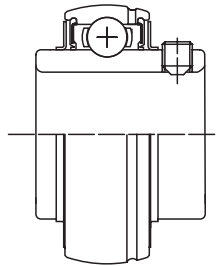


Silver-Lube® Bearing Units

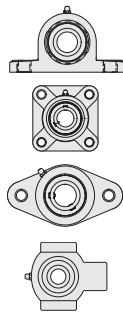


Silver-Lube® unit references

Insert Type

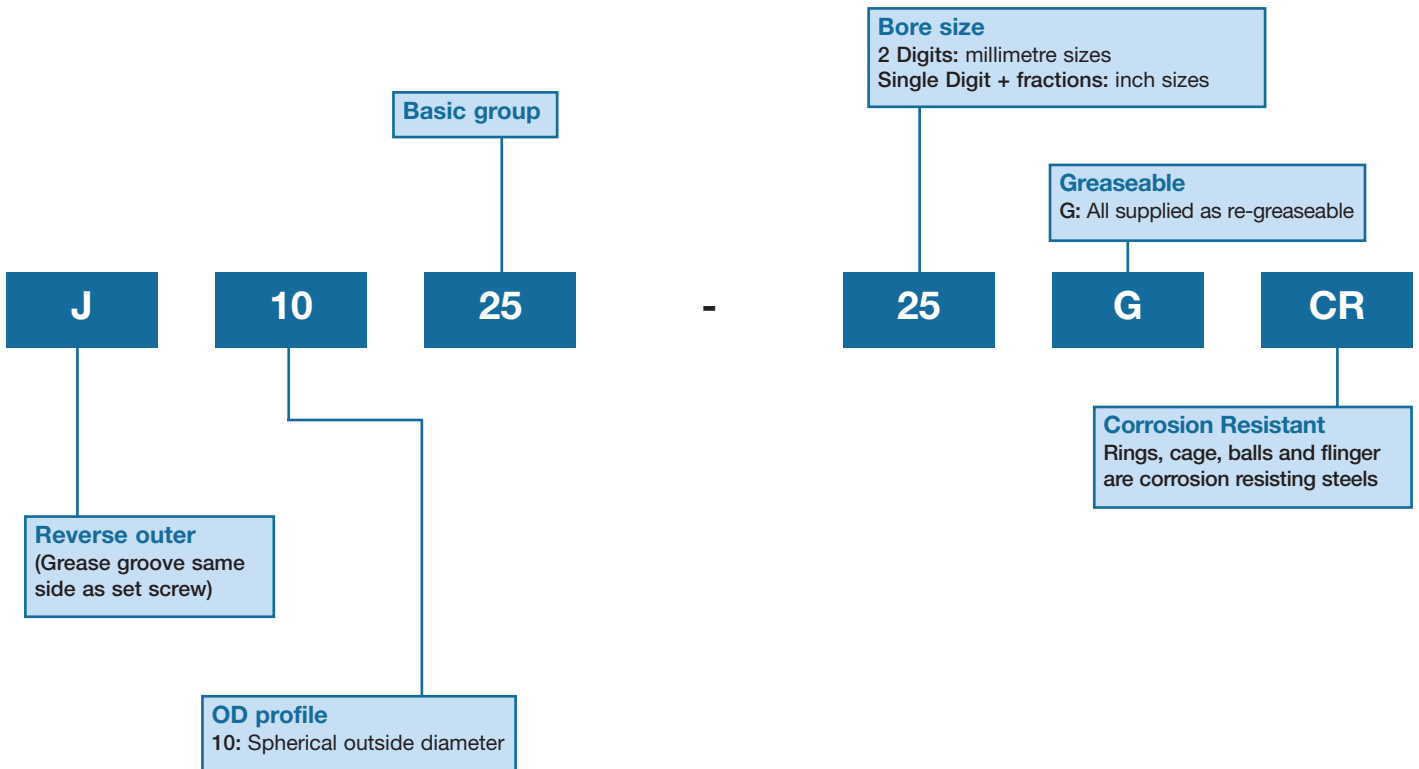


Housing Type



Page	100
102	PNP
104	PSF
106	PSFT
108	PST

Silver-Lube® insert references



Silver-Lube® product range

Introduction

The Silver-Lube® series is a range of corrosion resistant bearing units specifically for use in industries where frequent thorough washdowns are necessary, optimum hygiene standards are required and good chemical resistance is important over a wide temperature range.

