

2017·VERSION  
HONGSEN MACHINERY



REFRIGERATION AND  
A/C SYSTEM ACCESSORY PARTS  
制冷 · 空调系统配件

浙江鸿森机械有限公司  
ZHEJIANG HONGSEN MACHINERY CO.,LTD

地址：浙江省诸暨市阮市镇董公开发区  
电话 / Tel : 0575-87696107/0575-87607883/0575-87608106  
传真 / Fax : 0575-87698985

Add : Donggong Development Zone,Ruanshi Town,Zhuji City,Zhejiang Province,China.  
E-mail : hongsen@zjhsjx.com ; zhongsen@163.com www.zjhsjx.com PostCode:311802



# 鸿森欢迎您!

## WELCOME TO HONGSEN

Zhejiang Hongsen Machinery Co., Ltd was founded in 1992, which devotes itself in the R&D and manufacture of various valves in refrigeration and air conditioning system. In the past tens years, Hongsen Machinery staffs persistently adhere to open up, keep forging ahead and never rest content with their achievements. They insist on new and high-tech as the guidance in the development and pursue the sustainable development road with high productivity and quality efficiency.

Hongsen Machinery covers a land area of 50,000 square meters. There are over 300 staffs and workers including a specialty team of ten technicians. Hongsen Machinery has a close cooperation with the professors and experts in Zhejiang University, Shanghai Jiao Tong University and Tianjin University and several senior engineers of leading domestic OEMs are invited as the consultants of the company. A number of technical talents are trained in production, development and quality control and grow up in the company. At present, Hongsen Machinery is capable to manufacture multiple categories of refrigeration and A/C accessory parts such as solenoid valve series, ball valve series, sight glass series expansion valve series and shut off valve series. Hongsen Machinery becomes one company integrating R&D, production and marketing into one.

Under the purpose of "good faith-oriented and customer the highest", Hongsen Machinery has passed CCC, CE product certification as well as ISO 9001 quality system certification. Now it is applying for the UL and ISO 14000 certification further to provide additional safeguard and keep products with high quality.

Hongsen Machinery always lays stress on the brand development and product quality. Hongsen Machinery invests more in the technical upgrading and introduces advanced technology. Now Hongsen Machinery products enjoy good quality as similar as international leading level and the products sell well both at home and abroad including some leading OEMs. Hongsen Machinery becomes one of the best manufactures and suppliers of refrigeration and A/C valves and accessory parts.

## 公司简介

# Company profile

鸿森机械有限公司创建于1992年，一直潜心致力于制冷空调用各类阀门的开发、研究和制造。20多年来，鸿森人“开拓进取，永不满足”的执着追求，坚持以高新技术为发展方向，坚持走规模效益、质量效益的可持续发展之路。公司占地面积50000平方米，拥有员工300多人，以及一支20多人的专业技术团队，年生产能力1500万件。在浙江大学、上海交通大学和天津大学等高校专家的指导下，聘请国内著名主机企业的技术行家为顾问，为企业培育了一批强有力的生产、技术和质量的精英，现已形成电磁阀系列、球阀系列、视液镜系列、膨胀阀系列、截止阀系列等多个产品，逐步发展为一体化生产企业。

公司本着“诚信经营，顾客至上”的宗旨，目前已通过UL、CE、CQC产品认证以及ISO9001质量体系认证，ISO14000环境体系认证，为产品质量提供保障。

公司始终以品牌为依托、以质量为保证，加大技改投入力度，不断引进先进技术，产品质量接近国际先进水平，产品畅销国内外著名企业，是制冷空调阀门行业的佼佼者。





## HONGSEN MACHINERY

### 厂房、设备概述

公司下设三个事业部:空调工具事业部、自控元件事业部和环境设备事业部,拥有国内先进的CNC加工设备及高端检测设备200余台(套)。

Hongsen has three production divisions: A/C tooling, Refrigeration Control parts and Environmental equipment, with the support more than 200 sets of inspecting equipments and advanced CNC equipments.

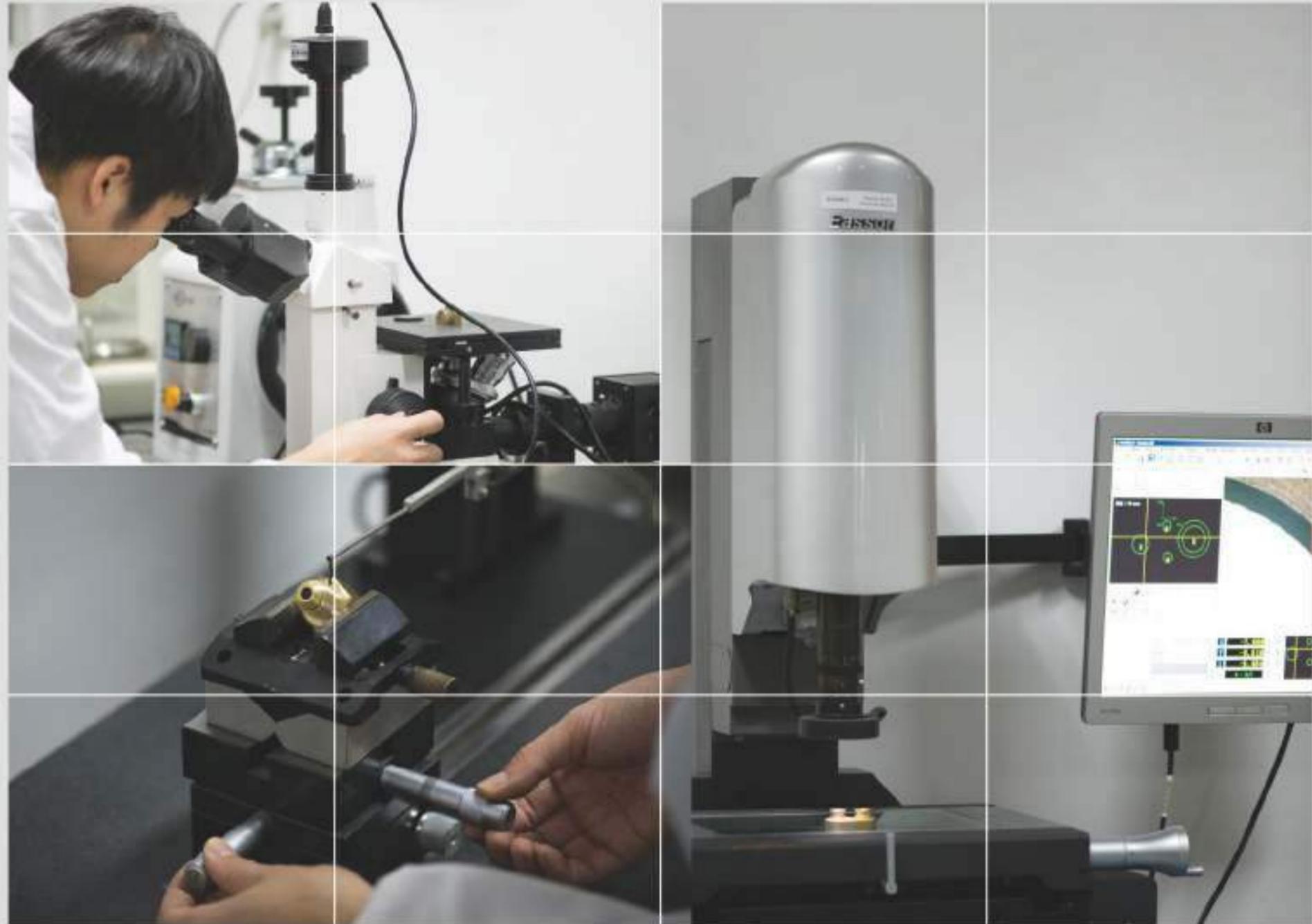
# 公司荣誉 Company honor

通过近20年的努力,公司制冷产业经济取得长足发展,先后荣获高新技术企业、浙江省科技型中小企业、鸿森制冷设备省级高新技术企业研究开发中心、全国工业产品生产许可证、压力管道元件产品和小型压力容器产品特种设备制造许可证、一般压力表和数字化压力表的计量器具生产许可证、浙江省AAA级信用等级单位、绍兴市专利示范企业、诸暨市“重合同守信用企业”、产品质量信得过单位、诸暨市劳动关系和谐企业、诸暨市工业苗子企业、诸暨市四星党支部、诸暨市五好关工委等荣誉称号。



# 技术实力 Technical strength

公司现已通过CQC、CE、UL、ISO9001国际质量管理体系认证和  
ISO14001国际环境管理体系认证。



## HONGSEN MACHINERY

研发中心

## 合作客户 Cooperative client

公司拥有自营进出口权,产品主要销往广州、上海、北京,并出口欧洲、美国、澳洲等地,并与国内知名空调制冷企业建立了长期业务合作关系,产品质量深受用户青睐。



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2017 · HONGSEN

制冷 · 空调系统配件  
REFRIGERATION AND  
A/C SYSTEM ACCESSORY PARTS

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REFRIGERATION AND A/C SYSTEM ACCESSORY PARTS



# 热力膨胀阀

Thermal Expansion Valves

- 采用进口膜片，线性更稳定 ◀
- 采用独特的充注技术，库内库外均可使用 ◀

HONGSEN.2017

## TH、THW型热力膨胀阀 TH、THW Thermal Expansion Valves



TH、THW型  
Model TH、THW

### 使用范围 Scope of Application

- T型膨胀阀是一种可换芯的新型热力膨胀阀。
- T型膨胀阀用于调节蒸发器中液体制冷剂的供给量。
- T型膨胀阀特别适合于干式蒸发器中制冷剂液体的供给。
- T型膨胀阀是通过制冷剂的过热度调节来进行自动控制的。
- T-type expansion valve is a novel thermostatic expansion valve with replaceable valve element
- T-type expansion valve is used for adjusting the supply quantity of liquid refrigerant in evaporator
- T-type expansion valve is particularly suitable for supplying liquid refrigerant in dry-type evaporator
- T-type expansion valve has autocontrol through regulating the superheating degree of refrigerant.

### 特点 Features

- 蒸发温度范围大
- 可提供MOP功能，可使压缩机电机不会因过高的蒸发压力而损伤。
- 具有内外平衡两种形式，能有效的消除蒸发器压力损失带来的影响。
- 具有发明专利的膜片结构，大大改善了低温下的工作性能。
- 阀帽采用二次密封结构，确保外泄漏为零。
- 带100目过滤器的可换阀芯组件，便于库存、匹配和维修。
- 感温包采用混合充注技术，使整个蒸发温度范围内都具有等过热度特性。
- Large scope of evaporating temperature.
- be capable of providing MOP function so as not to damage the compressor motor due to overhigh evaporating pressure.
- Have two forms of internal and external balance, be capable of removing influence brought by loss of evaporator pressure effectively.
- Have the membrane structure with invention patent, greatly improve the working performance at low temperature.
- he bonnet adopts a secondary sealing structure to ensure zero external leakage.
- replaceable valve element component with 100-mesh filter has convenient storage, matching and maintenance
- The temperature wrap has mixed charging technology so as to have the feature of superheating degree within the whole evaporating temperature scope

### 技术参数 Technical Parameters

适用制冷剂	Applicable Refrigerants:	R22、R134a、R404A冷媒等介质
适用介质温度	Applicable Medium Temperature:	R404A、R22：-40℃~+10℃；R134a：-30℃~+10℃
名义容量	Nominal Capacity:	2.5KW~15.5KW、1.8KW~10.5KW、1.6KW~9.1KW
过热度调节范围	Adjustable Range of Superheat:	2℃~8℃
出厂静热度调定值	Ex-Works Static Heat Adjustment:	3.5℃
最大工作压力	Maximum Working Pressure:	2.0MPa
最大测试压力	Maximum Testing Pressure:	3.0MPa

- T型热力膨胀阀毛细管长度：标准1.5m，特殊情况可按用户要求。
- Capillary length of T-type thermostatic expansion valve: 1.5m in standard; under special situation, it can be customized based on clients' requirements.

### 可换芯选型 Replaceable element model

阀芯编号 Valve element No.	名义制冷量 Nominal refrigerating capacity (TR)			名义制冷量 Nominal refrigerating capacity (KW)		
	R22	R134a	R404A	R22	R134a	R404A
No.1	0.7	0.5	0.45	2.5	1.8	1.6
No.2	1.0	0.8	0.6	3.5	2.6	2.1
No.3	1.5	1.3	1.2	5.2	4.6	4.2
No.4	2.3	1.9	1.7	8.0	6.7	6.0
No.5	3.0	2.5	2.2	10.5	8.6	7.7
No.6	4.5	3.0	2.6	15.5	10.5	9.1

- 该阀芯可与丹佛斯对应编号的阀芯互换，但不能与其它厂家的阀芯互换。
- The valve element can be exchanged with the valve element of Danfoss in corresponding number and can't exchange with other valve elements of other plants.

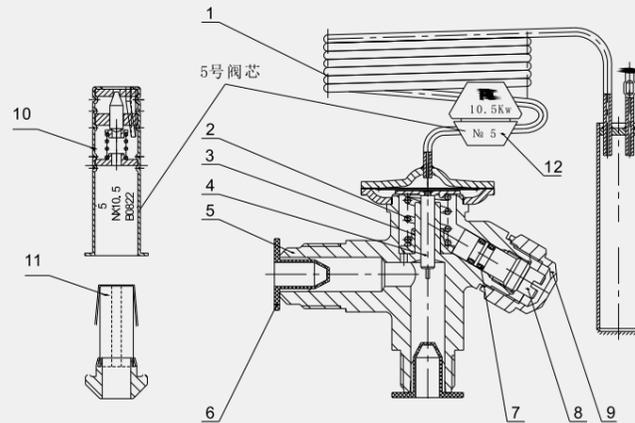
### 主阀体选型 Model of main valve body

制冷剂 Refrigerant	型号 Model	压力平衡 Pressure Balance	接口螺纹 Thread		名义制冷量 Nominal Refrigerating Capacity						
			进口端 Inlet	出口端 Outlet	外平衡端 Outside Balanced End	TR	KW				
R22	TH22	内平衡 Internal balance	3/8 SAE	1/2 SAE	1/4 SAE	0.7 ~ 4.5	2.5 ~ 15.5				
	TH22W	外平衡 External balance									
R134a	TH134	内平衡 Internal balance			3/8 SAE	1/2 SAE	1/4 SAE	0.5 ~ 3.0	1.8 ~ 10.5		
	TH134W	外平衡 External balance									
R404A	TH404	内平衡 Internal balance					3/8 SAE	1/2 SAE	1/4 SAE	0.45 ~ 2.6	1.6 ~ 9.1
	TH404W	外平衡 External balance									

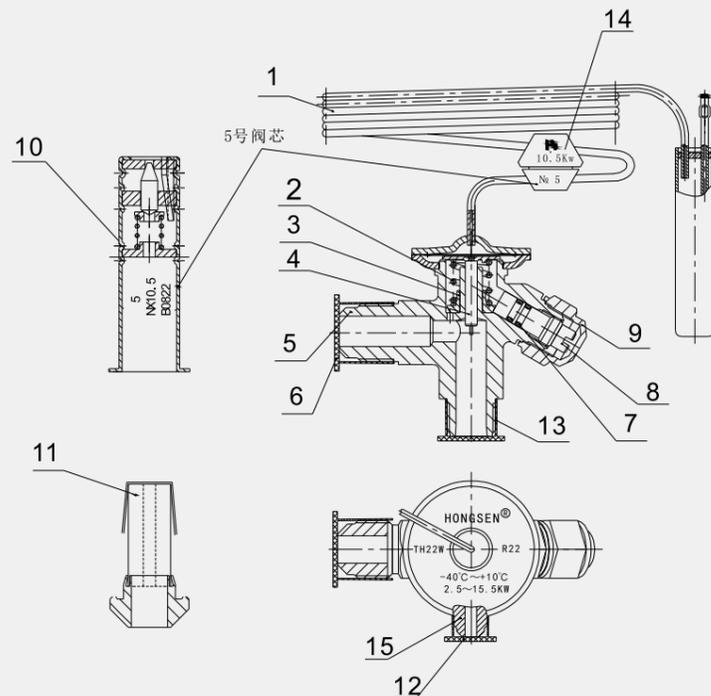
- 名义制冷量的工况条件为：蒸发温度5℃ 冷凝温度35℃ 过热度3.5℃ 过冷度4℃
- The working condition of nominal refrigerating capacity is: evaporating temperature 5℃; condensing temperature 35℃; superheating degree 3.5℃; supercooling degree 4℃
- 其它制冷剂根据客户要求定制
- other refrigerants can be customized based on clients' requirements

结构 Structure

- 1.气箱头部件 Gas tank head piece
- 2.调节弹簧 regulating spring
- 3.弹簧座 spring seat
- 4.传动杆组件 transfer bar component
- 5.阀体 valve body
- 6.防尘帽 dust cap
- 7.O型圈 O-type ring
- 8.调节杆 regulating stem
- 9.阀帽 valve bonnet
- 10.阀芯 (No : 1#~6#) valve element (No : 1#~6#)
- 11.过滤器组件 filter component
- 12.阀芯盖 valve element cover



- 1. 气箱头部件 gas tank head piece
- 2. 调节弹簧 regulating spring
- 3. 弹簧座 spring seat
- 4. 传动杆组件 transfer bar component
- 5. 阀体 valve body
- 6. 防尘帽 (4分) dust cap (4 points)
- 7. O型圈 O-type ring
- 8. 调节杆 regulating stem
- 9. 阀帽 valve bonnet
- 10. 阀芯 (1#~6#) valve element (1#~6#)
- 11. 过滤网组件 filter screen component
- 12. 防尘帽 (2分) dust cap (2 points)
- 13. 防尘帽 (3分) dust cap (3 points)
- 14. 阀芯盖 valve element cover
- 15. 外平衡接口 external balance interface



ERF、ERFW型热力膨胀阀  
Model ERF/ERFW Thermal Expansion Valves



ERF型 (公制/英制螺口)  
Model ERF (metric/inch flare)



ERFW型 (英制螺口)  
Model ERFW (inch flare)

使用范围 Scope of Application

- ERF、ERFW型热力膨胀阀用于调节蒸发器的液体制冷剂的供给量，可提供多种制冷剂及其各种工况下的充注，能满足冷藏设备、制冰机、除湿机以及各种蒸发温度范围内的制冷和空调的要求。
- Model ERF/ERFW thermal expansion valves are used to adjust the liquid refrigerant supply volume to the evaporator and they are suitable to various refrigerants and different charging conditions. It meets the requirements of the cold storage facility, ice maker and dehumidifier as well as the refrigeration and air conditioning requirements under varied evaporation temperature.

特点 Features

- 膨胀阀膜片采用知名品牌的同一供应商材料。
- 采用大动力头结构模式，线性优良，过热度调节性能稳定。
- 采用新型结构，蒸发温度范围大，低温工作幅值大。
- 具有专利技术，膜片动作迟滞 < 0.5°C，阀门具有良好的稳定性。
- 阀帽采用防呆设计，防止其丢失，保证二次密封可靠性。
- High quality diaphragm is from same famous brand supplier.
- The big power head structure with perfect linear performance has a stable adjustment on the degree of superheat.
- New structure has large scope of evaporation temperature and big work amplitude under low temperature.
- With proprietary technology, the diaphragm movement hysteresis < 0.5°C and the valve has good stability.
- The bonnet features fool-proofing design to prevent loss and ensure the reliability of secondary sealing.

技术参数 Technical Parameters

适用制冷剂	Applicable Refrigerants:	R404A, R22, R134a 冷媒等介质
适用介质温度	Applicable Medium Temperature:	-40°C~+10°C、-30°C~+10°C
名义容量	Nominal Capacity:	3.5KW~158KW
过热度调节范围	Adjustable Range of Superheat:	2°C~8°C
出厂静热度调定值	Ex-Works Static Heat Adjustment:	3.5°C
外平衡端泄漏量	Outer Equilibrium End Leakage:	≤75ml/min
最大工作压力	Maximum Working Pressure:	2.0MPa
最大测试压力	Maximum Testing Pressure:	3.0MPa

- ERF (ERFW) 型膨胀阀接口：螺口 (Flare)。
- Model ERF (ERFW) expansion valves connection: Flare.

- ERF (ERFW) 型膨胀阀毛细管长度：标准1.5m，特殊情况可按用户要求。
- Model ERF (ERFW) expansion valves capillary standard length 1.5 m, and special length is available to meet customer requirement.

选型 (常用冷媒) Selection of Model (Common Refrigerants)

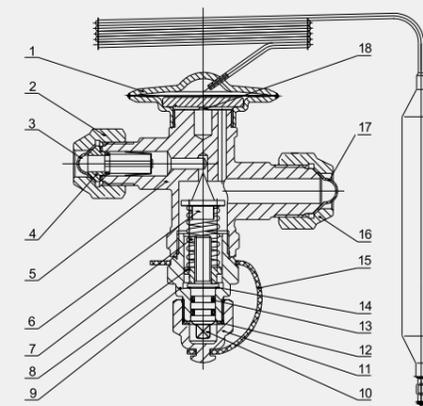
制冷剂 Refrigerant	型号 Model	压力平衡 Pressure Balance	接口螺纹 (接口尺寸) Thread (Connection Size)						名义制冷量 Nominal Refrigerating Capacity		
			进口端 Inlet		出口端 Outlet		外均衡 Outside Balanced End		冷吨 (T)	千瓦 (kW)	大卡 (kcal/h)
			公制 metric	英制 inch	公制 metric	英制 inch	公制 metric	英制 inch			
R22	ERF22-Ø1.0	内平衡 (螺口) Inner Equilibrium (flare)	M16X1.5	3/8 SAE	M18X1.5	1/2 SAE	---	---	1.0	3.5	3024
	ERF22-Ø1.5								1.6	5.6	4840
	ERF22-Ø2.0								2.0	7.0	6048
	ERF22-Ø2.5		2.5	8.8	7560						
	ERF22-Ø3.0		3.0	10.5	9072						
	ERF22-Ø4.0		5.0	17.6	15120						
	ERF22-Ø5.0		6.0	21.0	18144						
	ERF22-Ø7.0		8.5	29.9	25704						
	ERF22-Ø8.0		12.0	42.2	36288						
ERF22-Ø9.0	15.0	52.7	45360								
R134a	ERF134-Ø1.0	内平衡 (螺口) Inner Equilibrium (flare)	M16X1.5	3/8 SAE	M18X1.5	1/2 SAE	---	---	0.5	1.75	1510
	ERF134-Ø1.5								0.7	2.5	2116
	ERF134-Ø2.0								1.5	5.2	4500
	ERF134-Ø2.5		1.6	5.6	4838						
	ERF134-Ø3.0		2.0	7.0	6048						
	ERF134-Ø4.0		3.0	10.5	9072						
	ERF134-Ø5.0		5.0	17.6	15120						
	ERF134-Ø7.0		6.5	22.9	19656						
	ERF134-Ø9.0		11.0	38.7	33264						
R22	ERF22W-Ø1.0	外平衡 (螺口) Outer Equilibrium (flare)	M16X1.5	3/8 SAE	M18X1.5	1/2 SAE	M12X 1.25	1/4- SAE	1.0	3.5	3024
	ERF22W-Ø1.5								1.6	5.6	4840
	ERF22W-Ø2.0								2.0	7.0	6048
	ERF22W-Ø2.5		2.5	8.8	7560						
	ERF22W-Ø3.0		3.0	10.5	9072						
	ERF22W-Ø4.0		5.0	17.6	15120						
	ERF22W-Ø5.0		6.0	21.0	18144						
	ERF22W-Ø7.0		8.5	29.9	25704						
	ERF22W-Ø8.0		12.0	42.2	36288						
ERF22W-Ø9.0	15.0	52.7	45360								
R134a	ERF134W-Ø1.0	外平衡 (螺口) Outer Equilibrium (flare)	M16X1.5	3/8 SAE	M18X1.5	1/2 SAE	M12X 1.25	1/4- SAE	0.5	1.75	1510
	ERF134W-Ø1.5								0.7	2.5	2116
	ERF134W-Ø2.0								1.5	5.2	4500
	ERF134W-Ø2.5		1.6	5.6	4838						
	ERF134W-Ø3.0		2.0	7.0	6048						
	ERF134W-Ø4.0		3.0	10.5	9072						
	ERF134W-Ø5.0		5.0	17.6	15120						
	ERF134W-Ø7.0		6.5	22.9	19656						
	ERF134W-Ø9.0		11.0	38.7	33264						

- 名义制冷量的工况条件为：蒸发温度 $t_e = +5^\circ\text{C}$  冷凝温度 $t_k = +40^\circ\text{C}$  过冷度  $2^\circ\text{C}$
- Working Condition of Nominal Refrigerating Capacity: Evaporation Temperature  $t_e = +5^\circ\text{C}$ ; Condensation Temperature  $t_k = +40^\circ\text{C}$ ; Degree of Superheat  $2^\circ\text{C}$

结构 Structure

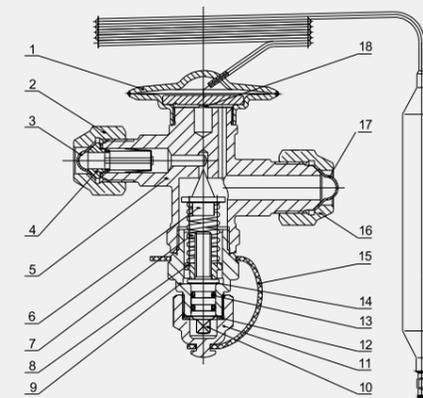
ERF型 (公制螺口)  
Model ERF (metric flare)

- |                           |                       |
|---------------------------|-----------------------|
| 1. 气箱头部件 air box head     | 10. 阀杆 valve stem     |
| 2. 纳子 nut                 | 11. 阀帽 bonnet         |
| 3. 封帽 seal cap            | 12. 密封圈 seal ring     |
| 4. 过滤网部件 filter screen    | 13. O形圈 O-ring        |
| 5. 阀体 valve body          | 14. 密封垫 gasket        |
| 6. 阀芯 valve element       | 15. 保险带 security belt |
| 7. 调节弹簧 adjustment spring | 16. 公制纳子 metric nut   |
| 8. 调节螺母 adjustment nut    | 17. 封帽 seal cap       |
| 9. 调节座 adjustment seat    | 18. 传动杆 drive rod     |



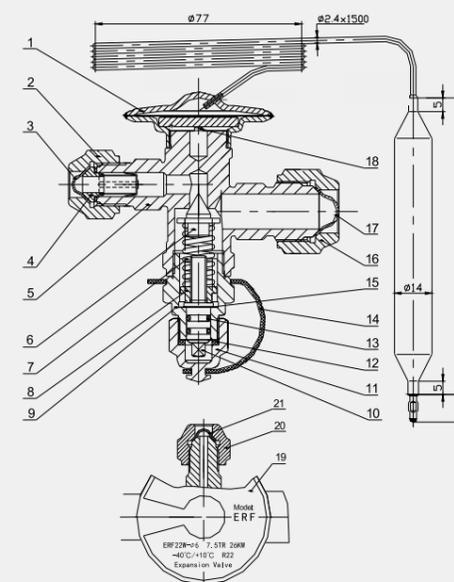
ERF型 (英制螺口)  
Model ERF (inch flare)

