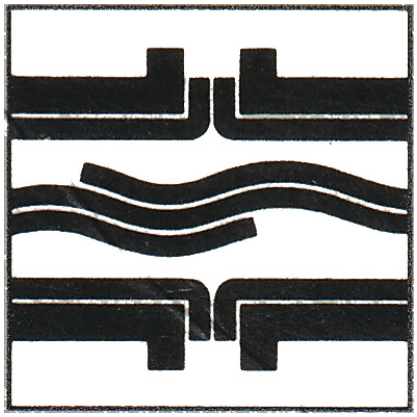
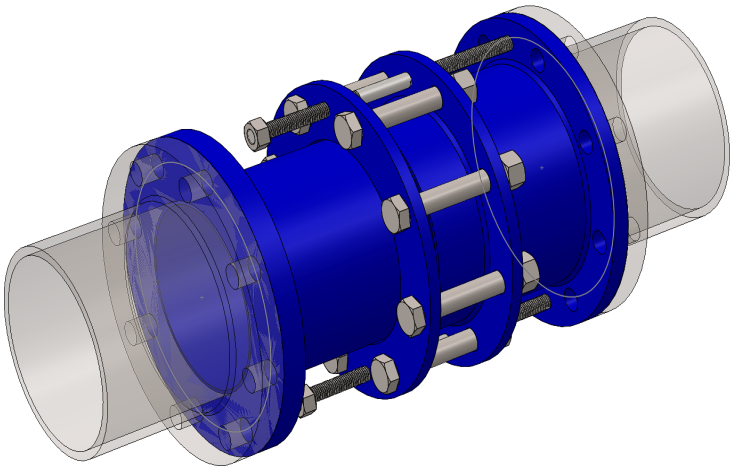
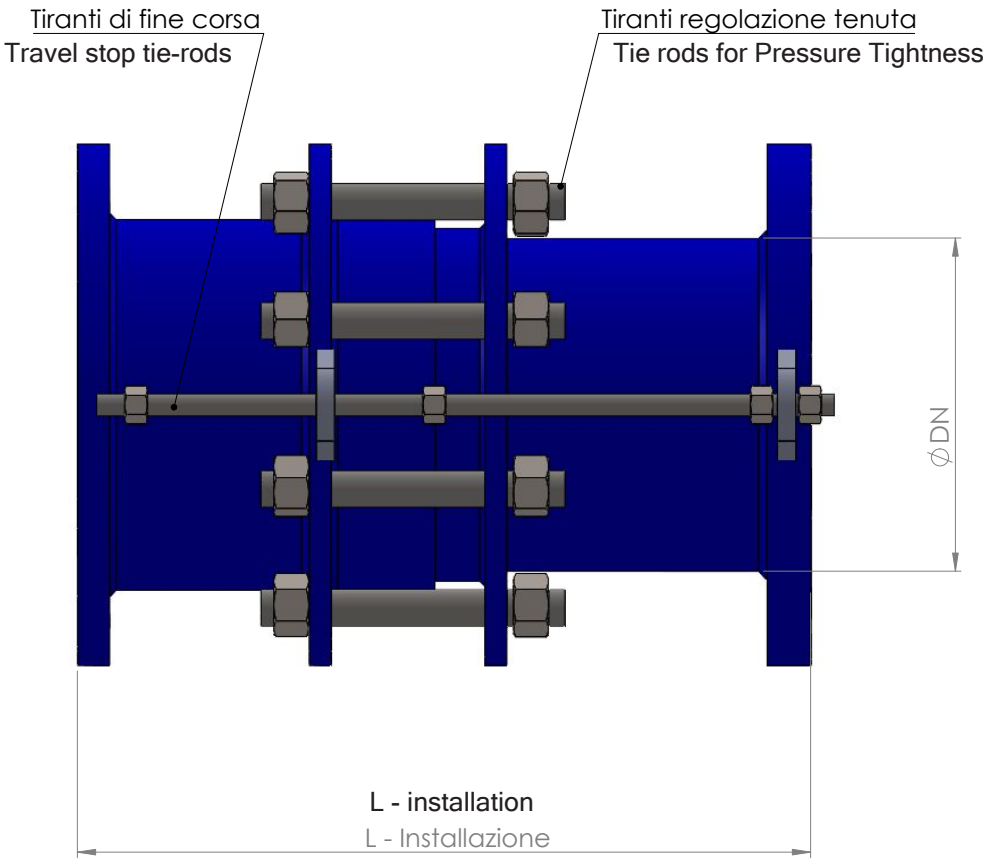
Expansion Joint type
LTF





