BTL Taper bushing

1008 - 5050
6050 - 12100

BTL Taper bushing produced by CHSSB are made of GG25 cast iron. With precision machining, they are fixed with set screws imported from Japan and packed with nice cartons separately. They are truly your excellent choices for taper bushing.

Specifications for the series of BTL Taper Bushing:

1008-5050 items can be sold off-the-shelf based on the stock, immediate delivery. At the same time we can meet BS, UNC tap holes, inner bore and keyway for taper bushing in metric and inch calculation. They are very suitable to the market of European, the United States and Japanese, etc.

6050-12100 produced against orders, and prompt delivery. Bore and keyway of taper bushing can be in metric and inch dimension according to BS and UNC standard.

BTL Taper bushing

Taper bushing is a new type of component part used forjointing mechanical transmission. It changed traditional design,easy-on,easy-off,compact in construction and high standardization. The grip is tightened through its taper surface, excellent concentricity and nonclearance joint, its transmission efficiency can be raised.

The sizes of taper bushings are designed in a standard series. The bore, Keyway and thread are machined in accordance with ISO standard. It is interchangeable and the customers can make their own choice according to his purpose and usage. This mew type taper bhshing is widely used.

Grey cast iron is the common material for BTL taper bushings.If high tensional bushing is required, ductile iron,steel and forged steel can be used. Bushing made of stainless steel can be used together with sprockets. clutches, gears and other transmission parts which are also made of stainless steel.

When taper bushing is used with other transmission parts,in the starting and frequent inversion, it will cause damages to the bore and keyway,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 ta-

per bushing is used. In case the bore and keyway are damaged, it will resume to service so long as remove the old bushing and assemble a new one. The lifetime of the transmission part can be raised, so the maintenance expenses are reduced.

BTL Taper bushing includes: taper bushing itself and tightening screws. (also including packaging)

The range for its usage can be enlarged if a weld-on taper hub is used.

If more detailed information about taper bushing is required, please contact the manufacturer.

TAPER WELD·ON HUB	+	A·PLATE SPROCKET REBORE TO "G"DIMENSION. WELD	=	TAPER SPROCKET
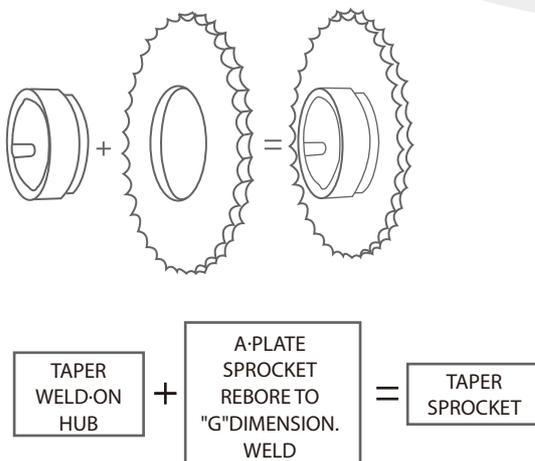
BTL　Taper bushing

Taper-lock Bushing (abbreviated as "Bushing")is a new type of elasticity components in shaft-hub connection, and is widely used in belts, timing belts, sprockets, gears,bevels, couplings, rollers, sheaves and agitators, impellers, fan rotors and other products which need to be shaft mounted. Its features are as follows:

1) extremely secure fit on the shaft, excellent concentricity;

2) without interference elasticity clip, easy on easy off, and low maintenance;

3) better shock resistance, long life-time, good reliability, using in the situation of frequent starting and inversion, heavy load, and other severe operating conditions;

4) It is widely used in many circumstances, and offers widely mounting between all kinds of trasmission components and different diameter shafts only by a few specifications; easy standardization, easy seriation and suitable for large scale of special productions,the cost then be reduced.

At present, traditional connection method by key is widely used in mechanical transmission. But its reliability is bad, for its concentricity is not very good, the installation is inconvenient, and keyway connection is easy to lose effectiveness under shock loads. Anyway, bushing has conquered all these defects completely, so it has been propagated soon after the bushing was invented in 1980's, it becomes very popular in USA and Europe, and Japanese people use more and more since 1990s. So, we can say, all over the world, bushing has taken place of traditional key connection in many places, and becomes new type of mechanical basic components.

1.Basic construction and working principal of bushing connection. Bushing mates with taper bore in transmission hub through 4 šemi-taper angle surface, Its keyway is used to increase elasticity. The tightening press on the shaft is caused by tighten screws. The screws'structure and quantity depend on bushing's type and specification. When bushing and hub being tightened, bushing's bore shrinked

and prssed on the shaft. Therefore, the torque will be transmitted through frictional force.Key connection will only be the subsidiary transmission parts then. To conquer bushing's self-locking featrue, screws used for installation have been set which can make the bushing removed from the shaft.

2. Bushing structure selection

Bushing can be divided into three types, which can be used according to the features.

2.1 General bushing

This kind of Bushing can achieve hub connection without increasing the transmission components' outside dimensions, its constructure is very compact. Located in the hub looks even and beautiful at two ends, Using cap screws as setting screw, there is a semi-screw on the hub to comply with it. Bushing can be connected with taper bored standard transmission parts directly or through taper weld-on hub. This type is the basic type, and is most widely used.

2.2 Flange type

This type's structure is simply, and installation is easier. Using hex screw as tightening screw, made it easier to adopt loosing-resistance construction and more reliable. But its dimension is little bigger than normal. so it's only suitable for use where there have low requirements on dimension or weight,and where the hub is shorter.

2.3 Adapters

Adapters for Taper-lock bushings are recommended for usage where the hub bore is straight. Especially to the rolling bearing, always meet with such circumstance, like closely mating with the shaft, too much insert, difficult installation, or easy damaging to the finish surface.

If the adapter is used to connect with bushing, all the questions will be solved then. But it should be told that, using adapters will increase radial dimension, so it will be more suitable where the shaft diameter is decided by bearing dimension, not by shaft itself's strength of rigidity. Select adapters' type according to related bushings'type.

BTL   Taper bushing

3.Bushing's type and loading capacity.

3.1 General type

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

1) light series: type 1008-3030

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

2) Medium series: type 3535-5050

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

3) Heavy series: type 6050-120100

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

3.1.2 Type and normenclatures

For each type of bushing, there will be different standard shaft sizes for selection.

