

Bibbigard® Torque Limiters

Bibbigard® Torque Limiter

Bibbigard® Torque Limiters eliminate the problems associated with slow reaction electrical overload devices, shear pins which give a wide release torque variation, or slip clutches which may rapidly overheat.



Bibbigard® products can save you money – the initial cost is frequently more than covered by the saving in down-time even on the first overload.

- Protect plant and transmission against overload.
- Full bi-directional operation in any plane.
- All metal totally-enclosed construction.
- Virtually no maintenance.
- Provide years of trouble-free service.
- Competitive first cost.

Many of our torque limiters have been purpose designed and manufactured to meet customers' specific operating requirements. If you have any specific requirements please contact Bibby Turboflex for assistance.

Boring and Keywaying

Standard bores and keyways are manufactured to H8 and Js9 tolerances to BS4500: 1969, both in Metric and Imperial dimensions.

Maintenance

During assembly all units are packed with a 3% Molybdenum Disulphide (Mo S₂) grease BP Energrease L21 M. Because of their uniquely fully enclosed design all units need only be stripped and re-packed with grease every two years. However, under extremely adverse conditions of environment and duty please consult Bibby Turboflex.

Running in Oil

All Bibbigard units can be run in oil if required without affecting performance.

Typical Applications

Manual Reset

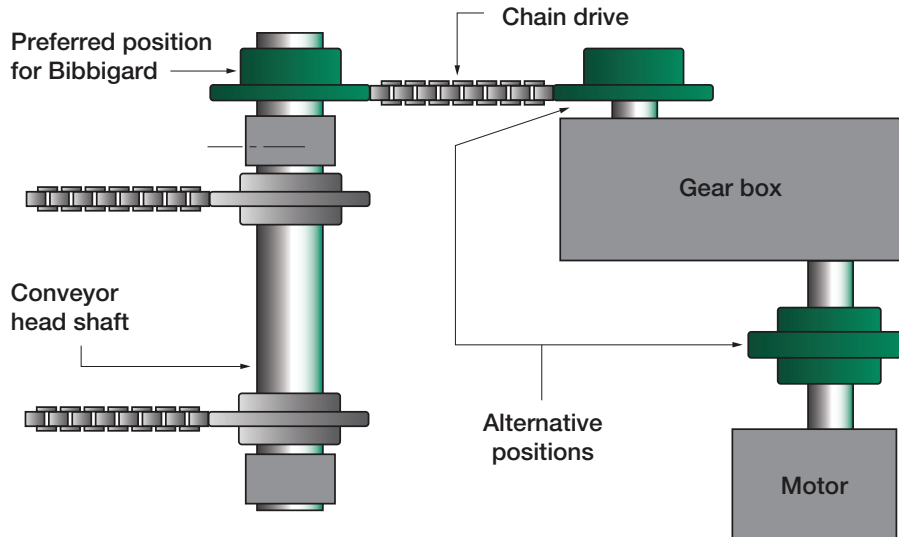
Type A: Conveyors, machine tools, woodworking and paper machinery, pumps, textile machinery, test rigs, packaging machinery, quarrying plant, Post Office machinery, extruders, automatic furnaces and ovens.

Automatic Reset

Type B & C: Conveyors, bakery equipment, indexing drives, packaging, bottling and labeling machines, printing presses and special-purpose machines.

Power Take-Off Protection

Type FV: Vane, lobe, screw and centrifugal pumps. Vane and lobe blowers, please contact Bibby Turboflex for further details.



Torque Limiter Selection

Types A, B, & C

For release torques up to 5500Nm

Decide on manual or automatic reset. Choose a position as near as possible to the expected overload (see diagram).

Calculate the torque setting required at that position. This can be determined from the motor power, r.p.m. and gearing ratio – the driven load – or from the maximum permissible torque for drive components such as crushing stress on keys. **It is the weakest component that requires protection.** Make allowance for motor starting torques (generally twice normal running torque).

Having calculated an approximate setting for the release torque, final adjustments can be made on site.

Check from tables that shaft, sprocket or pulley, etc. can be accommodated.

