BMG

QUICK FLEX

FLEXIBLE COUPLING

Technical Guide

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DRIVE COUPLINGS

The Quick-Flex® Flexible Coupling from QM is a unique yet simple solution for almost all flexible coupling applications. It's called the Quick-Flex ® because it's quick to save you money on maintenance costs, quick to install, and quick to change, Flexible couplings are used in drives to:

- Transmit torque from a driving shaft to a driven shaft;
- Accommodate shaft misalignment within the drive, angular, radial, and axial.
- Dampen vibration, torque fluctuations, shock loads, and also to cushion and smooth torsional shock load.

Quick-Flex® advantage
The coupling consists of two coupling halves or hubs which are attached to the drive and driven shaft. A urethane insert wraps around the two hubs and provides a simple yet effective drive mechanism. A cover secures the insert in place. The cover can be installed on either side on a standard coupling hub and will not move under misalignment.

Quick to install
Ease of use in either vertical or horizontal applications. The coupling is very simple to install. The insert can be changed without moving machine mounting bolts. Just mount the two hubs with the insert in place and slide the cover over the insert. The cover is held in place on the smaller couplings with a snap ring and on the larger couplings with four bolts.

Quick to change
The wrap around insert can be easily changed without moving the coupling hubs. To change the insert you simply remove the snap ring or the bolts, slide the cover back by hand and unwrap the insert. All surfaces on the coupling are totally machined within 0.005 which makes for easy alignment.

Quick-Flex® No lubrication
Quick-Flex® Flexible couplings are less expensive to maintain. Quick-Flex® Couplings ***never require lubrication.***

The Quick-Flex® Red insert – Standard
The Quick-Flex® red insert is made from relatively soft urethane. This insert is designed for most applications. The red insert excels in vibration dampening and cushioning shock loads. The insert is also best for reversing applications or applications with quick starting and stopping of high inertial loads. Operational temperatures of -60°F to +212°F (-50°C to +100°C).

The Quick-Flex® Blue insert – High torque
The Quick-Flex® blue insert is made from a stiffer grade of urethane. This insert is best for high torque applications. Quick-Flex® couplings with blue inserts are excellent replacement for gear, disk or grid style couplings. The Quick-Flex® coupling with a blue insert is able to deliver very high torque and still provide a degree of torsional softness and ability to dampen vibration. Operational temperatures of -60°F to +212°F (-50°C to +100°C).

Quick-Flex white insert (high temperature)
The white Quick-Flex insert is made of a heat resistant urethane compound for use in applications where heat is a concern. This insert can handle temperatures up to 350 F (177 C) and provides torque capabilities equal to our blue insert.

Quick-Flex black insert (highest torque)
The black Quick-Flex insert offers the highest torque ratings of any of our inserts. This insert is well suited for very high torque applications and Quick-Flex couplings with a black insert are excellent replacements for gear style couplings. This insert offers an operational temperature range of -60 F to 212 F (-50 C to 100 C).

Quick-Flex® reduces down-time
Quick-Flex® Couplings simple design reduces maintenance and downtime costs. There is no possible interference between the coupling hubs if the coupling insert fails. Unlike a jaw coupling there is no metal to metal contact preserving the coupling in case of total failure. The only spare part required is a spare wrap around urethane insert that can be changed in a few minutes.

Quick-Flex® forgives misalignment
The coupling will accept angular misalignment up to 2 degrees and parallel shaft displacement up to 1mm. The design of the coupling is such that it will accommodate end float from 2.94mm on the small couplings and 7.92mm on the large couplings with no reduction in torque rating.

Quick-Flex® has excellent balance
The simplicity of the coupling combined with the accurate machining of all surfaces on numerical control machine tools enables Quick-Flex® Couplings to run without balancing at speeds above most other couplings. QM also provides couplings that are dynamically balanced for extremely high speed operation (upon request for an extra charge).

Quick-Flex® transient torque
Quick-Flex® Flexible Couplings transmit high torque loads and provides cushioning for your drive. Quick-Flex® Couplings can sustain momentary peak torque loads in excess of 200 percent of its maximum torque rating. This overload should not occur more than once per day.