Writen in four numbers, eg. 2517, the initial two are divided by ten indicating Max. bore of Bushing (in inches); the other two are divided by ten indicating length through bore (in inches). For example, the Max. bore of Bushing is 2.5 inches (2.5 x 25.4 mm), length through bore is 1.7 inches (1.7 x 25.4 mm).

Written in six numbers, eg. 120100, the initial three divided by ten indicating Max. bore of Bushing (in inches), the other three are divided by ten indicating length through bore (in inches). For example, 120 indicates that the Max bore of Bushing is 12 inches (12 x 25.4mm); 100 indicates that length through bore is 10 inches (10 x 25.4mm).

Written in five numbers, the initial three indicates Max, bore of bushing, the other two indicates length through bore, for example, 10085.

3.1.3 Rating load-bearing capacity

See torque capacity parameters for general type in the following table:

Bush.No	Torque Capacity		Bush.No	Torque Capacity	
	1bf.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

1bf.in=0.113N.m

BTL Taper bushing

It should be noted that bushing's load-bearing capacity has some relations with screw tightening torque and shaft size. In this catalogue the related tightening torque has been given, The load-bearing capacity raised as the shaft size enlarged. Please consult with the factory if more detailed information meeded.

3.2 Flange type (QD bushing)

3.2.1 Dimension series: QD Bushings can be divided into two series according to whether they can be reversed mounting or not.

1) reversable mounting series: type JA-J
There are three screws and three bores on the flange.

2) un-reversable mounting series: type M-W.
Only with four tapped holes on the flange, without un-tapped holes.

3.2.2 Type and load -bearing capacity

According to the dimensions and load-bearing capacity, QD Bushings have thirteen specifications, see torque capacity and related screw tightening torque in the table below:

Bush.No	Torque Capacity		Screw Tightening Torque	
	1bf.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

After selecting bushing type according to bushings' features under different using condition, the selection to the type 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)
Where,N-transmission torque (house);
　　　 n-shaft revolutions perminute(RPM)
calculation torque $T_0=KT$, K-loading coefficient

When using To select Bushing type, it should comply with $T_H \leqslant T_0$, T_H -Bushing torque capacity, can be got from the given table.

BTL Taper bushing
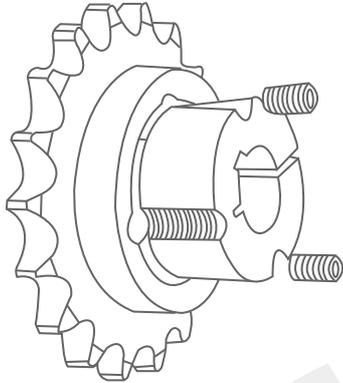
TO ASSEMBLE

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

2.Lightly oil the grub screws (bush size 1008 to 30 30)or the cap screws (bush size to 5050)and screw them in, not tighten yet.

3.Clean and degrease the shaft.Fit pulley with taper bush on shaft and locate in desired position.

4.When using a key it should firstly be fitted in the shaft Keyway.There should be a top clearance between the key and the keyway in the bore.

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

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

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

REMOVAL

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

BUSH NO	SCREW TIGHTENING TORQUES(Nm)	SCREW	
		QUANTITY	SIZE
1008 1108	5.6	2	1/4" BSW
1210 1215	20	2	3/8" BSW
1310 1315	20	2	3/8" BSW
1610 1615	20	2	3/8" BSW
2012	31	2	7/16" BSW
2517	48	2	1/2" BSW
3020 3030	90	2	5/8" BSW
3535	112	3	1/2" BSW
4040	170	3	5/8" BSW
4545	192	3	3/4" BSW
5050	271	3	7/8" BSW

The BTL taper bushing are registered patant products. Any producton and sale should be authorised and permitted.

Special Note

BTL bushing are made of GG25 cast iron. We can also offer other materials according to customers' requirements.

We can do surface coating according to the customers' requirements.*(such as painting, black phosphating,black oxidizing and so on)

Each part is individualy boxed.

BTL bushings are inserted with high quality screws made in Japan.

BTL Taper bushing

Position of screw to tighten bushing

For removing from shaft
Bushing half of hole threaded
Hub half of hole not theaded

Set screw
for tightening on shaft
Hub half of hole threaded
Bushing half of hole not threaded

8°taper included angle

3535 thru 5050 sizes

Position of screw to tighten bushing

For removing from shaft
Bushing half of hole threaded
Hub half of hole not theaded

F   Socket thread set screws

For tightenng on shaft
Hub half of hole threaded
Bushing half of hole not threaded

8°taper included angle

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	40°
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

Ref:Bore+D
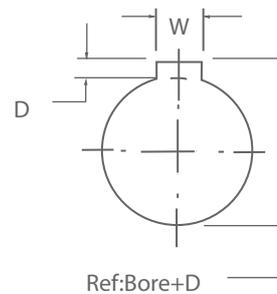
MM Bore Key way dimensions conform to ISO standard
Depth measured at centerline

BTL   Taper bushing   KEYWAY

A

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

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

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

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

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

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

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

BTL Taper bushing KEYWAY

B

Bush No 1008 – 1310

Bush No	Bore	Width	Depth
1008	1/2	0.125	0.062
	9/16	0.187	0.093
	5/8	0.187	0.093
	11/16	0.187	0.093
	3/4	0.187	0.093
	13/16	0.25	0.125
	7/8	0.25	0.125
	15/16	0.25	0.062
	1	0.25	0.062
1108	1/2	0.125	0.062
	9/16	0.187	0.093
	5/8	0.187	0.093
	11/16	0.187	0.093
	3/4	0.187	0.093
	13/16	0.25	0.125
	7/8	0.25	0.125
	15/16	0.25	0.125
	1	0.25	0.125
	1 1/16	0.312	0.078
	1 1/8	0.312	0.078
1210	1/2	0.125	0.062
	9/16	0.187	0.093
	5/8	0.187	0.093
	11/16	0.187	0.093
	3/4	0.187	0.093
	13/16	0.25	0.125
	7/8	0.25	0.125
	15/16	0.25	0.125
	1	0.25	0.125
	1-1/16	0.312	0.125
	1-1/8	0.312	0.125
	1-3/16	0.312	0.125
	1-1/4	0.312	0.125
1215	1/2	0.125	0.062
	9/16	0.187	0.093
	5/8	0.187	0.093
	11/16	0.187	0.093
	3/4	0.187	0.093
	13/16	0.25	0.125
	7/8	0.25	0.125
	15/16	0.25	0.125
	1	0.25	0.125
	1 1/16	0.312	0.125
	1 1/8	0.312	0.125
	1 3/16	0.312	0.125
	1 1/4	0.312	0.125
1310	1/2	0.125	0.062
	9/16	0.187	0.093
	5/8	0.187	0.093
	11/16	0.187	0.093
	3/4	0.187	0.093
	13/16	0.25	0.125
	7/8	0.25	0.125
	15/16	0.25	0.125
	1	0.25	0.125
	1 1/16	0.312	0.125
	1 1/8	0.312	0.125
	1 3/16	0.312	0.125
	1 1/4	0.312	0.125
	1 5/16	0.375	0.125
	1 3/8	0.375	0.125