The units are available in pillow block, two-bolt flange, four-bolt flange and take-up unit configurations and are capable of accommodating initial misalignment from mounting errors. In operation the units have proven reliability in the most hostile applications. Relubrication is possible for long trouble-free life, minimising maintenance, maximising productivity and helping maintain hygiene standards.

Silver-Lube® housings are made from PBT thermoplastic resin which, in addition to being non-corrodible, is resistant to detergents and a wide range of chemicals. The housings are paint and coating free which prevents chipping or flaking and have smooth surfaces to assist thorough washdowns.

Silver-Lube® bearing inserts are made from stainless steel, are provided with effective, efficient sealing arrangements and are charged with an aluminium complex, high temperature approved food grade grease as standard.

Housing strength

Housing load carrying capacity varies depending on the application loading regime, which may be intermittent, continuous or cyclical. Maximum housing loads are given in tables 1, 2, 3 and 4. These loads must not be exceeded without prior consultation with NSK.

Published housing maximum load capacities do not allow for any reduction in housing strength caused by exposure of the housing to chemicals, water, steam, heat, ultraviolet light or any combination of these factors. If any of these factors are present in the application the designer or end-user must establish the effect of these exposures and reduce the published maximum housing load accordingly.

To maximise load carrying capacity it is recommended that washers are used with the fixing bolts. Tables 1, 2 and 3 also detail maximum fixing bolt tightening torques.

Static electricity generation

Static electricity may be generated by Silver-Lube® bearing units under certain application conditions.

Silver-Lube® bearings are therefore not recommended for use in explosive or flammable environments. If Silver-Lube® bearing units are used in flammable or explosive applications the bearing insert must be earthed.

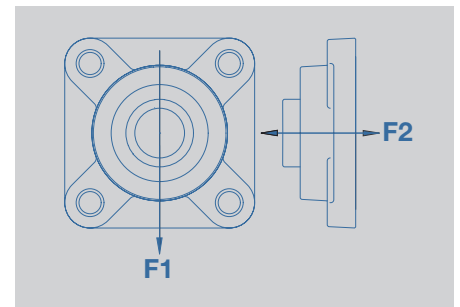
Housing strength

Table 1 PNP Silver-Lube® pillow block - housing load capacity

RHP designation	Maximum housing load (N) at 20°C								
	P1			P2			P3		
	Intermittent loading	Continuous loading	Cyclical loading	Intermittent loading	Continuous loading	Cyclical loading	Intermittent loading	Continuous loading	Cyclical loading
PNP20CR	3500	1700	800	2800	1400	800	2600	1300	700
PNP $\frac{3}{4}$ CR	3500	1700	800	2800	1400	800	2600	1300	700
PNP25CR	4000	2000	1000	3100	1500	800	2600	1300	700
PNP1CR	4000	2000	1000	3100	1500	800	2600	1300	700
PNP30CR	5000	2500	1200	3500	1800	1000	4000	2000	1100
PNP $\frac{1}{16}$ CR	5000	2500	1200	3500	1800	1000	4000	2000	1100
PNP $\frac{1}{4}$ RCR	5000	2500	1200	3500	1800	1000	4000	2000	1100
PNP35CR	6000	3000	1500	4300	2100	1200	4100	2100	1100
PNP $\frac{1}{4}$ CR	6000	3000	1500	4300	2100	1200	4100	2100	1100
PNP $\frac{1}{16}$ CR	6000	3000	1500	4300	2100	1200	4100	2100	1100
PNP40CR	10700	5300	2900	8000	4000	2200	6800	3400	1900
PNP $\frac{1}{2}$ CR	10700	5300	2900	8000	4000	2200	6800	3400	1900

