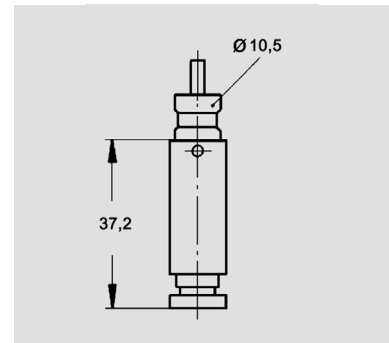
Dimensions, Accessories MDR 2



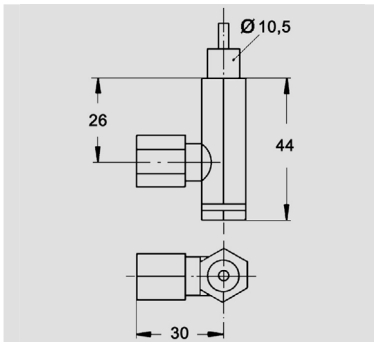
EV 2



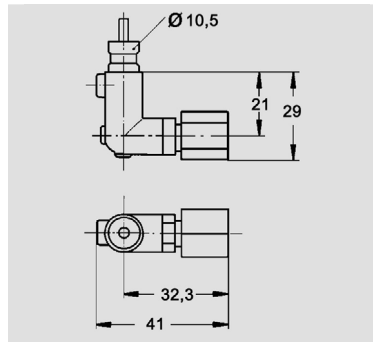
EV 2S



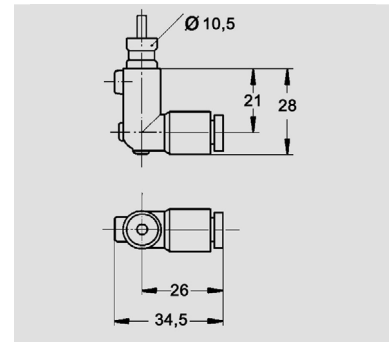
AEV 2S



AEV 2

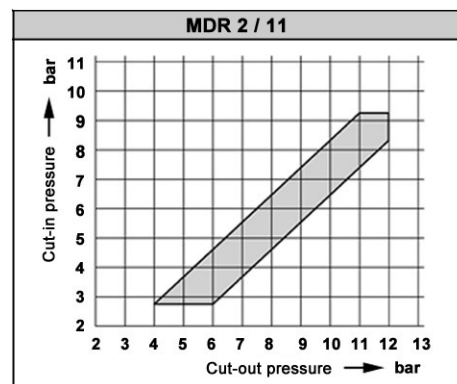
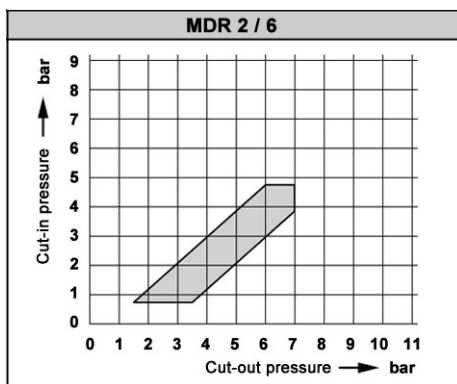


EV 2W / EV 2Wi
AEV 2W / AEV 2Wi



EV 2WS
AEV 2WS

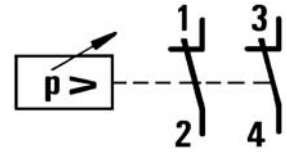
Pressure Diagrams





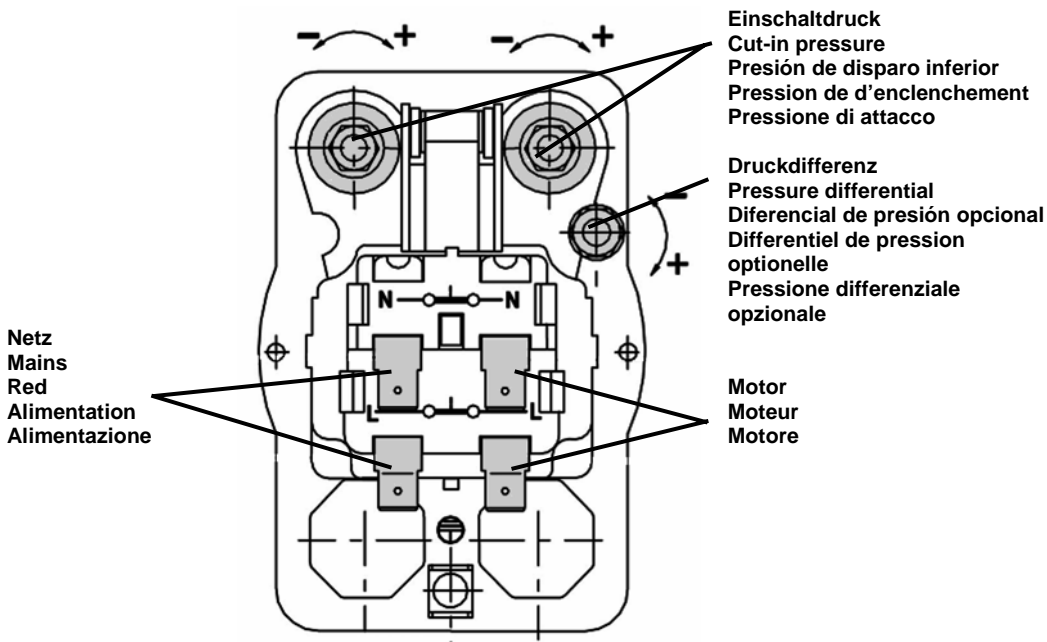
U imp 6 kV Ie 16 A Iq 3 kA

Max. zul. Motorleistung / Max. Motor Performance / Max. Potencia admisible del Motor / Puissance max. du Moteur / Pot. max. ammissibile dei motori

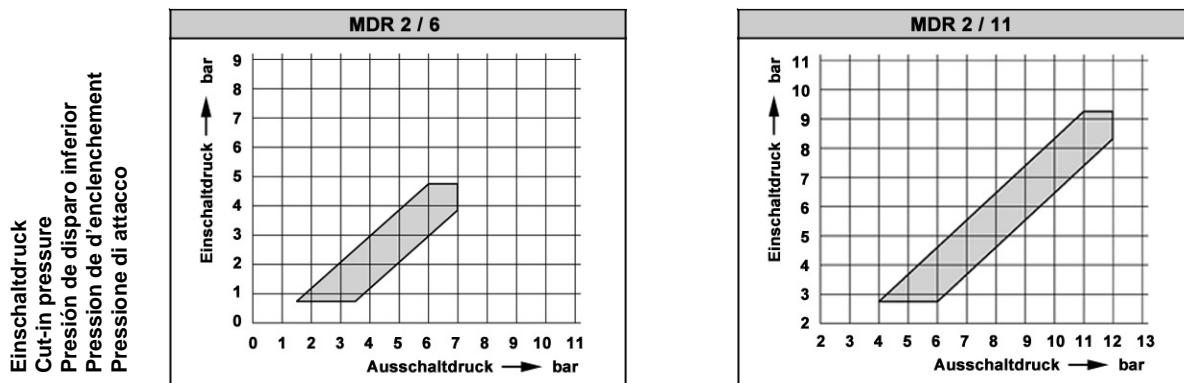


	EN 60947 – 4 - 1
50.. ..60 Hz	1~
120 V AC3	1,1 kW
230 / 240 V AC3	2,2 kW

DRAUFSICHT / TOP VIEW / VISTA SUPERIOR / VUE SUPERIEURE / VISTA DALL'ALTO
SCHALTBILD / WIRING DIAGRAM / ESQUEMA DE CONEXION /
SCHEMA DE RACCORDAMENTO / SCHEMA ELETTRICO



DRUCKDIAGRAMME / PRESSURE DIAGRAMS / DIAGRAMAS DE REGULACION /
DIAGRAMMES DE REGLAGE / DIAGRAMMI TARATURE



Ausschaltdruck po (bar)
Cut-out pressure
Presión de disparo superior
Pression déclenchement
Pressione di distacco

Einbau und Anschluß nur durch Fachkraft; nach Anbringung von Zubehör Funktionsüberprüfung durch Elektrofachkraft erforderlich

Installation and assembly of electrical equipment shall be carried out by qualified personnel only
 Instalación y ensamblaje de equipos eléctricos deberán ser efectuados solamente por personal cualificado

L'installation et raccordement des appareils doit être effectué par du personnel qualifié

L'installazione e l'assemblaggio delle parti elettriche vanno eseguite esclusivamente da personale qualificato

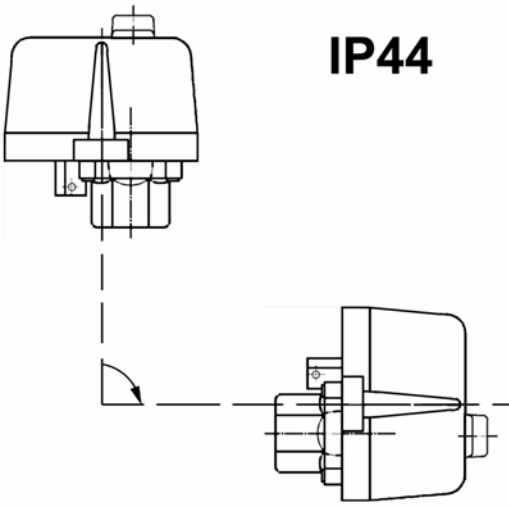
Kurzschlußeinrichtung / Short-circuit protection / Protección contra corto circuito
 Protection contre court-circuit/ Protezione contro corto circuito

Type	Koordination Type " 1 "	Koordination Type " 2 "
Tipo	Co-ordination Type " 1 "	Co-ordination Type " 2 "
	Coordinación Tipo " 1 "	Coordinación Tipo " 2 "
	Coordination Type " 1 "	Coordination Type " 2 "
	Coordinamento Tipo " 1 "	Coordinamento Tipo " 2 "
Sicherung gL Fuse (slow) Fusible (retardado) Fusible (retardé) Fusibile (ritardato)	63 A	63 A

Schutz / Degree of Protection / Grado de Protección / Degré de Protection / Grado di Protezione

IP 44 / IP 41

Einbaulage berücksichtigen / Mounting position must be observed / Respetar posición de montaje
 Observer position de montage / Rispettare posizione montaggio



IP44

IP41



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Pressure switch MDR 3

3-phase
Switching capacity 7.5 (11) kW / 20 HP
Available with overload relay
Max. cut-out pressure 35 bar
3-pole (N.C.)
Acc. to EN 60947
UL / CSA-approval optional

Type overview MDR 3

Order reference	ON / OFF Rotary knob	Pressure range P _{OFF} in bar	Flange	Weight in g	Part No.
MDR-3 DAA AAAA 045A060 XAA XXX	EA	1,3 - 6	1/2"	610	212256
MDR-3 GAA AAAA 090A110 XAA XXX	EA	4 - 11	1/2"	610	212263
MDR-3 GBA AAAA 090A110 XAA XXX	EA	4 - 11	1/4"	610	212270
MDR-3 GEA AAAA 090A110 XAA XXX	EA	4 - 11	F4 1/4"	640	212287
MDR-3 GDA AAAA 090A110 XAA XXX	EA	4 - 11	F4 1/2"	640	212294
MDR-3 GFA AAAA 090A110 XAA XXX	EA	4 - 11	F4 3/8"	640	212300
MDR-3 HAA AAAA 130A160 XAA XXX	EA	6 - 16	1/2"	610	212317
MDR-3 HBA AAAA 130A160 XAA XXX	EA	6 - 16	1/4"	610	212324
MDR-3 HEA AAAA 130A160 XAA XXX	EA	6 - 16	F4 1/4"	640	212331
MDR-3 HDA AAAA 130A160 XAA XXX	EA	6 - 16	F4 1/2"	640	212348
MDR-3 HFA AAAA 130A160 XAA XXX	EA	6 - 16	F4 3/8"	640	212355
MDR-3 IAA AAAA 215A250 XAA XXX	EA	7,5 - 25	1/2"	610	212362
MDR-3 IDA AAAA 215A250 XAA XXX	EA	7,5 - 25	F4 1/2"	640	212379
MDR-3 JAA AAAA 320A350 XAA XXX	EA	12 - 35	1/2"	610	229711
MDR-3 JDA AAAA 320A350 XAA XXX	EA	12 - 35	F4 1/2"	640	229728
MDR-3 DAA BAAA 045A060 XAA XXX	-	1,3 - 6	1/2"	590	226932
MDR-3 GAA BAAA 090A110 XAA XXX	-	4 - 11	1/2"	590	226949
MDR-3 GBA BAAA 090A110 XAA XXX	-	4 - 11	1/4"	590	226956
MDR-3 GEA BAAA 090A110 XAA XXX	-	4 - 11	F4 1/4"	620	226963
MDR-3 GDA BAAA 090A110 XAA XXX	-	4 - 11	F4 1/2"	620	226970
MDR-3 GFA BAAA 090A110 XAA XXX	-	4 - 11	F4 3/8"	620	226987
MDR-3 HAA BAAA 130A160 XAA XXX	-	6 - 16	1/2"	590	226994
MDR-3 HBA BAAA 130A160 XAA XXX	-	6 - 16	1/4"	590	227007
MDR-3 HEA BAAA 130A160 XAA XXX	-	6 - 16	F4 1/4"	620	227014
MDR-3 HDA BAAA 130A160 XAA XXX	-	6 - 16	F4 1/2"	620	227021
MDR-3 HFA BAAA 130A160 XAA XXX	-	6 - 16	F4 3/8"	620	227038
MDR-3 IAA BAAA 215A250 XAA XXX	-	7,5 - 25	1/2"	590	227045
MDR-3 IDA BAAA 215A250 XAA XXX	-	7,5 - 25	F4 1/2"	620	227052
MDR-3 JAA BAAA 320A350 XAA XXX	-	12 - 35	1/2"	590	229698
MDR-3 JDA BAAA 320A350 XAA XXX	-	12 - 35	F4 1/2"	620	229704

Unloader valves and cable glands for retrofitting, see accessories!

