KEYLESS FRICTIONAL SHAFT/HUB LOCKING DEVICES

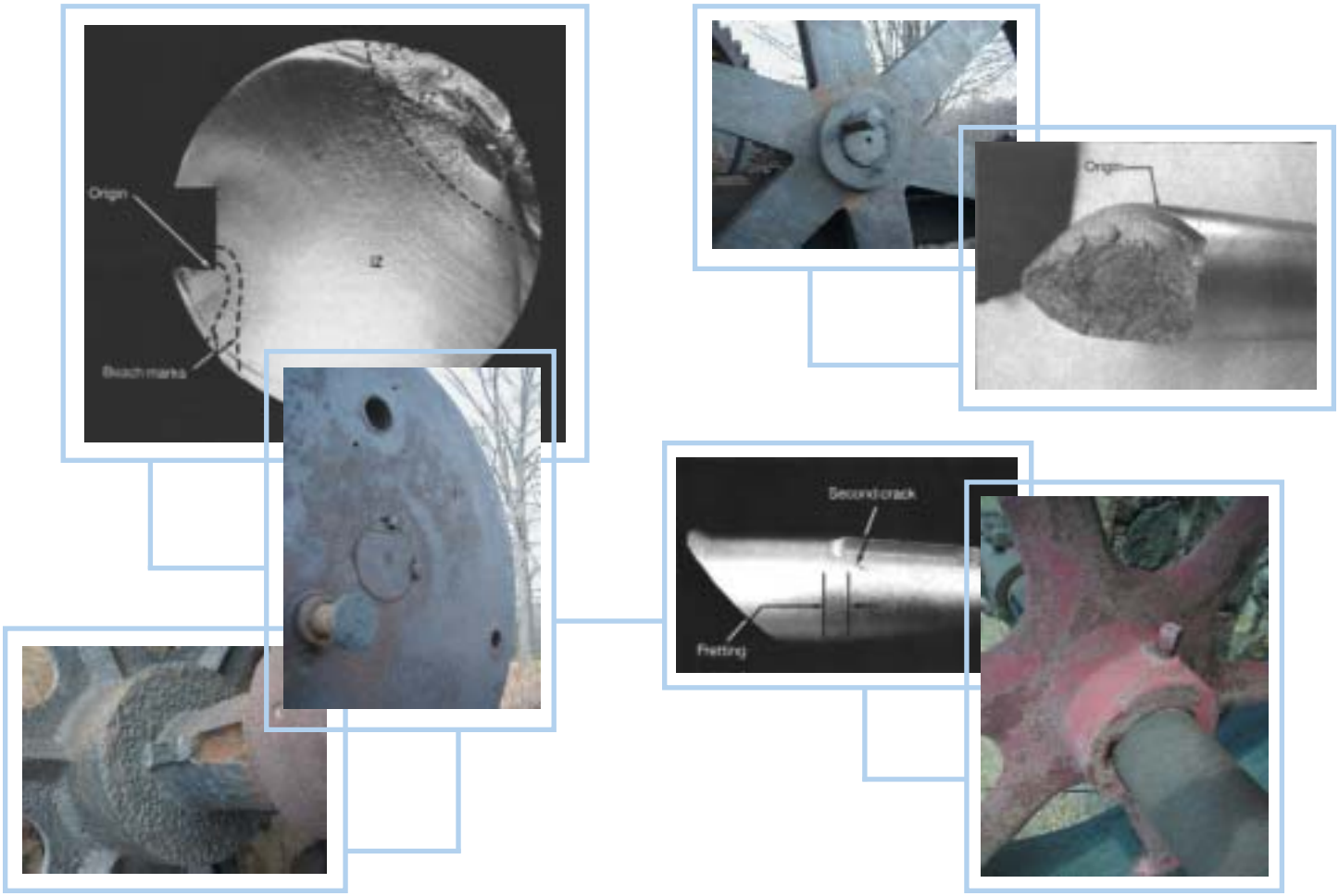


B-LOC

THE KEY TO BETTER MACHINE DESIGN
IS NO KEY AT ALL.

CATALOG C02

INTRODUCTION:



THE PROBLEM:

In a typical keyed shaft/hub connection, the clearance between key and keyway required for fitting is a serious disadvantage when shock or reversing loads are to be transmitted. Any component held by a key is slipping on the shaft at start-up or load reversal by an amount equal to the amount of fit clearance. This results in impact loads when contact with the key stops the slippage. These impact loads, which are rarely accounted for in the design process, generate a continuous "pounding" between key and keyway. This pounding, combined with fretting corrosion caused by micromovements at the fit interface, frequently leads to shaft failures like the ones illustrated above. *[Shaft failure illustrations are reproduced with permission of Sachs, Salvetera & Associates, Solvay, NY.]*

TRADITIONAL INTERFERENCE FITS:

The solution to these problems is elimination of the key by using a frictional bond between components and shafts. This type of connection, commonly known as an interference (shrink or press) fit, results in zero clearance – hence, no backlash – and utilizes the full contact area for uniform transmittal of torques and/or bending moments. Such a connection will never "pound out"– even for an infinite number of load cycles – as long as the frictional holding capacity of the connection is equal to or higher than the loads applied. In addition, the elimination of keyways eliminates keyed shaft notch factors, permitting smaller shaft and bearing sizes and reducing the overall cost and complexity of a design. Despite these advantages, mounting and removal problems associated with shrink or press fits have frequently disqualified this type of connection for many applications.

THE B-LOC SOLUTION

B-LOC Keyless Frictional Shaft/Hub Locking Devices provide the ultimate solution by incorporating all the advantages of interference fits, while eliminating mounting and removal problems.

B-LOC Locking Assemblies and Shrink Discs rely on the proven wedge principle to create a keyless, mechanical interference fit by converting locking screw tension into radial contact pressures on shaft and hub. This connection, while in many ways similar to conventional shrink or press fits, has several distinct advantages:

1. *In the relaxed position, B-LOC keyless connectors provide a generous clearance for easy mounting and dismounting.*

2. *B-LOC keyless connectors generate higher contact pressures than those obtained by a shrink or press fit, thereby allowing for shorter hub lengths and eliminating the problem of fretting corrosion associated with wider connections.*

3. *B-LOC keyless connectors facilitate simple axial and angular timing of hub.*

B-LOC CORPORATION: COMMITTED TO QUALITY PRODUCTS AND SUPERIOR CUSTOMER SERVICE

Since 1982, B-LOC has been committed to providing the highest quality keyless locking devices to customers worldwide. All B-LOC keyless shaft/hub connectors are manufactured in strict accordance with ISO 9002 requirements, and are available in a variety of styles and sizes – 1/4" up to 40" and larger, both inch and metric – to suit any application. B-LOC also has the capability to design and produce special units, even for small quantity production runs.

Our application engineers have over 20 years of experience and would be pleased to provide free design assistance for any kind of equipment.

Finally, our dedicated customer service staff is ready to provide you with prices, stock quantities and delivery information, and can process most orders to ship the same day.

COMPARISON CHART		B-LOC	Keyed Connection	Splined Connection	QD or Taper Lock	Shrink or Press Fit
B-LOC Frictional Shaft/Hub Locking Devices have several distinct advantages over all other commonly used methods.	Provides a keyless frictional connection	✔				✔
	Easily mounted & dismounted	✔	✔	✔	✔	
	Permits simple axial & angular timing	✔				
	Transmits reversing bending moments	✔				✔
	Provides a backlash free connection	✔				✔

OUR PRODUCTS

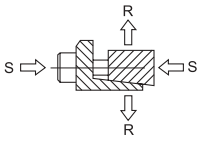
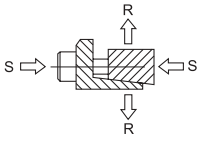
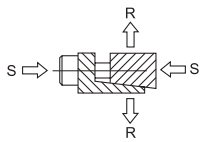
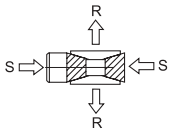
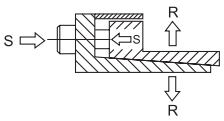
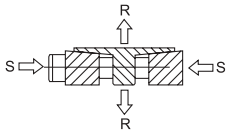
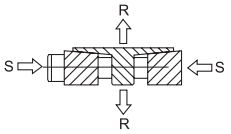
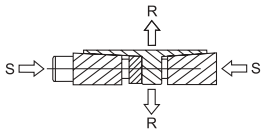
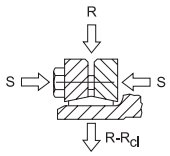
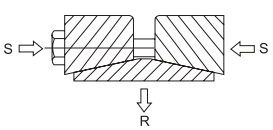
B-LOC keyless frictional locking devices rely on the proven wedge principle to create a mechanical interference fit by converting locking screw tension into radial contact pressures on shaft and hub. We offer many different designs to suit any application.

INTERNAL DEVICES

EXTERNAL DEVICES

SERIES B109 Series 2071 outside the US and Canada	• *Designed for shafts as small as 1/4″ (6 mm)* • *Shallow, single taper design with integrated push-off threads* • *Exceptional concentricity & ability to transmit bending loads* • *Fixed axial hub position during assembly*
SERIES B106 Series 1061 outside the US and Canada	• *Shallow, single taper design with integrated push-off threads* • *Exceptional concentricity & ability to transmit bending loads* • *Optional spacer sleeve optimizes connections involving narrow hub cross-sections* • *Fixed axial hub position during assembly*
SERIES B103 Series 1062 outside the US and Canada	• *Shallow, single taper design with integrated push-off threads* • *Exceptional concentricity & ability to transmit bending loads* • *Axial hub position not fixed during installation*
SERIES B400 Series 2005 outside the US and Canada	• *Self-releasing, double taper design permits simple adjustment and removal* • *Not self-centering* • *Available pilot bushings provide pre-centering when required* • *Fixed axial hub position during assembly*
SERIES B800 Series 5061 outside the US and Canada	• *Shallow, single taper design* • *Exceptional concentricity* • *Thin, extra wide sleeves provide low contact pressures allowing for smaller diameter hubs* • *Integrated spacer sleeve eliminates axial hub movement during installation*
SERIES B112 Series 4061 outside the US and Canada	• *Heavy duty* • *Wide, double taper design for enhanced bending moment capacity* • *Exceptional concentricity* • *Fixed axial hub position during assembly*
SERIES B115 Series 1008 outside the US and Canada	• *Medium duty* • *Wide, double taper design for enhanced bending moment capacity* • *Exceptional concentricity* • *Fixed axial hub position during assembly*
SERIES B113 Series 6061 outside the US and Canada	• *Extra heavy duty* • *Wide, double taper design for enhanced bending moment capacity* • *Exceptional concentricity* • *Fixed axial hub position during assembly*
SERIES 10, 20, 30 SHRINK DISCS Series 2008, 2108 and 2208 outside the US and Canada	• *External locking device* • *Provides extremely concentric and well-balanced mechanical interference fit* • *Offered in Standard, Light, and Heavy Duty series* • *Also available in Split and Half Shrink Disc designs*
WK SHAFT COUPLINGS Series 1204 outside the US and Canada	• *Low cost rigid shaft coupling* • *Transmits high torque and bending moments using the same principles as the Shrink Disc*

PRODUCT INDEX

						PAGE
		$R = \frac{S}{\tan(\alpha+\gamma)+\mu}$	$M_t = R\,\mu\,\frac{d}{2}$	$p = \frac{R}{d\pi L}$	$p_H = \frac{R}{D\pi L}$	13
		$R = \frac{S}{\tan(\alpha+\gamma)+\mu}$	$M_t = R\,\mu\,\frac{d}{2}$	$p = \frac{R}{d\pi L}$	$p_H = \frac{R}{D\pi L}$	14
		$R = \frac{S}{\tan(\alpha+\gamma)}$	$M_t = R\,\mu\,\frac{d}{2}$	$p = \frac{R}{d\pi L}$	$p_H = \frac{R}{D\pi L}$	14
		$R = \frac{S}{\tan(\alpha+\gamma)}$	$M_t = R\,\mu\,\frac{d}{2}$	$p = \frac{R}{d\pi L}$	$p_H = \frac{R}{D\pi L}$	16
		$R = \frac{S}{\tan(\alpha+\gamma)+\mu}$	$M_t = R\,\mu\,\frac{d}{2}$	$p = \frac{R}{d\pi L}$	$p_H = \frac{R}{D\pi L}$	18
		$R = \frac{2\,S}{\tan(\alpha+\gamma)+\mu}$	$M_t = R\,\mu\,\frac{d}{2}$	$p = \frac{R}{d\pi L}$	$p_H = \frac{R}{D\pi L}$	20
		$R = \frac{2\,S}{\tan(\alpha+\gamma)+\mu}$	$M_t = R\,\mu\,\frac{d}{2}$	$p = \frac{R}{d\pi L}$	$p_H = \frac{R}{D\pi L}$	22
		$R = \frac{2\,S}{\tan(\alpha+\gamma)+\mu}$	$M_t = R\,\mu\,\frac{d}{2}$	$p = \frac{R}{d\pi L}$	$p_H = \frac{R}{D\pi L}$	23
		$R = \frac{2\,S}{\tan(\alpha+\gamma)}$	$M_t = (R\text{-}R_{cl})\,\mu\,\frac{d}{2}$	$p = \frac{(R\text{-}R_{cl})}{d\pi L}$		28
		$R = \frac{2\,S}{\tan(\alpha+\gamma)}$	$M_t = R\,\mu\,\frac{d}{2}$	$p = \frac{R}{d\pi L}$		30

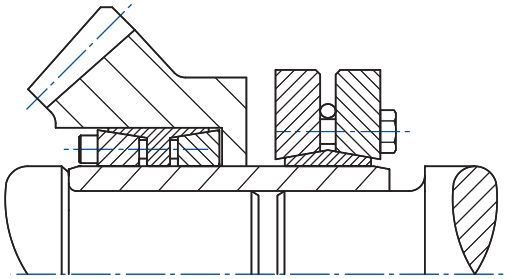
R = radial load generated by tightening locking screws
R_{cl} = radial load required to bridge fit clearance
S = locking screw clamp load
M_t = rated torque capacity
p = shaft contact pressure
p_H = hub bore contact pressure
α = taper angle
γ = friction angle
μ = coefficient of friction (= tan γ)
d = shaft diameter
D = locking assembly OD
L = locking device contact length

APPLICATION EXAMPLES

B-LOC Locking Assemblies and Shrink Discs are operating worldwide in thousands of applications, including:

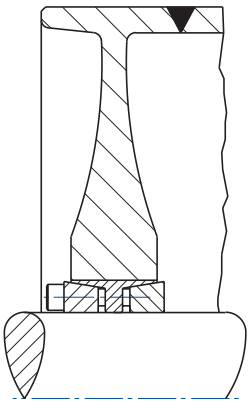
AGITATOR SHAFTS
BRAKE DISCS
BUCKET WHEELS
BULL GEARS
CRUSHER ROTORS
CLUTCHES
COUPLINGS
CRANE WHEELS
CAMS
CONVEYOR PULLEYS
FLYWHEELS
FLANGES
SPUR GEARS
HYDRAULIC MOTORS
BEVEL GEARS
WORM GEARS
LEVERS
PUMP IMPELLERS
PINION GEARS
PINS
ROLLS
SHEAVES
SHIP PROPELLERS
SPEED REDUCERS
SPROCKETS
TIMING PULLEYS
UNIVERSAL JOINTS
WINCH DRUMS
AND MORE...

AE1



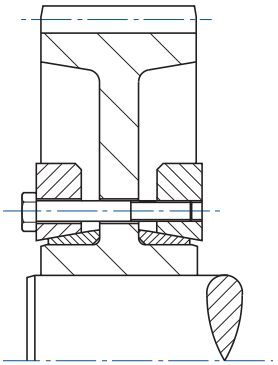
Miter gear connected with Series B112 installed over adaptor sleeve that also serves as shaft coupling.

AE2



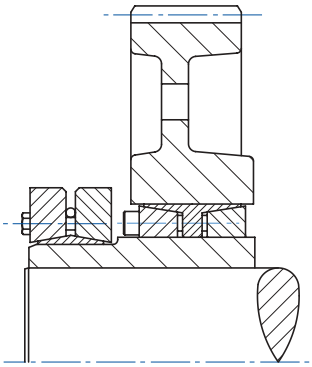
Engineered class belt conveyor pulley with advanced T-shaped end disc connected to shaft with Series B115.

AE3



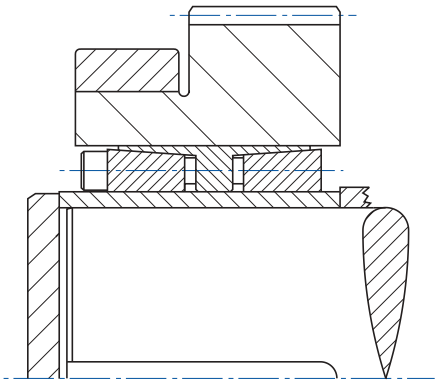
Typical Split Shrink Disc arrangement.

AE4



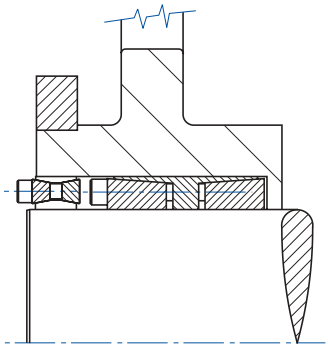
Narrow, high-torque press gear modified for repair using both Shrink Disc and Series B112 Locking Assembly (adaptor sleeve allows use of larger Locking Assembly, increasing torque capacity of connection).

AE5



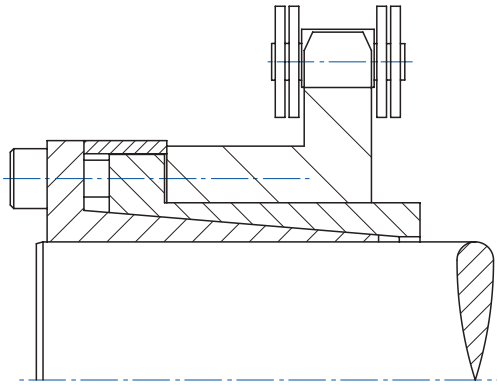
Pinion gear connection using Series B112 in application where retainer plate and adaptor sleeve permit axial adjustment of inner race of tapered roller bearing. Thin walled gear hub is reinforced with steel ring installed with light interference.

AE6



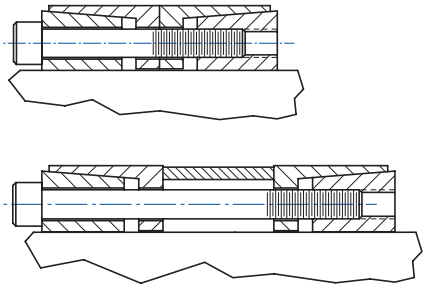
Series B400 and Series B112 used in series for gear with wide hub. Relatively thin hub cross section can be reinforced with steel collar.

AE7



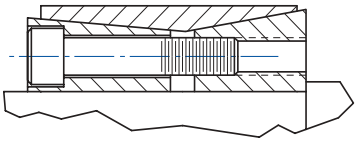
B800 used to mount B-type roller chain sprocket with relatively small hub OD.

AE8



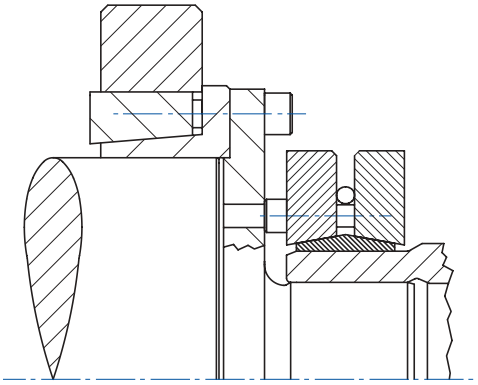
Series B114 design is similar to Series B112 but with fewer holes in front collar, higher torque capacity and/or wider contact length.

AE9



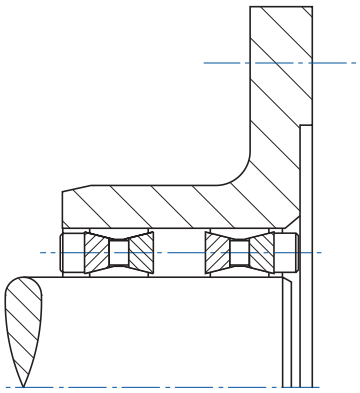
Series B014 design with asymmetric tapers offers heavy duty capacity at a reduced cost, but requires shaft shoulder for push-off during disassembly (can also be supplied with collars inverted).

AE10



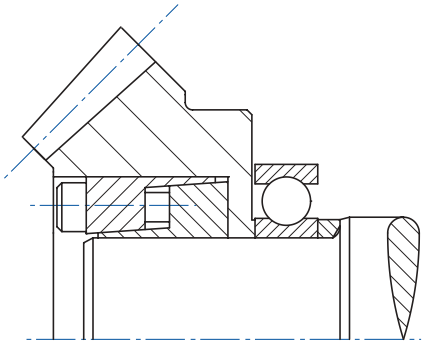
Series B106 with outer reinforcing collar used as mounting flange for hollow-shaft hydraulic drive with quill bore that is substantially smaller than driven shaft diameter. Shrink Disc used to mount mating adaptor flange to motor.

