



Handling Components

OPERATING INSTRUCTIONS

Intermediate stop:

(For use with rotary units DAP-1/DAPI-1)

DZA-1

Issue:

BA-100023

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EU Certificate of conformity (as per MRL Appendix II A)

Regulations and standards taken into account:

- **Guidelines for machines 89/392/ECC, 91/368/ECC**

Manufacturer

Montech AG

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Description of product and use

Intermeditate stops DZA-1 may only be used in conjunction with rotary drives type DAP-1/DAPI-1. They enable an additional stopping position to be approached between -90° ... 0° or $+90^{\circ}$... 0° . At the most two intermediate stops may be used per rotary drive.

Retrofitting can be carried out without difficulty.

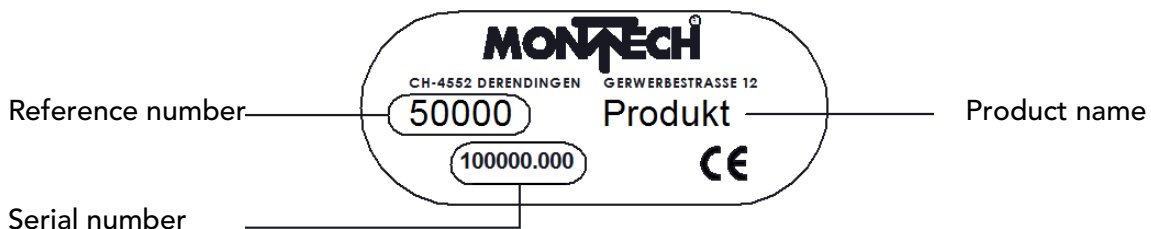
Risks

The present operating instructions are intended to ensure that the DZA-1 intermediate stops are installed expertly and safely. Should information you need for your particular application be missing, please contact the manufacturer. When operating instructions are obtained later, it is essential to quote the serial number. Single copies can be obtained free of charge.

Additional information

The aim of the present User Manual is to enable users to employ the intermediate stops DZA-1 correctly and safely. Should further information be required in relation to your particular application, please contact the manufacturer. When reordering User Manuals, it is essential to quote the reference number, the product name and serial number. This document can be obtained from our homepage www.montech.com.

Fig. 1: Description of type plate



Montech AG
Management

U. D. Wagner

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Validity of the User Manual

Our products are continually updated to reflect the latest state of the art and practical experience. In line with product developments, our User Manuals are continually updated.

Every User Manual has an order number (e.g. BA-100023) and an edition number (e.g. 02/2008). The order number and the addition number are shown on the title page.

Technical data

		DZA-1
Angle of rotation	(°)	0 ... 90°
Torque DAP-1/DAPI-1 with DZA-1	(Nm)	see pressure-torque diagram
Piston diameter	(mm)	2 x 20
Repeatability	1) (°)	≤ 0.03
Own weight	(kg)	0.08
Operating pressure	(bar)	2 ... 6
Ambient temperature	(°C)	10 ... 50
Driving medium		oiled or unoled air, filtered to 5 µm
Damping in end position	2)	air column springing
Check on end position	3)	inductive proximity switch
Compressed air input		M5 female thread
Speed regulation	3)	adjustable exhaust throttle valves with push-on union for hose 2.7 ID/4 mm O.D.
Service life		> 10 ⁷ double strokes
Ref. No.		44838

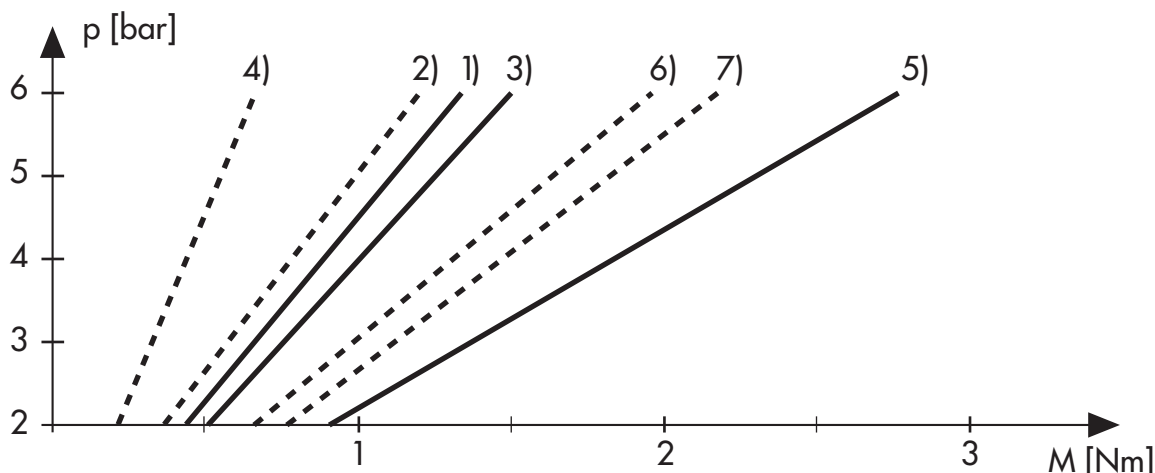
- 1) Difference in 100 successive strokes
- 2) Only in the active position
- 3) See special accessories

