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**Leybold Service**

If equipment is returned to Leybold, indicate whether the equipment free of substances damaging to health or whether it is contaminated.

If it is contaminated also indicate the nature of the hazard. Leybold must return any equipment without a "Declaration of Contamination" to the sender's address.

**Warning** Indicates procedures that must be strictly observed to prevent hazards to persons.



**Caution** Indicates procedures that must strictly be observed to prevent damage to, or destruction of the equipment.

**Figures**

The references to figures, e.g. (1/2) consist of the Fig. No. and the Item No. in that order.

We reserve the right to modify the design and the specified data. The illustrations are not binding.

## 1.5 Technical Data

ISO-K right angle valve		DN 250 ISO-K	DN 250 ISO-K	DN 320 ISO-K	DN 320 ISO-K	DN 350 ISO-K	DN 400 ISO-K	DN 500 ISO-K	DN 630 ISO-K
Bellows-sealed		x		x					
Elastomer-sealed			x		x	x	x	x	x
Dimensions		See Fig. 1							
DN, flange centering diameter		261	261	318	318	350	400	501	651
h, approx.	mm	650	650	753	753	1049	843	965	1231
a	mm	250	250	275	275	300	350	370	570
a <sub>1</sub>	mm	200	200	250	250	260	300	330	500
a <sub>2</sub> , a <sub>4</sub>	mm	208	208	244	244	262	312	332	496
a <sub>3</sub>	mm	205	205	318	318	270	365	405	568
h <sub>1</sub>	mm	163	163	173	173	210	212	168	317
DN <sub>1</sub> for bypass 1		50 KF		63 ISO-K			100 ISO-K		
DN <sub>2</sub> for bypass 2		40 KF							
DN <sub>3</sub> for measurement connection		16 KF							
b	mm	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5
c	mm	218	218	218	218	436	218	243	273
d	mm	250	250	250	250	250	250	250	250
e	mm	58	58	58	58	58	58	58	58
f	mm	363	363	465.5	465.5	543.5	555.5	652.5	888
Stroke	mm	62,5	62,5	80	80	320	100	125	155
Stroke / DN Explanation: e.g. Stroke = 1/4 DN	mm	1/4	1/4	1/4	1/4	1	1/4	1/4	1/4
Mains connection	V	Various voltages – see SOLENOID COILS for PILOT VALVE (Section 2.2)							
Mains fuses	A	3 x 6 A							
Connection cable		3 x 1mm <sup>2</sup> (2 x + protective ground conductor)							
Pilot valve		For details see Section 2.1/2.2							
Power consumption	W	DC: 4,5 W AC: Hold 6VA / actuation: 7.5 VA Normal voltage and ex. protection							
Range		min: 100 max: 150							
Torque for the knurled screw		100 %							
Operating factor		IP 65 (DIN 40 050), for normal voltage and ex. protection							
Protection		40							
Temperature	°C								
Conductance for molecular flow	1/s	2700	2700	5100	5100	6000	7700	12000	20000
Materials:									
Casing / valve plate		Plate steel, nickel plated							
Actuator / compressed air cylinder		Aluminium / cast aluminium							
Piston rod / bellows		Stainless steel							
Intermediate flange		—	—	Steel, nickel plated					
Disc / casing seal		Perbunan							
Valve rod seal		Perbunan							
Piston seal		Perbunan							
Compressed air min. / max.	bar	4 / 8							
Compressed air, silencing		by two silencers							

