



External leakage

All the products illustrated in this Handbook are submitted, one by one, to tightness tests besides to functional tests. Allowable external leakage, measurable during the test, agrees to the definition given in Par. 9.4 of EN 12284 : 2003 Standard:

“During the test, no bubbles shall form over a period of at least one minute when the specimen is immersed in water with low surface tension, ...”.

Pressure containment

All the products illustrated in this Handbook, if submitted to hydrostatic test, guarantee a pressure strength at least equal to 1,43 x PS in compliance with the Directive 97/23/EC.

All the products illustrated in this Handbook, if submitted to burst test, guarantee a pressure strength at least equal to 3 x PS according to EN 378-2 : 2008 Standard.

A great number of products illustrated in this Handbook can guarantee an higher pressure strength, equal to 5 x PS according the UL Standard 207: 2009.

Weight

The weights of the items listed in this Handbook include packaging.

Guarantee

All Castel products are covered by a 12 – months warranty. This warranty covers all products or parts thereof that turn out to be defective within the warranty period. In this case, at his own expenses, the customer shall return the defective item with a detailed description of the claimed defects. The warranty doesn't apply if the defect of Castel products are due to mistakes either by customer or by third parties such wrong installations, use contrary to Castel indications, tampering. In case of defects of its own products, Castel will only replace the defective goods and will not refund damages of any kind.

The technical data shown on this catalogue are indicative. Castel reserves the right to modify the same at any time without any previous notice.

The products listed in this handbook are protected according to the law.

www.pholod.com.ua



APPLICATIONS

The check valves, shown in this chapter, are classified “Pressure accessories” in the sense of the Pressure Equipment Directive 97/23/EC, Article 1, Section 2.1.4 and are subject of Article 3, Section 1.3 of the same Directive.

They are designed for installation on commercial refrigerating systems and on civil and industrial conditioning plants, which use the following refrigerant fluids: R22, R134a, R404A, R407C, R410A; R507 proper to the Group II (as defined in Article 9, Section 2.2 of Directive 97/23/EC and referred to in Directive 67/548/EEC). For specific applications with refrigerant fluids not listed above, always proper to the Group II, please contact Castel Technical Department.

MATERIALS

The main parts of the valves are made with the following materials:

- Hot forged brass EN 12420 – CW 617N for body and cover
- Copper tube EN 12735-1 – Cu-DHP for solder connections
- Austenitic stainless steel AISI 302 for the spring
- Chloroprene rubber (CR) for outlet seal gaskets. Metal-rubber laminated gaskets for the valves series 3122, 3142 and 3182
- P.T.F.E. for seat gasket

INSTALLATION

The valves can be installed in any section of a refrigerating system, where it is necessary to avoid an inversion of the refrigerating flow, in compliance with the limits and capacities indicated in table 2. Table 1 shows the following functional characteristics of a check valve.

- PS
- TS
- Kv factor
- Minimum opening pressure differential, which is the minimum pressure differential between inlet and outlet at which a check valve can open and stay opened.

Before connecting the valve to the pipe it is advisable to make sure that the refrigerating system is clean. In fact the valves with P.T.F.E. gaskets are particularly sensitive to dirt and debris. Furthermore check that the flow direction in the pipe corresponds to the arrow stamped on the body of the valve.

The allowed operating positions are:

- types 3122 and 3142 with horizontal axis and valve cover facing upward
- types 3182 with inlet facing down and the valve cover facing upward
- types 3112, 3132 and 3133 preferably with vertical axis and arrow upward. Sloping axis, up to horizontal position, are tolerable.

The brazing of valves with solder connections should be carried out with care, using a low melting point filler material. Before starting to braze, it's necessary to disassemble the valves series 3122, while this operation is not necessary with solder connection valves. In any case, to avoid direct contact between the torch flame and the valve body, which could be damaged and compromise the proper functioning of the valve.