Special accessories

- Inductive proximity switch PNP, 6.5 mm dia. with LED, proof against short circuit and wrong polarity, with a switching clearance of 2 mm and a cable 2.5 m long, Ref.No. 504 513; cable 5 m long, Ref.No. 504 755; plug-in Ref.No. 504 609.
- Adjustable exhaust throttle valve with push-on union for hose 2.7 ID/4 mm O.D. (Ref.No. 505 023).

Pressure-torque diagram

Fig. 3

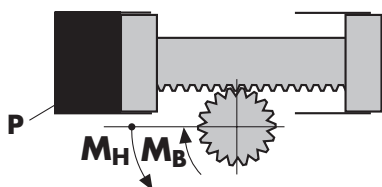


p = Pneumatic operating pressure.

M_H = Holding torque, corresponding to that which can be exerted externally on the stationary pinion shaft without moving it.

M_B = Moving torque, corresponding to that made available by the pneumatic drive on the moving pinion shaft.

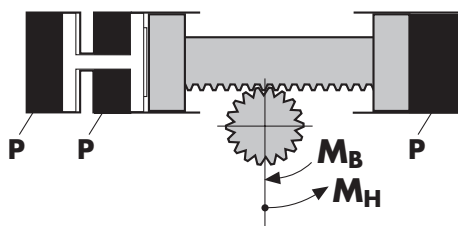
DAP left-/right-hand end position



$$M_H = p * 0.21 \quad 1)$$

$$M_B = p * 0.18 \quad 2)$$

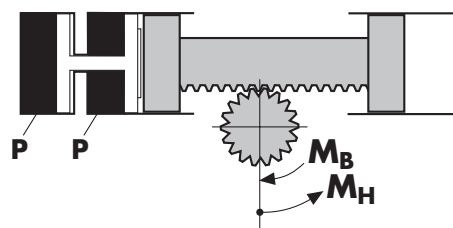
DAP against DZA moved out



$$M_H = p * 0.25 \quad 3)$$

$$M_B = p * 0.10 \quad 4)$$

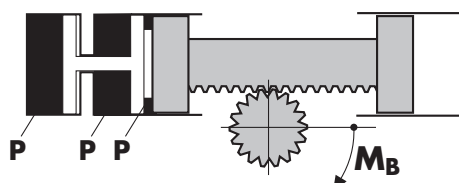
DZA moved out
DAP depressurized



$$M_H = p * 0.46 \quad 5)$$

$$M_B = p * 0.32 \quad 6)$$

DAP supported
by DZA

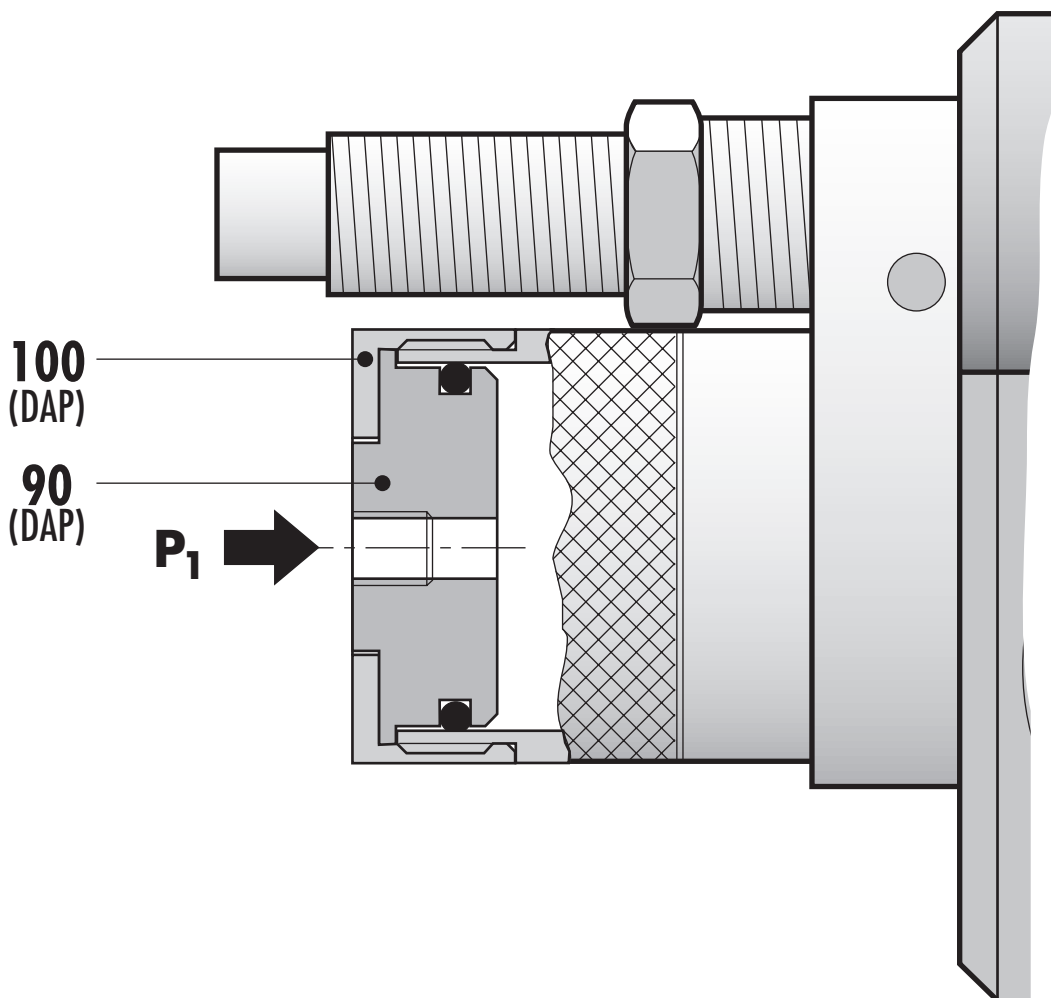


$$M_B = p * 0.35 \quad 7)$$

Installation

Preparing the DAP-1/DAPI-1

Fig. 4

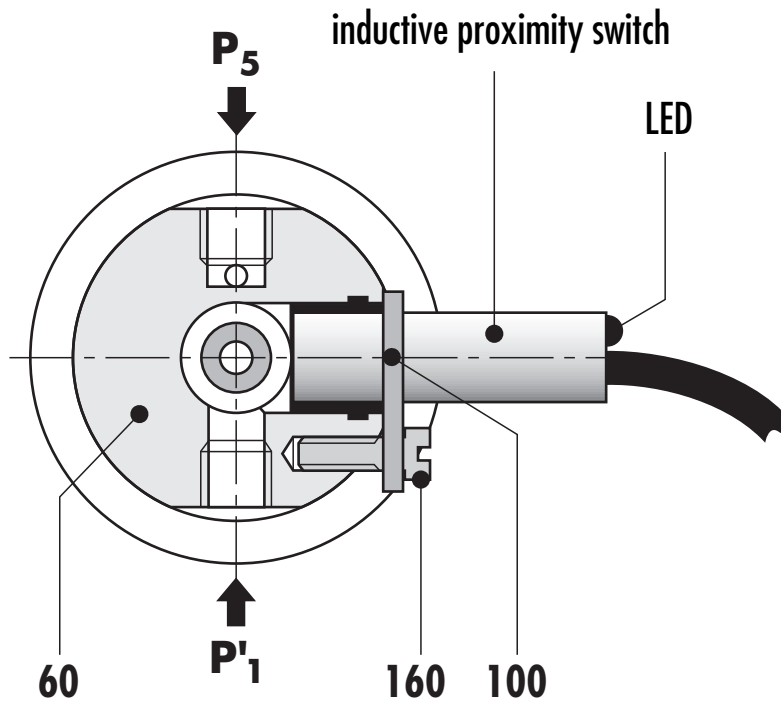
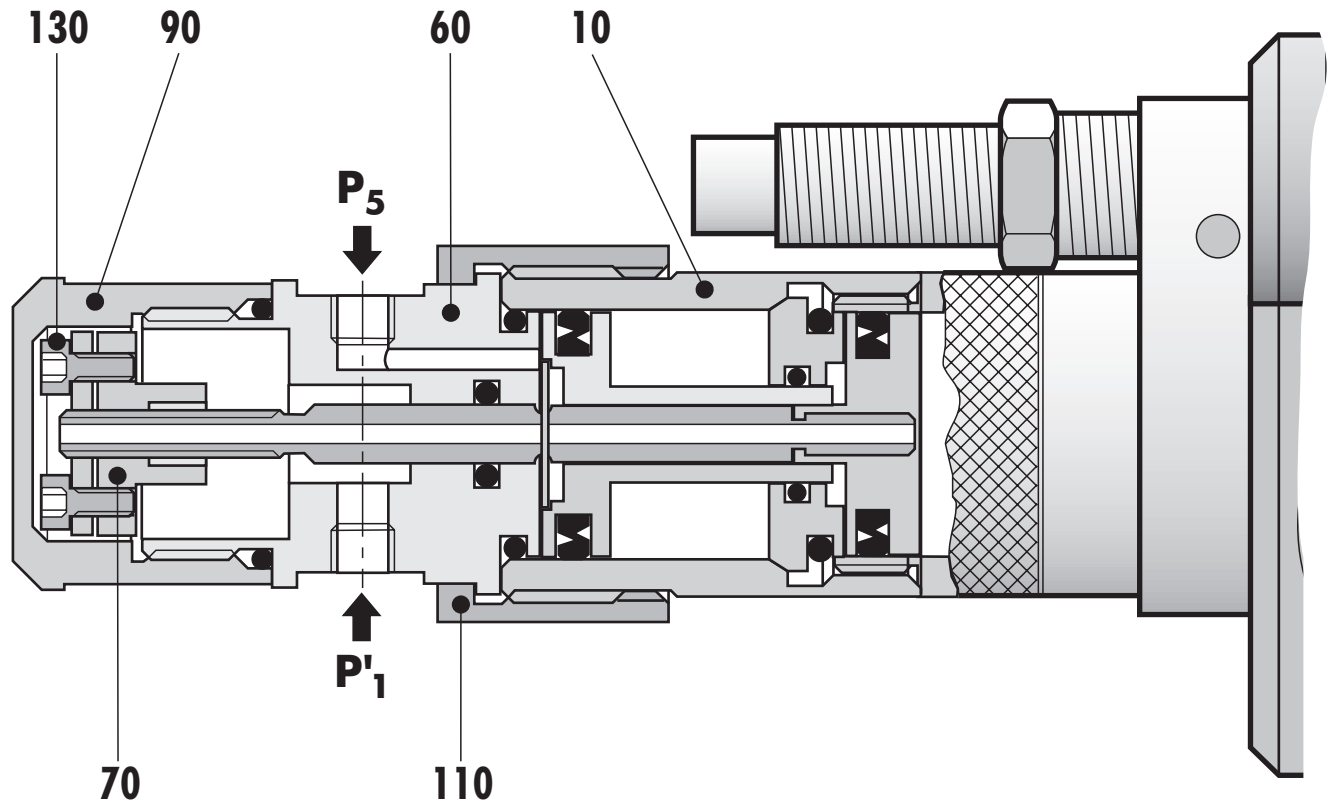


- Dismantle the compressed air input(s) P_1 and/or P_2 *.
- Dismantle the skirted nut (100, DAP) and pull the cover (90, DAP) out of the cylindrical tube.

* All compressed air connections not illustrated below refer to the opposite end of the rotary unit or intermediate stop.

Fitting the intermediate stop

Fig. 5



Screw the cylindrical tube (10) of DZA-1 on to the cylindrical tube (80, DAP) and tighten by hand.

Compressed air input (see Fig.5)

The compressed air union P'_1 replaces the former connection P_1 (Fig.4). If a second intermediate stop is fixed to the cylindrical tube at the opposite end, P'_2 replaces the former connection P_2 (Fig.4).

