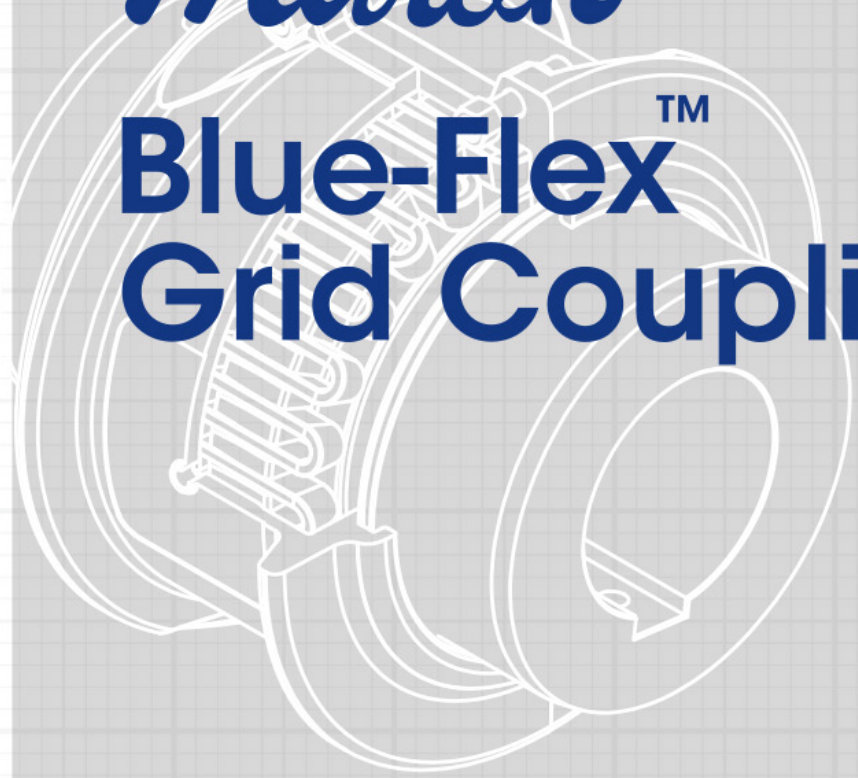


BLUE Flex™

Martin

**Blue-Flex™
Grid Couplings**



Blue-Flex™ Grid Couplings

Martin

Martin Blue-Flex™ Grid Couplings handle high torque levels and high RPM applications in a small package. Unlike other metallic couplings, *Martin* Blue-Flex™ Grid Couplings have the ability to reduce vibration and cushion shock loads to driven and driving power transmitting equipment components.

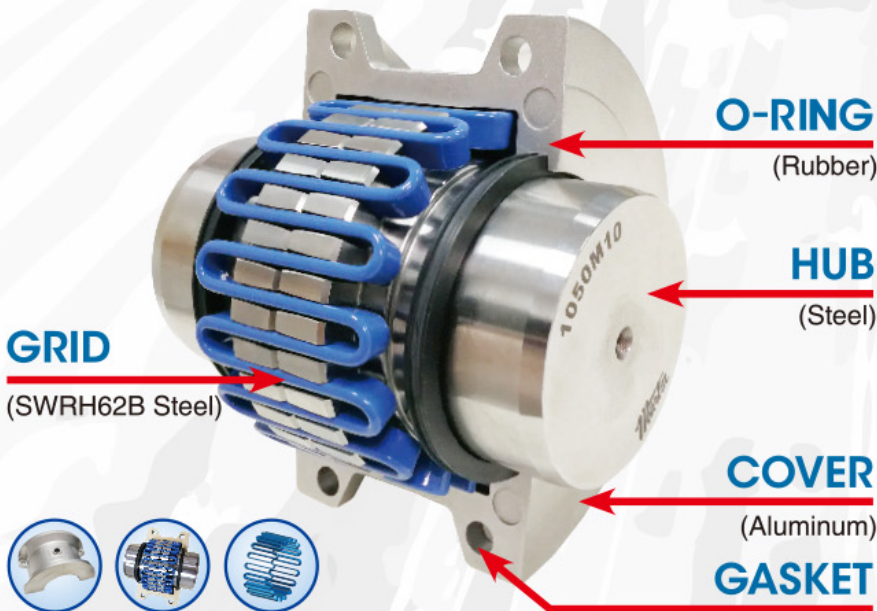
Progressive contact between the curved profile of the hub teeth and the flexible grid makes it possible to absorb impact energy by spreading it out, reducing the magnitude of the peak loads.