TABLE 1: General Characteristics

Catalogue Number	Connections					Kv Factor [m ³ /h]	Minimum Opening Pressure Differential [bar]	PED Directive			
	SAE Flare	ODS		ODM				TS [°C]		PS [bar]	Risk Category
		∅ [in.]	∅ [mm]	∅ [in.]	∅ [mm]			min.	max.		
3112/2	1/4"					0,5	0,1	- 40	+105	45	Art. 3.3
3112/3	3/8"				1,5						
3112/4	1/2"	-	-	-	1,8						
3112/5	5/8"				3,3						
3112/6	3/4"				5,0						
3122/M22		-	22	-	28	6,6					
3122/7		7/8"	-	1.1/8"	-	8,8					
3122/M28		-	28	1.3/8"	35	15,2					
3122/9		1.1/8"	-	1.3/8"	35	25					
3122/11		1.3/8"	35	1.5/8"		40					
3122/13		1.5/8"	-	2"		0,5	0,1	- 40	+105	45	Art. 3.3
3122/M42		-	42	2"		1,5					
3122/17		2.1/8"	54			1,8					
3132/2		1/4"	-			3,3					
3132/3		3/8"	-			5,0					
3132/M10		-	10			6,6					
3132/M12		-	12			8,8	0,3	- 40	+105	45	Art. 3.3
3132/4		1/2"	-			15,2					
3132/5		5/8"	16			25,0					
3132/M18		-	18			40					
3132/6		3/4"	-			40					
3132/7		7/8"	22			40					
3133/M10		-	10			8,5	0,1	+35	+160	45	Art. 3.3
3133/M12		-	12			9,5					
3133/5		5/8"	16			19					
3133/7		7/8"	22			37,0					
3142/7		7/8"	22			45,4					
3142/M28		-	28								
3142/9		1.1/8"	-				0,1	+35	+160	45	Art. 3.3
3142/11		1.3/8"	35								
3142/13		1.5/8"	-								
3142/M42		-	42								
3142/17		2.1/8"	54								
3142/21		2.5/8"	-								
3142/25		3.1/8"	-				0,1	+35	+160	45	Art. 3.3
3182/7		7/8"	22								
3182/M28		-	28								
3182/9		1.1/8"	-								
3182/11		1.3/8"	35								
3182/13		1.5/8"	-								
3182/M42		-	42				0,1	+35	+160	45	I
3182/17		2.1/8"	54								

TABLE 2: Refrigerant Flow Capacity [kW]