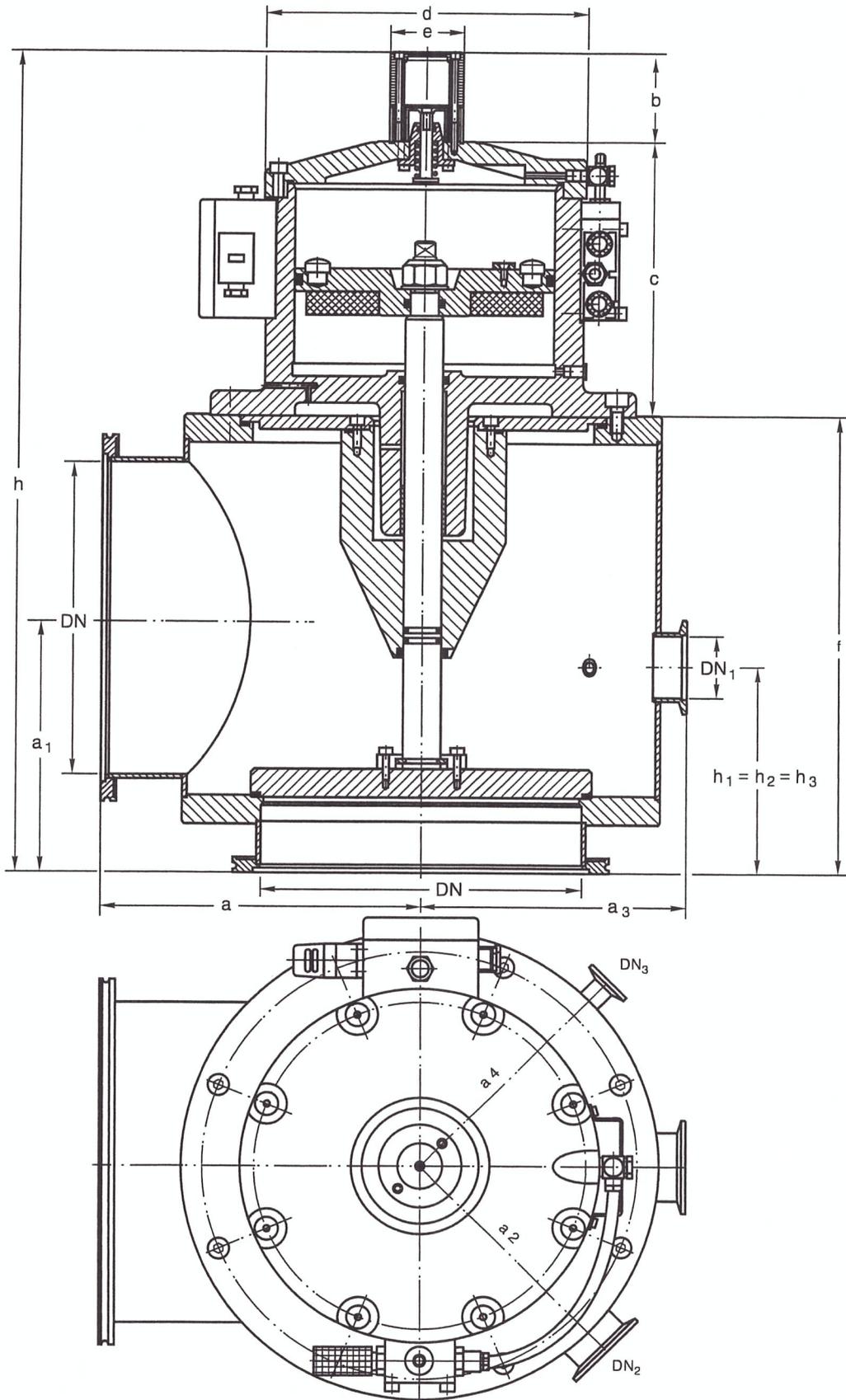
