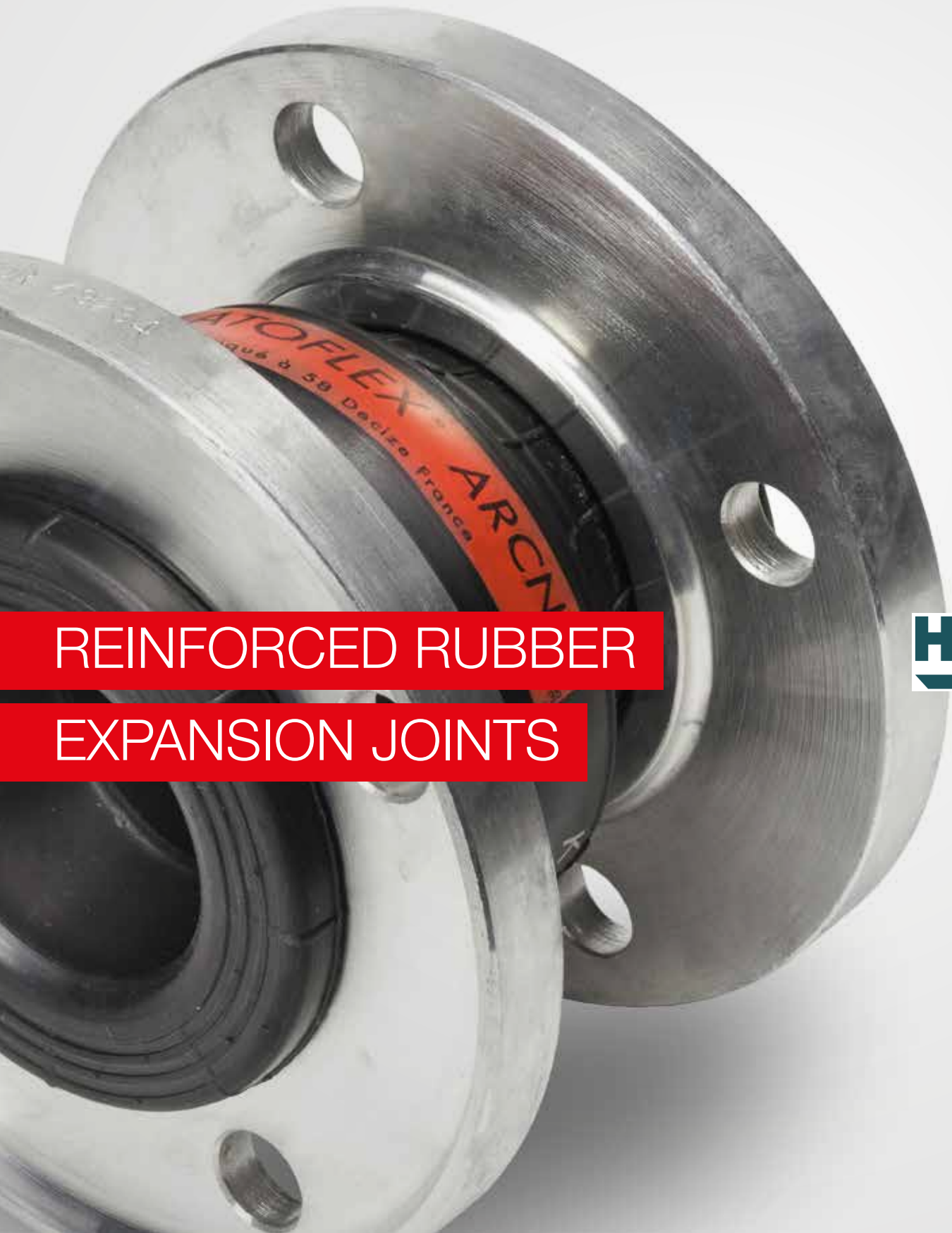


DILATOFLEX[®]



