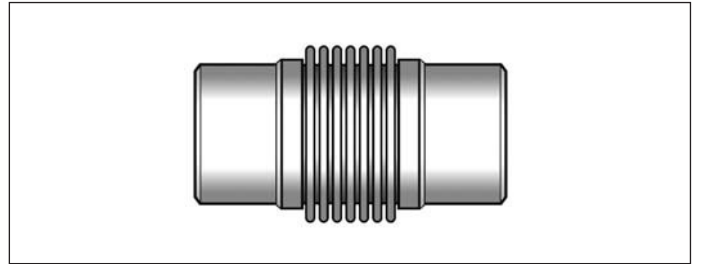
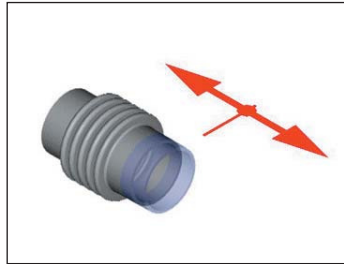


# COMPENSATORE A DILATAZIONE

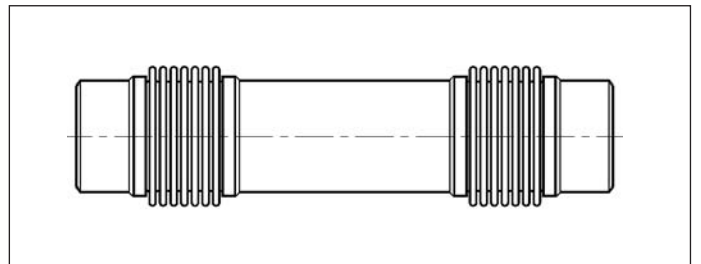
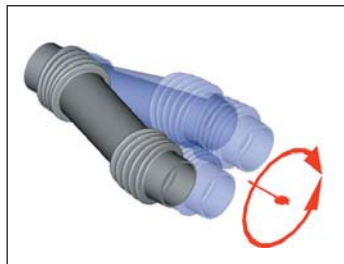
## Assiale

*Axial*



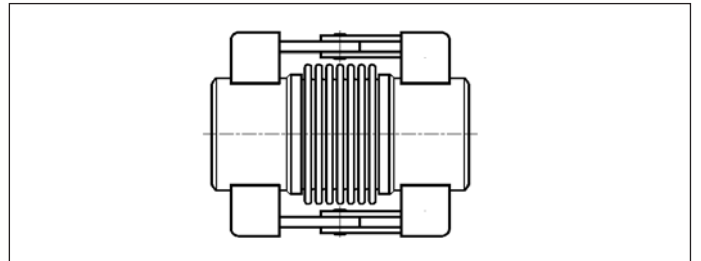
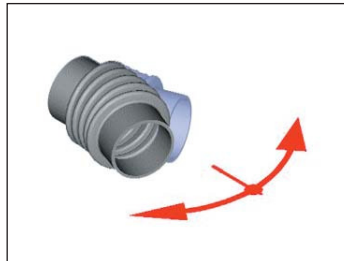
## Universale

*Universal*



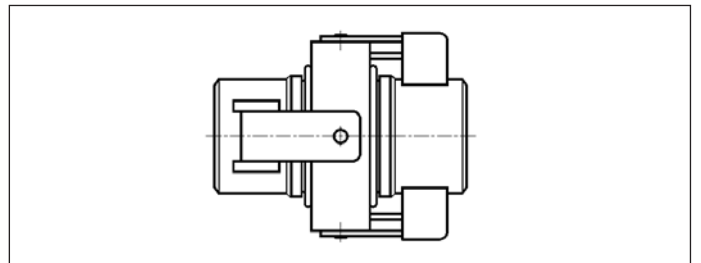
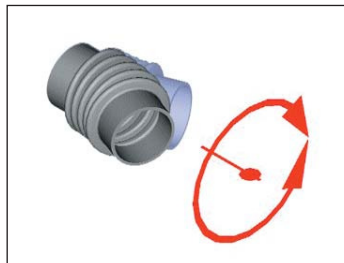
## Angolare

*Hinged*



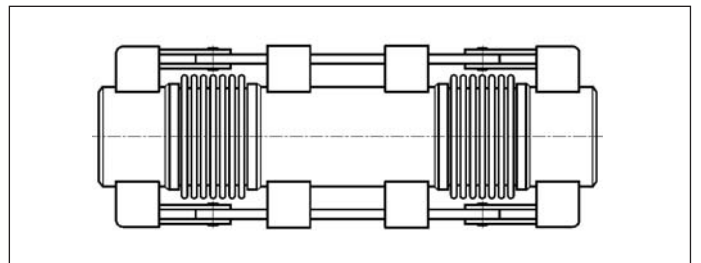
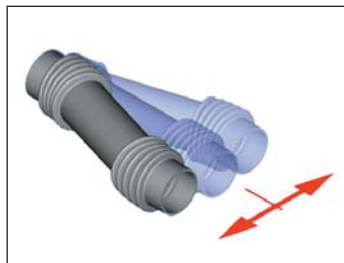
## Angolare sferico

*Gimbal*



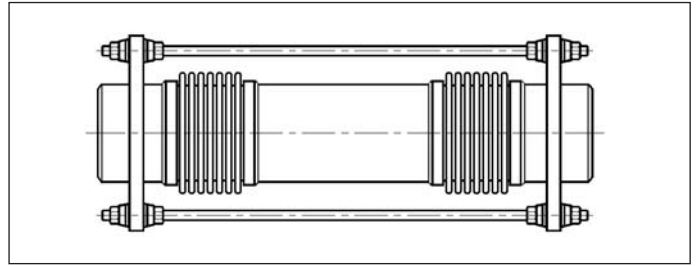
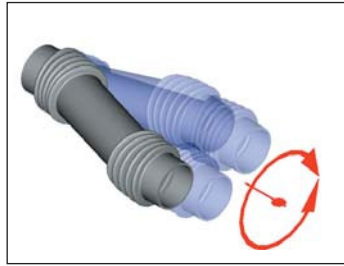
## Laterale

*Lateral*



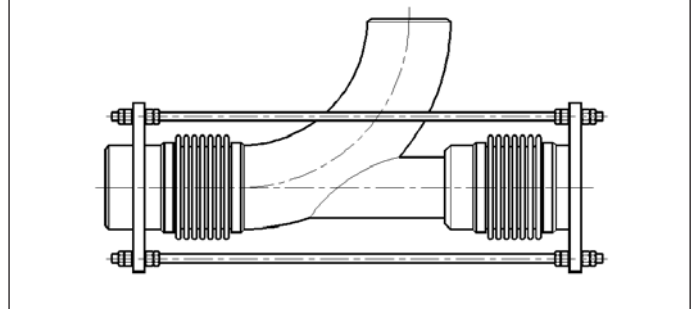
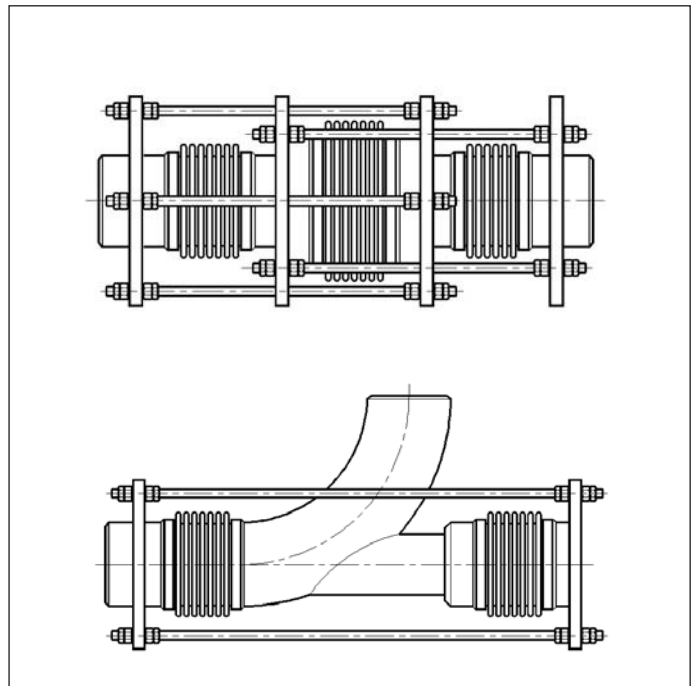
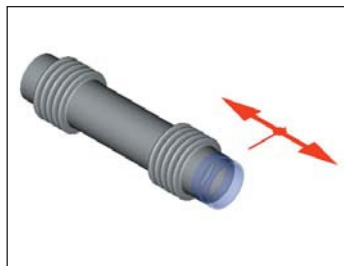
**Laterale Sferico**

*Spherical*



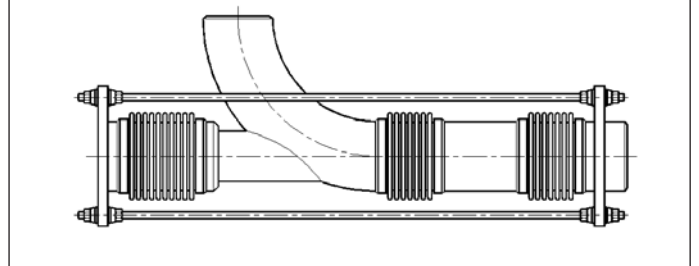
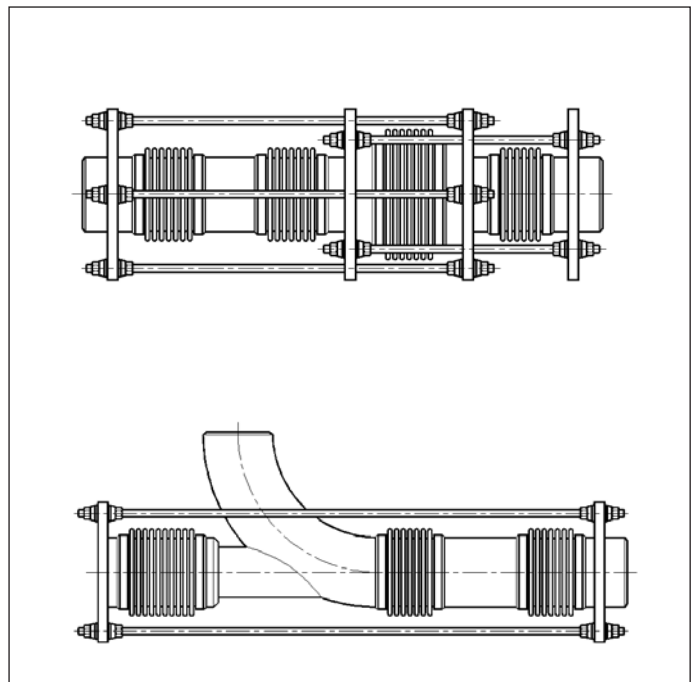
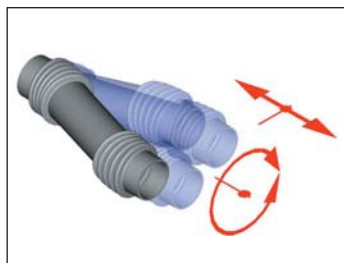
**Assiale a spinta eliminata**

*Pressure balanced axial*



**Universale  
a spinta eliminata**

*Pressure balanced  
universal*



## PROGETTAZIONE E COSTRUZIONE

I compensatori Giorgi sono progettati e fabbricati in accordo a:

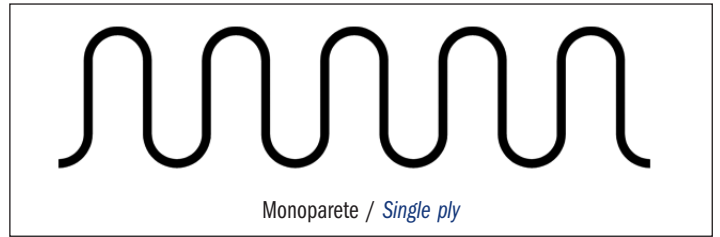
- ASME VIII div. 1 e 2
- EJMA
- RINA
- ISPSEL
- TUV

## IL SOFFIETTO

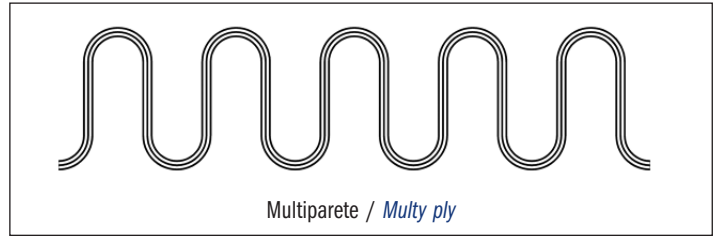
Il soffietto è la parte fondamentale del compensatore e viene ricavato mediante processo idraulico o meccanico da lamiera in acciaio inox o acciaio legato avente una sola saldatura longitudinale.

Vengono formate con un procedimento controllato una serie di onde metalliche parallele che assicurano la massima flessibilità ed affidabilità.

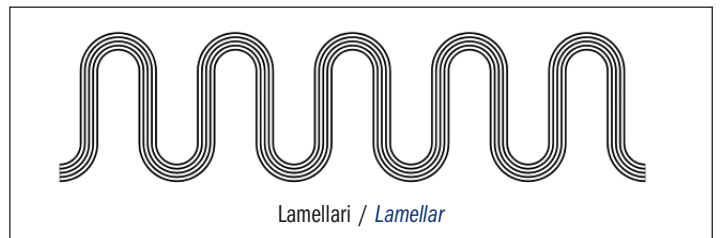
Il nostro sistema di calcolo fornisce lo stressanalysis del soffietto ed è possibile eseguire i calcoli in accordo con le specifiche del Cliente.



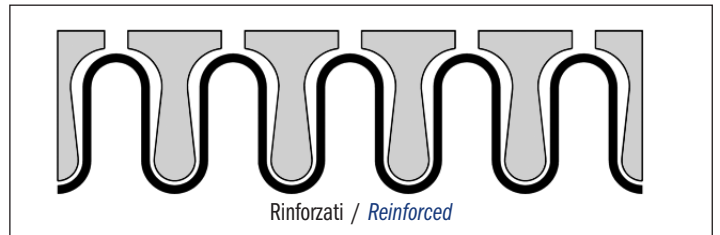
Monoparete / *Single ply*



Multiparete / *Multy ply*



Lamellari / *Lamellar*



Rinforzati / *Reinforced*

| Tipo compensatore<br><i>Expansion joint type</i>    | Materiale estremità<br><i>Connection material</i>         | Materiale tiranteria<br><i>Tie-rods material</i>         | Temperatura max<br><i>Max temperature</i> |
|---|---|--|---|
| Assiali flangiati<br><i>Axial with flanges</i>      | Fe 410 B UNI 7746<br>Fe 42 B UNI 7070<br>Fe 44 B UNI 7070 |  | 343 °C                                    |
|   | Fe 410.1 KW<br>UNI 5869<br>ASTM A 105                     |  | 454°C                                     |
| Assiali a saldare<br><i>Axial with welding ends</i> | ASTM A 106 Gr.B   |  | 454°C                                     |
| Angolari e cardanici<br><i>Hinged and Gimbal</i>    | ASTM A 106 Gr.B   | Fe 37 B UNI 7070<br>Fe 42 B UNI 7070<br>Fe 44 B UNI 7070 | 343°C                                     |
|   |   | Fe 410.1 KW<br>UNI 5869                                  | 454°C                                     |

## MATERIALI

La scelta del materiale base da utilizzare per la formatura dei soffietti deve avere i seguenti requisiti:

- resistenza alla fatica
- resistenza alla corrosione
- saldabilità

Proprio per questi fattori, il materiale più utilizzato è l'acciaio inox AISI 321 (temp. max. 800° C).

Per valori di corrosione o di temperatura superiori vengono utilizzati l'acciaio inox AISI 316/316L, oppure acciai legati come l'Inconel, Incoloy, Hastelloy, Nichel e Monel.

## CALCOLO DELLA DILATAZIONE TERMICA

Per calcolare le dilatazioni termiche delle tubazioni occorrono i seguenti dati:

$$\Delta = \frac{L * \alpha * Te}{100}$$

L: lunghezza

Te: temperatura d'esercizio °C

$\alpha$ : coefficiente di dilatazione (vedi tabella)



| Temperatura °C<br><i>Temperature °C</i>    | Coefficiente di dilatazione termica ( $\alpha$ )<br><i>Coefficient of thermal expansion (<math>\alpha</math>)</i> |       |         |         |         |         |         |         |         |
|--|---|-------|---------|---------|---------|---------|---------|---------|---------|
|  | -190/0  | 0-100 | 101-200 | 201-300 | 301-400 | 401-500 | 501-600 | 601-700 | 701-800 |
| Acciaio al carbonio<br><i>Carbon steel</i> | -0.88   | 1.20  | 1.26    | 1.31    | 1.36    | 1.41    | 1.47    |         |         |
| Acciaio legato<br><i>Alloy steel</i>       | -0.88   | 1.11  | 1.21    | 1.29    | 1.35    | 1.39    | 1.43    |         |         |
| Acciaio inox<br><i>Stainless steel</i>     | -1.46   | 1.68  | 1.75    | 1.80    | 1.84    | 1.88    | 1.91    | 1.95    | 1.97    |

## COLLAUDI

Le prove di pressatura idraulica e di scoppio hanno lo scopo di verificare che le tensioni che si verificano durante l'esercizio siano inferiori alle tensioni di snervamento. Per avere la massima affidabilità all'acquisto dei materiali base ed alle singole lavorazioni, Giorgi esegue controlli e collaudi mediante severe procedure raccolte in un manuale di garanzia della qualità. La pressione idraulica viene eseguita a 1,5 volte la pressione di esercizio. Dove necessario si effettuano collaudi alla presenza di enti come RINA, LLOYD'S REGISTER, ISPESL, ABS.

Questi collaudi vengono così effettuati:

MATERIALI BASE: soffietto, terminali, accessori

SALDATURA: cilindro, soffietto, soffietto/terminali,

tiranteria

FUNZIONALI: durata, usura



I coefficienti vanno sommati in base al range di variazione delle temperature.

**DILATAZIONE  
DELLE TUBAZIONI  
(mm/100m)**

| Temperatura<br>Temperature |      | Acciaio al carbonio<br>e carbomonolibdeno | Acciaio legato<br>4 - 6% Cr | Acciaio inox<br>12% Cr | Acciaio inox<br>18% Cr - 8% Ni |
|----------------------------|------|---|-----------------------------|------------------------|--------------------------------|
| °C                         | °F   | Carbon steel and<br>carbomonolibdeno      | Alloy steel                 | Stainless steel        | Stainless steel                |
| -95                        | -140 | -79,3                                     | -81,6                       | -76,8                  | -130,7                         |
| -85                        | -120 | -68,8                                     | -66,7                       | -62,2                  | -114,8                         |
| -73                        | -100 | -56,1                                     | -58,3                       | -55,6                  | -96,2                          |
| -62                        | -80  | -46,9                                     | -45,8                       | -45,9                  | -77,7                          |
| -51                        | -60  | -35,7                                     | -35,8                       | -35,3                  | -59,1                          |
| -40                        | -40  | -24,0                                     | -24,2                       | -23,8                  | -39,7                          |
| -28,9                      | -20  | -11,9                                     | -12,8                       | -11,5                  | -19,9                          |
| -17,8                      | 0    | 0   | 0                           | 0                      | 0                              |
| 6,67                       | 20   | 12,3                                      | 11,6                        | 11,6                   | 19,8                           |
| 0                          | 32   | 19,2                                      | 19,5                        | 19,5                   | 29,7                           |
| 4,44                       | 40   | 25,0                                      | 23,3                        | 23,3                   | 37,2                           |
| 15,6                       | 60   | 37,3                                      | 35,8                        | 35,8                   | 55,7                           |
| 26,7                       | 80   | 48,3                                      | 41,7                        | 45,8                   | 74,3                           |
| 38                         | 100  | 62,7                                      | 54,1                        | 57,5                   | 92,9                           |
| 49                         | 120  | 75,8                                      | 66,6                        | 68,3                   | 11,5                           |
| 60                         | 140  | 88,6                                      | 79,1                        | 79,9                   | 128,7                          |
| 71                         | 160  | 99,9                                      | 91,6                        | 90,8                   | 148,6                          |
| 82                         | 180  | 113,3                                     | 104,1                       | 102,5                  | 166,6                          |
| 93                         | 200  | 126,6                                     | 116,6                       | 115,0                  | 185,8                          |
| 100                        | 212  | 134,1                                     | 125,0                       | 121,6                  | 196,7                          |
| 104                        | 220  | 140,0                                     | 129,1                       | 125,8                  | 204,9                          |
| 116                        | 240  | 153,3                                     | 143,3                       | 137,4                  | 223,2                          |
| 127                        | 260  | 168,3                                     | 156,6                       | 149,1                  | 243,2                          |
| 138                        | 280  | 181,6                                     | 170,7                       | 161,0                  | 262,4                          |
| 149                        | 300  | 195,8                                     | 183,3                       | 173,3                  | 282,4                          |
| 160                        | 320  | 210,7                                     | 197,4                       | 184,9                  | 301,1                          |
| 171                        | 340  | 225,0                                     | 210,7                       | 196,5                  | 319,8                          |
| 182                        | 360  | 240,0                                     | 225                         | 209                    | 341                            |
| 193                        | 380  | 254,9                                     | 238                         | 222                    | 362                            |
| 209                        | 400  | 269,0                                     | 251                         | 235                    | 382                            |
| 216                        | 420  | 285,0                                     | 265                         | 248                    | 400                            |
| 227                        | 440  | 299,0                                     | 279                         | 261                    | 421                            |
| 238                        | 460  | 315                                       | 244                         | 274                    | 441                            |
| 249                        | 480  | 329                                       | 308                         | 287                    | 462                            |
| 260                        | 500  | 346                                       | 322                         | 300                    | 483                            |
| 271                        | 520  | 362                                       | 337                         | 313                    | 504                            |
| 282                        | 540  | 377                                       | 350                         | 327                    | 523                            |
| 298                        | 560  | 394                                       | 367                         | 341                    | 543                            |
| 304                        | 580  | 410                                       | 380                         | 354                    | 565                            |
| 316                        | 600  | 427                                       | 346                         | 368                    | 585                            |
| 327                        | 620  | 444                                       | 410                         | 381                    | 606                            |
| 333                        | 640  | 461                                       | 425                         | 396                    | 626                            |
| 349                        | 660  | 479                                       | 441                         | 409                    | 647                            |
| 360                        | 680  | 496                                       | 456                         | 423                    | 668                            |
| 371                        | 700  | 513                                       | 471                         | 437                    | 690                            |
| 382                        | 720  | 530                                       | 487                         | 452                    | 710                            |
| 393                        | 740  | 547                                       | 502                         | 468                    | 731                            |
| 404                        | 760  | 566                                       | 518                         | 480                    | 754                            |
| 416                        | 780  | 583                                       | 534                         | 495                    | 775                            |
| 427                        | 800  | 602                                       | 551                         | 509                    | 796                            |
| 433                        | 820  | 621                                       | 566                         | 525                    | 818                            |
| 449                        | 840  | 638                                       | 583                         | 540                    | 841                            |
| 460                        | 860  | 664                                       | 599                         | 555                    | 864                            |
| 471                        | 880  | 675                                       | 615                         | 570                    | 885                            |
| 482                        | 900  |   | 631                         | 584                    | 908                            |
| 493                        | 920  |   | 647                         | 600                    | 931                            |
| 504                        | 940  |   | 664                         | 615                    | 955                            |
| 516                        | 960  |   | 681                         | 630                    | 977                            |
| 527                        | 980  |   | 696                         | 653                    | 999                            |
| 538                        | 1000 |   | 712                         | 660                    | 1021                           |
| 549                        | 1020 |   | 729                         | 675                    | 1045                           |
| 560                        | 1040 |   | 746                         | 689                    | 1067                           |
| 571                        | 1060 |   | 762                         | 705                    | 1091                           |
| 583                        | 1080 |   | 779                         | 710                    | 1113                           |
| 594                        | 1100 |   | 795                         | 735                    | 1135                           |
| 605                        | 1120 |   | 812                         | 750                    | 1159                           |
| 616                        | 1140 |   | 829                         | 765                    | 1180                           |



