SUPERFREEZE

SPR-PILOT OPERATED VALVE

SUPERFREEZE

PILOT OPERATED VALVE

TYPE

SPR

PORT SIZE

32 mm, 40mm, 50 mm, 65 mm, 80mm and 100mm

REFRIGERANTS

Suitable for all common refrigerants including R-717 (Ammonia), R-134a, R-404, neutral, gaseous and liquid media.

INTRODUCTION

SPR valves are pilot operated main valves for regulating pressure and temperature in Refrigeration systems. SPR main valves can be used on the high and low pressure sides, in wet and dry suction lines, and in liquid lines without phase change (i.e. where no expansion takes place in the valve). The function of a SPR valve depends solely on the pilot pressure applied to the valve, either from pilot valves or in the form of external pilot pressure.

SPR has two connections for pilots. They are connected in parallel. As an optional, three pilot connections could be provided. The unused pilot port can be closed with block plug.

Application

Can be used for all normal, non-flammable refrigerants, including R717, and non-corrosive gases/liquids :

Temperature range	:	-60/+120°C (-76/+248°F).
Pressure range	:	Max. working pressure: 52 bar (754 psig)
Opening differential pressure	:	
Fully open	:	Min. 0.2 bar g (min. 2.9 psig)

SUPERFREEZE

PILOT OPERATED VALVE

Specifications

PART	MATERIAL
VALVE BODY	ASTM A352 GRLCC
GASKET	NON ASBESTOS
BOLTS	8.8
VALUE SPINDLE	STEEL
THROTTLE CONE	STEEL
VALVE SEAT	TEFLON
SPRING	STEEL
SERVO PISTON	STEEL

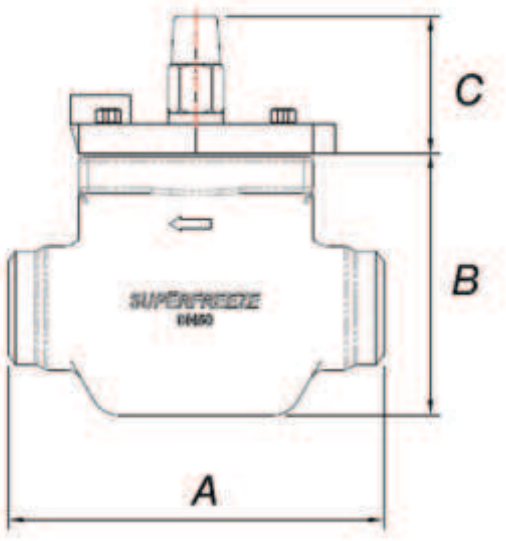
Features

Can be used for all normal, non-flammable refrigerants, including R717, and non- corrosive gases/liquids:

- Assuming seals of the correct material are used.
- Performs as a multifunction valve when several pilot valves are connected to the same main valve
- All pilot valves can be screwed on all sizes of main valves.
- The valve has a pressure gauge connection so that inlet pressure can be measured.
- The valve has a Teflon seat to give excellent tightness.
- The main valve top cover can be oriented in any direction without the function of pilot valves being affected.

Installation

Before welding the valve in the line, open top cover. Remove the gasket and complete cartridge. Align the valve body in line. Do welding. Allow it to cool. Replace cartridge and gasket. Fix the top cover and pilots.



Dimensions

Valve Size	A	B	C
32	146	107	72
40	160	127	72
50	200	138	75
65	230	168	80
80	245	168	80
100	295	278	90

DIM in mm

Capacity Chart for Ammonia

DRY SUCTION LINE

Valve Size	Kv (M3/hr	Evaporative temp. °C							
		-50	-40	-30	-20	-10	0	10	20
32	17.3	45	58	74	94	116	141	169	199
40	27.2	71	91	117	147	182	222	265	313
50	44.2	114	148	190	240	296	361	431	509
65	44.3	115	148	190	240	297	361	432	511
80	85.4	220	285	367	463	573	697	833	983
100	142.1	367	475	609	771	953	1160	1385	1635

