

Operation-, assembly- and maintenance instructions

Valve and control panel unit for pig station

Series 28s

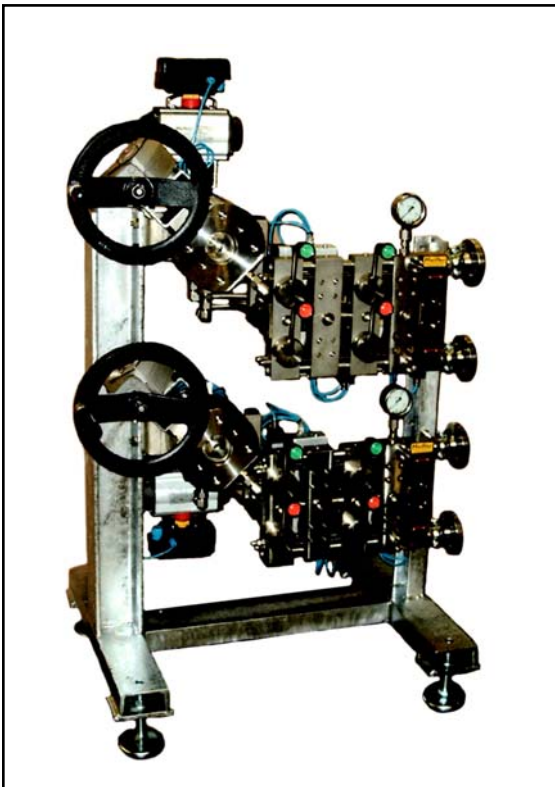


Fig 1 - Head station with control panel series 28s

0. Introduction

These instructions are intended to support the user in the operation, maintenance and repair of control panels and valve units for series 28s

Technical details, as a result of further development of the valves mentioned in these instructions are subject to modification without notice. The text and illustrations do not necessarily display the scope of supply, or an eventual order of spare parts.

Drawings and graphics are not to scale. Customer related designs, which are not in accordance with our standard offer are not shown.

The transfer of these instructions to third parties is only allowed with the written approval of Pfeiffer Chemie-Armaturenbau GmbH.

All documents are protected according to the laws of the German Copyright Act. The transmission and/or duplication of documents, even in abstracts, also the exploitation and communication of contents is not permitted unless expressly granted.

Violations are an offence and liable to claims for damages. We reserve all rights for the exercise of industrial property rights.



This product may only be dismantled and disassembled by skilled personal, who are familiar with the assembly, start-up and operation of this product.

Skilled personal in the sense of these repair assembly instructions, are persons, who as a result of their training, experience and knowledge of the relevant standards, are able to judge the tasks assigned to them and recognise possible dangers.

