

Series ZZ (ZZCE)

Thermo-expansion valve

General information

Take-a-part Thermo-Expansion ZZ-Series Valves are designed for deep freeze (down to -100°C) application.

ZZ-Series valves are ideal for those applications requiring flexibility in selection of capacity and excellent stable superheat control under varying operating conditions.

Features

- Modular design for economical logistics and easy assembly and servicing
- Large diaphragm eliminates disturbances to the valve and provides smoother and consistent valve control over wide range of operation
- High-quality materials and processes for high reliability and long lifetime
- Constant superheat across a wide application range
- Flanges: brazing ODF/ODM connection with straight through and angle style configuration
- To withstand stress at extremely low temperatures, ZZ-Series valves feature bronze bolts.
- For maintenance no loosen the pipes connections are necessary, due there are no operationally relevant parts inside the flange
- Max. allowable pressure PS: 31 bar



ZZCE

TAKE-APART DESIGN

ZZ valve consists of 3 main assembly parts:

Valve Series	Power element	Orifice	Flange	
ZZCE	XC726...-...B	X10-B...	C501-5/ C501-5mm	9761-3 / 9761-3mm
			C501-7 / C501-7mm	9761-4 / 9761-4mm
			A576 / A576-mm	6346-17

Each part can be selected individually and combined according to the system requirements by following of 3 selection steps.

Step 1: Single Selection - Orifice according required Capacity

			Capacity (kW)									Power element
Refrigerant Charge Code:			BG		SW			BW				
				A1		A1			A1	A2L		
Valve Type	Orifice Type	Orifice Part No.	Capacity code	R23	Capacity code	R404A R507	R452A*	Capacity code	R448A R449A	R454A*	R455A*	
ZZCE	X10-B01	803621	2BG	1.9	3/4SW	1.2	1.3	1BW	1.7	1.7	1.6	
	X10-B02	803622	6BG	4.0	1-1/2SW	2.6	2.8	2BW	3.7	3.7	3.4	
	X10-B03	803623	8BG	6.8	2-1/2SW	4.4	4.6	3BW	6.2	6.2	5.7	
	X10-B04	803624	12BG	10.8	3-1/2SW	7.0	7.4	5BW	9.8	9.8	9.1	
	X10-B05	803625	17BG	16.3	5SW	10.6	11.1	6BW	14.8	14.8	13.7	
	X10-B06	803624	25BG	21.7	8SW	14.1	14.8	10BW	19.8	19.8	18.2	
	X10-B07	803627	31BG	27.1	9SW	17.6	18.5	12BW	24.7	24.7	22.8	

NOTE 1: *) Superheat readjustment required - see Operating Instruction

NOTE 2: The nominal capacities are based:

R23: -60 °C evaporating temperature (dew point), -25 °C condensing temperature (bubble point) and 1 K subcooling.

Other Refrigerants: -40 °C evaporating temperature (dew point), +25 °C condensing temperature (bubble point) and 1 K subcooling.

NOTE 3: For other operating conditions use the "Select" tool (www.copeland.com/en-gb). For assistance with selection, please contact your local Copeland Sales offices.

Step 2: Single Selection - Power Element

Charge Code	Refrigerant	Alternative Refrigerant	MOP Code	MOP (bar)	Evaporating Temperature	Max. allowable Pressure PS	Capillary tube length	Power Element	
								Type	Part No.
BG	A1 R23		20	1.4 bar	-100...-71 °C	31 bar	3.0 m	XC 726 BG 20-2B	803376
			60	4.1 bar	-100...-51 °C		3.0 m	XC 726 BG 60-2B	803377
			125	8.6 bar	-100...-33 °C		3.0 m	XC 726 BG 125-2B	803378
SW	A1 R404A R507	A1 R452A	40	2.4 bar	-75...18 °C		3.0 m	XC 726 SW 40-2B	803456
			40	2.4 bar	-75...18 °C		6.0 m	XC 726 SW 40-4B	803493
			55	3.8 bar	-75...10 °C		3.0 m	XC 726 SW 55-2B	803476
			55	3.8 bar	-75...10 °C		6.0 m	XC 726 SW 55-4B	803495
BW	A1 R448A R449A	A2L R454A R455A	30	2.1 bar	-75...18 °C	31 bar	3.0 m	XC 726 BW 30-2B	802793

Type Code Power Element - e.g. XC 726 SW 40-2B

Type		XC 726 PS: max 31 bar		Refrigerant Charge Code		BG R23		SW R404A, R507, R452A*		BW R448A, R449A, R454A*, R455A*		MOP Code		blank Without MOP 20...125 MOP	
Equalizer		A internal B external		Capillary Tube Code		2 3.0 m 4 6.0 m									

