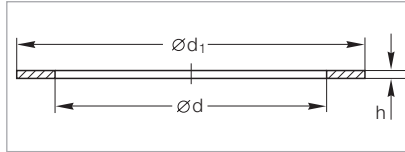
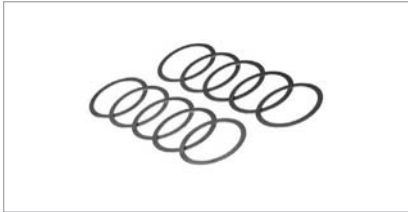


## Copper Gaskets for CF Flanges (OFHC Copper – Oxygen-Free)



Dimensional drawing for the copper gaskets for CF flanges

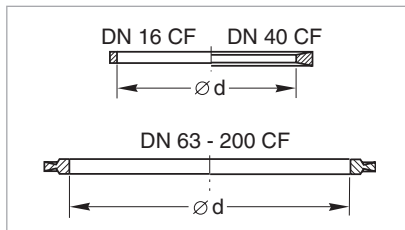
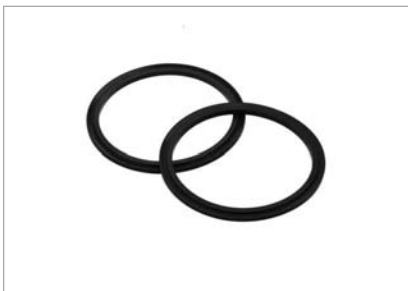
### Technical Data

DN	CF	16	40	63	100	160	200	250
Outside diameter	in.	1.33	2.75	4.50	6.00	8.00	10.00	12.00
d	mm (in.)	16.2 (0.64)	39.0 (1.54)	63.6 (2.50)	101.8 (4.01)	152.6 (6.01)	203.4 (8.01)	254.0 (10.00)
d <sub>1</sub>	mm (in.)	21.3 (0.84)	48.1 (1.89)	82.4 (3.24)	120.5 (4.74)	171.3 (6.74)	222.1 (8.74)	272.7 (10.74)
Set of 5		–	–	–	–	–	–	x
Set of 10		x	x	x	x	x	x	–

### Ordering Information

Quality: Standard	Part No.	<b>ES83941</b>	<b>ES83943</b>	<b>ES83944</b>	<b>ES83945</b>	<b>ES83946</b>	<b>ES83947</b>	<b>ES83948</b>
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## FPM (FKM) Profiled Gasket without Support Ring



Dimensional drawing for the profiled gaskets without support ring

### Technical Data

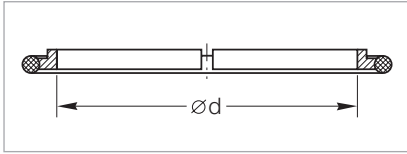
DN	CF	16	40	63	100	160	200
Outside diameter	in.	1.33	2.75	4.50	6.00	8.00	10.00
d	mm (in.)	16.0 (0.63)	42.0 (1.65)	69.7 (2.74)	107.8 (4.24)	156.0 (6.14)	206.0 (8.11)
Bakeout temperature	°C (°F)	160 (320)	160 (320)	160 (320)	160 (320)	160 (320)	160 (320)
Set of 2		–	–	x	x	x	x
Set of 5		x	x	–	–	–	–

### Ordering Information

Part No.	<b>ES83921</b>	<b>ES83923</b>	<b>ES83934</b>	<b>ES83935</b>	<b>ES83936</b>	<b>ES83937</b>
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**Important:** In the table of Chapter “General” the German designation for the type of steel is also stated in accordance with AISI.