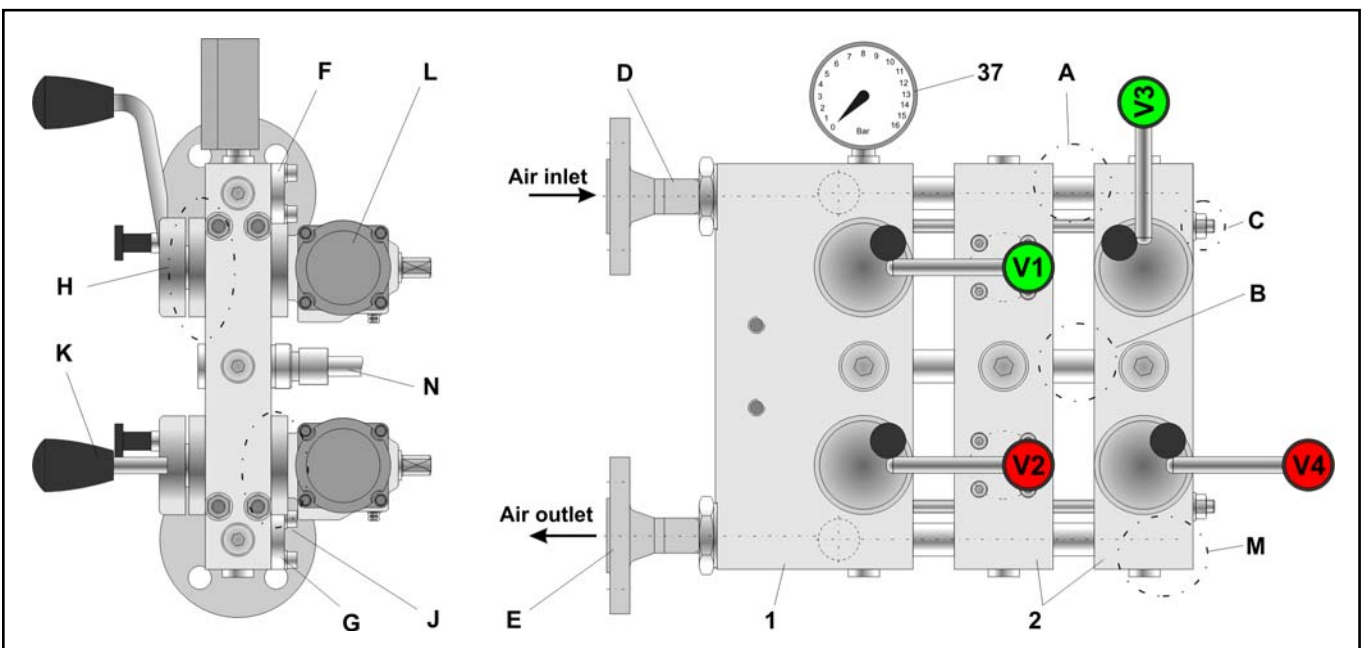


Fig 2 - Control panel unit series 28s => Parts list, see table 1 on page 2

Control panel unit Series 28s

Pos.	Qty.	Description	Material	S-Part
1	1	Valve block		
2	2	Valve block		
3	4	Distance tube	1.4571	
4	2	Distance piece	1.4571	
5	12	O-ring	Viton	S
6	4	Threaded bar	A2-70	
7	4	Washer	A2	
8	4	Hexagon nut	A2-70	
9	4	Screw nut	A2-70	
10	2	Reduction sleeve	1.4571	
11	2	Adaptor sleeve	TFM with 25% glass	S
12	2	Ball	1.4401	S
13	2	Pressure spring	1.4310	S
14	2	Support washer	1.4571	
15	2	O-ring	Viton	S
16	2	Throttle cylinder	1.4571	
17	2	O-ring	Viton	S
18	4	Socket cap screw	A2-70	
19	4	Washer	A2	
20	6	Stuffing box flange	1.4571	
21	6	Plug	1.4571	
22	6	Bearing bushing	PTFE with 25% carbon	S
23	30	Spring washer	WN 1.4401	S
24	6	Disc washer	TFM	S
25	6	Plug sleeve	TFM	S
26	6	O-ring	Viton	S
27	24	Socket head screw	A2-70	
28	8	Socket head screw	A2-70	
29	4	Hand-lever	1.4571	
30	4	Locking bolt	VA	
31	4	Countersunk screw	A2-70	
32	4	Grooved pin	A2	
33	4	Conus handle	Thermoplastic	
34	8	Plug screw	A4-70	
35	3	Plug screw	A4-70	
36	3	Locking ring fitting	1.4571	
37	1	Manometer	VA	
38	2	Actuator SRP 15		
39	1	Mounting part, manometer	1.4571	

Table 1 - Parts list

1. Design, operation and dimensions

Design, operation and dimensions, also all other technical details can be found in the **Data sheet < TB 28s_EN >**.

2. Maintenance and repair

The control valve unit, series 28s is connected to head- and end stations of pigging systems for controlling the air input and output.

In the course of time, should it be necessary to exchange certain individual parts, this can be done without any problem on location. It is not necessary either to disassemble, or completely dismantle the unit.



Note: Because of the many layout design possibilities, the version which is displayed is only an example.

Maintenance and assembly regarding all the units are described in the following sections.