NOTE:*) Superheat readjustment required - see Operating Instruction

Step 3: Single Selection – Flange

Valve type	Power Element	Orifice	Flange Style				Connection (Inlet x Outlet)	
			Angle	Part No.	Straight through	Part No.	metric	imperial
ZZCE	XC726...B	X10-B01 X10-B02 X10-B03 X10-B04 X10-B05 X10-B06 X10-B07		C501-5 803232		9761-3 803240	-	3/8" x 5/8" ODF
				C501-5mm 803233		9761-3mm 803241	10 x 16 mm ODF	-
				C501-7 803234		9761-4 803350	-	1/2" x 5/8" ODF
				C501-7mm 803235		9761-4mm 803243	12 x 16 mm ODF	-
			-	-		6346-17 803330	16 x 22 mm ODF	5/8" x 7/8" ODF
				A576 803238	-	-	-	5/8" x 7/8" ODF 7/8" x 1-1/8" ODM
				A576-mm 803239	-	-	16 x 22 mm ODF 22 x 28 mm ODM	-

NOTE: To withstand stress at extremely low temperatures, ZZ-Series valves feature bronze bolts.

Please order separately Screw BZ 32 Part No. 803575

Type code - Valve Kit ZZCE - e.g. ZZCE12BG60WL12X16

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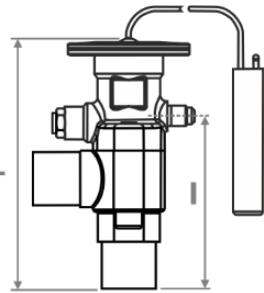
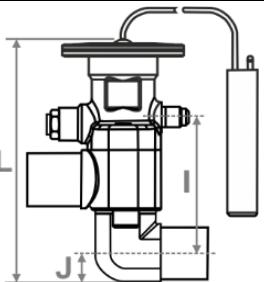
Technical Data

Max. allowable Pressure PS	31 bar
Max. Test Pressure PT	34.1 bar
Temperatures TS Medium	-100 ... +75 °C
Flange connections	Brass ODF or ODM
Vibration Resistance (for fastened valve, non-connected)	4g (0...1000 Hz, 1 octave/min)
Shock	20 g at 11 ms 80 g at 1 ms

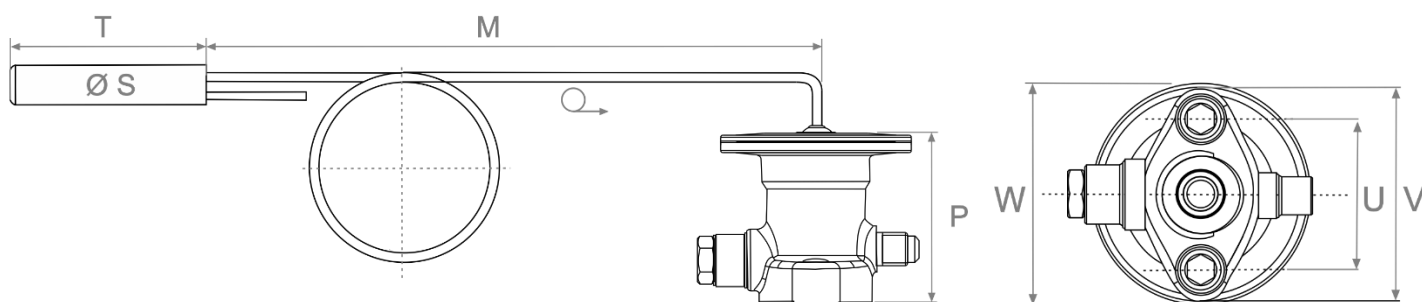
Materials power element valve head	Stainless steel
Materials capillary tube & bulb	zinc plated copper
Released Refrigerants	See Selection tables A1 & A2L
Standards	RoHS compliant
Delivery	Single Package
Markings	CE not required

Dimension (mm)

GENERAL

Valve (Kit)	Illustration	Power Element	Flange	Inlet x Outlet	I	J	L	
ZZCE		XC726...B	Angled	C501-5	3/8" x 5/8" ODF	57	-	106
				C501-5mm	10 x 16 mm ODF	57	-	105
				C501-7	1/2" x 5/8" ODF	61	-	113
				C501-7mm	12 x 16 mm ODF-	61	-	108
				A576	5/8" x 7/8" ODF 7/8" x 1-1/8" ODM	77	-	124
				A576-mm	16 x 22 mm ODF 22 x 28 mm ODM	77	-	124
ZZCE		XC726...B	Straight through	9761-3	3/8" x 5/8" ODF	31	17	95
				9761-3mm	10 x 16 mm ODF	31	17	95
				9761-4	1/2" x 5/8" ODF	31	17	95
				9761-4mm	12 x 16 mm ODF-	31	17	95
				6346-17	16 x 22 mm ODF 5/8" x 7/8" ODF	33	17	95

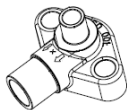
POWER ELEMENT



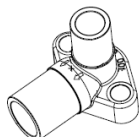
Power Element Type	M	S	T	P	U	V	W
XC762...-2B	3.0 m	19	124	60	44.5	62	73
XC762...-4B	6.0 m	19	124	60	44.5	62	73