The compressed air connections P_5 and P_6 (not illustrated) are used to move the intermediate stop into its active position.

To ensure that the pneumatic hose is run optimally to the unions P'_1 , P_5 , P'_2 and P_6 , the cylinder head can be turned into the optimum position by releasing the screw cover (110). Then screw the cover tight again.

Setting the intermediate stop (see Fig.5)

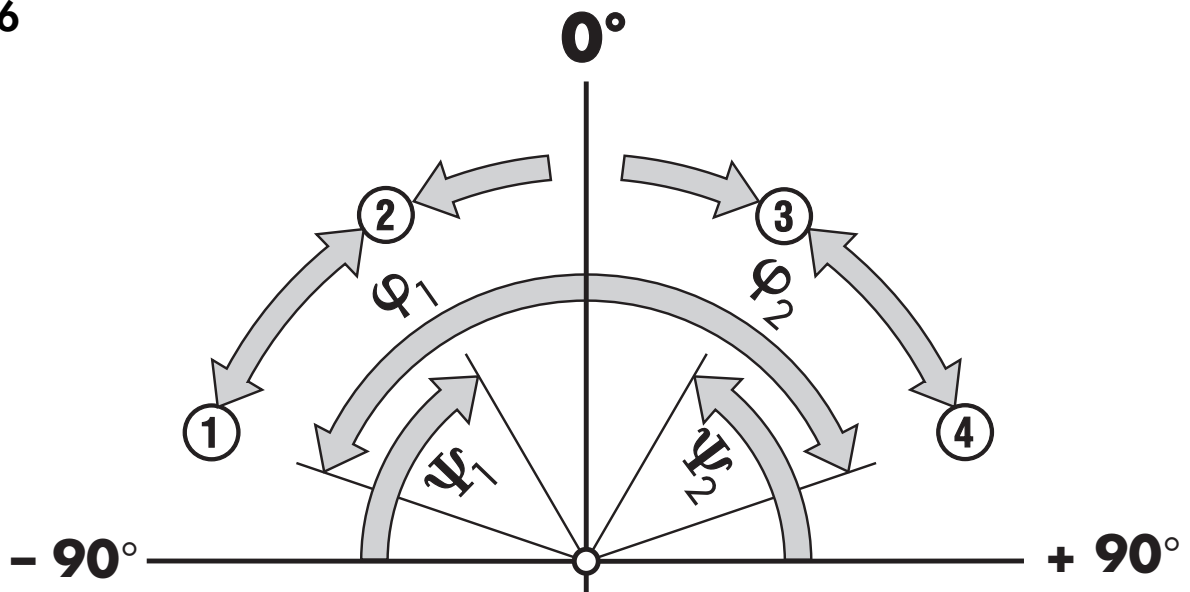
- Depressurize P'_1 and/or P'_2
- Unscrew cap (90)
- Unscrew the hex screws (130)
- Apply pressure to P_5 and P_2 or P'_2 . Thus position ② in Fig.6 is reached.
- If position ② should be closer to the zero point, the stop nut (70) must be adjusted counterclockwise. This operation can usually only be carried out when P_5 is depressurized.

One turn of the stop nut (70) corresponds to an angle correction of about 4° .

- To check the corrected position ②, P_5 must be pressurized.
- When position ② has been definitively found, screws (130) must be retightened and the cover (90) closed.
- The setting of position ③ (Fig.6) is analogous.

Setting variants

Fig. 6



	DAP-1/DAPI-1	DAP-1/DAPI-1 with one DZA-1	DAP-1/DAPI-1 with two DZA-1
φ_1	0 ... -90°	0 ... -90°	0 ... -90°
φ_2	0 ... +90°	0 ... +90°	0 ... +90°
$\varphi_1 + \varphi_2$	0 ... 180°	0 ... 180°	0 ... 180°
Ψ_1	0	-90° ... 0	-90° ... 0
Ψ_2	0	-	+90° ... 0
Starting directions			
Pos. ① counterclockwise	x	x	x
Pos. ② clockwise	-	x	x
counterclockwise	-	x	x
Pos. ③ clockwise	-	-	x
counterclockwise	-	-	x
Pos. ④ clockwise	x	x	x
Restrictions			
If $(\varphi_1 + \Psi_1)$ or $(\varphi_2 + \Psi_2)$ are $\leq 90^\circ$, starting positions ② and ③ are ineffective.			