The above table is for Qn(kW), T=30 °C, , ▲P=0.2 bar and Superheat=8°C

Qn = Q0 x f▲p x f Tliq

DISCHARGE LINE

Valve Size	Kv (M3/hr	Evaporative temp. °C							
		-50	-40	-30	-20	-10	0	10	20
32	17.3	202	204	208	211	213	215	217	219
40	27.2	318	321	328	331	335	339	341	344
50	44.2	517	522	533	538	544	550	555	559
65	44.3	518	523	534	539	545	552	556	560
80	85.4	999	1008	1029	1039	1050	1063	1072	1079
100	142.1	1663	1677	1712	1729	1748	1769	1783	1796

The above table is for Qn(kW), T=30 °C, P=12 bar, ▲P=0.2 bar, T dis=80°C and Superheat=8°C

Qn=Qo x f▲p x fTliq x fTdis

dP correction factor

dP	0.2	0.3	0.4	0.5	0.6
factor	1	0.8	0.7	0.6	0.55

Liquid temp. correction factor

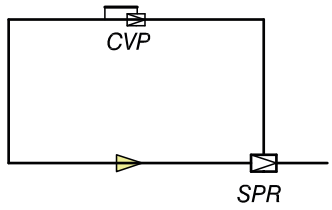
temp	-20	-10	0	10	20	30	40	50
factor	0.82	0.85	0.9	0.92	0.96	1	1.04	1.09

Discharge temp. correction factor

temp	50	60	80	100	110	120
factor	0.96	0.97	1	1.03	1.04	1.05

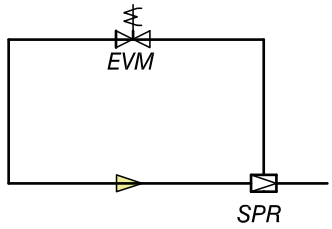
Application of Pilots with SPR

1



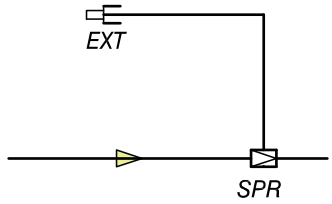
CONSTANT PRESSURE REGULATION
PILOT USED:CVP LP/HP

2



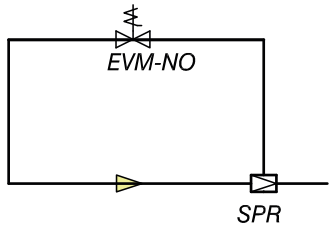
ON/OFF REGULATION SOLENOID VALVE
PILOT USED: EVM

3



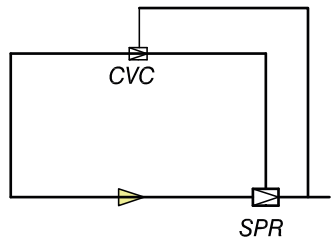
REGULATION WITH EXTERNAL CONTRL PRESSURE

4



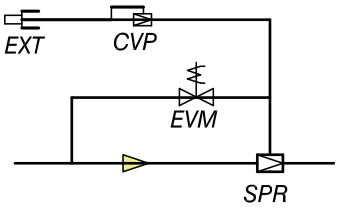
ON/OFF REGULATION SOLENOID VALVE
PILOT USED: EVM-NO

5



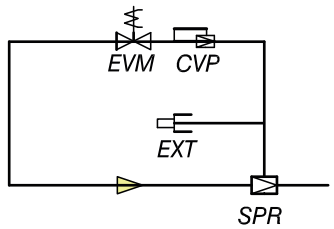
CRANKCASE PRESSURE REGULATION
PILOT USED:CVC LP

6



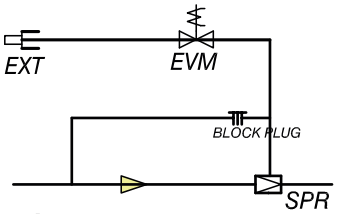
CONSTANT PRESSURE REGULATION WITH EXTERNAL CONTROL PRESSURE COMBINED WITH ELECTRICAL WIDEOPEN
PILOT USED:CVP LP/HP,EVM