AE11



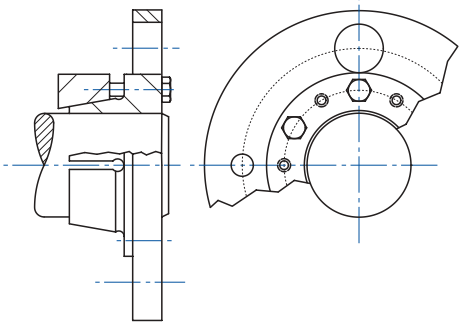
Selective screw tightening on opposing Series B400 units permits precise adjustment of flange pilot and axial and radial runout.

AE12



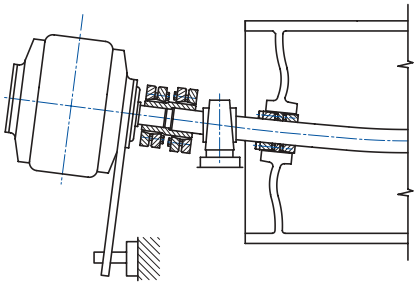
Series 6903 applies thrust against bearing inner race during assembly in lieu of typical arrangement using lock nut and threaded shaft.

AE13



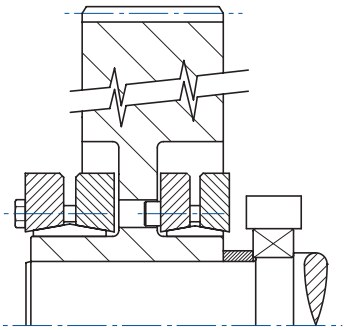
Low profile flange for disc-type flexible couplings (locking screws can be inserted from either end).

AE14



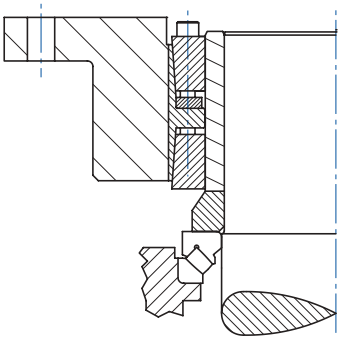
Mounting of drive directly onto driven shaft results in maintenance-free connection. See Page 31 for more information on B-LOC sleeve and flange-type rigid couplings.

AE15



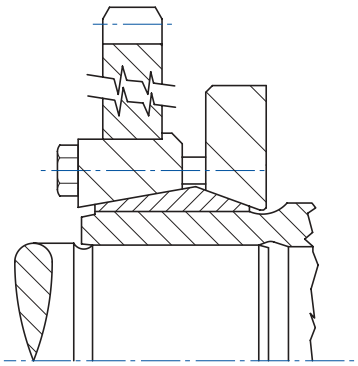
Socket head screws and web clearance holes permit tightening of inboard Shrink Disc.

AE16



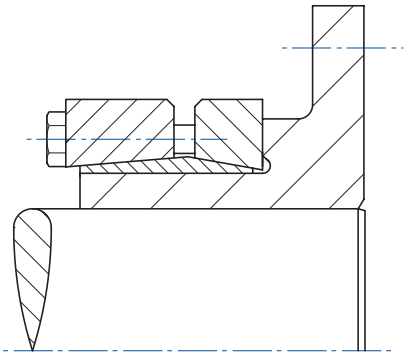
Slit adaptor sleeve between vertical shaft and Series B113 acts as shoulder to transmit substantial vertical load into spherical roller thrust bearing.

AE17



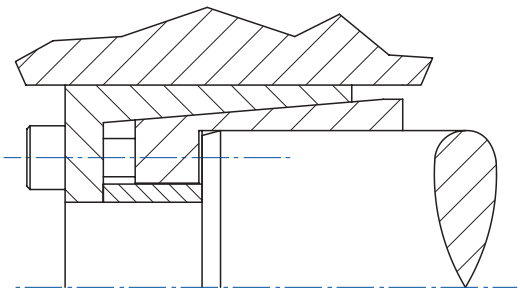
Shrink Disc with asymmetric tapers permits mounting of A-plate roller chain sprocket over modified outer ring where highest torque is generated.

AE18



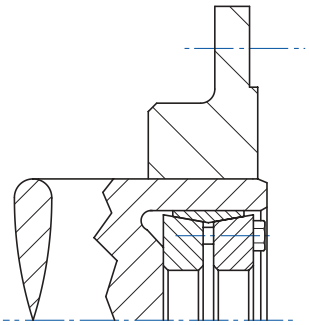
Modified Shrink Disc for mounting disc-type flexible coupling flange in application where low WR^2 value is critical.

AE19



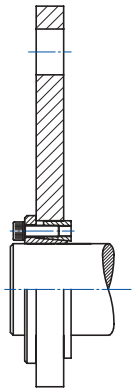
Inverted B800 allows for extremely small hub bores.

AE20



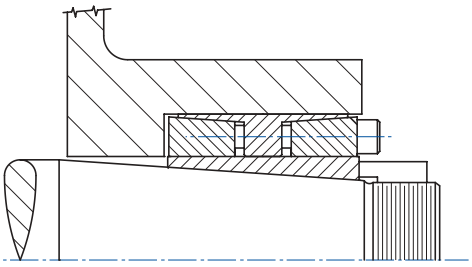
Inverted Shrink Disc connects coupling flange to counterbored shaft; shaft strength reduction surprisingly low.

AE21



Series B106 used to connect lever arm. Locking Assembly connection permits quick and easy timing of several such lever arms mounted on same shaft.

AE22



Series B112 supplied with tapered-bore adaptor sleeve used to connect large fan wheel hub directly to tapered motor shaft.

B-LOC INTERNAL DEVICES: LOCKING ASSEMBLIES

DESIGN FEATURES

B-LOC Locking Assemblies are well suited to transmit torque, bending, thrust, and radial loads. Proper selection results in a zero backlash connection free of wear even under severe reversing loads.

Use the following criteria to aid in selecting the right unit for your application:

TORQUE

T = peak drive torque = nominal torque multiplied by a variable safety factor to account for stall or start-up conditions, mass accelerations, impact loads, etc. Nominal drive torque can be calculated as follows:

$M_{tnom} = 5252 \times HP / rpm$

Consult with us in cases where "T" is uncertain.

M_t = rated torque capacity of (1) B-LOC Locking Assembly with all screws tightened to specified torque M_A as listed in specifications. Tabular values are calculated without using a safety factor and should be considered as the point where a connection could slip if a higher torque is applied. Therefore, you should always select a unit where $M_t \geq T$.

Torque capacity and contact pressures are a linear function of locking screw tightening torque and may be varied if this is advantageous for certain applications by changing M_A within the following limits:

Series B400:	up to 20% higher or up to 20% lower
Series B103/B106/B109:	up to 20% lower
Series B800:	up to 20% lower
Series B112/B113:	up to 40% lower
Series B115:	up to 30% lower

In installations where two or more B-LOC Locking Assemblies are arranged in series with access to locking screws from one side only, total torque capacity is not a linear function of the number of units applied. In these situations, the factor f_{mu} should be used to compute total torque capacity, as follows:

$M_{t\ total} = n \times M_t \times f_{mu}$

Factors "f_{mu}" for determining total torque capacity in multiple unit Locking Assembly installations

Locking Assembly Type	*n = number of units in series*		
	2	*3*	*4*
B400 & B103	.80	.75	.70
B115	.80	.75	N/A
B112	.85	N/A	N/A
B113	.90	N/A	N/A

THRUST

F_{ax} = transmissable thrust, determined by using the following equation:

$F_{ax} = \frac{24 \times M_t}{d}$, where d = shaft diameter (in)

TORQUE AND THRUST COMBINED

Simultaneous transmission of torque and thrust requires calculating a resultant torque:

$M_{tres} = \sqrt{T^2 + (F \times D / 2)^2}$, where:

T = peak drive torque (ft-lbs)
F = peak thrust load (lbs)
D = shaft diameter (ft)

Select a unit where $M_t \geq M_{tres}$.

BENDING MOMENTS

Bending moments are a crucial sizing factor in applications where a radial load from chain pull, the weight of components, etc., acts significantly outside the locking assembly centerline. Typical applications include rolls or conveyor pulleys where shaft deflection due to radial loads results in a bending moment between shaft and end disc. Generally, bending moments change from a positive to a negative value during each rotation and are designated as rotating or reversing bending moments.

B-LOC Locking Assemblies are well suited to transmit rotating/reversing bending moments. As a result of numerous successful heavy-duty applications in conveyor pulleys and pertinent investigations by independent institutions, the following bending moment capacities apply:

Series	Bending Moment Capacity
B400	= 0.22 x M_t
B103, B106, B109, B800	= 0.28 x M_t
B115	= 0.32 x M_t
B112 and B113	= 0.35 x M_t

Consult with us for applications where the bending moment capacity exceeds these recommended limits.

TORQUE AND BENDING COMBINED

Simultaneous transmission of torque and bending requires calculating a resultant torque:

$M_{tb} = \sqrt{T^2 + (2M_b)^2}$, where:
T = peak drive torque (ft-lbs)
M_b = bending moment (ft-lbs)

Select a unit where $M_t \geq M_{tb}$ and M_b is within the limits shown above.

CONCENTRICITY

B-LOC Locking Assemblies provide good to perfect concentricity in a variety of applications. The level of concentricity depends on taper angle and length, hub pre-centering, and mode of screw tightening. The following description of features should be helpful in selecting the most suitable device to meet specific concentricity requirements.

SERIES B400: The relatively narrow width of these double collar devices usually necessitates the need for a pre-centering hub section. Type of fit as well as the length of this pre-centering section greatly influences concentricity. The use of pilot bushings permits the reduction of hub length or even the elimination of pre-centering hub sections in the case of a roll configuration. These units provide concentricity sufficient for low to medium speed components.

SERIES B103, B106, B109, B800: These Locking Assemblies do not require a pre-centering hub section. The I.D., O.D. and taper of these units are machined in a single set-up ensuring perfect concentricity for the locking assembly itself. Total system concentricity will depend on installed components, but is typically excellent, even for high speed applications.

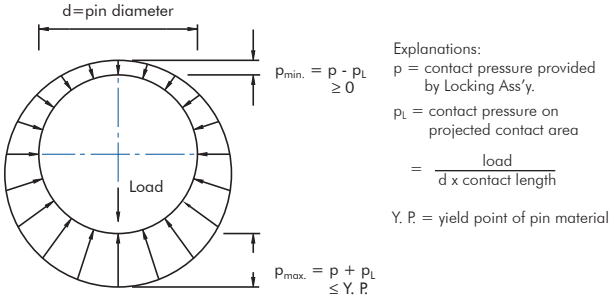
SERIES B115, B112, B113: The good pre-centering characteristics of these devices, combined with their wide double taper design, provides excellent concentricity for any type of application.

RADIAL LOADS

Radial loads are generated by forces applied perpendicular to the centerline of the shaft, and are frequently associated with pin or axle connections. B-LOC Locking Assemblies are well suited to provide a tight, backlash-free fit for such connections (see illustration below).

F_{rad} = radial load capacity = d x L x P, where:
d = shaft diameter (in)
L = contact length (in), see spec. tables
P = shaft contact pressure (psi)

Typical pressure distribution in backlash-free pin connections



TEMPERATURE INFLUENCE

Similar to conventional shrink or press fits, B-LOC Locking Assembly connections are not affected by temperature changes as long as they apply equally to hub and shaft. Since temperatures above 400 deg. F lower the strength of most commonly used materials, special considerations are necessary for connections working in temperatures higher than 400 deg. F.

HOLLOW SHAFTS

Hollow shafts with bores exceeding 35% of outside diameter usually require a reduction of contact pressures in order to avoid permanent shaft contraction. Consult with us for the amount of reduction required or for corrective measures available for a trouble-free hollow shaft application.

SECURING OF LOCKING SCREWS

Specified locking screw tightening torque M_A assures sufficient pre-load so that screws are self-locking, even in cases where B-LOC Locking Assemblies are subjected to extreme vibratory conditions.

RELEASABILITY

B-LOC Locking Assemblies and Shrink Discs are designed for fast and easy removal. Our B400 Locking Assemblies, as well as all B-LOC Shrink Discs, feature self-releasing tapers. All other types use self-locking tapers for a more efficient clamp load conversion and higher bending moment capacities. For these units, a sufficient number of integrated push-off holes assure positive dismounting even after many years of service.

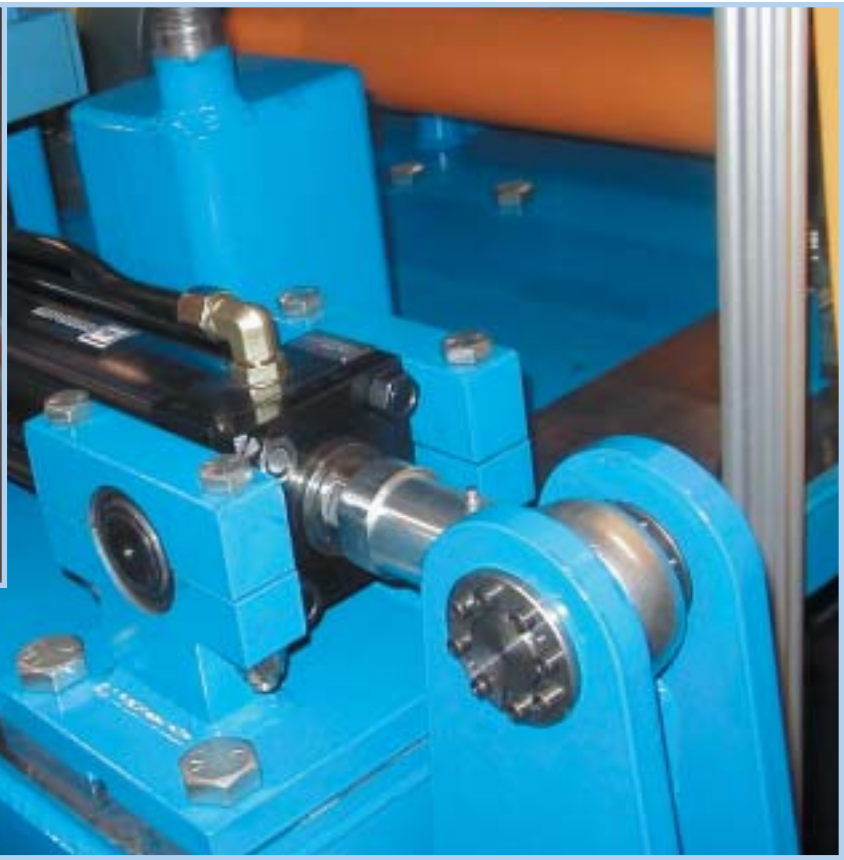
MATERIAL

B-LOC Locking Assemblies are manufactured from heat treated high-carbon and alloy steels. Please contact us for applications requiring stainless steel. Corrosion resistance can be improved through the application of industry standard plating materials and/or the use of protective cover plates.

LUBRICANTS

B-LOC Locking Assemblies are supplied lightly coated with ordinary machine oil.







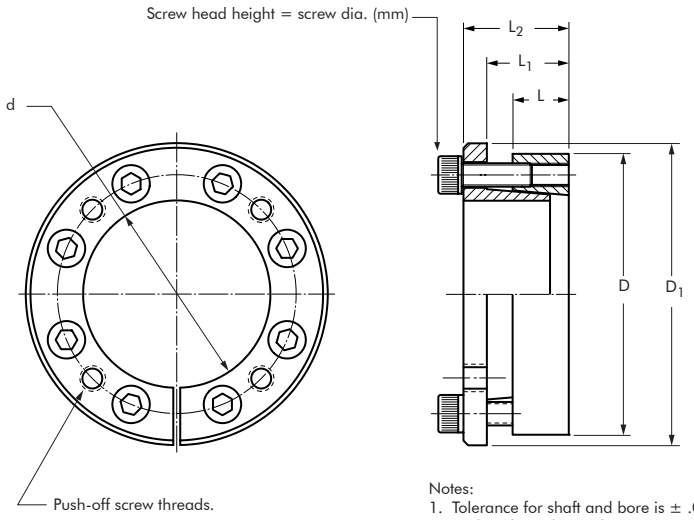






B109 SERIES





Ordering Information:
Specify series & shaft size
(e.g., Locking Assembly Series B109 ¼")
Larger sizes and sizes not shown are available on request.

Notes:
1. Tolerance for shaft and bore is ± .001" for all sizes.
2. Surface finish for shaft and bore is 63-125 µIN RMS.

B109 METRIC SPECIFICATIONS

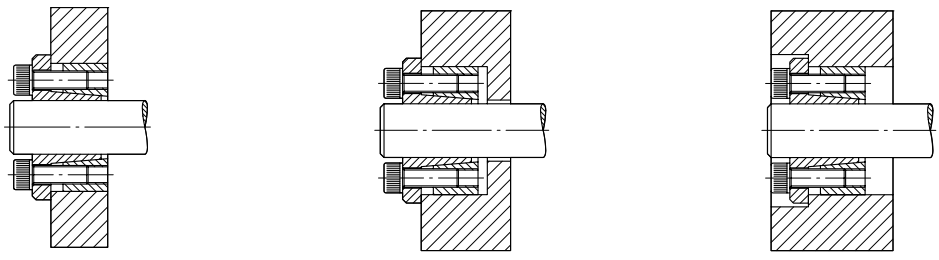
SIZE	d	D	D_1	(Relaxed) L	(Relaxed) L_1	(Relaxed) L_2	M_t (in-lbs)	P_H (psi)	D_N*	Qty.	Locking Screws Size	M_A (in-lbs)	Weight (lbs)
6	0.2362	0.8125	0.9375	0.394	0.516	0.650	173	12,162	1.072	3	M4 x 12	38	0.1
8	0.3150	0.8750	1.0000	0.394	0.516	0.650	257	12,548	1.165	3	M4 x 12	42.5	0.1
10	0.3937	0.9375	1.0625	0.394	0.516	0.650	321	11,711	1.224	3	M4 x 12	42.5	0.1
11	0.4331	1.0625	1.1875	0.394	0.516	0.650	471	13,778	1.458	4	M4 x 12	42.5	0.1
12	0.4724	1.0625	1.1875	0.394	0.516	0.650	514	13,778	1.458	4	M4 x 12	42.5	0.1
14	0.5512	1.1875	1.3125	0.472	0.594	0.807	899	15,436	1.698	6	M4 x 14	42.5	0.1
15	0.5906	1.1875	1.3125	0.472	0.594	0.807	963	15,436	1.698	6	M4 x 14	42.5	0.2
16	0.6299	1.1875	1.3125	0.472	0.594	0.807	1,027	15,436	1.698	6	M4 x 14	42.5	0.2
19	0.7480	1.3125	1.4375	0.472	0.594	0.807	1,220	13,966	1.809	6	M4 x 14	42.5	0.2
20	0.7874	1.5625	1.7500	0.591	0.754	0.984	2,098	15,306	2.227	6	M5 x 18	87	0.4
22	0.8661	1.5625	1.7500	0.591	0.754	0.984	2,308	15,306	2.227	6	M5 x 18	87	0.4
24	0.9449	1.6875	1.8750	0.591	0.754	0.984	3,356	18,896	2.640	8	M5 x 18	87	0.4
25	0.9843	1.6875	1.8750	0.591	0.754	0.984	3,496	18,896	2.640	8	M5 x 18	87	0.4
28	1.1024	1.8750	2.0000	0.669	0.829	1.102	4,405	16,901	2.783	9	M5 x 18	87	0.6
30	1.1811	1.9375	2.0625	0.669	0.829	1.102	5,244	18,173	2.973	10	M5 x 18	87	0.6
32	1.2598	2.0000	2.1250	0.669	0.829	1.102	5,594	17,606	3.023	10	M5 x 18	87	0.6
35	1.3780	2.1250	2.2500	0.669	0.829	1.102	6,118	16,570	3.127	10	M5 x 18	87	0.6

B109 INCH SPECIFICATIONS

SIZE	d	D	D_1	(Relaxed) L	(Relaxed) L_1	(Relaxed) L_2	M_t (in-lbs)	P_H (psi)	D_N*	Qty.	Locking Screws Size	M_A (in-lbs)	Weight (lbs)
1/4	0.2500	0.8125	0.9375	0.394	0.516	0.650	183	12,162	1.072	3	M4 x 12	38	0.1
5/16	0.3125	0.8750	1.0000	0.394	0.516	0.650	255	12,548	1.165	3	M4 x 12	42.5	0.1
3/8	0.3750	0.9375	1.0625	0.394	0.516	0.650	306	11,711	1.224	3	M4 x 12	42.5	0.1
1/2	0.5000	1.0625	1.1875	0.394	0.516	0.650	544	13,778	1.458	4	M4 x 12	42.5	0.1
5/8	0.6250	1.1875	1.3125	0.472	0.594	0.807	1,019	15,436	1.698	6	M4 x 16	42.5	0.2
3/4	0.7500	1.3125	1.4375	0.472	0.594	0.807	1,223	13,966	1.809	6	M4 x 16	42.5	0.2
7/8	0.8750	1.5625	1.7500	0.591	0.754	0.984	2,331	15,306	2.227	6	M5 x 20	87	0.4
1	1.0000	1.6875	1.8750	0.591	0.754	0.984	3,552	18,896	2.640	8	M5 x 20	87	0.4
1 1/8	1.1250	1.8750	2.0000	0.669	0.829	1.102	4,496	16,901	2.783	9	M5 x 20	87	0.6
1 3/16	1.1875	1.9375	2.0625	0.669	0.829	1.102	5,273	18,173	2.973	10	M5 x 20	87	0.6
1 1/4	1.2500	2.0000	2.1250	0.669	0.829	1.102	5,550	17,606	3.023	10	M5 x 20	87	0.6
1 3/8	1.3750	2.1250	2.2500	0.669	0.829	1.102	6,105	16,570	3.127	10	M5 x 20	87	0.6

*Required hub OD for 1045 h.r. steel hub assuming 45 ksi Yield Point and Stress Reduction Factor C=1 (see Page 24 for details)

Possible design configurations



B103 & B106 SERIES



B106



Note: Series B106 also available with optional integrated spacer sleeve (ideal for very narrow drive elements) by specifying B106 SP when ordering. Spacers are 0.275" wide for sizes to and including 1½" (40 mm) and 0.315" wide for all other sizes.

