

ENGINEERING
TOMORROW

Danfoss

Global Master Catalog

Flexmaster® joint connectors

Conveying products





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The concept

The Flexmaster range consists of tube/ pipe joints for the low pressure application. They are ideal for producing leak-proof connections between pipe ends. They can also provide compensation for alignment errors of pipes in installations and can absorb relative movement of pipes.

The connector consists of 7 metal components, 2 sealing rings and 4 bolts with self-locking nuts.

The most important components for correct operation of Flexmaster pipe joints are the two sealing rings. They have the following functions:

1. Sealing up to an operating pressure of max. 15 bar with all connectors in product range (see page 12).
2. Compensation of possible alignment errors of pipes to be connected up to $\pm 4^\circ$, up to $\pm 2^\circ$ for EMEA region parts.

3. Compensation for or absorption of vibration.
4. Absorption to a certain degree of axial displacements of pipes caused by temperature fluctuations or external mechanical influences.
5. Chemical resistance to media specified by us.

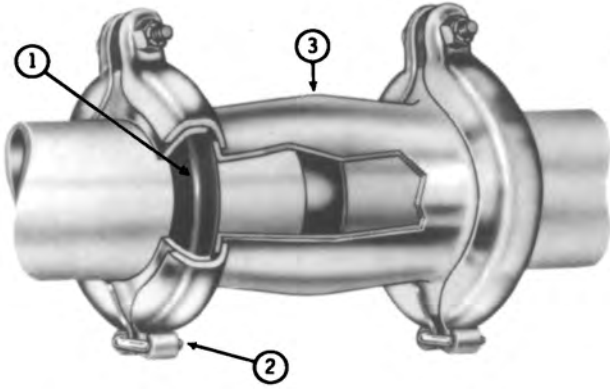
Standard designs of Flexmaster are supplied with sealing rings made of perburian (NBR). These can be used with commercial mineral oils and water at temperatures from -40°C to $+110^\circ\text{C}$ (for brief periods also up to $+120^\circ\text{C}$). With hot air, these sealing rings can be used only at temperatures up to $+70^\circ\text{C}$ (see also temperature table on page 12).

Special sealing rings made of fluorelastomer (FPM) are available for use at higher medium temperatures of up to $+230^\circ\text{C}$.



Features

Flexmaster Joints in Standard and Self-restrained Configurations

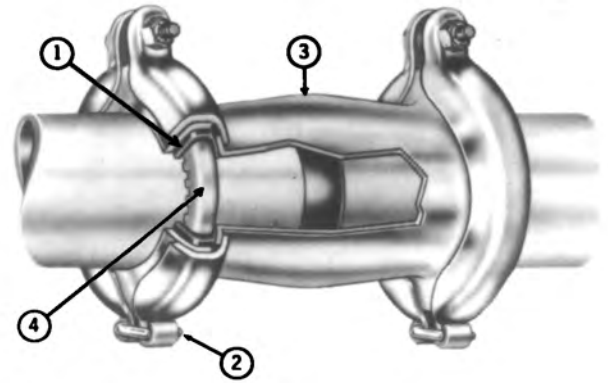


Standard Features

1. Gasket provides compression seal when tightened against tube or pipe.
2. Hinged coupling provides for quick, easy assembly.
3. Bulged sleeve allows for $\pm 4^\circ$ angular misalignment. All gasket materials listed on page 4 are available in the standard style, increasing the number of suitable applications.

Flexmaster joints are available in both standard and self-restrained styles. The self-restrained style has a stainless steel gripping ring inside each gasket. This feature allows the joint to maintain a firm grip on the pipe or tube, preventing movement along the pipe or tube.

The bulged, straight-through Flexmaster joints accommodate angular misalignment up to $\pm 4^\circ$ per end. Tees, elbows, and crosses accommodate angular misalignment up to $\pm 4^\circ$ per end (up to $\pm 2^\circ$ for EMEA parts). See pages 18 thru 25 for the angular misalignment allowed on each specific part. Flexmaster joints are designed for up to 300 psi (20 bar) service, depending on application and size. Refer to pressure ratings on page 13.



Self-Restrained Features

1. Gasket provides compression seal when tightened against tube or pipe.
2. Hinged coupling provides for quick, easy assembly.
3. Bulged sleeve allows for $\pm 4^\circ$ angular misalignment.
4. Notched channel ring which grips pipe firmly to restrict movement along pipe or tubing.

Gasket materials available include the C (Buna-N) and D (EPDM) compounds.

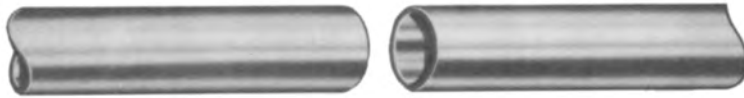
Flexmaster joints absorb vibration and are ideal for making quick connections and disconnections when repairing or disassembling a system. They can be furnished with several types of gasket compounds and sleeve materials, including stainless steel for marine and corrosive applications.

Flexmaster joints are currently in use in thousands of applications throughout the world. For typical Flexmaster joint applications see photos on page 7.

Features

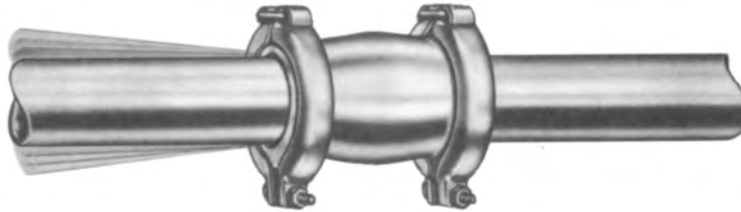
Save Time - Make Pipe And Tube Connection Easier

Used on Plain End Tube or Pipe



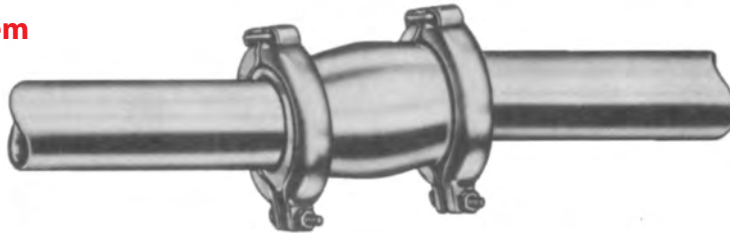
No threading, flanging, welding, grooving or other special end preparation of tube or pipe is required. Use pipe after it is cut to appropriate lengths. The Flexmaster joint will accommodate large tolerances in the length of the gap. See Table 1, page 17 for insertion depth tolerances.