3. Assembly of the control valve unit

3.1 Preparation for assembly

Before assembling the control valve unit, all parts must first be cleaned, and carefully layed on a soft surface, e.g. (rubber mat or similar ect.). Take into consideration, that parts made of plastic are generally soft and sensitive, in particular the sealing surfaces must be handled with care, and not be damaged.



Note: The position and lay-out of the individual parts shown in the explosion drawing must be observed when assembling the unit.



Important: All the threads can be sealed with PTFE-band or with an appropriate liquid sealing appliance.

3.2 Assembly of the connector (Detail A + B)

Maintenance is generally not required.

Depending on the design and function of the unit, ready bored distance tubes (3) and blind distance pieces (4) are attached. The distance tube (3) i.e. distance piece (4) is each sealed with two O-rings (5).



Attention: When dismantling the unit, It is important, that the unit is re-assembled in the correct order.

The distance piece (4) has a groove around the outside.

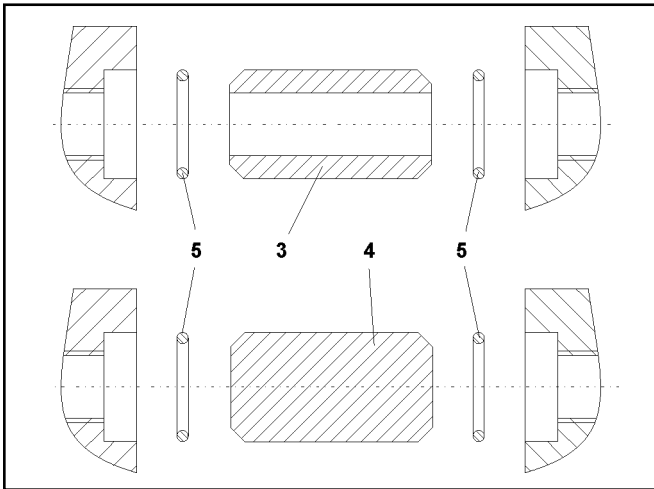


Fig 3 - Connector => Parts list, see Table 1 on page 2

3.3 Assembly of the threaded bar (Detail C)

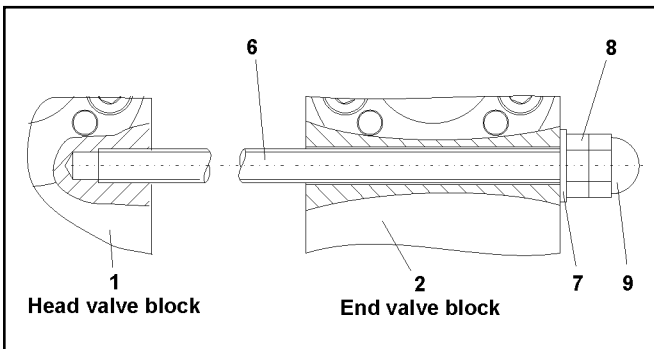


Fig 4 - Threaded bar => Parts list, see Table 1 on page 2

The threaded bars (6) are only detached, when the valve unit is completely dismantled.

3.4 Assembly for air-inlet non-return valves (Detail D)

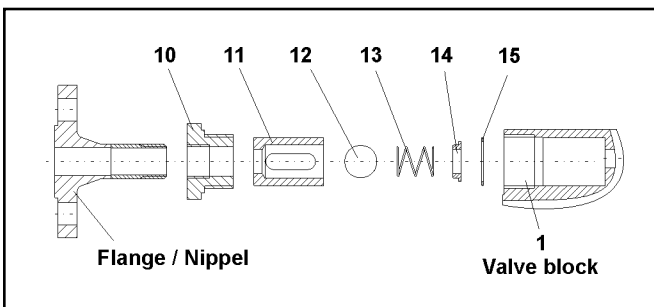


Fig 5 - NR- valves => Parts list, see table 1 on page 2

Maintenance for the NR valves is only necessary after an operating time of approx. 5.000 hours.

The O-ring (15) is inserted in the main body.

Following this, the ball (12), the pressure spring (13) and the supporting washer (14) are pre-assembled with the adaptor sleeve (11). This pre-assembled set is also pressed into the main body.