Type overview Pressure Switch MDR 3 RM versions, with roller diaphragm

Tight pressure differential

Extended medium resistance

Order reference	ON / OFF Rotary knob	Pressure range P _{OFF} in bar	Flange	Weight in g	Part No.
MDR-3 DAB BAAA 028A035 XAA XXX	-	1,3 - 6	1/2"	770	229674
MDR-3 GAB BAAA 060A070 XAA XXX	-	4 - 10	1/2"	770	227595
MDR-3 GOB BAAA 060A070 XAA XXX	-	4 - 10	1/2"+1/4"	810	227601
MDR-3 GAB AAAA 060A070 XAA XXX	EA	4 - 10	1/2"	800	227632
MDR-3 GOB AAAA 060A070 XAA XXX	EA	4 - 10	1/2"+1/4"	850	227649
MDR-3 HAB BAAA 145A160 XAA XXX	-	6 - 16	1/2"	770	227618
MDR-3 HOB BAAA 145A160 XAA XXX	-	6 - 16	1/2"+1/4"	810	227625
MDR-3 HAB AAAA 145A160 XAA XXX	EA	6 - 16	1/2"	800	227656
MDR-3 HOB AAAA 145A160 XAA XXX	EA	6 - 16	1/2"+1/4"	850	227663

Unloader valves and cable glands for retrofitting, see accessories!

Technical Data MDR 3

Technical Data MDR 3 acc. to EN 60947 UL / CSA	
Rated insulation voltage U_i	690 V
Motor switching capacity (UL 508, CSA 22.2) $U_e=120$ V (1~)	2 HP
Motor switching capacity (AC 3) $U_e=240$ V (1~)	5.5 kW
Motor switching capacity (UL 508, CSA 22.2) $U_e=240$ V (1~)	5 HP
Motor switching capacity (AC 3) $U_e=240$ V (3~)	5.5 kW
Motor switching capacity (UL 508, CSA 22.2) $U_e=240$ V (3~)	7.5 HP
Motor switching capacity (AC 3) $U_e=400$ V (3~)	7.5/11* kW
Motor switching capacity (UL 508, CSA 22.2) $U_e=480$ V (3~)	15 HP
Motor switching capacity (AC 3) $U_e=500$ V (3~)	7.5/11* kW
Motor switching capacity (UL 508, CSA 22.2) $U_e=600$ V (3~)	20 HP
Motor switching capacity (AC 3) $U_e=690$ V (3~)	7.5/11* kW

Technical Data MDR 3 acc. to EN 60947 UL / CSA	
Rated insulation voltage U_i	690 V
Motor switching capacity (UL 508, CSA 22.2) $U_e=120$ V (1~)	2 HP
Motor switching capacity (AC 3) $U_e=240$ V (1~)	5.5 kW
Motor switching capacity (UL 508, CSA 22.2) $U_e=240$ V (1~)	5 HP
Motor switching capacity (AC 3) $U_e=240$ V (3~)	5.5 kW
Motor switching capacity (UL 508, CSA 22.2) $U_e=240$ V (3~)	7.5 HP
Motor switching capacity (AC 3) $U_e=400$ V (3~)	7.5/11* kW
Motor switching capacity (UL 508, CSA 22.2) $U_e=480$ V (3~)	15 HP
Motor switching capacity (AC 3) $U_e=500$ V (3~)	7.5/11* kW
Motor switching capacity (UL 508, CSA 22.2) $U_e=600$ V (3~)	20 HP
Motor switching capacity (AC 3) $U_e=690$ V (3~)	7.5/11* kW

Diaphragm media resistance MDR 3	
Air, Water	resistant

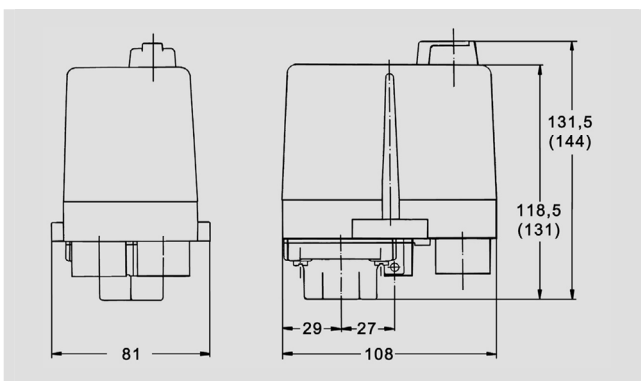
Diaphragm media resistance MDR 3 RM	
Acetylene, Ammonia 25%, Butane, Natural gas, Vinegar 25 %, Ethylene glycol, Glycerol, Urine, Carbon dioxide, Carbonic acid, Air, Vegetable oil, Propane, Silicon oil, Nitrogen, Water, Hydrogen, Sea water	resistant

Diaphragm media resistance MDR 3 USA	
Acetylene, Gasoline, Butane, Diesel, Natural gas, Petroleum, Ethylene glycol, Glycerol, Fuel oil, Urine, Carbon dioxide, Carbonic acid, Air, Mineral oils, Vegetable oil, Propane, Silicon oil, Nitrogen, Synthetic oils, Water, Distilled water, Hydrogen, Sea water, Water steam	resistant

A detailed overview of diaphragm media resistance for all pressure switches can be found on page 2.11.

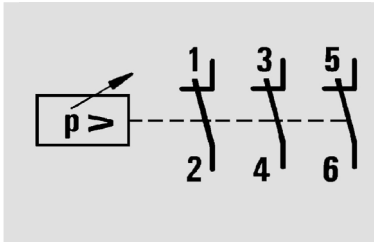
* With arc-chamber Sk... H on request

Dimensions MDR 3

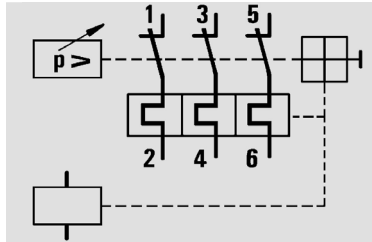


Pressure switch MDR-3

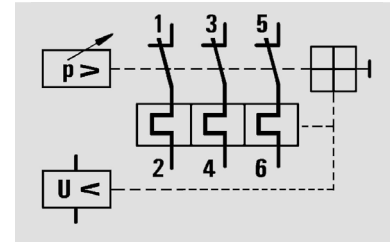
Circuit Diagrams MDR 3



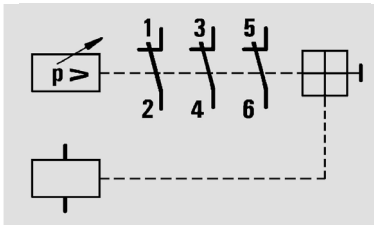
MDR 3



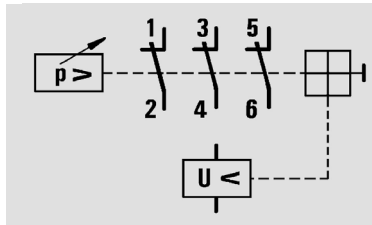
MDR 3 EA 3 R 3 RA 3



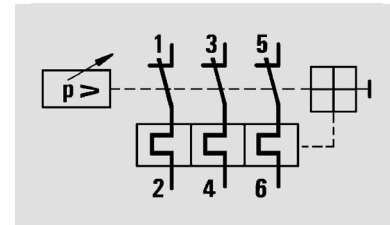
MDR 3 EA 3 R 3 RU 3



MDR 3 EA 3 RA 3



MDR 3 EA 3 RU 3

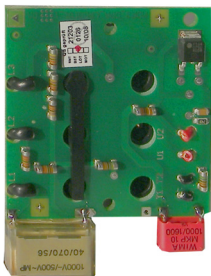


MDR 3 EA 3 R 3

DPA-Board for MDR 3 (Use only with MDR-3..E/A and RU 3/400-SO; article-nr. 201557)

Description

Installing the DPA - circuit board onto MDR 3, the pressure switch offers the following additional functions:



- **Phase sequence control**
- **Phase failure detection**
- **Supervision of an external opener possible, e. g. Klixon for temperature supervision (clamp tension < 230 V)**
- **Undervoltage release**

For all functions the neutral conductor is not necessary. In case of malfunction the pressure switch will be switched off. Only upon solving the malfunction, the pressure switch can be switched on again. Field of application: place-variable compressors, building site-area etc.

Order reference	Description	Voltage	Packing (units)	Part No.
DPA-Board	Phase sequence, phase drop protection board	230 V / 50 Hz	1	258520

Accessories Hourmeter kit MDR 3



Description

The MDR 3 can be equipped or retrofitted with an operating hourmeter to monitor the pump and compressor running time.

The hourmeter is available as a kit and can be attached to the cover in 4 different positions, each offset at an angle of 90°.

This ensures optimum readability. The kit consists of an operating hourmeter for either 230 V or 400 V and a perforated MDR 3 cover with or without ON/OFF lever.

Type overview Hourmeter kit

Order reference	Description	Voltage	Packing (units)	Part No.
H3 - B 230	Hourmeter and Cover for MDR-3	230 V / 50 Hz	1	237297
H3 - B 400	Hourmeter and Cover for MDR-3	400 V / 50 Hz	1	237303
H3-EA - B 230	Hourmeter and Cover for MDR-3+EA	230 V / 50 Hz	1	237310
H3-EA - B 400	Hourmeter and Cover for MDR-3+EA	400 V / 50 Hz	1	237327

can be used at 60 Hz with higher engine speed

Accessories MDR 3

Order reference	Description	Weight in g	Part No.
Unloader valves			
EV 3	With screw connection for 6 mm plastic or copper discharge tubes	25	201045
EV 3i	With screw connection for 1/4" plastic or copper discharge tubes	25	201052
EV 3S*	With quick-connect for 6 mm plastic discharge tubes	25	201069
EV 3W*	90° unloader valve with screw connection for 6 mm plastic or copper discharge tubes	18	201076
EV 3Wi*	90° unloader valve with screw connection for 1/4" plastic or copper discharge tubes	18	201083
EV 3WS*	90° unloader valve with quick-connect for 6 mm plastic discharge tubes	10	201090
EV 3L	With screw connection for 6 mm plastic or copper discharge tubes	30	201229
Delayed unloader valves			
AEV 3	With screw connection for 6 mm plastic or copper discharge tubes	25	201106
AEV 3S*	With quick-connect for 6 mm plastic discharge tubes	25	201120
AEV 3W*	90° unloader valve with screw connection for 6 mm plastic or copper discharge tubes	18	201137
AEV 3Wi*	90° unloader valve with screw connection for 1/4" plastic or copper discharge tubes	18	201144
AEV 3WS*	90° unloader valve with quick-connect for 6 mm plastic discharge tubes	10	201151
Cable glands			
PG 9 Z	With strain relief (for additional wiring)	12	201373
WN	Grommet	6	201243
PG 11 G	Conduits for mounting of cable glands (Inner thread)	6	201250
PG 11 V	Cable gland complete	12	201267
PG 11 Z	With strain relief	12	201274
PG 11 ZK	With strain relief and cable support	12	201281
PG 13.5 G	Conduits for mounting of cable glands (Inner thread)	6	201298
PG 13.5 V	Cable gland complete	12	201304
PG 13.5 Z	With strain relief	12	201311
PG 13.5 ZK	With strain relief and cable support	12	201328
PG 16 G	Conduits for mounting of cable glands (Inner thread)	6	201335
PG 16 V	Cable gland complete	12	201342
PG 16 Z	With strain relief	12	201359
PG 16 ZK	With strain relief and cable support	18	201366
MW 3	Mounting bracket for MDR 3	65	246138
Cover			
H3 (Cover MDR 3)	Cover without rotary knob (Neutral version, without marking)	100	229490
H3-EA (Cover MDR 3+EA)	Cover with rotary knob for manual On/Off (Neutral version, without marking)	100	230007
Thermal, 3-pole overload relay			
SK 3	Arc-chamber without lock mechanism (supplied as standard with MDR 3...)	90	201380
SK 3-S	SK 3-S Arc-chamber with lock mechanism (supplied as standard with MDR 3...+EA)	110	201397
SK R3/ 1,0	0.63 – 1.00 A	145	201403
SK R3/ 1,6	1.00 – 1.60 A	145	201410
SK R3/ 2,5	1.60 – 2.50 A	145	201427
SK R3/ 4,0	2.50 – 4.00 A	145	201434
SK R3/ 6,3	4.00 – 6.30 A	145	201441
SK R3/ 10,0	6.30 – 10.00 A	145	201458
SK R3/ 16,0	10.00 – 16.00 A	145	201465
SK R3/ 20,0	16.00 – 20.00 A	145	201472
SK R3/ 24,0	20.00 – 24.00 A	145	201489
SK R3/ 30/2	22.00 – 30.00 A, 2 pole	145	201496
Undervoltage and shunt releases			
RU 3/24-50	Undervoltage release 24 V, 50 Hz	100	226857
RU 3/230-50	Undervoltage release 230 V, 50 Hz	100	201540
RU 3/400-50	Undervoltage release 400 V, 50 Hz	100	201557
RA 3/24-50	Shunt release 24 V, 50 Hz	100	201564
RA 3/110-50	Shunt release 110 V, 50 Hz	100	201571
RA 3/230-50	Shunt release 230 V, 50 Hz	100	201588
RA 3/240-60	Shunt release 240 V, 60 Hz	100	214113
RA 3/400-50	Shunt release 400 V, 50 Hz	100	225935
RA 3/480-60	Shunt release 480 V, 60 Hz	100	201595

1) up to ≤16 bar, 2) only for pneumatic tubes with outside tolerances according to e. g. Festo PAN 6x1mm

Unloader valves / Delayed unloader valves



EV 3 / EV 3i



EV 3S



AEV 3S



AEV 3



EV 3L



EV 3W / EV 3Wi



AEV 3W / AEV 3Wi



EV 3WS



AEV 3WS

Cable glands MDR 3



WN



PG 9 Z



PG .. G



PG .. V



PG .. Z



PG .. ZK

Wall-mounting bracket, 3-pole overload relay, undervoltage and shunt releases



MW 3



SK 3



SK 3-S



SK R3 / ..