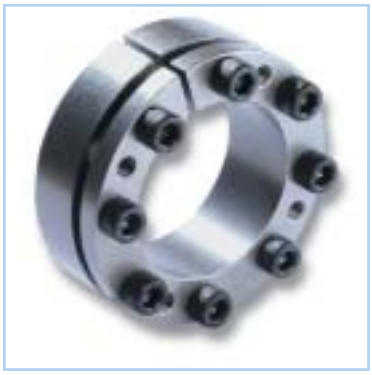
Ordering Information:
Specify series & shaft size
(e.g., Locking Assembly Series B106 160mm)
Larger sizes and sizes not shown are available on request.

B103/106 METRIC SPECIFICATIONS

Size	d	D	D_1 (B106 only)	(Relaxed) L	(Relaxed) L_1	(Relaxed) L_2	M_t (ft-lbs)	p_H (psi)	D_N*	Locking Screws Qty.	Locking Screws Size	M_A [ft-lb] B103	M_A [ft-lb] B106	Weight (lbs)
20 x 47	0.787	1.850	2.106	0.669	0.886	1.122	206	13,420	2.517	5	M6 x 20	10	12	0.6
22 x 47	0.866	1.850	2.106	0.669	0.886	1.122	226	13,420	2.517	5	M6 x 20	10	12	0.6
24 x 50	0.945	1.969	2.224	0.669	0.886	1.122	296	15,138	2.794	6	M6 x 20	10	12	0.7
25 x 50	0.984	1.969	2.224	0.669	0.886	1.122	308	15,138	2.794	6	M6 x 20	10	12	0.7
28 x 55	1.102	2.165	2.421	0.669	0.886	1.122	345	13,762	2.970	6	M6 x 20	10	12	0.8
30 x 55	1.181	2.165	2.421	0.669	0.886	1.122	370	13,762	2.970	6	M6 x 20	10	12	0.7
35 x 60	1.378	2.362	2.618	0.669	0.886	1.122	576	16,820	3.499	8	M6 x 20	10	12	0.8
40 x 65	1.575	2.559	2.815	0.669	0.886	1.122	658	15,526	3.667	8	M6 x 20	10	12	0.9
45 x 75	1.772	2.953	3.287	0.787	1.043	1.358	1,196	18,490	4.570	7	M8 x 25	25	30	1.5
50 x 80	1.969	3.150	3.484	0.787	1.043	1.358	1,329	17,335	4.728	7	M8 x 25	25	30	1.7
55 x 85	2.165	3.346	3.681	0.787	1.043	1.358	1,671	18,646	5.200	8	M8 x 25	25	30	1.8
60 x 90	2.362	3.543	3.898	0.787	1.043	1.358	1,823	17,610	5.357	8	M8 x 25	25	30	1.9
65 x 95	2.559	3.740	4.094	0.787	1.043	1.358	2,222	18,768	5.832	9	M8 x 25	25	30	2.1
70 x 110	2.756	4.331	4.685	0.945	1.201	1.594	3,377	19,064	6.806	8	M10 x 30	50	60	3.7
75 x 115	2.953	4.528	4.882	0.945	1.201	1.594	3,618	18,235	6.959	8	M10 x 30	50	60	3.8
80 x 120	3.150	4.724	5.079	0.945	1.201	1.594	3,859	17,475	7.118	8	M10 x 30	50	60	4.1
85 x 125	3.346	4.921	5.276	0.945	1.201	1.594	4,613	18,873	7.695	9	M10 x 30	50	60	4.3
90 x 130	3.543	5.118	5.472	0.945	1.201	1.594	4,885	18,147	7.849	9	M10 x 30	50	60	4.5
95 x 135	3.740	5.315	5.669	0.945	1.201	1.594	5,729	19,417	8.434	10	M10 x 30	50	60	4.7
100 x 145	3.937	5.709	6.063	1.024	1.299	1.772	7,024	19,437	9.063	8	M12 x 35	90	105	6.2
110 x 155	4.331	6.102	6.457	1.024	1.299	1.772	7,726	18,183	9.367	8	M12 x 35	90	105	6.6
120 x 165	4.724	6.496	6.850	1.024	1.299	1.772	9,482	19,216	10.252	9	M12 x 35	90	105	7.2
130 x 180	5.118	7.087	7.441	1.339	1.614	2.165	14,095	18,482	10.965	9	M14 x 40	135	166	10
140 x 190	5.512	7.480	7.835	1.339	1.614	2.165	15,179	17,509	11.280	9	M14 x 40	135	166	12
150 x 200	5.906	7.874	8.228	1.339	1.614	2.165	18,070	18,482	12.183	10	M14 x 40	135	166	12
160 x 210	6.299	8.268	8.622	1.339	1.614	2.165	21,202	19,362	13.100	11	M14 x 40	135	166	13
170 x 225	6.693	8.858	9.213	1.732	2.008	2.559	24,576	15,234	12.601	12	M14 x 40	135	166	18
180 x 235	7.087	9.252	9.606	1.732	2.008	2.559	26,021	14,585	12.950	12	M14 x 40	135	166	19
190 x 250	7.480	9.843	10.197	1.732	2.008	2.559	34,333	17,138	14.699	15	M14 x 40	135	166	22
200 x 260	7.874	10.236	10.591	1.732	2.008	2.559	36,140	16,479	15.029	15	M14 x 40	135	166	23
220 x 285	8.661	11.220	11.575	1.969	2.244	2.874	44,201	14,709	15.753	12	M16 x 45	219	257	31
240 x 305	9.449	12.008	12.362	1.969	2.244	2.874	60,273	17,180	17.952	15	M16 x 45	219	257	34
260 x 325	10.236	12.795	13.150	1.969	2.244	2.874	78,355	19,347	20.265	18	M16 x 45	219	257	36
280 x 355	11.024	13.976	14.331	2.362	2.638	3.346	90,252	15,787	20.161	16	M18 x 50	290	350	50
300 x 375	11.811	14.764	15.118	2.362	2.638	3.346	108,786	16,813	21.863	18	M18 x 50	290	350	80
320 x 405	12.598	15.945	16.299	2.913	3.228	4.016	150,537	16,375	23.348	18	M20 x 50	420	500	80
340 x 425	13.386	16.732	17.087	2.913	3.228	4.016	186,603	18,205	25.699	21	M20 x 50	420	500	85
360 x 455	14.173	17.913	18.268	3.386	3.701	4.567	210,810	15,612	25.726	18	M22 x 60	560	675	102
380 x 475	14.961	18.701	19.055	3.386	3.701	4.567	259,609	17,447	28.154	21	M22 x 60	560	675	121
400 x 495	15.748	19.488	19.843	3.386	3.701	4.567	273,272	16,742	28.807	21	M22 x 60	560	675	134

*Required hub OD for 1045 h.r. steel hub assuming 45 ksi Yield Point and Stress Reduction Factor C=1 (see Page 24 for details)

B103 & B106 SERIES



B103



Ordering Information:
Specify series & shaft size
(e.g., Locking Assembly Series B103 2 15/16")
Larger sizes and sizes not shown are available on request.

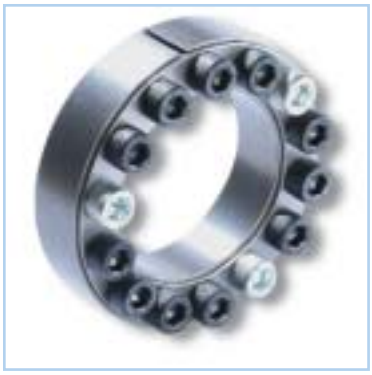
Note: Flange of Series B103 locking assemblies should be located inside of hub bore.

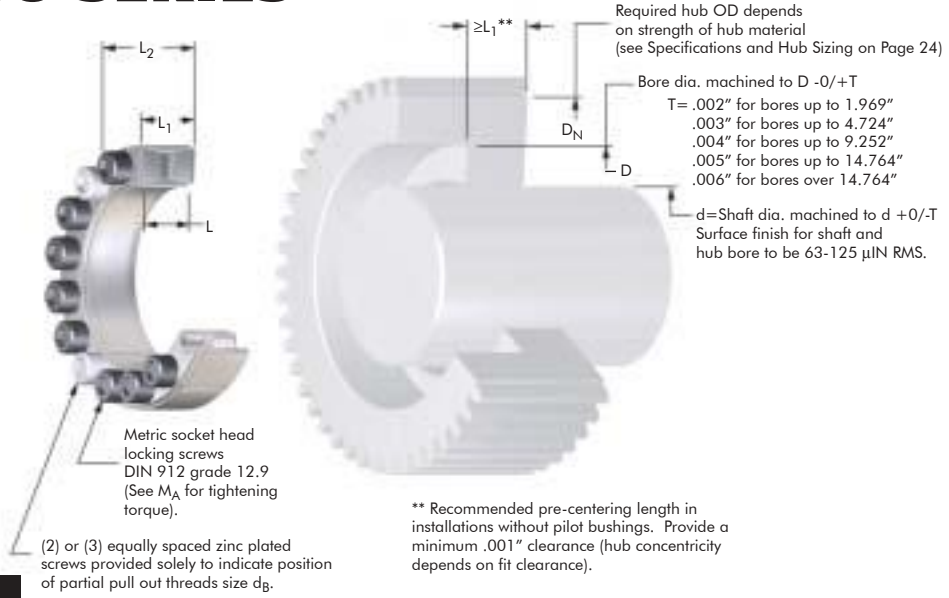
B103/106 INCH SPECIFICATIONS

Size	d	D	D_1 (B106 only)	(Relaxed) L	(Relaxed) L_1	(Relaxed) L_2	M_t (ft-lbs)	p_H (psi)	D_N*	Locking Screws Qty.	Locking Screws Size	M_A [ft-lb] B103	M_A [ft-lb] B106	Weight (lbs)
3/4	0.750	1.850	2.106	0.669	0.886	1.122	196	13,420	2.517	5	M6 x 20	10	12	0.6
7/8	0.875	1.850	2.106	0.669	0.886	1.122	228	13,420	2.517	5	M6 x 20	10	12	0.6
1	1.000	1.969	2.224	0.669	0.886	1.122	313	15,138	2.794	6	M6 x 20	10	12	0.7
1 1/8	1.125	2.165	2.421	0.669	0.886	1.122	352	13,762	2.970	6	M6 x 20	10	12	0.8
1 3/16	1.188	2.165	2.421	0.669	0.886	1.122	372	13,762	2.970	6	M6 x 20	10	12	0.7
1 1/4	1.250	2.362	2.618	0.669	0.886	1.122	522	16,820	3.499	8	M6 x 20	10	12	0.9
1 3/8	1.375	2.362	2.618	0.669	0.886	1.122	574	16,820	3.499	8	M6 x 20	10	12	0.8
1 7/16	1.438	2.559	2.815	0.669	0.886	1.122	600	15,526	3.667	8	M6 x 20	10	12	1.0
1 1/2	1.500	2.559	2.815	0.669	0.886	1.122	627	15,526	3.667	8	M6 x 20	10	12	1.0
1 5/8	1.625	2.953	3.287	0.787	1.043	1.358	1,097	18,490	4.570	7	M8 x 25	25	30	1.7
1 11/16	1.688	2.953	3.287	0.787	1.043	1.358	1,140	18,490	4.570	7	M8 x 25	25	30	1.6
1 3/4	1.750	2.953	3.287	0.787	1.043	1.358	1,182	18,490	4.570	7	M8 x 25	25	30	1.6
1 7/8	1.875	3.150	3.484	0.787	1.043	1.358	1,266	17,335	4.728	7	M8 x 25	25	30	1.8
1 15/16	1.938	3.150	3.484	0.787	1.043	1.358	1,308	17,335	4.728	7	M8 x 25	25	30	1.7
2	2.000	3.150	3.484	0.787	1.043	1.358	1,351	17,335	4.728	7	M8 x 25	25	30	1.6
2 1/8	2.125	3.346	3.681	0.787	1.043	1.358	1,640	18,646	5.200	8	M8 x 25	25	30	1.9
2 3/16	2.188	3.346	3.681	0.787	1.043	1.358	1,688	18,646	5.200	8	M8 x 25	25	30	1.8
2 1/4	2.250	3.543	3.898	0.787	1.043	1.358	1,736	17,610	5.357	8	M8 x 25	25	30	2.1
2 3/8	2.375	3.543	3.898	0.787	1.043	1.358	1,833	17,610	5.357	8	M8 x 25	25	30	1.9
2 7/16	2.438	3.740	4.094	0.787	1.043	1.358	2,116	18,768	5.832	9	M8 x 25	25	30	2.2
2 1/2	2.500	3.740	4.094	0.787	1.043	1.358	2,171	18,768	5.832	9	M8 x 25	25	30	2.2
2 9/16	2.563	3.740	4.094	0.787	1.043	1.358	2,225	18,768	5.832	9	M8 x 25	25	30	2.1
2 11/16	2.688	4.331	4.685	0.945	1.201	1.594	3,293	19,064	6.806	8	M10 x 30	50	60	3.8
2 3/4	2.750	4.331	4.685	0.945	1.201	1.594	3,370	19,064	6.806	8	M10 x 30	50	60	3.7
2 7/8	2.875	4.528	4.882	0.945	1.201	1.594	3,523	18,235	6.959	8	M10 x 30	50	60	4.0
2 15/16	2.938	4.528	4.882	0.945	1.201	1.594	3,600	18,235	6.959	8	M10 x 30	50	60	3.9
3	3.000	4.724	5.079	0.945	1.201	1.594	3,676	17,475	7.118	8	M10 x 30	50	60	4.4
3 1/4	3.250	4.921	5.276	0.945	1.201	1.594	3,982	16,776	7.281	8	M10 x 30	50	60	4.5
3 3/8	3.375	4.921	5.276	0.945	1.201	1.594	4,653	18,873	7.695	9	M10 x 30	50	60	4.3
3 7/16	3.438	5.118	5.472	0.945	1.201	1.594	4,739	18,147	7.849	9	M10 x 30	50	60	4.8
3 1/2	3.500	5.118	5.472	0.945	1.201	1.594	4,825	18,147	7.849	9	M10 x 30	50	60	4.6
3 3/4	3.750	5.315	5.669	0.945	1.201	1.594	5,744	19,417	8.434	10	M10 x 30	50	60	4.7
3 15/16	3.938	5.709	6.063	1.024	1.299	1.772	7,025	19,437	9.063	8	M12 x 35	90	105	6.2
4	4.000	5.709	6.063	1.024	1.299	1.772	7,136	19,437	9.063	8	M12 x 35	90	105	6.0
4 7/16	4.438	6.102	6.457	1.024	1.299	1.772	7,917	18,183	9.367	8	M12 x 35	90	105	6.3
4 3/4	4.750	6.496	6.850	1.024	1.299	1.772	9,534	19,216	10.252	9	M12 x 35	90	105	7.1
4 15/16	4.938	7.087	7.441	1.339	1.614	2.165	13,597	18,482	10.965	9	M14 x 40	135	166	11
5	5.000	7.087	7.441	1.339	1.614	2.165	13,770	18,482	10.965	9	M14 x 40	135	166	11
5 7/16	5.438	7.480	7.835	1.339	1.614	2.165	14,974	17,509	11.280	9	M14 x 40	135	166	12
5 15/16	5.938	7.874	8.228	1.339	1.614	2.165	18,168	18,482	12.183	10	M14 x 40	135	166	12
6 7/16	6.438	8.858	9.213	1.732	2.008	2.559	23,638	15,234	12.601	12	M14 x 40	135	166	20
6 15/16	6.938	9.252	9.606	1.732	2.008	2.559	25,474	14,585	12.950	12	M14 x 40	135	166	20
7	7.000	9.252	9.606	1.732	2.008	2.559	25,703	14,585	12.950	12	M14 x 40	135	166	20
7 7/16	7.438	9.843	10.197	1.732	2.008	2.559	34,137	17,138	14.699	15	M14 x 40	135	166	22
7 15/16	7.938	10.236	10.591	1.732	2.008	2.559	36,432	16,479	15.029	15	M14 x 40	135	166	23
8	8.000	10.236	10.591	1.732	2.008	2.559	36,719	16,479	15.029	15	M14 x 40	135	166	21

*Required hub OD for 1045 h.r. steel hub assuming 45 ksi Yield Point and Stress Reduction Factor C=1 (see Page 24 for details)

B400 SERIES





** Recommended pre-centering length in installations without pilot bushings. Provide a minimum .001" clearance (hub concentricity depends on fit clearance).

Ordering Information:
Specify series & shaft size
(e.g., Locking Assembly Series B400 2 ½")
Larger sizes and sizes not shown are available on request.

B400 METRIC SPECIFICATIONS

Size	d	D	L	(Relaxed) L_1	L_2	M_t (ft-lbs)	P_H (psi)	D_N*	Locking Screws Qty.	Size	M_A (ft-lbs)	d_B	Weight (lbs)
20 x 47	0.787	1.850	0.669	0.787	1.024	234	15,282	2.635	8	M6 x 18	11	M8	0.5
22 x 47	0.866	1.850	0.669	0.787	1.024	257	15,282	2.635	8	M6 x 18	11	M8	0.5
24 x 50	0.945	1.969	0.669	0.787	1.024	316	16,161	2.867	9	M6 x 18	11	M8	0.5
25 x 50	0.984	1.969	0.669	0.787	1.024	329	16,161	2.867	9	M6 x 18	11	M8	0.5
28 x 55	1.102	2.165	0.669	0.787	1.024	410	16,324	3.167	10	M6 x 18	11	M8	0.6
30 x 55	1.181	2.165	0.669	0.787	1.024	439	16,324	3.167	10	M6 x 18	11	M8	0.6
32 x 60	1.260	2.362	0.669	0.787	1.024	562	17,957	3.604	12	M6 x 18	11	M8	0.7
35 x 60	1.378	2.362	0.669	0.787	1.024	615	17,957	3.604	12	M6 x 18	11	M8	0.6
38 x 65	1.496	2.559	0.669	0.787	1.024	778	19,338	4.052	14	M6 x 18	11	M8	0.7
40 x 65	1.575	2.559	0.669	0.787	1.024	819	19,338	4.052	14	M6 x 18	11	M8	0.7
42 x 75	1.654	2.953	0.787	0.945	1.260	1,358	22,483	5.112	12	M8 x 22	26	M10	1.2
45 x 75	1.772	2.953	0.787	0.945	1.260	1,455	22,483	5.112	12	M8 x 22	26	M10	1.2
48 x 80	1.890	3.150	0.787	0.945	1.260	1,552	21,078	5.235	12	M8 x 22	26	M10	1.3
50 x 80	1.969	3.150	0.787	0.945	1.260	1,617	21,078	5.235	12	M8 x 22	26	M10	1.3
55 x 85	2.165	3.346	0.787	0.945	1.260	2,074	23,144	5.909	14	M8 x 22	26	M10	1.4
60 x 90	2.362	3.543	0.787	0.945	1.260	2,263	21,858	6.023	14	M8 x 22	26	M10	1.4
65 x 95	2.559	3.740	0.787	0.945	1.260	2,802	23,666	6.710	16	M8 x 22	26	M10	1.5
70 x 110	2.756	4.331	0.945	1.102	1.496	4,199	23,705	7.779	14	M10 x 25	51	M12	2.7
75 x 115	2.953	4.528	0.945	1.102	1.496	4,500	22,675	7.883	14	M10 x 25	51	M12	2.9
80 x 120	3.150	4.724	0.945	1.102	1.496	4,800	21,730	8.000	14	M10 x 25	51	M12	3.0
85 x 125	3.346	4.921	0.945	1.102	1.496	5,827	23,841	8.877	16	M10 x 25	51	M12	3.1
90 x 130	3.543	5.118	0.945	1.102	1.496	6,170	22,924	8.978	16	M10 x 25	51	M12	3.3
95 x 135	3.740	5.315	0.945	1.102	1.496	7,327	24,834	9.891	18	M10 x 25	51	M12	3.5
100 x 145	3.937	5.709	1.024	1.299	1.772	8,778	24,291	10.442	14	M12 x 30	91	M14	4.7
110 x 155	4.331	6.102	1.024	1.299	1.772	9,657	22,724	10.640	14	M12 x 30	91	M14	5.1
120 x 165	4.724	6.496	1.024	1.299	1.772	12,038	24,396	11.922	16	M12 x 30	91	M14	5.5
130 x 180	5.118	7.087	1.339	1.496	1.969	16,302	21,377	11.879	20	M12 x 35	91	M14	7.7
140 x 190	5.512	7.480	1.339	1.496	1.969	19,313	22,277	12.871	22	M12 x 35	91	M14	8.2
150 x 200	5.906	7.874	1.339	1.496	1.969	22,575	23,087	13.880	24	M12 x 35	91	M14	8.6
160 x 210	6.299	8.268	1.339	1.496	1.969	26,083	23,820	14.903	26	M12 x 35	91	M14	9.4
170 x 225	6.693	8.858	1.496	1.732	2.283	32,136	23,065	15.604	22	M14 x 40	138	M16	12
180 x 235	7.087	9.252	1.496	1.732	2.283	37,122	24,091	16.818	24	M14 x 40	138	M16	13
190 x 250	7.480	9.843	1.811	2.047	2.598	45,710	21,825	16.714	28	M14 x 45	138	M16	18
200 x 260	7.874	10.236	1.811	2.047	2.598	51,555	22,485	17.722	30	M14 x 45	138	M16	19
220 x 285	8.661	11.220	1.969	2.205	2.835	67,743	22,544	19.460	26	M16 x 50	214	M20	24
240 x 305	9.449	12.008	1.969	2.205	2.835	85,277	24,306	21.975	30	M16 x 50	214	M20	26
260 x 325	10.236	12.795	1.969	2.205	2.835	104,696	25,852	24.613	34	M16 x 50	214	M20	28
280 x 355	11.024	13.976	2.362	2.598	3.307	129,013	22,566	24.256	32	M18 x 60	293	M22	43
300 x 375	11.811	14.764	2.362	2.598	3.307	155,501	24,033	26.789	36	M18 x 60	293	M22	45
320 x 405	12.598	15.945	2.835	3.071	3.858	214,016	23,928	28.838	36	M20 x 70	420	M24	64
340 x 425	13.386	16.732	2.835	3.071	3.858	227,403	22,802	29.243	36	M20 x 70	420	M24	69
360 x 455	14.173	17.913	3.307	3.543	4.409	299,461	22,706	31.217	36	M22 x 80	565	M27	95
380 x 475	14.961	18.701	3.307	3.543	4.409	316,110	21,750	31.686	36	M22 x 80	565	M27	97
400 x 495	15.748	19.488	3.307	3.543	4.409	332,739	20,871	32.199	36	M22 x 80	565	M27	101
420 x 515	16.535	20.276	3.307	3.543	4.409	388,186	22,289	34.900	40	M22 x 80	565	M27	110
440 x 545	17.323	21.457	3.780	4.016	4.961	470,039	21,301	35.888	40	M24 x 90	725	M30	142
460 x 565	18.110	22.244	3.780	4.016	4.961	491,393	20,547	36.418	40	M24 x 90	725	M30	148
480 x 585	18.898	23.031	3.780	4.016	4.961	538,413	20,836	38.017	42	M24 x 90	725	M30	156
500 x 605	19.685	23.819	3.780	4.016	4.961	587,541	21,107	39.619	44	M24 x 90	725	M30	160

