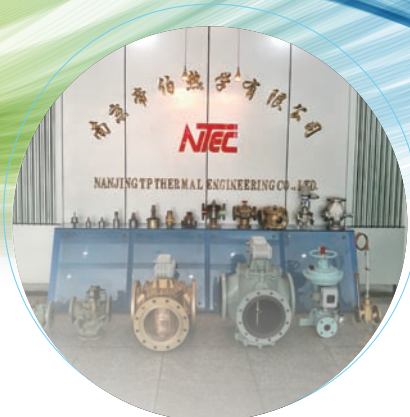




南京帝伯热学有限公司
Nanjing TP Thermal Engineering CO., Ltd.

温度控制阀

Temperature Control Valve



www.cn-ntec.com



公司概况

南京帝伯热学有限公司（简称NTEC）是由南京航海航标装备总厂（原南京航海仪器厂）与日本TPR株式会社共同投资组建的一家中外合资企业，坐落于六朝古都南京。公司于2002年7月注册成立，位于国家级南京经济技术开发区内。

本公司专业从事各类温度自动调节阀的研发、生产、销售，拥有世界一流的设计开发、生产、试验和管理团队。公司已取得ISO9001质量管理体系（DNV·GL）认证和ISO14001环境体系认证。温度自动调节阀类产品通过挪威·德国DNV·GL、英国LR、法国BV、日本NK、韩国KR、意大利RINA、美国ABS、俄罗斯RS等船级社的检验，并获得中国CCS的产品型式认可。

多年来公司与众多设计院所、柴油机厂、船舶制造厂保持密切的合作关系，产品广泛用于船舶制造、舰船装备、动力机械、发电装置、润滑设备、中央空调、石化装备等行业。公司凭借过硬的产品质量和优质的服务赢得广大客户的一致好评，业绩和知名度在全球温度自动调节阀领域处于领先。

Introduction

Nanjing TP Thermal Engineering CO., Ltd. (Abstraction is NTEC) is a joint venture invested by Nanjing Navigation& Aids Assemble Factory (the old name is Nanjing Navigation Instrument Factory) and TPR Co., LTD.(TPR Japan), was established in July 2002, and lies in Nanjing Economic& Technological Development Zone.

NTEC specializes in researching & developing the temperature auto-control valves(TCV) and owns world-class researching & developing, testing, managing experience. Has acquired ISO:9001 quality system and ISO14001 environment system certificate. The TCVs have been checked by society class such as DNV·GL, LR, BV, NK, KR, RINA, ABS, RS and type approved by CCS.

The TCVs widely used in ship-building, engine, lubricate equipment, central air condition etc. With excellent product quality and high grade after service, NTEC has won the unanimous recognition of customers, and its performance and popularity are in the leading position in the world.



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概述 Introduction

蜡质温度自动调节器（简称调温器）主要用于调节各类船舶动力装置冷却系统中的滑油、淡水、海水等介质的温度。也可应用于润滑设备、燃气轮机、陆用电站。调温器依靠热敏件自身推力调节开度，不需要外部动力，安装简单，维护方便，具有应急手动功能。

产品标准是 CB3456-92。

Wax type Temperature Auto Regulating Valve (TRV) is mainly used to regulate the temperature of lubricating oil, fresh water, seawater and other media in the cooling system of various ship power plants. It can also be used in lubricating equipment, gas turbine and land power station. TRV relies on the thrust of the element parts to adjust the open or shut. It does not need external power. It is simple to install and easy to maintain. It has emergency manual function.

The product standard is CB3456-92.

温度调节范围 Temperature Regulating Range

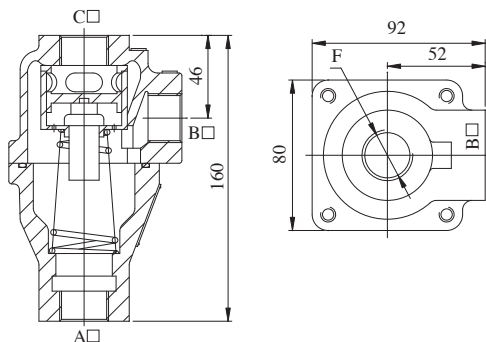
热敏元件分类 Range Groups	温度调节范围 Regulating Range
15度范围 15℃ Range	20~35℃、25~40℃、30~45℃
	35~50℃、40~55℃、45~60℃
	50~65℃、55~70℃、60~75℃
	65~80℃、70~85℃、75~90℃
	80~95℃、85~100℃
10度范围 10℃ Range	20~30℃、25~35℃、30~40℃
	35~45℃、40~50℃、45~55℃
	50~60℃、55~65℃、60~70℃
	65~75℃、70~80℃、75~85℃
	80~90℃、85~95℃、90~100℃
其它温度范围 Other Temp. range	可根据用户要求订做 Can be supplied also

注：不灵敏度≤3℃。

基本参数 Basic Parameters

型号 Type	通径 DN(mm)	公称压力 PN(MPa)	推荐流量 Suggest flow (m³/h)kv		最大泄漏量 Max. leakage	重量 Weight(kg)
			淡水 Fresh water	滑油 Lube oil		
LHZG-15	15	1.0	2~4	1.5~3	≤2%kv	2.5
LHZG-20	20	1.0	3~5	2~4		2.5
LHZG-25	25	1.0	4~6	3~5		2.5
LHF-25 / LHFT-25	25	1.0	6~12	4~8		8
LHF-32 / LHFT-32	32	1.0	10~20	6~12		9
LHF-40 / LHFT-40	40	1.0	12~24	9~18		10
LHF-50 / LHFT-50	50	1.0	18~36	13~26		12
LHF-65 / LHFT-65B	65	1.0	30~50	20~40		17
LZF-65 / LZFT-65G	65	1.0	30~50	20~40	≤3%kv	23
LZF-80 / LZFT-80G	80	1.0	40~80	30~60		26
LZF-100 / LZFT-100G	100	1.0	65~130	50~100		30
LZF-125 / LZFT-125G	125	1.0	90~180	70~140		35
LZF-150 / LZFT-150G	150	1.0	120~240	100~200		55
LZF-200 / LZFT-200G	200	1.0	200~420	150~320		66

LHZG型调温器 T.R. Valve



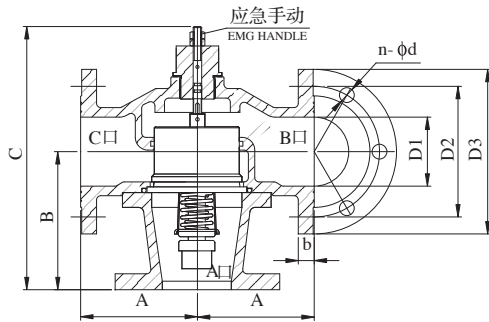
型号Type	螺纹F*
LHZG-15	ZG1/2 "、G1/2 "
LHZG-20	ZG3/4 "、G3/4 "
LHZG-25	ZG1 "、G1 "

*其它标准螺纹可商订。

*Other standard threads can be supplied also.



LHF-□/ LHFT-□型调温器 TRV

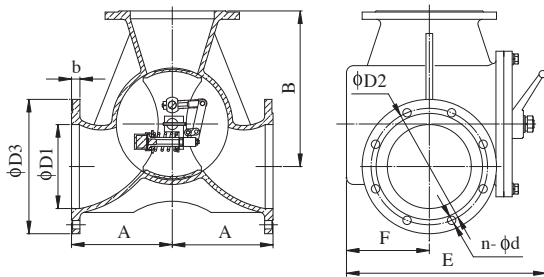


型号Type	A	B	C	D1	D2	D3	b	n-φd
LHF-25	90	107	204	25	73	105	14	4-Ø13
LHFT-25							15	
LHF-32	90	107	204	32	83	115	14	6-Ø15.5
LHFT-32							15	
LHF-40	110	130	250	40	93	125	14	6-Ø15.5
LHFT-40							15	
LHF-50	110	130	250	50	103	135	14	6-Ø15.5
LHFT-50							15	
LHF-65	110	130	255	65	123	155	14	6-Ø15.5
LHFT-65B							15	

注：LHFT-25、32、40无应急手动。

Note: LHFT-25、32、40 without emergency handle.

