NSPT Taper Bushings

NSPT Taper Bushing series include three standard Bushings: BTL, QTL and STL. They are widely used together with Sprockets, V-belt Pulleys, Timing Pulleys, Couplings, Gears and other mechanical parts with taper bore connections.



NSPT Taper Bushing series are made of high-quality engineered materials with great tolerance. The feature is easy to use and needs no additional alteration. These bushings can suit almost all kinds of assemblies and sizes. They are the best choice in design for mechanical connections.

BTL Taper Bushings

1008 - 5050
6050 - 12100





BTL Taper bushing supplied by NSPT is made of GG25 cast iron. With precise machining, it is sold with set screws imported from Japan and packed in nice cartons individually.

The Specifications for BTL Taper Bushing:

- *1008-5050 items can be sold off-the-shelf based on the stock with immediate delivery.*

  Taper holes can be in BS or UNC standard; bores and keyways are available both in metric and standard.

  They are suitable for European, the United States and Japanese markets.

- *6050-12100 bushings are produced made-to-order and delivered with the fastest arrangment possible. Bores and keyways can be in metric and/or in inch according to BS and UNC standard.*

BTL Taper Bushings

Taper bushing is a new way of joining mechanical transmission. It has changed the traditional way of design: easy-on, easy-off, compact construction and high standardization. The grip is tightened through its taper surface with excellent concentricity and nonclearance joint; its transmission efficiency is better than the old way.

They are designed in standard series. The bore, keyway and thread are machined in accordance of ISO standard. It is interchangeable, and the customers can make their own choice according to the purposes and usages. This new type of joint is widely used today.

The gray cast iron is the common material. If high tensional bushing is required, ductile iron, steel or forged steel may be used. Bushings made of stainless steel can be used together with sprockets, clutches, gears and other transmission parts that are also made of stainless steel.

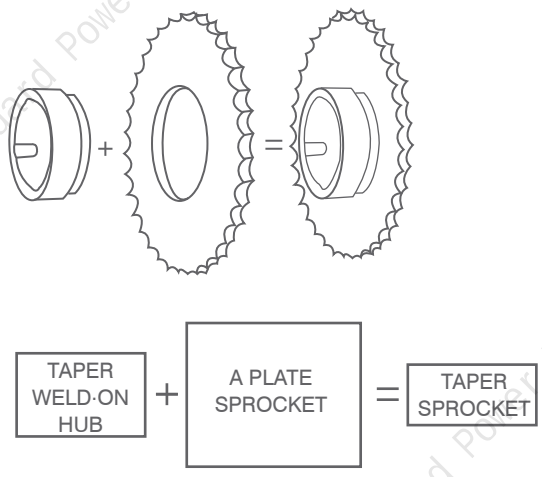
When shaft hub is used with other transmission parts, in the starting and frequent reversed movements, it will likely cause damages to the bore and keyway or degrade precision due to pressing loads. If the case is a severe one, the whole transmission part will be ruined. This would be largely reduced if BTL taper bushing is used.



In case the bore and keyway are damaged; the production will be resumed as long as the old bushing is removed and the new one is assembled. The lifetime of the transmission will be increased sharply, and the maintenance expense will be reduced greatly.

The BTL Taper bushing sold by NSPT, INC. includes taper bushing itself and relevant tightening screws (also includes packaging).

If more detailed information is required, please contact us directly.





BTL Taper Bushings

Taper Bushing (abbreviated as "Bushing") is a new type of elastic components in shaft-hub connection. It is widely used in pulleys, timing belt pulleys, gears, sprockets, bevels, couplings, rollers, sheaves, agitators, impellers, fan rotors and other products that need to be shaft mounted.

Characteristics:

1) Extremely secure fitting on shaft with excellent concentricity;

2) Easy on and easy off without interference elastic clip and requires low maintenance;

3) Better shocking resistance, longer lifetime, and better reliability and stability. Used under frequent starting and inversion situations, heavy pressing load and other severe operating conditions;

4) Widely used in many circumstances and offers large range of mounting between all kinds of transmission components and shafts with different diameters. Easy to standardize, easy to disassemble and good for large-scale productions for cost reduction purpose.

Nowadays, traditional connection method by keys is still widely used in mechanical transmissions. However, it has bad concentricity that causes low reliability and stability. The installation is inconvenient, and the keyway connection is easy to be worn out under heavy load. All of the disadvantages have been change in the 1980s since the invention of taper bore bushings, which have become an increasingly popular new type of mechanical joint component in European, the United States, and Japanese markets year after year.

1. Basic structure and working principles of bushing connections:

Bushings mate with taper holed hubs through 4° semi-taper angle surfaces. The shaft is secured by the frictional force through tightened screws, not through keys like in the traditional method. The torque will be transmitted when the bushing bores shrink during the tightening of the screws. Therefore, the structure and quality of tightening screws depend on the type and specification of bushings. The keys are only the secondary feature and the keyway is more useful for increasing elasticity. The bushings are removable and durable if installed with the original screws provided by NSPT.

2. Bushing structure selection

There are three different types of NSPT bushings: BTL, QTL and STL. The right bushing type should be chosen based on features and usages.

2.1 Common Type (BTL Bushings)

The outside dimension of the transmission parts will not be increased if this type of bushing is used. It is hub connected with a compact structure and sold with matching cap screws. This type of bushing has an even and nice outlook. BTL bushings are used to connect with taper bored transmission devices or used together with taper weld-on hubs. This type of bushing is the most common one with the largest amount of users worldwide.

2.2 Flange Type (QTL Bushings)

This type of bushing has simple structure and is designed for easy installation. It is mated with hex screws as tightening screws for increased loosening resistance and reliability. However, the outside dimension of the transmission parts will be bigger than normal. This disadvantage makes QTL bushings more suitable for shorter hubs or devices with low requirements on dimension and weight.

2.3 Adapters

NSPT Taper bore adapters are recommended for mating with straight bore hubs. By adopting NSPT adapters, problems such as close mating with shaft, over-inserting, difficult installation or easy damaging to the finish surface (especially for rolling bearings) will be solved. However, the radial dimension will increase when using this type of bushing. This disadvantage makes NSPT adapters more suitable for conditions when bearing dimensions decide the shaft diameters, not the shaft itself or strength of rigidity. Adapters have to be selected based on the relevant bushing types.

BTL Taper Bushing

3. Bushing types and loading capacities.

3.1 Common type (BTL Bushing)

3.1.1 Dimension series: this type is divided into three series according to its load-bearing capacity and number of tapped holes:

● Light series: type 1008-3030

Have two un-tapped half-holes for tightening screws and one semi-tapped holes for unloading.

● Medium series: type 3535-5050

Have three half-holes for tightening screws and two half-tapped holes for unloading.

● Heavy series: type 6050-120100

Have four half-holes for tightening screws and two half-tapped holes for unloading.

3.1.2 Expressions:

Each type of bushing has different matching standard shaft size.

If the NSPT code is written in four digits, eg. 2517, the initial two digits divided by ten indicate Max. bore of the bushing (in inches); the other two digits divided by ten indicate the length through bore (in inches). In this example, the Max. bore of the bushing is 2.5 inches (2.5 x 25.4mm), length through the bore is 1.7 inches (1.7 x 25.4mm).

If the code is written in six digits, eg. 120100, the initial three digits divided by ten indicate the Max. bore of the bushing (in inches). The other three divided by ten indicate the length through the bore (in inches). In this example, 120 indicates that the Max bore of bushing is 12 in-ches (12 x 25.4mm); 100 indicates that the length through the bore is 10 inches (10x 25.4mm).

If the code is written in five digits, the initial three digits indicate the Max. bore of bushing; the other two digits indicate the length through the bore.

3.1.3 Rating load-bearing capacity

See torque capacity parameters for common types in the following table:

Bush.No	Torque Capacity		Bush.No	Torque Capacity	
	lbf.in	N.m		lbf.in	N.m
1008	1,200	136	3535	44,800	5,060
1108	1,300	147	4040	77,300	8,740
1210 1215	3,600	407	4545	110,000	12,400
1310 1315	3,850	435	5050	126,000	14,200
1610 1615	4,300	486	6050	282,000	31,900
			7060	416,000	47,000
2012	7,150	808	8065	456,000	51,500
2517 2525	11,600	1,310	10085	869,000	98,200
3020 3030	24,000	2,710	120100	1,520,000	172,000

lbf.in=0.113N.m

BTL & QTL Taper Bushing

Please notice that bushing's load-bearing capacity is related with tightening torque and shaft size. In this catalog the related tightening torques have been given. The load-bearing capacity increases as the shaft size enlarges. Please consult with NSPT if more detailed information is required.

3.2 Flange type (QTL Bushing)

3.2.1 Dimension series: QTL Bushings can be divided into two series according to its reversibility.

● Reversable mounting series: type JA-J
Have three screws and three bores on the flange.

● Un-reversable mounting series: type M-W.
Have only four tapped holes on the flange, but no un-tapped holes.

3.2.2 Type and load -bearing capacity
Due to different dimensions and load-bearing capacity, QTL Bushings have thirteen specifications. See torque capacity parameters and related screw tightening torques in the table below:

Bush.No	Torque Capacity		Screw Tightening Torque	
	lbf·in	N.m	lbf·in	N.m
JA	1,000	113	54	6.1
SH	3,500	396	108	12.2
SDS	5,000	565	108	12.2
SK	7,000	791	180	20.3
SF	11,000	1,243	360	40.8
E	20,000	2,260	720	81.4
F	30,000	3,390	900	102
J	45,000	5,090	1,620	183
M	85,000	9,600	2,700	305
N	150,000	17,000	3,600	408
P	250,000	28,300	5,400	610
W	375,000	42,400	7,200	814
S	625,000	70,600	9,000	1,020

4. Selection

To select the right bushing type, features and working condition have to be considered. The selection mainly depends on the torque and loading force.