Selection Example

Model 1000 Type AF

This specifies:

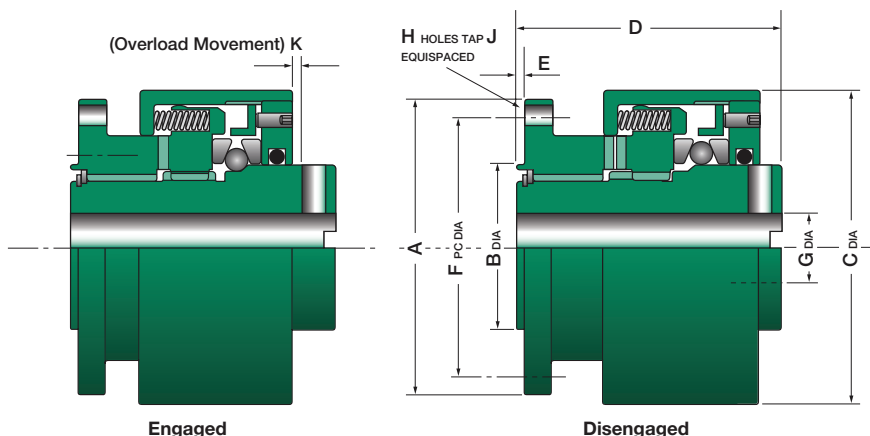
Manual reset clutch. Capable of 1000 lbf ft torque complete with flexible coupling for shaft-to-shaft application.

To enable us to deal efficiently with your enquiry, we ask you to supply the following facts:

- Type of application and environment conditions
- R.P.M. of drive
- Release torque required
- Length and diameters of shafts
- Space available between shaft ends
- Overall space available – length and diameter limitations
- Types and sizes of accessories, i.e. sprocket, pullet, etc.
- Any special requirements such as shifter flange, neoprene seals, etc.

Bibbigard® Type AB – Manual Reset

Release Torque:
14 to 5500Nm, 10 to 4000 lbf ft



Dimensions

Model	Release Torque		⑤ Max Speed rpm	Dimensions in mm and (inches)											Weight kg (lb)
	Min ① Nm (lbf ft)	Max Nm (lbf ft)		A	③ B	C	D	E	F	G max	② G min	H	J	K	
100AB	14 (10)	140 (100)	1500	90 (3.54)	55 (2.16)	93.5 (3.68)	85 (3.35)	3 (0.118)	75 (2.95)	25.4 (1.00)	12.7 (0.50)	6	M8	6.35 (0.25)	2.95 (6.5)
500AB	70 (50)	700 (500)	1500	135 (5.31)	80 (3.15)	123.8 (4.875)	90 (3.54)	3 (0.118)	100 (3.94)	40 (1.57)	19.05 (0.75)	6	M10	6.35 (0.25)	5.59 (12.3)
1000AB	475 (350)	1356 (1000)	1500	180 (7.09)	110 (4.33)	177.8 (7.00)	150 (5.91)	3 (0.118)	150 (5.91)	57 (2.24)	31.75 (1.25)	6	M12	6.35 (0.25)	17 (37)
2000AB	610 (450)	2712 (2000)	1500	235 (9.25)	150 (5.91)	228.6 (9)	150 (5.91)	3 (0.118)	195 (7.68)	77 (3.03)	38.1 (1.50)	6	M16	6.35 (0.25)	30 (66)
4000AB	815 (600)	5500 (4000)	1000	305 (12)	200 (7.874)	305 (12)	205 (8.07)	3 (0.118)	270 (10.63)	102 (4.00)	50.8 (2.00)	6	M20	8.13 (0.32)	84 (185)

① Lower release torques can be achieved. Consult Bibby Turboflex.

② Dimensions G mm. and axial movement on overload also apply to Types AR, AF, AS and AP.

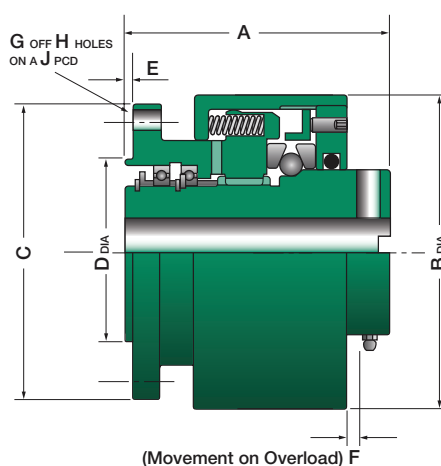
③ Tolerance on spigot diameter B is f7 to BS 4500:1969.

④ Standard tolerances on keyways is Js9 and on bores H8 to BS 4500:1969.

⑤ Applicable to all variants except AP Type.