Attention:

When parts are assembled, pay attention to the correct operating mode.

With the reduction sleeve (10) the assembly unit is then mounted in the main body.



Note:

The reduction sleeve (10) is either sealed with means of a PTFE-sealing band, or an appropriate liquid sealing appliance for the thread.

Following this, the flange or alternatively the nipple is screwed into the reduction sleeve (10)

3.5 Assembly of the outlet- non-return valve (Detail E)

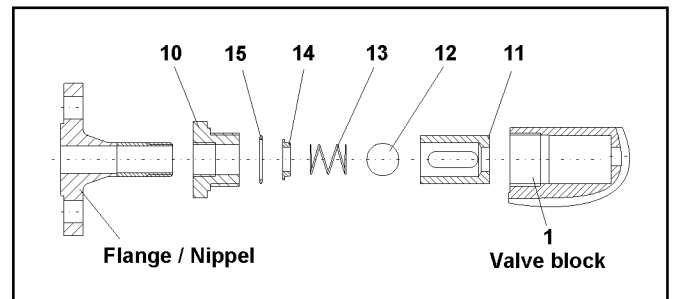


Fig 6 - NR-valve => Parts list, see Table 1 on page 2

Maintenance for the NR valves is also only necessary after an operating time of approx. 5.000 hours.

The ball (12), the pressure spring (13) and the supporting washer (14) are pre-assembled with the adaptor sleeve (11). This pre-assembled set is also pressed into the main body.



Attention:

When parts are assembled, pay attention to the correct operating mode.

Following this, the O-ring (15) is also placed into the main body. With the reduction sleeve (10) the assembly unit is then mounted in the main body.



Attention:

The reduction sleeve (10) is either sealed with means of a PTFE-sealing band, or an appropriate liquid sealing appliance for the thread.

Following this, the flange or alternatively the nipple is screwed into the reduction sleeve (10)

3.6 Assembly of the throttle valve (Detail F + G)

Maintenance is generally not necessary.



Note:

Do not change the position of the throttle!

3.10 Assembly of the blind plug (Detail M)

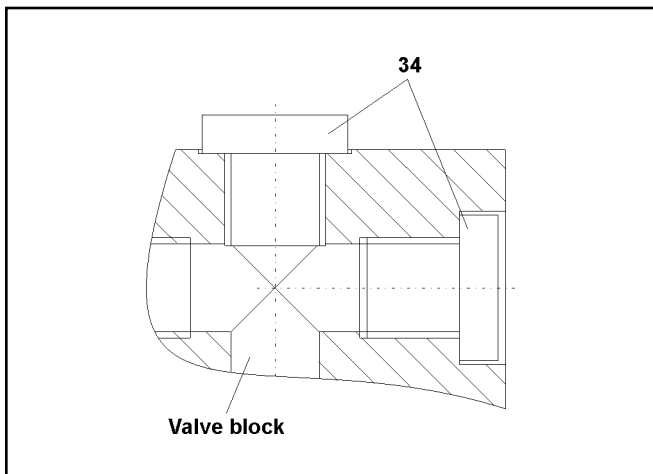


Fig 11 - Blind plug => Parts list, see table 1 on page 2

Maintenance is generally not required. Depending on the design and function of the valve unit, some of the bores are plugged with 1/4" blind plugs (34).



Note: These are usually the bores on the air inlet side, with the exception of the manometer- connection, which is on the air venting side, and all the bores opposite the inlet- and outlet connections.

The blind plugs can be sealed with PTFE-band or with an appropriate liquid sealing appliance.

