

RHP *bearings*

Silver-Lube®

Corrosion resistant bearing units



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WITHSTANDS FREQUENT WASHDOWNS RESISTING

- Corrosion
- Detergents
- Chemicals
- Fungicides



STAINLESS STEEL

- Grease nipple
- Bolt hole liners
- Set screws
- Flinger
- Seal core
- Bearing rings, cage and balls



THERMOPLASTIC MOULDED HOUSING

- No coating
- No cracking
- No peeling

RHP SILVER-LUBE®

■ CORROSION RESISTANT UNITS

■ STAINLESS STEEL BEARING INSERTS

■ EFFECTIVE, EFFICIENT SEALING

■ FOOD GRADE GREASE APPROVED TO USDA H1

■ WIDE OPERATING TEMPERATURE

■ END COVERS AVAILABLE

INTRODUCTION

The RHP 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.

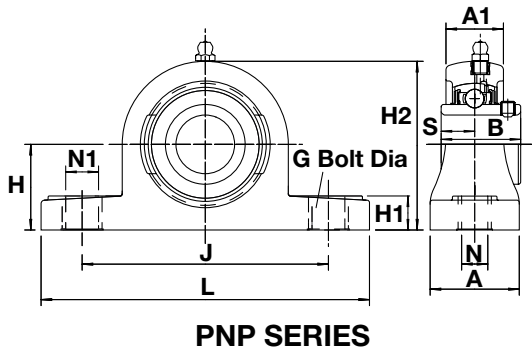
Silver-Lube® housings are made from Valox® 420 thermoplastic resin which, in addition to being non-corrodable, is resistant to detergents and a wide range of chemicals. The housings are paint and coating free which prevents chipping or flaking and have smooth surfaces to assist thorough washdowns. The housing material also demonstrates fungicidal resistance.

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 USDA H1 approved food grade grease, as standard.

Full technical specifications, application details and descriptions of the Silver-Lube® range are provided within this document.



FROM BOTTLING PLANTS TO FISHERIES



UNIT DIMENSIONS

Silver-Lube® mounting details are dimensionally interchangeable with the traditional RHP Self-Lube® range. However, some non-critical dimensions do differ, see tables below.

For permissible bearing speeds, please see page 14.

Table 1

PNP Silver-Lube® Pillow Blocks – Unit Dimensions

RHP DESIGNATION	SHAFT DIA.	BASIC INSERT	HOUSING GROUP	L	H	H1	H2	J	N	N1	G	A	A1	B	S	WEIGHT (kg)
PNP20CR	20	J1020	2	127.2	33.3	14.2	65.9	94.9	11.0	14.2	M10	37.8	22.5	31.0	12.7	0.27
PNP3/4CR	3/4"	J1020	2	127.2	33.3	14.2	65.9	94.9	11.0	14.2	M10	37.8	22.5	31.0	12.7	0.27
PNP25CR	25	J1025	3	140.2	36.5	14.5	71.9	104.9	11.0	14.2	M10	37.8	24.5	34.0	14.3	0.39
PNP1CR	1"	J1025	3	140.2	36.5	14.5	71.9	104.9	11.0	14.2	M10	37.8	24.5	34.0	14.3	0.39
PNP30CR	30	J1030	4	162.2	42.9	17.8	83.9	118.9	14.0	18.2	M12	45.8	27.0	38.1	15.9	0.52
PNP1.3/16CR	1.3/16"	J1030	4	162.2	42.9	17.8	83.9	118.9	14.0	18.2	M12	45.8	27.0	38.1	15.9	0.52
PNP1.1/4RCR	1.1/4"	J1030	4	162.2	42.9	17.8	83.9	118.9	14.0	18.2	M12	45.8	27.0	38.1	15.9	0.52
PNP35CR	35	J1035	5	167.2	47.6	18.0	94.9	126.9	14.0	18.2	M12	47.8	32.5	42.9	17.5	0.72
PNP1.1/4CR	1.1/4"	J1035	5	167.2	47.6	18.0	94.9	126.9	14.0	18.2	M12	47.8	32.5	42.9	17.5	0.72
PNP1.7/16CR	1.7/16"	J1035	5	167.2	47.6	18.0	94.9	126.9	14.0	18.2	M12	47.8	32.5	42.9	17.5	0.72
PNP40CR	40	J1040	6	184.2	49.2	19.5	98.9	136.8	14.0	18.2	M12	53.8	36.0	49.2	19.0	0.99
PNP1.1/2CR	1.1/2"	J1040	6	184.2	49.2	19.5	98.9	136.8	14.0	18.2	M12	53.8	36.0	49.2	19.0	0.99

All dimensions in mm except inch shaft sizes.