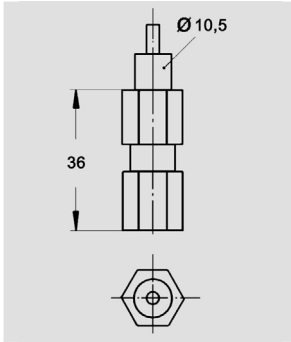


RU ..

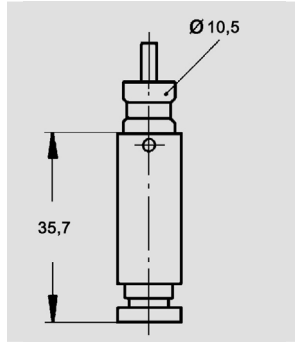


RA ..

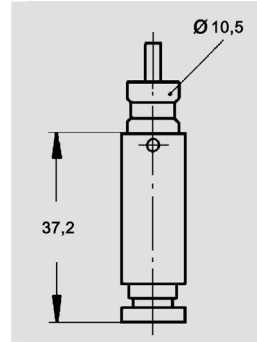
Dimensions, Accessories MDR 3



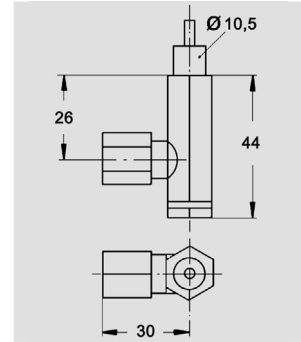
EV 3 / EV 3i



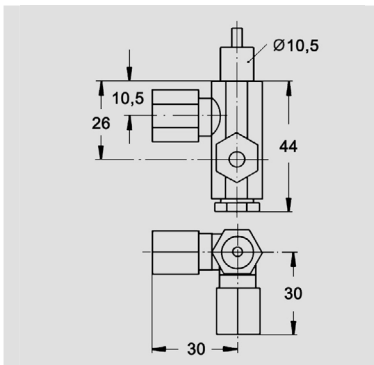
EV 3S



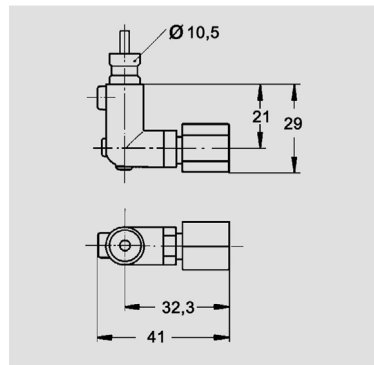
AEV 3S



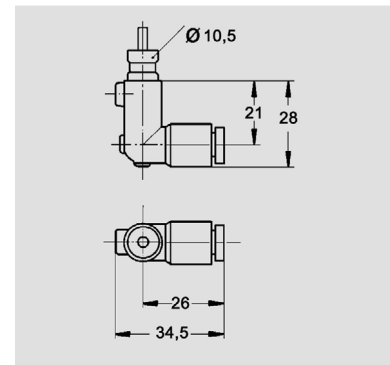
AEV 3



EV 3L

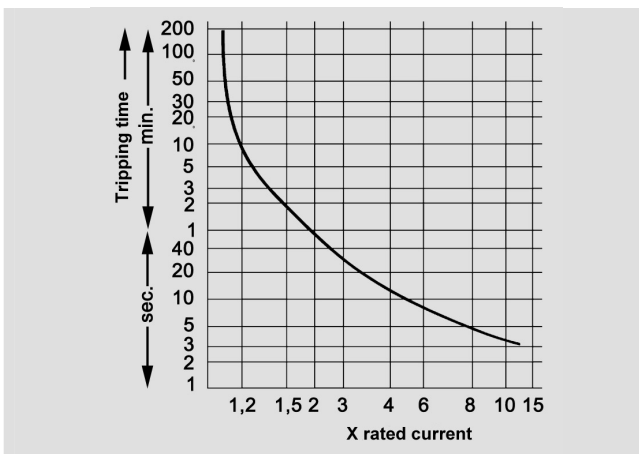


EV 3W / EV 3Wi
AEV 3W / AEV 3Wi

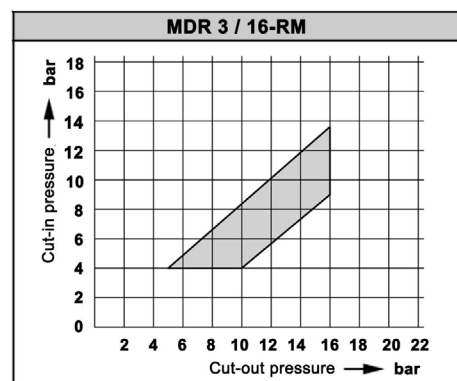
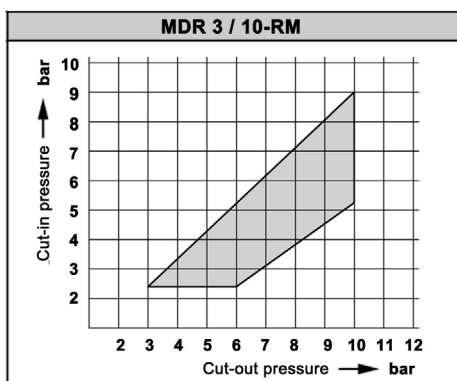
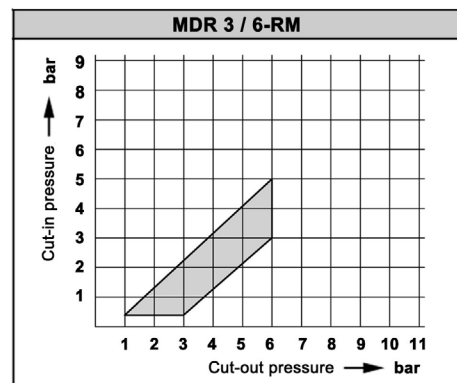
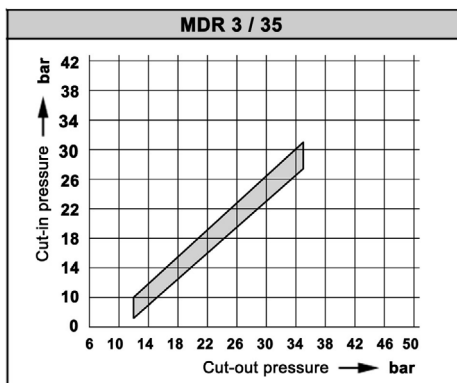
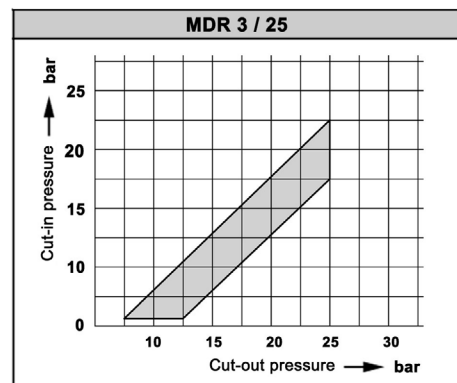
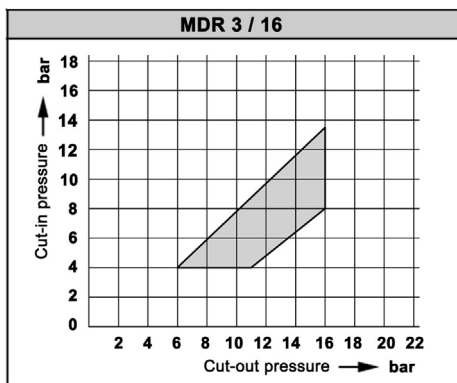
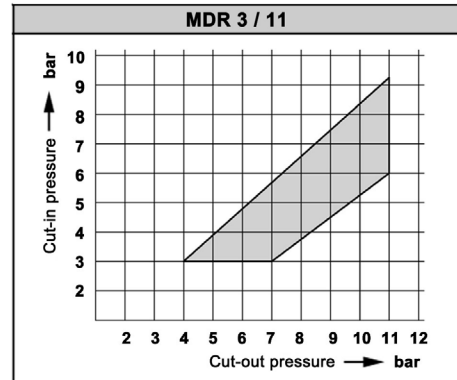
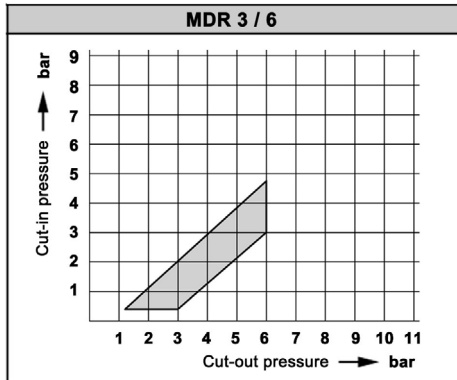


EV 3WS / AEV 3WS

Tripping curves R3 (average)



Pressure Diagrams MDR 3

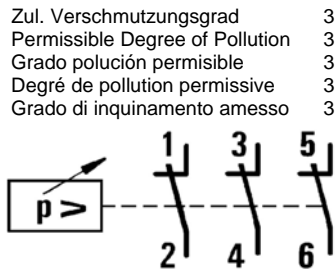




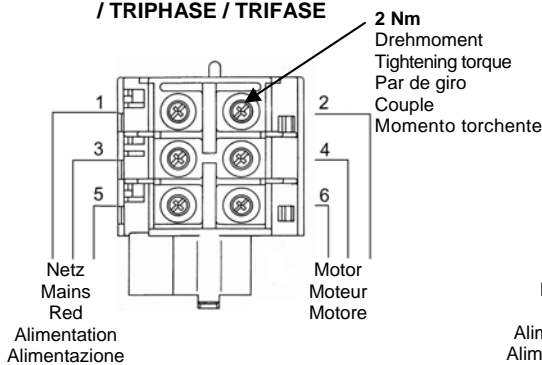
Max. zul. Motorleistung / Max. Motor Performance / Max. Potencia Admisible del motor / Puissance max. du moteur / Pot. max. ammissibile dei motori

Ue (50 / 60 Hz)	3 (AC-3)	1 (AC-3)
120V	3,0 kW	1,1 kW
230 V	5,5 kW	2,2 kW
400 V	7,5 kW (11 kW)*	-
500 V	7,5 kW (11 kW)*	-
690 V	7.5 kW (15 kW)*	-

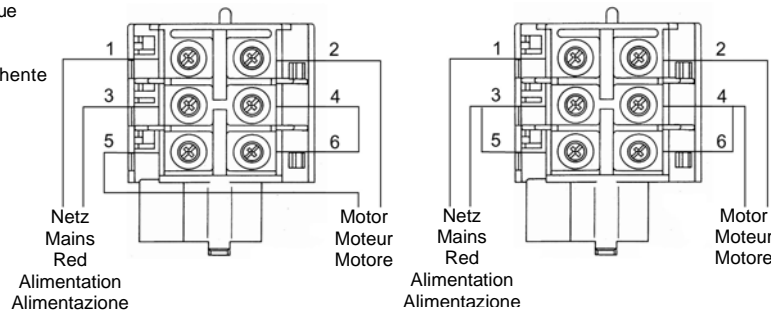
*= mit SK 3 H, SK-R3 H - with SK 3 H, SK-R3 H - con SK 3 H, SK-R3 H avec SK 3 H, SK-R3 H - con SK 3 H. SK-R3 H



SCHALTBILD / WIRING DIAGRAM / ESQUEMA DE CONEXION / SCHEMA DE RACCORDEMENT / SCHEMA ELETTRICO
3-PHASIG / 3-PHASE / TRIFASICO / TRIPHASE / TRIFASE



1-PHASIG / 1-PHASE / MONOFASICO / MONOPHASE / MONOFASE



SK-....

SK-R3/30/2

ACHTUNG:

Vor der Druckeinstellung ist der Druckschalter freizuschalten. Die Druckeinstellung ist nur am montiertem Druckschalter bei unter Druck stehendem Gerät möglich.

ATTENTION:

Adjustments are to be carried out only when the switch is mounted, under pressure and voltage-free.

ATENCION:

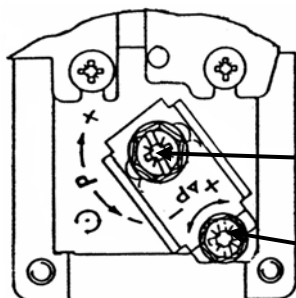
Cambios de presión deberán ser efectuados solo con el presóstato montado, bajo presión y libre de tensión.

ATTENTION:

Le réglage de pression ne peut se faire que lorsque l'appareil est monté, sous pression et libre de tension.

ATTENZIONE:

La regolazione va effettuata solo col pressostato montato, sotto pressione e disinserito.



Druckeinstellung / Pressure setting / Ajuste de presión / Réglage de la pression / Regolazione della pressione

Oberer Druckwert / Upper Pressure Setting / Presion de Disparo Superior / Pression Supérieure / Pression di Distacco

Druckdifferenz / Pressure Differential / Diferencial de Presión / Différentiel de Pression / Differenziale di Pressione

Einbau und Anschluß nur durch Fachkraft; nach Anbringung von Zubehör Funktionsüberprüfung durch Elektrofachkraft erforderlich.

