

SHAFT
FIXINGS



Fenner Shaft Fixings Technical Data



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One Range, One Result...

driven performance

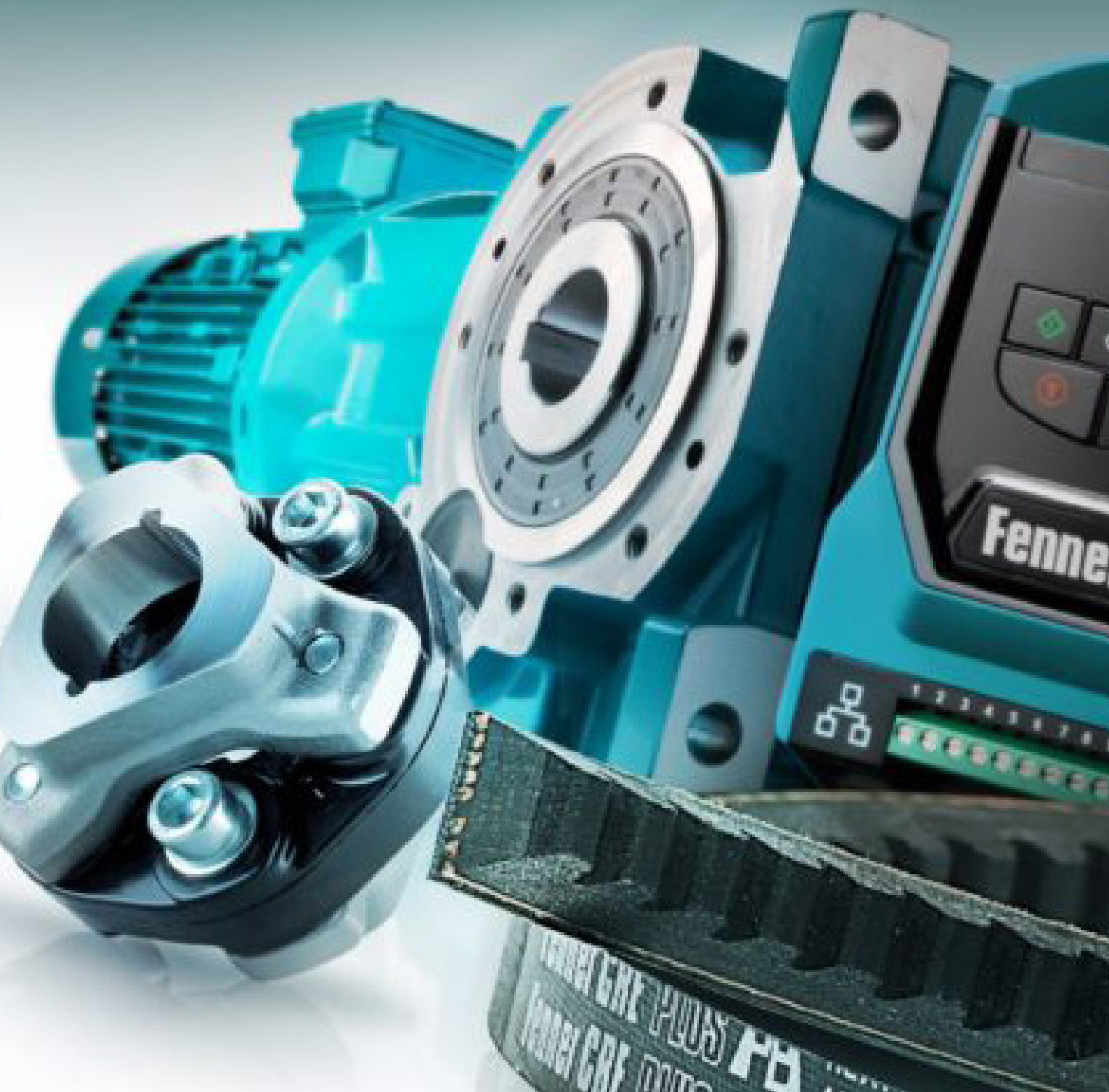
The complete drive solution from initial electrical input through to the final driven machine in one range.

Fenner® power transmission products are world renowned for delivering the ultimate combination of rugged construction, reliable & efficient performance and value for money

*- proven in the harshest environments,
guaranteed to perform in yours!*

All Fenner® power transmission products are manufactured to exacting specifications in line with UK and International standards, and are backed up by a product development programme designed to keep them at the cutting edge.





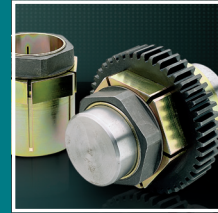
Fenner®

Reliable | Trusted | Connected

Section 6:

Shaft Fixings

The extended range of Fenner shaft fixing devices offer the ideal means for every application. As well as the industrial standard Taper Lock bush, and associated hubs/adaptors, the Fenner keyless fixing device range includes FenLock fixings in most formats and the rapid fit Trantorque GTR



- Fenner Taper Lock Bushes are machined to exacting tolerances in cast iron and steel, available in a full range of both metric and imperial sizes as well as a full range of weld-on hubs, bolt-on hubs and hub adaptors.
- Trantorque GTR keyless bushings offer a mechanical shrink-fit eliminating the problems of fretting corrosion, backlash and key wallowing.
- FenLock cone-clamping elements provide a wide range of keyless shaft/hub fixing assemblies offering simple installation, increased shaft strength and high torque transmission capacity.

Shaft Fixings: Design Data Required

Shaft dimensions	> diameter and tolerance > length
Keyway details if present	
Torque to be transmitted	
Product hub details	> diameter > length > material (strength)
Special considerations	> already taper bored > bedding moments on the shaft

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Visit www.fptgroup.com
for the Taper Lock installation video



Taper Lock[®] Bushes

Easy on, easy off - The simplest and quickest shaft fixing

Tried and tested in over 50 million applications

- Ease of installation and removal
- Equivalent to a shrink-on fit on uniform load applications and thus eliminating the cost of a key
- No costly reboring: full rage on both metric and imperial available
- High grade, close grain (GG25) material
- Special 4-hole feature for balanced assemblies

Fenner[®]

THE MARK OF ENGINEERING EXCELLENCE

Taper Lock® Hubs and Adaptors

BOLT-ON-HUBS

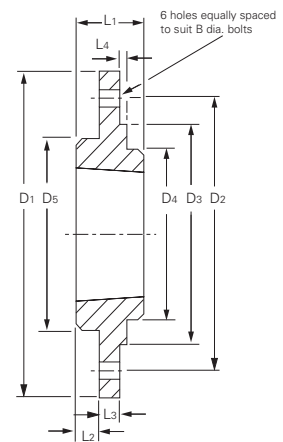
Fenner Taper Lock Bolt-on Hubs are designed for use with the universally accepted Taper Lock bush.

They provide a convenient means of securing fan rotors, impellers, agitators and other devices which must be fastened firmly to shafts.

Product Code	Size	Use Bush Size	D ₁	D ₂	D ₃	D ₄	D ₅
017C0010	BF12	1210	120	100	80	74	80
017G0010	BF16	1610	130	110	90	84	90
017K0010	BF20	2012	145	125	100	99	100
017M0010	BF25	2517	185	155	130	120	119
017P0010	BF30	3020	220	190	165	146	147

*Bore tolerance of D₃ +0mm/-0.05mm is recommended

Product Code	Size	Use Bush Size	L ₁	L ₂	L ₃	L ₄	B
017C0010	BF12	1210	25	10	6.5	2.5	M6
017G0010	BF16	1610	25	10	6.5	2.5	M6
017K0010	BF20	2012	32	13	8.5	2.5	M8
017M0010	BF25	2517	44	20	11.5	2.5	M10
017P0010	BF30	3020	50	20	11.5	2.5	M12



ADAPTORS

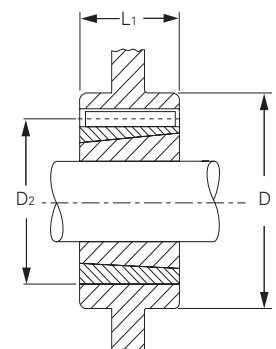
Adaptors for Fenner Taper Lock bushes are available for use in parallel bored components, either keyed (KM) or plain (PM) thereby eliminating the need to drill, tap and taper-bore.

Product Code	Hub ref.	L ₁	D ₂	Key Section	Hub dia. D		
					Cast Iron BS1452 GG-20-25	Steel BS970P1 070M20	
030A0200	1008PM	22	45	-	71 62	56	
030A0210	1008KM			5 x 5	75 67	60	
030C0200	1210PM	25	60	-	97 85	76	
030C0210	1210KM			6 x 6	103 93	85	
030G0200	1610PM	25	70	-	106 95	86	
030G0210	1610KM			10 x 8	113 102	92	
030M0200	2517PM	45	105	-	145 133	121	
030M0210	2517KM			16 x 10	151 140	127	
030Q0200	3030PM	76	130	-	181 165	156	
030Q0210	3030KM			20 x 12	191 175	159	
030R0200	3535PM	89	160	-	225 203	191	
030R0210	3535KM			22 x 12	235 213	200	
030S0200	4040PM	102	185	-	275 248	229	
030S0210	4040KM			24 x 12	285 257	238	

*Bore tolerance of D₃ +0.025/+0.075mm recommended
All dimensions in millimetres.



Hub ref. PM has Plain OD
KM has Keywayed OD



Taper Lock® Hubs and Adaptors

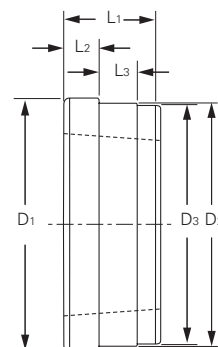
WELD-ON-HUBS

Fenner Taper Lock Weld-on Hubs are made of steel, grade 070M20, drilled, tapped and taper bored to receive standard Taper Lock bushes.

The shouldered outer diameter provides a convenient means of welding hubs into fan rotors, steel pulleys, plate sprockets, impellers, agitators and many other devices which must be firmly fastened to the shaft.

Product Code	Size	Use Bush Size	D ₁	D ₂ *	D ₃	L ₁	L ₂	L ₃
025C0010	WH12	1210	70	65	64.5	25	9	10
025G0010	WH16	1610	80	75	74.5	25	9	10
025K0010	WH20	2012	95	90	89.5	32	12	12
025M0010	WH25	2517	115	110	109.5	44	19	15
025P0010	WH30	3020	145	140	139.5	50	20	15
025J0010	WH35	3525	190	180	179.5	65	25	25
025X0010	WH40	4030	200	190	189.5	76	32	30
025Y0010	WH45	4535	210	200	199.5	89	40	30
025Z0010	WH50	5040	230	220	219.5	102	40	35

*Bore tolerance of D₂ +0mm/-0.05mm is recommended



WELDING INSTRUCTIONS

Fenner Taper Lock Weld-on Hubs are made of steel, are machined to accept Taper Lock bushes for shaft fixing, and have a precision machined shoulder against which flanges or webs can be located.

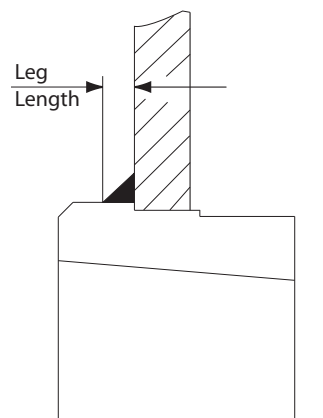
It is recommended that a continuous 45° mitre weld be used, working on the larger hub diameter section only. To ensure accuracy in the welded assembly it is essential to apply only sufficient weld to achieve sufficient strength.

Excess weld should not be necessary for normal use and, due to greater heat input, gives a higher risk of distortion.

The table below shows recommended continuous fillet weld requirements for each hub size.