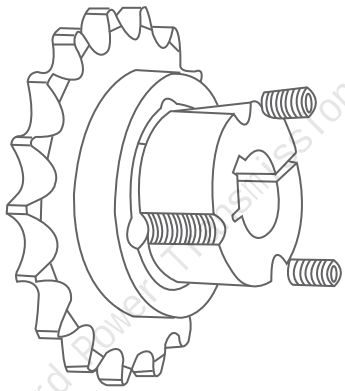
See loading coefficient K for bushing connection below:

K	Load type
1.0	light loading start,work even
1.5	light loading start,work uneven
2.0	medium loading start,work even or uneven
2.5	light or heavy loading start,medium shock
3.0	lighty or heavy loading start,heavy shock or rotating

Working torque on shaft: T=63025N/n (lbf·in)
N-transmission torque (house);
n-shaft revolutions per minute(RPM)
Calculation torque T_O=KT,K-loading coefficient

When selecting bushing type, it should comply with $T_H \leq T_O$. Bushing torque capacity can be got from the given table.

BTL Taper Bushing



BUSH NO	SCREW TIGHTENING TORQUES(Nm)	SCREW QTY	SCREW SIZE In-Bore	SCREW SIZE mm-Bore
1008 1108	5.6	2	1/4" UNC	1/4" BSW
1210 1215	20	2	3/8" UNC	3/8" BSW
1310 1315	20	2	3/8" UNC	3/8" BSW
1610 1615	20	2	3/8" UNC	3/8" BSW
2012 2017	31	2	7/16" UNC	7/16" BSW
2517 2525	48	2	1/2" UNC	1/2" BSW
3020 3030	90	2	5/8" UNC	5/8" BSW
3525 3535	112	3	1/2" UNC	1/2" BSW
4030 4040	170	3	5/8" UNC	5/8" BSW
4535 4545	192	3	3/4" UNC	3/4" BSW
5040 5050	271	3	7/8" UNC	7/8" BSW

The BTL taper bushing are registered patented products. Any production and sales must be authorized first.

BTL TAPER BUSHING INSTALLATION INSTRUCTIONS

TO ASSEMBLE

1. Clean and degrease the bore and taper surfaces of the bush and the taper bore of the wheel. Insert the bush into the hub and the wheel to line up holes (half thread holes must be lined up with half unloading holes)

2. Lightly oil the grub screws (bush size 1008 to 3030) or the cap screws (bush size upto 5050) and then screw them into the holes. Do not tighten yet.

3. Clean and degrease the shaft. Fit the wheel with taper bush onto the shaft and locate it in desired position.

4. When using a key, it should first be fitted in the shaft keyway. A tap clearance should be between the key and the keyway in the bore.

5. Using a hexagon socket wrench (DIN911) gradually tighten the grub cap screws in accordance to the torques as listed in the schedule of screw tightening torques on the left.

6. When the drive has been operating under load for a short period (half to one hour), check to make sure that the screws remain at the appropriate tightening torque.

7. In order to eliminate the ingress of dirt, fill all empty holes with grease.

To REMOVE

1. Loosen and remove all screws and place them in the holes of the bushing.
2. Tighten the screws alternatively till the hub's grip on the bushing is loosened. The inner bore of the bushing can be slid off the shaft.
3. Remove the bushing from the shaft.

Special Note

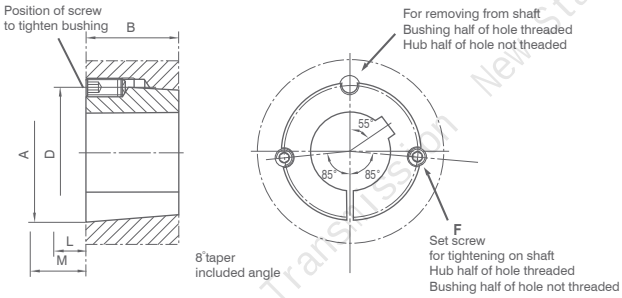
BTL bushings are made of GG25 cast iron. Other materials are available according to customers' requirements.

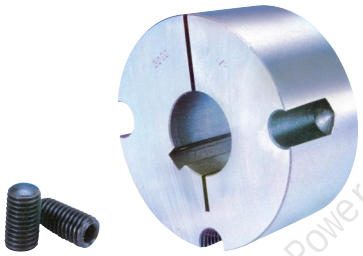
Surface coating is optional upto the customers' requirements. (such as painting, black phosphating, black oxidizing and so on)

Each part is individually boxed.

BTL bushings are sold with high quality screws imported from Japan.

BTL Taper Bushings

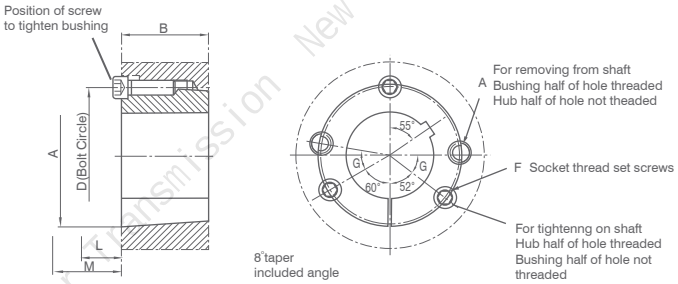




1008 thru 3030 sizes



3535 thru 5050 sizes



Dimensions for 1008 thru 3030 BTL Taper Bushings

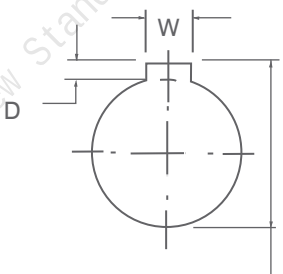
Bush No	A	B	D	Set Screws
1008	1.386	7/8	1 21/64	1/4x1/2
1108	1.511	7/8	1 29/64	1/4x1/2
1210	1 7/8	1	1 3/4	3/8x5/8
1215	1 7/8	1 1/2	1 3/4	3/8x5/8
1310	2	1	1 7/8	3/8x5/8
1610	2 1/4	1	2 1/8	3/8x5/8
1615	2 1/4	1 1/2	2 1/8	3/8x5/8
2012	2 3/4	1 1/4	2 5/8	7/16x7/8
2517	3 3/8	1 3/4	3 1/4	1/2x1
2525	3 3/8	2 1/2	3 1/4	1/2x1
3020	4 1/4	2	4	5/8x1 1/4
3030	4 1/4	3	4	5/8x1 1/4

Dimensions for 1008 thru 5050 BTL Taper Bushings

Bush No	A	B	D	Set Screws	G
3535	5	3 1/2	4.83	1/2x1 1/2	39°
4040	5 3/4	4	5.54	5/8x1 3/4	40°
4545	6 3/8	4 1/2	6.13	3/4x2	40°
5050	7	5	6.72	7/8x2 1/4	37°



Two screws required
Three screws required



MM Bore Keyway and dimensions conform to ISO standard
Depth measured at centerline

