SCHMIDT-KUPPLUNG GmbH

Semiflex®

About us

Many years of experience

For almost 50 years, we have been advising machine manufacturers as partners for compact coupling systems. Our experience in power transmission has given us extensive know-how in many industries, as we know and understand the most varied applications, and this allows us to optimally support you. Our products are always a safe choice. No matter if it is a standard product, a coupling tailored to a specific industry, or a coupling solution designed for a specific application.

Products with high technical functionality

Our product range includes torsionally stiff couplings which stand out due to their compactness and high functionality. Their unique technical features offer technical users a variety of practice-oriented advantages. Renowned OEMs from all areas of machinery manufacturing are among our partners.

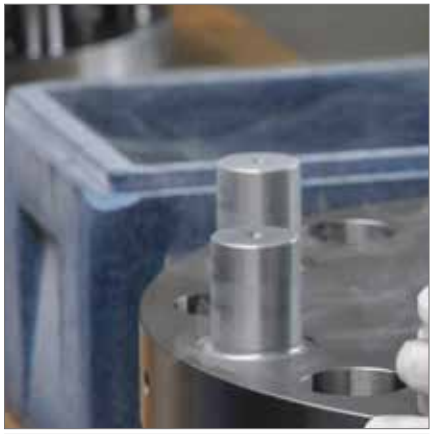
Well-nigh 50 years of experience

Trust and partnership

Precision couplings

Understanding applications, solving problems

Ongoing development



Industry-specific versions

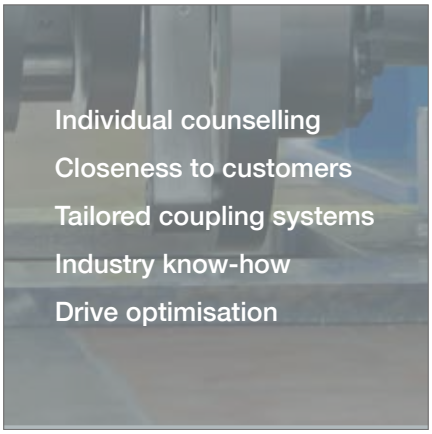
Being familiar with the applications of a variety of industries, we can design tailored coupling versions. No matter if in the food, vacuum, packaging or printing industry, or in sensor or medical technology - we feel at home anywhere.

Your drive optimisation

Close cooperation with our customers in the design and implementation of a project results in coupling solutions precisely tailored to application-specific requirements. Comprehensive counselling, FEM analyses, prototype definition and production of Rapid Prototyping Models, as well as confirmation of the calculated design data on modern test benches - all this ensures the optimisation of your drive train.

Continuous development work

Your wishes are our motivation - With us, new impulses from the market stream into the ongoing further development of our products.



Content

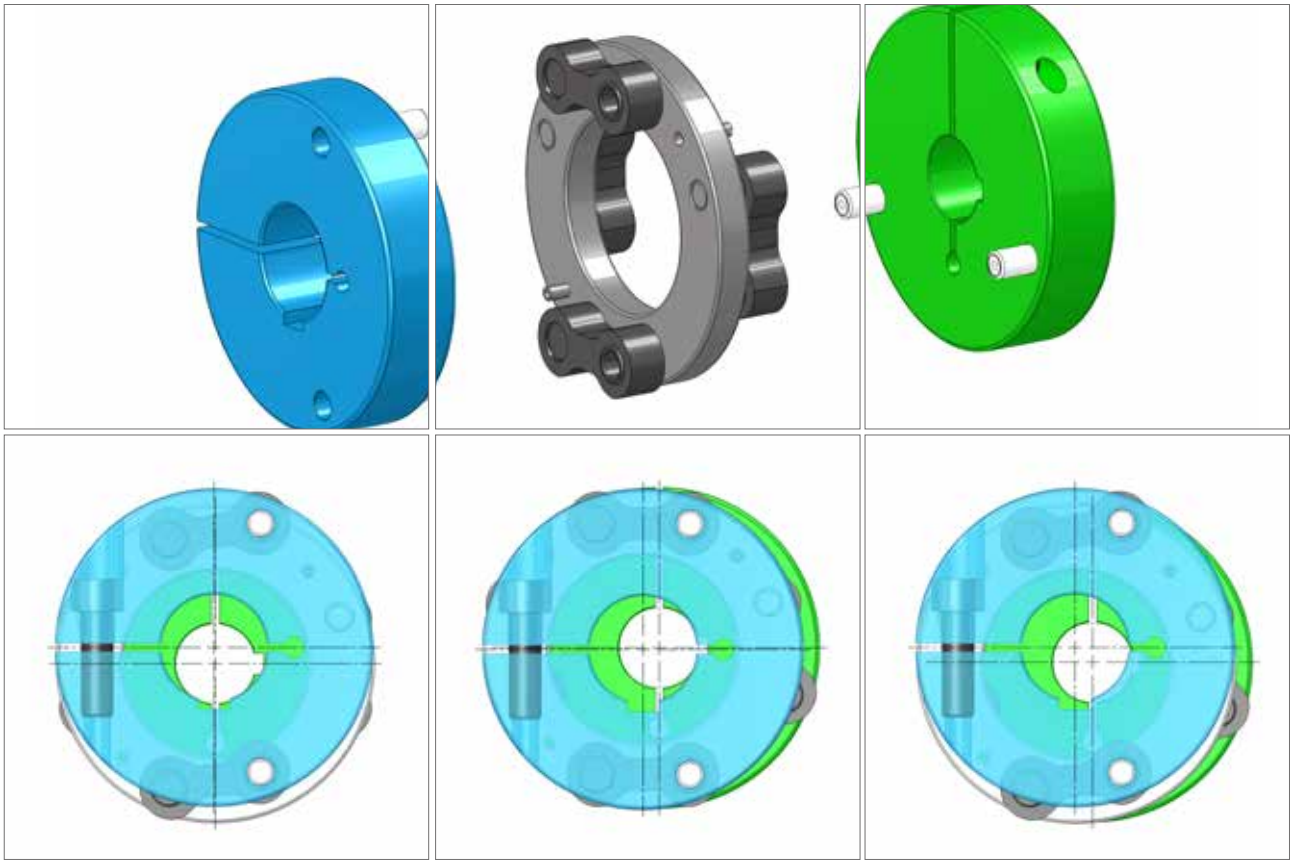
Offset compensation free of restoring forces even in the narrowest gaps

The Semiflex coupling is a torsionally stiff and restoring-force-free precision coupling. In addition to the compensation of axial and angular displacements, it provides high radial displacement capacity together with compact design.
The displacement compensation takes place without any restoring forces and via the unique system of two pairs of 90°-offset parallel links. The angle synchronisation of the connected shafts is retained at all times.

Technique

Synchronisation, even with high displacement

The Semiflex transmits torque via two pairs of 90°-offset parallel links. They connect the input and output disc with the centre disc. In case of aligning shafts, all three discs are also in an aligned position. In case of occurring radial displacement, the links move parallely as one group and let the centre disc radially divert by a corresponding extent. Since each pair of the coupling links always remains internally parallel to each other, the connected shafts remain totally synchronized without phase shift and consequently absolute constant angular velocity.



Picture: Input disc (blue) connected to centre disc via parallel pair of links 1; Output disc (green) connected to centre disc via parallel pair of links 2

Radial displacement of the input disc through force-free swivelling movement of pair of links 1

Radial displacement of the output through force-free swivelling movement of pair of links 2

Both pairs of links swivel; in so doing, they remain always parallel to each other, which ensures synchronisation regardless of the radial displacement height

No restoring forces

Needle bearings are located in the coupling links. As a result, the coupling links can rotate on the bolts located in the discs. The parallel shift compensation thus occurs through a pure force-free swivelling movement of the link pairs. The Semiflex coupling correspondingly transmits pure torque without negative restoring forces for machine parts adjacent to bearings.

