

G-Flex Grid Couplings

The Original Bibby
Grid Coupling

F4



- Long Life
- Low Maintenance
- Design Flexibility

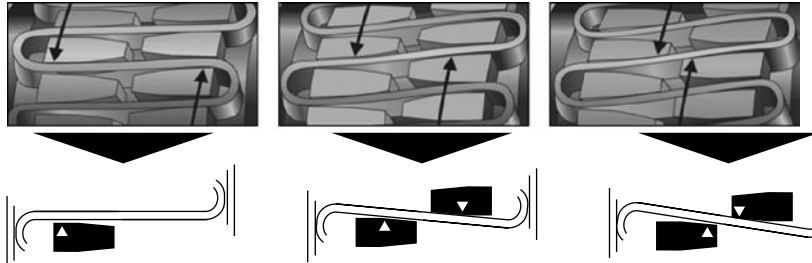
G-Flex Grid Couplings

Features

Principal of Operation

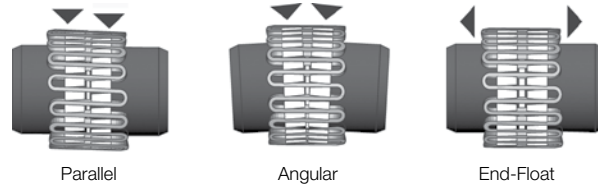
Positive protection against the damaging effects of shock loads, impact loads and vibration.

The grid is torsionally flexible. The circumferential flexibility is progressive due to the curved profile of the grooves – ‘state-of-the-art’ in resilient coupling design.



Accommodating Shaft Misalignment and End-Float

The grid will accommodate combinations of misalignments present at set-up or occurring during machine displacement, settlement, etc.

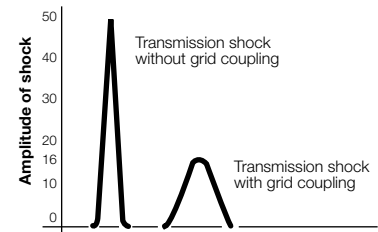


Limited End-Float kits are available on request.

Effectiveness of Torsional Damping

As the grid coupling transmits torque, the flexing of the tapered grid spring damps vibrations and cushions shock loads.

This unique characteristic is due to the torsional flexibility of the coupling being proportionate to the unsupported length of each flexible grid rung. The resultant reduction in peak loading protects and extends the life of the transmission equipment.



Versatile Design

Both 1000T10 and 1000T20 couplings feature identical hubs and grid springs, the different cover styles provide great versatility – one is horizontally split “T10”, the other is vertically split “T20”.

All coupling components are designed to be interchangeable with other taper grid couplings. The stock coupling can be used vertically or horizontally without modification.

Easy Installation and Maintenance

The grid springs are easily installed by hand or with a soft mallet. The cover fasteners can be tightened with standard wrenches. Every TB Wood’s coupling is delivered with detailed installation instructions. Periodic Lubrication of the coupling is required and each cover half is supplied with standard plugs which can be easily removed for re-lubrication.

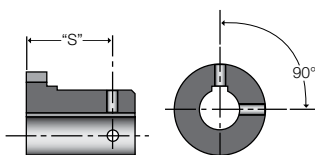
Recommended Fits between Shafts and Hubs

Coupling bore tolerances for sizes up to and including 1090T can be specified to suit a clearance fit with the shaft. In these instances the hub is provided with set screws. Relative positions are given in the following table.

“S” Position from Hub Faces

1020 = 1.2”	1060 = 2.0”
1030 = 1.3”	1070 = 2.1”
1040 = 1.5”	1080 = 2.5”
1050 = 1.7”	1090 = 2.8”

For sizes above 1090T or where interference fits are preferred for smaller coupling sizes, bore tolerances will be consistent with AGMA standards.



Taper Grid Resilient Couplings

Series 1000T10 And Series 1000T20

Dr. James Bibby originally invented the Resilient Coupling in 1917 and the 1000 Series is the latest level of this well accepted product. This Bibby Turboflex product has become universally accepted where reliable protection against shaft misalignment and vibration is desirable.