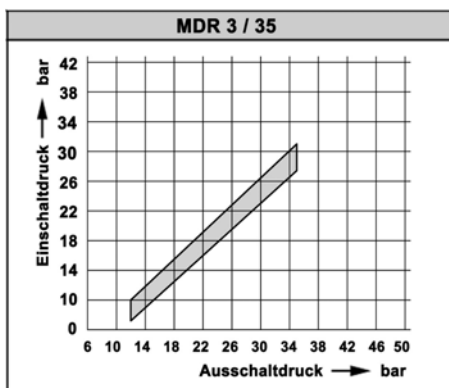
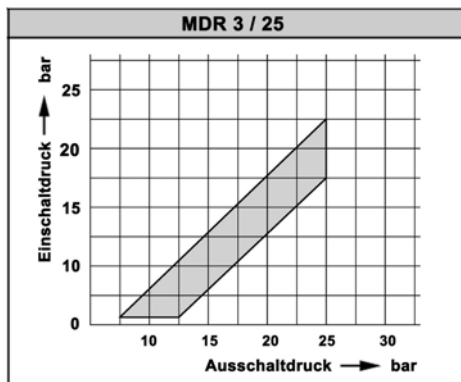
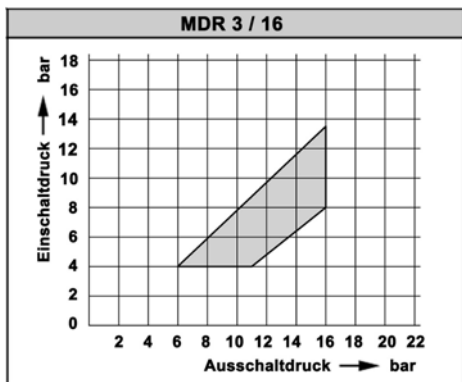
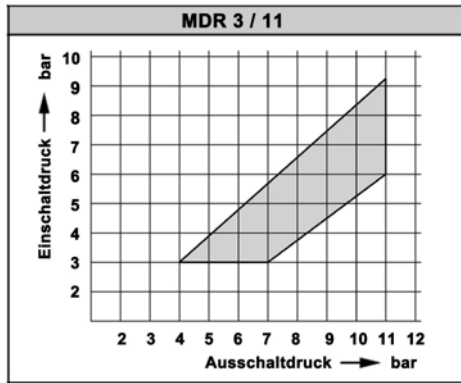
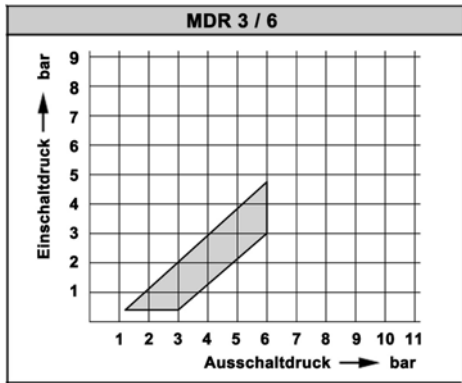
Installation and assembly of electrical equipment shall be carried out by qualified personnel only.

Instalación y ensamblaje de equipos eléctricos deberán ser efectuados solamente por personal cualificado.

L'installation et raccordement des appareils doit être effectué par du personnel qualifié.

L'installazione e l'assemblaggio delle parti elettriche vanno eseguite esclusivamente da personale qualificato.

**DRUCKDIAGRAMME / PRESSURE DIAGRAMS / DIAGRAMAS DE REGULACION /
DIAGRAMMES DE REGLAGE / DIAGRAMMI TARATURE**

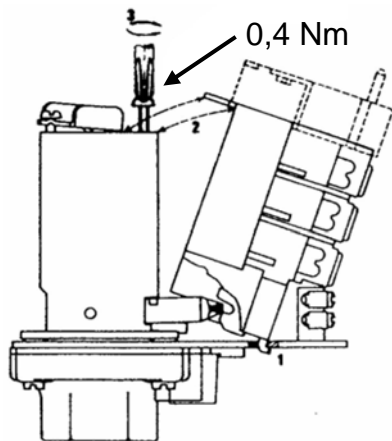


Einschaltdruck
Cut-in pressure
Presión de disparo inferior
Pression de d'enclicement
Pressione di attacco

Ausschaltdruck
Cut-out pressure
Presión de disparo superior
Pression déclenchement
Pressione di distacco

*MDR 3 EA in Position / I Auto
MDR 3 EA in posición / I Auto
MDR 3 EA en posición / I Auto
MDR 3 EA dans position / I Auto
MDR 3 EA in posizione / I Auto

**ANBAU DER MODULE / MOUNTING ADD-ON MODULES / MONTAJE DE LOS MODULOS /
MONTAGE DES MODULES / MONTAGIO DEI MODULI**



1. - Nase wie im Piktogramm schräg einsetzen
2. - Modul nach hinten kippen
3. - Befestigungsschrauben festdrehen

Wechsel bereits montierter Module:
in umgekehrter Reihenfolge verfahren

1. - Insertar el tetón como en la pictografía
2. - Presionar hacia atrás
3. - Apretar tornillos

Cambiar módulos ya montados: proceder al inverso

1. - Inserire obliquamente il beccuccio come da schema illustrativo
2. - Raddrizzare il modulo
3. - Serrare le viti di fissaggio

Sostituzione moduli: procedere in senso inverso

Haubenbefestigung / Cover fastening / Fijación de la tapa / Fixation par coiffe / Fissaggio coperchio: 1 Nm /

Anbau der Module / Add-on Modules / Módulos Montables / Modules complémentaires / I Moduli:
s. Katalog / see catalogue / ver catálogo / voyez notre catalogue / vedere catalogo

1. - Insert catch as shown
2. - Push the module backwards
3. - Tighten screws

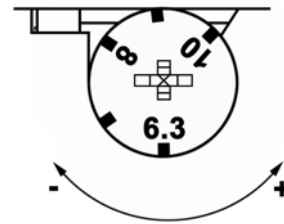
Changing matented modules: proceed in reverse

1. - Insérer le teton en oblique
2. - Pousser le module vers l'arrière
3. - Serrer les vis de fixation

Pour remplacer un module: fait l'opération inverse

Kurzschlußschutzeinrichtung für MDR 3 / Protection against short-circuit for MDR 3 / Protección contra corto circuito para MDR 3 / Protection contre court-circuit pour MDR 3 / Protezione contro corto circuito per MDR 3 Iq ≤ 50kA

Type / Tipo	Koordination Type "1"		Koordination Type "2"	
	Co-ordination Type "1"		Co-ordination Type "2"	
	Coordinación Tipo "1"		Coordinación Tipo "2"	
	Coordination Type "1"		Coordination Type "2"	
	Coordinamento Tipo "1"		Coordinamento Tipo "2"	
Überstromrelais	max. Sich. gl	oder	LS-Schalter (400 V)	
Overload relais	max. Fuses (slow)	or	McB (400 V)	
Relé térmico	max. Fusible (retardado)	o	Automatico (400 V)	
Relais disjoncteur	max. Fusible (retardé)	ou	Disjoncteur Automatiques (400 V)	
Relé termico	max. Fusible (ritardato)	o	Interruttore modulare (400 V)	
	400 V	690 V	400 V	690 V
SK-R3/1,0	80 A	63 A	6 A	4 A
SK-R3/1,6	80 A	63 A	10 A	6 A
SK-R3/2,5	80 A	63 A	20 A	10 A
SK-R3/4,0	80 A	63 A	35 A	20 A
SK-R3 (H)6.3 . 24	80 A	63 A	35 A	35 A
SK-R3 (H)/SK-R3(H-S)	80 A	63 A	35 A	35 A



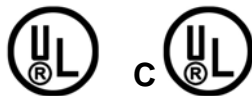
Motorennstrom am Excenter des SK-R3 Überstromrelais wie abgebildet einstellen.

Use dial to adjust the overload relay SK-R3 to the rated motor current as shown

Usar la excêntrica para ajustar el relé térmico SK-R3 a la corriente nominal del motor como en la pictografía

Déplacé l'excentrique du thermique SK-R3 a la valeur du courant nominal du moteur comme indiqué

Torare la corrente nominale del motore sul relais termico SK-R3 agendo sull'eccentrico come indicato



Horsepower Ratings und Short Cimuit Proteeejan acc. to UL 508										
Conrad Block	110 - 120 V		220 - 240 V		440 - 480 V		550 - 600 V		Short Circuit Protection	
Type	1-ph	3-ph	1-ph	3-ph	1-ph	3-ph	1-ph	3-ph	max. V	max. Fuse
SK-R3/1	-	-	-	-	-	½	-	½	600	15 A
SK-R3/1,6	-	-	1/10	½	-	¾	-	1	600	15 A
Sk-R3/2	-	-	1/6	½	½	1	½	1½	600	15 A
Sk-R3/4	½	½	½	1	1	2	1½	3	600	15 A
SK-R3/6,3	¾	¾	½	1½	2	3	2	5	600	25 A
Sk-R3/10	½	1	1½	3	3	5	3	7½	600	40 A
SK-R3/16	1	2	2	5	5	10	7½	10	600	60 A
SK-R3/20	1½	3	3	-	-	-	10	-	600	80 A
SK-R3/24	2	-	-	7½	7½	-	10	-	600	100 A
SK-R3H16	1	2	2	5	5	10	7½	10	600	60 A
SK-R3H/20	1½	3	3	-	-	-	10	15	600	80 A
SK-R3H/24	2	-	-	7½	7½	15	10	20	600	100 A
SK-R3/30/2	2	-	5	-	-	-	-	-	240	110 A

Max. Operating pressure	
MDR 3 / 6	90 psi / 600 kPa
MDR 3 / 11	160 psi / 11100 kPa
MDR 3 / 16	230 psi / 1600 kPa
MDR 3 / 25	360 psi / 12500 kPa
MDR 3 / 35	510 psi / 3500 kPa

* see pressure diagrams

1. Suitable for use an a circuit capable of delivering not more than 5 kA rms symmetrical Amperes, 600 Volts maximum (240 Volts for SK-R3/30/2) when protected by nontime delay fuses as noted in the table above.
2. Suitable for group fusing of 5 kA rms symmetrical Amperes 600 V, 3-ph maximum (SK-R3/30/2 240V. 1-ph max.) when protected by time delay fuses rated max. 100 A.
3. Use 75° copper wire AWG 10 -AWG 14
3. AC Motor Load
5. Break all lines
6. Trip current is 125% of dial setting

30.310.93.001 02.11.2005



Condor Pressure Control GmbH

Warendorfer Straße 47 – 51
D-59320 Ennigerloh

Telefon: +49 (0) 25 87 / 89 – 0
Telefax: +49 (0) 25 87 / 89 - 140

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www.condor-cpc.com



Pressure switch MDR 4 S

3-phase
Switching capacity 4.0 / 5.5 kW
Max. cut-out pressure 16 bar
3-pole (N.C.)
Acc. to EN 60947
4-way-flange (optional)

Type overview t MDR 4S

Order reference	ON / OFF Rotary knob	Pressure range P _{OFF} in bar	Flange	Weight in g	Part No.
MDR-4 DBA AFAA 040A060 XAA XXX	EA	1,5 - 6	1/4"	420	212584
MDR-4 DAA AFAA 040A060 XAA XXX	EA	1,5 - 6	1/2"	420	212591
MDR-4 DOA AFAA 040A060 XAA XXX	EA	1,5 - 6	1/2" + 1/4"	460	212607
MDR-4 DEA AFAA 040A060 XAA XXX	EA	1,5 - 6	F4 1/4"	460	257899
MDR-4 DDA AFAA 040A060 XAA XXX	EA	1,5 - 6	F4 1/2"	460	257905
MDR-4 DFA AFAA 040A060 XAA XXX	EA	1,5 - 6	F4 3/8"	460	257912
MDR-4 GBA AFAA 090A110 XAA XXX	EA	4 - 11	1/4"	420	212614
MDR-4 GAA AFAA 090A110 XAA XXX	EA	4 - 11	1/2"	420	212621
MDR-4 GOA AFAA 095A110 XAA XXX	EA	4 - 11	1/2" + 1/4"	460	212638
MDR-4 GEA AFAA 090A110 XAA XXX	EA	4 - 11	F4 1/4"	460	257929
MDR-4 GDA AFAA 090A110 XAA XXX	EA	4 - 11	F4 1/2"	460	257936
MDR-4 GFA AFAA 090A110 XAA XXX	EA	4 - 11	F4 3/8"	460	257943
MDR-4 HBA AFAA 135A160 XAA XXX	EA	6 - 16	1/4"	420	212645
MDR-4 HAA AFAA 135A160 XAA XXX	EA	6 - 16	1/2"	420	212652
MDR-4 HOA AFAA 135A160 XAA XXX	EA	6 - 16	1/2" + 1/4"	460	212669
MDR-4 HEA AFAA 135A160 XAA XXX	EA	6 - 16	F4 1/4"	460	257950
MDR-4 HDA AFAA 135A160 XAA XXX	EA	6 - 16	F4 1/2"	460	257967
MDR-4 HFA AFAA 135A160 XAA XXX	EA	6 - 16	F4 3/8"	460	257974
MDR-4 IBA AFAA 210A250 XAA XXX	EA	8,5 - 25	1/4"	420	212676
MDR-4 IAA AFAA 210A250 XAA XXX	EA	8,5 - 25	1/2"	420	212683
MDR-4 IOA AFAA 210A250 XAA XXX	EA	8,5 - 25	1/2" + 1/4"	460	212690
MDR-4 IEA AFAA 210A250 XAA XXX	EA	8,5 - 25	F4 1/4"	460	263883
MDR-4 IDA AFAA 210A250 XAA XXX	EA	8,5 - 25	F4 1/2"	460	263890
MDR-4 IFA AFAA 210A250 XAA XXX	EA	8,5 - 25	F4 3/8"	460	263906
MDR-4 DBA BFAA 040A060 XAA XXX	-	1,5 - 6	1/4"	420	220084
MDR-4 DAA BFAA 040A060 XAA XXX	-	1,5 - 6	1/2"	420	220077
MDR-4 DOA BFAA 040A060 XAA XXX	-	1,5 - 6	1/2" + 1/4"	460	220121
MDR-4 DEA BFAA 040A060 XAA XXX	-	1,5 - 6	F4 1/4"	460	257981
MDR-4 DDA BFAA 040A060 XAA XXX	-	1,5 - 6	F4 1/2"	460	257998
MDR-4 DFA BFAA 040A060 XAA XXX	-	1,5 - 6	F4 3/8"	460	258001
MDR-4 GBA BFAA 090A110 XAA XXX	-	4 - 11	1/4"	420	204251
MDR-4 GAA BFAA 090A110 XAA XXX	-	4 - 11	1/2"	420	206194
MDR-4 GOA BFAA 095A110 XAA XXX	-	4 - 11	1/2" + 1/4"	460	227069
MDR-4 GEA BFAA 090A110 XAA XXX	-	4 - 11	F4 1/4"	460	258018
MDR-4 GDA BFAA 090A110 XAA XXX	-	4 - 11	F4 1/2"	460	258025
MDR-4 GFA BFAA 090A110 XAA XXX	-	4 - 11	F4 3/8"	460	258032
MDR-4 HBA BFAA 135A160 XAA XXX	-	6 - 16	1/4"	420	204244
MDR-4 HAA BFAA 135A160 XAA XXX	-	6 - 16	1/2"	420	220107
MDR-4 HOA BFAA 135A160 XAA XXX	-	6 - 16	1/2" + 1/4"	460	227076
MDR-4 HEA BFAA 135A160 XAA XXX	-	6 - 16	F4 1/4"	460	258049
MDR-4 HDA BFAA 135A160 XAA XXX	-	6 - 16	F4 1/2"	460	258056
MDR-4 HFA BFAA 135A160 XAA XXX	-	6 - 16	F4 3/8"	460	258063
MDR-4 IBA BFAA 210A250 XAA XXX	-	8,5 - 25	1/4"	420	227083
MDR-4 IAA BFAA 210A250 XAA XXX	-	8,5 - 25	1/2"	420	227090
MDR-4 IOA BFAA 210A250 XAA XXX	-	8,5 - 25	1/2" + 1/4"	460	221210
MDR-4 IEA BFAA 210A250 XAA XXX	-	8,5 - 25	F4 1/4"	460	263913
MDR-4 IDA BFAA 210A250 XAA XXX	-	8,5 - 25	F4 1/2"	460	263920
MDR-4 IFA BFAA 210A250 XAA XXX	-	8,5 - 25	F4 3/8"	460	263937

Unloader valves and cable glands for retrofitting, see accessories!