Connecting and setting the inductive proximity switch

Connecting

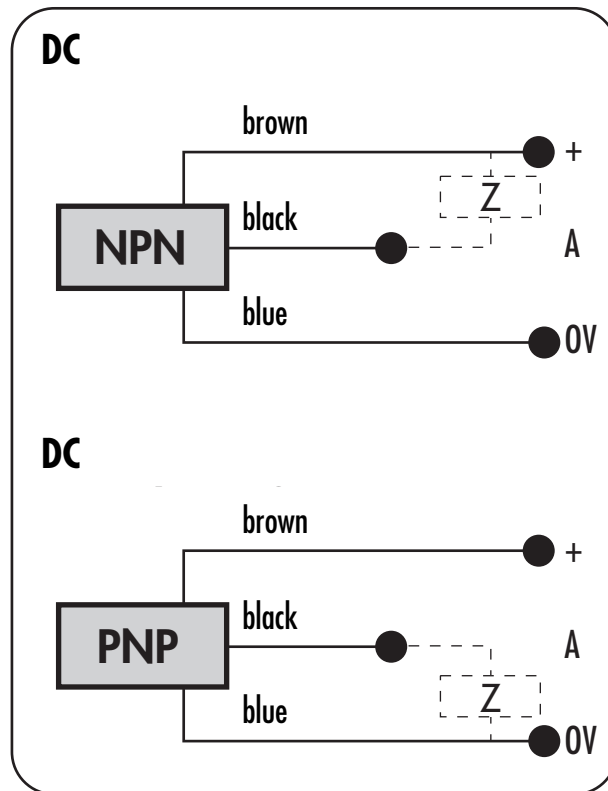


Fig. 7

Setting (see Fig. 5)

The proximity switch (6.5 mm dia.) is pushed through the clamping piece (100) into the cylinder head (60) as far as the bottom of the hole and secured with the screw (160).

If the intermediate stop is now brought into its active position by applying compressed air to P_5 and/or P_6 , the proximity switch operates about 3° before it reaches the set end position. When the switch is connected electrically, the LED lights up. The lead of 3° applies only to proximity switches supplied by Montech, it may be different if the distance S_n is not 2 mm.

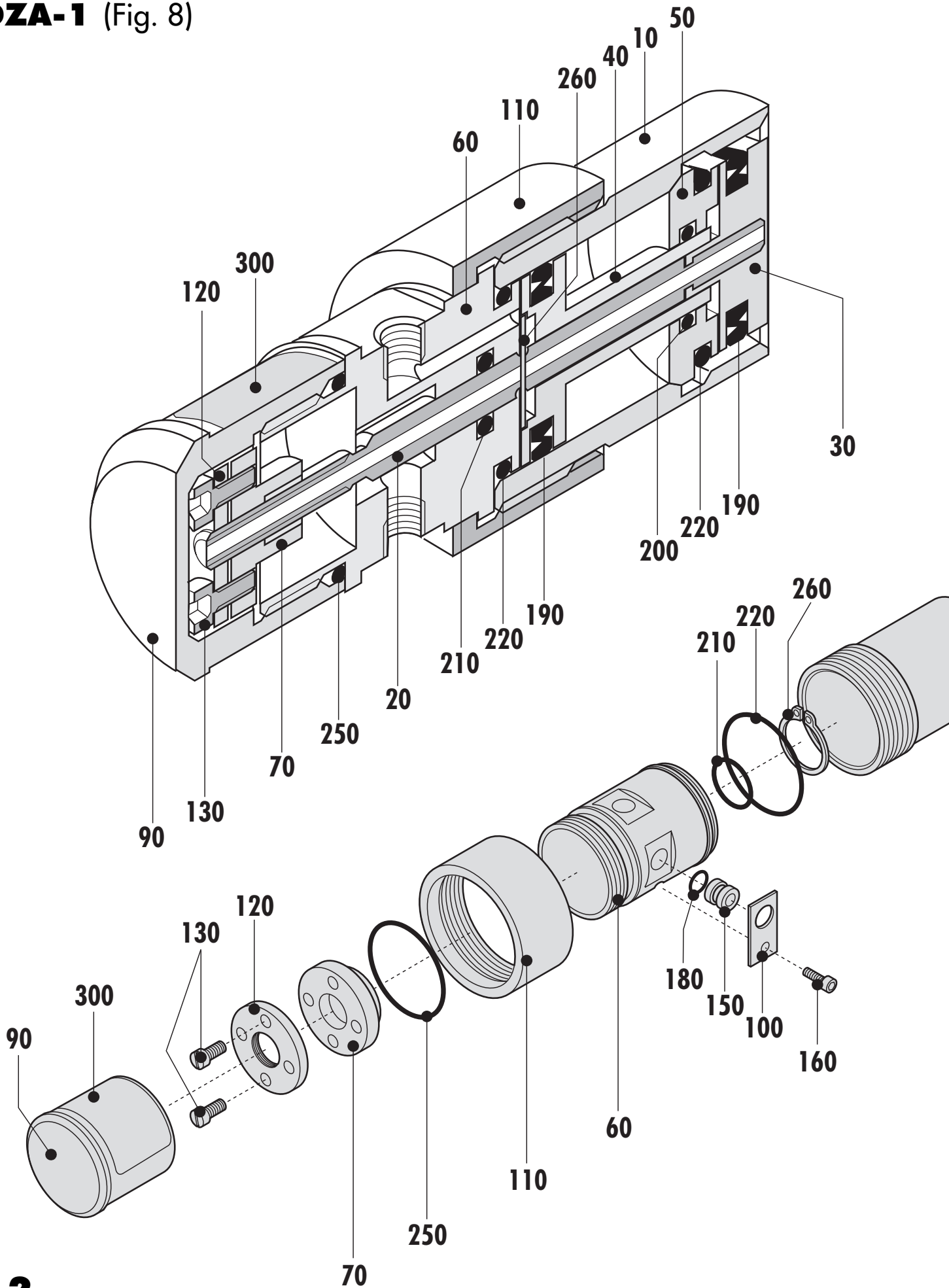
According to Fig.6 the proximity switch indicates the following states:

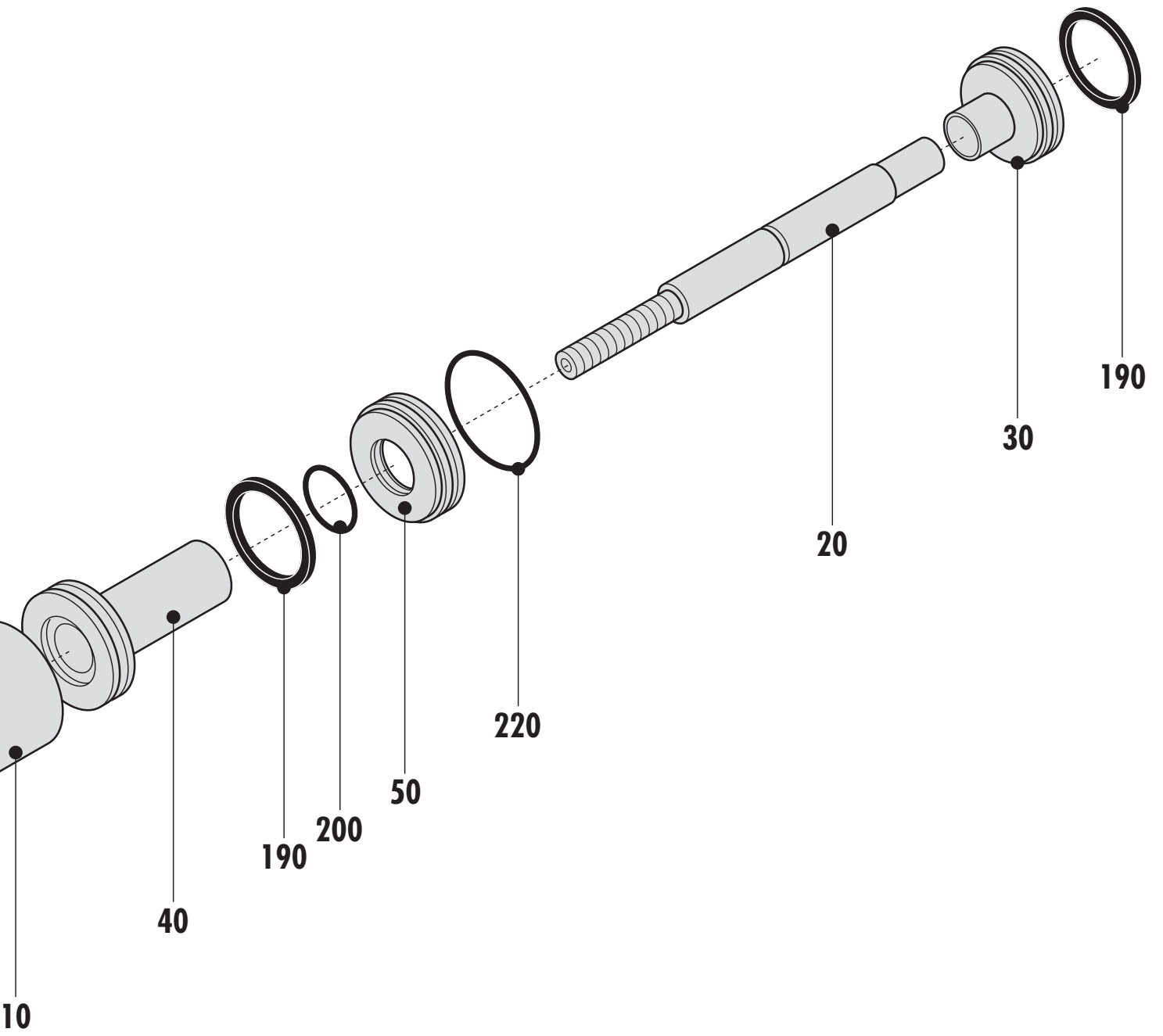
When starting from	DZA-1 in position	Rotary shaft in position
Pos. ② clockwise	②	②
Pos. ② counterclockwise	②	②, ③ or ④
Pos. ③ clockwise	③	①, ② or ③
Pos. ③ counterclockwise	③	③