Table 2 PSF Silver-Lube® four-bolt flange - housing load capacity

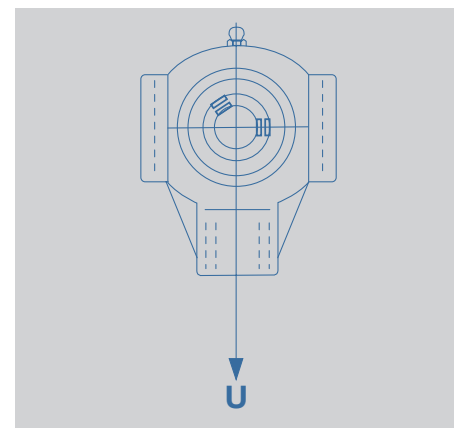
RHP designation	Maximum housing load (N) at 20°C						Maximum fixing bolt torque (Nm)
	F1			F2			
	Intermittent loading	Continuous loading	Cyclical loading	Intermittent loading	Continuous loading	Cyclical loading	
PSF20CR	3100	1600	900	1300	700	400	18
PSF $\frac{3}{4}$ CR	3100	1600	900	1300	700	400	18
PSF25CR	3500	1700	1000	1300	700	400	25
PSF1CR	3500	1700	1000	1300	700	400	25
PSF30CR	4600	2300	1300	2200	1100	600	30
PSF $\frac{1}{16}$ CR	4600	2300	1300	2200	1100	600	30
PSF $\frac{1}{4}$ RCR	4600	2300	1300	2200	1100	600	30
PSF35CR	6200	3100	1700	2600	1300	700	35
PSF $\frac{1}{4}$ CR	6200	3100	1700	2600	1300	700	35
PSF $\frac{1}{16}$ CR	6200	3100	1700	2600	1300	700	35
PSF40CR	6200	3100	1700	4000	2000	1100	40
PSF $\frac{1}{2}$ CR	6200	3100	1700	4000	2000	1100	40



PSF SERIES

Table 4 PST Silver-Lube® take-up - housing load capacity

RHP designation	Maximum housing load (N) at 20°C		
	U Intermittent loading	U Continuous loading	U Cyclical loading
PST20CR	5700	2800	1600
PST $\frac{3}{4}$ CR	5700	2800	1600
PST25CR	5400	2700	1500
PST1CR	5400	2700	1500
PST30CR	8100	4000	2300
PST $\frac{1}{16}$ CR	8100	4000	2300
PST $\frac{1}{4}$ RCR	8100	4000	2300
PST35CR	7800	3900	2200
PST $\frac{1}{4}$ CR	7800	3900	2200
PST $\frac{1}{16}$ CR	7800	3900	2200
PST40CR	8100	4000	2300
PST $\frac{1}{2}$ CR	8100	4000	2300



PST SERIES

Note that there is no maximum fixing bolt torque applicable for take-up units.

	Maximum housing load (N) at 20°C			Maximum fixing bolt torque (Nm)
	P4 Intermittent loading	P4 Continuous loading	P4 Cyclical loading	
	1300	700	400	18
	1300	700	400	18
	1700	900	500	25
	1700	900	500	25
	2600	1300	700	30
	2600	1300	700	30
	2600	1300	700	30
	3200	1600	900	35
	3200	1600	900	35
	3200	1600	900	35
	5200	2600	1400	40
	5200	2600	1400	40