- |                           |                       |
|---------------------------|-----------------------|
| 1. 气箱头部件 air box head     | 10. 阀杆 valve stem     |
| 2. 纳子 nut                 | 11. 阀帽 bonnet         |
| 3. 封帽 seal cap            | 12. 密封圈 seal ring     |
| 4. 过滤网部件 filter screen    | 13. O形圈 O-ring        |
| 5. 阀体 valve body          | 14. 密封垫 gasket        |
| 6. 阀芯 valve element       | 15. 保险带 security belt |
| 7. 调节弹簧 adjustment spring | 16. 英制纳子 inch nut     |
| 8. 调节螺母 adjustment nut    | 17. 封帽 seal cap       |
| 9. 调节座 adjustment seat    | 18. 传动杆 drive rod     |



ERFW型 (英制螺口)  
Model ERFW (inch flare)

- |                           |                       |
|---------------------------|-----------------------|
| 1. 气箱头部件 air box head     | 12. 密封圈 seal ring     |
| 2. 纳子 nut                 | 13. O形圈 O-ring        |
| 3. 封帽 seal cap            | 14. 保险带 security belt |
| 4. 过滤网部件 filter screen    | 15. 密封垫 gasket        |
| 5. 阀体 valve body          | 16. 纳子 nut            |
| 6. 阀芯 valve element       | 17. 封帽 seal cap       |
| 7. 调节弹簧 adjustment spring | 18. 传动杆 drive rod     |
| 8. 调节螺母 adjustment nut    | 19. 标贴 label          |
| 9. 调节座 adjustment seat    | 20. 纳子 nut            |
| 10. 阀杆 valve stem         | 21. 封帽 seal cap       |
| 11. 阀帽 bonnet             |                       |



## FRF22W, FRF134W型热力膨胀阀 Model FRF22W, FRF134W Thermal Expansion Valves



FRF22W型 (英制焊口)  
Model FRF22W (inch welded)



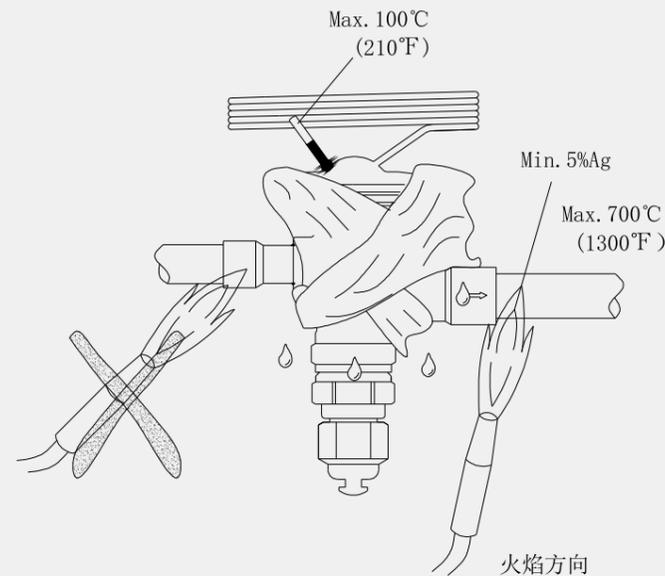
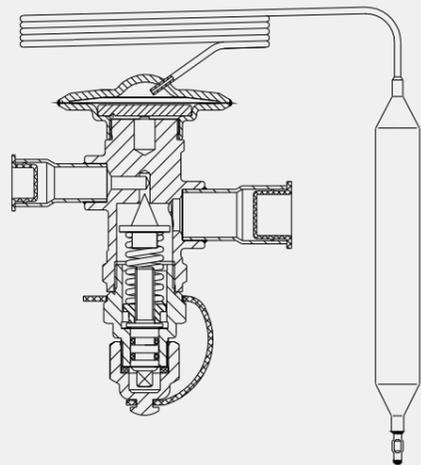
FRF134W型 (英制焊口)  
Model FRF134W (inch welded)

### 安装使用要求 Installation and usage requirements

- |  |  |
|--|--|
| <p>1) 焊管式膨胀阀在与系统管子焊接时, 必须注意以下几点:</p> <p>1.1 首先用湿布或湿棉纱包在阀体上保护阀体, 以防在焊接时温度过高烧坏阀内零件。</p> <p>1.2 焊接时请注意焊枪火焰方向为朝阀体外向。</p> <p>1.3 选用低温银焊条焊接。</p> <p>2) 膨胀阀维修保养应指定专业人员进行。</p> | <p>1) welded pipe expansion valve with the system pipe welding, we must pay attention to the following points:</p> <p>1.1, use a damp cloth or a wet cotton bag to protect body on the body, To avoid high temperature burn in the valve parts in welding.</p> <p>Please note that the 1.2 welding torch flame direction toward the body outward. 1.3 low temperature silver electrode welding.</p> <p>2) expansion valve maintenance should be designated professional staff.</p> |
|--|--|

### 结构 Structure

### 结构 Structure



### 技术参数 Technical Parameters

适用制冷剂	Applicable Refrigerants:	R404A, R22, R134a 冷媒等介质
适用介质温度	Applicable Medium Temperature:	-40°C ~ +10°C, -30°C ~ +10°C
过热度调节范围	Adjustable Range of Superheat:	2°C ~ 8°C
最大工作压力	Maximum Working Pressure:	2.0MPa
最大测试压力	Maximum Testing Pressure:	3.0MPa

### 选型 (常用冷媒) Selection of Model (Common Refrigerants)

制冷剂 Refrigerant	型号 Model	压力平衡 Pressure Balance	接口螺纹 (接口尺寸) Thread (Connection Size)			名义制冷量 Nominal Refrigerating Capacity	
			进口端 Inlet 英制 inch	出口端 Outlet 英制 inch	外平衡 Outside Balanced End	冷吨 (T)	千瓦 (kW)
R22	FRF22W-3-3-5	---	3/8" SAE	5/8" SAE	1/4"	3	10
	FRF22W-3-4-5		1/2" SAE	5/8" SAE		4	14
	FRF22W-4-4-7		1/2" SAE	7/8" SAE		6	20
	FRF22W-6-4-5		1/2" SAE	5/8" SAE		7.5	27
	FRF22W-6-4-7		1/2" SAE	7/8" SAE		11	38
	FRF22W-7.5-5-7		5/8" SAE	7/8" SAE		12	43
	FRF22W-11-5-7		5/8" SAE	7/8" SAE		15	54
	FRF22W-11-5-9		5/8" SAE	1 1/8" SAE		18	63
	FRF22W-12-5-7		5/8" SAE	7/8" SAE		26	92
	FRF22W-12-5-9		5/8" SAE	1 1/8" SAE		30	104
	FRF22W-15-5-9		5/8" SAE	1 1/8" SAE		38	134
	FRF22W-15-7-9		7/8" SAE	1 1/8" SAE		3	10.5
	FRF22W-18-7-9		7/8" SAE	1 1/8" SAE		4	14
	FRF22W-18-7-11		7/8" SAE	1 3/8" SAE		6	21
	FRF22W-26-7-11		7/8" SAE	1 3/8" SAE		7.5	26.3
	FRF22W-26-9-11		1 1/8" SAE	1 3/8" SAE		11	38.7
	FRF22W-30-7-11		7/8" SAE	1 3/8" SAE		12	42
	FRF22W-30-9-11		1 1/8" SAE	1 3/8" SAE		15	52.7
FRF22W-38-9-11	1 1/8" SAE	1 3/8" SAE	18	63			
R134a	FRF134W-3-3-5	---	3/8" SAE	5/8" SAE	1/4"	3	10.5
	FRF134W-3-4-5		1/2" SAE	5/8" SAE		4	14
	FRF134W-4-4-7		1/2" SAE	7/8" SAE		6	21
	FRF134W-6-4-5		1/2" SAE	5/8" SAE		7.5	26.3
	FRF134W-6-4-7		1/2" SAE	7/8" SAE		11	38.7
	FRF134W-7.5-5-7		5/8" SAE	7/8" SAE		12	42
	FRF134W-11-5-7		5/8" SAE	7/8" SAE		15	52.7
	FRF134W-11-5-9		5/8" SAE	1 1/8" SAE		18	63
	FRF134W-12-5-7		5/8" SAE	7/8" SAE		26	91
	FRF134W-12-5-9		5/8" SAE	1 1/8" SAE		30	105.5
	FRF134W-15-5-9		5/8" SAE	1 1/8" SAE		38	133
	FRF134W-15-7-9		7/8" SAE	1 1/8" SAE		3	10.5
	FRF134W-18-7-9		7/8" SAE	1 1/8" SAE		4	14
	FRF134W-18-7-11		7/8" SAE	1 3/8" SAE		6	21
	FRF134W-26-7-11		7/8" SAE	1 3/8" SAE		7.5	26.3
	FRF134W-26-9-11		1 1/8" SAE	1 3/8" SAE		11	38.7
	FRF134W-30-7-11		7/8" SAE	1 3/8" SAE		12	42
	FRF134W-30-9-11		1 1/8" SAE	1 3/8" SAE		15	52.7
FRF134W-38-9-11	1 1/8" SAE	1 3/8" SAE	18	63			

- 名义制冷量的工况条件为: 蒸发温度 te = +5°C 冷凝温度 tK = +40°C 过冷度 2°C
- Working Condition of Nominal Refrigerating Capacity: Evaporation Temperature te = + 5°C; Condensation Temperature tK = +40°C; Degree of Superheat 2°C

## QRF134aW型热力膨胀阀 Model QRF134aW Thermal Expansion Valves



QRF134aW型

### 使用范围

QRF134aW型膨胀阀用于调节蒸发器中液体制冷剂的供给量。  
QRF134aW型膨胀阀具有双向节流功能，被广泛运用在热泵、汽车空调制冷系统。

### 特点 Features

- 膨胀阀膜片采用知名供应商同一材料。
- 可提供MOP功能，可使压缩机电机不会因过高的蒸发压力而损伤。
- 具有发明专利的膜片结构，大大改善了低温下的工作性能。
- 阀帽采用二次密封结构，确保外泄漏为零。

### 技术参数

适用制冷剂	R134a
适用介质温度	-30°C~+10°C
最大工作压力	2.0MPa
最大测试压力	3.0MPa
过热度调节范围	2°C~8°C

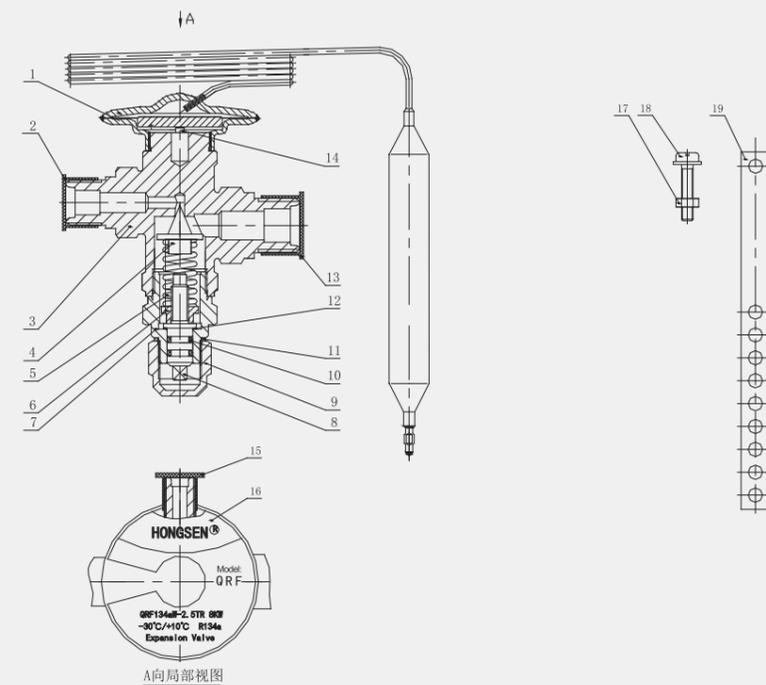
QRFW型热力膨胀阀毛细管长度：标准1.5m，特殊情况可按用户要求。

### 主阀体选型

制冷剂	型号	压力平衡	接口规格			名义制冷量	
			进口端	出口端	外平衡端	TR	KW
R134a	QRF134aW-2.5-3-4	外平衡	3/8 SAE	1/2 SAE	1/4 SAE	2.5	8
	3.5					12	
	QRF134aW-4.5-5-6		5/8 SAE	3/4 SAE		4.5	17
	QRF134aW-7-5-6					7	24
	QRF134aW-10-5-6					10	37

1. 名义制冷量的工况条件为：蒸发温度5°C 冷凝温度35°C 过热度3.5°C 过冷度4°C
2. 其它制冷剂根据客户要求定制

### 结构



- |         |        |        |        |        |        |
|---------|--------|--------|--------|--------|--------|
| 1.气箱头部件 | 2.防尘帽  | 3.阀体   | 4.阀芯   | 5.调节弹簧 | 6.调节螺母 |
| 7.调节座   | 8.阀杆   | 9.阀帽   | 10.O型圈 | 11.垫片  | 12.密封垫 |
| 13.防尘帽  | 14.传动杆 | 15.防尘帽 | 16.标贴  | 17.螺母  | 18.螺钉  |
|         |        |        |        |        | 19.抱箍  |



## 电磁阀

Piston Type Valves

- 专利线圈，低温升，大功率，防水性能好 ◀
- 应用新材料，耐高低温性能更好 ◀
- 采用新工艺，阀口密封优良，开启压力更小 ◀



## HVH 型活塞式电磁阀 Model HVH Piston Type Solenoid Valve



HVH型活塞式电磁阀是二次开启式电磁阀，适用于单向流动。  
HVH型活塞式电磁阀用于冷冻、冷藏和空气调节装置的液体、吸气和热气管路上。  
HVH型活塞式电磁阀可提供多种电压的线圈，而阀体是通用的。  
HVH型活塞式电磁阀可提供整体供货，也可分体供货，即阀体和线圈分开单独供货。

Model HVH piston type solenoid valve is a twice open-type solenoid valve to be suitable to one-way flow.  
Model HVH piston type solenoid valve is used on the liquid, air suction and hot vapor pipes of the refrigeration, cold storage and air conditioning facilities.  
The coil of various voltages is available for Model HVH piston type solenoid valve with a universal valve body.  
Model HVH piston type solenoid valve could be supplied in whole or in split, that means the valve body and coil could be supplied separately.

### 特点 Features

- 线圈为专利产品，整体密封设计，可有效防水，使用寿命长（IP65）。
- 多种交直流电磁线圈可供选择。
- 夹卡式电磁线圈拆卸安装方便。
- 独特的结构设计，开阀能力大。在电压波动大的状况下也能正常工作。
- 活塞行程大，确保阀流量大。

- The proprietary coil is an entirely sealed design with an effective waterproof performance and a long service life (IP65).
- It has high capability to open the valve because its unique structure design and it could be operated properly even under unstable voltage.
- Various AC and DC solenoid coils are available for choice.
- Clip type solenoid coil is convenient in assembly and disassembly.
- The high flow rate is assured by a big piston stroke.

认证 Certification ● ISO 9001 ● CE ● QS

### 技术参数 Technical Parameters

适用制冷剂 Applicable Refrigerant	HCFC or HFC (客户指定customer specified)
适用介质温度 Applicable Medium Temperature	-30℃ ~ +140℃
线圈的适用环境温度 Applicable Ambient Temperature of Solenoid	-40℃ ~ +65℃
线圈的标准电压 Standard Voltage of Solenoid	AC 380V, AC 220V/50 Hz (也可按客户户定做Customer design is available)
线圈的允许电压波动 Allowable Voltage Fluctuation for Solenoid	+10% ~ -15%
线圈的连接Connection of Solenoid	3线插入式标准连接器Standard 3-wire insert connector

### 造型 Selection

型号Model	规格 Size	开启差值 ΔP (bar)		最大工作压力 (bar) Max. Operating Pressure	Kv值 Kv (m³/h)
	焊接口 Weld Connection	最小 Min.	最大工作压力差 MOPD 液体 Liquid		
HVH3-2T	1/4 ODF	0.05	31	45	0.27
HVH8-3T	3/8 ODF	0.05	31	45	0.8
HVH10-4T	1/2 ODF	0.05	31	45	1.4
HVH10-5T	5/8 ODF	0.05	31	45	1.9
HVH15-6T	3/4 ODF	0.05	31	45	2.6
HVH15-7T	7/8 ODF	0.05	31	45	2.8

- 1) Kv值：密度为1吨/m³的水在通过电磁阀的压差等于100KPa时的流量，单位为m³/h；
  - 2) 气态介质的MOPD约高1bar。
- 1) Kv value: The flow rate (m³/h) of water of density 1t/m³ passing through the solenoid valve with the pressure differential of 100 KPa.
- 2) The MOPD of gaseous medium is about 1 bar higher than that of liquid.

型号Model	名义制冷量 Nominal Refrigerating Capacity kW								
	液体 Liquid			吸气 Air Suction			热蒸气 Hot Vapor		
	R22/R407C	R134a	R404A/R507	R22/R407C	R134a	R404A/R507	R22/R407C	R134a	R404A/R507
HVH3	5.40	5.00	3.80	---	---	---	2.50	2.00	2.00
HVH8	16.10	14.80	11.20	1.80	1.30	1.60	7.40	5.90	6.00
HVH10	38.20	35.30	26.70	4.30	3.10	3.90	17.50	13.90	14.30
HVH15	52.30	48.30	36.500	5.90	4.20	5.30	24.00	19.00	19.60

液体和吸气名义制冷量的工况条件为：

- 蒸发温度  $t_e = -10^\circ\text{C}$
- 阀前液体温度  $t_l = +25^\circ\text{C}$
- 经过电磁阀的压力降  $\Delta P = 15\text{KPa}$

The working condition of the nominal refrigerating capacity of liquid and air suction is as follows:

- Evaporation Temperature:  $t_e = -10^\circ\text{C}$ ;
- Liquid Temperature before Valve:  $t_l = +25^\circ\text{C}$ ;
- Pressure Drop after Solenoid Valve:  $\Delta P = 15\text{KPa}$

热气名义制冷量的工况条件为：

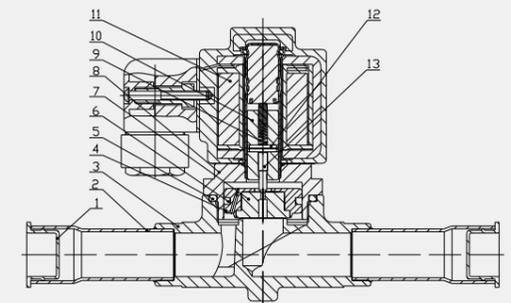
- 冷凝温度  $t_c = +40^\circ\text{C}$
- 经过电磁阀的压力降  $\Delta P = 80\text{KPa}$
- 热气温度  $t_h = +65^\circ\text{C}$
- 液体制冷剂过冷度  $\Delta t = 4\text{K}$

The working condition of the nominal refrigerating capacity of hot vapor is as follows:

- Condensation Temperature:  $t_c = +40^\circ\text{C}$ ;
- Pressure Drop after Solenoid Valve:  $\Delta P = 80\text{KPa}$ ;
- Hot Vapor Temperature:  $t_h = +65^\circ\text{C}$ ;
- Liquid Refrigerant Overcooling:  $\Delta t = 4\text{K}$

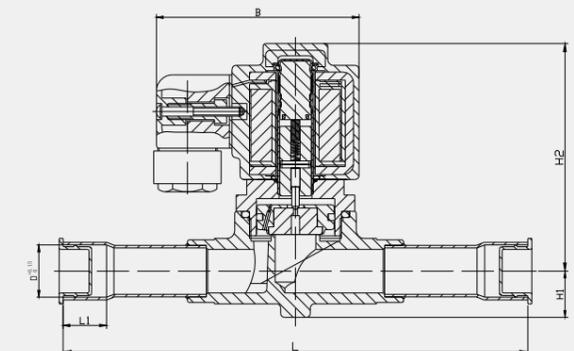
### 结构 Structure

- 防尘帽 dust cap
- 接管 pipe
- 阀体 valve body
- 活塞 piston
- O形圈 O-ring
- 活塞环 piston ring
- 密封圈 seal ring
- 阀座部件 valve seat
- 复位弹簧 reset spring
- 芯铁 core iron
- 电磁线圈 solenoid coil
- 弹性销 spring pin
- 阀针 valve needle



### 外形尺寸 Overall Dimension

型号Model	外形尺寸 Overall Dimension						重量 (kg) Weight (Kg)
	B	D	L1	L	H1	H2	
HVH3-2T	77	Φ6.5	7	102	14	77	0.55
HVH8-3T	77	Φ9.6	8	124	14	77	0.63
HVH10-4T	77	Φ12.8	10	138	17	82	0.65
HVH10-5T	77	Φ16.1	14	156	17	82	0.65
HVH15-6T	77	Φ19.2	16	172	17	84	0.70
HVH15-7T	77	Φ22.3	17	180	17	84	0.70



## HVD型 活塞式电磁阀 Model HVD Piston Type Solenoid Valve



24w

- HVD型活塞式电磁阀是二次开启式电磁阀，适用于单向流动。
- HVD型活塞式电磁阀用于冷冻、冷藏和空气调节装置的液体、吸气和热气管路上。
- HVD型活塞式电磁阀可提供多种电压的线圈，而阀体是通用的。
- HVD型活塞式电磁阀可提供整体供货，也可分体供货，即阀体和线圈分开单独供货。

- Model HVD piston type solenoid valve is a twice open-type solenoid valve to be suitable to one-way flow.
- Model HVD piston type solenoid valve is used on the liquid, air suction and hot vapor pipes of the refrigeration, cold storage and air conditioning facilities.
- The coil of various voltages is available for Model HVD piston type solenoid valve with a universal valve body.
- Model HVD piston type solenoid valve could be supplied in whole or in split, that means the valve body and coil could be supplied separately.

### 特点 Features

- 专利线圈，防水性能好 (IP65)
- 应用新材料，耐高低温性能好。
- 24W的大功率电磁线圈，开阀能力大。
- 活塞行程大，工作流量大。
- 多种交流和直流电磁线圈可供选择。
- 焊接连接可达1-5/8in。
- The proprietary coil has perfect waterproof performance (IP65).
- Using new material, it has perfect performance in high and low temperature application.
- The 24W high-power solenoid coil has high capability to open the valve.
- The high flow rate is assured by a big piston stroke.
- Various AC and DC solenoid coils are available for choice.
- 1-5/8 inch is the maximum welded connection size.

### 技术参数 Technical Parameters

适用制冷剂 Applicable Refrigerant	HCFC or HFC (客户指定customer specified)
适用介质温度 Applicable Medium Temperature	-30°C ~ +105°C
线圈的适用环境温度 Applicable Ambient Temperature of Solenoid	-40°C ~ +65°C
线圈的标准电压 Standard Voltage of Solenoid	AC 380V, AC 220V/50 Hz (也可按客户户定做Customer design is available)
线圈的允许电压波动 Allowable Voltage Fluctuation for Solenoid	+10% ~ -15%
线圈的连接Connection of Solenoid	3线插入式标准连接器Standard 3-wire insert connector

### 造型 Selection

型号Model	规格 Size	开启差值 $\Delta P$ (bar)		最大工作压力(bar) Max. Operating Pressure	Kv值 Kv (m <sup>3</sup> /h)
	焊接口Weld Connection	最小Min.	最大工作压力差 MOPD 液体 Liquid MOPD		
HVD25	1-1/8 ODF	0.2	31	45	10
HVD32	1-3/8 ODF	0.2	31	45	16
HVD40	1-5/8 ODF	0.2	31	45	25

- 1) Kv值：密度为1吨/m<sup>3</sup>的水在通过电磁阀的压差等于100KPa时的流量，单位为m<sup>3</sup>/h；  
2) 气态介质的MOPD约高1bar。
- 1) Kv value: The flow rate (m<sup>3</sup>/h) of water of density 1t/m<sup>3</sup> passing through the solenoid valve with the pressure differential of 100 KPa.  
2) The MOPD of gaseous medium is about 1 bar higher than that of liquid.

型号Model	名义制冷量 Nominal Refrigerating Capacity kW								
	液体 Liquid			吸气 Air Suction			热蒸气 Hot Vapor		
	R22/R407C	R134a	R404A/R507	R22/R407C	R134a	R404A/R507	R22/R407C	R134a	R404A/R507
HVD25	201.0	186.0	141.0	22.80	16.30	20.40	92.30	73.20	75.30
HVD32	322.0	297.0	255.0	36.50	26.10	32.60	148.00	117.00	120.00
HVD40	503.0	464.0	351.0	57.00	40.80	51.00	231.00	183.00	188.00

液体和吸气名义制冷量的工况条件为：

- 蒸发温度  $t_e = -10^\circ\text{C}$
- 阀前液体温度  $t_l = +25^\circ\text{C}$
- 经过电磁阀的压力降  $\Delta P = 15\text{KPa}$

The working condition of the nominal refrigerating capacity of liquid and air suction is as follows:

- Evaporation Temperature:  $t_e = -10^\circ\text{C}$ ;
- Liquid Temperature before Valve:  $t_l = +25^\circ\text{C}$ ;
- Pressure Drop after Solenoid Valve:  $\Delta P = 15\text{KPa}$

热气名义制冷量的工况条件为：

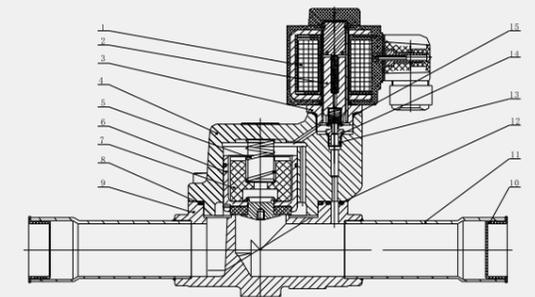
- 冷凝温度  $t_c = +40^\circ\text{C}$
- 经过电磁阀的压力降  $\Delta P = 80\text{KPa}$
- 热气温度  $t_h = +65^\circ\text{C}$
- 液体制冷剂过冷度  $\Delta t = 4\text{K}$

The working condition of the nominal refrigerating capacity of hot vapor is as follows:

- Condensation Temperature:  $t_c = +40^\circ\text{C}$ ;
- Pressure Drop after Solenoid Valve:  $\Delta P = 80\text{KPa}$ ;
- Hot Vapor Temperature:  $t_h = +65^\circ\text{C}$ ;
- Liquid Refrigerant Overcooling:  $\Delta t = 4\text{K}$

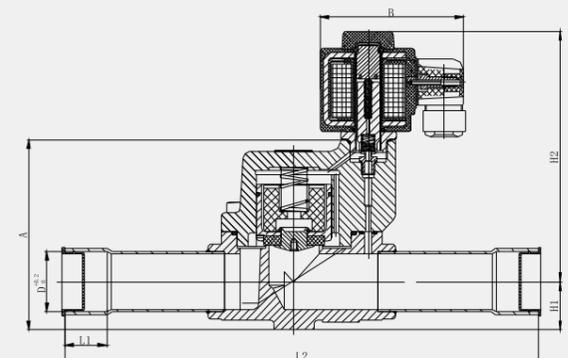
### 结构 Structure

- |                       |                               |
|-----------------------|-------------------------------|
| 1. 电磁线圈 solenoid coil | 9. 阀体 valve body              |
| 2. 芯铁部件 core iron     | 10. 防尘帽 dust cap              |
| 3. 阀座部件 valve seat    | 11. 接管 pipe                   |
| 4. 阀盖 bonnet          | 12. O形圈 O-ring                |
| 5. 复位弹簧 reset spring  | 13. 阀芯 valve element          |
| 6. 活塞部件 piston        | 14. 阀芯垫片 valve element gasket |
| 7. 活塞芯 piston core    | 15. 密封环 seal ring             |
| 8. O形圈 O-ring         |                               |



### 外形尺寸 Overall Dimension

型号Model	外形尺寸 Overall Dimension							重量 (kg) Weight (Kg)
	A	B	D	L1	L2	H1	H2	
HVD25	103	85	Φ28.7	20	281.5	26.5	139	3.02
HVD32	110	85	Φ35.2	25	281.5	28	145	3.45
HVD40	119	85	Φ41.5	29	281.5	32	150	4.30



## HVP型活塞式电磁阀 Model HVP Piston Type Solenoid Valve



- HVP型活塞式电磁阀是二次开启式电磁阀，适用于单向流动。
- HVP型活塞式电磁阀用于冷冻、冷藏和空气调节装置的液体、吸气和热气管路上。
- HVP型活塞式电磁阀可提供多种电压的线圈，而阀体是通用的。
- HVP型活塞式电磁阀可提供整体供货，也可分体供货，即阀体和线圈分开单独供货。

- Model HVP piston type solenoid valve is a twice open-type solenoid valve to be suitable to one-way flow.
- Model HVP piston type solenoid valve is used on the liquid, air suction and hot vapor pipes of the refrigeration, cold storage and air conditioning facilities.
- The coil of various voltages is available for Model HVP piston type solenoid valve with a universal valve body.
- Model HVP piston type solenoid valve could be supplied in whole or in split, that means the valve body and coil could be supplied separately.