Hub No	Leg Length mm
WH12	4
WH16	4
WH20	5
WH25	5
WH30	6
WH35	6
WH40	8
WH45	8
WH50	10

For electric arc welding, low hydrogen electrodes are recommended



Taper Lock® Metric Bushes

METRIC BORES AND KEYWAYS

Bore Dia	Keyway		Shallow Keyway Depth	Product Code								
	Width	Depth		1008	1108	1210	1610	1615	2012	2517	3020	3030
9	3	1.4	—	029A0009	029B0009							
10	3	1.4	—	029A0010	029B0010							
11	4	1.8	—	029A0011	029B0011	029C0011						
12	4	1.8	—	029A0012	029B0012	029C0012						
14	5	2.3	—	029A0014	029B0014	029C0014	029G0014	029H0014	029K0014			
15	5	2.3	—	029A0015	029B0015	029C0015	029G0015	029H0015	029K0015			
16	5	2.3	—	029A0016	029B0016	029C0016	029G0016	029H0016	029K0016	029M0016		
18	6	2.8	—	029A0018	029B0018	029C0018	029G0018	029H0018	029K0018	029M0018		
19	6	2.8	—	029A0019	029B0019	029C0019	029G0019	029H0019	029K0019	029M0019		
20	6	2.8	—	029A0020	029B0020	029C0020	029G0020	029H0020	029K0020	029M0020		
22	6	2.8	—	029A0022	029B0022	029C0022	029G0022	029H0022	029K0022	029M0022		
24	8	3.3	1.3	029A0024*	029B0024	029C0024	029G0024	029H0024	029K0024	029M0024		
25	8	3.3	1.3	029A0025*	029B0025	029C0025	029G0025	029H0025	029K0025	029M0025	029P0025	
28	8	3.3	1.3		029B0028*	029C0028	029G0028	029H0028	029K0028	029M0028	029P0028	
30	8	3.3	—			029C0030	029G0030	029H0030	029K0030	029M0030	029P0030	
32	10	3.3	—			029C0032	029G0032	029H0032	029K0032	029M0032	029P0032	
35	10	3.3	—				029G0035	029H0035	029K0035	029M0035	029P0035	029Q0035
38	10	3.3	—				029G0038	029H0038	029K0038	029M0038	029P0038	029Q0038
40	12	3.3	—				029G0040	029H0040	029K0040	029M0040	029P0040	029Q0040
42	12	3.3	2.2				029G0042*	029H0042*	029K0042	029M0042	029P0042	029Q0042
45	14	3.8	—						029K0045	029M0045	029P0045	029Q0045
48	14	3.8	—						029K0048	029M0048	029P0048	029Q0048
50	14	3.8	—						029K0050	029M0050	029P0050	029Q0050
55	16	4.3	—							029M0055	029P0055	029Q0055
60	18	4.4	—							029M0060	029P0060	029Q0060
65	18	4.4	—								029P0065	029Q0065
70	20	4.9	—								029P0070	029Q0070
75	20	4.9	—								029P0075	029Q0075

METRIC BORES AND KEYWAYS

Bore Dia	Keyway		Shallow Keyway Depth	Product Code							
	Width	Depth		3525	3535	4030	4040	4535	4545	5040	5050
35	10	3.3	—	029J0035	029R0035						
38	10	3.3	—	029J0038	029R0038						
40	12	3.3	—	029J0040	029R0040	029X0040	029S0040				
42	12	3.3	—	029J0042	029R0042	029X0042	029S0042				
45	14	3.8	—	029J0045	029R0045	029X0045	029S0045				
48	14	3.8	—	029J0048	029R0048	029X0048	029S0048				
50	14	3.8	—	029J0050	029R0050	029X0050	029S0050				
55	16	4.3	—	029J0055	029R0055	029X0055	029S0055	029Y0055	029T0055		
60	18	4.4	—	029J0060	029R0060	029X0060	029S0060	029Y0060	029T0060		
65	18	4.4	—	029J0065	029R0065	029X0065	029S0065	029Y0065	029T0065		
70	20	4.9	—	029J0070	029R0070	029X0070	029S0070	029Y0070	029T0070	029Z0070	029U0070
75	20	4.9	—	029J0075	029R0075	029X0075	029S0075	029Y0075	029T0075	029Z0075	029U0075
80	22	5.4	—	029J0080	029R0080	029X0080	029S0080	029Y0080	029T0080	029Z0080	029U0080
85	22	5.4	—	029J0085	029R0085	029X0085	029S0085	029Y0085	029T0085	029Z0085	029U0085
90	25	5.4	—	029J0090	029R0090	029X0090	029S0090	029Y0090	029T0090	029Z0090	029U0090
95	25	5.4	—	029J0095		029X0095	029S0095	029Y0095	029T0095	029Z0095	029U0095
100	28	6.4	4.4	029J0100*		029X0100	029S0100	029Y0100	029T0100	029Z0100	029U0100
105	28	6.4	-			029X0105		029Y0105	029T0105	029Z0105	029U0105
110	28	6.4	—			029X0110		029Y0110	029T0110	029Z0110	029U0110
115	32	7.4	5.4			029X0115*		029Y0115		029Z0115	029U0115
120	32	7.4	—					029Y0120		029Z0120	029U0120
125	32	7.4	—					029Y0125		029Z0125	029U0125

Dimensions in millimetres.

Keyways are British Standard Metric BS 4235: Part 1: 1972 DIN 6885 and conform to ISO recommendations with the exception of those marked* which are shallower. Where a key is to be used it should be parallel and side fitting, with top clearance. Depth of keyway is measured at the CENTRE.

Bold italic type indicates bushes made of steel or ductile iron.

Taper Lock® Imperial Bushes

INCH BORES AND KEYWAYS

Bore Dia.	Keyway		Shallow Keyway Depth	Product Code								
	Width	Depth		1008	1108	1210	1610	1615	2012	2517	3020	3030
0.375	0.125	0.06	—	019A0006	019B0006							
0.500	0.125	0.06	—	019A0008	019B0008		019G0008	019H0008				
0.625	0.187	0.09	—	019A0010	019B0010	019C0010	019G0010	019H0010				
0.750	0.187	0.09	—	019A0012	019B0012	019C0012	019G0012	019H0012	019K0012	019M0012		
0.875	0.250	0.12	—	019A0014	019B0014	019C0014	019G0014	019H0014	019K0014	019M0014		
1.000	0.250	0.12	0.052	019A0100*	019B0100	019C0100	019G0100	019H0100	019K0100	019M0100		
1.125	0.312	0.11	0.064		019B0102*	019C0102	019G0102	019H0102	019K0102	019M0102		
1.250	0.312	0.11	—			019C0104	019G0104	019H0104	019K0104	019M0104	019P0104	019Q0104
1.375	0.375	0.11	—				019G0106	019H0106	019K0106	019M0106	019P0106	019Q0106
1.500	0.375	0.11	—				019G0108	019H0108	019K0108	019M0108	019P0108	019Q0108
1.625	0.437	0.13	0.103				019G0110	019H0110*	019K0110	019M0110	019P0110	019Q0110
1.750	0.437	0.13	—						019K0112	019M0112	019P0112	019Q0112
1.875	0.500	0.13	—						019K0114	019M0114	019P0114	019Q0114
2.000	0.500	0.13	—						019K0200	019M0200	019P0200	019Q0200
2.125	0.625	0.18	—							019M0202	019P0202	019Q0202
2.250	0.625	0.18	—							019M0204	019P0204	019Q0204
2.375	0.625	0.18	—							019M0206	019P0206	019Q0206
2.500	0.625	0.18	—							019M0208	019P0208	019Q0208
2.625	0.750	0.21	—								019P0210	019Q0210
2.750	0.750	0.21	—								019P0212	019Q0212
2.875	0.750	0.21	—								019P0214	019Q0214
3.000	0.750	0.21	—								019P0300	019Q0300

INCH BORES AND KEYWAYS

Bore Dia	Keyway		Shallow Keyway Depth	Product Code							
	Width	Depth		3525	3535	4030	4040	4535	4545	5040	5050
1.500	0.375	0.11	—	019J0108	019R0108						
1.625	0.437	0.13	—	019J0110	019R0110						
1.750	0.437	0.13	—	019J0112	019R0112	019X0112	19S0112				
1.875	0.500	0.13	—	019J0114	019R0114	019X0114	19S0114				
2.000	0.500	0.13	—	019J0200	019R0200	019X0200	19S0200				
2.125	0.625	0.18	—	019J0202	019R0202	019X0202	19S0202				
2.250	0.625	0.18	—	019J0204	019R0204	019X0204	19S0204	019Y0204	019T0204		
2.375	0.625	0.18	—	019J0206	019R0206	019X0206	19S0206	019Y0206	019T0206		
2.500	0.625	0.18	—	019J0208	019R0208	019X0208	19S0208	019Y0208	019T0208		
2.625	0.750	0.21	—	019J0210	019R0210	019X0210	19S0210	019Y0210	019T0210		
2.750	0.750	0.21	—	019J0212	019R0212	019X0212	19S0212	019Y0212	019T0212	019Z0212	019U0212
2.875	0.750	0.21	—	019J0214	019R0214	019X0214	19S0214	019Y0214	019T0214	019Z0214	019U0214
3.000	0.750	0.21	-	019J0300	019R0300	019X0300	19S0300	019Y0300	019T0300	019Z0300	019U0300
3.125	0.875	0.26	-	019J0302	019R0302	019X0302	19S0302	019Y0302	019T0302	019Z0302	019U0302
3.250	0.875	0.26	-	019J0304	019R0304	019X0304	19S0304	019Y0304	019T0304	019Z0304	019U0304
3.375	0.875	0.26	-	019J0306	019R0306	019X0306	19S0306	019Y0306	019T0306	019Z0306	019U0306
3.500	0.875	0.26	—	019J0308	019R0308	019X0308	19S0308	019Y0308	019T0308	019Z0308	019U0308
3.750	1.000	0.32	0.245	019J0312*		019X0312	19S0312	019Y0312	019T0312	019Z0312	019U0312
4.000	1.000	0.32	0.155	019J0400*		019X0400	19S0400	019Y0400	019T0400	019Z0400	019U0400
4.250	1.250	0.37	—			019X0404		019Y0404	019T0404	019Z0404	019U0404
4.500	1.250	0.37	0.255			019X0408*		019Y0408	019T0408	019Z0408	019U0408
4.750	1.250	0.37	—					019Y0412		019Z0412	019U0412
5.000	1.250	0.37	0.258					019Y0500*		019Z0500	019U0500

Dimensions in inches.

All Keyways are parallel and to British Standard 46: Part 1: 1958, with the exception of those marked* which are shallower.

Where a key is to be used it should be side fitting, with top clearance. Depth of keyway is measured at the CENTRE.

Bold italic type indicates bushes made of steel or ductile iron.

Taper Lock® Engineering Data

MINIMUM DIAMETERS OF TAPER BORED HUBS

The following table shows the recommended minimum diameter in mm for bespoke component hubs that are to be drilled, tapped and taper bored for use with Taper Lock bushes. The table differentiates between grey iron and ductile materials of various minimum tensile strength grades (in N/mm² or MN/m² units, which are numerically equal).

All standard Fenner Taper Lock products are tested to ensure that they are capable of safely containing the radial and circumferential hub stresses generated by the wedging mechanism which makes Taper Lock the equivalent of a shrink-on fit. For Taper Lock hub machining details, consult your local Authorised Distributor.

Taper Lock Bush	Minimum Hub Diameters (mm) for Various Materials			
	Tensile Strength N/mm ²			
	Cast Iron 180	Cast Iron 250	Steel/Ductile Iron 420	Steel 600
1008	62	54	51	47
1108	64	57	54	50
1210	104	86	78	69
1610	109	92	85	78
1615	90	81	77	73
2012	121	106	99	92
2517	130	119	113	108
3020	160	146	140	132
3030	144	136	132	127
3525	211	191	178	167
3535	191	176	168	160
4030	224	207	197	186
4040	209	195	188	180
4535	223	212	205	198
4545	215	205	200	194
5040	240	229	223	216
5050	233	223	219	213

AVERAGE SLIP TORQUES FOR TAPER LOCK FIXING (WITHOUT KEY)

The following table shows empirically derived average slip torque values in Nm for each basic Taper Lock bush size with a variety of common metric bore diameters.

The values assume that the assembly uses a Fenner Taper Lock bush fitted, in accordance with the instructions supplied with every bush, to a hub prepared to the Fenner specification. Slip will tend to occur at the bush/shaft interface, at the prescribed torque, unless a key is fitted. With a key, the slip tendency transfers to the bush/hub interface at a greater torque value related to the ratio of bush outer dia. to bore dia.. Consult your local Authorised Distributor for specific values.

Taper Lock bushes should only be used without a key fitted on smooth, uniformly loaded drives with service factors of 1.0 or less.