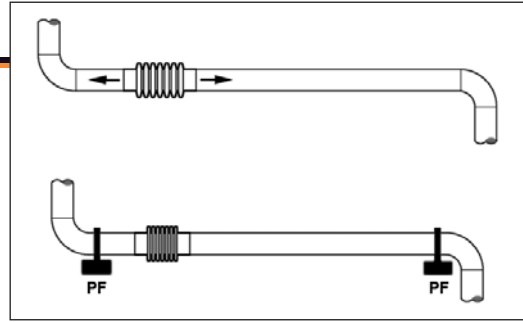
## NORME E SCHEMI

### COMPENSATORI ASSIALI

#### Calcolo delle spinte

I compensatori assiali, formati da uno o più soffietti, sono progettati e costruiti per assorbire i movimenti assiali. Vengono sempre installati tra due punti fissi dimensionati affinché possano sopportare la spinta dovuta alla pressione interna.

$$Sp = Am * Pe$$



Per una corretta installazione occorre pretensionare il giunto calcolando la lunghezza al montaggio come di seguito descritto:

*For a correct installation it is necessary to presetting the joint, calculating the length to the assemblage, as follows:*

$$Lm = L + Ce * \frac{\Delta}{Ce + Cc} - \Delta * \frac{Tm - Tmax}{Tmax - Tmin}$$

dove / were:

Sp = spinta / thrust

Am = area media / medium area

Pe = pressione / pressure

L = lunghezza / length

Tmax = temperatura max d'esercizio  
maximum working temperature

Tmin = temperatura minima d'esercizio  
minimum working temperature

Tm = temperatura di montaggio / mounting temperature

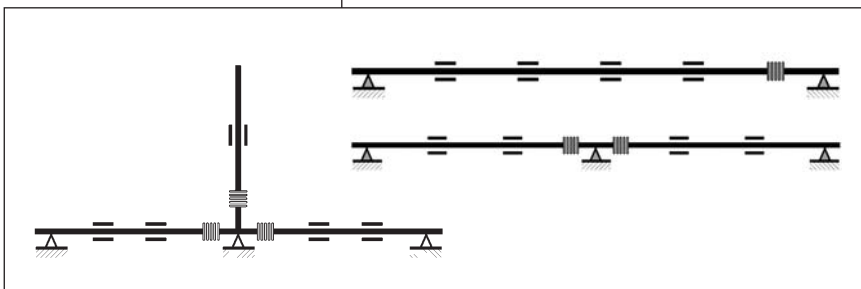
$\Delta$  = dilatazione della tubazione tra Tmin e Tmax  
expansion of the pipeline between Tmin and Tmax

Ce = corsa in estensione / extension travel

Cc = corsa in compressione / compression travel

### SCHEMI INSTALLAZIONE COMPENSATORI ASSIALI

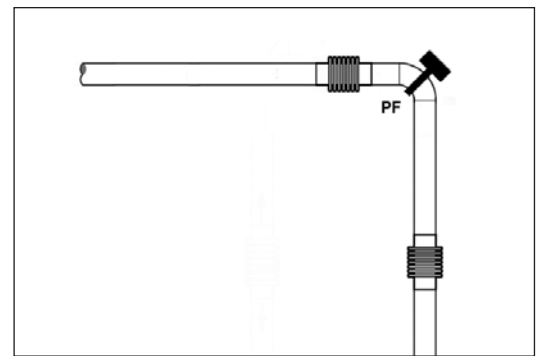
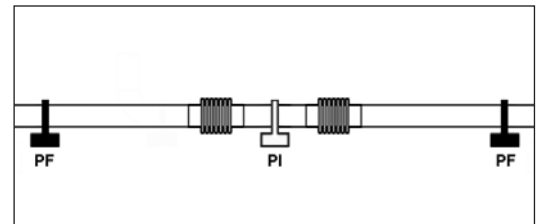
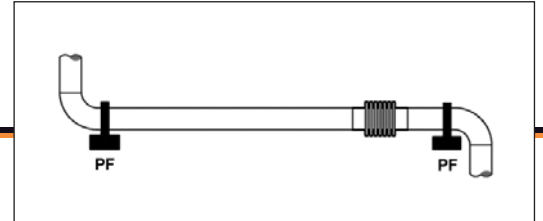
#### *Axial expansion joints installation schemes*



### PUNTI FISSI

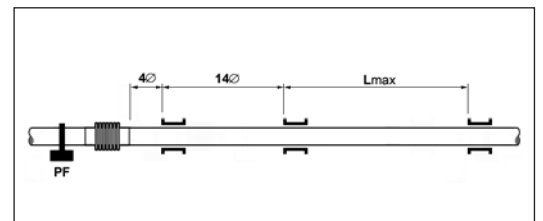
Affinchè il compensatore assiale possa svolgere perfettamente la sua funzione, occorre limitare le forze (spostamenti e rotazioni) che si generano sulla tubazione utilizzando punti fissi. Generalmente i punti fissi si distinguono in:

- punto fisso principale PF
- punto fisso intermedio PI



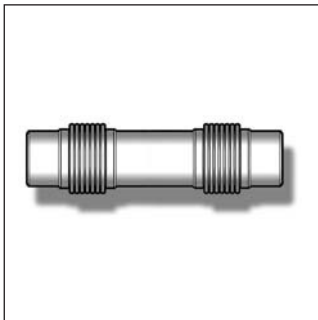
### GUIDE

Un appropriato posizionamento di punti fissi e guide in una tubazione potrà controllare il movimento del compensatore.



## NORME E SCHEMI

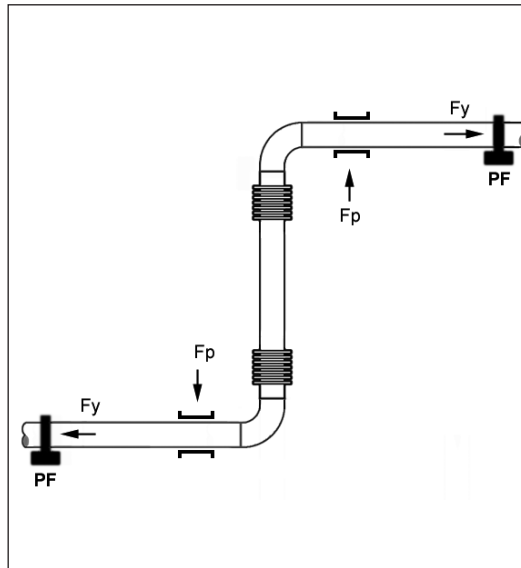
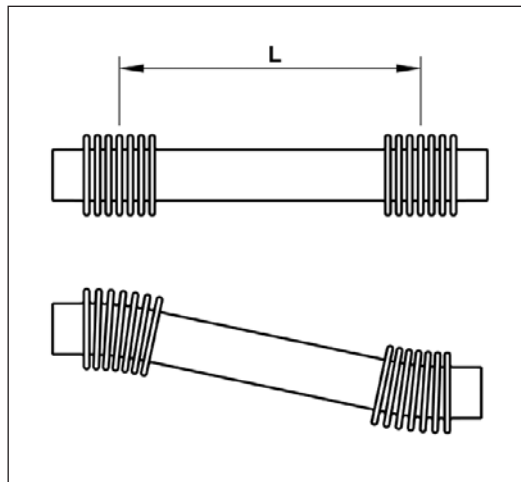
### COMPENSATORI UNIVERSALI



Sono costituiti da due soffietti in grado di assorbire qualsiasi combinazione di movimento: assiale, laterale e angolare.

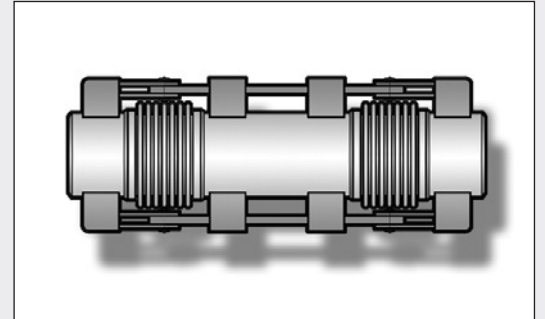
Come raffigurato in figura, aumentando la lunghezza "L" del tratto intermedio aumenta automaticamente la corsa laterale che il giunto può assorbire.

Anche in questo caso l'installazione del giunto avviene tra due punti fissi progettati per resistere alla spinta laterale  $F_y$  e da due guide progettate per sostenere la spinta dovuta alla pressione  $F_p$ .



### COMPENSATORI LATERALI

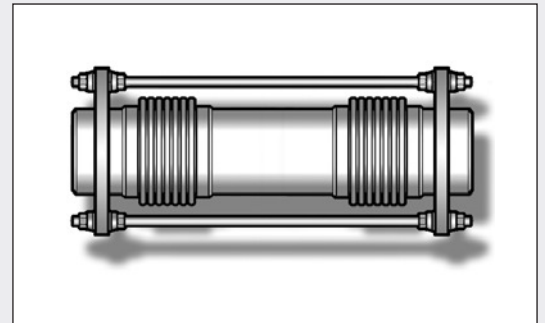
Questi compensatori costruiti con una doppia cerniera permettono di assorbire spostamenti laterali sullo stesso piano.



### COMPENSATORI LATERALI SFERICI

I compensatori laterali sferici sono completi di rondelle sferiche posizionate alle estremità dei tiranti e permettono di assorbire movimenti laterali in tutti i piani.

Fondamentale, anche in questo caso, l'installazione dei punti fissi che a differenza delle installazioni precedenti non dovranno sostenere la spinta dovuta alla pressione interna.



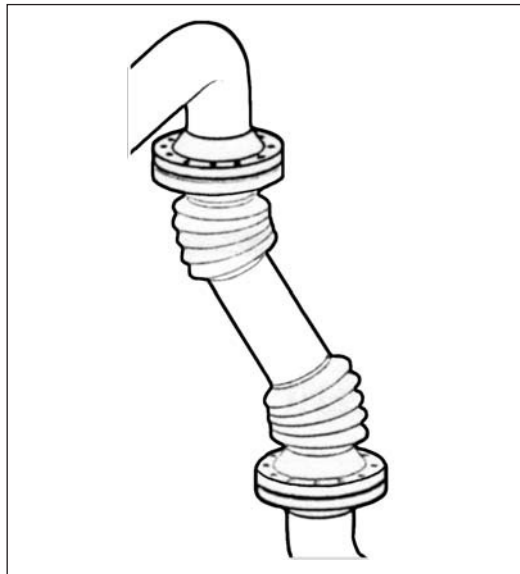
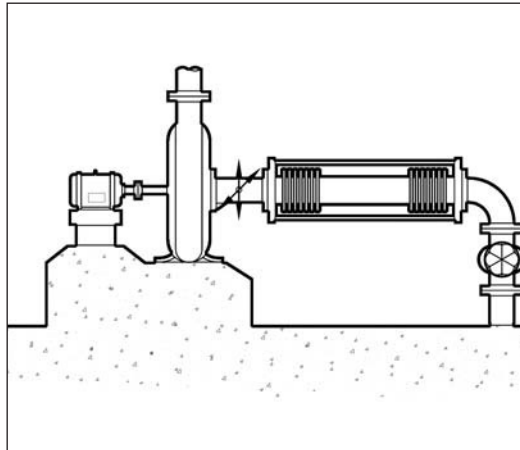
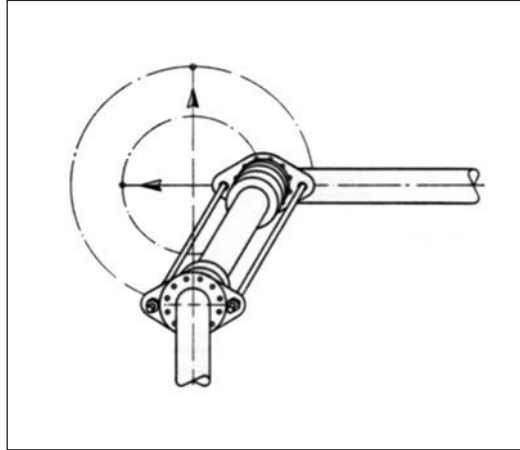


**SCHEMI  
INSTALLAZIONE**

*Installation  
schemes*

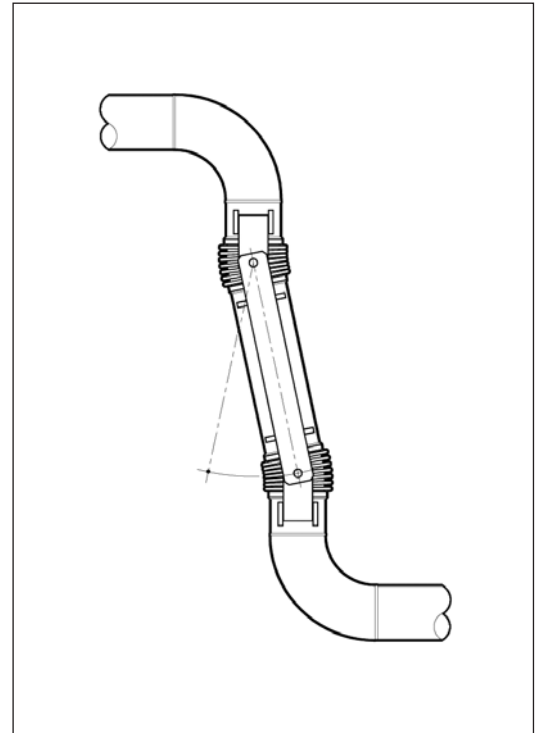
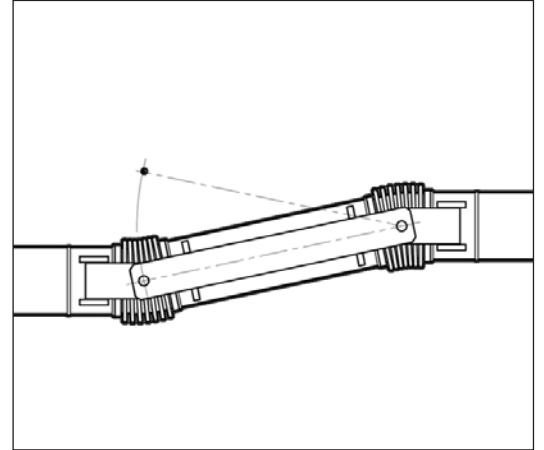
**COMPENSATORI UNIVERSALI  
E LATERALI SFERICI**

*Universal and lateral  
expansion joints*



**COMPENSATORI  
LATERALI**

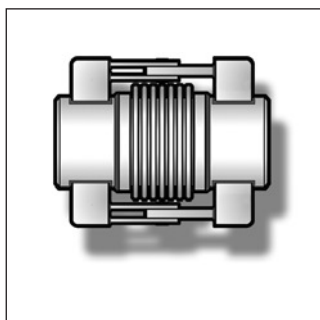
*Lateral  
expansion joints*



## COMPENSATORI ANGOLARI ANGOLARI SFERICI (o cardanici)

Sono entrambi compensatori in grado di assorbire la **Spinta di Fondo** dovuta alla pressione interna.

| MATERIALI / MATERIALS                         |                       |                   |                    |
|---|-----------------------|-------------------|--------------------|
| Soffietto / Bellows                           | Manicotti / Pipe ends | Perni / Pins      | Cerniere / Tie-bar |
| ASTM A 240 Tp. 321<br>ASTM A 240 Tp. 316 316L | Fe 410.1 KW           | ASTM A 193 Gr. B7 | Fe 410.1 KW        |



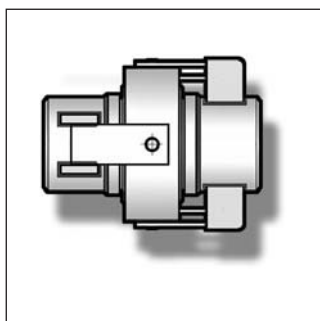
### ESECUZIONI PREVISTE

#### WH Angolari

Permettono rotazioni intorno all'asse coincidente con l'asse delle cerniere.

#### WG Angolari sferici

Ammettono rotazioni intorno all'asse disposto perpendicolarmente all'asse del soffietto.



### COSTRUZIONE

I compensatori angolari (WH) sono formati da un soffietto e due coppie di cerniere snodate. I compensatori angolari sferici (WG) sono formati da un soffietto e quattro cerniere snodate.

### NORME DI INSTALLAZIONE

**WH** - Lo spostamento laterale sostenuto da una coppia di angolari è proporzionale alla reciproca distanza, pertanto più sono distanti i due giunti, maggiore sarà lo spostamento laterale.

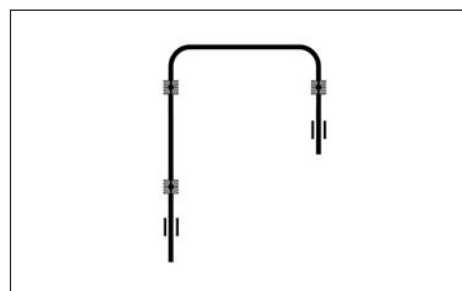
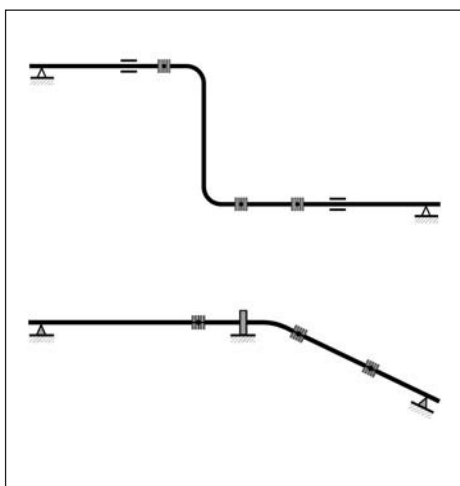
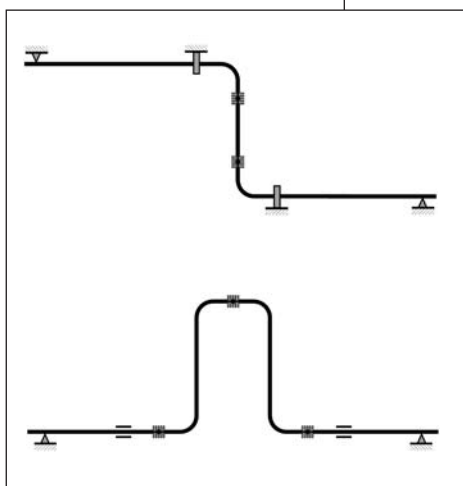
Come potete osservare dagli sketch seguenti, i compensatori angolari vengono sempre installati in coppia o terna affinché possano assorbire spostamenti laterali in una o più direzioni rispetto al piano della tubazione.

La loro installazione permette di ridurre in modo evidente lo sforzo generato sui punti fissi.

**WG** - Per un corretto funzionamento questi compensatori devono essere installati in coppia oppure unitamente ad un compensatore angolare (vedere sketch).