## FPM (FKM) O-ring with Support Ring



Dimensional drawing for the FPM (FKM) O-rings with support ring

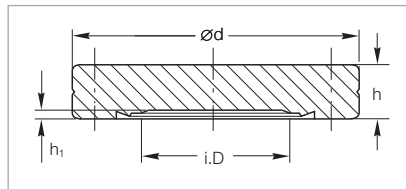
### Technical Data

DN	CF	250
Outside diameter	in.	12
d	mm (in.)	248.3 (9.78)
Bakeout temperature	°C (°F)	160 (320)

### Ordering Information

FPM O-ring with support ring	Part No.	<b>839 03</b>
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## CF Blank Flanges, Fixed



Dimensional drawing for the CF blank flanges, fixed

For missing dimensions see "Technical Data" at the beginning of the Chapter "CF Flanges"

### Technical Data

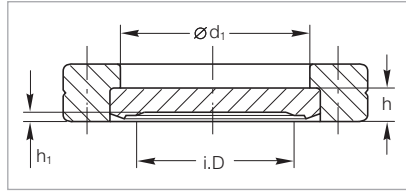
DN	CF	16	40	63	100	160	200	250
Outside diameter	in.	1.33	2.75	4.50	6.00	8.00	10.00	12.00
Inside diameter	mm (in.)	14.0 (0.55)	38.0 (1.50)	66.0 (2.60)	104.0 (4.09)	155.0 (6.10)	205.0 (8.07)	256.0 (10.08)
d	mm (in.)	34.0 (1.34)	69.5 (2.74)	113.5 (4.47)	152.0 (5.98)	202.5 (7.97)	253.0 (9.96)	305.0 (12.01)
h	mm (in.)	7.5 (0.30)	13.0 (0.51)	17.5 (0.69)	20.0 (0.79)	22.0 (0.87)	24.5 (0.97)	24.5 (0.97)
h <sub>1</sub>	mm (in.)	1.4 (0.06)	1.4 (0.06)	1.4 (0.06)	1.4 (0.06)	1.4 (0.06)	1.4 (0.06)	1.4 (0.06)

### Ordering Information

Stainless steel DIN 1.4301	Part No.	<b>835 01</b>	<b>835 03</b>	<b>835 04</b>	<b>835 05</b>	<b>835 06</b>	<b>835 07</b>	<b>835 09</b>
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**Important:** In the table of Chapter "General" the German designation for the type of steel is also stated in accordance with AISI.

## CF Blank Flanges, Rotatable



Dimensional drawing for the CF blank flanges, rotatable

For missing dimensions see "Technical Data" at the beginning of the Chapter "CF Flanges"

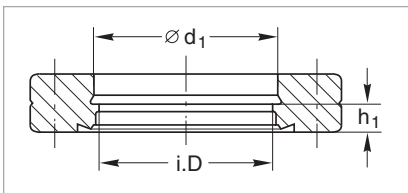
### Technical Data

DN	CF	16	40	63	100	160	200	250
Outside diameter	in.	1.33	2.75	4.50	6.00	8.00	10.00	12.00
Inside diameter	mm (in.)	14.0 (0.55)	38.0 (1.50)	66.0 (2.6)	104.0 (4.09)	155.0 (6.10)	205.0 (8.07)	256.0 (10.08)
$d_1$	mm (in.)	18.6 (0.73)	41.0 (1.61)	71.0 (2.80)	109.0 (4.29)	160.0 (6.30)	206.0 (8.11)	257.0 (10.12)
h	mm (in.)	5.8 (0.23)	7.6 (0.30)	12.6 (0.50)	14.3 (0.56)	15.8 (0.62)	17.1 (0.67)	18.0 (0.71)
$h_1$	mm (in.)	1.4 (0.06)	1.4 (0.06)	1.4 (0.06)	1.4 (0.06)	1.4 (0.06)	1.4 (0.06)	1.4 (0.06)

### Ordering Information

Stainless steel DIN 1.4301	Part No.	835 21	835 23	835 24	835 25	835 26	835 27	835 29
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## CF Bore Flanges, Fixed



Dimensional drawing for the CF bore flanges, fixed

For missing dimensions see "Technical Data" at the beginning of the Chapter "CF Flanges"