High offset with compactness

In addition to axial and angular displacement, Semiflex compensates for high radial displacement of several millimetres.
For this purpose, the Semiflex coupling requires only minimum axial installation space and has therefore a very compact design.

Combination of different hub versions

High torsional stiffness

Maintenance-free

Offset variable in operation

The radial offset can be infinitely varied as required and set to any value within the relevant permissible values. The drive and power take-off synchronisation is always ensured.

Torsionally stiff and high torque transmission

The components of Semiflex are made of high-quality steel with high tensile strength and tempered steel or high-strength aluminium (Dynamic line). It offers high torsional stiffness as an all-metal coupling and is designed for high torque transmission.

Different hub forms, in any combination

The program offers 6 different frictional and interlocking hub designs. They can be combined as required and are thus precisely and individually adapted to the specific requirements.

Maintenance-free

Semiflex is lubricated for life and is maintenance-free in continuous operation.

Compact without limitations

A design advantage of Semiflex are its very compact dimensions. Here, there is no dependence between the amount of radial offset values and the overall length. For couplings which compensate for offset with bending elastic behaviour, the permissible offset significantly decreases with shorter designs.
Semiflex thus gives the user a space-saving design with no restrictions on the function values.
With extremely critical requirements regarding the available axial space, the pure functional element of Semiflex can be integrated directly into the application without hubs.

Product line-up

Standard F
The Standard line combines performance, compact design and great displacement options. The Standard line is available for nominal torques up to 14,500 Nm.

Compact Plus C
For axially extremely confined installation space - up to 25% shorter length compared to the Standard line, while maintaining performance values and displacement options. The Compact Plus line is available for nominal torques up to 7,040 Nm.

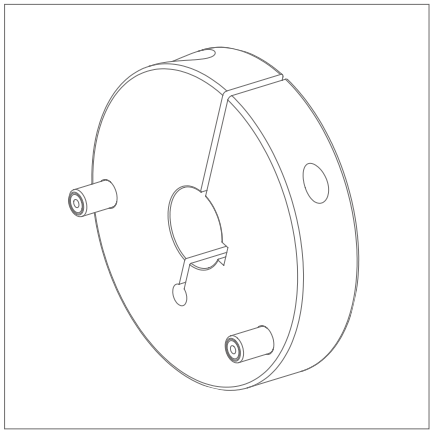
Dynamic D
The lightweight aluminium line with low mass inertia - the line designed for applications with high angular accelerations. The Dynamic line is available for nominal torques up to 180 Nm.
Standard fitting with clamping hubs.

Material

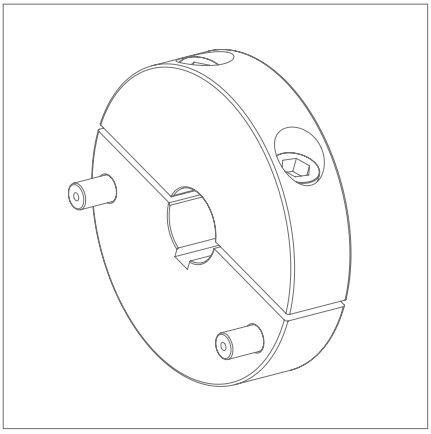
Different hub forms, in any combination

All frictional and keyed hub designs can be combined as required depending on size and can thus be precisely adapted to your specific requirements.
That is, you can, for example, select a clamping hub design on the drive side (hub form 3) and a split clamping hub on the output side (hub form 2) in order to quickly replace a machine part and remove it radially.
Other customised hub designs not listed here are available as options. Examples are listed on pages 24-25,"Custom coupling designs". Our application engineers will be pleased to advise you on all these subjects.

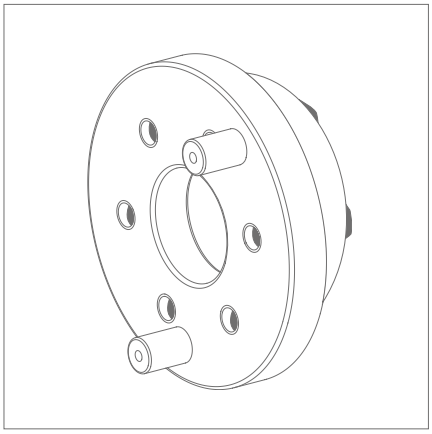
Serial hub versions



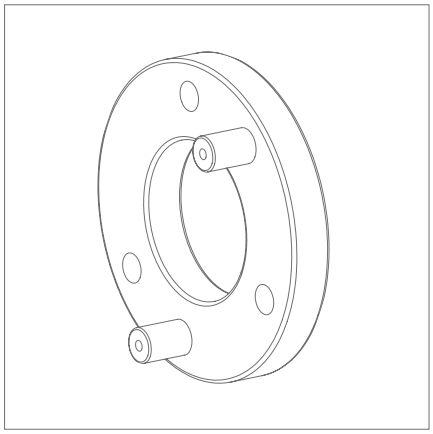
Hub version 1
Clamp hubs
Backlash-free shaft connection



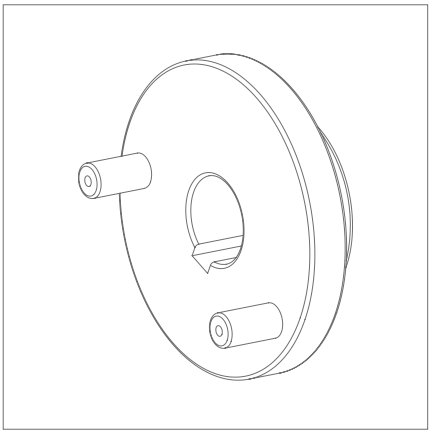
Hub version 2
Split clamp hub
Backlash-free shaft connection, radial mounting



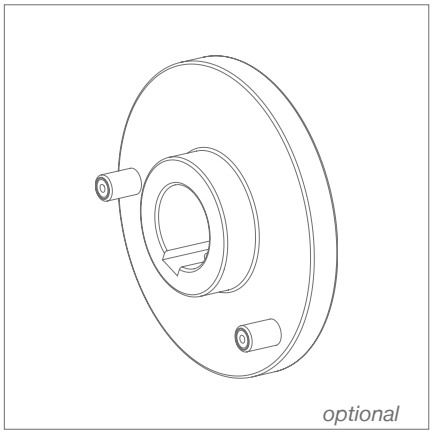
Hub version 3
Locking assemble
Backlash-free shaft connection, high friction torque



Hub version 5
Flange-mounting
Short-length integration into customer-specific parts



Hub version 6
Standard hub with keyway
Form-fit shaft connection with keyway and set screw



Hub version 7
Internal hub
Short-length variant of hub version 6

Due to the variety of our different hub versions and resulting hub combinations, following technical data sheets just contains Semiflex with identical hub versions both sides.