Since those early days refinements in design and material specifications have kept pace with advancing technology, achieving significant improvements in power/weight ratios.

TB Woods is proud to offer this proven product.



1000T10

- Horizontally Split Cover
- General Purpose
- Easy access to grid minimizes downtime
- Ideal for limited space applications
- Stop lug in cover prevents spinning during reversing service



1000T20

- Vertically Split Cover
- General purpose
- Ideal for higher running speeds

High Performance

The TB Wood's Taper Grid Coupling continues that tradition. The tapered grid is made from high tensile alloy steel which is carefully formed to the grid shape before hardening and tempering under controlled conditions. The grid surface is then shot-peened. This process leaves the grid spring with a residually stressed surface layer which is in compression and which impedes the propagation of cracks. Since nearly all fatigue and stress corrosion failures originate at the surface of a part, the layer of compressive stress induced by shot-peening produces a dramatic increase in the working life and fatigue strength of the grid. This technological improvement in manufacturing process coupled with precise monitoring of raw material specification and control of trapezoidal shape, permits TB Wood's to offer state of the art grid springs of high performance and reliability.

Scientific Design

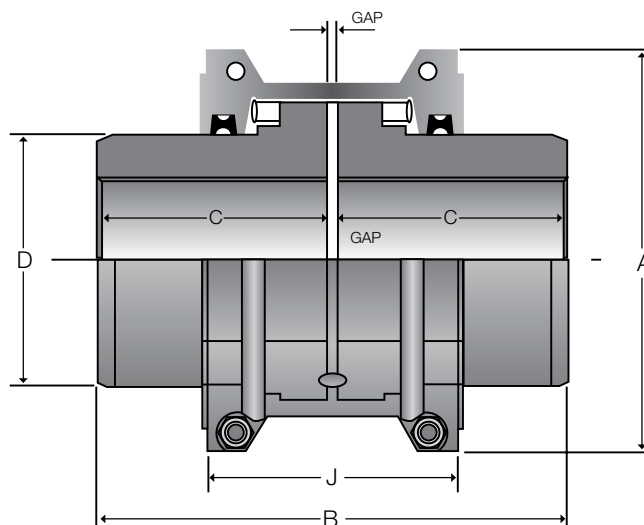
The hub is precision manufactured from high quality materials, with the hub tooth profile scientifically designed to permit progressive loading under torsional shock conditions. The combination of tapered grid and precision manufactured hub provides easy assembly. The excellent shock absorption characteristics, and the ability to accommodate misalignment protects the connected equipment.

Long Life

While the coupling is designed for long life under tough conditions, maintenance and taper grid replacement can be performed quickly and easily without the need to move and realign connected equipment. Two cover design options are available in the TB Wood's range of couplings. Both designs have been carefully engineered to provide a shaft coupling which is highly reliable and easy to install.