3.11 Assembly for fitting connections (Detail N)

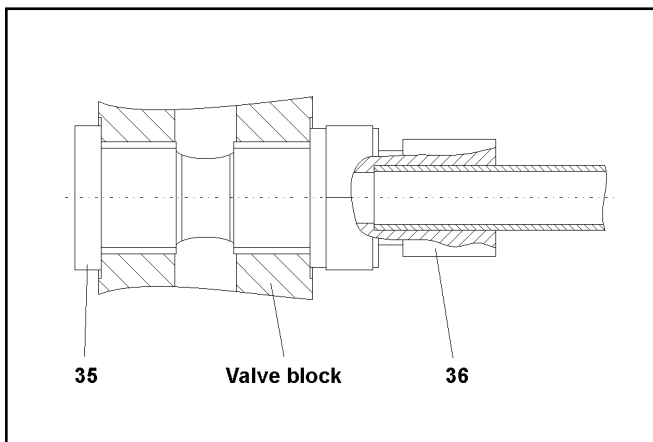


Fig 12 - Fittings => Parts list, see table 1 on page 2

Maintenance is generally not required. Depending on the design and function of the valve unit, a large number of the middle bores are plugged with 1/2" blind plugs (35). Some of the bores on the rear side are fitted with locking ring fittings (36) for 12mm piping. These are used for connecting the valve unit to the pigging valve. The blind plugs can be sealed with PTFE-band or with an appropriate liquid sealing appliance.

3.12 Identification plate

The identification contains important information regarding the maintenance and supplying spare parts:

- Com.-no. and Pos.-no.
- Material of the O-rings in use.

4. Repair of the Control valve unit

4.1 Replacing the sealing rings

If leakage is located at a position in the control valve unit, the O-rings, or one of the sealings may be defect. It is therefore recommended to check the condition of these parts. To dismantle the sealings, proceed to disassemble the control valve unit in reverse order to the assembly instructions as described in section 3.

As with all plastic parts, check the O-rings and sealings for damage, and if necessary replace these parts.



Attention:

Sealings, which are from PTFE-band i.e. a liquid sealing appliance must be replaced at all times.

4.2 Further repairs

We recommend larger repairs to be carried out in our works, by our highly skilled team at Pfeiffer in Kempen.

5. Customer inquiries

(by inquiries, please state the following)

1. Commission number.
(embossed on the identification plate)
2. Type, manufacturing no. Nominal diameter und control valve unit version.
3. Possible circuit diagram.

Control valve unit Series 28s

6. Manual operation of the control valve unit

6.1 Positions of hand-lever

The hand-levers have 2 switching positions.