Quick-Flex® drive range
Quick-Flex® Couplings will couple drives in a range from fractional horsepower to motors up to 15000kW. Shaft sizes are from 3/8' to 11 1/4' ".

Quick-Flex® hubs
QF hubs are manufactured from Steel (C1020), do not contain any gray iron or semi steel part which can fail prematurely.

Quick-Flex® Covers
Available in two styles: standard steel cover and steel vertical split cover

DRIVE COUPLINGS

Quick-Flex Flexible couplings - Service Factors for Electric motors

Service factors listed are typical values based on normal operation of the drive system.

Alphabetical Listing of Applications	Service Factor
Aerators	2.50
Agitators	
Vertical, Horizontal, Screw, Propeller, Paddle	1.25
Barge Haul Puller	1.75
Blowers	
Centrifugal	1.50
Lobe or Vane	1.50
Clarifier or Classifier	1.25
Compressors	
Centrifugal	1.25
Rotary, Love or Vane	1.50
Rotary, Screw	1.50
Reciprocating	
Direct Connected Refer to Factory	
Without Flywheels Refer to Factory	
With Flywheel and Gear between Compressor and Prime Monitor	
1 Cylinder, Single Acting	3.00
1 Cylinder, Double Acting	3.00
2 Cylinders, Single Acting	3.00
2 Cylinders Double Acting	3.00
3 Cylinders Single Acting	3.00
3 Cylinders, Double Acting	2.00
4 Or More Cyl. Single Acting	2.50
4 Or More Cyl. Double Acting	2.50
Conveyors	
Apron, Assembly, Belt, Chain, Flight, Screw	1.75
Bucket	1.75
Live Roll, Shaker and Reciprocating	3.00
Bridge, Travel or Trolley	2.50
Dynamometer	1.50
Elevators - Bucket, Centrifugal Discharge	1.75
Exciter, Generator	1.50
Extruder, Plastic	1.50
Fans	
Centrifugal	1.25
Cooling Tower	2.00
Forced Draft-Across the Line Start	1.75
Forced Draft Motor driven thru fluid or Electric Slip Clutch	1.25
Gas Recirculating	1.50
Induced Draft with damper control or blade cleaner	1.50
Induced Draft without controls	2.00
Feeders	
Apron, Belt, Disc, Screw	1.25
Reciprocating	2.50
Line Shafts Any Processing Machinery	1.50
Mixers (See Agitators)	
Concrete	1.75
Muller	1.50
Press, Printing	1.50
Pulverizers	
Hammermill and Hog	1.75
Roller	1.50
Pumps Centrifugal	
Constant Speed	1.00
Frequent Speed Changes Under Load	1.75
Descaling, with Accumulators	1.75
Gear, Rotary, or Vane	1.75
Pumps Reciprocating	
1 Cyl., single or double acting	3.00
2 Cyl., single acting	2.50
2 Cyl., double acting	2.00
3 or more cylinders	2.00
Tumble Barrel	2.00