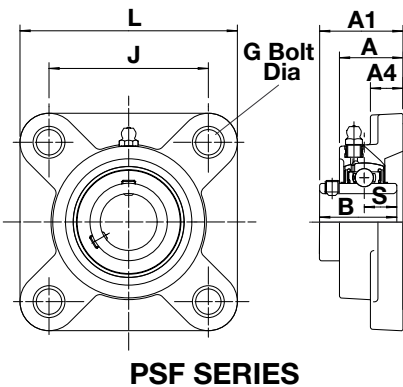


Table 2 PSF Silver-Lube® Four-Bolt Flange – Unit Dimensions

RHP DESIGNATION	SHAFT DIA.	BASIC INSERT	HOUSING GROUP	L	J	G	A	A1	A4	B	S	WEIGHT (kg)
PSF20CR	20	J1020	2	86.5	63.5	M10	27.8	36.3	13.4	31.0	12.7	0.28
PSF3/4CR	3/4"	J1020	2	86.5	63.5	M10	27.8	36.3	13.4	31.0	12.7	0.28
PSF25CR	25	J1025	3	95.0	70.0	M10	27.9	36.7	14.3	34.0	14.3	0.34
PSF1CR	1"	J1025	3	95.0	70.0	M10	27.9	36.7	14.3	34.0	14.3	0.34
PSF30CR	30	J1030	4	107.5	83.0	M10	31.5	41.4	14.3	38.1	15.9	0.50
PSF1.3/16CR	1.3/16"	J1030	4	107.5	83.0	M10	31.5	41.4	14.3	38.1	15.9	0.50
PSF1.1/4RCR	1.1/4"	J1030	4	107.5	83.0	M10	31.5	41.4	14.3	38.1	15.9	0.50
PSF35CR	35	J1035	5	117.5	92.0	M12	34.8	46.9	15.5	42.9	17.5	0.74
PSF1.1/4CR	1.1/4"	J1035	5	117.5	92.0	M12	34.8	46.9	15.5	42.9	17.5	0.74
PSF1.7/16CR	1.7/16"	J1035	5	117.5	92.0	M12	34.8	46.9	15.5	42.9	17.5	0.74
PSF40CR	40	J1040	6	130.5	102.0	M12	37.5	53.2	17.1	49.2	19.0	0.98
PSF1.1/2CR	1.1/2"	J1040	6	130.5	102.0	M12	37.5	53.2	17.1	49.2	19.0	0.98

All dimensions in mm except inch shaft sizes.

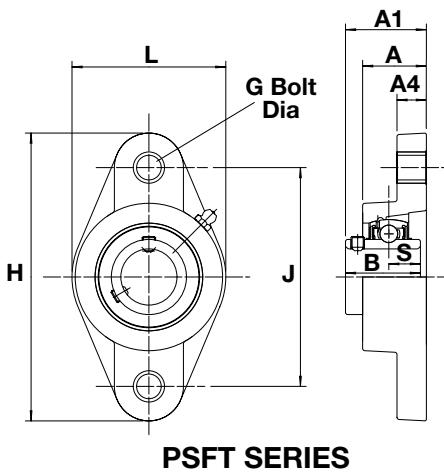
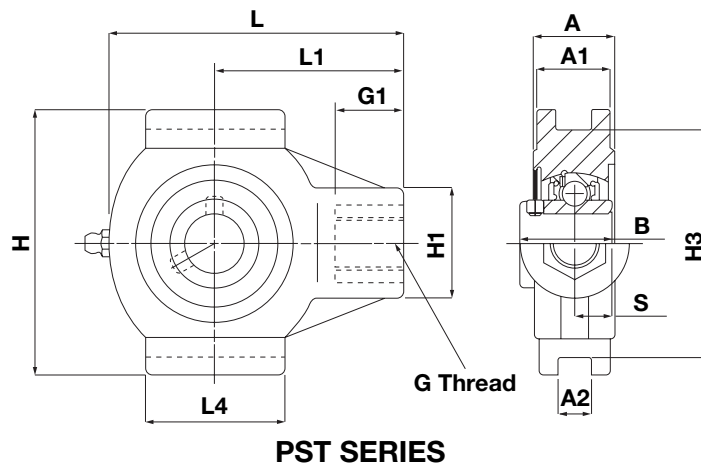