BTL Taper Bushings

KEYWAY

USAS B 17.1 1967
KEYS AND KEYWAYS

Bush No	Bore	Bushing Keyway
1008 △	1/2 9/16 5/8 11/16 3/4 13/16 7/8 15/16 1	1/8x1/16 3/16x3/32 1/4x1/16
1108 △	1/2 9/16 5/8 11/16 3/4 13/16 7/8 15/16 1 1-1/16 1-1/8	1/8x1/16 3/16x3/32 1/4x1/8 1/4x1/16
1210	1/2 9/16 5/8 11/16 3/4 13/16 7/8 15/16 1 1-1/16 1-1/8 1-3/16 1-1/4	1/8x1/16 3/16x3/32 1/4x1/8
1215	1/2 9/16 5/8 11/16 3/4 13/16 7/8 15/16 1 1-1/16 1-1/8 1-3/16 1-1/4	1/8x1/16 3/16x3/32 1/4x1/8
1310	1/2 9/16 5/8 11/16 3/4 13/16 7/8 15/16 1 1-1/16 1-1/8 1-3/16 1-1/4 1-5/16 1-3/8	1/8x1/16 3/16x3/32 1/4x1/8 5/16x5/32 ... ...
1610 △	1/2 9/16 5/8 11/16 3/4 13/16 7/8 15/16 1 1-1/16 1-1/8 1-3/16 1-1/4 1-5/16 1-3/8 1-7/16 1-1/2 1-9/16 1-5/8	1/8x1/16 3/16x3/32 1/4x1/8 5/16x5/32 3/8x3/16 3/8x1/8
1615 △	1-2 9/16 5/8 11/16 3/4 13/16 7/8 15/16 1 1-1/16 1-1/8 1-3/16 1-1/4 1-5/16 1-3/8 1-7/16 1-1/2 1-9/16 1-5/8	1/8x1/16 3/16x3/32 1/4x1/8 5/16x5/32 3/8x3/16 3/8x1/8
2012 △	1/2 9/16 5/8 11/16 3/4 13/16 7/8 15/16 1 1-1/16 1-1/8 1-3/16 1-1/4 1-5/16 1-3/8 1-7/16 1-1/2 1-9/16 1-5/8 1-11/16 1-3/4 1-13/16 1-7/8 1-15/16 2	1/8x1/16 3/16x3/32 1/4x1/8 5/16x5/32 3/8x3/16 1/2x1/4 1/2x3-16
...	...	...
2517 △	1/2 5/8 11/16 3/4 13/16 7/8 15/16 1 1-1/16 1-1/8 1-3/16 1-1/4 1-5/16 1-3/8 1-7/16 1-1/2 1-9/16 1-5/8 1-11/16 1-3/4 1-13/16 1-7/8 1-15/16 2 2-1/16 2-1/8 2-3/16 2-1/4 2-5/16 2-3/8 2-7/16 2-1/2	1/8x1/16 3/16x3/32 1/4x1/8 5/16x5/32 3/8x3/16 1/2X1/4 5/8x3/16
2525 △	3/4 7/8 1 1-1/8 1-3/16 1-1/4 1-3/8 1-7/16 1-1/2 1-5/8 1-11/16 1-3/4 1-13/16 1-7/8 1-15/16 2 2-1/8 2-3/16 2-1/4 2-5/16 2-3/8 2-7/16 2-1/2	3/16x3/32 1/4x1/8 5/16x5/32 3/8x3/16 1/2x1/4 5/8X3/16 ... ...
3020 △	7/8 15/16 1 1-1/8 1-3/16 1-1/4 1-5/16 1-3/8 1-7/16 1-1/2 1-9/16 1-5/8 1-11/16 1-3/4 1-13/16 1-7/8 1-15/16 2 2-1/16 2-1/8 2-3/16 2-1/4 2-5/16 2-3/8 2-7/16 2-1/2 2-5/8 2-11/16 2-3/4 2-13/16 2-7/8 2-15/16 3	3/16x3/32 1/4x1/8 5/16x5/32 3/8x3/16 1/2x1/4 5/8x5/16 3/4x1/4
3030 △	15/16 1 1-1/8 1-3/16 1-1/4 1-5/16 1-3/8 1-7/16 1-1/2 1-9/16 1-5/8 1-11/16 1-3/4 1-13/16 1-7/8 1-15/16 2 2-1/16 2-1/8 2-3/16 2-1/4 2-5/16 2-3/8 2-7/16 2-1/2 2-5/8 2-11/16 2-3/4 2-7/8 2-15/16 3 ...	1/4x1/8 5/16x5/32 3/8x3/16 1/2x1/4 5/8x5/16 3/4x1/4 ...
3535 △	1-3/16 1-1/4 1-3/8 1-7/16 1-1/2 1-5/8 1-11/16 1-3/4 1-7/8 1-15/16 2 2-1/8 2-3/16 2-1/4 2-5/16 2-3/8 2-7/16 2-1/2 2-5/8 2-11/16 2-3/4 2-7/8 2-15/16 3 3-1/8 3-3/16 3-1/4 3-5/16 3-3/8 3-7/16 3-1/2	1/4x1/8 5/16x5/32 3/8x3/16 1/2x1/4 5/8x5/16 3/4x3/8 7/8x1/4
4040 △	1-7/16 1-1/2 1-5/8 1-11/16 1-3/4 1-7/8 1-15/16 2 2-1/8 2-3/16 2-1/4 2-3/8 2-7/16 2-1/2 2-5/8 2-11/16 2-3/4 2-7/8 2-15/16 3 3-1/8 3-3/16 3-1/4 3-3/8 3-7/16 3-1/2 3-5/8 3-11/16 3-3/4 3/7/8 3-15/16 4	3/8x3/16 1/2x1/4 5/8x5/16 3/4x3/8 7/8x7/16 1x1/4
4545 △	1-15/16 2 2-3/16 2 3/8 2-7/16 2-5/8 2-3/4 2 7/8 2-15/16 3-1/8 3-3/16 3-1/4 3-3/8 3-7/16 3-1/2 3-5/8 3-3/4 3-7/8 3-15/16 4 4-1/8 4-3/16 4-1/4 4-3/8 4-7/16 4-1/2	1/2x1/4 5/8x5/16 3/4x3/8 7/8x7/16 1x1/2 1x1/4
5050 △	2-7/16 2-15/16 3-3/8 3-7/16 3-5/8 3-7/8 3-15/16 4 4-1/8 4-3/8 4-7/16 4-1/2 4-7/8 4-15/16 5	5/8x5/16 3/4x3/8 7/8x7/16 1x1/2 1-1/4x7/16 ... ...

BTL Taper Bushings

KEYWAY

DIN 6885
JIS B 1301-1976
UNI 6604-1969
GB 1095-1979

Bush No	Bore	Bushing Keyway
1008	10	3x1.40
	11 12	4x1.80
	14 16	5x2.30
	18 19 20 22	6x2.80
	24	8x2.00
△	25	8x1.30
1180	10	3x1.40
	11 12	4x1.80
	14 16	5x2.30
	18 19 20 22	6x2.80
	24 25	8x3.30
△	28	8x2.00
1210	11 12	4x1.80
	14 16	5x2.30
	18 19 20 22	6x2.80
	24 25 28 30	8x3.30
	32	10x3.30
1215	11 12	4x1.80
	14 16	5x2.30
	18 19 20 22	6x2.80
	24 25 28 30	8x3.30
	32	10x3.30
1310	14 16	5x2.30
	18 19 20 22	6x2.80
	24 25 28 30	8x3.30
	32 35	10x3.30

Bush No	Bore	Bushing Keyway
1610	14 16	5x2.30
	18 19 20 22	6x2.80
	24 25 28 30	8x3.30
	32 35 38	10x3.30
△	40	12x3.30
	42	12x2.20
1615	14 16	5x2.30
	18 19 20 22	6x2.80
	24 25 28 30	8x3.30
	32 35 38	10x3.30
△	40	12x3.30
	42	12x2.20
2012	18 19 20 22	6x2.80
	24 25 28 30	8x3.30
	32 35 38	10x3.30
	40 42	12x3.30
	45 48 50	14x3.80

Bush No	Bore	Bushing Keyway
2517	20 22	6x2.80
	24 25 28 30	8x3.30
	32 35 38	10x3.30
	40 42	12x3.30
	45 48 50	14x3.80
	55	16x4.30
	60	18x4.40
2525	20 22	6x2.80
	24 25 28 30	8x3.30
	32 35 38	10x3.30
	40 42	12x3.30
	45 48 50	14x3.80
	55	16x4.30
	60	18x4.40

Bush No	Bore	Bushing Keyway
3020	25 28 30	8x3.30
	32 35 38	10x3.30
	40 42	12x3.30
	45 48 50	14x3.80
	55	16x4.30
	60 65	18x4.40
	70 75	20x4.90
3030	25 28 30	8x3.30
	32 35 38	10x3.30
	40 42	12x3.30
	45 48 50	14x3.80
	55	16x4.30
	60 65	18x4.40
	70 75	20x4.90

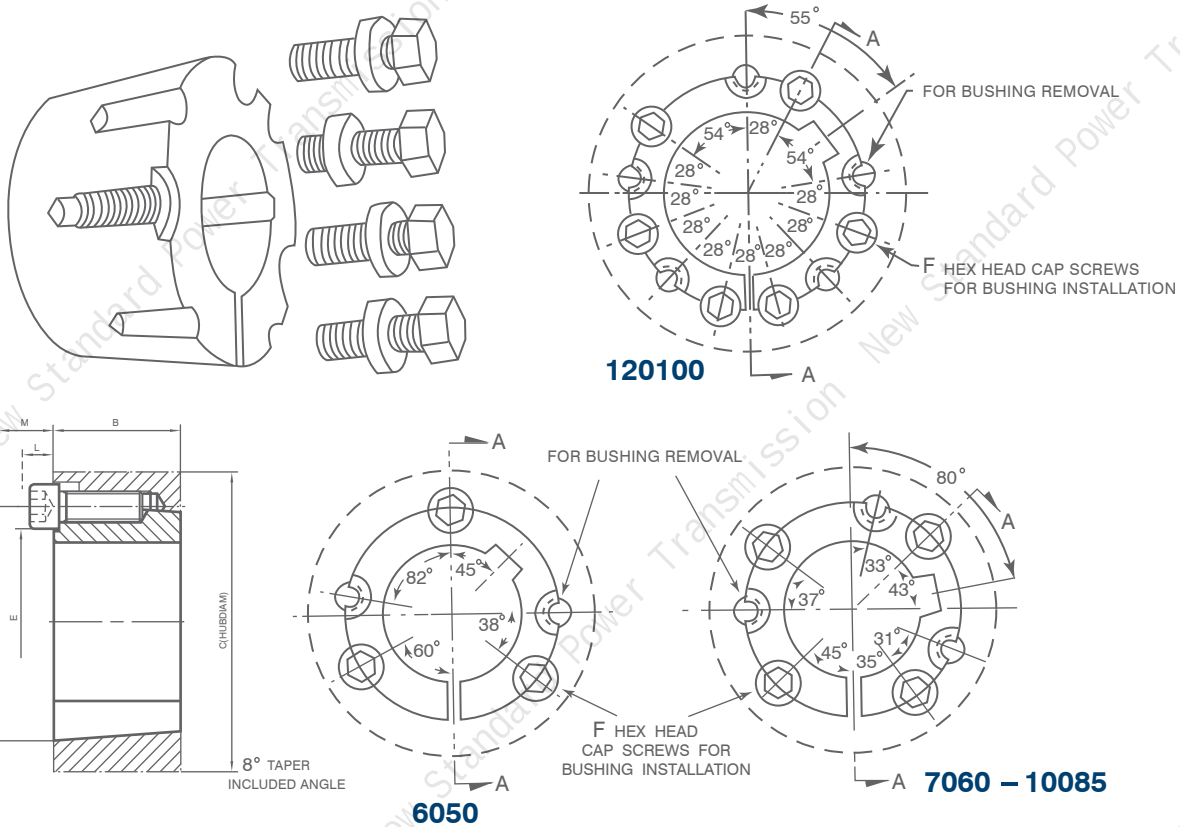
Bush No	Bore	Bushing Keyway
3535	35 38	10x3.30
	40 42	12x3.30
	45 48 50	14x3.80
	55	16x4.30
	60 65	18x4.40
	70 75	20x4.90
	80 85	22x5.40
	90	25x5.40
4040	40 42	12x3.30
	45 48 50	14x3.80
	55	16x4.30
	60 65	18x4.40
	70 75	20x4.90
	80 85	22x5.40
	90 95	25x5.40
	100	28x6.40

Bush No	Bore	Bushing Keyway
4545	55	16x4.30
	60 65	18x4.40
	70 75	20x4.90
	80 85	22x5.40
	90 95	25x5.4
	100 105 110	28x6.40
5050	60 65	18x4.40
	70 75	20x4.90
	80 85	22x5.40
	90 95	25x5.40
	100 105 110	28x6.40
	115 120 125	32x7.40

BTL Taper Bushings

TAPER BUSHING DIMENSIONS(Con t.)