LZF-□/ LZFT-□G型调温器 TRV

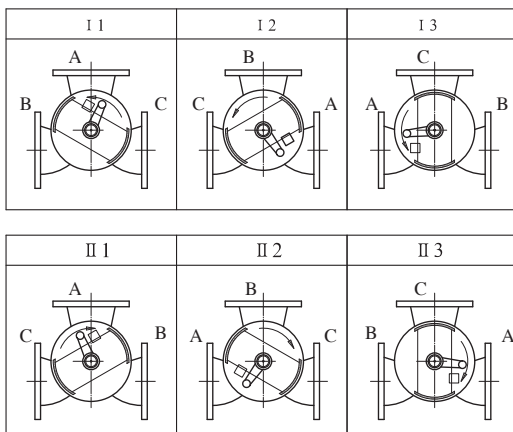


注：LHF-□/ LHFT-□和LZF-□/ LZFT-□G法兰标准CB/T45-2007(GB572-65, GB570-65), 其它法兰标准可商订。

Note: LHF-□/ LHFT-□ and LZF-□/ LZFT-□G Flange Standard CB/T45-2007(GB572-65,GB570-65), Other flange standard can be supplied also.

型号Type	D1	D2	D3	A	B	E	F	b	n-Ød
LZF-65	65	123	155	135	190	210	90	14	6-Ø15.5
LZFT-65G								15	
LZF-80	80	138	170	140	195	210	90	14	8-Ø15.5
LZFT-80G								15	
LZF-100	100	158	190	140	200	240	95	14	8-Ø15.5
LZFT-100G								15	
LZF-125	125	183	215	158	230	285	130	14	10-Ø15.5
LZFT-125G								15	
LZF-150	150	208	240	180	278	370	160	14	12-Ø15.5
LZFT-150G								16	
LZF-200	200	273	310	183	289	410	180	17	12-Ø17.5
LZFT-200G								20	

LZF型调温器安装型式TRV Fixing Type



A: 进(出)口 IN (OUT) LET PORT

B: 旁通口 BYPASS PORT

C: 冷却口 COOLER PORT

注：I₁、I₂、I₃三种型式现场可转换；I₁、I₂、I₃ Can be changed at using place.

II₁、II₂、II₃三种型式现场可转换。II₁、II₂、II₃ Can be changed at using place.

应用系统见P14。

Application refers to P14.

订货型号说明 Type Explanation

LZF□-65□ II₂ (55-70℃) 淡水

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①蜡质感温元件

②阀门型式

Z为转阀式

H为滑阀式

③连接型式

F为法兰接口

ZG为螺纹接口

④阀体材料

□“空”为铸铜

T为球墨铸铁

⑤公称通径

⑥变型序号(A、B、G等)

⑦安装型式

⑧温度范围

⑨使用介质

(淡水、滑油、海水)

①Wax element

②Valve Type

Rotating

Sliding

③Connection Type

Flange

Threaded port

④Body Material

Bronze

Ductile Iron

⑤DN(mm)

⑥Serial number (A、B、G etc)

⑦Installtion Type

⑧Temperature Range

⑨Medium

(FW、LO、SW)

概述 Introduction

电控式温度自动调节阀（简称电动阀）主要用于控制温度精度要求较高的船舶柴油机动力装置、燃气轮机、发电机组、润滑设备等冷却系统中的淡水、海水、滑油温度的自动调节。动作灵敏，控制精确，温度任意设定，有报警输出功能，适合计算机等集中监控。

Electric Control Temperature Valve (E. TCV) is mainly used for high accuracy auto-control of fresh water, sea water or lube oil in cooling system, such as diesel engine, turbine, genetator or lube oil equipment etc. It has the features of quick reaction, highly accuracy, temperature setting at will and having alarm function, suitable to be controlled by computer.

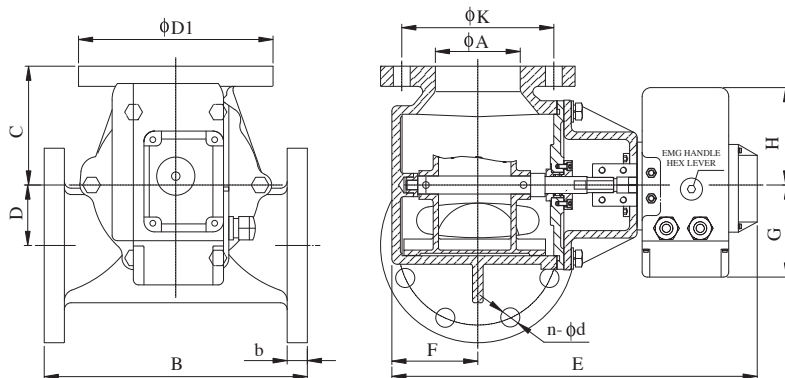
技术指标 Technical Parameters

- | | |
|------------------------|---|
| 1、电动阀不灵敏度不大于1℃； | 1. The insensitivity of the E. TCV is not than 1℃; |
| 2、在0~120℃范围内任意设定； | 2. The setting temperature can be from 0℃ to 120℃; |
| 3、电动阀的相对泄漏量不大于额定流量的3%； | 3. The relative leakage of the E. TCV isn't more than 3% of the rated flowrate; |
| 4、电动阀具有应急手动控制装置； | 4. E. TCV has manual handle for emergency; |
| 5、本产品执行标准CB/T3389-92。 | 5. It executes the standard CB/T3389-92. |

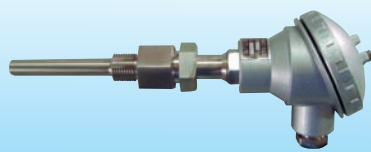
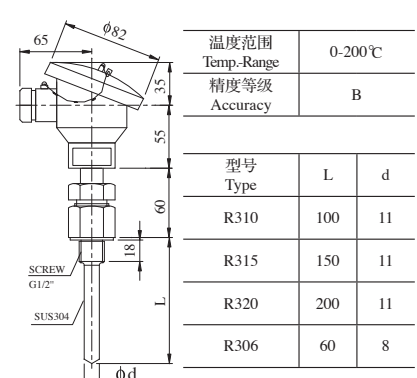
基本参数 Basic Parameters

型号 Type	公称通径 DN(mm)	额定流量 Kv(m³/h)	公称压力 PN(MPa)	电源 Power	法兰标准 Flange standard	阀体材料 Body material
DZF-50	50	30	1.0	AC220V 50 / 60Hz	GB/T2501-2010 GB/T9119-2010 DIN2532-2000 (其它标准法兰可商定) (other flange standards can be supplied also)	球墨铸铁 Ductile iron QT400-15 (其它材质可商定) (other body materials can be supplied also)
DZF-65	65	50				
DZF-80	80	80				
DZF-100	100	125				
DZF-125	125	215				
DZF-150	150	310				
DZF-200	200	555				
DZF-250	250	865				
DZF-300	300	1250				
DZF-350	350	1620				
DZF-400	400	2200				
DZF-450	450	2700				
DZF-500	500	3400				
DZF-600	600	4600				

电动阀外形及安装尺寸 E. TCV Outline and sizes



温度传感器 Sensor(Pt100)



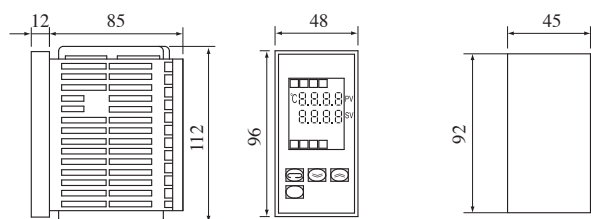
法兰标准 Sizes for Flange Standard: DIN 2532-2000 GB/T2501-2010 GB/T9119-2010

型号Type	A	B	C	D	E	F	G	H	D1	K	b	n-Ød	重量weight (kg)
DZF-50	50	254	115	57	330	67	109	98	165	125	20	4-Ø18	24
DZF-65	65	254	115	57	360	84	109	98	185	145	20	4-Ø18	27
DZF-80	80	254	115	57	360	84	109	98	200	160	22	8-Ø18	30
DZF-100	100	296	148	57	440	104	109	98	220	180	22	8-Ø18	41
DZF-125	125	330	165	64	460	125	109	98	250	210	24	8-Ø18	58
DZF-150	150	356	178	76	530	148	109	98	285	240	24	8-Ø22	78
DZF-200	200	484	242	102	650	222	133	123	340	295	26	8-Ø22	145
DZF-250	250	560	280	127	800	285	133	123	395	350	28	12-Ø22	205
DZF-300	300	660	330	152	960	338	133	123	445	400	28	12-Ø22	252
DZF-350	350	764	382	178	1070	399	133	123	505	460	30	16-Ø22	356
DZF-400	400	764	382	178	1070	399	133	123	565	515	32	16-Ø26	620
DZF-450	450	976	480	222	1135	415	200	182	615	565	32	20-Ø26	800
DZF-500	500	976	480	222	1135	415	200	182	670	620	36	20-Ø26	880
DZF-600	600	976	480	222	1290	500	200	182	780	725	38	20-Ø30	1210