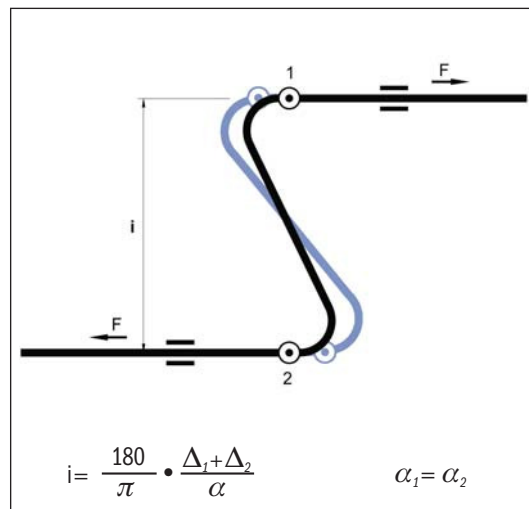
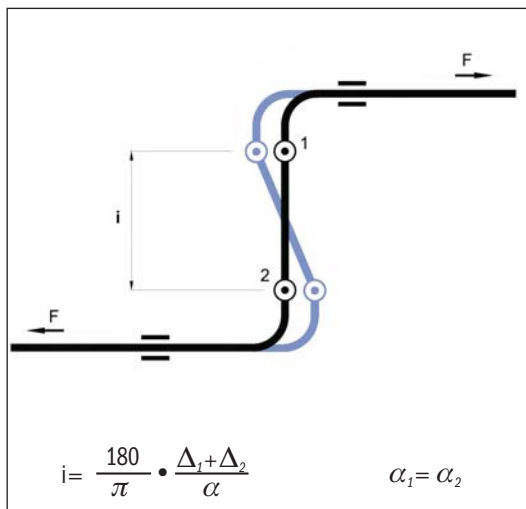
## SCHEMI INSTALLAZIONE COMPENSATORI ANGOLARI

*Hinged expansion joints installation schemes*



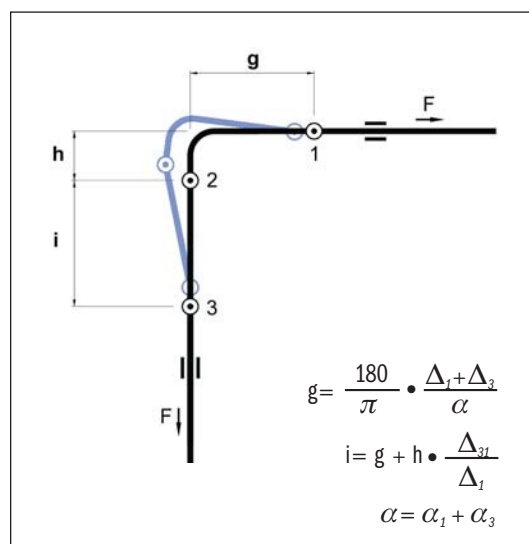
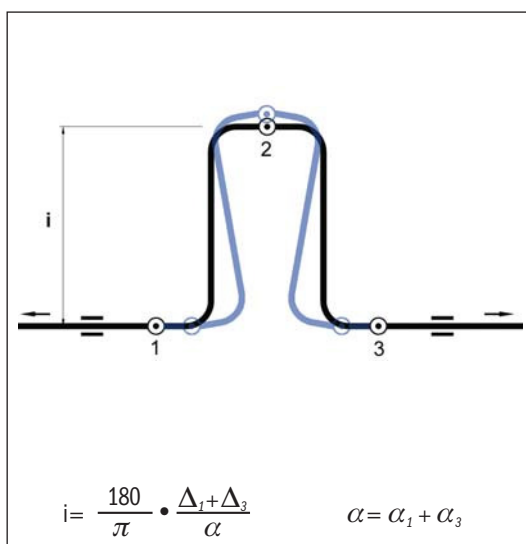
### INSTALLAZIONE DI UNA COPPIA DI COMPENSATORI ANGOLARI

*Two hinged expansion joints installation*



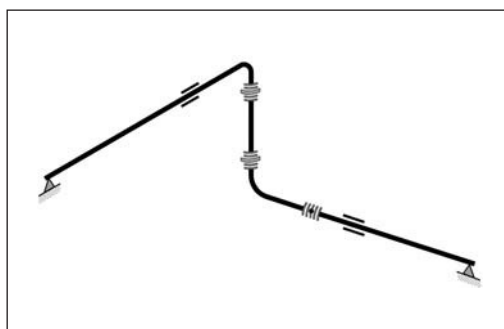
### MONTAGGIO DI UNA TERNA DI COMPENSATORI ANGOLARI

*Three hinged expansion joints installation*



### SCHEMA INSTALLAZIONE COMPENSATORI ANGOLARI E ANGOLARI SFERICI

*Hinged/gimbal expansion joints installation schemes*



**MATERIALI STANDARD**

Standars materials

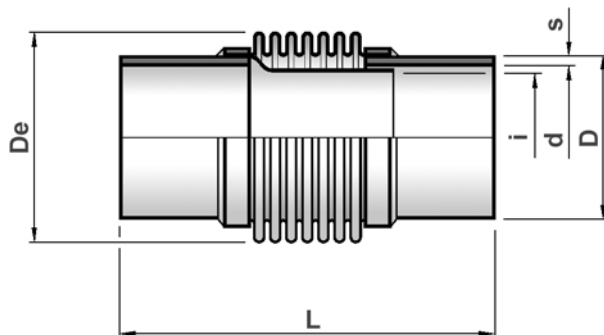
Soffietto e convogliatori

Bellows and sleeve

ASTM A 240 tp.321

Manicotti / Welding ends

ASTM A 240 tp.304



**GIUNTO PER SCAMBIATORI DI CALORE**

Joint for heat exchanger

PN 16

| DN  | L<br>mm | D<br>mm | s<br>mm | d<br>mm | i<br>mm | De<br>mm | Corsa<br>Movement |         |         | Rigidezza<br>Assiale<br>Axial spring rate<br>+/- 20%<br>N/mm | Area<br>Media<br>Media<br>Area<br>cm <sup>2</sup> | Peso<br>Weith<br>kg |
|-----|---------|---------|---------|---------|---------|----------|-------------------|---------|---------|--|---|---------------------|
|     |         |         |         |         |         |          | Tot.<br>mm        | +<br>mm | -<br>mm |  |   |                     |
| 40  | 160     | 48,3    | 2,77    | 42,76   | 41      | 64,3     | 18                | 6       | 12      | 147  | 25  | 0,7                 |
| 50  | 160     | 60,3    | 2,77    | 54,76   | 53      | 76,3     | 18                | 6       | 12      | 171  | 35  | 0,8                 |
| 65  | 160     | 76,1    | 3,05    | 70      | 69      | 94       | 18                | 6       | 12      | 205  | 57  | 1,2                 |
| 80  | 160     | 88,9    | 3,05    | 82,8    | 82      | 106,3    | 18                | 6       | 12      | 235  | 73  | 1,3                 |
| 100 | 165     | 114,3   | 3,05    | 108,2   | 107     | 136,7    | 18                | 6       | 12      | 378  | 120   | 2                   |
| 125 | 175     | 141,3   | 3,4     | 134,5   | 133     | 164,7    | 18                | 6       | 12      | 444  | 176   | 2,8                 |
| 150 | 180     | 168,3   | 3,4     | 161,5   | 160     | 191,3    | 18                | 6       | 12      | 492  | 249   | 3,3                 |
| 200 | 265     | 219,1   | 3,76    | 211,5   | 210     | 243,1    | 18                | 6       | 12      | 829  | 412   | 6,8                 |
| 250 | 295     | 273     | 3,4     | 266,2   | 264     | 297      | 18                | 6       | 12      | 1024   | 629   | 8,7                 |
| 300 | 305     | 323,9   | 3,96    | 316     | 313     | 355,9    | 16                | 4       | 12      | 908  | 897   | 12,6                |

**MATERIALI STANDARD**

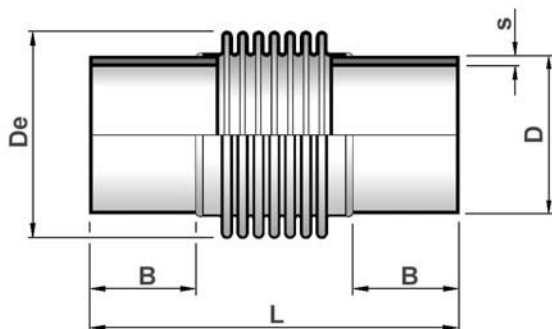
Standars materials

Soffietto / Bellows

ASTM A 240 tp.321

Manicotti / Welding ends

ASTM A 106 Gr.B



**GIUNTO ELASTICO PER GAS DI SCARICO**

Elastic joint for exhaust gas

PN 2,5

| DN  | L<br>mm | D<br>mm | s<br>mm | d<br>mm | De<br>mm | Corsa<br>Movement |              | Rigidezza<br>Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm <sup>2</sup> |
|-----|---------|---------|---------|---------|----------|-------------------|--------------|---|---|
|     |         |         |         |         |          | Ass.<br>mm        | Lat. ±<br>mm |   |   |
| 40  | 185     | 48,3    | 2,6     | 50      | 72       | 45                | 11           | 39  | 28  |
| 50  | 198     | 60,3    | 2,9     | 50      | 84       | 45                | 10           | 42  | 40  |
| 65  | 204     | 76,1    | 2,9     | 50      | 102      | 50                | 10           | 86  | 62  |
| 80  | 206     | 88,9    | 3,2     | 50      | 115      | 55                | 10           | 42  | 80  |
| 100 | 273     | 114,3   | 3,6     | 65      | 146      | 60                | 11           | 77  | 139   |
| 125 | 290     | 139,7   | 4       | 70      | 168      | 60                | 10           | 160   | 188   |
| 150 | 300     | 168,3   | 4,5     | 70      | 196      | 60                | 9            | 188   | 263   |
| 200 | 273     | 219,1   | 5,9     | 70      | 222      | 50                | 5,4          | 183   | 356   |
| 250 | 293     | 273     | 6,3     | 80      | 279      | 50                | 4,3          | 229   | 556   |
| 300 | 267     | 323,9   | 7,1     | 80      | 331      | 60                | 3,6          | 164   | 774   |
| 350 | 267     | 355,6   | 8       | 80      | 364      | 60                | 3,2          | 183   | 946   |
| 400 | 267     | 406,4   | 8,8     | 80      | 413      | 60                | 2,8          | 210   | 1232  |

**MATERIALI STANDARD**

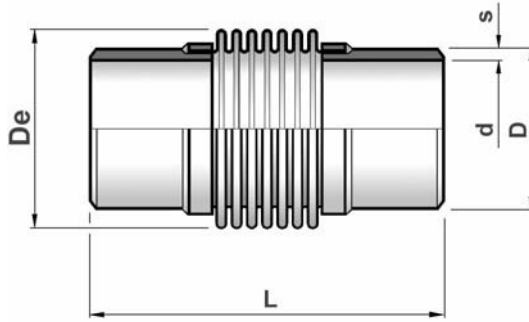
Standard materials

Soffietto / Bellows

ASTM A 240 tp.321

Manicotti / Welding ends

ASTM A 106 Gr.B



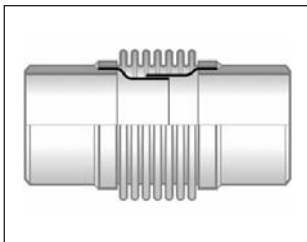
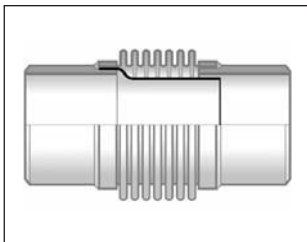
**COMPENSATORI ASSIALI A SALDARE**

*Axial expansion joints with welding ends*

**PN 2,5**

**A RICHIESTA**

*On request*



| DN   | L<br>mm | D<br>mm | s<br>mm | d<br>mm | De<br>mm | Corsa Assiale<br>Axial movement |         |         | Rigidezza<br>Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm <sup>2</sup> |
|------|---------|---------|---------|---------|----------|---------------------------------|---------|---------|---|---|
|      |         |         |         |         |          | Tot.<br>mm                      | +<br>mm | -<br>mm |   |   |
| 40   | 195     | 48,3    | 2,6     | 43,1    | 72       | 39                              | 13      | 26      | 102   | 28  |
|      | 179     |         |         |         |          | 30                              | 10      | 20      | 128   |   |
|      | 164     |         |         |         |          | 25                              | 9       | 16      | 171   |   |
| 50   | 208     | 60,3    | 2,9     | 54,5    | 84       | 42                              | 14      | 28      | 114   | 40  |
|      | 183     |         |         |         |          | 30                              | 10      | 20      | 157   |   |
|      | 166     |         |         |         |          | 25                              | 9       | 16      | 209   |   |
| 65   | 214     | 76,1    | 2,9     | 70,3    | 102      | 56                              | 19      | 37      | 224   | 62  |
|      | 206     |         |         |         |          | 42                              | 15      | 27      | 345   |   |
|      | 185     |         |         |         |          | 32                              | 11      | 21      | 443   |   |
| 80   | 245     | 88,9    | 3,2     | 82,5    | 115      | 48                              | 16      | 32      | 141   | 81  |
|      | 226     |         |         |         |          | 45                              | 15      | 30      | 139   |   |
|      | 204     |         |         |         |          | 33                              | 11      | 22      | 185   |   |
| 100  | 291     | 114,3   | 3,6     | 107,1   | 146      | 75                              | 25      | 50      | 104   | 133   |
|      | 268     |         |         |         |          | 63                              | 21      | 42      | 125   |   |
|      | 245     |         |         |         |          | 51                              | 17      | 34      | 156   |   |
| 125  | 272     | 141,3   | 4       | 133,3   | 168      | 63                              | 21      | 42      | 216   | 188   |
|      | 248     |         |         |         |          | 50                              | 17      | 33      | 259   |   |
|      | 222     |         |         |         |          | 48                              | 16      | 32      | 324   |   |
| 150  | 282     | 168,3   | 4,5     | 159,3   | 196      | 76                              | 28      | 48      | 253   | 263   |
|      | 256     |         |         |         |          | 60                              | 20      | 40      | 298   |   |
|      | 228     |         |         |         |          | 40                              | 14      | 26      | 373   |   |
| 200  | 255     | 219,1   | 5,9     | 207,3   | 226      | 50                              | 16      | 34      | 247   | 356   |
|      | 236     |         |         |         |          | 44                              | 19      | 29      | 296   |   |
|      | 265     |         |         |         |          | 50                              | 16      | 34      | 309   |   |
| 250  | 246     | 273     | 6,3     | 260,4   | 279      | 42                              | 14      | 28      | 371   | 556   |
|      | 289     |         |         |         |          | 60                              | 20      | 40      | 222   |   |
|      | 278     |         |         |         |          | 45                              | 15      | 30      | 285   |   |
| 300  | 299     | 323,9   | 7,1     | 309,7   | 331      | 60                              | 20      | 40      | 246   | 774   |
|      | 278     |         |         |         |          | 45                              | 15      | 30      | 317   |   |
|      | 299     |         |         |         |          | 60                              | 20      | 40      | 283   |   |
| 350  | 278     | 355,6   | 8       | 339,6   | 364      | 45                              | 15      | 30      | 364   | 1232  |
|      | 299     |         |         |         |          | 60                              | 20      | 40      | 283   |   |
|      | 278     |         |         |         |          | 45                              | 15      | 30      | 364   |   |
| 400  | 299     | 406,4   | 8,8     | 388,8   | 413      | 60                              | 20      | 40      | 283   | 1232  |
|      | 278     |         |         |         |          | 45                              | 15      | 30      | 364   |   |
|      | 340     |         |         |         |          | 90                              | 32      | 58      | 145   |   |
| 450  | 315     | 457,2   | 8,8     | 439,6   | 473      | 70                              | 25      | 45      | 219   | 1597  |
|      | 285     |         |         |         |          | 40                              | 15      | 25      | 305   |   |
|      | 340     |         |         |         |          | 90                              | 32      | 58      | 145   |   |
| 500  | 342     | 508     | 8,8     | 490,4   | 523      | 80                              | 26      | 54      | 245   | 1971  |
|      | 317     |         |         |         |          | 50                              | 18      | 32      | 294   |   |
|      | 286     |         |         |         |          | 40                              | 15      | 25      | 350   |   |
| 600  | 345     | 609,6   | 8       | 593,6   | 636      | 90                              | 35      | 55      | 222   | 2856  |
|      | 323     |         |         |         |          | 70                              | 25      | 45      | 335   |   |
|      | 294     |         |         |         |          | 40                              | 15      | 25      | 570   |   |
| 700  | 348     | 711,2   | 8       | 659,2   | 739      | 90                              | 35      | 55      | 292   | 3921  |
|      | 325     |         |         |         |          | 70                              | 25      | 45      | 460   |   |
|      | 295     |         |         |         |          | 40                              | 15      | 25      | 585   |   |
| 800  | 348     | 812,8   | 10      | 792,8   | 841      | 100                             | 35      | 65      | 335   | 5135  |
|      | 325     |         |         |         |          | 60                              | 20      | 40      | 500   |   |
|      | 295     |         |         |         |          | 40                              | 15      | 25      | 640   |   |
| 900  | 362     | 914,4   | 10      | 894,4   | 942      | 100                             | 35      | 65      | 378   | 6498  |
|      | 322     |         |         |         |          | 60                              | 20      | 40      | 548   |   |
|      | 304     |         |         |         |          | 40                              | 13      | 27      | 793   |   |
| 1000 | 374     | 1016    | 10      | 996     | 1044     | 100                             | 35      | 65      | 421   | 8037  |
|      | 345     |         |         |         |          | 70                              | 23      | 47      | 610   |   |
|      | 318     |         |         |         |          | 45                              | 15      | 30      | 799   |   |
| 1200 | 380     | 1219    | 10      | 1199    | 1246     | 120                             | 47      | 73      | 379   | 11576                                       |
|      | 358     |         |         |         |          | 80                              | 30      | 50      | 506   |   |
|      | 310     |         |         |         |          | 50                              | 22      | 28      | 961   |   |

**COMPENSATORI ASSIALI A SALDARE**  
*Axial expansion joints with welding ends*

**TIPO** **AW**  
*Type*

**PN 6**

| DN   | L<br>mm | D<br>mm | s<br>mm | d<br>mm | De<br>mm | Corsa Assiale<br><i>Axial movement</i> |         |         | Rigidezza Assiale<br><i>Axial spring rate</i><br>+/- 20% N/mm | Area Media<br><i>Media Area</i><br>cm <sup>2</sup> |
|------|---------|---------|---------|---------|----------|--|---------|---------|---|--|
|      |         |         |         |         |          | Tot.<br>mm                             | +<br>mm | -<br>mm |   |  |
| 40   | 195     | 48,3    | 2,6     | 43,1    | 72       | 39                                     | 13      | 26      | 102   | 28   |
|      | 179     |         |         |         |          | 31                                     | 10      | 21      | 128   |  |
|      | 164     |         |         |         |          | 25                                     | 9       | 16      | 171   |  |
| 50   | 208     | 60,3    | 2,9     | 54,5    | 84       | 39                                     | 13      | 26      | 114   | 40   |
|      | 183     |         |         |         |          | 30                                     | 10      | 20      | 157   |  |
|      | 166     |         |         |         |          | 23                                     | 8       | 15      | 209   |  |
| 65   | 214     | 76,1    | 2,9     | 70,3    | 102      | 54                                     | 18      | 36      | 224   | 62   |
|      | 206     |         |         |         |          | 48                                     | 16      | 32      | 249   |  |
|      | 185     |         |         |         |          | 39                                     | 13      | 26      | 321   |  |
| 80   | 245     | 88,9    | 3,2     | 82,5    | 115      | 55                                     | 18      | 37      | 111   | 81   |
|      | 226     |         |         |         |          | 43                                     | 14      | 29      | 139   |  |
|      | 204     |         |         |         |          | 33                                     | 11      | 22      | 185   |  |
| 100  | 291     | 114,3   | 3,6     | 107,1   | 146      | 75                                     | 25      | 50      | 104   | 133  |
|      | 268     |         |         |         |          | 63                                     | 21      | 42      | 125   |  |
|      | 245     |         |         |         |          | 51                                     | 17      | 34      | 156   |  |
| 125  | 272     | 139,7   | 4       | 133,3   | 168      | 66                                     | 22      | 44      | 216   | 188  |
|      | 248     |         |         |         |          | 57                                     | 19      | 38      | 259   |  |
|      | 222     |         |         |         |          | 45                                     | 15      | 30      | 324   |  |
| 150  | 282     | 168,3   | 4,5     | 159,3   | 196      | 69                                     | 23      | 46      | 253   | 263  |
|      | 256     |         |         |         |          | 54                                     | 18      | 36      | 304   |  |
|      | 228     |         |         |         |          | 48                                     | 16      | 32      | 380   |  |
| 200  | 255     | 219,1   | 5,9     | 207,3   | 226      | 50                                     | 16      | 34      | 247   | 356  |
|      | 236     |         |         |         |          | 42                                     | 14      | 28      | 296   |  |
|      |         |         |         |         |          |  |         |         |   |  |
| 250  | 265     | 273     | 6,3     | 260,4   | 279      | 50                                     | 16      | 34      | 309   | 556  |
|      | 246     |         |         |         |          | 42                                     | 14      | 28      | 371   |  |
|      |         |         |         |         |          |  |         |         |   |  |
| 300  | 289     | 323,9   | 7,1     | 309,7   | 331      | 51                                     | 17      | 34      | 384   | 774  |
|      | 265     |         |         |         |          | 40                                     | 14      | 26      | 493   |  |
|      |         |         |         |         |          |  |         |         |   |  |
| 350  | 299     | 355,6   | 8       | 339,6   | 364      | 51                                     | 17      | 34      | 245   | 946  |
|      | 275     |         |         |         |          | 40                                     | 14      | 26      | 547   |  |
|      |         |         |         |         |          |  |         |         |   |  |
| 400  | 299     | 406,4   | 8,8     | 388,8   | 413      | 48                                     | 16      | 32      | 486   | 1232   |
|      | 275     |         |         |         |          | 40                                     | 14      | 26      | 625   |  |
|      |         |         |         |         |          |  |         |         |   |  |
| 450  | 340     | 457,2   | 8,8     | 439,6   | 473      | 90                                     | 32      | 58      | 145   | 1597   |
|      | 315     |         |         |         |          | 70                                     | 25      | 45      | 219   |  |
|      | 285     |         |         |         |          | 40                                     | 15      | 25      | 305   |  |
| 500  | 342     | 508     | 8,8     | 490,4   | 523      | 80                                     | 26      | 54      | 245   | 1971   |
|      | 323     |         |         |         |          | 50                                     | 18      | 32      | 294   |  |
|      | 294     |         |         |         |          | 40                                     | 15      | 25      | 350   |  |
| 600  | 345     | 609,6   | 8       | 593,6   | 636      | 90                                     | 35      | 55      | 222   | 2856   |
|      | 323     |         |         |         |          | 70                                     | 25      | 45      | 335   |  |
|      | 294     |         |         |         |          | 40                                     | 15      | 25      | 570   |  |
| 700  | 348     | 711,2   | 8       | 659,2   | 739      | 90                                     | 35      | 55      | 292   | 3921   |
|      | 325     |         |         |         |          | 70                                     | 25      | 45      | 460   |  |
|      | 295     |         |         |         |          | 40                                     | 15      | 25      | 585   |  |
| 800  | 348     | 812,8   | 10      | 792,8   | 841      | 100                                    | 35      | 65      | 335   | 5135   |
|      | 325     |         |         |         |          | 60                                     | 20      | 40      | 500   |  |
|      | 295     |         |         |         |          | 40                                     | 15      | 25      | 640   |  |
| 900  | 362     | 914,4   | 10      | 894,4   | 942      | 100                                    | 35      | 65      | 378   | 6498   |
|      | 322     |         |         |         |          | 60                                     | 20      | 40      | 548   |  |
|      | 304     |         |         |         |          | 40                                     | 13      | 27      | 793   |  |
| 1000 | 374     | 1016    | 10      | 996     | 1044     | 100                                    | 35      | 65      | 421   | 8037   |
|      | 345     |         |         |         |          | 70                                     | 23      | 47      | 610   |  |
|      | 318     |         |         |         |          | 45                                     | 15      | 30      | 799   |  |
| 1200 | 380     | 1219    | 10      | 1199    | 1246     | 120                                    | 47      | 73      | 379   | 11576  |
|      | 358     |         |         |         |          | 80                                     | 30      | 50      | 506   |  |
|      | 310     |         |         |         |          | 50                                     | 22      | 28      | 961   |  |