Alphabetical Listing of Applications	Service Factor
Winch, Maneuvering - Dredge, Marine	1.50
Windlass	
Aggregate Processing, Cement, Mining Kilns; Tube, Rod and Ball Mills	
Direct or on L.S. shaft or reducer, with final drive:	
Machined Spur Gear	2.50
Single Helical or Herringbone Gears	2.00
Conveyers, Feeders, Screens, Elevators	2.00
Crushers, Ore or Stone	2.50
Dryer, Rotary	2.00
Grizzly	2.50
Hammermill or Hog	2.00
Tumbling Mill or Barrel	2.00
Clay Working Industry	
Brick Press, Briquette Machine, Clay Working Machine, Pug Mill	2.00
Dredges	
Cable Reel	2.00
Conveyors	1.50
Cutter Head, Jig Drive	2.50
Maneuvering Winch	1.75
Pumps (Uniform Load)	1.75
Screen Drive, Stacker	2.00
Utility Winch	2.00
Lumber	
Band Resaw	2.00
Circular Resaw, Cutoff	2.00
Edger, Head Rig, Hog	2.50
Gang Saw (Reciprocating)	3.00
Log Haul	2.50
Planer	2.00
Rolls, Non-Reversing	1.50
Rolls, Reversing	2.50
Sawdust Conveyor	1.50
Slab Conveyor	2.00
Sorting Table	1.75
Trimmer	2.00
Oil Industry	
Chiller	1.50
Oilwell Pumping (not over 150% peak torque)	2.50
Paraffin Filter Press	1.75
Rotary Kiln	2.50
Paper Mills	
Barker, Auxiliary, Hydraulic	2.50
Barker, Mechanical	2.50
Barker, Drum L.S. shaft of reducer with final driver- Helical or Herringbone Gear	2.50
Machined Spur Gear	3.00
Cast Tooth Spur Gear	3.00
Beater & Pulper	2.00
Bleachers, Coaters	1.50
Calendar & Super Calendar	2.00
Chipper	3.00
Converting Machine	1.50
Couch	2.00
Cutter, Felt Whipper	2.25
Cylinder, Dryer	2.00
Felt Stretcher	1.75
Fourdrinier	2.00
Jordan	2.50
Log Haul	2.50
Line Shaft	1.75
Press	2.00
Pulp Grinder	2.00
Reel, Rewinder, Winder	2.00
Stock Chest, Washer, Thickner	1.75
Stock Pumps, Centrifugal	
Constant Speed	1.25
Frequent Speed Changes Under Load	1.50
Suction Roll	2.00
Sewage Disposal Equipment	
Bar Screen, Chemical Feeders, Collectors, Dewatering Screen, Grit Collector	1.50
Mill Stands, Turbine Driven with all Hellical or Herringbone Gears	1.75
Electric Drive or Steam Engine Drive with Helical Herringbone	2.00

DRIVE COUPLINGS

Select coupling size
Ensure at all times that the shaft diameters required, do not exceed the maximum allowable bore size. Ensure the operating speed does not exceed the maximum allowable speed.

Example:
Application information : 370KW, 1200 RPM electric motor driving a rotary vane compressor.
Motor shaft : 3 inches
Compressor shaft : 4 1/2 inches
Service Factor : 1.5 (See page 240)

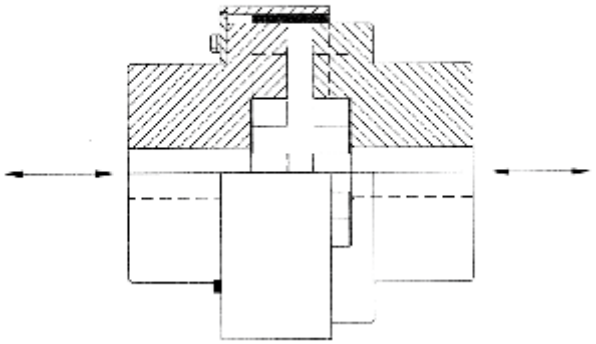
Design torque = $\frac{370 \times 1.5 \times 9550}{1200}$ = *4416.8Nm*

Select a coupling with an equal or greater torque rating from the torque column.
Make sure the shaft size does not exceed the maximum bore of the coupling.
Result *- Select a QF500 at 5190Nm of torque complete with Red Insert.*
Please note the color of insert when ordering size of coupling

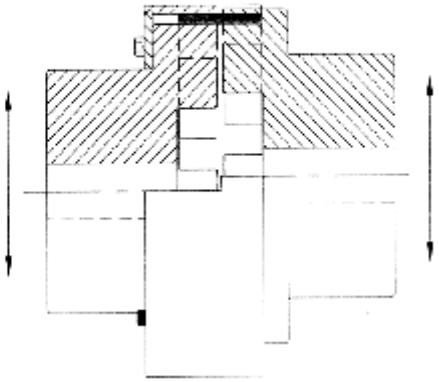
Quick-Flex® - Misalignment Tolerances

Coupling Size	Radial Misalignment Tolerances	Axial Misalignment Tolerances	Angular Misalignment Tolerances
QF 15	1mm	2.94mm	2°
QF 25	1mm	2.94mm	2°
QF 50	1mm	2.94mm	2°
QF 100	1.5mm	3.96mm	2°
QF 175	1.5mm	4.44mm	1.3°
QF 250	1.5mm	5.94mm	1.3°
QF 500	1.5mm	5.94mm	1°
QF 1000	1.5mm	5.94mm	1°
QF 1890	1.5mm	7.92mm	1°
QF 3150	2mm	7.92mm	1°
QF 10260	2mm	7.92mm	1°