Technical Data MDR 4

Technical Data MDR 4 S / MDR 4 SD acc. to EN 60947	
Rated insulation voltage U_i	500 V
Motor switching capacity (AC 3) $U_e=240$ V (1~)	2.5 kW
Motor switching capacity (AC 3) $U_e=230$ V (3~)	4.0 kW
Motor switching capacity (AC 3) $U_e=400$ V (3~)	5.5 kW
Motor switching capacity (AC 3) $U_e=500$ V (3~)	5.5 kW
Electrical life (AC 3) Cycles	$> 1 \times 10^5$
Mechanical life Cycles	$> 5 \times 10^5$
Max. electrical cycles Cycles/h	120

Technical Data MDR 4 S / MDR 4 SD acc. to EN 60947	
Max. mechanical cycles Cycles/h	600
Rated operational current I_e at 240 V AC	20 A
Bursting strength P_z	> 35 bar
Permissible medium temperature Air	- 5...+ 80 °C
Permissible medium temperature Water	+ 80 °C
Degree of Protection acc. to EN 60529	IP 44
Conductor cross-section 1 .. fine stranded cable 1 x / 2 x	2.5 / 2.5mm ²
Conductor cross-section 1 rigid cable 1 x / 2 x	2.5 / 2.5mm ²

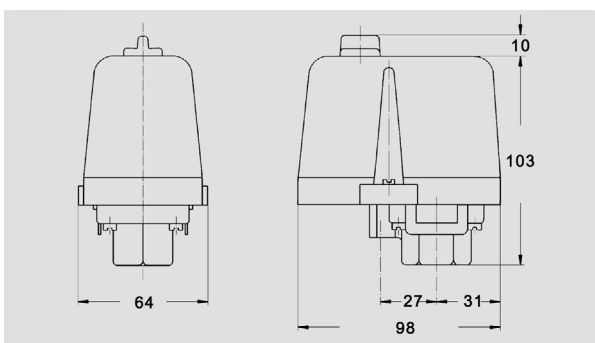
Technical Data MDR 4 SU acc. to EN 60947	
Rated insulation voltage U_i	500 V
Motor switching capacity (AC 3) $U_e=240$ V (1~)	1.5 kW
Motor switching capacity (AC 3) $U_e=230$ V (3~)	2.5 kW
Motor switching capacity (AC 3) $U_e=400$ V (3~)	4.0 kW
Electrical life (AC 3) Cycles	$> 1 \times 10^5$
Mechanical life Cycles	$> 5 \times 10^5$
Max. electrical cycles Cycles/h	120
Max. mechanical cycles Cycles/h	600
Rated operational current I_e at 240 V AC	20 A
Bursting strength P_z	> 35 bar

Technical Data MDR 4 SU acc. to EN 60947	
Permissible medium temperature Air	- 5...+ 80 °C
Permissible medium temperature Water	+ 80 °C
Degree of Protection acc. to EN 60529	IP 44
Conductor cross-section 1 .. fine stranded cable 1 x / 2 x	2.5 / 2.5mm ²
Conductor cross-section 1 rigid cable 1 x / 2 x	2.5 / 2.5mm ²

Diaphragm media resistance MDR 4 ..	
Air, Water	resistant

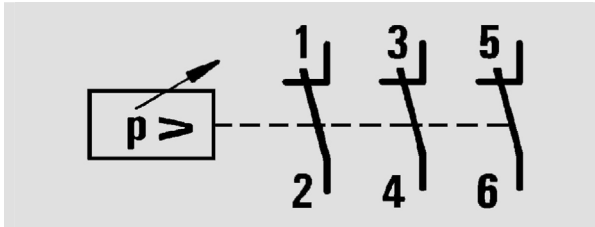
A detailed overview of diaphragm media resistance for all pressure switches can be found on page 2.11.

Dimensions MDR 4

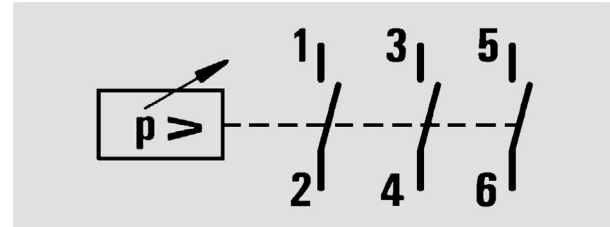


Pressure switch MDR 4

Circuit Diagrams MDR 4



MDR 4 S MDR 4 SD



MDR 4 SU

Accessories MDR 4

Order reference	Description	Weight in g	Part No
Unloader valves			
EV 4	With screw connection for 6 mm plastic or copper discharge tubes	25	201601
EV 4S	With quick-connect for 6 mm plastic discharge tubes	25	201625
EV 4W	90° with screw connection for 6 mm plastic or discharge copper tubes	15	255055
EV 4Wi	90° with screw connection for 1/4" mm plastic or discharge copper tubes	15	255062
EV 4WS	90° with quick-connect for 6 mm plastic discharge tubes	15	201656
Delayed unloader valves			
AEV 4S	With quick-connect for 6 mm plastic discharge tubes	25	201687
AEV 4W	90° with screw connection for 6 mm plastic or copper discharge tubes	15	201694
AEV 4Wi	90° with screw connection for 1/4" mm plastic or copper discharge tubes	15	255079
AEV 4WS	90° with quick-connect for 6 mm plastic discharge tubes	15	255086
Cable glands			
WN	Grommet	6	200888
PG 11 G	Conduits for mounting of cable glands (Inner thread)	6	200895
PG 11 V	Cable gland complete	12	200901
PG 11 Z	With strain relief	12	200925
PG 11 ZK	With strain relief and cable support	12	200918
PG 13.5 G	Conduits for mounting of cable glands (Inner thread)	6	200963
PG 13.5 V	Cable gland complete	12	200932
PG 13.5 Z	With strain relief	12	200956
PG 13.5 ZK	With strain relief and cable support	12	200949
MW 4	Mounting bracket for MDR 4 and MDR 43	65	230021
Cover			
H4 (Cover MDR 4S)	Cover without rotary knob (Neutral version, without marking)	70	229469
H4S+EA (Cover MDR 4S+EA)	Cover with rotary knob for manual On/Off (Neutral version, without marking)	70	229476
H4SD (Cover MDR 4SD)	Cover without rotary knob for MDR 4 SD (transparent)	70	229483

1) up to ≤16 bar, 2) only for pneumatic tubes with outside tolerances according to e. g. Festo PAN 6x1mm

Unloader valves / Delayed unloader valves



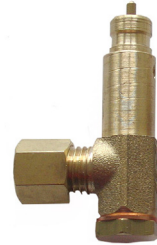
EV 4



EV 4S



AEV 4S



AEV 4



EV 4W / EV 4Wi



AEV 4W / AEV 4Wi



EV 4WS



AEV 4WS

Wall-mounting bracket / Cable glands MDR 4



MW 4



WN



PG .. G



PG .. V

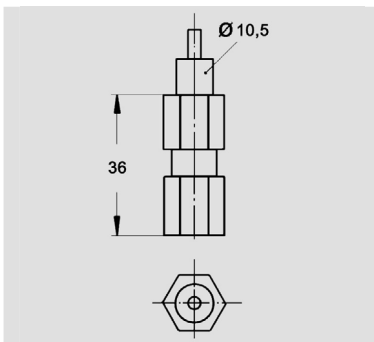


PG .. Z

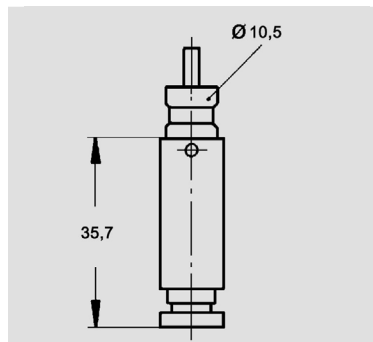


PG .. ZK

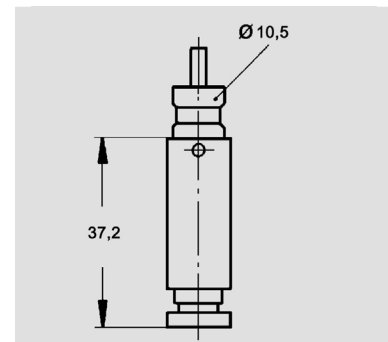
Dimensions, Accessories MDR 4



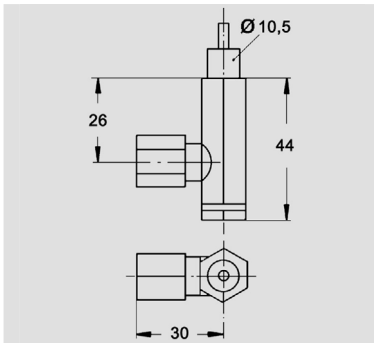
EV 4



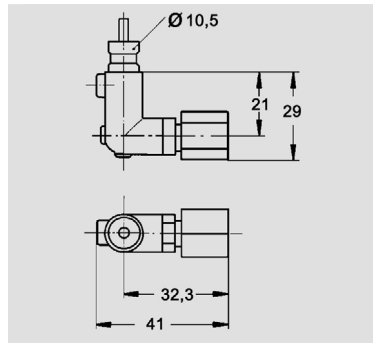
EV 4 S



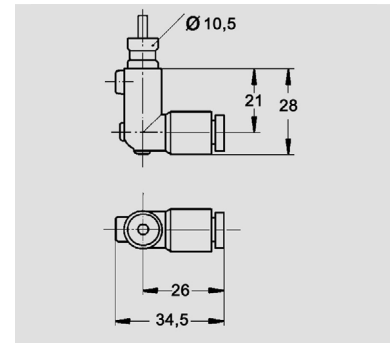
AEV 4 S



AEV 4

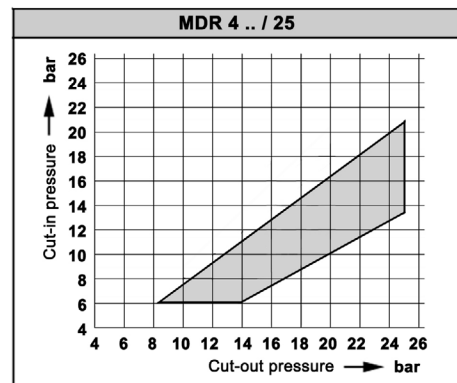
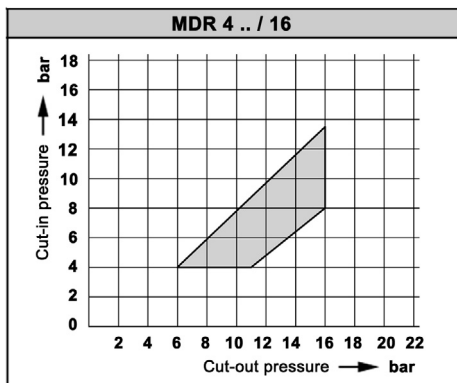
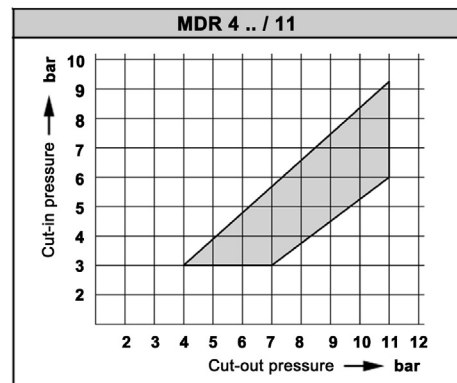
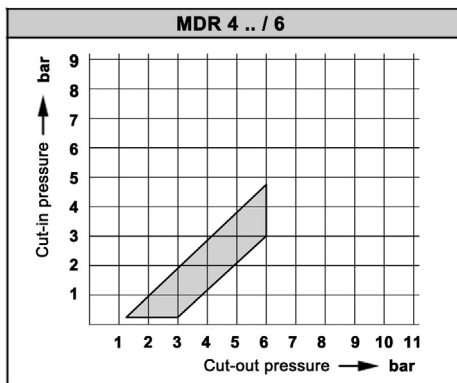