Bush No 1610 – 2012

Bush No	Bore	Width	Depth
1610	1/2	0.125	0.062
	9/16	0.187	0.093
	5/8	0.187	0.093
	11/16	0.187	0.093
	3/4	0.187	0.093
	13/16	0.25	0.125
	7/8	0.25	0.125
	15/16	0.25	0.125
	1	0.25	0.125
	1 1/16	0.312	0.125
	1 1/8	0.312	0.125
	1 3/16	0.312	0.125
	1 1/4	0.312	0.125
	1 5/16	0.312	0.125
	1 3/8	0.375	0.125
	1 7/16	0.375	0.125
	1 1/2	0.375	0.125
	1 9/16	0.437	0.125
	1 5/8	0.437	0.125
1615	1/2	0.125	0.062
	9/16	0.187	0.093
	5/8	0.187	0.093
	11/16	0.187	0.093
	3/4	0.187	0.093
	13/16	0.25	0.125
	7/8	0.25	0.125
	15/16	0.25	0.125
	1	0.25	0.125
	1 1/16	0.312	0.125
	1 1/8	0.312	0.125
	1 3/16	0.312	0.125
	1 1/4	0.312	0.125
	1 5/16	0.312	0.125
	1 3/8	0.375	0.125
	1 7/16	0.375	0.125
	1 1/2	0.375	0.125
	1 9/16	0.437	0.125
	1 5/8	0.437	0.125
2012	1/2	0.125	0.062
	9/16	0.187	0.093
	5/8	0.187	0.093
	11/16	0.187	0.093
	3/4	0.187	0.093
	13/16	0.25	0.125
	7/8	0.25	0.125
	15/16	0.25	0.125
	1	0.25	0.125
	1 1/16	0.312	0.125
	1 1/8	0.312	0.125
	1 3/16	0.312	0.125
	1 1/4	0.312	0.125
	1 5/16	0.375	0.125
	1 3/8	0.375	0.125
	1 7/16	0.375	0.125
	1 1/2	0.375	0.125
	1 9/16	0.437	0.156
	1 5/8	0.437	0.156
	1 11/16	0.437	0.156
	1 3/4	0.437	0.156
	1 13/16	0.50	0.156
	1 7/8	0.50	0.156
	1 15/16	0.50	0.125
	2	0.50	0.125

Bush No 2517 – 2525

Bush No	Bore	Width	Depth
2517	1/2	0.125	0.062
	5/8	0.187	0.093
	11/16	0.187	0.093
	3/4	0.187	0.093
	13/16	0.25	0.125
	7/8	0.25	0.125
	15/16	0.25	0.125
	1	0.25	0.125
	1 1/16	0.312	0.125
	1 1/8	0.312	0.125
	1 3/16	0.312	0.125
	1 1/4	0.312	0.125
	1 5/16	0.375	0.125
	1 3/8	0.375	0.125
	1 7/16	0.375	0.125
	1 1/2	0.375	0.125
	1 9/16	0.437	0.156
	1 5/8	0.437	0.156
	1 11/16	0.437	0.156
	1 3/4	0.437	0.156
	1 13/16	0.50	0.156
	1 7/8	0.50	0.156
	1 15/16	0.50	0.156
	2	0.50	0.156
	2 1/16	0.625	0.218
	2 1/8	0.625	0.218
	2 3/16	0.625	0.218
	2 1/4	0.625	0.218
	2 5/16	0.625	0.187
	2 3/8	0.625	0.187
	2 7/16	0.625	0.187
	2 1/2	0.625	0.187
2525	3/4	0.187	0.093
	7/8	0.25	0.125
	1	0.25	0.125
	1 1/8	0.312	0.125
	1 3/16	0.312	0.125
	1 1/4	0.312	0.125
	1 3/8	0.375	0.125
	1 7/16	0.375	0.125
	1 1/2	0.375	0.125
	1 5/8	0.437	0.156
	1 11/16	0.437	0.156
	1 3/4	0.437	0.156
	1 13/16	0.50	0.156
	1 7/8	0.50	0.156
	1 15/16	0.50	0.156
	2	0.50	0.156
	2 3/16	0.625	0.218
	2 1/4	0.625	0.218
	2 5/16	0.625	0.218
	2 3/8	0.625	0.218
	2 7/16	0.625	0.187
	2 1/2	0.625	0.187