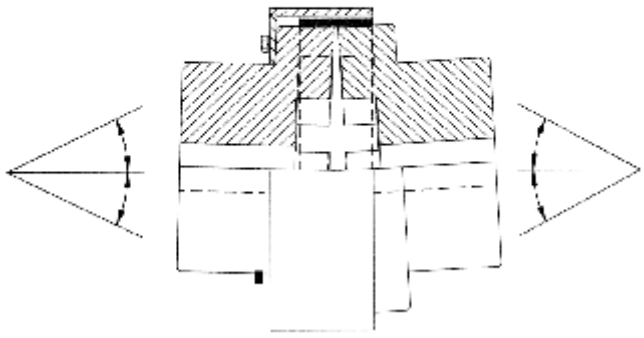
Axial Misalignment Tolerance



Radial Misalignment Tolerance

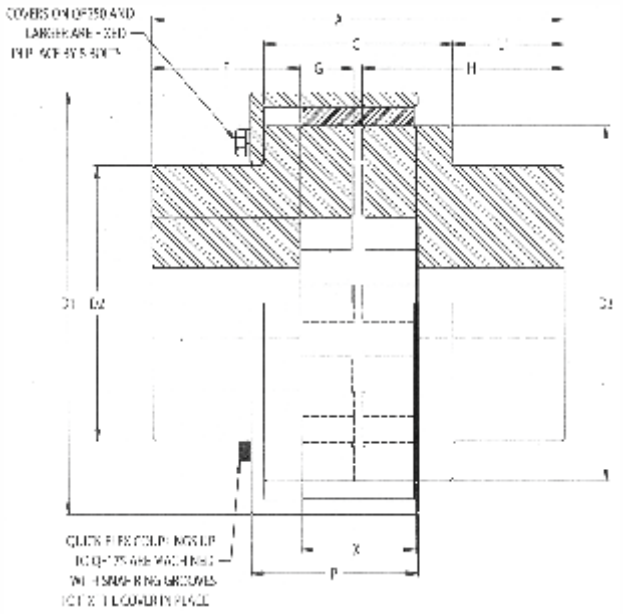


Angular Misalignment Tolerance



QUICK-FLEX COUPLINGS - STANDARD COUPLINGS

Quick-Flex Standard Coupling with High Speed Cover



* Quick-Flex High Speed Covers are designed for applications where low torque and/or high speed is present.

Quick -Flex Standard Coupling with High Speed Cover Dimensions (mm).

Coupling Series	Pilot Bore Diameter	Max Bore Diameter	Max RPM	A	C	D1	D2	D3	F	G Min
QF 5	8	32	12000	71	26	63	51	53	27	1.57
QF 15	13	41	9000	90	33	80	59	65	34	0.91
QF 25	16	54	7000	123	51	107	81	86	46	2.03
QF 50	18	60	6000	151	61	139	89	114	55	0.89
QF 100	24	76	4800	180	88	178	108	150	62	3.56
QF 175	25	98	4200	195	93	203	140	171	68	4.78
QF 250	38	105	3800	216	101	226	147	190	79	2.54
QF 500	48	114	3400	257	119	274	178	235	95	3.18

* Weights shown are approximate weights of complete coupling assemblies including two pilot-bore hubs, cover and insert.

Quick -Flex Insert Maximum Torque Ratings (Nm).