Table 3 PSFT Silver-Lube® Two-Bolt Flange – Unit Dimensions

RHP DESIGNATION	SHAFT DIA.	BASIC INSERT	HOUSING GROUP	L	H	J	G	A	A1	A4	B	S	WEIGHT (kg)
PSFT20CR	20	J1020	2	64.1	113.3	90.0	M10	26.5	33.7	11.4	31.0	12.7	0.24
PSFT3/4CR	3/4"	J1020	2	64.1	113.3	90.0	M10	26.5	33.7	11.4	31.0	12.7	0.24
PSFT25CR	25	J1025	3	68.4	130.3	99.0	M10	29.1	36.7	13.4	34.0	14.3	0.30
PSFT1CR	1"	J1025	3	68.4	130.3	99.0	M10	29.1	36.7	13.4	34.0	14.3	0.30
PSFT30CR	30	J1030	4	80.1	148.3	117.0	M10	30.5	41.2	13.4	38.1	15.9	0.44
PSFT1.3/16CR	1.3/16"	J1030	4	80.1	148.3	117.0	M10	30.5	41.2	13.4	38.1	15.9	0.44
PSFT1.1/4RCR	1.1/4"	J1030	4	80.1	148.3	117.0	M10	30.5	41.2	13.4	38.1	15.9	0.44
PSFT35CR	35	J1035	5	90.1	163.3	130.0	M12	32.8	43.4	16.1	42.9	17.5	0.64
PSFT1.1/4CR	1.1/4"	J1035	5	90.1	163.3	130.0	M12	32.8	43.4	16.1	42.9	17.5	0.64
PSFT1.7/16CR	1.7/16"	J1035	5	90.1	163.3	130.0	M12	32.8	43.4	16.1	42.9	17.5	0.64
PSFT40CR	40	J1040	6	100.1	175.3	144.0	M12	37.5	51.7	20.0	49.2	19.0	0.89
PSFT1.1/2CR	1.1/2"	J1040	6	100.1	175.3	144.0	M12	37.5	51.7	20.0	49.2	19.0	0.89

All dimensions in mm except inch shaft sizes.



PST SERIES

Table 4

PST Silver-Lube® Take-Up Units – Unit Dimensions

RHP DESIGNATION	SHAFT DIA.	BASIC INSERT	HOUSING GROUP	L	L1	L4	H	H1	H3	G	G1	A	A1	A2	B	S	WEIGHT (kg)
PST20CR	20	J1020	2	99.0	64.0	47.0	88.0	35.0	75.8	M16x2.00	22.5	27.5	24.5	12.2	31.0	12.7	0.32
PST3/4CR	3/4"	J1020	2	99.0	64.0	47.0	88.0	35.0	75.8	M16x2.00	22.5	27.5	24.5	12.2	31.0	12.7	0.32
PST25CR	25	J1025	3	99.0	64.0	47.0	88.0	35.0	75.8	M16x2.00	22.5	27.5	24.5	12.2	34.0	14.3	0.36
PST1CR	1"	J1025	3	99.0	64.0	47.0	88.0	35.0	75.8	M16x2.00	22.5	27.5	24.5	12.2	34.0	14.3	0.36
PST30CR	30	J1030	4	125.0	76.0	63.0	102.0	40.0	88.8	M16x2.00	22.5	34.5	30.0	12.2	38.1	15.9	0.53
PST1.3/16CR	1.3/16"	J1030	4	125.0	76.0	63.0	102.0	40.0	88.8	M16x2.00	22.5	34.5	30.0	12.2	38.1	15.9	0.53
PST1.1/4RCR	1.1/4"	J1030	4	125.0	76.0	63.0	102.0	40.0	88.8	M16x2.00	22.5	34.5	30.0	12.2	38.1	15.9	0.53
PST35CR	35	J1035	5	125.0	76.0	63.0	102.0	40.0	88.8	M16x2.00	22.5	34.5	30.0	12.2	42.9	17.5	0.74
PST1.1/4CR	1.1/4"	J1035	5	125.0	76.0	63.0	102.0	40.0	88.8	M16x2.00	22.5	34.5	30.0	12.2	42.9	17.5	0.74
PST1.7/16CR	1.7/16"	J1035	5	125.0	76.0	63.0	102.0	40.0	88.8	M16x2.00	22.5	34.5	30.0	12.2	42.9	17.5	0.74
PST40CR	40	J1040	6	140.0	85.0	80.0	114.0	40.0	101.8	M16x2.00	22.5	34.0	32.0	16.2	49.2	19.0	1.00
PST1.1/2CR	1.1/2"	J1040	6	140.0	85.0	80.0	114.0	40.0	101.8	M16x2.00	22.5	34.0	32.0	16.2	49.2	19.0	1.00

