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# Shaft Couplings

## FC and SSFC Series

### Insert (3-Jaw) Type



- AVAILABLE IN STEEL AND IN 316 STAINLESS STEEL**
- PRECISION MACHINED BORED OR SOLID HUBS**
- THREE TYPES OF INSERTS** for different service requirements
- NO LUBRICATION NEEDED**
- COMPLETE WITH KEYWAY AND SETSCREW**
- CUSTOM BORE SIZES AVAILABLE ON REQUEST**

### Reference Pages

- Alignment—320
- Keyways and Setscrews—321

## Coupling Inserts

OIL-IMPREGNATED BOST-BRONZ— Recommended for high torque loads, particularly at slower speeds.

OIL-RESISTANT SYNTHETIC RUBBER— Recommended where quietness is desired, particularly at motor speeds.

POLYURETHANE— Recommended where moderate to heavy shock loads are encountered.

## Load Data

**HORSEPOWER AND TORQUE RATING AT  
RECOMMENDED SPEEDS FOR INSERTS INDICATED**

Coupling Size	Shaft Diameter Range	Maximum Horsepower Rating At RPM Of *								Max Torque (Lb. Ins.)
		50	100	300	690	870	1150	1750	3450	
<b>XFCBB BOST-BRONZ INSERTS</b>										
FC12 & SSFC12	3/8-5/8	.16	.32	.95	2.2	2.8	3.6	5.6	—	200
FC15 & SSFC15	1/2-7/8	.40	.79	2.4	5.5	6.9	9.1	13.9	—	500
FC20 & SSFC20	1/2-1-1/8	.79	1.6	4.8	10.9	13.8	18.2	—	—	1000
FC25 & SSFC25	3/4-1-3/8	1.4	2.9	8.6	19.7	24.8	—	—	—	1800
FC30 & SSFC30	1-1-5/8	2.5	5.1	15.2	35.0	—	—	—	—	3200
FC38 & SSFC38	1-1/4-1-7/8	5.6	11.1	33.3	—	—	—	—	—	7000
FC45 & SSFC45	1-3/4-2-1/8	8.7	17.5	—	—	—	—	—	—	11000
<b>XFCR RUBBER INSERTS</b>										
FC12 & SSFC12	3/8-5/8	—	.10	.31	.71	.90	1.2	1.8	3.6	65
FC15 & SSFC15	1/2-7/8	—	.20	.60	1.4	1.7	2.3	3.5	56.8	125
FC20 & SSFC20	1/2-1-1/8	—	.40	1.2	2.7	3.5	4.6	6.9	13.7	250
FC25 & SSFC25	3/4-1-3/8	—	.71	2.1	4.9	6.2	8.2	12.5	24.6	450
FC30 & SSFC30	1-1-5/8	—	1.3	3.8	8.8	11.0	14.6	22.2	43.8	800
FC38 & SSFC38	1-1/4-1-7/8	—	2.5	7.6	17.5	22.1	29.2	44.4	—	1600
FC45 & SSFC45	1-3/4-2-1/8	—	4.4	13.3	30.7	38.7	51.1	77.7	—	2800
<b>XFCA POLYURETHANE INSERTS</b>										
FC12 & SSFC12	3/8-5/8	.09	.19	.56	1.2	1.6	2.0	3.0	5.7	125
FC15 & SSFC15	1/2-7/8	.18	.37	1.1	2.5	3.1	4.0	6.0	11.3	250
FC20 & SSFC20	1/2-1-1/8	.35	.70	2.1	4.6	5.7	7.5	11.1	20.7	470
FC25 & SSFC25	3/4-1-3/8	.62	1.2	3.7	8.1	10.1	13.1	19.3	35.8	845
FC30 & SSFC30	1-1-5/8	1.1	2.2	6.5	14.4	17.9	23.3	34.3	63.6	1500
FC38 & SSFC38	1-1/4-1-7/8	2.2	4.3	12.9	28.4	35.3	45.8	67.3	—	3000
FC45 & SSFC45	1-3/4-2-1/8	3.7	7.5	22.4	49.2	61.0	79.0	115.9	—	5250

\*For uniform load.

## Selection Procedure

1. From Table select Service Factor.
2. Determine Design Load  
Design HP = Application HP x S.F.  
or  
Design Torque = Application Torque x S.F.
3. Select coupling size from Load Rating Table which has a rating equal to or greater than the design load.

### COUPLING SERVICE FACTORS

Load Classification	Service Factor
Uniform	1.0
Moderate Shock	1.75
Heavy Shock	2.50



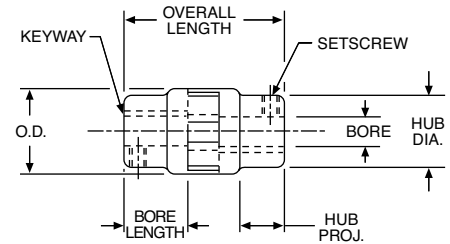
Contact the factory for bore sizes not listed above. Inch and metric options available.

# Shaft Couplings

## FC and SSFC Series Stocked Bores or Solid Hubs Insert (3-Jaw) Type

### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	All	+ .001 - .000



ALL DIMENSIONS IN INCHES

ORDER BY CATALOG NUMBER OR ITEM CODE

To order complete coupling order two coupling halves and one coupling insert

Coupling Size	Bore	Coupling Halves				Dimensions							Insert					
		Steel		Stainless Steel		Max. Bore	Bore Length*	OD	Overall Length**	Hub		Assy. Clearance	Bost-Bronz		Rubber		Polyurethane	
		Catalog Number	Item Code	Catalog Number	Item Code					Dia.	Proj.		Catalog Number	Item Code	Catalog Number	Item Code	Catalog Number	Item Code
FC12 and SSFC12	SOLID	FC12 SOLID	47448	SSFC12 SOLID	G89785	5/8	N/A	1-1/4	2-5/16	1	5/8	3-3/16	XFCBB12	08064	XFCR12	08078	XFCA12	08050
	3/8	FC12-3/8	08246	SSFC12-3/8	G89783		27/32											
	7/16	FC12-7/16	08248	N/A	N/A													
	1/2	FC12-1/2	08250	SSFC12-1/2	G89784													
FC15 and SSFC15	5/8	FC12-5/8	52405	N/A	N/A	7/8	N/A	1-1/2	2-3/4	1-1/4	3/4	3-3/4	XFCBB15	08066	XFCR15	08080	XFCA15	08052
	SOLID	FC15 SOLID	47449	SSFC15 SOLID	G89789		1-1/32											
	1/2	FC15-1/2	08252	SSFC15-1/2	G89786													
	9/16	FC15-9/16	61421	N/A	N/A													
	5/8	FC15-5/8	08254	SSFC15-5/8	G89787													
	3/4	FC15-3/4	08256	SSFC15-3/4	G89788													
FC20 and SSFC20	7/8	FC15-7/8	61422	N/A	N/A	1-1/8	N/A	2	3-11/16	1-3/4	1-1/8	4-13/16	XFCBB20	08068	XFCR20	08082	XFCA20	08054
	SOLID	FC20 SOLID	47450	SSFC20 SOLID	G89794		1-7/16											
	1/2	FC20-1/2	08258	N/A	N/A													
	9/16	FC20-9/16	66063	N/A	N/A													
	5/8	FC20-5/8	08260	SSFC20-5/8	G89790													
	3/4	FC20-3/4	08262	SSFC20-3/4	G89791													
	7/8	FC20-7/8	08264	SSFC20-7/8	G89792													
	15/16	FC20-15/16	08266	N/A	N/A													
FC25 and SSFC25	1	FC20-1	08268	SSFC20-1	G89793	1-3/8	N/A	2-1/2	4-1/8	2-1/4	1-1/4	5-3/8	XFCBB25	08070	XFCR25	08084	XFCA25	08056
	1-1/8	FC20-1-1/8	52406	N/A	N/A		1-19/32											
	SOLID	FC25 SOLID	47451	SSFC25 SOLID	G89798													
	3/4	FC25-3/4	08270	SSFC25-3/4	G89795													
	7/8	FC25-7/8	08272	N/A	N/A													
	1	FC25-1	08274	SSFC25-1	G89796													
	1-1/8	FC25-1-1/8	08276	N/A	N/A													
	1-3/16	FC25-1-3/16	08278	N/A	N/A													
FC30 and SSFC30	1-1/4	FC25-1-1/4	08280	SSFC25-1-1/4	G89797	1-5/8	N/A	3	5-15/32	2-3/4	1-11/16	7	XFCBB30	08072	XFCR30	08086	XFCA30	08058
	1-3/8	FC25-1-3/8	52408	N/A	N/A		2-5/32											
	SOLID	FC30 SOLID	47452	SSFC30 SOLID	G89802													
	1	FC30-1	08282	SSFC30-1	G89799													
	1-1/8	FC30-1-1/8	08284	N/A	N/A													
	1-1/4	FC30-1-1/4	08286	SSFC30-1-1/4	G89800													
	1-3/8	FC30-1-3/8	08288	SSFC30-1-3/8	G89801													
	1-7/16	FC30-1-7/16	08290	N/A	N/A													
FC38 and SSFC38	1-1/2	FC30-1-1/2	08292	N/A	N/A	1-7/8	N/A	3-3/4	6-5/16	3-1/2	1-7/8	8-3/16	XFCBB38	08074	XFCR38	08088	XFCA38	08060
	1-5/8	FC30-1-5/8	52409	N/A	N/A		2-5/8											
	SOLID	FC38 SOLID	24650	SSFC38 SOLID	G89809													
	1-1/4	FC38-1-1/4	08294	N/A	N/A													
	1-1/2	FC38-1-1/2	08296	N/A	N/A													
	1-9/16	FC38-1-9/16	08298	N/A	N/A													
	1-5/8	FC38-1-5/8	08300	N/A	N/A													
FC45 and SSFC45	1-3/4	FC38-1-3/4	08302	N/A	N/A	2-1/8	N/A	4-1/2	7-3/16	4	2-1/8	9-5/16	XFCBB45	08076	XFCR45	08090	XFCA45	08062
	1-7/8	FC38-1-7/8	08304	N/A	N/A		3											
	SOLID	FC45 SOLID	24816	SSFC45 SOLID	G89810													
	1-3/4	FC45-1-3/4	08306	N/A	N/A													
	1-7/8	FC45-1-7/8	08308	N/A	N/A													
2	FC45-2	08310	N/A	N/A														
2-1/8	FC45-2-1/8	08312	N/A	N/A														

\*Length of hole in each half. \*\*Total Length of assembled coupling with jaws engaged to full depth.

Notes: Bore tolerance +.001"/-.000"

Recommended shaft tolerance: Nominal +.000"/-.001"

# Shaft Couplings

## BF Series Bost-Flex®

### Spider Ring (3-Jaw) Type



### ECONOMICAL 3-JAW COUPLING

**SPIDER RING URETHANE INSERT** absorbs shock and vibration. Provides through opening for close coupling of shafts.

**BORE SIZES FROM 3/8" TO 1-1/4"**

**COMPLETE WITH KEYWAY AND SETSCREW.**

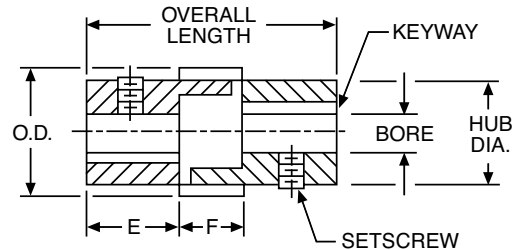
#### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	All	+ .001 - .000

#### Reference Pages

Alignment—320

Keyways and Setscrews—321



ALL DIMENSIONS IN INCHES  
ORDER BY CATALOG NUMBER OR ITEM CODE  
Includes two coupling halves and one coupling insert

Coupling Size	Bore		Hub Diameter	O.D.	Overall Length	E	F	Assembly Clearance	Approx. Weight (Oz.)	Coupling		Replacement Insert
	A	B								Catalog Number	Item Code	Item Code
BF7	3/8	3/8	7/8	1-7/32	1-5/16	1/2	5/16	1-5/8	2	BF7 3/8-3/8	11730	11722
		1/2								BF7 3/8-1/2	11734	
	1/2	1/2								BF7 1/2-1/2	11732	
BF10	1/2	1/2	1-1/4	1-19/32	1-15/16	3/4	7/16	2-3/8	6.5	BF10 1/2-1/2	11736	11724
		5/8								BF10 1/2-5/8	11742	
		3/4								BF10 1/2-3/4	11744	
	5/8	5/8								BF10 5/8-5/8	11738	
		3/4								BF10 5/8-3/4	11746	
BF13	3/4	3/4	1-5/8	1-31/32	2-7/16	15/16	9/16	3	14	BF10 3/4-3/4	11740	11726
		7/8								BF13 3/4-3/4	11748	
		1								BF13 3/4-7/8	11754	
	7/8	7/8								BF13 3/4-1	11756	
		1								BF13 7/8-7/8	11750	
		1								BF13 7/8-1	11758	
BF18	1	1	2-1/4	2-23/32	2-15/16	1-1/8	11/16	3-5/8	37	BF13 1-1	11752	11728
		1-1/8								BF18 1-1	11760	
		1-1/4								BF18 1-1-1/8	11766	
	1-1/8	1-1/8								BF18 1-1-1/4	11768	
		1-1/4								BF18 1-1/8-1-1/8	11762	
		1-1/4								BF18 1-1/8-1-1/4	11770	
	1-1/4	BF18 1-1/4-1-1/4	11764									

#### HORSEPOWER AND TORQUE RATINGS

Size	Revolutions per Minute							Max Torque (Lb. Ins.)
	100	300	690	870	1150	1750	3450	
BF 7	.044	.13	.31	.39	.51	.78	1.5	28
BF 10	.11	.34	.78	1.00	1.30	2.00	3.9	72
BF13	.25	.76	1.70	2.20	2.90	4.40	8.8	160
BF 18	.48	1.40	3.30	4.10	5.50	8.30	16.4	300

#### Selection Procedure

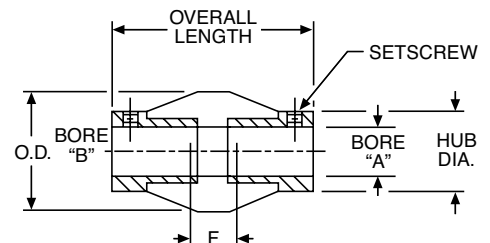
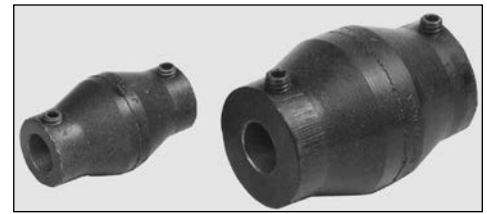
For Service Factors and Procedures, refer to FC Couplings (Page 100).

# Shaft Couplings

## BG Series Shear Type

ALL DIMENSIONS IN INCHES  
ORDER BY CATALOG NUMBER OR ITEM CODE

Coupling Size	Bore		Hub Diameter	O.D.	Overall Length	F	Catalog Number	Item Code
	A	B						
BG47	1/8	1/8	7/16	9/16	13/16	3/16	BG47-2-2	49887
		3/16					BG47-2-3	49888
	3/16	1/4					BG47-2-4	49889
		3/16					BG47-3-3	49890
1/4	1/4	1/4	BG47-3-4	49891				
		1/4	BG47-4-4	49892				
BG11-1	1/4	1/4	5/8	13/16	1-3/8	11/32	BG11-1-4-4	49895
BG11-2	1/4	1/4	3/4	1	1-3/4	13/32	BG11-2-4-4	49898
		5/16					BG11-2-4-5	49899
	5/16	3/8					BG11-2-4-6	49900
		5/16					BG11-2-5-5	49901
3/8	3/8	3/8	BG11-2-5-6	49902				
		3/8	BG11-2-6-6	49903				
		3/8	BG11-3-5-5	49904				
BG11-3	5/16	3/8	7/8	1-1/4	2-1/8	15/32	BG11-3-5-6	49905
		1/2					BG11-3-5-8	49906
	3/8	3/8					BG11-3-6-6	49907
		1/2					BG11-3-6-8	49908
BG11-4	3/8	3/8	1	1-3/8	2-1/4	17/32	BG11-3-8-8	49909
		1/2					BG11-4-6-6	49910
	1/2	5/8					BG11-4-6-8	49911
		5/8					BG11-4-6-10	49912
BG11-5	1/2	3/4	1-1/8	1-5/8	2-1/2	19/32	BG11-4-8-8	49913
		5/8					BG11-4-8-10	49914
	3/4	5/8					BG11-4-10-10	49915
		3/4					BG11-5-8-8	49916
BG11-6	1/2	1/2	1-3/8	1-13/16	2-11/16	11/16	BG11-5-8-10	49917
		5/8					BG11-5-8-12	49918
	3/4	5/8					BG11-5-10-10	49919
		3/4					BG11-5-12-12	49920
BG11-7	1	1	1-1/2	2	2-7/8	3/4	BG11-6-8-8	49921
		1					BG11-6-10-10	49923
	1	BG11-6-10-12					49924	
	1	BG11-6-12-12					49925	
							BG11-7-16-16	49931



**METAL HUBS JOINED PERMANENTLY BONDED ELASTOMER** require no lubrication. Flexible in any direction—accommodates misalignment up to 1/32" parallel, 2" angular.