Bibbigard® Type AB/BM

Type AB with ball bearing mounting

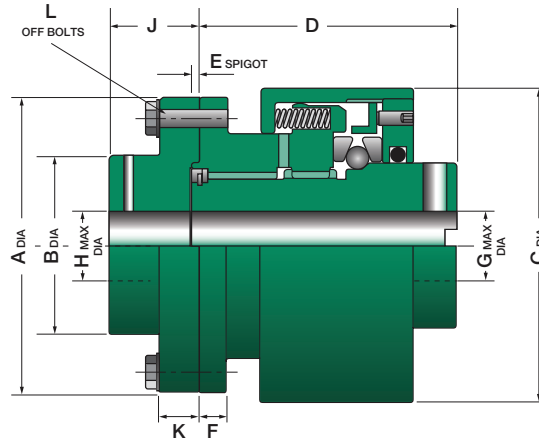


Dimensions

Model	Max Bore	⑤ Max Speed rpm	Dimensions in mm								
			A	B	C	D	E	F	G	H	J
100AB/BM	25	4500	85	94	90	54.97/54.94	3	6.35	6	M8	75
500AB/BM	40	3600	90	124	120	79.97/79.94	3	6.35	6	M10	100
1000AB/BM	57	2400	150	178	180	109.96/109.93	3	6.35	6	M12	150
2000AB/BM	79	1800	150	229	235	149.96/149.92	3	6.35	6	M16	195

Bibbigard® Type AR

Type AB combined with rigid coupling

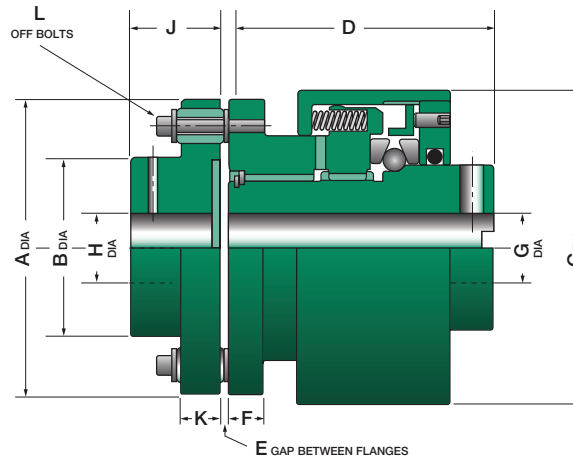


Dimensions

Model	Release Torque		Dimensions in mm and (inches)											Weight kg (lb)
	Min Nm (lbf ft)	Max Nm (lbf ft)	A	B	C	D	E	F	G	H	J	K	L	
100AR	14 (10)	140 (100)	90 (3.54)	60 (2.36)	93.5 (3.68)	85 (3.35)	3 (0.118)	10 (0.39)	25.4 (1.00)	40 (1.57)	40 (1.57)	15 (0.59)	6	5.7 (12.5)
500AR	70 (50)	700 (500)	120 (4.72)	75 (2.95)	123.8 (4.875)	90 (3.54)	3 (0.118)	13 (0.51)	40 (1.57)	50 (1.97)	40 (1.57)	15 (0.59)	6	10 (22)
1000AR	475 (350)	1356 (1000)	180 (7.09)	125 (4.92)	177.8 (7.00)	150 (5.91)	3 (0.118)	22 (0.87)	57 (2.24)	85 (3.35)	65 (2.56)	25 (0.98)	6	25 (54)
2000AR	610 (450)	2712 (2000)	235 (9.25)	165 (6.50)	228.6 (9.00)	150 (5.91)	3 (0.118)	22 (0.87)	77 (3.03)	110 (4.33)	95 (3.74)	25 (0.98)	6	49 (108)
4000AR	815 (600)	5500 (4000)	305 (12)	215 (8.46)	305 (12)	205 (8.07)	3 (0.118)	25 (0.98)	102 (4.00)	140 (5.51)	115 (4.53)	30 (1.18)	6	125 (275)