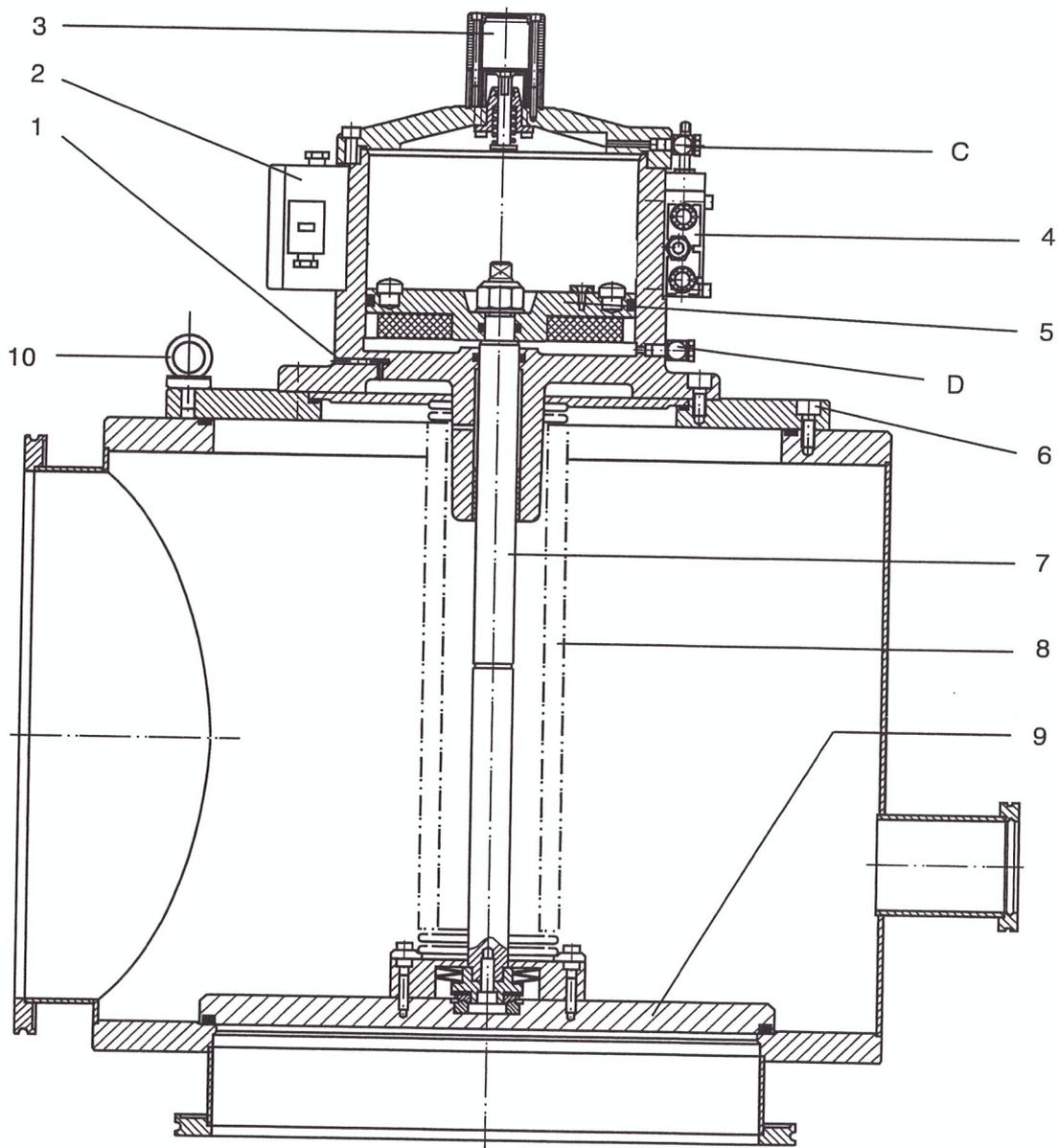