**HIGH TORSIONAL DEFLECTION** isolates low frequency vibration.

**BORE SIZES FROM 1/8" TO 1"**

**COMPLETE WITH STANDARD SETSCREWS** (Not installed).

## Load Data

### HORSEPOWER AND TORQUE RATINGS

Size	Revolutions per Minute							Max Torque (Lb. Ins.)
	100	300	690	870	1150	1750	3450	
BG-47	.001	.003	.008	.010	.013	.020	.039	.72
BG11-1	.004	.011	.025	.031	.041	.062	.123	2.25
BG11-2	.007	.021	.049	.062	.082	.125	.246	4.50
BG11-3	.014	.043	.099	.124	.164	.250	.493	9.00
BG11-4	.019	.057	.131	.166	.219	.333	.657	12.00
BG11-5	.029	.086	.197	.248	.328	.500	.985	18.00
BG11-6	.043	.129	.296	.313	.493	.750	1.478	27.00
BG11-7	.057	.171	.394	.497	.657	1.000	1.971	36.00

### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	1/8 – 3/8	+ .001 – .000
	1/2 – 5/8	+ .0015 – .000
	3/4 – 1	+ .002 – .000

### Reference Pages

Alignment—320

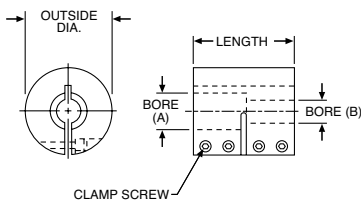
Keyways and Setscrews—321

E

# Shaft Couplings

## SCC Series

### Clamping Type



#### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	All	+.001 - .000

**LOW CARBON STEEL COUPLINGS** with a black oxide finish.  
**BORE SIZES FROM 1/4" to 2"**

ALL DIMENSIONS IN INCHES  
 ORDER BY CATALOG NUMBER OR ITEM CODE

Bore		O.D.	Length	Clamp Screws (4)	Catalog Number	Item Code
A	B					
1/4	1/4	13/16	1-1/4	4-40	SCC1/4 x 1/4	49289
3/8	1/4	1-1/16	1-5/8	6-32	SCC3/8 x 1/4	49290
	3/8				SCC3/8 x 3/8	49291
1/2	3/8	1-1/4	1-7/8	8-32	SCC1/2 x 3/8	49292
	1/2				SCC1/2 x 1/2	49293
5/8	1/2	1-1/2	2-1/4	10-32	SCC5/8 x 1/2	49294
	5/8				SCC5/8 x 5/8	49295
3/4	1/2	1-3/4	2-5/8	1/4-28	SCC3/4 x 1/2	49296
	5/8				SCC3/4 x 5/8	49297
	3/4				SCC3/4 x 3/4	49298
7/8	5/8	1-7/8	2-7/8	1/4-28	SCC7/8 x 5/8	49299
	7/8				SCC7/8 x 7/8	49300
1	1	2	3	1/4-28	SCC1 x 1	49302
1-1/8	1	2-1/8	3-1/4	1/4-28	SCC1-1/8 x 1	49303
	1-1/8				SCC1-1/8 x 1-1/8	49304
1-1/4	1	2-1/4	3-3/8	1/4-28	SCC1-1/4 x 1	49305
	1-1/4				SCC1-1/4 x 1-1/4	49306
1-3/8	1	2-3/8	3-5/8	1/4-28	SCC1-3/8 x 1	49307
	1-3/8				SCC1-3/8 x 1-3/8	49308
1-1/2	1	2-1/2	3-3/4	1/4-28	SCC1-1/2 x 1	49309
	1-1/2				SCC1-1/2 x 1-1/2	49310
1-3/4	1-3/4	3	4-1/2	516-24	SCC1-3/4 x 1-3/4	49312
	2				2	3-1/4

### Load Data

Capacity is based on a standard steel, one piece coupling mounted with recommended screw torque on a dry shaft. Capacities shown are for general guidance only. In applications involving control of torque loads, capacity should be determined experimentally on actual parts involved.

#### TORQUE CAPACITY

Bore	Torque Capacity (Lb. Ins.)	Screw Size	Recommended Screw Torque (Lb. Ins.)
1/4	72	4-40	20
3/8	192	6-32	30
1/2	480	8-32	55
5/8	1200	10-32	90
3/4	1500	1/4-28	220
7/8	1680		
1	1920		
1-1/8	2200		
1-1/4	3000		
1-3/8	3500		
1-1/2	4000	5/16-24	435
1-3/4	5400		
2	6000		

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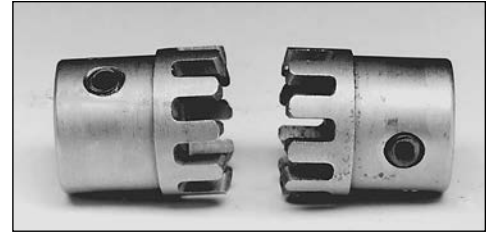
# Shaft Couplings

## FA Series Multi-Jaw Type

UNTREATED STEEL COUPLINGS for use in light duty applications, require no lubrication.

BORE SIZES FROM 3/16" to 1/2"

COMPLETE WITH STANDARD SETSCREWS

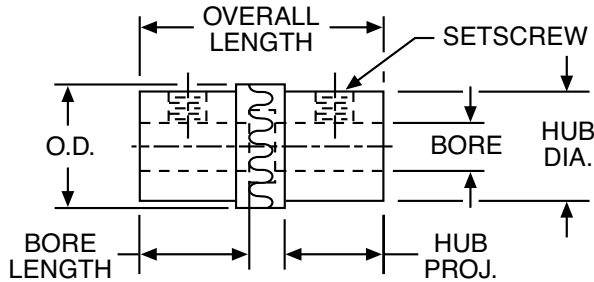


### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	All	± .0005

### Reference Pages

Alignment—320  
Keyways and Setscrews—321



ALL DIMENSIONS IN INCHES  
ORDER BY CATALOG NUMBER OR ITEM CODE

Coupling Size	Bore	O.D.	Length†	Bore Length++	Assembly Clearance‡	Hub		Teeth	Steel	
						Dia.	Proj.		Catalog Number	Item Code
FA5	3/16	1/2	1-1/8	1/2	1-9/32	7/16	7/16	10	FA5w 3/16-3/16	07900
	7/32								07902	
	1/4								07904	
FA75	5/16	3/4	1-1/2	5/8	1-3/4	11/16	33/64	10	FA75 5/16-5/16	07910
	3/8								07912	
FA10	7/16	1	2	7/8	2-9/32	15/16	3/4	12	FA10 7/16-7/16	07908
	1/2								07906	

†Total length of coupling with jaws engaged full depth. ++Length of hole in each half.  
‡Approximate total length of coupling with jaws completely disengaged.

## CR Series Rigid (One Piece) Type

BORE SIZES FROM 1/4" TO 1-1/4"

COMPLETE WITH STANDARD SETSCREWS



ALL DIMENSIONS IN INCHES  
ORDER BY CATALOG NUMBER OR ITEM CODE

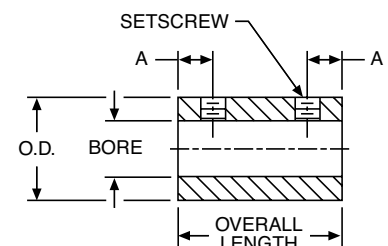
Bore	O.D.	Overall Length	A	Catalog Number	Item Code
1/4	1/2	3/4	3/16	CR4	34200
5/16	5/8	1	1/4	CR5	34202
3/8	3/4	1	1/4	CR6	34204
1/2	1	1-1/2	3/8	CR8	34206
5/8	1-1/4	2	1/2	CR10	34208
3/4	1-1/2	2	1/2	CR12	34210
7/8	1-3/4	2	1/2	CR14	34212
1	2	3	3/4	CR16	34214
1-1/4	2-1/4	4	1	CR20	34216

### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	All	+ .001 - .000

### Reference Pages

Keyways and Setscrews—320



E



# Shaft Couplings

## FCP Series

### Sleeve Type



**SPLINED HUBS AND URETHANE SLEEVE** accommodate misalignment to 5°.

**SLEEVE STOCK** available for producing special lengths.

**NO LUBRICATION NEEDED**

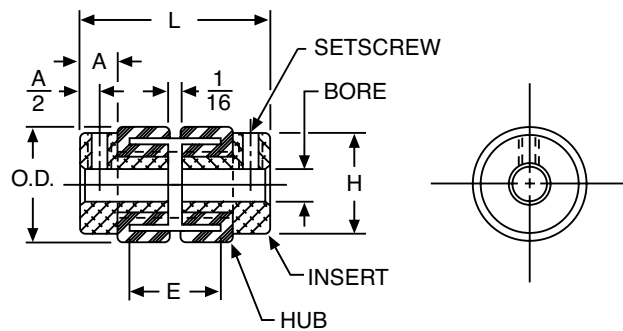
**COMPLETE WITH SETSCREWS**

### Materials

Urethane Sleeves  
Delrin Hubs  
Aluminum Alloy Inserts

#### STANDARD TOLERANCES

DIMENSIONS	TOLERANCE	
Bore	All	+ .001 - .000



#### ALL DIMENSIONS IN INCHES ORDER BY CATALOG NUMBER OR ITEM CODE

Bore	O.D.	A	E	H	L	Setscrew	Complete Coupling		Insert and Hub Assembly		Sleeve Only	
							Catalog Number	Item Code	Catalog Number	Item Code	Catalog Number	Item Code
.125	37/64	7/32	7/16	9/16	15/16	4 - 40	FCP21 - 1/8	54893	XFCP21 - 1/8	54903	X5R21 - 16	54913
.1875						6 - 32	FCP21 - 3/16	54894	XFCP21 - 3/16	54904		
.250						6 - 32	FCP21 - 1/4	54895	XFCP21 - 1/4	54905		
.3125	1-5/64	3/8	11/16	1	1-9/16	8 - 32	FCP23 - 5/16	54899	XFCP23 - 5/16	54909	X5R23 - 32	54915
.375						10 - 32	FCP23 - 3/8	54900	XFCP23 - 3/8	54910		
.4375						1/4 - 20	FCP23 - 7/16	54901	XFCP23 - 7/16	54911		
.500						1/4 - 20	FCP23 - 1/2	54902	XFCP23 - 1/2	54912		

### Load Data

#### HORSEPOWER RATINGS (MAXIMUM) AT 1750 RPM

Size	Horsepower
FCP21	1/20
FCP23	1/2

### Sleeve Stock

#### ORDER BY CATALOG NUMBER OR ITEM CODE

O.D.	Length (Inches)	Catalog Number	Item Code
1/2	12	5R21 - 16S	54916
1		5R23 - 32S	54918

E



## J/JS Series

### Pin and Block Type; Steel and Stainless Steel

Boston Gear precision machined J and JS Series Universal Joints are designed for connecting shafts at angles up to 30 degrees and speeds up to 2000 RPM. All sizes are stocked with both solid and bored hubs.

Joints J100 and J100B and larger are equipped with self-closing, ball valve oilers, creating an oil reservoir to provide enclosed lubrication.

The self-locking assembly ring on joints with 7/8" and larger hub diameter, fits into recess provided in center bearing block and snaps around groove in small bearing pin — assuring locking of entire assembly allowing for quick and easy disassembly and reassembly.

Joints with 3/4" and smaller hub diameters are locked by riveting the small bearing pin. Joint covers (boots) keep dirt and moisture out and lubricants in.



### Selection

Torque ratings may be calculated from data in tables. The tables indicate the Rated Static Torque (Lb. Ins.) of alloy and stainless steel joints and Speed-Angle factors suggested for various operating conditions.

The approximate service torque rating of a particular joint is obtained by dividing the Rated Static Torque by the appropriate Speed-Angle factor.

Selecting a universal to satisfy a specified torque requirement is also made convenient with the data provided.

The designated torque load should be multiplied by the appropriate Speed-Angle factor to obtain an equivalent static torque load.

A universal with a rated static torque equal to or greater than the calculated torque load would then be selected.

### Example:

A pair of universal joints are desired to transmit 1/2 HP from one shaft running at 500 RPM to another located at an angle of 10 degrees (from a straight line).

The joints will be connected by an intermediate shaft and arranged to operate at equal angles of 5 degrees.

A Speed-Angle factor of 9 is indicated in the table for an operating angle of 5 degrees and a speed of 500 RPM.

$$\text{Torque Load} = \frac{63025 \times \text{HP}}{\text{RPM}} = \frac{63025 \times 1/2}{500} = 63 \text{ Lb. Ins.}$$

J100 size alloy steel or JS175 size stainless steel universals would be suggested for this application.

### SPEED-ANGLE FACTORS

Speed In RPM	Operating Angle – Degrees (Deviation From Straight Line)														
	0	1/2	1	2	3	4	5	6	8	10	12	15	20	25	30
2000	21	22	23.2	25.2	27.4	29.4	31.6	-	-	-	-	-	-	-	-
1800	19	20	21.0	22.8	24.8	26.6	28.6	30.4	-	-	-	-	-	-	-
1600	17	17.8	18.8	20.4	22.2	23.8	25.6	27.2	-	-	-	-	-	-	-
1400	15	15.8	16.6	18.0	19.6	21.0	22.6	24.0	27	-	-	-	-	-	-
1200	13	13.6	14.4	15.6	17.0	18.2	19.6	20.8	23.4	-	-	-	-	-	-
1000	11	11.6	12.2	13.2	14.4	15.4	16.6	17.6	19.8	22	-	-	-	-	-
900	10	10.6	11.0	12.0	13.0	14.0	15.0	16.0	18.0	20	22	-	-	-	-
800	9.0	9.4	10.0	10.8	11.8	12.6	13.6	14.4	16.2	18	19.8	-	-	-	-
700	8.0	8.4	8.8	9.6	10.4	11.2	12.0	12.8	14.4	16	17.6	20	-	-	-
600	7.0	7.4	7.8	8.4	9.2	9.8	10.6	11.2	12.6	14	15.4	17.6	-	-	-
500	6.0	6.4	6.6	7.2	7.8	8.4	9.0	9.6	10.8	12	13.2	15.0	18	-	-
400	5.0	5.2	5.6	6.0	6.6	7.0	7.6	8.0	9.0	10	11.0	12.6	15	17.6	-
300	4.0	4.2	4.4	4.8	5.2	5.6	6.0	6.4	7.2	8.0	8.8	10.0	12	14.0	16
200	3.0	3.2	3.4	3.6	4.0	4.2	4.6	4.8	5.4	6.0	6.6	7.6	9.0	10.6	12
100	2.0	2.2	2.2	2.4	2.6	2.8	3.0	3.2	3.6	4.0	4.4	5.0	6.0	7.0	8.0
50	1.5	1.6	1.7	1.8	2.0	2.2	2.2	2.4	2.8	3.0	3.4	3.8	4.6	5.2	6.0
25	1.3	1.3	1.4	1.5	1.6	1.8	1.9	2.0	2.2	2.6	2.8	3.2	3.8	4.4	5.0
10	1.1	1.2	1.2	1.3	1.4	1.5	1.7	1.8	2.0	2.2	2.4	2.8	3.4	3.8	4.4
0	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.8	2.0	2.2	2.6	3.0	3.6	4.0

### RATED STATIC TORQUE (LB. INS.)

### STRAIGHT LINE

#### ALLOY STEEL UNIVERSAL JOINTS

Catalog Number	J37	J50	J62	J75	J87	J100	J112	J125	J150	J175	J200	J250	J300	J400
Torque – Lb. Ins.	20	80	166	320	370	600	670	1040	1680	2500	4400	7000	11,000	26,400

#### STAINLESS STEEL UNIVERSAL JOINTS

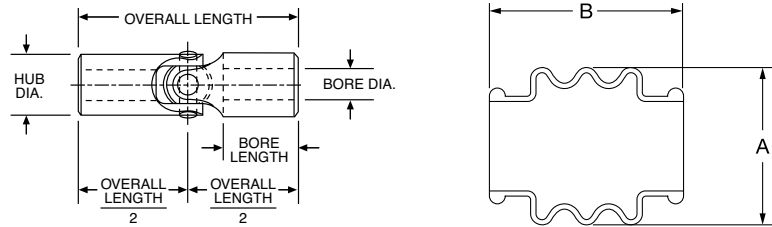
Catalog Number	JS37	JS50	JS62	JS75	JS87	JS100	JS112	JS125	JS150	JS175	JS200	JS250	JS300	JS400
Torque – Lb. Ins.	6	24	50	96	110	180	200	310	500	750	1320	1900	3100	7360

# Universal Joints

## J/JS Series Bored and Solid Hubs Pin and Block Type; Steel and Stainless Steel

### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE	
		Steel	Stainless
Bore	All	± .001	±.001
Hub Dia.	All	+ .000 - .003	±.020
Bore Length	All	±1/16	±1/64
Overall Length	1-3/4 - 4-1/4	±1/64	±1/64
Length	5 - 10-5/8	±1/32	±1/32



### Reference Pages

Lubrication—320

Mounting—320

### ALL DIMENSIONS IN INCHES ORDER BY CATALOG NUMBER OR ITEM CODE

Steel		Stainless Steel		Universal Joints								Boot Kits† ††			
Catalog Number	Item Code	Catalog Number	Item Code	Bore**	Bore Length*	Hub Dia.	Overall Length	Keyway	Setscrew	Approx. Weight Lbs.	A	B	Catalog Number	Item Code	
J37B	08426	JS37B	08472	3/16	11/16	3/8	1-3/4	-	-	.04	0.72	0.88	UB37	47602	
J37	08400	JS37	08452	-	-	3/8	1-3/4	-	-	.05	-	-	-	-	
J50B	08428	JS50B	08474	1/4	3/4	1/2	2	-	-	.08	0.95	0.88	UB50	47603	
J50	08402	JS50	08454	-	-	1/2	2	-	-	.10	-	-	-	-	
J62B	08430	JS62B	08476	5/16	13/16	5/8	2-1/4	-	-	.14	1.13	1.03	UB62	47604	
J62	08404	JS62	08456	-	-	5/8	2-1/4	-	-	.18	-	-	-	-	
J75B	08432	JS75B	08478	3/8	31/32	3/4	2-11/16	-	-	.24	1.38	1.25	UB75	47605	
J75	08406	JS75	08458	-	-	3/4	2-11/16	-	-	.30	-	-	-	-	
J87B	08434	JS87B	08480	7/16	1-1/32	7/8	3	-	-	.31	1.50	1.38	UB87	47606	
J87	08408	JS87	08460	-	-	7/8	3	-	-	.45	-	-	-	-	
J100A-1/2	72472	-	-	1/2	1-3/16	1	3-3/8	1/8x1/16	1/4-20NC	.50	-	-	-	-	
J100B	08436	JS100B	08482	1/2	1-3/16	1	3-3/8	-	-	.50	1.50	1.50	UB100	47607	
J100	08410	JS100	08462	-	-	1	3-3/8	-	-	.66	-	-	-	-	
J112B	72474	JS112B	72483	9/16	1-7/32	1-1/8	3-1/2	-	-	.69	1.75	1.63	UB112	72491	
J112	72475	JS112	72484	-	-	1-1/8	3-1/2	-	-	.88	-	-	-	-	
J125A-5/8	72476	-	-	5/8	1-1/4	1-1/4	3-3/4	3/16x3/32	5/16-18NC	.88	-	-	-	-	
J125B	08438	JS125B	08484	5/8	1-1/4	1-1/4	3-3/4	-	-	.88	1.88	2.09	UB125	47608	
J125	08412	JS125	08464	-	-	1-1/4	3-3/4	-	-	1.15	-	-	-	-	
J150A-3/4	72477	-	-	3/4	1-11/32	1-1/2	4-1/4	3/16x3/32	5/16-18NC	1.44	-	-	-	-	
J150B	08440	JS150B	08486	3/4	1-11/32	1-1/2	4-1/4	-	-	1.44	2.25	2.06	UB150	47609	
J150	08414	JS150	08466	-	-	1-1/2	4-1/4	-	-	1.81	-	-	-	-	
J175A-7/8	72478	-	-	7/8	1-9/16	1-3/4	5	3/16x3/32	5/16-18NC	2.31	-	-	-	-	
J175B	08442	JS175B	08488	7/8	1-9/16	1-3/4	5	-	-	2.31	2.69	2.63	UB175	47610	
J175	08416	JS175	08468	-	-	1-3/4	5	-	-	2.86	-	-	-	-	
J200A-1	72479	-	-	1	1-5/8	2	5-1/2	1/4x1/8	3/8-16NC	3.31	-	-	-	-	
J200B	08444	JS200B	08490	1	1-5/8	2	5-1/2	-	-	3.31	2.69	3.00	UB200	47611	
J200	08418	JS200	08470	-	-	2	5-1/2	-	-	4.06	-	-	-	-	
J250A-1-1/4	72480	-	-	1-1/4	2-3/32	2-1/2	7	1/4x1/8	3/8-16NC	6.81	-	-	-	-	
J250B	08446	JS250B	72485	1-1/4	2-3/32	2-1/2	7	-	-	6.81	3.50	4.00	UB250	47612	
J250	08420	JS250	72486	-	-	2-1/2	7	-	-	8.25	-	-	-	-	
J300B	08448	JS300B	72487	1-1/2	2-27/32	3	9	-	-	12.5	4.25	4.63	UB300	47613	
J300	08422	JS300	72488	-	-	3	9	-	-	15.25	-	-	-	-	
J400B	08450	JS400B	72489	2	3-1/8	4	10-5/8	-	-	25.8	6.00	5.50	UB400	47614	
J400	08424	JS400	72490	-	-	4	10-5/8	-	-	31.3	-	-	-	-	

\*Approximate Hub Projection

†Each Kit contains (2) Boots and (4) Ties together with complete instructions for installation and lubrication.