Bibbigard® Type AF

Type AB combined with Bibby Eflex flexible coupling



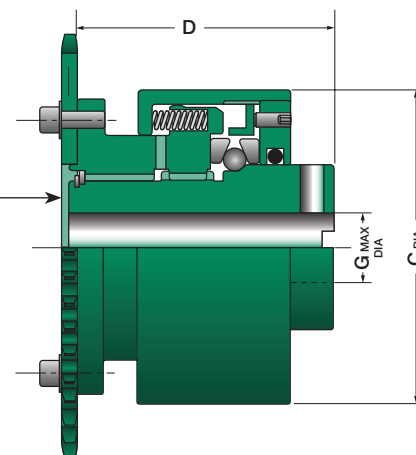
Dimensions

Model	Release Torque		Dimensions in mm and (inches)											Weight kg (lb)	
	Min Nm (lbf ft)	Max Nm (lbf ft)	A	B	C	D	E	F	G	H max	H min	J	K		L
100AF	14 (10)	140 (100)	145 (3.54)	80 (3.15)	93.5 (3.68)	85 (3.35)	5 (0.20)	15 (0.59)	25.4 (1.00)	58 (1.38)	16 (0.63)	45 (1.77)	25 (0.98)	3	4.12 (9.17)
500AF	70 (50)	700 (500)	195 (5.70)	120 (4.72)	123.8 (4.875)	95 (3.74)	5 (0.20)	20 (0.79)	40 (1.57)	90 (2.28)	32 (0.63)	70 (2.76)	30 (1.18)	3	10.4 (23)
1000AF	475 (350)	1356 (1000)	195 (7.68)	120 (4.72)	177.8 (7.00)	150 (5.90)	5 (0.20)	25 (0.98)	57 (2.24)	90 (3.54)	32 (1.26)	70 (2.76)	30 (1.18)	6	33 (73)
2000AF	610 (450)	2712 (2000)	240 (9.45)	150 (5.90)	228.6 (9.00)	150 (5.90)	5 (0.20)	25 (0.98)	77 (3.03)	110 (4.33)	42 (1.65)	85 (3.39)	35 (1.38)	8	58 (127)
4000AF	815 (600)	5500 (4000)	320 (11.42)	180 (7.09)	305 (12)	205 (8.07)	6 (0.24)	40 (1.57)	102 (4.00)	130 (5.12)	60 (2.36)	120 (4.72)	50 (1.97)	8	102 (227)

Bibbigard® Type AS

Type AB combined with chainwheel

Duplex and Triplex sprockets will usually be supplied bushed to run on customer's shaft for additional support.

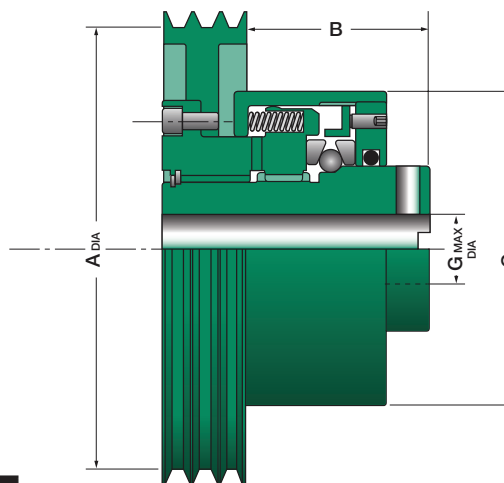


Dimensions

Model	Release Torque		Dimensions in mm and (inches)			Smallest Standard Sprocket (number of teeth)				
	Min Nm (lbf ft)	Max Nm (lbf ft)	C	D	G	3/8" pitch	1/2" pitch	5/8" pitch	3/4" pitch	1" pitch
100AS	14 (10)	140 (100)	93.5 (3.68)	82 (3.23)	25.4 (1.00)	38	26	21	18	15
500AS	70 (50)	700 (500)	123.8 (4.875)	87 (3.43)	40 (1.57)	57	33	27	23	18
1000AS	475 (350)	1356 (1000)	177.8 (7.00)	147 (5.79)	57 (2.24)		48	39	38	26
2000AS	610 (450)	2712 (2000)	228.6 (9.00)	147 (5.79)	77 (3.03)			50	57	38
4000AS	815 (600)	5500 (4000)	305 (12)	202 (7.95)	102 (4.00)				57	57