Formula to calculate the slip torque if a key is used: Large end diameter* x Average slip torque value Nm (below)
Bush bore

* from the table on Page 132

Bush	Bore (mm)	Average Slip Torque (Nm)	Bush	Bore (mm)	Average Slip Torque (Nm)
1008	12	29	3020	38	520
	19	51	3030	48	730
	24	66		55	890
1108	12	28		60	970
	19	49		75	1300
	24	64	3525*	42	1000
1210	28	79	3535	60	1580
	16	82		75	2150
	19	105		90	2600
1610	24	142		100*	3075
	32	210	4030*	48	1700
	19	98	4040	60	2300
1615	24	135		75	3150
	38	240		100	4400
	42	265	4535*	115*	5150
2012	24	165		55	2500
	38	320		75	3900
	42	340	4545	100	5500
2517	48	400		110	6300
	50	420		125*	6625
	24	220	5040	75	3950
2517	38	380	5050	100	5650
	42	430		125	7370
	48	510			
	55	600			
	60	670			

Large bores marked* are only available in bush sizes marked*

Taper Lock bushes work effectively on shaft diameters with h9 tolerance. If in doubt please consult your local Authorised Distributor.. (Nominally +0.05/-0.125mm)

Taper Lock® Installation Instructions

TO INSTALL

1. After ensuring that the mating tapered surfaces, bore and shaft are completely clean and free from oil or dirt, insert bush in hub so that holes line up.
2. Sparingly oil thread and point of grub screws, or thread and under head of cap screws. Place screws loosely in holes threaded in hub, shown thus ⊙ in diagram.
3. If a key is to be fitted place it in the shaft keyway before fitting the bush. It is essential that it is a parallel key and side fitting only and has TOP CLEARANCE.
4. Clean shaft and fit hub to shaft as one unit and locate in position desired, remembering that bush will nip the shaft first and then hub will be slightly drawn on to the bush.
5. Using a hexagon wrench tighten screws gradually and alternately to torque shown in table below.
6. Hammer against large-end of bush, using a block or sleeve to prevent damage. (This will ensure that the bush is seated squarely in the bore.) Screws will now turn a little more. Repeat this alternate hammering and screw tightening once or twice to achieve maximum grip on the shaft.
7. After drive has been running under load for a short time stop and check tightness of screws.
8. Fill empty holes with grease to exclude dirt.

Visit www.fptgroup.com to view the Taper Lock installation video.



INSERT BUSH



INSERT SCREWS AND LOCATE ON SHAFT



TIGHTEN SCREWS FINGER TIGHT



TIGHTEN SCREWS ALTERNATELY



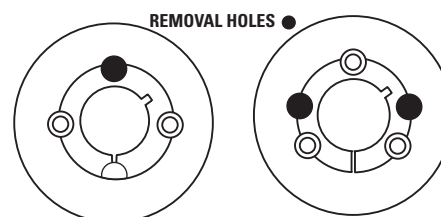
TIGHTEN SCREWS TO THE CORRECT TORQUE SETTING



REMOVAL

TO REMOVE

1. Slacken all screws by several turns, remove one or two according to number of removal holes shown thus ● in diagram. Insert screws into removal holes after oiling thread and under head of cap screws.
2. Tighten screws alternately until bush is loosened in hub and assembly is free on the shaft.
3. Remove assembly from shaft.



Bush size	1008	1108	1210	1610	1615	2012	2517	3020	3030	3525	3535	4030	4040	4535	4545	5040	5050
Screw tightening Torque (Nm)	5.6	2.6	20	20	20	30	50	90	90	115	115	170	170	190	190	270	270
Qty	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Screw Details	Size (BSW)	1/4"	1/4"	3/8"	3/8"	3/8"	7/16"	1/2"	5/8"	5/8"	1/2"	1/2"	5/8"	5/8"	3/4"	3/4"	7/8"
	Hex. Scket Size (mm)	3	3	5	5	5	6	6	8	8	10	10	12	12	14	14	14
Large end dia. (mm)		35.0	38.0	47.5	57.0	57.0	70.0	85.5	108.6	108	127	127	146	146	162	162	178
Bush length (mm)		22.3	22.3	25.4	25.4	38.1	38.1	44.5	50.8	76.2	63.5	89.0	76.2	102	89.0	114	102
Approx mass (kg)		0.1	0.1	0.2	0.3	0.5	0.7	1.5	2.7	3.6	3.8	5.0	5.6	7.7	7.5	10.0	11.1

Trantorque GTR

Trantorque GTR is a single nut locking bush with interlocking components for positive fixing and release. It is a high torque keyless bushing system, ideal for critical timing applications.

Trantorque GTR is easy to install and requires no special machining, no keyways. It can be easily adjusted and removed, and allows infinite positioning that is essential for precise timing and synchronisation.

With fewer component parts, Trantorque GTR offers significant installation advantages, reducing downtime and operating costs. The single GT nut can be torqued-up in seconds...



ADVANTAGES OF TRANTORQUE GTR

Eliminate costly matching with inexpensive Trantorque GTR mounts. They grip like a shrink-fit on shaft and bore, and resist shocks and torque reversals better than keyways. Single-nut design self-centres accurately, locks or unlocks with the twist of a wrench.

Eliminates Keys, Keyways, Setscrews



Eliminate costly matching with inexpensive Trantorque GTR mounts. They grip like a shrink-fit on a shaft and bore, and resist shocks and torque reversals better than keyways. Single-nut design self-centres accurately, locks or unlocks with the twist of a wrench.

Infinite, Precise Radial Adjustment



The positive lock and release action permits exact initial positioning with easy readjustment at a later date. This is not possible with fixed keyed connections.

Use Smaller Shafts



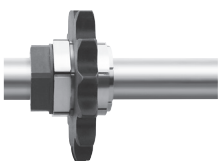
Eliminate the weak spot in shafts and hubs caused by machining keyways. This plus the rigidising effect, permits smaller and less expensive shafts and bearings with equal strength and stiffness.

Retrofit and Repair



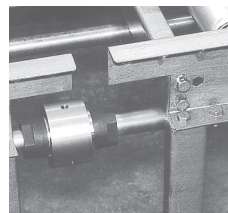
Can be used directly over empty keyways to repair a worn or damaged connection. Both metric and imperial units are available making it easy to quickly return machinery to service.

Mount Hubless Devices



Trantorque GTR mounts are unique in their ability to mount thin hubless devices. They need not be completely within the bore. This permits mounting plate sprockets, hubless gears, disc brakes, etc - often at substantial savings to the user or OEM.

Speed Prototype Development



Easy installation, adjustment and removal permit great freedom and flexibility in new product development. Trantorque mounts can be removed and reinstalled many times, a major advantage on prototype or final product.

EFFECT OF TEMPERATURE

Trantorque GTR units are not affected by temperature within wide limits (-34°C to 204°C) when the shaft and hub are made of steel. Trantorque GT units are all steel. If the shaft and/or hub are made of different materials e.g. aluminum, straightforward engineering compensation should be made for the difference in expansion coefficients.

In normal environments, where the seasonal ambient variation is less than 35°C , no compensation will generally be required, even with dissimilar metals.

AXIAL MOVEMENT

When progressing from hand-tight to full installation torque there is a small axial movement of the outer element (and fixed component), in the same direction as the nut is tightened.

The inner element of the bushing remains secure to the shaft during nut tightening.

RUNOUT TOLERANCE

All Trantorque GT units guarantee hub bore concentricity within 0.025mm ($0.001''$)

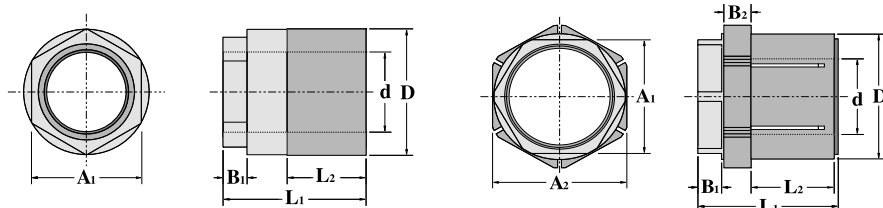
BEARINGS AND SYNTHETIC HUB MATERIALS

Trantorque GT units are not recommended for use with components having hubs made of synthetic (non-metallic) materials. Such materials suffer creep under radial loads and will suffer loosening over time.

Mounting bearings with Trantorque GT is not recommended.

The expansion forces reduce the radial internal clearance within the bearing and can cause premature failure.

Trantorque GTR



Trantorque Mini Series

Trantorque GTR

METRIC STOCK RANGE

	Product Codes	Dimensions								Performance		Nut Torque Nm	Approx Mass kg
		d	D	L ₁	L ₂	A ₁	A ₂	B ₁	B ₂	Max Transmissible Torque Nm	Hub Pressure N/cm ²		
Miniature Series	184A0105	5	16.0	19.0	9.5	13	—	3.0	—	12	323	3585	0.014
	184A0106	6	16.0	19.0	9.5	13	—	3.0	—	16	349	3585	0.014
	184B0108	8	19.0	22.0	11.0	16	—	3.0	—	23	405	2550	0.028
	184B0109	9	19.0	22.0	11.0	16	—	3.0	—	26	414	2550	0.028
	184C0110	10	22.5	25.5	12.5	19	—	5.0	—	30	423	1860	0.042
	184C0111	11	22.5	25.5	12.5	19	—	5.0	—	34	430	1860	0.042
	184C0112	12	22.5	25.5	12.5	19	—	5.0	—	39	439	1860	0.042
	184D0114	14	25.5	28.5	16.0	22	—	5.0	—	44	449	1240	0.056
	184D0115	15	25.5	28.5	16.0	22	—	5.0	—	45	451	1240	0.056
	184D0116	16	25.5	28.5	16.0	22	—	5.0	—	50	459	1240	0.056
Standard Series	184E0115	15	38.0	38.0	19.0	32	38.0	8.0	8.0	180	1366	7600	0.230
	184E0116	16	38.0	38.0	19.0	32	38.0	8.0	8.0	198	1500	7600	0.230
	184E0118	18	38.0	38.0	19.0	32	38.0	8.0	8.0	265	1835	7600	0.230
	184E0119	19	38.0	38.0	19.0	32	38.0	8.0	8.0	282	2000	7600	0.230
	184F0120	20	45.0	47.5	21.5	38	44.5	11.0	9.5	290	2140	6500	0.310
	184F0122	22	45.0	47.5	21.5	38	44.5	11.0	9.5	315	2446	6500	0.310
	184F0124	24	45.0	47.5	21.5	38	44.5	11.0	9.5	380	2752	6500	0.310
	184F0125	25	45.0	47.5	21.5	38	44.5	11.0	9.5	390	2956	6500	0.310
	184G0128	28	51.0	57.0	25.5	46	51.0	13.0	14.5	495	3262	5400	0.450
	184G0130	30	51.0	57.0	25.5	46	51.0	13.0	14.5	580	3568	5400	0.450
	184G0132	32	51.0	57.0	25.5	46	51.0	13.0	14.5	680	3874	5400	0.450
	184H0134	34	60.5	70.0	38.0	50	60.3	14.0	13.0	710	4077	4500	0.770
	184H0135	35	60.5	70.0	38.0	50	60.3	14.0	13.0	725	4281	4500	0.770
	184H0136	36	60.5	70.0	38.0	50	60.3	14.0	13.0	750	4485	4500	0.770
	184H0138	38	60.5	70.0	38.0	50	60.3	14.0	13.0	790	4791	4500	0.770
	184J0140	40	67.0	79.5	43.0	60	67.0	14.5	17.5	900	5097	3800	1.050
	184J0142	42	67.0	79.5	43.0	60	67.0	14.5	17.5	1000	5043	3800	1.050
	184K0145	45	73.0	90.5	51.0	65	73.0	16.0	19.0	1170	5912	2900	1.360
	184K0148	48	73.0	90.5	51.0	65	73.0	16.0	19.0	1356	6422	2900	1.360
Large Series	184K0150	50	73.0	90.5	51.0	65	73.0	16.0	19.0	1515	6728	2900	1.360
	184L0155	55	80.0	95.0	54.0	70	79.4	16.0	20.5	1650	6932	2400	2.130
	184M0160	60	86.0	98.5	57.0	75	85.7	17.5	19.0	1745	7034	2000	2.270
	184N0165	65	92.0	103.0	60.5	82	92.0	17.5	20.5	1830	7136	1700	2.680
	184N0170	70	92.0	103.0	60.5	82	92.0	17.5	20.5	1920	7238	1700	2.680
	184P0175	75	100.0	108.0	63.5	90	98.5	19.0	20.5	2000	7339	1600	2.720

INCH STOCK RANGE

	Product Code	Dimensions								Performance		Nut Torque Nm	Approx Mass kg
		d	D	L ₁	L ₂	A ₁	A ₂	B ₁	B ₂	Max Transmissible Torque Nm	Hub Pressure N/cm ²		
Miniature Series	184A0604	1/4"	5/8"	3/4"	3/8"	1/2"	—	1/8"	—	17.0	358	3585	0.014
	184B0606	3/8"	3/4"	7/8"	7/16"	5/8"	—	1/8"	—	28.0	418	2550	0.028
	184C0608	1/2"	7/8"	1"	1/2"	3/4"	—	3/16"	—	39.5	445	1857	0.042
	184D0610	5/8"	1"	1 1/8"	5/8"	7/8"	—	3/16"	—	50.0	453	1240	0.056
Standard Series	184E0610	5/8"	1 1/2"	1 1/2"	3/4"	1 1/4"	1 1/2"	5/16"	5/16"	198.0	1497	7586	0.230
	184E0612	3/4"	1 1/2"	1 1/2"	3/4"	1 1/4"	1 1/2"	5/16"	5/16"	282.0	1996	7586	0.230
	184F0614	7/8"	1 3/4"	1 7/8"	7/8"	1 1/2"	1 3/4"	7/16"	3/8"	316.0	2495	6480	0.310
	184F0616	1"	1 3/4"	1 7/8"	7/8"	1 1/2"	1 3/4"	7/16"	3/8"	395.0	2994	6480	0.310
	184G0620	1 1/4"	2"	2 1/4"	1"	1 3/4"	2"	1/2"	9/16"	678.0	3856	5380	0.450
	184H0624	1 1/2"	2 3/8"	2 3/4"	1 1/2"	2"	2 3/8"	9/16"	1/2"	790.0	4770	4480	0.770
	184J0628	1 3/4"	2 5/8"	3 1/8"	1 1/16"	2 1/4"	2 5/8"	9/16"	1 1/16"	1130.0	5785	3790	1.050
	184K0632	2"	2 7/8"	3 9/16"	2"	2 1/2"	2 7/8"	5/8"	3/4"	1582.0	6805	2900	1.360
Large Series	184L0636	2 1/4"	3 1/8"	3 3/4"	2 1/8"	2 3/4"	3 1/8"	5/8"	13/16"	1695.0	6930	2415	2.130
	184M0638	2 3/8"	3 3/8"	3 7/8"	2 1/4"	3"	3 3/8"	1 1/16"	3/4"	1750.0	6985	1930	2.270
	184M0640	2 1/2"	3 3/8"	3 7/8"	2 1/4"	3"	3 3/8"	1 1/16"	3/4"	1810.0	7060	1930	2.270
	184N0644	2 3/4"	3 5/8"	4 1/16"	2 3/8"	3 1/4"	3 5/8"	1 1/16"	13/16"	1920.0	7170	1655	2.530
	184P0648	3"	3 7/8"	4 1/4"	2 1/2"	3 1/2"	3 7/8"	3/4"	13/16"	2030.0	7330	1585	2.720

Tolerances on shaft and bore, miniature Series $\pm .038$ mm, (.0015"). Standard and Larger Series $\pm .076$ mm, (.003"). Other sizes, types and materials are available to order. Consult your local Authorised Distributor.