\*\*Style A includes bore, keyway and setscrew. Style B includes bore only. Units without an A & B letter have a solid bore.

†† Assemble the boot to be positioned central to the joint.

The shape of the boot may vary from the image shown above.

## UJAS/UJNL Series BOS-Trong®

Cast Steel

A BOS-trong joint is composed of two yokes and a center kit. BOS-trong joints may be purchased assembled, or as separate yokes and center kits. Individually boxed.

**AVAILABLE IN TWO SIZES**

**EQUIPPED WITH NEEDLE BEARINGS**

**PRECISION MACHINED FOR LONG, SMOOTH OPERATION**

**CONTINUOUS OR INTERMITTENT SERVICE**

**HIGH CAPACITY WITH MINIMUM SWING DIAMETERS**

**AVAILABLE WITH ROUND, SQUARE OR HEXAGON HOLES**

**COMPLETE WITH KEYWAY AND SETSCREW**

**REPLACEABLE CENTER KITS**

**FITTING FOR LUBRICATION**



### Selection

Universal Joints are used in many different types of applications and under a wide variety of operating conditions. No convenient method can be presented for determining ratings for all possible circumstances. Performance will be affected by vibration, shock loading, high temperature, dusty environment, etc.

The simplest solution to this problem is to provide approximate ratings of universal joints operating at various angles and speeds under normal service conditions.

The suggested ratings are for general use in applications where two joints are arranged at equal angles with the bearing pins of the intermediate yokes in line with each other.

Service torque ratings of the two sizes of BOS-trong Needle Bearing universals are listed in tables. Ratings for intermediate speeds and/or angles not shown may be found by interpolation.

### Load Data

**APPROXIMATE TORQUE RATINGS (LB. INS.)**

Speed RPM	UJAS Series						UJNL Series					
	Operating Angle* – Degrees (Deviation from Straight Line)						Operating Angle† – Degrees (Deviation from Straight Line)					
	Up to 3°	5°	8°	12°	20°	30°	Up to 3°	5°	8°	12°	20°	30°
1800	610	515	440	—	—	—	845	710	610	—	—	—
1200	700	590	505	435	—	—	965	815	695	600	—	—
900	770	650	555	480	365	—	1060	895	765	660	500	—
600	880	740	635	545	415	260	1210	1020	875	755	575	355
300	1110	935	800	690	525	325	1530	1290	1100	950	725	450
200	1270	1070	915	790	600	370	1750	1480	1260	1090	825	515
100	1600	1350	1150	995	755	470	2210	1860	1590	1370	1040	645
50	2020	1700	1450	1250	950	590	2780	2350	2000	1730	1310	815
25	2540	2140	1830	1580	1200	745	3500	2960	2530	2180	1650	1020
10	3450	2900	2480	2140	1630	1010	4760	4010	3430	2960	2250	1390

NON-OPERATING FLEX-ANGLE—90°

\*Maximum Angles (Momentary)—45°

†Maximum Angle (Momentary)—35°

# Universal Joints

## UJAS/UJNL Series BOS-Trong®

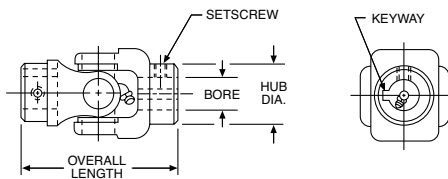
Cast Steel



All joints are furnished with keyways and setscrews.

### DIMENSION IN INCHES

Overall Length	Bore		Hub Dia.		App. Wt. (Lbs.)	Catalog Number	Item Code
	Hub-A	Hub-B	Hub-A	Hub-B			
<b>UJAS SERIES</b>							
<b>SWING DIAMETER 2-1/2"</b>							
5	5/8	5/8	1-5/8	1-5/8	2	UJAS 10-10	G01409
		3/4		1-5/8		UJAS 10-12	G01410
		13/16				UJAS 10-13	G01411
		7/8				UJAS 10-14	G01412
		15/16				UJAS 10-15	G01413
		1				UJAS 10-16	G01414
		1-1/8		2-1/4		UJAS 10-18	G01415
5	3/4	3/4	1-5/8	1-5/8	2	UJAS 12-12	G01416
		13/16		1-5/8		UJAS 12-13	G01417
		7/8				UJAS 12-14	G01418
		15/16				UJAS 12-15	G01419
		1				UJAS 12-16	G01420
		1-1/8		2-1/4		UJAS 12-18	G01421
5	13/16	13/16	1-5/8	1-5/8	2	UJAS 13-13	G01422
		7/8		1-5/8		UJAS 13-14	G01423
		15/16				UJAS 13-15	G01424
		1				UJAS 13-16	G01425
		1-1/8		2-1/4		UJAS 13-18	G01426
5	7/8	7/8	1-5/8	1-5/8	2	UJAS 14-14	G01427
		15/16		1-5/8		UJAS 14-15	G01428
		1		2-1/4		UJAS 14-16	G01429
		1-1/8				UJAS 14-18	G01430
5	15/16	15/16	1-5/8	1-5/8	2	UJAS 15-15	G01431
		1		1-5/8		UJAS 15-16	G01432
		1-1/8		2-1/4		UJAS 15-18	G01433
5	1	1	1-5/8	1-5/8	2	UJAS 16-16	G01434
		1-1/8		1-5/8		UJAS 16-18	G01435
5	1-1/8	1-1/8	2-1/4	2-1/4	3	UJAS 18-18	G01436
<b>UJNL SERIES</b>							
<b>SWING DIAMETER 2-3/4"</b>							
5-1/2	1	1	2	2	3-3/4	UJNL 16-16	17354
		1-1/8		2-1/4		UJNL 16-18	17356
		1-3/16				UJNL 16-19	17358
		1-1/4				UJNL 16-20	17360
		1-3/8				UJNL 16-22	17362
		1-7/16				UJNL 16-23	17364
		1-1/2				UJNL 16-24	17366
5-1/2	1-1/8	1-1/8	2-1/4	2-1/4	3-3/4	UJNL 18-18	17368
		1-3/16		2-1/4		UJNL 18-19	17370
		1-1/4				UJNL 18-20	17372
		1-3/8				UJNL 18-22	17374
		1-7/16				UJNL 18-23	17376
		1-1/2				UJNL 18-24	17378
5-1/2	1-3/16	1-3/16	2-1/4	2	3-1/4	UJNL 19-19	17380
		1-1/4		2-1/4		UJNL 19-20	17382
		1-3/8				UJNL 19-22	17384
		1-7/16				UJNL 19-23	17386
		1-1/2				UJNL 19-24	17388
5-1/2	1-1/4	1-1/4	2-1/4	2	3-1/4	UJNL 20-20	17390
		1-3/8		2-1/4		UJNL 20-22	17392
		1-7/16				UJNL 20-23	17394
		1-1/2				UJNL 20-24	17396
5-1/2	1-3/8	1-3/8	2-1/4	2-1/4	3-1/4	UJNL 22-22	17398
		1-7/16		2-1/4		UJNL 22-23	17400
		1-1/2				UJNL 22-24	17402
5-1/2	1-7/16	1-7/16	2-1/4	2-1/4	3-1/4	UJNL 23-23	17404
		1-1/2		2-1/4		UJNL 23-24	17406
5-1/2	1-1/2	1-1/2	2-1/4	2-1/4	3-1/4	UJNL 24-24	17408



### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	All	+ .002 - .000

### Reference Pages

Lubrication—320  
Mounting—320

### ORDERING INFORMATION

Joints can also be ordered in various combinations of round, square or hex holes. To order the combination desired, specify "UJAS" or "UJNL" and hole size and type as listed in table of Yokes, Page 111. Use "S" for square and "H" for hexagon.

## UJYS/UJL Series Cast Steel

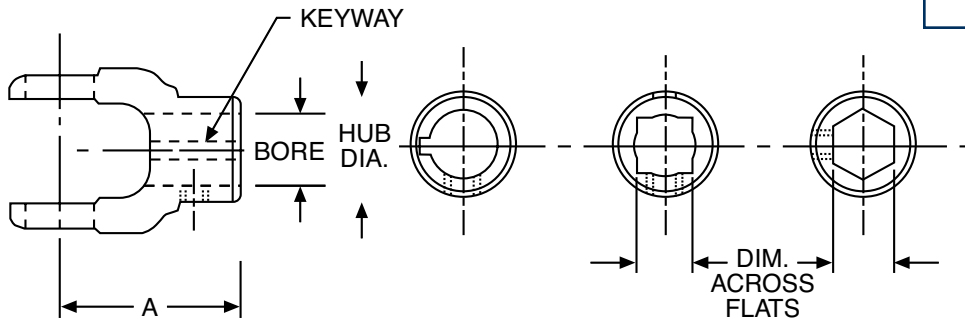
### STANDARD TOLERANCES

DIMENSION		TOLERANCE
Bore	Round	+.002- .000
	Square	3/4-13/16 +.000-+.002
		7/8-1-1/2 +.001 +.003
Hexagon	+.002 +.004	

### Yokes

These yokes are for assembly with UJASC/UJLC Center Kits.

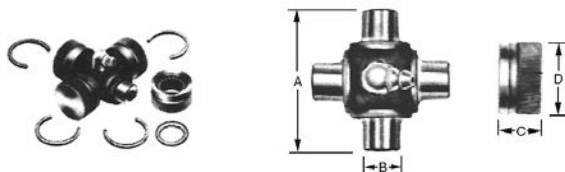
All yokes are furnished with a 3/8-16 hex socket setscrew otherwise noted.



ALL DIMENSIONS IN INCHES

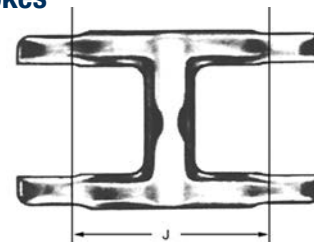
A	Round Bores							Square Bores					Hexagon Bores					
	Bore	Hub Dia.	Keyway	Setscrew Location	Approx. Weight (Lbs.)	Catalog Number	Item Code	Dim. Across Flats	Hub Dia.	Approx. Weight (Lbs.)	Setscrew Location	Catalog Number	Item Code	Setscrew Location	Catalog Number	Item Code		
<b>UJYS Series</b>																		
2-1/2	0.625	1.63	3/16x3/32	(4)	3/4	UJYS 10	G01437	—	—	—	—	—	—	—	—	—		
	0.750		3/16x3/32, (5)	(3)		UJYS12	G01438	0.750	1.63	3/4	(3)	UJYS 12S	G01444	—	—	—		
	0.813		1/4x1/8, (5)	(3)		UJYS 13	G01439	—	—	—	—	—	—	—	—	—		
	0.875		(1)	(4)		UJYS14	G01440	.875 (7)	2.25	3/4	(4)	UJYS 14S	G01445	(3)	UJYS 14H	G01447		
	0.938		1/4x1/8, (5)	5/16-24, (4)		UJYS15	G01441	—	—	—	—	—	—	—	—	—		
	1.000		(1)			UJYS16	G01442	1.000 (7)	2.25	1	(4)	UJYS 16S	G01446	—	—	—		
	1.125		(2)			(4)	1-1/4	UJYS18	G01443	—	—	—	—	—	—	—	—	
<b>UJL Series</b>																		
2-3/4	1.000	2.00	1/4x1/8 (3)	(4)	1-1/2	UJL16	17424	1.000	2.00	1-1/2	(4)	UJL16S	17450	—	—	—		
	1.125	2.25	1/4x1/8	(5)	1-1/4	UJL18	17426	1.126	2.25	1-1/2	(5)	—	—	—	—	—		
	1.188					UJL19	17428	(1) Two keyways 180° apart, 3/16x3/32 and 1/4x1/8										
	1.250					UJL20	17430	(2) Two keyways 180° apart, 1/4x1/8 and 5/16x5/32										
	1.375					5/16x5/32	UJL22	17432	(3) Located 90° from shown									
	1.438					3/8x3/16	UJL23	17434	(4) Located as shown									
	1.500						(4), (6)	UJL24	17436	(5) Located 180° from shown								
										(6) Additional setscrew over keyway								
										(7) Has both .875 and 1.000 square bores @ 45°								

### Center Kits



ALL DIMENSIONS IN INCHES

### Double Yokes



Center Kits*							Double Yokes				
A	B	C	D	Approx. Weight (Lbs.)	Catalog Item	Item Code	J	Maximum Operating Angle	Approx. Weight (Lbs.)	Catalog Number	Item Code
<b>UJYS Series**</b>							<b>UJYS Series**</b>				
1-61/64	.547	.594	0.938	1/2	UJASC	G06130	2-1/2	15°	1	UJYSD	G06133
<b>UJS Series***</b>							<b>UJS Series***</b>				
1-61/64	.547	.594	0.969	1/2	UJSC-969	G06146	2-1/2	15°	1	UJSD	17460
<b>UJL Series</b>							—				
2-5/16	.644	.625	1.0625	3/4	UJLC	17466	—	—	—	—	—

\* Center kits include 1 cross, 4 bearings and 4 lock rings.

\*\* Yokes from UJYS Series and double yoke UJYSD are only compatible with UJASC center kit.

\*\*\* Yokes from UJS Series (old series) and double yoke UJSD are only compatible with UJSC-969 center kit.

# Universal Joints

## JP Series Single and Double

### Molded Type



**MOLDED DELRIN BODY** provides vibration dampening and electrical insulation.

**MAX. ANGULAR DISPLACEMENT** — Single 45° — Double 90°

**MAX. AMBIENT TEMPERATURE** — 180°F

**COMPLETE WITH SETSCREWS**

### STANDARD TOLERANCES

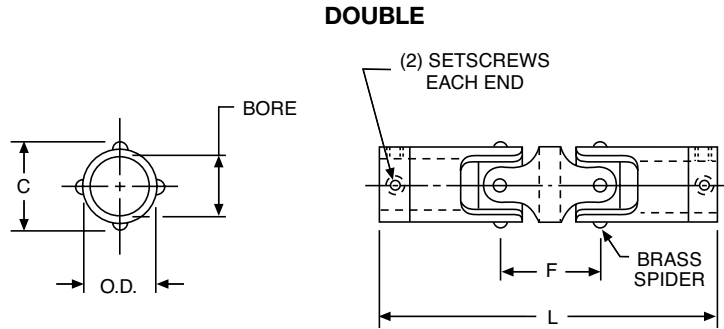
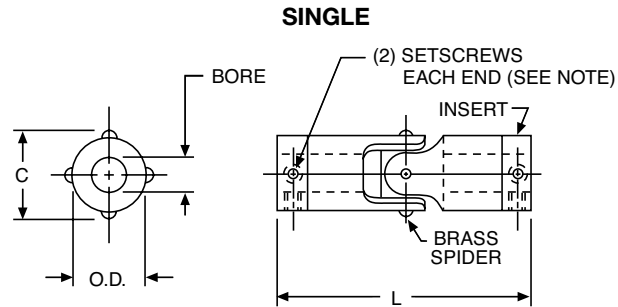
DIMENSIONS		TOLERANCE
Bore	All	+ .001 - .000

### Reference Pages

Mounting — 320

### Materials

Delrin Body  
Nickel Plated Brass Spider and Insert



**ALL DIMENSIONS IN INCHES  
ORDER BY CATALOG NUMBER OR ITEM CODE**

Bore	Bore Depth (Typical)	O.D.	C	L		Double Only		Setscrew	Single		Double	
				Single	Double	F	Max. Parallel Offset		Catalog Number	Item Code	Catalog Number	Item Code
1/8	.39	1/4	.27	1-3/64	1-23/64	5/16	.22	#4 - 40	JP25 - 1/8*	54194	JPD25 - 1/8	54202
1/8	.52	3/8	.41	1-31/64	2	17/32	.36	#4 - 40	JP37 - 1/8*	54195	JPD37 - 1/8	54203
3/16									JP37 - 3/16	54196	JPD37 - 3/16	54204
3/16	.63	1/2	.54	1-13/16	2-7/16	5/8	.43	#6 - 32	JP50 - 3/16	54197	JPD50 - 3/16	54205
1/4									JP50 - 1/4	54198	JPD50 - 1/4	54206
1/4	.86	5/8	.68	2-41/64	3-33/64	7/8	.61	#8 - 32	JP62 - 1/4	54199	JPD62 - 1/4	54207
5/16									JP62 - 5/16	54200	JPD62 - 5/16	54208
3/8									JP62 - 3/8	54201	JPD62 - 3/8	54209

\* One setscrew each end.