### 特点 Features

- 专利线圈，防水性能好 (IP65)。
- 应用新材料，耐高低温性能好。
- 24W的大功率电磁线圈，开阀能力大。
- 活塞行程大，工作流量大。
- 多种交流和直流电磁线圈可供选择。
- 焊接连接可达2-1/8in。
- The proprietary coil has a perfect waterproof performance (IP65).
- Using new material, it has perfect performance in high and low temperature application.
- The 24W high-power solenoid coil has high capability to open the valve.
- The high flow rate is assured by a big piston stroke.
- Various AC and DC solenoid coils are available for choice.
- 2-1/8 inch is the maximum welded connection size.

认证 Certification ● ISO 9001 ● CE ● QS

### 技术参数 Technical Parameters

适用制冷剂 Applicable Refrigerant	HCFC or HFC (客户指定customer specified)
适用介质温度 Applicable Medium Temperature	-30°C ~ +105°C
线圈的适用环境温度 Applicable Ambient Temperature of Solenoid	-40°C ~ +65°C
线圈的标准电压 Standard Voltage of Solenoid	AC 380V, AC 220V/50 Hz (也可按客户户定做Customer design is available)
线圈的允许电压波动 Allowable Voltage Fluctuation for Solenoid	+10% ~ -15%
线圈的连接Connection of Solenoid	3线插入式标准连接器Standard 3-wire insert connector

### 选型 Selection

型号Model	规格 Size	开启差值 $\Delta P$ (bar)		最大工作压力(bar) Max. Operating Pressure	Kv值 Kv (m <sup>3</sup> /h)
	焊接口Weld Connection	最小Min.	最大工作压力差 MOPD 液体 Liquid MOPD		
HVP25	1-1/8 ODF	0.2	31	45	10
HVP32	1-3/8 ODF	0.2	31	45	16
HVP40	1-5/8 ODF	0.2	31	45	25
HVP54	2-1/8 ODF	0.2	31	45	28

- 1) Kv值：密度为1吨/m<sup>3</sup>的水在通过电磁阀的压差等于100KPa时的流量，单位为m<sup>3</sup>/h；  
2) 气态介质的MOPD约高1bar。

- 1) Kv value: The flow rate (m<sup>3</sup>/h) of water of density 1t/m<sup>3</sup> passing through the solenoid valve with the pressure differential of 100 KPa.  
2) The MOPD of gaseous medium is about 1 bar higher than that of liquid.

型号Model	名义制冷量 Nominal Refrigerating Capacity kW											
	液体 Liquid				吸气 Air Suction				热蒸气 Hot Vapor			
	R22	R134a	R404A /R507	R407C	R22	R134a	R404A /R507	R407C	R22	R134a	R404A /R507	R407C
HVP25	201.0	186.0	141.0	188.9	22.80	16.30	20.40	20.98	92.30	73.20	75.30	89.53
HVP32	322.0	297.0	255.0	302.5	36.50	26.10	32.60	33.58	148.00	117.00	120.00	143.56
HVP40	503.0	464.0	351.0	472.7	57.00	40.80	51.00	52.44	231.00	183.00	188.00	224.07
HVP54	602.0	520.0	351.0	472.7	57.00	40.80	51.00	52.44	231.00	183.00	188.00	224.07

液体和吸气名义制冷量的工况条件为：  
蒸发温度  $t_e = -10^\circ\text{C}$   
阀前液体温度  $t_l = +25^\circ\text{C}$   
经过电磁阀的压力降  $\Delta P = 15\text{KPa}$

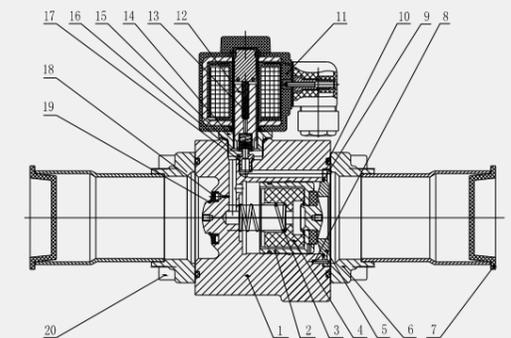
The working condition of the nominal refrigerating capacity of liquid and air suction is as follows:  
Evaporation Temperature:  $t_e = -10^\circ\text{C}$ ;  
Liquid Temperature before Valve:  $t_l = +25^\circ\text{C}$ ;  
Pressure Drop after Solenoid Valve:  $\Delta P = 15\text{KPa}$

热气名义制冷量的工况条件为：  
冷凝温度  $t_c = +40^\circ\text{C}$   
经过电磁阀的压力降  $\Delta P = 80\text{KPa}$   
热气温度  $t_h = +65^\circ\text{C}$   
液体制冷剂过冷度  $\Delta t = 4\text{K}$

The working condition of the nominal refrigerating capacity of hot vapor is as follows:  
Condensation Temperature:  $t_c = +40^\circ\text{C}$ ;  
Pressure Drop after Solenoid Valve:  $\Delta P = 80\text{KPa}$ ;  
Hot Vapor Temperature:  $t_h = +65^\circ\text{C}$ ;  
Liquid Refrigerant Overcooling:  $\Delta t = 4\text{K}$

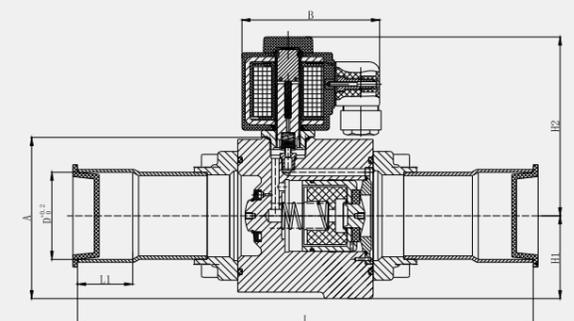
### 结构 Structure

- |                         |                                    |
|-------------------------|------------------------------------|
| 1. 阀体 valve body        | 11. 电磁线圈 (24W) solenoid coil (24W) |
| 2. 活塞部件 piston          | 12. 芯铁部件 core iron                 |
| 3. 弹簧 spring            | 13. 复位弹簧 reset spring              |
| 4. 活塞芯 piston core      | 14. 阀座部件 valve seat                |
| 5. 密封座 sealing seat     | 15. 密封环 seal ring                  |
| 6. 法兰组件 Flange assembly | 16. 阀芯 valve element               |
| 7. 防尘帽 dust cap         | 17. 阀芯垫片 valve element gasket      |
| 8. 定位销 dowel pin        | 18. 过滤网组件 filter assembly          |
| 9. O形圈 O-ring           | 19. 挡圈 retainer ring               |
| 10. O形圈 O-ring          | 20. 螺钉 screw                       |



### 外形尺寸 Overall Dimension

型号Model	外形尺寸 Overall Dimension							重量 (kg) Weight (Kg)
	A	B	D	L1	L	H1	H2	
HVP25	100	85	Φ28.7	20	281.5	51.5	111	4.522
HVP32	100	85	Φ35.2	25	281.5	51.5	111	4.562
HVP40	100	85	Φ41.5	29	281.5	51.5	111	4.708
HVP54	100	85	Φ54.2	34	281.5	51.5	111	4.778



## EVR型电磁阀 Model EVR Solenoid Valve



- EVR型电磁阀是一次开启式或二次开启式电磁阀，适用于单向流动。
  - EVR型电磁阀用于冷冻、冷藏和空气调节装置的液体、吸气和热气管路上。
  - EVR型电磁阀的阀座与密封处具有很好的密封性。
  - EVR型电磁阀可提供多种电压的线圈。
  - EVR型电磁阀可提供整体供货，也可分体供货，即阀体和线圈分开单独供货。
- Model EVR solenoid valve is a direct-operated or servo-operated valve, which is applicable to one direction flow.
  - Model EVR solenoid valve is used on the liquid, air suction or hot vapor piping of a freezer, cold store and air conditioning unit.
  - The valve seat of Model EVR solenoid valve is well sealed with perfect sealing performance.
  - Model EVR solenoid valves with various voltage solenoids are available.
  - Both packed and separated Model EVR solenoid valves are available and it means the valve body could be supplied separately from the solenoid.

### 特点 Features

- 只提供常闭 (NC) 型阀
  - 设计耐温可达105℃
  - 进口端带100目可更换的过滤网
  - 24w的大功率电磁线圈，最大工作压差 (MOPD) 可达3.1MPa。
  - 可用于冷冻、冷藏和空气调节装置的各种场合。
  - 可提供多种接口尺寸。
  - 多种电源的电磁线圈可选择。
  - 夹卡式电磁线圈只需一把螺丝刀就可简单地拆卸。
  - 使用寿命长的密封线圈，可在恶劣环境条件下使用。
- Only NC type solenoid valve is available.
  - The max. design temperature is 105℃.
  - 100-mesh filter is contained at the suction end, which is replaceable.
  - 24w high power solenoid and max. operating pressure differential (MOPD) is 3.1 MPa.
  - The solenoids with various power supply are available.
  - The clamped joint solenoid is easy to be mounted or dismantled only with one screwdriver.
  - The sealed solenoid has a long service life and it can be used even in an adverse circumstance.

### 技术参数 Technical Parameters

适用制冷剂 Applicable Refrigerant	HCFC 或 HFC (客户指定Customer choice)
适用介质温度 Applicable Medium Temperature	-30℃ ~ +105℃
线圈的适用环境温度 Applicable Ambient Temperature of Solenoid	-40℃ ~ +65℃
线圈的标准电压 Standard Voltage of Solenoid	AC380V, AC220V/50Hz (也可按客户定做Custom design is available)
线圈的允许电压波动 Allowable Voltage Fluctuation for Solenoid	+10% ~ -15%
线圈的连接Connection of Solenoid	3线插入式标准连接器Standard 3-wire insert connector

### 选型 Specification

型号Model	规格Connection Type		开启差值 ΔP (bar)		最大工作压力(bar) Max. Operating Pressure	Kv值 Kv (m³/h)
	喇叭口Flare	焊接口Welded	最小Min.	最大工作压力差 MOPD 液体 Liquid		
EVR3-2	1/4 SAE	1/4 ODF	0.0	31	45	0.16
EVR3-3	3/8 SAE	3/8 ODF	0.0			0.27
EVR6-3	3/8 SAE	3/8 ODF	0.05			0.8
EVR6-4	1/2 SAE	1/2 ODF				0.8
EVR10-4	1/2 SAE	1/2 ODF				1.9
EVR10-5	5/8 SAE	5/8 ODF				1.9
EVR15-5	5/8 SAE	5/8 ODF	0.2			2.6
EVR15-6	3/4 SAE	3/4 ODF				2.6
EVR15-7	--	7/8 ODF				2.6
EVR20-7	--	7/8 ODF				5.0
EVR25-9	--	1 1/8 ODF		10		

- 1) Kv值: 密度为1吨/m³的水在通过电磁阀的压差等于100KPa时的流量,单位为m³/h; 1) Kv: The flow rate (m³/h) of water of density 1 t/m³ passing through the solenoid valve under the pressure differential of 100 KPa.
- 2) 气态介质的MOPD约高1bar。 2) The MOPD of gaseous medium is about 1bar higher than that of liquid.

型号Model	名义制冷量 Nominal Refrigerating Capacity kW								
	液体 Liquid			吸气 Air Suction			热蒸气 Hot Vapor		
	R22\R407C	R134a	R404A\R507	R22\R407C	R134a	R404A\R507	R22\R407C	R134a	R404A\R507
EVR3	5.40	5.00	3.80	---	---	---	2.50	2.00	2.00
EVR6	16.10	14.80	11.20	1.80	1.30	1.60	7.40	5.90	6.00
EVR10	38.20	35.30	26.70	4.30	3.10	3.90	17.50	13.90	14.30
EVR15	52.30	48.30	36.50	5.90	4.20	5.30	24.00	19.00	19.60
EVR20	101.0	92.80	70.30	11.40	8.10	10.20	46.20	36.60	37.70
EVR25	201.0	186.0	141.0	22.80	16.30	20.40	92.30	73.20	75.30

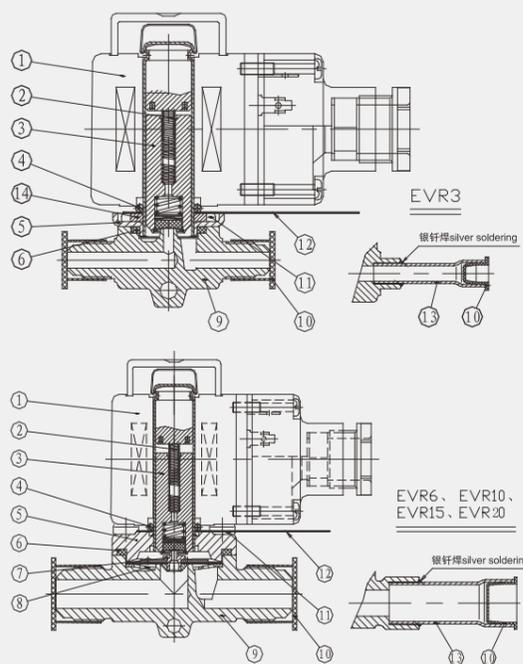
液体和吸气名义制冷量的工况条件为:  
 蒸发温度 te=-10℃  
 阀前液体温度 tl=+25℃  
 经过电磁阀的压力降 ΔP=15KPa

热气名义制冷量的工况条件为:  
 冷凝温度 tc=+40℃  
 经过电磁阀的压力降 ΔP=80KPa  
 热气温度 th=+65℃  
 液体制冷剂过冷度 Δt=4K

The working condition of the nominal refrigerating capacity of liquid and air suction is as follows:  
 Evaporation Temperature: te = -10℃;  
 Liquid Temperature before Valve: tl = +25℃;  
 Pressure Drop after Solenoid Valve: ΔP = 15KPa

The working condition of the nominal refrigerating capacity of hot vapor is as follows:  
 Condensation Temperature: tc = +40℃;  
 Pressure Drop after Solenoid Valve: ΔP = 80 KPa;  
 Hot Vapor Temperature: th = +65℃;  
 Liquid Refrigerant Overcooling: Δt = 4K

## 结构 Structure



1. 电磁线圈 ( 10W ) solenoid (10W)
2. 回复弹簧 return spring
3. 芯铁部件 iron core component  
( 改性PTFE密封 )  
( modified PTFE seal )  
( 进口不锈钢磁钢 )  
( imported stainless magnet steel )
4. O-Ring ( CR ) O-ring (CR)
5. 阀盖部件 valve bonnet
6. 密封圈 ( CR ) sealing (CR)
7. 阀芯部件 ( 移动式 ) valve core (movable)  
( 改性PTFE复合膜片 )  
( modified PTFE compound diaphragm )
8. 挡片 baffle
9. 阀体 valve body
10. 防尘帽 cap
11. 紧固螺钉(4个)fixing screws (4)
12. 标贴牌 label
13. 铜接管 copper tube
14. 铁垫圈 steel washer

EVR型电磁阀基于以下两个工作原理设计: Model EVR solenoid valve is designed in accordance with following two operating principles:

## 1. 一次开启式 ( 直动型 )

EVR3是直动型。当芯铁部件 ( 3 ) 由于线圈磁力上移, 电磁阀就直接打开, 即电磁阀可在零压差下工作。

密封阀芯 ( 改性PTFE ) 直接安装在芯铁部件 ( 3 ) 上。

进口压力从上方作用在芯铁部件上。因此, 在线圈不通电时, 进口压力、弹簧力、芯铁部件的自重共同作用使阀关闭。

## 2. 二次开启式 ( 伺服型 )

EVR6/10/15/20是带移动式阀芯部件 ( 7 ) 的伺服型阀。导流阀芯和膜片 ( 改性PTFE复合膜 ) 在阀芯部件上。

当线圈不通电时, 主阀口和导阀口是关闭的。芯铁部件的自重、弹簧力、进出口压力差共同作用使阀关闭。

当线圈通电时, 芯铁部件 ( 3 ) 由于线圈磁力上移, 打开膜片上的导阀。这时减小了膜片上的压力, 膜片上方与阀的出口处相通, 进出口压力差使膜片上移并打开。因此, 必须存在使阀打开并维持开度的一个最小压力差。

断电时, 膜片上的导阀关闭, 通过膜片上的平衡小孔使膜片上的压力上升到与进口压力相同, 使膜片下移并关闭主阀口。

## 1. Direct-operated Solenoid Valve

Model EVR 3 is a direct-operated solenoid valve. When the iron core component (3) moves upward by the magnetic force of the solenoid, the solenoid valve will open directly, that is, the solenoid valve could be operated under zero pressure differential.

The sealing valve core (modified PTFE) is directly mounted on the iron core component (3).

The inlet pressure is applied onto the iron core from the upper side. Therefore, the joint action of the inlet pressure, spring force and the self-gravity of the iron core component will close the valve when the solenoid is not energized.

## 2. Servo-operated Solenoid Valve

Model EVR 10/15/20 are servo-operated solenoid valves with movable valve core (7). The guide valve core and diaphragm (modified PTFE compound diaphragm) are mounted on the valve core.

The main valve port and guide valve port are closed when the solenoid is not energized. The joint action of the self-gravity of the iron core component, spring force and the pressure differential between inlet and outlet will close the valve.

When the solenoid is energized, the iron core component (3) moves upward to open the guide valve on the diaphragm. The moment the pressure on the diaphragm is decreased and the space above the diaphragm is communicated with the outlet of the valve. The pressure differential between the inlet and outlet moves the diaphragm upward and open. Therefore it needs a minimum pressure differential to open the valve and maintain the opening.

When the power is cut off, the guide valve on the diaphragm is closed and the balance hole on the diaphragm will make the pressure rise as the same as the inlet pressure. Consequently the diaphragm will move downward to close the main valve port.

HV型电磁阀  
Model HV Solenoid Valve

- HV型电磁阀是一次开启式或二次开启式电磁阀, 适用于单向流动。
- HV型电磁阀用于冷冻、冷藏和空气调节装置的液体、吸气和热气管路上。
- HV型电磁阀的阀座与密封处具有很好的密封性。
- HV型电磁阀可提供多种电压的线圈。
- HV型电磁阀可提供整体供货, 也可分体供货, 即阀体和线圈分开单独供货。
- Model HV solenoid valve is a one-step on/off or two-step on/off solenoid valve, which is applicable to one-way flow.
- Model HV solenoid valve is used on the piping of liquid, suction gas or hot air on the freezing, cold storage and air conditioner units.
- The valve seat and seals of Model HV solenoid valve have excellent sealing performance.
- Model HV solenoid valve could be supplied with coils of varied voltage.
- Model HV solenoid valve could be supplied in assembly or in separate components, that is, the valve body and the coil could be supplied separately.

## 特点 Features

- 只提供常闭 ( NC ) 型阀
- 可提供多种接口尺寸。
- 多种电源的电磁线圈可选择。
- 功率9W的电磁线圈, 最大工作压差 ( MOPD ) 可达3.1MPa。
- 夹卡式电磁线圈 只需一把螺丝刀就可简单地拆卸。
- 可用于冷冻、冷藏和空气调节装置的各种场合。
- 使用寿命长的密封线圈, 可在恶劣环境条件下使用。
- Only NC valve is available.
- Coils of various power supply are available for choice.
- For 9W solenoid, MOPD is up to 3.1 MPa.
- For clamping type solenoid valve, it is simple and just need one screwdriver in installation.
- It is suitable to various application in freezing, cold storage and air conditioner units.
- The sealed coil has a long service life and could be used in adverse circumstances.

认证Certification • ISO 9001 • QS ( XK-015-00246 )

- 线圈 CE UL

## 技术参数 Technical Parameters

适用制冷剂 Applicable Refrigerant	HCFC、HFC及相应介质粘度 $\leq 2^\circ$ E润滑油 HCFC, HFC and related medium viscosity $\leq 2^\circ$ E lubricant oil
适用介质温度 Applicable Medium Temperature	-30 $^\circ$ C ~ +105 $^\circ$ C
线圈的适用环境温度 Coil Applicable Ambient Temperature	-40 $^\circ$ C ~ +65 $^\circ$ C
线圈的标准电压 Coil Standard Voltage	AC380V、220V、110V、24V/50、60Hz, DC24V
线圈的允许电压波动 Coil Allowable Voltage Fluctuation	+10% ~ -10%
线圈的连接 Coil Connection	3线插入式标准连接器 Standard 3-wire insert connector

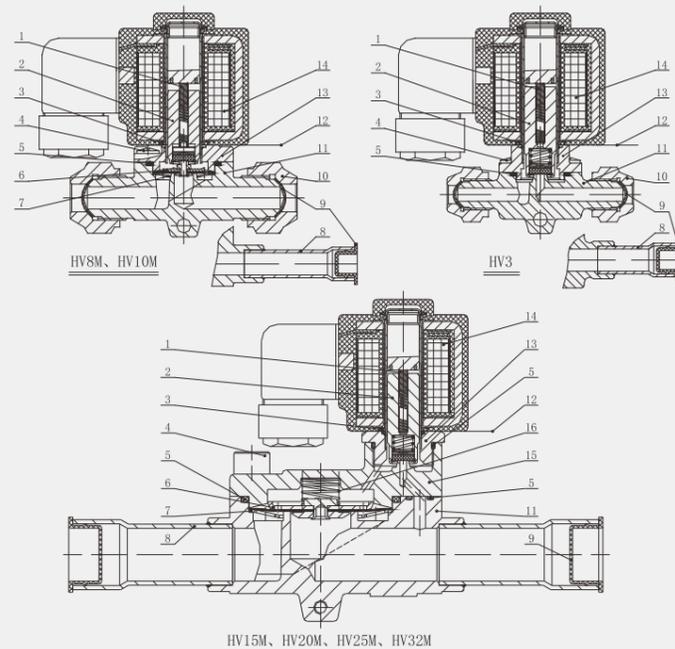
造型 Selection

结构 Structure	型号Model	接口Connection		Opening开启压差 ΔP ( bar )		最大工作压力 ( bar ) Maximum Working Pressure	Kv值 Value ( m³/h )
		规格 Spec	型式 Type	最小Minimum	最大工作压差 MOPD 液体 Liquid		
直接开启式 Direct-Operated	HV3-2	1/4	SAE ( 螺口 )	0.0			0.16
	HV3-2T		ODF ( 焊口 )				
	HV3-3	SAE ( 螺口 )	3/8				0.27
	HV3-3T	ODF ( 焊口 )					
膜片 二次开启式 Servo-Operated	HV8M3	3/8	SAE ( 螺口 )	0.05	31	45	0.8
	HV8M3T		ODF ( 焊口 )				
	HV8M4	SAE ( 螺口 )	1/2				1.9
	HV8M4T	ODF ( 焊口 )					
	HV10M4	SAE ( 螺口 )	5/8				2.6
	HV10M4T	ODF ( 焊口 )					
	HV10M5	SAE ( 螺口 )	3/4				5.0
	HV10M5T	ODF ( 焊口 )					
	HV15M5	SAE ( 螺口 )	7/8				10
	HV15M5T	ODF ( 焊口 )					
	HV15M6	SAE ( 螺口 )	1-1/8				16-0
	HV15M6T	ODF ( 焊口 )					
	HV20M7T	7/8	1-3/8				25
	HV25M9T	1-1/8					
	HV32M11T	1-3/8					
	HV32M13T	1-5/8					
HV40M13T	1-5/8						

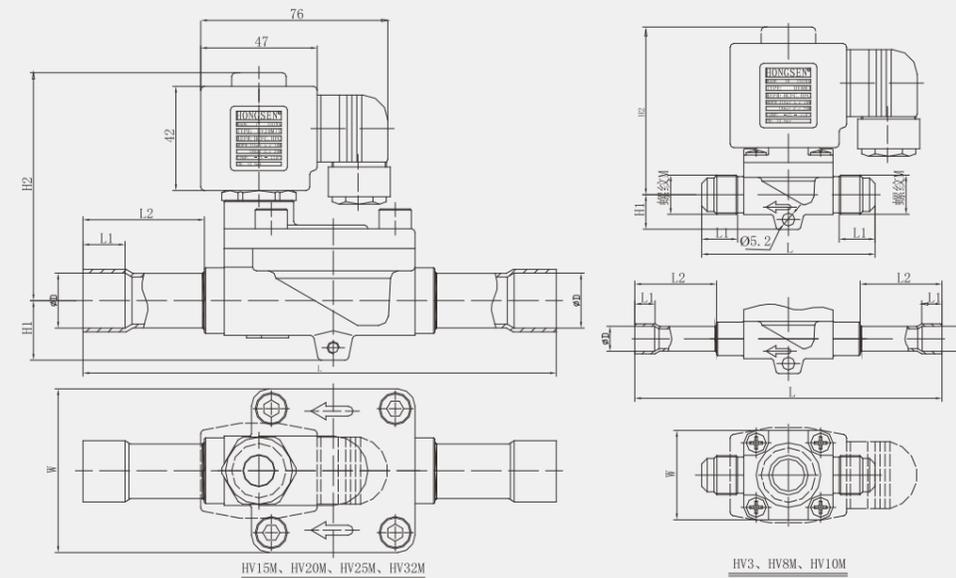
- 1) Kv值: 密度为1吨/m³的水在通过电磁阀的压差等于100KPa时的流量, 单位为m³/h;  
 2) 气态介质的MOPD约高1bar。  
 1) Kv value: When the pressure differential is 100 KPa, the flowrate at m³/h of water in density 1 t/m³ flows through the solenoid valve.  
 2) The MOPD of gaseous medium is about 1bar higher than that of liquid.