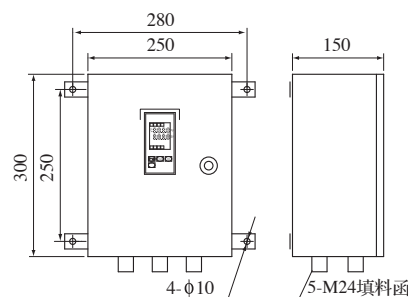
温度控制仪 Temperature Controller installation

1、台式安装 Embedded Type

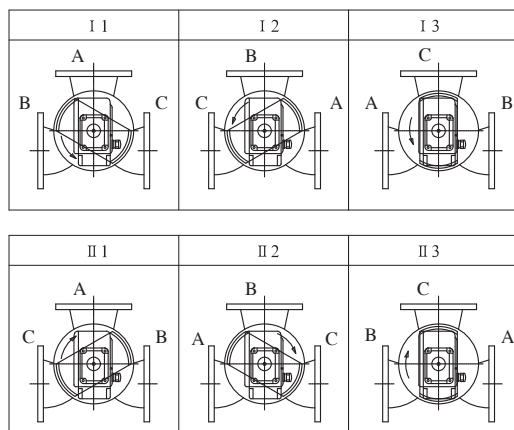
面板开孔尺寸 Panel hole sizes



2、挂壁式控制箱 Control Box (IP44)



电动阀安装型式E. TCV Fixing Type



A: 进(出)口 IN (OUT) LET PORT

B: 旁通口 BYPASS PORT

C: 冷却口 COOLER PORT

注: 为方便操作, 电机尽量不朝下安装。上述六种型式在现场可以任意转换, 不需要更改管路。

Note: In order to operate easily, the actuator should not be fixed downward. Six fixing type can be changed each other at using palce.

订货型号说明Type Explanation

DZF-□□ I 1 () 淡水

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①电控式

②转阀式

③法兰接口

④公称通径DN

⑤改型序号(A、B等)

⑥电动阀安装型式

⑦电源电压

⑧使用介质

(淡水、滑油、海水)

①Electric control Type

②Rotating Type

③Flange connection

④DN(mm)

⑤Serial number (A、B etc)

⑥Installtion Type

⑦Power Voltage

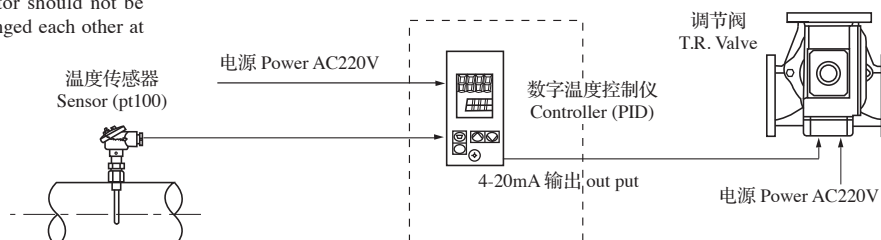
⑧Medium

(FW、LO、SW)

例: 公称通径100mm、安装型式 I 1、电源电压AC220V的电动阀订货型号为: DZF-100 I 1 (AC220V) 淡水

For Example: Diameter 100mm, Install Type and voltage, The type is: DZF-100 I 1 (AC220V) FW

电动阀系统构成 E. TCV System



概述 Introduction

电-气式温度自动调节阀（简称电气阀）主要用于控制温度精度要求较高的船舶柴油机动力装置、燃气轮机、发电机组、润滑设备等冷却系统中的淡水、海水、滑油温度的自动调节。控制精确，温度任意设定，有报警输出功能，适合计算机等集中监控，适用于有防爆要求的场合。

Electric Pneumatic Control Temperature Valve(E-P.TCV) is mainly used for high accuracy auto-control of fresh water, sea water or lube oil in cooling system, such as diesel engine, turbine, genetator or lube oil equipment etc. It has the features of highly accuracy, temperature setting at will and alarm function, suitable to be controlled by computer. Also it is suit for explosion proof type.

技术指标 Technical Parameters

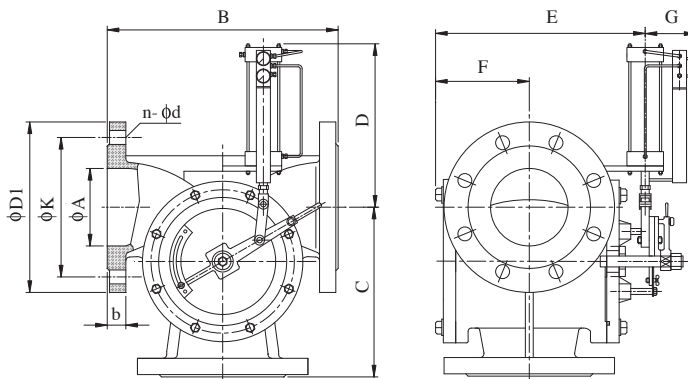
- 1、电-气阀不灵敏度不大于1℃；
- 2、在0~120℃范围内任意设定；
- 3、电-气阀的相对泄漏量不大于额定流量的3%；
- 4、电-气阀具有应急手动控制装置。

- 1.The insensitivity of the E-P.TCV is not than 1℃;
- 2.The setting temperature can be from 0℃ to 120℃;
- 3.The relative leakage of the E-P.TCV isn't more than 3% of the rated flowrate;
- 4.E-P.TCV has manual handle for emergency.

基本参数 Basic Parameters

型号 Type	公称通径 DN(mm)	额定流量 Kv(m ³ /h)	公称压力 PN(MPa)	电源/气源 Power/Air	法兰标准 Flange standard	阀体材料 Body material
QZF-50	50	30	1.0	AC220V 50 / 60Hz Air 0.7MPa	GB/T2501-2010 GB/T9119-2010 DIN2532-2000 (其它标准法兰可商定) (other flange standards can be supplied also)	球墨铸铁 Ducitile iron QT400-15 (其它材质可商定) (other body materials can be supplied also)
QZF-65	65	50				
QZF-80	80	80				
QZF-100	100	125				
QZF-125	125	215				
QZF-150	150	310				
QZF-200	200	555				
QZF-250	250	865				
QZF-300	300	1250				
QZF-350	350	1620				
QZF-400	400	2200				
QZF-450	450	2700				
QZF-500	500	3400				

电-气阀外形及安装尺寸 E-P.TCV Outline and sizes



温度传感器 Sensor(Pt100)

注：传感器型号、尺寸见样本第3页。
The sensor refers to page 3.

三通气动温度调节阀 3-Way Pneumatic Control Valve

阀体部分与下图中的气动控制器可组成三通气动温度调节阀，型号为：PZF-XX，应用系统见第14页。

Pneumatic control valve consists of valvebody and pneumatic controller, the type is PZF-XX. The application system refers to page 14.



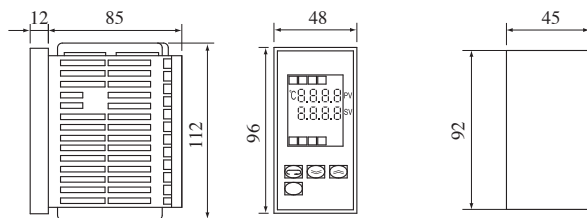
法兰标准 Sizes for Flange Standard: DIN 2532-2000 GB/T2501-2010 GB/T9119-2010

型号Type	A	B	C	D	E	F	G	D1	K	b	n-Ød	重量Weight (kg)
QZF-50	50	254	172	250	157	67	135	165	125	20	4-Ø18	22
QZF-65	65	254	172	250	195	84	135	185	145	20	4-Ø18	32
QZF-80	80	254	172	250	192	84	135	200	160	22	8-Ø18	35
QZF-100	100	296	205	246	235	104	135	220	180	22	8-Ø18	46
QZF-125	125	330	229	266	280	125	145	250	210	24	8-Ø18	60
QZF-150	150	356	254	275	349	148	145	285	240	24	8-Ø22	82
QZF-200	200	484	344	298	460	222	155	340	295	26	8-Ø22	142
QZF-250	250	560	407	298	590	285	155	395	350	28	12-Ø22	220
QZF-300	300	660	482	362	705	338	160	445	400	28	12-Ø22	265
QZF-350	350	764	560	362	820	399	160	505	460	30	16-Ø22	360
QZF-400	400	764	560	362	820	399	160	565	515	32	16-Ø26	610
QZF-450	450	976	702	450	890	415	190	615	565	32	20-Ø26	780
QZF-500	500	976	702	450	890	415	190	670	610	36	20-Ø26	860

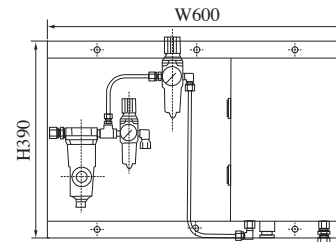
温度控制仪 Temperature Controller installation