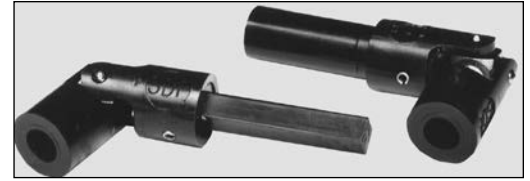
### LOAD DATA

Basic Size	Maximum Torque† (Lb. Ins.)	
	Single	Double
25	5	2.5
37	16	7
50	26	12
62	60	47

† This is the ultimate or breaking torque for static, zero angle conditions. Actual operating conditions will dictate use of significantly lower values.

E

## JPE Series With Slide Extension Molded Type



**MOLDED DELRIN BODY** — provides vibration dampening and electrical insulation.

**MAX. ANGULAR DISPLACEMENT** — Single 45° — Double 90°

**MAX. AMBIENT TEMPERATURE** — 180°F

**COMPLETE WITH SETSCREWS**

### STANDARD TOLERANCES

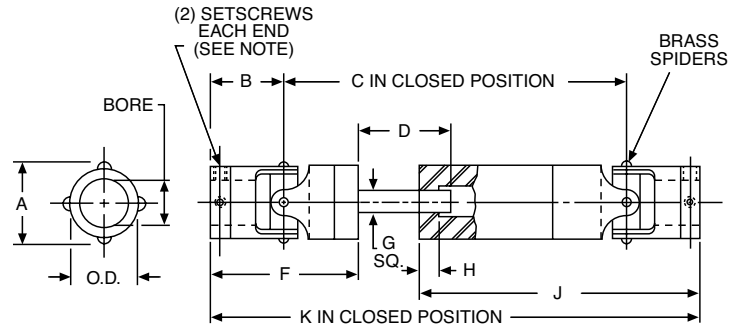
DIMENSIONS		TOLERANCE
Bore	All	+ .001 - .000

### Reference Pages

Mounting — 312

### Materials

Delrin Body  
Nickel Plated Brass Spider and Insert



### ALL DIMENSIONS IN INCHES ORDER BY CATALOG NUMBER OR ITEM CODE

Bore	Bore Depth (Typical)	O.D.	A	B	C	D	E	F	G (Sq.)	H	J	K	Setscrew	Catalog Number	Item Code
1/8	.52	3/8	.41	.74	2-59/64	1-1/8	-	1-47/64	3/16	23/64	2-43/64	4-13/32	#4 - 40	JPE37 - 1/8	54210
3/16	.52	3/8	.41	.74	2-59/64	1-1/8	-	1-47/64	3/16	23/64	2-43/64	4-13/32	#4 - 40	JPE37 - 3/16	54211
3/16	.63	1/2	.54	.91	2-23/64	1-1/8	3/8	1-34/64	3/16	23/64	2-9/16	4-11/64	#6 - 32	JPE50 - 3/16	54212
1/4	.63	1/2	.54	.91	2-23/64	1-1/8	3/8	1-34/64	3/16	23/64	2-9/16	4-11/64	#6 - 32	JPE50 - 1/4	54213

### LOAD DATA

Basic Size	Maximum Recommended Torque (Lb. Ins.)	
	Closed	Open
JPE37	8	5
JPE50	14	10

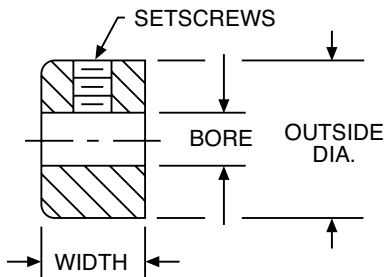
†This is the ultimate or breaking torque for static, zero angle conditions. Actual operating conditions will dictate use of significantly lower values.



# Setscrew Collars

## SC/SSC Series

### Steel and Stainless Steel



#### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	1/8-1	+ .001 + .003
	1-1/16-3	+ .001 + .004

#### Materials

Stainless Steel—Type 303 Austenitic.  
Steel—Low Carbon, Zinc plated finish.

**STEEL BORE SIZES FROM 1/8" TO 3"**

**STAINLESS STEEL BORE SIZES FROM 1/8" TO 2"**

**STAINLESS STEEL COLLARS ARE CORROSION-RESISTANT AND NON-MAGNETIC** suitable for temperatures up to 800°F. Ideal for applications requiring hygienic cleanliness.

**ALL COLLARS COMPLETE WITH STANDARD HOLLOW POINT SETSCREWS.**

#### ALL DIMENSIONS IN INCHES ORDER BY CATALOG NUMBER OR ITEM CODE

Bore	Outside Diameter	Width	Alloy Steel		Stainless Steel	
			Catalog Number	Item Code	Catalog Number	Item Code
1/8	3/8	1/4	SC12	67697	SSC12	67740
3/16	7/16	1/4	SC18	67698	SSC18	67741
1/4	1/2	5/16	SC25	67699	SSC25	67742
5/16	5/8	11/32	SC31	67700	SSC31	67743
3/8	3/4	3/8	SC37	67701	SSC37	67744
7/16	7/8	7/16	SC43	67702	—	—
1/2	1	7/16	SC50	67703	SSC50	67745
9/16	1	7/16	SC56	67704	—	—
5/8	1-1/8	1/2	SC62	67705	SSC62	67746
11/16	1-1/4	9/16	SC68	67706	—	—
3/4	1-1/4	9/16	SC75	67707	SSC75	67747
13/16	1-1/4	9/16	SC81	67708	—	—
7/8	1-1/2	9/16	SC87	67709	SSC87	67748
15/16	1-5/8	9/16	SC93	67710	—	—
1	1-1/2	5/8	SC100	67711	SSC100	67749
1-1/16	1-3/4	5/8	SC106	67712	—	—
1-1/8	1-3/4	5/8	SC112	67713	SSC112	67784
1-3/16	2	11/16	SC118	67714	—	—
1-1/4	2	11/16	SC125	67715	SSC125	67785
1-5/16	2-1/8	11/16	SC131	67716	—	—
1-3/8	2-1/8	3/4	SC137	67717	—	—
1-7/16	2-1/4	3/4	SC143	67718	—	—
1-1/2	2-1/4	3/4	SC150	67719	SSC150	67788
1-9/16	2-1/2	13/16	SC156	67720	—	—
1-5/8	2-1/2	13/16	SC162	67721	—	—
1-11/16	2-1/2	13/16	SC168	67722	—	—
1-3/4	2-5/8	7/8	SC175	67723	SSC175	67789
1-13/16	2-5/8	7/8	SC181	67724	—	—
1-7/8	2-5/8	7/8	SC187	67725	—	—
1-15/16	3	7/8	SC193	67726	—	—
2	3	7/8	SC200	67727	SSC200	67790
2-1/8	3	7/8	SC212	67728	—	—
2-3/16	3-1/4	15/16	SC218	67729	—	—
2-1/4	3-1/4	15/16	SC225	67730	—	—
2-5/16	3-1/4	15/16	SC231	67731	—	—
2-3/8	3-1/4	15/16	SC237	67732	—	—
2-7/16	3-1/2	1	SC243	67733	—	—
2-1/2	3-1/2	1	SC250	67734	—	—
2-9/16	3-3/4	1	SC256	67735	—	—
2-11/16	4	1-1/8	SC268	67736	—	—
2-3/4	4	1-1/8	SC275	67737	—	—
2-15/16	4	1-1/8	SC293	67738	—	—
3	4	1-1/8	SC300	67739	—	—

# Clamping Collars

## CSC/CSSC Series

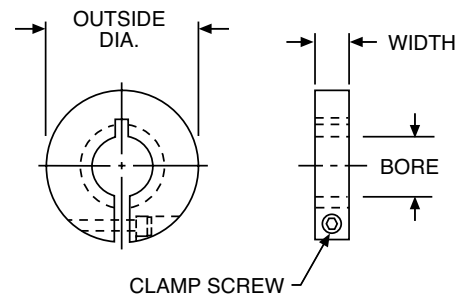
### Threaded Type; Steel and Stainless Steel

**DESIGN PROVIDES CONVENIENT SETTING, ADJUSTING AND REMOVAL**  
prevents shaft damage.  
**OSHA CONFORMANCE** collars have completely recessed screw head.  
**BORE THREADS FROM 10–32 TO 200–12**



#### ORDER BY CATALOG NUMBER OR ITEM CODE

Bore Thread	Outside Dia.	Width	Clamp Screws	Steel		Stainless Steel	
				Catalog Number	Item Code	Catalog Number	Item Code
10-32	11/16	1/4	4-40	CSC10-32	49237	—	—
1/4-20	13/16	1/4	4-40	CSC25-20	49238	CSSC25-20	49265
1/4-28				CSC25-28	49239	—	—
5/16-18				CSC31-18	49240	—	—
5/16-24				CSC31-24	49241	—	—
3/8-16	1-1/16	5/16	6-32	CSC37-16	49242	CSSC37-16	49269
3/8-24				CSC37-24	49243	CSSC37-24	49270
1/2-13	1-1/4	3/8	8-32	CSC50-13	49244	CSSC50-13	49271
1/2-20				CSC50-20	49245	CSSC50-20	49272
5/8-11	1-1/2	13/32	10-32	CSC62-11	49246	CSSC62-11	49273
5/8-18				CSC62-18	49247	CSSC62-18	49274
3/4-10	1-3/4	1/2	1/4-28	CSC75-10	49248	CSSC75-10	49275
3/4-16				CSC75-16	49249	CSSC75-16	49276
7/8-9	1-7/8	1/2	1/4-28	CSC87-9	49250	—	—
7/8-14				CSC87-14	49251	—	—
1-8	2	1/2	1/4-28	CSC100-8	49252	CSSC100-8	49279
1-14				CSC100-14	49253	CSSC100-14	49280
1-1/8-7	2-1/8	1/2	1/4-28	CSC125-7	49254	—	—
1-1/8-12				CSC112-12	49255	—	—
1-1/4-7	2-1/4	1/2	1/4-28	CSC125-7	49256	—	—
1-1/4-12				CSC125-12	49257	CSSC125-12	49284
1-1/2-6	2-1/2	1/2	1/4-28	CSC150-6	49258	—	—
1-1/2-12				CSC150-12	49259	—	—
1-3/4-16	3	5/8	5/16-24	CSC175-16	49260	—	—
2-12	3-1/4	5/8	5/16-24	CSC200-12	49261	—	—



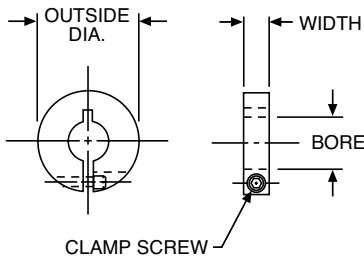
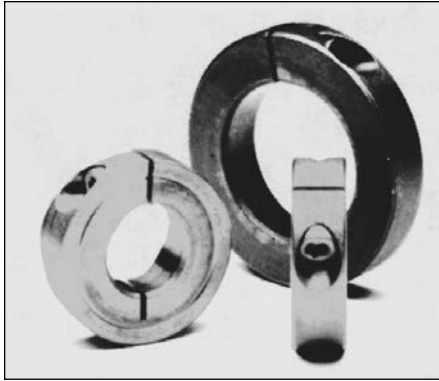
#### Materials

Steel—Low Carbon,  
Black Oxide Finish  
Stainless—Type 303 Austenitic

# Clamping Collars

## CSC/CSSC/CASC Series

### 1 Piece Type Steel, Stainless Steel and Aluminum



#### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	All	+ .003 - .000

#### Materials

Steel—Low Carbon  
 Black Oxide Finish Stainless—Type 303  
 Austenitic

#### Load Data

Capacity is based on a standard steel, one-piece collar mounted with recommended screw torque on a lightly oiled shaft. Capacity is load to move collar .010". Data shown is for guidance only. In applications involving control of axial loads, capacity should be determined experimentally on actual parts involved.

**DESIGN PROVIDES CONVENIENT SETTING, ADJUSTING AND REMOVAL** prevents shaft damage.  
**OSHA CONFORMANCE** collars have completely recessed screw head.  
**BORE THREADS FROM 1/8" TO 3"**

#### ALL DIMENSIONS IN INCHES ORDER BY CATALOG NUMBER OR ITEM CODE

Bore	O.D.	Width	Clamp Screws	Steel		Stainless Steel		Aluminum	
				Catalog Number	Item Code	Catalog Number	Item Code	Catalog Number	Item Code
1/8	13/16	1/4	4-40	CSC12	49000	CSSC12	49094	—	—
3/16				CSC18	49001	CSSC18	49095	CASC18	49048
1/4				CSC25	49002	CSSC25	49096	CASC25	49049
5/16				CSC31	49003	CSSC31	49097	CASC31	49050
3/8	1-1/16	5/16	6-32	CSC37	49004	CSSC37	49098	CASC37	49051
7/16				CSC43	49005	CSSC43	49099	—	—
1/2	1-1/4	3/8	8-32	CSC50	49006	CSSC50	49100	CASC50	49053
9/16				CSC56	49007	CSSC56	49101	CASC56	49054
5/8	1-1/2	13/32	10-32	CSC62	49008	CSSC62	49102	CASC62	49055
11/16				CSC68	49009	—	—	—	—
3/4	1-3/4			CSC75	49010	CSSC75	49104	CASC75	49057
13/16				CSC81	49011	—	—	—	—
7/8	1-7/8			CSC87	49012	CSSC87	49106	CASC87	49059
15/16				CSC93	49013	CSSC93	49107	—	—
1	2			CSC100	49014	CSSC100	49108	CASC100	49061
1-1/16				CSC106	49015	CSSC106	49109	—	—
1-1/8	2-1/8	1/2	1/4-28	CSC112	49016	CSSC112	49110	CASC125	49065
1-3/16				CSC118	49017	CSSC118	49111	—	—
1-3/8	2-3/8			CSC137	49020	—	—	—	—
1-5/16				CSC143	49021	CSSC143	49115	—	—
1-1/2	2-1/2			CSC150	49022	CSSC150	49116	CASC150	49069
1-9/16				CSC156	49023	—	—	—	—
1-5/8	3	5/8	5/16-24	CSC162	49024	—	—	—	—
1-11/16				CSC168	49025	—	—	—	—
1-3/4				CSC175	49026	—	—	CASC175	49073
1-7/8	3-1/4	5/8	5/16-24	CSC187	49028	—	—	—	—
1-15/16				CSC193	49029	CSSC193	49123	—	—
2				CSC200	49030	CSSC200	49124	CASC200	49077
2-3/16	3-1/2			CSC218	49033	—	—	—	—
2-1/4				CSC225	49034	—	—	—	—
2-3/8				CSC237	49036	—	—	—	—
2-7/16	4			CSC243	49037	—	—	—	—
2-1/2				CSC250	49038	—	—	—	—
2-5/8				CSC262	49040	—	—	—	—
2-11/16	4-1/4	3/4	3/8-24	CSC268	49041	—	—	—	—
2-3/4				CSC275	49042	—	—	—	—
2-7/8				CSC287	49044	—	—	—	—
2-15/16	4-1/2			CSC293	49045	—	—	—	—
3				CSC300	49046	—	—	—	—

#### DIMENSION IN INCHES

Bore	Axial Load Capacity (Lbs.)	Screw Size	Recommended Screw Torque (Lb. Ins.)	
			Steel	Stainless Steel
1/8-5/16	400	4-40	20	16
3/8-7/16	600	6-32	30	24
1/2-9/16	1400	8-32	55	35
5/8-11/16	1800	10-32	90	72
3/4-1-9/16	4000	1/4-28	220	170
1-5/8-2-3/8	6500	5/16-24	435	340
2-7/16-3	8500	3/8-24	710	550

E

# Clamping Collars

## 2SC/2SSC Series

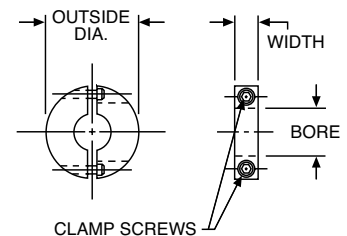
### 2 Piece Type Steel, Stainless Steel and Aluminum

**DESIGN PROVIDES CONVENIENT SETTING, ADJUSTING AND REMOVAL**  
prevents shaft damage.  
**OSHA CONFORMANCE** collars have completely recessed screw head.  
**BORE THREADS FROM 1/4" TO 3"**



ALL DIMENSIONS IN INCHES  
ORDER BY CATALOG NUMBER OR ITEM CODE

Bore	O.D.	Width	Clamp Screws	Steel		Stainless Steel	
				Catalog Number	Item Code	Catalog Number	Item Code
1/4 5/16	13/16	1/4	4-40	2SC25 2SC31	49143 49144	2SSC25 2SSC31	49190 49191
3/8 7/16	1-1/16	5/16	6-32	2SC37 2SC43	49145 49146	2SSC37 2SSC43	49192 49193
1/2 9/16	1-1/4	3/8	8-32	2SC50 2SC56	49147 49148	2SSC50 2SSC56	49194 49195
5/8 11/16	1-1/2	13/32	10-32	2SC62 2SC68	49149 49150	2SSC62 2SSC68	49196 49197
3/4 13/16	1-3/4	1/2	1/4-28	2SC75	49151	2SSC75	49198
7/8 15/16	1-7/8			2SC81	49152	—	—
1 1-1/16	2			2SC87	49153	2SSC87	49200
				2SC93	49154	—	—
1-1/8 1-3/16	2-1/8			2SC100	49155	2SSC100	49202
1-1/4 1-5/16	2-1/4			2SC106	49156	2SSC106	49203
				2SC112	49157	2SSC112	49204
2SC118	2-1/4			2SC118	49158	2SSC118	49205
				2SC125	49159	2SSC125	49206
1-3/8 1-7/16	2-3/8			2SC131	49160	2SSC131	49207
		2SC137	49161	—	—		
1-1/2 1-9/16	2-1/2	2SC143	49162	2SSC143	49209		
		2SC150	49163	2SSC150	49210		
2SC156	49164	—	—				
1-5/8 1-11/16 1-3/4 1-13/16	3	2SC162	49165	—	—		
1-7/8 1-15/16 2 2-1/16	3-1/4	2SC168	49166	—	—		
		2SC175	49167	—	—		
		—	—	—	—		
2SC187	49169	2SSC187	49216				
2-1/8 2-3/16 2-1/4 2-3/8	3-1/2	2SC193	49170	2SSC193	49217		
		2SC200	49171	2SSC200	49218		
2-7/16 2-1/2	4	—	—	—	—		
		2SC212	49173	—	—		
2-5/8 2-11/16 2-3/4 2-7/8 2-15/16 3	4-1/4	2SC218	49174	—	—		
		2SC225	49175	—	—		
		2SC237	49177	—	—		
		2SC243	49178	—	—		
2-7/8 2-15/16 3	4-1/2	2SC250	49179	—	—		
		2SC262	49181	—	—		
		2SC268	49182	—	—		
2-7/8 2-15/16 3	4-1/2	2SC275	49183	—	—		
		2SC287	49185	—	—		
		2SC293	49186	—	—		
		2SC300	49187	—	—		



#### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	All	+ .003 - .000

#### Materials

Steel—Low Carbon, Black Oxide Finish  
Stainless—Type 303 Austenitic

#### Load Data

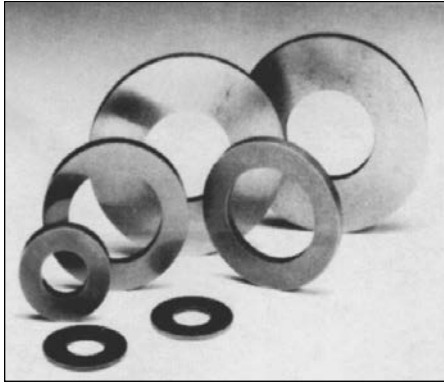
Capacity is based on a standard steel, one-piece collar mounted with recommended screw torque on a lightly oiled shaft. Capacity is load to move collar .010". Data shown is for guidance only. In applications involving control of axial loads, capacity should be determined experimentally on actual parts involved.