Selection sequence

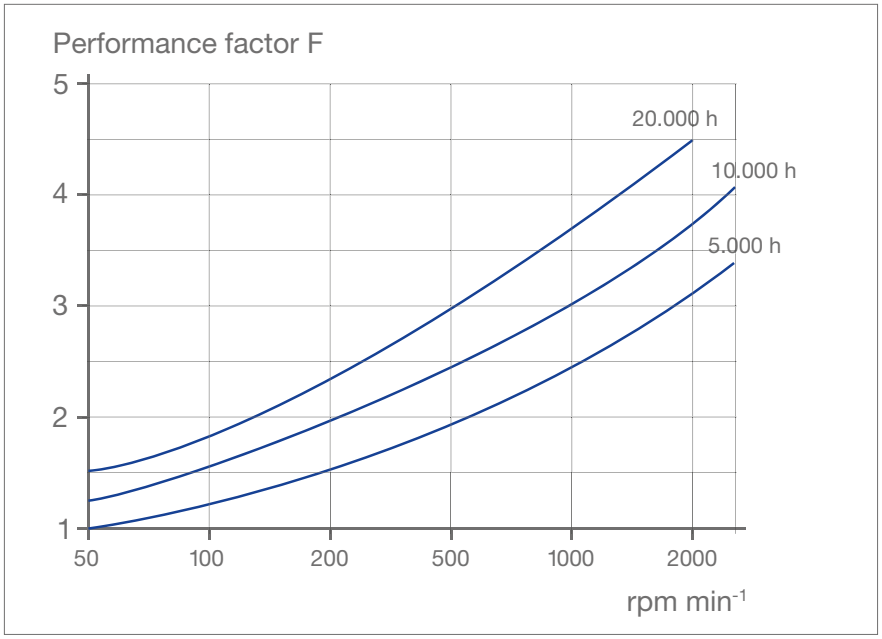
The selection of the Semiflex is determined by the various performance parameters. These include torque, speed and occurring displacement. The influences of these parameters are described below:

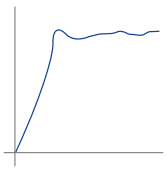
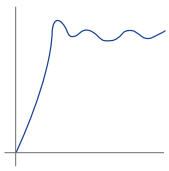
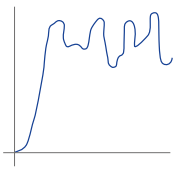
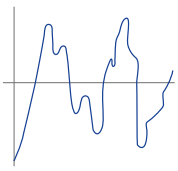
Selection according to torque

Calculation of the design torque T_D: Please multiply your continuous torque T_A by the required performance factor F and the required service factor to get the design torque.

$T_D = T_A \times F \times K$

Please choose your operating speed of your application combined with the required nominal rating life in h*.



Service factor K			
Uniform	Light shocks	Medium shocks	Heavy shocks
			
1,0	1,25 - 1,75	1,75 - 2,25	2,25 - 2,75

Select a coupling whose rated torque T_{KN} is larger than the calculated dimensioning torque:

$T_{KN} > T_D$

Make sure that the maximum torque of coupling T_{Kmax} is not exceeded
*Nominal rating life - the service life recommendation for the coupling needle bearing, expressed in the number of operating hours which a bearing can complete before the first signs of material fatigue occur.

Selection example

Application: Roller feed for processing of different maierials

Technical datas

- T_A nenn (continuous torque rating of the application) = 145 Nm
- T_A max (maximum torque rating) = 350 Nm (may occur during emergency stop)
- Radial displacement = Up to 2 mm during operation depending on thickness of the material
- During downtime for maintenance reasons or washdowns, roller is lifted up to 10 mm.
- Operating speed n = 200 min^{-1}
- Required rating life = 10.000 h
- Shaft diameter ø35 mm
- Backlash-free shaft connection according to cyclic operation

Required service factor K = 1,5
Performance factor F = 2

Selection of the coupling size (torque, radial displacement)

$T_D = T_A \times F \times K$
$T_D = 145\ Nm \times 1,5 \times 2$
$T_D = 435\ Nm$

Please select a coupling size that has a continuous torque T_{KN} rating greater than 435 Nm.
F 440.11 ø35 ø35
Maximum torque rating TKmax of the coupling with 920 Nm exceeds Ta max of the application (350 Nm).
Size F 440 has a radial misalignment capacity of 3 mm. For maintenance reasons, washdowns the maximum radial displacement capacity of the coupling is 12 mm.

Relocation

The coupling has a high radial offset capacity. It is also able to compensate for occurring axial and angular displacement. In the event of the simultaneous occurrence of several combined types of offset, every single one may not achieve its maximum value.
They must be aligned in such a way that the sum of the actual offset percentages does not exceed 100%.

Radial offset- speed

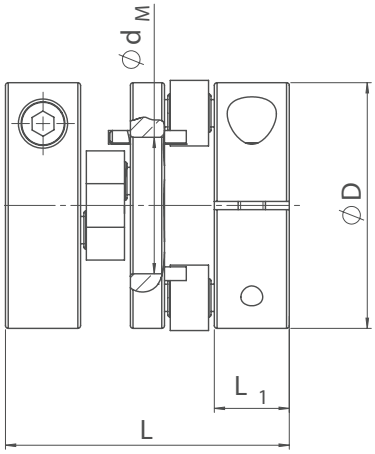
The radial offset figures mentioned in this catalogue are in a mid range.
Fundamentally, higher speeds lead to a reduction of the possible radial offset; conversely, higher radial offset values than those specified in the catalogue can be realised for applications with low speeds.
Example: The Semiflex Standard F 230 with a specified radial displacement capacity of 2 mm allows a radial shaft offset of up to 10 mm at low speed, e.g. in creep feed mode.
Note: This offset option applies by default to the Semiflex Standard series. For the Compact Plus and Dynamic lines, please query our application engineers.

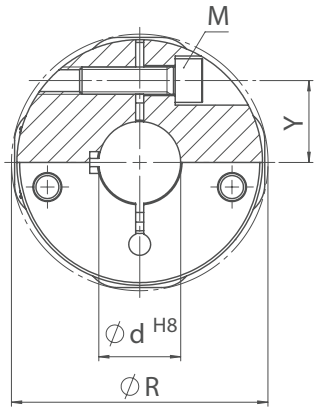
Environmental conditions

Semiflex units are delivered in turnkey condition and are lubricated for life in normal ambient conditions. Dirt, fibres, etc. should be kept away from the coupling, as they may adversely affect the lubricating effect in the bearings (foreign particle, dust and dirt may cause abrasive wear; fibres create a negative effect on the quantity of grease and its effect). In addition, the couplings can be optionally equipped with additional gaskets. The couplings are suitable for operating temperatures up to +120°C. For higher temperature ranges or additionally occurring mediums such as acids, please query our application engineers.

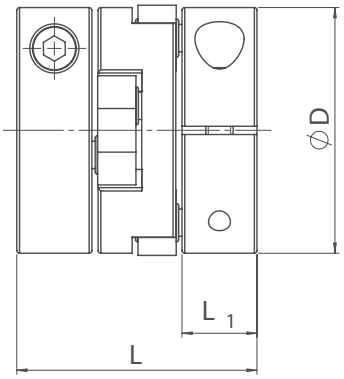
Hub version 1 - Clamp hub

Standard F





Compact Plus C



Specifications

Size	D mm	R mm	L mm	L_1 mm	Y mm	M	d_M mm	Torque T_{KN} Nm	Torque T_{Kmax} Nm	Misalignment radial* mm	Misalignment angular °	Misalignment axial mm	m kg	J kg cm²	n_{max} 1/min	C_T kNm/rad
F 45	50	52	60	16	17,5	M6	22	45	71	2	1	1	0,5	2	2.500	8
F 70	70	72	68	20	24,5	M8	42	70	112	2	1	1	1	8,4	2.100	13
C 70			59										1,1	8,9	1.700	
F 230	90	94	104	27,5	30	M10	50	230	460	2	1	1	2,7	34	1.450	53
C 230			88				46						3	36,8	1.150	
F 265	100	104	104	27,5	34	M12	55	265	530	2	1	1	3,2	50,1	1.350	61
C 265			88										3,4	54,2	1.100	
F 320	120	124	104	27,5	44	M12	70	320	635	3	1	1	4,1	100,4	1.250	73
C 320			88										4,2	104,8	1.000	
F 440	100	100	143	38	32	M12	40	440	920	3	1	1	5	74	1.150	105
F 575	120	120	143	38	40	M12	60	575	1.220	3	1	1	6,5	147	1.050	140
C 575			120,5				50						6,9	155	850	

*Guide value at average rpm.