结构 Structure

1. 回复弹簧 recovery spring
2. 芯铁部件 iron core  
(改性PTFE密封) (modified PTFE sealing)  
(进口不锈钢磁钢) (imported SS magnetic steel)
3. 耐油橡胶 oil-resistance rubber
4. 紧固螺钉(4个) fastening screw(4 pieces)
5. O-Ring ( CR )
6. 阀芯部件 (移动式) valve core (mobile)  
(改性PTFE复合膜片)  
(modified PTFE composite diaphragm)
7. 挡片 flapper
8. 铜接管 copper tube
9. 防尘帽 dust cap
10. 接管螺母 connection tube nut
11. 阀体 valve body
13. 阀盖部件 valve cover
14. 电磁线圈 ( 9W ) solenoid coil(9W)
15. 阀盖 valve cover
16. 大回复弹簧 big recovery spring



外形尺寸 Overall Dimension



型号Model	外形尺寸 Overall Dimension								重量Weight(g)
	H1	H2	W	L	L1	L2	ØD	Thread螺纹M	
HV3-2	14	66	30	60	14	--	--	7/16-20UNF	---
HV3-2T				106	7	25	6.5	----	---
HV3-3				68	16	--	--	5/8-18UNF	---
HV3-3T				120	8	32	10.1	----	---
HV8M3	14	67	36	70	16	--	--	5/8-18UNF	---
HV8M3T				124	8	33	10.1	----	---
HV8M4				76	18	--	--	3/4-16UNF	---
HV8M4T				130	10	36	12.9	----	---
HV10M4	15	70	45	86	18	--	--	3/4-16UNF	---
HV10M4T				138	10	36	12.9	----	---
HV10M5				92	21	--	--	7/8-14UNF	---
HV10M5T				156	14	42	16.1	----	---
HV15M5	20	75	55	106	21	--	--	7/8-14UNF	---
HV15M5T				166	14	45	16.1	----	---
HV15M6				110	22	--	--	1-1/16-14UNS	---
HV15M6T				172	16	48	19.2	----	---
HV20M7T	24	92	66	191	17	57	22.3	----	---
HV25M9T	27	96	73	246	22	73	28.7	----	---
HV32M11T	28	100	86	281	25	85	35.2	----	---
HV32M13T					29	85	41.5	----	---
HV40M13T	32	120	100	314	29	90	41.5	----	---

注: ①线圈单重220g; ②上述重量不带纳子; ③纳子单重: 1/4-18g、3/8-30g、1/2-33g、5/8-50g、3/4-93g。  
 Note: (1) Coil alone weight 220 g (2) Nut is excluded from above mentioned weight. (3) Nut weight 1/4-18g, 3/8-30g, 1/2-33g, 5/8-50g and 3/4-93g.

## SV型电磁阀 Model SV Solenoid Valve



- SV型电磁阀是一次开启式或二次开启式电磁阀，适用于单向流动。
- SV型电磁阀用于冷冻、冷藏和空气调节装置的液体、吸气和热气管路上。
- SV型电磁阀的阀座与密封处具有很好的密封性。
- SV型电磁阀可提供多种电压的线圈，而阀体是通用的。
- SV型电磁阀可提供整体供货，也可分体供货，即阀体和线圈分开单独供货。

- Model SV solenoid valve is a once open-type or twice open-type solenoid valve to be suitable to one-way flow.
- Model SV solenoid valve is used on the liquid, air suction and hot vapor pipes of the refrigeration, cold storage and air conditioning facilities.
- Model SV solenoid valve has perfect sealing on its valve seat and sealing part.
- The coil of various voltages is available for Model SV solenoid valve with a universal valve body.
- Model SV solenoid valve could be supplied in whole or in split, that means the valve body and coil could be supplied separately.

### 特点 Features

- 线圈为专利产品，整体密封设计，可有效防水，使用寿命长(IP65)。
- 线圈在电压波动大的状况下也能正常工作。
- 多种交直流电磁线圈可供选择。
- 夹卡式电磁线圈拆卸安装方便。
- 可用于冷冻、冷藏和空气调节装置的各种压缩机上。

- The proprietary coil is an entirely sealed design with an effective waterproof performance and a long service life(IP65).
- The solenoid coil could be operated properly even under unstable voltage.
- Various AC and DC solenoid coils are available for choice.
- Clip type solenoid coil is convenient in assembly and disassembly. It is applicable to various compressors in the refrigeration, cold storage and air conditioning facilities.

认证Certification ● ISO 9001 ● QS (XK-015-00246)

### 技术参数 Technical Parameters

适用制冷剂 Applicable Refrigerant	HCFC、HFC及相应介质粘度 $\leq 2^\circ$ E润滑油 HCFC, HFC and related medium viscosity $\leq 2^\circ$ E lubricant oil
适用介质温度 Applicable Medium Temperature	-30°C ~ +105°C
线圈的适用环境温度 Coil Applicable Ambient Temperature	-40°C ~ +65°C
线圈的标准电压 Coil Standard Voltage	AC380V、220V、110V、24V/50、60Hz, DC24V
线圈的允许电压波动 Coil Allowable Voltage Fluctuation	+10% ~ -10%
线圈的连接 Coil Connection	3线插入式标准连接器 Standard 3-wire insert connector

### 选型 Selection

结构 Structure	型号 Model	接口 Connection		Opening 开启压差 $\Delta P$ ( bar )		最大工作压力 ( bar ) Maximum Working Pressure	Kv值 Value ( m <sup>3</sup> /h )				
		规格 Spec	型式 Type	最小 Minimum	最大工作压差 MOPD 液体 Liquid						
直接开启式 Direct-Operated	SV20-2	1/4	SAE ( 螺口 )	0.0	31	45	0.16				
	SV28-2		ODF ( 焊口 )								
	SV20-3	SAE ( 螺口 )									
	SV28-3	ODF ( 焊口 )									
膜片 二次开启式 Servo-Operated	SV64-3	3/8	SAE ( 螺口 )	0.05	31	45	0.8				
	SV68-3		ODF ( 焊口 )								
	SV64-4	SAE ( 螺口 )									
	SV68-4	ODF ( 焊口 )									
	SV70-5	5/8	SAE ( 螺口 )					0.2	31	45	2.2
	SV78-5		ODF ( 焊口 )								
	SV70-6	3/4	SAE ( 螺口 )								
	SV78-6		ODF ( 焊口 )								
SV98-7	7/8	ODF ( 焊口 )									

1) Kv值：密度为1吨/m<sup>3</sup>的水在通过电磁阀的压差等于100KPa时的流量，单位为m<sup>3</sup>/h；

2) 气态介质的MOPD约高1bar。

1) Kv value: When the pressure differential is 100 KPa, the flowrate at m<sup>3</sup>/h of water in density 1 t/m<sup>3</sup> flows through the solenoid valve.

2) The MOPD of gaseous medium is about 1 bar higher than that of liquid.

### 名义制冷量 Nominal Refrigerating Capacity kW

型号 Model	名义制冷量 Nominal Refrigerating Capacity kW								
	液体 Liquid			吸气 Air Suction			热蒸气 Hot Vapor		
	R22/R407C	R134a	R404A/R507	R22/R407C	R134a	R404A/R507	R22/R407C	R134a	R404A/R507
SV20	5.10	5.00	3.80	---	---	---	2.50	2.00	2.00
SV64	16.10	14.80	11.20	1.80	1.30	1.60	7.40	5.90	6.00
SV70	38.20	35.30	26.70	4.30	3.10	3.90	17.50	13.90	14.30
SV98	52.30	48.30	36.50	5.90	4.20	5.30	24.00	19.00	19.60

液体和吸气名义制冷量的工况条件为：

蒸发温度  $t_e = -10^\circ\text{C}$

阀前液体温度  $t_l = +25^\circ\text{C}$

经过电磁阀的压力降  $\Delta P = 15\text{KPa}$

热气名义制冷量的工况条件为：

冷凝温度  $t_c = +40^\circ\text{C}$

经过电磁阀的压力降  $\Delta P = 80\text{KPa}$

热气温度  $t_h = +65^\circ\text{C}$

液体制冷剂过冷度  $\Delta t = 4\text{K}$

The working condition of the nominal refrigerating capacity of liquid and air suction is as follows:

Evaporation Temperature:  $t_e = -10^\circ\text{C}$ ;

Liquid Temperature before Valve:  $t_l = +25^\circ\text{C}$ ;

Pressure Drop after Solenoid Valve:  $\Delta P = 15\text{KPa}$

The working condition of the nominal refrigerating capacity of hot vapor is as follows:

Condensation Temperature:  $t_c = +40^\circ\text{C}$ ;

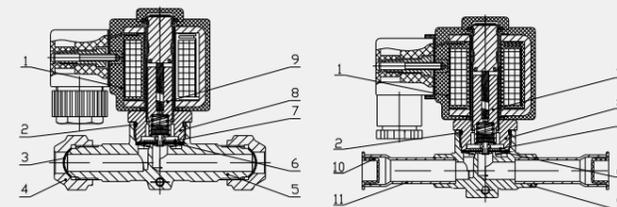
Pressure Drop after Solenoid Valve:  $\Delta P = 80\text{KPa}$ ;

Hot Vapor Temperature:  $t_h = +65^\circ\text{C}$ ;

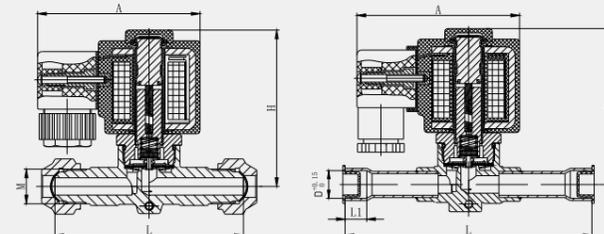
Liquid Refrigerant Overcooling:  $\Delta t = 4\text{K}$

### 结构 Structure

1. 电磁线圈 solenoid coil
2. O形圈 O-Ring
3. 封帽 sealing cap
4. 纳子 nut
5. 阀体 valve body
6. 挡片 plate
7. 阀芯部件 valve element
8. 阀座部件 valve seat
9. 芯铁部件 core iron
10. 防尘帽 dust cap
11. 接管 pipe



型号 Model	外形尺寸 Overall Dimension						重量 ( g ) Weight ( g )
	A	H	L	L1	$\Phi D$	M	
SV20-2	70	65	58	---	---	7/16-20UNF	395
SV28-2	70	65	90	7	6.5	----	395
SV20-3	70	65	64	---	---	5/8-18UNF	450
SV28-3	70	65	104	8	10.1	----	450
SV64-3	70	72	87	---	---	5/8-18UNF	496
SV68-3	70	72	108	8	10.1	----	496
SV64-4	70	72	89	---	---	3/4-16UNF	503
SV68-4	70	72	114	10	12.8	----	458
SV70-5	70	75	104	---	---	7/8-14UNF	746
SV78-5	70	75	152	14	16.1	----	598
SV70-6	70	75	104	---	---	1-1/16-14UNS	816
SV78-6	70	75	158	16	19.2	----	616
SV98-7	70	88	180	17	22.3	----	1020



## 10系列 电磁阀 Model 10 Solenoid Valve



- 10系列电磁阀是一次开启式或二次开启式电磁阀，适用于单向流动。
- 10系列电磁阀用于冷冻、冷藏和空气调节装置的液体、吸气和热气管路上。
- 10系列电磁阀的阀座与密封处具有很好的密封性。
- 10系列电磁阀可提供多种电压的线圈。
- 10系列电磁阀可提供整体供货，也可分体供货，即阀体和线圈分开单独供货。

- Model 10 solenoid valve is a direct-operated or servo-operated valve, which is applicable to one direction flow.
- Model 10 solenoid valve is used on the liquid, air suction or hot vapor piping of a freezer, cold store and air conditioning unit.
- The valve seat of Model 10 solenoid valve is well sealed with perfect sealing performance.
- Model 10 solenoid valves with solenoid of different voltage are available.
- Both packed and separated Model 10 solenoid valves are available and it means the valve body could be supplied separately from the solenoid.

### 特点 Features

- 只提供常闭 (NC) 型阀
- 设计耐温可达105℃
- 8W的电磁线圈，最大工作压力差 (MOPD) 可达2.5MPa。
- 可用于冷冻、冷藏和空气调节装置的各种场合。
- 可提供多种接口尺寸。
- 多种电源的电磁线圈可选择。
- 螺盖式电磁线圈可手工装卸。
- 使用防裂的密封线圈，可在一般环境条件下使用。

- Only NC type solenoid valve is available.
- The max. design temperature is 105°C.
- 8W solenoid and max. operating pressure differential (MOPD) is 2.5 MPa.
- It is applicable to various applications in freezing, cold storage and air conditioner units.
- The solenoids of different power supply are available.
- The thread capped solenoid is easy to be manually mounted and dismounted.
- The crack-proof solenoid is applicable to general ambient condition.

认证 Certification ● ISO 9001 ● CQC ● CE ● QS

### 技术参数 Technical Parameters

适用制冷剂Applicable Refrigerant	HCFC and HFC (客户指定Customer choice)
适用介质温度Applicable Medium Temperature	-30°C ~ +105°C
最大工作压力Max. Operating Pressure	3.0MPa
最小开启压差Min. Pressure Differential to Open Valve	直动型Direct-operated: 0.00MPa 伺服型Servo-operated: 0.02MPa
最大工作压差Max. Operating Pressure Differential (MOPD)	2.5MPa
线圈的适用环境温度Applicable Ambient Temperature for Solenoid	-40°C ~ +65°C
线圈的标准电压Standard Voltage of Solenoid	AC380V, AC220V/50Hz(也可按客户定做Custom-design is available)
线圈的允许电压波动Allowable Voltage Fluctuation for Solenoid	+10% ~ -15%
线圈的连接Connection of Solenoid	3线插入式标准连接器Standard 3-wire insert connector

### 选型 Specification

型号Model	规格 Connection		Kv (m <sup>3</sup> /h)	名义制冷量 kW (液体) Nominal Refrigerating Capacity kW (liquid)		
	喇叭口Flare	焊接口Welded		R22	HFC-134a	R404a/R502
1020-2	1/4 SAE	--	0.175	3.15	2.95	2.08
1028-2	--	1/4 ODF				
1020-3	3/8 SAE	--	0.230	4.15	3.90	2.75
1028-3	--	3/8 ODF				
1064-3	3/8 SAE	--	0.800	14.50	13.50	9.50
1068-3	--	3/8 ODF				
1064-4	1/2 SAE	--	0.800	14.50	13.50	9.50
1068-4	--	1/2 ODF				
1068-5	--	5/8 ODF	2.200	39.60	37.10	26.20
1070-4	1/2 SAE	--				
1078-4	--	1/2 ODF	2.610	47.00	44.00	31.00
1070-5	5/8 SAE	--				
1078-5	--	5/8 ODF	4.300	77.50	72.045	51.10
1078-6	--	3/4 ODF				
1098-7	--	7/8 ODF	5.700	102.60	96.00	67.85

1) Kv值: 密度为1吨/m<sup>3</sup>的水在通过电磁阀的压差等于100KPa时的流量, 单位为m<sup>3</sup>/h;  
2) 气态介质的MOPD约高0.1MPa。

1) Kv: The flow rate (m<sup>3</sup>/h) of water of density 1 t/m<sup>3</sup> passing through the solenoid valve under the pressure differential of 100 KPa.  
2) The MOPD of gaseous medium is about 0.1 MPa higher than that of liquid.



## HV型 卸载电磁阀 Model HV Unloading Solenoid Valve



- HV型卸载电磁阀是一次开启式电磁阀，适用于单向流动。
- HV型卸载电磁阀用于冷冻、冷藏和空气调节装置的压缩机上，根据热负荷的减少情况进行自动卸载，从而使压缩机节能，并延长使用寿命。
- HV型卸载电磁阀的阀座与密封处具有很好的密封性。
- HV型卸载电磁阀可提供整体供货，也可分体供货，即阀体和线圈分开单独供货。
- Model HV unloading solenoid valve is a direct-operated valve, which is applicable to one direction flow.
- Model HV unloading solenoid valve is used on the compressor of the freezer, cold store and air conditioning unit. It will automatically unload in accordance with the decrease of heat load so that it could save the compressor energy and extend the service life of compressor.
- The valve seat of Model HV unloading solenoid valve is well sealed with perfect sealing performance.
- Both packed and separated Model HV unloading solenoid valves are available and it means the valve body could be supplied separately from the solenoid.

### 特点 Features

- 只提供常闭 (NC) 型阀
- 设计耐温可达110℃
- 10W的大功率电磁线圈，最大工作压差 (MOPD) 可达3.0MPa。
- 夹卡式电磁线圈可不借助任何工具安装，只需一把螺丝刀就可简单地拆卸。
- 可用于冷冻、冷藏和空气调节装置的各种压缩机。
- 使用寿命长的密封线圈，可在恶劣环境下使用。
- Only NC type solenoid valve is available.
- The max. design temperature is 110℃.
- 10W high power solenoid and max. operating pressure differential (MOPD) is 3.0 MPa.
- It is applicable to various compressors in freezer, cold store and air conditioning unit.
- The clamped joint solenoid is easy to be mounted or dismantled only with one screwdriver.
- The sealed solenoid has a long service life and it can be used even in an adverse circumstance.

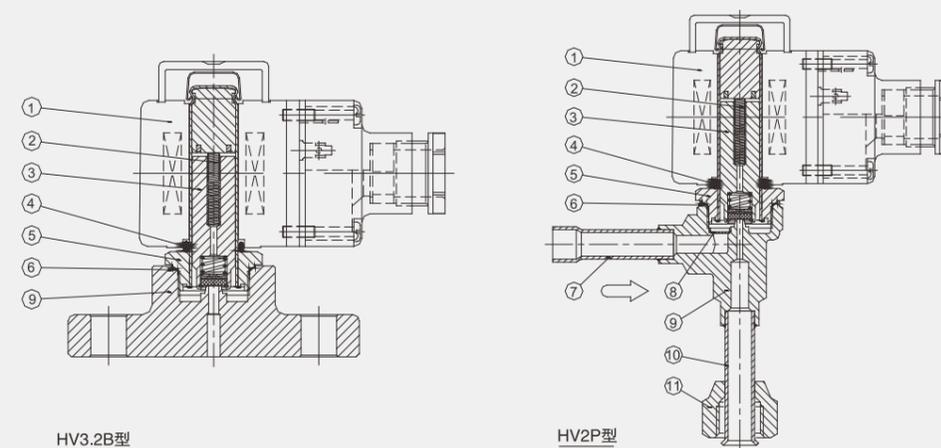
### 技术参数 Technical Parameters

适用制冷剂 Applicable Refrigerant	HCFC or HFC
适用介质温度 Applicable Medium Temperature	-30℃ ~ +105℃
线圈的适用环境温度 Applicable Ambient Temperature for Solenoid	-40℃ ~ +65℃
线圈的标准电压 Standard Voltage for Solenoid	AC 220V/50Hz
线圈的允许电压波动 Allowable Voltage Fluctuation for Solenoid	+10% ~ -15%
线圈的连接 Connection of Solenoid	IP67附带接线盒 (IP67 with terminal box)

### 选型 Specification

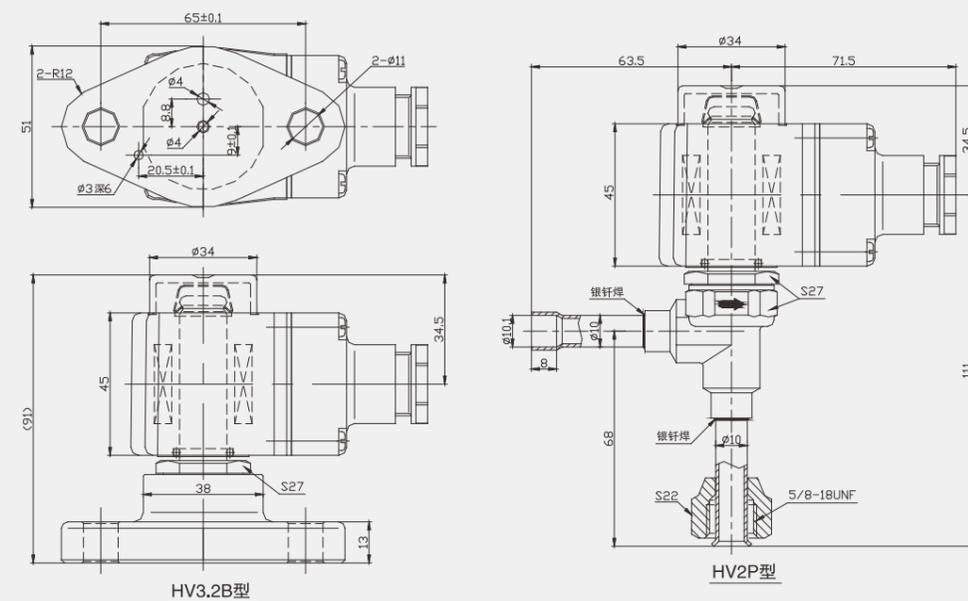
型号 Model	接口 Connection		开启压差 Pressure Differential to Open Valve ΔP ( bar )		最大工作压力 ( bar ) Max. Operating Pressure PB	kV值 ( m³/h )	重量 (g)
	进口端 Inlet	出口端 Outlet	最小 Min.	最大工作压力差 Max. Operating Pressure Differential (MOPD)			
HV3.2B	法兰连接 Flanged Connection		0.0	31	45	0.27	765
HV2P	3/8 ODF	3/8 SAE	0.0	31	45	0.16	510

注: Kv值: 密度为1吨/m³的水在通过电磁阀的压差等于100KPa时的流量, 单位为m³/h;  
Note: Kv: The flow rate (m³/h) of water of density 1 t/ m³ passing through the solenoid valve under the pressure differential of 100 KPa.



- 1.电磁线圈(10W) 2.回复弹簧 3.芯铁部件(改性PTFE密封、进口不锈钢磁钢) 4.O-Ring  
5.阀座部件 6.密封环 7.进口接管 8.过滤网 9.阀体 10.出口接管 11.接管螺母  
1. solenoid (10W) 2. return spring 3. iron core (modified PTFE sealing and imported stainless magnet steel) 4. O-ring 5. valve seat 6. sealing ring 7. suction tube 8. filter 9. valve body 10. outlet tube 11. tube nut

### 外型尺寸 Overall Dimension



## KM型 膜片式手阀 Model KM Diaphragm Hand Valve

- KM型手阀是一种手动膜片式截止阀，适用于单向流动。
- KM型手阀用于冷冻、冷藏和空气调节装置的液体、吸气和热气管路上。
- KM型手阀按接口方式分为两种：一种是螺口连接（SAE），可提供螺口规格1/4 SAE至3/4 SAE，另一种是焊口连接ODF，可提供接口尺寸1/4"至7/8"。所有KM型手阀都有安装固定孔，可用于仪表板上的安装。

- Model KM hand valve is a manually operated diaphragm stop valve for one-way flow control.
- Model KM hand valve is mounted on the liquid, air suction and hot air piping in the refrigeration, cold storage and air conditioner.
- Two types of connection are available for Model KM hand valve, that is, threaded connection (SAE) with threading size 1/4 SAE to 3/4 SAE and welded connection both ODF, structure hand valves have connection size of 1/4" to 7/8" .
- All Model KM hand valves are equipped with mounting hole for the installation on the instrument panel.