6050 thru 120100 Sizes



Dimensions for 6050 thru 120100 BTL Taper Bushings

Bush.No.	A	B	D	Socket Head Cap Screws	E	L	M
6050	9.250	5	9	3-1 1/4x3 1/2	6 3/4	1 5/8	4 3/8
7060	10.250	6	10	4-1 1/4x3 1/2	7 3/4	1 5/8	4 3/8
8065	11.250	6 1/2	11	4-1 1/4x3 1/2	8 3/4	1 5/8	4 3/8
10085	14.750	8 1/2	14 1/2	4-1 1/2x4 1/4	11 3/4	2	5 3/8
120100	17.250	10	17	6-1 1/2x4 1/4	14 1/4	2	5 3/8

Dimensions forTAPER Bushings Metric.Inches Bore

Bush.No	inches bore		metric bore	
	Min.	Max.	Min.	Max.
6050	4 7/16	6	80	150
7060	4 15/16	7	90	175
8065	5 7/16	8	110	200
10085	7	10	175	250
12100	8	12	200	300

Bore and keyway dimensions conform to ISO standard recommendation R773. for "free" fit

If complete instructions is needed, refer to instruction sheet packed with each bushing.

QTL Taper Bushings

JA - S





QTL Taper bushings are made of GGG40 ductile iron, and the surface is phosphated. They are fixed with UNC bolts of 12.9 grade, and packed into boxes individually.

Among QTL Taper bushings, type JA-E with inner bores and keyways in inches can be sold off-the-shelf based on the stock with immediate delivery. Type F-S are produced made-to-order with prompt delivery.

QTL Taper bushings in metric dimensions can be produced as well.

QTL Taper Bushing

The QTL bushings are commonly used throughout the industry for convenience and design flexibility. They are made of quality gray or ductile iron and are easily installed by tightening cap screws.

The bushing is inserted into the components that compress the bore of the bushing, gripping the shafts so that no external keys are required. QTL bushings can be easily re-moved by using the cap screws as well.

Double-drilled holes are furnished in QTL bush-ings for mounting the component in the conventional or reverse positions. This allows cap screws to be installed through the hub or bushing flange, whichever is more convenient. No matter which way the component is installed, cap screws are always inserted from the outside where they can be easily assembled.

QTL bushings are available in stock for all popular bores within the range of each bushing size.



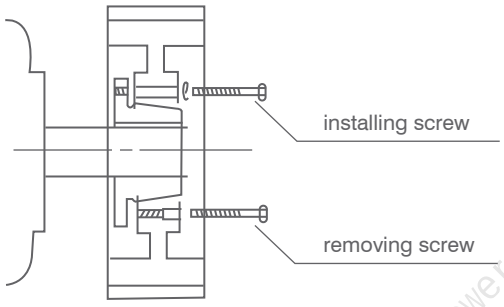
Some power transmission products that may use QTL bushings are pulleys, sprockets, sheaves, couplings, unlimited-fans, inpellers, and/or other products that need to be shaft mounted.

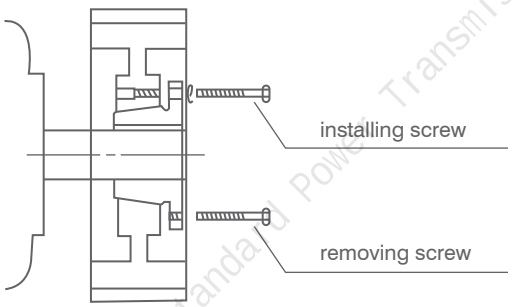
TYPICAL INSTALLATION OF QTL BUSHING ON A MOTOR SHAFT

Reverse Mounting:
Make sure the small end of taper bushing toward the motor as shown in diagram below.

To assemble, place cap screws into bushing flange through drilled holes. Finger tighten the screws into the hub. Slip assembled unit into desired position on shaft, small taper end first. Tighten all cap screws to specified wrench torque.

To remove, simply draw cap screws. As they are loosened up, the grip between bushing and hub will be released.





Conventional Mounting:
Make the bushing flange toward the motor as shown in diagram above.

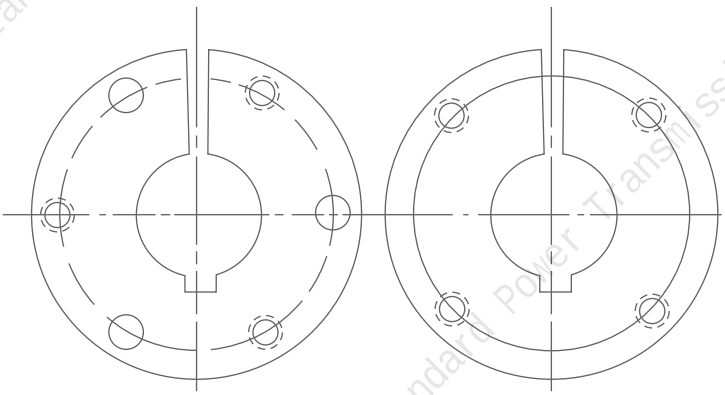
To assemble, place QTL bushing in the hub and insert cap screws into the hub through drilled holes. Finger tighten cap screws into holes in bushing flange. Slip assemble unit into desired position on shaft, flange end first.Tighten all cap screws to specified wrench torque.

To remove, simply draw cap screws. As they are loosened up, the grip between bushing and hub will be released.

QTL Taper Bushings

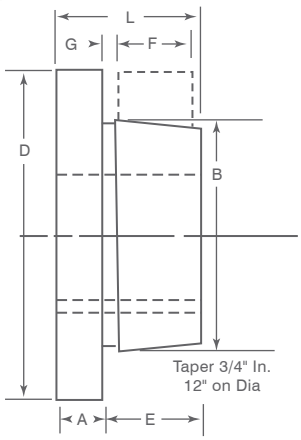
The "QTL" Bushing easily fits over the taper hub. A tight press can be produced on the shaft by tightening the cap screws.The bushing is easily removeable from the hub by using the pull-up bolts as jack bushing in the holes tapped in the rim of the bushing. All hubs, from "JA" to "J", are drilled for REVERSE MOUNTING.





BUSHINGS
"JA" to "J" Inclusive

BUSHINGS
"M" to "W" Inclusive



STOCK QTL BUSHINGS DIMENSIONS

Bushing	DIMENSIONS (Inches) A	B	D	E	* F	* * G	L	Bolt Circle	Cap Screws Required	STOCK BORE RANGE Minimum	MAXIMUM Standard Keyway	MAXIMUM Shallow Keyway	Average Weight (Approx)
JA	5/16	1.375	2	11/16	9/16	0.20	1	1.656	3-10x1	3/8	1	1 3/16	0.9
SH	7/16	1.871	2 11/16	7/8	13/16	0.23	1 5/16	2 1/4	3-1/4x13/8	1/2	1 3/8	1 5/8	1.0
SDS	7/16	2.187	3 1/8	7/8	3/4	0.23	1 5/16	2 11/16	3-1/4x13/8	1/2	1 5/8	1 15/16	1.0
SD	7/16	2.187	3 1/8	1 3/8	1 3/4	0.23	1 13/16	2 11/16	3-1/4x17/8	1/2	1 5/8	1 15/16	1.5
SK	9/16	2.812	3 7/8	1 3/8	1 1/4	0.23	1 15/16	3 5/16	3-5/16x2	1/2	2 1/8	2 1/2	2.0
SF	5/8	3.125	4 5/8	1 7/16	1 1/4	0.23	2 1/16	3 7/8	3-3/8x2	1/2	2 1/4	2 7/8	4.0
E	7/8	3.834	6	1 7/8	1 5/8	0.28	2 3/4	5	3-1/2x2 3/4	7/8	2 7/8	3 1/2	10.5
F	1	4.437	6 5/8	2 3/4	2 1/2	0.34	3 3/4	5 5/8	3-9/16x3 5/8	1	3 1/4	3 15/16	15
J	1 1/8	5.148	7 1/4	3 1/2	3 3/16	0.31	4 5/8	6 1/4	3-5/8x4 1/2	1 1/2	3 13/16	4 1/2	23
M	1 1/4	6.494	9	5 1/2	5 3/16	0.34	6 3/4	7 7/8	4-3/4x6 3/4	2	4 11/16	5 1/2	55
N	1 1/2	6.992	10	6 5/8	6 1/4	0.56	8 1/8	8 1/2	4-7/8x8	2 7/16	5 1/16	5 7/8	73
P+	1 3/4	8.242	11 3/4	7 5/8	7 1/4	0.63	9 3/8	10	4-1x9 1/2	2 15/16	5 13/16	7	120
W+	2	10.437	15	9 3/8	9	0.69	11 3/8	12 3/4	4-1 1/8x11 1/2	4	7 1/2	8 1/2	250
S+	3 1/4	12.125	17 3/4	12 1/2	12	0.75	15 3/4	15	5-1 1/4x15 1/2	6	8 1/4	10	400

