DESCRIPTION

GF1C – GF1CA

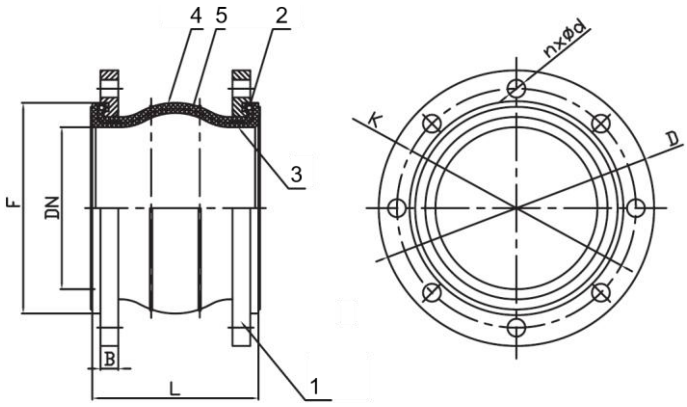
Single sphere flexible joint for HVAC and water distribution, designed for the reduction of vibrations and compensation of thermal expansion in piping systems. Polyamide wired reinforced EPDM body, ductile iron floating flanges.

GF1C: suitable for flanges according to EN 1092-2 PN16.

GF1CA: suitable for flanges according to ANSI class 150.

Tested according to EN 12266 standard.

MATERIALS AND DIMENSIONS



1. Flange: galvanized carbon steel **S275JR**
2. Reinforcing ring: galvanized carbon steel **S275JR**
3. Inner rubber: **EPDM**
4. Outer rubber: **EPDM**
5. Reinforcement wires: **Polyamide**

GF1C

Size	1-¼""	1-½"	2"	2-½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
L [mm]	95	95	105	115	130	135	170	180	205	240	260	265	265	265	265	265
D [mm]	140	150	165	185	200	220	250	285	340	405	460	520	580	640	715	840
K [mm]	100	110	125	145	160	180	210	240	295	355	410	470	525	585	650	770
F [mm]	76	76	88	106	120	150	180	212	264	324	372	415	466	526	575	690
B [mm]	16	16	16	16	18	18	20	22	22	24	26	26	28	30	30	30
n x Ød [mm]	4 x 18	4 x 18	4 x 18	4 x 18	8 x 18	8 x 18	8 x 18	8 x 18	12 x 23	12 x 27	12 x 27	16 x 27	16 x 30	20 x 30	20 x 33	20 x 36

GF1CA

Size	1-¼""	1-½"	2"	2-½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
L [mm]	95	95	105	115	130	135	170	180	205	240	260	265	265	265	265	265
D [mm]	118	127	152	178	191	229	254	279	343	406	483	533	597	635	699	813
K [mm]	89	98	121	140	152	191	216	241	299	362	432	476	540	578	635	749
F [mm]	76	76	88	106	120	150	180	212	264	324	342	415	466	526	575	690
B [mm]	16	16	16	16	18	18	20	22	22	24	24	26	26	26	28	28
n x Ød [mm]	4 x 16	4 x 16	4 x 19	4 x 19	4 x 19	8 x 19	8 x 22	8 x 22	8 x 22	12 x 26	12 x 26	12 x 29	16 x 29	16 x 32	20 x 32	20 x 35

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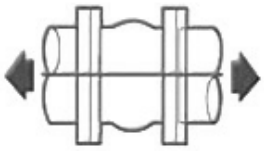
RECOMMENDED WORKING TEMPERATURE/PRESSURE LIMITS

Temperature range	**1-¼" to 24"**	**-10°C to 110°C**
Pressure Rating	**1-¼" to 12"**	**16 bar**
	14" to 24"	**10 bar**
Fluid	**Water (Glycole 50% max.)**	

Free of CE marking
(according to Avv.3.1.Dir 2014/68/EU)

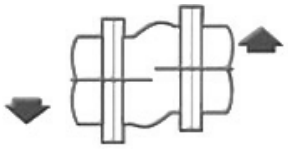
ALLOWABLE DEFORMATION

The below table shows the allowable limits for single deformation of the flexible joints.

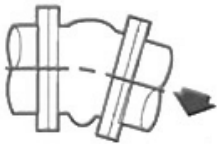


Axial STRETCH
Displacement [**S**]

Axial COMPRESSION
Displacement [**C**]



LATERAL
Displacement [**L**]



DEFLECTION
Angle [**D**]

Single Deformation

Size	**1-¼"**	**1-½"**	**2"**	**2-½"**	**3"**	**4"**	**5"**	**6"**	**8"**	**10"**	**12"**	**14"**	**16"**	**18"**	**20"**	**24"**
DN	**32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**600**
$S_{max.}$ [mm]	6	6	7	8	8	8	12	12	12	16	16	15	15	15	15	15
$C_{max.}$ [mm]	9	10	10	12	12	15	15	18	18	20	20	20	20	20	20	20
$L_{max.}$ [mm]	9	9	10	12	12	15	15	15	18	20	20	25	25	25	25	25
$D_{max.}$ [°]	10	10	10	10	10	7	7	5	5	5	5	5	5	5	5	5

