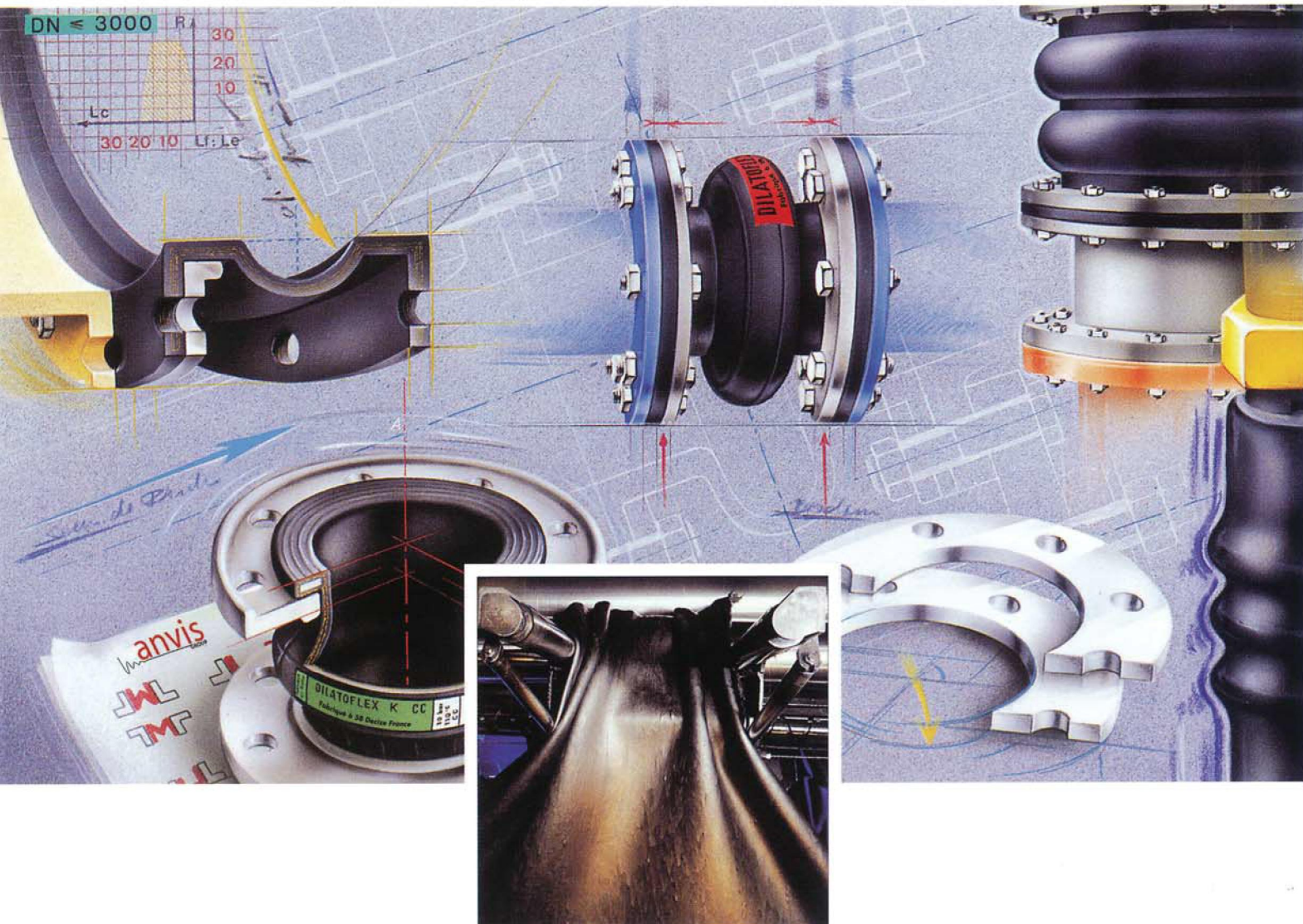


DILATOFLEX®

REINFORCED RUBBER EXPANSION JOINTS

RKG



www.dilatoflex.com

A complete Range Tailored to Your

Key Advantages

anvis France Decize-designed expansion joints are flexible reinforced elastomer components used in piping systems to meet the following major needs:

- protect piping from dimensional variations
- protect equipment from vibration
- protect equipment from water hammer
- facilitate installation and removal
- facilitate connections between pipes
- improve man's comfort by reducing sound transmission

EXPANSION JOINT RANGE AND STYLES

KLEDIL®



K

DILATOFLEX®

KP

KT



DILATOFLEX®

NT

NT1

NT2



DILATOFLEX®

N



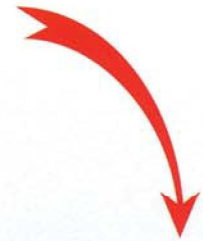
DILATOFLEX®

M



Expansion joints have one or more arches to provide compensating functions and anti-vibration and sound insulation. Their ends are threaded, flanged or beaded to form a tight seal against the matching pipe flanges.

Expansion joints consist of :
 - a rubber lining compounded to resist the fluid being conveyed
 - a carcass of highly resistant textile or steel cord layers
 - an outer rubber cover with excellent resistance to ageing.



		Nominal Diameter ND (in mm)	Max. W.P. (in bar)	
KLEDIL®		20 to 50	12 to 7	
	K	32 to 300	16 to 6	
		KP	32 to 300	25
DILATOFLEX®	KT	32 to 300	16 to 6	
	NT	20 to 32	12	
	NT 1	40 to 450	16	
		NT 2	250 to 450	16
	N	500 to 3000	≥ 10	
	M	MD	500	8 to 4
		MS	to	
MA		2600		
MB				

DATA FOR EXPANSION JOINT SELECTION

1) Diameter :
 Length :

2) Drilling standard :

3) Maximum working pressure :
 Maximum vacuum :


4) Fluid type :

5) Temperature :


6) Axial movement :
 Lateral movement :
 yes no

7) Anchors
 Number :
 Location :

Expansion Joints Requirements



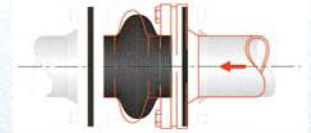
Standard Ends	Range of grades										
	CC	DW	EPC	ES	AR/CN	GZ	HH	YP	AB	TE	F1
Threaded (BSP)	■	■	■		■						
Floating flanges	■	■			■						
Floating flanges		■			■					■	
Flanges with integrated tie bars	■	■			■						
Flanges	■		■	■	■			■	■	■	
Flanges	■		■	■	■			■	■	■	
Flanges	■		■	■	■			■	■	■	
Flanges		■	■	■	■	■	■	■	■	■	■
Flanges		■	■	■	■	■	■	■	■	■	■

LINING GRADE IDENTIFICATION COLOUR AND DESIGNATION	TYPICAL APPLICATIONS	W.T. WORKING TEMPERATURES	
		MIN.	MAX.
CC Green label	Central heating and air-conditioning water	- 35 °C	+ 90 / 110 °C
DW Blue label	Drinking water Hot water, cold water, domestic water	- 25 °C	+ 105 °C
EPC Cream label	Domestic hot and cold water Food products	- 25 °C	+ 95 °C
ES steel carcass	Superheated water Water vapour	- 35 °C	+ 140 °C
AR/CN Red label	Abrasive or corrosive products (Weak acids and bases) Industrial water – Sea water Low temperature water vapour	- 35 °C	+ 90 °C
GZ Orange label	Gas – Compressed air – Oil – Fuel Petroleum products with aromatic content < 40% Sanitation Water	- 20 °C	+ 90 °C
HH Blue label	Industrial and waste water Compressed air Hydrogen gas, nitrogen	- 20 °C	+ 90 °C
YP Yellow label	Strong acids and bases Aggressive chemicals	- 25 °C	+ 100 °C
AB Gey label	Acids and bases Weak chlorinated products	- 35 °C	+ 100 °C
TE Mauve label	Industrial water Acidulated water Diluted acids and bases	- 25 °C	+ 100 °C
F1 White label	Special highly aggressive products  PTFE liner (Working Pressure limited to 6 bar max.)	- 35 °C	+ 110 °C

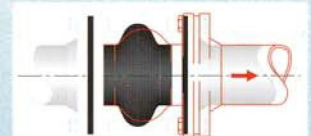
The inner lining to be used for a specific fluid (composition, concentration, temperature, etc.) should be selected according to our Chemical Resistance Chart.

For special working conditions, please consult us.