+Consult NSPT for delivery

* F =Length of Mating Bore

* * G =Gap Between " QTL " Bushing and Mating Hub

A1 QTL BUSHING DIMENSIONS AND RANGES FOR INNER BORES AND KEYWAY

USAS B 17.1 1967
KEYS AND KEYWAYS

Bush	Bore	Keyway
JA	3/8 7/16	None
	1/2 9/16	1/8x1/16
	5/8 11/16 3/4 13/16 7/8	3/16x3/32
	15/16 1	1/4x1/8
	1 1/16 1 1/8 1 3/16	1/4x1/16
	1 1/4	None
SH	1/2 9/16	1/8X1/16
	5/8 11/16 3/4 13/16 7/8	3/16X3/32
	15/16 1 1 1/16 1 1/8 1 3/16 1 1/4	1/4X1/8
	1 5/16 1 3/8	5/16X5/32
	1 7/16 1 1/2 1 9/16 1 5/8	3/8X1/16
	1 11/16	None
SDS SD	1/2 9/16	1/8x1/16
	5/8 11/16 3/4 13/16 7/8	3/16x3/32
	15/16 1 1 1/16 1 1/8 1 3/16 1 1/4	1/4x1/8
	1 5/16 1 3/8	5/16x5/32
	1 7/16 1 1/2 1 9/16 1 5/8	3/8x3/16
	1 11/16 1 3/4	3/8x1/8
	1 13/16	1/2x1/8

Bush	Bore	Keyway
SDS SD	1 7/8 1 15/16	1/2x1/16
	2	None
SK	1/2 9/16	1/8x1/16
	5/8 11/16 3/4 13/16 7/8	3/16x3/32
	15/16 1 1 1/16 1 1/8 1 3/16 1 1/4	1/4x1/8
	1 5/16 1 3/8	5/16x5/32
	1 7/16 1 1/2 1 9/16 1 5/8 1 11/16 1 3/4	3/8x3/16
	1 13/16 1 7/8 1 15/16 2 2 1/16 2 1/8	1/2x1/4
	2 3/16 2 1/4	1/2x1/8
	2 5/16 2 3/8 2 7/16 2 1/2	5/8x1/16
	2 9/16 2 5/8	None
SF	1/2 9/16	1/8x1/16
	5/8 11/16 3/4 13/16 7/8	3/16x3/32
	15/16 1 1 1/16 1 1/8 1 3/16 1 1/4	1/4x1/8
	1 5/16 1 3/8	5/16x5/32

Bush	Bore	Keyway
SF	1 7/16 1 1/2 1 9/16 1 5/8 1 11/16 1 3/4	3/8x3/16
	1 13/16 1 7/8 1 15/16 2 2 1/16 2 1/8 2 3/16 2 1/4	1/2x1/4
	2 5/16 2 3/8 2 7/16 2 1/2	5/8x3/16
	2 9/16 2 5/8 2 11/16 2 3/4	5/8x1/16
	2 13/16 2 15/16	3/4x1/16 None
E	7/8	3/16x3/32
	15/16 1 1 1/16 1 1/8 1 3/16 1 1/4	1/4x1/8
	1 5/16 1 3/8	5/16x5/32
	1 7/16 1 1/2 1 9/16 1 5/8 1 11/16 1 3/4	3/8x3/16
	1 13/16 1 7/8 1 15/16 2 2 1/16 2 1/8 2 3/16 2 1/4	1/2x1/4
	2 5/16 2 3/8 2 7/16 2 1/2 2 9/16 2 5/8 2 11/16 2 3/4	5/8x5/16

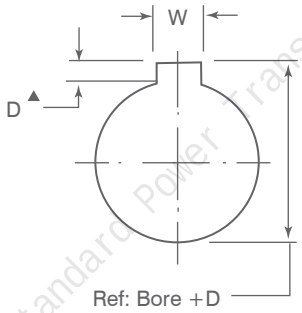
Bush	Bore	Keyway
E	2 13/16 2 7/8	3/4x3/8
	2 15/16 3 3 1/8 3 3/16 3 1/4	3/4x1/8
	3 5/16 3 3/8 3 7/16 3 1/2	7/8x1/16
F	1 1 1/16 1 1/8 1 3/16 1 1/4	1/4x1/8
	1 5/16 1 3/8	5/16x5/32
	1 7/16 1 1/2 1 9/16 1 5/8 1 11/16 1 3/4	3/8x3/16
	1 13/16 1 7/8 1 15/16 2 2 1/16 2 1/8 2 3/16 2 1/4	1/2x1/4
	2 5/16 2 3/8 2 7/16 2 1/2 2 9/16 2 5/8 2 11/16 2 3/4	5/8x5/16
	2 13/16 2 7/8 2 15/16 3 3 1/8 3 3/16 3 1/4	3/4x3/8
	3 5/16 3 3/8 3 7/16 3 1/2 3 5/8 3 3/4	7/8x3/16
	3 7/8 3 15/16	1x1/8
	4	None

Bush	Bore	Keyway
J	1 1/2 1 9/16 1 5/8 1 11/16 1 3/4	3/8x3/16
	1 13/16 1 7/8 1 15/16 2 2 1/16 2 1/8 2 3/16 2 1/4	1/2x1/4
	2 5/16 2 3/8 2 7/16 2 1/2 2 9/16 2 5/8 2 11/16 2 3/4	5/8x5/16
	2 13/16 2 7/8 2 15/16 3 3 1/8 3 3/16 3 1/4	3/4x3/8
	3 5/16 3 3/8 3 7/16 3 1/2 3 5/8 3 3/4	7/8x7/16
	3 7/8 3 15/16 4 4 1/8 4 3/8 4 7/16 4 1/2	1x1/8
M	2 2 1/16 2 1/8 2 3/16 2 1/4	1/2x1/4
	2 5/16 2 3/8 2 7/16 2 1/2 2 9/16 2 5/8 2 11/16 2 3/4	5/8x5/16

Bush	Bore	Keyway
M	2 13/16 2 7/8 2 5/16 3 3 1/8 3 3/16 3 1/4	3/4x3/8
	3 5/16 3 3/8 3 7/16 3 1/2 3 5/8 3 3/4	7/8x7/16
	3 7/8 3 15/16 4 4 1/8 4 3/16 4 1/4 4 3/8 4 7/16 4 1/2	1x1/2
	4 5/8	1 1/4x5/8
	4 3/4 4 7/8 4 15/16 5 5 1/4 5 3/8 5 7/16 5 1/2	1 1/4x1/4
N	2 7/16 2 1/2 2 9/16 2 5/8 2 11/16 2 3/4	5/8x5/16
	2 13/16 2 7/8 2 15/16 3 3 1/8 3 3/16 3 1/4	3/4x3/8
	3 5/16 3 3/8 3 7/16 3 1/2 3 5/8 3 3/4	7/8x7/16
	3 7/8 3 15/16 4 4 1/8 4 3/16 4 1/4 4 3/8	1x1/2

A2 BORES AND KEYWAY

Bush	Bore	Keyway	Bush	Bore	Keyway	Bush	Bore	Keyway	Bush	Bore	Keyway
N	4 7/16	1 x 1/2	P	3 7/8	1 x 1/2	P	6 5/8	1 3/4 x 1/8	W	6 5/8	1 3/4 x 7/8
	4 1/2			3 15/16			6 3/4			6 3/4	
	4 5/8	1 1/4 x 5/8		4			6 7/8			6 7/8	
	4 3/4			4 1/8			7			7	
	4 7/8			4 3/16		W	4	1 x 1/2		7 1/4	
	4 15/16			4 1/4			4 1/8			7 3/8	
	5			4 3/8			4 3/16			7 1/2	
	5 1/4	1 1/4 x 1/4		4 7/16			4 1/4			7 5/8	2 x 1/4
	5 3/8			4 1/2			4 3/8			7 3/4	
	5 7/16			4 5/8	1 1/4 x 5/8		4 7/16			7 7/8	
	5 1/2			4 3/4			4 1/2			8	
	5 5/8	1 1/2 x 1/4		4 7/8			4 5/8	1 1/4 x 5/8		8 1/4	
	5 3/4			4 15/16			4 3/4			8 3/8	
	5 7/8			5			4 7/8			8 1/2	
P	2 15/16	3/4 x 3/8		5 1/4			4 15/16				
	3			5 3/8			5				
	3 1/8			5 7/16			5 1/4				
	3 3/16			5 1/2			5 3/8				
	3 1/4			5 5/8	1 1/2 x 3/4		5 7/16				
	3 5/16	7/8 x 7/16		5 3/4			5 1/2				
	3 3/8			5 7/8	1 1/2 x 1/4		5 5/8	1 1/2 x 3/4			
	3 7/16			5 15/16			5 3/4				
	3 1/2			6			5 7/8				
	3 5/8			6 1/4			5 15/16				
	3 3/4			6 3/8			6				
				6 1/2			6 1/4				
							6 3/8				
							6 1/2				



ISO STANDARD METHOD FOR MEASURING KEYSEAT DEPTH

▲Depth measured at center line

BORE RANGE FOR QTL BUSHING

Bush. No.	Min. Bore	Max.Bore with:		
		Full Keyway	Shallow Keyway	No Keyway
JA	3/8	1	1 3/16	1 1/4
SH	1/2	1 3/8	1 5/8	1 11/16
SDS	1/2	1 5/8	1 15/16	2
SD	1/2	1 5/8	1 15/16	2
SK	1/2	2 1/8	2 1/2	2 5/8、2 9/16
SF	1/2	2 1/4	2 7/8	2 15/16
E	7/8	2 7/8	3 1/2	—
F	1	3 1/4	3 15/16	4
J	1 1/2	3 13/16	4 1/2	—
M	2	4 11/16	5 1/2	—
N	2 7/16	5 1/16	5 7/8	—
P	2 15/16	5 13/16	7	—
W	4	7/12	8 1/2	—
S	6	8 1/4	10	—

SHALLOW KEY DIMENSION

Key Seat	Key	Key Seat	Key
3/8x1/16	3/8x1/4	7/8x3/16	7/8x5/8
3/8x1/8	3/8x5/16	1 x1/16	1 x9/16
1/2x1/32	1/2x9/32	1 x1/8	1 x5/8
1/2x1/16	1/2x5/16	1 1/4x1/4	1 1/4x3/4
1/2x1/8	1/2x3/8	1 1/4x1/4	1 1/4x7/8
5/8x1/16	5/8x3/8	1 1/2x1/8	1 1/2x1
5/8x3/16	5/8x1/2	1 3/4x3/8	1 3/4x3/4
3/4x1/8	3/4x1/2	1 3/4x3/8	1 3/4x1
7/8x1/16	7/8x1/2	2 x5/16	2x1