Bush No 3020 – 3030

Bush No	Bore	Width	Depth
3020	7/8	0.25	0.125
	15/16	0.25	0.125
	1	0.25	0.125
	1 1/8	0.312	0.125
	1 3/16	0.312	0.125
	1 1/4	0.312	0.125
	1 5/16	0.375	0.125
	1 3/8	0.375	0.125
	1 7/16	0.375	0.125
	1 1/2	0.375	0.125
	1 9/16	0.437	0.156
	1 5/8	0.437	0.156
	1 11/16	0.437	0.156
	1 3/4	0.437	0.156
	1 13/16	0.50	0.156
	1 7/8	0.50	0.156
	1 15/16	0.50	0.156
	2	0.50	0.156
	2 1/16	0.625	0.218
	2 1/8	0.625	0.218
	2 3/16	0.625	0.218
	2 1/4	0.625	0.218
	2 5/16	0.625	0.218
	2 3/8	0.625	0.218
	2 7/16	0.625	0.218
	2 1/2	0.625	0.218
	2 5/8	0.75	0.250
	2 11/16	0.75	0.250
	2 3/4	0.75	0.250
	2 13/16	0.875	0.312
	2 7/8	0.75	0.218
	2 15/16	0.75	0.218
	3	0.75	0.218
3030	15/16	0.25	0.125
	1	0.25	0.125
	1 1/8	0.312	0.125
	1 3/16	0.312	0.125
	1 1/4	0.312	0.125
	1 5/16	0.375	0.125
	1 3/8	0.375	0.125
	1 7/16	0.375	0.125
	1 1/2	0.375	0.125
	1 9/16	0.437	0.156
	1 5/8	0.437	0.156
	1 11/16	0.437	0.156
	1 3/4	0.437	0.156
	1 13/16	0.50	0.156
	1 7/8	0.50	0.156
	1 15/16	0.50	0.156
	2	0.50	0.156
	2 1/16	0.625	0.218
	2 1/8	0.625	0.218
	2 3/16	0.625	0.218
	2 1/4	0.625	0.218
	2 5/16	0.625	0.218
	2 3/8	0.625	0.218
	2 7/16	0.625	0.218
	2 1/2	0.625	0.218
	2 5/8	0.75	0.250
	2 11/16	0.75	0.250
	2 3/4	0.75	0.250
	2 7/8	0.75	0.218
	2 15/16	0.75	0.218
	3	0.75	0.218

Bush No 3535 – 4040

Bush No	Bore	Width	Depth
3535	1 3/16	0.312	0.125
	1 1/4	0.312	0.125
	1 3/8	0.375	0.125
	1 7/16	0.375	0.125
	1 1/2	0.375	0.125
	1 5/8	0.437	0.156
	1 11/16	0.437	0.156
	1 3/4	0.437	0.156
	1 7/8	0.50	0.156
	1 15/16	0.50	0.156
	2	0.50	0.156
	2 1/8	0.625	0.218
	2 3/16	0.625	0.218
	2 1/4	0.625	0.218
	2 5/16	0.625	0.218
	2 3/8	0.625	0.218
	2 7/16	0.625	0.218
	2 1/2	0.625	0.218
	2 5/8	0.75	0.25
	2 11/16	0.75	0.25
	2 3/4	0.75	0.25
	2 7/8	0.75	0.25
	2 15/16	0.75	0.25
	3	0.75	0.25
	3 1/8	0.875	0.312
	3 3/16	0.875	0.312
	3 1/4	0.875	0.312
	3 5/16	0.875	0.312
	3 3/8	0.875	0.25
	3 7/16	0.875	0.25
	3 1/2	0.875	0.25
4040	1 7/16	0.375	0.125
	1 1/2	0.375	0.125
	1 5/8	0.437	0.156
	1 11/16	0.437	0.156
	1 3/4	0.437	0.156
	1 7/8	0.50	0.156
	1 15/16	0.50	0.156
	2	0.50	0.156
	2 3/16	0.625	0.218
	2 1/4	0.625	0.218
	2 3/8	0.625	0.218
	2 7/16	0.625	0.218
	2 1/2	0.625	0.218
	2 5/8	0.75	0.25
	2 11/16	0.75	0.25
	2 3/4	0.75	0.25
	2 7/8	0.75	0.25
	2 15/16	0.75	0.25
	3	0.75	0.25
	3 1/8	0.875	0.312
	3 3/16	0.875	0.312
	3 1/4	0.875	0.312
	3 3/8	0.875	0.312
	3 7/16	0.875	0.312
	3 1/2	0.875	0.312
	3 5/8	1.0	0.375
	3 11/16	1.0	0.375
	3 3/4	1.0	0.375
	3 7/8	1.0	0.25
	3 15/16	1.0	0.25
	4	1.0	0.25
	4 7/16	1.25	0.25

Bush No 4545 – 5050

Bush No	Bore	Width	Depth
4545	1 15/16	0.50	0.156
	2	0.50	0.156
	2 3/16	0.625	0.218
	2 3/8	0.625	0.218
	2 7/16	0.625	0.218
	2 5/8	0.75	0.25
	2 3/4	0.75	0.25
	2 7/8	0.75	0.25
	2 15/16	0.75	0.25
	3	0.75	0.25
	3 3/16	0.875	0.312
	3 1/4	0.875	0.312
	3 3/8	0.875	0.312
	3 7/16	0.875	0.312
	3 1/2	0.875	0.312
	3 5/8	1.0	0.375
	3 3/4	1.0	0.375
	3 7/8	1.0	0.375
	3 15/16	1.0	0.375
	4	1.0	0.375
	4 1/8	1.25	0.437
	4 3/16	1.25	0.437
	4 1/4	1.25	0.437
	4 3/8	1.25	0.25
	4 7/16	1.25	0.25
	4 1/2	1.25	0.25
	4 3/4	1.25	0.25
5050	2 7/16	0.625	0.218
	2 15/16	0.75	0.25
	3 3/8	0.875	0.312
	3 7/16	0.875	0.312
	3 5/8	1.0	0.375
	3 3/4	1.0	0.375
	3 7/8	1.0	0.375
	3 15/16	1.0	0.375
	4	1.0	0.375
	4 1/4	1.25	0.437
	4 3/8	1.25	0.437
	4 7/16	1.25	0.437
	4 1/2	1.25	0.437
	4 7/8	1.25	0.312
	4 15/16	1.25	0.312
	5	1.25	0.312