Mass of coupling size measured at max. bore diameter
R= Swing diameter at radial misalignment=0, M= Size of screw, T_{KN}= Nominal torque, T_{Kmax}= Maximum torque, C_T= Torsional stiffness, m= Mass, J= Moment of inertia

Bore diameters

Size	d mm															
	12	14	16	18	20	22	24	28	30	32	35	40	42	44	48	50
F 45	■	■	■	■	■	■										
F 70, C 70	■	■	■	■	■	■	■	■	■	■	■					
F 230, C 230					■	■	■	■	■	■	■	■	■	■		
F 265, C 265							■	■	■	■	■	■	■	■	■	■
F 320, C 320							■	■	■	■	■	■	■	■	■	■
F 440									■	■	■	■				
F 575, C 575									■	■	■	■	■	■	■	■

Combinations of different bore diameters are possible. Bore diameters are equipped with keyway according to DIN 6885/1 as standard. Additional bore diameters as shown in the table are available on special request as well.

Ordering example:

F 70.11 Ø16 Ø20

Semiflex Standard, size 70, bore 16 mm, 20 mm

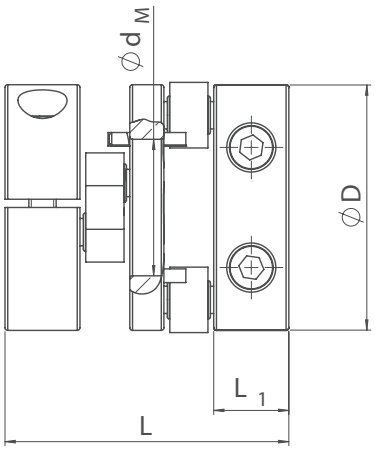
Ordering example:

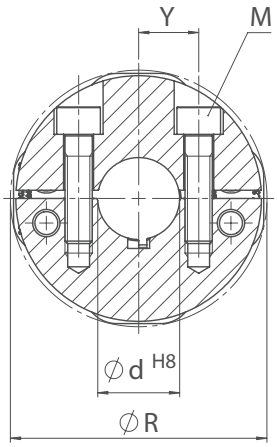
C 70.11 Ø16 Ø20

Semiflex Compact Plus, size 70, bore 16 mm, 20 mm

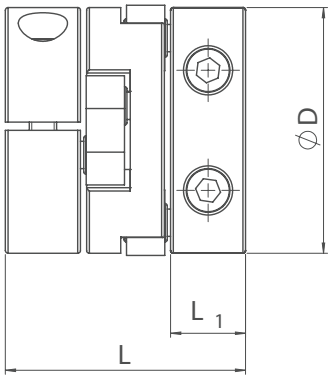
Hub version 2 - Split clamp hub

Standard F





Compact Plus C



Specifications

Size	D mm	R mm	L mm	L_1 mm	Y mm	M	d_M mm	Torque T_{KN} Nm	Torque T_{Kmax} Nm	Misalignment radial* mm	Misalignment angular °	Misalignment axial mm	m kg	J kg cm²	n_{max} 1/min	C_T kNm/rad
F 70	70	72	68	20	18	M8	42	70	112	2	1	1	1	8,4	2.100	13
C 70			59										1,1	8,9	1.700	
F 230	90	94	104	27,5	22	M10	50	230	460	2	1	1	2,7	34	1.450	53
C 230			88				46						3	36,8	1.150	
F 265	100	104	104	27,5	25	M12	55	265	530	2	1	1	3,2	50,1	1.350	61
C 265			88										3,4	54,2	1.100	
F 320	120	124	104	27,5	30	M12	70	320	635	3	1	1	4,1	100,4	1.250	73
C 320			88										4,2	104,8	1.000	
F 575	120	120	143	38	24	M12	60	575	1.220	3	1	1	6,5	147	1.050	140
C 575			120,5				50						6,9	155	850	

*Guide value at average rpm.

Mass of coupling size measured at max. bore diameter
R= Swing diameter at radial misalignment=0, M= Size of screw, T_{KN}= Nominal torque, T_{Kmax}= Maximum torque, C_T= Torsional stiffness, m= Mass, J= Moment of inertia

Bore diameters

Size	d mm											
	12	14	16	18	20	22	24	28	30	32	35	40
F 70, C 70	■	■	■	■	■	■	■					
F 230, C 230					■	■	■	■	■			
F 265, C 265							■	■	■	■	■	
F 320, C 320							■	■	■	■	■	■
F 575, C 575									■	■	■	

Combinations of different bore diameters are possible. Bore diameters are equipped with keyway according to DIN 6885/1 as standard. Additional bore diameters as shown in the table are available on special request as well.

Ordering example:

F 70.22 Ø16 Ø20

Semiflex Standard, size 70, bore 16 mm, 20 mm

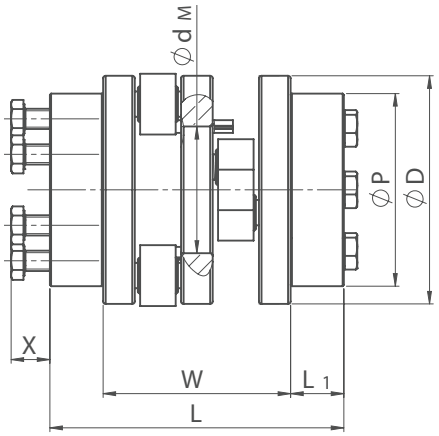
Ordering example:

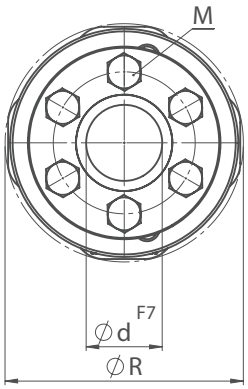
C 70.22 Ø16 Ø20

Semiflex Compact Plus, size 70, bore 16 mm, 20 mm

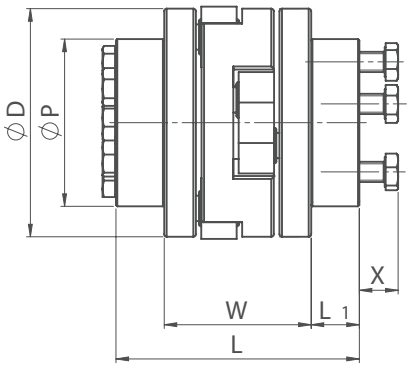
Hub version 3 - Locking-assembly

Standard F





Compact Plus C



Specifications

Size	D mm	R mm	L mm	L_1 mm	X mm	W mm	P mm	d_M mm	Torque T_{KN} Nm	Torque T_{Kmax} Nm	Misalignment radial* mm	Misalignment angular °	Misalignment axial mm	m kg	J kg cm²	n_{max} 1/min	C_T kNm/rad
F 230	90	94	116	21	15	74	76	50	230	460	2	1	1	3,1	32,4	1.450	53
C 230			100			58		46						3,2	34,3	1.150	
F 265	100	104	116	19	15	74	66	55	265	530	2	1	1	3,2	37,1	1.350	61
C 265			100			58								3,4	41,2	1.100	
F 320	120	124	116	21	15	74	76	70	320	635	3	1	1	4,5	77,1	1.250	73
C 320			100			58								4,6	81,5	1.000	
F 440	100	100	116	19	15	101	66	40	440	920	3	1	1	5,6	79	1.150	105
F 575	120	120	151	25	17	101	96	60	575	1.220	3	1	1	6,8	126	1.050	140
C 575			128,5			78,5		50						7,2	134	850	
F 725	140	140	161	30	23	101	115	70	725	1.530	3	1	1	9,9	248	1.000	175
C 725			138,5			78,5								10,5	270	800	
F 830	160	160	161	30	23	101	115	90	830	1.755	4	1	1	11,6	360	950	201
C 830			138,5			78,5								12	381	750	
F 1120	140	143	188	30	17	134	115	55	1.120	2.730	3	0,8	1	12	295	850	313
F 1370	158	163	194	30	23	134	115	70	1.370	3.340	3	0,8	1	15,5	505	800	383
C 1370			170			110								16	530	650	

*Guide value at average rpm.