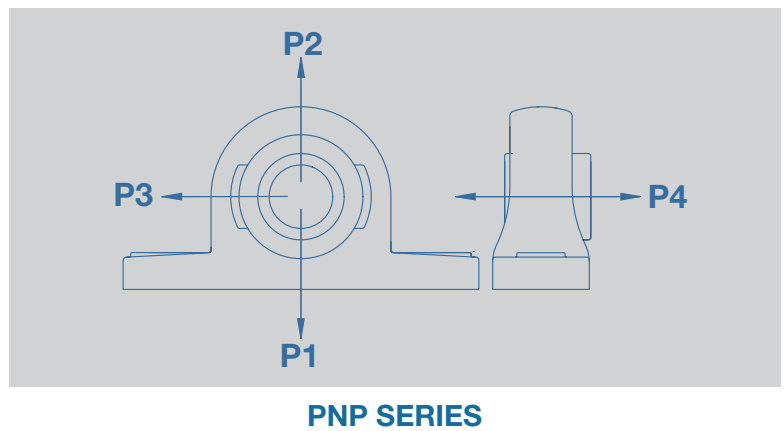
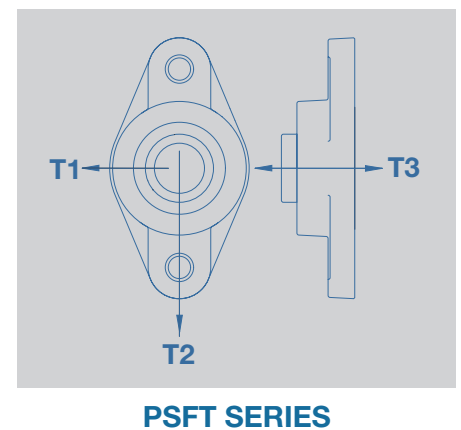


Table 3 PSFT Silver-Lube® two-bolt flange - housing load capacity

RHP designation	Maximum housing load (N) at 20°C									Maximum fixing bolt torque (Nm)
	T1 Intermittent loading	T1 Continuous loading	T1 Cyclical loading	T2 Intermittent loading	T2 Continuous loading	T2 Cyclical loading	T3 Intermittent loading	T3 Continuous loading	T3 Cyclical loading	
PSFT20CR	4400	2200	1200	1900	900	500	1300	700	400	18
PSFT ³ / ₄ CR	4400	2200	1200	1900	900	500	1300	700	400	18
PSFT25CR	4400	2200	1200	3000	1500	800	1400	700	400	25
PSFT1CR	4400	2200	1200	3000	1500	800	1400	700	400	25
PSFT30CR	5900	2900	1600	3300	1600	900	2000	1000	500	30
PSFT1 ³ / ₁₆ CR	5900	2900	1600	3300	1600	900	2000	1000	500	30
PSFT1 ¹ / ₄ RCR	5900	2900	1600	3300	1600	900	2000	1000	500	30
PSFT35CR	6400	3200	1700	3900	2000	1100	2800	1400	800	35
PSFT1 ¹ / ₄ CR	6400	3200	1700	3900	2000	1100	2800	1400	800	35
PSFT1 ⁷ / ₁₆ CR	6400	3200	1700	3900	2000	1100	2800	1400	800	35
PSFT40CR	9000	4500	2500	3900	2000	1100	3300	1600	900	40
PSFT1 ¹ / ₂ CR	9000	4500	2500	3900	2000	1100	3300	1600	900	40



Silver-Lube® bearing inserts

Silver-Lube® bearing inserts have martensitic stainless steel rings and balls, and austenitic stainless steel ball cage, flingers and set screws.

The grease in this product is an aluminium complex food grade grease, classified to NSF grade H1. In the event of relubricating being necessary, this type of grease is the first choice replacement.

If an aluminium complex food grade grease is not available, it is essential that any alternative grease is NSF H1 approved and ideally chemically compatible with the original grease. If chemical compatibility cannot be assured, then it is recommended that the original grease is completely flushed out of the system before relubrication. NSK should be consulted where necessary.