Horizontally Split Cover Couplings

Series 1000T10



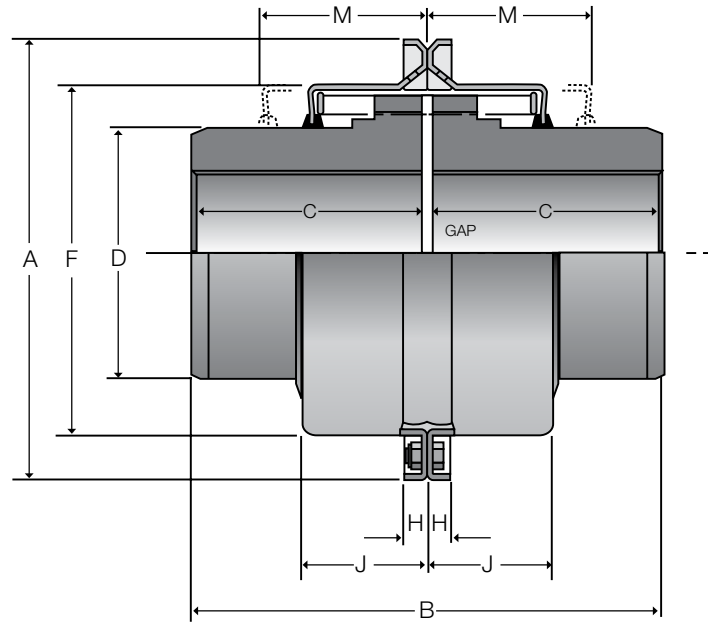
SIZE	COUPLING RATING (IN-LBS)	MAX SPEED	MIN BORE (IN)	MAX BORE (IN)**	CPLG WT (LBS)*	WR ² / (LB/FT ²)*	DIMENSIONS IN INCHES					
							A	B	C	D	J	GAP
1020	460	4500	0.50	1.13	4.0	4.8	4.02	3.86	1.87	1.56	2.64	0.13
1030	1,319	4500	0.50	1.38	5.3	7.5	4.37	3.86	1.87	1.94	2.68	0.13
1040	2,204	4500	0.50	1.63	7.1	11	4.65	4.13	2.00	2.25	2.76	0.13
1050	3,850	4500	0.50	1.88	12	24	5.43	4.88	2.37	2.63	3.11	0.13
1060	6,054	4350	0.75	2.13	16	41	5.94	5.12	2.50	3.00	3.62	0.13
1070	8,798	4125	0.75	2.50	22	62	6.38	6.14	3.00	3.44	3.74	0.13
1080	18,144	3600	1.06	3.00	39	154	7.64	7.13	3.50	4.13	4.57	0.13
1090	33,013	3600	1.06	3.50	54	269	8.39	7.87	3.87	4.87	4.80	0.13
1100	55,582	2440	1.63	4.00	91	615	9.88	9.69	4.75	5.59	6.14	0.19
1110	82,489	2250	1.63	4.50	118	923	10.63	10.20	5.00	6.31	6.42	0.19
1120	121,255	2025	2.38	5.00	174	1743	12.13	12.01	5.87	7.06	7.56	0.25
1130	176,129	1800	2.63	6.00	260	3383	13.66	12.99	6.37	8.56	7.68	0.25
1140	253,130	1650	2.63	7.25	388	6322	15.12	14.76	7.25	10.00	7.91	0.25

* Coupling weight and WR² with no bore

** Max bore is for hub with keyway for rectangular key

Vertically Split Cover Couplings

Series 1000T20



SIZE	COUPLING RATING (IN-LBS)	MAX RPM	MIN BORE (IN)	MAX BORE (IN)**	CPLG WT (LBS)*	WR2/ (LB/ FT2)*	DIMENSIONS IN INCHES								
							A	B	C	D	F	H	J	M	GAP
1020	460	6000	0.50	1.13	3.5	3.8	4.37	3.86	1.87	1.56	2.48	0.37	0.96	1.89	0.13
1030	1,319	6000	0.50	1.38	4.9	6.2	4.76	3.86	1.87	1.94	2.83	0.37	0.99	1.89	0.13
1040	2,204	6000	0.50	1.63	6.6	9.2	5.08	4.13	2.00	2.25	3.15	0.37	1.02	2.01	0.13
1050	3,850	6000	0.50	1.88	11	22	5.83	4.88	2.37	2.63	3.82	0.51	1.24	2.40	0.13
1060	6,054	6000	0.75	2.13	15	34	6.38	5.12	2.50	3.00	4.33	0.51	1.27	2.52	0.13
1070	8,798	5500	0.75	2.50	21	55	6.81	6.14	3.00	3.44	4.76	0.51	1.33	2.64	0.13
1080	18,144	4750	1.06	3.00	37	133	7.87	7.13	3.50	4.13	5.87	0.51	1.74	3.50	0.13
1090	33,013	4000	1.06	3.50	52	246	9.13	7.87	3.87	4.87	6.61	0.51	1.86	3.78	0.13
1100	55,582	3250	1.63	4.00	87	588	10.51	9.69	4.75	5.59	7.80	0.63	2.37	4.76	0.19
1110	82,489	3000	1.63	4.50	114	892	11.26	10.20	5.00	6.31	8.50	0.63	2.49	4.88	0.19
1120	121,255	2700	2.38	5.00	167	1709	12.56	12.01	5.87	7.06	9.69	0.63	2.91	5.63	0.25
1130	176,129	2400	2.63	6.00	254	3691	14.88	12.99	6.37	8.56	11.18	0.87	2.97	5.79	0.25
1140	253,130	2200	2.63	7.25	381	6475	16.38	14.76	7.25	10.00	12.68	0.87	3.09	6.14	0.25