Mass of coupling size measured at max. bore diameter
R= Swing diameter at radial misalignment=0, M= Size of screw, T_{KN}= Nominal torque, T_{Kmax}= Maximum torque, C_T= Torsional stiffness, m= Mass, J= Moment of inertia, X= Mounting space, W= Coupling basis

Bore diameters

Size	d mm								
	25	28	30	32	35	40	42	45	50
F 230, C 230	■	■	■						
F 265, C 265	■	■	■						
F 320, C 320	■	■	■						
F 440	■	■	■						
F 575, C 575			■	■	■	■			
F 725, C 725							■	■	■
F 830, C 830							■	■	■
F 1120			■	■	■	■			
F 1370, C 1370							■	■	■

Combinations of different bore diameters are possible. Shown bore diameters are standard bores. Additional bore diameters as shown in the table are available on special request as well.

Ordering example:

F 265.33 Ø30 Ø30

Semiflex Standard, size 265, bore 30 mm, 30 mm

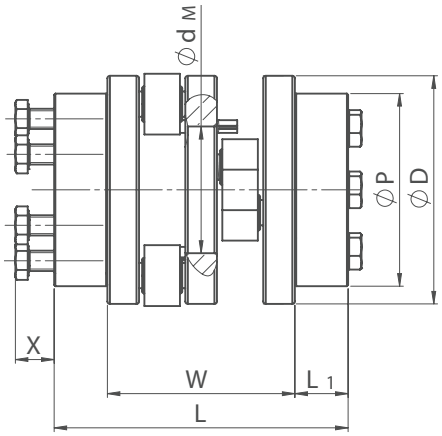
Ordering example:

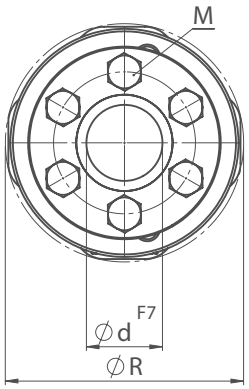
C 265.33 Ø30 Ø30

Semiflex Compact Plus, size 265, bore 30 mm, 30 mm

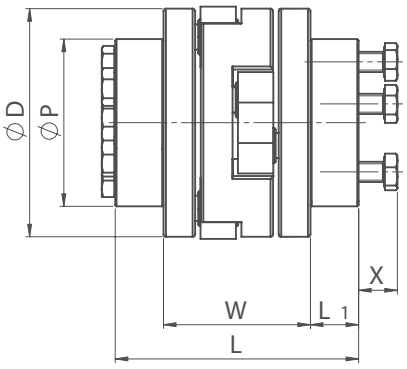
Hub version 3 - Locking-assembly

Standard F





Compact Plus C



Specifications

Size	D mm	R mm	L mm	L_1 mm	X mm	W mm	P mm	d_M mm	Torque T_{KN} Nm	Torque T_{Kmax} Nm	Misalignment radial* mm	Misalignment angular °	Misalignment axial mm	m kg	J kg cm²	n_{max} 1/min	C_T kNm/rad
F 1580	180	183	202	34	24	134	120	90	1.580	3.845	4	0,8	1	19	795	750	441
C 1580			178			110								19,5	835	600	
F 2010	158	163	202	34	24	155	120	70	2.010	4.915	4	0,7	1	18	610	750	563
F 2390	180	183	235	40	30	155	155	90	2.390	5.855	4	0,7	1	25,5	1.110	700	671
C 2390			207			127								27	1.195	550	
F 2700	200	203	235	40	30	155	155	105	2.700	6.600	5	0,5	1	30	1.540	650	756
C 2700			207			127								30,5	1.600	500	
F 4220	200	200	276	40	30	196	155	100	4.220	11.300	5	0,3	2	33	1.725	600	1.295
F 5620	250	250	284	44	31	196	170	140	5.620	15.050	6	0,3	2	49	3.975	550	1.725
C 5620			240			152								51,5	4.250	450	
F 7040	300	300	296	50	30	196	185	190	7.040	18.840	6	0,3	2	66	7.700	500	2.159
C 7040			252			152								75,5	8.900	400	
F 7500	300	300	259	52	30	155	197	150	7.500	18.800	6	0,2	1	67	6.700	400	2.120
F 9750	350	350	267	56	30	155	215	150	9.750	24.100	6	0.2	1	89	11.900	400	2.760
F 14500	350	350	326	65	30	196	230	180	14.500	38.000	6	0,2	2	97	14.400	300	4.350

*Guide value at average rpm.

Mass of coupling size measured at max. bore diameter
R= Swing diameter at radial misalignment=0, M= Size of screw, T_{KN}= Nominal torque, T_{Kmax}= Maximum torque, C_T= Torsional stiffness, m= Mass, J= Moment of inertia, X= Mounting space, W= Coupling basis

Bore diameters

Size	d mm														
	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120
F 1580, C 1580	■	■	■												
F 2010	■	■	■												
F 2390, C 2390			■	■	■										
F 2700, C 2700			■	■	■										
F 4220			■	■	■										
F 5620, C 5620					■	■	■								
F 7040, C 7040							■	■	■						
F 7500									■	■	■				
F 9750											■	■	■		
F 14500													■	■	■

Shown bore diameters are standard bores. Additional bore diameters as shown in the table are available on special request as well.

Ordering example:

F 2390.33 Ø60 Ø70

Semiflex Standard, size 2390, bore 60 mm, 70 mm

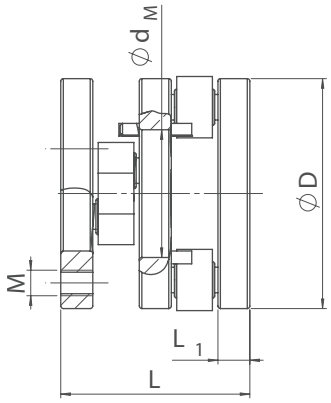
Ordering example:

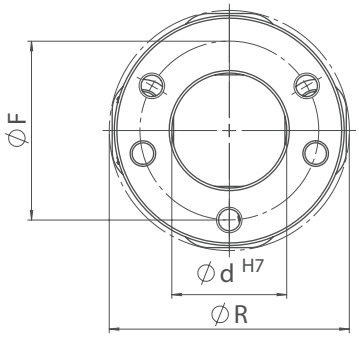
C 2390.33 Ø60 Ø70

Semiflex Compact Plus, size 2390, bore 60 mm, 70 mm

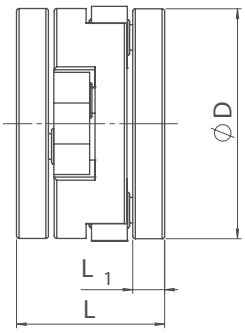
Hub version 5 - Hub for flanging

Standard F





Compact Plus C



Specifications

Size	D mm	R mm	L mm	L_1 mm	d mm	F mm	M	d_M mm	Torque T_{KN} Nm	Torque T_{Kmax} Nm	Misalignment radial* mm	Misalignment angular °	Misalignment axial mm	m kg	J kg cm²	n_{max} 1/min	C_T kNm/rad
F 45	50	52	44	8	22	35	3xM6	22	45	71	2	1	1	0,4	1	2.500	8
F 70	70	72	44	8	25	56	3xM6	42	70	112	2	1	1	0,6	5	2.100	13
C 70			35											0,7		1.700	
F 230	90	94	74	12,5	45	70	3xM10	50	230	460	2	1	1	1,6	20	1.450	53
C 230			58					46						1,8	22	1.150	
F 265	100	104	74	12,5	45	70	3xM10	55	265	530	2	1	1	2	31	1.350	61
C 265			58											2,2	34	1.100	
F 320	120	124	74	12,5	50	98	3xM10	70	320	635	3	1	1	2,9	64	1.250	73
C 320			58											3,1	68	1.000	
F 440	100	100	101	17	40	70	3xM16	40	440	920	3	1	1	3,3	45	1.150	105
F 575	120	120	101	17	50	90	3xM16	60	575	1.220	3	1	1	4,3	90	1.050	140
C 575			78,5					50						4,8	99	850	
F 725	140	140	101	17	50	110	3xM16	70	725	1.530	3	1	1	5,8	165	1.000	175
C 725			78,5											6,5	187	800	
F 830	160	160	101	17	60	120	3xM16	90	830	1.755	4	1	1	7,1	271	950	201
C 830			78,5											7,6	292	750	
F 1120	140	143	134	26	55	100	3xM20	55	1.120	2.730	3	0,8	1	9,1	249	850	313
F 1370	158	163	134	26	60	120	3xM20	70	1.370	3.340	3	0,8	1	11	401	800	383
C 1370			110											12	434	650	
F 1580	180	183	134	26	70	140	3xM20	90	1.580	3.845	4	0,8	1	14	656	750	441
C 1580			110											15	703	600	
F 2010	158	163	155	31	60	115	5xM20	70	2.010	4.915	4	0,7	1	14	484	750	563

*Guide value at average rpm.

R= Swing diameter at radial misalignment=0, M= numbers of threaded bores x bolt size, T_{KN}= Nominal torque, T_{Kmax}= Maximum torque, C_T= Torsional stiffness, m= Mass, J= Moment of inertia, F= bolt circle diameter

Ordering example:

F 265.55

Semiflex Standard, size 265, flange mounting version

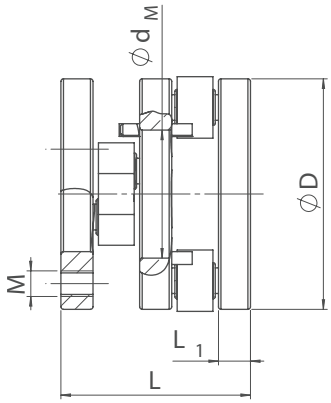
Ordering example:

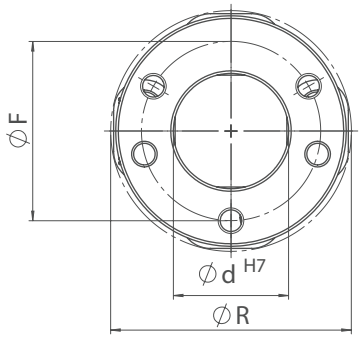
C 265.55

Semiflex Compact Plus, size 265, flange mounting version

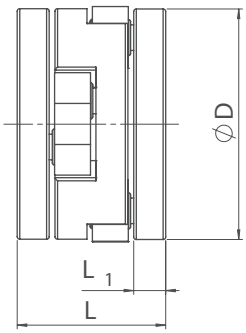
Hub version 5 - Hub for flanging

Standard F





Compact Plus C



Specifications

Size	D mm	R mm	L mm	L_1 mm	d mm	F mm	M	d_M mm	Torque T_{KN} Nm	Torque T_{Kmax} Nm	Misalignment radial* mm	Misalignment angular °	Misalignment axial mm	m kg	J kg cm²	n_{max} 1/min	C_T kNm/rad
F 2390	180	183	155	31	70	135	5xM20	90	2.390	5.855	4	0,7	1	17	795	700	671
C 2390			127											18	851	550	
F 2700	200	203	155	31	80	150	5xM20	105	2.700	6.600	5	0,5	1	21	1.214	650	756
C 2700			127											22	1.299	500	
F 4220	200	200	196	33	80	150	5xM24	100	4.220	11.300	5	0,3	2	23	1.339	600	1.295
F 5620	250	250	196	33	100	200	5xM24	140	5.620	15.050	6	0,3	2	34	3.209	550	1.725
C 5620			152											37	3.499	450	
F 7040	300	300	196	33	160	250	5xM24	190	7.040	18.840	6	0,3	2	42	6.238	500	2.159
C 7040			152											47	7.064	400	
F 7500	300	300	155	31	150	260	7xM24	150	7.500	18.800	6	0,2	1	48	5.900	400	2.120
F 9750	350	350	155	31	150	280	7xM30	150	9.750	24.100	6	0,2	1	64	10.700	400	2.760
F 14500	350	350	196	33	180	280	7xM30	180	14.500	38.000	6	0,2	2	66	12.500	300	4.350

*Guide value at average rpm.

R= Swing diameter at radial misalignment=0, M= numbers of threaded bores x bolt size, T_{KN}= Nominal torque, T_{Kmax}= Maximum torque, C_T= Torsional stiffness, m= Mass, J= Moment of inertia, F= bolt circle diameter

Ordering example:

F 2390.55

Semiflex Standard, size 2390, flange mounting version

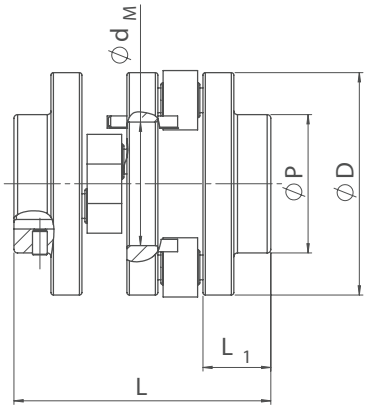
Ordering example:

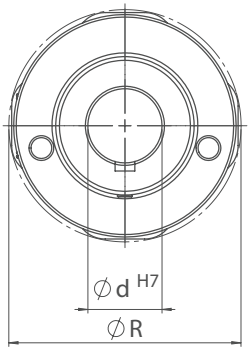
C 2390.55

Semiflex Compact Plus, size 2390, flange mounting version

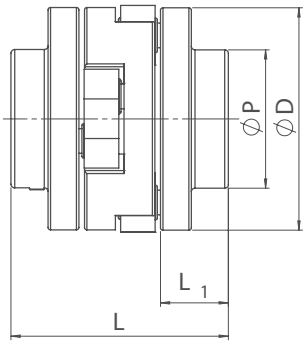
Hub version 6 - Hub

Standard F





Compact Plus C



Specifications

Size	D mm	R mm	L mm	L_1 mm	P mm	d_M mm	d_{max} mm	Torque T_{KN} Nm	Torque T_{Kmax} Nm	Misalignment radial* mm	Misalignment angular °	Misalignment axial mm	m kg	J kg cm²	n_{max} 1/min	C_T kNm/rad
F 45	50	52	60	16	50	22	26	45	71	2	1	1	0,5	2	2.500	8
F 70	70	72	68	20	70	42	40	70	112	2	1	1	1	8,4	2.100	13
C 70			59										1,1	8,9	1.700	
F 230	90	94	104	27,5	56	50	40	230	460	2	1	1	2,2	23,6	1.450	53
C 230			88			46							2,3	25,4	1.150	
F 265	100	104	104	27,5	65	55	40	265	530	2	1	1	2,6	34,7	1.350	61
C 265			88										2,6	37,2	1.100	
F 320	120	124	104	27,5	70	70	50	320	635	3	1	1	3,6	70,4	1.250	73
C 320			88										3,5	73,9	1.000	
F 440	100	100	143	38	53	40	32	440	920	3	1	1	4	50	1.150	105
F 575	120	120	143	38	70	60	45	575	1.220	3	1	1	5,2	99	1.050	140
C 575			120,5			50							6,6	108	850	
F 725	140	140	149	41	85	70	50	725	1.530	3	1	1	7	183	1.000	175
C 725			126,5										7,7	205	800	
F 830	160	160	163	48	90	90	50	830	1.755	4	1	1	9,1	303	950	201
C 830			140,5										9,5	324	750	
F 1120	140	143	162	40	77	55	45	1.120	2.730	3	0,8	1	10,5	270	850	313
F 1370	158	163	170	44	90	70	50	1.370	3.340	3	0,8	1	13	435	800	383
C 1370			146										13	460	650	
F 1580	180	183	182	50	90	90	50	1.580	3.845	4	0,8	1	16	710	750	441
C 1580			158										17	755	600	
F 2010	158	163	185	46	85	70	50	2.010	4.915	4	0,7	1	15,5	520	750	563
F 2390	180	183	195	51	90	90	50	2.390	5.855	4	0,7	1	19	850	700	671
C 2390			167										20	910	550	

*Guide value at average rpm.