SELECTION

To select the Trantorque GTR suitable for your application simply choose the bush with the appropriate ('d') to suit the shaft diameter and determine that the outside diameter ('D') and transmissible torque rating will be adequate.

Note: The nominal transmitted torque in Nm should be multiplied by a service factor before comparing with the tabulated maximum transmissible torque.

Service factors range from 1.0 for electric motor driven, smooth machines, to 2.25 for heavy shock machinery driven by i/c engines.

If in doubt consult your local Authorised Distributor.

Use the following formula to convert power (kW) to torque (Nm)

$$\text{Torque (Nm)} = \frac{\text{kW} \times 9550}{\text{rev/min}}$$

INSTALLATION

- Clean off the shaft and bore with a clean rag dampened with a commercial solvent so that the bore and the shaft are clean and completely free of oil.
- Fit the Trantorque GTR unit onto the shaft: the shaft must extend through the full length of the Trantorque GTR (dimension L₁).
- Fit the hub over the Trantorque GTR unit so that the expanding section of the unit (dimension L₂) is approximately in the centre of the hub. If the hub is longer than the L₂ dimension, make sure that the flats of the nut(s) (dimensions B) are outside of the hub to permit spanners to be applied to the nut(s).
- Tighten the outboard nut lightly by hand. Position the unit and the hub in the desired location. Now tighten the outboard nut to the torque indicated in the charts. The hub is now locked to the shaft. With Trantorque GTR the inboard nut is used to restrain the unit and the shaft during tightening.

SHAFT DIAMETER & HUB BORE TOLERANCES & FINISH

Mini Series	Nominal ± 0.04 mm (0.0015")
Standard/large series	Nominal ± 0.08 mm (0.003")
Surface Finish	1.6 - 3.2 μ m

MOUNTING OF HUBLESS MACHINE ELEMENTS

Hubless machine elements such as plate gears, plate disc brakes, plate cams and plate sprockets, can be successfully locked to the shaft by means of the Trantorque GTR, but some account should be taken of the increased hub pressure on these applications.

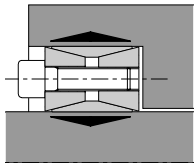
Fenlock Cone Clamping Elements

FenLock cone clamping elements are precision made in the finest steel materials to provide a wide, versatile range of keyless shaft/hub fixing assemblies.

They offer

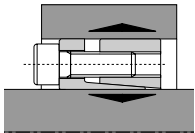
- Simple installation/disassembly
- Resistance to alternating torques
- Increased shaft strength
- High torque transmission capacity
- No backlash
- Axial and angular adjustment capability
- No fretting corrosion
- Simple selection

THE FENLOCK PRODUCT RANGE



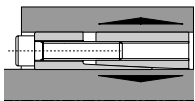
FLK 200

Medium/high torque
Non self centering
Available for shafts 20-900 mm dia.
Max allowable surface finish Rt max 16µm
Tolerances h11 shaft - H11 hub
No axial movement



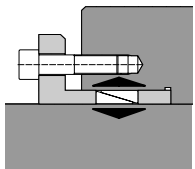
FLK 132

Less screws - quicker installation
Self centering Medium/high torque
Max allowable surface finish Rt max 16µm
Slight axial movement hub/shaft
Available for shafts 20-200 mm dia
Tolerances h8 shaft - H8 hub.



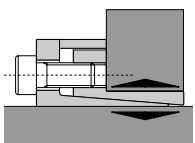
FLK 130

High torque
Self centering
Max allowable surface finish Rt max 16µm
Slight axial movement hub/shaft
Available for shafts 20-180 mm dia
Tolerances h8 shaft - H8 hub.



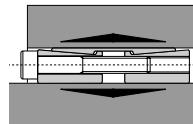
FLK 300

Medium/low torque
Non self centering
Max allowable surface finish Rt max 6µm
Available for shafts 6-300 mm dia
(larger sizes to order)
Tolerances ≥ 40 mm dia h6 shaft - H7 hub
 ≤ 42 mm dia h8 shaft - H8 hub



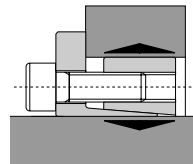
FLK 110

Few screws - quicker installation
Medium/high torque Self centering
Max allowable surface finish Rt max 16µm
Available for shafts 6-130 mm dia
Tolerances h8 shaft - H8 hub.



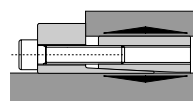
FLK 450

Very high torque
Self centering
Available for shafts 45-400 mm dia.
Max allowable surface finish Rt max 16µm
Tolerances h8 shaft - H8 hub.



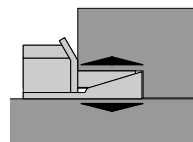
FLK 133

As FLK 132 with larger dia. location collar
Less screws - quicker installation
Medium/high torque Self centering
No axial movement hub/shaft
Available for shafts 20-200 mm dia
Max allowable surface finish Rt max 16µm
Tolerances h8 shaft - H8hub.



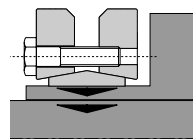
FLK 131

As FLK 130 with larger dia. location collar
High torque
Self centering
No axial movement hub/shaft
Available for shafts 20-180 mm dia
Max allowable surface finish Rt max 16µm
Tolerances h8 shaft - H8 hub.



FLK 250L

Similar to FLK 300 with integral single nut fixing
Medium/low torque Self centering
Max allowable surface finish Rt max 16µm
Slight axial movement hub/shaft
Available for shafts 14-60 mm dia
Tolerances h8 shaft - H8 hub.



FLK 603

'Shrink disc' device for hub clamping
Quick installation
Medium/high torque Self centering
Available for hubs 14-280 mm dia
(larger sizes to order)
Max allowable surface finish Rt max 16µm
Tolerances h8 shaft.

FENLOCK SELECTION

1. Determine the maximum torque (Nm) to be transmitted, including fluctuations and shock loads, and any axial forces (kN) to be withstood.
2. Use the features table above to help determine the type of FenLock device to use.
3. Use the tabulated data on the following pages to establish torque (Mt) and axial load capacity (F) of the chosen unit on the shaft size being used, and that they exceed applicational requirements.

Note: Maximum torque and axial force values are mutually exclusive. For combined torque and axial force applications, consult your local Authorised Distributor.

4. Check dimensional suitability, self centering capability and ease of installation/disassembly.
5. For hub strength calculations or more detailed selection advice - consult your local Authorised Distributor.

INSTALLATION

1. Ensure cleanliness of hub and shaft contact surfaces
2. Screw threads and conical surfaces should be lightly oiled.
3. Tighten fixing screws gradually, in diagonal sequence, up to torque Ms (Nm)
4. For more detailed information - consult your local Authorised Distributor.

Fenlock Cone Clamping Elements

To Calculate the Minimum Hub Diameter (Dm).

FenLock cone clamping elements create a surface pressure **Pn** between the clamping outer ring and hub bore when fitted. Shaft values are higher than the hub stresses but generally the hub stress level is the critical factor as it must be below the yield stress of the material.

The minimum hub diameter **Dm** is calculated using the following formula

$$Dm \geq (D \cdot K)$$

where

Dm = Minimum hub diameter

D = Outside diameter of clamping element

K = Coefficient K derived from the table below

Use **Pn** from product tables on pages 134 - 138

factor C (see below)

Example

Based on securing a cast iron 50mm wide pulley to a steel shaft using a FenLock 200 80 x 120.

Pulley Material = GG25

C = 0.8 as assembly is as per type 2

Pn = 120 N/mm² as page 134

K = 1,81

$$Dm \geq (D \cdot K)$$

$$Dm \geq (120 \times 1.81)$$

$$Dm \geq 217.2mm$$

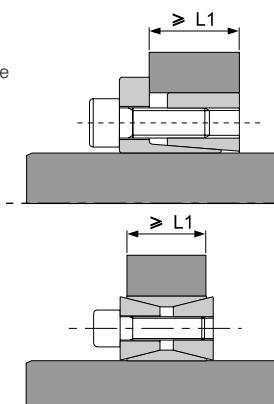
Therefore, the minimum hub diameter that can be used is 217.2mm.