* Coupling weight and WR² with no bore

** Max bore is for hub with keyway for rectangular key

Coupling Selection

Procedure

Use the Application Service Factor table, Torque Rating and Maximum Coupling Bore Sizes tables to assist you in the selection procedure for products listed in this catalog. Contact TB Wood's technical staff to discuss any special requirements.

1. Select Service Factor (SF).
From Table 1 (see page F4-8) and
Table 1A (see page F4-9)

2. Calculate required minimum
basic rating:

a) Normal Service (Nominal Torque)

$$\text{Basic Rating (in.lb.)} = \frac{\text{Transmitted Power (HP)} \times 63025 \times \text{SF}}{\text{RPM}}$$

b) Repetitive High Peak Torque Applications – See *Note

c) Non Reversing Duty

$$\text{Selection Torque (in.lb.)} = \text{Nominal Torque (from a. above)}$$

$$\text{Selection Torque (in.lb.)} = 2 \times \text{Nominal Torque (from a. above)}$$

3. Select coupling having a basic rating equal to or exceeding the calculated value.
4. Check that speed does not exceed the coupling maximum speed.
5. Use Maximum Coupling Bore Sizes Table to determine Maximum Coupling Bore suitable for respective driving and driven shafts.

***Note:**

- The system peak torque is the maximum load created by the driving or driven equipment.
- Occasional peak torques of twice the catalog rating can be accommodated providing they occur less than 1000 times during the life of the coupling.

Recommended fit between shafts and hubs

Stock bore hubs are supplied with a clearance fit on sizes VP to and including 1090. Larger sizes are supplied with an interference fit.

How To Select A Grid Coupling

The standard selection method can be used for most motor or engine driven applications. The following information is required to make a selection.

- 1 Power to be handled (HP) - P
- 2 (Alternative to Power is Torque (in.lb.) - T
- 3 Speed of operation (rpm) - N
- 4 Distance between the Shaft Ends - DBSE
- 5 Shaft Diameters for Driver & Driven Machines - D1 & D2

Select style of coupling deemed most favorable for the application. (Horizontal T10 or Vertical T20)

Select an appropriate service factor (SF) from Application Service Factors table.

Calculate the required rating as $SF \times T$.

From technical details on pages F4-4 and F4-5 select coupling with suitable rating.

Do the shafts (D1 & D2) fit in the selected coupling?

no

A Consult TB Wood's.
B Select alternative coupling size or style.

yes

Will the selected coupling handle the required speed?

no

yes

Is misalignment capacity of the coupling OK for the application?

no

yes

Does coupling fit in the overall space envelope? (DBSE, ect.) & is mass, ect. OK?

no

yes

Selected coupling may be used for preliminary information. TB Wood's HIGHLY RECOMMENDS that all selections be clarified at time of order or before any critical decisions are made.