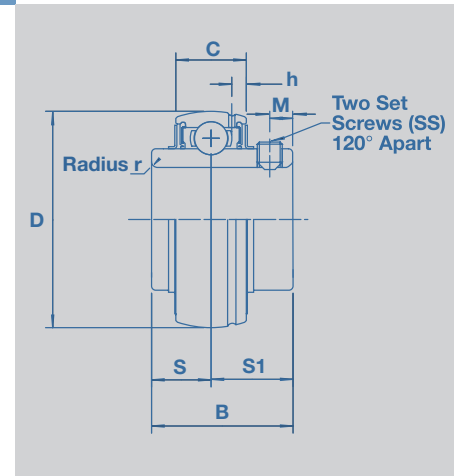


Table 5 Insert designations, dimensions and weights

Units: mm

RHP designation	Bore dia	D	C	B	S	r	M	C _r (N)	C _{or} (N)	Weight (Kg)
J1020-20GCR	20	47	16	31.0	12.7	1.5	5.0	9910	5350	0.16
J1020-3/4GCR	3/4"	47	16	31.0	12.7	1.5	5.0	9910	5350	0.16
J1025-25GCR	25	52	17	34.0	14.3	1.5	5.5	10820	6300	0.20
J1025-1GCR	1"	52	17	34.0	14.3	1.0	5.5	10820	6300	0.20
J1030-30GCR	30	62	19	38.1	15.9	1.5	6.0	15000	9050	0.32
J1030-13/16GCR	13/16"	62	19	38.1	15.9	1.0	6.0	15000	9050	0.32
J1030-11/4GCR	11/4"	62	19	38.1	15.9	1.0	6.0	15000	9050	0.32
J1035-35GCR	35	72	20	42.9	17.5	2.0	6.5	19820	12300	0.48
J1035-11/4GCR	11/4"	72	20	42.9	17.5	2.0	6.5	19820	12300	0.48
J1035-17/16GCR	17/16"	72	20	42.9	17.5	1.5	6.5	19820	12300	0.48
J1040-40GCR	40	80	21	49.2	19.0	2.0	8.0	22540	14300	0.64
J1040-11/2GCR	11/2"	80	21	49.2	19.0	2.0	8.0	22540	14300	0.64

Shaft tolerances and permissible speeds

Bearing insert permissible speed is dependent on shaft tolerance. For higher speed applications an ISO h7 shaft tolerance is recommended. An ISO h9 shaft tolerance may be used for low speed applications. For more information see table 6.

Table 6 Tolerances and speeds

Basic bearing insert	Bearing limiting speed (RPM)	ISO h7 Shaft tolerance high (0.001 mm Units)	ISO h7 Shaft tolerance low (0.001 mm Units)	Bearing limiting speed (RPM)	ISO h9 Shaft tolerance high (0.001 mm Units)	ISO h9 Shaft tolerance low (0.001 mm Units)
J1020	2900	0	-21	1490	0	-52
J1025	2600	0	-21	1300	0	-52
J1030	2180	0	-21	1090	0	-52
J1035	1870	0	-25	940	0	-62
J1040	1650	0	-25	830	0	-62

Materials and tightening torques

Materials

	Parts	Materials
Bearing	Bearing Rings	Martensitic stainless steel (equivalent to SUS440C)
	Ball	Martensitic stainless steel (equivalent to SUS440C)
	Flinger	Austenitic stainless steel (equivalent to SUS302)
	Set Screw	Martensitic stainless steel (equivalent to SUS304)
	Cage	Austenitic stainless steel (equivalent to SUS302)
Bearing housing		Thermo Plastic PBT

Set screw tightening torques

Set screws for Silver-Lube® bearing inserts are manufactured from stainless steel and can fracture if overtightened. The limiting set screw torques listed (in Table 7) should not be exceeded.

Table 7 Recommended tightening torques for set screws

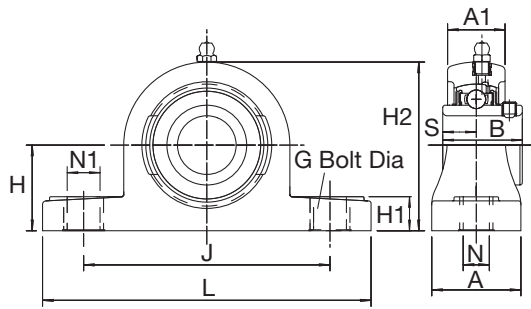
Bearing designation	Designation of set screws	Maximum tightening torque (Nm)
J1020-20GCR	M6 X 6.0 LONG	4
J1020- $\frac{3}{4}$ GCR	M6 X 6.0 LONG	4
J1025-25GCR	M6 X 6.0 LONG	4
J1025-1GCR	M6 X 6.0 LONG	4
J1030-30GCR	M6 X 6.0 LONG	4
J1030- $\frac{3}{16}$ GCR	M6 X 6.0 LONG	4
J1030- $\frac{1}{4}$ GCR	M6 X 6.0 LONG	4
J1035-35GCR	M8 X 8.0 LONG	8
J1035- $\frac{1}{4}$ GCR	M8 X 8.0 LONG	8
J1035- $\frac{1}{16}$ GCR	M8 X 8.0 LONG	8
J1040-40GCR	M8 X 8.0 LONG	8
J1040- $\frac{1}{2}$ GCR	M8 X 8.0 LONG	8