All dimensions in mm except inch shaft sizes.

END COVERS

Polypropylene end covers are available to fit all Silver-Lube® housings. End covers can be used at temperatures ranging from -20°C to $+90^{\circ}\text{C}$. They may be used as additional protection for the bearing in adverse environmental conditions as well as an aid to meeting safety requirements.

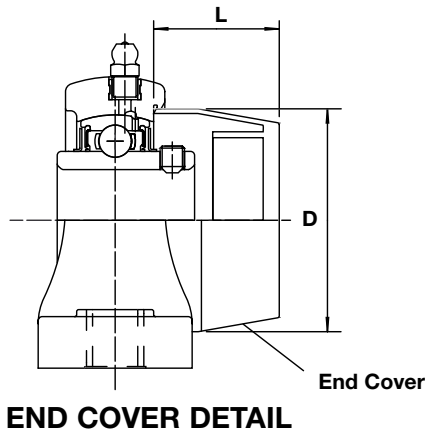


Table 5 End Cover Dimensions

HOUSING GROUP	END COVER REFERENCE	DIMENSION D	DIMENSION L
Group 2	P20P	50	23
Group 3	P25P	55	25
Group 4	P30P	64	30
Group 5	P35P	74	32
Group 6	P40P	84	37

All dimensions in mm.



SILVER-LUBE® HOUSINGS

Silver-Lube® housings are manufactured from Valox® 420, a high quality, 30% glass-filled thermoplastic polyester resin which has excellent strength, rigidity, dimensional stability and chemical resistance.

MATERIAL PROPERTIES

Table 6 Typical Properties of Valox® 420

Imperial Units (SI Units)		ASTM TEST METHOD	VALOX® 420 PBT Resin 30% Glass Reinforced
PROPERTY	UNITS		
MECHANICAL			
Tensile Strength	psi(MPa)	D638	17,300(119)
Elongation at Yield	%	D638	3
Flexural Strength	psi(MPa)	D790	27,500(189)
Flexural Modulus	psi(MPa)	D790	1,100,000(7,600)
Compressive Strength	psi(MPa)	D695	18,000(124)
Shear Strength	psi(MPa)	D732	8,900(61)
Izod Impact Strength		D256	
Notched 1/8" thick (3.2mm)	ft-lb/in(J/m)		1.6(85)
Unnotched 1/8" thick (3.2mm)	ft-lb/in(J/m)		15(800)
Gardner Impact 1/8" thick (3.2mm)	ft-lb(J)	Falling Dart	
Rockwell Hardness R-scale		D785	118
PHYSICAL			
Specific Gravity		D792	1.53
Specific Volume	in³/lb(cm³/kg)	D792	18.2(655)
Water Absorption 24 hours	%	D570	0.06

The reported values are typical values only – they do not directly apply to the manufactured housing but to the Valox® 420 resin itself.

HYGIENE

Silver-Lube® housings are non-corrodable and are paint and coating free to prevent chipping and peeling. The smooth surfaces resist dirt, mould and bacteria making Silver-Lube® units ideal for use in industries where cleanliness is paramount.