REINFORCED RUBBER

EXPANSION JOINTS

HIBRO

KLEDIL® & DILATOFLEX®

A COMPLETE RANGE OF EXPANSION JOINTS TAILORED TO YOUR REQUIREMENTS

KEY ADVANTAGES

Expansion joints from SumiRiko Industry France S.A.S. are flexible reinforced elastomer components used in piping systems that are designed to meet the following major needs:





- ▶ Protection of the piping from dimensional variations
- ▶ Protection of the equipment from vibration
- ▶ Protection of the equipment from water hammer
- ▶ Simplified installation and removal
- ▶ Simplified connections between pipes
- ▶ Reduced sound transmission

Nominal
Diameter
ND

Max. W.P.
Working
pressure
(in bar)

Standard
Ends

Range of Grades

				CC	DW	EPC	ES	AR/CN	GZ	HH	YP	AB	TE	F1
	KLEDIL®	20 to 50	12 to 7	Threaded (BSP)			●	●	●	●				
	DILATOFLEX® K	32 to 300	16 — 6	Floating flanges			●	●	●	●	●	●	●	○
	DILATOFLEX® KP	32 to 300	25	Floating flanges			●		●				●	
	DILATOFLEX® KT	32 to 300	16 — 6	Flanges with integrated tie bars			●	●	●	●	●	●	●	○
	DILATOFLEX® NT	20 to 32	12	Flanges			●	●	●	●	●	●	●	
	DILATOFLEX® NT1	40 to 450	16	Flanges			●	●	●	○	●	●	●	●
	DILATOFLEX® NT2	250 to 450	16	Flanges			●	●	●	○	●	●	●	●
	DILATOFLEX® N	500 to 3000	10	Flanges			●	●	●	●	●	●	●	
	DILATOFLEX® F	300 to 1200	10	Floating flanges			●	●	●	●	●	●	●	
	DILATOFLEX® M	MD MS MA MB	500 to 2800	4 6 8 8	Flanges			●	●	●	●	●	●	

AN EFFICIENT SOLUTION FOR A WIDE RANGE OF APPLICATIONS

BUILDING INDUSTRY

- ▶ Central heating and air conditioning
- ▶ Hot and cold water systems
- ▶ Fire extinction systems

POWER GENERATION

- ▶ Cooling systems, pumping stations, etc. for conventional and nuclear power plants

PETROLEUM INDUSTRY

- ▶ Cooling systems
- ▶ Fuel handling

NAVAL CONSTRUCTION

- ▶ Machine cooling systems
- ▶ Sanitary installations
- ▶ Fire extinction systems
- ▶ Fuel handling

METALLURGY

- ▶ Blast furnace gas
- ▶ Compressed air
- ▶ Industrial water systems

WATER TREATMENT




- ▶ Production and distribution of drinking water, waste water treatment

FOOD INDUSTRY

- ▶ Drinking water and other beverage and foodstuff handling systems

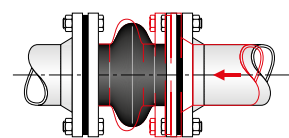
CHEMICAL INDUSTRY

- Fluid handling systems:
- ▶ acids, bases, hydrocarbons, emulsions, solutions, air, gas, steam, water, etc.

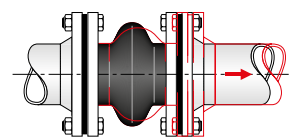
Lining Grade Identification colour and designation	Typical Applications	W.T. Working temperatures	
Green label CC	▶ Central heating and air conditioning water	-35 °C	+90 °C/ 110 °C
Blue label DW	▶ Drinking water ▶ Domestic cold and hot water	 -25 °C	+90 °C/ 105 °C
Cream label EPC	▶ Food products ▶ Drinking water ▶ Domestic cold and hot water	 -25 °C	+95 °C
White label ES	▶ Water ▶ Superheated water ▶ Water vapour	-35 °C	+140 °C
Red label AR/CN	▶ Abrasive or corrosive products (weak acids and bases) ▶ Industrial water, sea water ▶ Low-temperature water vapour	-35 °C	+90 °C
Orange label GZ	▶ Gas, compressed air, fuel, oil ▶ Petroleum products with aromatic content < 40% ▶ Sanitation water	-20 °C	+90 °C
Blue label HH	▶ Industrial and waste water ▶ Hydrogen gas, nitrogen	-20 °C	+90 °C
Yellow label YP	▶ Strong acids ▶ Strong bases ▶ Aggressive chemicals	-25 °C	+100 °C
Grey label AB	▶ Strong acids ▶ Strong bases ▶ Weak chlorinated products	-35 °C	+100 °C
Mauve label TE	▶ Industrial water ▶ Acidulated water ▶ Diluted acids and bases	-25 °C	+100 °C
White label F1	▶ Special highly aggressive products (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.