Absorbs Vibration



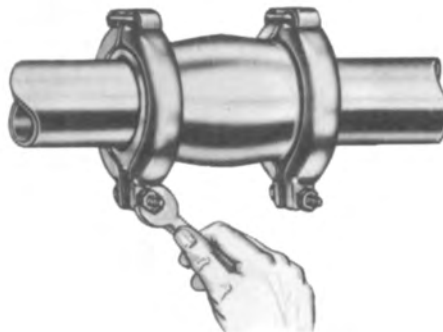
Pipe vibration and noise can be drastically reduced with Flexmaster joints. The resilient, thick rubber of the Flexmaster joint gasket absorbs vibration and noise. Use of the self-restrained style restricts movement along vibrating pipes and tubes.

Even Misaligned Piping is No Problem



The Flexmaster joint design eliminates flanged bolt holes and pipe threads that require careful alignment. The Flexmaster bulged joint permits up to a total of $\pm 4^\circ$ angular installation misalignment at each end while maintaining a leakproof seal.

Easy to Install



Installation time can be slashed by using Flexmaster joints. Basic assembly tools are all that's needed. After extensive use, the gaskets can be replaced easily and quickly. See page 13 for complete assembly instructions.

Possible applications

Many branches of industry use pipe/tube joints for pipeline construction. The following table lists some of the most common possible applications for Aeroquip Flexmaster but is naturally not exhaustive. The table is intended merely to provide users with suggestions for the solution to pipeline-construction problems.

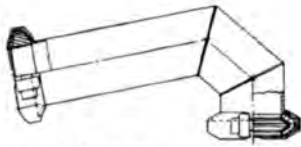
User	Application
Large engine construction	Cooling-water, cooling-air systems
Large gear unit construction	Pipe/tube connection
Railway rolling-stock and locomotive construction, shipbuilding	Piping systems for cooling water, air supply
Heavy machine construction	Coolant lines, suction lines
Construction machinery, machine tools, pumps, conveyor systems, general machine construction	Hydraulic lines in low-pressure and suction systems
Chemical plant construction	Lines for water-treatment systems and similar
Power-station construction and boilermaking	General piping systems
Compressor construction	Connection of air lines
Refineries	Piping for supply systems
Repair workshops, fitters, etc.	Repair of defective pipelines without welding e. g. in cases where explosion hazard is present



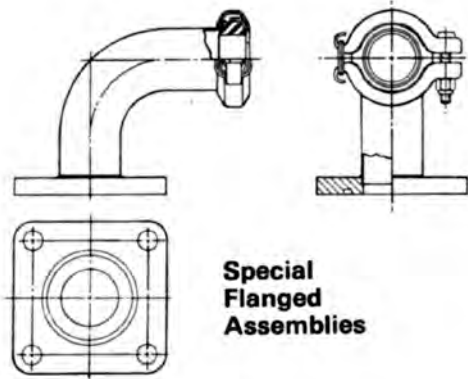
Special configurations

Made to Order

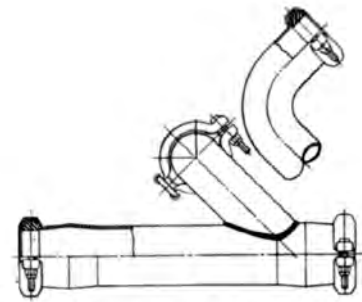
Special Configurations and Seal Materials Can Be Ordered



**Salt Water,
All 316 Stainless**



**Special
Flanged
Assemblies**



Lube Oil, Special Configuration

Flexmaster joints can be produced with various configurations and terminal end designs. A few of the special Flexmaster joint configurations which have been manufactured by Danfoss are displayed above. Please consult us when ordering specials.

Special configurations

Example of special characteristics

Special lengths

Special lengths for the standard tube diameters shown in this catalog are available on request in the following steps:

Standard length up to 200 mm: steps of 50 mm

>200 mm:

steps of 100 mm

Special designs

Special Flexmaster designs (i.e. welding-halves) might be available on request.

Special seals

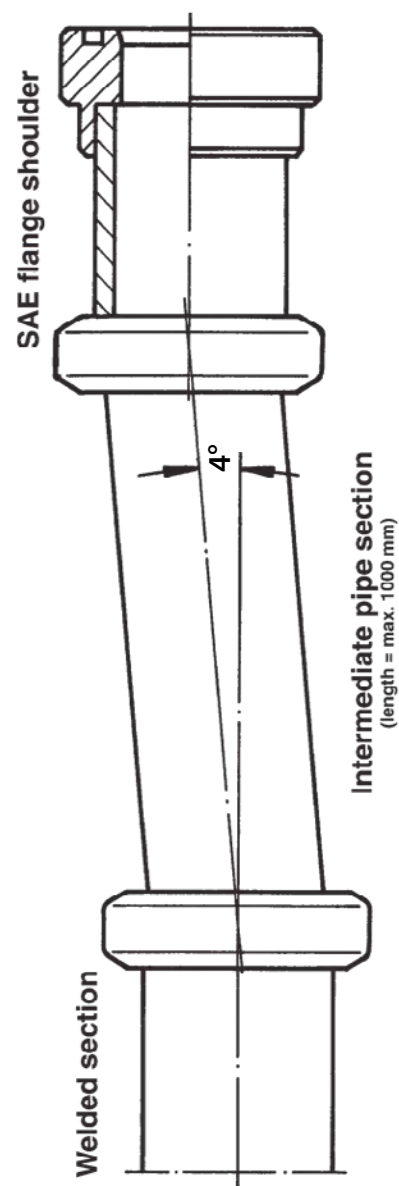
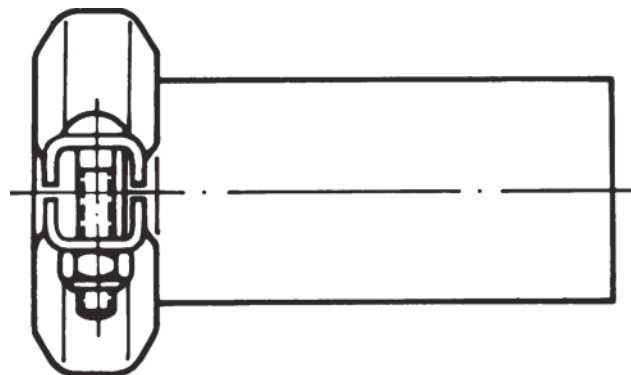
Other materials beside NBR and FPM are available on request.