**MATERIALI STANDARD**

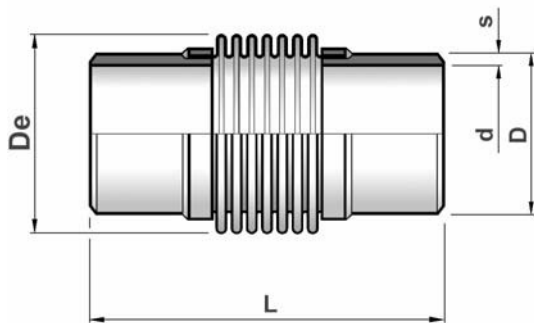
Standard materials

Soffietto / Bellows

ASTM A 240 tp.321

Manicotti / Welding ends

ASTM A 106 Gr.B



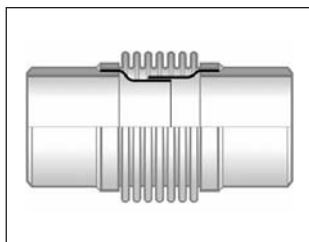
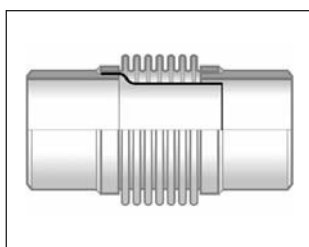
**COMPENSATORI ASSIALI A SALDARE**

*Axial expansion joints with welding ends*

**PN 10**

**A RICHIESTA**

*On request*



| DN   | L<br>mm | D<br>mm | s<br>mm | d<br>mm | De<br>mm | Corsa Assiale<br>Axial movement |         |         | Rigidezza<br>Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm <sup>2</sup> |
|------|---------|---------|---------|---------|----------|---------------------------------|---------|---------|---|---|
|      |         |         |         |         |          | Tot.<br>mm                      | +<br>mm | -<br>mm |   |   |
| 40   | 190     | 48,3    | 2,6     | 43,1    | 66       | 33                              | 11      | 22      | 148   | 25  |
|      | 173     |         |         |         |          | 9                               | 18      | 190     |   |   |
|      | 165     |         |         |         |          | 7                               | 14      | 222     |   |   |
| 50   | 192     | 60,3    | 2,9     | 54,5    | 79       | 39                              | 13      | 26      | 146   | 38  |
|      | 176     |         |         |         |          | 10                              | 20      | 188     |   |   |
|      | 157     |         |         |         |          | 7                               | 14      | 264     |   |   |
| 65   | 204     | 76,1    | 2,9     | 70,3    | 95       | 45                              | 15      | 30      | 173   | 58  |
|      | 186     |         |         |         |          | 11                              | 22      | 222     |   |   |
|      | 164     |         |         |         |          | 8                               | 16      | 311     |   |   |
| 80   | 210     | 88,9    | 3,2     | 82,5    | 108      | 42                              | 14      | 28      | 313   | 76  |
|      | 188     |         |         |         |          | 11                              | 22      | 273     |   |   |
|      | 166     |         |         |         |          | 9                               | 16      | 383     |   |   |
| 100  | 221     | 114,3   | 3,6     | 107,1   | 139      | 40                              | 13      | 27      | 176   | 124   |
|      | 210     |         |         |         |          | 12                              | 23      | 198     |   |   |
|      | 198     |         |         |         |          | 10                              | 20      | 226     |   |   |
| 125  | 236     | 141,3   | 4       | 133,3   | 164      | 40                              | 13      | 27      | 204   | 179   |
|      | 225     |         |         |         |          | 12                              | 23      | 229     |   |   |
|      | 212     |         |         |         |          | 10                              | 20      | 262     |   |   |
| 150  | 244     | 168,3   | 4,5     | 159,3   | 192      | 40                              | 13      | 27      | 246   | 251   |
|      | 230     |         |         |         |          | 12                              | 23      | 276     |   |   |
|      | 218     |         |         |         |          | 10                              | 20      | 316     |   |   |
| 200  | 250     | 219,1   | 5,9     | 207,3   | 226      | 45                              | 15      | 30      | 390   | 353   |
|      | 228     |         |         |         |          | 10                              | 20      | 613     |   |   |
|      |         |         |         |         |          |                                 |         |         |   |   |
| 250  | 260     | 273     | 6,3     | 260,4   | 279      | 45                              | 15      | 30      | 506   | 594   |
|      | 238     |         |         |         |          | 10                              | 20      | 795     |   |   |
|      |         |         |         |         |          |                                 |         |         |   |   |
| 300  | 279     | 323,9   | 7,1     | 309,7   | 331      | 50                              | 16      | 34      | 360   | 769   |
|      | 256     |         |         |         |          | 10                              | 20      | 480     |   |   |
|      |         |         |         |         |          |                                 |         |         |   |   |
| 350  | 289     | 355,6   | 8       | 339,6   | 364      | 50                              | 16      | 34      | 400   | 940   |
|      | 266     |         |         |         |          | 10                              | 20      | 533     |   |   |
|      |         |         |         |         |          |                                 |         |         |   |   |
| 400  | 289     | 406,4   | 8,8     | 388,8   | 420      | 50                              | 16      | 34      | 458   | 1225  |
|      | 266     |         |         |         |          | 10                              | 20      | 611     |   |   |
|      |         |         |         |         |          |                                 |         |         |   |   |
| 450  | 350     | 457,2   | 8,8     | 439,6   | 473      | 90                              | 32      | 58      | 339   | 1600  |
|      | 325     |         |         |         |          | 25                              | 45      | 452     |   |   |
|      | 298     |         |         |         |          | 15                              | 25      | 632     |   |   |
| 500  | 350     | 508     | 8,8     | 490,4   | 523      | 80                              | 26      | 54      | 615   | 2000  |
|      | 325     |         |         |         |          | 18                              | 32      | 800     |   |   |
|      | 298     |         |         |         |          | 15                              | 25      | 1055    |   |   |
| 600  | 360     | 609,6   | 8       | 593,6   | 636      | 90                              | 35      | 55      | 650   | 2900  |
|      | 320     |         |         |         |          | 25                              | 45      | 767     |   |   |
|      | 295     |         |         |         |          | 15                              | 25      | 1180    |   |   |
| 700  | 365     | 711,2   | 8       | 659,2   | 739      | 90                              | 35      | 55      | 695   | 3900  |
|      | 320     |         |         |         |          | 25                              | 45      | 894     |   |   |
|      | 300     |         |         |         |          | 15                              | 25      | 1296    |   |   |
| 800  | 350     | 812,8   | 10      | 792,8   | 841      | 100                             | 35      | 65      | 737   | 5163  |
|      | 310     |         |         |         |          | 20                              | 40      | 1024    |   |   |
|      | 290     |         |         |         |          | 15                              | 25      | 1474    |   |   |
| 900  | 375     | 914,4   | 10      | 894,4   | 942      | 100                             | 35      | 65      | 828   | 6528  |
|      | 330     |         |         |         |          | 20                              | 40      | 1151    |   |   |
|      | 315     |         |         |         |          | 13                              | 27      | 1645    |   |   |
| 1000 | 435     | 1016    | 10      | 996     | 1044     | 100                             | 35      | 65      | 960   | 8071  |
|      | 400     |         |         |         |          | 23                              | 47      | 1280    |   |   |
|      | 375     |         |         |         |          | 15                              | 30      | 1984    |   |   |
| 1200 | 450     | 1219    | 10      | 1199    | 1246     | 120                             | 47      | 73      | 1240  | 11530                                       |
|      | 400     |         |         |         |          | 30                              | 50      | 1670    |   |   |
|      | 380     |         |         |         |          | 22                              | 28      | 2450    |   |   |



**COMPENSATORI ASSIALI A SALDARE**

*Axial expansion joints with welding ends*

**TIPO**  
Type **AW**

**PN 16**

| DN   | L<br>mm | D<br>mm | s<br>mm | d<br>mm | De<br>mm | Corsa Assiale<br>Axial movement |         |         | Rigidezza Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm <sup>2</sup> |
|------|---------|---------|---------|---------|----------|---------------------------------|---------|---------|--|---|
|      |         |         |         |         |          | Tot.<br>mm                      | +<br>mm | -<br>mm |  |   |
| 40   | 190     | 48,3    | 2,6     | 43,1    | 66       | 25                              | 9       | 16      | 110  | 25  |
|      | 173     |         |         |         |          | 20                              | 7       | 13      | 140  |   |
|      | 165     |         |         |         |          | 15                              | 5       | 10      | 164  |   |
| 50   | 192     | 60,3    | 2,9     | 54,5    | 79       | 30                              | 10      | 20      | 109  | 38  |
|      | 176     |         |         |         |          | 25                              | 9       | 16      | 163  |   |
|      | 157     |         |         |         |          | 20                              | 7       | 13      | 196  |   |
| 65   | 204     | 76,1    | 2,9     | 70,3    | 95       | 30                              | 10      | 20      | 128  | 58  |
|      | 186     |         |         |         |          | 25                              | 9       | 16      | 165  |   |
|      | 176     |         |         |         |          | 20                              | 7       | 13      | 192  |   |
| 80   | 210     | 88,9    | 3,2     | 82,5    | 108      | 35                              | 12      | 23      | 158  | 76  |
|      | 199     |         |         |         |          | 30                              | 10      | 20      | 177  |   |
|      | 189     |         |         |         |          | 25                              | 9       | 16      | 203  |   |
| 100  | 221     | 114,3   | 3,6     | 107,1   | 139      | 40                              | 13      | 27      | 176  | 124   |
|      | 210     |         |         |         |          | 35                              | 12      | 23      | 198  |   |
|      | 198     |         |         |         |          | 30                              | 10      | 20      | 226  |   |
| 125  | 236     | 141,3   | 4       | 133,3   | 164      | 40                              | 13      | 27      | 204  | 179   |
|      | 225     |         |         |         |          | 35                              | 12      | 23      | 229  |   |
|      | 212     |         |         |         |          | 30                              | 10      | 20      | 262  |   |
| 150  | 244     | 168,3   | 4,5     | 159,3   | 192      | 40                              | 13      | 27      | 246  | 251   |
|      | 230     |         |         |         |          | 35                              | 12      | 23      | 276  |   |
|      | 218     |         |         |         |          | 30                              | 10      | 20      | 316  |   |
| 200  | 250     | 219,1   | 5,9     | 207,3   | 226      | 45                              | 15      | 30      | 390  | 353   |
|      | 228     |         |         |         |          | 30                              | 10      | 20      | 613  |   |
|      |         |         |         |         |          |                                 |         |         |  |   |
| 250  | 260     | 273     | 6,3     | 260,4   | 279      | 45                              | 15      | 30      | 506  | 594   |
|      | 238     |         |         |         |          | 30                              | 10      | 20      | 795  |   |
|      |         |         |         |         |          |                                 |         |         |  |   |
| 300  | 279     | 323,9   | 7,1     | 309,7   | 331      | 50                              | 16      | 34      | 360  | 769   |
|      | 256     |         |         |         |          | 30                              | 10      | 20      | 480  |   |
|      |         |         |         |         |          |                                 |         |         |  |   |
| 350  | 289     | 355,6   | 8       | 339,6   | 364      | 50                              | 16      | 34      | 400  | 940   |
|      | 266     |         |         |         |          | 30                              | 10      | 20      | 533  |   |
|      |         |         |         |         |          |                                 |         |         |  |   |
| 400  | 289     | 406,4   | 8,8     | 388,8   | 420      | 50                              | 16      | 34      | 458  | 1225  |
|      | 266     |         |         |         |          | 30                              | 10      | 20      | 611  |   |
|      |         |         |         |         |          |                                 |         |         |  |   |
| 450  | 350     | 457,2   | 8,8     | 439,6   | 473      | 90                              | 32      | 58      | 339  | 1600  |
|      | 325     |         |         |         |          | 70                              | 25      | 45      | 452  |   |
|      | 298     |         |         |         |          | 40                              | 15      | 25      | 632  |   |
| 500  | 350     | 508     | 8,8     | 490,4   | 523      | 80                              | 26      | 54      | 615  | 2000  |
|      | 325     |         |         |         |          | 50                              | 18      | 32      | 800  |   |
|      | 298     |         |         |         |          | 40                              | 15      | 25      | 1055   |   |
| 600  | 360     | 609,6   | 8       | 593,6   | 636      | 90                              | 35      | 55      | 650  | 2900  |
|      | 320     |         |         |         |          | 70                              | 25      | 45      | 767  |   |
|      | 295     |         |         |         |          | 40                              | 15      | 25      | 1180   |   |
| 700  | 365     | 711,2   | 8       | 659,2   | 739      | 90                              | 35      | 55      | 695  | 3900  |
|      | 320     |         |         |         |          | 70                              | 25      | 45      | 894  |   |
|      | 300     |         |         |         |          | 40                              | 15      | 25      | 1296   |   |
| 800  | 350     | 812,8   | 10      | 792,8   | 841      | 100                             | 35      | 65      | 737  | 5163  |
|      | 310     |         |         |         |          | 60                              | 20      | 40      | 1024   |   |
|      | 290     |         |         |         |          | 40                              | 15      | 25      | 1474   |   |
| 900  | 375     | 914,4   | 10      | 894,4   | 942      | 100                             | 35      | 65      | 828  | 6528  |
|      | 330     |         |         |         |          | 60                              | 20      | 40      | 1151   |   |
|      | 315     |         |         |         |          | 40                              | 13      | 27      | 1645   |   |
| 1000 | 435     | 1016    | 10      | 996     | 1044     | 100                             | 35      | 65      | 960  | 8071  |
|      | 400     |         |         |         |          | 70                              | 23      | 47      | 1280   |   |
|      | 375     |         |         |         |          | 45                              | 15      | 30      | 1984   |   |
| 1200 | 450     | 1219    | 10      | 1199    | 1246     | 120                             | 47      | 73      | 1240   | 11530                                       |
|      | 400     |         |         |         |          | 80                              | 30      | 50      | 1670   |   |
|      | 380     |         |         |         |          | 50                              | 22      | 28      | 2450   |   |

**MATERIALI STANDARD**

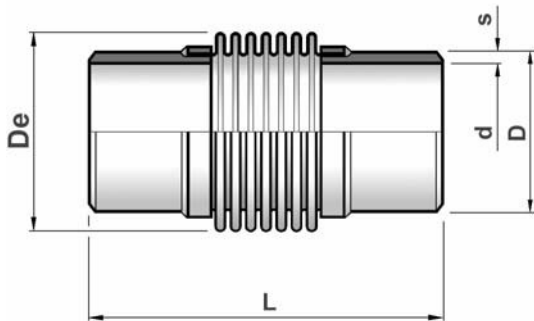
Standard materials

Soffietto / Bellows

ASTM A 240 tp.321

Manicotti / Welding ends

ASTM A 106 Gr.B



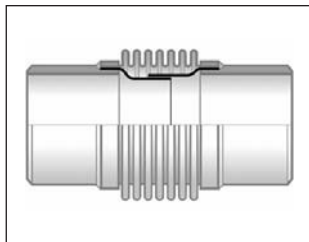
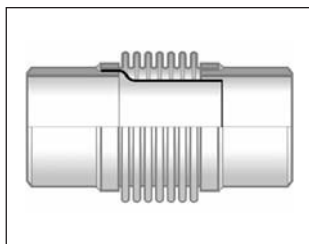
**COMPENSATORI ASSIALI A SALDARE**

*Axial expansion joints with welding ends*

**PN 25**

**A RICHIESTA**

*On request*



| DN   | L<br>mm | D<br>mm | s<br>mm | d<br>mm | De<br>mm | Corsa Assiale<br>Axial movement |         |         | Rigidezza<br>Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm <sup>2</sup> |      |
|------|---------|---------|---------|---------|----------|---------------------------------|---------|---------|---|---|------|
|      |         |         |         |         |          | Tot.<br>mm                      | +<br>mm | -<br>mm |   |   |      |
| 40   | 206     | 48,3    | 2,6     | 43,1    | 73       | 35                              | 12      | 23      | 235   | 27  |      |
|      | 195     |         |         |         |          | 10                              | 20      | 264     |   |   |      |
|      | 186     |         |         |         |          | 9                               | 16      | 302     |   |   |      |
| 50   | 188     | 60,3    | 2,9     | 54,5    | 85       | 30                              | 10      | 20      | 361   | 39  |      |
|      | 178     |         |         |         |          | 8                               | 16      | 421     |   |   |      |
|      | 167     |         |         |         |          | 7                               | 13      | 506     |   |   |      |
| 65   | 198     | 76,1    | 2,9     | 70,3    | 104      | 35                              | 12      | 23      | 325   | 61  |      |
|      | 186     |         |         |         |          | 10                              | 20      | 379     |   |   |      |
|      | 175     |         |         |         |          | 9                               | 16      | 455     |   |   |      |
| 80   | 202     | 88,9    | 3,2     | 82,5    | 117      | 35                              | 12      | 23      | 369   | 80  |      |
|      | 189     |         |         |         |          | 10                              | 20      | 430     |   |   |      |
|      | 177     |         |         |         |          | 9                               | 16      | 513     |   |   |      |
| 100  | 222     | 114,3   | 3,6     | 107,1   | 143      | 40                              | 13      | 27      | 352   | 125   |      |
|      | 207     |         |         |         |          | 12                              | 23      | 402     |   |   |      |
|      | 196     |         |         |         |          | 9                               | 16      | 469     |   |   |      |
| 125  | 235     | 139,7   | 4       | 133,3   | 169      | 40                              | 13      | 27      | 380   | 181   |      |
|      | 207     |         |         |         |          | 12                              | 23      | 507     |   |   |      |
|      | 193     |         |         |         |          | 10                              | 20      | 608     |   |   |      |
| 150  | 241     | 168,3   | 4,5     | 159,3   | 192      | 45                              | 15      | 30      | 446   | 254   |      |
|      | 212     |         |         |         |          | 12                              | 23      | 595     |   |   |      |
|      | 197     |         |         |         |          | 10                              | 20      | 714     |   |   |      |
| 200  | 249     | 219,1   | 5,9     | 207,3   | 226      | 40                              | 14      | 26      | 635   | 350   |      |
|      | 230     |         |         |         |          | 10                              | 20      | 1269    |   |   |      |
|      | 259     |         |         |         |          | 14                              | 26      | 792     |   |   |      |
| 250  | 235     | 273     | 6,3     | 260,4   | 279      | 40                              | 7       | 13      | 1583  | 547   |      |
|      | 207     |         |         |         |          | 14                              | 26      | 900     |   |   |      |
|      | 200     |         |         |         |          | 10                              | 20      | 1199    |   |   |      |
| 300  | 293     | 323,9   | 7,1     | 309,7   | 331      | 50                              | 16      | 32      | 900   | 762   |      |
|      | 268     |         |         |         |          | 10                              | 20      | 1199    |   |   |      |
|      | 303     |         |         |         |          | 16                              | 32      | 997     |   |   |      |
| 350  | 268     | 355,6   | 8       | 339,6   | 364      | 50                              | 10      | 20      | 1330  | 932   |      |
|      | 303     |         |         |         |          | 16                              | 32      | 997     |   |   |      |
|      | 268     |         |         |         |          | 10                              | 20      | 1330    |   |   |      |
| 400  | 290     | 406,4   | 8,8     | 388,8   | 420      | 42                              | 14      | 28      | 1215  | 1219  |      |
|      | 174     |         |         |         |          | 10                              | 20      | 1828    |   |   |      |
|      | 380     |         |         |         |          | 32                              | 58      | 1050    |   |   |      |
| 450  | 355     | 457,2   | 8,8     | 439,6   | 473      | 70                              | 25      | 45      | 1390  | 1596  |      |
|      | 320     |         |         |         |          | 40                              | 15      | 25      |   |   | 1710 |
|      | 380     |         |         |         |          | 32                              | 58      | 1050    |   |   |      |
| 500  | 380     | 508     | 8,8     | 490,4   | 523      | 80                              | 26      | 54      | 1095  | 1970  |      |
|      | 355     |         |         |         |          | 18                              | 32      | 1430    |   |   |      |
|      | 320     |         |         |         |          | 40                              | 15      | 25      |   |   | 1828 |
| 600  | 375     | 609,6   | 8       | 593,6   | 636      | 90                              | 35      | 55      | 1120  | 2827  |      |
|      | 345     |         |         |         |          | 25                              | 45      | 1640    |   |   |      |
|      | 315     |         |         |         |          | 40                              | 15      | 25      |   |   | 1950 |
| 700  | 375     | 711,2   | 8       | 659,2   | 739      | 90                              | 35      | 55      | 1240  | 3881  |      |
|      | 345     |         |         |         |          | 25                              | 45      | 1790    |   |   |      |
|      | 315     |         |         |         |          | 40                              | 15      | 25      |   |   | 2140 |
| 800  | 400     | 812,8   | 10      | 792,8   | 841      | 100                             | 35      | 65      | 1450  | 5089  |      |
|      | 350     |         |         |         |          | 20                              | 40      | 2000    |   |   |      |
|      | 325     |         |         |         |          | 40                              | 15      | 25      |   |   | 2340 |
| 900  | 400     | 914,4   | 10      | 894,4   | 942      | 100                             | 35      | 65      | 1630  | 6447  |      |
|      | 350     |         |         |         |          | 20                              | 40      | 2300    |   |   |      |
|      | 325     |         |         |         |          | 40                              | 13      | 27      |   |   | 2750 |
| 1000 | 440     | 1016    | 10      | 996     | 1044     | 100                             | 35      | 65      | 1850  | 7980  |      |
|      | 410     |         |         |         |          | 70                              | 23      | 47      |   |   | 2680 |
|      | 380     |         |         |         |          | 45                              | 15      | 30      |   |   | 3130 |

