



HANDBOOK

# **FITTINGS FOR REFRIGERATING SYSTEMS**

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# INDEX

Vibration absorbers	07
Threaded brass fittings	10
Access fittings & valve cores	19

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## FROM QUALITY OUR NATURAL DEVELOPMENT

Achieved the goal of fifty years working in the industry of Refrigeration and Air Conditioning, Castel Quality Range of Products is well known and highly appreciated all over the world. Quality is the main issue of our Company and it has a special priority, in every step, all along the production cycle. UNI EN ISO 9001:2008, issued by ICIM, certifies the Quality System of the Factory. Moreover Castel Products count a number of certifications in conformity with EEC Directives and with European and American Quality Approval. We produce on high tech machinery and updated automatic production lines, operating in conformity with the safety and environment standards currently enforced. Castel offers to the Refrigeration and Air Conditioning Market and to the Manufacturers fully tested products suitable with HCFC and HFC Refrigerants currently used in the Refrigeration & Air Conditioning Industry.



# FITTINGS FOR REFRIGERATING SYSTEMS



## External leakage

Allowable external leakage, for the products illustrated in this Handbook, 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  $1,43 \times PS$  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  $3 \times PS$  according to EN 378-2 : 2008 Standard.

## Weights

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.



## CONSTRUCTION MATERIALS

The main welding between various parts, including the copper/stainless steel connections are TIG welded (figure 1). This solution makes the Castel Vibration Absorbers particularly resistant to the overheating during brazing to the tubing. The parts of Castel Vibration Absorbers are manufactured with the following materials:

- Copper tube EN 12735-1 – Cu-DHP for copper end
- Stainless steel EN 10088-1 – 1.4305/1.4301 for fitting
- Stainless steel EN 10028-7 – 1.4541/1.4404 for corrugated flexible
- Stainless steel EN 10028-7 – 1.4301 for net holder
- Stainless steel EN 10088-3 – 1.4301 for wire “braid”

## INSTALLATION

A vibration absorbers can be installed both on suction and discharge lines of a refrigerating system, as close as possible to the compressor. The vibration absorbers are not designed to compensate possible piping misalignment. Vibration absorbers should be installed perpendicularly to the direction of vibrations. When vibrations exist on two planes, two vibrations absorbers should be used, as shown on fig 2 and 3. For the maximum absorption of vibrations, the refrigerant line should be anchored at the end of the vibration absorber, as shown on fig 2 and 3.

Castel vibration absorbers can be installed vertically too, because they are designed to avoid the retention of condensing water in the wavy zone near to the connections. So there are no problems to install them with temperatures lower than 0°C.

Vibration absorbers are not designed to absorb axial or torsion stress. Care should be taken to allow sufficient space for the vibration to avoid static compression or tension, after brazing on place.

High speed of the refrigerant fluid can produce vibration and noise phenomena. In this case it's advisable to install a larger size of Vibration Absorber.

The connection of the vibration absorbers to the piping is normally performed by a brazing process. The specific design and construction of vibration absorbers allows welding without particular protections to prevent overheating.

**WARNING! Ensure a gap corresponding to the 2% of the total length of the vibration absorber device to compensate for possible thermal expansion.**



