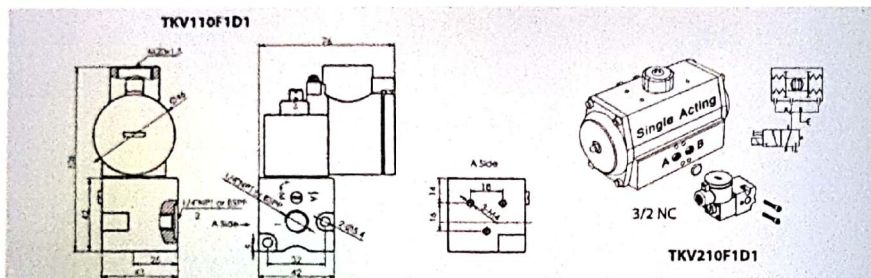


Dimension and Installing

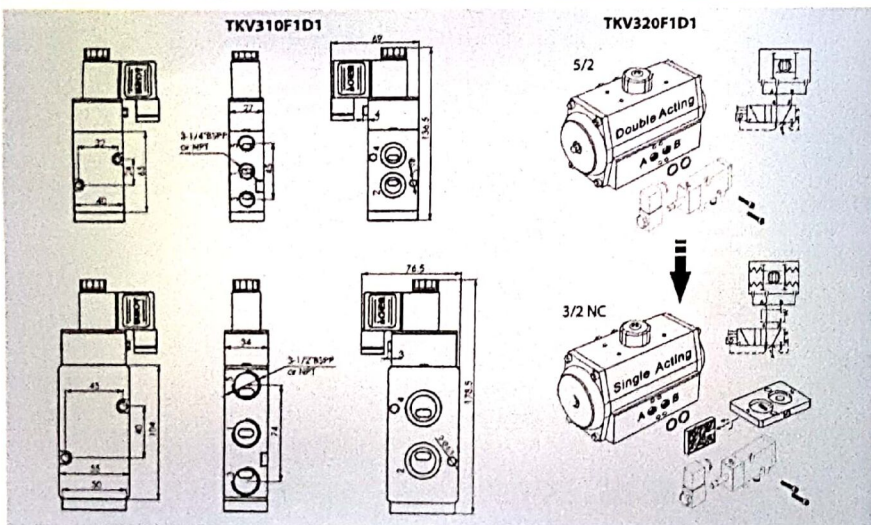
* Prior installing the solenoid valve, depressurize the pipes and clean them internally to avoid particles entering the system (tape sealant, thread compound). The valve may be mounted on the Namur interface of the pneumatic actuator in usage of Namur interface plates depending on the design of the spool valve.

The mounting dimension of the TKV100/200 series directing solenoid valve is multi-mount design. For the same body, the Namur and threaded connections are available. As for Namur connection, the body can be directly mounted to the Namur interface of the pneumatic actuator with two screws M5x35 (Torque 4-5Nm) provided. Details see the below Fig.



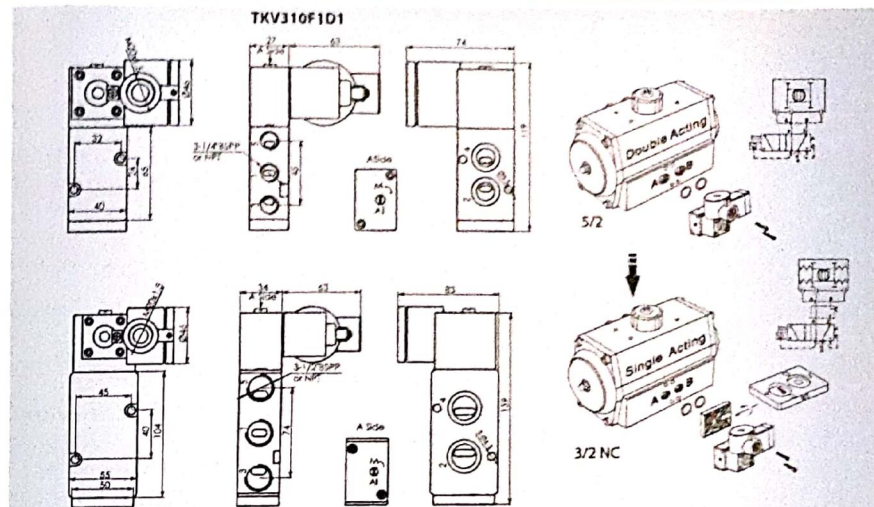
The mounting dimension of the ALV300/400 series pilot solenoid valve is directly Namur connection design (threaded connection available). For 5/2 function, the spool valve can be directly mounted to the Namur interface of the pneumatic actuator with two screws M5x27 for ALV300 provided.