### 特点 Features

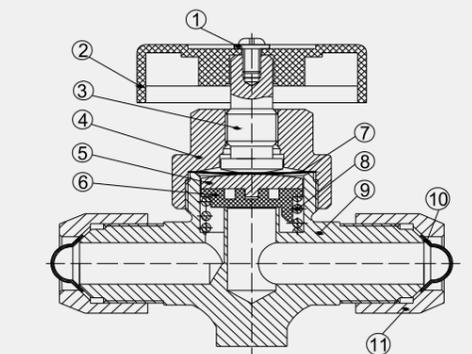
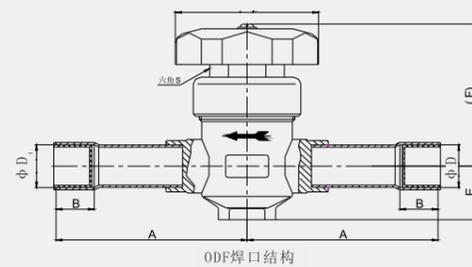
- 带有2片不锈钢膜片，在阀的整个使用寿命期间内防止泄漏。
- 阀口采用弹性密封，用很小的力矩就可将阀关闭。
- 特殊阀盖设计，防止水、粉尘等进入阀内部。
- 阀杆只需旋转一圈半就可全开或全闭，操作便捷。
- There are 2 pieces of stainless steel diaphragm to prevent the hand valve from leakage during the whole service life of the hand valve.
- The elastic sealing is used on the valve port so that the hand valve could be shut off by small torque.
- The special valve bonnet design is sued to prevent the hand valve from water or dust penetration.
- The hand valve is easy to be operated for full open or half open just by turning the valve stem for one and half turn

适用制冷剂Applicable Refrigerant	HCFC、HFC
适用介质温度Applicable Medium Temperature	-25℃ ~ +100℃
最大工作压力Max. Operating Pressure	3.0MPa
使用压力范围Scope of Operating Pressure	-0.1MPa ~ 2.1MPa
最大耐压试验压力 Maximum Hydrostatic Test Pressure	4.5MPa

### 选型 Specification

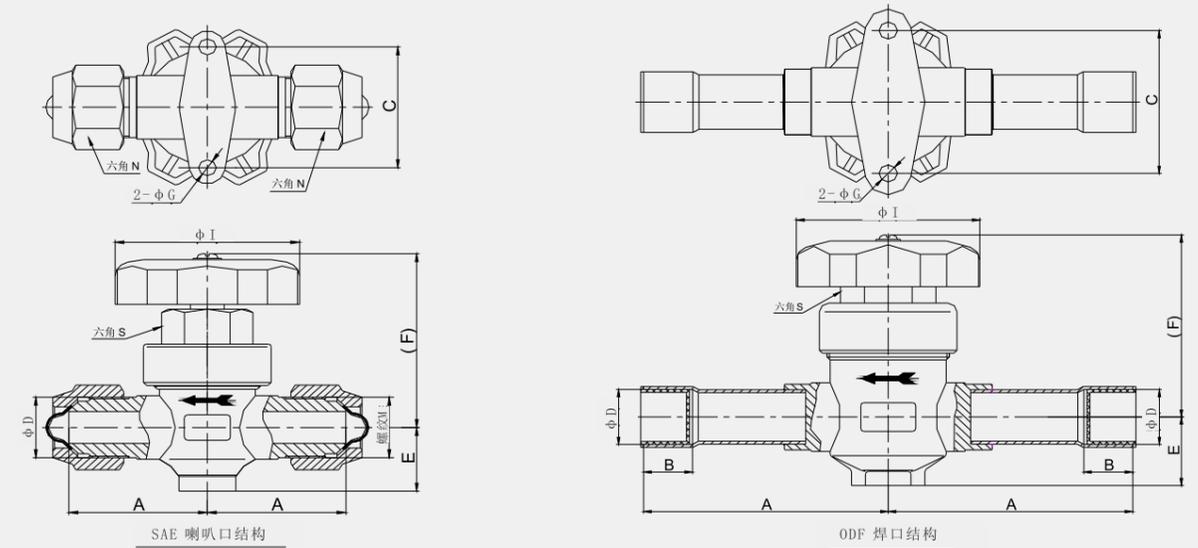
型号Model	喇叭口Flare	焊接口(带铜管) Welded (with copper tube)	Kv (m³/h)
KM-1/4	1/4 SAE	1/4 ODF	0.28
KM-3/8	3/8 SAE	3/8 ODF	0.30
KM-1/2	1/2 SAE	1/2 ODF	1.30
KM-5/8	5/8 SAE	5/8 ODF	1.80
KM-3/4	3/4 SAE	3/4 ODF	3.65
KM-7/8	----	7/8 ODF	3.65

### 结构 Structure

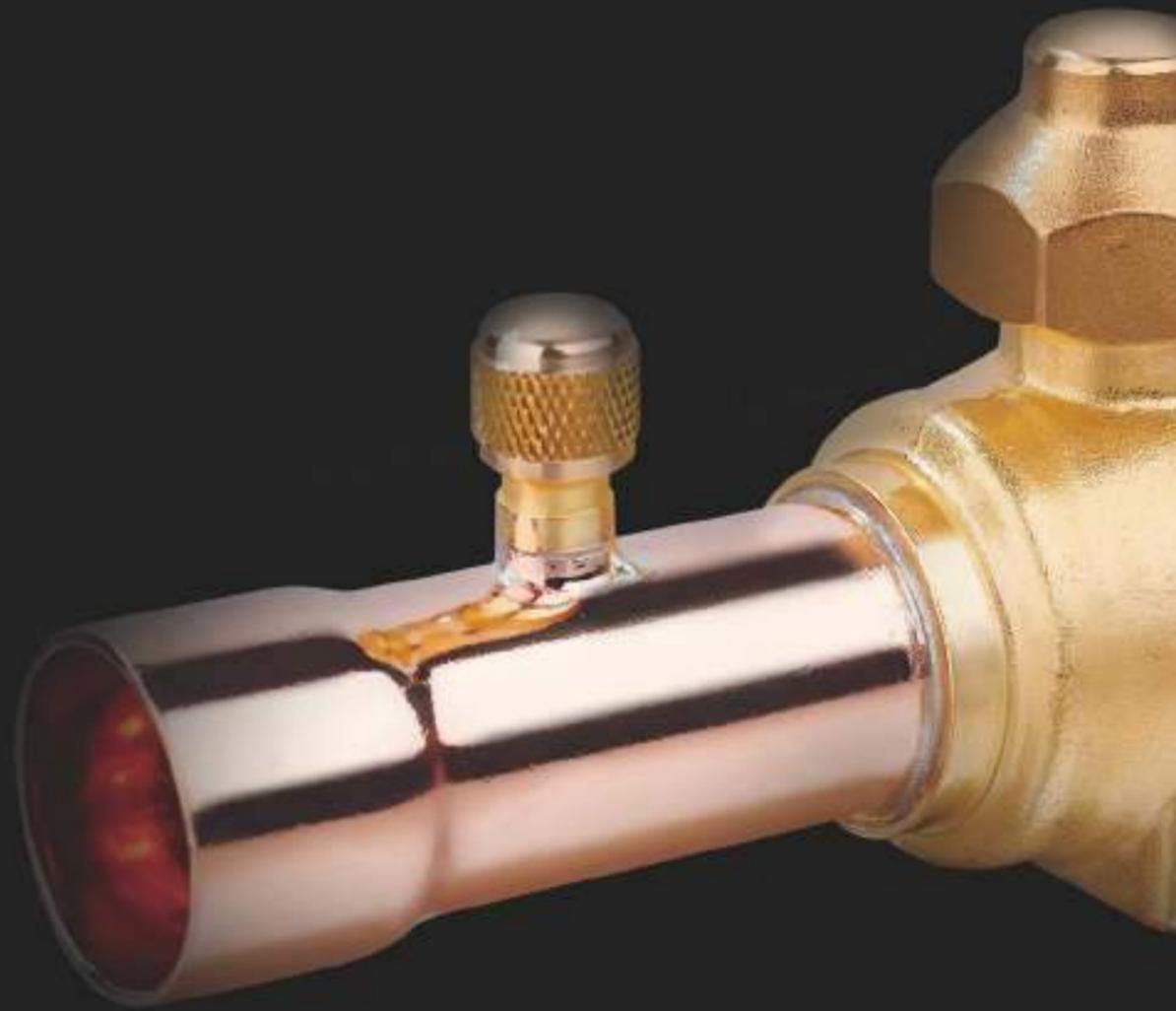


1. 螺钉 screw
2. 手轮 hand wheel
3. 阀杆 valve stem
4. 阀盖 valve bonnet
5. 铜片 copper sheet
6. 阀芯 valve element
7. 膜片 diaphragm
8. 弹簧 spring
9. 阀体 valve body
10. 防尘帽 dust cap
11. 纳子 (接管螺母) v nut (piping nut)

### 外型尺寸 Overall Dimension



型号Model	外形尺寸 Overall Dimension										
	A	B	C	ΦD	E	(F)	ΦG	ΦI	S	N	螺纹 Thread M
1/4 SAE	28.5	---	36	---	14	(53)	Φ 4.5	Φ 53	S18	S17	7/16-20UNF
1/4 ODF	51	7		6.5						---	---
3/8 SAE	31	---	38	---	19	(57)	Φ 5	Φ 53	S22	S22	5/8-18UNF
3/8 ODF	59	8		9.7						---	---
1/2 SAE	39	---	50	---	24	(64)	Φ 6	Φ 60	S27	S24	3/4-16UNF
1/2 ODF	66	10		12.8						---	---
5/8 SAE	39	---	50	---	24	(64)	Φ 6	Φ 71	S27	S27	7/8-14UNF
5/8 ODF	74	14		16.1						---	---
3/4 SAE	50	---	50	---	24	(64)	Φ 6	Φ 71	S27	S32	1-1/16-14UNS
3/4 ODF	80	16		19.1						---	---
7/8 ODF	80	17	---	22.3	---	---	---	---	---	---	---



## 球阀

Ball Valve

- 球阀是手动调节的截止阀，适用于双向流动 ◀
- 用于冷冻、冷藏和空气调节装置的液体、吸气和热气管路上 ◀
- 阀座与密封处具有很好的密封性 ◀
- 可提供最大的流量，同时该阀的工作温度范围宽 ◀
- 配有一个带二次密封的密封帽， ◀
- 又可以用金属线锁住来防止密封帽移除和丢失、
- 以及维修保养时的误操作

## GBC型 球阀 Model GBC Ball Valve

- GBC型球阀是手动调节的截止阀，适用于双向流动。
- GBC型球阀用于冷冻、冷藏和空气调节装置的液体、吸气和热气管路上。
- GBC型球阀的阀座与密封处具有很好的密封性。
- GBC型球阀为直通型，可提供最大的流量，同时该阀的工作温度范围宽。
- GBC型球阀配有一个带二次密封的密封帽，又可以用金属线锁住来防止密封帽移除和丢失、以及维护保养时的误操作。



- Model GBC ball valve is a manually regulated shut-off valve, which is applicable to two-direction flow.
- Model GBC ball valve is used on the liquid, air suction and hot vapor piping of the freezer, cold store and air conditioning unit.
- The valve seat of Model GBC ball valve is well sealed with perfect sealing performance.
- Model GBC ball valve is a through-type ball valve with maximum flow rate and wide scope of operating temperature.
- Model GBC ball valve is equipped with a secondary sealing cap and the metal wire could be used to prevent the sealing cap from missing and avoid any mistake operation in maintenance.

### 特点 Features

- |  |  |   |   |
|--|--|---|---|
| <ul style="list-style-type: none"> <li>• 流动无压力降</li> <li>• 从全开到全闭只需转动1/4圈</li> <li>• 全开和全闭均有旋转限位</li> <li>• 阀杆顶端标记是阀的全开和全闭</li> <li>• 具有双向流动性</li> </ul> | <ul style="list-style-type: none"> <li>• 氩弧焊接结构</li> <li>• 防爆阀杆设计</li> <li>• 改性的PTFE密封</li> <li>• 可防止内部积液</li> <li>• 能安装在控制板上</li> </ul> | <ul style="list-style-type: none"> <li>• No pressure drop in flow.</li> <li>• Only turn 1/4 circle to make valve full open or full close.</li> <li>• Turning stop for full open or full close.</li> <li>• Full Open and Full Close mark on top of valve stem.</li> <li>• Two-direction flow is available.</li> <li>• 认证Certification • ISO9001 • QS • UL</li> </ul> | <ul style="list-style-type: none"> <li>• Argon arc welded structure.</li> <li>• Explosion-proof valve stem design.</li> <li>• Modified PTFE sealing.</li> <li>• Inside liquid accumulation is avoided.</li> <li>• Could be mounted on the control panel.</li> </ul> |
|--|--|---|---|

### 技术参数 Technical Parameters

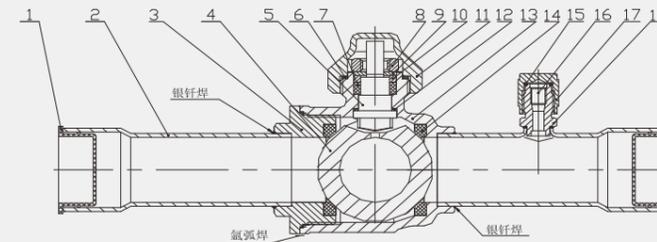
适用制冷剂 Applicable Refrigerant	HCFC or HFC ( Customer choice )
适用介质温度 Applicable Medium Temperature	-40℃ ~ +150℃
最大工作压力 Max. Operating Pressure	4.5MPa
最大耐压压力 Max. Test Pressure	6.5MPa
制冷剂年泄漏量 Yearly Leakage of Refrigerant	≤2g R22/a

- GBC型球阀包括2种阀型：一种带充注检测口，一种不带充注检测口。
- Two types of Model GBC ball valve are available: one is equipped with the charging and inspection port; the other is not equipped with the charging and inspection port.

### 选型 Specification

型号Model	规格Size	通径(OD)mm	Kv值(m³/h)	型号Model	规格Size	通径(OD)mm	Kv值(m³/h)
GBC-6S	1/4(Φ6)	Φ10	2	GBC-28	1-1/8(Φ28)	Φ25	52.0
GBC-10S	3/8(Φ10)	Φ10	5.7	GBC-35	1-3/8 ( Φ35 )	Φ31	80
GBC-12S	1/2(Φ12)	Φ10	5.7	GBC-42	1-5/8 ( Φ42 )	Φ37	121
GBC-10	3/8(Φ10)	Φ14	5.7	GBC-54	2-1/8(Φ54)	Φ50	200
GBC-12	1/2(Φ12)	Φ14	10.6	GBC-67	2-5/8 ( Φ67 )	Φ50	200
GBC-16	5/8(Φ16)	Φ14	14.1	GBC-79	3-1/8 ( Φ79 )	Φ50	200
GBC-19	3/4(Φ19)	Φ19	20.4	GBC-67A	2-5/8 ( Φ67 )	Φ60.5	310
GBC-22	7/8(Φ22)	Φ19	28.2	GBC-79A	3-1/8 ( Φ79 )	Φ73	700

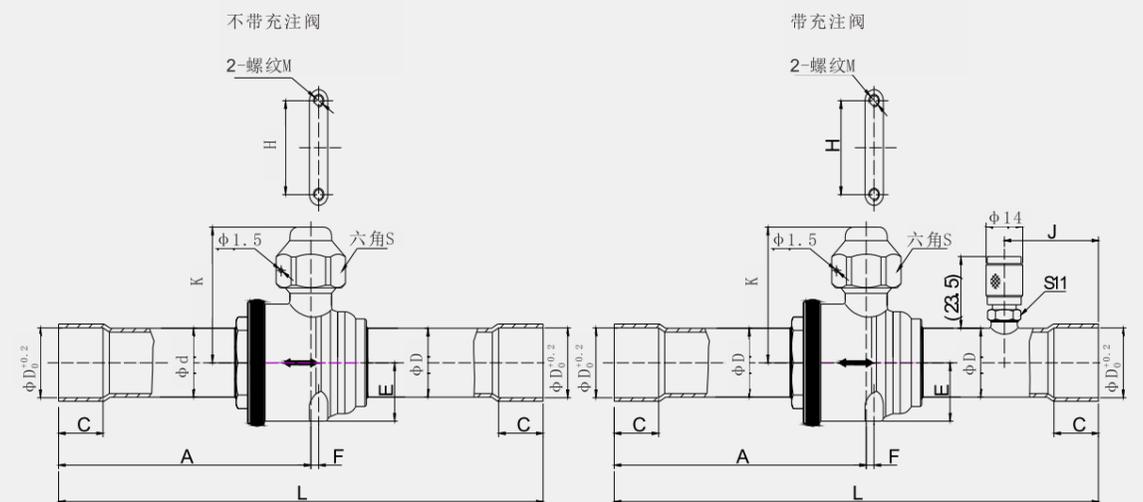
### 结构 Structure



- 1.防尘帽 2.接管 3.阀盖 4.阀球 5.阀杆 6.阀帽垫片 7.填料环 8.锁紧螺母 9.锁片 10.压圈 11.阀帽 12.密封垫圈(PTFE)
- 13.阀体 14.密封垫片(改性PTFE) 15.密封环 16.气门芯 17.充注帽 18.充注阀体

- 1.dust cap 2.copper tube 3.valve bonnet 4.valve ball 5.valve stem 6.cap gasket 7.packing ring 8.locknut 9.lock 10.clamping ring 11.valve cap 12.sealing washer 13.valve body 14.seal gasket 15.seal ring 16.valve core 17.charging cap 18.charging valve

### 外型尺寸 Overall Dimension



型号Model	A	C	D	d	E	F	K	M	J	H	L
GBC-6S	57	6	6.5	10	14	0	32.5	M4	20	16	110
GBC-10S	65	8	10.1	10	14	0	32.5	M4	26	16	126
GBC-12S	67	10	12.8	12	14	0	32.5	M4	26	16	130
GBC-10	73	9	10.1	16	14.5	2	38	M4	30	22	138
GBC-12	83	10	12.8	16	14.5	2	38	M4	30	22	159
GBC-16	83	12	16.1	16	14.5	2	38	M4	30	22	159
GBC-19	96	14	19.1	22	19	3	43	M4	36	30	185
GBC-22	96	17	22.3	22	19	3	43	M4	36	30	185
GBC-28	108	20	28.7	28	24	4	52.5	M4	44	38	208
GBC-35	130	25	35.2	35	30	5	64	M6	44	48	251
GBC-42	145	29	41.5	41.3	35	6	74	M6	56	55	281
GBC-54	157	35	54.2	54	45.5	9	83.5	M6	56	74	305
GBC-67	157	37	67	54	45.5	9	83.5	M6	63	74	305
GBC-79	157	40	79.6	54	45.5	9	83.5	M6	63	74	305
GBC-67A	171	37	67	66.8	54	16	94	M6	72	84	343
GBC-79A	207	37	79.6	79.4	64	16	104	M6	80	86	413

注：①以上为不带充注口的重量，带充注口的全部多重15g

Note: ① The weight of charging port is excluded from above mentioned weight and it should add 15 g if the charging port is included in any mentioned weight.

## DQF型电动球阀 Model DQF Electric Actuated Ball Valve

### 产品介绍及用途 Introduction and Application

1. DQF型电动球阀是采用电动执行器进行启闭的截止阀，适用于双向流动。DQF型电动球阀为直通型，球阀全开时，可提供最大流量。

1. Model DQF electric actuated ball valve is a globe valve to be opened and closed by the electric actuator and it is suitable to bidirectional flow. Model DQF electric actuated ball valve is a straight through type valve and it could provide the maximum flow rate when the ball valve is in full open.

2. DQF型电动球阀为电动法兰浮动球阀。

2. Model DQF electric actuated ball valve is a flanged electric floating ball valve.

3. DQF型电动球阀两端法兰尺寸按照JB/T79, GB9113 尺寸设计，方便安装。设计和制造标准按照GB12237-1989《通用阀门 法兰和对焊连接钢制球阀》。球阀结构长度按照GB12221《金属阀门 结构长度》执行。

3. The dimension of the flanges on the both ends of Model DQF electric actuated ball valve are compliance with JB/T79 and GB 9113 standard dimension for convenient installation. The valve is designed and manufactured in accordance with the national standard GB12237-1989 "General Valves – Flanged and Butt-Welded Steel Ball Valves". The structural length of the ball valve is in compliance with the national standard GB 12221 "Metallic Valves – Structural Length".

4. DQF型电动球阀用于冷藏，冷冻和空气调节装置的液体、吸气和热气管路上。

4. Model DQF electric actuated ball valve is used on the liquid, air suction and hot vapor pipes of the cold storage, refrigeration and air conditioning facilities.

5. 下装式阀杆和阀杆头部凸阶防止阀杆喷出，如火灾造成阀杆密封破坏，凸阶与阀体间还可形成金属接触，确保阀杆密封。

5. The downward mounted valve stem and the raised steps on the head of the valve stem could prevent the valve stem from spurting. If the valve stem seal is damaged in fire, the sealing of the valve stem is assured by the metallic contact between the raised step and the valve body.



使用电动球阀前，请仔细阅读本说明书，并注意本说明书中提到的注意事项。

Please read this Operation Instructions carefully before you use the electric actuated ball valve and pay more attention to the cautions mentioned in the Operation Instructions.

### 特点 Features

1. 体积小、轻便、性能可靠、配套简单、流通能力大等优点。

1. Small volume, light weight, reliable performance, simple mating and high flow capacity.

2. 电动执行器带动阀杆旋转90°，阀可以从全开到全闭。开关迅速、启闭灵活，寿命长，安全可靠。

2. When the electric actuator carries the valve stem to rotate 90°, it will operate the valve from full open to full close. It will open and close the valve quickly, flexibly, safely and reliably with a long service life.

3. 电动执行器传动部分均采用优质钢材制作加上良好的热处理工艺，使得执行器启闭灵活，寿命长，安全可靠，旋转定位角度准确。

3. The drive part of the electric actuator is made of high quality steel with perfect heat treatment so that the actuator will open and close the valve flexibly, safely and reliably with a long service life. The rotating positioning angle is accurate.

4. 电动执行器顶端标记指示阀是全开或全闭。

4. The mark on the electric actuator top will indicate the valve in full open or full close.

5. 双向流动性，即阀的安装与管路中流体的流动方向无关。

5. The bidirectional flow mode means the installation of the valve is independent of the flow direction of the fluid inside the pipe.

6. 下装式阀杆和阀杆头部凸阶防止阀杆喷出，如火灾造成阀杆密封破坏，凸阶与阀体间还可形成金属接触，确保阀杆密封。

6. The downward mounted valve stem and the raised steps on the head of the valve stem could prevent the valve stem from spurting. If the valve stem seal is damaged in fire, the sealing of the valve stem is assured by the metallic contact between the raised step and the valve body.

7. 阀座和填料采用改性聚四氟乙烯制作，确保球阀有更宽的工作温度。由于聚四氟乙烯具有良好的自润滑性，与球体的摩擦小，故电动球阀的使用寿命长。

7. Both valve seat and the packing are made of modified Teflon so that the ball valve is suitable to a wide working temperature. The modified Teflon has perfect self-lubrication performance and little friction with the steel ball, therefore, the electric actuated ball valve shall have a long service life.

8. 阀座密封性能好，采用聚四氟乙烯等弹性材料制成的密封圈，结构易于密封，而且球阀的密封能力随着介质压力的增高而增大。

8. The valve seat has perfect sealing performance. The seal ring is made of elastic material such as Teflon so that the sealed structure is assured. In addition, the sealing ability of the ball valve is enhanced along with the increased medium pressure.

9. 阀杆密封可靠，由于阀杆只作转动而不做升降运动，阀杆的填料密封不易破坏，且密封能力随着介质的压力增高而增大。

9. The valve stem sealing is reliable. The valve stem will be rotary operated only without up-and-down movement so that it is not liable to damage the packing seal of the valve stem. In addition, the sealing ability is enhanced along with the increased medium pressure.

10. 执行器外壳采用铝合金压铸，可减少电磁干扰。蜗轮输出轴一体化设计采用特殊铜合金锻造，强度高且耐磨性好，避免了键联接的间隙，提高传动精度。

10. The enclosure of the actuator is made of die casting aluminum alloy which will reduce the electromagnetic interference. The integrated design of the worm gear output shaft is made of special forged copper alloy with high strength and perfect wear resistance. It will minimize the gap of the key joint and improve the transmission accuracy.

11. 执行器双重限位，过热保护，过载保护，免加油，免点检，防水防锈。

11. The actuator is double position limited with overheat protection, overload protection, free of oiling, free of spot check, waterproof and rust prevention.

12. 球阀与执行机构的连接采用直连方式，这样简单易行。执行器具有连线简单，结构紧凑、尺寸小、重量轻、阻力小、动作稳定可靠等优点。

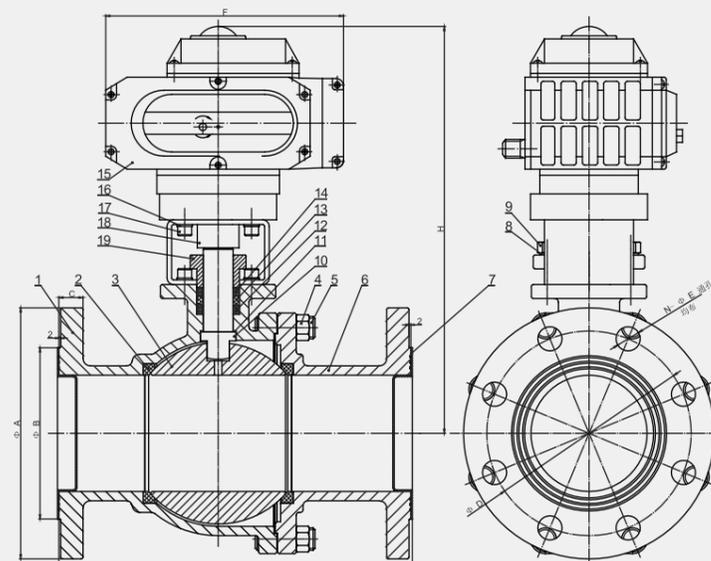
12. There is a direct connection between the ball valve and the actuator so that it is simple and easy operated. The actuator has a number of advantages such as simple wiring, compact structure, small size, light weight, little drag, stable action and reliable performance.

13. 执行器采用无源触点型，电源采用AC220V, 外接线路简单。经过AC2000V耐压检测，F级绝缘电机，安全有保障。

13. The actuator uses passive contact and AC 220V power supply with simple external wiring. The actuator has passed AC 2000 V high voltage withstanding testing and equipped with F class insulated motor for a safeguard operation.

## 技术参数 Technical Parameters

适用制冷剂Applicable Refrigerants:	HCFC/HFC
适用介质温度Suitable Medium Temperature:	-40°C~+150°C
最大工作压力Maximum Operating Pressure:	2.5MPa
最大耐压压力Maximum Proof Pressure:	3.8MPa
制冷剂年泄漏量Annual Refrigerant Leakage:	≤5g R22/a
使用电源Power Supply:	AC 220V



1: 阀体 2: 阀座 3: 阀球 4: 六角螺母 5: 双头螺柱 6: 阀盖 7: 防护帽 8: 弹垫 9: 六角头螺栓 10: 阀杆 11: 密封垫  
12: 下填料 13: 中填料 14: 上填料 15: 电动执行器 16: 平垫 17: 螺栓 18: 过渡套 19: 压板

1. valve body 2. valve seat 3. valve ball 4. hexagonal nut 5. stud 6. bonnet 7. protective cap  
8. gasket 9. hexagonal bolt 10. valve stem 11. seal gasket 12. bottom packing 13. middle packing  
14. top packing 15. electric actuator 16. flat gasket 17. bolt 18. adapter sleeve 19. pressing plate

公称通径 (mm) Nominal Bore	DN40	DN50	DN65	DN80	DN100	DN125
ΦA(mm)	Φ145	Φ165	Φ180	Φ200	Φ235	Φ270
ΦB(mm)	Φ92	Φ104	Φ122	Φ135	Φ162	Φ188
C(mm)	16	15	18	22	24	27
ΦD(mm)	Φ110	Φ125	Φ145	Φ160	Φ190	Φ220
ΦE(mm)	Φ18	Φ18	Φ18	Φ18	Φ22	Φ26
F(mm)	195	195	256	256	256	256
H(mm)	263	270	377	370	420	438
L(mm)	180	208	220	251	280	320
N	4	4	8	8	8	8
配套执行器型号 Mating Actuator Model	HT-05BD	HT-05BD	HT-10BD	HT-10BD	HT-20BD	HT-40BD

## 安装指南 Installation Guide

- 1、取掉法兰端两边的保护盖，在阀全开的状态下进行冲洗清洁。
1. Remove the protective caps on the both ends of the flange and wash and clean the valve in its full open condition.
- 2、安装前应按规定进行整机测试（防止因运输产生振动影响使用性能），合格后方可上线安装（接线按电动执行器线路图）。
2. Before installation of the valve, the complete unit shall be tested in accordance with the specification to prevent any possible abnormal caused by vibration during transportation. Only the test result is qualified, it is allowed to install the valve on the pipe system and the wiring shall be in compliance with the wiring diagram of the electric actuator.
- 3、电动球阀必须垂直安装，阀门进出口处于水平位置上。
3. The electric actuated ball valve shall be installed in vertical and both inlet and outlet of the valve shall be on the horizontal position.
- 4、球阀法兰与管线法兰间按管路设计要求装上密封垫。
4. Install the seal gasket between the ball valve flange and the pipe flange in accordance with the design requirements.
- 5、法兰上的螺栓需对称、逐次、均匀拧紧。
5. The bolts on the flanges shall be tightened evenly in sequence and in symmetry.
- 6、按电动执行器说明书完成电源的安装。使用过程中电动执行器一定装好盖子拧紧螺钉。电动执行器表面应定期擦拭，不应受到水、油的喷溅。
6. Install the power supply in accordance with the Operation Installations of the electric actuator. During its operation, always keep the cover of the electric actuator positioned and the screws tightened. It should clean the surface of the electric actuator periodically and prevent it from water and oil spilling.