Catalogue Number	Liquid line						Suction line						Hot Gas line					
	R134a	R22	R404A	R407C	R410A	R507	R134a	R22	R404A	R407C	R410A	R507	R134a	R22	R404A	R407C	R410A	R507
3112/2	8,5	9,2	6,0	8,6	8,6	5,8	0,9	1,3	1,1	1,1	1,5	1,1	4,3	5,4	4,8	5,8	6,8	4,8
3112/3	25,5	27,5	17,9	25,8	25,8	17,3	2,8	3,8	3,3	3,4	4,5	3,3	12,8	16,2	14,4	17,4	20,4	14,3
3112/4	30,6	32,9	21,4	31,0	30,9	20,7	3,4	4,6	4,0	4,1	5,4	4,0	15,3	19,4	17,3	20,9	24,5	17,2
3112/5	56,1	60,4	39,3	56,9	56,7	38,0	6,2	8,4	7,4	7,5	9,9	7,4	28,1	35,6	31,7	38,3	44,9	31,5
3112/6	85,0	91,5	59,5	86,2	85,9	57,5	9,5	12,8	11,2	11,4	15,0	11,2	42,5	54,0	48,0	58,1	68,0	47,7
3122/M22	112,2	120,8	78,5	113,7	113,3	75,9	12,5	16,8	14,7	15,0	19,8	14,7	56,1	71,3	63,4	76,7	89,8	63,0
3122/7																		
3122/M28	149,6	161,0	104,7	151,6	151,1	101,2	16,6	22,4	19,6	20,0	26,4	19,6	74,8	95,0	84,5	102,3	119,7	84,0
3122/9																		
3122/11	258,4	278,2	180,9	261,9	261,0	174,8	28,7	38,8	33,9	34,5	45,6	33,9	129,2	164,2	145,9	176,6	206,7	145,0
3122/13	425,0	457,5	297,5	430,8	429,3	287,5	47,3	63,8	55,8	56,8	75,0	55,8	212,5	270,0	240,0	290,5	340,0	238,5
3122/M42																		
3122/17	680,0	732,0	476,0	689,2	686,8	460,0	75,6	102,0	89,2	90,8	120,0	89,2	340,0	432,0	384,0	464,8	544,0	381,6
3132/2	8,5	9,2	6,0	8,6	8,6	5,8	0,9	1,3	1,1	1,1	1,5	1,1	4,3	5,4	4,8	5,8	6,8	4,8
3132/3	25,5	27,5	17,9	25,8	25,8	17,3	2,8	3,8	3,3	3,4	4,5	3,3	12,8	16,2	14,4	17,4	20,4	14,3
3132/M10																		
3132/M12	30,6	32,9	21,4	31,0	30,9	20,7	3,4	4,6	4,0	4,1	5,4	4,0	15,3	19,4	17,3	20,9	24,5	17,2
3132/4																		
3132/5	56,1	60,4	39,3	56,9	56,7	38,0	6,2	8,4	7,4	7,5	9,9	7,4	28,1	35,6	31,7	38,3	44,9	31,5
3132/M18	85,0	91,5	59,5	86,2	85,9	57,5	9,5	12,8	11,2	11,4	15,0	11,2	42,5	54,0	48,0	58,1	68,0	47,7
3132/6																		
3132/7																		
3133/M10	25,5	27,5	17,9	25,8	25,8	17,3	2,8	3,8	3,3	3,4	4,5	3,3	12,8	16,2	14,4	17,4	20,4	14,3
3133/M12	30,6	32,9	21,4	31,0	30,9	20,7	3,4	4,6	4,0	4,1	5,4	4,0	15,3	19,4	17,3	20,9	24,5	17,2
3133/5	56,1	60,4	39,3	56,9	56,7	38,0	6,2	8,4	7,4	7,5	9,9	7,4	28,1	35,6	31,7	38,3	44,9	31,5
3133/7	85,0	91,5	59,5	86,2	85,9	57,5	9,5	12,8	11,2	11,4	15,0	11,2	42,5	54,0	48,0	58,1	68,0	47,7
3142/7	112,2	120,8	78,5	113,7	113,3	75,9	12,5	16,8	14,7	15,0	19,8	14,7	56,1	71,3	63,4	76,7	89,8	63,0
3142/M28	149,6	161,0	104,7	151,6	151,1	101,2	16,6	22,4	19,6	20,0	26,4	19,6	74,8	95,0	84,5	102,3	119,7	84,0
3142/9																		
3142/11	258,4	278,2	180,9	261,9	261,0	174,8	28,7	38,8	33,9	34,5	45,6	33,9	129,2	164,2	145,9	176,6	206,7	145,0
3142/13	425,0	457,5	297,5	430,8	429,3	287,5	47,3	63,8	55,8	56,8	75,0	55,8	212,5	270,0	240,0	290,5	340,0	238,5
3142/M42																		
3142/17	680,0	732,0	476,0	689,2	686,8	460,0	75,6	102,0	89,2	90,8	120,0	89,2	340,0	432,0	384,0	464,8	544,0	381,6
3142/21																		
3142/25																		
3182/7	144,5	155,6	101,2	146,5	145,9	97,8	16,1	21,7	19,0	19,3	25,5	19,0	72,3	91,8	81,6	98,8	115,6	81,1
3182/M28	161,5	173,9	113,1	163,7	163,1	109,3	18,0	24,2	21,2	21,6	28,5	21,2	80,8	102,6	91,2	110,4	129,2	90,6
3182/9																		
3182/11	323,0	347,7	226,1	327,4	326,2	218,5	35,9	48,5	42,4	43,1	57,0	42,4	161,5	205,2	182,4	220,8	258,4	181,3
3182/13	629,0	677,1	440,3	637,5	635,3	425,5	69,9	94,4	82,5	84,0	111,0	82,5	314,5	399,6	355,2	429,9	503,2	353,0
3182/M42																		
3182/17	771,8	830,8	540,3	782,2	779,5	522,1	85,8	115,8	101,2	103,1	136,2	101,2	385,9	490,3	435,8	527,5	617,4	433,1

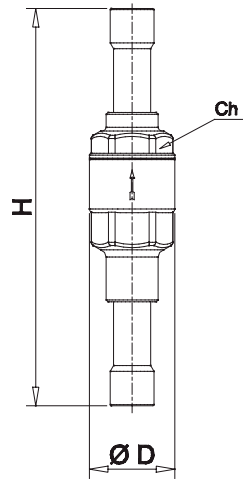
Standard rating conditions according to AHRI Standard 760-2007

Condensing temperature	110 °F	(43,3 °C)
Liquid temperature	100 °F	(37,8 °C)
Subcooling	10 °R	(5,5 °K)
Evaporating temperature	40 °F	(4,4 °C)
Suction temperature	65 °F	(18,3 °C)
Superheating	25 °R	(13,9 °K)
Discharge temperature	160 °F	(71,1 °C)

