

CO2四通换向阀 CO2 4-Way Directional Valve

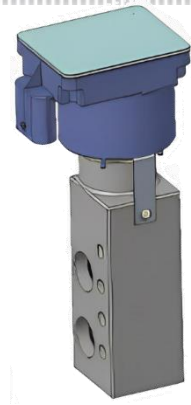
产品介绍 Product Description

CO2 四通换向阀主要介质为R744。

The main medium of CO2 4-way directional valve is R744.

产品特征及优势 Feature and Benefits

- ◆ 性能优越/ Good performance
 - ◇ 电机直驱，可反馈阀芯位置；
Direct drive of the motor for feedback on the spool position.
 - ◇ 可替代4个SOV阀，大幅降低系统成本；
It can replace 4 SOV valves, which greatly reduces system costs.
- ◆ 可靠性高/High reliability
 - ◇ 采用车规级电子元件，安全可靠；
Using automotive grade electronic components, safe and reliable.
 - ◇ 基于振动、温度、湿度等多维评估验证；
Multi-dimensional evaluation and validation based on vibration, temperature and humidity.
- ◆ 采用集成芯片设计，结构更紧凑；
With integrated chip and more compact structure.
- ◆ 专业的软件设计/ Software design
 - ◇ 采用分层架构设计，符合车用规范；
With layered architecture design, comply with vehicle specifications.
 - ◇ 基于软件补偿的小开度流量精度控制；
Precise control of small opening flow based on software compensation.
 - ◇ 采用UDS故障诊断处理体系；
Using UDS fault diagnosis processing system.



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产品作用 Application

CO2换向四通阀，通过改变制冷剂在系统管路内的流向实现制冷、制热之间的相互转换；

The CO2 directional four-way valve realizes the mutual conversion between refrigeration and heating by changing the flow direction of the refrigerant in the system pipeline.

操作 Operation

◆ 基本原理 Basic Principle:

空调处在制冷状态时，四通阀不通电（初始状态），四通阀处于AB连通，DC连通的状态，冷媒通过压缩机压缩转变为高温高压的气体，通过四通阀的A口，由B口排出，进入室外热交换器（冷凝器），在冷凝器吸热放热后变成中温高压的液体，经膨胀阀后，变成低温低压的液体，经过室内热交换器(蒸发器)吸热放冷作用后，变成低温低压的气体，经过四通阀D口，由C口回到压缩机，然后继续循环。

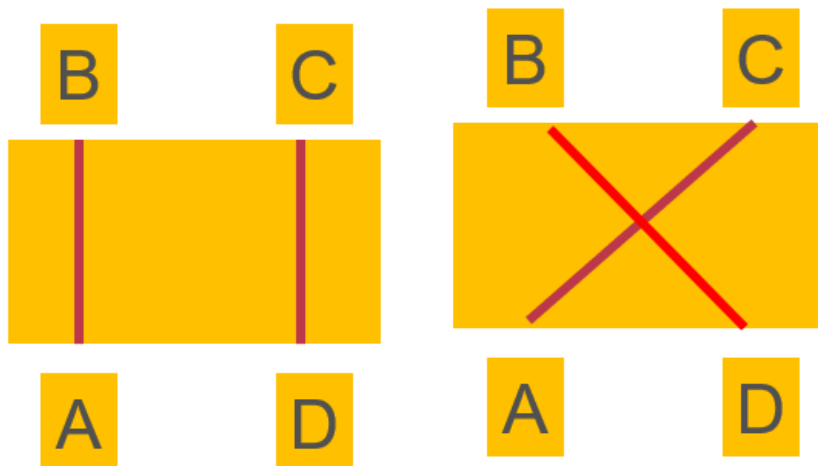
When the air conditioner is in the refrigeration state, the four-way valve is not energized (initial state),

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the four-way valve is in the state of AB connection, DC connection, the refrigerant is compressed by the compressor into high temperature and high pressure gas, through the A port of the four-way valve, discharged from the B port, into the outdoor heat exchanger (condenser), after the condenser absorbs cold and heat release, it becomes a medium temperature and high pressure liquid, after passing the expansion valve, it becomes a low temperature and low pressure liquid, after the indoor heat exchanger (evaporator) endothermic and cooling action, it becomes a low temperature and low pressure gas, through the four way valve D port, Return to the compressor from port C and continue the cycle.

空调处在制暖状态时，四通阀通电，电机带动阀芯移动，使AC连通，DC连通，冷媒通过压缩机压缩转变为高温高压的气体，通过四通阀的A口，由C口排出，进入室内热交换器(冷凝器)，在冷凝器吸冷放热后变成中温高压的液体，经膨胀阀后变成低温低压的液体，经过室外热交换器(蒸发器)吸热放冷作用后，变成低温低压的气体，经过四通阀D口，由B口回到压缩机，然后继续循环。

When the air conditioner is in a heating state, the four-way valve is energized, the motor drives the valve core to move, so that the AC is connected, DC is connected, the refrigerant is compressed by the compressor into high temperature and high pressure gas, through the A port of the four-way valve, discharged from the C port, into the indoor heat exchanger (condenser), after the condenser absorbs cold and releases heat, it becomes a medium temperature and high pressure liquid, after the expansion valve becomes a low temperature and low pressure liquid, after the outdoor heat exchanger (evaporator) heat absorption and cooling action, it becomes a low temperature and low pressure gas, passes through the four way valve port D, and returns to the compressor from port B , and continue the loop.



◆ 包装选项 Packaging Options:

可提供定制包装以满足任何需要，请联系KESENS技术部了解详情。

Custom packaging can be provided to meet any need, please contact KESENS Engineering for details.

CO2四通换向阀 CO2 4-Way Directional Valve**技术参数 Functional Characteristics**

项目 ITEMS	参数 PARAMETER
通讯方式 Communication Method	LIN2.1
阀口直径 Valve Port Diameter	8mm
工作介质 Working Medium	R744&PAG
环境温度 Ambient Temperature	-40°C~+165°C
工作温度 Temperature Range	-40°C~+105°C
工作电压 Operating Voltage	DC9V~DC16V
额定电压 Rated Voltage	DC12V
额定电流 Rated Current	< 0.5 A
线圈驱动方式 Coil Drive Method	步进电机
驱动频率 Drive Frequency	100PPS
外漏 External Leakage	≤1g/y @ 10.5MPa
内漏 Internal Leakage	≤100ml/min @ 10.5MPa
换向压差 Commutation Differential Pressure	≥5MPa
最大工作压力 Maximum Working Pressure	17MPa
爆破压力 Burst Pressure	34MPa
开阀时间 (全闭-全开) Valve Opening Time (Off - On)	11.6s
流阻 Flow Resistance	压损≤100kpa
绝缘电阻 Insulation Resistance	≥10MΩ
寿命耐久 Lifetimes	>10K cycles

可根据需要定制电气和环境规范，详情请联系KESENS技术部。

Custom electrical and environmental specifications can be designed to meet any need, please contact KESENS Engineering for details.