Unit dimensions

Table 8
PNP Silver-Lube® pillow block - unit dimensions

Shaft diameter		RHP designation	Basic bearing insert	Housing group	Dimensions (mm)				
mm	inches				L	H	H1	H2	J
20		PNP20CR PNP $\frac{3}{4}$ CR	J1020 J1020	2 2	127.2	33.3	14.2	65.9	94.9
	$\frac{3}{4}$				127.2	33.3	14.2	65.9	94.9
25		PNP25CR PNP1CR	J1025 J1025	3 3	140.2	36.5	14.5	71.9	104.9
	1				140.2	36.5	14.5	71.9	104.9
30		PNP30CR PNP $1\frac{3}{16}$ CR PNP $1\frac{1}{4}$ RCR	J1030 J1030 J1030	4 4 4	162.2	42.9	17.8	83.9	118.9
	$1\frac{3}{16}$				162.2	42.9	17.8	83.9	118.9
	$1\frac{1}{4}$				162.2	42.9	17.8	83.9	118.9
35		PNP35CR PNP $1\frac{1}{4}$ CR PNP $1\frac{7}{16}$ CR	J1035 J1035 J1035	5 5 5	167.2	47.6	18.0	94.9	126.9
	$1\frac{1}{4}$				167.2	47.6	18.0	94.9	126.9
	$1\frac{7}{16}$				167.2	47.6	18.0	94.9	126.9
40		PNP40CR PNP $1\frac{1}{2}$ CR	J1040 J1040	6 6	184.2	49.2	19.5	98.9	136.8
	$1\frac{1}{2}$				184.2	49.2	19.5	98.9	136.8

All dimensions in mm except inch shaft sizes



PNP SERIES

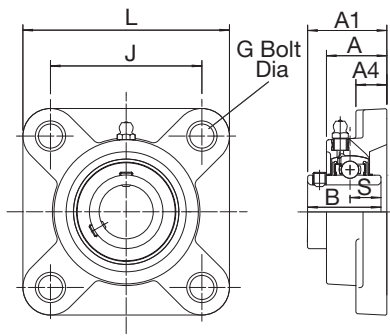
Dimensions (mm)								Weight
N	N1	G	A	A1	B	S		
								kg
11.0	14.2	M10	37.8	22.5	31.0	12.7	0.27	
11.0	14.2	M10	37.8	22.5	31.0	12.7	0.27	
11.0	14.2	M10	37.8	24.5	34.0	14.3	0.39	
11.0	14.2	M10	37.8	24.5	34.0	14.3	0.39	
14.0	18.2	M12	45.8	27.0	38.1	15.9	0.52	
14.0	18.2	M12	45.8	27.0	38.1	15.9	0.52	
14.0	18.2	M12	45.8	27.0	38.1	15.9	0.52	
14.0	18.2	M12	47.8	32.5	42.9	17.5	0.72	
14.0	18.2	M12	47.8	32.5	42.9	17.5	0.72	
14.0	18.2	M12	47.8	32.5	42.9	17.5	0.72	
14.0	18.2	M12	53.8	36.0	49.2	19.0	0.99	
14.0	18.2	M12	53.8	36.0	49.2	19.0	0.99	