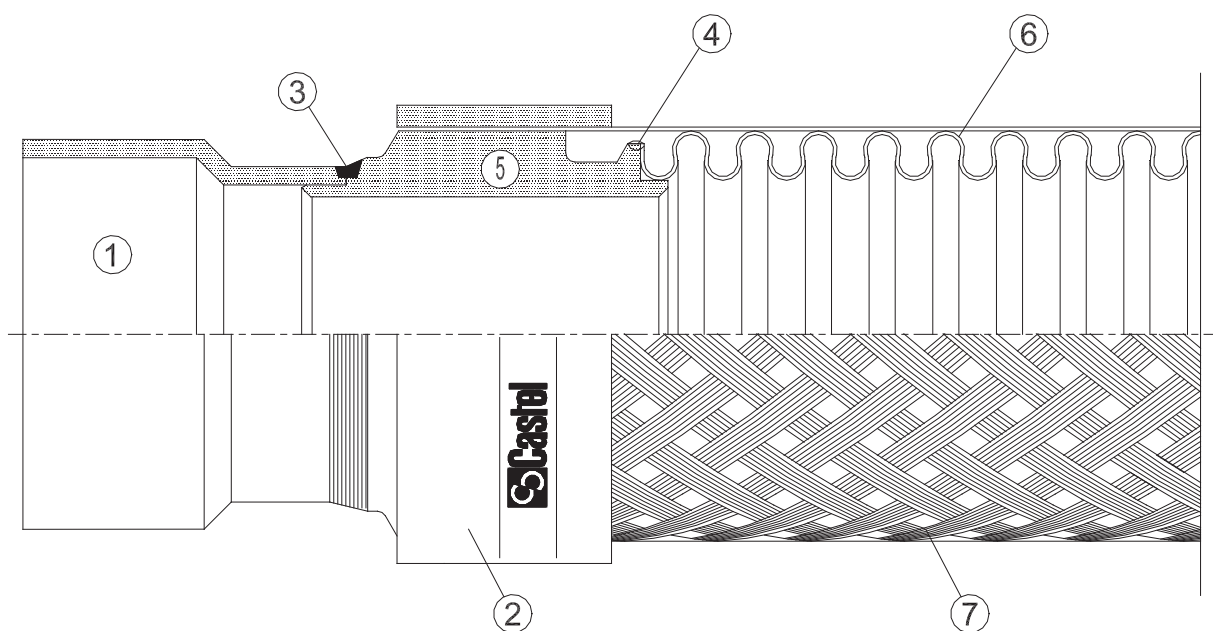
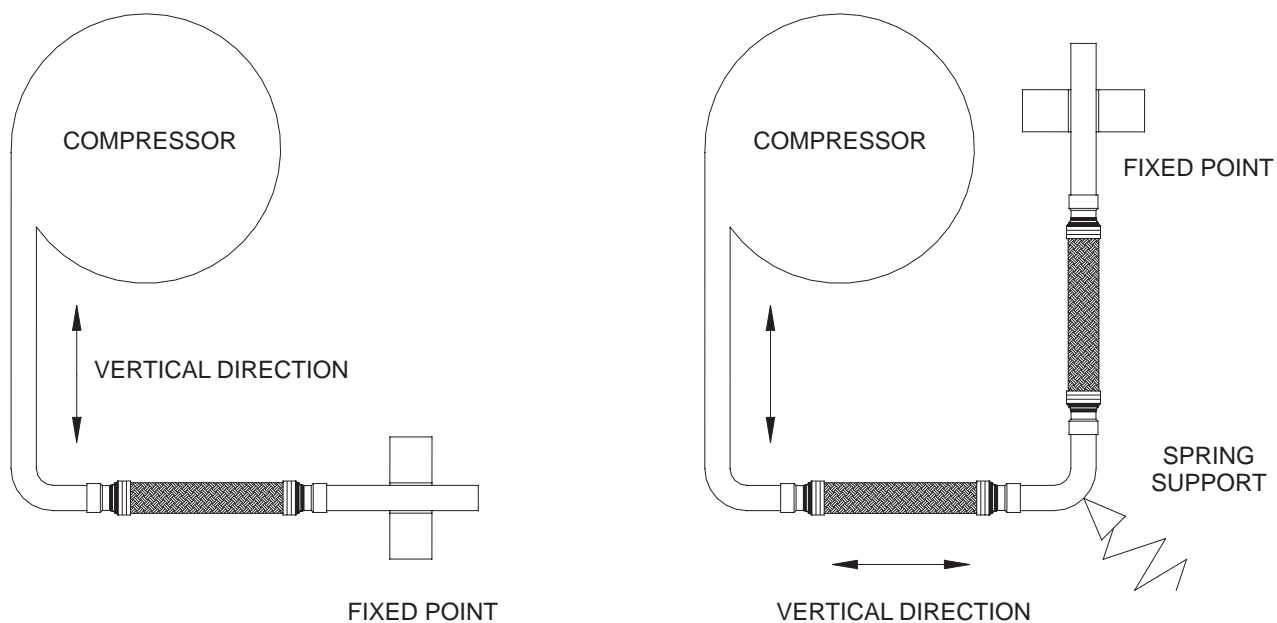
## APPLICATIONS

The vibration absorbers are designed for installation on commercial refrigerating systems and on civil and industrial air conditioning plants. The function of this item is to avoid the transmission of compressor's vibrations to the refrigerating system pipes, reducing the risk of damage and the noise level. The vibration absorbers can also compensate small thermal expansion of the piping.