For the use on inch-size tubes special "self restrained" NBR seals are available on request.

Special materials

Solutions for special applications such as use with seawater or fresh water without additives are available on request.

Please contact Danfoss Service for details regarding special requests.



Planning and routing

In cases where it is planned to use Flexmaster in a piping system, the first step must be to answer the following questions:

1. **How high is the maximum pressure?**
2. **What compensation is required for alignment errors of the pipe ends?**
3. **How large will the axial movements of the pipes be?**
4. **What frequencies must be expected (e. g. with motor cooling systems)?**
5. **What medium and what temperature are to be used in the installation?**

The following pages are intended to help you plan the use of Flexmaster pipe connectors correctly with regard to these factors and to ensure that the connectors will operate satisfactorily when fitted.

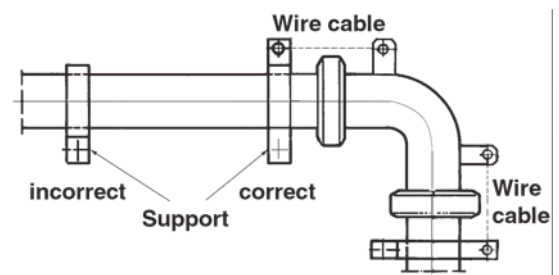
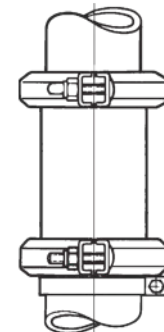
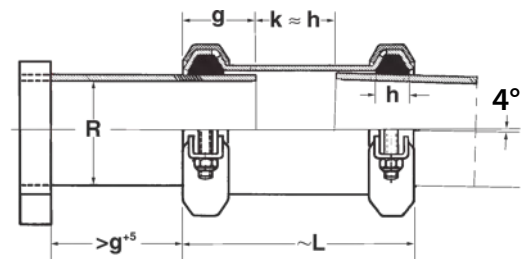
In order to obtain correct operation after installation, the following should be taken into account when planning piping systems:

Flexmaster pipe joints must always be installed in such a way that they are accessible for periodic inspection.

During routing, it must be possible to push the Flexmaster sleeve onto the ends of the pipes to be connected before the pipes are permanently installed. The standard length should therefore be chosen in such a way that the minimum pipe-to-pipe distance "k" is sufficiently large to allow replacement of sealing rings without dismantling the pipes. Care should be taken to maintain the minimum insertion depth of the pipe ends "g".

At installation angles more than 45° to the vertical, Flexmaster must be secured by clips to prevent slipping.

During the routing of the elbow design of Flexmaster (45° or 90°), care must be taken with high liquid velocities to position the pipe support as close as possible to the pipe ends. The fitting of an additional support to prevent pulling away will ensure trouble-free operation even where high pulling away forces are present.



Assembly Instructions

Pipe and Tubing Preparation and Flexmaster Joint Installation Instructions

1. Pipe (Tube) End Preparation

- Deburr and clean pipe (tube) ends.
- Surface should be free of deep scratches, gouges, dents, dirt, etc.

2. Joint Installation

- Install retainer (1), gasket* (2) and sleeve (3) on one side of pipe in sequence shown in Figure 1.

- Install remaining retainer (4) and gasket (5) on other pipe end.
- Position retainer (4) and gasket (5) to proper pipe insertion depth ("D") as shown in Table 1.
- Slide sleeve (3) to gasket (5) and move gasket (2) and retainer (1) into position as shown in Figure 2. Pipe must be inserted to proper depth ("D") into both gaskets as shown in Table 1.

3. Special Notes

- Assembly of gaskets can be made easier by dipping gaskets in water or the fluid to be sealed. The use of other rubber lubricants can be detrimental to the life of the gaskets. Never lubricate the metal parts.
- Self-restrained gasket installation. To simplify installation of a self-restrained gasket, install lower gasket halfway onto the pipe first, leaving the split area in the steel retaining ring free at the top. See Figure 3. Then, stretch the gasket and split area of the retaining ring until they slip over the tube or pipe and into position. Refer to Figure 3.

4. Coupler Installation

- Install both V-couplings, encompassing the retainer, gasket and sleeve as shown in Figure 4. Do not tighten either coupling until the entire joint is assembled (See Figure 2). Tighten nuts to the torque specified in Table 2. Do NOT lubricate the nut or bolt before assembly. The gap method outline in Table 3 may be used for standard gaskets only.

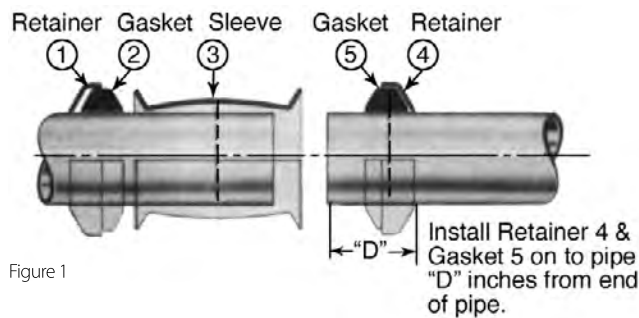


Figure 1

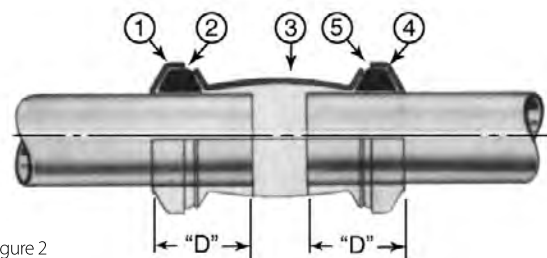


Figure 2

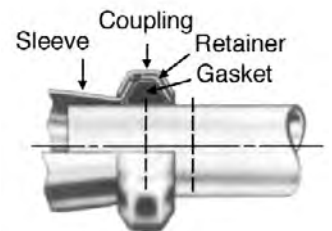
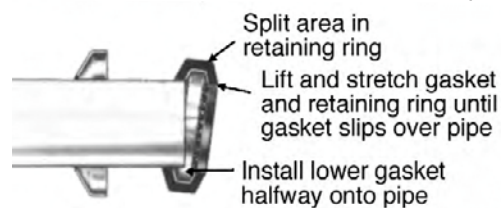