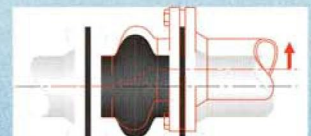
Operating Principles



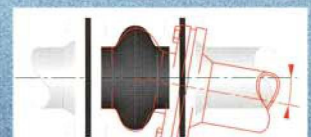
Axial compression



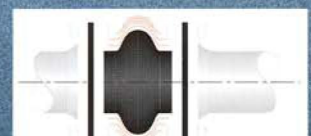
Axial elongation



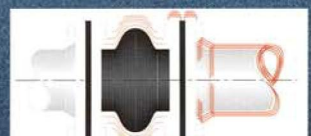
Lateral deflection



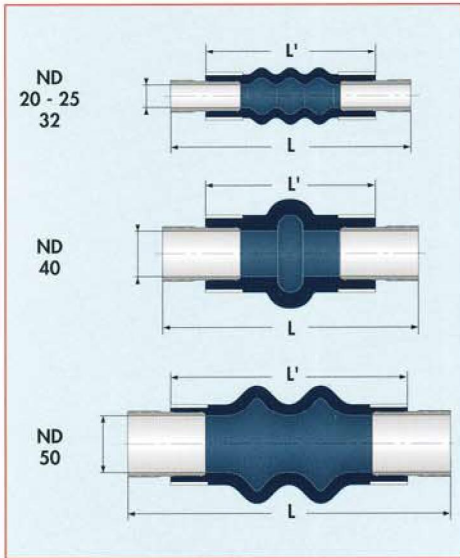
Angular deflection



Water hammer reduction



Elimination of vibration

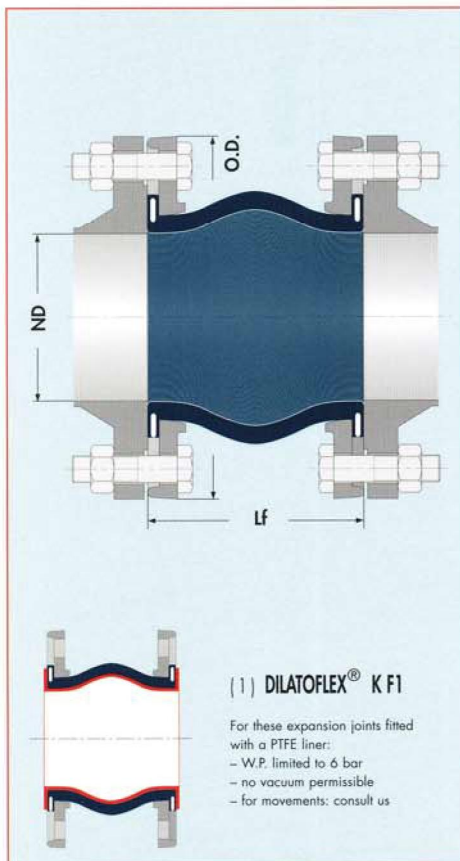


TECHNICAL DATA													
Nominal Diameter	Designation BSP conical Threading (NF EN 10226) * former designation	O.D. mm	L' mm	L mm	Max. permissible pressure (bar) (1)	Max. permissible vacuum (% vacuum)	Max. Permissible Movements (not concurrent)			Axial Thrust in daN for P=1 bar	Axial Stiffness at zero pressure in daN for 1cm axial movement	Approximate weight/Kg	
							Axial Compression (mm)	Axial Elongation (mm)	Lateral Shearing (mm)				
20	R 3/4" * [20 x 27]	50	160	220	12	100	15	8	10	3	50	0.450	
25	R 1" * [26 x 34]	55	160	220	9	100	15	8	10	4	60	0.550	
32	R 1 1/4" * [33 x 42]	66	160	230	9	100	15	8	10	9	95	0.800	
40	R 1 1/2" * [40 x 49]	94	160	230	7	70	10	10	6	13	130	0.950	
50	R 2" * [50 x 60]	105	210	290	7	70	30	30	15	42	40	1.500	

(1) DW grade = max. operating capabilities are W.P. 8 bar at +105 °C.

For expansion joints DILATOFLEX® K
 - KP type (W.P. 25 bar and W.T. + 55 °C max.)
 - KT type (fitted with integrated tie bars)
 refer to our technical specifications.