Unit dimensions

Table 9
PSF Silver-Lube® four-bolt flange - unit dimensions

Shaft diameter		RHP designation	Basic bearing insert	Housing group	Dimensions (mm)		
mm	inches				L	J	G
20		PSF20CR	J1020	2	86.5	63.5	M10
	$\frac{3}{4}$	PSF $\frac{3}{4}$ CR	J1020	2	86.5	63.5	M10
25		PSF25CR	J1025	3	95.0	70.0	M10
	1	PSF1CR	J1025	3	95.0	70.0	M10
30		PSF30CR	J1030	4	107.5	83.0	M12
	$1\frac{3}{16}$	PSF $1\frac{3}{16}$ CR	J1030	4	107.5	83.0	M12
	$1\frac{1}{4}$	PSF $1\frac{1}{4}$ RCR	J1030	4	107.5	83.0	M12
35		PSF35CR	J1035	5	117.5	92.0	M12
	$1\frac{1}{4}$	PSF $1\frac{1}{4}$ CR	J1035	5	117.5	92.0	M12
	$1\frac{7}{16}$	PSF $1\frac{7}{16}$ CR	J1035	5	117.5	92.0	M12
40		PSF40CR	J1040	6	130.5	102.0	M12
	$1\frac{1}{2}$	PSF $1\frac{1}{2}$ CR	J1040	6	130.5	102.0	M12

All dimensions in mm except inch shaft sizes



PSF SERIES

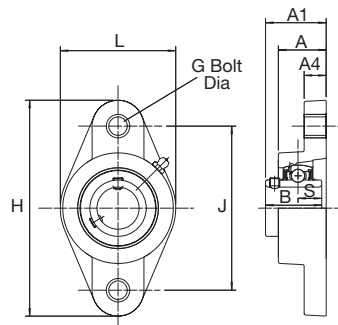
Dimensions (mm)						Weight
A	A1	A1	B	S		kg
27.8	36.3	13.4	31.0	12.7		0.28
27.8	36.3	13.4	31.0	12.7		0.28
27.9	36.7	14.3	34.0	14.3		0.34
27.9	36.7	14.3	34.0	14.3		0.34
31.5	41.4	14.3	38.1	15.9		0.50
31.5	41.4	14.3	38.1	15.9		0.50
31.5	41.4	14.3	38.1	15.9		0.50
34.8	46.9	15.5	42.9	17.5		0.74
34.8	46.9	15.5	42.9	17.5		0.74
34.8	46.9	15.5	42.9	17.5		0.74
37.5	53.2	17.1	49.2	19.0		0.98
37.5	53.2	17.1	49.2	19.0		0.98

Unit dimensions

Table 10
PSFT Silver-Lube® two-bolt flange - unit dimensions

Shaft diameter		RHP designation	Basic bearing insert	Housing group	Dimensions (mm)		
mm	inches				L	H	J
20		PSFT20CR PSFT $\frac{3}{4}$ CR	J1020 J1020	2 2	64.1	113.3	90.0
	$\frac{3}{4}$				64.1	113.3	90.0
25		PSFT25CR PSFT1CR	J1025 J1025	3 3	68.4	130.3	99.0
	1				68.4	130.3	99.0
30		PSFT30CR PSFT1 $\frac{3}{16}$ CR PSFT1 $\frac{1}{4}$ RCR	J1030 J1030 J1030	4 4 4	80.1	148.3	117.0
	$1\frac{3}{16}$				80.1	148.3	117.0
	$1\frac{1}{4}$				80.1	148.3	117.0
35		PSFT35CR PSFT1 $\frac{1}{4}$ CR PSFT1 $\frac{7}{16}$ CR	J1035 J1035 J1035	5 5 5	90.1	163.3	130.0
	$1\frac{1}{4}$				90.1	163.3	130.0
	$1\frac{7}{16}$				90.1	163.3	130.0
40		PSFT40CR PSFT1 $\frac{1}{2}$ CR	J1040 J1040	6 6	100.1	175.3	144.0
	$1\frac{1}{2}$				100.1	175.3	144.0

