太航德克森
TAIHANG DIRKSEN

DZL-II 型

自力式调节阀使用说明书

DZL-II Series Self-acting Type Control Valve Mannual

太原太航德克森自控工程股份有限公司

Taiyuan Taihang Dirksen Autocontrol Engineering Co., Ltd.

1、产品概述

DZL-II 型带指挥器操作式自力式压力调节阀（简称压力阀）无需外加能源，利用被调介质自身能量为动力源、引入压力阀的指挥器以控制压力阀的阀芯位置，改变流经阀门的介质流量，使阀门后端压力（B 型）或前端压力(K 型)保持恒定。

1、Introduction

The DZL-II series self-acting type control valve with a controller, without require external energy, uses the energy of the controlled medium as the power source and introduces the controller of the valve to control the position of the valve core, and changes the flow rate of the medium passing through the valve, which keeps the pressure at the back end (type B) or front end (type K) of the valve constant.

1.1 用途

（1）气体减压：如阀前 0.2~0.8 MPa 时，阀前面应加减压阀，阀后 0.5~100 kPa。

（2）氮封装置：供氮和泄氮装置上。

1.1 Usage

（1）Gas pressure reduction: For example, when the pressure in front of

the valve is 0.2~0.8 MPa, a pressure reducing valve should be added in front of the valve, and the pressure behind the valve is 0.5~100 kPa.

（2）Nitrogen sealing device: On the nitrogen supply and discharge devices.

1.2 特点

（1）压力设定在指挥器上实现，因而方便、快捷、省时省力且可在运行状态下连续设定。

（2）控制精度高，故适合在控制精度高的场合使用。

（3）调节范围比广。

（4）反应特别灵敏，极小的压力（如 50 mm 水柱的压力）或极小的压力变化都可以感应出来。

1.2 Features

（1）The pressure setting is implemented on the controller, making it convenient, fast, time-saving, and labor-saving, and can be continuously set during operation.

（2）With high control accuracy, it is suitable for use in situations with high control accuracy.

（3）Wide adjustment range.

（4）The response is particularly sensitive, and can sense even extremely small pressures (such as a pressure of 50 mm water column) or pressure

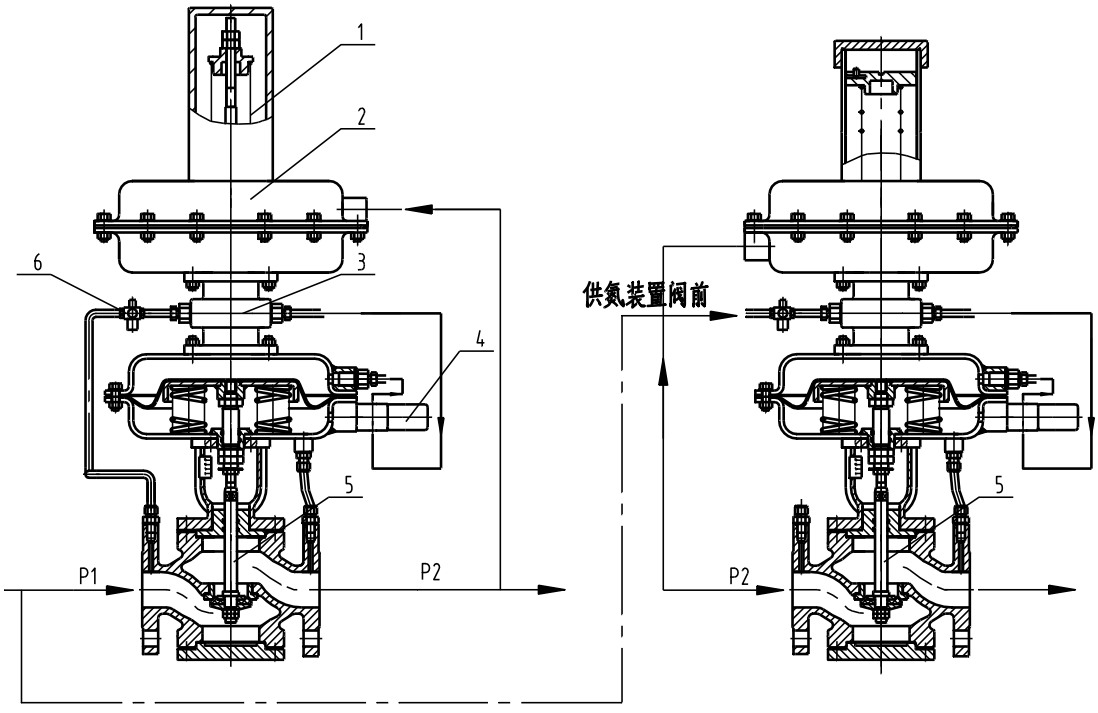
changes.