*Required hub OD for 1045 h.r. steel hub assuming 45 ksi Yield Point and Stress Reduction Factor C=1 (see Page 24 for details)

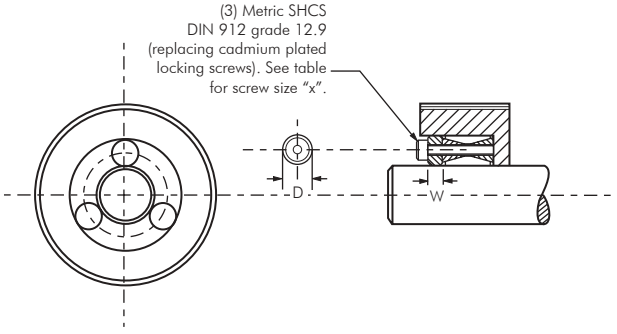
B400 INCH SPECIFICATIONS

Size	d	D	(Relaxed) L	(Relaxed) L_1	(Relaxed) L_2	M_t (ft-lbs)	P_H (psi)	D_N*	Locking Screws Qty.	Locking Screws Size	Locking Screws M_A (ft-lbs)	Locking Screws d_B	Weight (lbs)
3/4	0.750	1.850	0.669	0.787	1.024	223	15,282	2.635	8	M6 x 18	11	M8	0.5
7/8	0.875	1.850	0.669	0.787	1.024	260	15,282	2.635	8	M6 x 18	11	M8	0.5
1	1.000	1.969	0.669	0.787	1.024	334	16,161	2.867	9	M6 x 18	11	M8	0.5
1 1/8	1.125	2.165	0.669	0.787	1.024	418	16,324	3.167	10	M6 x 18	11	M8	0.6
1 3/16	1.188	2.159	0.669	0.787	1.024	441	16,372	3.161	10	M6 x 18	11	M8	0.6
1 1/4	1.250	2.362	0.669	0.787	1.024	557	17,958	3.604	12	M6 x 18	11	M8	0.7
1 3/8	1.375	2.365	0.669	0.787	1.024	613	17,935	3.606	12	M6 x 18	11	M8	0.6
1 7/16	1.438	2.559	0.669	0.787	1.024	748	19,338	4.052	14	M6 x 18	11	M8	0.8
1 1/2	1.500	2.559	0.669	0.787	1.024	780	19,338	4.052	14	M6 x 18	11	M8	0.7
1 5/8	1.625	2.953	0.787	0.945	1.260	1,334	22,483	5.112	12	M8 x 22	26	M10	1.3
1 11/16	1.688	2.953	0.787	0.945	1.260	1,386	22,483	5.112	12	M8 x 22	26	M10	1.2
1 3/4	1.750	2.953	0.787	0.945	1.260	1,437	22,483	5.112	12	M8 x 22	26	M10	1.2
1 7/8	1.875	3.150	0.787	0.945	1.260	1,540	21,078	5.235	12	M8 x 22	26	M10	1.3
1 15/16	1.938	3.150	0.787	0.945	1.260	1,591	21,078	5.235	12	M8 x 22	26	M10	1.3
2	2.000	3.346	0.787	0.945	1.260	1,916	23,144	5.909	14	M8 x 22	26	M10	1.5
2 1/8	2.125	3.346	0.787	0.945	1.260	2,036	23,144	5.909	14	M8 x 22	26	M10	1.4
2 3/16	2.188	3.543	0.787	0.945	1.260	2,095	21,858	6.023	14	M8 x 22	26	M10	1.6
2 1/4	2.250	3.543	0.787	0.945	1.260	2,155	21,858	6.023	14	M8 x 22	26	M10	1.5
2 3/8	2.375	3.531	0.787	0.945	1.260	2,275	21,934	6.015	14	M8 x 22	26	M10	1.4
2 7/16	2.438	3.740	0.787	0.945	1.260	2,669	23,666	6.710	16	M8 x 22	26	M10	1.6
2 1/2	2.500	3.740	0.787	0.945	1.260	2,737	23,666	6.710	16	M8 x 22	26	M10	1.6
2 9/16	2.563	3.737	0.787	0.945	1.260	2,805	23,686	6.708	16	M8 x 22	26	M10	1.5
2 5/8	2.625	4.331	0.945	1.102	1.496	4,000	23,705	7.779	14	M10 x 25	51	M12	2.8
2 11/16	2.688	4.331	0.945	1.102	1.496	4,095	23,705	7.779	14	M10 x 25	51	M12	2.8
2 3/4	2.750	4.337	0.945	1.102	1.496	4,190	23,671	7.782	14	M10 x 25	51	M12	2.7
2 7/8	2.875	4.528	0.945	1.102	1.496	4,381	22,675	7.883	14	M10 x 25	51	M12	2.9
2 15/16	2.938	4.528	0.945	1.102	1.496	4,476	22,675	7.883	14	M10 x 25	51	M12	2.8
3	3.000	4.724	0.945	1.102	1.496	4,571	21,730	8.000	14	M10 x 25	51	M12	3.2
3 1/8	3.125	4.724	0.945	1.102	1.496	4,762	21,730	8.000	14	M10 x 25	51	M12	3.0
3 1/4	3.250	4.921	0.945	1.102	1.496	5,660	23,841	8.877	16	M10 x 25	51	M12	3.3
3 3/8	3.375	4.921	0.945	1.102	1.496	5,877	23,841	8.877	16	M10 x 25	51	M12	3.1
3 7/16	3.438	5.118	0.945	1.102	1.496	5,986	22,924	8.978	16	M10 x 25	51	M12	3.4
3 1/2	3.500	5.118	0.945	1.102	1.496	6,095	22,924	8.978	16	M10 x 25	51	M12	3.4
3 3/4	3.750	5.305	0.945	1.102	1.496	7,346	24,880	9.887	18	M10 x 25	51	M12	3.5
3 7/8	3.875	5.709	1.024	1.299	1.772	8,640	24,291	10.442	14	M12 x 30	91	M14	4.8
3 15/16	3.938	5.709	1.024	1.299	1.772	8,779	24,291	10.442	14	M12 x 30	91	M14	4.7
4	4.000	5.843	1.024	1.299	1.772	8,919	23,733	10.504	14	M12 x 30	91	M14	5.0
4 3/16	4.188	6.102	1.024	1.299	1.772	9,337	22,724	10.640	14	M12 x 30	91	M14	6.0
4 7/16	4.438	6.496	1.024	1.299	1.772	11,308	24,396	11.922	16	M12 x 30	91	M14	6.0
4 1/2	4.500	6.496	1.024	1.299	1.772	11,467	24,396	11.922	16	M12 x 30	91	M14	5.9
4 15/16	4.938	7.087	1.339	1.496	1.969	15,727	21,377	11.879	20	M12 x 35	91	M14	8.2
5	5.000	7.087	1.339	1.496	1.969	15,926	21,377	11.879	20	M12 x 35	91	M14	8.0
5 7/16	5.438	7.480	1.339	1.496	1.969	19,052	22,277	12.871	22	M12 x 35	91	M14	8.5
5 1/2	5.500	7.492	1.339	1.496	1.969	19,271	22,242	12.878	22	M12 x 35	91	M14	8.2
6	6.000	8.268	1.339	1.496	1.969	24,845	23,820	14.903	26	M12 x 35	91	M14	10.2
6 7/16	6.438	8.858	1.496	1.732	2.283	30,910	23,065	15.604	22	M14 x 40	138	M16	13.6
6 1/2	6.500	8.858	1.496	1.732	2.283	31,210	23,065	15.604	22	M14 x 40	138	M16	13.2
6 15/16	6.938	9.252	1.496	1.732	2.283	36,339	24,091	16.818	24	M14 x 40	138	M16	13.7
7	7.000	9.252	1.496	1.732	2.283	36,666	24,091	16.818	24	M14 x 40	138	M16	13.5
7 1/2	7.500	9.823	1.811	2.047	2.598	45,833	21,869	16.701	28	M14 x 45	138	M16	17.9
7 7/8	7.875	10.236	1.811	2.047	2.598	51,562	22,485	17.722	30	M14 x 45	138	M16	18.8
8	8.000	10.504	1.811	2.047	2.598	52,380	21,912	17.882	30	M14 x 45	138	M16	18.5

*Required hub OD for 1045 h.r. steel hub assuming 45 ksi Yield Point and Stress Reduction Factor C=1 (see Page 24 for details)

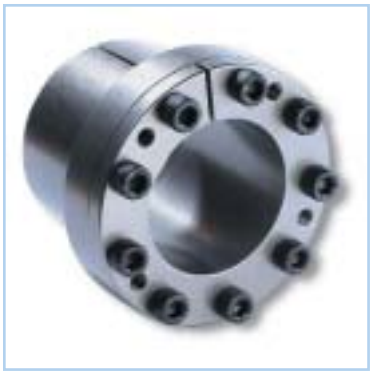
PILOT BUSHINGS FOR METRIC LOCKING ASSEMBLIES

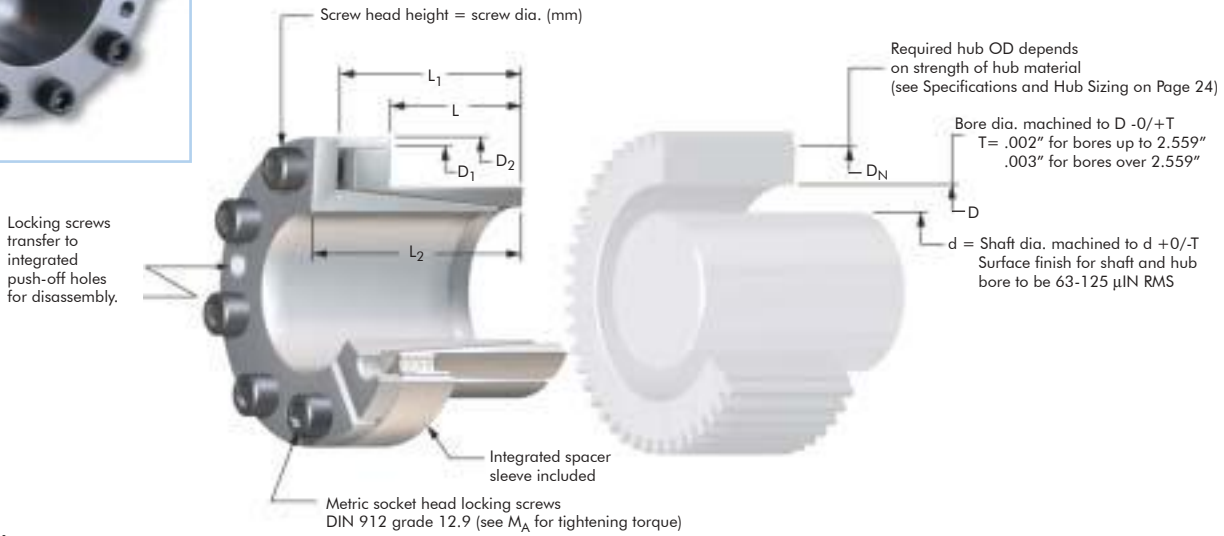
SET NUMBER	SUITABLE FOR B400 LOCKING ASSEMBLY SIZES	INCHES D	INCHES W	MM X
PB 4565	45 x 75 to 65 x 95	0.589	0.313	M8 x 30
PB 7095	70 x 110 to 95 x 135	0.787	0.375	M10 x 35
PB 1012	100 x 145 to 120 x 165	0.886	0.375	M12 x 40
PB 1316	130 x 180 to 160 x 210	0.984	0.625	M12 x 50
PB 1718	170 x 225 to 180 x 235	1.082	0.625	M14 x 55
PB 1920	190 x 250 to 200 x 260	1.181	0.625	M14 x 60
PB 2224	220 x 285 to 240 x 305	1.279	0.625	M16 x 70
PB 2600	260 x 325	1.279	0.625	M16 x 70
PB 2830	280 x 355 to 300 x 375	1.476	0.750	M18 x 80
PB 3234	320 x 405 to 340 x 425	1.673	0.750	M20 x 90
PB 3642	360 x 455 to 420 x 515	1.870	0.750	M22 x 100
PB 4450	440 x 545 to 500 x 605	2.067	0.875	M24 x 110
PB 5200	520 x 630 to 1000 x 1110	2.165	1.125	M24 x 120



B-LOC PILOT BUSHINGS: for series B400 Locking Assemblies to provide pre-centering in applications with either straight through hub bores or narrow hubs. Pilot Bushings are supplied in sets consisting of three (3) bushings and three (3) longer screws. Pilot Bushings for inch size Locking Assemblies are identical to bushings used for related metric units except for outside diameter "D".

B800 SERIES





Ordering Information:
Specify series & shaft size
(e.g., Locking Assembly Series B800 $1^{15}/_{16}$ ")

B800 METRIC SPECIFICATIONS

SIZE	d	D	D_1	D_2	L (Relaxed)	L_1 (Relaxed)	L_2 (Relaxed)	M_t (ft-lbs)	p_H (psi)	D_N*	Locking Screws Qty.	Locking Screws Size	Locking Screws M_A (ft-lbs)	Weight (lbs)
6 x 14	0.236	0.551	0.906	0.984	0.394	0.748	0.866	16	19,935	0.887	3	M4 x 10	3.55	0.3
8 x 15	0.315	0.591	0.945	1.063	0.472	0.866	0.984	21	15,505	0.846	3	M4 x 10	3.55	0.3
9 x 16	0.354	0.630	1.024	1.142	0.551	0.945	1.063	32	16,612	0.928	4	M4 x 10	3.55	0.4
10 x 16	0.394	0.630	1.024	1.142	0.551	0.945	1.063	36	16,612	0.928	4	M4 x 10	3.55	0.4
11 x 18	0.433	0.709	1.102	1.260	0.551	0.945	1.083	39	14,766	0.996	4	M4 x 10	3.55	0.5
12 x 18	0.472	0.709	1.102	1.260	0.551	0.945	1.083	43	14,766	0.996	4	M4 x 10	3.55	0.5
14 x 23	0.551	0.906	1.299	1.496	0.551	0.945	1.083	50	11,556	1.178	4	M4 x 10	3.55	0.6
15 x 24	0.591	0.945	1.575	1.732	0.630	1.161	1.437	93	16,754	1.397	3	M6 x 16	12	0.6
16 x 24	0.630	0.945	1.575	1.732	0.630	1.161	1.437	99	16,754	1.397	3	M6 x 16	12	0.6
18 x 26	0.709	1.024	1.654	1.850	0.709	1.280	1.555	148	18,330	1.577	4	M6 x 16	12	0.6
19 x 27	0.748	1.063	1.693	1.929	0.709	1.280	1.555	156	17,651	1.609	4	M6 x 16	12	0.7
20 x 28	0.787	1.102	1.732	1.969	0.709	1.280	1.555	164	17,020	1.641	4	M6 x 16	12	0.7
22 x 32	0.866	1.260	1.890	2.126	0.984	1.575	1.850	181	10,723	1.606	4	M6 x 16	12	0.8
24 x 34	0.945	1.339	1.969	2.205	0.984	1.575	1.850	296	15,138	1.900	6	M6 x 16	12	0.9
25 x 34	0.984	1.339	1.969	2.205	0.984	1.575	1.850	308	15,138	1.900	6	M6 x 16	12	0.9
28 x 39	1.102	1.535	2.165	2.402	0.984	1.575	1.850	345	13,197	2.077	6	M6 x 16	12	1.0
30 x 41	1.181	1.614	2.244	2.441	0.984	1.575	1.850	370	12,554	2.150	6	M6 x 16	12	1.1
32 x 43	1.260	1.693	2.323	2.559	0.984	1.575	1.850	526	15,960	2.453	8	M6 x 16	12	1.2
35 x 47	1.378	1.850	2.441	2.677	1.260	1.850	2.126	576	11,407	2.398	8	M6 x 18	12	1.4
38 x 50	1.496	1.969	2.598	2.835	1.260	1.850	2.126	625	10,723	2.510	8	M6 x 18	12	1.5
40 x 53	1.575	2.087	2.717	2.953	1.260	1.850	2.126	658	10,116	2.623	8	M6 x 18	12	1.6
42 x 55	1.654	2.165	2.795	3.071	1.260	1.850	2.126	691	9,748	2.698	8	M6 x 18	12	1.7
45 x 59	1.772	2.323	3.150	3.386	1.772	2.441	2.756	1,368	11,939	3.048	8	M8 x 22	30	2.7
48 x 62	1.890	2.441	3.189	3.425	1.772	2.441	2.756	1,458	11,361	3.160	8	M8 x 22	30	2.7
50 x 65	1.969	2.559	3.386	3.622	1.772	2.441	2.756	1,519	10,837	3.272	8	M8 x 22	30	3.1
55 x 71	2.165	2.795	3.622	3.858	2.165	2.874	3.189	1,880	9,132	3.434	9	M8 x 22	30	3.8
60 x 77	2.362	3.031	3.858	4.094	2.165	2.874	3.189	2,051	8,420	3.663	9	M8 x 22	30	4.2
65 x 84	2.559	3.307	4.134	4.370	2.165	2.874	3.189	2,222	7,719	3.933	9	M8 x 22	30	4.9
70 x 90	2.756	3.543	4.449	4.685	2.559	3.386	3.780	3,799	9,679	4.409	9	M10 x 25	60	6.7
75 x 95	2.953	3.740	4.685	4.961	2.559	3.386	3.780	4,071	9,169	4.599	9	M10 x 25	60	7.3
80 x 100	3.150	3.937	4.921	5.157	2.559	3.386	3.780	5,789	11,614	5.127	12	M10 x 25	60	7.6
85 x 106	3.346	4.173	5.157	5.394	2.559	3.386	3.780	6,151	10,957	5.350	12	M10 x 25	60	7.7
90 x 112	3.543	4.409	5.394	5.669	2.559	3.386	3.780	6,513	10,370	5.576	12	M10 x 25	60	8.7
95 x 120	3.740	4.724	5.591	5.866	2.559	3.386	3.780	8,020	11,292	6.105	14	M10 x 25	60	9.8
100 x 125	3.937	4.921	6.024	6.299	2.756	3.701	4.213	10,536	12,562	6.556	12	M12 x 30	105	12
110 x 140	4.331	5.512	6.614	6.850	2.756	3.701	4.213	11,590	11,216	7.110	12	M12 x 30	105	15
120 x 155	4.724	6.102	7.362	7.795	3.543	4.528	5.039	16,858	10,506	7.741	16	M12 x 30	105	21
130 x 165	5.118	6.496	7.756	8.189	3.543	4.528	5.039	18,262	9,869	8.118	16	M12 x 30	105	23