#### DIMENSION IN INCHES

Bore	Axial Load Capacity (Lbs.)	Screw Size	Recommended Screw Torque (Lb. Ins.)	
			Steel	Stainless Steel
1/8-5/16	400	4-40	20	16
3/8-7/16	600	6-32	30	24
1/2-9/16	1400	8-32	55	35
5/8-11/16	1800	10-32	90	72
3/4-1-9/16	4000	1/4-28	220	170
1-5/8-2-3/8	6500	5/16-24	435	340
2-7/16-3	8500	3/8-24	710	550

# Thrust Washers

## Steel and Stainless Steel



**HARDENED AND GROUND STEEL BORE SIZES FROM 3/16" TO 2"**  
**STAINLESS STEEL BORE SIZES FROM 3/16" TO 1/2"**

**ALL DIMENSIONS IN INCHES**  
**ORDER BY CATALOG NUMBER OR ITEM CODE**

### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	06700 Series	+ .0015 + .0070
	18000 Series	+ .002 + .007
O.D.	06700 Series	+ .000 - .005
	18000 Series	± .030
Thickness	All	+ .000 - .005

Bore	Outside Diameter	Thick-ness	Catalog Number
<b>HARDENED STEEL</b>			
3/16	9/32	1/16	18800
	3/8	1/16	18804
		3/32	18806
	7/16	1/16	06724*
1/4	1/2	1/16	18808
	3/32	3/32	18810
5/16	5/8	1/16	06726*
		1/16	18812
		1/8	18814
3/8	5/8	1/16	18816
		1/8	18818
7/16	7/8	3/32	06730*
		5/32	18820
1/2	3/4	1/16	18822
		1/8	18824
	7/8	1/8	06734*
	1-1/8	1/16	18828
5/32		18830	
1-1/4	3/16	18832	
		18834	
9/16	1-3/8	3/32	18836
		3/16	18838
5/8	25/32	1/16	18838
		1/8	18840
	1-1/4	3/32	18842
		3/16	18844
	1-3/8	3/16	18846
	1-1/2	3/32	18848
3/16		18850	
3/4	1	3/32	18852
		18854	
	1-5/16	3/32	18856
		3/16	18858
	1-5/8	1/8	18860
		3/16	18862
1-3/4	3/16	18864	
2	3/16	18866	

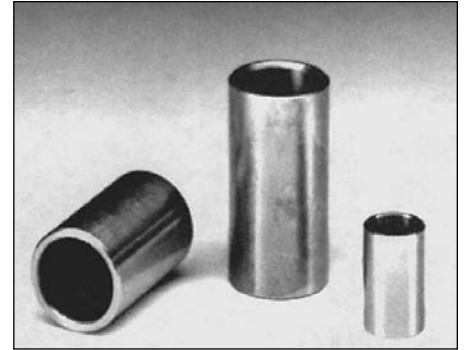
Bore	Outside Diameter	Thick-ness	Catalog Number
<b>HARDENED STEEL</b>			
7/8	1-3/16	3/32	18868
	2	1/8	18870
	2	3/16	18872
	2-1/4	3/16	18874
1	1-9/16	1/8	18876
		3/16	18878
	2	1/8	18880
		3/16	18882
	2-1/4	9/64	18884
2-1/2	3/16	18886	
2-1/2	1/4	18888	
1-1/16	2-1/2	1/4	18890
1-1/8	2-1/2	1/4	18894
1-3/16	2	3/16	18896
1-1/4	2	9/64	18898
		3/16	18922
	2-7/16	9/64	18900
		1/4	18924
2-3/4	9/64	18902	
3	1/4	18904	
1-5/16	2-3/4	1/4	18906
1-3/8	3	5/32	18908
		1/4	18910
1-1/2	3	5/32	18912
		1/4	18914
3-1/4	1/8	18916	
2	4	5/32	18918
		5/16	18920
<b>STAINLESS STEEL†</b>			
3/16	7/16	1/16	06760
1/4	9/16	1/16	06762
5/16	5/8	5/64	06764
3/8	11/16	3/32	06766
1/2	7/8	1/8	06770

\*These washers also listed with AO Bearings.  
 †These washers also listed with SAO Bearings.

### BORE SIZES FROM 3/16" TO 1-1/4"

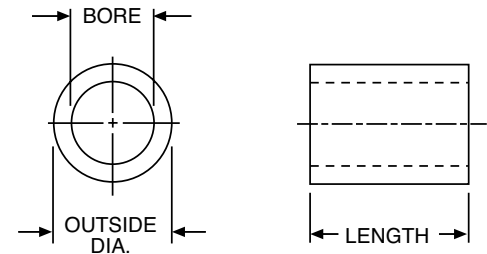
**MULTI-PURPOSE BUSHINGS** suitable for use as hole reducers, spacers, standoffs or slip bushings.

**ADAPTABLE FOR OTHER USES** including wear sleeves, liners or cutting arbor studs.



#### ALL DIMENSIONS IN INCHES ORDER BY CATALOG NUMBER

Bore	Outside Diameter	Thick-ness	Catalog Number	
3/16	1/4	5/8	18510	
	5/16		18512	
	3/8		18516	
1/4	5/16	5/8	18514	
	3/8		18518	
	1/2	3/4	18522	
5/16	1/2	1	18524	
	3/8	5/8	18520	
	1/2		3/4	18526
3/8	1/2	1	18528	
	1/2	3/4	18530	
	5/8	1	18532	
7/16	1/2	3/4	18534	
	5/8	1-1/4	18536	
	5/8	3/4	18538	
1/2	5/8	1	18542	
	1	1-1/4	18544	
	3/4	1	18546	
5/8	3/4	3/4	18554	
	7/8	1	18556	
	1-1/4	1-1/4	18560	
3/4	7/8	1-1/4	18562	
	1	1-1/4	18568	
	1-1/2	1-1/2	18574	
7/8	1-3/8	2	18626	
	1-1/2	1-1/2	18606	
	1	1-1/2	18576	
1	1-1/4	2	18596	
	1-3/8		18602	
	2		18622	
1-1/8	1-1/4	2	18598	
1-1/4	1-3/8	2	18604	
	1-1/2		1-1/2	18614
	2		3	18624



#### STANDARD TOLERANCES

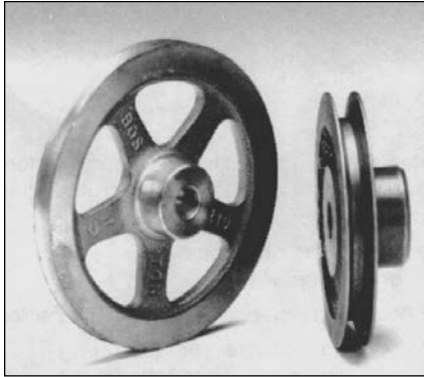
DIMENSIONS		TOLERANCE
BORE	All	± .0005
O.D.	Up to 1-1/4	+ .0005 +.0015
	Over 1-1/4	+ .001 +.002
LENGTH	Up to 1"	+ .000 -.007
	Over 1"	+ .000 -.010



# Grooved Pulleys

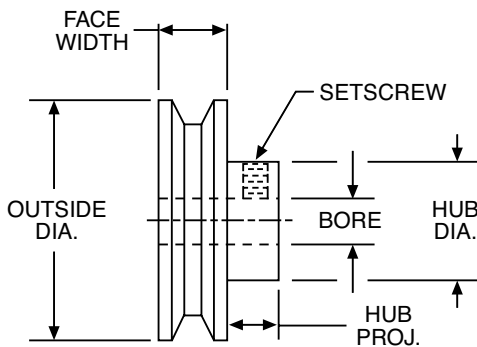
## G1200

### Round Belt Type



**BRASS IRON AND STEEL  
BORE SIZES FROM 3/16" TO 3/4"  
COMPLETE WITH STANDARD SETSCREWS**

**ALL DIMENSIONS IN INCHES  
ORDER BY CATALOG NUMBER OR ITEM CODE**



Bore	Outside Diameter	Hub Dia.	Project	V Groove	Style	Catalog Number	Item Code
<b>BRASS—3/16" ROUND BELT (or smaller)—1/4" FACE</b>							
3/16	1/2	1/2	1/4	74°	Plain	G1214	18700
	7/8	5/8		46°		G1215	18702
1/4	1	5/8	5/16	46°	Plain	G1216	18704
	1-1/2					G1217	18706
5/16	2	5/8	5/16	46°	Webbed Spoked Spoked	G1218	18708
	3	3/4				G1219	18710
	4	3/4				G1220	18712
<b>IRON†—3/8" ROUND BELTS (or smaller)—1/2" FACE</b>							
1/2	1	15/16	1/2	53°	Plain	G1202	18718
	1-1/2	1				G1203	18720
	2	1				G1204	18722
	3	1-1/4				G1205	18724
5/8	4	1-5/8	3/4	53°	Webbed	G1206	18726
	5					G1207	18728
	6					G1208	18730
3/4	8	1-3/4	1	53°	Spoked	G1209	18732

†Outside diameter, sides, grooves, hole and ends of hub finished.

### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
BORE	All	+ .001 - .000



# Miniature Timing Belts and Pulleys

## Miniature HTD Timing Belt Drives

### Basic Construction

Timing belts are essentially flat belts with the addition of evenly spaced teeth along the surface that contacts toothed pulleys. Power is transmitted smoothly and without slippage. Pulley pitch diameters are larger than their outside diameters and the belt pitch lines lie within the flat portion. Tension members are molded in the flat portion to serve as load-carrying elements. Miniature HTD timing belts have deep curvilinear tooth forms, as contrasted to trapezoidal for conventional timing belts. Greater strength, lower tooth pressures and decreased stress concentration result in superior performance.

### Selection

The following general guidelines apply to selection of miniature HTD timing belts and pulleys:

Design with ample reserve horsepower capacity and apply the proper service factors.

The belt must have six or more teeth in engagement with the smaller pulley to carry rated Horsepower.

Avoid small pulley diameters where practical to assure satisfactory belt life.

Belt speed should not exceed 6500 feet per minute.

At least one pulley in the drive should be flanged.

For vertical shafts or where center distance exceeds eight times the smaller pulley diameter, both pulleys should be flanged.

Horsepower Rating Tables provide ratings for operation no more than ten hours per day under uniform loading. Selection procedures is as follows:

1. Select Service Factor for chart below.
2. Determine Design Horsepower.

**Design Horsepower = Application Horsepower x Service Factor**

3. Select small pulley and belt size from the rating tables, choosing a combination whose rating does not exceed the Design Horsepower.
4. For speed increasing applications an additional amount must be added to the Service Factor.
5. For speeds higher than shown in Rating Tables, consult factory.

### SERVICE FACTORS

Load Classification	Service Factor
Uniform to 10 hrs./day	1.0
Uniform over 10 hrs./day Moderate Shock to 10 hrs./day	1.5
Moderate Shock over 10 hrs./day Heavy Shock to 10 hrs./day	2.0

### SPEED-UP DRIVES

Ratio Range	Additional Factor
1 through 1.24	0
1.25 through 1.74	0.1
1.75 through 2.49	0.2
2.50 through 3.49	0.3
3.50 and over	0.4

# Miniature Timing Belts and Pulleys

## Miniature HTD Timing Belt Drives (Continued)

### Horsepower Ratings

#### 3mm Pitch—6mm Wide Belt

NUMBER OF GROOVES ON THE SMALL PULLEY

	10	11	12	14	15	16	18	20	22	24	25	28	30	32	
PD	.376	.414	.451	.526	.564	.602	.677	.752	.827	.902	.940	1.053	1.128	1.203	
RPM of Small Pulley	100	.005	.005	.006	.007	.008	.009	.010	.011	.012	.013	.013	.016	.019	.020
	300	.016	.017	.018	.021	.023	.025	.029	.033	.037	.040	.041	.048	.055	.059
	500	.022	.024	.027	.030	.032	.035	.039	.043	.048	.053	.055	.062	.066	.070
	700	.031	.035	.037	.042	.046	.049	.054	.061	.068	.075	.078	.087	.092	.098
	1160	.040	.045	.050	.056	.061	.066	.072	.078	.089	.097	.101	.113	.120	.127
	1500	.052	.058	.064	.072	.078	.085	.093	.101	.115	.125	.130	.145	.155	.165
	1750	.061	.068	.075	.085	.091	.099	.108	.117	.134	.146	.152	.170	.182	.194
	2500	.067	.074	.080	.091	.101	.107	.117	.134	.148	.161	.168	.192	.200	.213
	3500	.094	.103	.113	.127	.141	.151	.165	.188	.207	.226	.236	.268	.278	.296

#### 3mm Pitch—9mm Wide Belt

NUMBER OF GROOVES ON THE SMALL PULLEY

	10	11	12	14	15	16	18	20	22	24	25	28	30	32	
PD	.376	.414	.451	.526	.564	.602	.677	.752	.827	.902	.940	1.053	1.128	1.203	
RPM of Small Pulley	100	.007	.008	.009	.011	.013	.014	.016	.017	.019	.021	.022	.025	.030	.032
	300	.025	.027	.029	.033	.036	.040	.046	.052	.059	.063	.066	.076	.087	.092
	500	.035	.038	.043	.048	.051	.055	.062	.068	.076	.084	.088	.098	.104	.111
	700	.049	.056	.059	.067	.073	.078	.085	.096	.107	.119	.124	.138	.146	.156
	1160	.063	.071	.079	.089	.097	.104	.114	.123	.141	.154	.160	.179	.190	.203
	1500	.082	.092	.101	.114	.123	.135	.147	.160	.182	.198	.206	.230	.246	.263
	1750	.097	.108	.119	.135	.144	.157	.171	.185	.212	.231	.241	.269	.289	.308
	2500	.106	.117	.127	.144	.160	.169	.185	.212	.235	.255	.266	.304	.317	.338
	3500	.149	.163	.179	.201	.223	.239	.262	.298	.328	.358	.372	.425	.441	.470

#### 5mm Pitch—9mm Wide Belt

NUMBER OF GROOVES ON THE SMALL PULLEY

	11	12	14	15	16	18	20	22	24	25	28	30	
PD	.689	.752	.877	.940	1.003	1.128	1.253	1.379	1.504	1.566	1.754	1.880	
RPM of Small Pulley	100	.021	.024	.027	.030	.033	.039	.042	.045	.051	.053	.063	.069
	300	.063	.069	.081	.090	.096	.108	.126	.138	.153	.159	.186	.204
	500	.090	.099	.117	.126	.132	.150	.165	.183	.198	.206	.231	.249
	700	.129	.138	.162	.174	.186	.210	.231	.255	.279	.291	.324	.348
	1160	.162	.180	.207	.225	.240	.270	.300	.327	.360	.375	.420	.447
	1500	.210	.231	.270	.291	.309	.348	.387	.423	.465	.484	.543	.579
	1750	.243	.270	.315	.339	.360	.405	.453	.495	.540	.562	.633	.675
	2500	.267	.291	.342	.366	.393	.441	.492	.540	.588	.613	.687	.735
	3500	.372	.405	.477	.510	.549	.615	.690	.756	.822	.856	.960	1.03

# Miniature Timing Belts and Pulleys

## Miniature HTD Timing Belt Drives (Continued) Horsepower Ratings 5mm Pitch—15mm Wide Belt

NUMBER OF GROOVES ON THE SMALL PULLEY

	11	12	14	15	16	18	20	22	24	28	30	
PD	.689	.752	.877	.940	1.003	1.128	1.253	1.379	1.504	1.754	1.880	
RPM of Small Pulley	100	.038	.043	.049	.054	.060	.071	.076	.082	.093	.115	.126
	300	.115	.126	.148	.164	.175	.197	.230	.252	.280	.340	.373
	500	.164	.181	.214	.230	.241	.274	.302	.335	.362	.423	.456
	700	.236	.252	.296	.318	.340	.384	.423	.467	.511	.593	.637
	1160	.296	.329	.379	.412	.439	.494	.549	.599	.659	.769	.819
	1500	.384	.423	.494	.533	.566	.637	.709	.775	.852	.995	1.06
	1750	.445	.494	.577	.621	.649	.742	.830	.907	.989	1.16	1.23
	2500	.489	.533	.626	.670	.720	.808	.901	.989	1.07	1.25	1.34
	3500	.681	.742	.874	.934	1.00	1.12	1.26	1.38	1.50	1.75	1.88

Belt life will be reduced for ratings to the left of the heavy line.