All dimensions in mm except inch shaft sizes



PSFT SERIES

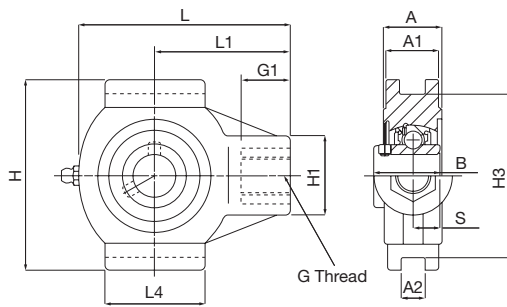
	Dimensions (mm)						Weight
	G	A	A1	A4	B	S	kg
M10	26.5	26.5	33.7	11.4	31.0	12.7	0.24
M10	26.5	26.5	33.7	11.4	31.0	12.7	0.24
M10	29.1	29.1	36.7	13.4	34.0	14.3	0.30
M10	29.1	29.1	36.7	13.4	34.0	14.3	0.30
M10	30.5	30.5	41.2	13.4	38.1	15.9	0.44
M10	30.5	30.5	41.2	13.4	38.1	15.9	0.44
M10	30.5	30.5	41.2	13.4	38.1	15.9	0.44
M12	32.8	32.8	43.4	16.1	42.9	17.5	0.64
M12	32.8	32.8	43.4	16.1	42.9	17.5	0.64
M12	32.8	32.8	43.4	16.1	42.9	17.5	0.64
M12	37.5	37.5	51.7	20.0	49.2	19.0	0.89
M12	37.5	37.5	51.7	20.0	49.2	19.0	0.89

Unit dimensions

Table 11
PST Silver-Lube® take up units - unit dimensions

Shaft diameter		RHP designation	Basic bearing insert	Housing group	Dimensions (mm)				
mm	inches				L	L1	L4	H	H1
20		PST20CR	J1020	2	99.0	64.0	47.0	88.0	35.0
	¾	PST¾CR	J1020	2	99.0	64.0	47.0	88.0	35.0
25		PST25CR	J1025	3	99.0	64.0	47.0	88.0	35.0
	1	PST1CR	J1025	3	99.0	64.0	47.0	88.0	35.0
30		PST30CR	J1030	4	125.0	76.0	63.0	102.0	40.0
	1⅜	PST1⅜CR	J1030	4	125.0	76.0	63.0	102.0	40.0
	1¼	PST1¼RCR	J1030	4	125.0	76.0	63.0	102.0	40.0
35		PST35CR	J1035	5	125.0	76.0	63.0	102.0	40.0
	1¼	PST1¼CR	J1035	5	125.0	76.0	63.0	102.0	40.0
	1⅞	PST1⅞CR	J1035	5	125.0	76.0	63.0	102.0	40.0
40		PST40CR	J1040	6	140.0	85.0	80.0	114.0	40.0
	1½	PST1½CR	J1040	6	140.0	85.0	80.0	114.0	40.0

All dimensions in mm except inch shaft sizes



PST SERIES

	Dimensions (mm)								Weight
	H3	G	G1	A	A1	A2	B	S	kg
	75.8	M16X2.00	22.5	27.5	24.5	12.2	31.0	12.7	0.32
	75.8	M16X2.00	22.5	27.5	24.5	12.2	31.0	12.7	0.32
	75.8	M16X2.00	22.5	27.5	24.5	12.2	34.0	14.3	0.36
	75.8	M16X2.00	22.5	27.5	24.5	12.2	34.0	14.3	0.36
	88.8	M16X2.00	22.5	34.5	30.0	12.2	38.1	15.9	0.53
	88.8	M16X2.00	22.5	34.5	30.0	12.2	38.1	15.9	0.53
	88.8	M16X2.00	22.5	34.5	30.0	12.2	38.1	15.9	0.53
	88.8	M16X2.00	22.5	34.5	30.0	12.2	42.9	17.5	0.74
	88.8	M16X2.00	22.5	34.5	30.0	12.2	42.9	17.5	0.74
	88.8	M16X2.00	22.5	34.5	30.0	12.2	42.9	17.5	0.74
	101.8	M16X2.00	22.5	34.0	32.0	16.2	49.2	19.0	1.00
	101.8	M16X2.00	22.5	34.0	32.0	16.2	49.2	19.0	1.00