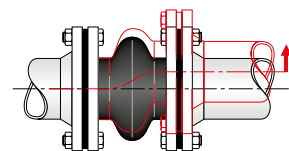
Operating Principles



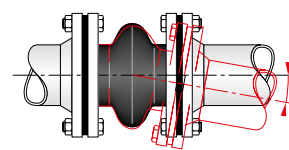
AXIAL COMPRESSION



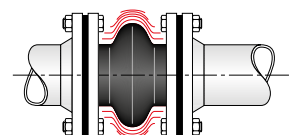
AXIAL ELONGATION



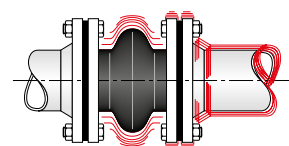
LATERAL DEFLECTION



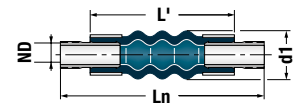
ANGULAR DEFLECTION



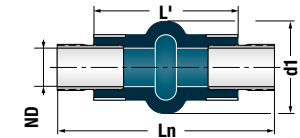
WATER HAMMER REDUCTION



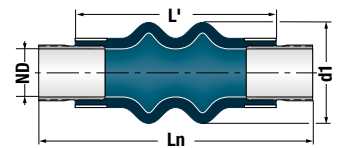
ELIMINATION OF VIBRATION



ND 20/25/32



ND 40

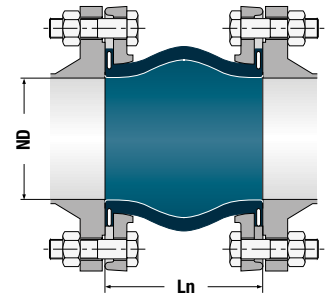


ND 50

Nominal Diameter	Designation BSP Conical Threading (NF EN 10226)	O.D. (outside diameter)	Overall Length	Nominal Length	Max. Permissible Pressure	Max. Permissible Vacuum (% Vacuum)	Max. Permissible Movements (maximum values do not apply simultaneously)				Thrust in daN for P=1 bar	Axial Stiffness at Zero Pressure	Axial Movement	Approximate Weight
							Compression	Elongation	Shearing	Angle				
			d1 (mm)	L' (mm)	LN (mm)	WP (bar)	Ln-Lc (mm)	Le-Ln (mm)	R (mm)	α° (degree)		(N/mm)	(kg)	
20	3/4	R 3/4"	50	160	220	12	100%	15	8	10	30	3	50	0.45
25	1	R 1"	55	160	220	9	100%	15	8	10	25	4	60	0.55
32	1 1/4	R 1 1/4"	66	160	230	9	100%	15	8	10	20	9	95	0.80
40	1 1/2	R 1 1/2"	94	160	230	7	70%	10	10	6	20	13	130	0.95
50	2	R 2"	105	210	290	7	70%	30	30	15	30	42	40	1.50