In tests in accordance with ASTM G21-70, Valox® resins have demonstrated fungicidal resistance to:

- *Aspergillus niger*
- *Penicillium faneculosium*
- *Chaetomium globosum*
- *Gliocladium virens*
- *Aureobasidium pullulans*

CHEMICAL RESISTANCE

Silver-Lube® housings have excellent resistance to a wide variety of chemicals. In very generalised terms, resistance by chemical category can be summarised as:

Chemical Category	Performance
Acids	Excellent
Bases	Good to Limited
Organic Solvents	Excellent to Fair
Ketones and Esters	Fair to Limited
Chlorinated Solvents	Excellent to Limited
Salts	Excellent
Automotive Media	Excellent to Fair

More detailed results from testing Valox® 420 resin in various media are listed in table 7. These list housing strength when exposed to specific chemicals under specific time, temperature and concentration situations, but not in combination with other chemical agents or environmental factors. It is therefore important that the user assesses each application with regard to combined chemical exposures and environmental conditions.

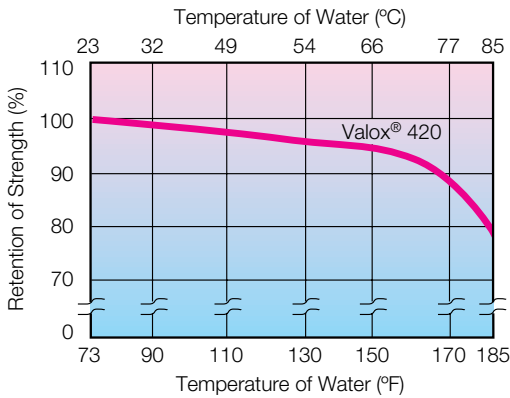
Table 7 Chemical Resistance of Valox® 420

(All data expressed in terms of % retention of tensile strength) xx = brittle

MEDIA	IMMERSION		%
	DAYS	TEMP °C	
ACIDS			
10% Hydrochloric Acid	30	25	89
	90	(77°F)	85
10% Sulfuric Acid	30	25	97
	90		94
36% Sulfuric Acid	30	25	97
	90		97
	30	60	84
10% Acetic Acid	90	(140°F)	60
	30	25	88
	90		88
BASES			
5% Potassium Hydroxide	30	25	88
	90		10
10% Sodium Hydroxide	30	25	xx
	90		xx
10% Ammonium Hydroxide	30	25	96
	90		87
SALTS			
10% Zinc Chloride	30	25	97
	90		94
10% Calcium Chloride	30	25	98
	90		98
5% Sodium Chloride	30	25	97
	90		97
ORGANIC SOLVENTS			
Ethyl Alcohol	30	25	99
	90		96
Methyl Alcohol	30	25	91
	90		82
Isopropyl Alcohol	30	25	100
	90		100
IPA-Water(50/50)	30	25	98
	90		97
GENERAL AND AUTOMOTIVE			
Heptane	30	25	99
	90		99
Acetone	30	25	86
	90		74
Methylethylketone	30	25	90
	90		80
Ethyl Acetate	30	25	96
	90		86
Methylene Chloride	30	25	54
	90		54
Ethylene Glycol	30	25	100
	90		100
Motor Oil	30	25	100
	90		100
	30	121	96
	90	(250°F)	63

The reported values are typical values only – they do not directly apply to the manufactured housing but to the Valox® 420 resin itself.

Graph 1 Strength Retention After 6 Months in Water

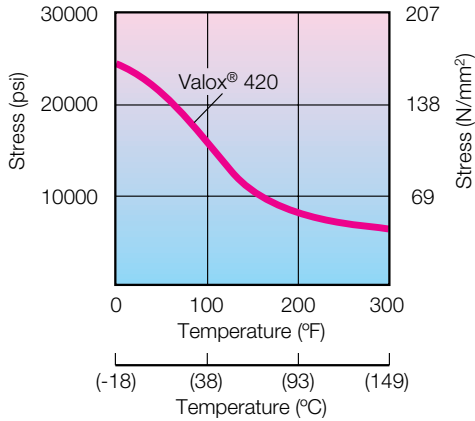


WATER AND STEAM RESISTANCE

Silver-Lube® housings are suitable for use in applications where frequent washdown occurs. After continuous immersion in water, Valox® 420 resin exhibits very little loss of strength at water temperatures up to (65°C) 150°F. Higher temperatures may be endured on an intermittent basis, but are not recommended for continuous use due to the associated loss of housing strength, see graph 1.