Dimensions:inch

STANDARD KEYWAY & KEY DIMEMSION

Bores	Key Seat	Key
1/2-9/16	1/8x1/16	1/8x1/8
5/8-7/8	3/16x3/32	3/16x3/16
15/16-1 1/4	1/4x1/8	1/4x1/4
1 5/16-1 3/8	5/16x5/32	5/16x5/16
1 7/16-1 3/4	3/8x3/16	3/8x3/8
1 13/16-2 1/4	1/2x1/4	1/2x1/2
2 5/16-2 3/4	5/8x5/16	5/8x5/8
2 13/16-3 1/4	3/4x3/8	3/4x3/4
3 5/16-3 3/4	7/8x7/16	7/8x7/8
3 13/16-4 1/2	1 x1/2	1 x1
4 9/16-5 1/2	1 1/4x5/8	1 1/4x1 1/4
5 9/16-6 1/2	1 1/2x3/4	1 1/2x1 1/2
6 9/16-7 1/2	1 3/4x7/8	1 3/4x1 3/4

Dimensions:inch

STL Taper Bushings

G-Yo



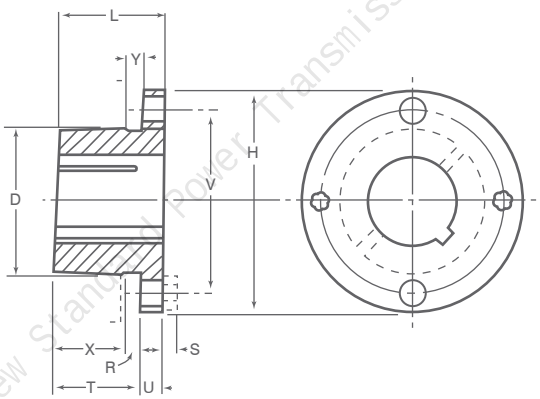


STL Taper bushings are made of tough malleable iron with indestructible keys on both shaft and hub. It has high torque carrying capacity and the external key provides enough force with no torque on the capscrews. The double split barrel assures true concentricity grips.

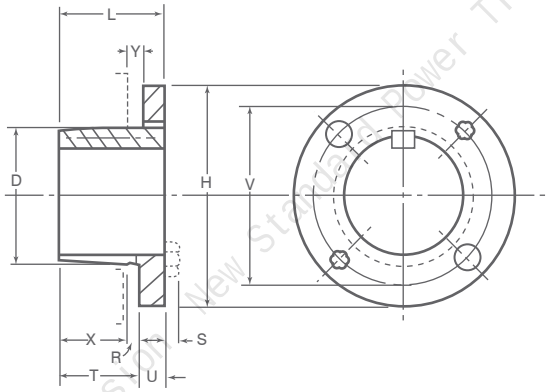
The standard bore sizes are from 3/8"~10".

STL Taper bushing

G-H



TYPE 1



TYPE 2

TYPE 1 Bushing Specifications

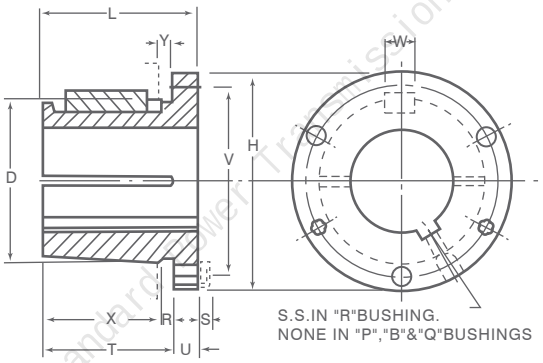
Part No.	Dimensions												Type 1 Bore Range	Cap Screws		Av. Wt. Lbs.	Wrench Torque In. -Lbs.
	L	U	T	D Large End	D Small End	H	V	W	X	Y	R	S		No.	Size		
G	1"	1/4"	3/4"	1.172"	1.133"	2"	1 9/16"	—	5/8"	3/16"	1/8"	3/16"	3/8" - 15/16"	2	1/4" x 5/8"	0.5	95
H	1 1/4	1/4	1	1.625	1.570	2 1/2	2	—	7/8	3/16	1/8	3/16	3/8 - 1 3/8	2	1/4 x 3/4	0.8	95

TYPE 2 Bushing Specifications

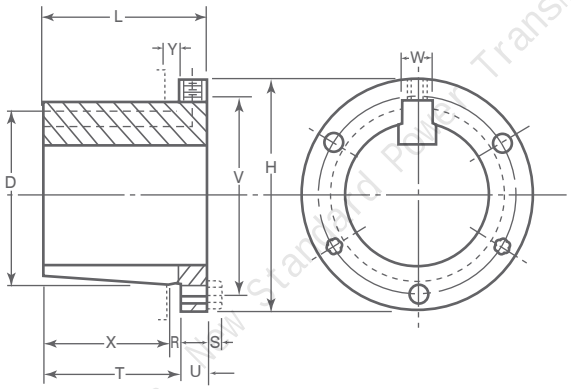
Part No.	Dimensions												Type 2 Bore Range	Cap Screws		Av. Wt. Lbs.	Wrench Torque In. -Lbs.
	L	U	T	D Large End	D Small End	H	V	W	X	Y	R	S		No.	Size		
G	1"	1/4"	3/4"	1.172"	1.133"	2"	1 9/16"	—	5/8"	3/16"	1/8"	3/16"	1"	2	1/4" x 5/8"	0.5	95
H	1 1/4	1/4	1	1.625	1.570	2 1/2	2	—	7/8	3/16	1/8	3/16	1 7/16 - 1 1/2	2	1/4 x 3/4	0.8	95

STL Taper bushing

P-R



TYPE 1



TYPE 2

TYPE 1 Bushing Specifications

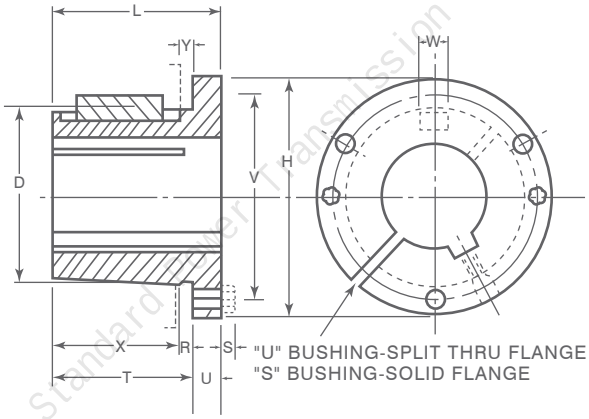
Part No.	Dimensions											Type 1 Bore Range	Cap Screws		Av. Wt. Lbs.	Wrench Torque In. -Lbs.
	L	U	T	D Large End	D Small End	H	V	W	X	Y	R	S		No.	Size		
P1	1 15/16	13/32	1 17/32	1.9375	1.8555	3"	2 7/16	3/8"	1 5/16	7/32	7/32	1/4	1/2 - 1 7/16	3	5/16 x 1	1.3	192
P2	2 15/16	13/32	2 17/32	1.9375	1.7930	3"	2 7/16	3/8	2 5/16	7/32	7/32	1/4	3/4 - 1 7/16	3	5/16 x 1	1.5	192
P3	4 7/16	13/32	4 1/32	1.9375	1.6993	3"	2 7/16	3/8	3 13/16	7/32	7/32	1/4	1 1/8 - 1 3/8	3	5/16 x 1	2	192
B	1 15/16	1/2	1 7/16	2.625	2.5567	3 11/16	3 1/8	1/2	1 3/16	7/32	1/4	1/4	1/2 1 - 1 5/16	3	5/16 x 1 1/4	1.8	192
Q1	2 1/2	17/32	1 31/32	2.875	2.7657	4 1/8	3 3/8	1/2	1 3/4	7/32	7/32	9/32	3/4 - 2 1/16	3	3/8 x 1 1/4	3.5	348
Q2	3 1/2	17/32	2 31/32	2.875	2.7032	4 1/8	3 3/8	1/2	2 3/4	7/32	7/32	9/32	1" - 2 1/16	3	3/8 x 1 1/4	4.5	348
Q3	5	17/32	4 15/32	2.875	2.6094	4 1/8	3 3/8	1/2	4 1/4	7/32	7/32	9/32	1 3/8 - 2 1/16	3	3/8 x 1 1/4	5.5	348
R1	2 7/8	5/8	2 1/4	4.000	3.8750	5 3/8	4 5/8	3/4	2"	1/4	1/4	9/32	1 1/8 - 2 13/16	3	3/8 x 1 3/4	7.5	348
R2	4 7/8	5/8	4 1/4	4.000	3.7500	5 3/8	4 5/8	3/4	4"	1/4	1/4	9/32	1 3/8 - 2 13/16	3	3/8 x 1 3/4	11	348