2、产品要求

2、Product requirements

2.1 产品结构

指挥器操作自力式压力调节阀由指挥器执行机构、调节主阀、微调针型阀和导压管四部分组成。



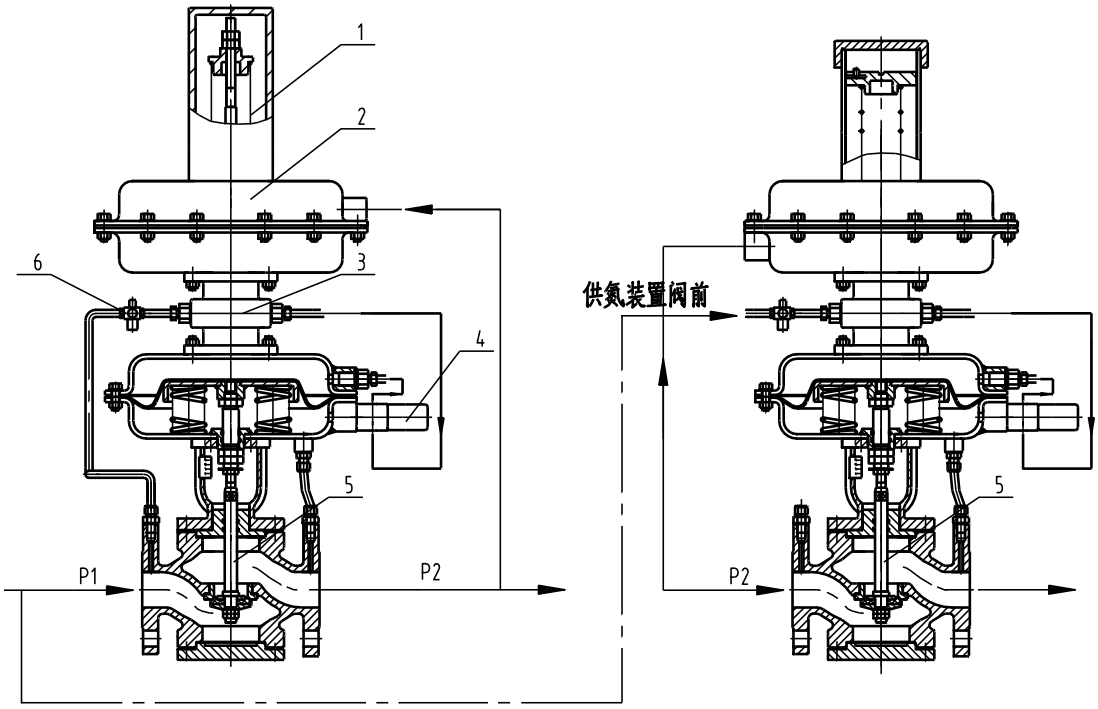
DZL-BII（控制阀后）　　DZL-KII（控制阀前）

1. 压力设定弹簧 2. 指挥器执行机构 3. 指挥阀 4. 针型阀 5. 主阀 6. 空气过滤减压器

2.1 Structure

The self-acting type control valve consists of four parts: the controller actuator, the control main valve, the fine-tuning needle valve, and the pressure

pipe.



