

OPERATING MANUAL METO-FER[®] AUTOMATION AG

LINEAR UNIT TYPE

LH 100-...

LH 150-...

LH 200-...

LH 300-...

LH 400-...

SERIES FROM 5-32

1. PRODUCT DESCRIPTION

1.1 Introduction

1.1.1. Utilization

The linear unit LH is able to execute linear movements in any position. This linear movement can be adjusted in its working area (stroke).

1.1.2. Safety Precautions

Before starting to operate the linear unit LH, 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 (stroke area) of the unit in order to avoid mangling.

1.2 Technical Data

1.2.1 Weights and Measurements

See also Sheet 5

Type	Stroke	A	B	Weight Lb.(kg)
LH 100	0-100mm	352mm	234mm	11.0(5.0)
LH 150	0-150mm	452mm	284mm	12.8(5.8)
LH 200	0-200mm	552mm	334mm	14.6(6.6)
LH 300	0-300mm	752mm	434mm	18.1(8.2)
LH 400	0-400mm	952mm	534mm	21.6(9.8)

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1.2.2. Performance Characteristics

Type	Piston force at 5 bar	Max load (kg)	Air consumption*
LH 100	226 N	28.0 kg.	0.73 NL
LH 150	226 N	16.0 kg	1.09 NL
LH 200	226 N	9.0 kg	1.45 NL
LH 300	226 N	4.5 kg	2.18 NL
LH 400	226 N	3.0 kg	2.90 NL

NL: Normal Liter

*Air consumption for each double stroke at 72.5 PSI (5 Bar)

Repetition accuracy +/-0.0004" (0.01mm)

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 R 1/8 (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 12/60 with fine thread. These end screws adjust the stroke within its working area. According to the type, the units are equipped with the following cushions:

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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.

To add one or more intermediate positions, please use the following parts:

See also Sheet 7

Type	A	B	Intermediate position with SA 01	Intermediate position with SA 01 A
LH 100	193	175	ZB 03.040	ZB 03.040 A
LH 150	243	225	ZB 03.035	ZB 03.035 A
LH 200	293	275	ZB 03.045	ZB 03.045 A
LH 300	393	375	ZB 03.050	ZB 03.050 A
LH 400	493	475	ZB 03.055	ZB 03.055 A

2. SAFETY REGULATIONS

2.1 In general

See chapters
1.1.1
1.1.2
1.1.3

2.2 Specifically

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

3. CONSTRUCTION AND FUNCTION

The stroke adjustment can be made infinitely variable with the end screws AS 12/60 (Pos.101) in order to check the occurred movement, the end screws can be fitted with our sensing elements (see Meto-Fer[®] Electronics catalog).

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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 one-way restrictors DV-R1/8" (see sheet 5.021). Unused air connections must be covered with the R1/8 caps.

4.2 Stroke Adjustment

- Loosen screw (Pos.102 and 110) and plate (Pos.9), move to the needed position.
- Tighten screw, make sure piston rod and shaft (Pos.6) are parallel.
- Loosen nut on stop screw.
- Adjust the needed stroke on AS 12/60 (Pos.115).
- Tighten security nut on the stop 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 0.039" (1mm).

5. MAINTENANCE

5.1 Introduction

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

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5.2 Air Supply

The linear unit 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 no longer meets the 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 interrupted. 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 end plate (Pos.9) by loosening the screws (Pos. 102, 110).
- Loosen the set screws (Pos.106) and remove plate (Pos.8).
- Extract the housings (Pos.1).
- Extract the piston rod and guide shaft (Pos. 5 and 6).
- Extract the cylinder pipe (Pos.4).
- Clean the parts.

- Replace the seals.
- Check all parts for wear and grease cylinder pipe, guide shaft, piston rod (see Chapter 7.2).

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- The parts are then assembled in reverse order as described above.

6.4 Replacing the linear ball bushings

Disassembly same as Chapter 6.3.

- Extract linear ball bushings.
- When assembling the ball bushings, make sure the seal rings lie on the outside of the housing.

The parts are then assembled in reverse order as described in Chapter 6.3.

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
*109	015.130.0100	Clips	2 Pieces
*111	025.100.0680	O-Rings	2 Pieces
*112	025.140.0055	Rod Seals	2 Pieces
*113	025.150.0810	Piston Seals	2 Pieces
114	045.100.0007	Linear Ball Bushings	4 Pieces
*117	025.100.0410	O-Ring	1 Stk.

Seal Kit Order No. **460.100.0056** all items marked with (*)
 Repair Kit Order No. **460.110.0246** kit includes Pos.114

7.2 Lubrication

Grease for seals Staburag NBU 4 Atemp.

Grease for linear ball bushings

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