### Center Distance

To calculate the approximate Belt Length:

$$BL = 2C + \frac{D_1 - D_2}{4C} + 1.57 (D_1 + D_2)$$

An approximate formula for center distance of a timing belt drive is:

$$C = \frac{P}{4} \left[ NB - \frac{N_1 + N_2}{2} \right] + \sqrt{\left( NB - \frac{N_1 + N_2}{2} \right)^2 - 2 \left( \frac{N_1 - N_2}{\pi} \right)^2}$$

$$BL = 2C + \frac{(D_1 - D_2)}{4C} + 1.57 (D_1 + D_2)$$

Where:

C = Center Distance—Inches

P = Belt Pitch—Inches

NB = Number of Teeth in Belt

N<sub>1</sub> = Number of Grooves in larger Pulley

N<sub>2</sub> = Number of Grooves in smaller Pulley

BL = Belt Length

D<sub>1</sub> = Pitch Diameter of larger Pulley

D<sub>2</sub> = Pitch Diameter of smaller Pulley

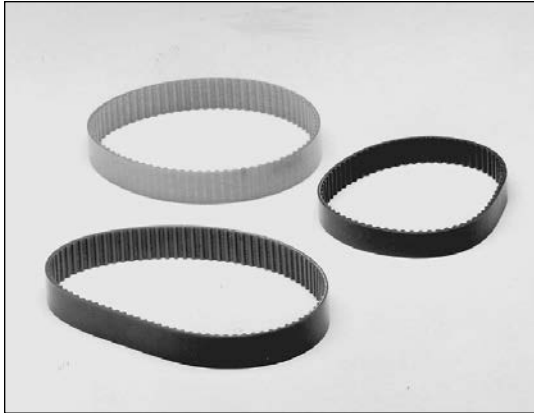
### Installation Suggestions

1. Use care in handling belts to avoid breakage of the reinforcing fibers.
2. Make sure shafts are parallel and pulleys in alignment.
3. Belt should fit snugly, neither too loose nor too tight. Avoid preload, which can cause premature failure.
4. Provision for some Center Distance adjustment will ease the installation and permit proper initial fitting of belts.

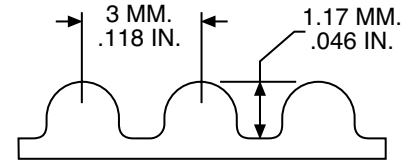
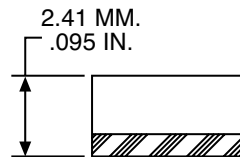
# Miniature HTD® Timing Belts

## 3M Series 6 and 9mm Widths

### 3mm Pitch



**NEOPRENE-NYLON COVERED, FIBERGLASS REINFORCED**  
**AMBIENT TEMPERATURE RANGE— -18°C TO +85°C**  
**BREAKING STRENGTH—6 mm WIDTH – 74.4 KGS**  
**9 mm WIDTH – 111.6 KGS**



#### ORDER BY CATALOG NUMBER OR ITEM CODE

Number of Grooves	Pitch Length		6mm Belt Width		9mm Belt Width	
	mm	Inch	Catalog Number	Item Code	Catalog Number	Item Code
35	105	4.134	3M035060	54214	3M035090	54290
37	111	4.370	3M037060	54215	3M037090	54291
48	144	5.669	3M048060	54216	3M048090	54292
49	147	5.787	3M049060	54217	3M049090	54293
50	150	5.905	3M050060	54218	3M050090	54294
52	156	6.142	3M052060	54219	3M052090	54295
53	159	6.260	3M053060	54220	3M053090	54296
56	168	6.614	3M056060	54221	3M056090	54297
59	177	6.968	3M059060	54222	3M059090	54298
60	180	7.087	3M060060	54223	3M060090	54299
65	195	7.677	3M065060	54224	3M065090	54300
67	201	7.913	3M067060	54225	3M067090	54301
68	204	8.031	3M068060	54226	3M068090	54302
69	207	8.150	3M069060	54227	3M069090	54303
70	210	8.268	3M070060	54228	3M070090	54304
71	213	8.386	3M071060	54229	3M071090	54305
75	225	8.858	3M075060	54230	3M075090	54306
78	234	9.213	3M078060	54231	3M078090	54307
80	240	9.449	3M080060	54232	3M080090	54308
84	252	9.921	3M084060	54233	3M084090	54309
85	255	10.039	3M085060	54234	3M085090	54310
89	267	10.512	3M089060	54236	3M089090	54312
90	270	10.630	3M090060	54237	3M090090	54313
92	276	10.866	3M092060	54238	3M092090	54314
94	282	11.102	3M094060	54239	3M094090	54315
95	285	11.220	3M095060	54240	3M095090	54316
96	288	11.339	3M096060	54241	3M096090	54317
97	291	11.457	3M097060	54242	3M097090	54318
99	297	11.693	3M099060	54243	3M099090	54319
100	300	11.811	3M100060	54244	3M100090	54320
104	312	12.283	3M104060	54245	3M104090	54321
106	318	12.520	3M106060	54246	3M106090	54322
111	333	13.110	3M111060	54247	3M111090	54323
112	336	13.228	3M112060	54248	3M112090	54324
113	339	13.346	3M113060	54249	3M113090	54325
115	345	13.583	3M115060	54250	3M115090	54326
119	357	14.055	3M119060	54251	3M119090	54327

Number of Grooves	Pitch Length		6mm Belt Width		9mm Belt Width	
	mm	Inch	Catalog Number	Item Code	Catalog Number	Item Code
121	363	14.291	3M121060	54252	3M121090	54328
128	384	15.118	3M128060	54253	3M128090	54329
130	390	15.354	3M130060	54254	3M130090	54330
132	396	15.591	3M132060	54255	3M132090	54331
140	420	16.535	3M140060	54256	3M140090	54332
145	435	17.126	3M145060	54257	3M145090	54333
149	447	17.598	3M149060	54258	3M149090	54334
153	459	18.071	3M153060	54259	3M153090	54335
155	465	18.307	3M155060	54260	3M155090	54336
158	474	18.661	3M158060	54261	3M158090	54337
160	480	18.898	3M160060	54262	3M160090	54338
162	486	19.134	3M162060	54263	3M162090	54339
163	489	19.252	3M163060	54264	3M163090	54340
167	501	19.724	3M167060	54265	3M167090	54341
171	513	20.197	3M171060	54266	3M171090	54342
175	525	20.670	3M175060	54267	3M175090	54343
177	531	20.905	3M177060	54268	3M177090	54344
179	537	21.142	3M179060	54269	3M179090	54345
188	564	22.205	3M188060	54270	3M188090	54346
192	576	22.677	3M192060	54271	3M192090	54347
199	597	23.504	3M199060	54272	3M199090	54348
200	600	23.622	3M200060	54273	3M200090	54349
204	612	24.094	3M204060	54274	3M204090	54350
211	633	24.921	3M211060	54275	3M211090	54351
223	669	26.338	3M223060	54276	3M223090	54352
237	711	27.992	3M237060	54277	3M237090	54353
250	750	29.527	3M250060	54278	3M250090	54354
251	753	29.646	3M251060	54279	3M251090	54355
294	892	34.724	3M294060	54280	3M294090	54356
315	945	37.205	3M315060	54281	3M315090	54357
354	1062	41.811	3M354060	54282	3M354090	54358
375	1125	44.291	3M375060	54283	3M375090	54360
415	1245	49.016	3M415060	54284	3M415090	54361
421	1263	49.724	3M421060	54285	3M421090	54362
500	1500	59.055	3M500060	54286	3M500090	54363
510	1530	60.235	3M510060	54287	3M510090	54364
621	1863	73.346	3M621060	54288	3M621090	54365

®Registered trademark of UNIROYAL, INC.

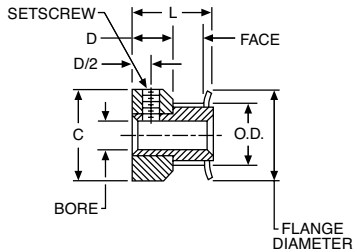
# Timing Belt Pulleys

## PA Series For 6mm Wide Belts 3mm Pitch; Aluminum

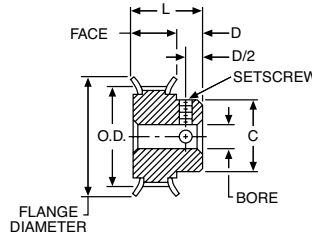
ALUMINUM ALLOY – CLEAR ANODIZED  
COMPLETE WITH SETSCREWS



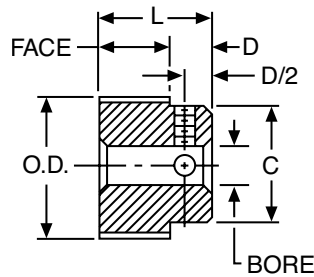
**WITH FLANGES  
10 TO 17 GROOVES**



**WITH FLANGES  
18 TO 44 GROOVES**



**WITHOUT FLANGES**



### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	All	+.001 to -.000
	10-26 Grooves	+.002 to -.000
O.D.	28-48 Grooves	+.003 to -.000
	60-72 Grooves	+.004 to -.000

### ORDER BY CATALOG NUMBER OR ITEM CODE

Number of Grooves	Pitch Dia.	O.D.	B	Face Width	C	D	L	Flange Dia.	Setscrew*	With Flanges		Without Flanges	
										Catalog Number	Item Code	Catalog Number	Item Code
10	.376	.346	.125	.282	.505	15/64	9/16	.505	#4-40	PA3010DF060	54448	-	-
11	.414	.384			.530			.530		PA3011DF060	54449	-	-
12	.451	.421	.1875	.282	.580	19/64	11/16	.580	#6-40	PA3012DF060	54450	-	-
13	.489	.459			.610			.610		PA3013DF060	54451	-	-
14	.526	.496			.635			.635		PA3014DF060	54452	-	-
15	.564	.534			.685			.685		PA3015DF060	54453	-	-
16	.602	.572			.710			.710		PA3016DF060	54454	-	-
17	.639	.609			.740			.740		PA3017DF060	54455	-	-
18	.677	.647			.250			.386		.442	19/64	11/16	.790
19	.714	.684	.468	.815		PA3019DF060	54457		PA3019NF060	54472			
20	.752	.722	.500	.895		PA3020DF060	54458		PA3020NF060	54473			
22	.827	.797	.562	.945		PA3022DF060	54459		PA3022NF060	54474			
24	.902	.872	.625	1.025		PA3024DF060	54460		PA3024NF060	54475			
25	.940	.910	.625	1.060		PA3025DF060	54461		PA3025NF060	54476			
26	.977	.947	.625	1.105		PA3026DF060	54462		PA3026NF060	54477			
28	1.053	1.023	.701	1.173		PA3028DF060	54463		PA3028NF060	54478			
30	1.128	1.098	.776	1.250		PA3030DF060	54464		PA3030NF060	54479			
32	1.203	1.173	.851	1.323		PA3032DF060	54465		PA3032NF060	54480			
34	1.278	1.248	.921	1.398		PA3034DF060	54466		PA3034NF060	54481			
36	1.353	1.323	1.000	1.473		PA3036DF060	54467		PA3036NF060	54482			
38	1.429	1.399	1.075	1.549		PA3038DF060	54468		PA3038NF060	54483			
40	1.504	1.474	1.150	1.625		PA3040DF060	54469		PA3040NF060	54484			
44	1.654	1.624	1.300	1.775	PA3044DF060	54470	PA3044NF060	54485					
48	1.805	1.775	.3125	.407	-	21/64	47/64	-		-	-	PA3048NF060	54486
50	1.880	1.850			-			-		-	-	PA3050NF060	54487
56	2.105	2.075			-			-		-	-	PA3056NF060	54488
60	2.256	2.226			-			-		-	-	PA3060NF060	54489
62	2.331	2.301			-			-		-	-	PA3062NF060	54490
72	2.707	2.677			-			-		-	-	PA3072NF060	54991

\*Pulleys with 10 to 13 grooves have one setscrew. All others have two at 90°

# Timing Belt Pulleys

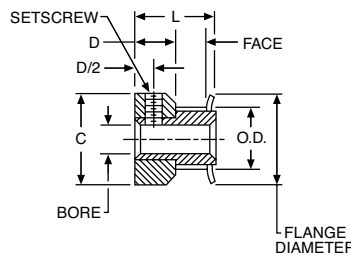
## PA Series For 9mm Wide Belts

3mm Pitch; Aluminum

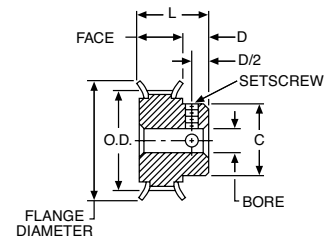


ALUMINUM ALLOY – CLEAR ANODIZED  
COMPLETE WITH SETSCREWS

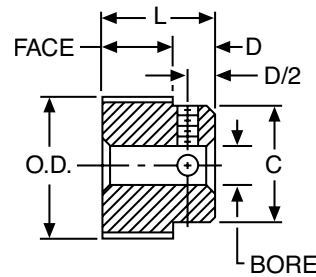
**WITH FLANGES  
10 TO 17 GROOVES**



**WITH FLANGES  
18 TO 44 GROOVES**



**WITHOUT FLANGES**



### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	All	+0.001 to -0.000
	10-26 Grooves	+0.002 to -0.000
O.D.	28-48 Grooves	+0.003 to -0.000
	60-72 Grooves	+0.004 to -0.000

### ORDER BY CATALOG NUMBER OR ITEM CODE

Number of Grooves	Pitch Dia.	O.D.	B	Face Width	C	D	L	Flange Dia.	Setscrew*	With Flanges		Without Flanges						
										Catalog Number	Item Code	Catalog Number	Item Code					
10	.376	.346	.125	.401	.505	15/64	11/16	.505	#4-40	PA3010DF090	54492	-	-					
11	.414	.384			.530			.530		PA3011DF090	54493	-	-					
12	.451	.421	.1875	.401	.580	19/64	13/16	.580	#6-40	PA3012DF090	54494	-	-					
13	.489	.459			.610			.610		PA3013DF090	54495	-	-					
14	.526	.496			.635			.635		PA3014DF090	54496	-	-					
15	.564	.534			.685			.685		PA3015DF090	54497	-	-					
16	.602	.572			.710			.710		PA3016DF090	54498	-	-					
17	.639	.609			.740			.740		PA3017DF090	54499	-	-					
18	.677	.647	.250	.506	.442	19/64	13/16	.790	#8-32	PA3018DF090	54500	PA3018NF090	54515					
19	.714	.684			.468			.815		PA3019DF090	54501	PA3019NF090	54516					
20	.752	.722			.500			.895		PA3020DF090	54502	PA3020NF090	54517					
22	.827	.797			.562			.945		PA3022DF090	54503	PA3022NF090	54518					
24	.902	.872			.625			1.025		PA3024DF090	54504	PA3024NF090	54519					
25	.940	.910			.625			1.060		PA3025DF090	54505	PA3025NF090	54520					
26	.977	.947			.625			1.105		PA3026DF090	54506	PA3026NF090	54521					
28	1.053	1.023			.701			1.173		PA3028DF090	54507	PA3028NF090	54522					
30	1.128	1.098			.776			1.250		PA3030DF090	54508	PA3030NF090	54523					
32	1.203	1.173			.851			1.323		PA3032DF090	54509	PA3032NF090	54524					
34	1.278	1.248			.921			1.398		PA3034DF090	54510	PA3034NF090	54525					
36	1.353	1.323			1.000			1.473		PA3036DF090	54511	PA3036NF090	54526					
38	1.429	1.399	.527	1.075	1.075	27/32	1.549	1.549	#8-32	PA3038DF090	54512	PA3038NF090	54527					
40	1.504	1.474								1.150	1.625	PA3040DF090	54513	PA3040NF090	54528			
44	1.654	1.624								1.300	1.775	PA3044DF090	54514	PA3044NF090	54529			
48	1.805	1.775								-	-	-	-	-	-	-	PA3048NF090	54530
50	1.880	1.850	.3125	.500	1.250	3/8	7/8	-	#8-32	-	-	PA3050NF090	54531					
56	2.105	2.075								-	-	-	-	-	-	-	PA3056NF090	54532
60	2.256	2.226								-	-	-	-	-	-	-	PA3060NF090	54533
62	2.331	2.301								-	-	-	-	-	-	-	PA3062NF090	54534
72	2.707	2.677								-	-	-	-	-	-	-	PA3072NF090	54535