EV 4W / EV 4Wi
AEV 4W / AEV 4Wi



EV4 WS
AEV 4WS

Pressure Diagrams MDR 4



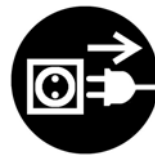
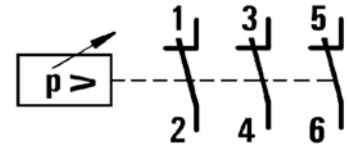


Ui 500 V Uimp 6 kV Iq 1 kA

Ue 400 V / 50 - 60 Hz / max. 16 A

Ue 500 V / 50 - 60 Hz / max. 9 A

Max. zul. Motorleistung / Max. Motor Performance / Max.
Potencia admisible del Motor / Puissance max. du Moteur / Pot.
max. ammissibile dei motori

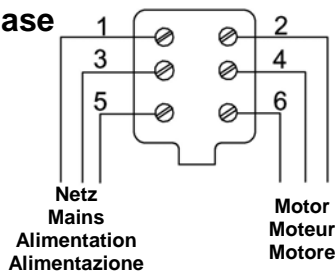


EN 60947 – 4 - 1		
50.. ..60 Hz AC 3	1~	3~
240 V AC~	2,5 kW	
500 V AC~		5,5 kW

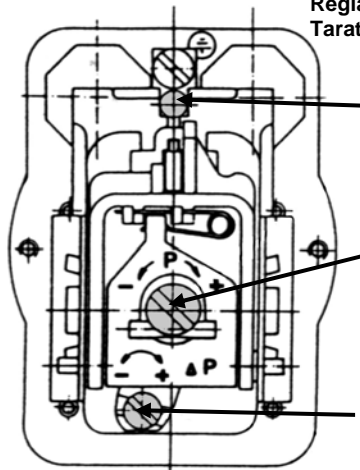
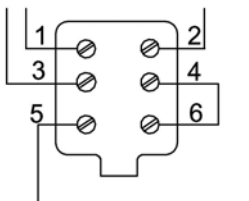
DRAUFSICHT / TOP VIEW / VISTA SUPERIOR / VUE SUPERIEURE /
VISTA DALL'ALTO

SCHALTBILD / WIRING DIAGRAM / ESQUEMA DE CONEXION /
SCHEMA DE RACCORDEMENT / SCHEMA ELETTRICO

3 phase



1 phase



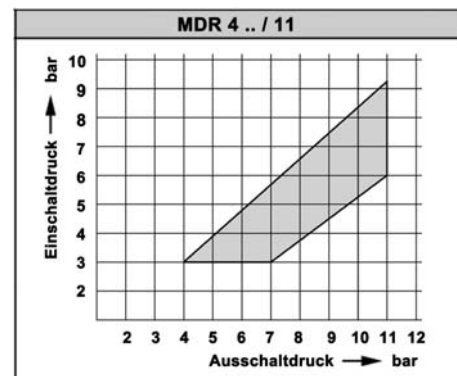
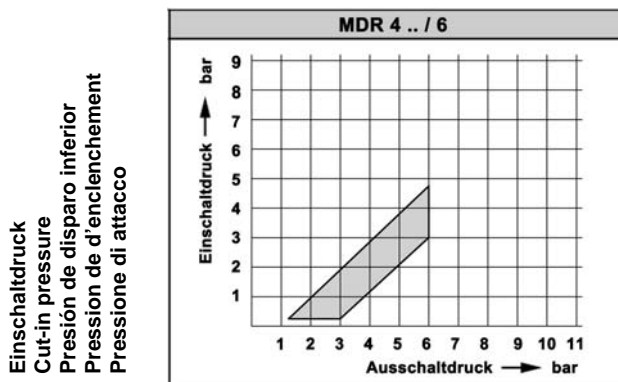
Druckeinstellung (nur unter Druck vornehmen)
Pressure Adjustment (only when under pressure)
Réglage de Pression (à effectuer sous pression)
Taratura pressioni (regolare sotto pressione)

Ein-Aus-schalter
On/Off Switch
Levier "Marche-Arrêt
Inter. man. "ATTACCO_STACCO"

Ausschaltdruck
Cut-out pressure
Presión de disparo superior
Pression déclenchement
Pression di distacco

Druckdifferenz
Pressure differential
Diferencial de presión
Differential de pression
Pressione differenziale

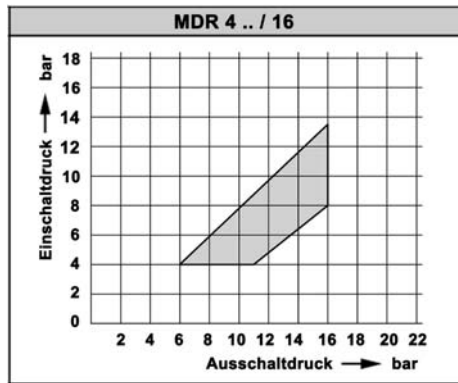
DRUCKDIAGRAMME / PRESSURE DIAGRAMS / DIAGRAMAS DE REGULACION /
DIAGRAMMES DE REGLAGE / DIAGRAMMI TARATURE



Einschaltdruck
Cut-in pressure
Presión de disparo inferior
Pression de d'enclenchement
Pressione di attacco

Ausschaltdruck p_o (bar)
Cut-out pressure
Presión de disparo superior
Pression déclenchement
Pressione di distacco

Einschaltdruck
Cut-in pressure
Presión de disparo inferior
Pression de d'enclenchement
Pressione di attacco



Ausschaltdruck p_o (bar)
Cut-out pressure
Presión de disparo superior
Pression déclenchement
Pressione di distacco

Einbau und Anschluß nur durch Fachkraft; nach Anbringung von Zubehör Funktionsüberprüfung durch Elektrofachkraft erforderlich.

Installation and assembly of electrical equipment shall be carried out by qualified personnel only.
Instalación y ensamblaje de equipos eléctricos deberán ser efectuados solamente por personal cualificado.

L'installation et raccordement des appareils doit être effectué par du personnel qualifié.

L'installazione e l'assemblaggio delle parti elettriche vanno eseguite esclusivamente da personale qualificato.

APPROBATIONEN / APPROVALS / APROBACIONES / APPROBATIONS / APPROVAZIONI

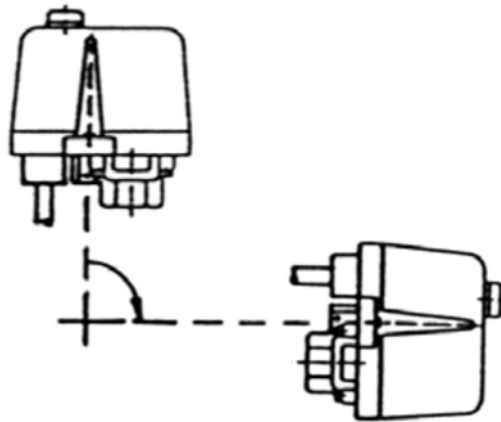


Kurzschlußeinrichtung / Short-circuit protection / Protección contra corto circuito
Protection contre court-circuit/ Protezione contro corto circuito

Type Tipo	Koordination Type " 1 "	Koordination Type " 2 "		
	Co-ordination Type " 1 "	Co-ordination Type " 2 "		
	Coordinación Tipo " 1 "	Coordinación Tipo " 2 "		
	Coordination Type " 1 "	Coordination Type " 2 "		
	Coordinamento Tipo " 1 "	Coordinamento Tipo " 2 "		
Sicherung gL Fuse (slow) Fusible (retardado) Fusible (retardé) Fusibile (ritardato)			63 A	50 A

IP 44

Einbaulage berücksichtigen / Mounting position must be observed / Respetar posición de montaje
Observer position de montage / Rispettare posizione montaggio



0.0800.0350 02.11.2005



Condor Pressure Control GmbH

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Telefax: +49 (0) 25 87 / 89 - 140

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www.condor-cpc.com



Pressure switch MDR 5

3-phase
Switching capacity 5.5 kW
Available with overload relay
Max. cut-out pressure 45 bar
3-pole (N.C.)
Acc. to EN 60947

Type overview MDR 5

Order reference	ON / OFF buttons	Pressure range P _{OFF} in bar	Flange	Weight in g	Part No.
MDR-5 CAA BAAA 015A030 XXX XXX	-	1,5 - 5	1/2"	820	212850
MDR-5 CAA AAAA 015A030 XXX XXX	K*	1,5 - 5	1/2"	860	212867
MDR-5 COA BAAA 015A030 XXX XXX	-	1,5 - 5	1/2" + 1/4"	860	212874
MDR-5 COA AAAA 015A030 XXX XXX	K*	1,5 - 5	1/2" + 1/4"	900	212881
MDR-5 EAA BAAA 070A080 XXX XXX	-	2 - 8	1/2"	820	212898
MDR-5 EAA AAAA 070A080 XXX XXX	K*	2 - 8	1/2"	860	212904
MDR-5 EOA BAAA 070A080 XXX XXX	-	2 - 8	1/2" + 1/4"	860	212911
MDR-5 EOA AAAA 070A080 XXX XXX	K*	2 - 8	1/2" + 1/4"	900	212928
MDR 5 GAA BAAA 090A110 XXX XXX	-	2 - 11	1/2"	820	212935
MDR-5 GAA AAAA 090A110 XXX XXX	K*	2 - 11	1/2"	860	212942
MDR-5 GOA BAAA 090A110 XXX XXX	-	2 - 11	1/2" + 1/4"	860	212959
MDR-5 GOA AAAA 090A110 XXX XXX	K*	2 - 11	1/2" + 1/4"	900	212966
MDR-5 HAA BAAA 130A160 XXX XXX	-	2,5 - 16	1/2"	820	212973
MDR-5 HAA AAAA 130A160 XXX XXX	K*	2,5 - 16	1/2"	860	212980
MDR 5 HOA BAAA 130A160 XXX XXX	-	2,5 - 16	1/2" + 1/4"	860	212997
MDR-5 HOA AAAA 130A160 XXX XXX	K*	2,5 - 16	1/2" + 1/4"	900	213000
MDR-5 KAA BAAA 300 A400 XXX XXX	-	13 - 45	1/2"	820	256182
MDR-5 KAA AAAA 300 A400 XXX XXX	K*	13 - 45	1/2"	860	258513

* For these switches, a thermal, 3-pole overload relay has to be ordered separately, the ON/OFF mechanism will only work with an additional relay
Unloader valves and cable glands for retrofitting, see accessories!



Special execution IP 65
Applications: e.g. pump shafts
3-phase
Switching capacity 5.5 kW
Max. cut-out pressure 16 bar
Incl. cable glands PG 16/13,5 ZK
3-pole (N.C.)
Acc. to EN 60947
Degree of protection IP 65

Type overview MDR 5, special execution with degree of protection IP 65

Order reference	ON / OFF buttons	Pressure range P _{OFF} in bar	Flange	Weight in g	Part No.
MDR-5 CAA BAAA 015A030 XNN XXZ	-	1,5 - 5	1/2"	783	258469
MDR-5 EAA BAAA 070A080 XNN XXZ	-	2 - 8	1/2"	783	258476
MDR 5 GAA BAAA 090A110 XNN XXZ	-	2 - 11	1/2"	783	258483
MDR-5 HAA BAAA 130A160 XNN XXZ	-	2,5 - 16	1/2"	783	258490

Technical Data MDR 5

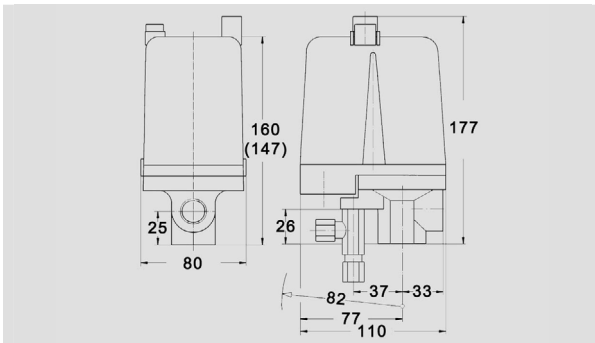
Technical Data MDR 5 acc. to EN 60947	
Rated insulation voltage U_i	500 V
Motor switching capacity (AC 3) $U_e=240$ V (1~)	2.5 kW
Motor switching capacity (AC 3) $U_e=230$ V (3~)	4.0 kW
Motor switching capacity (AC 3) $U_e=400$ V (3~)	5.5 kW
Motor switching capacity (AC 3) $U_e=500$ V (1~)	4.0 kW
Electrical life (AC 3) Cycles	$> 1 \times 10^5$
Mechanical life Cycles	$> 5 \times 10^5$
Max. electrical cycles Cycles/h	120
Max. mechanical cycles Cycles/h	600
Rated operational current I_e at 240 V AC	25 A

Technical Data MDR 5 acc. to EN 60947	
Bursting strength P_z up to 16 bar up to 45 bar	> 40 bar > 60 bar
Permissible medium temperature Air	$-5...+80$ °C
Permissible medium temperature Water	$+80$ °C
Degree of Protection acc. to EN 60529	IP 54
Conductor cross-section 1 ... fine stranded cable 1 x / 2 x	2.5 / 2.5mm ²
Conductor cross-section 1 ... rigid cable 1 x / 2 x	4 / 4mm ²

Diaphragm media resistance MDR 5	
Acetylene, Gasoline, Butane, Diesel, Natural gas, Petroleum, Ethylene glycol, Glycerol, Fuel oil, Urine, Carbon dioxide, Carbonic acid, Air, Mineral oils, Vegetable oil, Propane, Silicon oil, Nitrogen, Synthetic oils, Water, Distilled water, Hydrogen, Sea water, Water steam	resistant

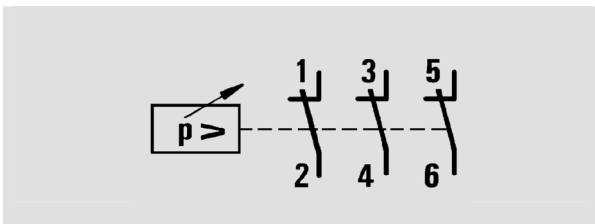
A detailed overview of diaphragm media resistance for all pressure switches can be found in the table on page 2.11.