## 安装检查 Inspection

- 1、安装完毕后，启动球阀开、关数次，应该动作灵活，受力均匀，球阀工作正常。
1. After the installation is completed, it should make a trial to open and close the ball valve several times with a flexible action and uniform stress for a normal operation of the ball valve.
- 2、根据管道压力设计要求，通压后检测球阀与管道法兰结合面的密封性能。
2. According to the design pressure requirement, apply the test pressure in the pipe system to check the sealing condition on the interface between the ball valve and the pipe flanges.

## 维修方法 Maintenance

- 1、只有卸除球阀前后的压力，才能对球阀进行拆卸分解操作。
1. It is allowed to dismount and disassemble the ball valve only when the pressure before and after the ball valve has been released.
- 2、在对球阀的分解与再装配过程，需要对有密封性零部件的保护，特别是非金属零部件，最好使用专用工具，以免损伤零部件。
2. During disassembly and re-assembly of the ball valve, it should protect the sealing parts and especially the non-metallic parts. The special tools are preferable to avoid the parts to be damaged.
- 3、球阀阀体重新装配时螺栓必须对称、逐次、均匀拧紧。
3. When re-assembly of the valve body of the ball valve, it should tighten the bolts evenly in sequence and in symmetry.
- 4、清洗剂应与球阀中的橡胶件、塑料件、金属件及工作介质等均相容。
4. The detergent must be compatible to the rubber parts, plastic parts, metallic parts and working medium in the ball valve.
- 5、分解下来的单个零件可以用浸泡方法清洗。未分解下来的非金属件和金属件可用干净的浸渍有清洗剂的绸布（为避免纤维脱落粘附在零件上）擦洗。清洗时须去除一切粘附在壁面上的油脂、污垢、积胶、灰尘等。
5. After disassembly of the ball valve, it is allowed to clean the individual parts by immersion. For the non-metallic parts and metallic parts which are not disassembled from the ball valve, it is allowed to use clean fluff-free cloth to dip detergent to clean the parts so that no fiber is liable to adhere to the parts. It should clean the part surface to remove any oil, grease, dirt, adhesive or dust.

- 6、非金属件清洗后应立即从清洗剂中取出，不得长时间浸泡。
6. After washing, it should take the clean non-metallic parts from the detergent immediately and any extended immersion is not allowed.
- 7、清洗后需待被洗表面清洗剂完全挥发后（可用干净的未浸渍有清洗剂的绸布擦干净），但不得长时间搁置，否则会生锈、被灰尘污染。
7. After washing, it should allow the part surface detergent to be volatilized completely or use clean fluff-free cloth to wipe dry. It is not allowed to leave the clean parts aside for a long time and otherwise the parts might be rusted or dust contaminated.
- 8、新零件在装配前也需清洗干净。
8. It should wash and clean the new parts before its assembly.
- 9、装配时应不允许有金属屑、纤维、油脂（规定使用的除外）灰尘及其它杂质、异物等污染、粘附或停留在零件表面上或进入内腔。
9. During assembly, no metallic filing, fiber, oil and grease (excluding those permitted under specification), dust or other impurities or foreign matters to contaminate or adhere to the part surface or inside cavity.

**注意事项 Cautions**

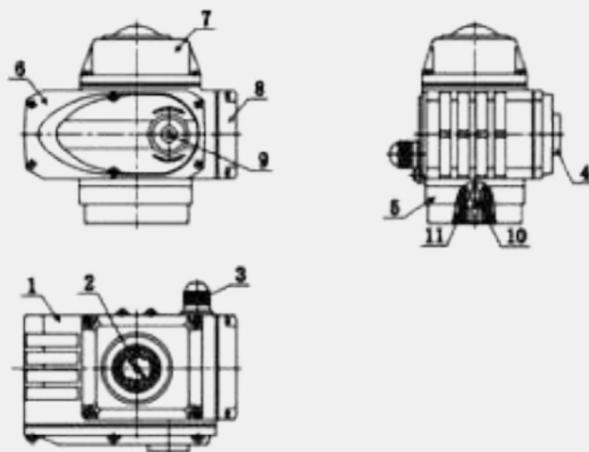
- 1、环境温度应该控制在-25℃~+70℃之内。环境湿度：≤95%RH。
1. The ambient temperature should be controlled within -25℃~+70℃.
- The ambient humidity: ≤95%RH.
- 2、由于电动机结构较为复杂，当出现故障时不得自行拆卸，防止意外发生。
2. It is not allowed to disassemble the electric operated mechanism by user himself in case of the failure to avoid any unexpected accident because the electric operated mechanism is quite complicated.
- 3、任何情况下不得对电动球阀进行敲打或将物品放在一起。
3. Whenever it is not allowed to strike the electric actuated ball valve or place the ball valve with other articles together.

**电动执行器外形图 Profile Diagram of Electric Actuator**

**外观及各部名称**

Appearance and name of every part

1	箱体	case body
2	开度计	open meter
3	进线线锁	wire-in wire lock
4	手柄轴橡胶盖	handle shaft rubber cover
5	免支架安装	No-bracket installation
6	减速盖	deceleration cover
7	电器盖	electric cover
8	接线盖	wiring cover
9	手柄轴孔	handle-axle hole
10	输出轴	output shaft
11	转接套	Adapter sleeve



**电动执行器技术参数 Technical Parameters of Electric Actuator**

HT-10BD性能参数 HT-10BD Performance Parameter

型号 Model	HT-10BD				
电源 Power Supply(V)	DC24	AC24	AC110	AC220	AC380
输出力矩 Output torque(Nm)	100				
90°动作时间 Motion times(S)	10	30			
回转角度范围 Scope of rotary angle(°)	0~360				
电机功率 Motor Power(W)	20	25			
额定电流 Rated current (A)	0.85	3	0.7	0.32	0.2
整体重量 Machine Weight(KG)	4	4.3			
绝缘电阻 Insulation Resistance(MΩ)	DC24V : 100/250VDC AC110V/220V/380V: 100/500VDC				
耐压等级 Voltage Resistance Rating	DC24V:500VAC,AC110V/220V:1500VAC,AC380V:1800VAC(1分钟 1Minute)				
防护等级 Protection Level	IP68				
安装方位 Installation Position	360°任意角度安装 Rotary degree:360°				
电气接口 Electriad connection	M18×1.5防水电缆接头、电源线、信号线各一个 Each one or M18×1.5 water-proof cable connectors, Electric Power Lines, Signal Lines				
环境温度 Environment temperature	-30℃~+60℃				
电路控制 Circuit control	B型、S型、K型、R型、A型、D型、H型、T型				
任选功能 Optional function	过力矩保护器 除湿加热器 t Over torque protectors t Dehumidify heater				

HT-20/40/60BD性能参数 HT-20/40/60BD Performance Parameter

型号 Model	HT-20BD					HT-40BD					HT-60BD				
电源 Power Supply(V)	DC24	AC24	AC110	AC220	AC380	DC24	AC24	AC110	AC220	AC380	DC24	AC24	AC110	AC220	AC380
输出力矩 Output torque(Nm)	200					400					600				
90°动作时间 Motion times(S)	12	30/60				15	30/60				20	45/60			
回转角度范围 Scope of rotary angle(°)	0~90					0~90					0~90				
电机功率 Motor Power(W)	40					70	90				90				
额定电流 Rated current (A)	1.2	7.5	1.6	0.88	0.4	2.5	9	2.2	1	0.48	2.5	9	2.2	1	0.5
整体重量 Machine Weight(KG)	8.7	9.3				8.8	10				8.8	10			
绝缘电阻 Insulation Resistance(MΩ)	DC24V : 100/250VDC AC110V/220V/380V: 100/500VDC														
耐压等级 Voltage Resistance Rating	DC24V:500VAC,AC110V/220V:1500VAC,AC380V:1800VAC(1分钟 1Minute)														
防护等级 Protection Level	IP68														
安装方位 Installation Position	360°任意角度安装 Rotary degree:360°														
电气接口 Electriad connection	M18×1.5防水电缆接头、电源线、信号线各一个 Each one or M18×1.5 water-proof cable connectors, Electric Power Lines, Signal Lines														
环境温度 Environment temperature	-30℃~+60℃														
电路控制 Circuit control	B型、S型、K型、R型、A型、D型、H型、T型														
任选功能 Optional function	过力矩保护器 除湿加热器 t Over torque protectors t Dehumidify heater														

**电源电压 Power Supply**

电压 Voltage	AC380V	AC220V	AC110V	AC24V	DC24V
HT-05BD	2A	2A	3A	5A	5A
HT-10BD	2A	3A	5A	7A	7A
HT-20/40/60BD	3A/5A	5A/7A	7A/10A	10A/11A	15A
HT-100/200BD	5A	7A	10A	20A	

注：1.不能将二台或数台电动执行器的动线并联，不能用同一连接点去控制数台电动执行器，否则会造成失控和电动过热。 2.请预留进线、手动时所需的空间。通电时禁止手动操作。  
Note: 1. A parallel connection of the live wires of two or several electric actuators is not permitted. It is impossible to control several electric actuators by one point of junction only and otherwise it will result an out of control and electric actuator overheating.  
2. It is necessary to reserve the space for the inlet wire and manual operation. The manual operation is prohibited when the system is energized.





REFRIGERATION AND A/C SYSTEM-ACCESSORY PARTS

HONGSEN.2017

# 视液镜

## Sight Glass

- ▶ 使用改性PTFE密封材料，适用于多种制冷剂及冷冻油，又具有很好的密封性能
- ▶ 采用防爆压接的结构，观察窗清晰而安全
- ▶ 采用优质铜棒锻压，强度高，塑性好。

### SG型 视液镜

#### Model SG Sight Glass



- SGN型/SGS型视液镜用于制冷、空调装置的液体管路上，用来指示制冷剂的流动状况、制冷剂中的含水量及油分离器回油管路中润滑油的流动状况。
- SGN型/SGS型视液镜带有一潮湿指示器，通过改变颜色来指示制冷剂中的含水量。
- SGR型视液镜用于贮液器中制冷剂的液位或压缩机曲轴箱中润滑油的液位。
- SGN型/SGR型视液镜均使用改性PTFE密封材料，适用于多种制冷剂及冷冻油，又具有很好的密封性能。
- SGN型/SGR型视液镜采用防爆压接的结构，观察窗清晰而安全。
- SGS型视液镜采用传统的玻璃烧接、O-Ring密封的独立视镜体结构。
- Both Model SGN sight glass and Model SGS sight glass are used on the liquid piping of the refrigeration and air conditioning unit to indicate the flow condition of the refrigerant, water cut of the refrigerant and lubricant oil flow condition of the oil return piping on the oil separator.
- Model SGN sight glass and Model SGS sight glass are equipped with one moisture indicator, which will change color to indicate the water cut in the refrigerant.
- Model SGR sight glass is used to indicate the level of the refrigerant in the liquid drum and the lubricant oil level in the compressor crankcase.
- The modified PTFE sealing is used in both Model SGN sight glass and Model SGR sight glass, which is applicable to various refrigerants and oils with perfect sealing performance.
- The structure of both Model SGN sight glass and Model SGR sight glass is an explosion-proof press fit and the viewing glass is clear and safety.
- Model SGS sight glass is an independent body structure with conventional sintered glass and O-ring seal.

#### 特点 Features

- | SGN / SGS型      | SGR型           | Model SGN and Model SGS                                 | Model SGR   |
|-----------------|----------------|---|---|
| • 用于HCFC/HFC制冷剂 | • CFC/HFC制冷剂   | • Be applicable to HCFC/HFC refrigerants.               | • Be applicable to HCFC/HFC refrigerants.             |
| • 指示系统中过高的含水量   | • 贮液器中液位指示     | • Indicate high water cut in system if any.             | • Indicate the liquid level in the liquid drum.       |
| • 制冷剂液体无过冷度指示   | • 压缩机曲轴箱中油液位指示 | • Indicate no overcooling in refrigerant liquid.        | • Indicate the oil level in the compressor crankcase. |
| • 制冷剂充注量不足指示    | • NPT螺纹连接      | • Indicate insufficient charging of refrigerant if any. | • NPT threaded connection.                            |
| • 焊口、螺口两种接口     |                | • Both welded and threaded connections are available.   |   |

#### 技术参数 Technical Parameters

适用制冷剂 Applicable Refrigerant	HCFC and HFC
适用介质温度 Applicable Medium Temperature	-40℃ ~ +80℃
最大工作压力 Max. Operating Pressure	4.5MPa
最大耐压压力 Max. Allowable Pressure	6.8MPa
制冷剂年泄漏量 Yearly Leakage of Refrigerant	≤2g R22/a

注意：全封闭压缩机的允许含水量一般在30~75ppm之间，而其他压缩机则略高。为使系统得到有效保护，必须谨慎地监视指示器，若颜色变为黄色，则必须更换干燥器。

#### 含水量与颜色的关系 Correlation between Water Cut and Color

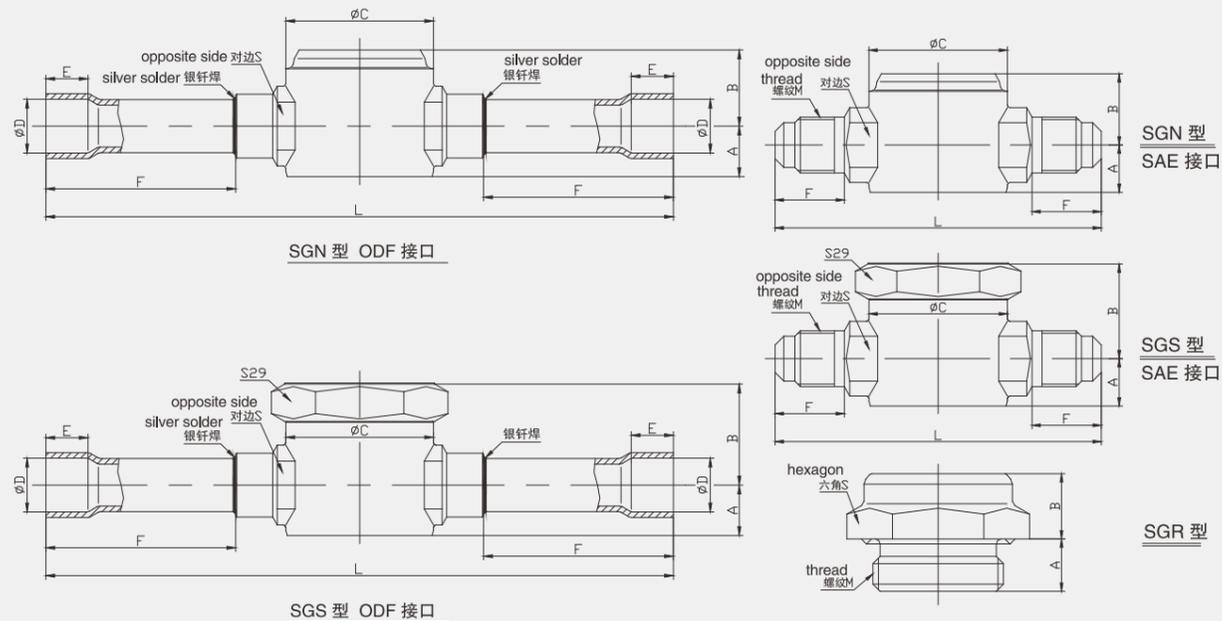
	Water Cut (ppm) 含水量 (百万分之一)					
	25℃			43℃		
	绿色 Green/DRY	中间颜色 Medium Color	黄色 Yellow/WET	绿色 Green/DRY	中间颜色 Medium Color	黄色 Yellow/WET
R22/R502	< 30	30 ~ 120	> 120	< 50	50 ~ 200	> 200
HFC-134a	< 30	30 ~ 100	> 100	< 45	45 ~ 170	> 170
R404a	< 20	20 ~ 70	> 70	< 25	25 ~ 100	> 100
R407c	< 30	30 ~ 140	> 140	< 60	60 ~ 225	> 225
R507	< 15	15 ~ 60	> 60	< 30	30 ~ 110	> 110

(Note: For the fully enclosed compressor, generally the allowable water cut is in a range of 30 ~ 75 ppm, but for other types of compressor, the water cut will be higher slightly. For an effective protection, it is necessary to monitor the indicator carefully and replace the drier immediately if the color is changed into yellow.)

选型 Specification

焊口型号 Model of Welded Connection		规格 Size	螺口型号 Model of Threaded Connection		规格 Size
SGN-1/4 ODF	SGS-1/4 ODF	1/4 (Φ6)	SGN-1/4 SAE	SGS-1/4 SAE	1/4 (Φ6)
SGN-3/8 ODF	SGS-3/8 ODF	3/8 (Φ10)	SGN-3/8 SAE	SGS-3/8 SAE	3/8 (Φ10)
SGN-1/2 ODF	SGS-1/2 ODF	1/2 (Φ12)	SGN-1/2 SAE	SGS-1/2 SAE	1/2 (Φ12)
SGN-5/8 ODF	SGS-5/8 ODF	5/8 (Φ16)	SGN-5/8 SAE	SGS-5/8 SAE	5/8 (Φ16)
SGN-3/4 ODF	SGS-3/4 ODF	3/4 (Φ19)	SGN-3/4 SAE	SGS-3/4 SAE	3/4 (Φ19)
SGN-7/8 ODF	SGS-7/8 ODF	7/8 (Φ22)	SGR-3/4NPT		3/4NPT
-----	-----	-----	SGR-G3/4		G3/4

结构 Structure



型号 Model		A	B	ΦC	ΦD	E	F	L	S	螺纹 Thread M	重量 Weight(g)	
											SGN型	SGS型
SGN/SGS-1/4	ODF	9.5	14.5	28	6.5	7	27	102	14	---	105	125
	SAE				---	---	14	64		7/16-20UNF	145	145
SGN/SGS-3/8	ODF	12.5	16.5		10.1	8	36	119	19	---	110	155
	SAE				---	---	17	70		5/8-18UNF	215	195
SGN/SGS-1/2	ODF	13	18		12.8	10	46	146	22	---	170	150
	SAE				---	---	19	78		3/4-16UNF	240	210
SGN/SGS-5/8	ODF	15	20	31.5	16.1	14	46	152	24	---	190	220
	SAE				---	---	20	78		7/8-14UNF	350	300
SGN/SGS-3/4	ODF	18	23		19.1	16	51	167	29	---	270	230
	SAE				---	---	23	94		1-1/16-14UNS	545	440
SGN/SGS-7/8	ODF	16.5	21.5		22.3	17	54	173	27	---	315	290
SGR-3/4NPT	NPT	10.5	13		---	---	---	---	---	32	3/4NPT	90
SGR-G3/4	G			G3/4							70	

CV型单向阀 Model CV Check Valve



- CV型单向阀用于冷冻、冷藏和空气调节装置的液体、吸气和热气管路上。
- CV型单向阀的阀座与密封处具有很好的密封性。
- CV型单向阀可提供螺口和焊口两种接口。
- Model CV check valve is used on the piping of liquid, suction gas or hot air on the freezing, cold storage and air conditioner units.
- The valve seat and seals of Model CV check valve have excellent sealing performance.
- For Model CV check valve, both threaded and welded connections are available.

特点 Features

- 可确保单一的流动方向，防止反冲。
- 内置减震装置，可安装在压力有脉冲的管路上。
- 可防止制冷剂从高温蒸发器向低温蒸发器回流。
- 可用于压缩机并联的制冷装置上。
- 有直通型和直角型两种。
- Ensure one flow direction and avoid reversal
- With the built-in damper and could be mounted on the piping with pressure pulsation.
- Prevent refrigerant back flow from high temperature evaporator to low temperature evaporator.
- Applicable to the refrigeration unit in parallel with compressor.
- Both direct flow type and right-angle type are available.

技术参数 Technical Parameters

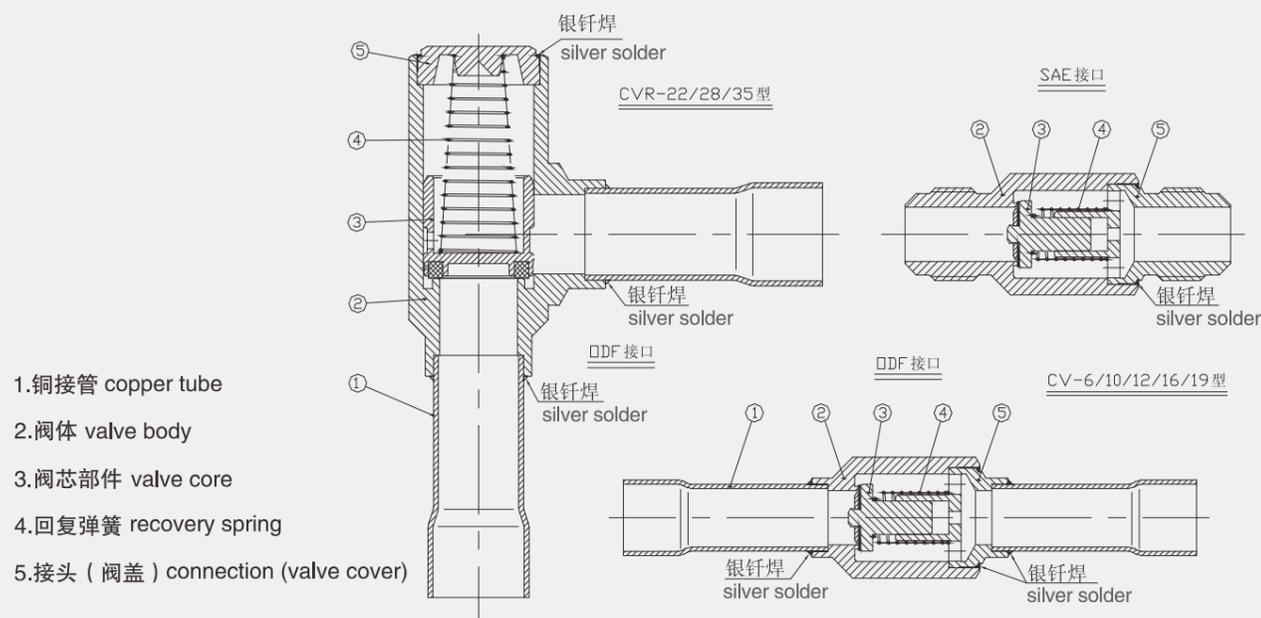
适用制冷剂 Applicable Refrigerant	HCFC、HFC
适用介质温度 Applicable Medium Temperature	-40℃ ~ +120℃
最大工作压力 Maximum Working Pressure	3.0MPa
最大试验压力 Maximum Test Pressure	4.5MPa
最小开阀压差 Minimum Opening Pressure Differential	ΔP=0.03 MPa

造型 Selection

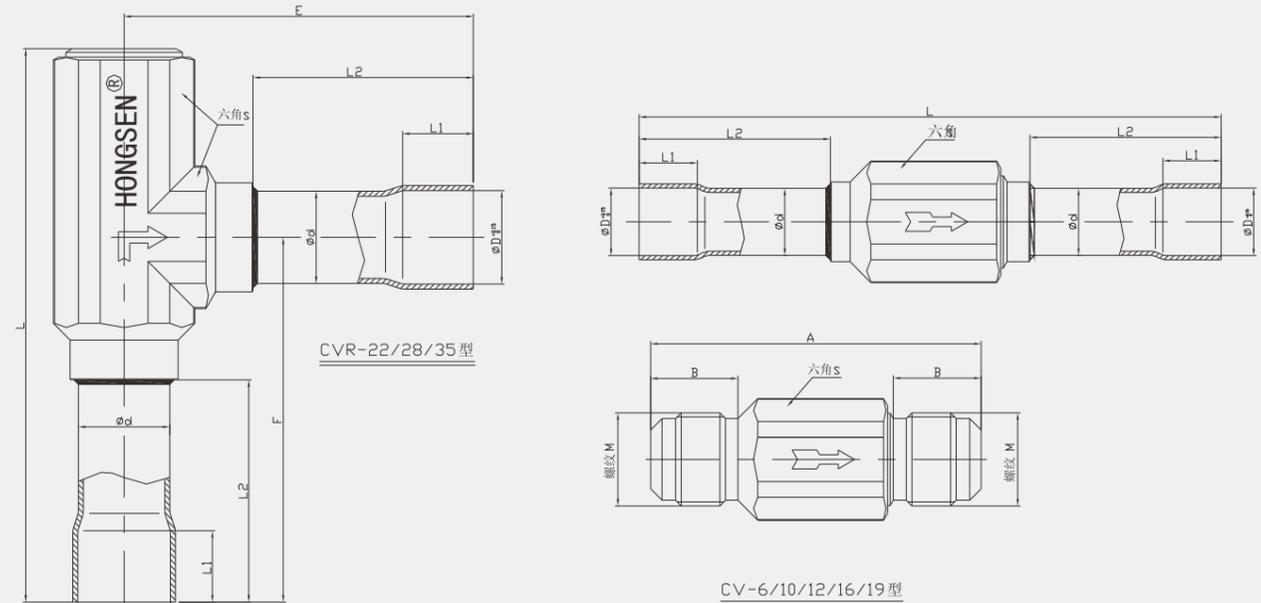
型号 Model	型式Type	规格Spec		通径I.D. (mm)	Kv值Value (m³/h)
		喇叭口Flare	焊接口Welded		
CV-6	直通型 Direct Flow	1/4 SAE	1/4 ODF	4.8	0.56
CV-10		3/8 SAE	3/8 ODF	8	1.43
CV-12		1/2 SAE	1/2 ODF	10	2.05
CV-16		5/8 SAE	5/8 ODF	13	3.60
CV-19		3/4 SAE	3/4 ODF	16	5.50
CVR-22	直角型 Right Angle	---	7/8 ODF	19	8.50
CVR-28		---	1-1/8 ODF	25	19.0
CVR-35		---	1-3/8 ODF	32	29.0

- 1) Kv值: 密度为1吨/m³的水在通过单向阀的压差等于100KPa时的流量, 单位为m³/h;  
 1) Kv value: When the pressure differential is 100 KPa, the flowrate at m³/h of water in density 1 t/m³ flows through the solenoid valve.