- Hand-lever vertical: open
- Hand-lever horizontal: closed



Note:
The hand-lever is locked in the „closed“ position

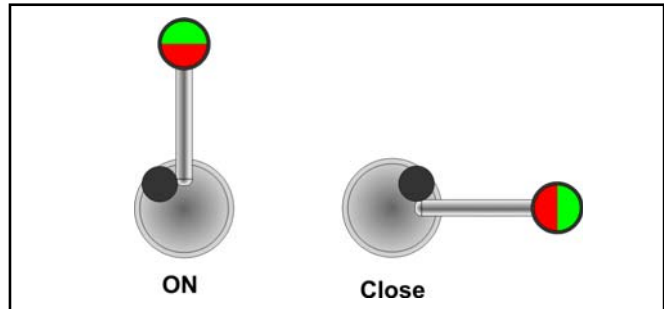


Fig 13 - Switch positions

6.2 Operating the control valve unit for 1-pig system

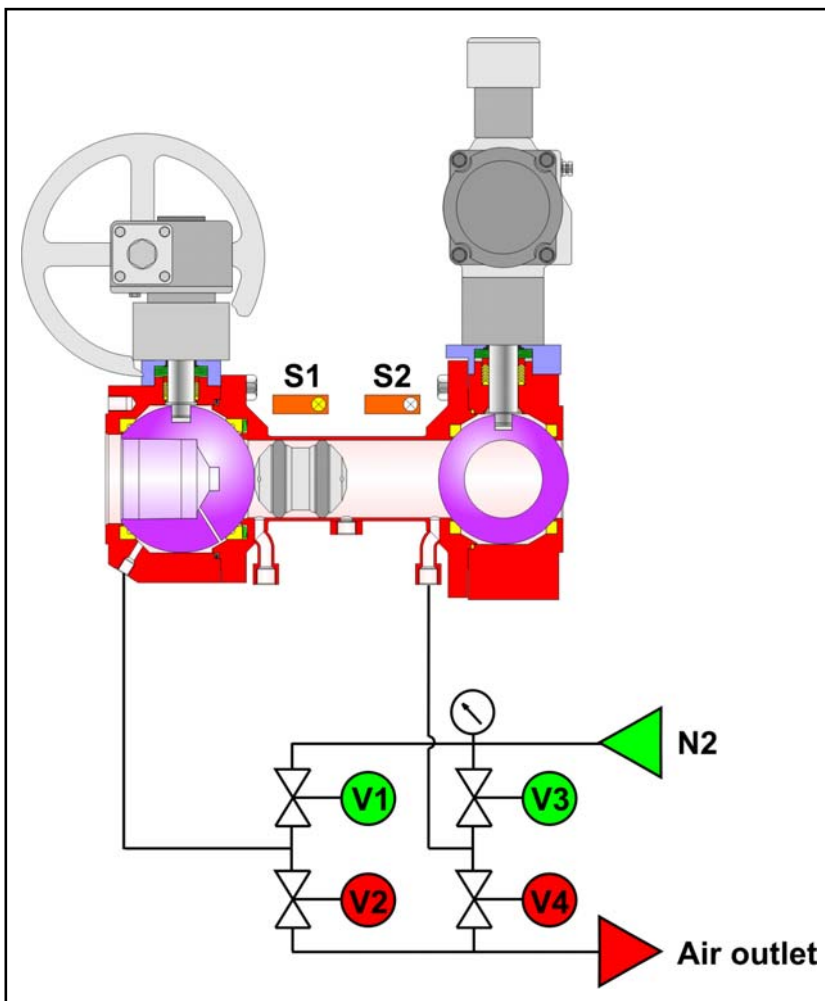


Fig 14 - Control diagram of the head station series 28k with control panel series 28s

The circuit diagram shows a head station in the 1-pig system. This is only an example, other versions are possible. The set-up of each of the control valve units is similar.



Note:
The circuit unit is shown without the automatic control valves.

6.2.1 Initial position (Stand by):

- Pig as shown (S1)
- All valves „CLOSED“
- Pig metering, as shown

6.2.2 Pig out-put

- Initial position.
- V4 open - wait 5 sec. - V4 close - station is vented.
- Turn pig loader inwards.
- V2 open.
- V3 open - pig runs in piping, LED S1 off.
- V2+V3 close.
- V4 open - station is vented.
- Turn pig loader outwards.
- V1 Open slowly, hold departing pig, V1 close.

6.2.3 Pig- input

- Pig metering outwards, V4 open.
- No pig in station, LED S1+S2 are off.
- V2 open.
- Push the pig by hand into the loader.
- V2 close.
- Turn pig loader inwards.
- V1 open - pig runs against the ball valve, LED S2 on.
- V1+V4 close.
- V2 open - station is vented.
- Turn back the pig loader approx. 45°.
- V3 open - pig runs against pig loading ball, LED S2 off, LED S1 on.
- V2+V3 close.
- V4 open - wait 5 sec. - V4 close - station is vented.
- Turn pig loader completely outwards
- Initial position is reached .