Martin Blue-Flex™ Grid Couplings follow the same *Martin* Product/Service Standards that make *Martin* the One Industry Relies On for Quality, Availability and Service.

Popular Industries



Components & Materials



COMPONENTS



GRID



COVER

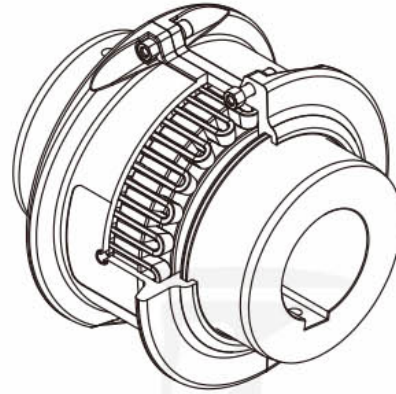
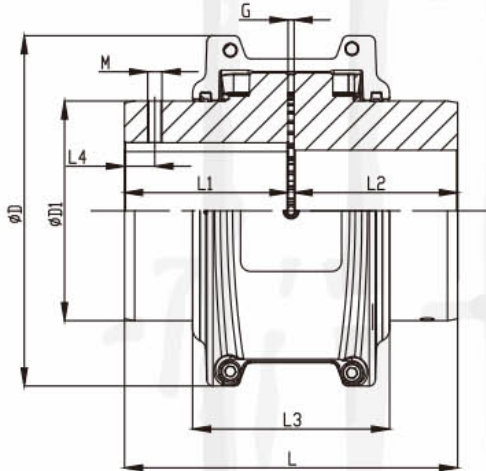