结构 Structure



外型尺寸 Overall Dimension



型号 Model	外形尺寸Overall Dimension										Weight重量(g)		
	A	B	hexagon六角S	Thread螺纹M	L	L1	L2	ØD	Ød	E	F	Thread螺口	Welded焊口
CV-6	52.5	14	17	7/16-20UNF	86	7	29	6.5	6	-	-		
CV-10	62.5	16	22	5/8-18UNF	106	8	36	10.1	10	-	-		
CV-12	68.5	18	24	3/4-16UNF	118	10	39	12.9	12	-	-		
CV-16	79.5	21	27	7/8-14UNF	140	14	46	16.1	16	-	-	178	160
CV-19	90.5	24	32	1-1/16-14UNS	152	16	49	19.2	19	-	-	280	230
CVR-22	-	-	32	---	136	17	53	22.3	22	84	87	-	410
CVR-28	-	-	36	---	184	20	70	28.7	28	114	106	-	
CVR-35	-	-	45	---	197	25	85	35.2	35	127	129	-	1260

注: ①上述重量不带钠子; ②钠子单重: 1/4-18g、3/8-30g、1/2-33g、5/8-50g、3/4-93g。  
 Note: (1) Nut is excluded from above mentioned weight. (2) Nut weight: 1/4-18g, 3/8-30g, 1/2-33g, 5/8-50g and 3/4-93g.

## CVS型 紫铜单向阀 CVS Red Copper Check Valve



CVS型紫铜膜片单向阀采用紫铜管全密封阀体、过滤网、磁性、覆PTFE膜膜片自吸结构设计，从而使单向阀不受安装角度限制和反向压力大小的关系影响阀门的自动闭合，具有极小的流通阻力，流量大，逆向近乎零泄漏。

CVS red copper diaphragm check valve is of a diaphragm self-suction design, which has a red copper tube full hermetic valve body structure with inside filter screen, magnetic and PTFE coated metal diaphragm. Therefore, the check valve self-closing will not be influenced by the angle of installation or the reversal pressure. It enjoys a lot of advantages such as the minimum flow resistance, high flow rate and almost zero leakage in reverse operation.

### 产品用途 Application

CVS 紫铜单向阀用于压缩机排气管路上，防止冷凝后的液态制冷剂倒流回压缩机。

CVS red copper diaphragm check valve is used on the exhaust pipe of the compressor to prevent the condensed liquid refrigerant flowing back to the compressor.

### 技术参数 Technical Parameters

适用制冷剂：HCFC、HFC  
Applicable Refrigerants: HCFC, HFC

适用介质温度：-40℃~+130℃  
Applicable Medium Temperature: -40℃~+130℃

最大工作压力：具体见选型表  
Maximum Working Pressure:  
Refer to the attached Specification sheet

最小开阀压差： $\Delta P=0.03\text{MPa}$   
Minimum Opening Valve Pressure Differential:  $\Delta P=0.03\text{MPa}$

### 产品特点 Features

黄铜阀座、膜片自吸结构设计，内部装有过滤网，使得此产品兼备过滤器和止回阀功能。

The brass valve seat, the diaphragm self-suction structure design and the inside filter screen make the product with both filter and check valve functions.

单向阀不受安装角度限制和反向压力大小的关系影响阀门的自动闭合。The self-closing of the check valve will not be restricted by the angle of installation, neither be influenced by the reversal pressure.

采用紫铜管全密封阀体结构设计，确保具有更高的产品外密封性能。The higher external sealing performance is ensured by the red copper tube full hermetic valve body structure.

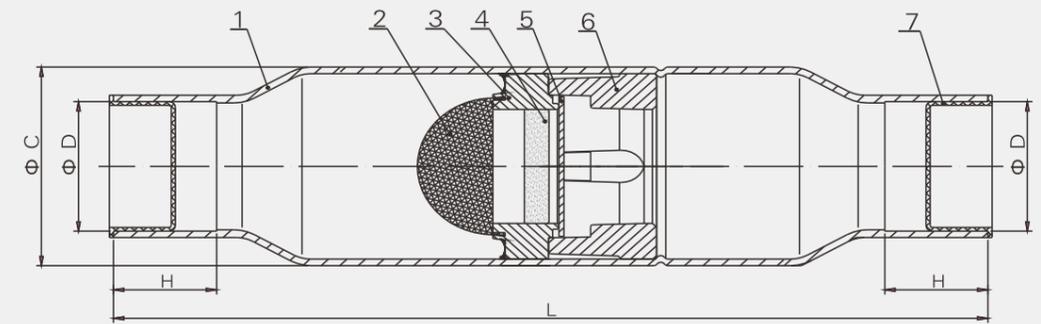
采用通用型ODF接口，方便替换。ODF接口规格：1/4~3-1/8。The universal ODF port is convenient in replacement. ODF port size: 1/4" ~ 3-1/8" .

极小的流通阻力，流量大。  
It has high flow rate and minimum flow resistance.

产品型式呈直通型，体积小、重量轻，逆向近乎零泄漏。Straight-through type product is compact and lightweight with almost zero leakage in reverse operation.

由于采用覆PTFE膜膜片，故适用于所有制冷剂，适用介质温度：-40℃~+130℃。  
With PTFE coated metal diaphragm, it is applicable to all types of refrigerant and the applicable medium temperature: -40℃~+130℃

### 产品结构 Structure



1 : 紫铜管阀体 2 : 滤网 3 : 阀座 4: 磁铁 5: 膜片 6: 支座 7: 防护帽

1. red copper tube valve body 2. filter screen 3. valve seat 4. magnet 5. diaphragm 6. support 7. protective cap

### 选型表 Specification

型号 Type	接口尺寸 Port Dimension d(in)	铜管外径 Copper Tube OD D(mm)	最大工作压力 Max. Working Pressure (MPa)	液体制冷量 Liquid Refrigeration Capacity (KW)	滤网目数 Filter Screen Mesh Number	L (mm)
CVS-6	1/4	Φ22	5.5	6.8	40	102
CVS-10	3/8	Φ22	5.5	14.2	40	102
CVS-12	1/2	Φ28.6	5.2	38.2	40	127
CVS-16	5/8	Φ28.6	5.2	42.6	40	127
CVS-19	3/4	Φ41	4.1	79.7	40	178
CVS-22	7/8	Φ41	4.1	108.5	40	178
CVS-28	1-1/8	Φ54	4	188.5	40	212
CVS-35	1-3/8	Φ54	4	232.8	40	212
CVS-42	1-5/8	Φ79.4	3	397.7	40	265
CVS-54	2-1/8	Φ79.4	3	691.1	40	265
CVS-67	2-5/8	Φ105	3	927.3	40	330
CVS-79	3-1/8	Φ105	3	1262.5	40	330



## 避震波纹金属软管

Vibration Resistant Corrugated Metal Hose

- 软管能够适度的弯曲，具有很好的耐疲劳性能 ◀
- 适用于全制冷剂 ◀
- 采用三位一体焊将接头、网套、压圈一起氩弧焊而成， ◀
- 具有安全、强度高、防腐、耐热 ◀
- 具有良好的吸震和补偿热位移、吸气管外面套PU发泡保温棉 ◀
- 采用螺纹或法兰联接安装， ◀
- 提高了安装效率和效果，降低了维修费用

## VAFX型 避震波纹金属软管 Type VAFX Vibration Resistant Corrugated Metal Hose

VAFX型避震波纹金属软管由波纹管、接头、网套、压圈、紫铜接管组合焊接而成。

VAFX vibration resistant corrugated metal hose is a welded assembly of corrugated metal hose, metal connector, braided metallic wire sleeve, metal clamping ring and red copper tube.

VAFX型避震波纹金属软管是用来避震的连接管，可以防止管路因震动引起的开裂。

VAFX vibration resistant corrugated metal hose is a vibration resistant connection piece to be used to prevent the piping from break caused by vibration.

VAFX型避震波纹金属软管用于冷冻，冷藏和空气调节装置的压缩机吸排气管。

VAFX vibration resistant corrugated metal hose is used on the suction piping and exhaust piping of a compressor in the refrigeration, cold storage and air conditioning unit.

安装方式：采用ODF接口钎焊。

Installation Mode: ODF connection soldering is used.



### 产品特点 Features

VAFX型避震波纹软管采用具有优良弹性和吸震能力的不锈钢环形波纹管，提高了吸震性能。

VAFX vibration resistant corrugated metal hose improves the vibration damping ability as its stainless steel annularly corrugated hose has excellent elasticity and vibration damping ability.

VAFX型避震波纹金属软管是先将波纹管压入不锈钢接头后氩焊，再套入不锈钢丝网套和不锈钢压圈，经扣压固定后，采用三位一体焊将接头、网套、压圈一起氩弧焊，然后将紫铜接管插入接头钎焊而成。VAFX型避震波纹金属软管具有安全、强度高、防腐、耐热，同时具有良好的吸震和补偿热位移、安装偏差和基础沉降及降低噪声等特点。

For the assembly of VAFX vibration resistant corrugated metal hose, at first press the corrugated metal hose into the stainless steel connector and weld them together by argon shielded arc welding. Then cover the stainless steel wire sleeve on it and clamp and fix it by the stainless steel clamping ring. Weld the metal connector, the braided metal wire sleeve and the metal clamping ring into one by argon shielded arc welding. Finally, press the red copper tube into the metal connector and weld them together by argon shielded arc welding. VAFX vibration resistant corrugated metal hose features safety, high mechanical strength, corrosion resistance and heat-resistant as well as low noise and perfect vibration resistant and good compensation for the heat displacement, installation deviation and foundation settlement.

### 技术参数 Technical Parameters

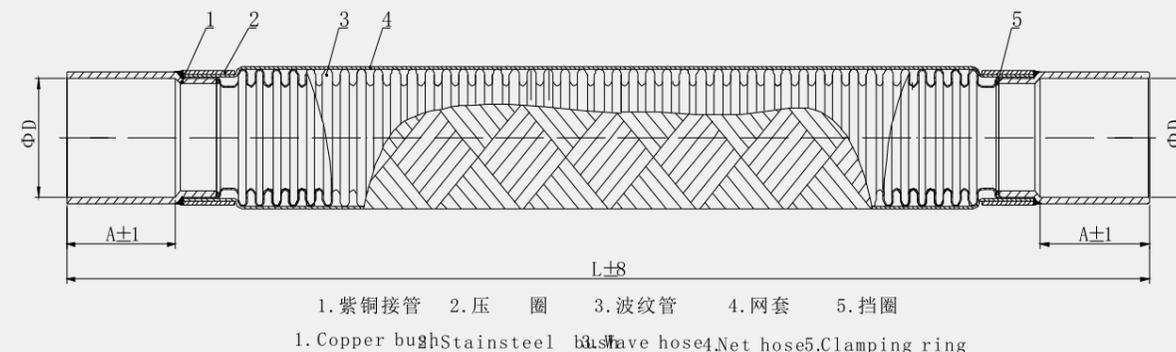
适用制冷剂：HCFC/HFC  
Applicable Refrigerants: HCFC/HFC

适用介质温度：-40°C ~ +150°C  
Applicable Medium Temperature: -40°C ~ +150°C

最大工作压力：见选型尺寸表  
Maximum Working Pressure: refer to the table

最大耐压压力：为最大工作压力的1.5倍  
Maximum Proof Pressure: refer to the table

### 外形结构 Configuration



### 选型尺寸 Dimension List

型号 Type	规格 Size	外形尺寸 Outline Dimension			最大工作压力 (MPa) Max. Working Pressure	最小弯曲半径(mm) Min. Bending Radius	
		A	L	D		静态 (Rj) Static	动态 (Rd) Dynamic
VAFX-038-10	3/8	16	210	9.7 <sub>0</sub> <sup>+0.15</sup>	4.2	80	180
VAFX-012-12	1/2	18	230	12.8 <sub>0</sub> <sup>+0.2</sup>	4.2	95	215
VAFX-058-16	5/8	20	250	16.1 <sub>0</sub> <sup>+0.2</sup>	4.2	120	270
VAFX-034-19	3/4	22	260	19.1 <sub>0</sub> <sup>+0.2</sup>	4.2	145	325
VAFX-078-22	7/8	28	300	22.3 <sub>0</sub> <sup>+0.2</sup>	4.2	160	360
VAFX-100-25	1	32	330	25.6 <sub>0</sub> <sup>+0.2</sup>	4.2	175	400
VAFX-118-28	1-1/8	32	330	28.7 <sub>0</sub> <sup>+0.2</sup>	4.2	175	400
VAFX-114-32	1-1/4	55	400	32.1 <sub>0</sub> <sup>+0.2</sup>	3.5	225	510
VAFX-138-35	1-3/8	35	400	35.2 <sub>0</sub> <sup>+0.2</sup>	3.5	225	510
VAFX-158-42	1-5/8	45	400	41.5 <sub>0</sub> <sup>+0.25</sup>	2.5	280	640
VAFX-218-54	2-1/8	65	520	54.2 <sub>0</sub> <sup>+0.25</sup>	2.5	350	800
VAFX-258-67	2-5/8	75	610	66.8 <sub>0</sub> <sup>+0.25</sup>	2.0	390	845
VAFX-318-79	3-1/8	80	680	79.6 <sub>0</sub> <sup>+0.25</sup>	2.0	480	1000

## 汽车空调波纹金属软管 Automotive Air Conditioner Metallic Hose Catalogue

汽车空调波纹金属软管用于汽车空调压缩机、蒸发器、冷凝器之间的管路软连接，能承受空调压缩机产生的高温冲击、对制冷循环管路中的高压、高温工况汽车运行中的颠簸震动等起到减震、补偿安装错位等作用。

Automotive air conditioner metallic hose is used as a flexible connection between the automotive air conditioner compressor, evaporator and condenser. The metallic hose is capable to withstand the high temperature shock from the air conditioner compressor, and it could absorb any shock and compensate any installation deviation in the cooling circulation loop under an operation condition of high and low pressure and high and low temperature as well as any bumping or vibration in the running vehicle.

### 特点 Features

1. 软管能够适度的弯曲，具有很好的耐疲劳性能。
2. 软管适用于全制冷剂。充注口有5V1和6V1两种规格，每一规格又分为高、低压。
3. 由于软管是采用不锈钢制作，克服了橡胶软管不耐老化、扣压质量难以保证、不耐高温、易泄漏等缺点。
4. 软管经过严格的氮检漏，确保其气密性。
5. 软管是先将全不锈钢波纹金属管管部压入不锈钢接头后氩弧焊，再套入不锈钢丝网套和不锈钢压圈，经扣压固定后，采用三位一体焊将接头、网套、压圈一起氩弧焊而成，使得软管具有安全、强度高、防腐、耐热，同时具有良好的吸震和补偿热位移、安装偏差和基础沉降及降低噪声等特点。
6. 弯管端套橡胶套，提高软管抗挠曲强度。吸气管外面套PU发泡保温棉。
7. 采用螺纹或法兰联接安装，提高了安装效率和效果，降低了维修费用。

1. The metallic hose has a desirable flexibility with a perfect fatigue resistance.
2. The metallic hose is suitable to all types of refrigerant. Two sizes of ports, 5V1 and 6V1, are available and both high pressure version and low pressure version could be chosen for each size.
3. The metallic hose is made of stainless steel so that it eliminates the rubber hose shortcomings such as poor aging resistance, unqualified buckling, poor resistance to high and low temperature and a liable leakage.
4. The gas tightness is ensured as the metallic hose has passed the strict nitrogen gas leakage detection.
5. For the assembly of the metallic hose, first press the stainless steel connector into the flat end of the full stainless steel corrugated tube and weld them together by argon shielded arc welding. Then cover the stainless steel wire sleeve on it and clamp and fix it by the stainless steel clamping ring. Weld the metal connector, the braided metal wire sleeve and the metal clamping ring three pieces into one by argon shielded arc welding. Therefore the metallic hose features safety, high mechanical strength, corrosion resistance and heat-resistant as well as low noise and perfect shock absorption and good compensation for the heat displacement, installation deviation and foundation settlement.
6. The end of the bend is covered with rubber to enhance the flexural strength of the metallic hose. The air suction tube is covered with PU foam insulation.
7. Both threaded connection and flange connection are used to improve the installation efficiency and result and reduce the maintenance cost.

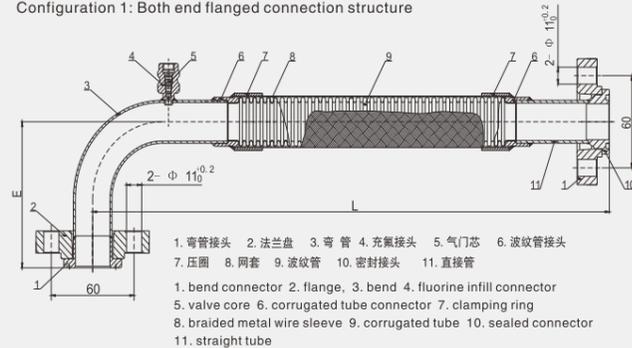
### 技术参数 Technical Parameters

适用介质：各种制冷剂、冷却循环水、液压油、废气等。  
适用介质温度：-40℃~+150℃。  
最大工作压力：3.5MPa。

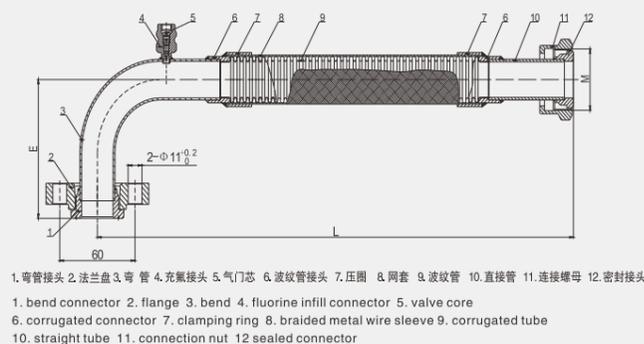
Applicable Media: various refrigerants, circulated cooling water, hydraulic oil, exhaust gas and so on.  
Applicable Medium Temperature: -40℃~+150℃  
Maximum Working Pressure: 3.5 MPa



外型结构1：双法兰联接结构  
Configuration 1: Both end flanged connection structure



外型结构2：法兰和螺纹联接结构  
Configuration 2: Combined flange and threaded connection structure



### 选型表 Specification

公称通径 Nominal Bore	外形尺寸 Overall Dimension			最大工作压力 Maximum Working Pressure (MPa)	最小弯曲半径 (mm) Minimum Bend Radius		
	E	L	M		静态 (Rj) Static	动态 (Rd) Dynamic	
20	3/4	68	≥800	M27 × 1.5	3.5	145	325
25	1	95	≥800	M42 × 1.5	3.5	175	400
32	1-1/4	95	≥800	M42 × 1.5	3.5	225	510

备注：也可根据客户要求定制。 Remarks: Custom-built is available.

## BFK型 双向过滤器 BFK Bidirectional Dry Filter

- BFK型双向干燥过滤器用于制冷空调装置的液体管路上，用来干燥制冷剂（吸收系统的水份）及过滤系统日的固体杂质、以有效而安全地保护制冷空调系统。
- BFK型双向干燥过滤器的主要组分是80%分子筛+20%氧化铝和100un滤棉。
- BFK型双向干燥过滤器是80%分子筛+20%氧化铝的固体滤芯，可用于HFC和HCFC制冷剂以及合成聚酯油（POE或PAG）系统。
- BFK bidirectional dry filter is used on the liquid piping of refrigeration and air conditioning unit to dry refrigerant (absorb water from system) and filter the solid from system in order to protect the refrigeration and air conditioning system for an efficient and safety operation.
- Model BFK bidirectional dry filter is composed of 80% 3A molecular sieve & 20% active aluminium with 100un filter cartridge.
- The filter core of 80% molecular sieve & 20% active aluminium can be used be for HFC and HCFC refrigerants and synthesized polyester oil(POE or PAG) system.

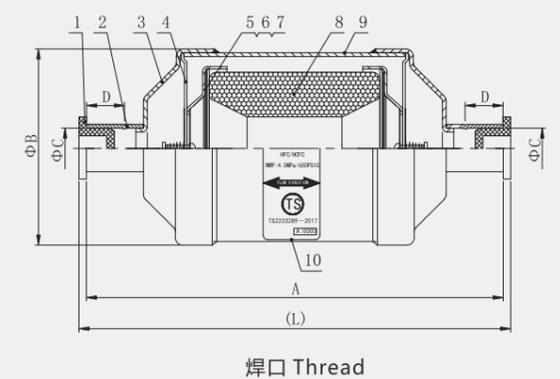
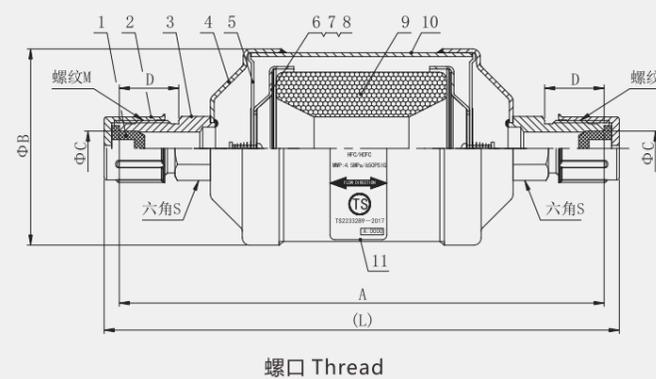


### 特点 Features

- BFK型双向干燥过滤器80%3A+20%氧化铝固体滤芯，干燥能力强，除酸能力强。
- 100un滤棉，可在最小压降下保持高效过滤耐腐蚀的表面粉末喷涂，可用于各种环境标准螺口及焊口连接，也可按用户需要定制可任意方向安装
- Filter cartridge of 80% 3A molecular sieve and 20% active aluminium filter cartridge presents powerful drying capacity and powerful deacidification capacity.
- 100un filter pad to keep an efficient filtration under minimum pressure drop. Corrosion resistant powder coating finish is applicable to various environments. Threaded connection and welded connection is normal design and customer design is available. Could be mounted in any desirable direction.

### 外型尺寸 Overall Dimension

- |                                |                                |
|--------------------------------|--------------------------------|
| 螺口 SAE                         | 焊口 ODF                         |
| 1. 橡胶塞 rubber plug             | 1. 橡胶塞 rubber plug             |
| 2. 螺纹封帽 thread cap             | 2. 接管 welding pipe             |
| 3. 铁接头 steel connector         | 3. 端盖 end cap                  |
| 4. 端盖 end cap                  | 4. 双向座冲件 circuit change valve  |
| 5. 双向座冲件 circuit change valve  | 5. 滤网 filter net               |
| 6. 滤网 filter net               | 6. 细滤网 fine filter             |
| 7. 细滤网 fine filter             | 7. 滤棉 filter pad               |
| 8. 滤棉 filter pad               | 8. 烧结滤芯 solid filter cartridge |
| 9. 烧结滤芯 solid filter cartridge | 9. 筒体 barrel                   |
| 10. 筒体 barrel                  | 10. 标贴 label                   |
| 11. 标贴 label                   |                                |



### 技术参数 Technical Parameters

适用制冷剂	Applicable Refrigerant HCFC or HFC
适用介质温度	Applicable Medium Temperature
最大工作压力	Max. Operating Pressure
最大耐压压力	Max. Allowable Pressure

选型 Specification

螺口 Thread

型号 Model			规格 Size
BFK-083	BFK-163	BFK-303	3/8 SAE
BFK-084	BFK-164	BFK-304	1/2 SAE
BFK-085	BFK-165	BFK-305	5/8 SAE
-----	-----	BFK-306	3/4 SAE

焊口 Thread

型号 Model			规格 Size
BFK-083S	BFK-163S	BFK-303S	3/8 ODF
BFK-084S	BFK-164S	BFK-304S	1/2 ODF
BFK-085S	BFK-165S	BFK-305S	5/8 ODF
-----	-----	BFK-306S	3/4 ODF
-----	-----	BFK-307S	7/8 ODF
-----	-----	BFK-309S	1-1/8 ODF

SAE接口

型号 Model	接口 Connection	A	ΦB	ΦC	D	L	S	螺纹 Thread M	重量 Weight(g)
BFK-083	3/8 SAE	158	Φ66.5	Φ8	17	167	16	5/8-18UNF	582
BFK-084	1/2 SAE	165		Φ10	19	175	19	3/4-16UNF	624
BFK-085	5/8 SAE	176		Φ13	23.5	188	22	7/8-14UNF	661
BFK-163	3/8 SAE	171	Φ79	Φ8	17	180	16	5/8-18UNF	799
BFK-164	1/2 SAE	178		Φ10	19	188	19	3/4-16UNF	839
BFK-165	5/8 SAE	189		Φ13	23.5	201	22	7/8-14UNF	893
BFK-303	3/8 SAE	245		Φ8	17	254	16	5/8-18UNF	1303
BFK-304	1/2 SAE	252		Φ10	19	262	19	3/4-16UNF	1334
BFK-305	5/8 SAE	263		Φ13	23.5	275	22	7/8-14UNF	1294
BFK-306	3/4 SAE	265	Φ16	25	277	27	1-1/16-14UNS	1352	

ODF接口

型号 Model	接口 Connection	A	ΦB	ΦC	D	L	重量 Weight(g)
BFK-083S	3/8 ODF	141	Φ66.5	Φ9.6	10	147	542
BFK-084S	1/2 ODF	145		Φ12.9	13.5	151	558
BFK-085S	5/8 ODF	149		Φ16	15	155	570
BFK-163S	3/8 ODF	154	Φ79	Φ9.6	10	160	757
BFK-164S	1/2 ODF	158		Φ12.9	13.5	164	773
BFK-165S	5/8 ODF	163		Φ16	15	169	780
BFK-303S	3/8 ODF	228		Φ9.6	10	234	1200
BFK-304S	1/2 ODF	232		Φ12.9	13.5	238	1215
BFK-305S	5/8 ODF	237		Φ16	15	243	1227
BFK-306S	3/4 ODF	241	Φ19.1	12	247	1232	
BFK-307S	7/8 ODF	247	Φ22.4	12.5	253	1242	
BFK-309S	1-1/8 ODF	256	Φ28.7	16	262	1280	

DFS型干燥过滤器 Model DFS Dry Filter

- DFS型干燥过滤器用于制冷空调装置的液体管路上, 用来干燥制冷剂 (吸收系统的水份) 及过滤系统日的固体杂质、以有效而安全地保护制冷空调系统。
- DFS型干燥过滤器的主要组分是100%3A分子筛和100un滤棉。
- DFS型干燥过滤器的分子筛是100%3A固体滤芯, 可用于HFC和HCFC制冷剂以及合成聚脂油(POE或PAG)系统。
- Model DFS dry filter is used on the liquid piping of refrigeration and air conditioning unit to dry refrigerant (absorb water from system) and filter the solid from system in order to protect the refrigeration and air conditioning system for an efficient and safety operation.
- Model DFS dry filter is composed of 100% 3A molecular sieve and 100un filter cartridge.
- Model DFS dry filter's molecular sieve is 100% 3A solid filter cartridge. This solid filter is used for HFC and HCFC refrigerants and synthesized polyester oil (POE or PAG) system.



特点 Features

- 100%3A固体滤芯, 干燥能力强, 不会相互移动, 避免了粉末的产生
- 100un滤棉, 可在最小压降下保持高效过滤耐腐蚀的表面粉末喷涂, 可用于各种环境标准螺口及焊口连接, 也可按用户需要定制任意方向安装
- 100% 3A filter cartridge with powerful drying capacity, not mutual mobile, avoid the powder production
- 100un filter pad to keep an efficient filtration under minimum pressure drop. Corrosion resistant powder coating finish is applicable to various environments. Threaded connection and welded connection is normal design and customer design is available. Could be mounted in any desirable direction.