Figure 4



in notched retention ring sket is shown cut-away for clarity)



Figure 3

Attention: We recommend that the self-locking nuts should be replaced if they have been unscrewed and retightened several times.



WARNING Maximum temperature ratings are meant as a guide only. For extreme temperature conditions, consult factory. Improper installation, use or selection of the Flexmaster joints can result in personal injury, property damage or death.

Operating pressure, chemical resistance, temperatures

In order to achieve a correct seal at the maximum operating pressure (15 bar), the pipe ends to be connected must be supported in such a way that any displacement forces which occur do not need to be absorbed by the sealing rings. The sealing rings cannot prevent the pipe ends from being pulled out of the Flexmaster. Under certain circumstances, protection against pulling-away must be provided.

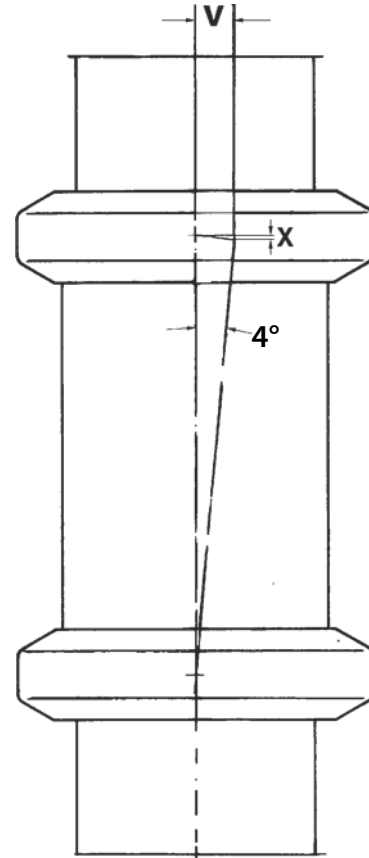
If vibration is present, both radial (V) and axial (X) displacement of the pipe ends will occur; this must be absorbed by the sealing rings. Axial displacement is thus limited by the elasticity of the sealing rings; all Flexmaster connectors are nonetheless designed to be operated at the full operating pressure of 15 bar, even when the sealing rings are subjected to a flexing load (see below).

The temperature values given opposite refer to the chemical resistance of the standard perbunan (NBR) sealing rings.

Medium	Temperature
Commercial fuels	-40°C to + 40°C
Water, especially cooling water with additives	-35°C to + 95°C
Heating oils	-40°C to +110°C
Com. mineral oils, e. g. hydraulic fluids and lubricating oils	-40°C to +110°C
Air	-40°C to + 70°C
Waste water	Please consult us

For special applications such as those listed on the right, we recommend fluorelastomer (FPM) sealing rings, particularly at high temperatures (up to +230°C) or with aggressive media. Please consult us if necessary.

Medium	Temperature
Special gearbox oil	Please consult us, specifying oil type and temperature
Heavy heating oil	-30°C to +150°C
Warm air	-30°C to +150°C



Surface protection of metal components

All Flexmaster components with the exception of sealing rings are generally made of steel with a galvanised surface (coating approx. 10-15 µ).

Technical Data

Gasket Temperature Ratings**

C BUNA-N (Standard)	water	-25° F. to +180° F. (-32° C. to +82° C.)
	oils	-25° F. to +215° F. (-32° C. to +121° C.)
V Fluorocarbon		-25° F. to +450° F. (-32° C. to +232° C.)
S Silicone		-65° F. to +350° F. (-54° C. to +177° C.)
D EPDM	water and water/glycol mixture	+20° F. to +275° F. (+29° C. to +137° C.)
G Mineral Fiber Non-asbestos		+70° F. to +1200° F. (+21° C. to +649° C.)
N BUNA-N (High temp.)	water and steam	-25° F. to +225° F. (-32° C. to +107° C.)
	oils	-25° F. to +250° F. (-32° C. to +121° C.)

** Maximum temperature ratings are meant as a guide only.
For extreme temperature conditions, consult factory.

Vacuum Ratings*

Size Range Pipe	Tube	Standard Gasket	Self-Restrained Gasket
All sizes	All sizes	25 in. Hg. 1.79 bar	25 in. Hg.

NOTE:

° F, inches, in. Hg., psi in bold

° C, mm, bar, MPa in light

Danfoss Gasket Identifier Chart

Gasket Designation Color Patch	Gasket Compound	Identifying Color
C	Buna N (std)	Black
N	Buna N (high temp)	Black
D	EPDM	Black
V	Fluorocarbon	Black
S	Silicone	Rust Orange
B***	Butyl	Off White
G***	Mineral Fiber	Metallic Silver

*** Obsolete

Pressure Ratings*

Size Range Pipe	Tube	Standard Gasket	Self-Restrained Gasket
3/8 - 3/4	1/2 - 1 3/8 12.7 - 35.1	300 psi (20 bar)	300 psi (20 bar)
1-2	1 1/2 - 2 1/2 38.1 - 63.5	200 psi (14 bar)	200 psi (14 bar)
2 1/2 - 6	3 - 6 76.2 - 152.4	150 psi (10 bar)	150 psi (10 bar)

*Warning: The Flexmaster joint is designed to seal pipe and tube connections. The Flexmaster joint is not intended to hold piping systems together. Normal hangers, guides, anchors and other external piping restraints must be used to restrain the piping or tubing system from movement.