Mass of coupling size measured at max. bore diameter
R= Swing diameter at radial misalignment=0, M= Size of screw, T_{KN}= Nominal torque, T_{Kmax}= Maximum torque, C_T= Torsional stiffness, m= Mass, J= Moment of inertia

Ordering example:

F 70.66 Ø16 Ø20

Semiflex Standard, size 70, bore 16 mm, 20 mm

Ordering example:

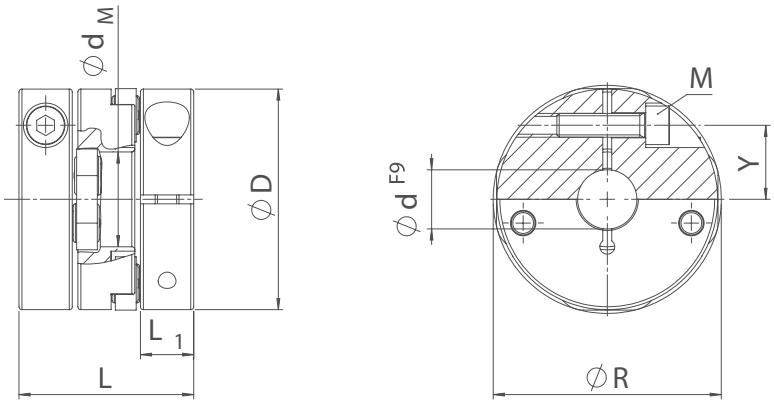
C 70.66 Ø16 Ø20

Semiflex Compact Plus, size 70, bore 16 mm, 20 mm

Hub version 7: Also optionally available as a short-length variant with internal hub (hub shape 7). Please contact us.

Hub version 1 - Clamp hub

Dynamic D



Specifications

Size	D mm	R mm	L mm	L_1 mm	Y mm	M	d_M mm	Torque T_{KN} Nm	Torque T_{Kmax} Nm	Misalignment radial* mm	Misalignment angular °	Misalignment axial mm	m kg	J kg cm²	n_{max} 1/min	C_T kNm/rad
D 40	56	61,5	52	12	21	M5	25	40	80	1,2	1	0,5	0,26	1,2	2.500	9
D 45			58	15	19,3	M6							0,29	1,3		
D 180	74,5	77	59	18	25	M8	32	180	300	1,5	0,5	0,5	0,63	5,1	5.000	34
D 185			67				40						0,59	5		

*Guide value at average rpm.

Mass of coupling size measured at max. bore diameter
R= Swing diameter at radial misalignment=0, M= Size of screw, T_{KN}= Nominal torque, T_{Kmax}= Maximum torque, C_T= Torsional stiffness, m= Mass, J= Moment of inertia

Bore diameters

Size	d mm											
	12	14	16	18	20	22	24	25	28	30	32	35
D 40	■	■	■	■	■	■	■	■	■	■		
D 45	■	■	■	■	■	■	■	■				
D 180, D 185	■	■	■	■	■	■	■	■	■	■	■	■

Combinations of different bore diameters are possible.

Ordering example:

D 40.11 Ø16 Ø20

Semiflex Dynamic, size 40, bore 16 mm, 20 mm

Installation instructions

Hub form 1 and 2
Versions with clamping hub and split clamping hub

Check shaft connection dimensions (also feather key dimensions) and tolerances. The bored holes are delivered in Fit H8 for the Standard and Compact Plus designs and in F9 for the Dynamic design.

The clamping screws must be tightened to the recommended driving torque according to size (see below). The following table shows the recommended tightening torques for all Semiflex Standard, Semiflex Compact Plus and Semiflex Dynamic product lines in hub forms 1 and 2 - clamping hub and split clamping hub.

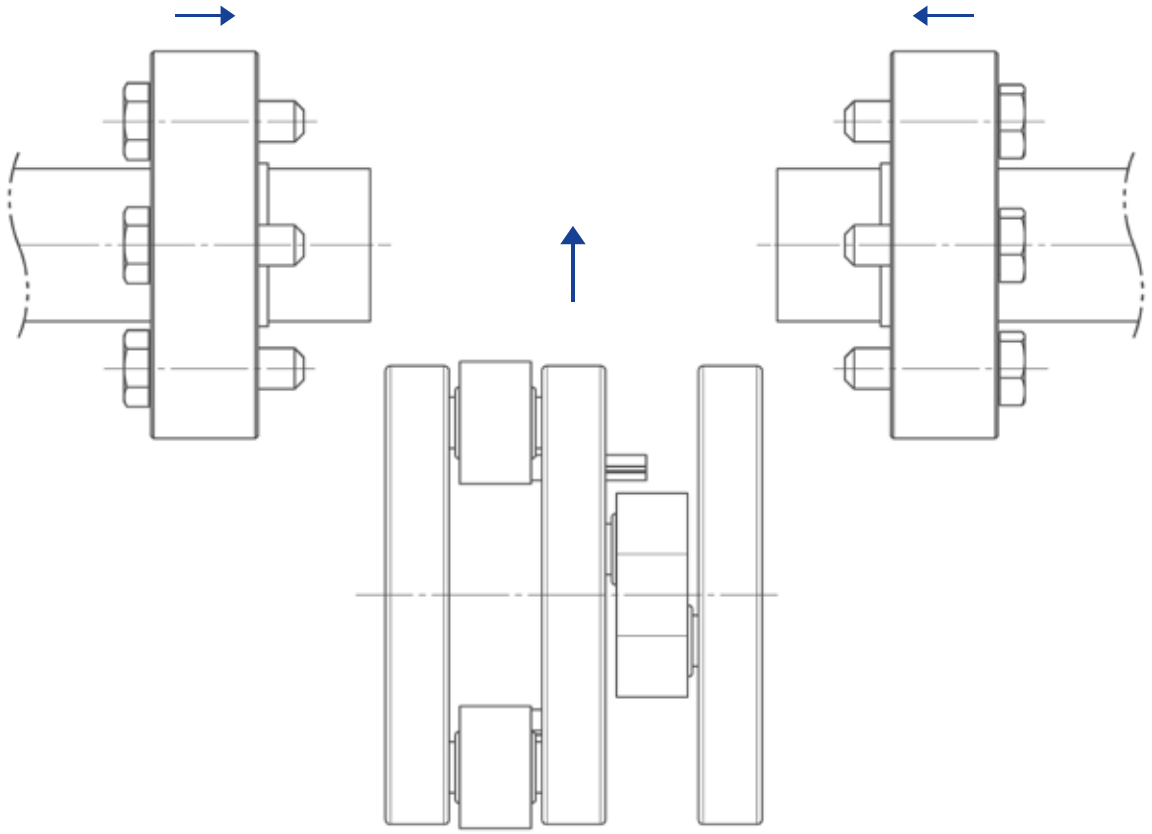
For hub form 2 (split clamping hub), the screws must be tightened evenly (clamping slot on both sides should sit at the same distance).