DZL-BII (Control valve rear pressure) DZL-KII (Control valve front pressure)

1. Pressure setting spring 2. controller actuator 3.controller 4. needle valve 5.main valve 6. Air filter pressure reducer

2.2 主要零件材料

阀　　体：WCB、ZG230-450、CF8、CF8M、ZG1Cr18Ni9Ti 等

阀　　杆：0Cr18Ni9、304、316 等

阀　　芯：PTFE、R-PTFE、0Cr18Ni9、304、316 或上述材料堆焊斯泰来合金等

阀　　座：0Cr18Ni9、304、316 或上述材料堆焊斯泰来合金等

填　　料：PTFE 或柔性石墨

波纹膜片：丁晴（氟、硅）橡胶夹增强涤纶织物

注：1）以上为本公司常用材料，特殊要求可供其他材料。

2）具体材料牌号以订货合同为准。

2.2 Main component materials

Body: WCB, ZG230-450, CF8, CF8M, ZG1Cr18Ni9Ti, etc

Stem: 0Cr18Ni9, 304, 316, etc

Valve core: PTFE, R-PTFE, 0Cr18Ni9, 304, 316 or the above materials are welded with Stellite alloy, etc

Seat: 0Cr18Ni9, 304, 316 or the above materials are welded with Stellite alloy, etc

Packing: PTFE or flexible graphite

Ripple diaphragm: Nitrile (fluorine, silicon) rubber added reinforced polyester fabric

Note: 1) The above are commonly used materials of our company, and other materials can be provided upon special requirements;

2) The specific material shall be subject to the contract

2.3 主要技术参数

2.3 Main technical parameters

公称通径 DN(mm)	20	25	32	40	50	65	80	100	125	150	200	250	300
额定流量系数 K_V	5	8	12.5	20	32	50	80	125	160	320	450	630	900
额定行程(mm) Rated travel	8		10		12	15	18	20	30	40	45	60	65

公称通径 DN(mm)	20 (或 G3/4") 20 (or G3/4")											
阀座直径 Seat diameter	2	3	4	5	6	7	8	9	10	12	15	20
额定流量系数 K_V	0.02	0.08	0.12	0.20	0.32	0.5	0.80	1.20	1.80	2.80	4.0	5
公称压力 PN	Mpa	1.6, 2.5, 4.0,6.4(6.3) /2.0, 5.0, 11.0										
	Bar	16, 25, 40, 64(63)/20, 50, 110										
	Lb	ANSI: Class150、Class300、Class600										
压力分段范围 kPa	15～50、40～80、60～100、80～140、120～180、160～220、200～260、240～300、280～350、330～400、380～450、430～500、480～560、540～620、600～700、680～800、780～900、880～1000、900～1200、1000～1500、1200～1600、1300～1800、1500～2100、											
流量特性 Flow characteristic	快开 Quick opening											
调节精度 Accuracy	±5-10(%)											
使用温度 Temperature	-60～350(^{0}C) (低于-60 特殊设计)　350～550(^{0}C) -60～350(^{0}C) (Special design below -60)　350～550(^{0}C)											
允许泄漏量 leakage	IV 级（硬密封）　VI 级（软密封）　(GB/T4213-92) IV (Hard seal)　VI (Soft seal)　(GB/T4213-92)											
减压比 Pressure reducing ratio	1.25～10（ 超过此范围特殊设计） 1.25～10 (Special design beyond this range)											

备注：1.压力调节范围的确定：压力调节范围的确定见上表，控制压力应尽量选在中间期附近，压力范围设定越小，精度越高,因此不要人为扩大压力设定范围。

2.对控制阀后的自力式而言,若阀前后压差比超过 10 这个范围,建议用多级减压阀或二个自力式串联(阀前压力小于 0.8Mpa 除外,例如指挥器操作式)

Note: 1. Determination of pressure regulation range: The determination of the pressure adjustment range is shown in the table above. The control pressure should be selected as close as possible to the middle. The smaller the pressure range, the higher the accuracy. Therefore, do not artificially expand the pressure setting range.