Dimensions MDR 5

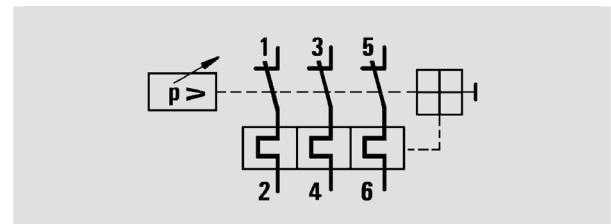


Pressure switch MDR-5

Circuit Diagrams MDR 5



MDR 5



MDR 5K - R5

Accessories MDR 5

Order reference	Description	Weight in g	Part No.
Unloader valves			
EV 5	With screw connection for 6 mm plastic or copper discharge tubes, screw connection for vent port	30	201878
EV 5i	With screw connection for 1/4" plastic or copper discharge tubes	30	201885
EV 5E	With screw connection for 6 mm plastic or copper discharge tubes	25	201892
EV 5Ei	With screw connection for 1/4" plastic or copper discharge tubes	25	201908
Delayed unloader valves			
AEV 5	With screw connection for 6 mm plastic or copper discharge tubes	25	201939
AEV 5i	With screw connection for 1/4" plastic or copper discharge tubes	25	201946
Cable glands			
WN 5	Grommet	6	201953
PG 16 V-5	Cable glands complete	12	201960
PG 16 Z-5	With strain relief	12	201977
PG 16 ZK-5	With strain relief and cable support	12	201984
PG 16/13.5 Z	Reduced to PG 13.5 with strain relief	12	202004
PG 16/13.5 ZK	Reduced to PG 13.5 with strain relief and cable support	12	202011
PG 16/11 V-5	Reduced to PG 11	12	201991
MW 5	Mounting bracket	120	230045
Cover			
H5 (Cover 5)	Cover without push-buttons	130	230052
H5-K (Cover 5+K)	Cover with On/Off push-buttons (Only functions together with the thermal R5 overload relay)	150	217527
Thermal, 3-pole overload relay			
R 5/1.5	0.86 – 1.50 A	150	202028
R 5/2.45	1.50 – 2.45 A	150	202035
R 5/4.2	2.40 – 4.20 A	150	202042
R 5/7.0	4.00 – 7.00 A	150	202059
R 5/10.3	6.10 – 10.3 A	150	202066
R 5/14.0	9.00 – 14.0 A	150	202073
R 5/18.0	11.0 – 18.0 A	150	202080

Unloader valves / Delayed unloader valves



EV 5, EV 5i



EV 5E / EV 5 Ei



AEV 5 / AEV 5i

Cable glands MDR 5



WN 5



PG 16 V-5



PG 16 Z-5



PG 16 ZK-5



PG 16/11 V-5

Accessories, Miscellaneous



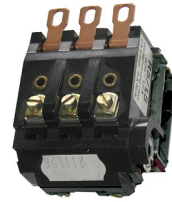
MW 5



H5

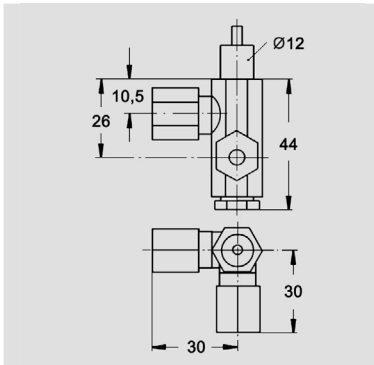


H5-K

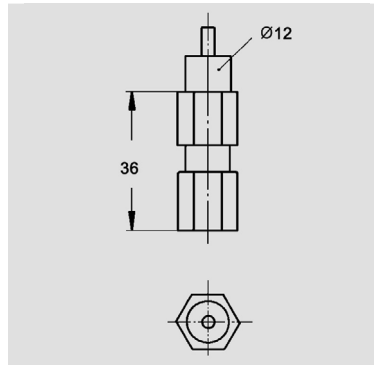


R 5/ ..

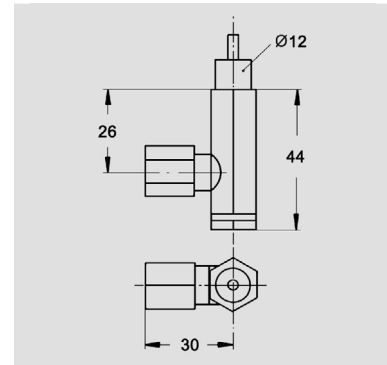
Dimensions, Accessories



EV 5, EV 5i

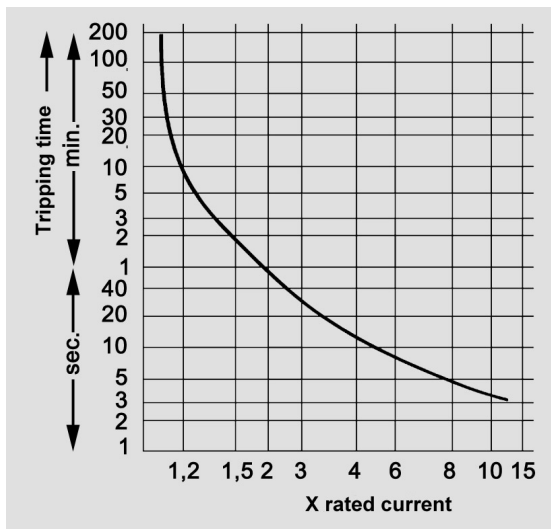


EV 5E / EV 5 Ei

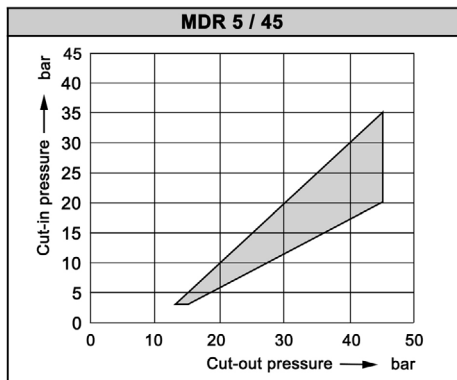
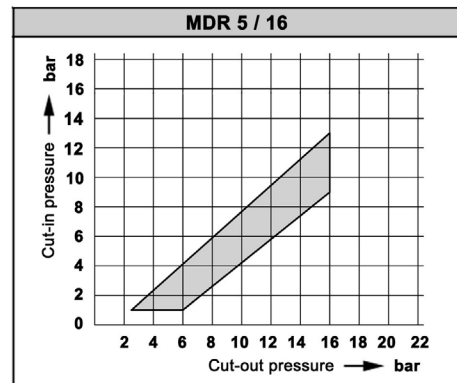
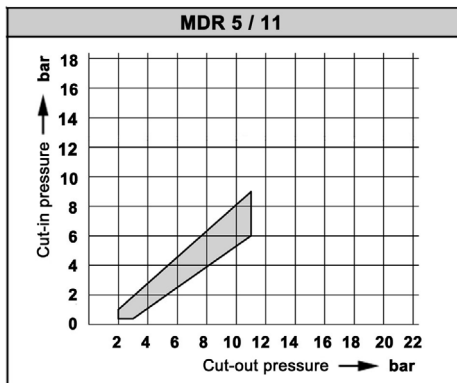
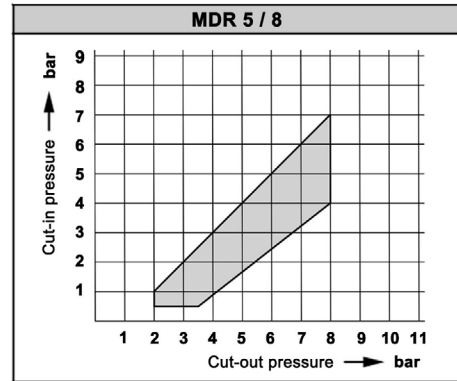
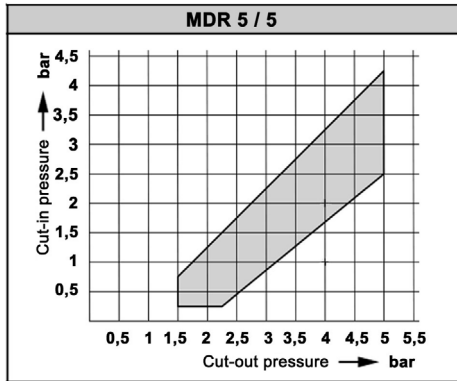


AEV 5 / AEV 5i

Tripping curves R5 (average)

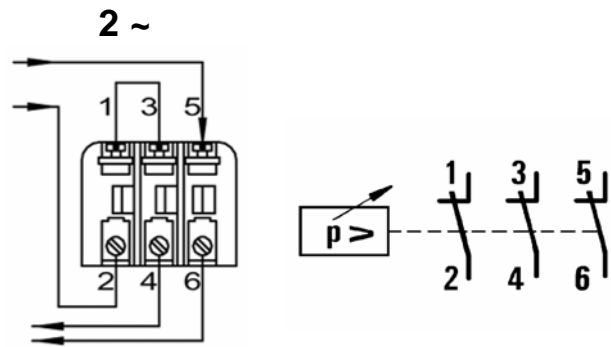
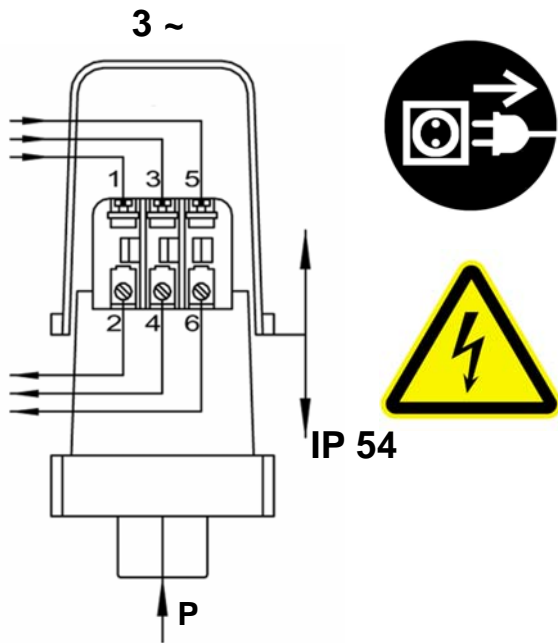


Pressure Diagrams MDR 5





The relevant standards for running and installing electrical appliances are to be observed. Installation and connection by skilled personnel only, after installing accessories function of device to be checked by skilled personnel only.



EN/IEC 60947 - 4 - 1 (AC-3)			
I_q	I_{the}	Typ "2" NH00 / gL	U_N (50/60 Hz)
3 kA	25 A	50 A	500 V~

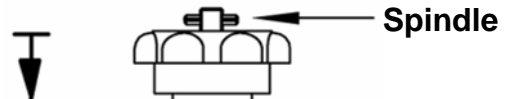
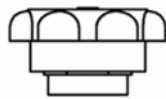
CAUTION: Pressure setting is only possible when applying pressure to the switch

Cut-out pressure p_o

Differential Δ_p

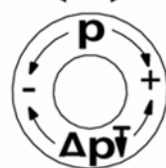
$$\Delta_p = p_o - p_u$$

Press wheel downwards



p_o lower:
turn wheel
to the left

p_o higher:
turn wheel
to the right



Δ_p lower:
turn wheel
to the right

Δ_p higher:
turn wheel
to the left

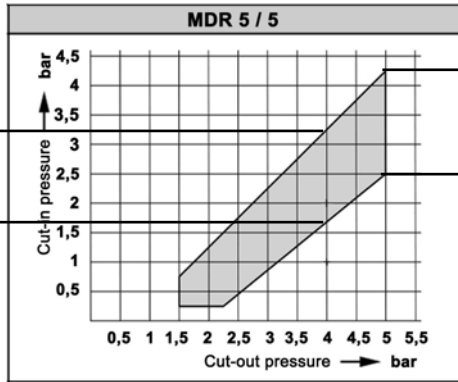


If the spindle moves when turning, lowest possible Δ_p has been reached. In order to loosen, turn wheel to the left holding the spindle tight.

Example of a pressure setting using the MDR 5/5 pressure diagram

3.2 max. cut-in pressure

1.8 min. cut-in pressure

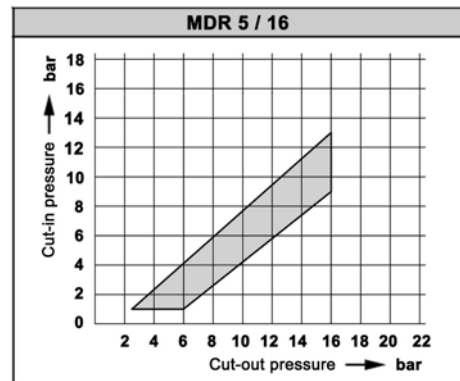
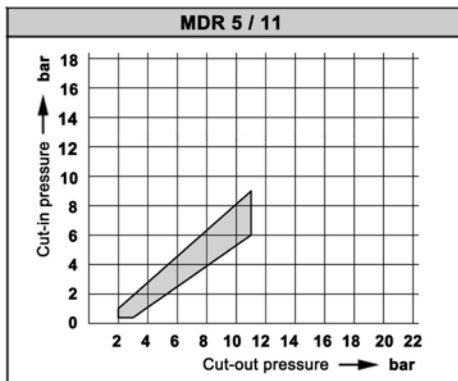
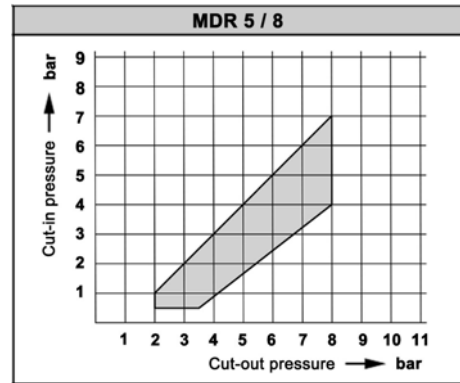
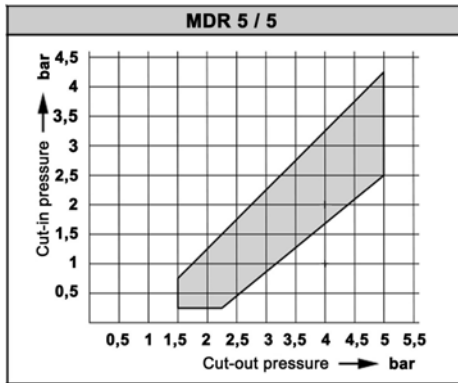


Setting range off the cut-in pressure

Example:

Cut-out pressure p_o 4 bar
Cut.in pressure p_u between 1.8 and 3.2 bar possible

Pressure Diagrams MDR 5



02.11.2005



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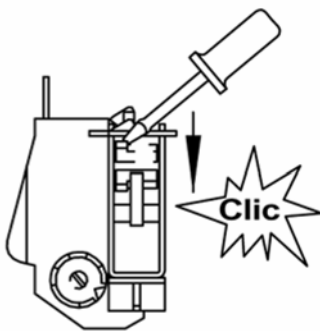


Beachten Sie die für Errichtung und Inbetriebnahme elektrischer Anlagen gültigen Vorschriften. Einbau und Anschluss nur durch Fachkraft; nach Anbringung von Zubehör Funktionsüberprüfung durch Elektrofachkraft erforderlich.