FLANGES - ANGLED

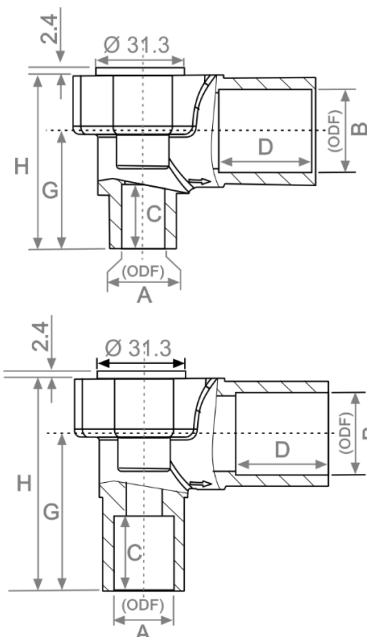
C501-5
C501-5mm
C501-7
C501-7mm



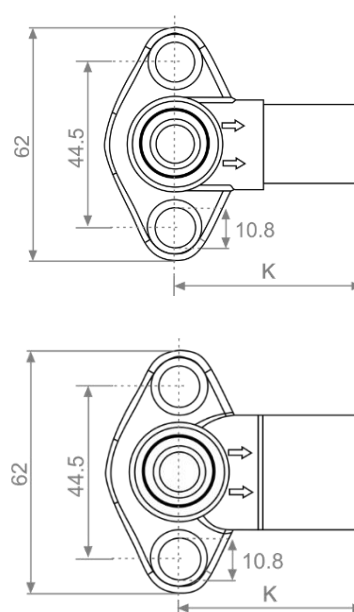
A576
A576-mm



Side view

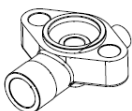


Bottom view

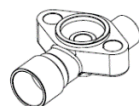


FLANGES - STRAIGHT THROUGH

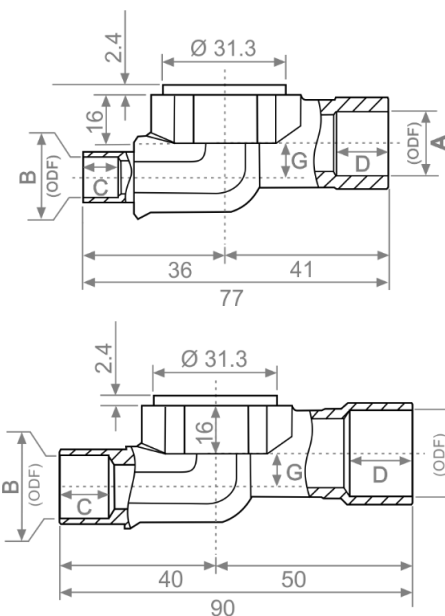
9761-3 mm
9761-3
9761-4 mm
9761-4



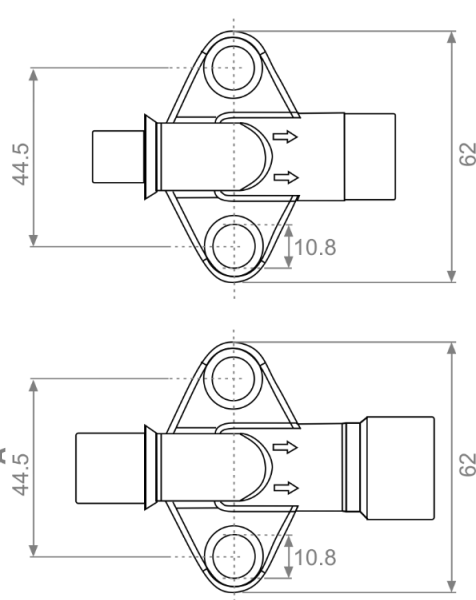
6346-17



Side view



Bottom view



Type		ODF		ODM		(mm)						
		Inlet A	Outlet B	Inlet A	Outlet B	C	D	E	F	G	H	K
ANGLED	C501-5	3/8"	5/8"	-	-	14	21	-	-	27	39	40
	C501-5mm	10 mm	16 mm	-	-	14	21	-	-	27	39	40
	C501-7	1/2"	5/8"	-	-	17	21	-	-	30	42	40
	C501-7mm	12 mm	16 mm	-	-	17	21	-	-	30	42	40
	A576	5/8"	7/8"	7/8"	1-1/8"	21	25	-	-	43	58	50
	A576-mm	16 mm	22 mm	22 mm	28 mm	21	25	25	28	43	58	50
STRAIGHT THROUGH	9761-3 mm	3/8"	5/8"	-	-	9	13	-	-	8.5	-	-
	9761-3	10 mm	16 mm	-	-	9	13	-	-	8.5	-	-
	9761-4 mm	1/2"	5/8"	-	-	9	13	-	-	8.5	-	-
	9761-4	12 mm	16 mm	-	-	9	13	-	-	8.5	-	-
	6346-17	16 mm / 5/8"	22 mm / 7/8"	-	-	12.7	16	-	-	8.5	-	-

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