FACTOR C

ASSEMBLIES TYPE

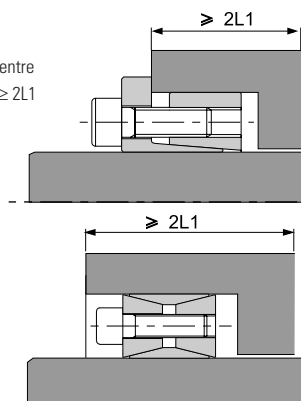
Type 1 C = 1.0

Narrow hubs where the length $\geq L1$



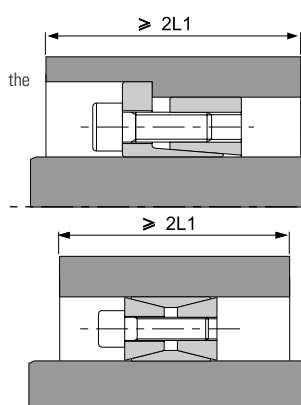
Type 2 C = 0.8

Wide hubs with centre guide and length $\geq 2L1$



Type 3 C = 0.6

Wide hubs where the length $\geq 2L1$



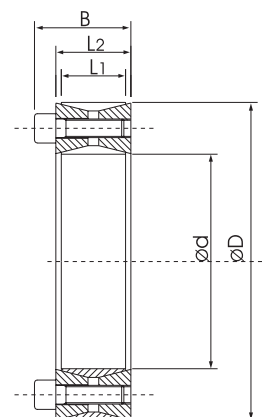
COEFFICIENT K

Pressure generated on the hub		Yield point N/mm2											
		150	180	200	220	250	270	300	350	400	450	600	
		Material type											
Pn N/mm ²	Application type C	GG20	GG25 GS38	GG30 GTS35	GS45 ST37-2	GGG40 GS52	ST50-2 C35	GGG50 GS60 ST60-2	GGG60 GS62 ST70-2	GGG70 GS70 C60			
60	C=0.6	1.28	1.25	1.20	1.18	1.15	1.14	1.12	1.10	1.09	1.08	1.06	
	C=0.8	1.39	1.30	1.24	1.23	1.22	1.20	1.18	1.15	1.12	1.11	1.08	
	C=1	1.52	1.42	1.36	1.32	1.28	1.25	1.22	1.18	1.16	1.14	1.10	
65	C=0.6	1.30	1.25	1.22	1.20	1.18	1.15	1.13	1.11	1.10	1.09	1.07	
	C=0.8	1.44	1.35	1.30	1.28	1.24	1.22	1.20	1.16	1.14	1.12	1.09	
	C=1	1.60	1.45	1.40	1.35	1.30	1.28	1.24	1.20	1.18	1.16	1.12	
70	C=0.6	1.34	1.26	1.24	1.22	1.18	1.16	1.15	1.12	1.11	1.10	1.07	
	C=0.8	1.48	1.38	1.34	1.30	1.25	1.23	1.20	1.18	1.15	1.13	1.10	
	C=1	1.65	1.50	1.45	1.40	1.34	1.30	1.26	1.22	1.20	1.17	1.13	
75	C=0.6	1.30	1.28	1.25	1.23	1.20	1.18	1.16	1.14	1.12	1.11	1.08	
	C=0.8	1.52	1.42	1.36	1.32	1.28	1.25	1.22	1.18	1.16	1.14	1.11	
	C=1	1.74	1.55	1.48	1.42	1.36	1.33	1.30	1.25	1.20	1.18	1.13	
80	C=0.6	1.39	1.31	1.28	1.25	1.21	1.20	1.18	1.15	1.13	1.11	1.08	
	C=0.8	1.58	1.45	1.39	1.35	1.30	1.27	1.24	1.20	1.18	1.15	1.11	
	C=1	1.81	1.61	1.53	1.46	1.39	1.36	1.31	1.26	1.22	1.20	1.14	
85	C=0.6	1.42	1.34	1.30	1.27	1.23	1.21	1.19	1.16	1.14	1.12	1.09	
	C=0.8	1.63	1.49	1.42	1.38	1.32	1.29	1.26	1.22	1.19	1.16	1.12	
	C=1	1.90	1.67	1.57	1.50	1.42	1.39	1.34	1.28	1.24	1.21	1.15	
90	C=0.6	1.46	1.36	1.32	1.28	1.25	1.22	1.20	1.17	1.15	1.13	1.09	
	C=0.8	1.69	1.53	1.46	1.40	1.34	1.31	1.28	1.23	1.20	1.18	1.13	
	C=1	2.00	1.73	1.62	1.54	1.46	1.41	1.36	1.30	1.26	1.22	1.16	
95	C=0.6	1.49	1.39	1.34	1.30	1.26	1.24	1.21	1.18	1.15	1.14	1.10	
	C=0.8	1.75	1.57	1.49	1.43	1.37	1.34	1.30	1.25	1.21	1.19	1.14	
	C=1	2.11	1.80	1.68	1.59	1.49	1.44	1.39	1.32	1.27	1.24	1.17	
100	C=0.6	1.53	1.41	1.36	1.32	1.28	1.25	1.22	1.19	1.16	1.14	1.11	
	C=0.8	1.81	1.61	1.53	1.46	1.39	1.36	1.31	1.26	1.22	1.20	1.14	
	C=1	2.24	1.87	1.73	1.63	1.53	1.48	1.41	1.34	1.29	1.25	1.18	
105	C=0.6	1.56	1.44	1.39	1.34	1.29	1.27	1.24	1.20	1.17	1.15	1.11	
	C=0.8	1.88	1.66	1.56	1.50	1.42	1.38	1.33	1.28	1.24	1.21	1.15	
	C=1	2.38	1.95	1.79	1.68	1.56	1.51	1.44	1.36	1.31	1.27	1.19	
110	C=0.6	1.60	1.47	1.41	1.36	1.31	1.28	1.25	1.21	1.18	1.16	1.12	
	C=0.8	1.96	1.71	1.60	1.53	1.44	1.41	1.35	1.29	1.25	1.22	1.16	
	C=1	2.55	2.04	1.86	1.73	1.60	1.54	1.47	1.38	1.33	1.28	1.20	
115	C=0.6	1.64	1.50	1.43	1.36	1.33	1.30	1.26	1.22	1.19	1.17	1.12	
	C=0.8	2.04	1.76	1.64	1.56	1.47	1.43	1.37	1.31	1.26	1.23	1.17	
	C=1	2.75	2.13	1.93	1.79	1.64	1.58	1.50	1.41	1.34	1.30	1.21	
120	C=0.6	1.69	1.53	1.46	1.40	1.34	1.31	1.28	1.23	1.20	1.18	1.13	
	C=0.8	2.13	1.81	1.69	1.60	1.50	1.45	1.39	1.33	1.28	1.24	1.18	
	C=1	3.00	2.24	2.00	1.84	1.69	1.61	1.53	1.43	1.36	1.31	1.22	
125	C=0.6	1.73	1.56	1.48	1.43	1.36	1.33	1.29	1.24	1.21	1.18	1.13	
	C=0.8	2.24	1.87	1.73	1.63	1.53	1.48	1.41	1.34	1.29	1.25	1.18	
	C=1	3.32	2.35	2.08	1.91	1.73	1.65	1.56	1.45	1.38	1.33	1.24	
130	C=0.6	1.78	1.59	1.51	1.45	1.38	1.35	1.30	1.25	1.22	1.19	1.14	
	C=0.8	2.35	1.93	1.78	1.67	1.56	1.50	1.44	1.36	1.30	1.27	1.19	
	C=1	3.74	2.49	2.17	1.97	1.78	1.69	1.59	1.48	1.40	1.35	1.25	
135	C=0.6	1.83	1.62	1.54	1.47	1.40	1.36	1.32	1.27	1.23	1.20	1.15	
	C=0.8	2.48	2.00	1.83	1.71	1.59	1.53	1.46	1.38	1.32	1.28	1.20	
	C=1	4.36	2.65	2.27	2.04	1.83	1.73	1.62	1.50	1.42	1.36	1.26	
140	C=0.6	1.88	1.66	1.56	1.50	1.42	1.38	1.33	1.28	1.24	1.21	1.15	
	C=0.8	2.63	2.07	1.88	1.75	1.62	1.55	1.48	1.39	1.33	1.29	1.21	
	C=1	5.39	2.83	2.38	2.12	1.88	1.78	1.66	1.53	1.44	1.38	1.27	
145	C=0.6	1.94	1.69	1.59	1.52	1.44	1.40	1.35	1.29	1.25	1.22	1.16	
	C=0.8	2.80	2.15	1.94	1.80	1.65	1.58	1.50	1.41	1.35	1.30	1.22	
	C=1	7.68	3.05	2.50	2.21	1.94	1.82	1.69	1.55	1.46	1.40	1.28	
150	C=0.6	2.00	1.73	1.62	1.54	1.46	1.41	1.36	1.30	1.26	1.23	1.16	
	C=0.8	3.00	2.24	2.00	1.84	1.69	1.61	1.53	1.43	1.36	1.31	1.23	
	C=1	—	3.32	2.65	2.30	2.00	1.87	1.73	1.58	1.48	1.41	1.29	
155	C=0.6	2.06	1.77	1.65	1.57	1.48	1.43	1.38	1.31	1.27	1.24	1.17	
	C=0.8	3.25	2.33	2.06	1.89	1.72	1.65	1.55	1.45	1.38	1.33	1.23	
	C=1	—	3.66	2.80	2.40	2.06	1.92	1.77	1.61	1.51	1.43	1.30	
160	C=0.6	2.13	1.81	1.69	1.60	1.50	1.45	1.39	1.33	1.28	1.24	1.18	
	C=0.8	3.55	2.43	2.13	1.94	1.76	1.67	1.58	1.47	1.39	1.34	1.24	
	C=1	—	4.12	3.00	2.52	2.13	1.98	1.81	1.64	1.53	1.45	1.31	
165	C=0.6	2.21	1.86	1.72	1.62	1.52	1.47	1.41	1.34	1.29	1.25	1.18	
	C=0.8	3.96	2.55	2.21	2.00	1.80	1.71	1.60	1.49	1.41	1.35	1.25	
	C=1	—	4.80	3.23	2.65	2.21	2.04	1.86	1.67	1.55	1.47	1.33	

Fenlock Cone Clamping Element Dimensions

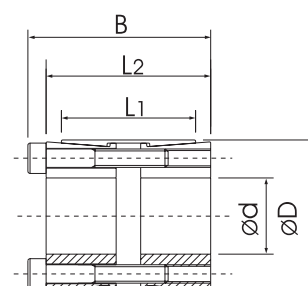
FENLOCK CLAMPING ELEMENTS TYPE FLK 200 NON SELF-CENTERING

Product Code	d x D	L1	L2	B	Torque Mt	Axial Thrust F ass.	Hub Stress Pn	Tightening screws	
								Grade 12.9	Tightening Torque Ms
	mm	mm	mm	mm	Nm	kN	N/mm ²	No. x type	Nm
630A0020	20 x 47	17	20	27.5	280	29	95	8 x M6	15
630A0022	22 x 47	17	20	27.5	310	29	95	8 x M6	15
630A0024	24 x 50	17	20	27.5	370	32	100	8 x M6	15
630A0025	25 x 50	17	20	27.5	400	32	100	8 x M6	15
630A0028	28 x 55	17	20	27.5	500	36	100	10 x M6	15
630A0030	30 x 55	17	20	27.5	530	36	100	10 x M6	15
630A0032	32 x 60	17	20	27.5	680	42	110	12 x M6	15
630A0035	35 x 60	17	20	27.5	750	43	110	12 x M6	15
630A0038	38 x 65	17	20	27.5	930	49	115	14 x M6	15
630A0040	40 x 65	17	20	27.5	980	49	115	14 x M6	15
630A0042	42 x 75	20	24	33.5	1580	75	130	12 x M8	37
630A0045	45 x 75	20	24	33.5	1700	76	130	12 x M8	37
630A0048	48 x 80	20	24	33.5	1790	74	120	12 x M8	37
630A0050	50 x 80	20	24	33.5	1870	75	120	12 x M8	37
630A0055	55 x 85	20	24	33.5	2390	88	135	14 x M8	37
630A0060	60 x 90	20	24	33.5	2610	88	125	14 x M8	37
630A0065	65 x 95	20	24	33.5	3210	98	135	16 x M8	37
630A0070	70 x 110	24	28	39.5	4600	132	130	14 x M10	70
630A0075	75 x 115	24	28	39.5	4900	131	125	14 x M10	70
630A0080	80 x 120	24	28	39.5	5200	131	120	14 x M10	70
630A0085	85 x 125	24	28	39.5	6300	148	130	15 x M10	70
630A0090	90 x 130	24	28	39.5	6600	147	125	16 x M10	70
630A0095	95 x 135	24	28	39.5	7900	167	135	18 x M10	70
630A0100	100 x 145	26	33	47.0	9750	195	135	14 x M12	127
630A0110	110 x 155	26	33	47.0	10650	194	125	14 x M12	127
630A0120	120 x 165	26	33	47.0	13300	221	135	16 x M12	127
630A0130	130 x 180	34	38	52.0	17850	276	115	20 x M12	127
630A0140	140 x 190	34	38	52.0	21200	302	125	22 x M12	127
630A0150	150 x 200	34	38	52.0	24500	329	125	24 x M12	127
630A0160	160 x 210	34	38	52.0	28400	355	130	26 x M12	127
630A0170	170 x 225	38	44	60.0	33600	396	120	22 x M14	195
630A0180	180 x 235	38	44	60.0	38700	431	130	24 x M14	195
630A0190	190 x 250	46	52	68.0	44700	502	120	28 x M14	195
630A0200	200 x 260	46	52	68.0	53500	538	120	30 x M14	195
630A0220	220 x 285	50	56	74.0	68500	630	120	26 x M16	300
630A0240	240 x 305	50	56	74.0	86000	717	130	30 x M16	300
630A0260	260 x 325	50	56	74.0	105000	810	135	34 x M16	300
630A0280	280 x 355	60	66	86.5	128500	920	120	32 x M18	410
630A0300	300 x 375	60	66	86.5	153600	1025	125	36 x M18	410
630A0320	320 x 405	72	78	100.5	210500	1325	125	36 x M20	590
630A0340	340 x 425	72	78	100.5	225000	1325	120	36 x M20	590
630A0360	360 x 455	84	90	116.0	294700	1635	120	36 x M22	790
630A0380	380 x 475	84	90	116.0	309100	1625	120	36 x M22	790
630A0400	400 x 495	84	90	116.0	321900	1617	110	36 x M22	790
630A0420	420 x 515	84	90	116.0	374000	1780	110	40 x M22	790
630A0440	440 x 545	96	102	130.0	455000	2060	105	40 x M24	1000
630A0460	460 x 565	96	102	130.0	470000	2040	100	40 x M24	1000
630A0480	480 x 585	96	102	130.0	515000	2160	100	42 x M24	1000
630A0500	500 x 605	96	102	130.0	560000	2240	100	44 x M24	1000
630A0520	520 x 630	96	102	130.0	600000	2320	100	45 x M24	1000
630A0540	540 x 650	96	102	130.0	630000	2340	100	45 x M24	1000
630A0560	560 x 670	96	102	130.0	680000	2440	100	48 x M24	1000
630A0580	580 x 690	96	102	130.0	735000	2540	100	50 x M24	1000
630A0600	600 x 710	96	102	130.0	775000	2580	100	50 x M24	1000
630A0620	620 x 730	96	102	130.0	825000	2660	100	52 x M24	1000
630A0640	640 x 750	96	102	130.0	865000	2700	100	54 x M24	1000
630A0660	660 x 770	96	102	130.0	925000	2800	100	56 x M24	1000
630A0680	680 x 790	96	102	130.0	965000	2840	100	56 x M24	1000
630A0700	700 x 810	96	102	130.0	1030000	2960	100	60 x M24	1000
630A0720	720 x 830	96	102	130.0	1070000	2980	100	60 x M24	1000
630A0740	740 x 850	96	102	130.0	1140000	3080	100	62 x M24	1000
630A0760	760 x 870	96	102	130.0	1210000	3180	100	64 x M24	1000
630A0780	780 x 890	96	102	130.0	1250000	3220	100	65 x M24	1000
630A0800	800 x 910	96	102	130.0	1300000	3260	100	66 x M24	1000
630A0820	820 x 930	96	102	130.0	1370000	3340	100	68 x M24	1000
630A0840	840 x 950	96	102	130.0	1450000	3460	100	70 x M24	1000
630A0860	860 x 970	96	102	130.0	1520000	3540	100	72 x M24	1000
630A0880	880 x 990	96	102	130.0	1590000	3620	100	74 x M24	1000
630A0900	900 x 1010	96	102	130.0	1650000	3680	100	75 x M24	1000