7



CONSTANT PRESSURE REGULATION WITH ELECTRIC SHUT OFF COMBINED WITH EXTERNAL CONTROL PRESSURE
PILOT USED: EVM, CVP

8



SOLENOID VALVE WITH EXTERNAL PRESSURE FOR SMALL PRESSURE DROP
PILOT USED: EVM,

Application of Pilots with SPR

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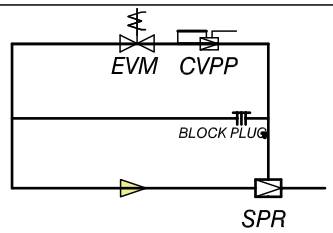
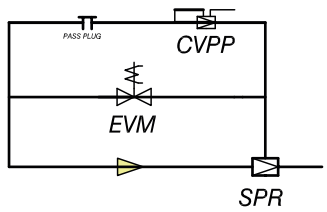


DIFF. PRESSURE REGULATION WITH ELECTRIC SHUT OFF

PILOT USED: EVM, CVPP

(10)



DIFF. PRESSURE REGULATION WITH ELECTRIC SHUT OPEN

PILOT USED: EVM, CVPP

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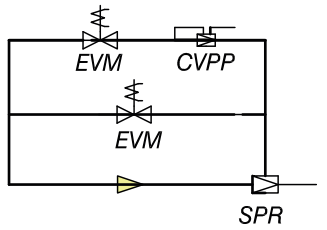

DIFF. PRESSURE REGULATION COMBINED WITH ELECTRIC WIDE OPEN & SHUT OFF

PILOT USED: EVM 2 NOS., CVPP

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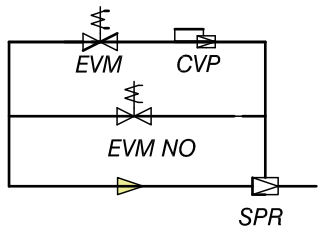
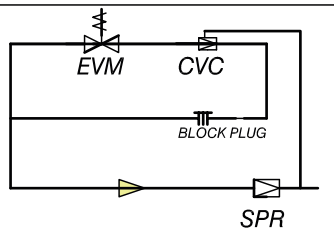


CONST. PRESSURE REGULATION COMBINED WITH ELECTRIC WIDE OPEN & SHUT OFF

PILOT USED: EVM 2 NOS., CVP

(13)



CRANKCASE PRESSURE REGULATION (MAX. SUCTION PRESSURE REG)WITH ELECTRIC SHUT OPEN

PILOT USED: EVM , CVC

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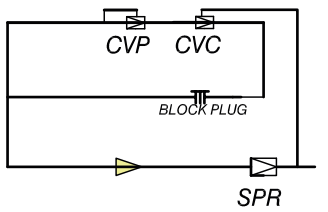
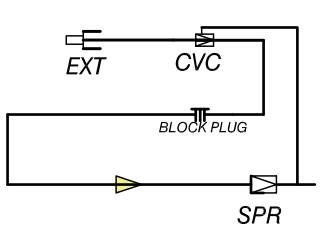


CRANKCASE PRESSURE REGULATION (MAX. SUCTION PRESSURE REG)WITH ELECTRIC SHUT OPEN

PILOT USED: CVP , CVC

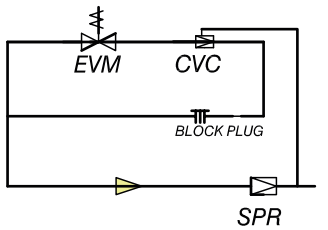
(15)



CRANKCASE PRESSURE REGULATION (MAX. SUCTION PRESSURE REG)ATLOW PRESSURE DROP ACROSS THE VALVE

PILOT USED: CVC

(16)