Fig. 1 Dimensional drawing

(for table of dimensions, see Section 1.5)



**Key to Fig. 2**

- 1 Borehole for sniffer
  - 2 Electrical supply assy.
  - 3 Optical position indicator
  - 4 Pilot valve
  - 5 Piston
  - 6 Casing screws
  - 7 Piston rod
  - 8 Bellows
  - 9 Valve disc
  - 10 Crane eyes (2, diagonally arranged)
- 
- C Compressed air connection "Close"
  - D Compressed air connection "Open"

Fig. 2 Fully assembled right angle valve, bellows-sealed

## 2 Description of the Pilot Valves

The pilot valves from Leybold consist of a mechanical control section (5/10) and a solenoid actuator (5/1).

Control section and actuator are connected to each other at tube (5/9) by means of a knurled nut (5/2) and a corrugated washer (5/3).

Right angle valves from Leybold are supplied with the mechanical section and the tube.

Owing to the selectable solenoid coil this unit can be employed universally in connection with different supply voltages and frequencies.

Each pilot valve is equipped with two silencers (5/13 and 5/15) for the purpose of noise reduction.

**Caution** The solenoid coil is not included with the right angle valve. The required coil must be ordered separately and must be fitted by the customer.

### 2.1 Pilot Valves and Solenoid Coils

The solenoid coils can be fitted to the pilot valves without affecting the pneumatic circuit in any way.

The solenoid coils can be used in connection with the following Leybold valves:

ISO-K valves	DN 63 to 160
ISO-K valves	DN 250 to 630.

The following items are included with each solenoid coil:

- the actual solenoid coil (5/1),
- the knurled nut (5/2),
- the corrugated washer (5/3),
- the connection plug (4/1),
- and the seal (5/8).

### 2.2 Selection of the Solenoid Coils

The following table provides information on how to select the required solenoid coil for the pilot valves from Leybold, for ISO-K valves DN 250 to DN 630.

These solenoid coils will also fit to the pilot valves of the ISO-K DN 63 to DN 160 type.

Solenoid coil 230 V / AC 50 / 60 Hz	Cat. No. 280 77
Solenoid coil 110 – 120 V / AC 50 / 60 Hz	Cat. No. 280 78
Solenoid coil 24 V / AC 50 / 60 Hz	Cat. No. 280 79
Solenoid coil 24 V DC	Cat. No. 280 80
Solenoid coil 12 V DC	Cat. No. 280 81
Solenoid coil 230 V / AC 50 Hz Ex. protection, incl. 5 m long cable	Cat. No. 280 82
Solenoid coil 24 V DC Ex. protection, incl. 5 m long cable	Cat. No. 280 83
Pilot valve without coil (as a spare part)	Ref. No. 200 07 926 DN 63 – DN 160
Pilot valve without coil (as a spare part)	Ref. No. 200 079 27

## 3 Installation Preparations

### 3.1 Compressed Air Supply

The operating range for the compressed air is 4 to 8 bar.

**Warning** The hose for the compressed air must be rated for at least 10 bar, and it must be connected in a professional manner.



You must ensure that the max. permissible operating pressure can not be exceeded.

The compressed air may contain traces of oil or it may be dry; if required filter the compressed air.

**Caution** Once you have decided to use a particular compressed air quality, you should keep to this quality.

#### **You may only change from:**

- dry compressed air to non-oiled compressed air,
- dry compressed air to filtered compressed air,
- dry compressed air to oiled compressed air.

**Caution** You must not change in any other direction.

### 3.2 Fitting the Solenoid Coil

The solenoid coil (5/1) is fitted to the tube on the pilot valve (5/9) by means of a knurled nut (5/2).

#### 3.2.1 Fitting the Solenoid Coil

The solenoid coil (5/1) is pushed over the tube (5/9) of the pilot valve, the corrugated washer (5/3) is fitted and the knurled nut (5/2) is then tightened manually.

**Caution** The knurled nut should be tightened to a torque of 100 to 150 Ncm, so that the solenoid coil is still free to turn. The tube must not be damaged while fitting the coil.

The plug insert (5/7) in the connection plug (5/6) may be turned by 90° if required.

Depending on the available space the solenoid coil sitting on the tube may be turned by 360° and fitted.