Application Service Factors

Table 1

Application	Service Factor	Application	Service Factor	Application	Service Factor
Agitators	1.0	Laundry Machines	2.0	Rubber Industry	
Blowers		Machine Tools		Extruder	1.75
Centrifugal	1.0	Main drives	1.5	Calender	2.0
Lobe/Vane	1.25	Notching press/Planer/Punch	1.75	Bunbury mixer/Cracker/Mixing	
Clay Working Machines		Auxiliary and traverse drives	2.0	mill/Plasticator/Refiner	2.5
Brick press, Pug mill, Briquette machine ..	1.75	Metalworking		Steel Industry	
Compressors		Presses	2.0	Soaking pit/Cover drive:	
Centrifugal	1.0	Hammers	2.0	Lift	1.0
Lobe/Rotary	1.25	Straighteners	2.0	Travel	2.0
Reciprocating		Bending	1.5	Coilers (up or down) cold mills only	1.5
1 to 3 cylinders	3.0	Shears	1.5	Coilers (up or down) hot mills only	2.0
4 or more cylinders	1.75	Punching	2.0	Coke Plants	
Conveyors		Mills (Rotary type)		Pusher rain drive	2.5
Uniformly fed horizontal:		Ball or pebble	2.0	Door opener	2.0
Screw, Apron, Assembly, Belt, Chain,		Rod or tube	2.0	Pusher and Lorry car traction drive	3.0
Flight, Oven	1.0	Dryer and cooler	1.75	Cold mills – Strip and temper mills	2.0
Heavy Duty:		Mixers		Hot mills – Strip and sheet mills	3.0
Dredge, Inclined belt and screw	1.5	Drum	1.5	Reversing, blooming or slabbing mills	
Reciprocating	3.0	Concrete (continuous or intermittent)	1.75	Refer to TB Wood's	
Cranes and Hoists		Grizzly	2.0	Edging mills	
Main hoist – medium duty/mine haulage	2.5	Oil Industry		Refer to TB Wood's	
Main hoist – heavy duty	3.0	Chiller	1.25	Cooling beds	1.5
Long or cross travel/Slew or luff skip		Oil well pumping		Wire drawing/Slitters, steel mills only	1.75
hoist/slope	1.75	(<than 150% peak torque)	2.0	Drawbench/Furnace pusher/hot	
Crushers	2.5	Paper Mills		and cold saws/Ingot curs/Reelers/	
Dredgers	2.0	Bleacher	1.0	Straighteners	2.0
Elevators		Felt stretcher	1.25	Seamless tube mills piercer/	
Centrifugal and gravity discharge	1.25	Stock chest/stock pump – rotary/winder	1.5	Rod mills/mill tables/Manipulators/ Feed	
Fans		Bleacher and pulper/Calender/Couch/		rolls-blooming mills	3.0
Centrifugal	1.0	Dryer/Fourdrinier/ Press/Pulp grinder/		Sugar Industry	
Forced draft	1.5	Suction roll	1.75	Cane carrier and leveller	1.75
Induced draft with damper	1.5	Jordan/Stock pump-reciprocating	2.0	Cane knife and crusher	2.0
Mine/Cooling tower	2.0	Barking drum/Chipper	2.5	Mill stands Turbine driven-Helical	
Induced draught without control	2.0	Plastic		or Herringbone gears	1.5
Food		Calenders/Crushers/Extruders/Mixers	1.5	Electric drive or steam driven with	
Beet slicer	1.75	Pulverizers		all Helical or Herringbone or spur	
Cereal cooker	1.25	Roller/Hammer mill, light duty	1.5	gears with any prime mover	1.75
Dough mixer	1.75	Hog/Hummer mill, heavy duty	1.75	Textiles	
Meat grinder	1.75	Pumps		Batcher	1.25
Bottling, can filling	1.00	Centrifugal	1.0	Dyeing machinery	1.25
Generators		Descaling with accumulators/ Rotary gear,		Calender/Card machine/Dry can/Loom	1.5
Even load	1.0	Lobe and Vane	1.25	Tobacco and Cigarette Machinery	1.5
Hoist and Railway service	1.5	Reciprocating		Water Waste Treatment	
Welder load	2.0	1 cylinder, single or double acting	3.0	Aerators	1.5
Kiln	2.0	2 cylinder, single acting	2.0	Screw pumps	1.5
		2 cylinders, double acting	1.75	Screens	1.5
		3 cylinders or more	1.5	Wind Turbines	1.25
				Wood Working Machinery	
				Trimmers, haulage, barkers, planes, saws	2.0

The above service factors are for general guidance only and should be considered as a minimum. They are complimentary to customers specialist knowledge for their own equipment.