### Technical Data

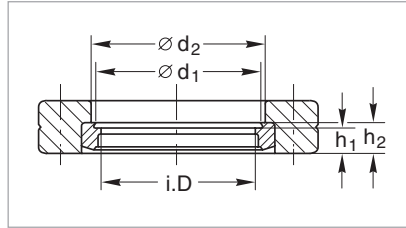
DN	CF	16	40	63	100	160	200	250
Outside diameter	in.	1.33	2.75	4.50	6.00	8.00	10.00	12.00
Inside diameter	mm (in.)	16.0 (0.63)	36.8 (1.45)	66.0 (2.60)	104.0 (4.09)	155.0 (6.10)	200.0 (7.87)	250.0 (9.84)
$d_1$	mm (in.)	18.3 (0.72)	40.3 (1.59)	70.3 (2.77)	108.5 (4.27)	159.5 (6.28)	205.5 (8.09)	256.5 (10.10)
$h_1$	mm (in.)	4.2 (0.17)	5.5 (0.22)	9.5 (0.37)	11.0 (0.43)	12.0 (0.47)	12.5 (0.49)	12.5 (0.49)

### Ordering Information

Stainless steel DIN 1.4301	Part No.	835 41	835 37	835 38	835 39	835 40	835 47	835 49
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**Important:** In the table of Chapter "General" the German designation for the type of steel is also stated in accordance with AISI.

## CF Bore Flanges, Rotatable



Dimensional drawing for the CF bore flanges, rotatable

For missing dimensions see "Technical Data" at the beginning of the Chapter "CF Flanges"

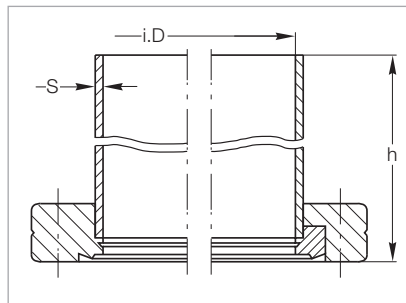
### Technical Data

DN	CF	16	40	63	100	160	200	250
Outside diameter	in.	1.33	2.75	4.50	6.00	8.00	10.00	12.00
Inside diameter	mm (in.)	16.0 (0.63)	36.8 (1.45)	66.0 (2.60)	104.0 (4.09)	155.0 (6.10)	200.0 (7.87)	250.0 (9.84)
$d_1$	mm (in.)	18.3 (0.72)	40.3 (1.59)	70.3 (2.77)	108.5 (4.27)	159.5 (6.28)	205.5 (8.09)	256.5 (10.10)
$d_2$	mm (in.)	18.6 (0.73)	41.0 (1.61)	71.0 (2.80)	109.0 (4.29)	160.0 (6.30)	206.0 (8.11)	257.0 (10.12)
$h_1$	mm (in.)	4.2 (0.17)	5.5 (0.22)	9.5 (0.37)	11.0 (0.43)	12.0 (0.47)	12.5 (0.49)	12.5 (0.49)
$h_2$	mm (in.)	5.8 (0.23)	7.6 (0.30)	12.6 (0.50)	14.3 (0.56)	15.8 (0.62)	17.1 (0.67)	18.0 (0.71)

### Ordering Information

Stainless steel DIN 1.4301	Part No.	835 61	835 58	835 59	835 60	835 69	835 67	835 78
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## CF Flanges with Tube End



Dimensional drawing for the CF flanges with tube end; left fixed, right rotatable

For missing dimensions see "Technical Data" at the beginning of the Chapter "CF Flanges"