FENLOCK CLAMPING ELEMENTS TYPE FLK 450 SELF-CENTERING

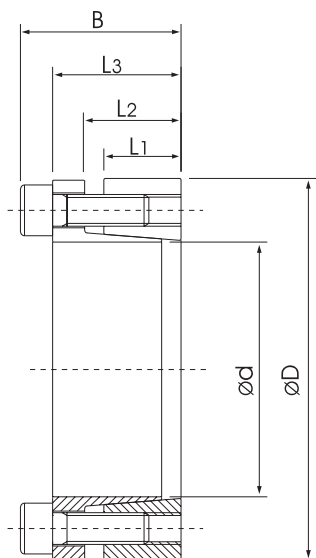
Product Code	d x D	L1	L2	B	Torque Mt	Axial Thrust F ass.	Hub Stress pn	Tightening screws	
								Grade 12.9	Tightening Torque Ms
	mm	mm	mm	mm	Nm	kN	N/mm ²	No. x type	Nm
630X0045	45 x 75	56	64	72.0	3150	141	105	8 x M8	41
630X0048	48 x 80	56	64	72.0	4000	166	98	8 x M8	41
630X0050	50 x 80	56	64	72.0	4150	166	98	8 x M8	41
630X0055	55 x 85	56	64	72.0	4550	166	93	8 x M8	41
630X0060	60 x 90	56	61	72.0	6200	207	109	10 x M8	41
630X0065	65 x 95	56	64	72.0	6750	207	104	10 x M8	41
630X0070	70 x 110	70	78	88.0	11550	330	114	10 x M10	83
630X0075	75 x 115	70	78	88.0	12350	330	109	10 x M10	83
630X0080	80 x 120	70	78	88.0	15800	396	125	12 x M10	83
630X0085	85 x 125	70	78	88.0	16800	396	120	12 x M10	83
630X0090	90 x 130	70	78	88.0	17800	396	115	12 x M10	83
630X0095	95 x 135	70	78	88.0	18800	396	111	12 x M10	83
630X0100	100 x 145	90	100	112.0	28800	576	117	12 x M12	145
630X0110	110 x 155	90	100	112.0	31700	576	110	12 x M12	145
630X0120	120 x 165	90	100	112.0	40300	673	120	14 x M12	145
630X0130	130 x 180	104	116	130.0	51400	791	112	12 x M14	230
630X0140	140 x 190	104	116	130.0	64600	923	124	14 x M14	230
630X0150	150 x 200	104	116	130.0	79100	1055	135	16 x M14	230
630X0160	160 x 210	104	116	130.0	84400	1055	128	16 x M14	230
630X0170	170 x 225	134	146	162.0	109000	1283	113	14 x M16	355
630X0180	180 x 235	134	146	162.0	132000	1466	124	16 x M16	355
630X0190	190 x 250	134	146	162.0	139000	1466	116	16 x M16	355
630X0200	200 x 260	134	146	162.0	146500	1466	112	16 x M16	355



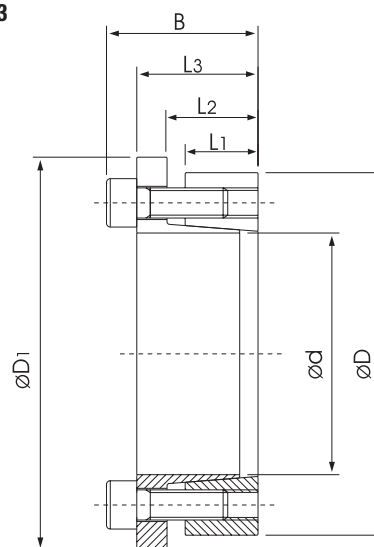
Fenlock Cone Clamping Element Dimensions

FENLOCK CLAMPING ELEMENTS TYPE FLK 132 + FLK 133 SELF-CENTERING

FLK 132



FLK 133



Product Code	d x D	L1	L2	L3	B	FLK 133 Only D1	Tightening Screws			FLK 132			FLK 133		
							Grade 12.9	Tightening Torque Ms NM		Torque Mt	Hub Thrust F ass.	Hub Stress Pn	Torque Mt	Axial Thrust F ass.	Hub Stress Pn
								No. x type	FLK 132	FLK 133					
	mm	mm	mm	mm	mm	mm				Nm	kN	N/mm ²	Nm	kN	N/mm ²
630 R/G 0020	20 x 47	17	22	28	34	54	5 x M6	14	17	380	38	125	280	28	95
630 R/G 0022	22 x 47	17	22	28	34	54	5 x M6	14	17	410	38	125	300	28	95
630 R/G 0024	24 x 50	17	22	28	34	57	5 x M6	14	17	450	38	120	330	28	90
630 R/G 0025	25 x 50	17	22	28	34	57	6 x M6	14	17	570	46	140	420	34	105
630 R/G 0028	28 x 55	17	22	28	34	62	6 x M6	14	17	630	46	130	470	34	95
630 R/G 0030	30 x 55	17	22	28	34	62	6 x M6	14	17	660	46	130	500	34	95
630 R/G 0032	32 x 60	17	22	28	34	67	8 x M6	14	17	970	60	155	720	45	115
630 R/G 0035	35 x 60	17	22	28	34	67	8 x M6	14	17	1060	60	155	790	45	115
630 R/G 0038	38 x 65	17	22	28	34	72	8 x M6	14	17	1150	60	145	850	45	105
630 R/G 0040	40 x 65	17	22	28	34	72	8 x M6	14	17	1210	60	145	900	45	105
630 R/G 0042	42 x 75	20	25	33	41	82	7 x M8	35	41	2050	98	170	1530	73	125
630 R/G 0045	45 x 75	20	25	33	41	82	7 x M8	35	41	2200	98	170	1650	73	125
630 R/G 0048	48 x 80	20	25	33	41	87	7 x M8	35	41	2350	98	160	1760	73	120
630 R/G 0050	50 x 80	20	25	33	41	87	7 x M8	35	41	2450	98	160	1830	73	120
630 R/G 0055	55 x 85	20	25	33	41	92	8 x M8	35	41	3080	112	175	2300	83	130
630 R/G 0060	60 x 90	20	25	33	41	97	8 x M8	35	41	3360	112	165	2510	83	125
630 R/G 0065	65 x 95	20	25	33	41	102	9 x M8	35	41	4090	126	175	3060	94	130
630 R/G 0070	70 x 110	24	30	40	50	117	8 x M10	70	83	6300	179	180	4670	133	135
630 R/G 0075	75 x 115	24	30	40	50	122	8 x M10	70	83	6700	179	170	5000	133	125
630 R/G 0080	80 x 120	24	30	40	50	127	8 x M10	70	83	7150	179	170	5300	133	125
630 R/G 0085	85 x 125	24	30	40	50	132	9 x M10	70	83	8500	200	180	6300	148	135
630 R/G 0090	90 x 130	24	30	40	50	137	9 x M10	70	83	9100	200	170	6750	148	130
630 R/G 0095	95 x 135	24	30	40	50	142	10 x M10	70	83	10600	224	180	7900	166	135
630 R/G 0100	100 x 145	26	32	44	56	152	8 x M12	125	145	13400	268	190	9700	194	140
630 R/G 0110	110 x 155	26	32	44	56	162	8 x M12	125	145	14600	268	180	10600	194	130
630 R/G 0120	120 x 165	26	32	44	56	172	9 x M12	125	145	17900	298	180	13000	216	135
630 R/G 0130	130 x 180	34	40	54	66	187	12 x M12	125	145	26000	400	170	18900	290	125
630 R/G 0140	140 x 190	34	40	54	68	197	9 x M14	190	230	27000	384	150	20500	290	120
630 R/G 0150	150 x 200	34	40	54	68	207	10 x M14	190	230	33000	440	170	25000	333	130
630 R/G 0160	160 x 210	34	40	54	68	217	11 x M14	190	230	38000	479	170	29000	362	135
630 R/G 0170	170 x 225	44	50	64	78	232	12 x M14	190	230	45000	530	130	34000	400	105
630 R/G 0180	180 x 235	44	50	64	78	242	12 x M14	190	230	47000	530	130	36000	400	105
630 R/G 0190	190 x 250	44	50	64	78	257	15 x M14	190	230	62900	660	150	47500	500	120
630 R/G 0200	200 x 260	44	50	64	78	267	15 x M14	190	230	66000	660	150	50000	500	115

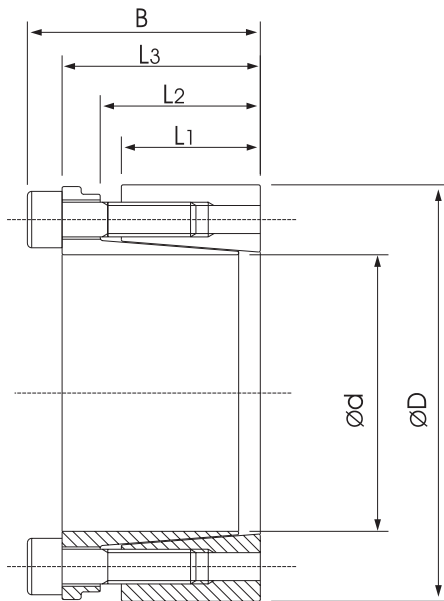
R = FLK 132 G = FLK 133

NOTE: It is possible to reduce the screw tightening torque down to 60% of the values indicated in above table; as a result Mt & F ass. are reduced proportionally.

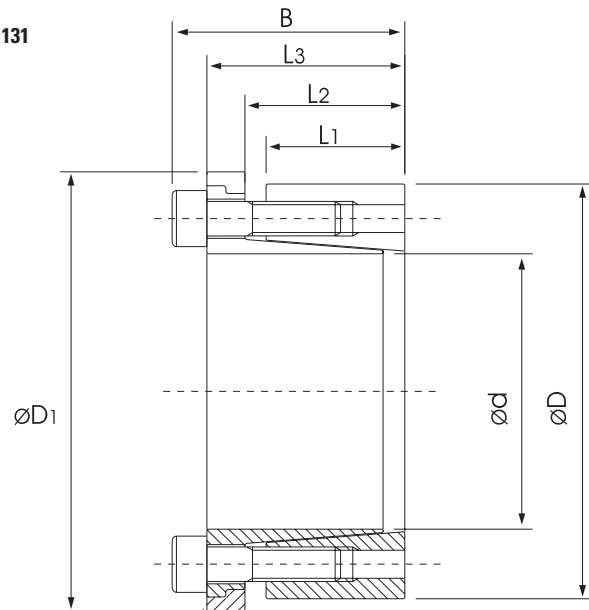
Fenlock Cone Clamping Element Dimensions