For 3/2 NC function, armed with 3/2 Namur interface plate provided, the spool valve can be mounted to the Namur interface of the pneumatic actuator with two screws M5x35 for ALV300 provided. Details see the below Fig.

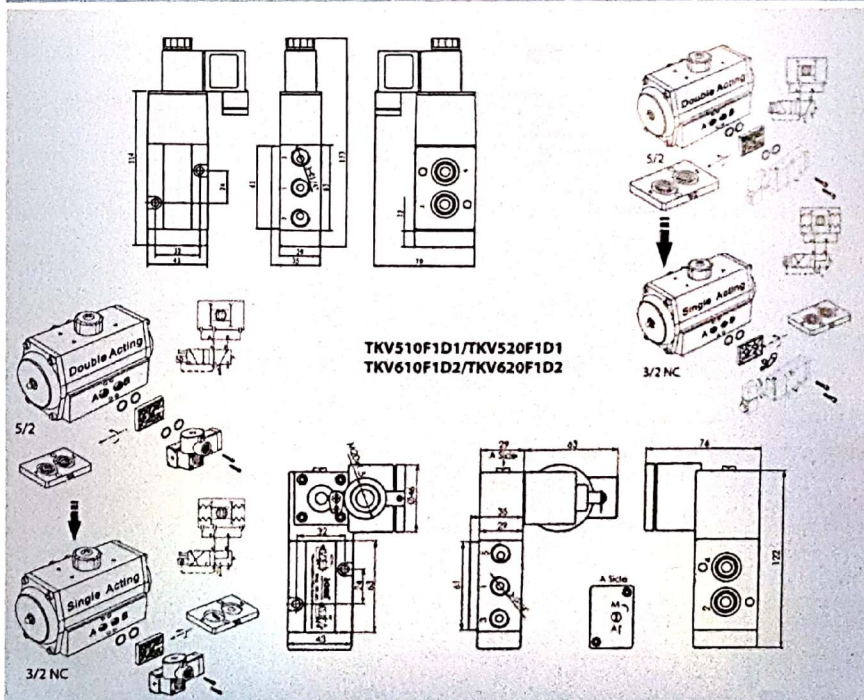


Statement

For continuous improvement of the product, we reserve the right to alter the dimensions, technical data and information included in this Manual Operation Introduction.



The mounting dimension design of the TKV 500/600 series pilot solenoid valve is exactly in light of Namur standard (threaded connection available). The same spool valve equips with 3/2 and 5/2 function Namur interface plates provided for controlling single-acting and double-acting actuators. According to the direction of the Namur interface plates, fix the spool valve and the interface plate on the Namur interface of the pneumatic actuator with two screws M5x35 (Torque 4-5Nm) provided. Details see the below Fig.



TKV Series Solenoid Valve Manual Operation Introduction

Description

TKV series solenoid operated spool valve make of anodized aluminum or stainless steel. The spool valves have threaded port connection and/or Namur interface. In below form, you can find the basic pneumatic datum for every member of TKV series spool valve.

Series	Type	Cv Value	Nominal flow rate(L/min)	Threaded port	Namur interface	Material	3/2 NC	5/2	5/3
TKV100	Direct	0.10	74(at 5 bar)	1.8" or 1/4"	24x32	Anodized aluminum	Available	N/A	N/A
TKV200	Direct	0.10	74(at 5 bar)	BSP or NPT	24x32	AISI 316			
TKV300	Pilote	1.40	1390(at 5 bar)	1/4" BSP or NPT	24x32	Anodized aluminum	Available	Available	N/A
TKV500	Pilote	1.10	1100(at 5 bar)	1/4" BSP or NPT	24x32	AISI 316			
TKV600	Pilote	1.10	1100(at 5 bar)	1/4" BSP or NPT	24x32	AISI 316			

TKV series direct operated valves is suitable for single (mono-stable) solenoid with standard coils, and various explosion-proof coils certified for use in hazardous area (Zone 0, 1, 2 and Class I Div. 1 & 2 Group A, B, C and D)

TKV series pilot operated spool valve is suitable for single/dual (mono/bi-stable) solenoid with standard coils, Cnomo interface coils or various explosion-proof coils certified for use in hazardous area (Zone 0, 1, 2 and Class I Div. 1 & 2 Group A, B, C and D)

As for TKV310/320 series Namur version, the 5/2 function spool valves are available to mounted directly for controlling double-acting actuator and the same spool valve also can be adapted by 3/2NC Namur function interface plate for controlling single-acting actuators.

As for TKV500/600 series Namur version, the same spool valve can be adapted by 5/2 or 3/2NC function Namur interface plates for controlling double-acting or single-acting actuators.