### Technical Data

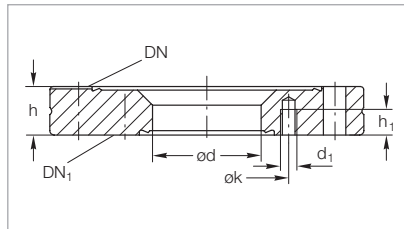
DN	CF	16	40	63	100	160
Outside diameter	in.	1.33	2.75	4.50	6.00	8.00
Inside diameter	mm (in.)	16.0 (0.63)	36.8 (1.45)	66.0 (2.60)	104.0 (4.09)	155.0 (6.10)
s	mm (in.)	1.0 (0.04)	1.6 (0.06)	2.0 (0.08)	2.0 (0.08)	2.0 (0.08)
h	mm (in.)	38.0 (1.50)	63.0 (2.48)	105.0 (4.13)	135.0 (5.32)	167.0 (6.58)

### Ordering Information

Stainless steel DIN 1.4301		Part No.	835 51	835 31	835 32	835 33	835 34
Tube end	fixed	Part No.	835 51	835 31	835 32	835 33	835 34
	rotatable	Part No.	835 71	835 82	835 74	835 75	835 76

**Important:** In the table of Chapter "General" the German designation for the type of steel is also stated in accordance with AISI.

## CF Reducing Flanges



Dimensional drawing for the CF reducing flanges, fixed

For missing dimensions see "Technical Data" at the beginning of the Chapter "CF Flanges"

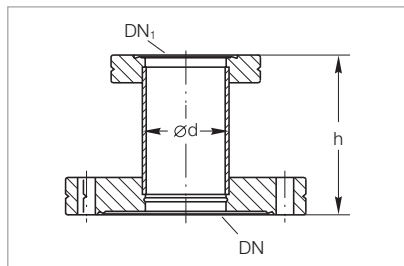
### Technical Data

DN	CF	40	63	100	100	160	160
Outside diameter	in.	2.75	4.50	6.00	6.00	8.00	8.00
DN <sub>1</sub>	CF	16	40	40	63	40	100
k	mm (in.)	27.0 (1.06)	58.7 (2.31)	58.7 (2.31)	92.2 (3.63)	58.7 (2.31)	130.0 (5.12)
h	mm (in.)	13.0 (0.51)	17.5 (0.69)	20.0 (0.79)	20.0 (0.79)	22.0 (0.87)	22.0 (0.87)
h <sub>1</sub>	mm (in.)	5.5 (0.22)	9.0 (0.35)	9.0 (0.35)	11.0 (0.43)	9.0 (0.35)	11.0 (0.43)
d	mm (in.)	16.0 (0.63)	39.0 (1.54)	39.0 (1.54)	66.0 (2.60)	39.0 (1.54)	104.0 (4.09)
d <sub>1</sub>	mm (in.)	M 4 (M 4)	M 6 (M 6)	M 6 (M 6)	M 8 (M 8)	M 6 (M 6)	M 8 (M 8)

### Ordering Information

Stainless steel DIN 1.4301	Part No.	<b>836 85</b>	<b>836 86</b>	<b>836 87</b>	<b>836 89</b>	<b>836 90</b>	<b>836 91</b>
Matching stud bolts	Part No.	<b>839 10</b>	<b>839 11</b>	<b>839 11</b>	<b>839 13</b>	<b>839 11</b>	<b>839 13</b>

## CF Reducing Pieces



Dimensional drawing for the CF reducing pieces

For missing dimensions see "Technical Data" at the beginning of the Chapter "CF Flanges"

### Technical Data

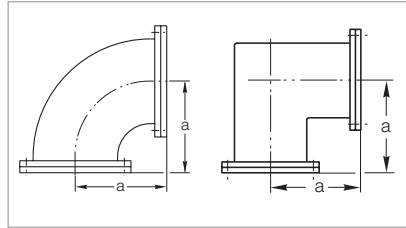
DN	CF	40	63	100	100	160
Outside diameter	in.	2.75	4.50	6.00	6.00	8.00
DN <sub>1</sub>	CF	16	40	40	63	100
h	mm (in.)	45.0 (1.77)	75.0 (2.95)	75.0 (2.95)	95.0 (3.74)	105.0 (4.13)
d (tube)	mm (in.)	18.0 (0.71)	40.0 (1.57)	40.0 (1.57)	70.0 (2.76)	108.0 (4.25)

### Ordering Information

Stainless steel DIN 1.4301	Part No.	<b>837 10</b>	<b>837 15</b>	<b>837 16</b>	<b>837 19</b>	<b>837 22</b>
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**Important:** In the table of Chapter "General" the German designation for the type of steel is also stated in accordance with AISI.