FENLOCK CLAMPING ELEMENTS TYPE FLK 130 + FLK 131 SELF CENTERING

FLK 130



FLK 131



Product Code	d x D	L1	L2	L3	B	FLK 131 Only D1	Tightening Screws		FLK 130			FLK 131		
							Grade 12.9	Tightening torque Ms	Torque Mt	Axial Thrust F ass.	Hub Stress Pn	Torque Mt	Axial Thrust F ass.	Hub Stress Pn
							No. x type	Nm	Nm	kN	N/mm ²	Nm	kN	N/mm ²
630 C/D 0020	20 x 47	26	30	41	47	53	6 x M6	17	540	54	120	330	34	75
630 C/D 0022	22 x 47	26	30	41	47	53	6 x M6	17	600	54	120	370	34	75
630 C/D 0024	24 x 50	26	30	41	47	56	6 x M6	17	650	54	115	400	34	70
630 C/D 0025	25 x 50	26	30	41	47	56	6 x M6	17	680	54	115	420	34	70
630 C/D 0028	28 x 55	26	30	41	47	61	6 x M6	17	760	54	105	470	34	65
630 C/D 0030	30 x 55	26	30	41	47	61	6 x M6	17	820	54	105	510	34	65
630 C/D 0032	32 x 60	26	30	41	47	66	9 x M6	17	1160	73	125	720	45	80
630 C/D 0035	35 x 60	26	30	41	47	66	9 x M6	17	1270	73	125	790	45	80
630 C/D 0038	38 x 65	26	30	41	47	71	9 x M6	17	1380	73	115	860	45	70
630 C/D 0040	40 x 65	26	30	41	47	71	9 x M6	17	1450	73	115	900	45	70
630 C/D 0042	42 x 75	30	35	49	57	81	6 x M8	41	2130	101	120	1320	63	75
630 C/D 0045	45 x 75	30	35	49	57	81	6 x M8	41	2280	101	120	1410	63	75
630 C/D 0048	48 x 80	30	35	49	57	86	6 x M8	41	2430	101	115	1510	63	70
630 C/D 0050	50 x 80	30	35	49	57	86	6 x M8	41	2530	101	115	1570	63	70
630 C/D 0055	55 x 85	30	35	49	57	91	9 x M8	41	3700	135	140	2310	84	90
630 C/D 0060	60 x 90	30	35	49	57	96	9 x M8	41	4000	135	135	2520	84	85
630 C/D 0065	65 x 95	30	35	49	57	102	9 x M8	41	4380	135	125	2730	84	80
630 C/D 0070	70 x 110	40	45	59	69	117	7 x M10	83	7500	214	130	4650	133	80
630 C/D 0075	75 x 115	40	45	59	69	122	7 x M10	83	8000	214	125	5000	133	80
630 C/D 0080	80 x 120	40	45	59	69	127	7 x M10	83	8560	214	120	5330	133	75
630 C/D 0085	85 x 125	40	45	59	69	132	8 x M10	83	11370	268	145	7080	167	90
630 C/D 0090	90 x 130	40	45	59	69	137	8 x M10	83	12000	268	135	7500	167	85
630 C/D 0095	95 x 135	40	45	59	69	142	10 x M10	83	12600	268	130	7900	167	85
630 C/D 0100	100 x 145	46	52	68	80	153	7 x M12	145	15580	312	125	9700	194	80
630 C/D 0110	110 x 155	46	52	68	80	163	7 x M12	145	17100	312	115	10650	194	75
630 C/D 0120	120 x 165	46	52	68	80	173	8 x M12	145	23370	390	135	14550	243	85
630 C/D 0130	130 x 180	46	52	68	80	188	10 x M12	145	30380	467	150	18950	291	95
630 C/D 0140	140 x 190	50	57	76	90	199	11 x M14	230	29900	428	120	18650	267	75
630 C/D 0150	150 x 200	50	57	76	90	209	12 x M14	230	40000	535	145	25000	333	90
630 C/D 0160	160 x 210	50	57	76	90	219	13 x M14	230	42750	535	135	26650	333	85
630 C/D 0170	170 x 225	50	57	76	90	234	14 x M14	230	54500	641	150	34000	400	95
630 C/D 0180	180 x 235	50	57	76	90	244	14 x M14	230	57700	641	145	36000	400	90

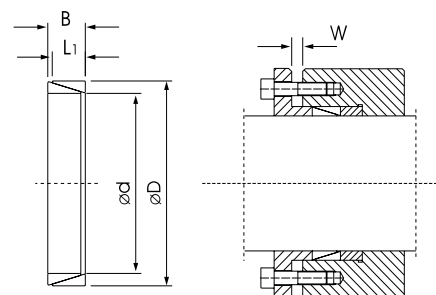
C = FLK 130 D = FLK 131

NOTE: It is possible to reduce the screw tightening torque down to 60% of the values indicated in above table; as a result Mt & F ass. are reduced pr

Fenlock Cone Clamping Element Dimensions

FENLOCK CLAMPING ELEMENTS TYPE FLK 300 NON SELF-CENTERING

Product Code	Dimensions			Preload Force P _t	Total force Pa	Torque Mt	Axial thrust F ass	Distance W before tightening *				Hub Stress P _n
	d x D	B	L1					1	2	3	4	
	mm	mm	mm					mm	mm	mm	mm	
630T0006	6 x 9	4.5	3.7	—	3800	2	0.84	2.5	2.5	3.0	4.0	75
630T0007	7 x 10	4.5	3.7	—	3900	3	0.86	2.5	2.5	3.0	4.0	70
630T0008	8 x 11	4.5	3.7	—	5300	5	1.17	2.5	2.5	3.0	4.0	90
630T0009	9 x 12	4.5	3.7	7650	15600	8	1.76	2.5	2.5	3.0	4.0	105
630T0010	10 x 13	4.5	3.7	7000	15600	10	1.91	2.5	2.5	3.0	4.0	105
630T0012	12 x 15	4.5	3.7	7000	15600	11	1.91	2.5	2.5	3.0	4.0	90
630T0013	13 x 16	4.5	3.7	6500	15600	13	2.02	2.5	2.5	3.0	4.0	90
630T0014	14 x 18	6.3	5.3	11000	25400	22	3.18	3.5	3.5	4.5	5.5	90
630T0015	15 x 19	6.3	5.3	10800	25400	24	3.24	3.5	3.5	4.5	5.5	85
630T0016	16 x 20	6.3	5.3	10000	25400	27	3.42	3.5	3.5	4.5	5.5	85
630T0017	17 x 21	6.3	5.3	9600	25400	30	3.51	3.5	3.5	4.5	5.5	85
630T0018	18 x 22	6.3	5.3	9150	25400	32	3.61	3.5	3.5	4.5	5.5	80
630T0019	19 x 24	6.3	5.3	12500	36000	49	5.22	3.5	3.5	4.5	5.5	110
630T0020	20 x 25	6.3	5.3	12000	36000	53	5.33	3.5	3.5	4.5	5.5	105
630T0022	22 x 26	6.3	5.3	9000	36000	66	6.00	3.5	3.5	4.5	5.5	115
630T0024	24 x 28	6.3	5.3	8400	36000	73	6.13	3.5	3.5	4.5	5.5	110
630T0025	25 x 30	6.3	5.3	10000	36000	72	5.77	3.5	3.5	4.5	5.5	95
630T0028	28 x 32	6.3	5.3	7500	36000	88	6.33	3.5	3.5	4.5	5.5	100
630T0030	30 x 35	6.3	5.3	8600	36000	91	6.08	3.5	3.5	4.5	5.5	85
630T0032	32 x 36	6.3	5.3	7900	45000	131	8.24	3.5	3.5	4.5	5.5	115
630T0035	35 x 40	7.0	6.0	10000	54000	171	9.77	3.5	3.5	4.5	5.5	110
630T0036	36 x 42	7.0	6.0	11700	54000	169	9.39	3.5	3.5	4.5	5.5	100
630T0038	38 x 44	7.0	6.0	11000	54000	181	9.55	3.5	3.5	4.5	5.5	95
630T0040	40 x 45	8.0	6.6	13900	66000	231	11.57	3.5	4.5	5.5	6.5	105
630T0042	42 x 48	8.0	6.6	15550	66000	235	11.22	3.5	4.5	5.5	6.5	95
630T0045	45 x 52	10.0	8.6	28300	99000	353	15.71	3.5	4.5	5.5	6.5	95
630T0048	48x 55	10.0	8.6	24700	132000	572	23.84	3.5	4.5	5.5	6.5	135
630T0050	50 x 57	10.0	8.6	23600	132000	602	24.08	3.5	4.5	5.5	6.5	130
630T0055	55 x 62	10.0	8.6	21700	132000	670	24.35	3.5	4.5	5.5	6.5	125
630T0060	60 x 68	12.0	10.4	27500	157200	860	28.60	3.5	4.5	5.5	7.0	110
630T0063	63 x 71	12.0	10.4	26500	157200	910	28.80	3.5	4.5	5.5	7.0	105
630T0065	65 x 73	12.0	10.4	25500	157200	950	29.20	3.5	4.5	5.5	7.0	100
630T0070	70 x 79	14.0	12.2	31000	209600	1380	39.40	3.5	5.0	6.5	7.5	110
630T0071	71 x 80	14.0	12.2	31000	209600	1400	39.40	3.5	5.0	6.5	7.5	110
630T0075	75 x 84	14.0	12.2	34700	209600	1450	38.60	3.5	5.0	6.5	7.5	100
630T0080	80 x 91	17.0	15.0	48000	290000	2200	55.00	4.0	6.0	6.5	8.0	105
630T0085	85 x 96	17.0	15.0	45500	305000	2400	56.40	4.0	6.0	6.5	8.0	105
630T0090	90 x 101	17.0	15.0	43600	320000	2730	60.50	4.0	6.0	6.5	8.0	105
630T0095	95 x 106	17.0	15.0	41300	330000	3050	64.20	4.0	6.0	6.5	8.0	110
630T0100	100 x 114	21.0	18.7	61000	445000	4200	84.00	5.0	6.0	7.0	9.0	105
630T0110	110 x 124	21.0	18.7	66000	485000	5150	93.60	5.0	6.0	7.0	9.0	105
630T0120	120 x 134	21.0	18.7	60300	510000	6050	100.80	5.0	6.0	7.0	9.0	105
630T0130	130 x 148	28.0	25.3	96300	765000	9600	147.60	5.0	7.0	9.0	11.0	105
630T0140	140 x 158	28.0	25.3	89000	800500	11000	158.50	6.0	7.0	9.0	11.0	105
630T0160	160 x 178	28.0	25.3	78600	900000	14600	182.50	6.0	7.0	9.0	11.0	110
630T0170	170 x 191	33.0	30.0	117400	1160000	19500	229.00	7.0	9.0	10.0	12.0	105
630T0180	180 x 201	33.0	30.0	111300	1200000	21300	236.00	7.0	9.0	10.0	12.0	105
630T0190	190 x 211	33.0	30.0	105000	1260000	24200	255.00	7.0	9.0	10.0	12.0	110
630T0200	200 x 224	38.0	34.8	134200	1550000	31000	310.00	7.0	8.0	11.0	13.0	105
630T0210	210 x 234	38.0	34.8	127200	1610000	35000	333.00	7.0	9.0	11.0	13.0	110
630T0220	220 x 244	38.0	34.8	122100	1690000	38000	345.00	7.0	9.0	11.0	13.0	110
630T0230	230 x 257	43.0	39.5	164500	2000000	47000	408.00	7.0	10.0	12.0	14.0	105
630T0240	240 x 267	43.0	39.5	157400	2250000	51000	425.00	7.0	10.0	12.0	14.0	110
630T0250	250 x 280	48.0	44.0	190000	2060000	52000	415.00	7.0	10.0	13.0	16.0	89
630T0260	260 x 290	48.0	44.0	182000	2132000	56500	435.00	7.0	10.0	13.0	16.0	89
630T0270	270 x 300	48.0	44.0	177000	2207000	61000	450.00	7.0	10.0	13.0	16.0	89
630T0280	280 x 313	53.0	49.0	206000	2536000	72500	520.00	7.0	11.0	14.0	17.0	89
630T0290	290 x 323	53.0	49.0	222000	2632000	77500	535.00	7.0	11.0	14.0	17.0	89
630T0300	300 x 333	53.0	49.0	214000	2704000	83000	555.00	7.0	11.0	14.0	17.0	89
630T0320	320 x 360	65.0	59.0	292000	3492000	114000	710.00	10.0	15.0	20.0	25.0	89
630T0340	340 x 380	65.0	59.0	272000	3672000	128500	755.00	10.0	15.0	20.0	25.0	89
630T0360	360 x 400	65.0	59.0	258000	3858000	144000	800.00	10.0	15.0	20.0	25.0	90
630T0380	380 x 420	65.0	59.0	269000	4069000	160500	845.00	10.0	15.0	20.0	25.0	90
630T0400	400 x 440	65.0	59.0	256000	4256000	178000	890.00	10.0	15.0	20.0	25.0	90
630T0420	420 x 460	65.0	59.0	244000	4444000	196000	935.00	10.0	15.0	20.0	25.0	90
630T0440	440 x 480	65.0	59.0	234000	4633000	215000	980.00	10.0	15.0	20.0	25.0	90
630T0460	460 x 500	65.0	59.0	224000	4824000	235000	1020.00	10.0	15.0	20.0	25.0	91
630T0480	480 x 520	65.0	59.0	239000	5039000	256000	1070.00	10.0	15.0	20.0	25.0	91
630T0500	500 x 540	65.0	59.0	229000	5229000	278000	1110.00	10.0	15.0	20.0	25.0	91
630T0520	520 x 570	80.0	73.0	338000	6788000	372000	1430.00	12.0	18.0	24.0	30.0	91
630T0540	540 x 590	80.0	73.0	326000	7026000	400000	1480.00	12.0	18.0	24.0	30.0	91



For appropriate thrust collar dimensions – consult your local Authorised Distributor.

* Several FLK 300 clamping elements can be used in series to achieve higher torques.