HUBS



GASKET, SEAL, BOLT KIT

M10 Type



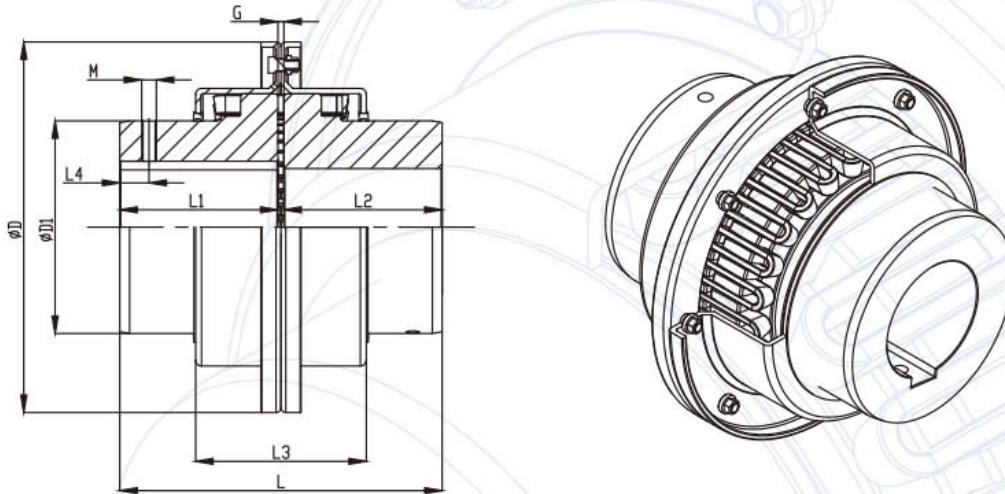
Size	Nominal Torque	Permissible Speed ^①	Max. Bore Size	Dimensions (mm)								Weight ^②	Grease feeding
	Nm			rpm	mm	φ D	φ D1	L	L1/L2	L3	L4		
1020M10	52	4500	30	101.6	39.7	98	47.5	66.5	8	6	3	1.9	0.03
1030M10	149	4500	36	111	49.2	98	47.5	68.3	8	6	3	2.6	0.03
1040M10	249	4500	44	117.5	57.1	104.6	50.8	70	8	8	3	3.4	0.05
1050M10	435	4500	50	138	66.7	123.6	60.3	79.5	8	8	3	5.4	0.05
1060M10	684	4350	57	150.5	76.2	130	63.5	92	8	10	3	7.3	0.09
1070M10	994	4125	65	161.9	87.3	155.4	76.2	95	12	12	3	10	0.11
1080M10	2050	3600	79	194	104.8	180.8	88.9	116	12	12	3	18	0.17
1090M10	3730	3600	95	213	123.8	199.8	98.4	122	16	12	3	25	0.25
1100M10	6280	2440	107	250	142	245.7	120.6	155.5	16	12	4.5	42	0.43
1110M10	9320	2250	117	270	160.3	258.5	127	161.5	20	16	4.5	54	0.51
1120M10	13700	2025	136	308	179.4	304.4	149.2	191.5	20	16	6	81	0.73
1130M10	19900	1800	165	346	217.5	329.8	161.9	195	30	20	6	121	0.91
1140M10	28600	1650	184	384	254	371.6	182.8	201	30	20	6	178	1.13
1150M10	39800	1500	203	453.1	269.2	371.8	182.9	271.3	30	20	6	234	1.95
1160M10	55900	1350	228	501.4	304.8	402.2	198.1	278.9	30	24	6	317	2.81
1170M10	74600	1225	279	566.4	355.6	437.8	215.9	304.3	30	24	6	448	3.49
1180M10	103000	1100	311	629.9	393.7	483.6	238.8	321.1	40	24	6	619	3.76
1190M10	137000	1050	339	675.6	436.9	524.2	259.1	325.1	40	24	6	776	4.4
1200M10	186000	900	361	756.9	467.8	564.8	279.4	355.6	40	24	6	1057	5.62

① If you need higher torque, please contact *Martin*. ② Weight with solid shaft.

Order Sample

Martin Grid	1020M10	d1 20	d2 24
Coupling Type	Part No.	Finished Bore	Finished Bore