## Pipe Bend 90°; from DN 160 CF Mitred Elbow



Dimensional drawing for the pipe bends 90° (left) and the mitred elbows (right)

For missing dimensions see “Technical Data” at the beginning of the Chapter “CF Flanges”

### Technical Data

DN	CF	16	40	63	100	160
Outside diameter	in.	1.33	2.75	4.50	6.00	8.00
a	mm (in.)	38.0 (1.50)	63.0 (2.48)	105.0 (4.13)	135.0 (5.32)	167.0 (6.58)

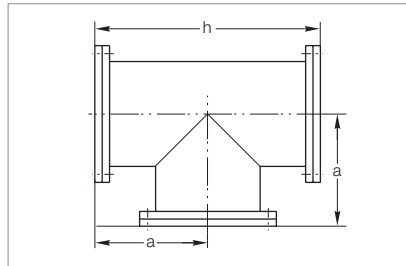
### Ordering Information

Stainless steel DIN 1.4301

Elbow 90° with a rotatable flange	Part No.	836 04	836 05	836 06	836 07	836 08
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Not suited for the mounting of turbo molecular pumps

## Tees



Dimensional drawing for the tees

For missing dimensions see “Technical Data” at the beginning of the Chapter “CF Flanges”

### Technical Data

DN	CF	16	40	63	100	160
Outside diameter	in.	1.33	2.75	4.50	6.00	8.00
a	mm (in.)	38.0 (1.50)	63.0 (2.48)	105.0 (4.13)	135.0 (5.32)	167.0 (6.58)
h	mm (in.)	76.0 (2.99)	126.0 (4.96)	210.0 (8.27)	270.0 (10.63)	334.0 (13.15)

### Ordering Information

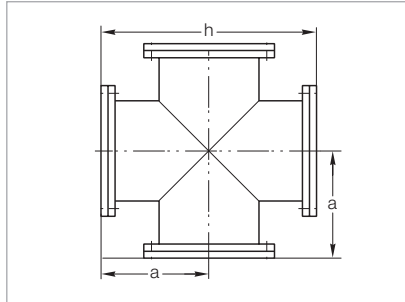
Stainless steel DIN 1.4301

Tee with a rotatable flange on each axis	Part No.	836 14	836 15	836 16	836 17	836 18
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Not suited for the mounting of turbo molecular pumps

**Important:** In the table of Chapter “General” the German designation for the type of steel is also stated in accordance with AISI.

## Crosses



Dimensional drawing for the crosses

For missing dimensions see "Technical Data" at the beginning of the Chapter "CF Flanges"

## Technical Data

DN	CF	16	40	63	100	160
Outside diameter	in.	1.33	2.75	4.50	6.00	8.00
a	mm (in.)	38.0 (1.50)	63.0 (2.48)	105.0 (4.13)	135.0 (5.32)	167.0 (6.58)
h	mm (in.)	76.0 (2.99)	126.0 (4.96)	210.0 (8.27)	270.0 (10.63)	334.0 (13.15)

## Ordering Information

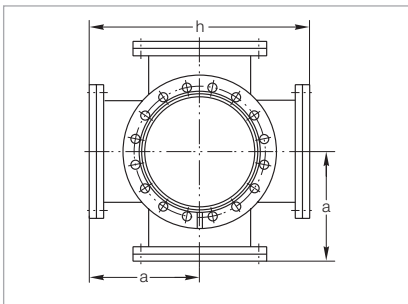
Stainless steel DIN 1.4301

Cross with a rotatable flange on each axis

Part No. **836 34** **836 35** **836 36** **836 37** **836 38**

Not suited for the mounting of turbo molecular pumps

## Double Crosses



Dimensional drawing for the double crosses

For missing dimensions see "Technical Data" at the beginning of the Chapter "CF Flanges"