DIMENSIONS standard models

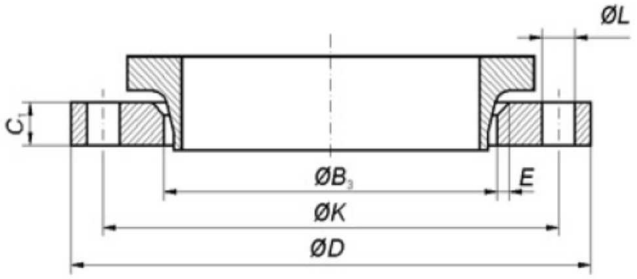


ND	pipe ND	NP	Flanges according to UNI-EN 1092
40	50	16	PN16
50	63	16	PN16
65	75	16	PN16
80	90	16	PN16
100	110-125	16	PN16
125	140	16	PN 16
150	160-180	16	PN16
200	200-225	16-25	PN10-16-25
250	250-280	16-25	PN10-16-25
300	315	16-25	PN10-16-25
350	355	16-25	PN10-16-25
400	400	16-25	PN10-16-25
500	450-500	16-25	PN10-16-25
600	560-630	16-25	PN10-16-25

Other diameters and flanges type on request

TABLE OF CORRESPONDENCE BETWEEN PIPE DIAMETERS AND FLANGES UNI

Dimensioni delle flange EN 1092-1 Libere tipo 4 pn 16
con foro adatto ad accoppiamento a colletti PEHD (ex 2223/6090 alleggerite)



DN	Diametro	Diametri			Bulloni		Diametro	Spessore	Tolleranze	Smusso	Massa
	del	esterno	cerchio	fori	Nr	Tipo	del foro	Flangia	su		netta
	tubo	flangia	dei bulloni	bulloni				alleggerita	spessori		alla quota
	PEHD								+ / - mm		nominale
		D	K	L			B3	C1		E	kg
40	50	150	110	18	4	M16	62	16	1	5	1,75
50	63	165	125	18	4	M16	78	16	1	5	2,07
65	75	185	145	18	4	M16	92	16	1	6	2,44
80	90	200	160	18	8	M16	108	18	1,5	6	3,02
100	110	220	180	18	8	M16	128	18	1,5	6	3,43
100	125	220	180	18	8	M16	135	18	1,5	6	3,25
125	140	250	210	18	8	M16	158	18	1,5	6	3,9
150	160	285	240	22	8	M20	178	18	1,5	6	5,34
150	180	285	240	22	8	M20	184	18	1,5	6	5,1
200	200	340	295	22	12	M20	235,0	22	1,5	6	7,27
200	225	340	295	22	12	M20	238,0	22	1,5	6	7,10
250	250	405	355	26	12	M24	290,0	26	1,5	8	9,83
250	280	405	355	26	12	M24	290,0	26	1,5	8	9,83
300	315	460	410	26	12	M24	340,0	28	1,5	8	12,70
350	355	520	470	26	16	M24	377,0	30	1,5	8	17,19
400	400	580	525	30	16	M27	430,0	35	1,5	8	25,19
500	450	715	650	33	20	M30	520,0	36	1,5	8	35,24
500	500	715	650	33	20	M30	536,0	38	1,5	8	31,69

DIMENSIONS AND FEATURES
STANDARD AND SPECIAL MODELS

LTF type expansion joints can be supplied in different configurations of:

- manufacturing DN diameter
- Axial stroke and length
- connections
- materials

DN diameter: the diameter range extends from DN 50 to DN2000. The nominal pressures are PN16/25 up to DN 600.

For higher pressures the coupling is sized according to the characteristics of the installation

-Axial stroke : any value between 100 and 500 mm. The stroke value is to be understood as stroke + for extension and - for compression.

The value of the compression stroke - is when the pipe is stretched due to the effect of the temperature above 20°C,

The value of the stroke in extension + is when the pipe is shortened due to the effect of the temperature below 20°C

-Length of the joint: it is possible to supply joints of special lengths in order to adapt them to existing installations.

In this case, our Technical Service will make the appropriate checks to determine the characteristics of the joint

Connections: the joints can be supplied with UNI, ANSI or other flanged connections.

For direct connection to the pipe it is possible to supply anti-slip adapters (see page 9)

Materials : in addition to the materials of the standard configurations, the joints can be supplied in stainless steel AISI304 or AISI316 also for the tie rod.