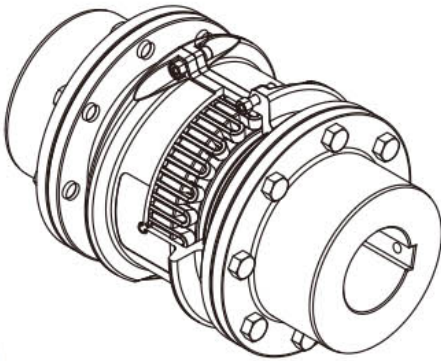
M20 Type



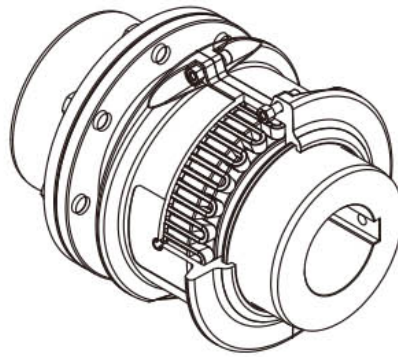
Size	Nominal Torque	Permissible Speed ^①	Max. Bore Size	Dimensions (mm)								Weight ^②	Grease feeding
	Nm	rpm	mm	ϕD	$\phi D1$	L	L1/L2	L3	L4	M	G	Kg	Kg
1020M20	52	6000	30	111.1	39.7	98	47.5	48.4	8	6	3	2	0.03
1030M20	149	6000	36	120.7	49.2	98	47.5	50	8	6	3	2.6	0.03
1040M20	249	6000	44	128.5	57.1	104.6	50.8	51.4	8	8	3	3.4	0.05
1050M20	435	6000	50	147.6	66.7	123.6	60.3	62.4	8	8	3	5.4	0.05
1060M20	684	6000	57	162	76.2	130	63.5	64.4	8	10	3	7.3	0.09
1070M20	994	5500	65	173	87.3	155.4	76.2	67.4	12	12	3	10.4	0.11
1080M20	2050	4750	79	200	104.8	180.8	88.9	88.4	12	12	3	17.7	0.17
1090M20	3730	4000	95	213.8	123.8	199.8	98.4	95.4	16	12	3	25.4	0.25
1100M20	6280	3250	107	266.7	142	245.7	120.6	120	16	12	4.5	42.2	0.43
1110M20	9320	3000	117	285.8	160.3	258.5	127	128.4	20	16	4.5	54.4	0.51
1120M20	13700	2700	136	319	179.4	304.4	149.2	146.8	20	16	6	81.6	0.73
1130M20	19900	2400	165	377.8	217.5	329.8	161.9	150.2	30	20	6	122.5	0.91
1140M20	28600	2200	184	416	254	371.6	182.8	156.4	30	20	6	180.1	1.13
1150M20	39800	2000	203	476.3	269.2	371.8	182.9	213.8	30	20	6	230	1.95
1160M20	55900	1750	228	533.4	304.8	402.2	198.1	228.6	30	24	6	321	2.81
1170M20	74600	1600	279	584.2	355.6	437.8	215.9	238.8	30	24	6	448.2	3.49
1180M20	103000	1400	311	630	393.7	483.6	238.8	260	40	24	6	591	3.76
1190M20	137000	1300	339	685	436.9	524.2	259.1	270	40	24	6	761	4.4
1200M20	186000	1100	361	737	467.8	564.8	279.4	290	40	24	6	1021	5.62

① If you need higher torque, please contact *Martin*. ② Weight with solid shaft.

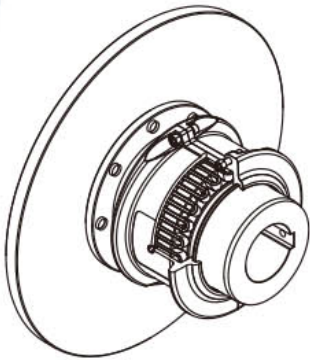
Other Application Types



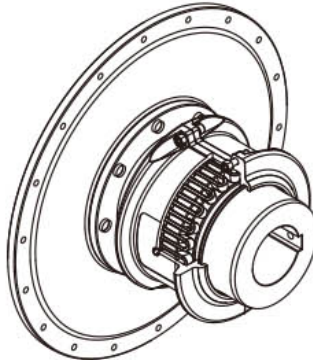
M11 Type
(Two - Piece)



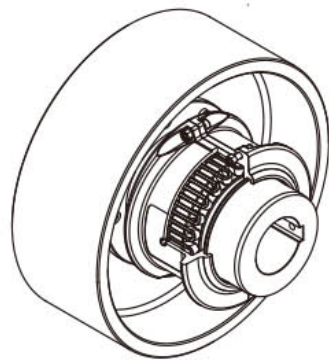
M12 Type
(Single - Piece)



M13 Type
(With Bracking Disc)

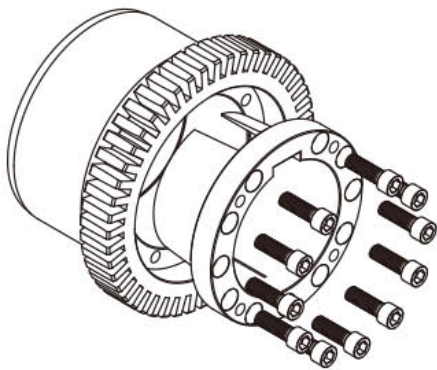


M14 Type
(With Fly Wheel)