Bibbigard® Type AP

Type AB combined with pulley

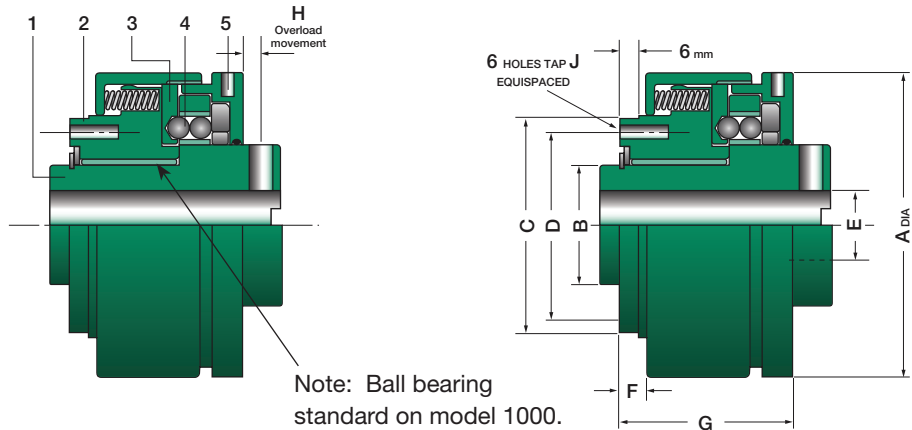


Dimensions

Model	Release Torque		Max Speed	Dimensions in mm and (inches)			
	Min Nm (lbf ft)	Max Nm (lbf ft)		A	B	C	G
100AP	14 (10)	140 (100)	Dependant upon Pulley Diameter	115 (4.53)	Dimension to suit Customers Pulley Requirements	93.5 (3.68)	25.4 (1.00)
500AP	70 (50)	700 (500)		155 (6.10)		123.8 (4.875)	40 (1.57)
1000AP	475 (350)	1356 (1000)		210 (8.27)		177.8 (7.00)	57 (2.24)
2000AP	610 (450)	2712 (2000)		270 (10.63)		228.6 (9.00)	77 (3.03)

Bibbigard® Type B – Automatic Reset

Release Torque:
70 to 1356Nm, 50 to 1000 lbf ft



Technical Features

- Instant release at pre-set torque
- Smooth hold-out for one revolution
- Means for motor switch-off
- Automatic self-engagement on restart without loss of phasing
- Also available fitted with Pulley (BP)
- Rigid coupling (BR)

Note: Ball bearing standard on model 1000.
Ball bearing or bronze bush on model 550 depending on application requirement.

Dimensions

Model	Release Torque		① Max Speed rpm	Dimensions in mm and (inches)										Weight kg (lb)
	Min Nm (lbf ft)	Max Nm (lbf ft)		A	B	C	D	E max	E min	F	G	① H	J	
550B	68 (50)	745 (550)	500	145 (5.70)	67 (2.63)	106 (4.25)	95 (3.74)	44 (1.75)	19 (0.75)	15 (0.59)	100 (3.93)	3 (0.12)	M8	8 (17.6)
1000B	338 (250)	1356 (1000)	500	205 (8.07)	85 (3.34)	142 (5.66)	125 (4.92)	57 (2.25)	32 (1.25)	20 (0.78)	150 (5.9)	4 (0.16)	M12	25 (55)

① Applicable to all variants

Note: Type B clutches should always be used with a limit switch to bring the drive to rest within a few revolutions thus preventing possible damage by continual releasing and resetting.

Normal Running

The drive is transmitted between the hub flange (1) and the drive flange (2) by the balls (4), spring-loaded into the pockets on the ball detent ring (3) secured by dowels.

Disengagement

On overload, the balls are displaced axially through the hub flange, further compressing the springs. Once out of their pockets, the balls roll on the face of the hub flange for one revolution before re-engaging and synchronising the drive.

Torque Adjustment

The release torque is set by tightening nut (5) thus increasing the spring pressure. After setting, the nut is locked by grub screw.

Installation

Clutches can be supplied pilot bored or may be finish bored and keywayed. The hub may be fitted to either shaft and should be axially constrained against a shoulder to resist the resetting force and locked by means of a grub screw onto the shaft's key. The drive flange may be connected to a flexible coupling or can carry a sprocket or pulley.

Application

This type of protection is ideally suited to drives where it is essential to restart in the correct sequence and where access for manual resetting is not available.

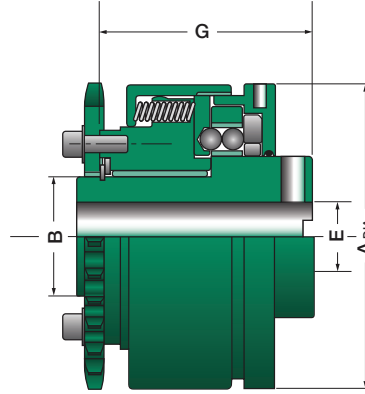
Bibbigard® Type BS

Type B combined with chainwheel

Ball bearing standard on Model 1000. Ball bearing or bronze bush on Model 550 depending on application requirement.

Duplex and Triplex sprockets will usually be supplied bushed to run on customer's shaft for additional support.

For sprockets smaller than listed, an adaptor is used. Details on request.