\*Pulleys with 10 to 13 grooves have one setscrew. All others have two at 90°

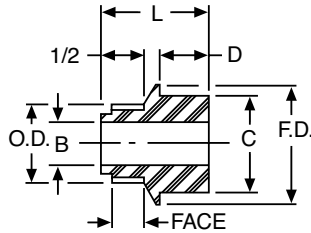
# Timing Belt Pulleys

## PL Series For 9mm Wide Belts

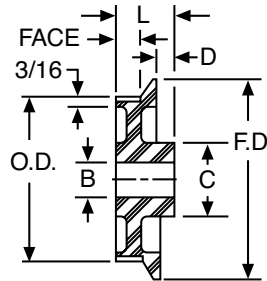
3mm Pitch; Lexan

### LEXAN – FIBERGLASS REINFORCED

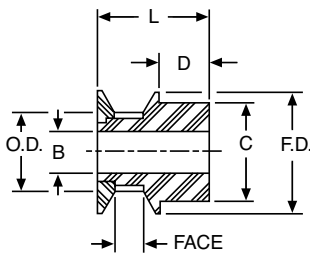
**SINGLE FLANGE  
10-28 GROOVES**



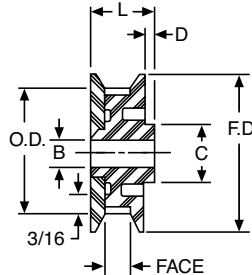
**SINGLE FLANGE  
32-120 GROOVES**



**DOUBLE FLANGE  
10-28 GROOVES**



**DOUBLE FLANGE  
32-80 GROOVES**



### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	All	+0.001 to -0.000

### ORDER BY CATALOG NUMBER OR ITEM CODE

Number of Grooves	Pitch Dia.	O.D.	B	Face Width	C	D	L	Flange Dia.	Single Flange		Double Flange				
									Catalog Number	Item Code	Catalog Number	Item Code			
10	.376	.346	3/16	7/16	5/8	1/4	3/4*	.63	PL3010SF090	54536	PL3010DF090	54560			
11	.414	.384							PL3011SF090	54537	PL3011DF090	54561			
12	.451	.421							PL3012SF090	54538	PL3012DF090	54562			
13	.489	.459							PL3013SF090	54539	PL3013DF090	54563			
14	.526	.496							PL3014SF090	54540	PL3014DF090	54564			
15	.564	.534			11/16		3/4	5/16	13/16	.73	PL3015SF090	54541	PL3015DF090	54565	
16	.602	.572									PL3016SF090	54542	PL3016DF090	54566	
17	.639	.609									PL3017SF090	54543	PL3017DF090	54567	
18	.677	.647			7/8		1		3/8	7/8	.93	PL3018SF090	54544	PL3018DF090	54568
19	.714	.684										PL3019SF090	54545	PL3019DF090	54569
20	.752	.722	1/4	3/4	7/8	13/16**	.93			PL3020SF090	54546	PL3020DF090	54570		
22	.827	.797								PL3022SF090	54547	PL3022DF090	54571		
25	.940	.910	5/16	1		7/8	13/16**			1.06	PL3025SF090	54548	PL3025DF090	54572	
28	1.053	1.023									PL3028SF090	54549	PL3028DF090	54573	
32	1.203	1.173	3/8	1			7/8			13/16**	1.24	PL3032SF090	54550	PL3032DF090	54574
36	1.353	1.323						PL3036SF090				54551	PL3036DF090	54575	
40	1.504	1.474	3/8	1				7/8		13/16**	1.57	PL3040SF090	54552	PL3040DF090	54576
48	1.805	1.775										PL3048SF090	54553	PL3048DF090	54577
60	2.256	2.226	3/8	1					7/8	13/16**	2.02	PL3060SF090	54554	PL3060DF090	54578
72	2.707	2.677										PL3072SF090	54555	PL3072DF090	54579
80	3.008	2.978	3/8	1	7/8					13/16**	2.46	PL3080SF090	54556	PL3080DF090	54580
84	3.158	3.128										PL3084SF090	54557	-	-
96	3.609	3.579	3/8	1		7/8				13/16**	3.29	PL3096SF090	54558	-	-
120	4.511	4.481										PL3120NF090†	54559	-	-

\*13/16" for Double Flanges

\*\*7/8" for Double Flanges

†No Flange

E



# Timing Belt Pulleys

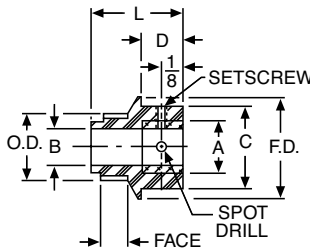
## PLB Series For 9mm Wide Belts

3mm Pitch; Lexan

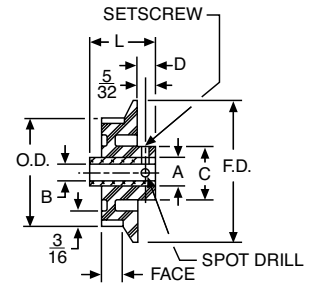


**LEXAN – FIBERGLASS REINFORCED  
KNURLED ALUMINUM INSERTS  
COMPLETE WITH SETSCREWS**

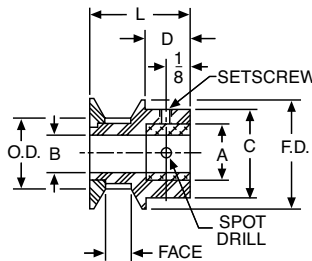
**SINGLE FLANGE  
10-16 GROOVES**



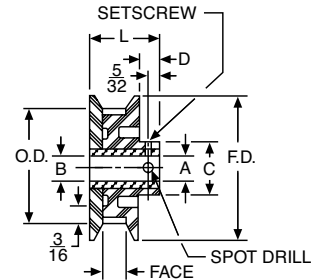
**SINGLE FLANGE  
17-28 GROOVES**



**DOUBLE FLANGE  
10-16 GROOVES**



**DOUBLE FLANGE  
17-28 GROOVES**



**STANDARD TOLERANCES**

DIMENSIONS		TOLERANCE
Bore	All	+.001 to -.000

**ORDER BY CATALOG NUMBER OR ITEM CODE**

Number of Grooves	Pitch Dia.	O.D.	B	Face Width	C	D	Insert Dia.	L	Flange Dia.	Set-screw	Single Flange		Double Flanges	
											Catalog Number	Item Code	Catalog Number	Item Code
10	.376	.346	3/16	7/16	5/8	1/4	3/8	3/4	.63	#6-32	PLB3010SF090	54581	PLB3010DF090	54633
11	.414	.384									PLB3011SF090	54582	PLB3011DF090	54634
12	.451	.421									PLB3012SF090	54583	PLB3012DF090	54635
13	.489	.459									PLB3013SF090	54584	PLB3013DF090	54636
14	.526	.496									PLB3014SF090	54585	PLB3014DF090	54637
15	.564	.534									PLB3015SF090	54586	PLB3015DF090	54638
16	.602	.572									PLB3016SF090	54587	PLB3016DF090	54639
17	.639	.609	3/16 1/4	7/16	11/16	1/4	3/8	13/16	.69	#6-32	PLB3017SF09-3/16	54588	PLB3017DF09-3/16	54640
18	.677	.647	3/16 1/4								PLB3017SF09-1/4	54589	PLB3017DF09-1/4	54641
											PLB3018SF09-3/16	54590	PLB3018DF09-3/16	54642
19	.714	.684	3/16								PLB3018SF09-1/4	54591	PLB3018DF09-1/4	54643
											PLB3019SF09-3/16	54592	PLB3019DF09-3/16	54644
20	.752	.722	3/16 1/4								PLB3019SF-09-1/4	54593	PLB3019DF09-1/4	54645
											PLB3020SF09-3/16	54594	PLB3020DF09-3/16	54646
22	.827	.797	3/16	PLB3020SF09-1/4	54595	PLB3020DF09-1/4	54647							
				PLB3022SF09-3/16	54596	PLB3022DF09-3/16	54649							
25	.940	.910	1/4 5/16 3/8	3/4	1/2	1/2	1/2	1.06	1.19	#8-32	PLB3025SF09-1/4	54598	PLB3025DF09-1/4	54650
											PLB3025SF09-5/16	54599	PLB3025DF09-5/16	54651
											PLB3025SF09-3/8	54600	PLB3025DF09-3/8	54652
28	1.053	1.023	1/4 5/16 3/8	3/4	1/2	1/2	1/2	1.19	1.24	#8-32	PLB3028SF09-1/4	54601	PLB3028DF09-1/4	54653
											PLB3028SF09-5/16	54602	PLB3028DF09-5/16	54654
											PLB3028SF09-3/8	54603	PLB3028DF09-3/8	54655

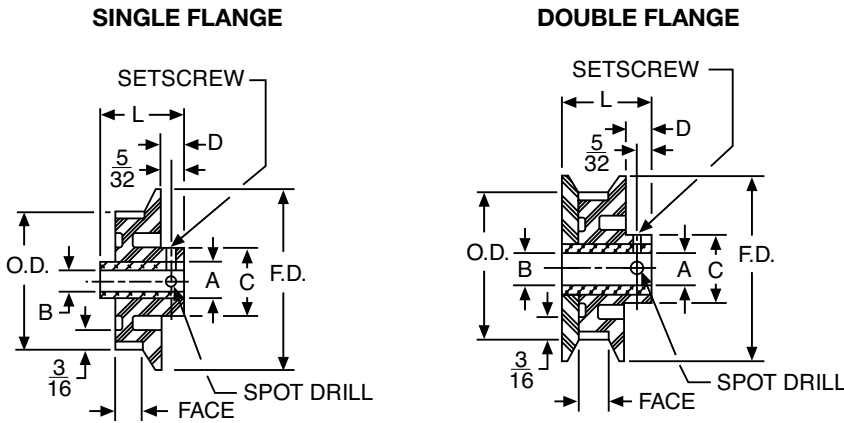
**E**

# Timing Belt Pulleys

## PLB Series For 9mm Wide Belts

3mm Pitch; Lexan

LEXAN – FIBERGLASS REINFORCED  
KNURLED ALUMINUM INSERTS  
COMPLETE WITH SETSCREWS



### STANDARD TOLERANCES

Dimension	Tolerance
Bore	All
	+0.001 to -0.000

### ORDER BY CATALOG NUMBER OR ITEM CODE

Number of Grooves	Pitch Dia.	O.D.	B	Face Width	C	D	Insert Dia.	L	Flange Dia.	Set-screw	Single Flange		Double Flanges	
											Catalog Number	Item Code	Catalog Number	Item Code
32	1.203	1.173	1/4	7/16	3/4	1/4	1/2	13/16	1.44	#8-32	PLB3032SF09-1/4	54604	PLB3032DF09-1/4	54656
			5/16								PLB3032SF09-5/16	54605	PLB3032DF09-5/16	54657
			3/8								PLB3032SF09-3/8	54606	PLB3032DF09-3/8	54658
36	1.353	1.323	1/4	7/16	7/8	1/4	1/2	13/16	1.57	#8-32	PLB3036SF09-1/4	54607	PLB3036DF09-1/4	54659
			5/16								PLB3036SF09-5/16	54608	PLB3036DF09-5/16	54660
			3/8								PLB3036SF09-3/8	54609	PLB3036DF09-3/8	54661
40	1.504	1.474	1/4	7/16	7/8	1/4	1/2	13/16	1.76	#8-32	PLB3040SF09-1/4	54610	PLB3040DF09-1/4	54662
			5/16								PLB3040SF09-5/16	54611	PLB3040DF09-5/16	54663
			3/8								PLB3040SF09-3/8	54612	PLB3040DF09-3/8	54664
48	1.805	1.775	1/4	7/16	7/8	1/4	1/2	13/16	2.02	#8-32	PLB3048SF09-1/4	54613	PLB3048DF09-1/4	54665
			5/16								PLB3048SF09-5/16	54614	PLB3048DF09-5/16	54666
			3/8								PLB3048SF09-3/8	54615	PLB3048DF09-3/8	54667
60	2.256	2.226	5/16	7/16	7/8	1/4	1/2	13/16	2.46	#8-32	PLB3060SF09-5/16	54616	PLB3060DF09-5/16	54668
			3/8								PLB3060SF09-3/8	54617	PLB3060DF09-3/8	54669
			1/2								PLB3060SF09-1/2	54618	PLB3060DF09-1/2	54670
72	2.707	2.677	5/16	7/16	7/8	1/4	1/2	13/16	2.92	#8-32	PLB3072SF09-5/16	54619	PLB3072DF09-5/16	54671
			3/8								PLB3072SF09-3/8	54620	PLB3072DF09-3/8	54672
			1/2								PLB3072SF09-1/2	54621	PLB3072DF09-1/2	54673
80	3.008	2.978	5/16	7/16	7/8	1/4	1/2	13/16	3.29	#10-32	PLB3080SF09-5/16	54622	PLB3080DF09-5/16	54674
			3/8								PLB3080SF09-3/8	54623	PLB3080DF09-3/8	54675
			1/2								PLB3080SF09-1/2	54624	PLB3080DF09-1/2	54676
84	3.158	3.128	5/16	7/16	7/8	1/4	1/2	13/16	3.38	#10-32	PLB3084SF09-5/16	54625	-	-
			3/8								PLB3084SF09-3/8	54626	-	-
			1/2								PLB3084SF09-1/2	54627	-	-
96	3.609	3.579	5/16	7/16	7/8	1/4	1/2	13/16	3.83	#10-32	PLB3096SF09-5/16	54628	-	-
			3/8								PLB3096SF09-3/8	54629	-	-
			1/2								PLB3096SF09-1/2	54630	-	-
120	4.511	4.481	3/8	1/2	1	3/8	7/8	-	-	#10-32	PLB3120NF09-3/8*	54631	-	-
			1/2								PLB3120NF09-1/2*	54632	-	-

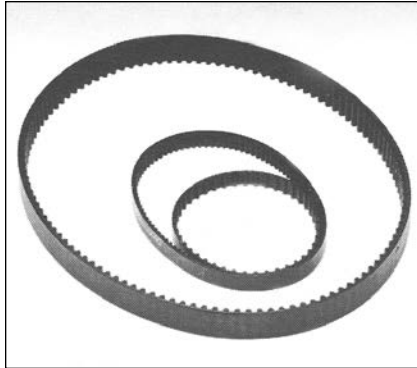
†7/8" for Double Flange  
\*No Flange



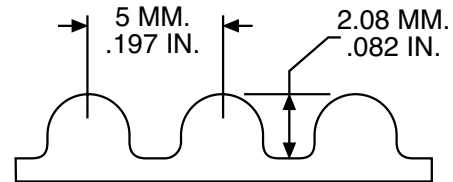
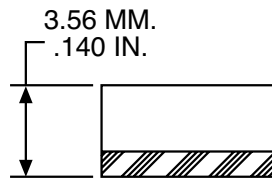
# Miniature HTD® Timing Belts

## 5M Series 9 and 15mm Widths

### 5mm Pitch



**NEOPRENE-NYLON COVERED, FIBERGLASS REINFORCED**  
**AMBIENT TEMPERATURE RANGE— -18°C TO +85°C**  
**BREAKING STRENGTH—6 mm WIDTH – 234 KGS**  
**9 mm WIDTH – 390 KGS**



#### ORDER BY CATALOG NUMBER OR ITEM CODE

Number of Grooves	Pitch Length		9mm Belt Width		15mm Belt Width	
	mm	Inch	Catalog Number	Item Code	Catalog Number	Item Code
64	320	12.598	–	–	5M064150	54407
66	330	12.992	5M066090	54367	5M066150	54408
70	350	13.779	5M070090	54368	5M070150	54409
75	375	14.764	5M075090	54369	5M075150	54410
80	400	15.748	5M080090	54370	5M080150	54411
85	425	16.732	5M085090	54371	5M085150	54412
90	450	17.716	5M090090	54372	5M090150	54413
95	475	18.700	5M095090	54373	5M095150	54414
100	500	19.685	5M100090	54374	5M100150	54415
107	535	21.063	5M107090	54376	5M107150	54417
113	565	22.244	5M113090	54377	5M113150	54418
120	600	23.622	5M120090	54378	5M120150	54419
123	615	24.213	5M123090	54379	5M123150	54420
127	635	25.000	5M127090	54380	5M127150	54421
133	665	26.181	5M133090	54381	5M133150	54422
134	670	26.378	5M134090	54382	5M134150	54423
142	710	27.953	5M142090	54383	5M142150	54424
148	740	29.134	5M148090	54384	5M148150	54425
151	755	29.724	5M151090	54385	5M151150	54426
160	800	31.596	5M160090	54386	5M160150	54427
166	830	32.677	5M166090	54387	5M166150	54428
167	835	32.874	5M167090	54388	5M167150	54429
170	850	33.464	5M170090	54389	5M170150	54430
178	890	35.039	5M178090	54390	5M178150	54431
185	925	36.417	5M185090	54391	5M185150	54432
186	930	36.614	5M186090	54392	5M186150	54433
190	950	37.401	5M190090	54393	5M190150	54434
200	1000	39.370	5M200090	54394	5M200150	54435
210	1050	41.339	5M210090	54395	5M210150	54436
225	1125	44.291	5M225090	54396	5M225150	54437
254	1270	50.000	5M254090	54397	5M254150	54438
284	1420	55.905	5M284090	54398	5M284150	54439
319	1595	62.795	5M319090	54399	5M319150	54440
358	1790	70.472	5M358090	54400	5M358150	54441
360	1800	70.866	5M360090	54401	5M360150	54442
374	1870	73.622	5M374090	54402	5M374150	54443
379	1895	74.606	5M379090	54403	5M379150	54444
389	1945	76.575	5M389090	54404	5M389150	54445
400	2000	78.740	5M400090	54405	5M400150	54446
505	2525	99.409	5M505090	54406	5M505150	54447

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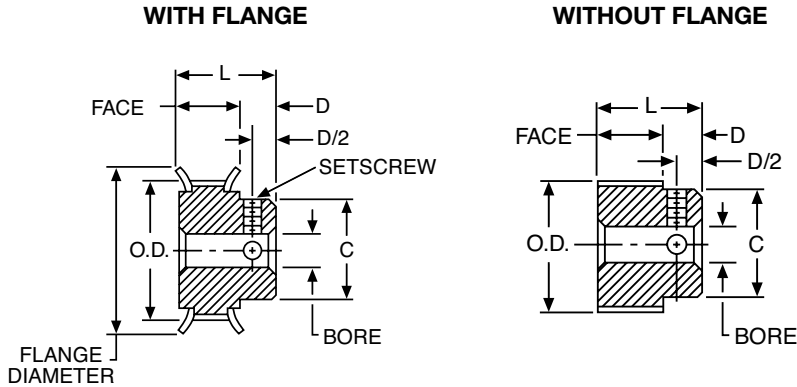
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# Timing Belt Pulleys

## PA Series For 9mm Wide Belts

5mm Pitch; Aluminum

ALUMINUM ALLOY – CLEAR ANODIZED  
COMPLETE WITH SETSCREWS



### STANDARD TOLERANCES

Dimension		Tolerance
Bore	All	+0.001 to -0.000
O.D.	12-16 Grooves	+0.002 to -0.000
	17-32 Grooves	+0.003 to -0.000
	34-62 Grooves	+0.004 to -0.000
	72 Grooves	+0.005 to -0.000