Typ		Size of screw	Tightening torque (Nm)
Standard	Compact Plus		
F 45		M6	15
F 70	C 70	M8	36
F 230	C 230	M10	72
F 265	C 265	M12	125
F 320	C 320	M12	125
F 440		M12	125
F 575	C 575	M12	125
Dynamic			
D 40		M5	6
D 45		M6	8
D 180		M8	24
D 185		M8	24

Hub form 3
Versions with clamping hubs

Bores are supplied in fit F7. In the clamping hub designs, the torque is transmitted frictionally from the coupling via the outer ring and the inner ring onto the shaft. The clamping screws enable the required pressure. In its untensioned state, a defined gap is present between the outer ring and the coupling.

Typ		Size of screw	Tightening torque (Nm)
Standard	Compact Plus		
F 230	C 230	M8	29
F 265	C 265	M8	29
F 320	C 320	M8	29
F 440		M8	29
F 575	C 575	M10	58
F 725	C 725	M12	100
F 830	C 830	M12	100
F 1120		M12	100
F 1370	C 1370	M12	100
F 1580	C 1580	M12	100
F 2010		M12	100
F 2390	C 2390	M16	240
F 2700	C 2700	M16	240
F 4220		M16	240
F 5620	C 5620	M16	240
F 7040	C 7040	M16	240
F 7500		M16	240
F 9750		M20	470
F 14500		M20	470



The locking assembly version offers the possibility of a radial mounting for applications where shafts cannot be moved axially. The distance between both shafts should correlate with the nominal length plus ½ of the axial misalignment capacity of the coupling (generally 0,5 mm).
At first please mount both locking assemblies with insert screws on both shafts. In second step please position the Semiflex radially between both shafts and assemble with both locking assemblies.
Before tighten the screws please ensure that the coupling is in final position and adjust the overall length of the coupling.
Tighten the screws with several turns until the full tightening torque has been achieved.

Hub form 5
Versions for flanging

Screw the coupling with the mounting flanges fixed to the hubs manufactured by the client or other components. Tighten flange fastening screws with a torque wrench to the torque specified by the client.

Hub form 6 and 7
Hub and inner hub

Bores are supplied in fit H7. A fixed shaft seat is desirable to ensure a low backlash shaft connection. The axial compressive forces occurring during assembly must be kept away from the coupling. For this purpose, axial support for the coupling elements is recommended. Alternatively, the hubs can be separately mounted on the shafts and the coupling can then be fitted together cleanly.

Semiflex coupling solutions

In addition to standard products, SCHMIDT-KUPPLUNG manufactures industry-specific versions and application-specific coupling solutions in the Semiflex range. These are, for example:

With simultaneous overload protection

Semiflex in combination with free play, load-separating safety coupling. Offer precise overload protection with simultaneous high displacement compensation.

Special ambient conditions

Versions with specially tailored surface coatings, or completely made of stainless steel. In addition, tailored slide bearings run the coupling elements, which are used, for example, in the pharmaceutical industry.

Application-specific hub designs

Designs as "pivotal clamping screw unit" with a so-called hinged lid, fitted for the much more rapid changing of different printing rollers or with special clamping hubs to accommodate extra-large shaft diameters or with a gear hub, and much more.

Application with additional axial forces

Axially fixed versions to be used, for example, for the additional precise transmission of high axial forces, in case of lateral adjusting movements of printing rollers.

Special structural lengths

Versions with tailored, customer-specific length dimensions for mounting in a predefined installation space. Here: Version with one-side, customer-specific, tailored-length split clamp hub, and with internal hub on the output side.

Extremely small installation conditions

Versions with custom lengths or designed as a so-called 1/3-coupling for the direct integration of the functional system in extremely small custom installation spaces.

Plug-blind assembly

Semiflex for quick plug-blind assembly, if this acts as a functional interface between removable workstations and the drive unit. The coupling enables a fast conversion process without tools.

Applications

We speak your language

Every industry has its own peculiarities. Understanding this is a key task for the successful implementation of industry-specific applications.
For nearly 50 years, the release of countless applications in various industries has given us the experience and know-how to implement, jointly with our customers, the most suitable and efficient coupling solution for each application. No matter whether you deal with assembly or exposure systems for PCB production, medical technology or process engineering, forming or machine tools: We speak your language!

The optimal solution for every application

Paper machines

A paper machine is normally made up of different process stages. One of these is sieving, in which the actual sheet forming process takes place. For the strength and uniformity of paper quality, it is important that fibres are not only longitudinally oriented but also deposited in a mixed fibre orientation on the sieve. This is obtained via transverse motion and by shaking the breast roll and thus the sieve. In the drive of this shaking unit, the tension hub version of the Semiflex coupling provides for precise eccentric movement and thus optimal fibre orientation as well as final product quality.

Handling and conveyor technology

In conveyor technology, so-called roller conveyors have a key role in the transport process. They are used for unloading different-weight piece goods. Thanks to a sort of modular system, they can be flexibly adapted to any transport situations. In the process, piece goods are carried to the conveying direction via transversely arranged transport rollers. For driving conveyor rollers, particularly space-saving Semiflex Compact Plus couplings are used in systems. Additionally equipped with clamp hubs in half-shell version, and therefore radially mountable, individual modules can be connected to a modular system and combined to overall conveyor systems. The high radial displacement possibility of the Semiflex coupling also ensures the adjustment of individual sub-modules conveying level.

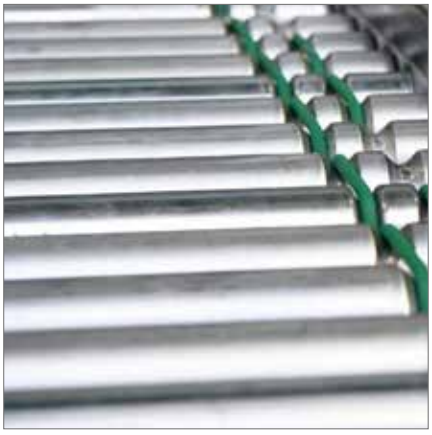
Vacuum coating systems

In the thin film process, the most diverse materials are applied very thin - mostly metallic - layers under vacuum conditions.
These include the vacuum coating of special glasses, displays, flat-screen monitors, photovoltaics and special films.
To produce them, so-called roll-to-roll systems are used. Namely, the film to be processed is stored on a roll and unwound via a winding drive for the vacuum coating process, and rewound on completion. In this continuous production process, the support material is provided with a very thin metallic layer. The Semiflex coupling in the vacuum version provides for a precise and uniform coating process thanks to its absolute synchronisation despite the compensation of occurring displacements.

Machine tools

Gear machines are continuously working gear machines for manufacturing straight or slanted external or internal gears. In this case, the so-called dividing wheels are of great importance. They synchronise the cutting wheel and work wheel for the metal cutting process. In a CNC gear machine, the Semiflex coupling in backlash-free clamp hub version allows for the precise driving of this part of the wheel. Its compact design together with high radial displacement capacity thanks to the permanent infeed movement during work piece processing, play a major role under very confined installation conditions.
In this way, synchronisation is guaranteed despite high displacement - a crucial requirement for the precise operation of the dividing wheel.

Roller conveyors
Vacuum thin-film coating
Rotary transfer machines
Embossing rollers
Rollforming machines and much more



SCHMIDT-KUPPLUNG GmbH

Product Overview

Catalogue Controlflex

Catalogue Semiflex

Catalogue Schmidt-Kupplung

Catalogue Servoflex

Catalogue Loewe GK

Catalogue Omniflex

Contact

SCHMIDT-KUPPLUNG GmbH
Wilhelm-Mast-Straße 15
38304 Wolfenbüttel

Tel.: 05331 9552 500
Fax: 05331 9552 552

eMail: info@schmidt-kupplung.com
Web: www.schmidt-kupplung.com

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