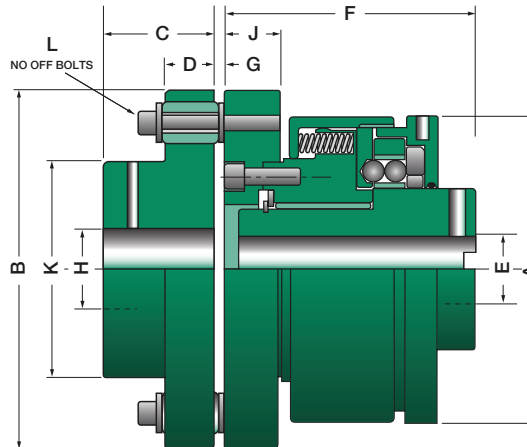


Dimensions

Model	Release Torque		Dimensions in mm and (inches)					Smallest Standard Sprocket (number of teeth)				
	Min Nm (lbf ft)	Max Nm (lbf ft)	A	B	E max	E min	G	3/8" pitch	1/2" pitch	5/8" pitch	3/4" pitch	1" pitch
550BS	68 (50)	745 (550)	145 (5.70)	67 (2.63)	44 (1.75)	19 (0.75)	85 (3.34)	40	31	26	22	18
1000BS	338 (250)	1356 (1000)	205 (8.07)	80 (3.14)	57 (2.25)	32 (1.25)	130 (5.11)	51	40	32	28	22

Bibbigard® Type BF

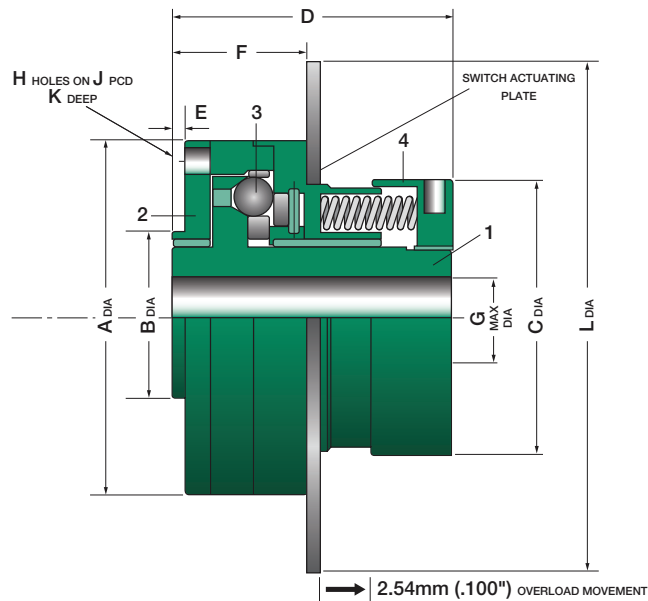
Type AB combined with Bibby Eflex flexible coupling



Dimensions

Model	Release Torque		Dimensions in mm and (inches)													Weight kg (lb)
	Min Nm (lbf ft)	Max Nm (lbf ft)	A	B	C	D	E max	E min	F	G	H max	H min	J	K	L	
550BF	68 (50)	745 (550)	195 (7.67)	145 (5.70)	70 (2.76)	25 (0.98)	44 (1.75)	19 (0.75)	105 (4.13)	5 (0.19)	58 (2.28)	16 (0.63)	22 (0.87)	120 (4.72)	4	23 (51)
1000BF	338 (250)	1356 (1000)	205 (8.07)	195 (7.67)	65 (2.56)	30 (1.18)	57 (2.25)	32 (1.25)	155 (6.10)	5 (0.19)	90 (3.54)	32 (1.26)	25 (1.0)	120 (4.72)	6	40 (88)

Automatic Reset Release Torque:
14 to 210Nm, 10 to 150 lbf ft



Technical Features

- Instant release at pre-set torque
- Smooth hold-out for one revolution
- Means for motor switch-off
- Automatic self-engagement on restart without loss of phasing

Dimensions

Model	① Release Torque		⑤ Max Speed rpm	Dimensions in mm and inches											Weight kg (lb)
	Min Nm (lbf ft)	Max Nm (lbf ft)		A	② B	C	D	E	F	G	H	J	K	L	
20CB	14 (10)	48 (35)	250	76 (2.98)	35 (1.38)	60 (2.37)	62 (2.44)	2.5 (0.098)	31 (1.23)	16 (0.63)	3-M6	66 (2.60)	8 (0.31)	120 (4.72)	1.36 (3)
150CB	42 (30)	210 (150)	250	94 (3.70)	54 (2.13)	87 (3.44)	66 (2.60)	3 (0.118)	34 (1.33)	28 (1.13)	6-M6	84 (3.31)	11 (0.44)	130 (5.11)	2.80 (6.20)

① Lower release torques can be achieved. Consult Bibby Turboflex.

② Tolerance on spigot diameter B is f7 to BS 4500:1969.

③ For higher release torques use Type B on page 47.