1、台面式安装 Embedded Type

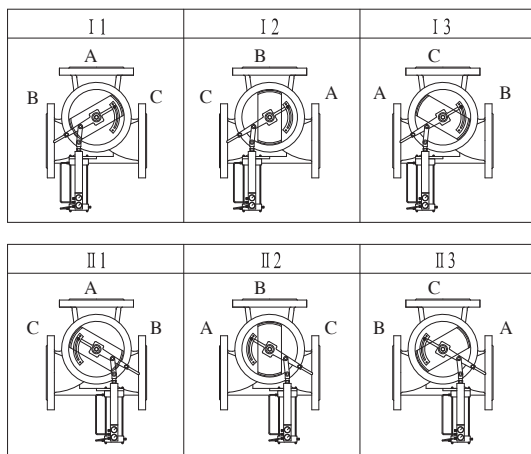
面板开孔尺寸 Panel hole sizes



2、控制板 Control Panel (IP44) H390×W600×D190



电-气阀安装型式 E-P.TCV Fixing Type

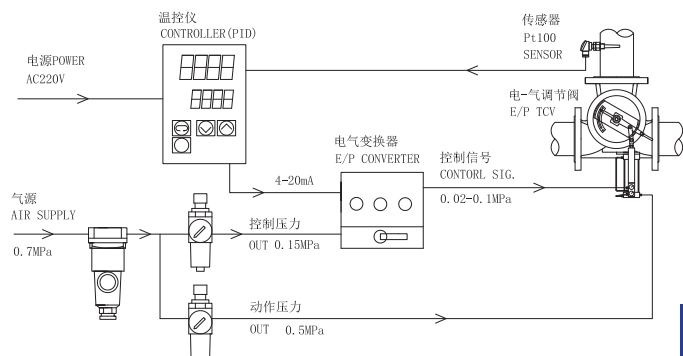


A: 进(出)口 IN (OUT) LET PORT
B: 旁通口 BYPASS PORT
C: 冷却口 COOLER PORT

注: 为方便操作, 上阀盖尽量不朝下安装。上述六种型式在现场可以转换, 不需要更改管路。

Note: In order to operate easily, the coverside should not be fixed downward. Six fixing type can be changed each other at using palce.

电-气阀系统构成 E-P.TCV System



订货型号说明 Type Explanation

QZF-□□ I 1 () 淡水

- | | |
|----------------------|-----------------------------------|
| ① 电气式 | ① Electric Pneumatic control Type |
| ② 转阀式 | ② Rotating Type |
| ③ 法兰接口 | ③ Flange connection |
| ④ 公称通径DN | ④ DN(mm) |
| ⑤ 改型序号(A、B等) | ⑤ Serial number (A、B etc) |
| ⑥ 电气阀安装型式 | ⑥ Installtion Type |
| ⑦ 电源电压 | ⑦ Power Voltage |
| ⑧ 使用介质
(淡水、滑油、海水) | ⑧ Medium
(FW、LO、SW) |

例: 公称通径100mm、安装型式 I 1 、电源电压AC220V的电气阀订货型号为: QZF-100 I 1 (AC220V) 淡水
For Example: Diameter 100mm, Install Type and voltage, The type is: QZF-100 I 1 (AC220V) FW

概述 Introduction

自力式二通温度调节阀（简称调节阀）是利用感温液体受热膨胀产生推力来调节阀的开度，控制通过调节阀的介质流量，最终达到控制温度的目的。不需要外部动力，安装简单，维护方便，具有应急手动功能。调节阀主要应用于燃油预热、热水柜、中央空调、润滑油站等设备。

Self-operated two-way temperature regulating valve (referred to as TRV) uses the thermal expansion of temperature-sensitive liquid to generate thrust to regulate the opening of the valve. By adjusting the medium flow rate of the valve, the temperature can be controlled. It does not need external power. It is simple to install and easy to maintain. It has emergency manual function. TCVs are mainly used in fuel preheating, hot water cabinet, central air conditioner, lubricating oil station and other equipment.

订货型号说明 Type Explanation

Q S F- 65 B	① 阀体材质 (Q为球墨铸铁; S为不锈钢; C为铜; G为铸钢)		① Body material (Q-ductile iron, S-sus steel, C-bronze, G-steel)	
	② 阀座型式 (D为单阀座; P为单阀座平衡式; S为双阀座)		② Seat type (D-single seat, P-bellows balanced, S-double seat)	
	③ 连接型式 (F为法兰接口)		③ Connecting way (F-flange ends)	
	④ 公称通径 (mm)		④ Nominal Diameter (mm)	
	⑤ 作用方式 (□为正作用常开式, 可省略; B为反作用常闭式)		⑤ Working way (□ Normally opened, don't indicated; B-normally closed)	

加热系统调节阀 (正作用常开式) Normally opened TRV for heating system

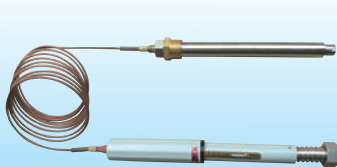
正作用常开式温度调节阀，主要用于加热控制系统中。调节阀与恒温器可进行多种组合，实现对不同压力热媒介质的控制。现将用作控制热媒为蒸汽或水的调节阀常用的技术参数列于下表(见表1)。

The normally opened 2-Way T.R. Valve is mainly used in heating system, the combination of the valves and the thermostats has many selections, which can control different heating-media with different pressure. The technical parameters used in steam or water are listed in table 1.

1) 加热系统调节阀主要技术参数 Technical Parameters

表1 Table 1

阀型号 Valve Type	公称压力 PN(bar)	公称通径 DN(mm)	恒温器型号 Thermostat Type	最大工作压差 △P(bar)	水流量 Kv(m³/h)	蒸汽流量 Kv(kg/h)	最大泄漏量 Max.leakage	阀体重量 Valve W.(kg)
□DF-15	16 (1.6MPa)	15	TR4 / TR4.5	15	2.75	120	0.05% Kv	3.1
□DF-20		20	TR4 / TR4.5	6.7	5.0	200		4.2
□PF-25		25	TR4 / TR4.5	15	7.5	320		7
□PF-32		32	TR4 / TR4.5	12	12.5	520		8
□PF-40		40	TR4	8.1	20	800		9
□PF-50		50	TR4	5.7	30	1300		14
□SF-50			TR4	17			16	
□SF-65		65	TR4	8.4	50	2000	21	
□SF-80		80	TR4 TR8	6.5 19	80	3200	26	
□SF-100		100	TR4 TR8	4.9 16	125	5000	37	
□SF-125		125	TR8	10	215	8000	50	
□SF-150		150	TR8	8.4	310	12000	70	



二通自力式温度调节阀 2-Way Self-Acting Temperature Control Valve

2) 加热系统调节阀外形尺寸：（正作用式） Outline and Size

表2 Table 2

外形图 Outline	型号 Type	L	H1	H2	D	K	b	d × n
	□DF-15	130	80	60	95	65	14	14 × 4
	□DF-20	150	85	65	105	75	16	18 × 4
	□PF-25	160	125	70	115	85	16	18 × 4
	□PF-32	180	145	75	140	100	18	18 × 4
	□PF-40	200	155	85	150	110	18	18 × 4
	□PF-50	230	165	95	165	125	20	18 × 4
	□SF-50	230	125	102	165	125	20	18 × 4
	□SF-65	290	147	186	185	145	20	18 × 4
	□SF-80	310	157	196	200	160	22	18 × 8
	□SF-100	350	180	209	220	180	24	18 × 8
	□SF-125	400	205	224	250	210	26	18 × 8
	□SF-150	400	240	244	285	240	28	22 × 8

法兰标准 Flange Standard: GB/T9119-2010, GB/T2501-2010, DIN2533, ISO2441。

冷却系统调节阀（反作用常闭式） Normally closed TRV for cooling system

反作用常闭式温度调节阀，主要用于冷却控制系统中。调节阀与恒温器组合后用于冷却水系统中的技术参数列于下表(见表3)。

The normally closed 2-Way T.R. Valve is mainly used in cooling system. The technical parameters of the valves assembled with thermostats using in cooling water are shown in table 3.