## Technical Data

DN	CF	40	63	100	160
Outside diameter	in.	2.75	4.50	6.00	8.00
a	mm (in.)	63.0 (2.48)	105.0 (4.13)	135.0 (5.32)	167.0 (6.58)
h	mm (in.)	126.0 (4.96)	210.0 (8.27)	270.0 (10.63)	334.0 (13.15)

## Ordering Information

Stainless steel DIN 1.4301

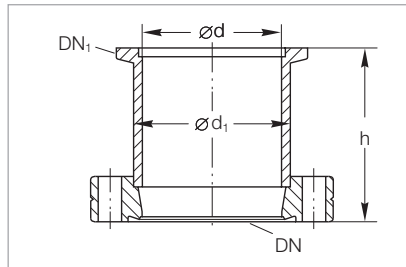
Double cross with a rotatable flange on each axis

Part No. **836 45** **836 46** **836 47** **836 48**

Not suited for the mounting of turbo molecular pumps

**Important:** In the table of Chapter "General" the German designation for the type of steel is also stated in accordance with AISI.

## CF/ISO-KF Adaptors



Dimensional drawing for the CF/ISO-KF adaptors

For missing dimensions see "Technical Data" at the beginning of the Chapter "CF Flanges"

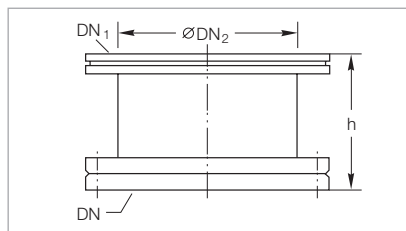
### Technical Data

DN	CF	16	16	40	40	40	63
Outside diameter	in.	1.33	1.33	2.75	2.75	2.75	4.50
DN <sub>1</sub>	ISO-KF	16	25	16	25	40	40
d	mm (in.)	16.0 (0.63)	16.0 (0.63)	16.0 (0.63)	26.0 (1.02)	37.0 (1.36)	41.0 (1.61)
h	mm (in.)	35.0 (1.38)	35.0 (1.38)	30.0 (1.18)	30.0 (1.18)	50.0 (1.97)	35.0 (1.38)
d <sub>1</sub> (tube)	mm (in.)	20.0 (0.79)	20.0 (0.79)	20.0 (0.79)	30.0 (1.18)	41.0 (1.61)	45.0 (1.77)

### Ordering Information

Stainless steel DIN 1.4301	Part No.	<b>837 81</b>	<b>837 83</b>	<b>837 82</b>	<b>837 84</b>	<b>837 36</b>	<b>837 86</b>
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## CF/ISO-K Adaptors



Dimensional drawing for the CF/ISO-K adaptors

For missing dimensions see "Technical Data" at the beginning of the Chapter "CF Flanges"

### Technical Data

DN	CF	63	100	160
Outside diameter	in.	4.50	6.00	8.00
DN <sub>1</sub>	ISO-K	63	100	160
DN <sub>2</sub>	mm (in.)	66.0 (2.60)	104.0 (4.09)	153.0 (6.02)

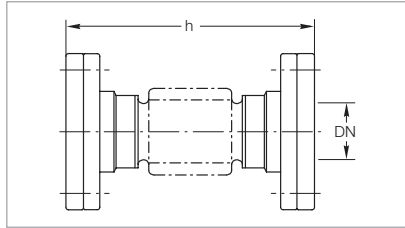
### Ordering Information

Stainless steel DIN 1.4301	Part No.	<b>837 01</b>	<b>837 02</b>	<b>837 03</b>
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**Important:** In the table of Chapter "General" the German designation for the type of steel is also stated in accordance with AISI.