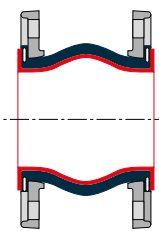
DILATOFLEX® K

AUTOSTABLE



K

Nominal Diameter	Nominal Length	Drilling Standards (1) NF EN 1759-1 NF EN 1092-1	Max. W.P. (2)(3)	Steel Ring Required for Vacuum Greater than ... % Vacuum (2)	Max. Permissible Movements (maximum values do not apply simultaneously)				Equilibrium Length at 10 bar AUTOSTABLE: Reaction Force=0 daN	Approximate Weight (steel flanges PN 10/PN 16)		
					Compression	Elongation	Shearing	Angle				
	Ln (mm)	PN 10	PN 16	PN 20	WP (bar)	Ln-Lc (mm)	Le-Ln (mm)	R (mm)	α° (degree)	Lq (mm)	(kg)	
32	1 1/4	130	X	-	16	100%	25	10	15	20	130	3.0
40	1 1/2	130	X	X	16	100%	25	10	15	20	130	3.4
50	2	130	X	X	16	30%	25	10	15	20	130	4.0
65	2 1/2	130	X	X	16	30%	25	10	15	20	130	4.7
80	3	130	X	X	16	30%	25	10	15	17	130	5.0
100	4	130	X	X	16	30%	25	10	15	14	135	6.2
125	5	130	X	X	16	30%	25	15	15	14	140	7.7
150	6	130	X	X	16	30%	20	15	15	10	140	10.0
200	8	130	X	X	16	30%	20	20	15	10	145	12.2
250	10	130	X	X	16	30%	15	25	15	8	150	16.7
300	12	130	X	X	16	30%	15	30	15	7	155	20.0



DILATOFLEX® KF1 (**)

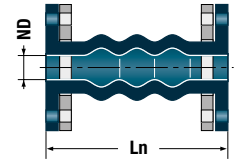
(**) For these expansion joints fitted with a PTFE liner:
 ▶ W.P. limited to 6 bar
 ▶ no vacuum permissible

For Expansion Joints DILATOFLEX®
 ▶ KF1 type (W.P. 6 bar & W.T. ≤ +110 °C)
 ▶ KP type (W.P. 25 bar & W.T. ≤ +55 °C)
 ▶ KT type (filled with integrated tie bars) refer to our technical specifications.

(1) Other drillings available (e.g. PN 6, PN 25, BS 10D-E...).
 Floating flanges in zinc-chromated, hot-dip galvanized or stainless (304L or 316L) steel.
 (2) Limited to the nominal pressure of the used drilling standard.

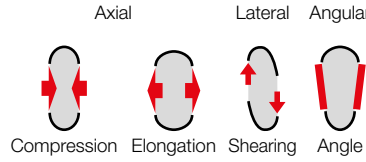
(3) Particular cases:
 DW grade: W.P. 12 bar at +105 °C max. and W.P. 16 bar at +90 °C max.
 CC grade: W.P. 10 bar at +110 °C max. and W.P. 16 bar at +90 °C max.

DILATOFLEX® NT

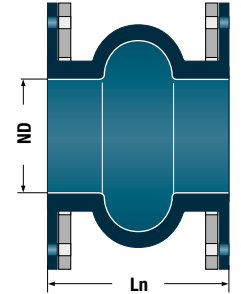


NT SERIES

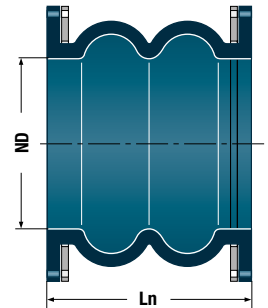
Max. Permissible Movements
(maximum values do not apply
simultaneously)



End Thrust for
P=1 bar at Ln
Approximate Weight
(bellow only) (6)