6.3 Operating the control valve unit for 2-pig system

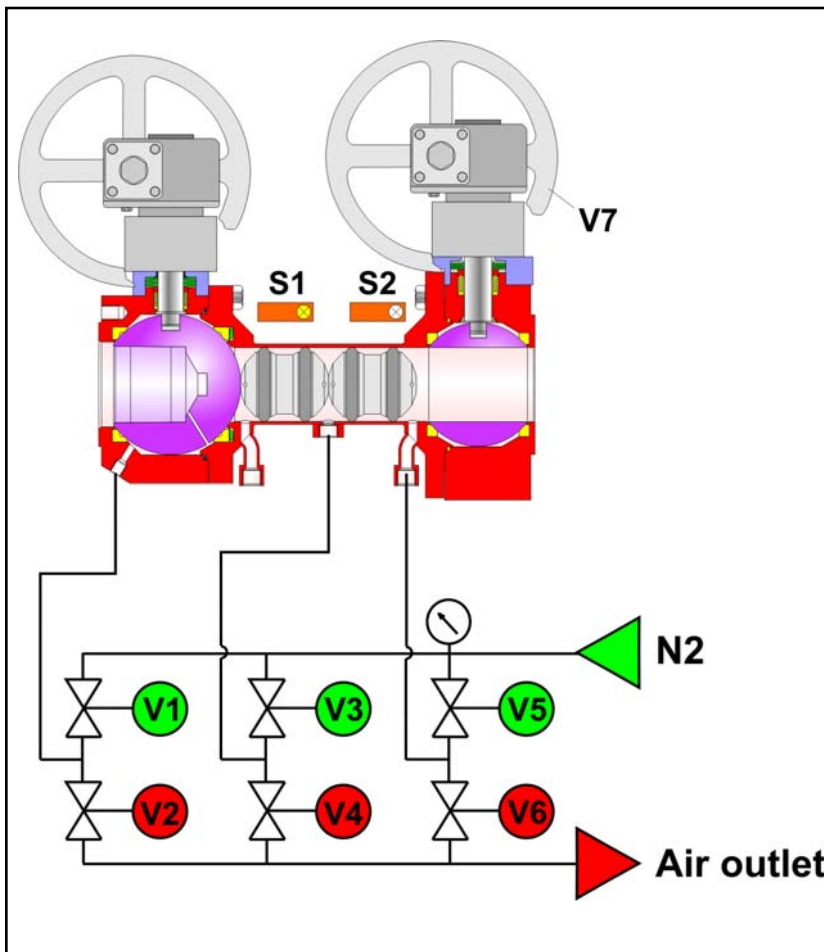


Fig 15 - Circuit diagram of head station series 28k with control panel series 28s

The circuit diagram shows a head station in the 2-pigging system. This is only an example, other versions are possible. The lay-out of each of the control valve units is however similar.



Note:
The circuit unit is shown without the automatic control valves.

6.3.1 Initial position (Stand by):

- Pigs as shown (S1+S2)
- V1 to V6 „CLOSED“
- Ball valve V7 „OPENED“
- Pig loader as shown

6.3.2 Pig out-let

- Initial position.
- V7 close.
- V4+V6 open - wait 5 sec. - V4+V6 close - station is vented.
- Turn the pig loader inwards.
- V2 open.
- V3 open - pig 1 runs in piping, LED S1 off.
- V2+V3 close.
- V4 open - wait 5 sec. - V4 close - station is vented.
- Turn pig loader outwards.
- V1 slowly open, hold departing pig 1, V1 close.
- Turn pig loader inwards.
- V2 open.
- V5 open - pig 2 runs in piping, LED S2 off.
- V2+V5 close.
- V6 open - station is vented.
- Turn pig loader outwards.
- V1 slowly open, hold departing pig 2, V1 close.

6.3.3 Pig inlet

- Turn pig loader outwards, V6 open, V7 close.
- No pig in station - LED S1+S2 off.
- V2 open.
- Push pig 2 by hand into loader.
- V2 close.
- Turn pig loader inwards.
- V1 open - pig 2 runs against ball valve V7, LED S2 on.
- V1+V6 close.
- V2 open - station is vented.
- Turn pig loader outwards.
- Push pig 1 by hand into loader.
- V2 close.
- Turn pig loader inwards.
- V4 open.
- V1 open - pig 1 runs against pig 2, LED S1 on
- V1+V4 close
- V2 open - station is vented.
- Turn pig loader outwards
- V7 open.
- Initial position is reached.

For your special requirements, please contact our technical sales department.

Pfeiffer Chemie-Armaturenbau GmbH

Hooghe Weg 41 • 47906 Kempen
Telefon: 02152 / 2005-0 • Telefax: 02152 / 1580
E-Mail: vertrieb@pfeiffer-armaturen.com • Internet: www.pfeiffer-armaturen.com

Specifications and versions are subject to change without notice