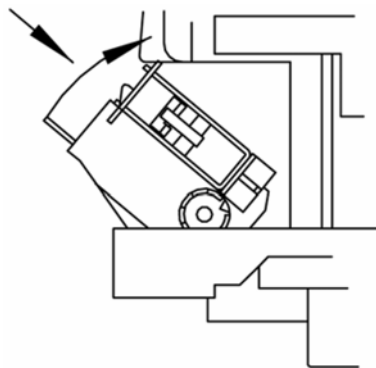
The relevant standards for running and installing electrical appliances are to be observed. Installation and connection by skilled personnel only, after installing accessories function of device to be checked by skilled personnel only.



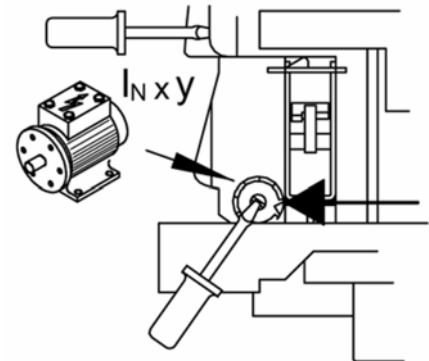
1.



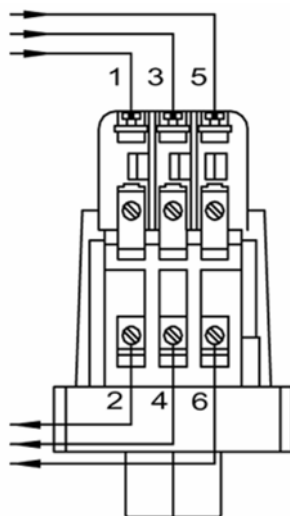
2.



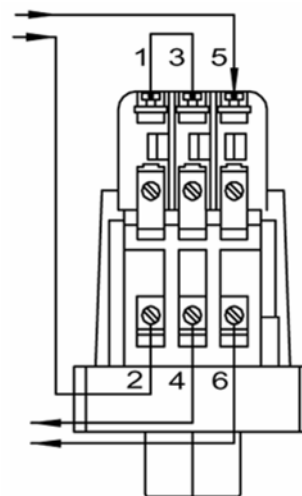
3.




+ R5 (3~)



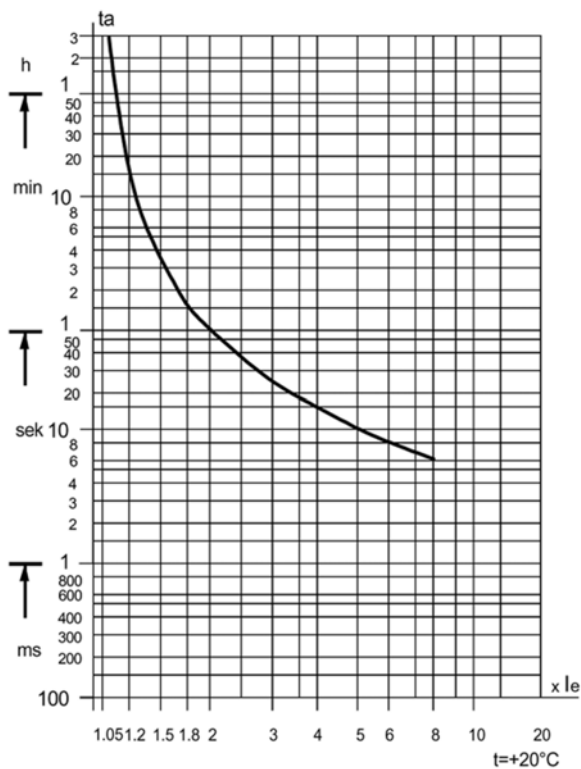
+ R5 (2~)



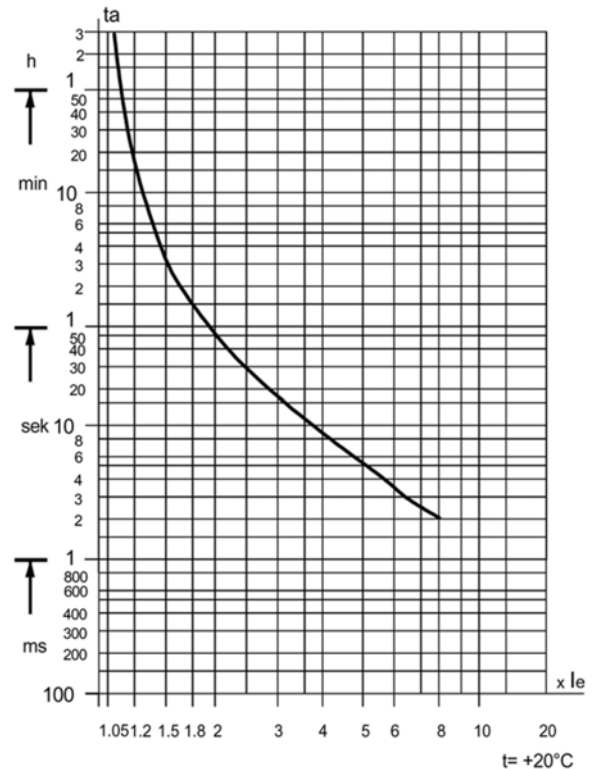
EN 60947 - 4 - 1 7.2.1.4	I_N	U_N (50 / 60 Hz)	EN 60947 - 4 - 1 8.3.4.1  NH 00 / gL
R5 / 1,5	0,86 – 1,5 A	500 V	10 A
R5 / 2,45	1,5 – 2,45 A	500 V	16 A
R5 / 4,2	2,4 – 4,2 A	500 V	25 A
R5 / 7,0	4,0 – 7,0 A	500 V	35 A
R5 / 10,3	6,1 – 10,3 A	500 V	50 A
R5 / 14	9,0 – 14,0 A	500 V	63 A
R5 / 18	11,0 – 18,0 A	500 V	50 A

Auslösekennlinie R5 / Tripping curves R5

R5 0,86 – 7,0 A



R5 6,1 – 18 A



t	y
-5°C	0,85
+20°C	1,00
+40°C	1,12

$I_N \times y$

t	y
-5°C	0,82
+20°C	1,00
+40°C	1,12

02.11.2005

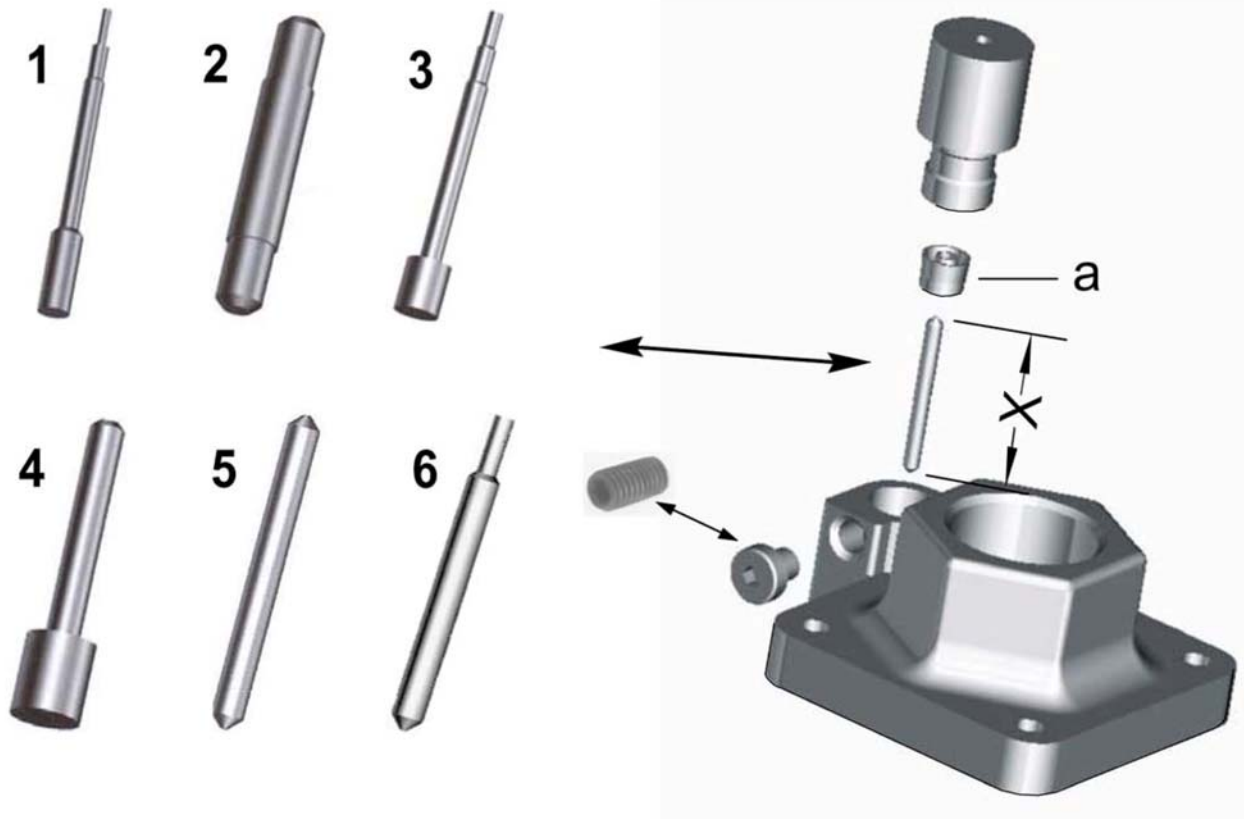


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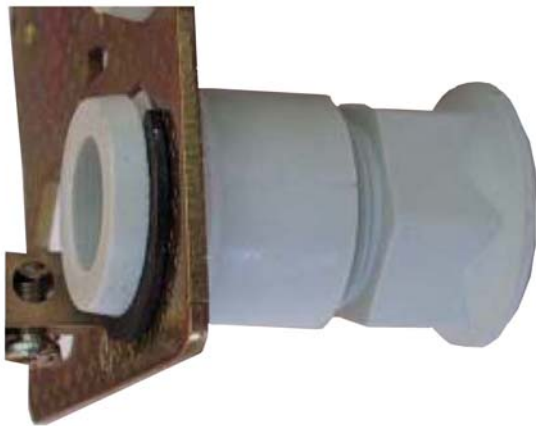
EV 2 / AEV 2			
Ventil	Typ	X mm	a
EV 2	6	24,7	+
EV 2i	6	24,7	+
EV 2S	6	24,7	+
EV 2W	2	16,3	+
EV 2Wi	2	16,3	+
EV 2WS	2	16,3	+
EV 2M5	6	28,3	+
EV 2iM5	6	28,3	+
AEV 2	5	21,8	+
AEV 2i	5	21,8	+
AEV 2S	5	13,1	-
AEV 2W	5	16,3	+
AEV 2Wi	5	16,3	+
AEV 2WS	5	16,3	+

EV 3 / AEV 3			
Ventil	Typ	X mm	a
EV 3	6	26,2	+
EV 3i	6	26,2	+
EV 3S	6	26,2	+
EV 3W	2	18,2	+
EV 3Wi	2	18,2	+
EV 3WS	2	18,2	+
EV 3M5	6	30,1	+
EV 3iM5	6	30,1	+
EV 3L	1	37,9	+
EV 3Li	1	37,9	+
AEV 3	5	23,9	+
AEV 3i	5	23,9	+
AEV 3S	5	14,8	-
AEV 3W	5	18,2	+
AEV 3Wi	5	18,2	+
AEV 3WS	5	18,2	+

EV 4 / AEV 4			
Ventil	Typ	X mm	a
EV 4	6	26,2	+
EV 4i	6	26,2	+
EV 4S	6	26,2	+
EV 4W	2	18,2	+
EV 4Wi	2	18,2	+
EV 4WS	2	18,2	+
EV 4M5	6	30,1	+
EV4iM5	6	30,1	+
AEV 4	5	24,3	+
AEV 4i	5	24,3	+
AEV 4S	5	14,8	-
AEV 4W	5	18,2	+
AEV 4Wi	5	18,2	+
AEV 4WS	5	18,2	+

EV 5 / AEV 5			
Ventil	Typ	X mm	a
EV 5	3	35,9	+
EV 5i	3	35,9	+
EV 5E	3	29,8	+
EV 5Ei	3	29,8	+
EV 5H	1	41,1	+
EV 5Hi	1	41,1	+
AEV 5	4	24,7	+
AEV 5i	4	24,7	+





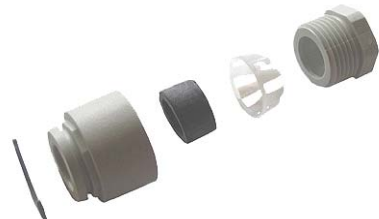
PG...G



PG...V



PG...Z



PG...ZK