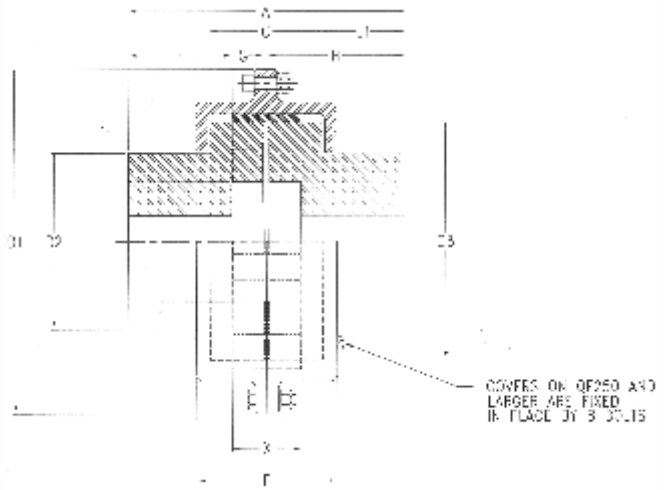
Coupling Series	Red	Blue	White	Black	G Max	H	L1	P	(DBSE) X	Wt* (kg)
QF 5	43	93	n/a	n/a	2.34	35	22	24	17	1.18
QF 15	120	234	234	n/a	2.79	44	29	34	22	2.26
QF 25	387	730	730	n/a	5.21	61	36	50	31	4.99
QF 50	798	1582	1582	n/a	5.28	75	45	60	42	6.80
QF 100	1602	3177	3177	n/a	7.37	86	48	75	56	16.78
QF 175	2780	5325	5325	n/a	5.28	95	51	83	62	25.85
QF 250	3513	6975	6975	n/a	5.84	107	59	89	63	32.21
QF 500	6790	13051	13051	n/a	6.35	127	70	103	70	57.15

Note: When using high speed cover, use of black insert not recommended. In an application where high torque is present, use split cover option.

QUICK-FLEX COUPLINGS - STANDARD COUPLINGS

Quick-Flex Standard Coupling with Split Cover

(High Torque Applications)



* Quick-Flex Split Covers are ideal in applications where high torque is combined with higher speeds all the while eliminating axial loading.

Quick -Flex Standard Coupling with High Speed Cover Dimensions (mm).

Coupling Series	Pilot Bore Diameter	Max Bore Diameter	Max RPM	A	C	D1	D2	D3	F	G Min
QF 15	13	41	9000	90	33	119	59	65	34	0.91
QF 25	16	54	7000	123	51	143	81	86	46	2.03
QF 50	18	60	6000	151	61	185	89	114	55	0.89
QF 100	24	76	4800	180	88	223	108	150	62	3.56
QF 175	25	98	4200	195	93	234	140	171	68	4.78
QF 250	38	105	3800	216	101	267	147	190	79	2.54
QF 500	48	114	3400	257	119	343	178	235	95	3.18
QF 1000	48	157	3000	310	127	387	198	267	117	4.06
QF 1890	64	192	2400	373	150	451	241	325	146	5.13
QF 3150	64	232	2000	408	160	498	279	383	157	1.78
QF 10260	64	286	1200	508	231	619	381	451	183	3.23

* Weights shown are approximate weights of complete coupling assemblies including two pilot-bore hubs, cover and insert.

Quick -Flex Insert Maximum Torque Ratings (Nm).

Coupling Series	Red	Blue	White	Black	G Max	H	L1	P	(DBSE) X	Wt* (kg)
QF 15	150	293	293	452	3.20	44	29	45	22	3.18
QF 25	484	913	913	1407	3.56	61	36	64	31	5.90
QF 50	998	1978	1978	2992	5.59	75	45	88	42	9.07
QF 100	2003	3971	3971	6061	9.65	86	48	118	56	21.32
QF 175	3475	6656	6656	9973	8.84	95	51	124	62	29.48
QF 250	4391	8718	8718	13438	6.55	107	59	119	63	36.74
QF 500	8487	16313	16313	24794	9.53	127	70	149	70	67.59
QF 1000	12001	23022	23022	35081	10.41	152	91	158	77	102.51
QF 1890	19869	38937	38937	62597	11.53	184	113	186	85	185.97
QF 3150	33942	64004	64004	98434	11.56	203	127	188	101	245.85
QF 10260	n/a	127817	127817	188794	12.50	251	138	276	144	515.28

NOTES

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