1) 冷却系统调节阀主要技术参数 Technical Parameters

表3 Table 3

型号 Valve Type	公称压力 PN(bar)	公称通径 DN(mm)	恒温器型号 Thermostat Type	最大工作压差 ΔP (bar)	水流量 Kv(m ³ /h)	最大泄漏量 Max.leakage	阀体重量 Valve W.(kg)
□SF-32B	16 (1.6MPa)	32	TR4 / TR4.5	7	12.5	0.5% Kv	9
□SF-40B		40	TR4 / TR4.5	6.6	20		11
□SF-50B		50	TR4	6.2	30		16
□SF-65B		65	TR4	6	50		21
□SF-80B		80	TR4	5.3	80		26
□SF-100B		100	TR4 / TR8	4 / 12.1	125		39

2) 冷却系统调节阀外形尺寸：（反作用式） Outline and size

表4 Table 4

外形图 Outline	型号 Type	L	H1	H2	D	K	b	d × n
	□SF-32B	180	75	151	140	100	18	18 × 4
	□SF-40B	200	85	155	150	110	18	18 × 4
	□SF-50B	230	95	169	165	125	20	18 × 4
	□SF-65B	290	119	180	185	145	20	18 × 4
	□SF-80B	310	129	190	200	160	22	18 × 8
	□SF-100B	350	142	234	220	180	24	18 × 8

恒温器 Thermostat

恒温器是根据液体热胀冷缩原理设计，当温度升高时，感温介质体积膨胀，推动活塞杆向前运动；当温度降低时，感温介质体积收缩，活塞杆回位，恒温器与调节阀配合使用，实现对温度的自动控制。恒温器可用于热水、蒸汽、热油等介质，结构紧凑，质量可靠。

Thermostat is reliable and well compacted, and can be used in hot water, steam and hot oil etc. the operation is based on the principle of liquid expansion, the sensor liquid expand or contract with temperature changing, the piston moving forward and backward accordingly, driving the T.R.Valve and the temperature is therefore controlled.

1. 感恒温器型号及参数 Thermostat Type and Parameters



调节手柄 Handle	带BSP螺纹恒温器 thermostat with BSP	型号 Type	A	B	C	D	G	重量 Weight	调节温度范围 Temp. range
		TR2.5	350	500	210	22	3/4"	2.7kg	0-60, 30-90, 60-120
		TR4	450	590	460	25	1"	3.3kg	0-60, 30-90, 60-120
		TR4.5	450	590	270	25	1"	3.0kg	0-120, 120-240
		TR8	625	800	680	28	1"	6.3kg	0-120, 40-160

注：

- ◆ G为直管螺纹G1"螺纹，其余尺寸单位为mm。
- ◆ 感温棒和冷却元件为不锈钢材料，其余为铜材。
- ◆ 常规毛细管长度为3m，可根据需要提供6~21m长毛细管。
- ◆ 用户可根据需要选配螺纹式或焊接式感温棒保护套。
- ◆ 恒温器安全使用温度为超出设定值上限40℃以内。
- ◆ 不灵敏度： $\leq 3^{\circ}\text{C}$ 。

Note:

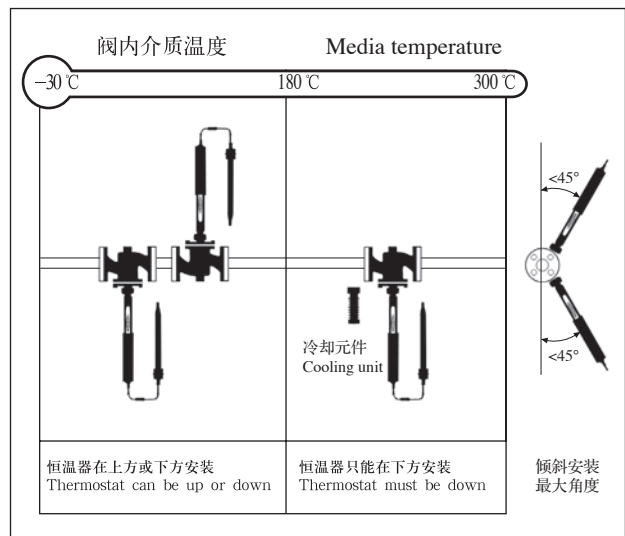
- ◆ G with BSP thread, others' unit is mm.
- ◆ sensor and cooling unit's material is stainless steel ,others' is copper.
- ◆ Sensor length normally is 3M, but the lengths from 6M-21M are available .
- ◆ Threaded or welded protection pocket can be selected.
- ◆ Safety working temperature should not be more than 40℃ of the setting point.
- ◆ Non-sensitivity: $\leq 3^{\circ}\text{C}$.

2. 安装注意事项

- ◆ 为了达到调节阀的最佳功能，必须在调节阀前安装滤器。
- ◆ 为方便维修，建议安装旁通阀。
- ◆ 在安装调节阀前，应彻底清洁管道。
- ◆ 根据流过阀的介质温度，应按右图所示安装恒温器。
- ◆ 在可能会振动的设备上(例船用设备)要支撑恒温器的圆柱体部分。
- ◆ 靠近手轮的毛细管端部，一定要能自由移动，因为手轮在转动时，毛细管端部也在移动。

Installation Note

- ◆ To reach the best working condition, filter must be fixed before T.R.Valve.
- ◆ By-pass valve should be installed in order for easily maintenance.
- ◆ The pipe must be thoroughly cleaned before install T.R.Valve.
- ◆ must follow the diagram shown on the right to select the correct fixing direction according to the media temperature.
- ◆ Sensor must be fixed to avoid vibration if using on the oscillating equipments such as ships.
- ◆ Because the capillary top part will move with handle, must be sure the top part near the handle can move freely.



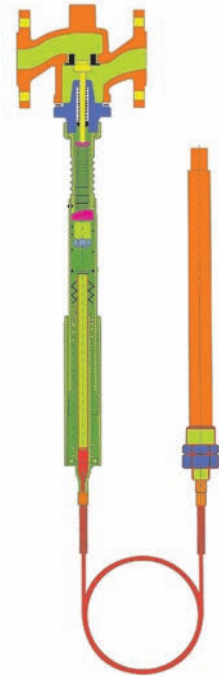
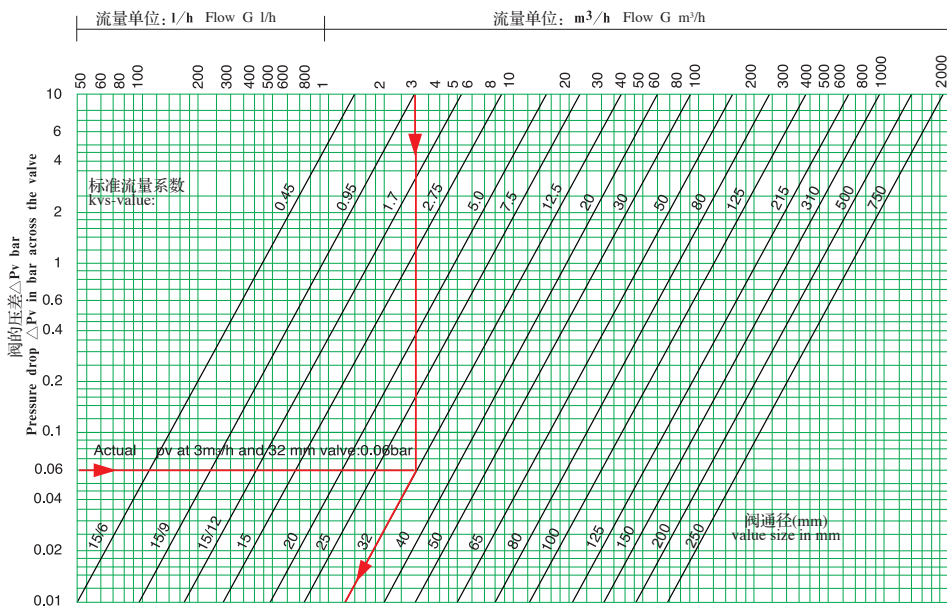
具体应用参见P15。Application refers to Page 15.