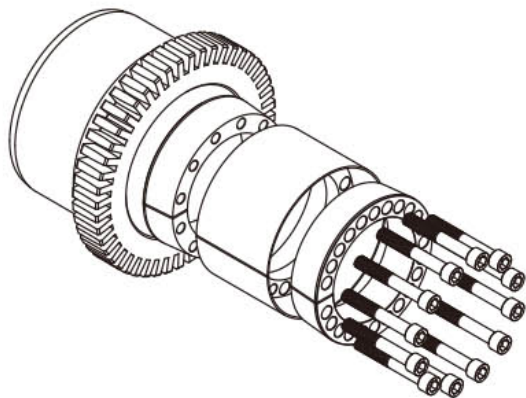


M15 Type
(With Bracking Drum)

Quick Disassemble Solution



With Key Way Shaft



With Plain Shaft

Grid Coupling Selection

Formula for Coupling Selection

- One Way Operation
 $T(Nm) = P(Kw) * 9550/n(rpm) * S1 * S2 \text{ or } S3$
 T-Selection Torque
 P-Input Power
 N-Input Speed
 S1- Start-Stop frequency factor
 S2- General service factor (for quick selection)
 S3- Detail service factor
- Alternate operation of positive and negative directions
 The safety factor should add 1.5 to 3 times base on the safety service factors of one way operation. Please contact *Martin* when you have special requirements.
- Refer to application of Braking Disc & Braking Drum
 Please use below formula to calculate torque when brake horsepower over coupling input power.
 Selection Torque=Brack Torque* S1* S2 or S3

Selection Example

Motor Drive: 200KW
 Application: Log haul-up
 (Selection refer to service factor 2)
 Shaft Diameter: $\phi 90 / \phi 100$
 RPM: 1500rpm
 Start-Stop Frequency: 10 times/h (Start-Stop frequency factor 1)

Calculate Result

$$T = 200Kw * 9550 / 1500rpm * 2 * 1 = 2547Nm$$

Start-Stop frequency factor S1

Start-Stop times/h	10	25	50
S1	1.0	1.25	1.5

Coupling Selection

1090M10 nominal torque 3730Nm, but, one size bore size over the max. bore size 95MM. Therefore, it should choose bigger size 1100M10 with max. bore size 107mm.

General Service Factor S2

Typical application on Electric Motor or Turbine Driven Equipment	Typical Service Factor
Constant torque such as Blowers, Centrifugal Pumps and Compressors	1
Continuous Duty with some torque variations such as Forced Draft fans	1.5
Light shock loads from Briquetting Machine such as Rubber Calendar	2
Moderate shock loading such as Stone Crusher & Vibrating Screen	2.5
Heavy Shock loa such as Crushers, Braking Disc/Drum	3