For EMEA part numbers the maximum operating pressure is at 218 psi (15 bar).

Pipe and tube materials which can be connected by Flexmaster joints*

Pipe or Tube Material	Standard Gasket	Self-Restrained Gasket**
Carbon Steel	X	X
Stainless Steel	X	X
Aluminum	X	Not Recommended
P.V.C. (Plastic)	X	Not Recommended
Copper	X	Not Recommended

* All piping and tubing connected by Flexmaster joints must meet the nominal O.D. dimensions presented on pages 20 - 27.

** Piping and Tubing, which use self-restrained gaskets, must have a hardness between 45-85 on a Rockwell "B" scale (45 - 85 Rb).

Technical Data

Gasket Selector Chart

Gasket Material: C – BUNA-N (standard)
 D – EPDM
 N – BUNA-N
 (high temperature)
 V – Fluorocarbon
 S – Silicone

Key: G – GOOD
 F – FAIR
 – Not Recommended

An important consideration in the selection of a gasket material is to avoid undesirable chemical reaction between the agent carried and the gasket material. The gasket selector chart indicates the compound most serviceable in specific agents.

FLUID	GASKET MATERIAL			
	D	C/N	V	S
Acetic Acid (concentrated) RT	F	F	G	F
Acetic Acid (dilute) RT (to 10%)	F	F	G	G
Acetic Acid Vapors	F	F	F	F
Acedit Anhydride	-	F	-	F
Acetone	G	-	-	F
Acetylene	G	G	G	F
Air	G	G	G	G
Air (Hot) 215°	G	F	G	G
Alcohols, Aliphatic	G	F	G	G
Alcohols, Aromatic	F	-	F	F
Alkaline Solutions (Hydroxides)	F	G	F	G
Aluminum Salt solutions	G	G	G	G
Ammonia Gas (Cold)	G	G	-	-
Ammonia, Liquid (Anhydrous)	G	G	-	F
Ammonia Aqueous	G	F	-	G
Ammonium Salt Solutions	G	G	F	F
Aniline Dyes	F	-	G	F
Aniline Oils	F	-	F	F
Asphalt	-	-	G	-
Benzine (Gasoline)	-	G	G	-
Bromine	-	-	G	-
Butylene	-	F	G	-
Calcium Hypochlorite (no free Chlorine)	G	-	G	F
Calcium Salt solutions	G	G	G	F
Carbolic Acid (Phenol) RT or Hot	F	-	G	-
Carbon Dioxide (Dry)	G	G	F	F
Carbonic Acid	G	F	G	G
Carbon Disulphide RT	-	-	G	-
Carbon Tetrachloride RT	-	-	G	-
Chlorinated Solvents	-	-	G	G
Chlorine (Dry)	-	-	G	-
Chlorine (wet or solutions)	F	-	G	-
Cottonseed Oil	G	G	G	G
Creosote (wood or coal tar)	-	G	G	-
Chromic Acid 50%	-	F	G	-
Citric Acid	G	G	G	G
Copper Salt Solutions	G	F	G	G
Diesel Fuel	-	G	G	-
Ethers RT	F	F	G	-
Ethylene Glycol	G	G	G	G
Ethylene Dichloride	-	-	G	G
Ferric Salt Solutions	G	G	G	G
Ferrous Salt Solutions	G	G	G	G
Formaldehyde RT	F	-	-	G
Fuel Oil	-	G	F	-
Furfural	G	-	-	-
Freon 12 (Refrigerant)	G	G	G	-
Freon 13 (Refrigerant)	F	G	G	-
Gasoline (Sour or refined)	-	G	G	-
Glycerin (Glycerol)	G	G	G	G
Heptane	-	G	G	-
Hexane	-	G	G	-

FLUID	GASKET MATERIAL			
	D	C/N	V	S
Hydraulic Oils	-	G	G	-
Straight Petroleum Base	-	-	-	-
Water Petroleum Emulsion	-	G	G	F
Water Glycol	G	G	G	F
Straight Phosphate Ester	G	-	F	F
Phosphate Ester/Petroleum Blend	-	-	F	-
Ester Blend	G	G	F	F
Silicone Oils	G	G	G	-
Hydrochloric Acid RT	G	F	G	-
Hydrofluoric Acid (48% sol) RT	-	-	G	-
Hydrolube	G	G	G	F
Hydrogen Peroxide (dilute)	F	F	G	G
Hydrogen Peroxide (concentrated)	-	-	F	F
Hydrogen Sulfide (dry) RT	F	F	-	-
Hydrogen Sulfide (wet) RT	F	-	G	-
Hypochlorite Solutions (no free Chlorine)	G	F	G	F
Kerosene RT	-	G	G	-
Linseed Oil	-	G	G	-
Lube Oil (Mineral)	-	G	G	-
Lubricating Oils (Diester Base)	-	F	G	-
Magnesium Salt Solutions	G	G	G	G
Mercuric Chloride	G	G	G	-
Mercury	G	G	G	F
Mineral Oil	-	G	G	G
Naphtha	-	F	G	-
Napthalene	-	-	G	-
Nitric Acid (less than 20%)	F	-	G	-
Oleic Acid	-	G	F	-
Oxalic Acid	G	F	G	F
Oxygen, Gaseous	G	F	G	G
Paraffin	-	G	G	F
Petroleum Oils (Sour or Refined)	-	G	G	-
Phosphoric Acid (Commercial)	G	-	G	-
Potassium Salt Solutions	G	G	G	G
Pydraul C Series, F	F	-	G	F
Pydraul F Series	G	-	-	-
Sodium Salt solutions	G	G	G	F
Steam	F	-	-	-
Sulfur	G	-	-	-
Sulfur Dioxide (wet or dry)	G	-	-	F
Sulfuric Acid (10-75%)	F	-	G	-
Sulfuric Acid (75-95%)	-	-	G	-
Sulfuric Acid (95%) RT	-	-	G	-
Sulfurous Acid	-	F	G	-
Tannic Acid	F	G	F	F
Trichlorethylene	-	-	G	-
Turpentine	-	F	G	-
Vegetable Oils	G	G	G	G
Water (fresh or salt) cold	G	G	G	G
Water (fresh or salt) hot +215° F. max.	G	!!	G	-
Xylene	-	-	G	-
Zinc Salt Solutions	G	G	G	G

!! C maximum +180° F, N maximum +225° F.