### ORDER BY CATALOG NUMBER OR ITEM CODE

Number of Grooves	Pitch Dia.	O.D.	B	Face Width	C	D	L	Flange Dia.	Setscrew*	With Flanges		Without Flanges	
										Catalog Number	Item Code	Catalog Number	Item Code
12	.752	.707	.250	35/64	7/16	1/4	51/64	7/8	#8-32	PA5012DF090	54677	PA5012NF090	54694
13	.815	.770			1/2			15/16		PA5013DF090	54678	PA5013NF090	54695
14	.877	.832			1/2			1		PA5014DF090	54679	PA5014NF090	54696
15	.940	.895			9/16			1-1/16		PA5015DF090	54680	PA5015NF090	54697
16	1.003	.958			9/16			1-3/32		PA5016DF090	54681	PA5016NF090	54698
17	1.065	1.020			5/8			1-3/16		PA5017DF090	54682	PA5017NF090	54699
18	1.128	1.083			11/16			1-1/4		PA5018DF090	54683	PA5018NF090	54700
19	1.191	1.146			3/4			1-5/16		PA5019DF090	54684	PA5019NF090	54701
20	1.253	1.208			13/16			1-3/8		PA5020DF090	54685	PA5020NF090	54702
22	1.379	1.334			15/16			1-1/2		PA5022DF090	54686	PA5022NF090	54703
24	1.504	1.459			1			1-5/8		PA5024DF090	54687	PA5024NF090	54704
25	1.566	1.521			1			1-11/16		PA5025DF090	54688	PA5025NF090	54705
26	1.629	1.584	.3125	35/64	1-1/16	5/16	55/64	1-3/4	#8-32	PA5026DF090	54689	PA5026NF090	54706
28	1.754	1.709			1-3/16			1-7/8		PA5028DF090	54690	PA5028NF090	54707
30	1.880	1.835			1-3/16			2		PA5030DF090	54691	PA5030NF090	54708
32	2.005	1.960			1-1/4			2-1/8		PA5032DF090	54692	PA5032NF090	54709
34	2.130	2.085			1-3/8			2-1/4		PA5034DF090	54693	PA5034NF090	54710
36	2.256	2.211			.375			1-1/2		25/64	15/16	-	#10-32
38	2.381	2.336	-	-		PA5038NF090	54712						
40	2.506	2.461	-	-		PA5040NF090	54713						
44	2.757	2.712	-	-		PA5044NF090	54714						
48	3.008	2.963	-	-		PA5048NF090	54715						
50	3.133	3.088	-	-		PA5050NF090	54716						
56	3.509	3.464	-	-		PA5056NF090	54717						
60	3.760	3.715	-	-		PA5060NF090	54718						
62	3.885	3.840	-	-		PA5062NF090	54719						
72	4.511	4.466	-	-		PA5072NF090	54720						

\*Pulleys with 12 and 13 grooves have one setscrew. All others have two at 90°

E

# Timing Belt Pulleys

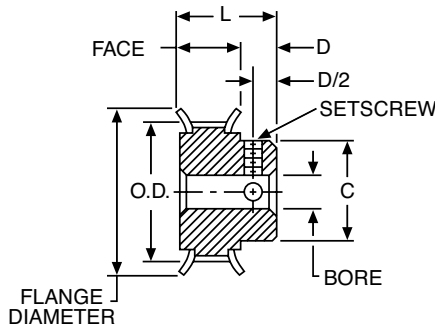
## PA Series For 15mm Wide Belts

5mm Pitch; Aluminum

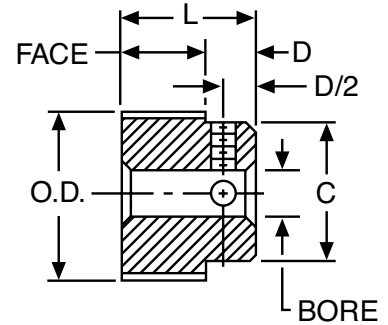


ALUMINUM ALLOY – CLEAR ANODIZED†  
COMPLETE WITH SETSCREWS

WITH FLANGE



WITHOUT FLANGE



### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	All	+.001 to -.000
O.D.	12-16 Grooves	+.002 to -.000
	17-32 Grooves	+.003 to -.000
	34-62 Grooves	+.004 to -.000
	72 Grooves	+.005 to -.000

ORDER BY CATALOG NUMBER OR ITEM CODE

Number of Grooves	Pitch Dia.	O.D.	B	Face Width	C	D	L	Flange Dia.	Setscrew*	With Flanges		Without Flanges			
										Catalog Number	Item Code	Catalog Number	Item Code		
12	.752	.707	.250		7/16	1/4	1-1/32	7/8	#8-32	PA5012DF150	54721	PA5012NF150	54738		
13	.815	.770			1/2			15/16		PA5013DF150	54722	PA5013NF150	54739		
14	.877	.832			1/2			1		PA5014DF150	54723	PA5014NF150	54740		
15	.940	.895			9/16			1-1/16		PA5015DF150	54724	PA5015NF150	54741		
16	1.003	.958			9/16			1-3/32		PA5016DF150	54725	PA5016NF150	54742		
17	1.065	1.020			5/8			1-3/16		PA5017DF150	54726	PA5017NF150	54743		
18	1.128	1.083			11/16			1-1/4		PA5018DF150	54727	PA5018NF150	54744		
19	1.191	1.146			3/4			1-5/16		PA5019DF150	54728	PA5019NF150	54745		
20	1.253	1.208			13/16			1-3/8		PA5020DF150	54729	PA5020NF150	54746		
22	1.379	1.334			15/16			1-1/2		PA5022DF150	54730	PA5022NF150	54747		
24	1.504	1.459			1			1-5/8		PA5024DF150	54731	PA5024NF150	54748		
25	1.566	1.521			1			1-11/16		PA5025DF150	54732	PA5025NF150	54749		
26	1.629	1.584			25/32	1-3/4	PA5026DF150	54733		PA5026NF150	54750				
28	1.754	1.709				1-3/16	5/16	1-3/32		1-7/8	PA5028DF150	54734	PA5028NF150	54751	
30	1.880	1.835				1-3/16	2	PA5030DF150		54735	PA5030NF150	54752			
32	2.005	1.960				1-1/4	2-1/8	PA5032DF150		54736	PA5032NF150	54753			
34	2.130	2.085				1-3/8	2-1/4	PA5034DF150		54737	PA5034NF150	54754			
36	2.256	2.211				.3125	-	-		-	-	-	PA5036NF150	54755	
38	2.381	2.336			-		-	-		-	-	-	PA5038NF150	54756	
40	2.506	2.461			-		-	-		-	-	-	PA5040NF150	54757	
44	2.757	2.712			-		-	-		-	-	-	PA5044NF150	54758	
48	3.008	2.963			.375		1-1/2	13/32		1-3/16	-	-	PA5048NF150	54759	
50	3.133	3.088					-	-		-	-	-	-	PA5050NF150	54760
56	3.509	3.464					-	-		-	-	-	-	PA5056NF150	54761
60	3.760	3.715	-	-			-	-	-	-	PA5060NF150	54762			
62	3.885	3.840	-	-		-	-	-	-	PA5062NF150	54763				
72	4.511	4.466	-	-		-	-	-	-	PA5072NF150	54764				

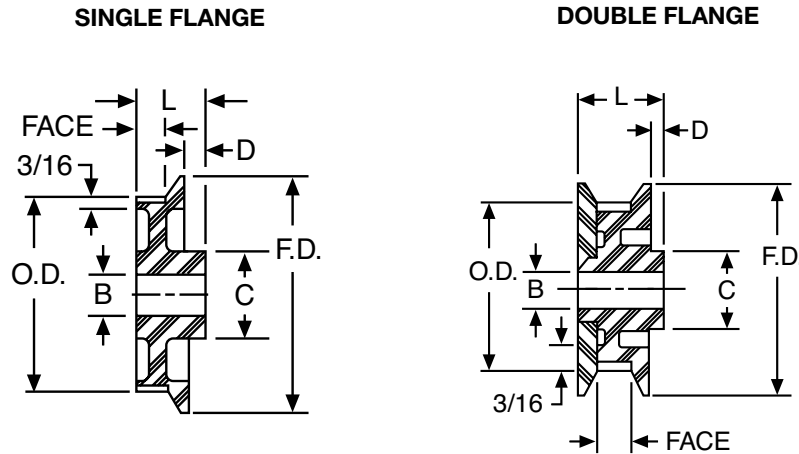
\*Pulleys with 12 and 13 grooves have one setscrew. All others have two at 90°  
†44-72 grooves, material is A356-T6 (cast).

# Timing Belt Pulleys

## PL Series For 9mm Wide Belts

5mm Pitch; Lexan

LEXAN – FIBERGLASS REINFORCED



### STANDARD TOLERANCES

Dimension		Tolerances
Bore	All	+.001 to -.000

ORDER BY CATALOG NUMBER OR ITEM CODE

Number of Grooves	Pitch Dia.	O.D.	B	Face Width	C	D	L	Flange Dia.	Single Flange		Double Flange	
									Catalog Number	Item Code	Catalog Number	Item Code
11	.689	.644	3/16	7/16	11/16	3/4*	13/16	.87	PL5011SF090	54765	PL5011DF090	54782
12	.752	.707						.93	PL5012SF090	54766	PL5012DF090	54783
13	.815	.770						.99	PL5013SF090	54767	PL5013DF090	54784
14	.877	.832	1.06		PL5014SF090	54768		PL5014DF090	54785			
15	.940	.895	1.19		PL5015SF090	54769		PL5015DF090	54786			
16	1.003	.958	1.19		PL5016SF090	54770		PL5016DF090	54787			
17	1.065	1.020	1/4	3/4	1/4		1.24	PL5017SF090	54771	PL5017DF090	54788	
18	1.128	1.083					1.31	PL5018SF090	54772	PL5018DF090	54789	
19	1.191	1.146					1.38	PL5019SF090	54773	PL5019DF090	54790	
20	1.253	1.208	7/8				1.44	PL5020SF090	54774	PL5020DF090	54791	
22	1.379	1.334					1.57	PL5022SF090	54775	PL5022DF090	54792	
25	1.566	1.521					1.76	PL5025SF090	54776	PL5025DF090	54793	
28	1.754	1.709					1.95	PL5028SF090	54777	PL5028DF090	54794	
29	1.817	1.772					2.02	PL5029SF090	54778	PL5029DF090	54795	
30	1.880	1.835					2.08	PL5030SF090	54779	PL5030DF090	54796	
40	2.506	2.461	5/16				2.71	PL5040SF090	54780	PL5040DF090	54797	
50	3.133	3.088					3.29	PL5050SF090	54781	PL5050DF090	54798	

\*7/8" for Double Flange.



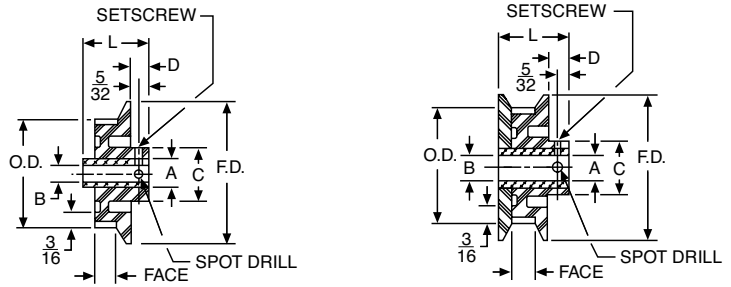


# Timing Belt Pulleys

## PLB Series For 9mm Wide Belts

5mm Pitch; Lexan

LEXAN – FIBERGLASS REINFORCED  
KNURLED ALUMINUM INSERTS  
COMPLETE WITH SETSCREWS



### STANDARD TOLERANCES

DIMENSIONS		TOLERANCE
Bore	All	+0.001 to -0.000

### ORDER BY CATALOG NUMBER OR ITEM CODE

Number of Grooves	Pitch Dia.	O.D.	B	Face Width	C	D	Insert Dia.	L	Flange Dia.	Set-screw*	Single Flange		Double Flanges	
											Catalog Number	Item Code	Catalog Number	Item Code
11	.689	.644	3/16 1/4	11/16	11/16	3/8	13/16	.87	#6-32	PLB5011SF09-3/16	54799	PLB5011DF09-3/16	54846	
12	.752	.707	3/16 1/4							PLB5011SF09-1/4	54800	PLB5011DF09-1/4	54847	
13	.815	.770	3/16 1/4							PLB5012SF09-3/16	54801	PLB5012DF09-3/16	54848	
14	.877	.832	3/16 1/4							PLB5012SF09-1/4	54802	PLB5012DF09-1/4	54849	
15	.940	.895	1/4	3/4	3/4	1/4	13/16	1.19	#8-32	PLB5013SF09-3/16	54803	PLB5013DF09-3/16	54850	
			5/16 3/8							PLB5013SF09-1/4	54804	PLB5013DF09-1/4	54851	
16	1.003	.958	3/16 1/4	7/16	1/2	1/2	13/16	1.19	#8-32	PLB5014SF09-3/16	54805	PLB5014DF09-3/16	54852	
			5/16 3/8							PLB5014SF09-1/4	54806	PLB5014DF09-1/4	54853	
			1/4							PLB5015SF09-1/4	54807	PLB5015DF09-1/4	54854	
17	1.065	1.020	5/16 3/8	7/16	1/2	1/2	13/16	1.24	#8-32	PLB5015SF09-5/16	54808	PLB5015DF09-5/16	54855	
			1/4							PLB5015SF09-3/8	54809	PLB5015DF09-3/8	54856	
			5/16 3/8							PLB5016SF09-1/4	54810	PLB5016DF09-1/4	54857	
18	1.128	1.083	5/16 3/8	7/16	1/2	1/2	13/16	1.31	#8-32	PLB5016SF09-5/16	54811	PLB5016DF09-5/16	54858	
			1/4							PLB5016SF09-3/8	54812	PLB5016DF09-3/8	54859	
			5/16 3/8							PLB5017SF09-1/4	54813	PLB5017DF09-1/4	54860	
19	1.191	1.146	5/16 3/8	7/16	1/2	1/2	13/16	1.38	#8-32	PLB5017SF09-5/16	54814	PLB5017DF09-5/16	54861	
			1/4							PLB5017SF09-3/8	54815	PLB5017DF09-3/8	54862	
			5/16 3/8							PLB5018SF09-1/4	54816	PLB5018DF09-1/4	54863	
20	1.253	1.208	5/16 3/8	7/16	1/2	1/2	13/16	1.44	#8-32	PLB5018SF09-5/16	54817	PLB5018DF09-5/16	54864	
			1/4							PLB5018SF09-3/8	54818	PLB5018DF09-3/8	54865	
			5/16 3/8							PLB5019SF09-1/4	54819	PLB5019DF09-1/4	54866	
22	1.379	1.334	5/16 3/8	7/16	1/2	1/2	13/16	1.57	#8-32	PLB5019SF09-5/16	54820	PLB5019DF09-5/16	54867	
			1/4							PLB5019SF09-3/8	54821	PLB5019DF09-3/8	54868	
			5/16 3/8							PLB5020SF09-1/4	54822	PLB5020DF09-1/4	54869	
25	1.566	1.521	5/16 3/8	7/16	1/2	1/2	13/16	1.76	#8-32	PLB5020SF09-5/16	54823	PLB5020DF09-5/16	54870	
			1/4							PLB5020SF09-3/8	54824	PLB5020DF09-3/8	54871	
			5/16 3/8							PLB5022SF09-1/4	54825	PLB5022DF09-1/4	54872	
28	1.754	1.709	5/16 3/8	7/16	1/2	1/2	13/16	1.95	#8-32	PLB5022SF09-5/16	54826	PLB5022DF09-5/16	54873	
			1/4							PLB5022SF09-3/8	54827	PLB5022DF09-3/8	54874	
			5/16 3/8							PLB5025SF09-1/4	54828	PLB5025DF09-1/4	54875	
29	1.817	1.772	5/16 3/8	7/8	1/2	1/2	13/16	2.02	#8-32	PLB5025SF09-5/16	54829	PLB5025DF09-5/16	54876	
			1/4							PLB5025SF09-3/8	54830	PLB5025DF09-3/8	54877	
			5/16 3/8							PLB5028SF09-1/4	54831	PLB5028DF09-1/4	54878	
30	1.880	1.835	5/16 3/8	7/8	1/2	1/2	13/16	2.08	#8-32	PLB5028SF09-5/16	54832	PLB5028DF09-5/16	54879	
			1/4							PLB5028SF09-3/8	54833	PLB5028DF09-3/8	54880	
			5/16 3/8							PLB5029SF09-1/4	54834	PLB5029DF09-1/4	54881	
40	2.506	2.461	5/16 1/2	7/8	1/2	1/2	13/16*	2.71	#10-32	PLB5029SF09-5/17	54835	PLB5029DF09-5/16	54882	
			5/16 3/8							PLB5029SF09-3/8	54836	PLB5029DF09-3/8	54883	
			1/2							PLB5030SF09-1/4	54837	PLB5030DF09-1/4	54884	
50	3.133	3.088	5/16 3/8	7/8	1/2	1/2	13/16*	3.29	#10-32	PLB5030SF09-5/16	54838	PLB5030DF09-5/16	54885	
			1/2							PLB5030SF09-3/8	54839	PLB5030DF09-3/8	54886	
			5/16 1/2							PLB5040SF09-5/16	54840	PLB5040DF09-5/16	54887	
50	3.133	3.088	5/16 1/2	7/8	1/2	1/2	13/16*	3.29	#10-32	PLB5040SF09-3/8	54841	PLB5040DF09-3/8	54888	
			3/8							PLB5040SF09-1/2	54842	PLB5040DF09-1/2	54889	
			1/2							PLB5050SF09-5/16	54843	PLB5050DF09-5/16	54890	
50	3.133	3.088	3/8	7/8	1/2	1/2	13/16*	3.29	#10-32	PLB5050SF09-3/8	54844	PLB5050DF09-3/8	54891	
			1/2							PLB5050SF09-1/2	54845	PLB5050DF09-1/2	54892	

†7/8" for Double Flange  
\*No Flange