④ Standard tolerances on keyways is Js9 and on bores H8 to B5 4500:1969.

⑤ Applicable to all variants.

Normal Running

The drive is transmitted between the hub flange (1) and the housing (2) by the balls (3), spring-loaded into the pockets on the flange face.

Disengagement

On overload, the balls are displaced axially through the housing, further compressing the springs. Once out of their pockets, the balls roll on the face of the hub flange for one revolution before re-engaging and synchronising the drive.

Torque Adjustment

The release torque is set by tightening nut (4) thus increasing the spring pressure. After setting, the nut is locked with a grub screw and plug.

Installation

Clutches can be supplied pilot bored or finish bored and keywayed. The hub may be fitted to either shaft and should be located against a shoulder to resist the resetting spring force and locked by means of grub screw in the hub flange. The drive flange may be replaced by a sprocket, pulley, etc., or connected to a coupling.

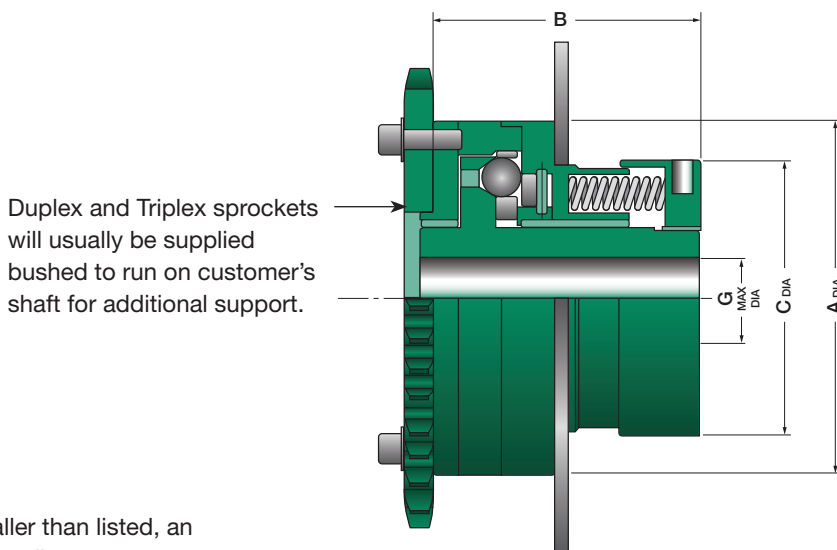
Application

This type of protection is ideally suited to drives such as wrapping and packing machinery where it is essential to restart in the correct sequence and where access for manual resetting is not available.

Type C clutches should always be used with a limit switch to bring the drive to rest within a few revolutions thus preventing possible damage by continual releasing and resetting.

Bibbigard® Type CS

Type CB combined with sprocket



For sprockets smaller than listed, an adaptor is used. Details on request.

Dimensions

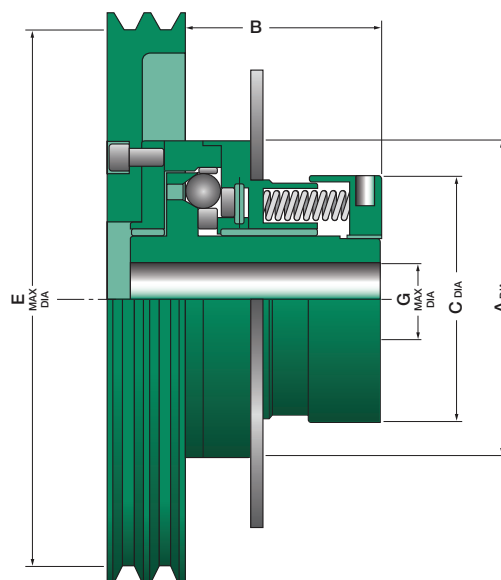
Model	Release Torque		Dimensions in mm and (inches)				Smallest Standard Sprocket (number of teeth)				
	Min Nm (lbf ft)	Max Nm (lbf ft)	A	B	C	G max	3/8" pitch	1/2" pitch	5/8" pitch	3/4" pitch	1" pitch
20CS	14 (10)	48 (35)	76 (2.98)	59.5 (2.34)	60 (2.37)	16 (0.625)	30	22	19	17	14
150CS	42 (30)	210 (150)	94 (3.70)	63 (2.48)	87 (3.44)	28 (1.125)	38	28	23	20	15

Bibbigard® Type CP

Type CB combined with pulley

Pulleys to suit the following belts can also be supplied:- standard 'V' section, flat, poly, 'V', and timing or toothed.