订货注意事项 Order announcements

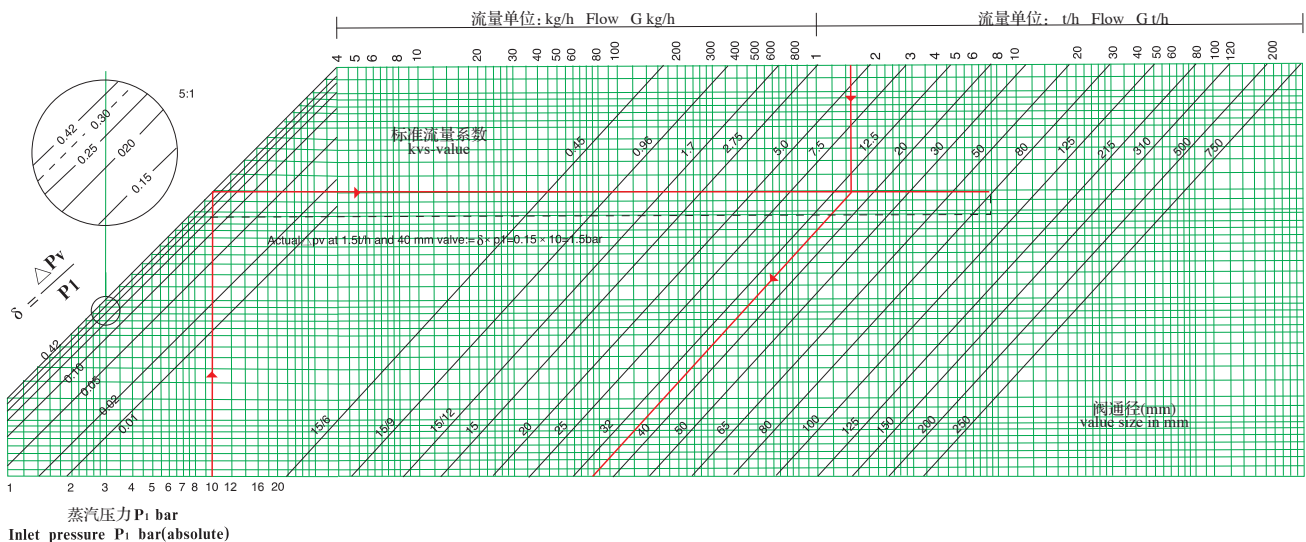
- 根据流量，正确选择调节阀的口径(参考调节阀流量参数图)。
- 根据使用环境和使用介质，正确选择阀体材质和型号。
- 选择恒温器型号时，必须注明温度范围，毛细管长度，恒温器型号等。
- The diameter of T.R.Valve is selected according to the flow rate(please see regulating valve flowrate diagram reference).
- The material and the type of T.R.Valve is selected by the working condition and media.
- Order the thermostats, must note the temperature range, capillary length and type.

调节阀流量参数图 Regulating valve flow diagram

1. 水系统 (For Water)



2. 蒸汽系统 (For Steam)



概述 Introduction

电控制二通调节阀主要用于热交换器、燃油加热、集中供热、中央空调等设备的温度自动控制，主要应用于船舶燃油系统、化工、楼宇等场所。介质可以是热水、蒸汽和热油。

电控制二通调节阀以进口电子伺服执行器、温控仪、Pt100传感器为基本元件，形成闭环控制，采用PID算法，具有控制精度高、响应快等特点。并有正、反作用控制方式。

The 2-Way Electric Control Valves are applied for the temperature auto-control in heat exchanger, fuel oil preheating, central air-condition etc system, and have been widely used in ship fuel oil, chemical industry, hotel etc. The medium can be hot water, steam or hot oil.

The 2-Way Electric Control Valve uses the electric servo-actuator, temperature controller and Pt100 sensor as the basic part, taking closed line control mode. It adopts PID control mode, and has the characteristic of high precision, fast response etc. It has direct and reverse action two modes.

技术指标 Technical Parameters

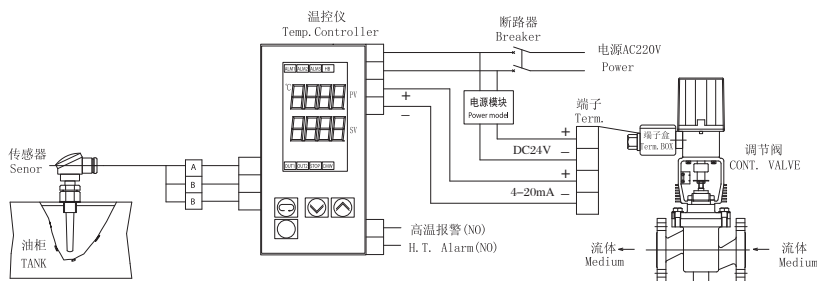
- 1、工称压力：1.6MPa；
- 2、最大泄漏量：0.05%额定流量KV；
- 3、适用介质：水、蒸汽、热油；
- 4、介质温度：≤300℃；
- 5、环境温度：0-55℃；
- 6、控制精度：±1℃；
- 7、电源供给：AC220V，50/60Hz；
- 8、阀体材质：铸钢(G)、不锈钢(S)、铜(C)
1. Nominal Pressure：1.6MPa；
2. Max Leakage: 0.05%KV；
3. Working Medium: Water, Steam, Hot oil；
4. Medium Temperature：≤300℃；
5. Ambient Temperature：0-55℃；
6. Control Accuracy: ±1℃；
7. Power Supply：AC220V, 50/60Hz；
8. Body Material: Steel(G), SUS(S), Bronze(C).

基本参数 Basic Parameters

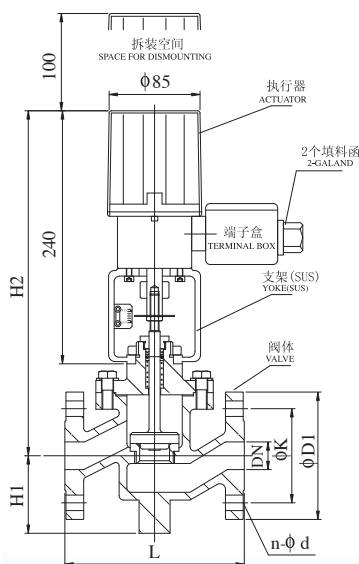
调节阀型号 Type	公称通径 DN(mm)	最大工作压差 ΔP(bar)	水流量 KV(m³/h)	蒸汽流量 KV(kg/h)	阀体重量 WET(kg)
DGPF-15	15	16	2.75	120	10
DGPF-20	20	12	5	200	11
DGPF-25	25	10	7.5	320	12
DGPF-32	32	16	12.5	520	14
DGPF-40	40	12	20	800	15
DGPF-50	50	10	30	1300	17
DGPF-65	65	8	50	2000	30
DGPF-80	80	16	80	3200	33
DGPF-100	100	12	125	5000	41

注：DSPF-为不锈钢阀体（SUS），DCPF-为铜阀体（Bronze）。

二通电动阀系统 2-Way Elec. Valve System



电动阀外形及安装尺寸 Outline and sizes



DN	D1	K	L	n-Ød	H1	H2
15	95	65	130	4-Ø14	60	300
20	105	75	150	4-Ø14	65	310
25	115	85	160	4-Ø14	70	360
32	140	100	180	4-Ø18	82	380
40	150	110	200	4-Ø18	92	400
50	165	125	230	4-Ø18	102	440
65	185	145	290	4-Ø18	93	550
80	200	160	310	8-Ø18	100	570
100	220	180	350	8-Ø18	110	600

注：传感器型号R310尺寸见样本第3页。
The sensor R310 refers to page 3.



概述 Introduction

电-气控制二通调节阀主要用于热交换器、燃油加热、集中供热、中央空调等设备的温度自动控制，主要应用于船舶燃油系统、化工、楼宇等场所。介质可以是热水、蒸汽或热油。

电-气控制二通调节阀以气动控制器、膜片执行器为基本元件，形成闭环控制，采用PID算法，具有控制精度高、响应快等特点。并有正、反作用控制方式。并适合于有防爆要求的场合。

参考标准：GB/T 4213-2008

The 2-Way Electric-Pneumatic Control Valves are applied for the temperature auto-control in heat exchanger, fuel oil preheating, central air-condition etc system, and have been widely used in ship fuel oil, chemical industry, hotel etc. The medium can be hot water, steam or hot oil.

The 2-Way Electric-Pneumatic Control Valve uses pneumatic controller diaphragm actuator, as the basic part, taking closed line control mode. It adopts PID control mode, and have the characteristic of high precision, fast respond etc. It has direct and reverse action two modes. Also it is suit for explosion proof type. The product standard is GB/T 4213-2008.

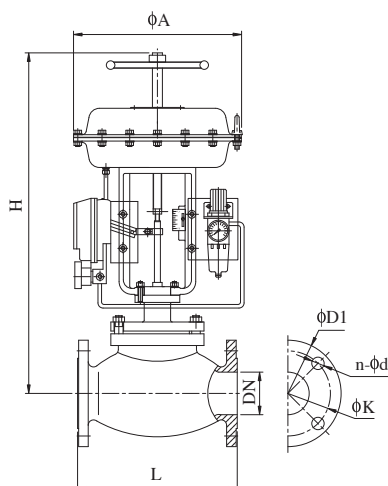
技术指标 Technical Parameters

- 1、工称压力PN：1.6MPa；
- 2、最大泄漏量：0.1%额定流量KV；
- 3、适用介质：水、蒸汽、热油；
- 4、介质温度：≤300℃；
- 5、环境温度：0-55℃；
- 6、控制精度：±2℃；
- 7、气源供给：0.7MPa；
- 8、阀体材质：铸钢。
1. Nominal Pressure：1.6MPa；
2. Max Leakage：0.1%KV；
3. Working Medium：Water, Steam, Hot oil；
4. Medium Temperature：≤300℃；
5. Ambient Temperature：0-55℃；
6. Control Accuracy：±2℃；
7. Air Supply：0.7MPa；
8. Body Material：Cast steel.