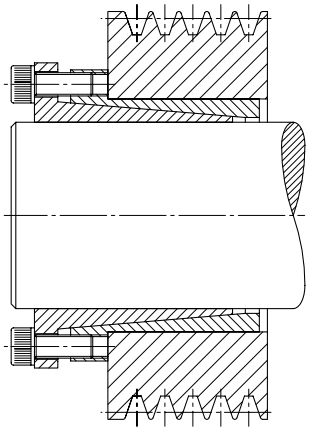
*Required hub OD for 1045 h.r. steel hub assuming 45 ksi Yield Point and Stress Reduction Factor C=1 (see Page 24 for details)

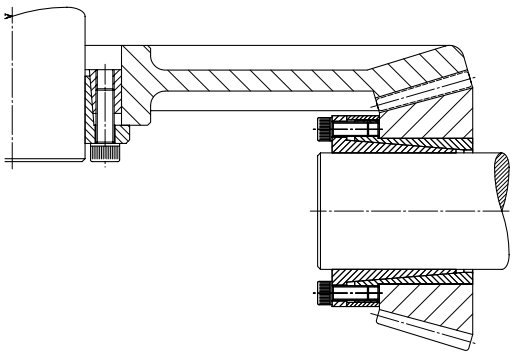
B800 INCH SPECIFICATIONS

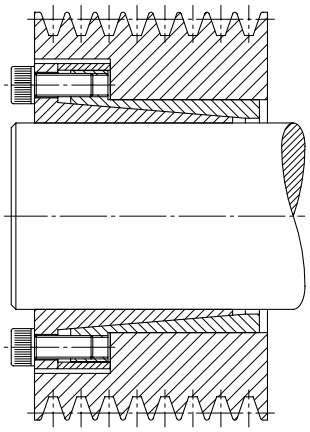
SIZE	d	D	D_1	D_2	(Relaxed) L	(Relaxed) L_1	(Relaxed) L_2	M_t (ft-lbs)	p_H (psi)	D_N*	Locking Screws Qty.	Locking Screws Size	Locking Screws M_A (ft-lbs)	Weight (lbs)
1/4	0.250	0.551	0.906	0.984	0.394	0.748	0.866	17	19,935	0.887	3	M4 x 10	3.55	0.2
5/16	0.313	0.591	0.945	1.063	0.472	0.866	0.984	21	15,505	0.846	3	M4 x 10	3.55	0.3
3/8	0.375	0.630	1.024	1.142	0.551	0.945	1.063	34	16,612	0.928	4	M4 x 10	3.55	0.4
7/16	0.438	0.709	1.102	1.260	0.551	0.945	1.083	40	14,766	0.996	4	M4 x 10	3.55	0.5
1/2	0.500	0.906	1.299	1.496	0.551	0.945	1.083	45	11,556	1.178	4	M4 x 10	3.55	0.5
5/8	0.625	0.945	1.575	1.732	0.630	1.161	1.437	98	16,754	1.397	3	M6 x 16	12	0.6
3/4	0.750	1.063	1.693	1.929	0.709	1.280	1.555	157	17,651	1.609	4	M6 x 16	12	0.7
7/8	0.875	1.260	1.890	2.126	0.984	1.575	1.850	183	10,723	1.606	4	M6 x 16	12	0.8
15/16	0.938	1.339	1.969	2.205	0.984	1.575	1.850	294	15,138	1.900	6	M6 x 16	12	0.9
1	1.000	1.339	1.969	2.205	0.984	1.575	1.850	313	15,138	1.900	6	M6 x 16	12	0.9
1 1/8	1.125	1.535	2.165	2.402	0.984	1.575	1.850	352	13,197	2.077	6	M6 x 16	12	1.0
1 3/16	1.188	1.614	2.244	2.441	0.984	1.575	1.850	372	12,554	2.150	6	M6 x 16	12	1.1
1 1/4	1.250	1.693	2.323	2.559	0.984	1.575	1.850	522	15,960	2.453	8	M6 x 16	12	1.2
1 3/8	1.375	1.850	2.441	2.677	1.260	1.850	2.126	574	11,407	2.398	8	M6 x 18	12	1.4
1 7/16	1.438	1.969	2.598	2.835	1.260	1.850	2.126	600	10,723	2.510	8	M6 x 18	12	1.5
1 1/2	1.500	1.969	2.598	2.835	1.260	1.850	2.126	627	10,723	2.510	8	M6 x 18	12	1.5
1 5/8	1.625	2.165	2.795	3.071	1.260	1.850	2.126	679	9,748	2.698	8	M6 x 18	12	1.7
1 11/16	1.688	2.323	3.150	3.386	1.772	2.441	2.756	1,302	11,939	3.048	8	M8 x 22	30	2.7
1 3/4	1.750	2.323	3.150	3.386	1.772	2.441	2.756	1,351	11,939	3.048	8	M8 x 22	30	2.7
1 7/8	1.875	2.441	3.189	3.425	1.772	2.441	2.756	1,447	11,361	3.160	8	M8 x 22	30	2.7
1 15/16	1.938	2.559	3.386	3.622	1.772	2.441	2.756	1,495	10,837	3.272	8	M8 x 22	30	3.1
2	2.000	2.795	3.622	3.858	2.165	2.874	3.189	1,736	9,132	3.434	9	M8 x 22	30	3.8
2 1/8	2.125	2.795	3.622	3.858	2.165	2.874	3.189	1,845	9,132	3.434	9	M8 x 22	30	3.8
2 3/16	2.188	3.031	3.858	4.094	2.165	2.874	3.189	1,899	8,420	3.663	9	M8 x 22	30	4.2
2 3/8	2.375	3.031	3.858	4.094	2.165	2.874	3.189	2,062	8,420	3.663	9	M8 x 22	30	4.2
2 7/16	2.438	3.307	4.134	4.370	2.165	2.874	3.189	2,116	7,719	3.933	9	M8 x 22	30	4.9
2 1/2	2.500	3.307	4.134	4.370	2.165	2.874	3.189	2,171	7,719	3.933	9	M8 x 22	30	4.9
2 5/8	2.625	3.543	4.449	4.685	2.559	3.386	3.780	3,619	9,679	4.409	9	M10 x 25	60	6.8
2 3/4	2.750	3.543	4.449	4.685	2.559	3.386	3.780	3,791	9,679	4.409	9	M10 x 25	60	6.7
2 7/8	2.875	3.740	4.685	4.961	2.559	3.386	3.780	3,963	9,169	4.599	9	M10 x 25	60	7.4
2 15/16	2.938	3.740	4.685	4.961	2.559	3.386	3.780	4,049	9,169	4.599	9	M10 x 25	60	7.3
3	3.000	3.740	4.685	4.961	2.559	3.386	3.780	4,136	9,169	4.599	9	M10 x 25	60	7.2
3 1/8	3.125	3.937	4.921	5.157	2.559	3.386	3.780	5,744	11,614	5.127	12	M10 x 25	60	7.6
3 1/4	3.250	4.173	5.157	5.394	2.559	3.386	3.780	5,974	10,957	5.350	12	M10 x 25	60	8.4
3 3/8	3.375	4.173	5.157	5.394	2.559	3.386	3.780	6,203	10,957	5.350	12	M10 x 25	60	7.8
3 7/16	3.438	4.409	5.394	5.669	2.559	3.386	3.780	6,318	10,370	5.576	12	M10 x 25	60	9.1
3 1/2	3.500	4.409	5.394	5.669	2.559	3.386	3.780	6,433	10,370	5.576	12	M10 x 25	60	8.8
3 5/8	3.625	4.409	5.394	5.669	2.559	3.386	3.780	6,663	10,370	5.576	12	M10 x 25	60	8.6
3 3/4	3.750	4.724	5.591	5.866	2.559	3.386	3.780	8,041	11,292	6.105	14	M10 x 25	60	9.7
3 7/8	3.875	4.921	6.024	6.299	2.756	3.701	4.213	10,370	12,562	6.556	12	M12 x 30	105	12
3 15/16	3.938	4.921	6.024	6.299	2.756	3.701	4.213	10,537	12,562	6.556	12	M12 x 30	105	12
4	4.000	4.921	6.024	6.299	2.756	3.701	4.213	10,705	12,562	6.556	12	M12 x 30	105	12
4 1/4	4.250	5.512	6.614	6.850	2.756	3.701	4.213	11,374	11,216	7.110	12	M12 x 30	105	15
4 3/8	4.375	5.512	6.614	6.850	2.756	3.701	4.213	11,708	11,216	7.110	12	M12 x 30	105	15
4 7/16	4.438	6.102	7.362	7.795	3.543	4.528	5.039	15,834	10,506	7.741	16	M12 x 30	105	21
4 1/2	4.500	6.102	7.362	7.795	3.543	4.528	5.039	16,057	10,506	7.741	16	M12 x 30	105	21
4 3/4	4.750	6.102	7.362	7.795	3.543	4.528	5.039	16,949	10,506	7.741	16	M12 x 30	105	21
4 15/16	4.938	6.496	7.756	8.189	3.543	4.528	5.039	17,618	9,869	8.118	16	M12 x 30	105	23

*Required hub OD for 1045 h.r. steel hub assuming 45 ksi Yield Point and Stress Reduction Factor C=1 (see Page 24 for details)

Possible design configurations



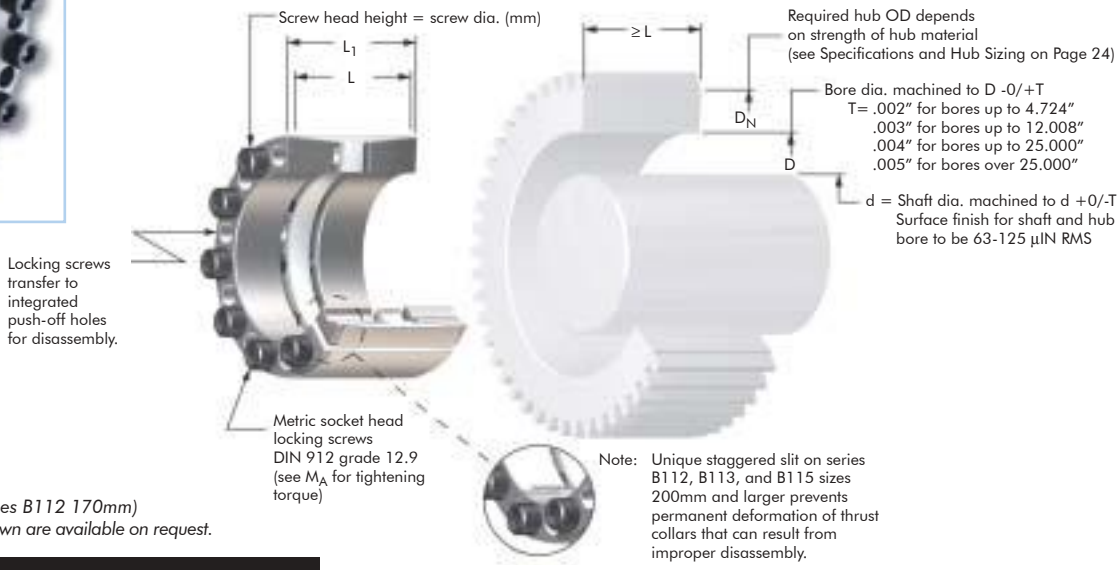




Note: In applications where spacer sleeve is removed, the drive element will move axially during installation and torque ratings and contact pressures increase 58%.

B112 HEAVY DUTY SERIES





Ordering Information:
Specify series & shaft size
(e.g., Locking Assembly Series B112 170mm)
Larger sizes and sizes not shown are available on request.

B112 METRIC SPECIFICATIONS

Size	d	D	(Relaxed) L	(Relaxed) L_1	M_t (ft-lbs)	P_H (psi)	D_N*	Locking Screws Qty.	Locking Screws Size	M_A (ft-lbs)	Weight (lbs)
25 x 55	0.984	2.165	1.260	1.575	617	19,496	3.443	6	M6 x 35	12	1.0
30 x 55	1.181	2.165	1.260	1.575	740	19,496	3.443	6	M6 x 35	12	0.9
32 x 60	1.260	2.362	1.732	2.126	921	14,718	3.317	7	M6 x 45	12	1.4
35 x 60	1.378	2.362	1.732	2.126	1,007	14,718	3.317	7	M6 x 45	12	1.3
40 x 75	1.575	2.953	1.732	2.126	2,127	21,753	5.004	7	M8 x 50	30	2.3
45 x 75	1.772	2.953	1.732	2.126	2,393	21,753	5.004	7	M8 x 50	30	2.0
50 x 80	1.969	3.150	2.205	2.598	3,038	18,010	4.812	8	M8 x 55	30	2.7
55 x 85	2.165	3.346	2.205	2.598	3,760	19,069	5.260	9	M8 x 55	30	2.9
60 x 90	2.362	3.543	2.205	2.598	4,558	20,011	5.715	10	M8 x 55	30	3.1
65 x 95	2.559	3.740	2.205	2.598	4,937	18,958	5.861	10	M8 x 55	30	3.3
70 x 110	2.756	4.331	2.756	3.150	8,443	20,426	7.066	10	M10 x 60	60	6.2
80 x 120	3.150	4.724	2.756	3.150	10,613	20,596	7.746	11	M10 x 60	60	6.8
90 x 130	3.543	5.118	2.756	3.150	13,026	20,740	8.425	12	M10 x 60	60	7.6
100 x 145	3.937	5.709	3.543	4.016	19,316	19,853	9.168	11	M12 x 80	105	13
110 x 155	4.331	6.102	3.543	4.016	23,179	20,261	9.911	12	M12 x 80	105	13
120 x 165	4.724	6.496	3.543	4.016	29,501	22,205	11.154	14	M12 x 80	105	14
130 x 180	5.118	7.087	4.094	4.567	37,586	19,949	11.411	12	M14 x 90	166	20
140 x 190	5.512	7.480	4.094	4.567	47,224	22,048	12.785	14	M14 x 90	166	21
150 x 200	5.906	7.874	4.094	4.567	54,211	22,442	13.615	15	M14 x 90	166	22
160 x 210	6.299	8.268	4.094	4.567	61,680	22,798	14.448	16	M14 x 90	166	23
170 x 225	6.693	8.858	5.276	5.866	79,695	19,760	14.189	14	M16 x 110	257	36
180 x 235	7.087	9.252	5.276	5.866	90,410	20,271	15.031	15	M16 x 110	257	38
190 x 250	7.480	9.843	5.276	5.866	101,795	20,325	16.014	16	M16 x 110	257	43
200 x 260	7.874	10.236	5.276	5.866	107,153	19,543	16.299	16	M16 x 110	257	45
220 x 285	8.661	11.220	5.276	5.906	132,602	20,057	18.121	18	M16 x 110	257	54
240 x 305	9.449	12.008	5.276	5.906	160,729	20,824	19.814	20	M16 x 110	257	57
260 x 325	10.236	12.795	5.276	5.906	182,829	20,520	20.933	21	M16 x 110	257	63
280 x 355	11.024	13.976	6.496	6.969	263,439	20,946	23.142	18	M20 x 130	500	106
300 x 375	11.811	14.764	6.496	6.969	313,618	22,032	25.222	20	M20 x 130	500	112
320 x 405	12.598	15.945	6.496	6.969	351,252	21,420	26.761	21	M20 x 130	500	136
340 x 425	13.386	16.732	6.496	6.969	390,977	21,384	28.053	22	M20 x 130	500	145
360 x 455	14.173	17.913	7.480	7.992	491,890	20,611	29.381	21	M22 x 150	675	200
380 x 475	14.961	18.701	7.480	7.992	543,942	20,683	30.735	22	M22 x 150	675	209
400 x 495	15.748	19.488	7.480	7.992	624,622	21,652	32.927	24	M22 x 150	675	220
420 x 515	16.535	20.276	7.480	7.992	655,853	20,811	33.443	24	M22 x 150	675	229
440 x 535	17.323	21.063	7.480	7.992	687,084	20,033	33.994	24	M22 x 150	675	240
460 x 555	18.110	21.850	7.480	7.992	718,316	19,311	34.572	24	M22 x 150	675	249
480 x 575	18.898	22.638	7.480	7.992	874,471	21,746	38.353	28	M22 x 150	675	260
500 x 595	19.685	23.425	7.480	7.992	910,907	21,015	38.863	28	M22 x 150	675	268
520 x 615	20.472	24.213	7.480	7.992	1,015,011	21,784	41.066	30	M22 x 150	675	277
540 x 635	21.260	25.000	7.480	7.992	1,054,050	21,098	41.573	30	M22 x 150	675	288
560 x 655	22.047	25.787	7.480	7.992	1,165,962	21,817	43.779	32	M22 x 150	675	297
580 x 675	22.835	26.575	7.480	7.992	1,207,603	21,170	44.284	32	M22 x 150	675	308
600 x 695	23.622	27.362	7.480	7.992	1,288,283	21,204	45.639	33	M22 x 150	675	317

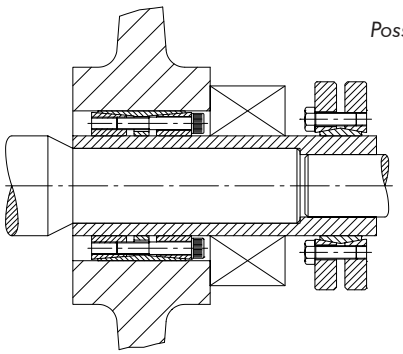
*Required hub OD for 1045 h.r. steel hub assuming 45 ksi Yield Point and Stress Reduction Factor C=1 (see Page 24 for details)

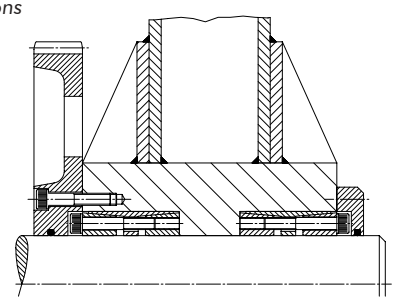
B112 INCH SPECIFICATIONS

Size	d	D	(Relaxed) L	(Relaxed) L_1	M_t (ft-lbs)	PH (psi)	D_N*	Locking Screws Qty.	Locking Screws Size	M_A (ft-lbs)	Weight (lbs)
1	1.000	2.165	1.260	1.575	627	19,496	3.443	6	M6 x 35	12	1.0
1 1/8	1.125	2.165	1.260	1.575	705	19,496	3.443	6	M6 x 35	12	1.0
1 3/16	1.188	2.165	1.260	1.575	744	19,496	3.443	6	M6 x 35	12	0.9
1 1/4	1.250	2.362	1.732	2.126	914	14,718	3.317	7	M6 x 45	12	1.5
1 3/8	1.375	2.362	1.732	2.126	1,005	14,718	3.317	7	M6 x 45	12	1.4
1 7/16	1.438	2.362	1.732	2.126	1,051	14,718	3.317	7	M6 x 45	12	1.3
1 1/2	1.500	2.953	1.732	2.126	2,026	21,753	5.004	7	M8 x 50	30	2.4
1 5/8	1.625	2.953	1.732	2.126	2,195	21,753	5.004	7	M8 x 50	30	2.3
1 3/4	1.750	2.953	1.732	2.126	2,364	21,753	5.004	7	M8 x 50	30	2.1
1 7/8	1.875	3.150	2.205	2.598	2,894	18,010	4.812	8	M8 x 55	30	2.9
1 15/16	1.938	3.150	2.205	2.598	2,991	18,010	4.812	8	M8 x 55	30	2.8
2	2.000	3.150	2.205	2.598	3,087	18,010	4.812	8	M8 x 55	30	2.6
2 1/8	2.125	3.346	2.205	2.598	3,690	19,069	5.260	9	M8 x 55	30	2.9
2 3/16	2.188	3.346	2.205	2.598	3,798	19,069	5.260	9	M8 x 55	30	2.8
2 1/4	2.250	3.543	2.205	2.598	4,341	20,011	5.715	10	M8 x 55	30	3.3
2 3/8	2.375	3.543	2.205	2.598	4,582	20,011	5.715	10	M8 x 55	30	3.1
2 7/16	2.438	3.740	2.205	2.598	4,703	18,958	5.861	10	M8 x 55	30	3.6
2 1/2	2.500	3.740	2.205	2.598	4,823	18,958	5.861	10	M8 x 55	30	3.4
2 9/16	2.563	3.740	2.205	2.598	4,944	18,958	5.861	10	M8 x 55	30	3.3
2 5/8	2.625	4.331	2.756	3.150	8,041	20,426	7.066	10	M10 x 60	60	6.6
2 11/16	2.688	4.331	2.756	3.150	8,233	20,426	7.066	10	M10 x 60	60	6.5
2 3/4	2.750	4.331	2.756	3.150	8,424	20,426	7.066	10	M10 x 60	60	6.2
2 7/8	2.875	4.331	2.756	3.150	8,807	20,426	7.066	10	M10 x 60	60	5.8
2 15/16	2.938	4.724	2.756	3.150	9,899	20,596	7.746	11	M10 x 60	60	7.7
3	3.000	4.724	2.756	3.150	10,109	20,596	7.746	11	M10 x 60	60	7.4
3 1/8	3.125	4.724	2.756	3.150	10,531	20,596	7.746	11	M10 x 60	60	6.9
3 1/4	3.250	4.724	2.756	3.150	10,952	20,596	7.746	11	M10 x 60	60	6.5
3 3/8	3.375	5.118	2.756	3.150	12,407	20,740	8.425	12	M10 x 60	60	8.2
3 7/16	3.438	5.118	2.756	3.150	12,637	20,740	8.425	12	M10 x 60	60	8.1
3 1/2	3.500	5.118	2.756	3.150	12,866	20,740	8.425	12	M10 x 60	60	7.8
3 5/8	3.625	5.118	2.756	3.150	13,326	20,740	8.425	12	M10 x 60	60	7.3
3 3/4	3.750	5.709	3.543	4.016	18,398	19,853	9.168	11	M12 x 80	105	13
3 7/8	3.875	5.709	3.543	4.016	19,012	19,853	9.168	11	M12 x 80	105	12
3 15/16	3.938	5.709	3.543	4.016	19,318	19,853	9.168	11	M12 x 80	105	13
4	4.000	5.709	3.543	4.016	19,625	19,853	9.168	11	M12 x 80	105	12
4 1/4	4.250	6.102	3.543	4.016	22,747	20,261	9.911	12	M12 x 80	105	14
4 3/8	4.375	6.102	3.543	4.016	23,416	20,261	9.911	12	M12 x 80	105	13
4 7/16	4.438	6.496	3.543	4.016	27,709	22,205	11.154	14	M12 x 80	105	16
4 1/2	4.500	6.496	3.543	4.016	28,099	22,205	11.154	14	M12 x 80	105	16
4 3/4	4.750	6.496	3.543	4.016	29,660	22,205	11.154	14	M12 x 80	105	14
4 15/16	4.938	7.087	4.094	4.567	36,260	19,949	11.411	12	M14 x 90	166	21
5	5.000	7.087	4.094	4.567	36,719	19,949	11.411	12	M14 x 90	166	21
5 1/4	5.250	7.480	4.094	4.567	44,980	22,048	12.785	14	M14 x 90	166	24
5 7/16	5.438	7.480	4.094	4.567	46,587	22,048	12.785	14	M14 x 90	166	22
5 1/2	5.500	7.480	4.094	4.567	47,122	22,048	12.785	14	M14 x 90	166	21
5 3/4	5.750	7.874	4.094	4.567	52,783	22,442	13.615	15	M14 x 90	166	24
5 15/16	5.938	7.874	4.094	4.567	54,504	22,442	13.615	15	M14 x 90	166	22
6	6.000	8.268	4.094	4.567	58,750	22,798	14.448	16	M14 x 90	166	26
6 7/16	6.438	8.858	5.276	5.866	76,654	19,760	14.189	14	M16 x 110	257	40
6 1/2	6.500	8.858	5.276	5.866	77,398	19,760	14.189	14	M16 x 110	257	39
6 15/16	6.938	9.252	5.276	5.866	88,508	20,271	15.031	15	M16 x 110	257	40
7	7.000	9.252	5.276	5.866	89,305	20,271	15.031	15	M16 x 110	257	38
7 1/4	7.250	9.843	5.276	5.866	98,661	20,325	16.014	16	M16 x 110	257	47
7 7/16	7.438	9.843	5.276	5.866	101,212	20,325	16.014	16	M16 x 110	257	44
7 1/2	7.500	9.843	5.276	5.866	102,063	20,325	16.014	16	M16 x 110	257	43
7 3/4	7.750	10.236	5.276	5.866	105,465	19,543	16.299	16	M16 x 110	257	48
7 15/16	7.938	10.236	5.276	5.866	108,017	19,543	16.299	16	M16 x 110	257	45
8	8.000	10.236	5.276	5.866	108,867	19,543	16.299	16	M16 x 110	257	44