For pulleys smaller than listed, an adaptor is used. Details available on request.

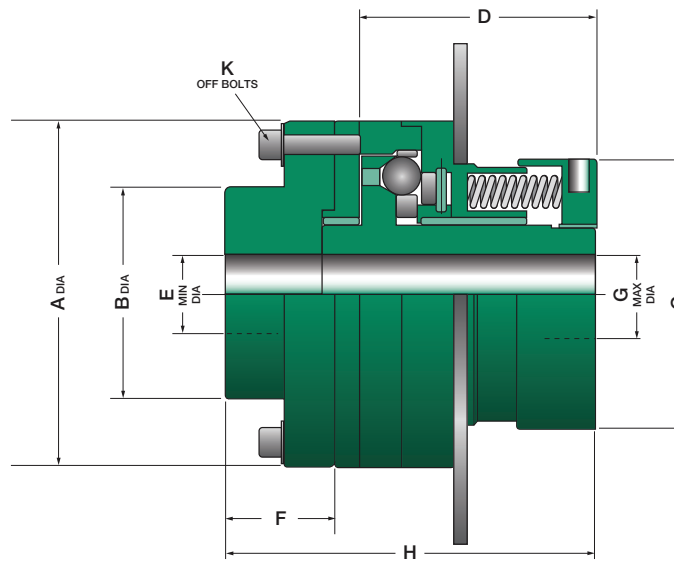


Dimensions

Model	Release Torque		Dimensions in mm and (inches)				
	Min Nm (lbf ft)	Max Nm (lbf ft)	A	B	C	E	G
20CP	14 (10)	48 (35)	76 (2.98)	to suit	60 (2.37)	102 (4.00)	16 (0.625)
150CP	42 (30)	210 (150)	94 (3.70)	to suit	87 (3.44)	124 (4.875)	28 (1.125)

Bibbigard® Type CR

Type CB combined with rigid coupling



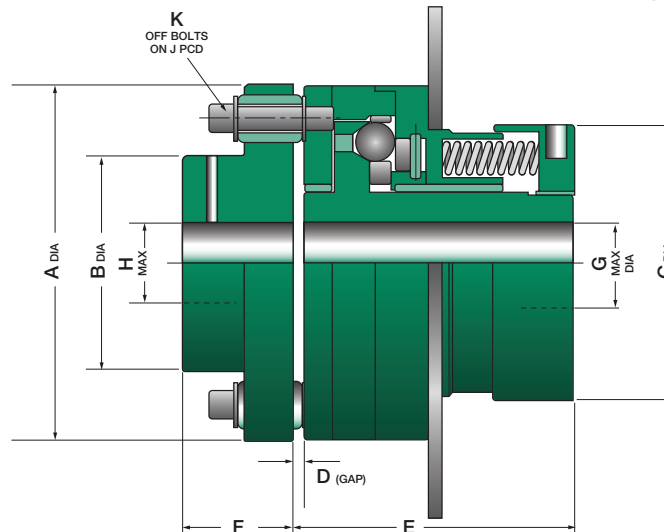
This arrangement will not accommodate any misalignment.

Dimensions

Model	Release Torque		Dimensions in mm and (inches)									Weight kg (lb)
	Min Nm (lbf ft)	Max Nm (lbf ft)	A	B	C	D	E	F	G	H	K	
20CR	14 (10)	48 (35)	76 (2.99)	55 (2.17)	60 (2.37)	62 (2.44)	35 (1.38)	38 (1.50)	16 (0.63)	98 (3.85)	3	2 (4.5)
150CR	42 (30)	210 (150)	94 (3.70)	71 (2.80)	87 (3.44)	66 (2.60)	44 (1.73)	51 (2.00)	28 (1.10)	114 (4.48)	6	4.3 (9.5)

Bibbigard® Type CF

Type CB combined with Bibby Eflex flexible coupling



Dimensions

Model	Release Torque		Dimensions in mm and (inches)										Weight kg (lb)
	Min Nm (lbf ft)	Max Nm (lbf ft)	A	B	C	D	E	F	G	H	J	K	
20CF	14 (10)	48 (35)	76 (2.99)	35 (1.38)	60 (2.36)	2 (0.08)	62 (2.44)	29 (1.14)	16 (0.63)	20 (0.79)	72 (2.83)	2	2.52 (5.54)
150CF	42 (30)	210 (150)	94 (3.70)	48 (1.89)	87 (3.43)	3 (0.12)	66 (2.60)	40 (1.57)	28 (1.10)	28 (1.10)	90 (3.54)	4	5.18 (11.39)