NT 1 SERIES



NT 2 SERIES

Series	Nominal Diameter	Nominal Length	Drilling Standards (1)		Class 150	WP (bar)	Steel Ring Required for Vacuum Greater than ...% Vacuum	Max. Permissible Movements (2) (3) (4)			End Thrust for P=1 bar at Ln (daN)	Approximate Weight (bellow only) (6) (kg)	
			NF EN 1759-1	NF EN 1092-1				Ln-Lc (mm)	Le-Ln (mm)	R (mm)			α° (degree)
	Ln (mm)	PN 10	PN 16										
NT	20	¾	150	X	X	12	100%	12	8	10	30	4.0	0.4
	25	1	150	X	X	12	100%	15	8	10	25	6.0	0.4
	32	1¼	150	X	X	12	100%	15	8	10	20	8.5	1.4
	40	1½	150	X	X	16	100%	30	20	15	20	48	1.1
	50	2	150	X	X	16	100%	30	30	15	20	80	1.3
	65	2½	150	X	X	16	100%	30	30	15	20	115	1.6
	80	3	150	X	X	16	100%	30	30	15	20	138	1.9
NT 1	100	4	150	X	X	16	50%	30	30	15	20	190	2.4
	125	5	150	X	X	16	50%	30	30	15	10	270	2.5
	150	6	150	X	X	16	50%	30	30	15	10	370	3.0
	175	7	150	X	-	16	50%	30	30	15	10	445	3.6
	200	8	150	X	X	16	50%	30	30	15	10	560	4.0
	225	9	150	X	X	16	50%	30	30	15	10	700	4.6
	250	10	200	X	X	16	50%	25	30	30	9	800	8.0
	300	12	200	X	X	16	50%	25	30	30	8	1,000	10.0
	350	14	200	X	X	16	50%	25	30	30	7	1,300	11.5
	400	16	200	X	X	16	50%	25	30	30	6	1,700	14.0
NT 2	450	18	200	X	X	16	50%	25	30	30	5	2,000	15.0
	250	10	300	X	X	16	30%	60	60	45	25	1,100	11.0
	300	12	300	X	X	16	30%	60	60	45	22	1,100	13.0
	350	14	300	X	-	16	30%	60	60	45	18	1,500	15.0
	400	16	300	X	X	16	30%	60	60	45	16	1,900	17.0
	450	18	300	X	X	16	30%	60	60	45	14	2,400	19.0

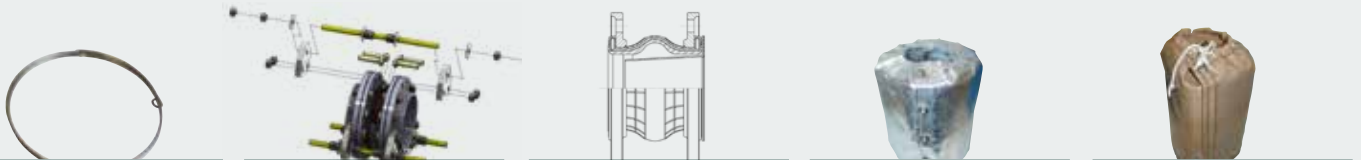
(1) Other drillings available (e.g. PN6, PN25, PN40, BS10D-E), please consult us.
 (2) CC grade: W.P. 10 bar at +110 °C max. and W.P. 16 bar at +90 °C max.
 (3) ES rubber grade: W.P. is limited to 16 bar at W.T. +140 °C, and W.P. 25 bar at W.T. +70 °C

(4) Limited to the nominal pressure of the used drilling standard.
 (5) Expansion joints to be mounted with steel backing flanges in two parts (zinc-chromated, hot-dip galvanized or stainless steel).

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)

ACCESSORIES

Depending on your application and/or working conditions, you may require the following equipment:



VACUUM RING

- ▶ Stainless steel
- ▶ Spiral ring or single ring
- ▶ Permissible movement values may be impacted when the bellows is fitted with vacuum ring

TIE BAR SYSTEMS

- ▶ For axial movement
- ▶ Inner and outer restraints for lateral movement
- ▶ Hinged for angular movement

INNER SLEEVE

- ▶ Stainless steel
- ▶ Cylindrical for axial movement
- ▶ Conical for lateral movement

FLAME COVER

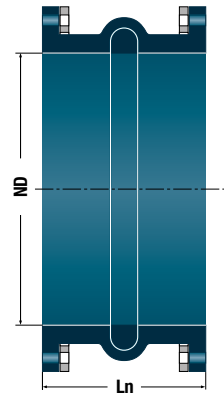
- ▶ Special fabric with heat-proof layers
- ▶ Ready-to-install