Reciprocating Engines

Table 1A

Number of Cylinders	Service Factor
6 and over	0.5 + S.F. Table 1
4 or less	1.0 + S.F. Table 1
Less than 4	Refer to TB Wood's

For drives where the operation is near or actually passes through a major torsional natural frequency, a mass elastic analysis of the system is advised. When the Service Factor in Table 1 is greater than 2.0, consult your supplier or TB Wood's.

Rating – To determine the torque rating, calculate using the procedures given on page F4-6. Information may also be found on the nameplate of the motor, etc.

Service Factor – When selecting a coupling it is important to consider the characteristics of the drive and driven equipment. A figure known as the Service Factor has been calculated based on an average of a wide range of applications. This can be used as a guide in the selection process and is displayed in Table 1 on page F4-8.

Size – In making the decision from the following product groups which is most suited to the application, select a size equal to or higher than the rating calculated. Particular attention should be made to bore sizes, and guidance for this is in the Table related to Max Bore Sizes.

Speed – Ensure that the speed is compatible.

Should full information not be supplied to TB Wood's at the time of ordering, it will be the responsibility of the customer to ensure that the coupling has been correctly selected.

As our policy is one of continual improvement, this specification is not to be regarded as binding in any way, and is subject to alteration without notice. Certified drawings are available on request.

Stock Bores

Stock Grid Inch Hubs

BORE (IN.)	PRODUCT NO.	1020T	1030T	1040T	1050T	1060T	1070T	1080T	1090T	1100T	1110T	1120T	1130T	1140T
Solid-No bore	RB	X	X	X	X	X	X	X	X	X	X	X	X	X
1/2	12	X												
9/16	9/16	X												
5/8	58	X	X											
3/4	34	X	X	X	X									
7/8	78	X	X	X	X	X								
15/16	15/16	X	X	X	X									
1	1	X	X	X	X	X	X							
1-1/16	1116	X	X	X	X	X								
1-1/8	118	X	X	X	X	X	X							
1-3/16	1316		X	X										
1-1/4	114		X	X	X	X	X	X						
1-3/8	138		X	X	X	X	X	X	X					
1-7/16	1716			X	X	X	X	X	X					
1-1/2	112			X	X	X	X	X	X					
1-9/16	1916			X	X	X	X							
1-5/8	158			X	X	X	X	X	X					
1-11/16	11116				X		X	X						
1-3/4	134				X	X	X	X	X					
1-13/16	11316				X	X	X							
1-7/8	178				X	X	X	X	X					
1-15/16	11516					X	X	X	X					
2	2					X	X	X	X	X				
2-1/8	218					X	X	X	X	X				
2-3/16	2316						X	X						
2-1/4	214						X	X	X	X				
2-3/8	238						X	X	X	X				
2-7/16	2716						X	X	X	X				
2-1/2	212						X	X	X	X	X			
2-5/8	258							X	X	X				
2-11/16	21116							X						
2-3/4	234							X	X	X	X			
2-7/8	278							X	X	X	X			
2-15/16	21516							X	X	X				
3	3							X	X	X	X	X		
3-1/8	318								X	X				
3-1/4	314								X	X	X	X		
3-3/8	338								X	X	X			
3-7/16	3716								X	X	X			
3-1/2	312								X	X	X	X		
3-5/8	358								X	X	X			
3-3/4	334										X			
3-7/8	378									X	X	X		
3-15/16	31516									X	X	X		
4	4									X	X	X		
4-1/8	418										X			
4-3/16	4316										X			
4-7/16	4716										X			
4-1/2	412										X	X	X	
4-15/16	41516											X	X	
5	5											X		
5-7/16	5716												X	
Max Bore		1-1/8	1-3/8	1-5/8	1-7/8	2-1/8	2-1/2	3	3-5/8	4	4-1/2	5	6	7-1/4

Max bore is for hub w/ keyway for rectangular key

Example: Size 1020 coupling hub with 1-1/8" bore = 1020T118
 Size 1040 coupling hub with NO bore - for rebore = 1040TRB