## Flexible Connecting Components (CF Bellows)



Dimensional drawing for the CF bellows

For missing dimensions see "Technical Data" at the beginning of the Chapter "CF Flanges"

### Technical Data

DN	CF	16	40	63	100
Outside diameter	in.	1.33	2.75	4.50	6.00
h	mm (in.)	76 ±1.5 (2.99 ±0.06)	126 ±2.0 (4.96 ±0.08)	139 ±2.0 (5.47 ±0.08)	142 ±2.0 (5.59 ±0.08)

### Ordering Information

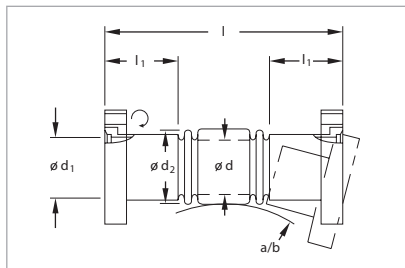
Stainless steel

CF bellows

with one rotatable flange

Part No. **880 01** **880 02** **880 03** **880 04**

## Flexible Connecting Components (CF Corrugated Hoses)



Dimensional drawing for the CF corrugated hoses

For missing dimensions see "Technical Data" at the beginning of the Chapter "CF Flanges"

### Technical Data

DN	CF	16	40	16	40	16	16
Outside diameter	in.	1.33	2.75	1.33	2.75	1.33	1.33
l	mm (in.)	250.0 (9.84)	250.0 (9.84)	500.0 (19.69)	500.0 (19.69)	750.0 (29.53)	1000.0 (39.37)
l <sub>1</sub>	mm (in.)	23.0 (0.91)	23.0 (0.91)	23.0 (0.91)	23.0 (0.91)	23.0 (0.91)	23.0 (0.91)
d	mm (in.)	15.0 (0.59)	15.0 (0.59)	15.0 (0.59)	15.0 (0.59)	15.0 (0.59)	15.0 (0.59)
d <sub>1</sub>	mm (in.)	16.0 (0.63)	16.0 (0.63)	16.0 (0.63)	16.0 (0.63)	16.0 (0.63)	16.0 (0.63)
d <sub>2</sub>	mm (in.)	22.5 (0.89)	22.5 (0.89)	22.5 (0.89)	22.5 (0.89)	22.5 (0.89)	22.5 (0.89)
a	mm (in.)	70.0 (2.76)	70.0 (2.76)	70.0 (2.76)	70.0 (2.76)	70.0 (2.76)	70.0 (2.76)
b	mm (in.)	50.0 (1.97)	50.0 (1.97)	50.0 (1.97)	50.0 (1.97)	50.0 (1.97)	50.0 (1.97)

### Ordering Information

Stainless steel

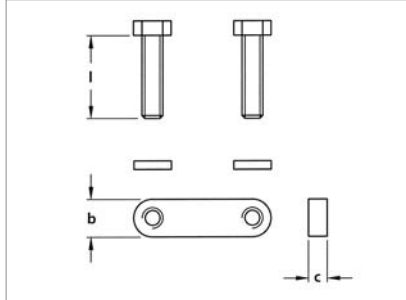
CF corrugated hose

with one rotatable flange

Part No. **885 56** **885 57** **885 68** **885 69** **885 65** **885 73**

**Important:** In the table of Chapter "General" the German designation for the type of steel is also stated in accordance with AISI.