BTL Taper bushing

TAPER BUSHING DIMENSIONS(Con t.)
6050 thru 120100 Sizes
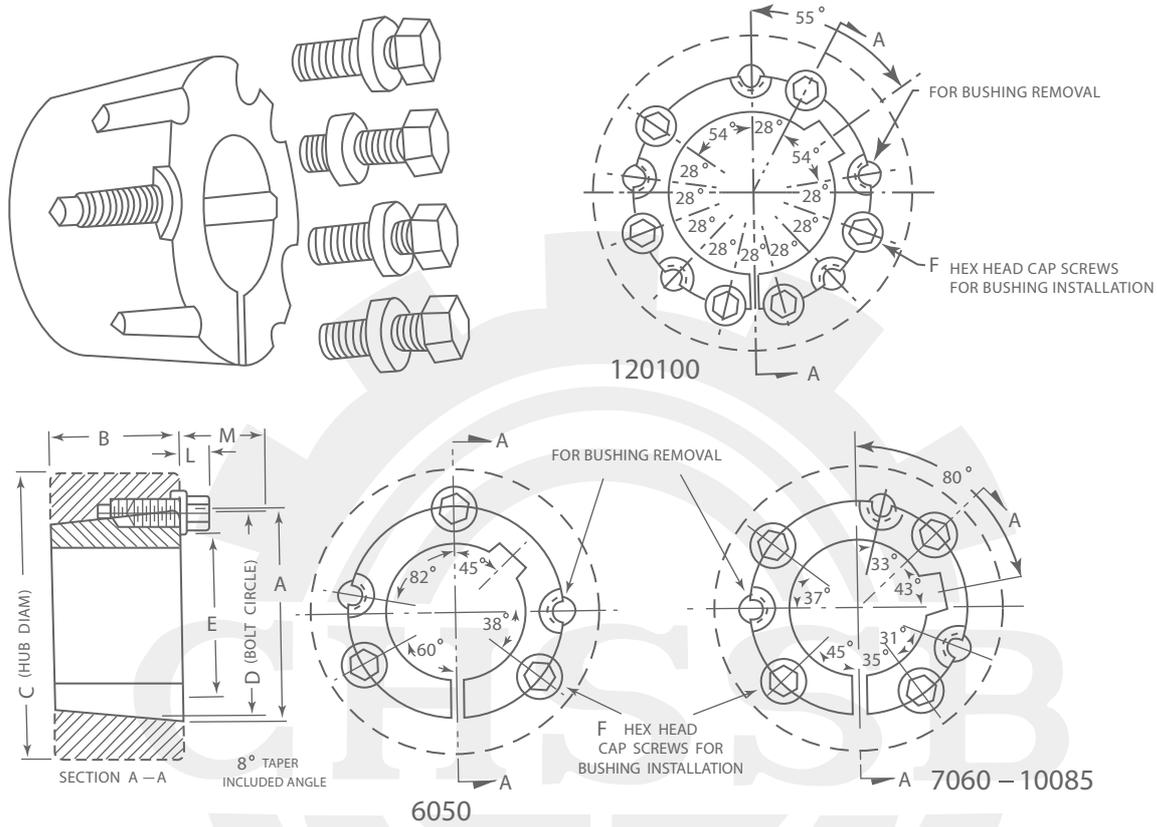
Dimensions for 6050 thru 120100 BTL Taper Bushings

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

Instruction is sheet packed into each bushing box.

TB W/WH weld-on hubs

This type of Taper BORE weld-on Hubs adopt Europe Standard.

Taper Bore Weld-on Hubs are made of steel,drilled,tapped and taper bored to recieve standard Taper Bushes.The extended flange provides a convenient means of welding hubs into fan rotors,steel pulleys,plate sprockets,impellers,agitators and many other devices,which must be firmly fastened entirely suitable for usage where severe operating conditions are met.Tightening the screws contracts the bore of the bush,thereby locking it to the shaft with the equivalent of a press fit.This type of construction eliminates mounting difficulties,it also prevents loosening and wearing happened to the hub during operation.
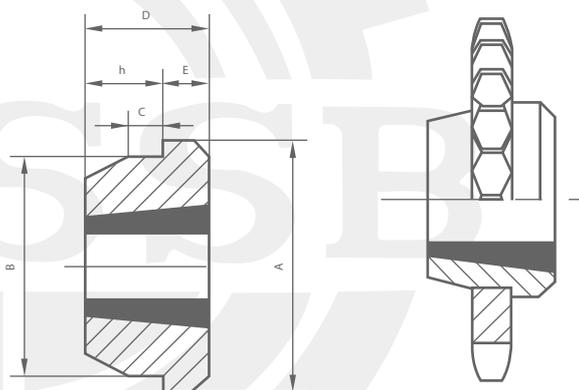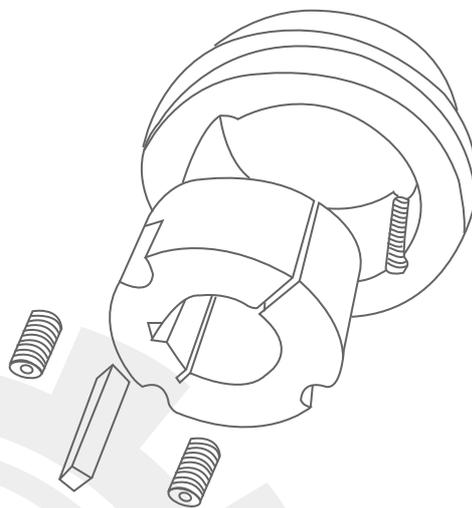
WH WELD-ON HUBS

Hub Rel	Bush No	A	B	C	D	E	h
WH1210	1210	73	60	10	25	9	16
WH1215	1215	76	60	11	38	16	22
WH1610	1610	83	70	10	25	9	16
WH1615	1615	83	70	11	38	16	22
WH2012	2012	96	90	12	32	10	22
WH2517	2517	127	110	13	45	19	26
WH3020	3020	152	130	18	51	24	27
WH3030	3030	152	130	19	76	25	51
WH3525	3525	184	155	25	65	25	40
WH3535	3535	184	155	25	89	32	57
WH4040	4040	225	195	35	102	32	70
WH4545	4545	254	220	40	114	38	76
WH5050	5050	276	242	40	127	38	89

T_B Adapters   BTL

STRAIGHT-BORED COMPONENT

TAPER-LOCK BUSHING

TAPER-LOCK ADAPTER
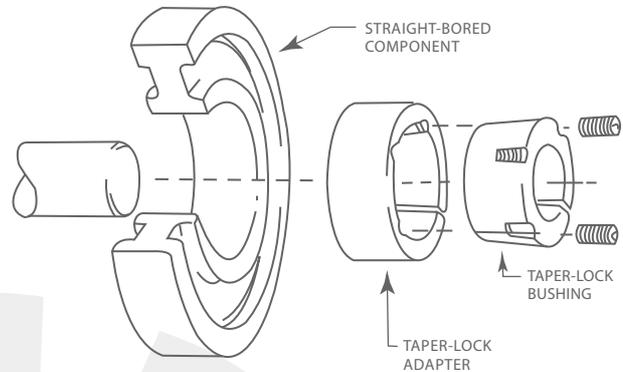
Adapters for TAPER bushing are recom-mended for usage where it is more convenient to straight bore than to drill,tap and taper bore hubs to accommodate bushings.