Detail Service Factors – S3

Driven Equipment	Drive Methods		
	Electric Motor or Turbine	Reciprocating Engines-4/5 Cylinders	Reciprocating Engines-6 or more Cylinders
Paper Mills			
Final Drive-CastTooth Spur Gear Barking Drum L.S. shaft of Reducer with Final Drive - Cast Tooth Spur Gear	3	\	\
Barking Drum L.S. shaft of Reducer with Final Drive - machined Spur Gear & Chipper	2.5	\	\
Barking Drum L.S. shaft of Reducer with Final Drive - Helical or Herringbone Gear, Cutter & Felt Whipper	2	3	2.5
Mixing beater, Calender, Dryer, Pulper, Pulp Grinder, Fourdrinier, Press & Suction Roll	1.75	2.75	2.25
Line Shaft, Reel, Rewinder, Winder & Thicker	1.5	2.5	2
Converting Machine, Felt Stretcher, Pulp Pumps (Centrifugal variable speed)	1.25	2.25	1.75
Bleachers, Coaters & Pulp pump (constant speed centrifugal)	1	2	2.5
Textile Industry			
Calender, Card Machine, Cloth Finishing Machine, Dryer, Loom, Spinner & Tenter Frame	1.5	2.5	2
Batcher, Dyeing Machinery, Mangler, Napper & Soaper	1.25	2.25	1.75
Knitting Machine	Refer to <i>Martin</i>		
Sugar Industry			
Cane Knife & Crusher	2	3	2.5
Cane Carrier & Leveler (Electric Drive or Steam Engine Drive with Helical Herringbone or spur gears)	1.75	2.75	2.25
Turbine Driven with Helical Herringbone gears	1.5	2.5	2
Sewage Disposal Equipment			
Grit Collector, Chemical Feeders, Collectors, Dewatering Screen	1	2	1.5
Construction			
Ore or Stone, Crusher	2.5	\	\
Cement, Aggregate processing, Mining Kilns, Tube, Rod and ball mills (Direct or on L.S. shaft of reducer, with final drive of single helical or herringbone gears)	1.75	2.75	2.25
Cement, Aggregate processing, Mining Kilns, Tube, Rod and ball mills (Direct or on L.S. shaft of reducer, with final drive of machined spur gears)	2	3	2.5
Rubber Industry			
Refiner, Mixing Mill, Plasticator, Cracker, Sheeter (1/2 in line), Intensive Mixer, Tire building machine & Washer	2.5	\	\
Refiner or Sheeter (3/4 in line) & Warming mill (1/2 in line)	2	3	2.5
Tire/Tube Press Opener (Peak Torque)	1	2	1.5
Extruder, Mixing mill, Refiner or Sheeter (5 or more in line), Tuber, Strainer, Pelletizer, Warming mill (3 or more in line)	1.75	2.75	2.25
Brewing and Distilling			
Scale Hopper (Frequent Peaks)	1.75	2.75	2.25
Lauter Tub	1.5	2.5	2

Driven Equipment	Drive Methods		
	Electric Motor or Turbine	Reciprocating Engines-4/5 Cylinders	Reciprocating Engines-6 or more Cylinders
Cookers (continuous duty), Mash tub	1.25	2.25	1.75
Bottle & Can filling machines, Brew kettle	1	2	1.5
Oil Industry			
Paraffin Filter Press	1.5	2.5	2
Oilwell Pumping (not over 150% peak torque), Rotary Kiln	2	3	2.5
Chiller	1.25	2.25	1.75
Lumber			
Rolls, Non-Reversing, Sawdust conveyor	1.25	2.25	1.75
Brand Resaw, Cut-off, Planer, Slab Conveyor, Trimmer	1.75	2.75	2.25
Brand Resaw, Sorting Table	1.5	2.5	2
Edger, Head Rig, Reversing	2	3	2.5
Grand Saw (Reciprocating)	Refer to <i>Martin</i>		
Food Industry			
Botting, Can filling machine	1	2	1.5
Cereal Cooker	1.25	2.25	1.75
Meat grinder, Dough mixer, Beet Slicer	1.75	2.75	2.25
Clay Working Industry			
Brick press, briquette machine, Clay working machine, Plug mill	1.75	2.75	2.25
Dredges			
Conveyor	1.25	2.25	1.75
Maneuvering winch, Pumps (Uniform Load), utility qinch	1.5	2.5	2
Cable Reel, Screen Drive, Stacker	1.75	2.75	2.25
Cutter head, Jig drive	2	3	2.5
Metal Rolling Mill			
Soaking pit cover drives-Lift	1	2	1.5
Coilers (up & down) cold mills only, Cooling beds, Mill tables hot bed or transfer, Non-reversing	1.5	2.5	2
Reel drives, Slitters, Steel mill only, Wire drawing machinery	1.75	2.75	2.25
Coilers (up & down) hot mills only, Coke plants door opener, Drawbench, Furnace pusher, Hot & cold saws, Ingot cars, Mill tables runout, Non-reversing, Non-plugging, Screwdown, Seamless tube mills-thrust block, Tube conveyor rolls, Reeler, Kick out, Soaking pit cover drives-travel, Straighteners, Unscramblers	2	3	2.5
Coke plants pusher ram	2.5	\	\
Coke plants pusher or larry car traction drive, Feed rolls-blooming mills, Manipulators, Mill tables roughing breakdown mills, Runout, Reversing, Seamless tube mill piercer, Sideguards	3	\	\
Cold mills, Hot mills, Merchant Mills, Rod mills, Skelp mills	Refer to <i>Martin</i>		
Fans			
Centrifugal, Forced draft motor driven though fluid or electric slip clutch	1	2	1.5
Induced draft with damper control or blade cleaner	1.25	2.25	1.75