TECHNICAL DATA STANDARD VERSION

Standard axial stroke (+/-) : 100 / 200 / 300 / 500 mm
(other strokes available on request)

Maximum working pressure : 16 -25 bar@20°C
Max operating temperature : 180°C (limited by gasket material)

(other operating pressures and temperatures on request)

Materials :
Central body and flanges : Carbon steel (alternatively AISI304/316)
Tie rods and nuts : galvanized steel (alternatively AISI304/316)
Gaskets : PTFE/NEOPRENE/VITON

Finish: Epoxy RAL 5005 (compliant with Ministerial Decree 174) for carbon steel. Other RALs on request

All sizes and materials can be customized on request and according to the type of fluid (total execution in AISI304/316 with gaskets resistant to chemical and/or corrosive products)

EXAMPLE OF PIPE EXPANSION CALCULATION

PROJECT DATA :

-Pipe diameter : 160 MM (FLANGE DN 150)
-Horizontal pipe length : 100 mt
-minimum fluid operating temperature : 10 °C
-maximum fluid operating temperature : 35 °C
-thermal delta : 25°C (in conditions of empty pipe exposed to sunlight the thermal delta can reach 35-40°C
-pipe material : PE with expansion coefficient 0.18 mm/m °C

Total expansion calculated in operation : 450 mm (+180/-270)
Expansion calculated with empty pipe : 630 mm

Verification with empty pipe is important because in the period between the installation of the pipe and commissioning, the expansion can be considerable depending on exposure to sunlight or in the event that the pipe is put out of service.

No. of joints required : 2 with axial stroke of +/-200 mm.

When the pipes are very long, it is preferable to increase the number of joints to reduce friction and stress on fixed points.

All checks can be carried out by our Technical Service by providing the necessary data

INSTALLATION

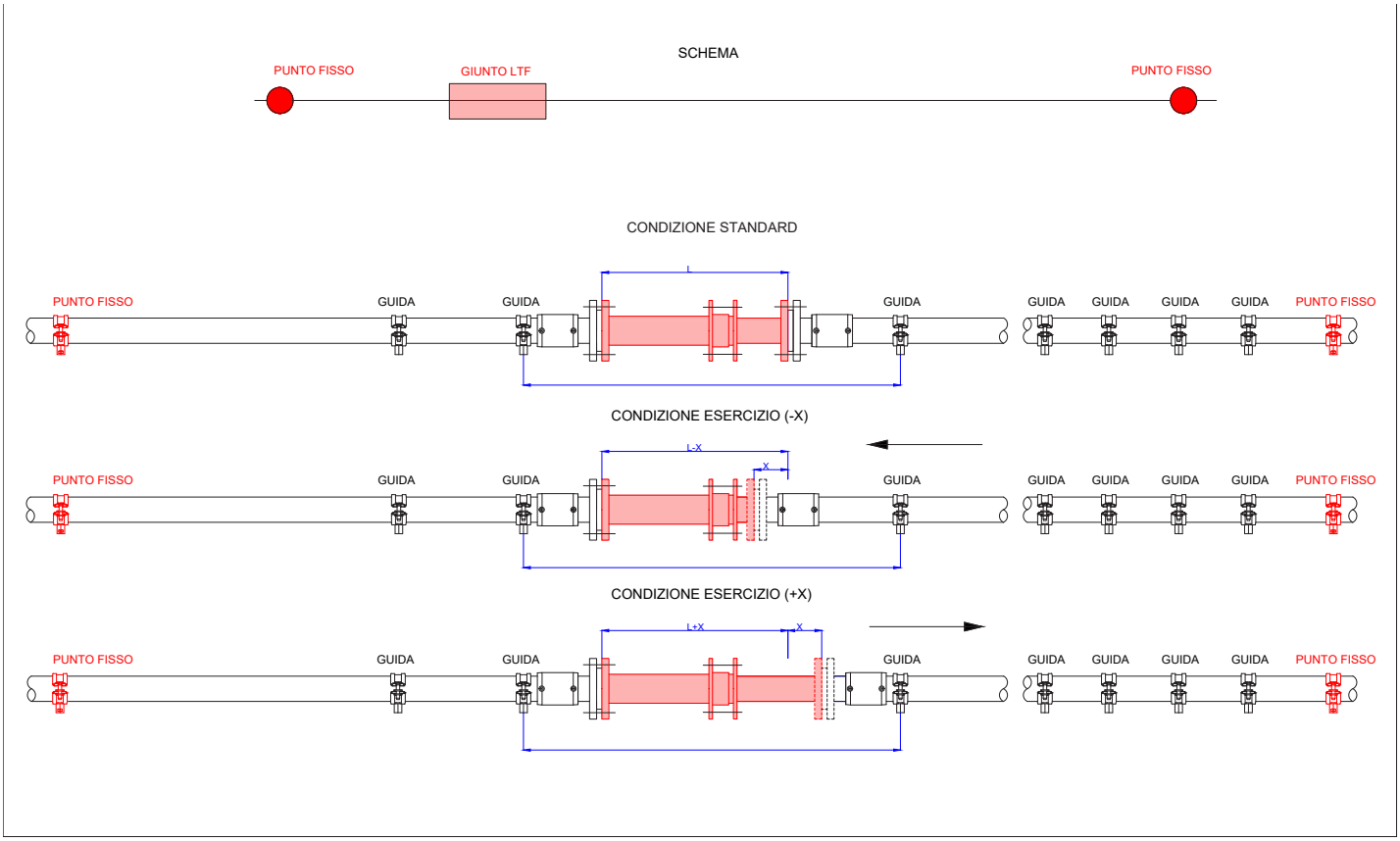
1. LTF type expansion joints must be installed on horizontal (or vertical) sections of pipes, and may not be used to absorb movements transverse to the axis of the pipe.