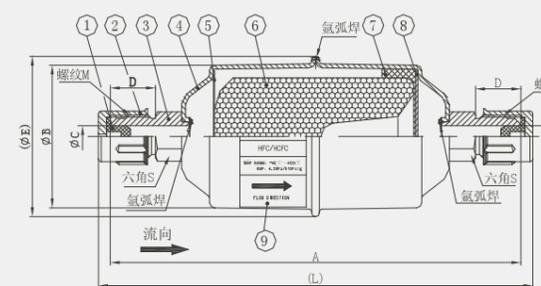
外型尺寸 Overall Dimension

螺口 Thread

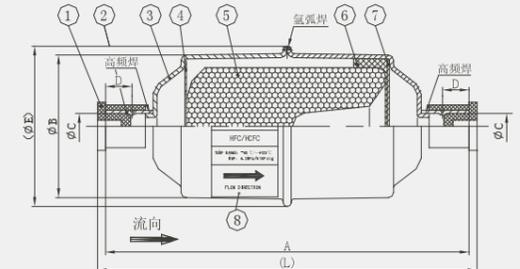
1. 橡胶塞 rubber plug
2. 螺纹封帽 thread cap
3. 铁接头 steel connector
4. 铁碗 steel cup
5. 挡片 barrier
6. 烧结滤芯 solid filter cartridge
7. 滤棉 filter pad
8. 滤网 filter net
9. 标贴 label

焊口 Thread

1. 橡胶塞帽 rubber plug hat
2. 接管 welding pipe
3. 铁碗 steel cup
4. 挡片 barrier
5. 烧结滤芯 solid filter cartridge
6. 滤棉 filter pad
7. 滤网 filter net
8. 标贴 label



螺口 Thread



焊口 Thread

技术参数 Technical Parameters

技术参数	Technical Parameters
适用制冷剂	Applicable Refrigerant HCFC or HFC
适用介质温度	Applicable Medium Temperature
最大工作压力	Max. Operating Pressure
最大耐压压力	Max. Allowable Pressure

选型 Specification

螺口 Thread

焊口 Thread

型号 Model				规格 Size
DFS-052	----	----	----	1/4 SAE
DFS-053	DFS-083	DFS-163	----	3/8 SAE
----	DFS-084	DFS-164	DFS-304	1/2 SAE
----	DFS-085	DFS-165	DFS-305	5/8 SAE
----	----	----	DFS-306	3/4 SAE

型号 Model				规格 Size
DFS-052S	----	----	----	1/4 ODF
DFS-053S	DFS-083S	DFS-163S	----	3/8 ODF
----	DFS-084S	DFS-164S	DFS-304S	1/2 ODF
----	DFS-085S	DFS-165S	DFS-305S	5/8 ODF
----	----	----	DFS-306S	3/4 ODF
----	----	----	DFS-307S	7/8 ODF
----	----	----	DFS-309S	1-1/8 ODF

SAE接口

型号 Model	接口 Connection	A	ΦB	ΦC	D	ΦE	L	S	螺纹 Thread M	重量 Weight (g)
DFS-032	1/4 SAE	109	Φ43	Φ4.8	14	Φ48.5	113	14	7/16-20UNF	183
DFS-033	3/8 SAE	118		Φ8	17		127	16	5/8-18UNF	211
DFS-052	1/4 SAE	119	Φ53.5	Φ4.8	14	Φ60.5	125	14	7/16-20UNF	261
DFS-053	3/8 SAE	128		Φ8	17		137	16	5/8-18UNF	289
DFS-083	3/8 SAE	154	Φ53.5	Φ8	17	Φ60.5	163	16	5/8-18UNF	372
DFS-084	1/2 SAE	162		Φ10	19		172	19	3/4-16UNF	403
DFS-085	5/8 SAE	173	Φ75	Φ13	23.5	Φ84.5	185	22	7/8-14UNF	440
DFS-163	3/8 SAE	160		Φ8	17		169	16	5/8-18UNF	615
DFS-164	1/2 SAE	168	Φ75	Φ10	19	Φ84.5	178	19	3/4-16UNF	655
DFS-165	5/8 SAE	179		C13	23.5		191	22	7/8-14UNF	695
DFS-304	1/2 SAE	262	Φ79	Φ10	19	Φ79	272	19	3/4-16UNF	1325
DFS-305	5/8 SAE	272		Φ13	21		284	22	7/8-14UNF	1365
DFS-306	3/4 SAE	273	Φ79	Φ16	25	Φ79	285	27	1-1/16-14UNS	1423

ODF接口

型号 Model	接口 Connection	A	ΦB	ΦC	D	ΦE	L	重量 Weight (g)
DFS-032S	1/4 ODF	99	Φ43	Φ6.5	8	Φ48.5	103	159
DFS-033S	3/8 ODF	101		Φ9.6	10		107	166
DFS-052S	1/4 ODF	109	Φ53.5	Φ6.5	8	Φ60.5	113	235
DFS-053S	3/8 ODF	111		Φ9.6	10		117	242
DFS-083S	3/8 ODF	137	Φ53.5	Φ9.6	10	Φ60.5	143	320
DFS-084S	1/2 ODF	145		Φ12.9	11		151	335
DFS-085S	5/8 ODF	145	Φ75	Φ16	11	Φ84.5	151	348
DFS-163S	3/8 ODF	143		Φ9.6	10		149	527
DFS-164S	1/2 ODF	151	Φ75	Φ12.9	11	Φ84.5	157	542
DFS-165S	5/8 ODF	151		Φ16	11		157	547
DFS-304S	1/2 ODF	245	Φ79	Φ12.9	11	Φ79	251	1263
DFS-305S	5/8 ODF	245		Φ16	11		251	1268
DFS-306S	3/4 ODF	250	Φ79	Φ19.2	12	Φ79	256	1286
DFS-307S	7/8 ODF	256		Φ22.4	12.5		262	1302

DFS型 干燥过滤筒  
Model DFS Replaceable Dry Filter Cartridge

- DFS型干燥过滤筒安装在系统的液、汽管路中，可有效去除残留的污染物，从而使压缩机得到更好的保护，延长其使用寿命。
- DFS型干燥过滤筒是可更换滤芯的，最大的特点是用于吸附压缩机马达烧毁后进入系统中大量的水分。
- Model DFS dry filter cartridge is installed on the liquid and vapor piping, which could effectively remove any residual contaminant to protect compressor for a longer service life.
- The filter element of Model DFS dry filter cartridge is replaceable and it is capable to absorb large amount of water in the system in case the compressor motor burns up.



特点 Features

- 可拆式结构、便于安装及维修；
- 100目出口滤网；
- 全流通设计，最大限度的减少压降；
- 钢制壳体，铜接管焊接口，高频焊接采用翻边结构，增加焊接可靠性；
- 改性聚四氟乙烯新型材料，确保密封性；
- 外涂层采用环氧树脂静电喷漆。

- Removable structure for convenient installation and maintenance ;
- 100 mesh outlet filter screen ;
- Full pass through design to minimize pressure drop ;
- Steel casing, copper pipe welded connection, high frequency welding flanging structure to improve welding reliability ;
- Modified Teflon new material to ensure perfect sealing ;
- Outer surface applies epoxy resin coating protection.

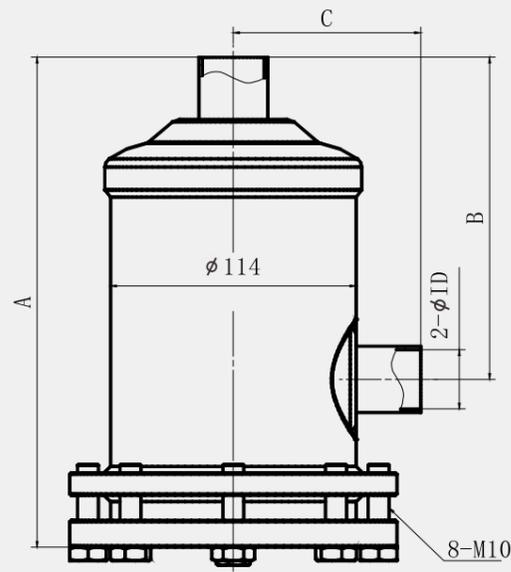
认证 Certification ● ISO 9001 ● CE ● QS

技术参数 Technical Parameters

适用制冷剂 Suitable Refrigerants	HCFC、HFC、CFC
适用介质温度 Suitable Medium Temperature	-35°C~+70°C
最大工作压力 Maximum Working Pressure	4.2Mpa
最小爆破压力 Minimum Bursting Pressure	18.9MPa

造型 Selection

型号 Type	进出口尺寸 Connections To solder ID Finch	芯体数量 Number of cores	过滤面积 Filtering surface(m <sup>2</sup> )	尺寸 Dimensions(mm)				
				A	B	C		
DFS-485S	5/8 ODF	1	420	234	153	85		
DFS-486S	3/4 ODF			234	153	85		
DFS-487S	7/8 ODF			234	153	85		
DFS-489S	1-1/8 ODF			236	155	87		
DFS-4811S	1-3/8 ODF			240	159	91		
DFS-4813S	1-5/8 ODF			242	161	93		
DFS-4817S	2-1/8 ODF			246	160	99		
DFS-4821S	2-5/8 ODF			244	158	106		
DFS-967S	7/8 ODF	2	840	376	295	85		
DFS-969S	1-1/8 ODF			378	297	87		
DFS-9611S	1-3/8 ODF			382	301	91		
DFS-9613S	1-5/8 ODF			384	303	93		
DFS-9617S	2-1/8 ODF			388	302	99		
DFS-9621S	2-5/8 ODF			386	300	106		
DFS-1449S	1-1/8 ODF			520	439	87		
DFS-14411S	1-3/8 ODF			524	443	91		
DFS-14413S	1-5/8 ODF	3	1260	526	445	93		
DFS-14417S	2-1/8 ODF			530	444	99		
DFS-14421S	2-5/8 ODF			528	442	106		
DFS-19211S	1-3/8 ODF			4	1680	668	587	91
DFS-19213S	1-5/8 ODF					670	589	93
DFS-19217S	2-1/8 ODF					674	588	99
DFS-19221S	2-5/8 ODF					670	584	106



技术参数表 Technical Parameters

技术参数表 Technical Parameters

型号 Model

ARI标准状态下的额定值 Rating under ARI Standard Condition

水容量 - 点滴数 water volume - number of drop

制冷剂流过能量 refrigerant flow through energy

选择推荐值 recommended value

制冷refrigeration

空调air conditioning

制冷剂refrigerant

压差pressure differential

商用制冷及低温设备 commercial refrigeration and cryogenic equipment

现场更换 replacement on site

现场装配系统 site assembly system

型号 Type	ARI标准状态下的额定值 Rating under ARI Standard Condition												选择推荐值 (Kw) Recommended value							
	水容量 点滴数 Water volume number of drop						制冷剂流过能量 Refrigerant flow through energy						制冷 refrigeration		空调 air conditioning					
	R12		R135a		R22		R404A/507		R502		R407C		R410A		R32					
	25°C	30°C	25°C	30°C	25°C	30°C	25°C	30°C	25°C	30°C	10.2	10.3Pa	15.2	15.4Pa/32.7	15.2	15.4Pa/32.7				
DFS-485S	25.6	27.2	22.0	18.4	17.4	14.4	20.4	15.3	18.2	14.1	53.5	64.7	70.3	52.8	45	26.4	35.2	26.4	35.2	
DFS-487S	25.6	27.2	22.0	18.4	17.4	14.4	20.4	15.3	18.2	14.1	89.7	209	116	87.9	75.3	42.2	52.8	35.2	42.2	52.8
DFS-489S	25.6	27.2	22.0	18.4	17.4	14.4	20.4	15.3	18.2	14.1	162	195	211	158	136	42.2	52.8	35.2	52.8	70.3
DFS-4811S	25.6	27.2	22.0	18.4	17.4	14.4	20.4	15.3	18.2	14.1	183	234	250	230	197	42.2	52.8	35.2	52.8	70.3
DFS-4813S	25.6	27.2	22.0	18.4	17.4	14.4	20.4	15.3	18.2	14.1	192	274	299	197	180	47.8	58.2	42.2	58.2	74.6
DFS-4817S	25.6	27.2	22.0	18.4	17.4	14.4	20.4	15.3	18.2	14.1	205	310	336	236	217	49.3	64.9	47.1	60.2	78.5
DFS-4821S	25.6	27.2	22.0	18.4	17.4	14.4	20.4	15.3	18.2	14.1	237	336	377	289	259	52.7	67.3	49.7	63.3	80.2
DFS-967S	51.2	44.3	44.0	36.8	34.7	28.8	40.8	30.9	36.3	28.2	147	177	190	144	123	70.3	87.9	52.8	70.3	87.9
DFS-969S	51.2	44.3	44.0	36.8	34.7	28.8	40.8	30.9	36.3	28.2	183	220	236	176	153	87.9	128	87.9	87.9	123
DFS-9611S	51.2	44.3	44.0	36.8	34.7	28.8	40.8	30.9	36.3	28.2	211	255	276	195	187	111.5	152	111.1	111.1	155
DFS-9613S	51.2	44.3	44.0	36.8	34.7	28.8	40.8	30.9	36.3	28.2	263	297	311	232	213	132.1	194	134.3	134.3	190
DFS-9617S	51.2	44.3	44.0	36.8	34.7	28.8	40.8	30.9	36.3	28.2	293	332	329	367	303	135.1	203	157	156	208
DFS-9621S	51.2	44.3	44.0	36.8	34.7	28.8	40.8	30.9	36.3	28.2	326	352	347	393	314	157	220	197	173	232
DFS-1449S	76.8	66.5	66.0	55.2	52.1	43.2	61.2	46.4	54.5	42.3	220	265	285	215	184	106	147	106	106	141
DFS-14411S	76.8	66.5	66.0	55.2	52.1	43.2	61.2	46.4	54.5	42.3	254	305	327	246	212	141	176	123	141	176
DFS-14413S	76.8	66.5	66.0	55.2	52.1	43.2	61.2	46.4	54.5	42.3	282	374	358	270	245	183	206	134	173	206
DFS-14417S	76.8	66.5	66.0	55.2	52.1	43.2	61.2	46.4	54.5	42.3	310	431	392	301	279	224	236	156	205	247
DFS-14421S	76.8	66.5	66.0	55.2	52.1	43.2	61.2	46.4	54.5	42.3	441	489	432	486	416	243	257	182	216	264
DFS-19211S	102	88.6	88.0	73.6	69.4	57.6	81.6	61.8	72.6	56.4	322	387	415	313	299	176	246	176	176	246
DFS-19213S	102	88.6	88.0	73.6	69.4	57.6	81.6	61.8	72.6	56.4	373	447	478	362	312	211	287	199	271	287
DFS-19217S	102	88.6	88.0	73.6	69.4	57.6	81.6	61.8	72.6	56.4	390	471	503	380	327	229	229	211	229	229
DFS-19221S	102	88.6	88.0	73.6	69.4	57.6	81.6	61.8	72.6	56.4	423	495	528	406	342	243	243	232	241	325

## HMGM型 高压毛细软管、接头类 Type HMG High Pressure Hose and Fittings

HMGM型高压软管是柔性连接件，主要用于冷冻、冷藏和空气调节装置的压缩机吸排气管。  
Type HMG hose is a flexible connection piece and it is mainly used as compressor suction and/or exhaust tube in the refrigeration, cold storage and air conditioning facilities.

### 产品特点 Features

采用优质尼龙、聚酯材料制作，产品耐高压、耐高温、耐老化性能强，内壁光滑，介质流阻小。  
Made of high quality nylon and polyester. High pressure resistance, high temperature resistance and high ageing resistance. Small flow resistance due to its smooth internal wall.

代替铜管焊接不牢固，容易振动失漏，无法维修，噪音大等缺点，而且节省系统连接时间，长度任意取舍，技术可靠性大大提高。  
Eliminate the shortcomings of copper tube such as soldering failure, leakage, noise and difficult service. Selectable length at ease and short the connection operation time, improve the technical reliability obviously.

适用制冷剂:HCFC和HFC。 适用介质温度:-40℃ ~ +100℃。  
Applicable Refrigerants: HCFC and HFC Applicable Medium Temperature: -40℃ ~ +100℃

### 选型表 Specification

A 	B 	C 		
D 	E 	F 	G 	H 
I 	J 	K 	L 	M 
N 	O 	P 	Q 	R 
S 	T 	U 		

### 选型表 Specification

编号 Code	型号规格 Type	名称 Description	内径 ID	外径 OD	最大工作压力 Max. Working Pressure MPa	爆破试验压力 Blasting Test Pressure MPa
A	HS-HMG-2	高压软管 φ2 high pressure hose	φ 2.5	φ 5.6	5.5	30
B	HS-HMG-4	高压软管 φ4 high pressure hose	φ 3.4	φ 7.8	5.5	30
C	HS-HMG-8	高压软管 φ8 high pressure hose	φ 6.2	φ 10.5	4.2	20
D	φ 2.6 × 1/4"	弯芯90° 带纳子1/4" 90° bend core with 1/4" nut	φ 1.0	φ 2.6		
E	φ 2.6 × Dg4	弯芯90° 带纳子Dg4 90° bend core with Dg4 nut	φ 1.0	φ 2.6		
F	φ2.6	直芯 straight core	φ 1.0	φ 2.6		
G	1/4"	纳子1/4" nut				
H	Dg4	纳子Dg4 nut				
I	φ2.6	三通 (T型) Tee	φ 1.0	φ 2.6		
J	φ5.9 × 12.3	铝套 aluminum sleeve	φ 5.9	φ 8		
K	φ 3.5 × 1/4"	弯芯90° 带纳子1/4" 90° bend core with 1/4" nut	φ 1.7	φ 3.5		
L	φ3.5 × Dg4	弯芯90° 带纳子Dg4 90° bend core with Dg4 nut	φ 1.7	φ 3.5		
M	φ3.5	直芯 straight core	φ 1.7	φ 3.5		
N	φ3.5	三通 (T型) Tee	φ 1.7	φ 3.5		
O	φ8 × 15	铝皮套 Aluminium sleeve	φ 8	φ 9.2		
P	φ6.3 × 3/8"	弯芯90° 带纳子3/8" 90° bend core with 3/8" nut	φ 3.2	φ 6.3		
Q	φ 6.3	直芯 straight core	φ 3.2	φ 6.3		
R	3/8"	纳子3/8" nut				
S	φ 10.8 × 15	铝皮套 Aluminium sleeve	φ 10.8	φ 12		
T	1/4"	铜封环 copper seal ring				
U	3/8"	铜封环 copper seal ring				

## 充油 (真空) 压力表 Oil-filled (vacuum) Pressure Gauge



- 充油压力表是内部充油的制冷专用的抗振压力表。
  - 充油压力表用于冷冻、冷藏和空气调节装置的机组上。
  - 充油压力表由多种制冷剂共组一表，方便使用。
  - 充油压力表使用全不锈钢表壳、超宽铍青铜弹簧管。
  - 充油压力表为带法兰安装边的轴向压力表。
- The pressure gauge is a vibration-proof pressure gauge with oil filled inside for refrigeration use only.
  - The oil-filled pressure gauge is used on freezer, cold store and air-conditioning unit.
  - The oil-filled pressure gauge is convenient in application as it features one gauge for multiple refrigerants.
  - The oil-filled pressure gauge has full stainless steel casing and wider beryllium bronze spring tube.
  - The oil-filled pressure gauge is an axial pressure gauge with edges for flange joint.

### 特点 Features

- 内部充油可抗机组的高频振动
- 带阻尼油杯可防指针快速跳动
- 带法兰安装边方便安装
- 设有超压限位装置
- 经强化超压确保零位误差
- 合理的油封设计无漏油隐患
- 设有压力温度对照
- 具有超长的使用寿命
- The inside filled oil functions damping to the high frequency vibration of machinery.
- The damping oil cup prevents gauge pointer from quick jumping.
- The flanged edge is for convenient mounting.
- Over-pressure limit stop is equipped.
- Zero error is ensured with strengthening overpressure measures.
- Rational oil seal design and no oil leakage worry.
- Pressure versus Temperature readings for easy use.
- Extra long service life.

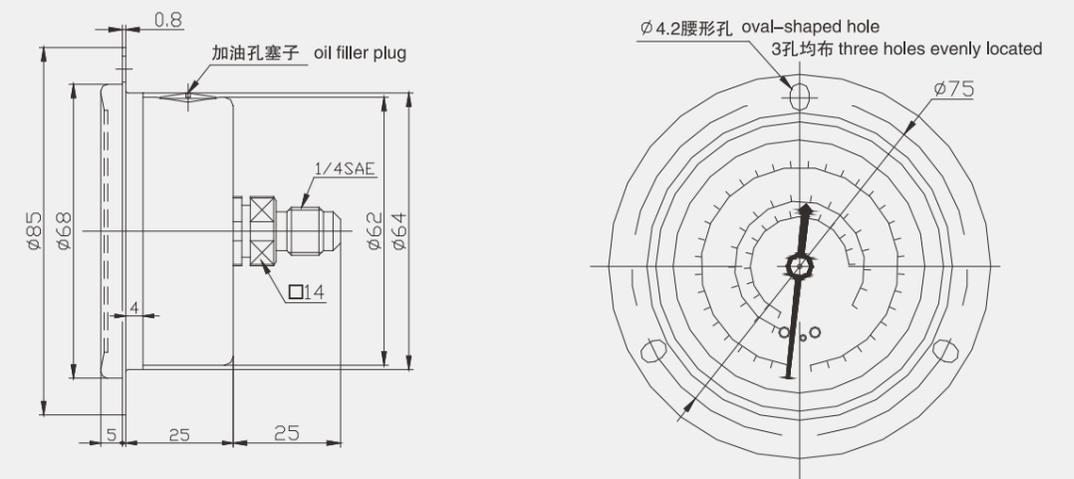
### 技术参数 Technical Parameters

适用制冷剂Applicable Refrigerant	HCFC and HFC
适用介质温度Applicable Medium Temperature	- 5℃ ~ +120℃ (-40℃ ~ +120℃)
接口尺寸 Connection Size	1/4 SAE
结构型式 Structure	轴向同心嵌装式 Axial concentrically-embedded
外壳公称直径 Casing Nominal Diameter	2.5 in (Φ63.5)
精度等级 Accuracy Class	1.6级 (Class 1.6)

### 选型 Specification

编号 Series No.	名称 Description	型号 Model	适用工质 Applicable Medium	量程 Range of Measurement	重量 (g)
33H	真空压力油表 Oil-filled Vacuum Pressure Gauge	ZY63-H	R22、HFC-134a、	-0.1 ~ 3.8MPa (-30inHg ~ 550Psi)	230g
33L		ZY63-L	R404a、R407c	-0.1 ~ 1.8MPa (-30inHg ~ 250Psi)	225g
35H	压力油表 Oil-filled Pressure Gauge	Y63-H	R22、R502	0 ~ 38 Kg/cm2 (0 ~ 500Psi)	230g
35L	真空压力油表 Oil-filled Vacuum Pressure Gauge	ZY63-L		-76cmHg ~ 17.5Kg/cm2 (-30inHg ~ 250Psi)	225g
61H	真空压力油表 Oil-filled Vacuum Pressure Gauge	ZY63-H	R404a、R407c	-0.1 ~ 3.8MPa	230g
61L		ZY63-L	R22、HFC-134a、	-0.1 ~ 1.8MPa	225g
62H	压力油表 Oil-filled Pressure Gauge	Y63-H	R22、R502	0 ~ 35 Kg/cm2 (0 ~ 500Psi)	230g
62L	真空压力油表 Oil-filled Vacuum Pressure Gauge	ZY63-L		-76cmHg ~ 8Kg/cm2 (-30inHg ~ 120Psi)	225g
109H	真空压力油表 Oil-filled Vacuum Pressure Gauge	ZY63-H	R410a	-0.1 ~ 5.5MPa (-30inHg ~ 800Psi)	230g
109L		ZY63-L		-0.1 ~ 3.5MPa (-30inHg ~ 500Psi)	225g

### 外型尺寸 Overall Dimension



## 充注阀 Charging Valve

- 充注阀是一种带气门芯的单向检修用阀。
- 充注阀用于冷冻、冷藏和空气调节装置的各个部位。
- The charging valve is an one-way service valve with valve inside.
- The charging valve is used on the freezer, cold store and air conditioning unit.



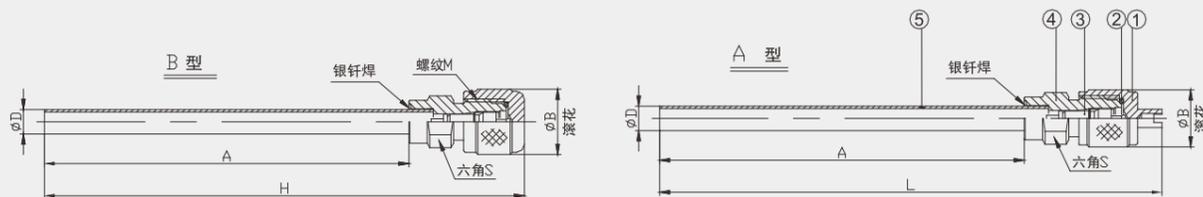
### 特点 Features

- 采用进口气门芯，性能可靠
- 双重密封确保无泄漏
- 可提供各种长度和硬度的铜接管
- 阀帽滚花设计，装卸方便
- Equipped with imported valve inside of reliable performance.
- Double sealing ensure leak-tight.
- Copper tube of various lengths and hardness are available.
- Valve bonnet is knurled for easy handling.

### 技术参数 Technical Parameters

适用制冷剂 Applicable Refrigerant	HCFC and HFC
适用介质温度 Applicable Medium Temperature	-25°C ~ +120°C
最大工作压力 Max. Operating Pressure	3.0MPa
最大耐压压力 Max. Allowable Pressure	4.5MPa

### 外型结构 Structure



1. 阀帽 2. O-Ring 3. 气门芯 4. 阀体 5. 铜接管 1. valve bonnet 2. O-ring 3. valve inside 4. valve body 5. copper tube

### 选型尺寸 Specification

型号 Type	接口 Connection	规格 Size	外形尺寸 Overall Dimension				六角 Hexagonal S	螺纹 Thread M	重量 Weight(g)			
			A	B	ΦD	H				L		
A型 Type A	1/4 SAE	1/8	60	14	3.17	---	11	7/16-20UNF	22			
		3/16			4.76				23			
		1/4	90	6.35	124				28			
B型 Type B	1/4 SAE	1/4	90	14	6.35	118	---	12	7/16-20UNF	30		
	1/2 SAE			16						14	1/2-20UNF	39
	1/2 ACME			16							1/2-16ACME	40

注：A、H、L长度也可按客户要求定制



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REFRIGERATION AND  
A/C SYSTEM ACCESSORY PARTS

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