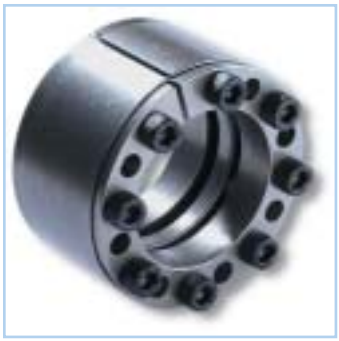
*Required hub OD for 1045 h.r. steel hub assuming 45 ksi Yield Point and Stress Reduction Factor C=1 (see Page 24 for details)

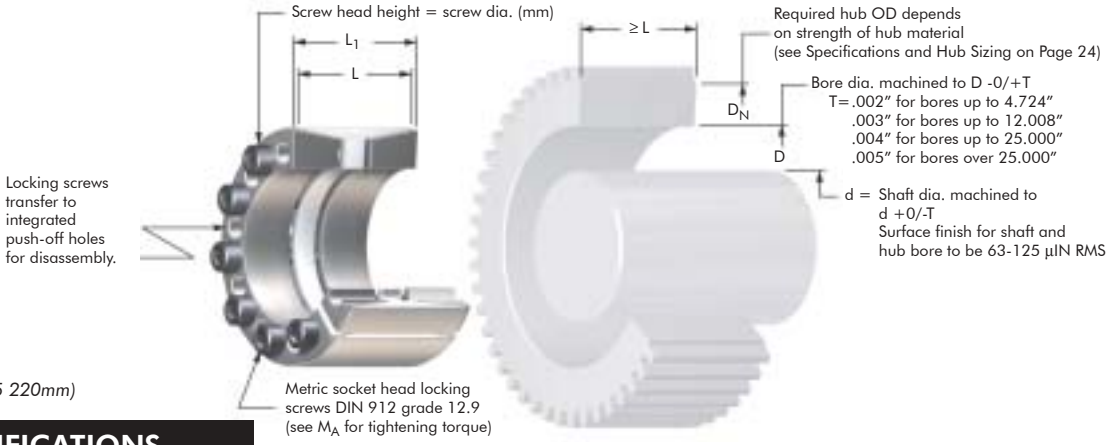
Possible design configurations





B115 MEDIUM DUTY SERIES





Ordering Information:
Specify series & shaft size
(e.g., Locking Assembly Series B115 220mm)

B115 METRIC SPECIFICATIONS

Size	d	D	(Relaxed) L	(Relaxed) L_1	M_t (ft-lbs)	p_H (psi)	D_N*	Qty.	Locking Screws Size	M_A (ft-lbs)	Weight (lbs)
70 x 110	2.756	4.331	1.969	2.441	5,199	17,609	6.547	8	M10 x 50	60	5.0
80 x 120	3.150	4.724	1.969	2.441	7,427	20,177	7.655	10	M10 x 50	60	5.4
90 x 130	3.543	5.118	1.969	2.441	9,191	20,487	8.365	11	M10 x 50	60	6.0
100 x 145	3.937	5.709	2.362	2.835	13,516	20,260	9.272	10	M12 x 60	105	8.8
110 x 155	4.331	6.102	2.362	2.835	14,868	18,952	9.562	10	M12 x 60	105	9.5
120 x 165	4.724	6.496	2.362	2.835	17,842	19,584	10.355	11	M12 x 60	105	10
130 x 180	5.118	7.087	2.559	3.228	24,600	20,310	11.526	14	M12 x 70	105	14
140 x 190	5.512	7.480	2.559	3.228	28,384	20,615	12.270	15	M12 x 70	105	15
150 x 200	5.906	7.874	2.559	3.228	30,412	19,584	12.552	15	M12 x 70	105	16
160 x 210	6.299	8.268	2.559	3.228	34,602	19,895	13.293	16	M12 x 70	105	16
170 x 225	6.693	8.858	3.071	3.661	47,291	20,153	14.344	15	M14 x 80	166	23
180 x 235	7.087	9.252	3.071	3.661	50,073	19,296	14.633	15	M14 x 80	166	24
190 x 250	7.480	9.843	3.465	4.134	56,378	16,292	14.382	16	M14 x 80	166	31
200 x 260	7.874	10.236	3.465	4.134	66,764	17,624	15.482	18	M14 x 80	166	32
220 x 285	8.661	11.220	3.780	4.370	85,055	17,258	16.809	15	M16 x 90	257	42
240 x 305	9.449	12.008	3.780	4.370	123,717	21,502	20.201	20	M16 x 90	257	45
260 x 325	10.236	12.795	3.780	4.370	140,728	21,188	21.333	21	M16 x 90	257	48
280 x 355	11.024	13.976	3.780	4.370	168,979	23,335	24.822	15	M20 x 90	500	61
300 x 375	11.811	14.764	3.780	4.370	181,049	22,091	25.265	15	M20 x 90	500	66
320 x 405	12.598	15.945	4.882	5.354	257,492	21,591	26.893	20	M20 x 110	500	106
340 x 425	13.386	16.732	4.882	5.354	273,586	20,575	27.416	20	M20 x 110	500	112
360 x 455	14.173	17.913	5.512	6.299	360,590	19,138	28.210	20	M22 x 130	675	152
380 x 475	14.961	18.701	5.512	6.299	380,623	18,332	28.819	20	M22 x 130	675	161
400 x 495	15.748	19.488	5.512	6.299	440,721	19,351	30.868	22	M22 x 130	675	167
420 x 515	16.535	20.276	5.512	6.299	504,826	20,290	32.958	24	M22 x 130	675	176
440 x 535	17.323	21.063	5.512	6.299	528,865	19,532	33.528	24	M22 x 130	675	179
460 x 555	18.110	21.850	5.512	6.299	552,904	18,828	34.123	24	M22 x 130	675	187
480 x 575	18.898	22.638	5.512	6.299	600,983	18,930	35.450	25	M22 x 130	675	194
500 x 595	19.685	23.425	5.512	6.299	626,024	18,294	36.063	25	M22 x 130	675	200
520 x 615	20.472	24.213	5.512	6.299	729,193	19,823	38.851	28	M22 x 130	675	209
540 x 635	21.260	25.000	5.512	6.299	757,239	19,198	39.435	28	M22 x 130	675	216
560 x 655	22.047	25.787	5.512	6.299	841,376	19,942	41.514	30	M22 x 130	675	222
580 x 675	22.835	26.575	5.512	6.299	871,425	19,351	42.093	30	M22 x 130	675	229
600 x 695	23.622	27.362	5.512	6.299	901,475	18,794	42.691	30	M22 x 130	675	238

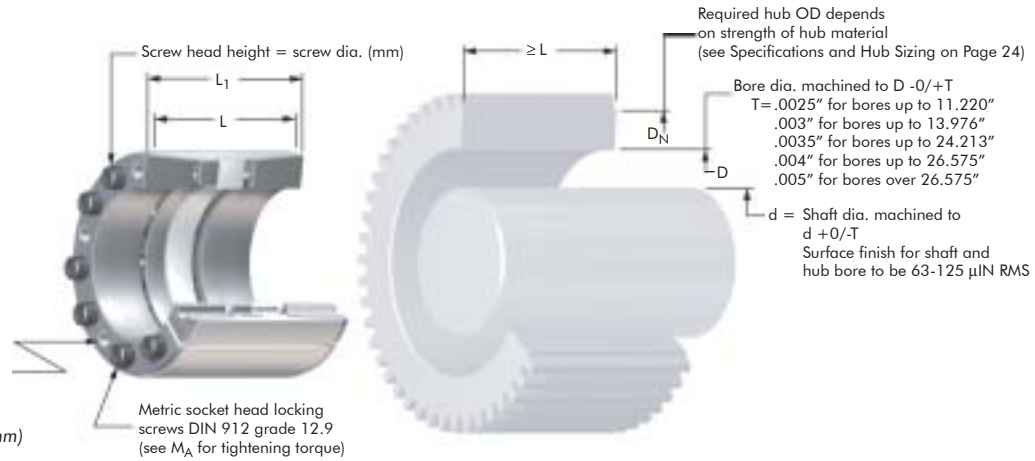
B115 INCH SPECIFICATIONS

Size	d	D	(Relaxed) L	(Relaxed) L_1	M_t (ft-lbs)	p_H (psi)	D_N*	Qty.	Size	M_A (ft-lbs)	Weight (lbs)
2 3/4	2.750	4.331	1.969	2.441	5,188	17,609	6.547	8	M10 x 50	60	5.0
2 15/16	2.938	4.528	1.969	2.441	5,541	16,841	6.710	8	M10 x 50	60	5.4
3 7/16	3.438	5.118	1.969	2.441	8,916	20,487	8.365	11	M10 x 50	60	6.5
3 1/2	3.500	5.118	1.969	2.441	9,078	20,487	8.365	11	M10 x 50	60	6.2
3 15/16	3.938	5.709	2.362	2.835	13,518	20,260	9.272	10	M12 x 60	105	9.0
4 7/16	4.438	6.496	2.362	2.835	16,758	19,584	10.355	11	M12 x 60	105	12
4 1/2	4.500	6.496	2.362	2.835	16,994	19,584	10.355	11	M12 x 60	105	11
4 15/16	4.938	7.087	2.559	3.228	23,732	20,308	11.526	14	M12 x 70	105	15
5	5.000	7.087	2.559	3.228	24,032	20,308	11.526	14	M12 x 70	105	15
5 7/16	5.438	7.480	2.559	3.228	28,002	20,616	12.270	15	M12 x 70	105	15
5 15/16	5.938	7.874	2.559	3.228	30,576	19,584	12.552	15	M12 x 70	105	16
6	6.000	8.268	2.559	3.228	32,958	19,895	13.293	16	M12 x 70	105	19
6 7/16	6.438	8.858	3.071	3.661	45,486	20,153	14.344	15	M14 x 80	166	25
6 15/16	6.938	9.252	3.071	3.661	49,019	19,296	14.633	15	M14 x 80	166	25
7 15/16	7.938	10.236	3.465	4.134	67,302	17,624	15.482	18	M14 x 80	166	31
8	8.000	10.236	3.465	4.134	67,832	17,624	15.482	18	M14 x 80	166	32

*Required hub OD for 1045 h.r. steel hub assuming 45 ksi Yield Point and Stress Reduction Factor C=1 (see Page 24 for details)

B113 EXTRA HEAVY DUTY SERIES





Ordering Information:
Specify series & shaft size
(e.g., Locking Assembly Series B113 360mm)

B113 METRIC SPECIFICATIONS

Size	d	D	(Relaxed) L	(Relaxed) L_1	M_t (ft-lbs)	p_H (psi)	D_N*	Qty.	Size	M_A (ft-lbs)	Weight (lbs)
180 x 285	7.087	11.220	8.071	9.016	163,972	20,092	18.138	14	M22 x 180	675	136
200 x 305	7.874	12.008	8.071	9.016	208,207	21,455	20.174	16	M22 x 180	675	147
220 x 325	8.661	12.795	8.071	9.016	229,017	20,135	20.709	16	M22 x 180	675	160
240 x 355	9.449	13.976	8.189	9.370	288,534	20,785	23.036	16	M24 x 180	870	193
260 x 375	10.236	14.764	8.189	9.370	351,636	22,135	25.299	18	M24 x 180	870	206
280 x 405	11.024	15.945	8.189	9.370	420,785	22,773	27.843	20	M24 x 180	870	242
300 x 425	11.811	16.732	8.189	9.370	450,825	21,702	28.311	20	M24 x 180	870	257
320 x 455	12.598	17.913	9.843	11.024	569,197	20,393	29.201	18	M27 x 220	1,300	356
340 x 475	13.386	18.701	9.843	11.024	672,000	21,704	31.645	20	M27 x 220	1,300	374
360 x 495	14.173	19.488	9.843	11.024	782,660	22,910	34.170	22	M27 x 220	1,300	391
380 x 515	14.961	20.276	9.843	11.024	826,175	22,020	34.626	22	M27 x 220	1,300	411
400 x 535	15.748	21.063	9.843	11.024	869,634	21,197	35.126	22	M27 x 220	1,300	423
420 x 555	16.535	21.850	9.843	11.024	996,103	22,291	37.613	24	M27 x 220	1,300	446
440 x 575	17.323	22.638	9.843	11.024	1,043,573	21,515	38.098	24	M27 x 220	1,300	464
460 x 595	18.110	23.425	9.843	11.024	1,090,984	20,792	38.618	24	M27 x 220	1,300	484
480 x 615	18.898	24.213	9.843	11.024	1,328,197	23,468	43.177	28	M27 x 220	1,300	501
500 x 635	19.685	25.000	9.843	11.024	1,383,509	22,730	43.598	28	M27 x 220	1,300	513
520 x 655	20.472	25.787	9.843	11.024	1,438,822	22,036	44.058	28	M27 x 220	1,300	539
540 x 675	21.260	26.575	9.843	11.024	1,600,933	22,910	46.595	30	M27 x 220	1,300	554
560 x 695	22.047	27.362	9.843	11.024	1,660,196	22,251	47.045	30	M27 x 220	1,300	574

*Required hub OD for 1045 h.r. steel hub assuming 45 ksi Yield Point and Stress Reduction Factor C=1 (see Page 24 for details)

LOCKING ASSEMBLY CONNECTIONS WITH SHAFT-ADAPTOR SLEEVES:

In applications where an existing shaft diameter does not fit the bore of a standard B-LOC Locking Assembly, we recommend using an ***adaptor sleeve*** sized to facilitate the use of a standard sized Locking Assembly and the existing shaft. The maximum wall thickness of an adaptor sleeve should be approximately 10% of the shaft diameter. The minimum thickness will depend upon the machining process.

It is important to note that in order to maximize the torque capacity of a sleeved Locking Assembly connection, the shaft/sleeve bore interface should be free of any lubricant, resulting in a coefficient of friction $\mu = 0.15$ and making the sleeve OD/Locking Assembly bore the point of lowest torque capacity (provided the sleeve OD is less than 1.25 times the shaft diameter). This facilitates full use of the larger Locking Assembly's higher torque capacity.



Notes:

1. Sleeve ID = d_s -0/+.001" where d_s = shaft dia.
2. Sleeve OD = d +0/-T for Locking Assembly to be used.
3. Install DRY at shaft/sleeve bore interface for coefficient of friction μ =0.15.
4. Torque capacity at sleeve OD = M_t for Locking Assembly to be used.
5. Torque capacity on shaft $= M_t \times \frac{d_s}{d} \times 1.25$.
6. Sleeve to be manufactured with one lengthwise slit (after machining) and from material equal to or better than shaft material.
7. Sleeve can be installed over existing keyway; position slit approximately opposite keyway.

HUB SIZING

B-LOC™ Locking Assemblies transmit torque and other loads by means of mechanical interference generated by pressure exerted on both the shaft and hub, meaning that consideration must be given to the amount of hub material required to prevent permanent expansion (i.e., yielding). The following information is provided to assist you in determining the required hub OD for any Locking Assembly application.

Using the stress equations presented at right, the required hub OD "D_N" is determined as follows:

$$D_N = D \sqrt{\frac{Y.P. + (p_H \times C)}{Y.P. - (p_H \times C)}}$$

where D = hub bore (inches) from specification tables, and . . .

p_H = contact pressure (psi) applied to hub bore from specification tables

Y.P. = yield point (psi) of hub material (see below)

C = Stress Reduction Factor, considering the relationship of actual hub width "B" (as determined by customer) to Locking Assembly contact length "L" (per specification tables), determined as follows (assumes locking assembly collar in contact with hub bore is centered in hub):

For Series B103, B106, B109, B400 and B800

C = 1.0 for B = L
C = 0.8 for B = 1.5 x L
C = 0.6 for B = 2.0 x L

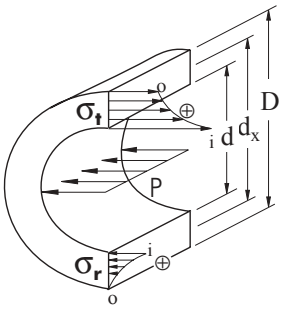
For Series B112, B113 and B115

C = 1.0 for B = L
C = 0.8 for B = 1.25 x L
C = 0.6 for B = 1.50 x L

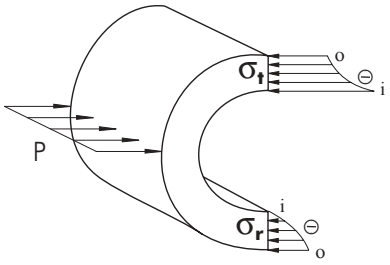
This equation can also be expressed as D_N=DK, where K represents the expression $\sqrt{\frac{Y.P. + (p_H \times C)}{Y.P. - (p_H \times C)}}$.

The table at right provides these "K" factors for various combinations of Y.P., p_H, and C. To use the table, determine the Yield Point (in psi) of your hub material, find the p_H value for the Locking Assembly you've selected from the appropriate specification table (round up to the nearest 1,000 psi), and determine the value of C based on your component's length-thru-bore (LTB). Then, find the K factor from the table and multiply by the Locking Assembly OD to calculate the minimum required hub OD for your application.