Special Conditions for Safe Use

To ensure the proper function of the device and promote long service life, you must comply with the information in these Operation Instructions and the application conditions and specifications provided in the Data Sheet. Usage of the device in a manner that is contrary to those Operating Instructions or the application condition and specification provided in the Data Sheet is improper and will avoid your warranty. This device serves exclusively as a 3/2, 5/2 or 5/3 solenoid valve for the media stated to be permissible on this Introduction and the Data Sheet. Any other use is considered to be improper use. The manufacturer will not be responsible for any improper use of the device.

Changes to the product may only be made after consulting the manufacturer or his representative. Installation and maintenance of the valve must be carried out by qualified personnel only.

Those solenoid spool valves are designed to operate with filtered ($\leq 40\mu\text{m}$), dry or lubricated air or neutral gas and within the technical characteristics specified on the nameplate and in the Data Sheet.

Pneumatic Connection

General recommendations

Connect pipes for the required functions in accordance with this documentation and the ports markings on the product. Make sure that no foreign matter enters the system. Correctly support and align pipes to prevent mechanical strain on the valve.

When tightening, do not use the valve as a lever. Locate wrenches as close as possible to connection point. To avoid damage to the equipment, **DO NOT OVER TIGHTEN** pipe connections.

Connection of the spool valve

TKV series serves exclusively as a 3/2, 5/2 or 5/3 solenoid valve. Pressure inlet at port 1 on the body of the valve, Pressure outlet at port 2 and 4 on the body or on the interface plates, Exhaust at ports 3 and 5 on the body of the valve. Technical details please consult with Dimension and Installing.

TKV Series Solenoid Valve Manual Operation Introduction

Connection of pilot exhaust

The standard model has a $\varnothing 3$ exhaust port at end of the pilot valve. Just fixing and tightening a M8x0.75 female nut supplied on it.

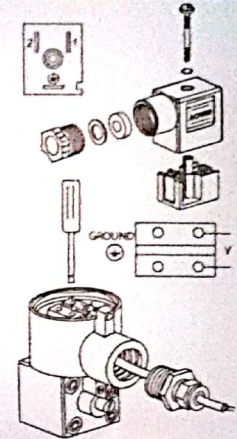
Electrical connection

General recommendation



- Electrical connection must be made by qualified personnel and according to applicable local standards and regulations.
- Before any electrical connection, turn off the electrical current to power off the components
- Depending on the voltage, electrical components must be grounded according to local standards and regulations.
- Most valves are designed for continuous duty. To prevent the risk of personal injury, do not touch the solenoid operator which can become hot under normal operating condition.
- Standard coils (C0)
Electrical connection is made with detachable plug connector for cable dia. 6-8mm (see fig.), rotatable by 180° increments (3 pins: 1, 2 electric pins + PE)
- Flameproof coils (D1, D2)
Electrical connection is made with wiring box with M20-1.5 or 1/2" cable entry, two points terminal strip for electric pins + ground pins and outside ground pins is available. (see fig.)
- Other explosion proof coils
See particular data sheet delivered with these coils.

C0 coil electric connection



D1, D2 coils electric connection

Maintenance

Prior any maintenance work, switches off power supply, depressurize and vent the valve to prevent the risk of personal injury or damage equipment.

Preventive maintenance

Operate the valve at least once a month to check its function.

Avoid obstruction of exhaust port when it is not connected or protect it with a cap.

Cleaning

Maintenance of the valve depends on the operating conditions. They must be cleaned at regular intervals. Cleaning must be done when a slowing down of the cycle, a leakage or an abnormal noise is noticed. The components must be checked for excessive wear. Cleaning must be made with suitable solvent.

Spare parts

After a prolonged use, it can be necessary to replace the active components of the valve. A spare Parts Kit is available for each version of spool valve. Contact the manufacturer or his representative.

Flameproof joints

Repairs of the flameproof joints must in compliance with the structural specifications provided by the manufacturer. Repairs must not be made on the basis of values specified in tables 2 and 3 of EN/IEC 60079-1.

Troubleshooting

Valve fails to operate (No switching noise)

- Check that electrical supply complies with values mentioned on the nameplate or coil.
- Check coil for shorts or damage.
- Check that mobile parts (spool, pilot plunger) are not blocked by foreign particles.
- Check if the Namur interface plate mounted incorrectly.

Valve fails to return (for mono-stable)

- Check if the return spring is broken.
- Check if the pilot exhaust port is blocked.

Valve switches but without effect

- Verify air pilot pressure (mini 2 bar)
- Verify if the pilot plunger spring is broken.

External leakage

- Verify connectors and tightening of the valve on its interface plate.
- Verify the tightening of the pilot.