The adapter is a taper-bored sleeve of grey cast iron which fits into the straight bore of a hub.The bushing simply fits inside the adapter which is tapped for the bushing screws,When tightening the locking screws,adapter is expanded against the hub bore pressing the bushing tightly upon the shaft.

E KEYSEAT

55°

D (HUB DIAM)

KEYSEATED TYPE
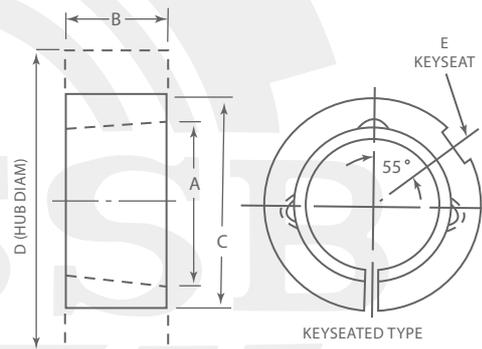
TAPER ADAPTERS

Adapter No.	Bush No.	A	B	C	D			E Keyseat	Wt
					class 20 Gray Iron	Class30 Gray Iron	Steel		
1215B	1215	1 7/8	1 1/2	2 3/8	3 5/8	3 3/8	3 1/4	1/4x1/8	0.7
1615B	1615	2 1/4	1 1/2	2 3/4	4	3 3/4	3 1/2	3/8x1/8	0.9
2517B	2517	3 3/8	1 3/4	4 1/8	5 7/8 △	5 1/2	5	5/8x1/8	2.2
2525B	2525	3 3/8	2 1/2	4 1/8	5 1/2 △	5 1/4	5	5/8x1/8	3.2
3030B	3030	4 1/4	3	5 1/8	7 3/8 △	6 7/8	6 1/4	3/4x3/16	5.8
3535B	3535	5	3 1/2	6 1/4	9 1/8	8 3/8	7 7/8	7/8x3/16	11.3
4040B	4040	5 3/4	4	7 1/4	11 1/8	10 1/8	9 3/8	1x3/16	17.3
4545B	4545	6 3/8	4 1/2	7 7/8	12	11	10 1/4	1x3/16	21.9

Taper Bolt Bolt-on-hubs BTL

Taper Bolt-on-Hub is one type of bolt-on-hubs that specially designed for bushes, its characteristics are simple structure,easy-on,easy-off,simultaneously usable on both sides and so on. it applies to vane wheels,fans and other parts which must be fixed closely with shatfs.

Taper Bolt-on-Hub are made of high standard grey Cast lron GG25. which have enough intensity. The surface is phosphated. attractive and antirust. They are seriesly standarized produced and highly interchangeable,so that the stock costs can be lowered.
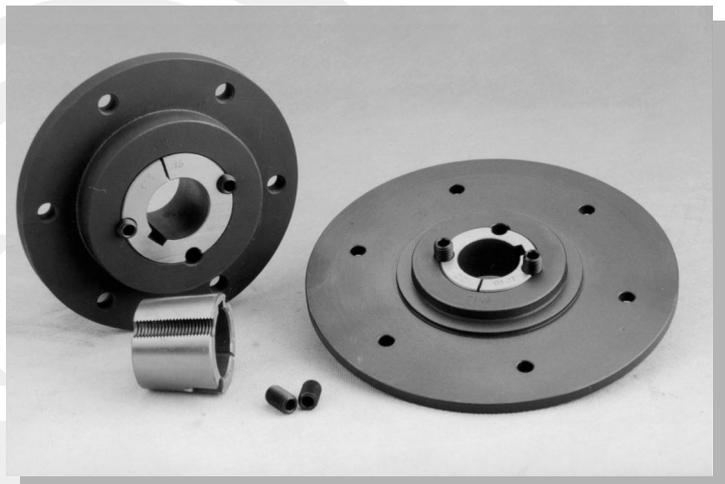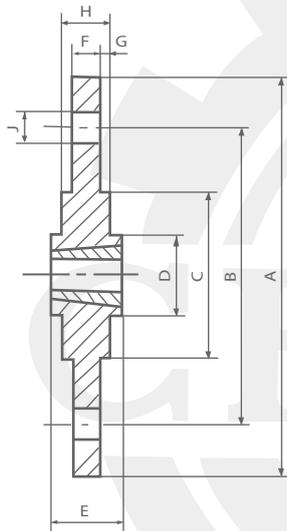
TAPER BOLT - on - HUBS

specification	Bush No.	main dimensions								screw hole nxj
		A	B	C_{h9}	D	E	F	G	H	
SM1200	1210	180	135	90	75	25	6.5	2.5	11.5	6xf7.5
SM1600	1615	200	150	110	85	38	7.5	2.5	12.5	6xf7.5
SM2000	2012	270	190	140	110	32	8.5	2.5	13.5	6xf9.5
SM2500	2517	340	240	170	125	45	9.5	2.5	14.5	8xf11.5
SM30-1	3020	430	300	220	160	51	13.5	2.5	18.5	8xf13.5
SM30-2	3020	485	340	250	160	51	13.5	2.5	18.5	8xf13.5
SM1210	1210	120	100	80	75	25	6.5	2.5	11.5	6xf7.5
SM1610	1610	130	110	90	85	25	7.5	2.5	12.5	6xf7.5
SM2012	2012	145	125	115	110	32	8.5	2.5	13.5	6xf7.5
SM2517	2517	185	155	130	125	45	9.5	2.5	14.5	8xf11.5
SM3020	3020	220	190	160	160	51	13.5	-	13.5	8xf13.5

QTL Taper bushing

JA - S

QTL Taper bushing are made of GGG40 ductile iron and surface is phosphated. They are fixed with UNC bolt (12.9 grade), and packed in individual box.

QTL Taper bushing and JA-E with inner bore and keyway in inch can be sold off-the-shelf , immediate delivery.
F - S are produced against orders, and prompt delivery.

QTL Taper bushing in metric dimensions can be produced.

QTL Taper bushing QTL

The QTL bushing is used throughout the in-dustry offering convenience and design flexibility. They are made of quality gray or ductile iron and are installed by tightening several cap screws.

This draws the bushing into the taper bore of the product which compresses the bore of the bush-ing-gripping the shaft so that no external keys or dowels are required.QTL bushings are easily re-moved by using the cap screws as jack-screws.