AUTOSTABLE

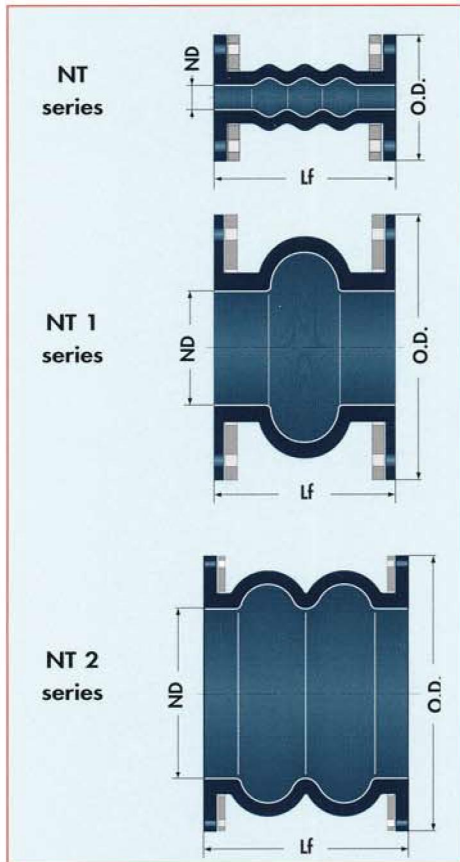


TECHNICAL DATA															
Nominal Diameter	ND	NPS	Manufactured length (Lf in mm)	Flange O.D. (O.D. in mm)	Drilling Standards			Max. W.P. (1) + (2) bar	Steel ring required for vacuum greater than % vacuum (1)	Max. Permissible Movements (1) (not concurrent)				Equilibrium Lq (in mm) AUTOSTABLE : reaction force = 0 daN	Approximate weight/Kg (steel flanges PN 10 / PN 16) (3)
					PN 10	PN 16	Class 150 (PN 20)			Axial Compression (mm)	Axial Elongation (mm)	Lateral Shearing (mm)	Angular Deflection (°)		
	mm	inches			ISO 2084 NF EN 1759-1 NF EN 1092-1			T ≤ 100 °C	T > 100 °C						
32	1 1/4	130	140 120	X	X	X	16	10	—	25	10	15	20	130	3.0
40	1 1/2	130	150 130	X	X	X X	16	10	—	25	10	15	20	130	3.4
50	2	130	165	X	X	X	16	10	30	25	10	15	20	130	4.0
65	2 1/2	130	185	X	X	X	16	10	30	25	10	15	20	130	4.7
80	3	130	200	X	X	X	16	10	30	25	10	15	17	130	5.0
100	4	130	220 229	X	X	X	16	10	30	25	10	15	14	135	6.2
125	5	130	250	X	X	X	16	10	30	25	15	15	14	140	7.7
150	6	130	285	X	X	X	16	10	30	20	15	15	10	140	10.0
200	8	130	340	X	X		16	10	30	20	20	15	10	145	12.2
250	10	130	405	X	X	X	16	10	30	15	25	15	8	150	16.7
300	12	130	445 460 485	X	X	X	16	10	30	15	30	15	7	155	20.0

(2) DW grade: W.P. 12 bar at +105 °C max. for the whole range.

(3) Floating flanges in zinc-chromated, galvanised, stainless steel.