Push the seal (5/8) over the contacts of the solenoid coil. The connection plug (4/1) which has already been fitted to the valve is plugged in at the solenoid coil and secured in place with securing screw (5/5).

**Caution** The plug which is included with the solenoid coil is **not** used when fitting the coil.

Leybold delivers solenoid coils for different voltages (see Section 2.2).



**Key to Fig. 7**

- 1 Supply voltage / to be supplied by the customer
- 2 Connector for the stop position switches (to be supplied by the customer)
- 3 Screws for securing the lid, (4x)
- S1 Stop position switch / "OPEN" position
- S2 Stop position switch / "CLOSED" position

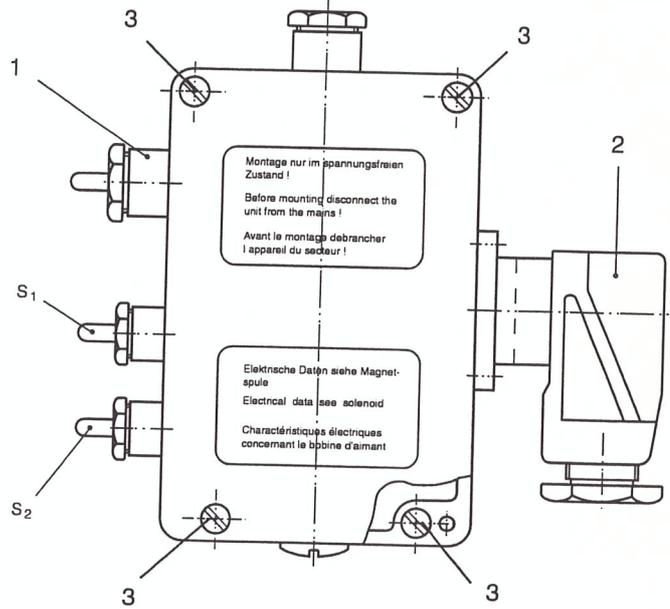
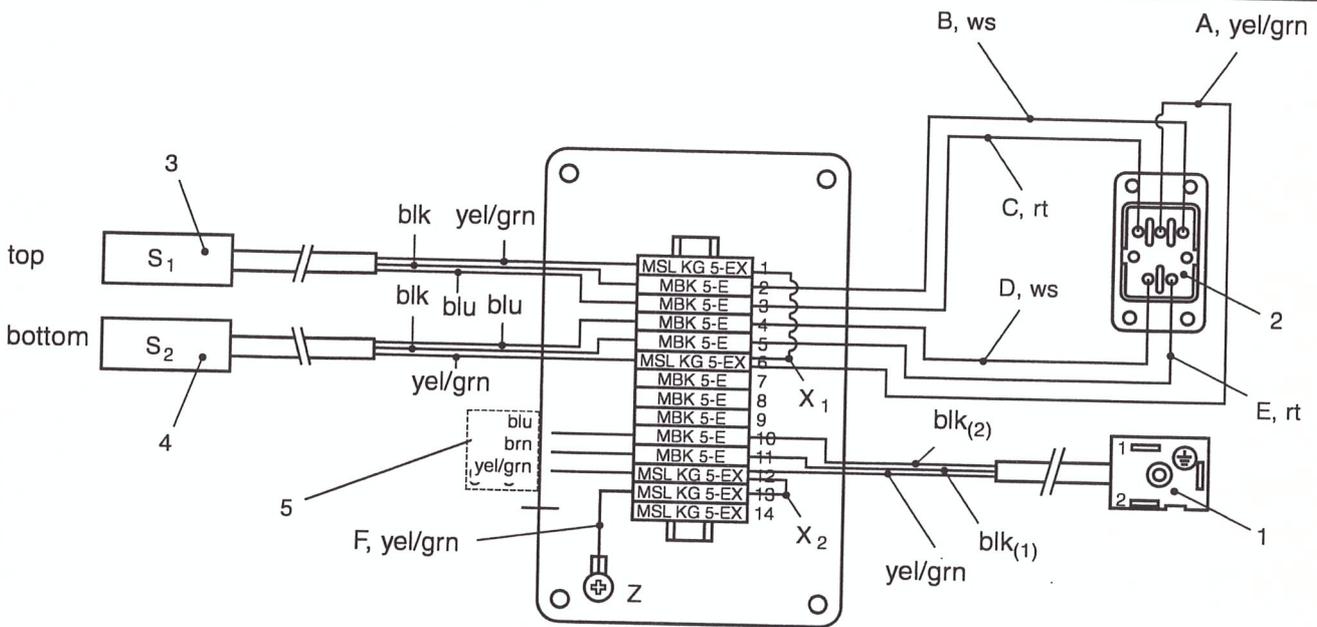