2. Before use and installation, it must be checked that the joint is suitable for the operating conditions of the system, with particular regard to:

Pressure and temperature of the fluid used
Compatibility of the joint material with the type of fluid used
Calculated linear expansion, lower than the maximum stroke of the joint. When determining design temperatures, it is important to take into account sun exposure and downtime

3. The joint must be installed in a section of pipe between two fixed points. The installation length should not be longer than the intermediate length of the joint. In the event of excessive movement or inadequacy of the fixed points, the joint can slip off with the consequent leakage of the liquid inside. This point must be checked very carefully when the fluid being transported is potentially very dangerous to the environment, human health and damage from pollution.

Typical installation figure



INSTALLATION NOTES

1) The compensator must be installed in straight pipe sections and must always be positioned between 2 fixed points. The position of the joint should preferably be in the center of the line

2) The installation length of the compensator is as indicated as L or Neutral Length.

3) The plastic pipe (PVC, PP or other) must not have been exposed to sunlight and the apparent surface temperature must not exceed the minimum of 15°C and the maximum of 25°C.

In the event that these values are very different, it is advisable to recalculate the installation length of the joint in order to avoid elongation or contraction greater than the design.

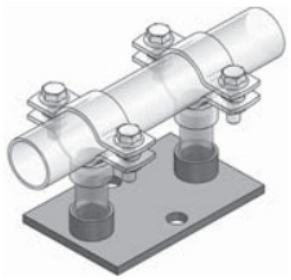
4)Check that the pressure, design temperature and process fluid comply with the requirements of the design phase.

5) The central tie rods must all be tightened in the same way. It is advisable to carry out an initial inspection after installation and a subsequent inspection after three months. It is possible that during transport or installation the central tie rods are loose. This can result in leaks. It is sufficient to tighten the nuts evenly so that the flange compresses the sealing gasket.

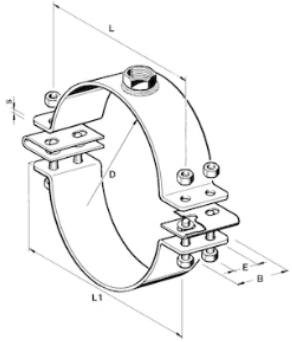
6)Fixed points and supports must be of adequate size to support the weight of the pipe (with the fluid inside) and the forces generated by the effects of expansion and bottom thrust. In particular, the fixed points must block the pipe preventing it from flowing.

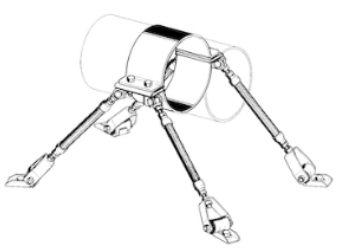
7)The pipe must be laid on special sliding supports that allow the expansion of the pipe itself (slides or rollers)