2. For the self-acting type valve after the control valve, if the pressure difference ratio between the front and rear of the valve exceeds 10, it is recommended to use a multi-stage valve or two self-acting type valves in series (except for valve front pressure less than 0.8Mpa, such as a control operated type)

2.4 连接标准

（1）法兰按 GB/T9113-2000(默认标准)，也可按 JB/T79.1，JB/T79.2，或 HG20592～HG20635。

（2）法兰密封面型式：PN16 为凸面法兰；PN25 为凸面法兰；PN40、PN64(63)为凹凸面法兰，阀体为凹面法兰。

（3）法兰端面距按 GB12221 (其它标准须指明)。

（4）执行机构信号接口：内螺纹 M16×1.5。

（5）阀体法兰及法兰端面距离可以按用户指定的标准制造，如 ANSI，JIS，DIN 等。

2.4 Connection standards

（1）Flange according to GB/T9113-2000 (default standard), it can also be according to JB/T79.1, JB/T79.2, or HG20592~HG20635.

（2）Flange sealing surface type: PN16 is RF; PN25 is RF; PN40, PN64 (63) are MFM, and the valve body is FM.

（3）The distance between flange end faces shall be in accordance with GB12221 (other standards must be specified).

（4）Signal interface of actuator: internal thread M16×1.5.

（5）The distance between the valve body flange and the flange end face can be manufactured according to user specified standards, such as ANSI, JIS, DIN, etc.

3、安装与维护

3、Installation and Maintenance

3.1 安装前准备

（1）产品安装前，应检查阀门是否完好，附件是否齐全。

（2）安装时应注意取压管的方向位置。

（3）根据取压管的安装位置在管道上开取压口（本体取压型不需），并焊接取压管接头。

（4）对管道进行吹扫，以免焊渣损坏阀门。

（5）检测管路各连接处、焊接部位有否有泄漏。

（6）用户若需进行压力设定值调整，可按调试大纲进行。

（7）使用过程中应注意不应使阀前压力高出 1 MPa，否则会损坏减压器。

（8）产品运行时，不得关闭阀后截止阀，以免阀前压力突然增高损坏执行器膜片。应经常检查接头、填料等处是否泄漏，如遇零配件损坏应

及时检修和更换。

（9）减压器和针型阀在出厂前均已调整好，使用中应注意不得改变。

3.1 Preparation

（1）Before installing, check whether the valve is intact and whether the accessories are complete.

（2）During installation, attention should be paid to the direction of the pressure tapping pipe.

（3）According to the installation position of the pressure tapping pipe, open a pressure tapping port on the pipeline (not required for the main pressure tapping type), and weld the pressure tapping pipe joint.

（4）Blow out the pipeline to prevent welding slag from damaging the valve.

（5）Check for any leaks at the connections and welding parts of the pipeline.

（6）If the user needs to adjust the pressure setting value, they can follow the debugging outline.

（7）During use, attention should be paid not to increase the pressure in front of the valve by 1Mpa, otherwise it will damage the pressure reducer.

（8）During product operation, the globe valve behind the valve should not be closed to prevent sudden increase in pressure in front of the valve from damaging the actuator diaphragm. Regularly check for leaks in joints, fillers, and other parts. If any parts are damaged, they should be repaired and replaced

in a timely manner.

（9）The pressure reducer and needle valve have been adjusted before leaving the factory, and should not be changed during use.