Fig. 7 Electrical supply subassembly



**Key to Fig. 8**

- 1 Plug for solenoid coil
- 2 Pin assignment / stop position switches
- 3 Stop position switch / "OPEN" position
- 4 Stop position switch / "CLOSED" position
- 5 Supply voltage / to be supplied by the customer

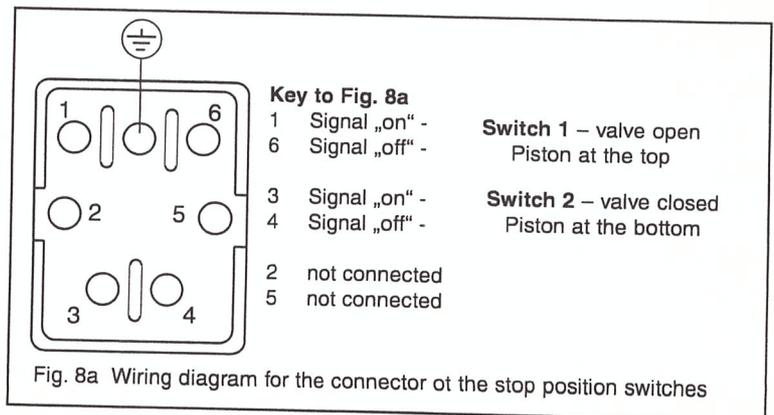


Fig. 8 Wiring diagram for the electrical supply subassembly

### 3.9 How to Convert the Valve to “normally open”

The normally supplied valves will close automatically in the case of a power failure or compressed air failure.

These valves are of the “normally closed” type.

In this case the following connections are used:

At the pilot valve (5/10) connection -A (5/11) is connected to compressed air connection (2/D or 3/D) and connection -B (5/12) is connected to compressed air connection (2/C or 3/C).

However, it is possible to convert the valve for “normally open” operation.

#### Warning



Before converting a valve you must under all circumstances switch off the mains voltage and the compressed air supply and ensure that these supplies can not be switched on inadvertently.

The two compressed air hoses (5/11 and 5/12) which supply the piston are interchanged at the pilot valve (5/10), i.e. the lower hose (5/12) is connected to (2/D or 3/D) and the upper hose (5/11) is connected to (2/C or 3/C).

If required, the connections may be leak tested with soap solution when pressurised.

### 4.3 Leybold Service

If equipment is returned to Leybold, indicate whether the equipment free of substances damaging to health or whether it is contaminated.

If it is contaminated also indicate the nature of the hazard. For this you must use a form which has been prepared by us which we will provide upon request.

A copy of this form is reproduced at the end of these Operating Instructions: "Declaration of Contamination of Vacuum Instruments and Components".

Please attach this form to the equipment or enclose it with the equipment.

This declaration of contamination is required to meet German Law and to protect our personnel.

Leybold must return any equipment without a "Declaration of Contamination" to the sender's address.

**Warning** The valves must be packed in such a way, that they will not be damaged during shipping and so that any contaminants are not released from the package.