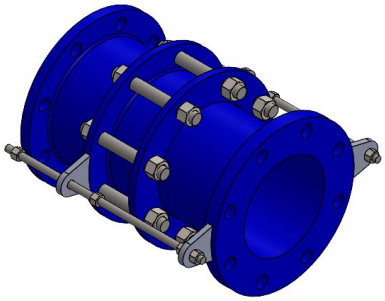
Example of fixed points

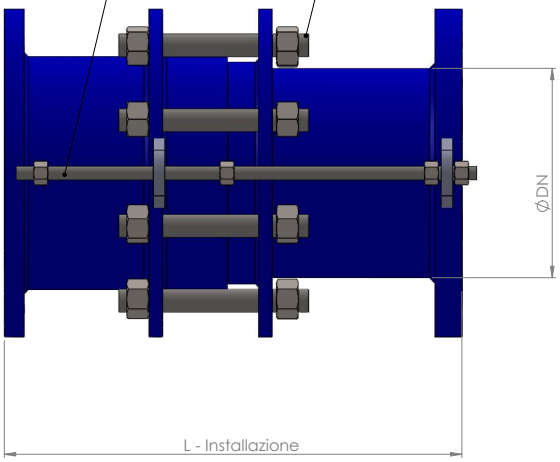


EXAMPLE OF A FIXED POINT WITH LOCKING COLLAR









DATI TECNICI / TECHNICAL DATA

Corsa assiale : vedi tabella o offerta
Pressione massima di esercizio : 16 bar@20°C
Temperatura max di esercizio : 180°C
(altre pressioni e temperature di esercizio su richiesta)

Materiali versione standard :
Corpo centrale e flange : Acciaio al carbonio
Flange foratura UNI PN 10 / 16 / 25
Tiranti e dadi : acciaio zincato

Guarnizioni : EPDM/NBR, fibre tessili

Finitura STD : Epossidica RAL 5005 (conforme D.M 174)

Tutti i giunti LTF possono essere forniti in esecuzione totale AISI304 / 316

PER L'INSTALLAZIONE CONSULTARE IL MANUALE

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Approx Weight: Kg		Checked/Approved by: / Checked/Approved Date:
Projection Method: THIRD ANGLE	Part Number:	
Sheet Size: A3	Description: Giunto assiale tipo LTF	1 of 1

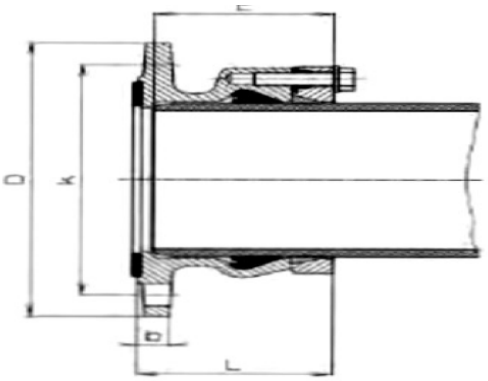
All joints are supplied with end-of-stroke tie-rods installed, which are used to limit the excursion of the joint in cases where the guides or fixed points of the pipe are unable to block the pipe correctly, or in the event that the actual expansions are higher than those defined in the design phase.

The execution of the tie rod can be internal or external profile depending on the DN of the joint and the type of application.

Please note: the tie rods are not sized to withstand the loads due to the bottom thrust generated by the fluid pressure.

To facilitate the installation of LTF type joints, special adapters are available for connection to the PVC/HDPE/PP pipe with flanged connection and anti-slip clamping system, thus avoiding welding operations.

They are available in diameters from DN 50 to DN 300.



DN Flange	DE TUBO PIPE OD	D	K	b	L	E
DN50	63	165	125	19	90	80
DN60/65	63	185	145	19	90	80
DN60/65	75	185	145	19	92	82
DN80	75	200	160	19	92	82
DN80	90	200	160	19	95	85
DN100	90	220	180	19	95	85
DN100	110	220	180	19	95	85
DN100	125	220	180	19	95	85
DN125	125	250	210	19	97	87
DN125	140	250	210	19	97	87
DN150	160	285	240	19	115	105
DN150	180	285	240	19	120	110
DN200	200	340	295	20	135	125
DN200	225	340	295	20	138	128
DN250	250	400	350-355	22	155	145
DN250	280	400	350-355	22	158	148
DN300	315	455	400-410	25	184	174

CORPO	Ghisa sferoidale GGG40	**BODY**	Ductile Iron GGG40
GUARNIZIONI	EPDM – per acqua potabile, NBR su richiesta	**GASKETS**	EPDM for potable water (NBR on request)
ANELLO di GRAFFAGGIO	Ottone	**GRIP RING**	Brass
TIRANTI	Inox A2	**BOLTS**	Inox A2
RIVESTIMENTO	Minimo 250 micron, polveri epossidiche	**COATING**	Epoxy coating, minimum 250 micron
PRESSIONE di ESERCIZIO	16 BAR	**OPERATING PRESSURE**	PN16

NOTE:

Coppia di Serraggio	Per i diametri fino a d 140 mm	c.ca 20 Nm
	Per i diametri superiori	c.ca 30 Nm

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TREVITEC

tel./phone +39 0422 1627550

www.trevitec.com

email : info@trevitec.com

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