DILATOFLEX® NT



TECHNICAL DATA														
Series	Nominal Diameter		Manufactured length (Lf in mm)	Drilling Standards (1)			Max. permissible pressure (2) (3) (4)	Steel ring required for vacuum greater than % vacuum	Max. Permissible Movements (1) (not concurrent)				End thrust in daN for P= 1 bar	Approximate weight/Kg (below only) (5)
	mm	NPS inches		ISO 2084 NF EN 1759-1 NF EN 1092-1	PN 6	PN 10 - PN 16			Class 150 (PN 20)	Axial Compression (mm)	Axial Elongation (mm)	Lateral Shearing (mm)		
NT	20	3/4	150	X	X	X	12	—	12	8	10	30	4	0.4
	25	1	150	X	X	X	12	—	15	8	10	25	6	0.4
	32	1 1/4	150	X	X	X	12	—	15	8	10	20	8.5	1.4
NT 1	40	1 1/2	150	X	X	X	16	—	30	20	15	20	48	1.1
	50	2	150	X	X	X	16	—	30	30	15	20	80	1.3
	65	2 1/2	150	X	X	X	16	—	30	30	15	20	115	1.6
	80	3	150	X	X	X	16	—	30	30	15	20	138	1.9
	100	4	150	X	X	X	16	50	30	30	15	20	190	2.4
	125	5	150	X	X	X	16	50	30	30	15	10	270	2.5
	150	6	150	X	X	X	16	50	30	30	15	10	370	3.0
	175	7	150	X	X	X	16	50	30	30	15	10	445	3.6
	200	8	150	X	X	X	16	50	30	30	15	10	560	4.0
	225	9	150	X	X	X	16	50	30	30	15	10	700	4.6
	250	10	200	X	X	X	16	50	25	30	30	9	800	8.0
300	12	200	X	X	X	16	50	25	30	30	8	1000	10.0	
350	14	200	X	X	X	16	50	25	30	30	7	1300	11.5	
400	16	200	X	X	X	16	50	25	30	30	6	1700	14.0	
450	18	200	X	X	X	16	50	25	30	30	5	2000	15.0	
NT 2	250	10	300	X	X	X	16	30	60	60	30	25	800	11.0
	300	12	300	X	X	X	16	30	60	60	30	22	1100	13.0
	350	14	300	X	X	X	16	30	60	60	30	18	1500	15.0
	400	16	300	X	X	X	16	30	60	60	30	16	1900	17.0
	450	18	300	X	X	X	16	30	60	60	30	14	2400	19.0

DILATOFLEX® NT expansion joints can be supplied :
 - with separate two-piece retaining rings
 - without retaining rings [except NT ES grade supplied with integral retaining rings for sizes ≤ 225 mm].

(1) Other drillings available [e.g. PN6, PN25, PN40, BS10DE] ; please consult us.

(2) CC rubber grade : W.P. is limited to 10 bar for W.T. over +90 °C.

(3) ES rubber grade : max. operating conditions W.P. 25 bar at +140 °C W.T.

(4) Limited to Nominal Pressure of the drilling standard that is used.

(5) Expansion joints to be mounted with counter-flanges in 2 parts (galvanised, zinc-chromated, stainless steel).

INSTALLATION AND

MOUNTING

DILATOFLEX® expansion joints should be fitted to clean, flat or raised face piping (*) with no rough surfaces. They are assembled using steel retaining rings and bolts (with the bolt heads towards the joint body where possible).

Bolting pressure must be evenly distributed around the expansion joint :

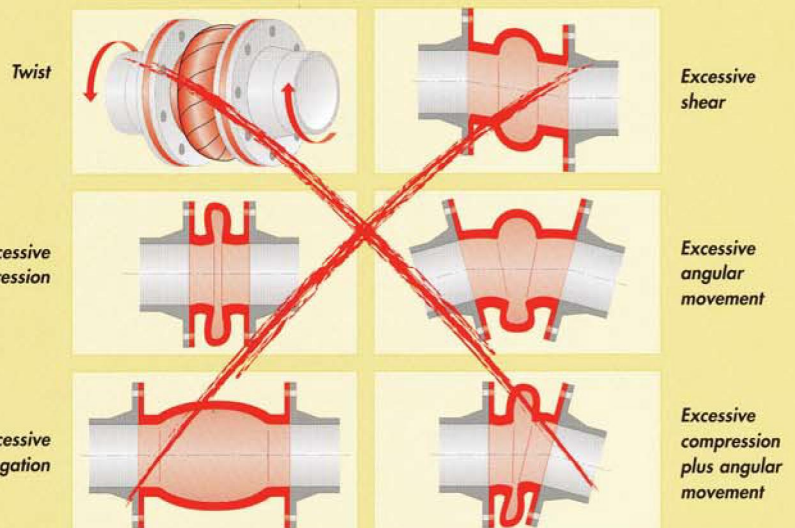
- DILATOFLEX® K: bolts to be tightened to approx. 8 m.kg
- DILATOFLEX® NT, N and M : bolting to be tightened to 30% of max. permissible torque.