## COMPENSATORI ASSIALI A SALDARE

*Axial expansion joints with welding ends*

**PN 40**

| DN          | L<br>mm | D<br>mm | s<br>mm | d<br>mm | De<br>mm | Corsa Assiale<br>Axial movement |         |         | Rigidezza<br>Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm <sup>2</sup> |
|-------------|---------|---------|---------|---------|----------|---------------------------------|---------|---------|---|---|
|             |         |         |         |         |          | Tot.<br>mm                      | +<br>mm | -<br>mm |   |   |
| <b>40</b>   | 186     | 48,3    | 2,6     | 43,1    | 71       | 25                              | 9       | 16      | 459   | 26  |
| <b>50</b>   | 189     | 60,3    | 2,9     | 54,5    | 83       | 21                              | 7       | 14      | 471   | 38  |
|             | 179     |         |         |         |          | 7                               | 12      | 549     |   |   |
|             | 168     |         |         |         |          | 5                               | 10      | 659     |   |   |
| <b>65</b>   | 192     | 76,1    | 2,9     | 70,3    | 100      | 25                              | 9       | 12      | 528   | 58  |
|             | 189     |         |         |         |          | 7                               | 13      | 616     |   |   |
|             | 176     |         |         |         |          | 5                               | 10      | 739     |   |   |
| <b>80</b>   | 203     | 88,9    | 3,2     | 77,9    | 113      | 25                              | 9       | 16      | 599   | 77  |
|             | 190     |         |         |         |          | 7                               | 13      | 699     |   |   |
|             | 178     |         |         |         |          | 5                               | 10      | 838     |   |   |
| <b>100</b>  | 221     | 114,3   | 3,6     | 102,3   | 139      | 33                              | 11      | 22      | 532   | 122   |
|             | 196     |         |         |         |          | 9                               | 16      | 749     |   |   |
|             | 183     |         |         |         |          | 5                               | 10      | 899     |   |   |
| <b>125</b>  | 236     | 139,7   | 4       | 128,3   | 163      | 33                              | 11      | 22      | 741   | 174   |
|             | 224     |         |         |         |          | 9                               | 16      | 847     |   |   |
|             | 210     |         |         |         |          | 5                               | 10      | 989     |   |   |
| <b>150</b>  | 242     | 168,3   | 4,5     | 154,1   | 191      | 33                              | 11      | 22      | 863   | 246   |
|             | 229     |         |         |         |          | 9                               | 16      | 986     |   |   |
|             | 215     |         |         |         |          | 5                               | 10      | 1151    |   |   |
| <b>200</b>  | 255     | 219,1   | 5,9     | 204,9   | 226      | 36                              | 12      | 24      | 1075  | 348   |
|             | 218     |         |         |         |          | 7                               | 13      | 1535    |   |   |
| <b>250</b>  | 265     | 273     | 6,3     | 256,6   | 279      | 45                              | 15      | 30      | 1346  | 545   |
|             | 222     |         |         |         |          | 33                              | 11      | 22      | 1923  |   |
| <b>300</b>  | 290     | 323,9   | 7,1     | 305,3   | 331      | 33                              | 11      | 22      | 2335  | 756   |
|             | 260     |         |         |         |          | 23                              | 8       | 15      | 3269  |   |
| <b>350</b>  | 300     | 355,6   | 8       | 336,6   | 364      | 33                              | 11      | 22      | 2558  | 925   |
|             | 270     |         |         |         |          | 23                              | 8       | 15      | 3623  |   |
| <b>400</b>  | 300     | 406,4   | 8,8     | 382,4   | 420      | 33                              | 11      | 22      | 2962  | 1208  |
|             | 270     |         |         |         |          | 23                              | 8       | 15      | 4146  |   |
| <b>450</b>  | 380     | 457,2   | 12      | 433,2   | 473      | 80                              | 28      | 52      | 1805  | 1596  |
|             | 355     |         |         |         |          | 60                              | 21      | 39      | 2281  |   |
|             | 320     |         |         |         |          | 40                              | 15      | 25      | 3095  |   |
| <b>500</b>  | 380     | 508     | 12      | 484     | 523      | 100                             | 33      | 67      | 2093  | 1970  |
|             | 355     |         |         |         |          | 60                              | 21      | 39      | 2667  |   |
|             | 320     |         |         |         |          | 40                              | 15      | 25      | 3636  |   |
| <b>600</b>  | 375     | 609,6   | 12      | 585,6   | 636      | 100                             | 33      | 67      | 2427  | 2827  |
|             | 345     |         |         |         |          | 60                              | 21      | 39      | 3173  |   |
|             | 315     |         |         |         |          | 40                              | 15      | 25      | 4363  |   |
| <b>700</b>  | 375     | 711,2   | 12      | 687,2   | 739      | 100                             | 33      | 67      | 2888  | 3881  |
|             | 345     |         |         |         |          | 60                              | 21      | 39      | 3760  |   |
|             | 315     |         |         |         |          | 40                              | 15      | 25      | 5279  |   |
| <b>800</b>  | 400     | 812,8   | 12      | 788,8   | 841      | 100                             | 33      | 67      | 3350  | 5089  |
|             | 350     |         |         |         |          | 60                              | 21      | 39      | 4436  |   |
|             | 325     |         |         |         |          | 40                              | 15      | 25      | 6282  |   |
| <b>900</b>  | 400     | 914,4   | 20      | 874,4   | 942      | 100                             | 33      | 67      | 4053  | 6447  |
|             | 350     |         |         |         |          | 60                              | 21      | 39      | 5411  |   |
|             | 325     |         |         |         |          | 40                              | 13      | 25      | 8103  |   |
| <b>1000</b> | 440     | 1016    | 20      | 976     | 1044     | 100                             | 33      | 67      | 4985  | 7980  |
|             | 410     |         |         |         |          | 70                              | 27      | 43      | 6655  |   |
|             | 380     |         |         |         |          | 45                              | 18      | 27      | 9885  |   |

**MATERIALI STANDARD**

Standard materials

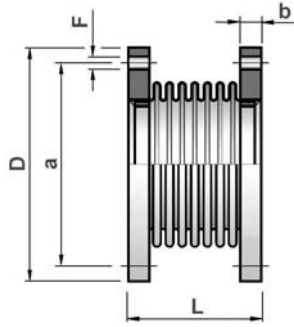
Soffietto / Bellows

ASTM A 240 tp.321

Flange / Flanges

UNI 6082 PN 2,5:

Fe 410 B, ASTM A 105



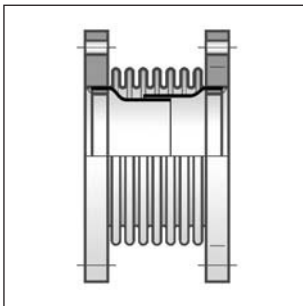
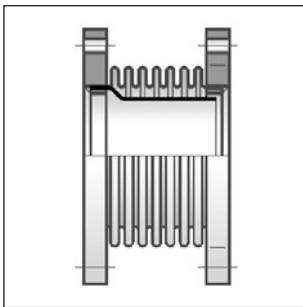
**COMPENSATORI ASSIALI FLANGIATI**

*Axial expansion joints with flanged ends*

**PN 2,5**

**A RICHIESTA**

*On request*



| DN   | L<br>mm | D<br>mm | b<br>mm | a<br>mm | N° x F<br>N° x mm | Corsa Assiale<br>Axial movement |         |         | Rigidezza<br>Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm² |
|------|---------|---------|---------|---------|-------------------|---------------------------------|---------|---------|---|---------------------------------|
|      |         |         |         |         |                   | Tot.<br>mm                      | +<br>mm | -<br>mm |   |                                 |
| 40   | 113     | 130     | 14      | 100     | 4x14              | 45                              | 15      | 30      | 102   | 28                              |
|      | 97      |         |         |         |                   | 12                              | 23      | 128     |   |                                 |
|      | 82      |         |         |         |                   | 9                               | 16      | 171     |   |                                 |
| 50   | 126     | 140     | 14      | 110     | 4x14              | 45                              | 15      | 30      | 114   | 40                              |
|      | 101     |         |         |         |                   | 12                              | 23      | 157     |   |                                 |
|      | 84      |         |         |         |                   | 9                               | 16      | 209     |   |                                 |
| 65   | 132     | 160     | 14      | 130     | 4x14              | 50                              | 17      | 33      | 224   | 62                              |
|      | 124     |         |         |         |                   | 14                              | 26      | 345     |   |                                 |
|      | 103     |         |         |         |                   | 10                              | 20      | 443     |   |                                 |
| 80   | 141     | 190     | 16      | 150     | 4x14              | 55                              | 18      | 37      | 141   | 80                              |
|      | 132     |         |         |         |                   | 15                              | 30      | 139     |   |                                 |
|      | 100     |         |         |         |                   | 12                              | 23      | 185     |   |                                 |
| 100  | 177     | 210     | 16      | 170     | 4x18              | 60                              | 20      | 40      | 104   | 139                             |
|      | 154     |         |         |         |                   | 17                              | 33      | 125     |   |                                 |
|      | 144     |         |         |         |                   | 14                              | 26      | 156     |   |                                 |
| 125  | 190     | 240     | 18      | 200     | 8x18              | 60                              | 20      | 40      | 216   | 188                             |
|      | 166     |         |         |         |                   | 17                              | 33      | 259     |   |                                 |
|      | 153     |         |         |         |                   | 14                              | 26      | 324     |   |                                 |
| 150  | 204     | 265     | 20      | 225     | 8x18              | 60                              | 20      | 40      | 253   | 263                             |
|      | 178     |         |         |         |                   | 17                              | 33      | 298     |   |                                 |
|      | 165     |         |         |         |                   | 14                              | 26      | 373     |   |                                 |
| 200  | 186     | 320     | 20      | 280     | 8x18              | 50                              | 16      | 34      | 247   | 356                             |
|      | 167     |         |         |         |                   | 10                              | 20      | 296     |   |                                 |
|      | 30      |         |         |         |                   | 10                              | 20      | 309     |   |                                 |
| 250  | 186     | 375     | 20      | 335     | 12x18             | 50                              | 16      | 34      | 309   | 556                             |
|      | 167     |         |         |         |                   | 10                              | 20      | 371     |   |                                 |
|      | 30      |         |         |         |                   | 10                              | 20      | 371     |   |                                 |
| 300  | 157     | 440     | 22      | 395     | 12x22             | 60                              | 20      | 40      | 222   | 774                             |
|      | 140     |         |         |         |                   | 14                              | 26      | 285     |   |                                 |
|      | 40      |         |         |         |                   | 14                              | 26      | 285     |   |                                 |
| 350  | 157     | 490     | 22      | 445     | 12x22             | 60                              | 20      | 40      | 246   | 946                             |
|      | 140     |         |         |         |                   | 14                              | 26      | 317     |   |                                 |
|      | 40      |         |         |         |                   | 14                              | 26      | 317     |   |                                 |
| 400  | 157     | 540     | 22      | 495     | 16x22             | 60                              | 20      | 40      | 283   | 1232                            |
|      | 140     |         |         |         |                   | 14                              | 26      | 364     |   |                                 |
|      | 40      |         |         |         |                   | 14                              | 26      | 364     |   |                                 |
| 450  | 200     | 595     | 22      | 550     | 16x22             | 90                              | 32      | 58      | 145   | 1597                            |
|      | 170     |         |         |         |                   | 25                              | 45      | 219     |   |                                 |
|      | 125     |         |         |         |                   | 15                              | 25      | 305     |   |                                 |
| 500  | 235     | 645     | 22      | 600     | 20x22             | 80                              | 26      | 54      | 245   | 1971                            |
|      | 170     |         |         |         |                   | 18                              | 32      | 294     |   |                                 |
|      | 125     |         |         |         |                   | 15                              | 25      | 350     |   |                                 |
| 600  | 240     | 755     | 24      | 705     | 20x25             | 90                              | 35      | 55      | 222   | 2856                            |
|      | 200     |         |         |         |                   | 25                              | 45      | 335     |   |                                 |
|      | 150     |         |         |         |                   | 15                              | 25      | 570     |   |                                 |
| 700  | 230     | 860     | 26      | 810     | 24x25             | 90                              | 35      | 55      | 292   | 3921                            |
|      | 160     |         |         |         |                   | 25                              | 45      | 460     |   |                                 |
|      | 110     |         |         |         |                   | 15                              | 25      | 585     |   |                                 |
| 800  | 270     | 975     | 30      | 920     | 24x30             | 100                             | 35      | 65      | 335   | 5135                            |
|      | 230     |         |         |         |                   | 20                              | 40      | 500     |   |                                 |
|      | 110     |         |         |         |                   | 15                              | 25      | 640     |   |                                 |
| 900  | 270     | 1075    | 32      | 1020    | 24x30             | 100                             | 35      | 65      | 378   | 6498                            |
|      | 200     |         |         |         |                   | 20                              | 40      | 548     |   |                                 |
|      | 110     |         |         |         |                   | 13                              | 27      | 793     |   |                                 |
| 1000 | 280     | 1175    | 34      | 1120    | 28x30             | 100                             | 35      | 65      | 421   | 8037                            |
|      | 230     |         |         |         |                   | 23                              | 47      | 610     |   |                                 |
|      | 120     |         |         |         |                   | 15                              | 30      | 799     |   |                                 |
| 1200 | 315     | 1375    | 36      | 1320    | 32x30             | 120                             | 47      | 73      | 379   | 11567                           |
|      | 240     |         |         |         |                   | 30                              | 50      | 506     |   |                                 |
|      | 190     |         |         |         |                   | 22                              | 28      | 961     |   |                                 |

**MATERIALI STANDARD**

Standard materials

Soffietto / Bellows

ASTM A 240 tp.321

Flange / Flanges

UNI 2276:

Fe 410 B, ASTM A 105

**COMPENSATORI ASSIALI FLANGIATI**

*Axial expansion joints with flanged ends*

**PN 6**

| DN   | L<br>mm | D<br>mm | b<br>mm | a<br>mm | N° x F<br>N° x mm | Corsa Assiale<br>Axial movement |         |         | Rigidezza Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm² |
|------|---------|---------|---------|---------|-------------------|---------------------------------|---------|---------|--|---------------------------------|
|      |         |         |         |         |                   | Tot.<br>mm                      | +<br>mm | -<br>mm |  |                                 |
| 40   | 113     | 130     | 14      | 100     | 4x14              | 39                              | 13      | 26      | 102  | 28                              |
|      | 97      |         |         |         |                   | 10                              | 21      | 128     |  |                                 |
|      | 82      |         |         |         |                   | 9                               | 16      | 171     |  |                                 |
| 50   | 126     | 140     | 14      | 110     | 4x14              | 45                              | 15      | 30      | 125  | 40                              |
|      | 101     |         |         |         |                   | 12                              | 23      | 157     |  |                                 |
|      | 84      |         |         |         |                   | 9                               | 16      | 209     |  |                                 |
| 65   | 132     | 160     | 14      | 130     | 4x14              | 54                              | 18      | 36      | 224  | 62                              |
|      | 124     |         |         |         |                   | 16                              | 32      | 245     |  |                                 |
|      | 103     |         |         |         |                   | 13                              | 26      | 321     |  |                                 |
| 80   | 141     | 190     | 16      | 150     | 4x14              | 55                              | 18      | 37      | 111  | 80                              |
|      | 122     |         |         |         |                   | 14                              | 29      | 139     |  |                                 |
|      | 100     |         |         |         |                   | 11                              | 22      | 185     |  |                                 |
| 100  | 177     | 210     | 16      | 170     | 4x18              | 75                              | 25      | 50      | 104  | 139                             |
|      | 154     |         |         |         |                   | 21                              | 42      | 125     |  |                                 |
|      | 131     |         |         |         |                   | 17                              | 34      | 156     |  |                                 |
| 125  | 190     | 240     | 18      | 200     | 8x18              | 66                              | 22      | 44      | 216  | 188                             |
|      | 166     |         |         |         |                   | 19                              | 38      | 259     |  |                                 |
|      | 140     |         |         |         |                   | 15                              | 30      | 324     |  |                                 |
| 150  | 204     | 265     | 20      | 225     | 8x18              | 69                              | 23      | 46      | 253  | 263                             |
|      | 178     |         |         |         |                   | 18                              | 36      | 304     |  |                                 |
|      | 150     |         |         |         |                   | 16                              | 32      | 380     |  |                                 |
| 200  | 190     | 320     | 22      | 280     | 8x18              | 50                              | 16      | 34      | 247  | 356                             |
|      | 171     |         |         |         |                   | 14                              | 28      | 296     |  |                                 |
|      |         |         |         |         |                   |                                 |         |         |  |                                 |
| 250  | 194     | 375     | 24      | 335     | 12x18             | 50                              | 16      | 34      | 309  | 556                             |
|      | 175     |         |         |         |                   | 14                              | 28      | 371     |  |                                 |
|      |         |         |         |         |                   |                                 |         |         |  |                                 |
| 300  | 163     | 440     | 24      | 395     | 12x22             | 51                              | 17      | 34      | 384  | 774                             |
|      | 139     |         |         |         |                   | 14                              | 26      | 493     |  |                                 |
|      |         |         |         |         |                   |                                 |         |         |  |                                 |
| 350  | 167     | 490     | 26      | 445     | 12x22             | 51                              | 17      | 34      | 425  | 946                             |
|      | 143     |         |         |         |                   | 14                              | 26      | 547     |  |                                 |
|      |         |         |         |         |                   |                                 |         |         |  |                                 |
| 400  | 171     | 540     | 28      | 495     | 16x22             | 48                              | 16      | 32      | 486  | 1232                            |
|      | 147     |         |         |         |                   | 14                              | 26      | 625     |  |                                 |
|      |         |         |         |         |                   |                                 |         |         |  |                                 |
| 450  | 200     | 595     | 28      | 550     | 16x22             | 90                              | 32      | 58      | 145  | 1597                            |
|      | 170     |         |         |         |                   | 25                              | 45      | 219     |  |                                 |
|      | 125     |         |         |         |                   | 15                              | 25      | 305     |  |                                 |
| 500  | 235     | 645     | 30      | 600     | 20x22             | 80                              | 26      | 54      | 245  | 1971                            |
|      | 170     |         |         |         |                   | 18                              | 32      | 294     |  |                                 |
|      | 125     |         |         |         |                   | 15                              | 25      | 350     |  |                                 |
| 600  | 240     | 755     | 30      | 705     | 20x25             | 90                              | 35      | 55      | 222  | 2856                            |
|      | 200     |         |         |         |                   | 25                              | 45      | 335     |  |                                 |
|      | 150     |         |         |         |                   | 15                              | 25      | 570     |  |                                 |
| 700  | 230     | 860     | 32      | 810     | 24x25             | 90                              | 35      | 55      | 292  | 3921                            |
|      | 160     |         |         |         |                   | 25                              | 45      | 460     |  |                                 |
|      | 110     |         |         |         |                   | 15                              | 25      | 585     |  |                                 |
| 800  | 270     | 975     | 34      | 920     | 24x30             | 100                             | 35      | 65      | 335  | 5135                            |
|      | 230     |         |         |         |                   | 20                              | 40      | 500     |  |                                 |
|      | 110     |         |         |         |                   | 15                              | 25      | 640     |  |                                 |
| 900  | 270     | 1075    | 36      | 1020    | 24x30             | 100                             | 35      | 65      | 378  | 6498                            |
|      | 200     |         |         |         |                   | 20                              | 40      | 548     |  |                                 |
|      | 110     |         |         |         |                   | 13                              | 27      | 793     |  |                                 |
| 1000 | 280     | 1175    | 36      | 1120    | 28x30             | 100                             | 35      | 65      | 421  | 8037                            |
|      | 230     |         |         |         |                   | 23                              | 47      | 610     |  |                                 |
|      | 120     |         |         |         |                   | 15                              | 30      | 799     |  |                                 |
| 1200 | 315     | 1405    | 38      | 1340    | 32x33             | 120                             | 47      | 73      | 379  | 11567                           |
|      | 240     |         |         |         |                   | 30                              | 50      | 506     |  |                                 |
|      | 190     |         |         |         |                   | 22                              | 28      | 961     |  |                                 |

**MATERIALI STANDARD**

Standard materials

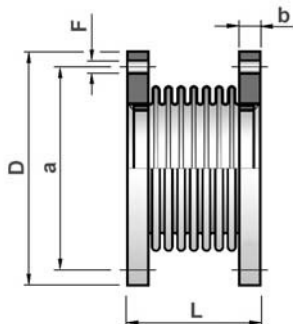
Soffietto / Bellows

ASTM A 240 tp.321

Flange / Flanges

UNI 2277:

Fe 410 B, ASTM A 105



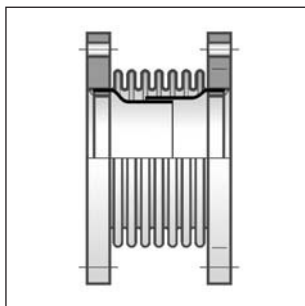
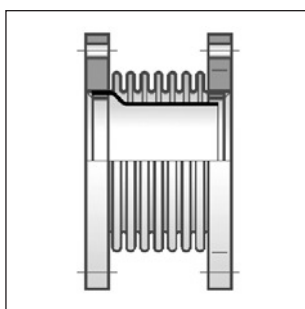
**COMPENSATORI ASSIALI FLANGIATI**

*Axial expansion joints with flanged ends*

**PN 10**

**A RICHIESTA**

*On request*



| DN   | L<br>mm | D<br>mm | b<br>mm | a<br>mm | N° x F<br>N° x mm | Corsa Assiale<br>Axial movement |         |         | Rigidezza<br>Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm² |
|------|---------|---------|---------|---------|-------------------|---------------------------------|---------|---------|---|---------------------------------|
|      |         |         |         |         |                   | Tot.<br>mm                      | +<br>mm | -<br>mm |   |                                 |
| 40   | 110     | 150     | 16      | 110     | 4x18              | 33                              | 11      | 22      | 148   | 25                              |
|      | 93      |         |         |         |                   | 9                               | 18      | 190     |   |                                 |
|      | 83      |         |         |         |                   | 7                               | 14      | 222     |   |                                 |
| 50   | 118     | 165     | 18      | 125     | 4x18              | 39                              | 13      | 26      | 146   | 38                              |
|      | 100     |         |         |         |                   | 10                              | 20      | 188     |   |                                 |
|      | 81      |         |         |         |                   | 7                               | 14      | 264     |   |                                 |
| 65   | 132     | 185     | 18      | 145     | 4x18              | 45                              | 15      | 30      | 173   | 58                              |
|      | 110     |         |         |         |                   | 11                              | 22      | 222     |   |                                 |
|      | 90      |         |         |         |                   | 8                               | 16      | 311     |   |                                 |
| 80   | 140     | 200     | 20      | 160     | 4x18              | 42                              | 14      | 28      | 213   | 76                              |
|      | 118     |         |         |         |                   | 11                              | 22      | 273     |   |                                 |
|      | 96      |         |         |         |                   | 9                               | 16      | 383     |   |                                 |
| 100  | 155     | 220     | 22      | 180     | 8x18              | 40                              | 13      | 27      | 176   | 124                             |
|      | 142     |         |         |         |                   | 12                              | 23      | 198     |   |                                 |
|      | 130     |         |         |         |                   | 10                              | 20      | 226     |   |                                 |
| 125  | 164     | 250     | 24      | 210     | 8x18              | 40                              | 13      | 27      | 204   | 179                             |
|      | 151     |         |         |         |                   | 12                              | 23      | 229     |   |                                 |
|      | 138     |         |         |         |                   | 10                              | 20      | 262     |   |                                 |
| 150  | 172     | 285     | 24      | 240     | 8x22              | 40                              | 13      | 27      | 246   | 251                             |
|      | 158     |         |         |         |                   | 12                              | 23      | 276     |   |                                 |
|      | 144     |         |         |         |                   | 10                              | 20      | 316     |   |                                 |
| 200  | 196     | 340     | 26      | 295     | 8x22              | 45                              | 15      | 30      | 390   | 353                             |
|      | 145     |         |         |         |                   | 10                              | 20      | 613     |   |                                 |
|      | 30      |         |         |         |                   | 10                              | 20      | 795     |   |                                 |
| 250  | 200     | 395     | 28      | 350     | 12x22             | 45                              | 15      | 30      | 506   | 594                             |
|      | 150     |         |         |         |                   | 10                              | 20      | 795     |   |                                 |
|      | 30      |         |         |         |                   | 10                              | 20      | 795     |   |                                 |
| 300  | 181     | 445     | 28      | 400     | 12x22             | 50                              | 16      | 34      | 360   | 769                             |
|      | 142     |         |         |         |                   | 10                              | 20      | 480     |   |                                 |
|      | 30      |         |         |         |                   | 10                              | 20      | 480     |   |                                 |
| 350  | 185     | 505     | 30      | 460     | 16x22             | 50                              | 16      | 34      | 400   | 940                             |
|      | 146     |         |         |         |                   | 10                              | 20      | 533     |   |                                 |
|      | 30      |         |         |         |                   | 10                              | 20      | 533     |   |                                 |
| 400  | 189     | 565     | 32      | 515     | 16x25             | 50                              | 16      | 34      | 458   | 1225                            |
|      | 150     |         |         |         |                   | 10                              | 20      | 611     |   |                                 |
|      | 30      |         |         |         |                   | 10                              | 20      | 611     |   |                                 |
| 450  | 260     | 615     | 32      | 565     | 20x25             | 90                              | 32      | 58      | 339   | 1600                            |
|      | 220     |         |         |         |                   | 25                              | 45      | 452     |   |                                 |
|      | 170     |         |         |         |                   | 15                              | 25      | 632     |   |                                 |
| 500  | 250     | 670     | 34      | 620     | 20x25             | 80                              | 26      | 54      | 615   | 2000                            |
|      | 175     |         |         |         |                   | 18                              | 32      | 800     |   |                                 |
|      | 160     |         |         |         |                   | 15                              | 25      | 1055    |   |                                 |
| 600  | 270     | 780     | 36      | 725     | 20x30             | 90                              | 35      | 55      | 650   | 2900                            |
|      | 240     |         |         |         |                   | 25                              | 45      | 767     |   |                                 |
|      | 180     |         |         |         |                   | 15                              | 25      | 1180    |   |                                 |
| 700  | 270     | 895     | 38      | 840     | 24x30             | 90                              | 35      | 55      | 695   | 3900                            |
|      | 220     |         |         |         |                   | 25                              | 45      | 894     |   |                                 |
|      | 170     |         |         |         |                   | 15                              | 25      | 1296    |   |                                 |
| 800  | 350     | 1015    | 40      | 950     | 24x33             | 100                             | 35      | 65      | 737   | 5163                            |
|      | 260     |         |         |         |                   | 20                              | 40      | 1024    |   |                                 |
|      | 180     |         |         |         |                   | 15                              | 25      | 1474    |   |                                 |
| 900  | 390     | 1115    | 42      | 1050    | 28x33             | 100                             | 35      | 65      | 828   | 6528                            |
|      | 260     |         |         |         |                   | 20                              | 40      | 1151    |   |                                 |
|      | 200     |         |         |         |                   | 13                              | 27      | 1645    |   |                                 |
| 1000 | 390     | 1230    | 44      | 1160    | 28x36             | 100                             | 35      | 65      | 960   | 8071                            |
|      | 290     |         |         |         |                   | 23                              | 47      | 1280    |   |                                 |
|      | 190     |         |         |         |                   | 15                              | 30      | 1984    |   |                                 |
| 1200 | 425     | 1455    | 46      | 1380    | 32x39             | 120                             | 47      | 73      | 1240  | 11530                           |
|      | 330     |         |         |         |                   | 30                              | 50      | 1670    |   |                                 |
|      | 250     |         |         |         |                   | 22                              | 28      | 2456    |   |                                 |

**MATERIALI STANDARD**

Standard materials

Soffietto / Bellows

ASTM A 240 tp.321

Flange / Flanges

UNI 2278:

Fe 410 B, ASTM A 105

**COMPENSATORI ASSIALI FLANGIATI**

*Axial expansion joints with flanged ends*

**PN 16**

| DN   | L<br>mm | D<br>mm | b<br>mm | a<br>mm | N° x F<br>N° x mm | Corsa Assiale<br>Axial movement |         |         | Rigidezza<br>Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm² |
|------|---------|---------|---------|---------|-------------------|---------------------------------|---------|---------|---|---------------------------------|
|      |         |         |         |         |                   | Tot.<br>mm                      | +<br>mm | -<br>mm |   |                                 |
| 40   | 110     | 150     | 16      | 110     | 4x18              | 25                              | 9       | 16      | 110   | 25                              |
|      | 93      |         |         |         |                   | 7                               | 13      | 141     |   |                                 |
|      | 83      |         |         |         |                   | 5                               | 10      | 164     |   |                                 |
| 50   | 118     | 165     | 18      | 125     | 4x18              | 30                              | 10      | 20      | 109   | 38                              |
|      | 90      |         |         |         |                   | 9                               | 16      | 163     |   |                                 |
|      | 81      |         |         |         |                   | 7                               | 13      | 196     |   |                                 |
| 65   | 132     | 185     | 18      | 145     | 4x18              | 30                              | 10      | 20      | 128   | 58                              |
|      | 110     |         |         |         |                   | 9                               | 16      | 165     |   |                                 |
|      | 100     |         |         |         |                   | 7                               | 13      | 192     |   |                                 |
| 80   | 140     | 200     | 20      | 160     | 8x18              | 35                              | 12      | 23      | 158   | 76                              |
|      | 129     |         |         |         |                   | 10                              | 20      | 177     |   |                                 |
|      | 117     |         |         |         |                   | 9                               | 16      | 203     |   |                                 |
| 100  | 155     | 220     | 22      | 180     | 8x18              | 40                              | 13      | 27      | 176   | 124                             |
|      | 142     |         |         |         |                   | 12                              | 23      | 198     |   |                                 |
|      | 130     |         |         |         |                   | 10                              | 20      | 226     |   |                                 |
| 125  | 164     | 250     | 24      | 210     | 8x18              | 40                              | 13      | 27      | 204   | 179                             |
|      | 151     |         |         |         |                   | 12                              | 23      | 229     |   |                                 |
|      | 138     |         |         |         |                   | 10                              | 20      | 262     |   |                                 |
| 150  | 172     | 285     | 24      | 240     | 8x22              | 40                              | 13      | 27      | 246   | 251                             |
|      | 158     |         |         |         |                   | 12                              | 23      | 276     |   |                                 |
|      | 144     |         |         |         |                   | 10                              | 20      | 316     |   |                                 |
| 200  | 196     | 340     | 26      | 295     | 12x22             | 45                              | 15      | 30      | 390   | 353                             |
|      | 145     |         |         |         |                   | 10                              | 20      | 613     |   |                                 |
|      |         |         |         |         |                   |                                 |         |         |   |                                 |
| 250  | 207     | 405     | 32      | 355     | 12x25             | 45                              | 15      | 30      | 506   | 594                             |
|      | 157     |         |         |         |                   | 10                              | 20      | 795     |   |                                 |
|      |         |         |         |         |                   |                                 |         |         |   |                                 |
| 300  | 190     | 460     | 32      | 410     | 12x25             | 50                              | 16      | 34      | 360   | 769                             |
|      | 150     |         |         |         |                   | 10                              | 20      | 480     |   |                                 |
|      |         |         |         |         |                   |                                 |         |         |   |                                 |
| 350  | 198     | 520     | 36      | 470     | 16x25             | 50                              | 16      | 34      | 400   | 940                             |
|      | 158     |         |         |         |                   | 10                              | 20      | 533     |   |                                 |
|      |         |         |         |         |                   |                                 |         |         |   |                                 |
| 400  | 202     | 580     | 38      | 525     | 16x30             | 50                              | 16      | 34      | 458   | 1225                            |
|      | 162     |         |         |         |                   | 10                              | 20      | 611     |   |                                 |
|      |         |         |         |         |                   |                                 |         |         |   |                                 |
| 450  | 260     | 640     | 40      | 585     | 20x30             | 90                              | 32      | 58      | 339   | 1600                            |
|      | 220     |         |         |         |                   | 25                              | 45      | 452     |   |                                 |
|      | 170     |         |         |         |                   | 15                              | 25      | 632     |   |                                 |
| 500  | 250     | 715     | 42      | 650     | 20x33             | 80                              | 26      | 54      | 615   | 2000                            |
|      | 175     |         |         |         |                   | 18                              | 32      | 800     |   |                                 |
|      | 160     |         |         |         |                   | 15                              | 25      | 1055    |   |                                 |
| 600  | 270     | 840     | 44      | 770     | 20x36             | 90                              | 35      | 55      | 650   | 2900                            |
|      | 240     |         |         |         |                   | 25                              | 45      | 767     |   |                                 |
|      | 180     |         |         |         |                   | 15                              | 25      | 1180    |   |                                 |
| 700  | 270     | 910     | 46      | 840     | 24x36             | 90                              | 35      | 55      | 695   | 3900                            |
|      | 220     |         |         |         |                   | 25                              | 45      | 894     |   |                                 |
|      | 170     |         |         |         |                   | 15                              | 25      | 1296    |   |                                 |
| 800  | 350     | 1025    | 48      | 950     | 24x39             | 100                             | 35      | 65      | 737   | 5163                            |
|      | 260     |         |         |         |                   | 20                              | 40      | 1024    |   |                                 |
|      | 180     |         |         |         |                   | 15                              | 25      | 1474    |   |                                 |
| 900  | 390     | 1125    | 50      | 1050    | 28x39             | 100                             | 35      | 65      | 828   | 6528                            |
|      | 260     |         |         |         |                   | 20                              | 40      | 1151    |   |                                 |
|      | 200     |         |         |         |                   | 13                              | 27      | 1645    |   |                                 |
| 1000 | 390     | 1255    | 50      | 1170    | 28x42             | 100                             | 35      | 65      | 960   | 8071                            |
|      | 290     |         |         |         |                   | 23                              | 47      | 1280    |   |                                 |
|      | 190     |         |         |         |                   | 15                              | 30      | 1984    |   |                                 |
| 1200 | 425     | 1485    | 52      | 1390    | 32x48             | 120                             | 47      | 73      | 1240  | 11530                           |
|      | 330     |         |         |         |                   | 30                              | 50      | 1670    |   |                                 |
|      | 250     |         |         |         |                   | 22                              | 28      | 2456    |   |                                 |

**MATERIALI STANDARD**

Standard materials

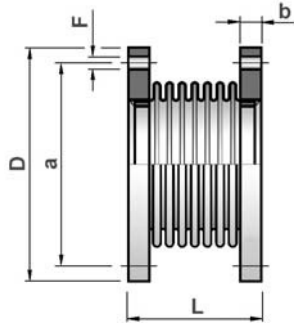
Soffietto / Bellows

ASTM A 240 tp.321

Flange / Flanges

UNI 6083:

Fe 410 B, ASTM A 105



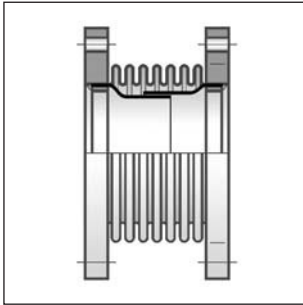
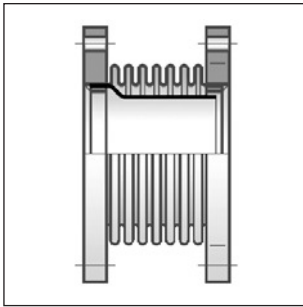
**COMPENSATORI ASSIALI FLANGIATI**

*Axial expansion joints with flanged ends*

**PN 25**

**A RICHIESTA**

*On request*



| DN   | L<br>mm | D<br>mm | b<br>mm | a<br>mm | N° x F<br>N° x mm | Corsa Assiale<br>Axial movement |         |         | Rigidezza<br>Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm² |
|------|---------|---------|---------|---------|-------------------|---------------------------------|---------|---------|---|---------------------------------|
|      |         |         |         |         |                   | Tot.<br>mm                      | +<br>mm | -<br>mm |   |                                 |
| 40   | 132     | 150     | 18      | 110     | 4x18              | 35                              | 12      | 23      | 235   | 27                              |
|      | 121     |         |         |         |                   | 10                              | 20      | 264     |   |                                 |
|      | 110     |         |         |         |                   | 9                               | 16      | 302     |   |                                 |
| 50   | 118     | 165     | 20      | 125     | 4x18              | 30                              | 10      | 20      | 361   | 39                              |
|      | 106     |         |         |         |                   | 8                               | 16      | 421     |   |                                 |
|      | 95      |         |         |         |                   | 7                               | 13      | 506     |   |                                 |
| 65   | 136     | 185     | 24      | 145     | 8x18              | 35                              | 12      | 20      | 325   | 61                              |
|      | 124     |         |         |         |                   | 10                              | 20      | 379     |   |                                 |
|      | 111     |         |         |         |                   | 9                               | 16      | 455     |   |                                 |
| 80   | 144     | 200     | 26      | 160     | 8x18              | 35                              | 12      | 23      | 369   | 80                              |
|      | 131     |         |         |         |                   | 10                              | 20      | 430     |   |                                 |
|      | 119     |         |         |         |                   | 9                               | 16      | 513     |   |                                 |
| 100  | 162     | 235     | 26      | 190     | 8x22              | 40                              | 13      | 27      | 352   | 125                             |
|      | 147     |         |         |         |                   | 12                              | 23      | 402     |   |                                 |
|      | 134     |         |         |         |                   | 9                               | 16      | 469     |   |                                 |
| 125  | 171     | 270     | 28      | 220     | 8x25              | 40                              | 13      | 27      | 380   | 181                             |
|      | 141     |         |         |         |                   | 12                              | 23      | 507     |   |                                 |
|      | 127     |         |         |         |                   | 10                              | 20      | 608     |   |                                 |
| 150  | 181     | 300     | 30      | 250     | 8x25              | 40                              | 15      | 30      | 446   | 254                             |
|      | 150     |         |         |         |                   | 12                              | 23      | 595     |   |                                 |
|      | 135     |         |         |         |                   | 10                              | 20      | 714     |   |                                 |
| 200  | 204     | 360     | 32      | 310     | 12x25             | 40                              | 14      | 26      | 635   | 350                             |
|      | 137     |         |         |         |                   | 10                              | 20      | 1269    |   |                                 |
|      | 212     |         |         |         |                   | 14                              | 26      | 792     |   |                                 |
| 250  | 212     | 425     | 36      | 370     | 12x30             | 40                              | 14      | 26      | 792   | 547                             |
|      | 145     |         |         |         |                   | 7                               | 13      | 1583    |   |                                 |
|      | 203     |         |         |         |                   | 16                              | 32      | 900     |   |                                 |
| 300  | 203     | 485     | 40      | 430     | 16x30             | 50                              | 16      | 32      | 900   | 762                             |
|      | 174     |         |         |         |                   | 10                              | 20      | 1199    |   |                                 |
|      | 350     |         |         |         |                   | 16                              | 32      | 997     |   |                                 |
| 350  | 210     | 555     | 44      | 490     | 16x33             | 50                              | 16      | 32      | 997   | 932                             |
|      | 182     |         |         |         |                   | 10                              | 20      | 1330    |   |                                 |
|      | 204     |         |         |         |                   | 14                              | 28      | 1215    |   |                                 |
| 400  | 204     | 620     | 48      | 550     | 16x36             | 42                              | 14      | 28      | 1215  | 1219                            |
|      | 174     |         |         |         |                   | 10                              | 20      | 1828    |   |                                 |
|      | 360     |         |         |         |                   | 32                              | 58      | 1050    |   |                                 |
| 450  | 360     | 670     | 48      | 600     | 20x36             | 90                              | 32      | 58      | 1050  | 1596                            |
|      | 320     |         |         |         |                   | 25                              | 45      | 1390    |   |                                 |
|      | 240     |         |         |         |                   | 15                              | 25      | 1710    |   |                                 |
| 500  | 330     | 730     | 50      | 660     | 20x36             | 80                              | 26      | 54      | 1095  | 1970                            |
|      | 250     |         |         |         |                   | 18                              | 32      | 1430    |   |                                 |
|      | 200     |         |         |         |                   | 15                              | 25      | 1828    |   |                                 |
| 600  | 360     | 845     | 54      | 770     | 20x39             | 90                              | 35      | 55      | 1120  | 2827                            |
|      | 320     |         |         |         |                   | 25                              | 45      | 1640    |   |                                 |
|      | 250     |         |         |         |                   | 15                              | 25      | 1950    |   |                                 |
| 700  | 360     | 960     | 54      | 875     | 24x42             | 90                              | 35      | 55      | 1240  | 3881                            |
|      | 320     |         |         |         |                   | 25                              | 45      | 1790    |   |                                 |
|      | 280     |         |         |         |                   | 15                              | 25      | 2140    |   |                                 |
| 800  | 380     | 1085    | 60      | 990     | 24x48             | 100                             | 35      | 65      | 1450  | 5089                            |
|      | 340     |         |         |         |                   | 20                              | 40      | 2000    |   |                                 |
|      | 300     |         |         |         |                   | 15                              | 25      | 2340    |   |                                 |
| 900  | 380     | 1185    | 64      | 1090    | 28x48             | 100                             | 35      | 65      | 1630  | 6447                            |
|      | 340     |         |         |         |                   | 20                              | 40      | 2300    |   |                                 |
|      | 310     |         |         |         |                   | 13                              | 27      | 2750    |   |                                 |
| 1000 | 420     | 1320    | 68      | 1210    | 28x56             | 100                             | 35      | 65      | 1850  | 7980                            |
|      | 390     |         |         |         |                   | 23                              | 47      | 2680    |   |                                 |
|      | 360     |         |         |         |                   | 15                              | 30      | 3130    |   |                                 |



**MATERIALI STANDARD**

Standard materials

Soffietto / Bellows

ASTM A 240 tp.321

Flange / Flanges

UNI 6084:

Fe 410 B, ASTM A 105

**COMPENSATORI ASSIALI FLANGIATI**

*Axial expansion joints with flanged ends*

**PN 40**

| DN          | L<br>mm | D<br>mm | b<br>mm | a<br>mm | N° x F<br>N° x mm | Corsa Assiale<br>Axial movement |         |         | Rigidezza<br>Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm² | Codice<br>Part number |
|-------------|---------|---------|---------|---------|-------------------|---------------------------------|---------|---------|---|---------------------------------|-----------------------|
|             |         |         |         |         |                   | Tot.<br>mm                      | +<br>mm | -<br>mm |   |                                 |                       |
| <b>40</b>   | 132     | 150     | 18      | 110     | 4x18              | 25                              | 9       | 16      | 459   | 26                              |                       |
| <b>50</b>   | 117     | 165     | 20      | 125     | 4x18              | 21                              | 7       | 14      | 471   | 38                              |                       |
|             | 107     |         |         |         |                   | 7                               | 12      | 549     |   |                                 |                       |
|             | 96      |         |         |         |                   | 5                               | 10      | 659     |   |                                 |                       |
| <b>65</b>   | 136     | 185     | 24      | 145     | 8x18              | 25                              | 9       | 12      | 528   | 58                              |                       |
|             | 123     |         |         |         |                   | 7                               | 13      | 616     |   |                                 |                       |
|             | 112     |         |         |         |                   | 5                               | 10      | 739     |   |                                 |                       |
| <b>80</b>   | 143     | 200     | 26      | 160     | 8x18              | 25                              | 9       | 16      | 599   | 77                              |                       |
|             | 130     |         |         |         |                   | 7                               | 13      | 699     |   |                                 |                       |
|             | 118     |         |         |         |                   | 5                               | 10      | 838     |   |                                 |                       |
| <b>100</b>  | 161     | 235     | 26      | 190     | 8x22              | 33                              | 11      | 22      | 562   | 122                             |                       |
|             | 134     |         |         |         |                   | 9                               | 16      | 749     |   |                                 |                       |
|             | 121     |         |         |         |                   | 5                               | 10      | 899     |   |                                 |                       |
| <b>125</b>  | 170     | 270     | 28      | 220     | 8x25              | 33                              | 11      | 22      | 741   | 174                             |                       |
|             | 156     |         |         |         |                   | 9                               | 16      | 847     |   |                                 |                       |
|             | 142     |         |         |         |                   | 5                               | 10      | 989     |   |                                 |                       |
| <b>150</b>  | 180     | 300     | 30      | 250     | 8x25              | 33                              | 11      | 22      | 863   | 246                             |                       |
|             | 165     |         |         |         |                   | 9                               | 16      | 986     |   |                                 |                       |
|             | 151     |         |         |         |                   | 5                               | 10      | 1151    |   |                                 |                       |
| <b>200</b>  | 217     | 375     | 36      | 320     | 12x30             | 36                              | 12      | 24      | 1075  | 348                             |                       |
|             | 176     |         |         |         |                   | 7                               | 13      | 1535    |   |                                 |                       |
| <b>250</b>  | 237     | 450     | 44      | 385     | 12x33             | 45                              | 15      | 30      | 1346  | 545                             |                       |
|             | 194     |         |         |         |                   | 11                              | 22      | 1923    |   |                                 |                       |
| <b>300</b>  | 212     | 515     | 48      | 450     | 16x33             | 33                              | 11      | 22      | 2335  | 756                             |                       |
|             | 180     |         |         |         |                   | 8                               | 15      | 3269    |   |                                 |                       |
| <b>350</b>  | 224     | 580     | 54      | 510     | 16x36             | 33                              | 11      | 22      | 2558  | 925                             |                       |
|             | 192     |         |         |         |                   | 8                               | 15      | 3623    |   |                                 |                       |
| <b>400</b>  | 236     | 660     | 60      | 585     | 16x39             | 33                              | 11      | 22      | 2962  | 1208                            |                       |
|             | 204     |         |         |         |                   | 8                               | 15      | 4146    |   |                                 |                       |
| <b>450</b>  | 360     | 685     | 60      | 610     | 20x39             | 80                              | 28      | 52      | 1805  | 1596                            |                       |
|             | 340     |         |         |         |                   | 60                              | 21      | 39      | 2281  |                                 |                       |
|             | 310     |         |         |         |                   | 40                              | 15      | 25      | 3095  |                                 |                       |
| <b>500</b>  | 360     | 755     | 62      | 670     | 20x42             | 100                             | 33      | 67      | 2093  | 1970                            |                       |
|             | 340     |         |         |         |                   | 60                              | 21      | 39      | 2667  |                                 |                       |
|             | 310     |         |         |         |                   | 40                              | 15      | 25      | 3636  |                                 |                       |
| <b>600</b>  | 360     | 890     | 64      | 795     | 20x48             | 100                             | 33      | 67      | 2427  | 2827                            |                       |
|             | 330     |         |         |         |                   | 60                              | 21      | 39      | 3173  |                                 |                       |
|             | 300     |         |         |         |                   | 40                              | 15      | 25      | 4363  |                                 |                       |
| <b>700</b>  | 360     | 995     | 64      | 900     | 24x48             | 100                             | 33      | 67      | 2888  | 3881                            |                       |
|             | 330     |         |         |         |                   | 60                              | 21      | 39      | 3760  |                                 |                       |
|             | 300     |         |         |         |                   | 40                              | 15      | 25      | 5279  |                                 |                       |
| <b>800</b>  | 380     | 1140    | 68      | 1030    | 24x56             | 100                             | 33      | 67      | 3350  | 5089                            |                       |
|             | 350     |         |         |         |                   | 60                              | 21      | 39      | 4436  |                                 |                       |
|             | 300     |         |         |         |                   | 40                              | 15      | 25      | 6282  |                                 |                       |
| <b>900</b>  | 380     | 1250    | 72      | 1140    | 28x56             | 100                             | 33      | 67      | 4053  | 6447                            |                       |
|             | 330     |         |         |         |                   | 60                              | 21      | 39      | 5411  |                                 |                       |
|             | 300     |         |         |         |                   | 40                              | 13      | 25      | 8103  |                                 |                       |
| <b>1000</b> | 420     | 1360    | 76      | 1250    | 28x56             | 100                             | 33      | 67      | 4985  | 7980                            |                       |
|             | 390     |         |         |         |                   | 70                              | 27      | 43      | 6655  |                                 |                       |
|             | 350     |         |         |         |                   | 45                              | 18      | 27      | 9885  |                                 |                       |

**MATERIALI STANDARD**

Standars materials

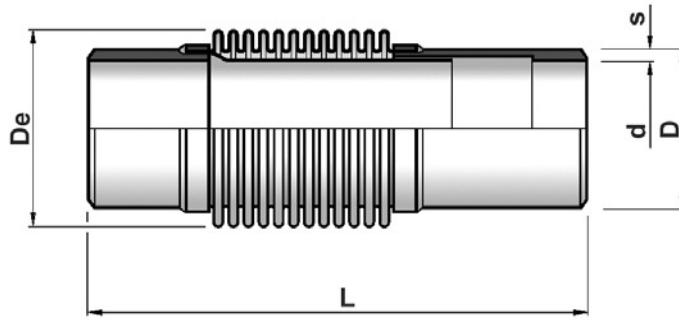
Soffietto e convogliatore interno

Bellows and internal sleeve

ASTM A 240 tp.321

Manicotti / Welding ends

ASTM A 106 Gr.B



**COMPENSATORI ASSIALI A SALDARE**

*Axial expansion joints with welding ends*

**PN 2,5**

| DN         | L<br>mm | D<br>mm | s<br>mm | d<br>mm | De<br>mm | Corsa Assiale<br>Axial movement |         |         | Rigidezza<br>Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm <sup>2</sup> | Codice<br>Part number |
|------------|---------|---------|---------|---------|----------|---------------------------------|---------|---------|---|---|-----------------------|
|            |         |         |         |         |          | Tot.<br>mm                      | +<br>mm | -<br>mm |   |   |                       |
| <b>40</b>  | 252     | 48,3    | 2,6     | 43,1    | 72       | 60                              | 20      | 40      | 68  | 28  |                       |
| <b>50</b>  | 305     | 60,3    | 2,9     | 54,5    | 84       | 72                              | 24      | 48      | 69  | 40  |                       |
|            | 278     |         |         |         |          | 20                              | 40      | 146     |   |   |                       |
| <b>65</b>  | 333     | 76,1    | 2,9     | 70,3    | 102      | 87                              | 29      | 58      | 68  | 62  |                       |
|            | 301     |         |         |         |          | 24                              | 48      | 82      |   |   |                       |
| <b>80</b>  | 340     | 88,9    | 3,2     | 82,5    | 115      | 87                              | 29      | 58      | 78  | 81  |                       |
|            | 307     |         |         |         |          | 24                              | 48      | 94      |   |   |                       |
| <b>100</b> | 373     | 114,3   | 3,6     | 107,1   | 146      | 111                             | 37      | 74      | 56  | 131   |                       |
|            | 336     |         |         |         |          | 30                              | 60      | 67      |   |   |                       |
| <b>125</b> | 384     | 139,7   | 4       | 133,3   | 168      | 120                             | 40      | 80      | 61  | 188   |                       |
|            | 345     |         |         |         |          | 30                              | 60      | 73      |   |   |                       |
| <b>150</b> | 397     | 168,3   | 4,5     | 159,3   | 196      | 120                             | 40      | 80      | 105   | 257   |                       |
|            | 356     |         |         |         |          | 30                              | 60      | 126     |   |   |                       |
| <b>200</b> | 340     | 219,1   | 5,9     | 207,3   | 226      | 70                              | 23      | 47      | 185   | 356   |                       |
|            | 316     |         |         |         |          | 20                              | 40      | 211     |   |   |                       |
| <b>250</b> | 340     | 273     | 6,3     | 260,4   | 279      | 70                              | 23      | 47      | 231   | 556   |                       |
|            | 316     |         |         |         |          | 20                              | 40      | 265     |   |   |                       |
| <b>300</b> | 322     | 323,9   | 7,1     | 309,7   | 331      | 84                              | 28      | 56      | 155   | 774   |                       |
|            | 298     |         |         |         |          | 23                              | 46      | 183     |   |   |                       |
| <b>350</b> | 322     | 355,6   | 8       | 339,6   | 364      | 81                              | 27      | 54      | 172   | 946   |                       |
|            | 298     |         |         |         |          | 25                              | 50      | 201     |   |   |                       |
| <b>400</b> | 322     | 406,4   | 8,8     | 388,8   | 413      | 84                              | 28      | 56      | 197   | 1232  |                       |
|            | 298     |         |         |         |          | 20                              | 40      | 231     |   |   |                       |

**PN 6**

|            |     |       |     |       |     |     |    |     |     |      |  |
|------------|-----|-------|-----|-------|-----|-----|----|-----|-----|------|--|
| <b>40</b>  | 252 | 48,3  | 2,6 | 43,1  | 72  | 60  | 20 | 40  | 68  | 00   |  |
| <b>50</b>  | 305 | 60,3  | 2,9 | 54,5  | 84  | 72  | 24 | 48  | 69  | 00   |  |
|            | 278 |       |     |       |     | 20  | 40 | 146 |     |      |  |
| <b>65</b>  | 333 | 76,1  | 2,9 | 70,3  | 102 | 87  | 29 | 58  | 68  | 00   |  |
|            | 301 |       |     |       |     | 24  | 48 | 82  |     |      |  |
| <b>80</b>  | 340 | 88,9  | 3,2 | 82,5  | 115 | 87  | 29 | 58  | 78  | 81   |  |
|            | 308 |       |     |       |     | 24  | 48 | 94  |     |      |  |
| <b>100</b> | 373 | 114,3 | 3,6 | 107,1 | 146 | 111 | 37 | 74  | 56  | 131  |  |
|            | 336 |       |     |       |     | 30  | 60 | 67  |     |      |  |
| <b>125</b> | 384 | 139,7 | 4   | 133,3 | 168 | 120 | 40 | 80  | 61  | 188  |  |
|            | 345 |       |     |       |     | 30  | 60 | 73  |     |      |  |
| <b>150</b> | 397 | 168,3 | 4,5 | 159,3 | 196 | 120 | 40 | 80  | 105 | 257  |  |
|            | 356 |       |     |       |     | 30  | 60 | 126 |     |      |  |
| <b>200</b> | 340 | 219,1 | 5,9 | 207,3 | 226 | 70  | 23 | 47  | 185 | 356  |  |
|            | 316 |       |     |       |     | 20  | 40 | 211 |     |      |  |
| <b>250</b> | 340 | 273   | 6,3 | 260,4 | 279 | 70  | 23 | 47  | 231 | 556  |  |
|            | 316 |       |     |       |     | 20  | 40 | 265 |     |      |  |
| <b>300</b> | 322 | 323,9 | 7,1 | 309,7 | 331 | 84  | 28 | 56  | 155 | 774  |  |
|            | 298 |       |     |       |     | 23  | 46 | 183 |     |      |  |
| <b>350</b> | 322 | 355,6 | 8   | 339,6 | 364 | 81  | 27 | 54  | 172 | 946  |  |
|            | 298 |       |     |       |     | 25  | 50 | 201 |     |      |  |
| <b>400</b> | 322 | 406,4 | 8,8 | 388,8 | 413 | 84  | 28 | 56  | 197 | 1232 |  |
|            | 298 |       |     |       |     | 20  | 40 | 231 |     |      |  |

**COMPENSATORI ASSIALI A SALDARE**

*Axial expansion joints with welding ends*

**PN 10**

| DN         | L<br>mm | D<br>mm | s<br>mm | d<br>mm | De<br>mm | Corsa Assiale<br>Axial movement |         |         | Rigidezza<br>Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm <sup>2</sup> |
|------------|---------|---------|---------|---------|----------|---------------------------------|---------|---------|---|---|
|            |         |         |         |         |          | Tot.<br>mm                      | +<br>mm | -<br>mm |   |   |
| <b>40</b>  | 228     | 48,3    | 2,6     | 43,1    | 66       | 48                              | 16      | 32      | 70  | 25  |
|            | 210     |         |         |         |          | 40                              | 14      | 26      |   |   |
| <b>50</b>  | 284     | 60,3    | 2,9     | 54,5    | 79       | 60                              | 20      | 40      | 114   | 38  |
|            | 258     |         |         |         |          | 45                              | 15      | 30      |   |   |
| <b>65</b>  | 303     | 76,1    | 2,9     | 70,3    | 95       | 60                              | 20      | 40      | 160   | 57  |
|            | 281     |         |         |         |          | 45                              | 15      | 30      |   |   |
| <b>80</b>  | 330     | 88,9    | 3,2     | 82,5    | 108      | 70                              | 23      | 47      | 209   | 76  |
|            | 298     |         |         |         |          | 60                              | 20      | 40      |   |   |
| <b>100</b> | 350     | 114,3   | 3,6     | 107,1   | 139      | 80                              | 27      | 53      | 93  | 124   |
|            | 326     |         |         |         |          | 65                              | 22      | 43      |   |   |
| <b>125</b> | 373     | 139,7   | 4       | 133,3   | 164      | 80                              | 27      | 53      | 103   | 179   |
|            | 335     |         |         |         |          | 65                              | 22      | 43      |   |   |
| <b>150</b> | 373     | 168,3   | 4,5     | 159,3   | 192      | 80                              | 27      | 53      | 139   | 251   |
|            | 346     |         |         |         |          | 65                              | 22      | 43      |   |   |
| <b>200</b> | 355     | 219,1   | 5,9     | 207,3   | 226      | 70                              | 23      | 47      | 268   | 353   |
|            | 330     |         |         |         |          | 50                              | 16      | 34      |   |   |
| <b>250</b> | 355     | 273     | 6,3     | 260,4   | 279      | 70                              | 23      | 47      | 335   | 593   |
|            | 330     |         |         |         |          | 50                              | 16      | 34      |   |   |
| <b>300</b> | 335     | 323,9   | 7,1     | 309,7   | 331      | 75                              | 25      | 50      | 222   | 769   |
|            | 308     |         |         |         |          | 63                              | 21      | 42      |   |   |
| <b>350</b> | 335     | 355,6   | 8       | 339,6   | 364      | 75                              | 25      | 50      | 246   | 940   |
|            | 308     |         |         |         |          | 63                              | 21      | 42      |   |   |
| <b>400</b> | 335     | 406,4   | 8,8     | 388,8   | 413      | 75                              | 25      | 50      | 282   | 1225  |
|            | 308     |         |         |         |          | 63                              | 21      | 42      |   |   |

**PN 16**

|            |     |       |     |       |     |    |    |    |     |      |
|------------|-----|-------|-----|-------|-----|----|----|----|-----|------|
| <b>40</b>  | 228 | 48,3  | 2,6 | 43,1  | 66  | 48 | 16 | 32 | 70  | 25   |
|            | 210 |       |     |       |     | 40 | 14 | 26 |     |      |
| <b>50</b>  | 284 | 60,3  | 2,9 | 54,5  | 79  | 60 | 20 | 40 | 114 | 38   |
|            | 258 |       |     |       |     | 45 | 15 | 30 |     |      |
| <b>65</b>  | 303 | 76,1  | 2,9 | 70,3  | 95  | 60 | 20 | 40 | 160 | 57   |
|            | 281 |       |     |       |     | 45 | 15 | 30 |     |      |
| <b>80</b>  | 330 | 88,9  | 3,2 | 82,5  | 108 | 70 | 23 | 47 | 209 | 76   |
|            | 298 |       |     |       |     | 60 | 20 | 40 |     |      |
| <b>100</b> | 350 | 114,3 | 3,6 | 107,1 | 139 | 80 | 27 | 53 | 93  | 124  |
|            | 326 |       |     |       |     | 65 | 22 | 43 |     |      |
| <b>125</b> | 373 | 139,7 | 4   | 133,3 | 164 | 80 | 27 | 53 | 103 | 179  |
|            | 335 |       |     |       |     | 65 | 22 | 43 |     |      |
| <b>150</b> | 373 | 168,3 | 4,5 | 159,3 | 192 | 80 | 27 | 53 | 139 | 251  |
|            | 346 |       |     |       |     | 65 | 22 | 43 |     |      |
| <b>200</b> | 355 | 219,1 | 5,9 | 207,3 | 226 | 70 | 23 | 47 | 268 | 353  |
|            | 330 |       |     |       |     | 50 | 16 | 34 |     |      |
| <b>250</b> | 355 | 273   | 6,3 | 260,4 | 279 | 70 | 23 | 47 | 335 | 593  |
|            | 330 |       |     |       |     | 50 | 16 | 34 |     |      |
| <b>300</b> | 335 | 323,9 | 7,1 | 309,7 | 331 | 75 | 25 | 50 | 222 | 769  |
|            | 308 |       |     |       |     | 63 | 21 | 42 |     |      |
| <b>350</b> | 335 | 355,6 | 8   | 339,6 | 364 | 75 | 25 | 50 | 246 | 940  |
|            | 308 |       |     |       |     | 63 | 21 | 42 |     |      |
| <b>400</b> | 335 | 406,4 | 8,8 | 388,8 | 413 | 75 | 25 | 50 | 282 | 1225 |
|            | 308 |       |     |       |     | 63 | 21 | 42 |     |      |

**MATERIALI STANDARD**

Standars materials

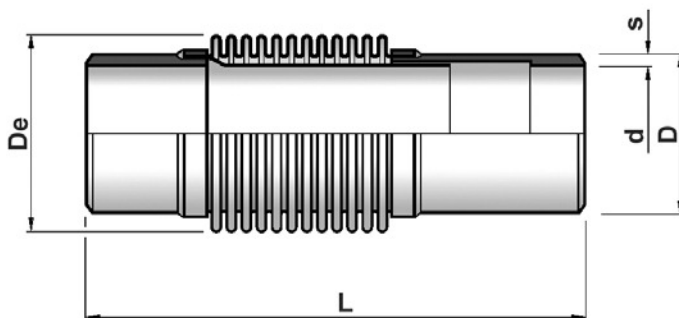
Soffietto e convogliatore interno

Bellows and internal sleeve

ASTM A 240 tp.321

Manicotti / Welding ends

ASTM A 106 Gr.B



**COMPENSATORI ASSIALI A SALDARE**

Axial expansion joints with welding ends

PN 25

| DN  | L<br>mm | D<br>mm | s<br>mm | d<br>mm | De<br>mm | Corsa Assiale<br>Axial movement |         |         | Rigidezza<br>Assiale<br>Axial spring rate<br>+/- 20% N/mm | Area Media<br>Media Area<br>cm <sup>2</sup> |
|-----|---------|---------|---------|---------|----------|---------------------------------|---------|---------|---|---|
|     |         |         |         |         |          | Tot.<br>mm                      | +<br>mm | -<br>mm |   |   |
| 40  | 234     | 48,3    | 2,6     | 43,1    | 73       | 48                              | 16      | 32      | 185   | 25  |
|     | 213     |         |         |         |          | 40                              | 14      | 26      | 222   |   |
| 50  | 270     | 60,3    | 2,9     | 54,5    | 85       | 66                              | 22      | 44      | 342   | 38  |
|     | 248     |         |         |         |          | 54                              | 18      | 36      | 404   |   |
| 65  | 301     | 76,1    | 2,9     | 70,3    | 104      | 75                              | 25      | 50      | 460   | 57  |
|     | 275     |         |         |         |          | 60                              | 21      | 42      | 544   |   |
| 80  | 306     | 88,9    | 3,2     | 82,5    | 117      | 75                              | 25      | 50      | 535   | 76  |
|     | 280     |         |         |         |          | 60                              | 20      | 40      | 632   |   |
| 100 | 367     | 114,3   | 3,6     | 107,1   | 143      | 90                              | 30      | 60      | 511   | 124   |
|     | 339     |         |         |         |          | 81                              | 27      | 54      | 590   |   |
| 125 | 370     | 139,7   | 4       | 133,3   | 169      | 90                              | 30      | 60      | 551   | 179   |
|     | 342     |         |         |         |          | 87                              | 29      | 58      | 636   |   |
| 150 | 388     | 168,3   | 4,5     | 159,3   | 192      | 70                              | 25      | 50      | 1197  | 251   |
|     | 357     |         |         |         |          | 60                              | 20      | 40      | 1381  |   |
| 200 | 371     | 219,1   | 5,9     | 207,3   | 226      | 70                              | 23      | 47      | 536   | 353   |
|     | 344     |         |         |         |          | 60                              | 20      | 40      | 612   |   |
| 250 | 371     | 273     | 6,3     | 260,4   | 279      | 70                              | 23      | 47      | 668   | 547   |
|     | 344     |         |         |         |          | 60                              | 20      | 40      | 764   |   |
| 300 | 355     | 323,9   | 7,1     | 309,7   | 331      | 78                              | 26      | 52      | 746   | 769   |
|     | 312     |         |         |         |          | 60                              | 20      | 40      | 970   |   |
| 350 | 355     | 355,6   | 8       | 339,6   | 364      | 78                              | 26      | 52      | 827   | 931   |
|     | 312     |         |         |         |          | 60                              | 20      | 40      | 1075  |   |
| 400 | 355     | 406,4   | 8,8     | 388,8   | 413      | 78                              | 26      | 52      | 947   | 1215  |
|     | 312     |         |         |         |          | 60                              | 20      | 40      | 1231  |   |