HOT GAS BYPASS REGULATION COMBINE WITH ELECTRIC SHUT OFF

PILOT USED: EVM , CVC

Application of Pilots with SPR

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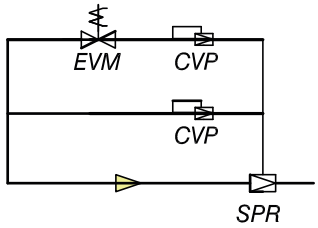
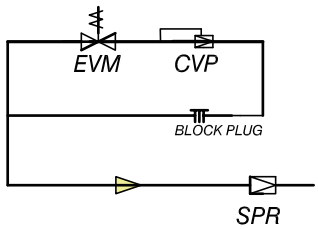


CONST. PRESSURE REGULATION WITH ELECTRIC SHUT OFF & PROTECTION AGAINST HIGH PRESSURE WHEN SUCTION LINE IS CLOSED
PILOT USED: EVM ., CVP 2 NOS.

(18)



CONSTANT PRESSURE REGULATION COMBINED WITH ELECTRIC SHUT OFF

PILOT USED: EVM , CVP

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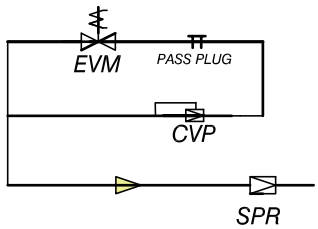

CONSTANT PRESSURE REGULATION COMBINED WITH ELECTRIC SHUT OPEN

PILOT USED: EVM , CVP

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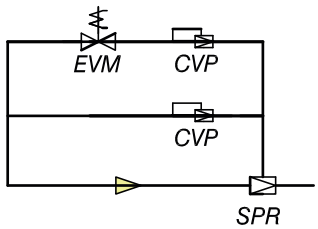

CONST. PRESSURE REGULATION WITH CHANGE OVERBETWEEN TWO PRESET EVAPORATING PRESSURES

PILOT USED: EVM , CVP 2 NOS.

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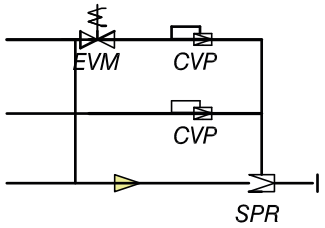

CONST. PRESSURE REGULATION WITH WITH CHANGE OVER BETWEEN TWO PRESET EVAPORATING PRESSURES

PILOT USED: EVM ., CVP 2 NOS.

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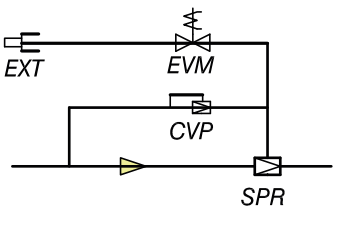
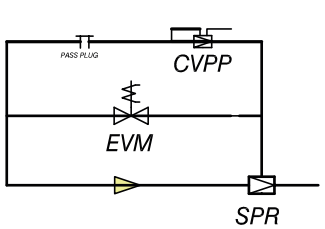


EXT. CONTROL PRESSURE WITH ELECTRICAL SHUT OFF COMBINED WITH CONSTANT PRESSURE REGULATION
PILOT USED: EVM ., CVP

(23)



DIFF. PRESSURE REGULATION WITH ELECTRIC WIDE OPEN

PILOT USED: EVM, CVPP

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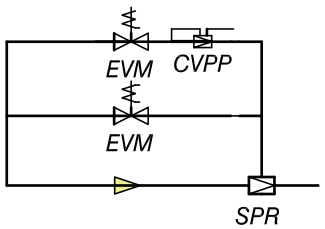

DIFF. PRESSURE REGULATION COMBINED WITH ELECTRIC WIDE OPEN AND SHUT OFF

PILOT USED: EVM 2 NOS., CVPP

PILOT OPERATED VALVE

PILOTS

INLET PRESSURE REGULATED PILOT – CVP

PRESSURE RANGE -
CVP LP- 0 TO 7 BAR
CVP MP- 4 TO 28 BAR

SOLENOID- EVM

240VAC, 50 HZ, 18W

Disclaimer :

We reserve the right to modify specifications in accordance with improved designs. Although every effort will be made to maintain accuracy in the data given, the figures must be taken as approximate and in no way binding. The claim are as per our knowledge and for any variance we are not bound in any way.

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