TYPE 2 Bushing Specifications

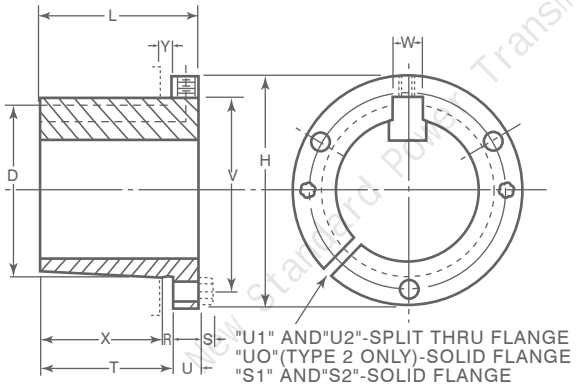
Part No.	Dimensions											Type 2 Bore Range	Cap Screws		Av. Wt. Lbs.	Wrench Torque In. -Lbs.
	L	U	T	D Large End	D Small End	H	V	W	X	Y	R	S		No.	Size		
P1	1 15/16	13/32	1 17/32	1.9375	1.8555	3	2 7/16	3/8"	1 5/16	7/32	7/32	1/4	1 1/2 - 1 3/4	3	5/16 x 1	1.3	192
P2	2 15/16	13/32	2 17/32	1.9375	1.7930	3	2 7/16	3/8	2 5/16	7/32	7/32	1/4	1 1/2 - 1 3/4	3	5/16 x 1	1.5	192
P3	4 7/16	13/32	4 1/32	1.9375	1.6993	3	2 7/16	3/8	3 13/16	7/32	7/32	1/4	1 5/8	3	5/16 x 1	2	192
B	1 15/16	1/2	1 7/16	2.625	2.5567	3 11/16	3 1/8	1/2	1 3/16	7/32	1/4	1/4	2 - 2 7/16	3	5/16 x 1 1/4	1.8	192
Q1	2 1/2	17/32	1 31/32	2.875	2.7657	4 1/8	3 3/8	1/2	1 3/4	7/32	7/32	9/32	2 1/8 - 2 11/16	3	3/8 x 1 1/4	3.5	348
Q2	3 1/2	17/32	2 31/32	2.875	2.7032	4 1/8	3 3/8	1/2	2 3/4	7/32	7/32	9/32	2 1/8 - 2 5/8	3	3/8 x 1 1/4	4.5	348
Q3	5	17/32	4 15/32	2.875	2.6094	4 1/8	3 3/8	1/2	4 1/4	7/32	7/32	9/32	2 1/8 - 2 1/2	3	3/8 x 1 1/4	5.5	348
R1	2 7/8	5/8	2 1/4	4.000	3.8750	5 3/8	4 5/8	3/4	2	1/4	1/4	9/32	2 7/8 - 3 3/4	3	3/8 x 1 3/4	7.5	348
R2	4 7/8	5/8	4 1/4	4.000	3.7500	5 3/8	4 5/8	3/4	4	1/4	1/4	9/32	2 7/8 - 3 5/8	3	3/8 x 1 3/4	11	348

STL Taper bushing

S-U



TYPE 1



TYPE 2

TYPE 1 Bushing Specifications

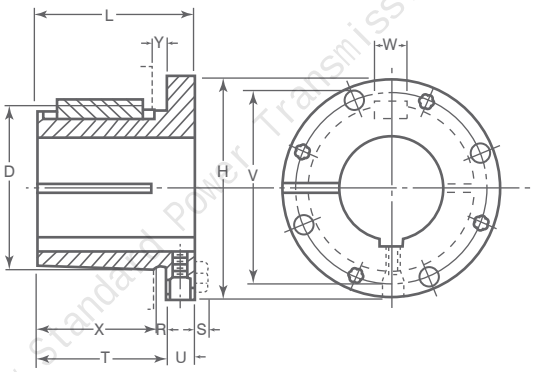
Part No.	Dimensions												Type 1 Bore Range	Cap Screws		Av. Wt. Lbs.	Wrench Torque In. -Lbs.
	L	U	T	D Large End	D Small End	H	V	W	X	Y	R	S		No.	Size		
S1	4 3/8	3/4	3 5/8	4.625	4.4180	6 3/8	5 3/8	3/4	3 5/16	5/16	5/16	3/8	1 11/16 - 3 3/16	3	1/2 x 2 1/4	13.5	840
S2	6 3/4	3/4	6"	4.625	4.2696	6 3/8	5 3/8	3/4	5 11/16	5/16	5/16	3/8	1 7/8 - 3 3/16	3	1/2 x 2 1/4	19	840
U0	5 1/4	1 1/16	4 3/16	6.000	5.7656	8 3/8	7"	1 1/4	3 3/4	7/16	7/16	15/32	2 3/8 - 3 1/16	3	5/8 x 2 3/4	30	1680
U0	4 15/16	3/4	4 3/16	6.000	5.7656	8 3/8	7"	1 1/4	3 3/4	7/16	7/16	15/32	3 1/4 - 4 1/4	3	5/8 x 2 3/4	27	1680
U1	7 1/8	1 1/16	6 1/16	6.000	5.6485	8 3/8	7"	1 1/4	5 5/8	7/16	7/16	15/32	2 3/8 - 4 1/4	3	5/8 x 2 3/4	40	1680
U2	10 1/8	1 1/16	9 1/16	6.000	5.4610	8 3/8	7"	1 1/4	8 5/8	7/16	7/16	15/32	2 7/16 - 4 1/4	3	5/8 x 2 3/4	50	1680

TYPE 2 Bushing Specifications

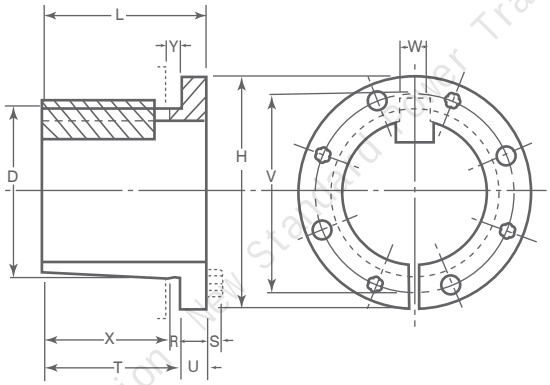
Part No.	Dimensions												Type 2 Bore Range	Cap Screws		Av. Wt. Lbs.	Wrench Torque In. -Lbs.
	L	U	T	D Large End	D Small End	H	V	W	X	Y	R	S		No.	Size		
S1	4 3/8	3/4	3 5/8	4.625	4.4180	6 3/8	5 3/8	3/4	3 5/16	5/16	5/16	3/8	3 1/4 - 4 1/4	3	1/2 x 2 1/4	13.5	840
S2	6 3/4	3/4	6	4.625	4.2696	6 3/8	5 3/8	3/4	5 11/16	5/16	5/16	3/8	3 1/4 - 4 3/16	3	1/2 x 2 1/4	19	840
U0	5 1/4	1 1/16	4 3/16	6.000	5.7656	8 3/8	7	1 1/4	3 3/4	7/16	7/16	15/32	—	3	5/8 x 2 3/4	30	1680
U0	4 15/16	3/4	4 3/16	6.000	5.7656	8 3/8	7	1 1/4	3 3/4	7/16	7/16	15/32	4 3/8 - 5 1/2	3	5/8 x 2 3/4	27	1680
U1	7 1/8	1 1/16	6 1/16	6.000	5.6485	8 3/8	7	1 1/4	5 5/8	7/16	7/16	15/32	4 3/8 - 5 1/2	3	5/8 x 2 3/4	40	1680
U2	10 1/8	1 1/16	9 1/16	6.000	5.4610	8 3/8	7	1 1/4	8 5/8	7/16	7/16	15/32	4 3/8 - 5	3	5/8 x 2 3/4	50	1680

STL Taper bushing

W-Y



TYPE 1



TYPE 2

TYPE1 Bushing Specifications

Part No.	Dimensions												Type 1 Bore Range	Cap Screws		Av. Wt. Lbs.	Wrench Torque In. -Lbs.
	L	U	T	D Large End	D Small End	H	V	W	X	Y	R	S		No.	Size		
W1	8 1/4	17/16	6 13/16	8.500	8.1016	12 1/2	10"	1 1/4	6 3/8	7/16	7/16	9/16	3 3/8 - 6 3/16	4	3/4 x 3	104	3000
W2	11 1/4	17/16	9 13/16	8.500	7.9141	12 1/2	10"	1 1/4	9 3/8	7/16	7/16	9/16	3 3/8 - 6 3/16	4	3/4 x 3	133	3000
Y0*	11 1/8	2"	9 1/8	12.000	11.4688	16 1/2	14 1/2	2	8 1/2	5/8	5/8	5/8	6 - 7 15/16	4	1 x 5	270	7200

TYPE 2 Bushing Specifications

Part No.	Dimensions												Type 2 Bore Range	Cap Screws		Av. Wt. Lbs.	Wrench Torque In. -Lbs.
	L	U	T	D Large End	D Small End	H	V	W	X	Y	R	S		No.	Size		
W1	8 1/4	17/16	6 13/16	8.500	8.1016	12 1/2	10	1 1/4	6 3/8	7/16	7/16	9/16	6 1/4 - 7 7/16	4	3/4 x 3	104	3000
W2	11 1/4	17/16	9 13/16	8.500	7.9141	12 1/2	10	1 1/4	9 3/8	7/16	7/16	9/16	6 1/4 - 7 7/16	4	3/4 x 3	133	3000
Y0*	11 1/8	2	9 1/8	12.000	11.4688	16 1/2	14 1/2	2	8 1/2	5/8	5/8	5/8	8 - 10	4	1 x 5	270	7200