PROTECTION COVER

- ▶ Special fabric
- ▶ Ready-to-install

DILATOFLEX® N

Nominal Diameter	Nominal Length	Drilling Standards ⁽¹⁾				Max. Permissible Pressure ⁽²⁾⁽³⁾	Steel Ring Required for Vacuum Greater than ... % Vacuum ⁽⁴⁾	Max. Permissible Movements (maximum values do not apply simultaneously) ⁽⁵⁾				End Thrust for P=1 bar	Approximate Weight (below only) ⁽⁶⁾
		PN 2.5	PN 6- PN 10	PN 16	Class 150			Ln-Lc (mm)	Le-Ln (mm)	R (mm)	α° (degree)		
500	20	300	X	X	X	10	20%	40	30	20	6	2.5	30
550	22	300	***	***	-	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	***	***	***	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
1000	40	400	X	X	-	10	20%	40	40	20	4	9.4	84
1100	44	400	***	***	***	6	20%	40	30	20	3	10.7	100
1200	48	400	X	X	X	6	20%	40	40	20	3	13.2	120
1250	50	400	***	***		6	10%	40	40	20	3	14.2	115
1300	52	400	***			6	10%	20	20	15	1.5	14.8	115
1400	56	400	X			6	10%	40	40	20	3	17.6	150
1500	60	400	***			6	10%	20	20	15	1.5	20.0	170
1600	64	400	X			6	10%	40	30	20	2	22.4	183
1700	68	400	***			6	10%	40	30	20	1.5	25.2	215
1800	72	400	X			6	10%	20	20	15	1	27.8	225
2000	80	750	X			1.5	-	150	100	50	5	38.3	275
2200	88	750	X			1.5	-	150	150	75	7	48.2	400
2400	96	400	X			4	-	50	40	20	1.5	49.6	300
2500	100	750	***			1.5	-	150	100	50	4	56.8	450
2600	104	750	X			1.5	-	150	150	75	6	64.4	500
3000	120	750	X			1.3	-	150	100	50	3	79.3	550

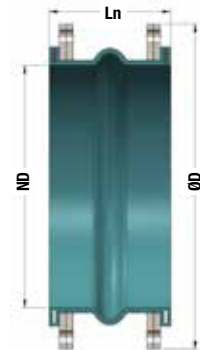


DILATOFLEX® N

- (***) Non-standard drilling.
- (1) Other drillings available (e.g. BS10D-E, AWWA...).
- (2) For higher working pressure: NS type
- (3) Limited to the nominal pressure of the used drilling standard.
- (4) For vacuum working condition: NV type
- (5) Permissible movement values may be impacted by vacuum ring.
- (6) Expansion joints to be mounted with steel backing flanges in two parts (zinc-chromated, hot-dip galvanized or stainless steel).

DILATOFLEX® F

Nominal Diameter	Nominal Length	Drilling Standards ⁽¹⁾				Max. Permissible Pressure ⁽²⁾⁽³⁾	Steel Ring Required for Vacuum Greater than ... % Vacuum	Max. Permissible Movements (maximum values do not apply simultaneously) ⁽⁴⁾				End Thrust for P=1 bar	Approximate Weight (rubber below only) ⁽⁶⁾
		PN 6	PN 10	PN 16	Class 150			Ln-Lc (mm)	Le-Ln (mm)	R (mm)	α° (degree)		
300	12	200	X			10	10%	40	30	10	11.3	1.0	5
350	14	200	X			10	10%	40	30	10	9.5	1.3	5.6
400	16	200	X			10	10%	40	30	10	8.2	1.6	6.4
450	18	250	X			10	10%	50	30	10	7.2	2.0	8.5
500	20	250	X			10	10%	50	30	10	6.6	2.4	9.5
600	24	250	X			10	10%	50	30	10	5.4	3.4	11.5
700	28	275	X			10	10%	50	30	10	4.6	4.5	14.5
750	30	275	X			10	10%	50	30	10	4.3	5.1	16.8
800	32	275	X			10	10%	50	30	10	4	5.8	18.5
900	36	300	X			10	10%	50	30	10	3.5	7.4	23.7
1000	40	300	X			10	10%	50	30	10	3.1	9.0	27.3
1100	44	300	X			10	10%	50	30	10	2.8	10.7	33.6
1200	48	300	X			10	10%	50	30	10	2.5	12.7	36.3