* Flat faced piping flanges must be used with:

- DILATOFLEX® NT, ES grade, ND ≤ 225 mm, where W.P. > 10 bar and/or temperature > +100 °C;
- DILATOFLEX® NT, all grades, ND ≥ 250 mm, where W.P. > 10 bar and / or temperature > +90 °C;
- DILATOFLEX® M, all grades.

UNACCEPTABLE MOUNTING CONFIGURATIONS

To insure a long service life, take particular care when positioning the expansion joints not to subject them to any excessive deformation that may be caused by:



NOT PERMISSIBLE



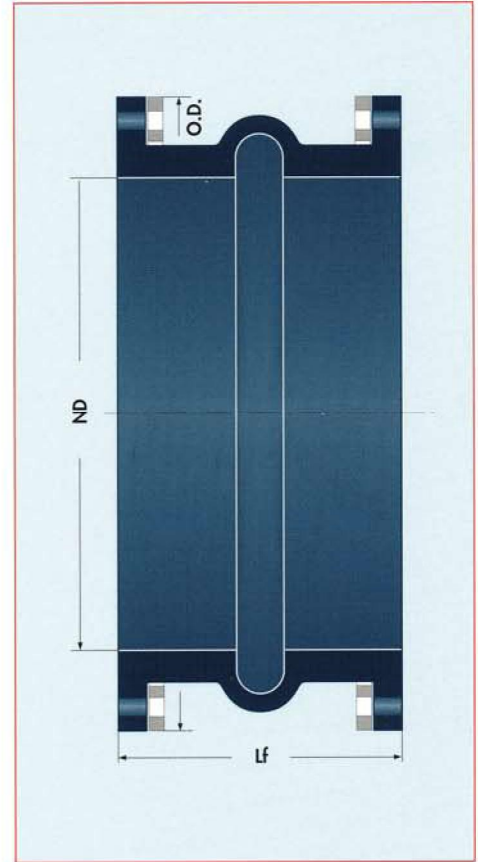
TECHNICAL DATA

Number of arch	Nominal Diameter		Manufactured length (Lf in mm)	Drilling Standards (1)				Max. permissible pressure bar	Steel ring required for vacuum greater than % vacuum	Max. Permissible Movements (1) (not concurrent)				End thrust in KdaN for P= 1 bar	Approximate weight/Kg (below only) (2)
	ND mm	NPS inches		ISO 2084 NF EN 1759-1 NF EN 1092-1						Axial Compression (mm)	Axial Elongation (mm)	Lateral Shearing (mm)	Angular Deflection (°)		
				PN 2.5	PN 6 - PN 10	PN 16	Class 150 (PN 20)								
1 arch	500	20	300	X	X	X	10	20	40	30	20	6	2.5	30	
	550	22	300	X	X	X	10	20	20	30	15	4	3.0	40	
	600	24	300	X	X	X	10	20	40	40	20	7	3.8	43	
	700	28	300	X	X	X	10	20	40	40	20	6	4.9	44	
	750	30	300	X	X	X	10	20	20	20	15	3	5.3	60	
	800	32	400	X	X	X	10	20	40	40	20	5	6.3	67	
	850	34	400	***	***	***	10	20	40	40	20	5	7.0	70	
	900	36	400	X	X	X	10	20	40	40	20	5	8.8	80	
	1 arch	1 000	40	400	X	X	X	10	20	40	40	20	4	9.4	84
		1 100	44	400	X	X	X	6	20	40	30	20	3	10.7	100
		1 200	48	400	X	X	X	6	20	40	40	20	3	13.2	120
		1 250	50	400	***	***	***	6	10	40	40	20	3	14.2	115
		1 300	52	400	X	X	X	6	10	20	20	15	1.5	14.8	115
		1 400	56	400	X	X	X	6	10	40	40	20	3	17.6	150
		1 500	60	400	X	X	X	6	10	20	20	15	1.5	20.0	170
		1 600	64	400	X	X	X	6	10	40	30	20	2	22.4	183
		1 700	68	400	X	X	X	6	10	40	30	20	1.5	25.2	215
		1 800	72	400	X	X	X	6	10	20	20	15	1	27.8	225
	2 000	80	750	X	X	X	1.5	-	150	100	50	5	38.3	275	
	2 200	88	750	X	X	X	1.5	-	150	150	75	7	48.2	400	
2 400	96	400	X	X	X	4	-	50	40	20	1.5	49.6	300		
2 500	100	750	X	X	X	1.5	-	150	100	50	4	56.8	450		
2 600	104	750	X	X	X	1.5	-	150	150	75	6	64.4	500		
3 000	120	750	X	X	X	1.3	-	150	100	50	3	79.3	550		

(**) Non standard drilling.