STL BUSHING DIMENSIONS AND RANGES FOR INNER BORES AND KEYWAY

A1

Bush	Bore	Keyway	Bush	Bore	Keyway	Bush	Bore	Keyway	Bush	Bore	Keyway	Bush	Bore	Keyway	Bush	Bore	Keyway
G	3/8 7/16	None	P2	3/4 13/16 7/8	3/16x3/32	Q1	15/16 1 1 1/16 1 1/8 1 3/16 1 1/4	1/4x1/8	Q3	1 7/16 1 1/2 1 9/16 1 5/8 1 11/16 1 3/4	3/8x3/16	R2	1 3/8 1 7/16 1 1/2 1 9/16 1 5/8 1 11/16 1 3/4	5/16x5/32 3/8x3/16	S1	3 1/2 3 5/8 3 11/16 3 3/4	7/8x7/16
	1/2 9/16	1/8x1/16		15/16 1 1 1/16 1 1/8 1 3/16 1 1/4	1/4x1/8		1 5/16 1 3/8	5/16x5/32		1 13/16 1 7/8 1 15/16 2 2 1/16 2 1/8 2 3/16 2 1/4	1/2x1/4						
	5/8 11/16 3/4 13/16 7/8	3/16x3/32					1 7/16 1 1/2 1 9/16 1 5/8 1 11/16 1 3/4	3/8x3/16					1 13/16 1 7/8 1 15/16 2 2 1/16 2 1/8 2 3/16 2 1/4	1/2x1/4		3 7/8 3 15/16 4 4 1/8 4 3/16 4 1/4	1x1/2
	15/16 1	1/4x1/8		15/16 1 3/8	5/16x5/32												
H △△	3/8 7/16	None		13/8 17/16 1 1/2 1 9/16 1 5/8 1 11/16 1 3/4	3/8x3/16		1 13/16 1 7/8 1 15/16 2 2 1/16 2 1/8 2 3/16 2 1/4	1/2x1/4		2 5/16 2 3/8 2 7/16 2 1/2 2 9/16 2 5/8 2 11/16 2 3/4	5/8x5/16				1 7/8 1 15/16 2 2 1/16 2 1/8 2 3/16 2 1/4	1/2x1/4
	1/2 9/16	1/8x1/16															
	19/32 5/8 21/32 11/16 3/4 25/32 13/16 7/8	3/16x3/32	P3	1 1/8 1 3/8 1 5/8	1/4x1/8 5/16x5/32 3/8x3/16												
	15/16 31/32 1 1 1/16 1 1/8 1 3/16 1 1/4	1/4x1/8	B	1/2 9/16	1/8x1/16		2 5/16 2 3/8 2 7/16 2 1/2 2 9/16 2 5/8 2 11/16	5/8x5/16		1 1/8 1 3/16 1 1/4	1/4x1/8						
				5/8 11/16 3/4 13/16 7/8	3/16x3/32					1 5/16 1 3/8	5/16x5/32						
	1 5/16 1 3/8	5/16x5/32		15/16 1 1 1/16 1 1/8 1 3/16 1 1/4	1/4x1/8	Q2	1 1 1/16 1 1/8 1 3/16 1 1/4	1/4x1/8		1 17/16 1 1/2 1 9/16 1 5/8 1 11/16 1 3/4	3/8x3/16						
	1 3/8 1 7/16 1 1/2	3/8x3/16							R1	1 13/16 1 7/8 1 15/16 2 2 1/16 2 1/8 2 3/16 2 1/4	1/2x1/4						
P1 △△	1/2 9/16	1/8x1/16		15/16 1 3/8	5/16x5/32		1 5/16 1 3/8	5/16x5/32					1 11/16 1 3/4	3/8x3/16			
	5/8 21/32 11/16 3/4 25/32 13/16 7/8	3/16x3/32		13/8 17/16 1 1/2 1 9/16 1 5/8 1 11/16 1 3/4	3/8x5/32		1 7/16 1 11/25 1 9/16 1 5/8 1 11/16 1 3/4	3/8x3/16		2 5/16 2 3/8 2 7/16 2 1/2 2 9/16 2 5/8 2 11/16 2 3/4	5/8x5/16		1 7/8 1 15/16 2 2 1/16 2 1/8 2 3/16 2 1/4	1/2x1/4			
	15/16 31/32 1 1 1/16 1 1/8 1 3/16 1 1/4	1/4x1/8		1 13/16 1 7/8 1 15/16 2 2 1/16 2 1/8 2 3/16 2 1/4	1/2x1/4		1 13/16 1 7/8 1 15/16 2 2 1/16 2 1/8 2 3/16 2 1/4	1/2x1/4		2 13/16 2 7/8 2 15/16 3 3 1/8 3 3/16 3 1/4	3/4x3/8	S1	2 5/16 2 3/8 2 7/16 2 1/2 2 9/16 2 5/8 2 11/16 2 3/4	5/8x5/16	U0	2 3/8 2 7/16 2 1/2 2 9/16 2 5/8 2 11/16 2 3/4	5/8x5/16
	1 5/16 1 3/8	5/16x5/32					2 5/16 2 3/8 2 7/16 2 1/2 2 11/16 2 5/8	5/8x5/16									
	1 3/8 1 7/16 1 1/2 1 9/16 1 5/8 1 11/16 1 3/4	3/8x3/16	Q1	3/4 13/16 7/8	3/16x3/32	Q3	1 5/16 1 3/8	5/16x5/32		3 3/8 3 7/16 3 1/2 3 5/8 3 11/16 3 3/4	7/8x7/16		2 7/8 2 15/16 3 3 1/8 3 3/16 3 1/4	3/4x3/8		2 7/8 2 15/16 3 3 1/8 3 3/16 3 1/4	3/4x3/8
													3 3/8 3 7/16	7/8x7/16		3 3/8 3 7/16 3 1/2 3 5/8	7/8x7/16

STL BUSHING DIMENSIONS AND RANGES FOR INNER BORES AND KEYWAY

A2

Bush	Bore	Keyway	Bush	Bore	Keyway	Bush	Bore	Keyway	Bush	Bore	Keyway	Bush	Bore	Keyway	Bush	Bore	Keyway
U0	3 11/16	7/8x7/16	U1	5	1 1/4x5/8	W1	4 5/8	1 1/4x5/8	W2	5 7/16	1 1/4x5/8	P1	14	5x2.5	Q1	55	16x5
	3 3/4			5 1/8			4 11/16			5 1/2			15			60	18x5.5
	3 7/8	1x1/2		5 3/16			4 3/4			5 5/8	1 1/2x3/4		16			65	
	3 15/16			5 1/4			4 7/8			5 3/4			18	6x3	R1	28	8x3.5
	4			5 3/8			4 15/16			5 7/8			19			30	
	4 1/8			5 7/16			5	1 1/4x5/8		5 15/16			20			32	10x4
	4 3/16			5 1/2			5 1/8			6			22			35	
	4 1/4		U2	2 7/16	5/8x5/16		5 3/16			6 1/8			24	8x3.5		36	
	4 3/8			2 1/2			5 1/4			6 3/16			25			38	
	4 7/16			2 9/16			5 3/8			6 1/4			28			39	12x4
	4 1/2			2 5/8			5 7/16			6 3/8			30			40	
	4 5/8	1 1/4x5/8		2 11/16			5 1/2			6 7/16			32	10x4		42	
	4 11/16			2 3/4			5 5/8	1 1/2x3/4		6 1/2			35			45	14x4.5
	4 3/4			2 13/16	3/4x3/8		5 3/4			6 5/8	1 3/4x3/4		36			48	
	4 7/8			2 7/8			5 7/8			6 3/4			38			50	
	4 15/16			2 15/16			5 15/16			6 7/8			39	12x4		55	16x5
	5			3			6			6 15/16			40			60	18x5.5
	5 1/8			3 1/8			6 1/8			7			42			65	
	5 3/16			3 3/16			6 3/16			7 1/8		B	15	5x2.5		70	20x6
	5 1/4			3 1/4			6 1/4			7 3/16			16			75	
	5 3/8			3 3/8	7/8x7/16		6 3/8			7 1/4			18	6x3		80	22x7
	5 7/16			3 7/16			6 7/16			7 3/8			19			85	
	5 1/2			3 1/2			6 1/2			7 7/16			20			90	25x7
U1	2 3/8	5/8x5/16		3 5/8			6 5/8	1 3/4x3/4	STOCK MILLIMETER BORE BUSHINGS				22			95	
	2 7/16			3 11/16			6 3/4						24	8x3.5	R2	35	10x4
	2 1/2			3 3/4			6 7/8						25			36	
	2 9/16			3 7/8	1x1/2		6 15/16						28			38	
	2 5/8			3 15/16			7						30			39	12x4
	2 11/16			4			7 1/8						32	10x4		40	
	2 3/4			4 1/8			7 3/16						35			42	
	2 13/16	3/4x3/8		4 3/16			7 1/4		G	10	None		36			45	14x4.5
	2 7/8			4 1/4			7 3/8			11			38			48	
	2 15/16			4 3/8			7 7/16			12			39	12x4		50	
	3			4 7/16		W2	3 3/8	7/8x7/16		14	5x2.5		40			55	16x5
	3 1/8			4 1/2			3 7/16			16			42			60	18x5.5
	3 3/16			4 5/8	1 1/4x5/8		3 1/2			18	6x3		45	14x4.5		65	
	3 1/4			4 11/16			3 5/8			19			48			70	20x6
	3 3/8	7/8x7/16		4 3/4			3 11/16			20			50			75	
	3 7/16			4 7/8			3 3/4			22			55	16x5		80	22x7
	3 1/2			4 15/16			3 7/8	1x1/2		24	8x3.5		60	18x5.5		85	
	3 5/8			5			3 15/16			25			65			90	25x7
	3 11/16			3 3/8	7/8x7/16		4		H	10	None		70				
	3 3/4			3 7/16			4 1/8			11			75				
	3 13/16	1x1/2		3 1/2			4 3/16	1x1/2		12			80				
	3 7/8			3 5/8			4 1/4			14	5x2.5		85				
	3 15/16			3 11/16			4 3/8			16			90				
	4			3 3/4			4 7/16			18	6x3						
	4 1/8		W1	3 7/8	1x1/2		4 1/2			19							
	4 3/16			3 15/16			4 5/8	1 1/4x5/8		20							
	4 1/4			4			4 11/16			22							
	4 3/8			4 1/8			4 3/4			24	8x3.5						
	4 7/16			4 3/16			4 7/8			25							
	4 1/2			4 1/4			4 15/16			28							
	4 5/8	1 1/4x5/8		4 3/8			5			30							
	4 11/16			4 7/16			5 1/8			32	10x4						
	4 3/4			4 1/2			5 3/16			35							
	4 7/8						5 1/4			36							
	4 15/16						5 3/8			38							