基本参数 Basic Parameters

调节阀型号 Type	公称通径 DN(mm)	最大工作压差 ΔP(bar)	水流量 KV(m³/h)	蒸汽流量 KV(kg/h)	阀体重量 WET(kg)
QHF-25/25E	25	16	7.5	320	22
QHF-32/32E	32	12	12.5	520	24
QHF-40/40E	40	10	20	800	32
QHF-50/50E	50	16	30	1300	38
QHF-65/65E	65	12	50	2000	62
QHF-80/80E	80	10	80	3200	68
QHF-100/100E	100	8	125	5000	83
QHF-125/125E	125	16	215	8000	130
QHF-150/150E	150	12	310	12000	160
QHF-200/200E	200	10	500	18000	285
QHF-250/250E	250	8	750	31000	540

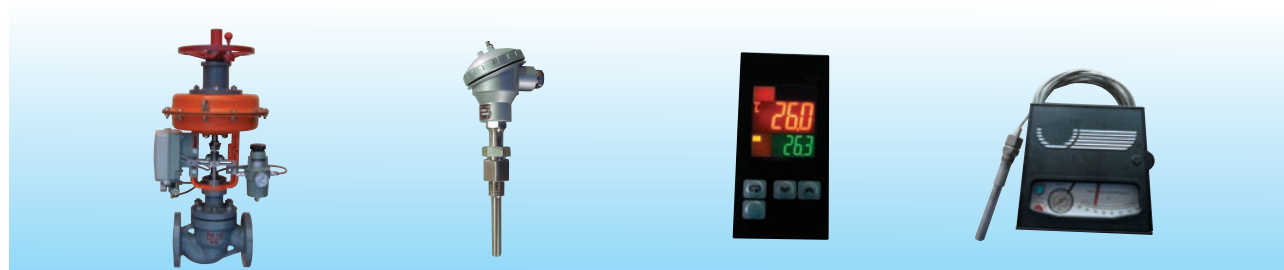
气动阀外形及安装尺寸 Outline and sizes



DN	L	D1	K	n-Ød	H	A
25	181	115	85	4-Ø14	570	285
32	200	140	100	4-Ø18	610	
40	222	150	110	4-Ø18	615	
50	254	165	125	4-Ø18	620	
65	276	185	145	4-Ø18	780	360
80	310	200	160	8-Ø18	800	
100	352	220	180	8-Ø18	812	
125	400	250	210	8-Ø18	1030	
150	451	285	240	8-Ø22	1065	470
200	495	340	295	12-Ø22	1090	
250	622	405	355	12-Ø26	1465	

二通电-气控制阀系统 2-Way E-P.TCV System

见样本P15。Refers to P15.



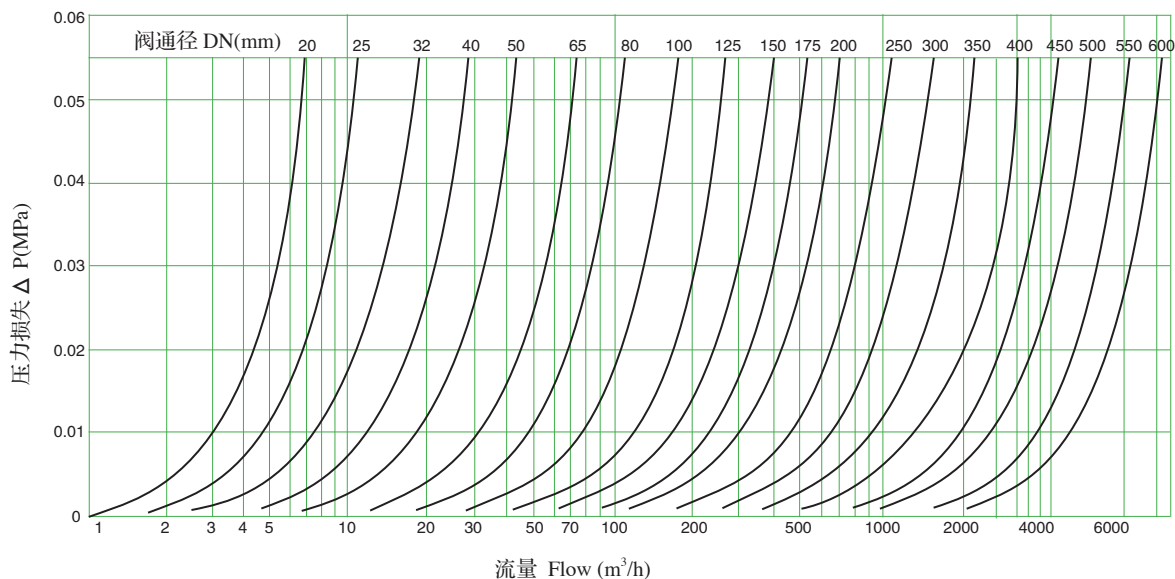
三通温度自动调节阀(简称调温阀)应用系统 3-Way Temperature Auto Control Valve Application System

1、三通调温阀有转阀和滑阀二种结构形式

转阀式流量曲线如下图:

3-Way temperature control valve has rotary and sliding two structure type.

The flow curve diagram of rotary type is under.



● 注: 图中流体介质为淡水, 润滑油要根据粘度折算流量因子, 一般为0.6~0.8。

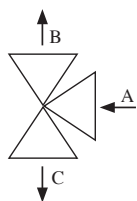
Note: The fluid medium in the drawing is fresh water.

Lube oil should be converted to flow factor according to its viscosity, which is generally 0.6-0.8.

2、三通调温阀在系统中根据流体的方向有两种工作方式:

According to the direction of the medium, 3-Way Temperature Auto Control Valve has two working type

1) 分流型 Dividing Type



A: 进口 IN LET PORT

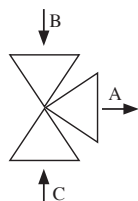
B: 旁通口 BYPASS PORT

C: 冷却口 COOLER PORT

注: 传感器PT100应安装在A口附近。

The sensor PT100 should be fixed near port A.

2) 合流型 Mixing Type



A: 出口 OUT LET PORT

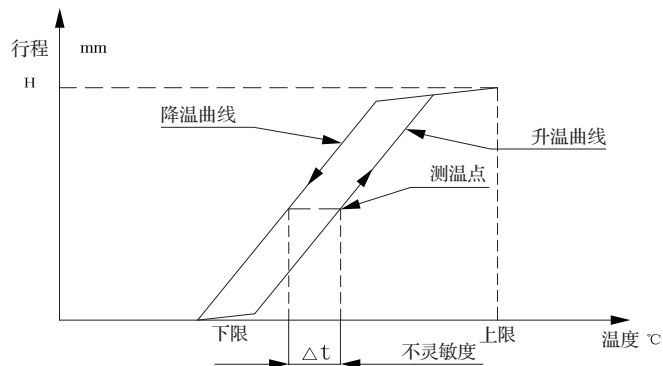
B: 旁通口 BYPASS PORT

C: 冷却口 COOLER PORT

注: 传感器PT100的安装位置与A口的距离, 要接近五倍通径, 保证介质充分混合。

The distance from port A to the sensor PT100 should be 5DN, in order to mix the medium fully.