(1) Other drillings available (e.g. BS10DE, AWWA...): please consult us.

(2) Expansion joints to be mounted with counter-flanges in 2 parts (galvanised, zinc-chromated, stainless steel).



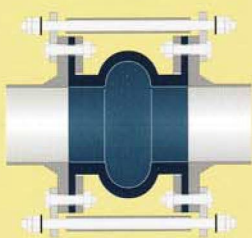
MAINTENANCE *

USE OF CONTROL UNITS

Tie rods to limit axial movements
(for expansion joints between anchors)

When there is a risk of unexpected axial movements, these must be controlled by fitting tie rods.

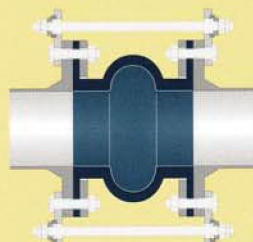
Principle of tie rods to limit axial movements



Thrust stabiliser rods
(in the absence of anchors)

When it is not feasible to fit anchors, stabiliser rods must be fitted to take up thrust due to fluid pressure. These rods are only used to compensate for lateral or angular movements (in the latter case with max. 2 rods in the appropriate direction).

Principle of thrust stabiliser rods for pressure service



CARE AND MAINTENANCE

For optimum preservation of expansion joints during storage, take care to avoid deformation and exposure to direct sunlight. Place them in a dry, cool place, away from ultra-violet radiation or ozone generating sources.

Prior to installation, make sure they will not be subjected to movement exceeding the allowable limits.

Always provide easy access to the expansion joints for periodic inspection, especially to check tightness of joint bolts, extent of movements during operation and behaviour of anchors and tie rods.

Joints should be not covered with insulating material. They must never be painted.

* Please consult us and refer to our detailed instructions.



DILATOFLEX® M

TECHNICAL DATA

Nominal Diameter	Manufactured length (Lf in mm)		Drilling Standards		Max. permissible pressure (in bar)	Max. permissible vacuum (% Vacuum)	Max. Permissible Movements (1) (not concurrent)				End thrust in KdaN for P= 1 bar	Approximate weight/Kg (below only) (1)	
			PN2.5 - PN6 - PN10	ISO 2084 NF EN 1759-1 NF EN 1092-1			Axial Compression (mm)	Axial Elongation (mm)	Lateral Shearing (mm)	Angular Deflection (°)			
ND	NPS			e.g. PN 10									
mm	inches			Flange O.D. (mm) Number of holes						P	V		

- * Each retaining ring profile is specific to an expansion joint type. On request, retaining rings can be supplied: uncoated, with rustproof primer, galvanised, etc.
- * The expansion joints can be manufactured in several different lengths : please consult us.
- * For vacuum service only (DILATOFLEX® expansion joint, type MV) : please consult us.

Type MD 40															
500	20	225	250		670	20	4	100	20	0	30	2.3	1.7	2.3	42
600	24	225	250		780	20	4	100	20	0	30	1.9	1.4	3.2	53
800	32		250		1015	24	4	100	20	0	30	1.4	1.1	5.6	82
1000	40		250	300	1230	28	4	100	20	0	30	1.1	0.9	8.5	111
1200	48			300	1455	32	4	100	20	0	30	0.9	0.7	12.1	179
1400	56			300	1675	36	4	100	20	0	30	0.8	0.6	16.4	225
1600	64			300	1915	40	4	100	25	0	30	0.9	0.5	21.2	345
1800	72			300	2115	44	4	100	25	0	30	0.8	0.5	26.7	392
2000	80			300	2325	48	4	100	25	0	30	0.7	0.4	32.9	450
2200	88			300	2550	52	4	100	25	0	30	0.7	0.4	39.6	525

For any intermediate sizes and further sizes up to ND 2600 mm (102") : please consult us.