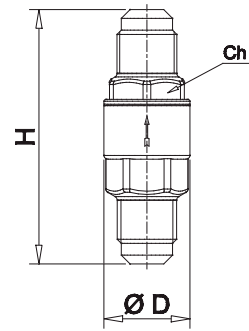
TABLE 3: Dimensions and Weights

Catalogue Number	Dimensions [mm]							Weight [g]						
	H	H ₁	L	L ₁	Q	Ø D	Ch							
3112/2	56	-	-		-	19	16	86						
3112/3	68					23	20	131						
3112/4	73					25	22	166						
3112/5	85					29	25	242						
3112/6	98					36	32	400						
3122/M22	84,5					28,5	100		60	-	-	1180		
3122/7		1090												
3122/M28														
3122/9														
3122/11	101,5	34	118		68	-	-	1625						
3122/13	125,5	37	141		88			2955						
3122/M42														
3122/17	142	42,5	173		104			4225						
3132/2	92	-	-		-	19	-	111						
3132/3	107					23		131						
3132/M10														
3132/M12	132					25		171						
3132/4														
3132/5	139					29		232						
3132/M18	165					-		-		-	36	-	360	
3132/6														
3132/7														
3133/M10	107											-	131	
3133/M12	132												25	171
3133/5	139												29	232
3133/7	165	36	360											
3142/7	84,5	28,5	170	60	-		-						-	1320
3142/M28			201											
3142/9			232											
3142/11						101,5		34	68	1885				
3142/13	125,5	37	256		88	-	-	3315						
3142/M42														
3142/17	142	42,5	285	104	-	-	-	4875						
3142/21			329					5690						
3142/25			1280											
3182/7	151	95	130,5	100,5	60	-	-	1295						
3182/M28														
3182/9														
3182/11	177	109,5	150	116	68	-	-	1855						
3182/13	221	123,5	195,5	143,5	104			3255						
3182/M42														
3182/17	4780													

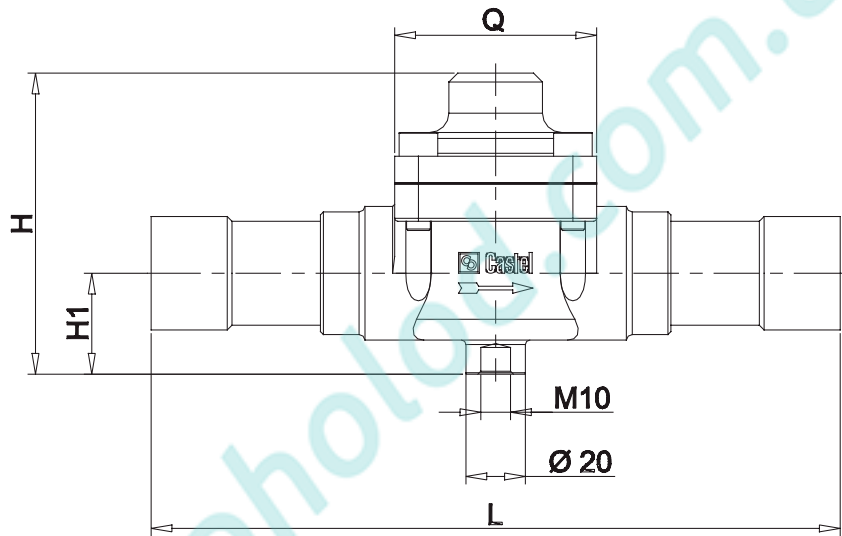
3132
3133



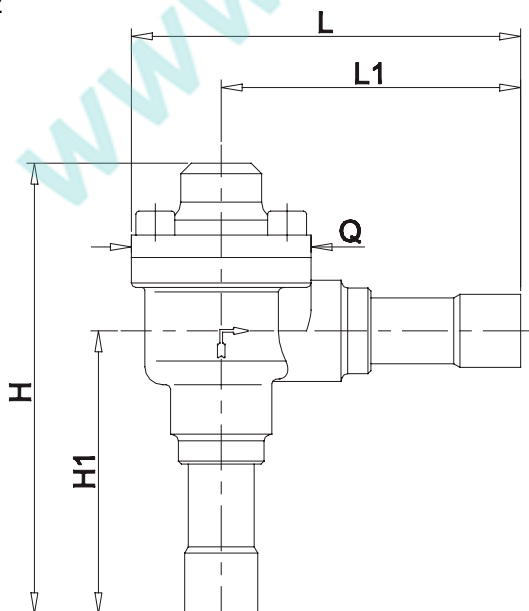
3112



3142



3182



3122