Double-drilled holes are furnished in QTL bush-ings permitting mounting of product in the conven-tional or reverse positions,This allows cap screws to be installed through product hub or bushing flange whichever is most convenient. No matter which way the product is installed,cap screws are always inserted from the outside where they are easily assembled.

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

Some of the power transmission products which use QTL bushings are pulleys,sprockets, sheaves and couplings,Used in unlimited-fans, inpellers,or any product which needs to be shaft mounted.

TYPICAL INSTALLATION OF A PRODUCT ON A MOTOR SHAFT

Reverse Mounting:
Small end of bushing taper toward motor as shown in drawing at left Easy On-Place cap screw through drilled holes in bush-ing flange and install (finger tight) into threaded holes in prod-uct hub. Slip loosely assembled unit (small end of taper first) into desired position of shaft .Tighten each cap screws alter-nately and evenly.
Easy Off-Remove cap screws and place them in threaded holes in bushing flange. As they are drawn up they will act as jack screws against the face of the product hub to release grip be-tween bushing and hub.

installing screw

removing screw

installing screw

removing screw
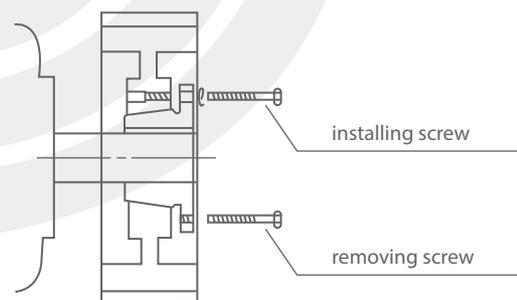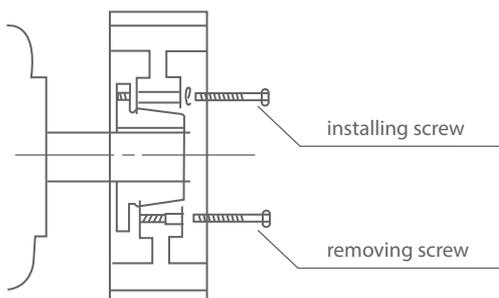
Conventional Mounting:
Bushing flange is toward the motor as shown in drawing at right. Easy On-Place QTL bushing in the product hub and insert cap screws through drilled holes in product hub. Tighten cap screws (finger tight) into threaded holes in bushing flange. Slip loosely assembled unit (flange end first) into desired position on shaft. Tighten each cap screw alternately and evenly to specified wrench torque.
Easy Off-Remove cap screws and place them in holes threaded in product hub. As they are drawn up they will act as jack screws against the flange of the bushing to release grip between bush-ing and hub.

QTL Taper bushing

The"QTL" Bushing easily fits over the ta-pered hub and a tight press can be produced on the shaft by tightening capscrews.The bushing is easily removed from the hub by using the pull-up bolts as jack bushing in the holes tapped in the rim of bushing .All hubs"JA" through "J" are drilled for REVERSE MOUNTING.

* F =Length of Mating Bore

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

BUSHINGS "JA" to "J" Inclusive

BUSHINGS "M" to "W" Inclusive

Taper 3/4" In. 12" on Dia
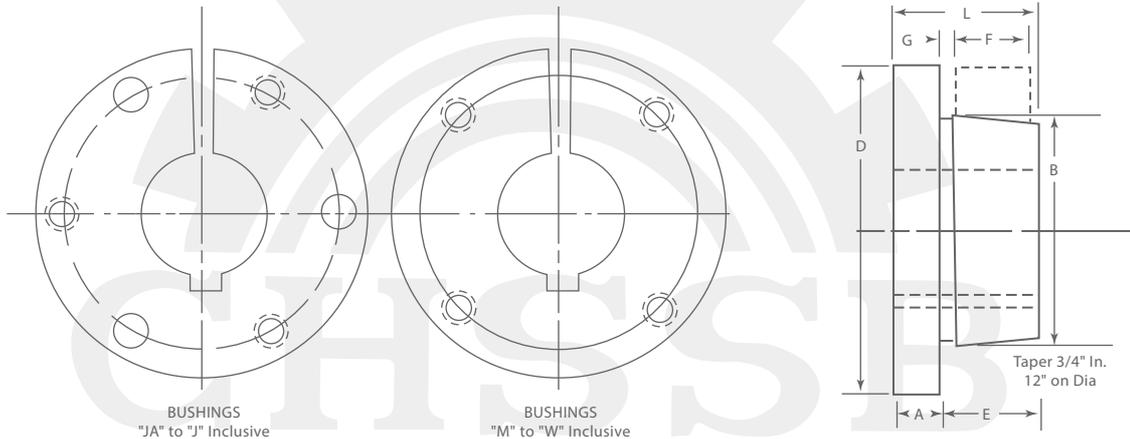
STOCK QTL BUSHINGS DIMENSIONS

Bush-ing	DIMENSIONS(Inches)								Cap Screws Required	STOCK BORE RANGE			Average
	A	B	D	E	*F	**G	L	Bolt Circle		Mini-mum	MAXIMUM		Weight (Approx.)
											Standard Keyway	Shallow Keyway	
JA	5/16	1.375	2	11/16	9/16	0.20	1	1.656	3-10x1	3/8	1	1 3/16	.9
SH	7/16	1.871	2 11/16	7/8	13/16	0.23	15/16	2 1/4	3 1/4x1 3/8	1/2	1 3/8	1 5/8	1
SDS	7/16	2.187	3 1/8	7/8	3/4	0.23	15/16	2 11/16	3 1/4x1 3/8	1/2	1 5/8	1 15/16	1
SD	7/16	2.187	3 1/8	1 3/8	1 1/4	0.23	1 13/16	2 11/16	3 1/4x1 3/8	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
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
E	7/8	3.834	6	1 7/8	1 5/8	9/32	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	11/32	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	5/16	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	11/32	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	9/16	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	5/8	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	11/16	11 3/8	12 3/4	4-11/8x11 1/2	4	7 1/2	8 1/2	250
S+	3 1/4	12.125	17 3/4	12 1/2	12	3/4	15 3/4	15	5-11/4x15 1/2	6	8 1/4	10	400