W is the minimum clearance distance for tightening 1, 2, 3, & 4 elements.

For multiple elements, Mt is multiplied by:

2 elements Mt x 1.55

3 elements Mt x 1.85

4 elements Mt x 2.02

FENLOCK CLAMPING ELEMENTS TYPE FLK 250 L SELF-CENTERING

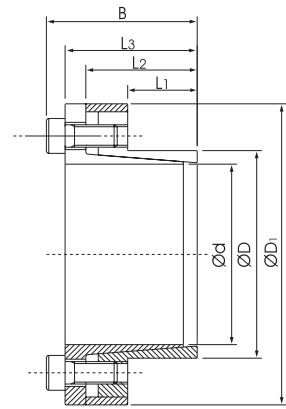
Product Code	d x D	B	L1	D1	Torque Mt	Axial Thrust F ass.	Tightening nut		Hub Stress Pn
							Type	Tightening torque Ms	
	mm	mm	mm	mm	Nm	kN			Nm
630 F 0014	14 x 25	30	20	32	64	9	KM4	95	45
630 F 0015	15 x 25	30	20	32	70	9	KM4	95	45
630 F 0016	16 x 25	30	20	32	73	9	KM4	95	45
630 F 0017	17 x 25	32	20	32	80	9	KM4*	95	45
630 F 0018	18 x 30	32	20	38	100	10	KM5	160	45
630 F 0019	19 x 30	32	20	38	105	11	KM5	160	45
630 F 0020	20 x 30	32	20	38	112	11	KM5	160	45
630 F 0022	22 x 35	36	25	45	163	14	KM6	220	45
630 F 0024	24 x 35	36	25	45	178	14	KM6	220	45
630 F 0025	25 x 35	36	25	45	185	14	KM6	220	45
630 F 0028	28 x 40	42	30	52	250	17	KM7	340	40
630 F 0030	30 x 40	42	30	52	270	17	KM7	340	40
630 F 0032	32 x 45	44	30	58	350	21	KM8	480	45
630 F 0035	35 x 45	44	30	58	390	21	KM8	480	45
630 F 0038	38 x 50	45	30	65	500	26	KM9	680	45
630 F 0040	40 x 50	45	30	65	520	26	KM9	680	45
630 F 0042	42 x 55	46	30	70	630	30	KM10	870	50
630 F 0045	45 x 55	46	30	70	680	30	KM10	870	50
630 F 0048	48 x 60	46	30	75	840	35	KM11	970	50
630 F 0050	50 x 60	46	30	75	880	35	KM11	970	50
630 F 0055	55 x 65	46	30	80	1030	37	KM12	1100	50
630 F 0060	60 x 70	52	30	85	1360	45	KM13	1300	55

Fenlock Cone Clamping Element Dimensions

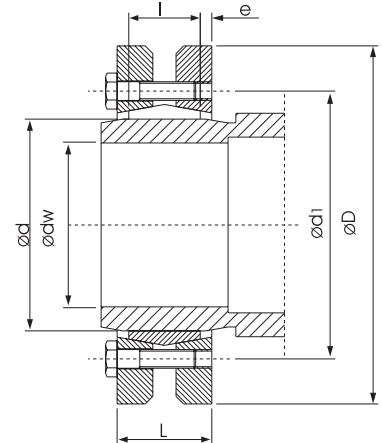
FENLOCK CLAMPING ELEMENTS TYPE FLK 110 SELF-CENTERING

Product Code	d x D	L1	L2	L3	B	D1	Torque Mt	Axial Thrust F ass.	Tightening Screws		Hub Stress Pn
									Grade 12.9	Tightening Torque Ms	
									No. x type	Nm	N/mm²
630B0006	6 x 14	10	18.5	21	24	25	12	4	3 x M3	2	80
630B0007	7 x 15	12	22.0	25	29	27	25	7	3 x M4	5	110
630B0008	8 x 15	12	22.0	25	29	27	29	7	3 x M4	5	110
630B0009	9 x 16	14	23.0	26	30	28	44	10	4 x M4	5	115
630B0010	10 x 16	14	23.0	26	30	28	49	10	4 x M4	5	115
630B0011	11 x 18	14	23.0	26	30	32	53	10	4 x M4	5	105
630B0012	12 x 18	14	23.0	26	30	32	58	10	4 x M4	5	105
630B0013	13 x 23	14	23.0	26	30	38	63	10	4 x M4	5	80
630B0014	14 x 23	14	23.0	26	30	38	68	10	4 x M4	5	80
630B0015	15 x 24	16	29.0	36	42	45	127	17	3 x M6	17	115
630B0016	16 x 24	16	29.0	36	42	45	136	17	3 x M6	17	115
630B0017	17 x 26	18	31.0	38	44	47	180	22	4 x M6	17	125
630B0018	18 x 26	18	31.0	38	44	47	200	22	4 x M6	17	125
630B0019	19 x 27	18	31.0	38	44	49	210	22	4 x M6	17	120
630B0020	20 x 28	18	31.0	38	44	50	220	22	4 x M6	17	115
630B0022	22 x 32	25	38.0	45	51	54	250	22	4 x M6	17	80
630B0024	24 x 34	25	38.0	45	51	56	270	22	4 x M6	17	75
630B0025	25 x 34	25	38.0	45	51	56	280	22	4 x M6	17	75
630B0028	28 x 39	25	38.0	45	51	61	465	33	6 x M6	17	97
630B0030	30 x 41	25	38.0	45	51	62	510	33	6 x M6	17	90
630B0032	32 x 43	25	38.0	45	51	65	540	33	6 x M6	17	90
630B0038	38 x 50	32	45.0	52	58	72	860	45	8 x M6	17	75
630B0040	40 x 53	32	45.0	52	58	75	900	45	8 x M6	17	70
630B0042	42 x 55	32	45.0	52	58	78	950	45	8 x M6	17	70
630B0045	45 x 59	45	62.0	70	78	86	1890	84	8 x M8	41	85
630B0048	48 x 62	45	62.0	70	78	87	2010	84	8 x M8	41	80
630B0050	50 x 65	45	62.0	70	78	92	2100	84	8 x M8	41	75
630B0055	55 x 71	55	72.0	80	88	98	2600	94	9 x M8	41	65
630B0060	60 x 77	55	72.0	80	88	104	2840	94	9 x M8	41	60
630B0065	65 x 84	55	72.0	80	88	111	3070	94	9 x M8	41	55
630B0070	70 x 90	65	86.0	96	106	119	5250	150	9 x M10	83	70
630B0075	75 x 95	65	86.0	96	106	126	5600	150	9 x M10	83	65
630B0080	80 x 100	65	86.0	96	106	131	8020	200	12 x M10	83	80
630B0085	85 x 106	65	86.0	96	106	137	8500	200	12 x M10	83	75
630B0090	90 x 112	65	86.0	96	106	144	9000	200	12 x M10	83	75
630B0095	95 x 120	65	86.0	96	106	149	11000	230	14 x M10	83	80
630B0100	100 x 125	65	86.0	96	106	154	15000	300	18 x M10	83	95
630B0110	110 x 140	90	114.0	128	140	180	16000	290	12 x M12	145	65
630B0120	120 x 155	90	114.0	128	140	198	17500	290	12 x M12	145	55
630B0130	130 x 165	90	114.0	128	140	208	25000	384	16 x M12	145	70

FLK 110



FLK 603



FENLOCK CLAMPING ELEMENTS TYPE FLK 603 STD. VERSION

Product Code	Type d	Shaft Dia dw	Torque Mt	Axial Thrust F. ass.	Dimensions					Tightening Screws 10.9	Tightening Torque Ms	Contact Stress Pw
					D	I	L	d1	e			
					mm	mm	mm	mm	mm			
630 M 0014	14	11	30	6	38	7	11.0	23	2.00	4 x M5	4	186
630 M 0016	16	13	70	10	41	11	15.0	26	2.00	5 x M5	4	130
630 M 0024	24	19	170	25	50	14	19.5	36	2.75	6 x M5	4	286
630 M 0030	30	20	210	27	60	16	21.5	44	2.75	7 x M5	4	233
630 M 0036	36	21	250	29	72	18	23.5	52	2.75	5 x M6	12	307
630 M 0044	44	24	300	29	80	20	25.5	61	2.75	7 x M6	12	317
630 M 0050	50	25	340	31	90	22	27.5	70	2.75	8 x M6	12	289
630 M 0055	55	26	380	33	100	23	30.5	75	3.75	8 x M6	12	252
630 M 0062	62	28	440	50	110	23	30.5	86	3.75	10 x M6	12	279
630 M 0068	68	30	570	58	115	23	30.5	86	3.75	10 x M6	12	255
630 M 0075	75	31	630	64	138	25	32.5	100	3.75	7 x M8	30	273
630 M 0080	80	32	620	64	145	25	32.5	100	3.75	7 x M8	30	256
630 M 0085	85	35	780	74	155	30	39.0	114	4.50	10 x M8	30	285
630 M 0090	90	36	860	77	155	30	39.0	114	4.50	10 x M8	30	271
630 M 0100	100	38	940	79	170	34	44.0	124	5.00	12 x M8	30	258
630 M 0110	110	40	1160	86	185	39	50.0	136	5.50	9 x M10	59	244
630 M 0115	115	42	1380	92	188	39	50.0	141	5.50	9 x M10	59	234
630 M 0120	120	45	1520	98	215	42	54.0	160	6.00	12 x M10	59	277
630 M 0125	125	48	1880	97	215	42	54.0	160	6.00	12 x M10	59	266
630 M 0130	130	50	2000	97	215	42	54.0	160	6.00	12 x M10	59	255
630 M 0140	140	55	2500	106	230	46	60.5	175	7.25	10 x M12	100	264

Product Code	Type d	Shaft dia. dw	Torque Mt	Axial Thrust F. ass.	Dimensions					Tightening screws 10.9	Tightening torque Ms	Contact Stress Pw
					D	I	L	d1	e			
					mm	mm	mm	mm	mm			
630 M 0155	155	105	22000	447	265	50	64.5	192	7.25	12 x M12	100	263
630 M 0160	160	110	25000	478	265	50	64.5	192	7.25	12 x M12	100	254
630 M 0165	165	115	28000	509	290	56	71.0	210	7.50	8 x M16	250	277
630 M 0170	170	120	28800	520	290	56	71.0	210	7.50	8 x M16	250	268
630 M 0175	175	125	31000	595	300	56	71.0	220	7.50	8 x M16	250	261
630 M 0180	180	125	35000	630	300	56	71.0	220	7.50	8 x M16	250	253
630 M 0185	185	125	39000	655	330	71	86.0	236	7.50	10 x M16	250	244
630 M 0190	190	130	40100	670	330	71	86.0	236	7.50	10 x M16	250	237
630 M 0195	195	130	41000	639	350	71	86.0	246	7.00	12 x M16	250	277
630 M 0200	200	135	45000	675	350	71	86.0	246	7.00	12 x M16	250	270
630 M 0220	220	140	46300	885	370	88	104.0	270	8.00	15 x M16	250	248
630 M 0240	240	140	52000	778	405	92	109.0	295	8.00	12 x M20	490	272
630 M 0260	260	140	57000	819	430	103	120.0	321	8.00	14 x M20	490	262
630 M 0280	280	145	62000	861	460	114	134.0	346	10.00	16 x M20	490	251



Authorised Distributors:



Belgium

ERIKS Power Transmission
Technology Centre Moorsele / CET MOTOREN
Muizelstraat 8
8560 Gullegem Moorsele
Belgium
Tel: +32 (0) 56 41 47 65
Fax: +32 (0) 56 40 34 60
Email: mgd@eriks.be

ERIKS Technology Centre Mol
Nijverheidsstraat 13, Industrieterrein II
B-2400 Mol
Belgium
Tel: +32 (0) 14 34 64 84
Fax: +32 (0) 14 31 58 15
Email: powertransmissions@eriks.be

Germany

ERIKS Deutschland GmbH
Business Unit Wälzlager / Mechanische Antriebstechnik
Robert-Hesse-Str. 11
D-30827 Garbsen
Germany
Tel: +49 (0)511 27998-507
Email: antriebstechnik@eriks.de

Netherlands

ERIKS bv
Aandrijftechniek Roermond
Albert Einsteinweg 8
6045 GX Roermond
Postbus 1268
6040 KG Roermond
Tel: (0475) 37 22 33
Fax: (0475) 32 75 40
Email: info.roermond@eriks.nl
www.eriks.nl

Switzerland

Maagtechnic AG
Sonnentalstrasse 8
8600 Dübendorf
Schweiz
Tel: +41 848 111 333
Fax: +41 848 111 334
Email: info-ch@maagtechnic.com

UK & Ireland

ERIKS UK & Ireland
Seven Star Road
Oldbury
West Midlands
B69 4 JR
Tel: +44 (0)121 508 6000
Email: enquiries@eriks.co.uk