PN 40

|     |     |       |     |       |     |    |    |    |      |      |
|-----|-----|-------|-----|-------|-----|----|----|----|------|------|
| 40  | 234 | 48,3  | 2,6 | 43,1  | 71  | 45 | 15 | 30 | 310  | 26   |
|     | 213 |       |     |       |     | 36 | 12 | 24 | 372  |      |
| 50  | 249 | 60,3  | 2,9 | 54,5  | 83  | 51 | 17 | 34 | 769  | 38   |
|     | 227 |       |     |       |     | 42 | 14 | 28 | 944  |      |
| 65  | 268 | 76,1  | 2,9 | 70,3  | 100 | 51 | 17 | 34 | 931  | 85   |
|     | 243 |       |     |       |     | 45 | 15 | 30 | 1118 |      |
| 80  | 273 | 88,9  | 3,2 | 77,9  | 113 | 51 | 17 | 34 | 1087 | 77   |
|     | 247 |       |     |       |     | 42 | 14 | 28 | 1305 |      |
| 100 | 328 | 114,3 | 3,6 | 102,3 | 138 | 66 | 22 | 44 | 431  | 119  |
|     | 300 |       |     |       |     | 54 | 18 | 36 | 1158 |      |
| 125 | 336 | 139,7 | 4   | 128,3 | 163 | 57 | 19 | 38 | 1442 | 174  |
|     | 307 |       |     |       |     | 45 | 15 | 30 | 1682 |      |
| 150 | 403 | 168,3 | 4,5 | 154,1 | 191 | 72 | 24 | 48 | 548  | 246  |
|     | 373 |       |     |       |     | 60 | 20 | 40 | 1664 |      |
| 200 | 381 | 219,1 | 5,9 | 204,9 | 226 | 60 | 20 | 40 | 2035 | 348  |
|     | 352 |       |     |       |     | 50 | 16 | 34 | 1037 |      |
| 250 | 392 | 273   | 6,3 | 256,6 | 279 | 72 | 24 | 48 | 876  | 545  |
|     | 363 |       |     |       |     | 60 | 20 | 40 | 1002 |      |
| 300 | 366 | 323,9 | 7,1 | 305,3 | 331 | 60 | 20 | 40 | 1687 | 756  |
|     | 319 |       |     |       |     | 45 | 15 | 30 | 2194 |      |
| 350 | 366 | 355,6 | 8   | 336,6 | 364 | 60 | 20 | 40 | 1869 | 925  |
|     | 319 |       |     |       |     | 45 | 15 | 30 | 2430 |      |
| 400 | 366 | 406,4 | 8,8 | 382,4 | 413 | 60 | 20 | 40 | 1974 | 1208 |
|     | 319 |       |     |       |     | 45 | 15 | 30 | 2586 |      |

**NOTE**

■ Nelle tabelle sono riportati i nostri compensatori standard, senza però rappresentare limite di costruzione.

■ I manicotti a richiesta, possono essere forniti con altri spessori.

■ Garantiamo i nostri giunti per 1000 cicli.

**NOTE**

■ In the charts are showed our standard expansion joints, without representing however limit of construction.

■ The welding ends can be supplied with other thickness.

■ Our joints are guarantee for 1000 cycles.

**MATERIALI STANDARD**

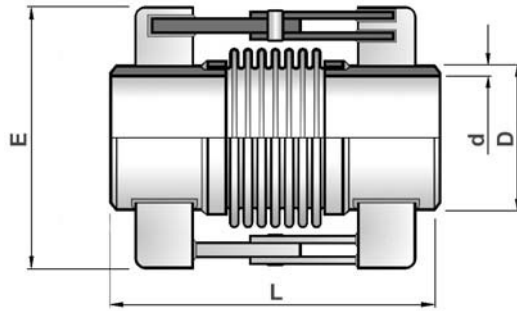
Standard materials

Soffietto / Bellows

ASTM A 240 tp.321

Manicotti / Welding ends

ASTM A 106 Gr.B



**COMPENSATORI ANGOLARI A SALDARE**

*Hinged expansion joints with welding ends*

**PN 16**

| DN          | L<br>mm | D<br>mm | s<br>mm | d<br>mm | E<br>mm | Corsa Angolare<br>Angular travel<br>+/-<br>Gradi/degree | MC<br>Kgm/1° |
|-------------|---------|---------|---------|---------|---------|---|--------------|
| <b>40</b>   | 354     | 48,3    | 2,6     | 43,1    | 160     | 30° 00'   | 0,56         |
|             | 339     |         |         |         |         | 24° 00'   | 0,44         |
| <b>50</b>   | 357     | 60,3    | 2,9     | 54,5    | 170     | 28° 10'   | 0,82         |
|             | 340     |         |         |         |         | 23° 20'   | 0,67         |
| <b>65</b>   | 369     | 76,1    | 2,9     | 70,3    | 220     | 30° 00'   | 1,29         |
|             | 340     |         |         |         |         | 19° 40'   | 0,82         |
| <b>80</b>   | 372     | 88,9    | 3,2     | 82,5    | 240     | 28° 20'   | 1,47         |
|             | 342     |         |         |         |         | 19° 40'   | 0,99         |
| <b>100</b>  | 383     | 114,3   | 3,6     | 107,1   | 270     | 24° 20'   | 2,25         |
|             | 360     |         |         |         |         | 17° 40'   | 1,59         |
| <b>125</b>  | 509     | 141,3   | 4       | 133,3   | 310     | 19° 30'   | 2,66         |
|             | 484     |         |         |         |         | 14° 20'   | 1,96         |
| <b>150</b>  | 517     | 168,3   | 4,5     | 159,3   | 320     | 16° 30'   | 5,36         |
|             | 490     |         |         |         |         | 12° 40'   | 3,71         |
| <b>200</b>  | 630     | 219,1   | 5,9     | 207,3   | 370     | 12° 30'   | 7,43         |
|             | 583     |         |         |         |         | 8° 30'  | 4,1          |
| <b>250</b>  | 630     | 273     | 6,3     | 260,4   | 440     | 9° 30'  | 7,4          |
|             | 583     |         |         |         |         | 6° 40'  | 10,1         |
| <b>300</b>  | 739     | 323,9   | 7,1     | 309,7   | 500     | 9° 30'  | 10,97        |
|             | 716     |         |         |         |         | 5° 40'  | 18,7         |
| <b>350</b>  | 739     | 355,6   | 8       | 339,6   | 560     | 8° 40'  | 12,8         |
|             | 716     |         |         |         |         | 5° 30'  | 21,25        |
| <b>400</b>  | 739     | 406,4   | 8,8     | 388,8   | 630     | 5° 40'  | 21,6         |
|             | 716     |         |         |         |         | 3° 20'  | 37,7         |
| <b>450</b>  | 750     | 457,2   | 8,8     | 439,6   | 675     | 5° 00'  | 40,9         |
|             | 720     |         |         |         |         | 3° 00'  | 52           |
| <b>500</b>  | 750     | 508     | 8,8     | 490,4   | 770     | 4° 30'  | 57           |
|             | 720     |         |         |         |         | 2° 30'  | 88,8         |
| <b>600</b>  | 820     | 609,6   | 8       | 593,6   | 940     | 4° 20'  | 86           |
|             | 780     |         |         |         |         | 2° 30'  | 124          |
| <b>700</b>  | 820     | 711,2   | 8       | 659,2   | 960     | 5° 50'  | 155          |
|             | 780     |         |         |         |         | 4° 30'  | 178          |
| <b>800</b>  | 980     | 812,8   | 10      | 792,8   | 1220    | 5° 30'  | 218,2        |
|             | 900     |         |         |         |         | 4° 20'  | 262,5        |
| <b>900</b>  | 1120    | 914,4   | 10      | 894,4   | 1495    | 3° 30'  | 618,7        |
|             | 1050    |         |         |         |         | 2° 40'  | 808,6        |
| <b>1000</b> | 1320    | 1016    | 10      | 996     | 1600    | 3° 00'  | 775          |
|             | 1170    |         |         |         |         | 2° 20'  | 1152,3       |

## COMPENSATORI ANGOLARI A SALDARE

*Hinged expansion joints with welding ends*

**PN 25**

■ Il nostro ufficio tecnico è a vostra disposizione per valutare ulteriori soluzioni personalizzate secondo le vostre esigenze.

■ *Our technical office is to your complete disposal in order to estimate ulterior solutions personalized due to your requirements.*

| DN          | L<br>mm | D<br>mm | s<br>mm | d<br>mm | E<br>mm | Corsa Angolare<br>Angular travel<br>+/-<br>Gradi/degree | MC<br>Kgm/1° | Codice<br>Part number |
|-------------|---------|---------|---------|---------|---------|---|--------------|-----------------------|
| <b>40</b>   | 371     | 48,3    | 2,6     | 43,1    | 160     | 34° 00'   | 0,95         | WH 040 025 1          |
|             | 351     |         |         |         |         | 27° 01'   | 0,75         | WH 040 025 2          |
| <b>50</b>   | 354     | 60,3    | 2,9     | 54,5    | 170     | 23° 20'   | 1            | WH 050 025 1          |
|             | 344     |         |         |         |         | 18° 40'   | 0,79         | WH 050 025 2          |
| <b>65</b>   | 364     | 76,1    | 2,9     | 70,3    | 220     | 23° 10'   | 1,45         | WH 065 025 1          |
|             | 352     |         |         |         |         | 18° 40'   | 1,16         | WH 065 025 2          |
| <b>80</b>   | 366     | 88,9    | 3,2     | 82,5    | 240     | 22° 20'   | 1,72         | WH 080 025 1          |
|             | 341     |         |         |         |         | 16° 40'   | 1,27         | WH 080 025 2          |
| <b>100</b>  | 395     | 114,3   | 3,6     | 107,1   | 270     | 23° 10'   | 3,24         | WH 100 025 1          |
|             | 358     |         |         |         |         | 15° 30'   | 2,14         | WH 100 025 2          |
| <b>125</b>  | 515     | 141,3   | 4       | 133,3   | 310     | 15° 30'   | 3,06         | WH 125 025 1          |
|             | 473     |         |         |         |         | 11° 40'   | 2,28         | WH 125 025 2          |
| <b>150</b>  | 514     | 168,3   | 4,5     | 159,3   | 320     | 16° 30'   | 6,83         | WH 150 025 1          |
|             | 485     |         |         |         |         | 11° 40'   | 4,77         | WH 150 025 2          |
| <b>200</b>  | 629     | 219,1   | 5,9     | 207,3   | 380     | 10° 20'   | 8,02         | WH 200 025 1          |
|             | 565     |         |         |         |         | 5° 40'  | 8,7          | WH 200 025 2          |
| <b>250</b>  | 629     | 273     | 6,3     | 260,4   | 460     | 8° 30'  | 12,3         | WH 250 025 1          |
|             | 565     |         |         |         |         | 4° 20'  | 11,1         | WH 250 025 2          |
| <b>300</b>  | 753     | 323,9   | 7,1     | 309,7   | 520     | 9° 20'  | 25,4         | WH 300 025 1          |
|             | 728     |         |         |         |         | 5° 30'  | 29,1         | WH 300 025 2          |
| <b>350</b>  | 753     | 355,6   | 8       | 339,6   | 580     | 8° 30'  | 27,9         | WH 350 025 1          |
|             | 728     |         |         |         |         | 5° 30'  | 38,7         | WH 350 025 2          |
| <b>400</b>  | 740     | 406,4   | 8,8     | 388,8   | 650     | 8° 30'  | 34,2         | WH 400 025 1          |
|             | 714     |         |         |         |         | 4° 20'  | 59,7         | WH 400 025 2          |
| <b>450</b>  | 780     | 457,2   | 8,8     | 439,6   | 710     | 4° 40'  | 66           | WH 450 025 1          |
|             | 735     |         |         |         |         | 3° 30'  | 100          | WH 450 025 2          |
| <b>500</b>  | 780     | 508     | 8,8     | 490,4   | 770     | 4° 40'  | 82,8         | WH 500 025 1          |
|             | 740     |         |         |         |         | 2° 40'  | 122          | WH 500 025 2          |
| <b>600</b>  | 850     | 609,6   | 8       | 593,6   | 900     | 4° 00'  | 125          | WH 600 025 1          |
|             | 800     |         |         |         |         | 2° 40'  | 177,3        | WH 600 025 2          |
| <b>700</b>  | 850     | 711,2   | 8       | 659,2   | 990     | 4° 20'  | 338          | WH 700 025 1          |
|             | 800     |         |         |         |         | 3° 00'  | 396,7        | WH 700 025 2          |
| <b>800</b>  | 1050    | 812,8   | 10      | 792,8   | 1250    | 3° 40'  | 649          | WH 800 025 1          |
|             | 950     |         |         |         |         | 2° 30'  | 747,5        | WH 800 025 2          |
| <b>900</b>  | 1410    | 914,4   | 10      | 894,4   | 1560    | 3° 40'  | 325          | WH 900 025 1          |
|             | 1340    |         |         |         |         | 2° 40'  | 370,3        | WH 900 025 2          |
| <b>1000</b> | 1640    | 1016    | 10      | 996     | 1660    | 3° 30'  | 422,8        | WH 1000 025 1         |
|             | 1490    |         |         |         |         | 2° 20'  | 449,5        | WH 1000 025 2         |

**MATERIALI STANDARD**

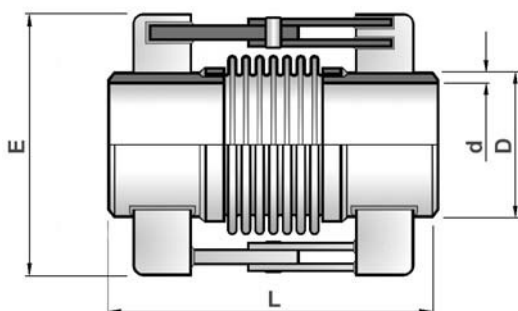
Standard materials

Soffietto / Bellows

ASTM A 240 tp.321

Manicotti / Welding ends

ASTM A 106 Gr.B



**COMPENSATORI ANGOLARI A SALDARE**

*Hinged expansion joints with welding ends*

**PN 40**

| DN  | L<br>mm | D<br>mm | s<br>mm | d<br>mm | E<br>mm | Corsa Angolare<br>Angular travel<br>+/-<br>Gradi/degree | MC<br>Kgm/1° |
|-----|---------|---------|---------|---------|---------|---|--------------|
| 40  | 432     | 48,3    | 2,6     | 43,1    | 170     | 24° 00'   | 0,82         |
|     | 411     |         |         |         |         | 19° 10'   | 0,65         |
| 50  | 434     | 60,3    | 2,9     | 54,5    | 180     | 21° 20'   | 1,18         |
|     | 413     |         |         |         |         | 16° 00'   | 0,89         |
| 65  | 444     | 76,1    | 2,9     | 70,3    | 230     | 24° 00'   | 1,96         |
|     | 409     |         |         |         |         | 13° 30'   | 1,09         |
| 80  | 446     | 88,9    | 5,5     | 77,9    | 250     | 23° 10'   | 2,28         |
|     | 410     |         |         |         |         | 11° 40'   | 1,31         |
| 100 | 471     | 114,3   | 6       | 102,3   | 280     | 15° 10'   | 4            |
|     | 446     |         |         |         |         | 11° 00'   | 2,92         |
| 125 | 591     | 141,3   | 6,5     | 128,3   | 320     | 12° 30'   | 4046         |
|     | 563     |         |         |         |         | 9° 00'  | 3,42         |
| 150 | 597     | 168,3   | 7,1     | 154,1   | 330     | 11° 00'   | 9,14         |
|     | 568     |         |         |         |         | 8° 40'  | 6,11         |
| 200 | 735     | 219,1   | 7,1     | 204,9   | 400     | 10° 20'   | 13,5         |
|     | 698     |         |         |         |         | 5° 40'  | 13,2         |
| 250 | 735     | 273     | 8,2     | 256,6   | 480     | 8° 00'  | 21,9         |
|     | 698     |         |         |         |         | 4° 40'  | 16,5         |
| 300 | 870     | 323,9   | 9,3     | 305,3   | 540     | 5° 10'  | 22,8         |
|     | 840     |         |         |         |         | 4° 30'  | 36,5         |
| 350 | 870     | 355,6   | 9       | 336,6   | 600     | 5° 10'  | 27,9         |
|     | 840     |         |         |         |         | 3° 40'  | 36,4         |
| 400 | 870     | 406,4   | 12      | 382,4   | 670     | 4° 20'  | 51,2         |
|     | 840     |         |         |         |         | 3° 30'  | 87,2         |
| 450 | 920     | 457,2   | 12      | 433,2   | 750     | 4° 20'  | 76,3         |
|     | 880     |         |         |         |         | 3° 00'  | 112          |
| 500 | 1050    | 508     | 12      | 484     | 900     | 4° 20'  | 110          |
|     | 980     |         |         |         |         | 2° 50'  | 145,8        |
| 600 | 1140    | 609,6   | 12      | 585,6   | 1050    | 4° 00'  | 173,5        |
|     | 1140    |         |         |         |         | 2° 40'  | 240          |
| 700 | 1500    | 711,2   | 12      | 687,2   | 1220    | 3° 50'  | 484,3        |
|     | 1500    |         |         |         |         | 2° 40'  | 456          |

## FOGLIO DI SPECIFICA PER RICHIESTE DI COMPENSATORI DI DILATAZIONE

*Expansion joint inquiry specification sheet*

|                                     |  |                                   |  |                |
|-------------------------------------|--|-----------------------------------|--|----------------|
| <i>Società / Company</i>            |  | <i>Data / Date</i>                |  |                |
|                                     |  | <i>Foglio / Sheet</i>             |  | <i>Di / of</i> |
| <i>Progetto / Project</i>           |  | <i>Richiesta N. / Inquiry No.</i> |  |                |
|                                     |  | <i>Commessa N. / Job No.</i>      |  |                |
| <i>Sigla / Item No.</i>             |  |                                   |  |                |
| <i>Quantità / Quantity</i>          |  |                                   |  |                |
| <i>DN / Nominal Size</i>            |  |                                   |  |                |
| <i>Tipo / Type</i>                  |  |                                   |  |                |
| <i>Fluido / Fluid</i>               | <i>Fluido convogliato / Flow convoluted</i>            |                                   |  |                |
|                                     | <i>Velocità / Velocity</i>                             |                                   |  |                |
|                                     | <i>Direzione fluido / Flow direction</i>               |                                   |  |                |
| <i>Temperatura / Temperature</i>    | <i>Progetto / Design (C°)</i>                          |                                   |  |                |
|                                     | <i>Max/Min (C°)</i>                                    |                                   |  |                |
|                                     | <i>Installazione / Installation (C°)</i>               |                                   |  |                |
| <i>Pressione / Pressure</i>         | <i>Esercizio / Working (bar)</i>                       |                                   |  |                |
|                                     | <i>Progetto / Design (bar)</i>                         |                                   |  |                |
|                                     | <i>Prova / test (bar)</i>                              |                                   |  |                |
| <i>Movimenti / Movements</i>        | <i>Assiale / Axial (mm)</i>                            |                                   |  |                |
|                                     | <i>Laterale / Lateral (mm)</i>                         |                                   |  |                |
|                                     | <i>Angolare / Angular (mm)</i>                         |                                   |  |                |
|                                     | <i>N° Cicli / No. of Cycles</i>                        |                                   |  |                |
| <i>Materiali / Materials</i>        | <i>Soffietto / Bellows</i>                             |                                   |  |                |
|                                     | <i>Flangia / Flange</i>                                |                                   |  |                |
|                                     | <i>Terminale a sald. / Welding end</i>                 |                                   |  |                |
|                                     | <i>Convogliatore interno / Internal sleeve</i>         |                                   |  |                |
|                                     | <i>Protezione esterna / External cover</i>             |                                   |  |                |
|                                     | <i>Tiranteria / Tie-rods</i>                           |                                   |  |                |
| <i>Dimensioni / Dimensions</i>      | <i>Lunghezza totale / Overall length (mm)</i>          |                                   |  |                |
|                                     | <i>Diametro esterno / Outside diameter (mm)</i>        |                                   |  |                |
|                                     | <i>Diametro interno / Inside diameter (mm)</i>         |                                   |  |                |
| <i>Rigidezze / Spering Rates</i>    | <i>Assiale / Axial (kg/mm)</i>                         |                                   |  |                |
|                                     | <i>Laterale / Lateral (kg/mm)</i>                      |                                   |  |                |
|                                     | <i>Angolare / Angular (kg/grado)</i>                   |                                   |  |                |
| <i>Installazione / Installation</i> | <i>Orizzontale / Horizontal - Verticale / Vertical</i> |                                   |  |                |
| <i>Vibrazioni / Vibrations</i>      | <i>Ampiezza / Amplitude (mm)</i>                       |                                   |  |                |
|                                     | <i>Frequenza / Frequency</i>                           |                                   |  |                |
|                                     | <i>Direzione / Direction (x - y - z)</i>               |                                   |  |                |