

OPERATING MANUAL METO-FER[®] AUTOMATION AG

ROTARY ACTUATOR TYPE

MD 20/180B

SERIES FROM 6-06

1. PRODUCT DESCRIPTION

1.1 Introduction

1.1.1. Utilization

The rotary actuator MD 20/180B is able to execute rotary movements in any position. The rotary movement can be adjusted in its working area.

1.1.2. Safety Precautions

Before starting to operate the rotary actuator MD 20/180 B, it is necessary to check that no body parts are within the working range of the element. In such a case the unit must not be operated.

The maximum supply pressure of 8 bar must not be surpassed.

1.1.3. Danger Area

Any body parts are to be kept out of the working area (rotary area) of the unit in order to avoid mangling.

1.2 Technical Data

1.2.1 Weights and Measurements

See also Sheet 6

Type	Angle of Rotation	Air consumption*	Weight Lb.(kg)
MD 20/180 B	0-180°	.004 scf/0.012 NL	2.64(1.2)

NL: Normal Liter

*for each double stroke at 72.5 PSI (5 bar)

1.2.2. Performance Characteristics

Max load radial to shaft	40.0 Lb. (180N)
Max load axial to shaft	67.0 Lb. (300N)
Repeatability	+/- 200 ARC SEC

Torque at 72.5 PSI (5 bar) 9.74. Lb. In. (1.1NM)

OPERATING MANUAL (MD 20/180 B)

1.2.3 Operating Source

40mm filtered, unoiled or oiled air (dew point 6°C)

Operating pressure P_{\min} 3 bar

P_{\max} 8 bar

1.2.4 Connections

Air connections M-5 (See sheet 6)

1.2.5 Environment

Temperature 50°F to 122°F (+ 10°C to + 50°C)

Relative humidity 95% (without condensation of water)

Purity of the environment air regular working place atmosphere

1.3 Features

1.3.1 Standard Features (included in delivery)

The unit delivered will have two patented end screws type AS 10/50 with fine thread. These end screws adjust the angle of rotation within its working area.

Option: 2 pieces oil cushions OB 15/10L (2 pieces MU 01.008 nut + O-ring) and compensation reservoir KOB 50. The cushions are used to cushion the end position of the rotary actuator.

1.3.2 Special Equipment

The end screws can be fitted with the patented sensing elements (see Meto-Fer[®] Electronic catalog, pages 22 and 23) in order to check the end position.

2. SAFETY REGULATIONS

2.1 In general

See chapters 1.1.1
 1.1.2
 1.1.3

OPERATING MANUAL (MD 20/180 B)

2.2 Specifically

Do not make any changes or modifications to the unit (voids warranty).

3. CONSTRUCTION AND FUNCTION

The angle of rotation can be made infinitely variable with the end screws AS 10/50. Please note by needed rotation from 0° to 60°, put stop screw in Pos.B-B. Rotation from 60° to 90°, put stop screws in Pos. A-A (see Sheet 6).

4. INITIAL OPERATION

4.1 Compressed Air

Remove the safety caps from the air connections. In order to regulate the velocity of the movement, we recommend our flow controls DV-M5 (see sheet 5.021). Unused air connections must be covered with the M-5 caps.

4.2 Adjustment of Angle

- loosen security nut on the stop screw
- adjust the required angle with the stop screw (Pos.101)
- tighten security nut on the end screw

4.3 Cushion Adjustment

The basic adjustment of the cushions has to be optimized by the user upon his special requirements.

The position of the cushions can be seen on the construction drawing.

The brake resistance can be changed by adjusting the length of the brake path.

When using oil and elastomer cushions, it must be checked that the end stop is not made by the cushions. The cushions should show a remainder stroke of 0.0394” (1mm).

OPERATING MANUAL (MD 20/180 B)

5. MAINTENANCE

5.1 Introduction

The rotary unit does not require any special maintenance procedure. Never use any type of solvents in order to clean the unit.

5.2 Air Supply

The rotary actuator is equipped with **oil-free seals** and can be operated with dry and non-oiled compressed air. If oiled compressed air is used, we recommend:

- Airpress compound SAE 5 (Klueber Order No. 063027)

6. REPAIR

6.1 Introduction

If the unit does no longer fulfill the desired requirements (leakage, wear, etc.) the defective parts must be replaced.

6.2 Safety Precautions

Before dismantling the unit, it is necessary to check that the compressed air supply is turned off. It is best to disconnect the compressed air supply from the unit.

When repair work is done, only the original spare parts and lubrication must be used.

6.3 Replacing the Seals

- Remove the slotted Ring Nut (Pos.204).
- Remove the Stop Plate (Pos.8) by loosening the Screws (Pos.206).
- Remove the Shaft (Pos.2).
- Remove the Top (Type B, Pos.6; Type B1, Pos.7).

- Remove the Rack Pinion Piston (Pos.3).

OPERATING MANUAL (MD 20/180 B)

- Replace the Seals.
- Grease the Cylinder Bore, Rack Pinion, Shaft (see Chapter 7.2).
- With help of a distance block, make sure that the piston is in the middle of the Cylinder.
- The parts are then reassembled in reverse order as described above.

6.4 Replacing the Ball Bearings

- Remove the slotted Ring Nut, Stop Plate and Shaft as described in Chapter 6.3.
- Remove the Ball Bearing (Pos.202).
- Extract the Ball Bearing (Pos.201).
- Grease and reassemble in reverse order as described above.

7. SPARE PARTS LIST

7.1 Spare Parts

When ordering spare parts, the type and serial number of the unit must be stated.

Position	Part Number	Description	Quantity
5	MD 07.005	Cover Ring	1 Piece.
201	045.125.0135	Ball Bearing	1 Piece
202	025.125.0010	Ball Bearing	1 Piece
*213	025.100.0420	O-Rings	2 Pieces
*214	025.150.0110	Piston Seals	2 Pieces

Seal Kit Part No. **460.100.0113** all items marked with (*)
 Repair Kit Part No. **460.110.0156** kit includes Pos.5, 201, 202

7.2 Lubrication

Grease for seals

Staburag NBU 4 Atemp.
(Klueber Order No. 005 040)

Grease for ball bearings

Staburag NBU 4 Atemp.
(Klueber Order No. 005 040)