## Bolts with Bolt Nut Plate and Washers



Dimensional drawing for the bolts with bolt nut plate and washers

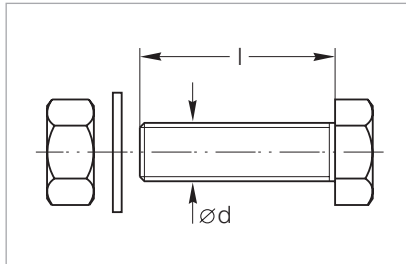
### Technical Data

DN	CF	16	40	63	100	160
Outside diameter	in.	1.33	2.75	4.50	6.00	8.00
Dimensions (d x l)	mm (in.)	M 4 x 20 (M 4 x 0.79)	M 6 x 35 (M 6 x 1.38)	M 8 x 45 (M 8 x 1.77)	M 8 x 50 (M 8 x 1.97)	M 8 x 55 (M 8 x 2.17)
l	mm (in.)	20.0 (0.79)	35.0 (1.38)	45.0 (1.77)	50.0 (1.97)	55.0 (2.15)
b	mm (in.)	7.0 (0.28)	10.0 (0.39)	12.0 (0.47)	12.0 (0.47)	12.0 (0.47)
c	mm (in.)	4.0 (0.16)	5.0 (0.20)	8.0 (0.32)	8.0 (0.32)	8.0 (0.32)
Sealing torque	Nm (lbf-in)	4 (35.40)	10 (88.51)	20 (177.02)	20.0 (177.02)	20 (177.02)
Quantity per set						
Bolts		6	6	8	16	20
Bolt nut plate		3	3	4	8	10
Washers		6	6	8	16	20

### Ordering information

Set	Part No.	838 87	838 88	838 89	83890	838 91
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## Hexagon Bolts, Set for CF Flanges



Dimensional drawing for the hexagon bolts for CF flanges

### Technical Data

DN	CF	16	40	63	100	160	200	250
Outside diameter	in.	1.33	2.75	4.50	6.00	8.00	10.00	12.00
Dimensions (d x l)	mm (in.)	M 4 x 20 (M 4 x 0.79)	M 6 x 35 (M 6 x 1.38)	M 8 x 45 (M 8 x 1.77)	M 8 x 50 (M 8 x 1.97)	M 8 x 55 (M 8 x 2.17)	M 8 x 60 (M 8 x 2.36)	M 8 x 60 (M 8 x 2.36)
Sealing torque	Nm (lbf-in)	4 (35.40)	10 (88.51)	20 (177.02)	20 (177.02)	20 (177.02)	20 (177.02)	20 (177.02)
Quantity per set								
Bolts		25	25	25	25	25	25	25
Nuts		25	25	25	25	25	25	25
Washers		25	25	25	25	25	25	25

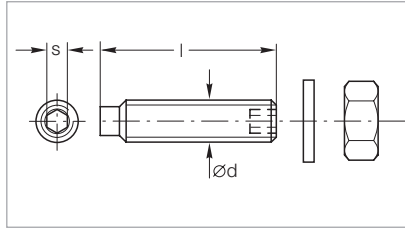
### Ordering information

Set	Part No.	839 00	839 01	838 81	839 04	839 05	839 07	839 07 <sup>1)</sup>
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<sup>1)</sup> 2 sets are required

**Important:** In the table of Chapter "General" the German designation for the type of steel is also stated in accordance with AISI.

## Set Screws, Nuts and Washers for CF Flanges



Dimensional drawing for the set screws, nuts and washers for CF flanges

### Technical Data

DN	CF	16	40	63 – 100
Dimensions (d x l)	mm (in.)	M 4 x 20 (M 4 x 0.79)	M 6 x 35 (M 6 x 1.38)	M 8 x 45 (M 8 x 1.77)
s	mm (in.)	2.0 (0.08)	3.0 (0.12)	4.0 (0.16)
Sealing torque	Nm (lbf-in)	4 (35.40)	10 (88.51)	20 (177.02)
Quantity per set				
Bolts		6	6	16
Nuts		6	6	16
Washers		6	6	16

### Ordering information

Set	Part No.	839 10	839 11	839 13
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**Important:** In the table of Chapter “General” the German designation for the type of steel is also stated in accordance with AISI.