The vibration absorbers are classified “Pressure vessels” according Article 1, Section 2.1.4 of the Directive 97/23/EC and are subject to Article 3, Section 1.3 of the same Directive.

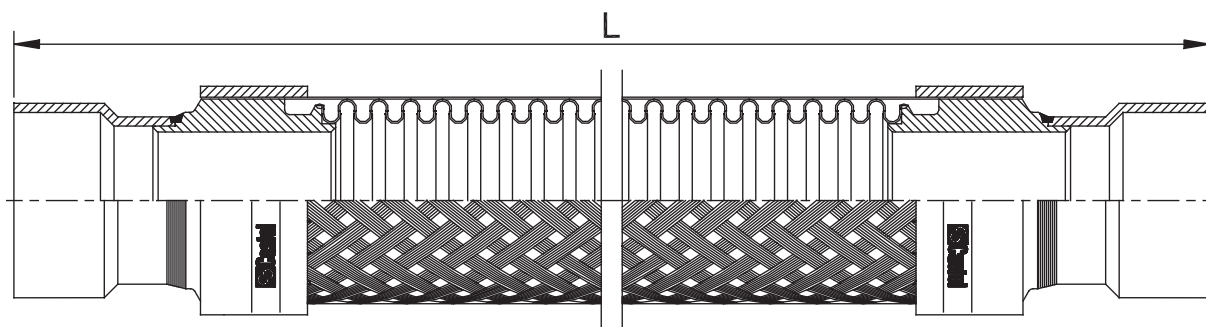
They are designed for installation systems, which use the following refrigerant fluids: R22 , R134a , R404A , R407C , R410A ; R507 proper to the Group II (as defined in Article 9, Section 2.2 of Directive 97/23/EC and referred to in Directive 67/548/EEC).

For specific applications with refrigerant fluids not listed above, always proper to the Group II, please contact Castel Technical Department.



- |                                 |                                |
|---------------------------------|--------------------------------|
| 1 - Copper connection           | 5 - Fitting                    |
| 2 - Net holder                  | 6 - Corrugated flexible        |
| 3 - Copper ends welding         | 7 - Stainless steel wire braid |
| 4 - Corrugated flexible welding |                                |





Catalogue Nr.	Connections		Length	Weight [g]	Working pressure (PS), depending on temperature [bar]			Risk Category according to PED												
	ODS				-80 / +100 °C	+ 120 °C	+ 140 °C													
	[mm]	[inch]	[mm]																	
7690/3	-	3/8	230	91	45	44	43,5	Art. 3.3												
7690/M10	10	-		98																
7690/M12	12	-		122																
7690/4	-	1/2		120																
7690/M15	15	-	255	190					45	44	43,5	Art. 3.3								
7690/5	16	5/8		200																
7690/M18	18	-		180																
7690/6	-	3/4		180																
7690/7	22	7/8	290	317									45	44	43,5	Art. 3.3				
7690/M28	28	-	330	380																
7690/9	-	1.1/8		416																
7690/11	35	1.3/8	375	846													45	44	43,5	Art. 3.3
7690/13	-	1.5/8	430	1088																
7690/M42	42	-		1200																
7690/17	54	2.1/8	510	2060	40	39	38,5	I												
7690/M64	64	-	690	3312	35	34,5	34													
7690/21	67	2.5/8		3500																
7690/24	76	3		3610																
7690/25	80	3.1/8	3660	25					24,5	24										
7690/28	89	3.1/2	4550																	
7690/34	108	4.1/4	4770																	