THICK WALLED CYLINDER SUBJECTED TO INTERNAL PRESSURE



THICK WALLED CYLINDER SUBJECTED TO EXTERNAL PRESSURE



TANGENTIAL STRESSES "σ_t"

$$\sigma_{tx} = P\frac{Q}{1-Q}\left[1+\frac{D_o^2}{d_x^2}\right] \qquad \sigma_{tx} = -\frac{P}{1-Q}\left[1+\frac{d_i^2}{d_x^2}\right]$$

$$\sigma_{ti} = P\frac{1+Q}{1-Q} \qquad \sigma_{ti} = -\frac{2P}{1-Q}$$

$$\sigma_{to} = 2P\frac{Q}{1-Q} \qquad \sigma_{to} = -P\frac{1+Q}{1-Q}$$

RADIAL STRESSES "σ_r"

$$\sigma_{rx} = P\frac{Q}{1-Q}\left[1-\frac{D_o^2}{d_x^2}\right] \qquad \sigma_{rx} = -\frac{P}{1-Q}\left[1-\frac{d_i^2}{d_x^2}\right]$$

$$\sigma_{ri} = -P \qquad \sigma_{ri} = 0$$

$$\sigma_{ro} = 0 \qquad \sigma_{ro} = -P$$

EXPANSION/CONTRACTION

$$\Delta d_i = Pd_i\,\frac{(v+1)+(v-1)*Q}{vE(1-Q)} \qquad \Delta d_i = 2P\,\frac{d_i}{E(1-Q)}$$

$$\Delta D_o = 2P\,\frac{D_o Q}{E(1-Q)} \qquad \Delta D_o = PD_o\,\frac{(v-1)+(v+1)*Q}{vE(1-Q)}$$

COMBINED HUB STRESSES IN SHRINK DISC APPLICATIONS "σ_v"

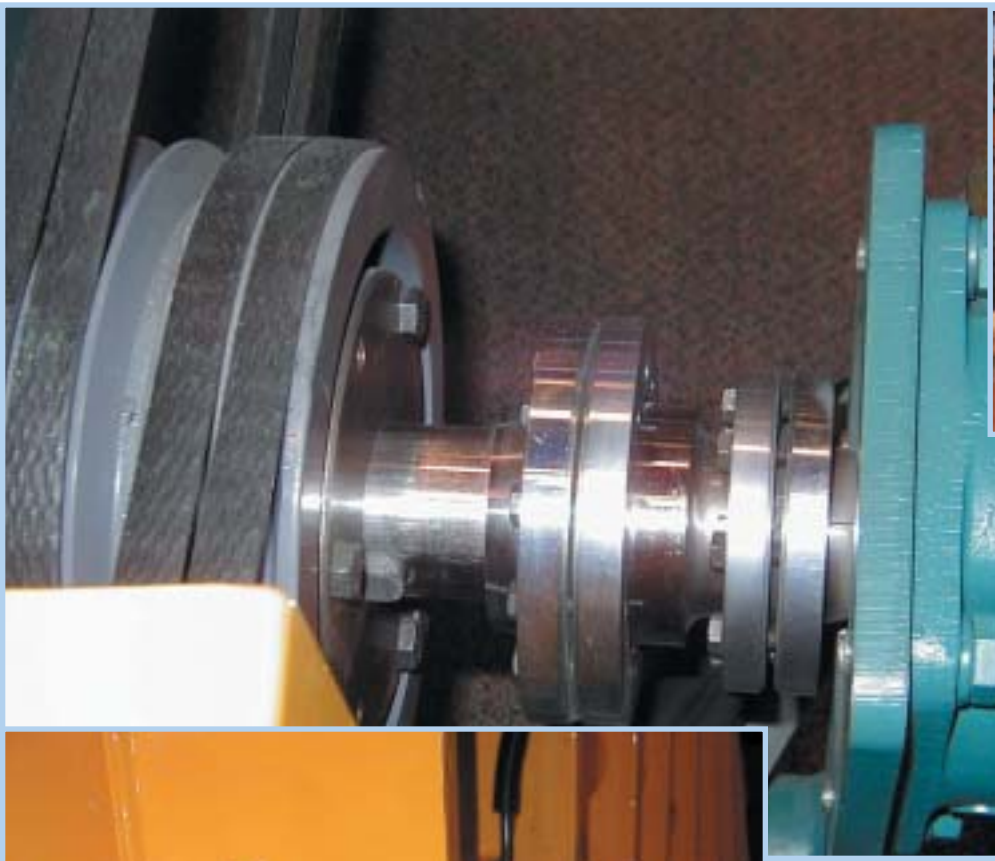
$$\sigma_v = \sqrt{\sigma_t^2 + \sigma_r^2 - (\sigma_t * \sigma_r) + \tau^2}$$

KEY

i = inside of hub
o = outside of hub
v = poisson's ratio (.3003 for steel)
E = modulus of elasticity (30x10⁶ for steel)
P = pressure (psi)
τ = torsional hub stress

$$Q = \left(\frac{d}{D}\right)^2$$

PRESSURE EXERTED ON HUB (psi)	"K" FACTORS FOR HUB MATERIAL WITH Y.P. EQUAL TO									
	32,000 psi			45,000 psi			90,000 psi			
	C =	0.6	0.8	1.0	0.6	0.8	1.0	0.6	0.8	1.0
	7,000	1.14	1.19	1.25	1.10	1.13	1.17	1.05	1.06	1.08
	8,000	1.16	1.22	1.29	1.11	1.15	1.20	1.05	1.07	1.09
	9,000	1.19	1.26	1.34	1.13	1.18	1.22	1.06	1.08	1.11
	10,000	1.21	1.29	1.38	1.14	1.20	1.25	1.07	1.09	1.12
	11,000	1.23	1.33	1.43	1.16	1.22	1.28	1.08	1.10	1.13
	12,000	1.26	1.36	1.48	1.18	1.24	1.31	1.08	1.11	1.14
	13,000	1.28	1.40	1.54	1.19	1.27	1.35	1.09	1.12	1.16
	14,000	1.31	1.44	1.60	1.21	1.29	1.38	1.10	1.13	1.17
	15,000	1.34	1.48	1.66	1.22	1.31	1.41	1.11	1.14	1.18
	16,000	1.36	1.53	1.73	1.24	1.34	1.45	1.11	1.15	1.20
	17,000	1.39	1.57	1.81	1.26	1.37	1.49	1.12	1.16	1.21
	18,000	1.42	1.62	1.89	1.28	1.39	1.53	1.13	1.18	1.22
	19,000	1.45	1.68	1.98	1.30	1.42	1.57	1.14	1.19	1.24
	20,000	1.48	1.73	2.08	1.31	1.45	1.61	1.14	1.20	1.25
	21,000	1.52	1.79	2.20	1.33	1.48	1.66	1.15	1.21	1.27
	22,000	1.55	1.86	2.32	1.35	1.51	1.71	1.16	1.22	1.28
	23,000	1.59	1.93	2.47	1.37	1.54	1.76	1.17	1.23	1.30
	24,000	1.62	2.00	2.65	1.39	1.58	1.81	1.18	1.24	1.31
	25,000	1.66	2.08	2.85	1.41	1.61	1.87	1.18	1.25	1.33

















B-LOC EXTERNAL DEVICES:
SHRINK DISCS & WK SERIES RIGID SHAFT COUPLINGS

DESIGN FEATURES

External locking devices for keyless frictional shaft/hub connections on shafts from 5/8" to 40" diameter, B-LOC Shrink Discs . . .

- Provide a high capacity interference fit with all the positive features of conventional interference fits, but without their assembly and dismounting problems.
- Offer extremely concentric and well-balanced connections, ideal for high-speed applications.
- Permit simple axial and angular timing.
- Are available in standard, light, and heavy-duty series to suit any application.

WORKING PRINCIPLE

The double tapered inner ring of a B-LOC Shrink Disc provides a high-ratio conversion of screw clamp loads into radial contact pressures when the outer collars are pulled together by tightening of the integrated high-strength locking screws. These radial contact pressures in turn accomplish the following:

1. Contract the inner ring and hub to bridge the clearance between shaft and hub bore.

2. Generate a defined shaft/hub contact pressure for a high capacity mechanical interference fit.

This frictional bond transmits torque, bending and/or thrust loads directly from the hub to the shaft; the Shrink Disc itself does not carry any torque or thrust load.

TORQUE

M_t = rated torque capacity of (1) B-LOC Shrink Disc with all screws tightened to specified torque M_A as listed in specifications, based on a coefficient of friction $\mu = 0.15$ and specified tolerances and clearances. Torque capacities for Half Shrink Discs = $M_t / 2$.

- Torque capacities for connections using shaft diameters between the minimum and maximum sizes listed can be approximated through interpolation.

- Transmissible torque decreases if tolerances and/or clearances are larger than specified; or if hollow shafts with bores exceeding 35% of shaft diameter are used.

THRUST

F_{ax} = transmissable thrust, determined by using the following equation:

$F_{ax} = \frac{24 \times M_t}{d}$, where d = shaft diameter (in)

TORQUE AND THRUST COMBINED

Simultaneous transmission of torque and thrust requires calculating a resultant torque:

$M_{tres} = \sqrt{T^2 + (F \times D / 2)^2}$, where:

T = peak drive torque (ft-lbs)
F = peak thrust load (lbs)
D = shaft diameter (ft)

Select a unit where $M_t \geq M_{tres}$.

BENDING MOMENTS

Shrink Discs will generally transmit a continuous bending moment equal to 25% of rated torque capacity M_t.

RELEASEABILITY

Since the tapers of a B-LOC Shrink Disc are self-releasing and stresses from radial contractions of the hub are well within elastic limits, relaxing of the locking screws results in hub expansion back to its original dimensions, thereby restoring fit clearance for simple disassembly.

MATERIAL

Shrink Disc inner rings are manufactured from high-carbon steel. Outer rings are made from forged and heat treated alloy steel.

LUBRICANTS

Shrink Discs are supplied with Molybdenum Disulphide based lubricant applied to the tapers and to the locking screw threads and head contact areas.

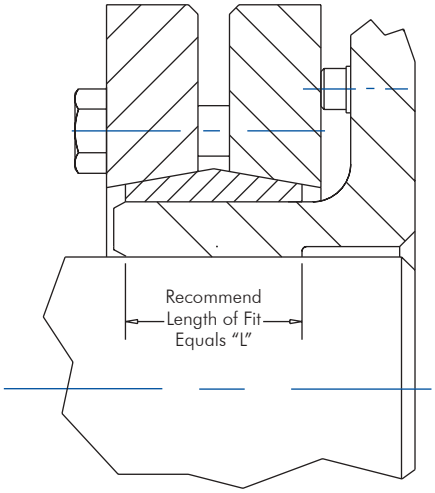
SHAFT AND HUB MATERIAL

Listed specifications assume shaft and hub material with a yield point of at least 45,000 psi. Cast iron hubs are well suited for compressive stresses exerted by B-LOC Shrink Discs. However, a lower torsional hub strength generally requires the selection of a Shrink Disc at least one size larger than listed if full torque (i.e., that applicable to a steel hub) is to be transmitted.

LENGTH OF FIT

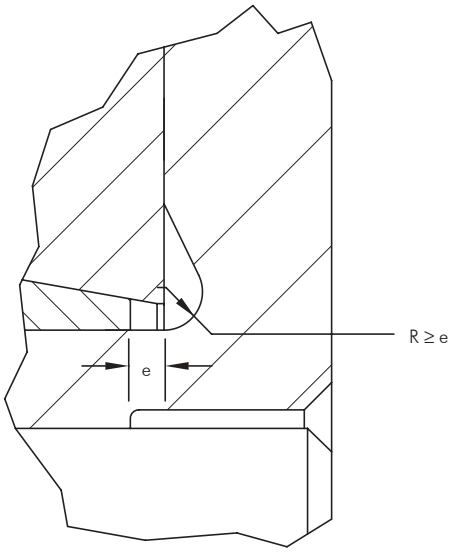
The most recent research on length of fit for a Shrink Disc connection* indicates that the hub bore-to-shaft interface should be relieved using a non-toleranced clearance except for that portion directly under the Shrink Disc inner ring, for a fit length equal to "L" for a standard Shrink Disc (see illustration at right). This approach eliminates fretting corrosion between shaft and hub which can make the separation of components difficult.

*(see Casper, Thomas:
Reibkorrosionsverhalten von Spanelementverbindungen -
Aachen: Mainz, 1999)



LOCATING AGAINST HUB FACE

In applications subjected to reversing bending moments, we recommend the configuration at right which requires a hub undercut where R ≥ e for smooth transition.

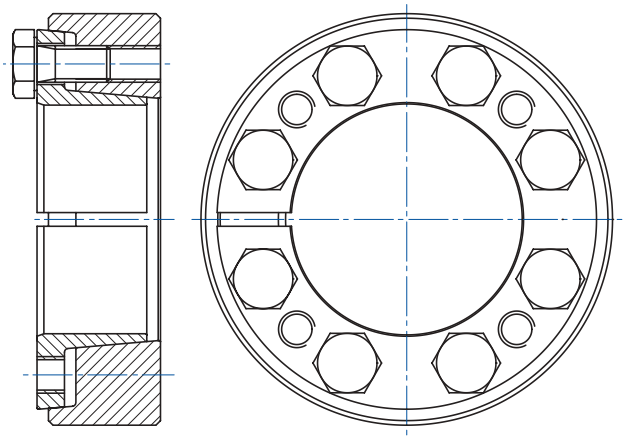


REGARDING SINGLE TAPER SHRINK DISCS

We generally do not advocate this design due to the following limitations:

- Reduced effective contact length results in significantly higher dynamic fit pressures in applications with bending moments
- Shallow taper angle means units are not self-releasing; removal can be difficult

We offer Single Taper Shrink Discs only upon request.

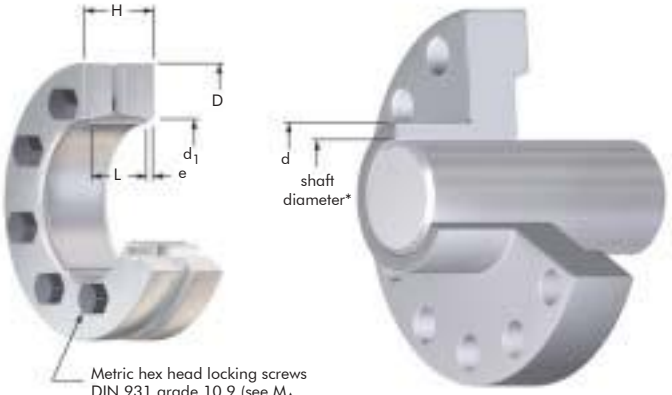


SHRINK DISCS

STANDARD, LIGHT, AND HEAVY DUTY EXTERNAL LOCKING DEVICES



Shaft Sizes		Maximum Diametrical Clearance Between Shaft and Hub Bore
Over	To and Including	
	1 1/8	0.0010
1 1/8	1 15/16	0.0015
1 15/16	4 3/4	0.0020
4 3/4	7	0.0030
7	10	0.0040
10	14	0.0050
14		0.0060



Standard Shrink Disc

*See table at left for maximum diametrical clearance between shaft and hub bore. Surface finish for shaft and bore, as well as for hub OD, to be 63-125 µIN RMS.

SD SERIES 10 SPECIFICATIONS — STANDARD DUTY

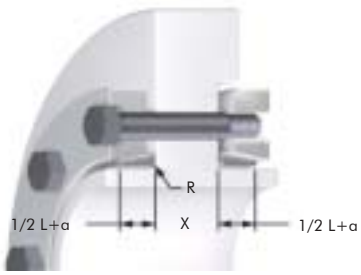
Size	(Shrink Disc bore/hub OD) d	Hub OD tolerance	Shaft Diameter Range min	max	M_t (ft-lbs) for min. shaft	max. shaft	Locking Screws Qty.	Size	M_A (ft-lbs)	Bolt Circle Dia.	(Relaxed) D	L	H	e	d_1	a	R	Weight (lbs)
24-10	0.945	+ 0 / - 0.002	0.625	0.774	139	279	6	M5 x 16	3.6	1.417	1.97	0.551	0.71	0.078	1.023	0.098	1/16	0.5
30-10	1.181	+ 0 / - 0.002	0.750	0.967	178	409	7	M5 x 18	3.6	1.732	2.36	0.629	0.79	0.078	1.259	0.098	1/16	0.7
36-10	1.417	+ 0 / - 0.002	0.875	1.161	321	678	5	M6 x 20	8.7	2.047	2.83	0.700	0.87	0.078	1.496	0.098	1/16	0.9
44-10	1.732	+ 0 / - 0.002	1.125	1.419	700	1,220	7	M6 x 20	8.7	2.402	3.15	0.787	0.94	0.078	1.850	0.098	1/16	1.4
50-10	1.969	+ 0 / - 0.002	1.375	1.613	990	1,600	8	M6 x 22	8.7	2.756	3.54	0.866	1.02	0.078	2.086	0.098	1/16	1.8
55-10	2.165	+ 0 / - 0.002	1.500	1.773	1,040	1,740	8	M6 x 25	8.7	2.953	3.94	0.905	1.14	0.118	2.283	0.098	3/32	2.4
62-10	2.441	+ 0 / - 0.002	1.750	1.999	1,750	2,420	10	M6 x 25	8.7	3.386	4.33	0.905	1.14	0.118	2.598	0.098	3/32	2.9
68-10	2.677	+ 0 / - 0.002	1.875	2.192	1,800	2,650	10	M6 x 25	8.7	3.386	4.53	0.905	1.14	0.118	2.834	0.098	3/32	3.0
75-10	2.953	+ 0 / - 0.002	2.125	2.419	2,810	4,090	7	M8 x 25	22	3.937	5.43	0.984	1.22	0.118	3.110	0.197	1/8	3.8
80-10	3.150	+ 0 / - 0.002	2.375	2.580	3,440	4,360	7	M8 x 25	22	3.937	5.71	0.984	1.22	0.118	3.307	0.197	1/8	4.2
90-10	3.543	+ 0 / - 0.004	2.500	2.902	4,780	7,180	10	M8 x 30	22	4.488	6.10	1.181	1.49	0.157	3.700	0.197	1/8	7.3
100-10	3.937	+ 0 / - 0.004	2.875	3.224	7,100	9,640	12	M8 x 35	22	4.882	6.69	1.338	1.69	0.177	4.094	0.197	1/8	10
110-10	4.331	+ 0 / - 0.004	3.125	3.547	8,880	12,430	9	M10 x 40	44	5.354	7.28	1.535	1.93	0.197	4.488	0.197	1/8	13
125-10	4.921	+ 0 / - 0.004	3.500	4.030	13,510	19,260	12	M10 x 40	44	6.299	8.46	1.653	2.04	0.197	5.275	0.197	1/8	18
140-10	5.512	+ 0 / - 0.004	4.000	4.514	19,550	26,310	10	M12 x 45	74	6.890	9.06	1.811	2.28	0.236	5.708	0.197	3/16	23
155-10	6.102	+ 0 / - 0.004	4.500	4.998	27,380	33,880	12	M12 x 50	74	7.559	10.36	1.968	2.44	0.236	6.496	0.197	3/16	31
165-10	6.496	+ 0 / - 0.004	4.875	5.320	37,530	46,890	8	M16 x 55	185	8.268	11.42	2.204	2.67	0.236	6.889	0.197	3/16	49
175-10	6.890	+ 0 / - 0.004	5.250	5.643	41,390	49,740	8	M16 x 55	185	8.661	11.81	2.204	2.67	0.236	7.283	0.197	3/16	50
185-10	7.283	+ 0 / - 0.004	5.625	5.965	56,500	65,630	10	M16 x 65	185	9.291	12.99	2.795	3.34	0.236	7.677	0.197	3/16	82
195-10	7.677	+ 0 / - 0.004	5.875	6.287	71,530	84,460	12	M16 x 65	185	9.685	13.78	2.795	3.34	0.236	8.110	0.197	3/16	91
200-10	7.874	+ 0 / - 0.004	6.250	6.449	80,250	86,650	12	M16 x 65	185	9.685	13.78	2.795	3.34	0.236	8.110	0.197	3/16	90
220-10	8.661	+ 0 / - 0.004	6.375	7.093	91,740	115,770	15	M16 x 75	185	10.630	14.57	3.464	4.06	0.315	8.897	0.295	1/4	119
240-10	9.449	+ 0 / - 0.004	7.000	7.739	130,080	161,120	12	M20 x 80	362	11.614	15.95	3.622	4.22	0.315	9.763	0.295	1/4	148
260-10	10.236	+ 0 / - 0.004	7.625	8.383	161,480	204,390	14	M20 x 90	362	12.638	16.93	4.055	4.69	0.315	10.511	0.295	1/4	181
280-10	11.024	+ 0 / - 0.005	8.375	9.029	209,640	252,360	16	M20 x 100	362	13.622	18.11	4.488	5.20	0.354	11.338	0.394	5/16	225
300-10	11.811	+ 0 / - 0.005	9.000	9.673	256,150	305,450	18	M20 x 100	362	14.331	19.10	4.803	5.52	0.354	12.125	0.394	5/16	260
320-10	12.598	+ 0 / - 0.005	9.625	10.318	309,170	358,200	20	M20 x 100	362	15.197	20.48	4.803	5.52	0.354	12.913	0.394	5/16	288
340-10	13.386	+ 0 / - 0.005	10.250	10.963	390,360	460,420	24	M20 x 110	362	16.063	22.44	5.276	6.14	0.394	13.700	0.394	5/16	409
350-10	13.780	+ 0 / - 0.005	10.875	11.286	430,780	472,150	24	M20 x 110	362	17.008	22.84	5.511	6.30	0.394	14.488	0.394	5/16	429
360-10	14.173	+ 0 / - 0.005	11.250	11.608	449,460	485,630	24	M20 x 110	362	17.008	23.23	5.511	6.30	0.394	14.488	0.394	5/16	449
380-10	14.961	+ 0 / - 0.005	11.500	12.253	534,650	622,650	20	M24 x 120	620	18.031	25.40	5.669	6.46	0.394	15.276	0.394	5/16	526
390-10	15.354	+ 0 / - 0.005	12.250	12.575	632,820	673,460	21	M24 x 120	620	18.425	25.99	5.669	6.46	0.394	15.629	0.492	3/8	572
420-10	16.535	+ 0 / - 0.006	12.500	13.542	685,090	829,050	24	M24 x 130	620	19.843	27.17	6.456	7.25	0.394	16.929	0.492	3/8	630
440-10	17.323	+ 0 / - 0.006	13.500	14.188	768,260	852,150	24	M24 x 130	620	20.748	29.53	6.771	7.56	0.394	17.716	0.492	3/8	835
460-10	18.110	+ 0 / - 0.006	14.125	14.832	936,240	1,053,240	28	M24 x 130	620	21.535	30.32	6.771	7.56	0.394	18.425	0.492	3/8	924
480-10	18.898	+ 0 / - 0.006	14.750	15.477	1,046,400	1,175,610	30	M24 x 150	620	22.441	31.50	7.401	8.39	0.492	19.291	0.591	1/2	1,110
500-10	19.685	+ 0 / - 0.006	15.375	16.122	1,167,170	1,307,490	24	M27 x 150	922	23.228	33.46	7.401	8.39	0.492	19.999	0.591	1/2	1,265

Notes:

1. Inner Rings of all Shrink Discs are supplied with (1) lengthwise slit
2. Shrink Discs are available for shafts up to 40" dia. and in a variety of special designs.
3. Max. shaft sizes listed for Series 10 and Series 30 Shrink Discs reflect equal section moduli of shaft and hub (max. shaft dia. = $\frac{d}{1.221}$)

Specifications for Web Clearance Holes (diameter in inches)									
Screw Size	M5	M6	M8	M10	M12	M16	M20	M24	M27
Split Shrink Disc	0.281	0.328	0.406	0.500	0.594	0.750	0.906	1.063	1.188
Half Shrink Disc HT	0.219	0.266	0.359	0.438	0.531	0.719	0.875	1.031	1.156

Ordering Information:
Specify series & size when ordering (e.g., Shrink Disc 125-10). Add the suffix "Split" or "Half", along with the web thickness "X" if a Split Shrink Disc or Half Shrink Disc Type HT is required. (See table at bottom of facing page for web clearance hole data.)