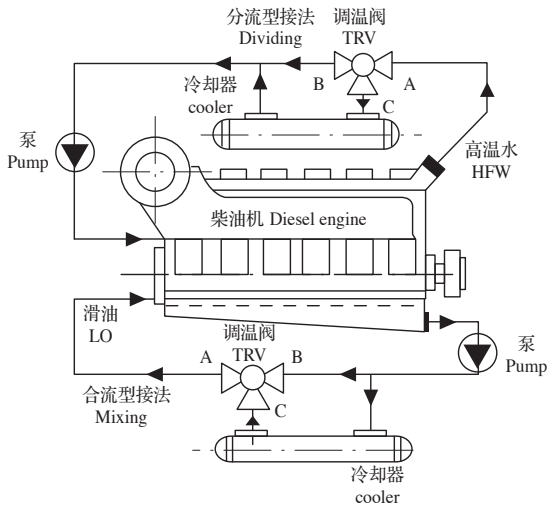
3、三通蜡质阀的温度特性曲线图



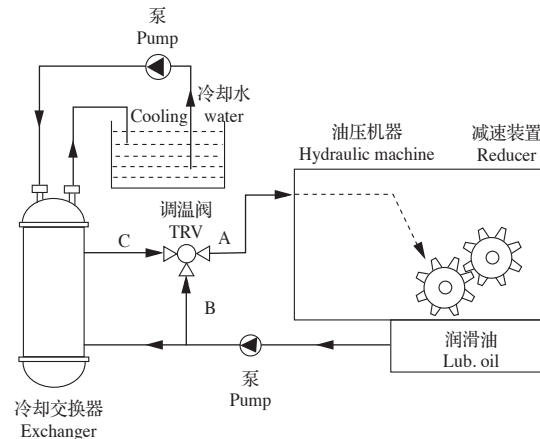
注: 不灵敏度 $\leq 3^{\circ}\text{C}$ 。

4、三通调温阀系统应用

3-Way Temperature Auto Regulating Valves are used in system



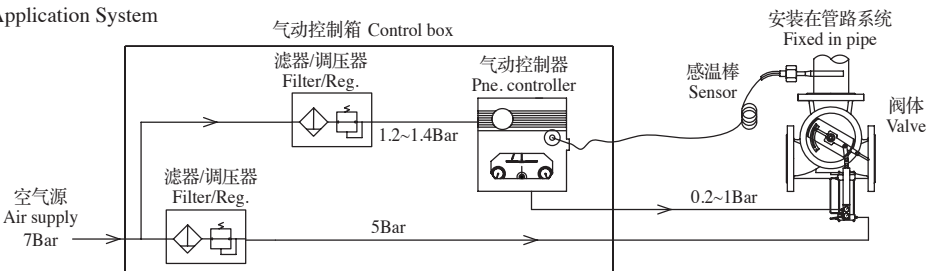
- 在柴油机中的应用
Applied in diesel Engine



- 在液压及润滑设备中的应用
Applied in Hydraulic or lube oil equipment

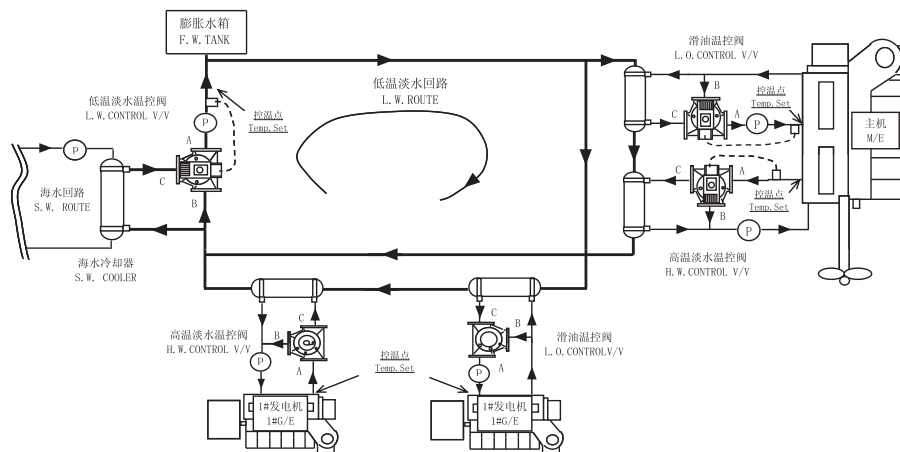
5、三通气动控制阀应用系统

3-Way Pneumatic Control Valve Application System



6、船舶冷却系统中调温阀典型应用

3-Way Temperature Auto Regulating Valves are used in coolingsystem of ship



说明:

- 1、图中的温控阀是三通式结构，可以是蜡质自力式、电控式、电-气控制式、气动控制式；
- 2、柴油机的缸套冷却水建议控制出水温度，温控阀采用分流型接法；
- 3、柴油机的滑油建议控制进油温度，温控阀采用合流型接法。

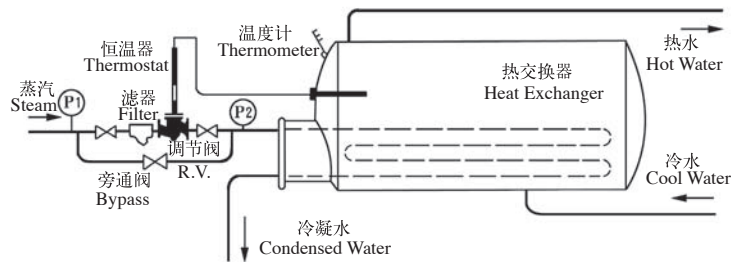
SPECIFICATION:

- 1.The control valves are 3-way type,include wax self-act,electric control valve and E/P control valve;
- 2.In the cooling system of the cylinder of engine,the dividing type is suggested to be adopted to control the temperature of the water at the outlet of engine;
- 3.In the cooling system of the lube oil of engine,the mixing type is suggested to be adopted to control the temperature of the lube oil at the inlet of engine.

二通温度自动调节阀应用系统 2-Way Temperature Auto Control Valve Application System

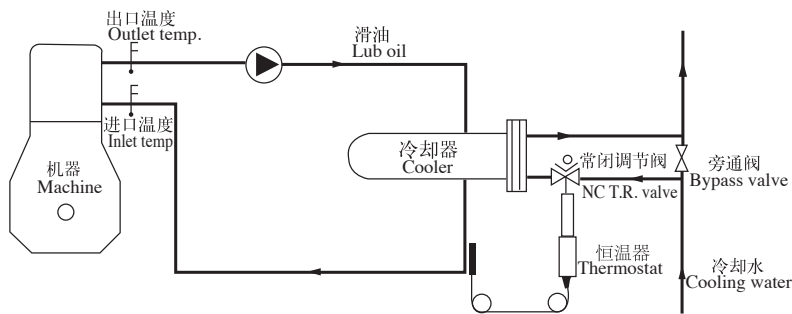
1、二通调节阀用于热水加热系统

2-Way TCV used in water heat system



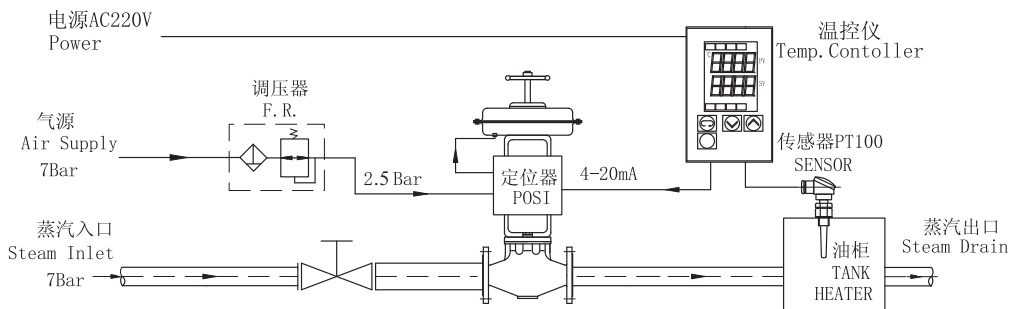
2、二通调节阀用于滑油冷却系统

2-Way TCV used in LO cooling system



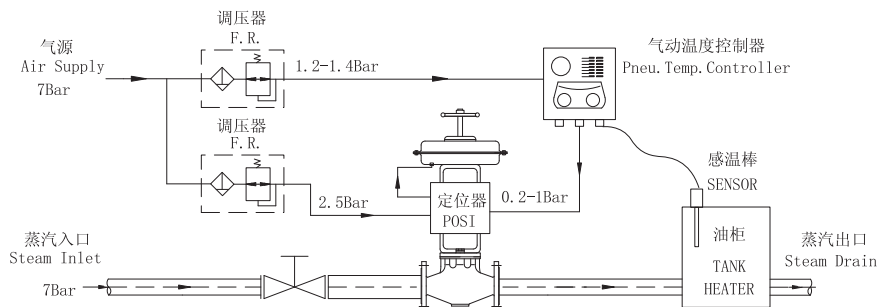
3、二通电-气调节阀用于蒸汽加热系统

2-Way E-P TCV used in steam heating system



4、二通气动调节阀用于蒸汽加热系统

2-Way P TCV used in steam heating system



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南京帝伯热学有限公司
Nanjing TP Thermal Engineering CO. Ltd.

地 址: 南京经济技术开发区兴文路6-1号

电 话: +86-25-85803553 85804160

传 真: +86-25-85803776

销售部: +86-25-85804180

邮 编: 210038

网 址: www.cn-ntec.com

E-mail: yingxiao@cn-ntec.com

Add: Nanjing Economic & Technological Development
Zone No.6-1 Xingwen Road

Tel: +86-25-85803553 85804160

Fax: +86-25-85803776

Sell: +86-025-85804180

P.C: 210038

[http: //www.cn-ntec.com](http://www.cn-ntec.com)