* 技术参数

产品型号	电压 (V)	电流 (mA) ±1%	电阻 (Ω) ±3%	功率 (W) ±3%	环境温度 (°C)	线圈温升 (°C)
TKV D1-C012	DC12V	250	47	3	-20~+60	≤80
TKV D1-C024	DC24V	125	183	3	-20~+60	≤80
TKV D1-C110	AC110V	36	1300	4	-20~+60	≤80
TKV D1-C220	AC220V	18	5000	4	-20~+60	≤80

* 概述:

本产品经国家防爆电气产品质量监督检验测试中心检测合格,将所用电气元件封装在金属壳体内并浇封保护线圈。

本产品适用场所: Ex d IIC T6 Gb/Ex tD A21 IP65 T80°C 适用于 IIC 类 (包含 II A、II B、II C) T1~T6 组可燃性气体、蒸气与空气混合形成的爆炸性混合物的 1 区及 2 区场所以及可燃性粉尘环境的 21 区和 22 区,最高表面温度不大于 80°C。

正常工作条件:

- 大气压力: 80~110kPa
- 环境温度: -20°C~+60°C
- 相对湿度: <95% (+25°C)
- 在无显著摇动和冲击振动的地方。



* 引用标准:

GB 3836.1-2010 爆炸性环境 第1部分:设备 通用要求

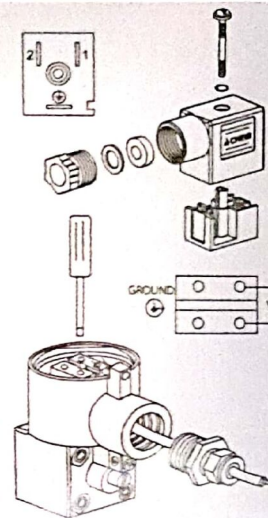
GB 3836.2-2010 爆炸性环境第2部分:由隔爆外壳“d”保护的的设备

GB12476.1-2013 可燃性粉尘环境用电气设备 第1部分:通用要求

GB12476.5-2013 可燃性粉尘环境用电气设备 第5部分:外壳保护型“tD”

* 隔爆系列产品使用注意事项:

- 防爆产品使用环境温度范围: -20°C~+60°C。
- 防爆产品的电缆引入应符合国家标准 GB 3836.1-2010 GB 3836.2-2010、GB12476.1-2013 和 GB12476.5-2013 的规定,螺纹规格为 M20*1.5,具有防爆等级为 Ex d IIC T6 Gb/Ex tD A21 IP65 T80°C 的电缆引入装置,有效啮合 5 扣以上,方可用于爆炸性危险场所。
- 防爆产品设有外接地端子,用户在安装使用时应可靠接地。
- 现场使用和维护时,必须遵循“严禁带电开盖”的原则。
- 用户不得自行更换该产品的零部件,应会同产品制造商共同解决运行中出现的故障,以杜绝损坏现象的发生。
- 可燃性粉尘环境使用时,需采取有效措施清洁产品外壳以避免粉尘堆积,但严禁使用压缩空气吹扫。
- 防爆线圈的工作原理就是,通电产生磁力,使阀芯移动,失电则阀芯到原来的位置。(防爆线圈可长时间通电使用)。

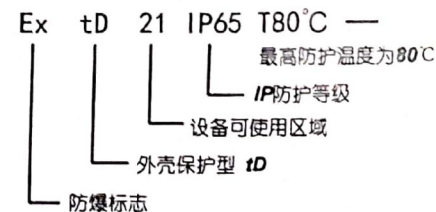
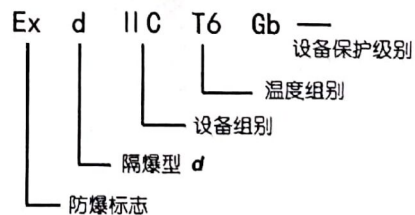


- 严禁带电开盖
- 防爆电缆线及接头不是随机配件

- 防爆产品的安装、使用和维护应同时遵守产品说明书及以下相关标准、规范的要求:

GB3836.13-2013 爆炸性环境 第13部分:设备的修理、检修、修复和改造
 GB3836.15-2017 爆炸性环境 第15部分:电气装置的设计选型和安装
 GB3836.16-2006 爆炸性气体环境用电气设备 第16分:电气装置的检查和维修 (煤矿除外)
 GB50257-2014 电气装置安装工程爆炸和火灾危险环境 电气装置施工及验收规范
 GB15577-2007 粉尘防爆安全规程。

* 防爆标志产品型号识别:



TKV

A

外壳材料
 -D1 铝合金
 -D2 不锈钢

B

-C220 AC220V
 -C110 AC110V
 -C024 DC24V
 -C012 DC12V