Maintenance

MONTECH intermediate stops DZA-1 need no maintenance.

DZA-1 (Fig. 8)





Spare parts list

No.	Part	Ref.No.	Supplier	Material
10	Cylindrical tube	44839	Montech AG	aluminium
20	Piston-rod	47273	Montech AG	stainless steel
30	Piston	47274	Montech AG	bronze
40	Piston	47275	Montech AG	bronze
50	Cover	44843	Montech AG	POM
60	Cylinder head	48264	Montech AG	aluminium
70	Stop nut	47277	Montech AG	nickel-plated steel
90	Cap	44893	Montech AG	POM
100	Clamping plate	47266	Montech AG	steel
110	Screw cover	44891	Montech AG	aluminium
120	Disc	44895	Montech AG	nickel-plated steel
130	Chhd screw	505092	Bossard AG	stainless steel
150	Bush	48265	Montech AG	POM
160	Chhd screw	505544	Bossard AG	steel
180*	O-ring	506151	Kubo-Tech AG	NBR
190*	Piston gasket	504972	Angst + Pfister AG	NBR
200*	O-ring	503119	Johannsen AG	NBR
210*	O-ring	504814	Kubo-Tech AG	NBR
220*	O-ring	505274	Johannsen AG	NBR
250*	O-ring	503128	Busak + Shamban AG	NBR
260	Tension ring	506633	Bossard AG	steel
300	Nameplate	41620	Montech AG	metal.polyester
310	Instruction manual	507265	Montech AG	paper
330	Fix-Pac packing	504020	Bosshart Emball. AG	polyurethane/ cardboard

All articles are available as spare parts.

* The marked articles can be delivered within 24 hours.

Environmental compatibility

Materials used

- Aluminium
- Steel
- Bronze
- Acrylnitril butadiene rubber (NBR as per ISO 1629)
- POM Polyoxymethylene (polyacetal)
- Paraffinic mineral oil, synthetic hydrocarbon oil

Surface finish

- Anodized aluminium
- Nickel-plating of steel
- Blackened steel

Shaping processes

- Profile pressing of aluminium
- Machining of aluminium, steel, bronze, POM
- Moulding NBR gaskets

Emissions in operation

- None

When operated with oiled air we recommend that the exhaust be returned to atmosphere through an oil separator or filter.

Disposal

Intermediate stops that are no longer fit for use should not be disposed of as complete units but stripped down into their components and recycled according to the kind of material. The kind of material used for each part is shown in the list of spare parts. Material which cannot be recycled should be disposed of appropriately.



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