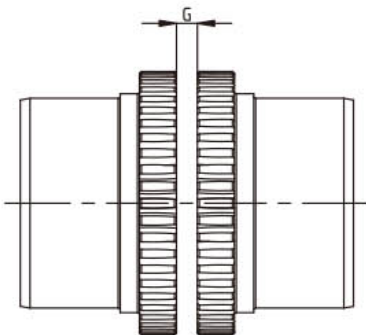
Driven Equipment	Drive Methods		
	Electric Motor or Turbine	Reciprocating Engines-4/5 Cylinders	Reciprocating Engines-6 or more Cylinders
Gas recirculating	1.5	2.5	2
Cooling tower, induced draft without controls	2	3	2.5
Other ventilation device	2	3	2.5
Pump			
Centrifugal Constant Speed	1	2	1.5
Centrifugal Frequent Speed changes under load, Descaling, Gear, Rotary, Vane	1.25	2.25	1.75
Reciprocating, 3 or more cylinders	1.5	2.5	2
Reciprocating, 2 cylinders, double acting	1.75	2.75	2.25
Reciprocating, 2 cylinders, single acting	2	3	2.5
Reciprocating, 1 cylinder, single/double acting	3	\	\
Screens			
Air Washing, Water	1	2	1.5
Rotary Coal, Sand	1.5	2.5	2
Grizzly	2	3	2.5
Vibrating	2.5	\	\
Sling, Lift	Not Recommended		
Steering gear	1	2	1.5
Stoker	1	2	1.5
Tumbling barrel	1.75	2.75	2.25
Winch, Maneuvering dredge, Marine	1.5	2.5	2
Tugboat	1.5	2.5	2
Windlass	1.5	2.5	2
Woodworking machinery	1	2	1.5
Work lift platforms	Not Recommended		
Vertical/Horizontal screw, propeller, Paddle	1	2	1.5
Centrifugal blowers	1	2	1.5
Lobe & vane blowers	1.25	2.25	1.75
Car dumpers	2.5	\	\
Car pullers	1.5	2.5	2
Clarifier, Classifier	1	2	1.5
Compressor			
Centrifugal, Rotary, Screw	1	2	1.5
Rotary, lobe or Vane	1.25	2.25	1.75
Reciprocating with flywheel and gear between compressor and prime mover 4 or more cylinders single/double acting	1.75	2.75	2.25
Reciprocating with flywheel and gear between compressor and prime mover cylinders double acting	2	3	2.5
Reciprocating with flywheel and gear between compressor and prime mover ½ cylinder single/double acting and 3 cylinders single acting	3		
Without flywheels	Refer to <i>Martin</i>		