Technical data for EMEA part designs

Alignment errors, absorption of movement

If an alignment error (V) of the pipes to be connected is present, the Flexmaster sleeve must not touch the pipe ends. The permissible alignment error is determined by the insertion depth of the pipe ends (g) and the permissible angle of $\pm 2^\circ$ (see illustration and graph).

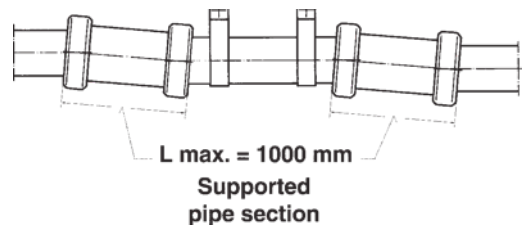
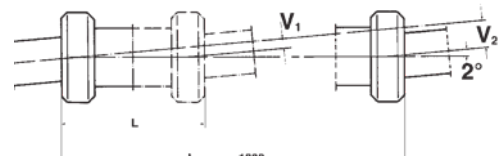
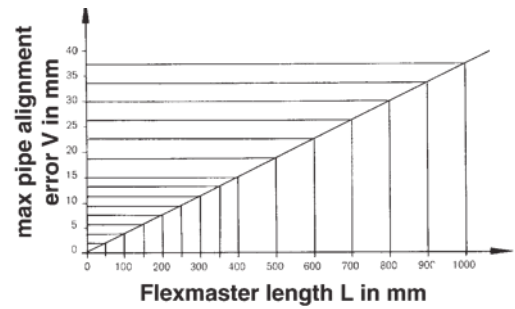
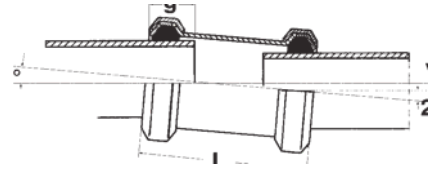
All sizes of Flexmaster are designed in such a way as to allow an alignment error of $\pm 2^\circ$. However, if this is exceeded, an appropriately longer Flexmaster sleeve must be selected. This must also be done in cases where pipes in intrinsically correct alignment could be misaligned by vibration.

The illustration opposite shows how to determine the Flexmaster length "L" in relation to "V1" and "V2" while maintaining an angle of $\pm 2^\circ$.

Straight designs of Flexmaster are available up to a maximum length "L" of 1000 mm. If a total length of more than 1000 mm is essential, please use 2 Flexmaster connectors with an intermediate pipe section. This intermediate pipe section must be supported.

The pipes to be used must have wall thicknesses at least equal to those listed opposite to ensure that they are not deformed by any movements which occur.

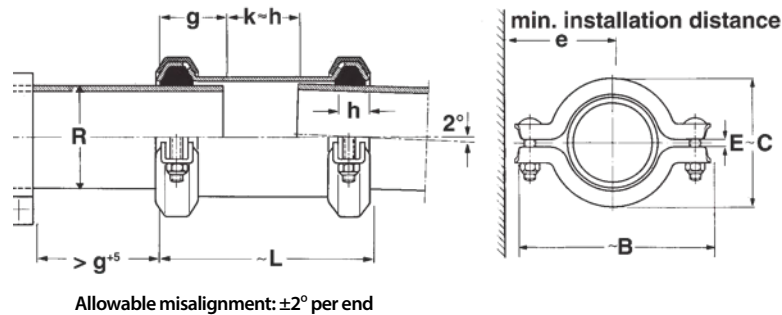
The pipe ends must have a smooth surface at least at the seal seats in order to ensure correct operation.



Ext. pipe dia. Ø	Wall thickness
12- 25 mm	1,0 mm
18-120 mm	1,5 mm

Flexmaster, straight

Pipe dia. R acc. to DIN		FLEXMASTER, complete with NBR seal		FLEXMASTER, complete with FPM seal		Dimensions in mm						Weight approx. [kg]		
2391	2441	Part No.	DB Code	Part No.	DB Code	b	C	e	E		g	h	L	
2448	2442								min.	max.				
18	1/2"	GM10002-018	F-18P/57	GM10202-018	F-18V/57	74	43	43	2	5	20	14,4	57	0.230
20		GM10002-020	F-20P/57	GM10202-020	F-20V/57	74	43	43	2	5	20	14,4	57	
21,3		GM10002-8	F-1/2P/57	GM10202-8	F-1/2V/57	74	43	43	2	5	20	14,4	57	
22		GM10002-022	F-22P/57	GM10202-022	F-22V/57	74	43	43	2	5	20	14,4	57	
24	3/4"	GM10003-024	F-24P/64	GM10203-024	F-24V/64	81	49	46	2	5	20	14,4	64	0.280
25		GM10003-025	F-25P/64	GM10203-025	F-25V/64	81	49	46	2	5	20	14,4	64	
26,9		GM10003-12	F-3/4P/64	GM10203-12	F-3/4V/64	81	49	46	2	5	20	14,4	64	
28	1"	GM10004-028	F-28P/73	GM10204-028	F-28V/73	101	62	57	4	8	25	17,7	73	0.470
30		GM10004-030	F-30P/73	GM10204-030	F-30V/73	101	62	57	4	8	25	17,7	73	
32		GM10004-032	F-32P/73	GM10204-032	F-32V/73	101	62	57	4	8	25	17,7	73	
33,7		GM10004-16	F-1P/73	GM10204-16	F-1V/73	101	62	57	4	8	25	17,7	73	
35	1 1/4"	GM10005-035	F-35P/76	GM10205-035	F-35V/76	106	67	60	4	8	25	17,7	76	0.560
38		GM10006-038	F-38P/83	GM10206-038	F-38V/83	112	71	63	4	8	25	17,7	83	
40		GM10006-040	F-40P/83	GM10206-040	F-40V/83	112	71	63	4	8	25	17,7	83	
42		GM10006-042	F-42P/83	GM10206-042	F-42V/83	112	71	63	4	8	25	17,7	83	
42,4	1 1/2"	GM10006-20	F-11/4P/83	GM10206-20	F-11/4V/83	112	71	63	4	8	25	17,7	83	0.800
45		GM10007-045	F-45P/89	GM10207-045	F-45V/89	118	77	65	4	8	25	17,7	89	
48,2		GM10007-24	F-11/2P/89	GM10207-24	F-11/2V/89	118	77	65	4	8	25	17,7	89	
50	1 3/4"	GM10008-050	F-50P/89	GM10208-050	F-50V/89	120	80	67	4	8	25	17,7	89	0.670
51		GM10008-32	F-T2P/89	GM10208-32	F-T2V/89	120	80	67	4	8	25	17,7	89	