DILATOFLEX® F

- (1) Other drillings available (e.g. BS10, AWWA...).
- (2) For higher working pressure, please consult us.
- (3) Limited to the nominal pressure of the used drilling standard.
- (4) Permissible movement values may be impacted by vacuum ring, please consult us.
- (5) Expansion joints to be mounted with split backing flanges (zinc-chromated steel, hot-dip galvanized steel, stainless steel).



Max. Permissible Movements
(maximum values do not apply simultaneously) (***)

Axial Lateral Angular

Compression Elongation Shearing Angle

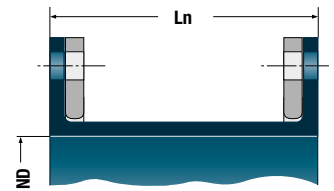
End Thrust for P=1 bar Approximate Weight (bellow only) (2)

Type	Nominal Diameter		Nominal Length (1)		Drilling Standards (**)	Max. Permissible Pressure (1)	Maximum Permissible Vacuum (% Vacuum)	Max. Permissible Movements		End Thrust for P=1 bar	Approximate Weight (bellow only) (2)		
	DN	DN	Ln	Lc				Ln-Lc	R			α°	
MD 40					PN 2.5-PN 6 PN 10 CL150	WP (bar)		Ln-Lc (mm)	Le-Ln (mm)	R (mm)	α° (degree)	P V	
	500	20	225	250	X	4	100%	20	0	30	2.3 1.7	2.3 42	
	600	24	225	250	X	4	100%	20	0	30	1.9 1.4	3.2 53	
	800	32		250	X	4	100%	20	0	30	1.4 1.1	5.6 82	
	1000	40		250	300	X	4	100%	20	0	30	1.1 0.9	8.5 111
	1200	48			300	X	4	100%	20	0	30	0.9 0.7	12.1 179
	1400	56			300	X	4	100%	20	0	30	0.8 0.6	16.4 225
	1600	64			300	X	4	100%	25	0	30	0.9 0.5	21.2 345
	1800	72			300	X	4	100%	25	0	30	0.8 0.5	26.7 392
	2000	80			300	X	4	100%	25	0	30	0.7 0.4	32.9 450
2200	88			300	X	4	100%	25	0	30	0.7 0.4	39.6 525	
For any intermediate sizes and further sizes up to ND 2800 mm, please consult us.													
MS 50	500	20		250	X	6	0%	20	15	30	4.0 -	2.4 49	
	600	24		250	X	6	0%	20	15	30	3.3 -	3.4 60	
	800	32		250	X	6	0%	20	15	30	2.5 -	5.8 92	
	1000	40		250	300	X	6	0%	20	15	30	2.0 -	8.8 122
	1200	48			300	X	6	0%	20	15	30	1.7 -	12.4 200
	1400	56			300	X	6	0%	20	15	30	1.4 -	16.4 251
	1600	64			300	X	6	0%	20	15	30	1.2 -	21.5 391
	1800	72			300	X	6	0%	20	15	30	1.1 -	27.0 438
	2000	80			300	X	6	0%	20	15	30	1.0 -	33.1 500
	2200	88			300	X	6	0%	20	15	30	0.9	39.9 580
For any intermediate sizes and further sizes up to ND 2800 mm, please consult us.													
MA 60	500	20		250	300	X	8	0%	30	30	30	6.8 -	2.6 54
	600	24		250	300	X	8	0%	30	30	30	5.7 -	3.6 68
	800	32		250	300	X	8	0%	30	30	30	4.3 -	6.1 98
	1000	40		250	300	X	8	0%	30	30	30	3.4 -	9.1 135
	1200	48			300	X	8	0%	30	30	30	2.9 -	12.8 215
	1400	56			300	X	8	0%	30	30	30	2.4 -	17.2 273
	1600	64			300	X	8	0%	30	30	30	2.1 -	22.1 405
	1800	72			300	X	8	0%	30	30	30	1.9 -	27.7 454
	2000	80			300	X	8	0%	30	30	30	1.7 -	33.9 514
	2200	88			300	X	8	0%	30	30	30	1.6	40.7 617
For any intermediate sizes and further sizes up to ND 2800 mm, please consult us.													
MB 60	500	20		250	300	X	8	100%	30	10	30	4.6 4.6	2.6 61
	600	24		250	300	X	8	100%	30	10	30	3.8 3.8	3.6 77
	800	32		250	300	X	8	100%	30	10	30	2.9 2.9	6.1 109
	1000	40		250	300	X	8	100%	30	10	30	2.3 2.3	9.1 149
	1200	48			300	X	8	100%	30	10	30	1.9 1.9	12.8 232
	1400	56			300	X	8	100%	30	10	30	1.6 1.6	17.2 290
	1600	64			300	X	8	100%	30	10	30	1.4 1.4	22.1 426
	1800	72			300	X	8	100%	30	10	30	1.3 1.3	27.7 477
	2000	80			300	X	8	100%	30	10	30	1.1 1.1	33.9 550
	2200	88			300	X	8	100%	30	10	30	1.0 1.0	40.7 645
For any intermediate sizes and further sizes up to ND 2800 mm, please consult us.													