Split Shrink Disc



Half Shrink Disc Type HT



Half Shrink Disc Type HC

SD SERIES 20 SPECIFICATIONS — LIGHT DUTY

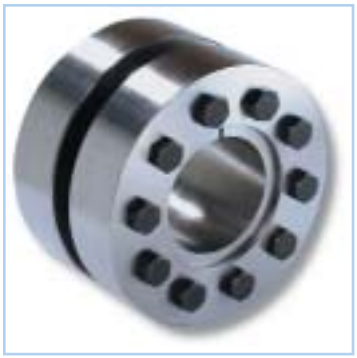
Size	(Shrink Disc bore/hub OD) d	Hub OD tolerance	Shaft Diameter Range min	max	Mt (ft-lbs) for min. shaft	max. shaft	Locking Screws Qty.	Size	M_A (ft-lbs)	Bolt Circle Dia.	(Relaxed) D	L	H	e	d_1	a	R	Weight (lbs)
125-20	4.921	+ 0 / - 0.004	3.625	4.125	9,240	13,160	8	M10 x 40	44	6.220	7.48	1.535	2.05	0.236	5.118	0.197	1/8	13
140-20	5.512	+ 0 / - 0.004	4.250	5.000	15,240	22,460	10	M10 x 40	44	6.889	8.67	1.535	2.05	0.236	5.669	0.197	1/8	18
155-20	6.102	+ 0 / - 0.004	5.000	5.500	23,010	29,710	12	M10 x 40	44	7.559	9.65	1.535	2.05	0.236	6.259	0.197	1/8	22
165-20	6.496	+ 0 / - 0.004	5.375	5.750	30,500	36,500	10	M12 x 50	74	8.267	10.24	1.811	2.44	0.314	6.653	0.197	3/16	31
175-20	6.890	+ 0 / - 0.004	5.625	6.125	31,200	39,150	10	M12 x 50	74	8.661	10.83	1.811	2.44	0.314	7.047	0.197	3/16	35
185-20	7.283	+ 0 / - 0.004	6.000	6.500	41,440	50,790	12	M12 x 50	74	8.858	11.62	1.811	2.44	0.314	7.440	0.197	3/16	44
195-20	7.677	+ 0 / - 0.004	6.500	7.000	58,690	70,740	15	M12 x 60	74	9.330	12.40	2.204	2.84	0.314	7.834	0.197	3/16	60
220-20	8.661	+ 0 / - 0.004	7.000	7.875	76,060	100,400	10	M16 x 70	185	10.433	13.59	2.598	3.31	0.354	8.818	0.197	3/16	77
240-20	9.449	+ 0 / - 0.004	7.875	8.500	106,450	129,210	12	M16 x 70	185	11.417	14.57	2.598	3.31	0.354	9.606	0.295	1/4	97
260-20	10.236	+ 0 / - 0.004	8.625	9.250	139,180	165,750	12	M16 x 70	185	12.204	15.55	2.834	3.63	0.354	10.433	0.295	1/4	106
280-20	11.024	+ 0 / - 0.005	9.000	9.875	157,880	199,380	16	M16 x 75	185	13.110	16.74	3.307	4.10	0.393	11.220	0.295	1/4	132
300-20	11.811	+ 0 / - 0.005	9.875	10.625	204,180	241,460	18	M16 x 75	185	14.094	18.11	3.307	4.10	0.393	12.007	0.295	1/4	165
320-20	12.598	+ 0 / - 0.005	10.500	11.375	237,630	290,520	18	M16 x 75	185	14.881	19.49	3.307	4.18	0.433	12.795	0.295	1/4	185
340-20	13.386	+ 0 / - 0.005	11.375	12.000	279,490	319,180	20	M16 x 75	185	15.826	21.07	3.307	4.18	0.433	13.582	0.295	1/4	220
360-20	14.173	+ 0 / - 0.005	11.875	12.625	340,430	396,400	16	M20 x 90	362	16.653	21.85	3.937	4.81	0.433	14.370	0.394	5/16	275
380-20	14.961	+ 0 / - 0.005	12.500	13.000	401,610	442,760	18	M20 x 100	362	17.401	23.03	4.409	5.35	0.472	15.236	0.394	5/16	301
390-20	15.354	+ 0 / - 0.005	12.625	13.750	444,290	546,850	20	M20 x 100	362	17.795	23.43	4.409	5.36	0.472	15.629	0.394	5/16	344
420-20	16.535	+ 0 / - 0.006	13.750	14.625	488,970	562,970	20	M20 x 100	362	19.094	24.81	4.724	5.67	0.472	16.810	0.394	5/16	407
460-20	18.110	+ 0 / - 0.006	14.625	16.375	591,520	786,300	24	M20 x 110	362	20.747	26.97	5.196	6.22	0.511	18.425	0.492	3/8	517
500-20	19.685	+ 0 / - 0.006	16.250	17.375	856,450	1,010,750	30	M20 x 120	362	22.519	29.53	5.984	7.01	0.511	19.999	0.492	3/8	704

See Additional Notes under SD SERIES 10 Table

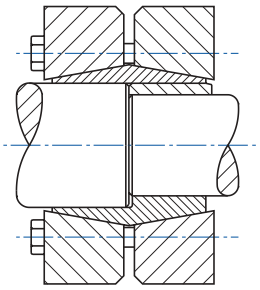
SD SERIES 30 SPECIFICATIONS — HEAVY DUTY

Size	(Shrink Disc bore/hub OD) d	Hub OD tolerance	Shaft Diameter Range min	max	M_t (ft-lbs) for min. shaft	max. shaft	Locking Screws Qty.	Size	M_A (ft-lbs)	Bolt Circle Dia.	(Relaxed) D	L	H	e	d_1	a	R	Weight (lbs)
44-30	1.732	+ 0 / - 0.002	1.125	1.419	950	1,670	5	M8 x 30	22	2.598	3.35	1.102	1.34	0.100	1.890	0.098	1/16	1.4
50-30	1.969	+ 0 / - 0.002	1.375	1.613	1,780	2,770	7	M8 x 35	22	2.874	3.74	1.181	1.54	0.180	2.126	0.098	1/16	1.8
55-30	2.165	+ 0 / - 0.002	1.500	1.773	1,910	3,040	7	M8 x 35	22	3.071	4.13	1.181	1.54	0.180	2.323	0.098	3/32	2.4
62-30	2.441	+ 0 / - 0.002	1.750	1.999	2,370	3,270	7	M8 x 35	22	3.346	4.53	1.181	1.54	0.180	2.598	0.098	3/32	2.9
68-30	2.677	+ 0 / - 0.002	1.875	2.192	2,880	4,190	8	M8 x 35	22	3.622	4.72	1.181	1.54	0.180	2.835	0.098	3/32	3.0
75-30	2.953	+ 0 / - 0.002	2.125	2.419	4,480	6,450	7	M10 x 40	44	4.134	5.71	1.417	1.81	0.200	3.307	0.197	1/8	3.8
80-30	3.150	+ 0 / - 0.002	2.375	2.580	5,460	6,870	7	M10 x 40	44	4.134	5.71	1.417	1.81	0.200	3.307	0.197	1/8	4.2
90-30	3.543	+ 0 / - 0.004	2.500	2.902	5,860	8,870	8	M10 x 40	44	4.567	6.30	1.575	1.97	0.200	3.701	0.197	1/8	7.3
100-30	3.937	+ 0 / - 0.004	2.875	3.224	9,230	12,520	10	M10 x 45	44	4.961	6.69	1.732	2.13	0.200	4.094	0.197	1/8	10
110-30	4.331	+ 0 / - 0.004	3.125	3.547	14,140	19,590	14	M10 x 45	44	5.354	7.28	2.126	2.60	0.236	4.482	0.197	1/8	17
125-30	4.921	+ 0 / - 0.004	3.500	4.030	19,990	28,240	12	M12 x 50	74	6.299	8.47	2.126	2.60	0.236	5.157	0.197	3/16	24
140-30	5.512	+ 0 / - 0.004	4.000	4.514	23,150	31,330	12	M12 x 60	74	6.889	9.06	2.362	2.92	0.275	5.744	0.197	3/16	29
155-30	6.102	+ 0 / - 0.004	4.500	4.998	33,980	42,060	15	M12 x 60	74	7.795	10.36	2.598	3.15	0.275	6.496	0.197	3/16	44
165-30	6.496	+ 0 / - 0.004	4.875	5.320	46,700	58,440	10	M16 x 70	185	8.267	11.42	2.834	3.47	0.314	6.940	0.197	3/16	57
175-30	6.890	+ 0 / - 0.004	5.250	5.643	51,520	61,990	10	M16 x 70	185	8.661	11.82	2.834	3.47	0.314	7.322	0.197	3/16	64
185-30	7.283	+ 0 / - 0.004	5.625	5.965	86,390	99,860	15	M16 x 80	185	9.291	12.99	3.622	4.41	0.393	7.704	0.197	3/16	104
195-30	7.677	+ 0 / - 0.004	5.875	6.287	89,010	105,230	15	M16 x 80	185	9.685	13.78	3.622	4.41	0.393	8.102	0.295	1/4	110
200-30	7.874	+ 0 / - 0.004	6.250	6.449	99,940	107,960	15	M16 x 80	185	9.685	13.78	3.622	4.41	0.393	8.102	0.295	1/4	110
220-30	8.661	+ 0 / - 0.004	6.375	7.093	122,800	154,880	20	M16 x 90	185	10.629	14.57	4.488	5.28	0.393	8.901	0.295	1/4	143
240-30	9.449	+ 0 / - 0.004	7.000	7.739	161,810	200,550	15	M20 x 100	362	11.614	15.95	4.724	5.67	0.472	9.692	0.295	1/4	192
260-30	10.236	+ 0 / - 0.005	7.625	8.383	206,810	262,130	18	M20 x 110	362	12.637	16.93	5.354	6.30	0.472	10.511	0.295	1/4	220
280-30	11.024	+ 0 / - 0.005	8.375	9.029	260,760	314,360	20	M20 x 120	362	13.622	18.11	5.826	6.77	0.472	11.370	0.394	5/16	291
300-30	11.811	+ 0 / - 0.005	9.000	9.673	280,480	335,900	20	M20 x 120	362	14.330	19.10	5.984	6.93	0.472	12.177	0.394	5/16	308
320-30	12.598	+ 0 / - 0.005	9.625	10.318	367,360	425,990	24	M20 x 120	362	15.196	20.48	6.299	7.25	0.472	12.964	0.394	5/16	363
340-30	13.386	+ 0 / - 0.005	10.250	10.963	462,660	547,470	20	M24 x 130	620	16.535	22.44	6.929	7.88	0.472	13.724	0.394	5/16	528
360-30	14.173	+ 0 / - 0.005	11.000	11.608	505,300	578,440	20	M24 x 140	620	17.007	23.23	7.086	8.04	0.472	14.515	0.492	3/8	550
390-30	15.354	+ 0 / - 0.005	11.625	12.575	628,570	761,590	24	M24 x 140	620	18.425	25.99	7.401	8.35	0.472	15.787	0.492	3/8	770
420-30	16.535	+ 0 / - 0.006	12.500	13.542	852,340	1,032,960	30	M24 x 160	620	19.842	27.17	8.425	9.37	0.472	16.811	0.492	3/8	902
460-30	18.110	+ 0 / - 0.006	13.625	14.832	1,142,170	1,401,060	28	M27 x 170	922	21.535	30.32	8.818	9.93	0.551	18.503	0.591	1/2	1,188
500-30	19.685	+ 0 / - 0.006	14.875	16.122	1,440,340	1,745,790	32	M27 x 180	922	23.228	33.47	9.685	10.79	0.551	19.999	0.591	1/2	1,650

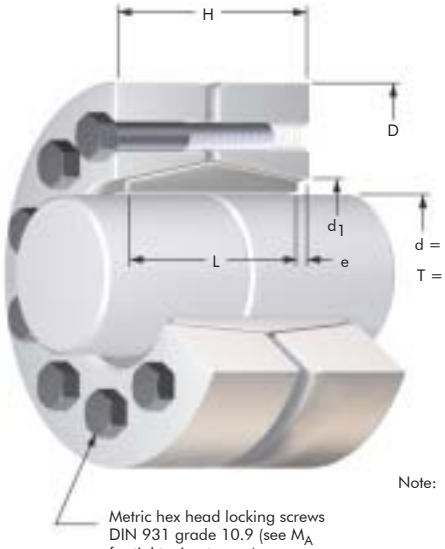
See Additional Notes under SD SERIES 10 Table



WK SERIES RIGID SHAFT COUPLINGS



WK Coupling can be manufactured to accommodate different shaft diameters; this can also be accomplished using an adaptor sleeve.



d = Shaft dia. machined to d +0/-T

T = .003" for shafts up to 1"
.006" for shafts over 1"

Metric hex head locking screws DIN 931 grade 10.9 (see M_A for tightening torque)

Note: Shaft engagement equal for both ends with gap not exceeding 5% of shaft diameter.

Ordering Information:
Specify series & size when ordering (e.g. WK Series Coupling 50-12 / 2").

WK SERIES COUPLING SPECIFICATIONS

Type	Size	d	D	(Relaxed) H	(Relaxed) L	e	d_1	Bolt Circle Dia.	M_t (ft-lbs)	Locking Screws Qty.	Locking Screws Size	Locking Screws M_A (ft-lbs)	Weight (lbs)
WK 15-12	5/8	0.625	2.047	1.339	1.181	0.079	0.827	1.378	134	3	M6 x 30	8.7	0.9
	11/16	0.6875							148				0.9
	3/4	0.750							161				0.9
WK 20-12	13/16	0.8125	2.362	1.575	1.339	0.118	1.024	1.614	290	5	M6 x 35	8.7	1.4
	7/8	0.875							313				1.3
	15/16	0.9375							335				1.3
WK 25-12	1	1.000	2.598	1.732	1.496	0.118	1.260	1.890	501	7	M6 x 35	8.7	1.8
	1 1/16	1.0625							532				1.8
	1 1/8	1.125							563				1.7
WK 30-12	1 3/16	1.1875	2.992	1.890	1.654	0.118	1.496	2.126	679	8	M6 x 40	8.7	2.7
	1 1/4	1.250							715				2.7
	1 3/8	1.375							787				2.6
WK 40-12	1 7/16	1.4375	3.780	2.205	1.969	0.118	1.850	2.638	1,324	7	M8 x 45	22	5.0
	1 1/2	1.500							1,382				5.0
	1 5/8	1.625							1,496				4.8
	1 11/16	1.6875							1,554				4.7
	1 3/4	1.750							1,612				4.7
WK 50-12	1 7/8	1.875	4.409	2.676	2.362	0.157	2.283	3.150	2,467	10	M8 x 50	22	7.9
	1 15/16	1.9375							2,549				7.8
	2	2.000							2,631				7.8
	2 1/8	2.125							2,796				7.7
WK 60-12	2 3/16	2.1875	4.724	3.071	2.756	0.157	2.598	3.504	3,454	12	M8 x 55	22	10.3
	2 1/4	2.250							3,552				10.0
	2 3/8	2.375							3,750				9.8
	2 7/16	2.4375							3,848				9.6
	2 1/2	2.500							3,947				9.3
WK 70-12	2 9/16	2.5625	5.826	3.464	3.150	0.157	3.110	4.173	6,430	12	M10 x 65	44	19.2
	2 5/8	2.625							6,587				18.6
	2 11/16	2.6875							6,744				18.2
	2 3/4	2.750							6,901				17.9
	2 7/8	2.875							7,214				17.3
WK 80-12	2 15/16	2.9375	6.693	4.095	3.701	0.197	3.701	4.961	8,965	10	M12 x 80	74	28.2
	3	3.000							9,156				28.0
	3 1/8	3.125							9,537				27.0
	3 1/4	3.250							9,919				26.2
	3 3/8	3.375							10,300				25.9
WK 90-12	3 7/16	3.4375	7.283	4.567	4.173	0.197	4.094	5.433	12,589	12	M12 x 85	74	36.3
	3 1/2	3.500							12,818				35.6
	3 5/8	3.625							13,275				34.9
	3 3/4	3.750							13,734				34.2
	3 7/8	3.875							14,191				33.5
WK 100-12	3 15/16	3.9375	7.756	4.960	4.488	0.236	4.488	5.866	18,023	15	M12 x 90	74	43.2
	4	4.000							18,311				42.6
	4 1/4	4.250							19,456				41.9

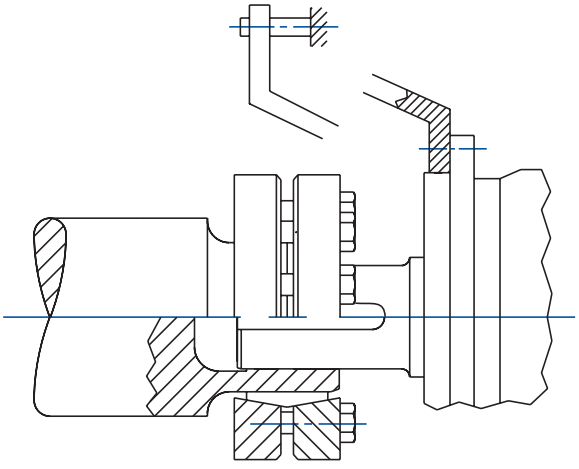
B-LOC RIGID SHRINK DISC COUPLINGS

B-LOC Shrink Discs are perfect for creating custom rigid shaft couplings that transmit high torque and/or bending loads. Due to their high load capacities, B-LOC Shrink Disc couplings are frequently used to shaft-mount hydraulic drives and speed reducers. This design solution:

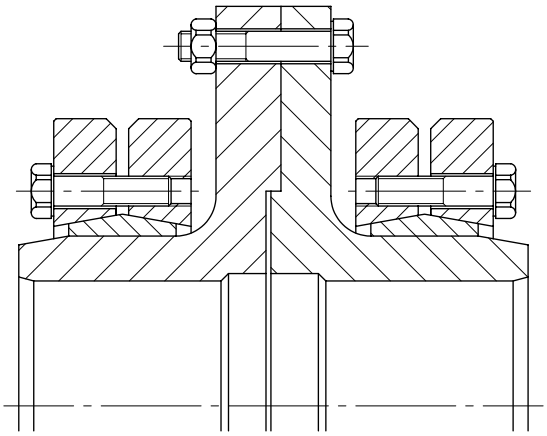
- Can easily accommodate different sized shafts.
- Results in a zero backlash interference fit that will never wear out or pound out, even when subjected to repeated shock or reversing loads.
- Eliminates the need for support structures or foundations, since the drive/reducer is mounted directly to the shaft.
- Eliminates the need for costly flexible couplings, since shaft misalignment issues disappear.
- Facilitates quick and easy coupling mounting and disassembly, even in field installations.
- Permits infinite radial and axial adjustment.

B-LOC can supply a complete coupling or the Shrink Discs only. We're also happy to provide coupling design and Shrink Disc selection assistance. Note that flange-type couplings can also be designed to be mounted with Locking Assemblies instead of Shrink Discs.

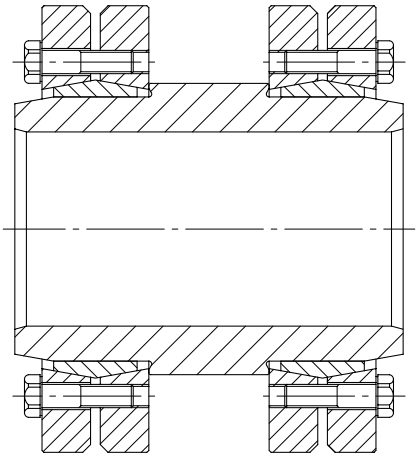
In applications using different sized shafts where space is limited, it may be possible to employ a "dowel" type coupling, as illustrated below:



Dowel-type Shrink Disc Coupling



F Series
Flange-type Shrink Disc Coupling



Sleeve-type Shrink Disc Coupling

Please contact us for more information on B-LOC Rigid Couplings.



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