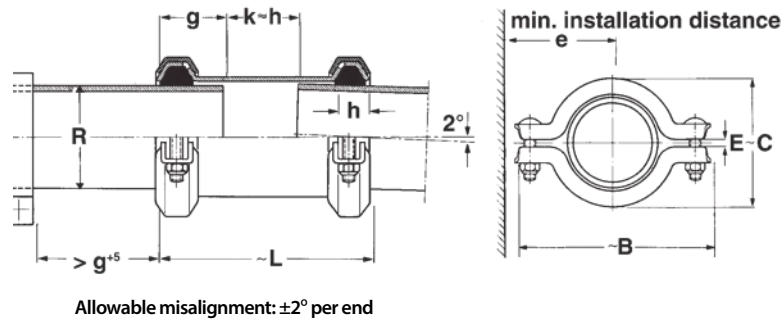


Flexmaster Individual Components

1 Sleeve		2 Seal				3 Seal retainer		4 Clamp complete with bolts	
		NBR		FPM					
Part No.	DB Code	Part No.	DB Code	Part No.	DB Code	Part No.	DB Code	Part No.	DB Code
GM90002-8	H18-22/57=1/2	GM90210-018	P18	GM90208-018	V18	GM90206-8	D18-22=1/2	GM90203-8	S18-22=1/2
GM90002-8	H18-22/57=1/2	GM90210-020	P20	GM90208-020	V20	GM90206-8	D18-22=1/2	GM90203-8	S18-22=1/2
GM90002-8	H18-22/57=1/2	GM90210-8	P1/2	GM90208-8	V 1/2	GM90206-8	D18-22=1/2	GM90203-8	S18-22=1/2
GM90002-8	H18-22/57=1/2	GM90210-022	P22	GM90208-022	V22	GM90206-8	D18-22=1/2	GM90203-8	S18-22=1/2
GM90003-12	H24-26/64=3/4	GM90210-024	P24			GM90206-12	D24-26=3/4	GM90203-12	S24-26=3/4
GM90003-12	H24-26/64=3/4	GM90210-025	P25	GM90208-025	V25	GM90206-12	D24-26=3/4	GM90203-12	S24-26=3/4
GM90003-12	H24-26/64=3/4	GM90210-12	P3/4	GM90208-12	V3/4	GM90206-12	D24-26=3/4	GM90203-12	S24-26=3/4
GM90004-16	H28-32/73=1	GM90210-028	P28	GM90208-028	V28	GM90206-16	D28-32=1	GM90203-16	S28-32=1
GM90004-16	H28-32/73=1	GM90210-030	P30	GM90208-030	V30	GM90206-16	D28-32=1	GM90203-16	S28-32=1
GM90004-16	H28-32/73=1	GM90210-032	P32			GM90206-16	D28-32=1	GM90203-16	S28-32=1
GM90004-16	H28-32/73=1	GM90210-16	P1	GM90208-16	V1	GM90206-16	D28-32=1	GM90203-16	S28-32=1
GM90005-22	H35/76=T1 ³ /8	GM90211-22	P35=T1 ³ /8	GM90209-22	V35=T1 ³ /8	GM90207-22	D35=T1 ³ /8	GM90204-22	S35=T1 ³ /8
GM90006-20	H37-42/83=1 ¹ /4	GM90210-038	P38	GM90208-038	V38	GM90206-20	D37-42=1 ¹ /4	GM90203-20	S37-42=1 ¹ /4
GM90006-20	H37-42/83=1 ¹ /4	GM90210-040	P40			GM90206-20	D37-42=1 ¹ /4	GM90203-20	S37-42=1 ¹ /4
GM90006-20	H37-42/83=1 ¹ /4	GM90210-20	P42=1 ¹ /4			GM90206-20	D37-42=1 ¹ /4	GM90203-20	S37-42=1 ¹ /4
GM90006-20	H37-42/83=1 ¹ /4	GM90210-20	P42=1 ¹ /4			GM90206-20	D37-42=1 ¹ /4	GM90203-20	S37-42=1 ¹ /4
GM90007-24	H45/89=1 ¹ /2	GM90210-045	P45	GM90208-045	V45	GM90206-24	D45=1 ¹ /2	GM90203-24	S45=1 ¹ /2
GM90007-24	H45/89=1 ¹ /2	GM90210-24	P1 ¹ /2			GM90206-24	D45=1 ¹ /2	GM90203-24	S45=1 ¹ /2
GM90008-32	H50/89=T2	GM90211-050	P50	GM90209-050	V50	GM90207-32	D50=T2	GM90204-32	S50=T2
GM90008-32	H50/89=T2	GM90211-32	PT2	GM90209-32	VT2	GM90207-32	D50=T2	GM90204-32	S50=T2