In case of combined deformations, the following equation shall be used:

$$\text{Combined } S_{max.} \text{ or } C_{max.} = \text{Single } S_{max.} \text{ or } C_{max.} \times \left[1 - \left(\frac{L}{L_{max.}} + \frac{D}{D_{max.}}\right)\right]$$

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INSTALLATION, OPERATION, AND MAINTENANCE (IOM) MANUAL

Warning: non-responsible use of this product may result in serious damage to the product itself and/or personal injury. Read this manual carefully before any handling.

STORAGE

Joints shall be stored in a dust-free, least humid, cool and well-ventilated place.

Indoor storage is recommended and appropriate measures to prevent direct exposure to dust, rain, and sunlight shall be taken if stored outdoors. Storage in corrosive environments is not allowed.

Joints shall be stored on a rack. Storage on the ground or concrete floor is not recommended.

In order to avoid any damage, overload stacking is not allowed.

INSTALLATION (Preliminary controls)

Joint packaging and appearance shall be intact, sealing of rubber joint shall be smooth and clean.

The markings shall be checked to ensure that the correct joint is installed, rated temperature, pressure, and displacement range shall not exceed the allowable limits.

It is advised to mate the joints to flat face flange. Raised face flange is not recommended.

INSTALLATION (Cautions)

Installation shall be carried out by professionals with relevant qualifications, and pressure testing and commissioning must performed according to standard before putting the system into operation.

Connecting flanges shall not be damaged or deformed, and sealing surface shall be free from any foreign objects or rusts. No gasket shall be placed between the joint and counter flanges. The surface of rubber shall not be painted.

When the joint needs to be protected against excessive movement resulting from pressure thrust, the control rods most be installed.

The rubber joint should be installed as close as possible to proper and independent supports. In any case the joint shall not bear the weight of connected piping.

INSTALLATION (Measures)

The screws shall be inserted in the flange hole with the screw head toward the rubber ball and the nut toward the pipe

The screw shall be of proper material size and length, they shall be tightened gradually and alternately in a star pattern, as shown in Figure 1, until the compression of the sealing rubber is achieved on both sides.

All tightened screws shall equally protrude beyond the nuts, appropriate lubricant should be used on the screw thread, and overtightening shall be avoid in order to prevent any damage to the sealing rubber.

It is advised to gradually raise line temperature and pressure for a pilot operation, and then re-tightening as required.

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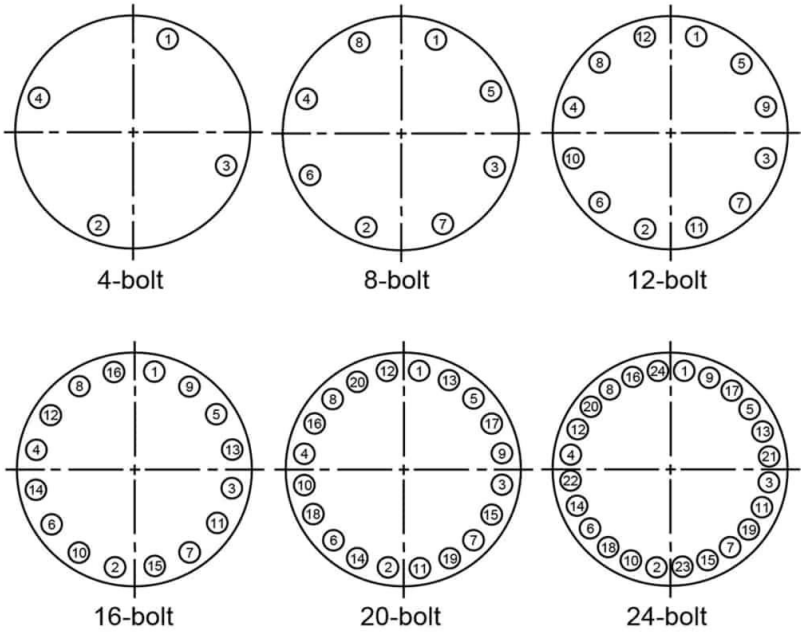

Figure 1 - Star patterns for N-bolt flanges

MAINTENANCE

When scheduled maintenance is performed, generally at least once per year, the joint can be removed from the system in order to inspect it for hardening, cracks, and swelling and to check the tightness of sealing surfaces.

Piping, flanges, valves and any other device, as well as the fluid in the system, shall be cooled down before removing the joint. Pressure shall be relieved and system shall be drained, taking appropriate measures in case of contaminated fluids.

DISPOSAL

Disposal of the product shall be performed by trained and properly equipped personnel, taking in consideration the material of each component of the valve, any eventual contamination of the fluid, and according to the local and currently valid legislation.

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