Type MS 50															
500	20		250		670	20	6	0	20	15	30	4.0	—	2.4	49
600	24		250		780	20	6	0	20	15	30	3.3	—	3.4	60
800	32		250		1015	24	6	0	20	15	30	2.5	—	5.8	92
1000	40		250	300	1230	28	6	0	20	15	30	2.0	—	8.8	122
1200	48			300	1455	32	6	0	20	15	30	1.7	—	12.4	200
1400	56			300	1675	36	6	0	20	15	30	1.4	—	16.4	251
1600	64			300	1915	40	6	0	20	15	30	1.2	—	21.5	391
1800	72			300	2115	44	6	0	20	15	30	1.1	—	27.0	438
2000	80			300	2325	48	6	0	20	15	30	1.0	—	33.1	500
2200	88			300	2550	52	6	0	20	15	30	0.9	—	39.9	580

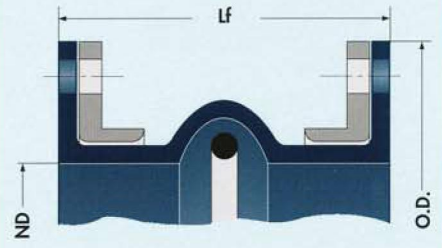
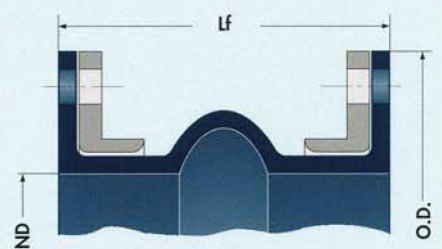
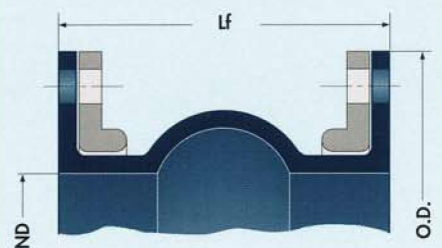
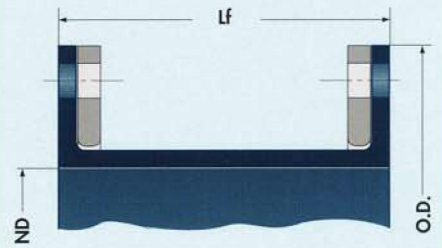
For any intermediate sizes and further sizes up to ND 2600 mm (102") : please consult us.

Type MA 60															
500	20		250	300	670	20	10	0	30	30	30	6.8	—	2.6	54
600	24		250	300	780	20	10	0	30	30	30	5.7	—	3.6	68
800	32		250	300	1015	24	10	0	30	30	30	4.3	—	6.1	98
1000	40		250	300	1230	28	10	0	30	30	30	3.4	—	9.1	135
1200	48			300	1455	32	10	0	30	30	30	2.9	—	12.8	215
1400	56			300	1675	36	10	0	30	30	30	2.4	—	17.2	273
1600	64			300	1915	40	10	0	30	30	30	2.1	—	22.1	405
1800	72			300	2115	44	10	0	30	30	30	1.9	—	27.7	454
2000	80			300	2325	48	10	0	30	30	30	1.7	—	33.9	514
2200	88			300	2550	52	10	0	30	30	30	1.6	—	40.7	617

For any intermediate sizes and further sizes up to ND 2600 mm (102") : please consult us.

Type MB 60															
500	20		250	300	670	20	8	100	30	10	30	4.6	4.6	2.6	61
600	24		250	300	780	20	8	100	30	10	30	3.8	3.8	3.6	77
800	32		250	300	1015	24	8	100	30	10	30	2.9	2.9	6.1	109
1000	40		250	300	1230	28	8	100	30	10	30	2.3	2.3	9.2	149
1200	48			300	1455	32	8	100	30	10	30	1.9	1.9	12.8	232
1400	56			300	1675	36	8	100	30	10	30	1.6	1.6	17.2	290
1600	64			300	1915	40	8	100	30	10	30	1.4	1.4	22.1	426
1800	72			300	2115	44	8	100	30	10	30	1.3	1.3	27.7	477
2000	80			300	2325	48	8	100	30	10	30	1.1	1.1	33.9	550
2200	88			300	2550	52	8	100	30	10	30	1.0	1.0	40.7	645

For any intermediate sizes and further sizes up to ND 2600 mm (102") : please consult us.



(1) Steel retaining rings in 1 part (galvanised, zinc-chromated, stainless steel).