3.2 安装

（1）检查各零部件是否缺损与松动，对使用有害人体健康的介质，必须进行耐压强度、填料函密封性及泄漏量测试。

（2）安装后必须将阀门处于最大开度，对管道进行冲刷、清洗，防止焊渣、杂物卡堵节流口，破坏密封面。阀门入口处要有足够的直管段，并配有过滤器，阀体与管道的法兰连接要注意同轴度。

（3）安装场地应考虑到人员、设备的安全、便于操作，有利于拆装与维护。

（4）阀门应正立垂直安装在水平管道上，导压管必须安装在距离阀出口至少六倍于工程通径的阀后管道上，阀门取压点附近安装指示压力表。阀自重较大或有震动的场合，要用支撑架，尽量避免水平安装。

（5）介质流动方向应与阀体上的箭头指向一致，因波纹膜片直接承受介质压力，若阀门反装或管道有反冲压力，则膜片由于受压过高容易导致膜片损坏，阀门不能工作。

（6）阀门应在环境温度-20~50 ℃的场所使用。

3.2 Installation

（1）Check for any defects or looseness in the components. For media that are harmful to human health, it is necessary to conduct pressure resistance,

packing box sealing, and leakage testing.

（2）After installation, the valve must be at its maximum opening, and the pipeline must be flushed and cleaned to prevent welding slag and debris from blocking the throttling port and damaging the sealing surface. The valve inlet should have sufficient straight pipe sections and be equipped with filters. The flange connection between the valve body and the pipeline should pay attention to coaxiality.

（3）The installation site should consider the safety of personnel and equipment, facilitate operation, and facilitate disassembly and maintenance.

（4）The valve should be installed vertically on a horizontal pipeline, and the pressure pipe must be installed on the pipeline behind the valve at least six times the engineering diameter from the valve outlet. An indicating pressure gauge should be installed near the pressure tapping point of the valve. In situations where the valve has a heavy weight or vibration, a support frame should be used and horizontal installation should be avoided as much as possible.

（5）The flow direction of the medium should be consistent with the arrow on the valve body, as the corrugated diaphragm directly bears the pressure of the medium. If the valve is installed in reverse or there is backflow pressure in the pipeline, the diaphragm may be damaged due to excessive pressure, and the valve cannot work.

（6）Valves should be used in places with an ambient temperature of

-20~50 ℃.

3.3 调试

指挥器操作自力式压力调节阀在出厂前已按设定压力值调整好，用户一般不需重新调整。

若用户在自力式压力调节阀安装完成后，需进行压力设定值调试，可按下列步骤进行：

（1）缓慢打开自力式压力调节阀前截止阀，观察阀后压力表的压力。

（2）若阀后压力低于设定值，则打开顶部罩盖，用扳手转动调节盘，压缩弹簧，观察压力变化，直至压力升高至设定值。

（3）若阀后压力高于设定值，则用扳手转动调节盘，放松弹簧，观察压力变化，直至压力降低至设定值。

（4）如用户想改变压力设定值，则按 2、3 条操作。

（5）调试完成后，盖好罩盖。

3.3 Adjustment

The self-acting type control valve has been adjusted according to the set pressure value before leaving the factory, and users generally do not need to readjust it.

If the user needs to adjust the pressure setting value after installing the valve, the following steps can be followed:

（1）Slowly open the globe valve in front of the self-acting type control valve and observe the pressure on the pressure gauge behind the valve.

（2）If the pressure behind the valve is lower than the set value, open the top cover, use a wrench to turn the adjustment plate, compress the spring, and observe the pressure change until the pressure rises to the set value.

（3）If the pressure behind the valve is higher than the set value, use a wrench to turn the adjustment plate, loosen the spring, and observe the pressure change until the pressure drops to the set value.

（4）If the user wants to change the pressure setting value, follow steps 3 and 4.

（5）After debugging is completed, cover the cover properly.