Driven Equipment	Drive Methods		
	Electric Motor or Turbine	Reciprocating Engines-4/5 Cylinders	Reciprocating Engines-6 or more Cylinders
Conveyors			
Apron, Assembly, Flight, Screw, Belt, Chain	1	2	1.5
Bucket	1.25	2.25	1.75
Reciprocating drive roller, Shaker	3	\	\
Cranes, Hist			
Slope	1.5	2.5	2
Main or skip hoist, Bridge, Travel, Trolley	1.75	2.75	2.25
Dynamometer	1	2	1.5
Elevators			
Bucket, Centrifugal, Discharge, Gravity discharge	1.25	2.25	1.75
Freight or passenger	Not Recommended		
Escalators	Not Recommended		
Extruder, Plastic	1.5	2.5	2
Feeder			
Apron, belt, Screw, Disc	1	2	1.5
Reciprocating	2.5	\	\
Generators			
Even load	1	2	1.5
Hoist or railway service	1.5	2.5	2
Welder load	2	3	2.5
Hammermill	1.75	2.75	2.25
Laundrywasher or Tumber	2	3	2.5
Any processing machinery	1.5	2.5	2
Machine tools			
Auxiliary, Traverse drive	1	2	1.5
Main drive	1.5	2.5	2
Bending roll, Notching press, Punch press, Planer, Plate, Reversing	1.75	2.75	2.25
Manlifts	Not Recommended		
Metal forming machines			
Slitters	1	2	1.5
Wire winder, Coilers, uncoliers	1.5	2.5	2
Wire drawing, Flattening	1.75	2.75	2.25
Draw bench carriage, main drive, Extruder. Forming	2	3	2.5
Muller	1.5	2.5	2
Concrete	1.75	2.75	2.25
Printing Press	1.5	2.5	2
Pug Mill	1.75	2.75	2.25
Pulverizers			
Roller	1.5	2.5	2

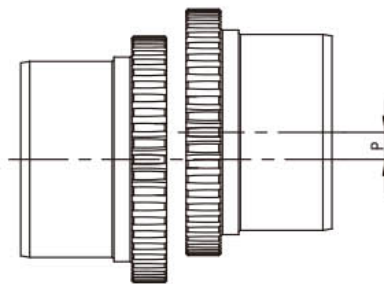
Correcting Deviating Ability

Size	Max. Permissible Deviation				Shaft Axial Clearance		
	P	X-Y	P	X-Y	G		
	Assembling		Operating		Min.(mm)	Standard (mm) ±10%	Max.(mm)
	Axial (mm)	Angular ①	Radial (mm)	Angular ①			
1020	0.15	0.06	0.3	0.24	1.5	3	4.5
1030	0.15	0.07	0.3	0.29	1.5	3	4.5
1040	0.15	0.08	0.3	0.32	1.5	3	4.5
1050	0.2	0.1	0.4	0.39	1.5	3	4.5
1060	0.2	0.11	0.4	0.45	1.5	3	4.5
1070	0.2	0.12	0.4	0.5	1.5	3	4.5
1080	0.2	0.15	0.4	0.61	1.5	3	4.5
1090	0.2	0.17	0.4	0.7	1.5	3	6
1100	0.25	0.2	0.5	0.82	1.5	4.5	9.5
1110	0.25	0.22	0.5	0.9	1.5	4.5	9.5
1120	0.28	0.25	0.56	1.01	1.5	6	12.5
1130	0.28	0.3	0.56	1.19	1.5	6	12.5
1140	0.28	0.33	0.56	1.34	1.5	6	12.5
1150	0.3	0.39	0.6	1.56	1.5	6	12.5
1160	0.3	0.44	0.6	1.77	1.5	6	12.5
1170	0.3	0.5	0.6	2	1.5	6	12.5
1180	0.38	0.56	0.76	2.26	1.5	6	12.5
1190	0.38	0.61	0.76	2.44	1.5	6	12.5
1200	0.38	0.68	0.76	2.72	1.5	6	12.5

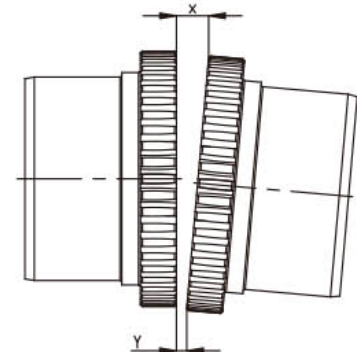
① Assembling: the max. angular misalignment is 1/16°
 Operating: the max. angular misalignment is 1/4°



Shaft Misalignment



Radial Misalignment



Angular Misalignment

Conical section grid coupling with *Martin* special hub radian design can allow the spring sliding and swing freely in the hub and the service life almost will not be affected, it can keep the ability of shock-absorbing and buffering of grid coupling and also can complete the torque transmission at the same time.



USA

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