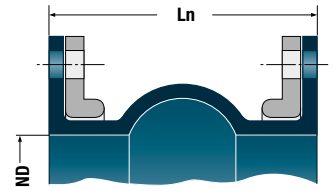
TYPE M

Adaptable expansion joints

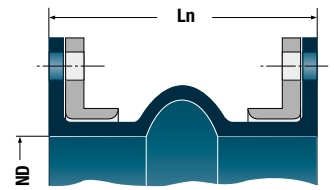
- ▶ Several nominal lengths
- ▶ Different convolution designs
- ▶ Technical study depending on applications
- ▶ **DILATOFLEX® TYPE MX** (tailor-made, not shown below)



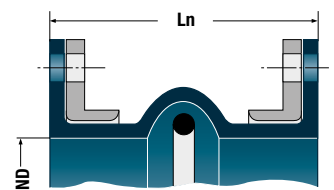
TYPE MD 40



TYPE MS 50



TYPE MA 60



TYPE MB 60

(1) Limited to the nominal pressure of the used drilling standard.
 (2) Steel retaining flanges in one part (zinc-chromated, hot-dip galvanized or stainless steel).

(*) Other lengths available.
 (**) Other drillings available.
 (***) Higher movement values available.

SERVICES



Expertise on-Site or in Our Plant

We can check the condition of your components by conducting extensive analyses and detailed product testings.



On-Site Junction

We offer installation of complex components, such as BPO, BC1 and the U-profile-joint.



Guidance

We will gladly answer all your questions, including those concerning elastomeric solutions, by e-mail or telephone. You can also visit our website, where we provide detailed information on our products and services.



Trainings

We offer trainings providing you a broad overview of our DILATOFLEX® products and services.



Customised Design Solutions

In order to realise optimal solutions for custom-made expansion joints, our engineers and technicians are at your service and are open to any requests.



Co-development Projects

Our in-depth knowledge of rubber processing enables us to produce any type of rubber parts or rubber-to-metal parts using high expertise.

CERTIFICATION

We have national and international certifications. For further details, please contact us.

INFORMATION

This brochure information is only intended for guidance. We strongly recommend contacting our Sales Department for a recommendation regarding your specific requirements, including storage, mounting, conditions of use, constraints, etc.

YOUR CONTACT/DISTRIBUTOR



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