4、维护

（1）阀门清洗：对一般介质只要用水洗净就可以。但对清洗有害健康的介质，首先要了解其性质，再选用相应的清洗办法。

（2）阀门的拆卸：将外露表面生锈的零件先除锈，但除锈前要保护好阀体密封面及阀杆等精密零件的加工表面。

（3）阀芯、阀座：二密封面有较小的锈斑与磨损，可用机械加工的方法进行修理，如损坏严重必须换新。但不管修理或更换后的密封面，都必须进行研磨。

阀　　杆：表面损坏，必须更新。

压缩弹簧：如有裂纹等影响强度的缺陷，必须换新。

易损零件：填料、密封垫片与 O 型圈，每次检修时，全部换新。膜片必须检查是否简要发生裂纹、老化与腐蚀等痕迹，决定是否更换，但膜片

使用期一般最多 2~3 年。

（4）阀门组装要注意对中，螺栓要在对角线上拧紧，滑动部分要加润滑油。组装后应按产品出厂测试项目与方法调试。

4. Maintenance

（1）Clear valve: For general media, simply rinse with water. But for harmful media, it is necessary to first understand their properties and then choose corresponding cleaning methods.

（2）Valve disassembly: Remove rust from the exposed surface of the parts, but protect the sealing surface of the valve body and the machining surface of precision parts such as the valve stem before rust removal.

（3）Valve core and seat: There are small rust spots and wear on the two sealing surfaces, which can be repaired by mechanical processing. If the damage is severe, it must be replaced. But regardless of whether the sealing surface is repaired or replaced, it must be ground.

Stem: Surface damage, it must be replaced.

Compression springs: If there are defects such as cracks that affect strength, they must be replaced.

Vulnerable parts: packing, sealing gasket, and O-ring, all need to be replaced during each maintenance. The membrane must be checked for signs of cracking, aging, and corrosion before deciding whether to replace it, but the service life of the membrane is generally up to 2~3 years.

（4）Valve assembly should pay attention to alignment, bolts should be tightened diagonally, and lubricating oil should be added to the sliding part. After assembly, it should be debugged according to the factory testing items and methods of the product.

5、订货须知

5、Ordering Instructions

阀门型号 Model		阀门名称 Name	
公称通径 DN(mm)	√	公称压力 PN(MPa)	√
压力调节范围(Mpa) Pressure adjustment range		控制阀前还是阀后 Control valve front pressure or valve rear pressure	√
压力设定值(Mpa) Pressure setting value	√	介质名称 Medium	√
执行机构型式 Actuator type		介质工作温度 Medium temperature	√
额定流量系数 Kv		介质状态 Medium status	√
阀前最大压力 Input pressure Max. 阀前最小压力 Input pressure Min. 阀前正常压力（Mpa） Input pressure Norm.		阀后最大压力 Output pressure Max. 阀后最小压力 Output pressure Min. 阀后正常压力（MPa） Output pressure Norm.	
最大流量 Flow rate Max. 最小流量		液体粘度 Dynamic Viscosity 液体密度	

Flow rate Min. 正常流量 Flow rate Norm.		Liquid Density 气体密度 Air Density	
材质 Material： 阀体 Body 阀内件 Trim		泄漏量等级要求 Leakage level （GB/T4213-92）	
工艺管道尺寸 Line size	√	耐蚀要求 Corrosion resistance requirements	
法兰面距(mm) L Distance between flange end faces		法兰执行标准 Flange standard	
所配附件 Accessories	冷凝器、接管、配法兰、紧固件、调压棒、取压管、取压接头 Condenser, connecting pipe, flange, fastener, pressure regulating rod, pressure tapping pipe, pressure tapping joint		

其中带√的必须填

The ones marked with √ must be filled in

太原太航德克森自控工程股份有限公司

TAIYUAN TAIHANG DIRKSEN AUTOCONTROL ENGINEERING Co. Ltd.

地址：山西·太原市晋善街 43 号
Address: No.43 Jinshan Road, Taiyuan, Shanxi
服务专线 Service hotline：400-800-1819
电话 Tel：0351-7058194、7054664、7058124
E-mail: dirksen@vip.sina.com
网址 Web：http://www.dirksen.cn