+Consult Factory

QTL Taper bushing

QTL BUSHING DIMENSIONS AND RANGES FOR INNER
BORES AND KEYWAYS

Bushing	Bores Key Seat	Bushing	Bores	Key Seat	Bushing	Bores	Key Seat	
JA	3/8-7/16	None		1/2-21/4	Std.	M	2-411/16	Std.
	1/2-1	Std.		25/16-21/2	5/8x3/16		43/4-51/2	11/4x1/4
	11/16-13/16	1/4x1/16	SF	29/16-23/4	5/8x1/16		27/16-51/16	Std.
	11/4	None		213/16-27/8	3/4x1/16	N	51/8-51/2	11/4x1/4
SH	1/2-13/8	Std.		215/16	None		59/16-57/8	11/2x1/4
	17/16-15/8	3/8x1/16		7/8-27/8	Std.		215/16-513/16	Std.
	111/16	None	E	215/16-31/4	3/4x1/8	P	57/8-61/2	11/2x1/4
SDS SD	1/2-15/8	Std.		35/16-31/2	7/8x1/16		69/16-7	13/4x1/8
	111/16-13/4	3/8x1/8		1-31/4	Std.	W	4-71/2	Std.
	113/16	1/2x1/8	F	35/16-33/4	7/8x3/16		79/16-81/2	2x1/4
	17/8-115/16	1/2x1/16		313/16-315/16	1x1/8			
	2	None		4	None			
SK	1/2-21/8	Std.	J	11/2-313/16	Std.			
	23/16-21/4	1/2x1/8		37/8-41/2	1x1/8			
	25/16-21/2	5/8x1/16						
	29/16-25/8	None						

BORE RANGE FOR QTL BUSHING

Bush.	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	25/8、29/16
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 1/2	8 1/2	—
S	6	8 1/4	10	—

ISO STANDARD METHOD FOR MEASURING KEYSEAT DEPTH

▲ Depth measured at centerline

Reference:
1 inch = 25.4 millimeters
1 millimeters =.03937 inches.

Ref: Bore +D

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
15/16-11/4	1/4x1/8	1/4x1/4
15/16-13/8	5/16x5/32	5/16x5/16
17/16-13/4	3/8x3/16	3/8x3/8
113/16-21/4	1/2x1/4	1/2x1/2
25/16-23/4	5/8x5/16	5/8x5/8
213/16-31/4	3/4x3/8	3/4x3/4
35/16-33/4	7/8x7/16	7/8x7/8
313/16-41/2	1x1/2	1x1
49/16-51/2	11/4x5/8	11/4x11/4
59/16-61/2	11/2x3/4	11/2x11/2
69/16-71/2	13/4x7/8	13/4x13/4

Dimensions:inch

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	1x1/16	1x9/16
1/2x1/32	1/2x9/32	1x1/8	1x5/8
1/2x1/16	1/2x5/16	11/4x1/4	11/4x3/4
1/2x1/8	1/2x3/8	11/4x1/4	11/4x7/8
5/8x1/16	5/8x3/8	11/2x1/16	11/2x1
5/8x3/16	5/8x1/2	13/4x3/8	13/4x1
3/4x1/8	3/4x1/2	13/4x3/8	13/4x1
7/8x1/16	7/8x1/2	2x5/16	2x1

Dimensions:inch

QTL WELD-ON HUBS

QTL weld-on hubs are suitable in many applications, such as welding to steel plate wheels. Weld-on hubs are made of steel. Drilled, taped and taper bored to receive QTL bushing
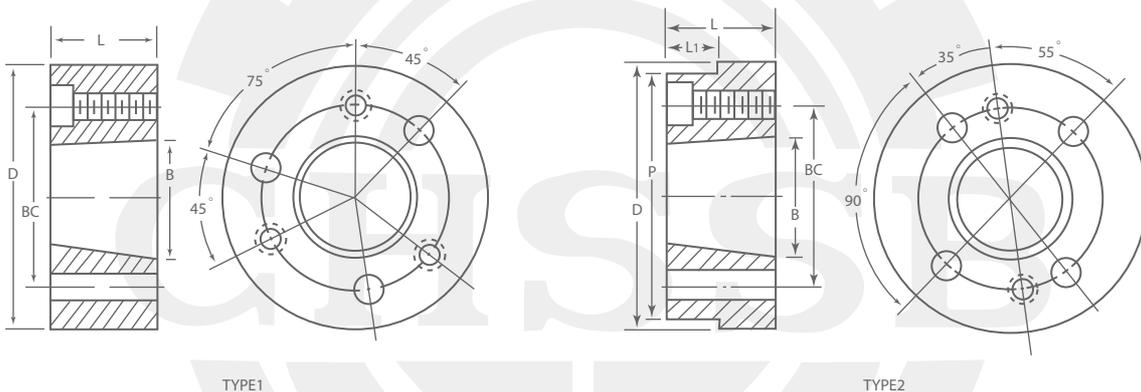
TYPE1

TYPE2

QTL TYPE 1 AND TYPE 2 WELD- ON HUBS

Catalog Number	Dimensions-Inches						Type Drilling BC	Torque Transmitted Bolt Stress in Pounds Per Sq.In			Weight Pounds
	D*	L	B	P+	L1	BC		6.000	9.000	12.000	
SH-A	3.000	13/16	1.871	——	——	2 1/4	1	950	1,425	1,900	1
SDS-A	3.500	3/4	2.188	——	——	2 11/16	1	1,130	1,695	2,260	1.30
SK-A	4.375	1 1/4	2.813	——	——	3 5/16	1	2,400	3,600	4,800	3
SF-A	5.000	1 1/4	3.125	——	——	3 7/8	1	4,060	6,090	8,120	4
E-A	6.250	1 5/8	3.832	——	——	5	1	9,240	13,860	18,480	9
F-A	7.000	2 1/2	4.437	——	——	5 5/8	1	13,960	20,940	27,920	16
J-A	7.750	3 3/16	5.140	——	——	6 1/4	1	19,550	29,325	39,100	25
M-A	9.500	5 3/16	6.494	9.250	3 9/16	7 7/8	2	49,000	73,500	98,000	50
N-A	10.500	6 1/4	6.990	10.250	4 1/2	8 1/2	2	73,200	109,800	146,400	75

*Tolerance of "D" - "SH" thru "J" =(+.000 -.002)

+Tolerance of "P"- "M" and "N" =(+.000-.003)