Flexmaster, straight

Pipe dia. R acc. to DIN	FLEXMASTER, complete with NBR seal		FLEXMASTER, complete with FPM seal		Dimensions in mm								Weight approx. [kg]	
	Part No.	DB Code	Part No.	DB Code	E		g		h	L				
2391 2441 2448 2442					b	C	e	min.	max.	min.				
55	GM10009-055	F-55P/102	GM10209-055	F-55V/102	135	89	75	4	8	25	37	17,7	102	
57	GM10009-057	F-57P/102	GM10209-057	F-57V/102	135	89	75	4	8	25	37	17,7	102	
58 2"	GM10009-058	F-58P/102	GM10209-058	F-58V/102	135	89	75	4	8	25	37	17,7	102	0.720
60	GM10009-060	F-60P/102	GM10209-060	F-60V/102	135	89	75	4	8	25	37	17,7	102	
60,3	GM10009-32	F-2P/102	GM10209-32	F-2V/102	135	89	75	4	8	25	37	17,7	102	
63,5	GM10010-40	F-T2 ¹ / ₂ P/102	GM10210-40	F-T2 ¹ / ₂ V/102	137	96	70	8	12	25	37	17,7	102	0.780
65 2	GM10010-065	F-65P/102			137	96	70	8	12	25	37	17,7	102	
70 1/2"	GM10011-070	F-70P/165	GM10211-070	F-70V/165	175	122	95	8	12	40	51	30	165	2.4
73	GM10011-40	F-2 ¹ / ₂ P/165	GM10211-40	F-2 ¹ / ₂ V/165	175	122	95	8	12	40	51	30	165	
75	GM10012-075	F-75P/127	GM10212-075	F-75V/127	178	125	95	8	12	40	51	30	127	
76,1	GM10012-48	F-T3P/127	GM10212-48	F-T3V/127	178	125	95	8	12	40	51	30	127	2.8
80/1	GM10012-080	F-80P/127	GM10212-080	F-80V/127	178	125	95	8	12	40	51	30	127	
88,9 3"	GM10011-48	F-3P/165	GM10211-48	F-3V/165	191	133	102	8	12	40	51	30	165	3.1
90	GM10011-090	F-90P/165	GM10211-090	F-90V/165	191	133	102	8	12	40	51	30	165	
100 3	GM10011-100	F-100P/165			203	151	110	8	12	40	51	30	165	3.4
101,6 1/2"	GM10011-56	F-3 ¹ / ₂ P/165			203	151	110	8	12	40	51	30	165	
108	GM10011-108	F-108P/165	GM10211-108	F-108V/165	218	165	115	8	12	40	51	30	165	
110 4"	GM10011-110	F-110P/165	GM10211-110	F-110V/165	218	165	115	8	12	40	51	30	165	3.7
114,3	GM10011-64	F-4P/165	GM10211-64	F-4V/165	218	165	115	8	12	40	51	30	165	
127	GM10013-80	F-T5P/165			230	174	120	8	12	40	51	30	165	4.1



Flexmaster Individual Components

1 Sleeve		2 Seal				3 Seal retainer		4 Clamp complete with bolts	
		NBR		FPM					
Part No.	DB Code	Part No.	DB Code	Part No.	DB Code	Part No.	DB Code	Part No.	DB Code
GM90009-32	H55-60/102=2	GM90210-055	P55	GM90208-055	V55	GM90206-32	D55-60=2	GM90203-32	S55-60=2
GM90009-32	H55-60/102=2	GM90210-057	P57	GM90208-057	V57	GM90206-32	D55-60=2	GM90203-32	S55-60=2
GM90009-32	H55-60/102=2	GM90210-058	P58			GM90206-32	D55-60=2	GM90203-32	S55-60=2
GM90009-32	H55-60/102=2	GM90210-32	P60=2			GM90206-32	D55-60=2	GM90203-32	S55-60=2
GM90009-32	H55-60/102=2	GM90210-32	P60=2			GM90206-32	D55-60=2	GM90203-32	S55-60=2
GM90010-40	H65/102=T2 ^{1/2}	GM90211-40	PT2 ^{1/2}			GM90207-40	D65=T2 ^{1/2}	GM90204-40	S65=T2 ^{1/2}
GM90010-40	H65/102=T2 ^{1/2}	GM90211-065	P65			GM90207-40	D65=T2 ^{1/2}	GM90204-40	S65=T2 ^{1/2}
GM90011-40	H70/165=2 ^{1/2}	GM90210-070	P70	GM90208-070	V70	GM90206-40	D70=2 ^{1/2}	GM90203-40	S70=2 ^{1/2}
GM90011-40	H70/165=2 ^{1/2}	GM90210-40	P2 ^{1/2}			GM90206-40	D70=2 ^{1/2}	GM90203-40	S70=2 ^{1/2}
GM90012-48	H75-80/127=T3	GM90211-075	P75	GM90209-075	V75	GM90207-48	D75-80=T3	GM90204-48	S75-80=T3
GM90012-48	H75-80/127=T3	GM90211-48	PT3	GM90209-48	VT3	GM90207-48	D75-80=T3	GM90204-48	S75-80=T3
GM90012-48	H75-80/127=T3	GM90211-080	P80	GM90209-080	V80	GM90207-080	D75-80=T3	GM90204-48	S75-80=T3
GM90011-48	H89-90/165=3	GM90210-48	P89=3	GM90208-48	V89=3	GM90206-48	D89-90=3	GM90203-48	S89-90=3
GM90011-48	H89-90/165=3	GM90210-090	P90	GM90208-090	V90	GM90206-48	D89-90=3	GM90203-48	S89-90=3
GM90011-56	H100/165=3 ^{1/2}	GM90210-100	P100			GM90206-56	D100=3 ^{1/2}	GM90203-56	S100=3 ^{1/2}
GM90011-56	H100/165=3 ^{1/2}	GM90210-56	P3 ^{1/2}	GM90208-56	V3 ^{1/2}	GM90206-56	D100=3 ^{1/2}	GM90203-56	S100=3 ^{1/2}
GM90011-64	H108-110/165=4	GM90210-108	P108	GM90208-108	V108	GM90206-64	D108-110=4	GM90203-64	S108-110=4
GM90011-64	H108-110/165=4	GM90210-110	P110	GM90208-110	V110	GM90206-64	D108-110=4	GM90203-64	S108-110=4
GM90011-64	H108-110/165=4	GM90210-64	P4	GM90208-64	V4	GM90206-64	D108-110=4	GM90203-64	S108-110=4
GM90013-80	H120-127/165=T5	GM90211-80	PT5			GM90207-80	D120-127=T5	GM90204-80	S120-127=T5



ENGINEERING
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