Silver-Lube® housings are not recommended for prolonged immersion in, or extended exposure to, water vapour. In applications where prolonged water vapour exposure occurs, some loss of housing strength may result. For more information, please contact NSK.

Graph 2 Tensile Strength Versus Temperature (Valox® 420 resin)



ULTRAVIOLET RESISTANCE

Valox® 420-1001 (natural coloured) resin has been tested for resistance to ultraviolet ageing by exposure to direct sunlight in Florida and in Arizona for five years.

Valox® 420-1001 retained approximately 75% of its original strength, toughness and flexibility after five years of Florida and Arizona exposure.

HEAT RESISTANCE

The operating temperature range of Silver-Lube® Valox® 420 resin housings is -20°C to +90°C.

Higher temperatures may be endured for short periods, for example during cleaning. However, where peak temperatures exceed +100°C for an extended period, please contact NSK.

The maximum housing loads published in this catalogue are based on tests conducted at 20°C. The tensile strength of Valox® 420 resin varies with temperature, see graph 2, above.

Designers and end-users must ensure that housing strength is adequate at the unit operating temperature by adjusting the published housing strength at 20°C, detailed in tables 9, 10, 11 and 12 by using the 'Housing Temperature/Strength Factor' listed in table 8. For example, the maximum housing load for a bearing operating at 40°C is 0.75 of the published maximum housing load at 20°C.

When evaluating housing strength it is important to establish the bearing operating temperature and not to consider the ambient temperature alone. Bearing operating temperature is dependent on ambient temperature and bearing load and speed. For high speed applications bearing temperatures in excess of 60°C are not uncommon. Please consult NSK in case of difficulty.

Table 8 Housing Temperature/Strength Factors

BEARING OPERATING TEMPERATURE	HOUSING TEMPERATURE/STRENGTH FACTOR
-20°C	1.00
-10°C	1.00
0°C	1.00
10°C	1.00
20°C	1.00
30°C	0.85
40°C	0.75
50°C	0.65
60°C	0.55
70°C	0.50
80°C	0.45
90°C	0.40

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 9, 10, 11, and 12. 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 9, 10 and 11 also detail maximum fixing bolt tightening torques.

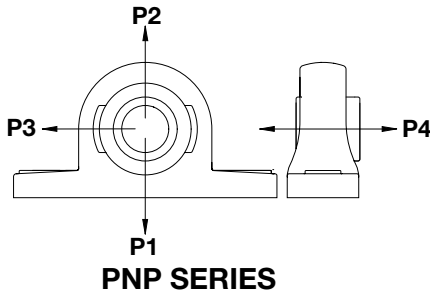


Table 9 PNP Silver-Lube® Pillow Blocks – Housing Load Capacity

RHP DESIGNATION	MAXIMUM HOUSING LOAD (N) AT 20°C												MAXIMUM FIXING BOLT TORQUE (Nm)
	P1			P2			P3			P4			
	INTERMITTENT LOADING	CONTINUOUS LOADING	CYCLICAL LOADING	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	1300	700	400	18
PNP3/4CR	3500	1700	800	2800	1400	800	2600	1300	700	1300	700	400	18
PNP25CR	4000	2000	1000	3100	1500	800	2600	1300	700	1700	900	500	25
PNP1CR	4000	2000	1000	3100	1500	800	2600	1300	700	1700	900	500	25
PNP30CR	5000	2500	1200	3500	1800	1000	4000	2000	1100	2600	1300	700	30
PNP1.3/16CR	5000	2500	1200	3500	1800	1000	4000	2000	1100	2600	1300	700	30
PNP1.1/4RCR	5000	2500	1200	3500	1800	1000	4000	2000	1100	2600	1300	700	30
PNP35CR	6000	3000	1500	4300	2100	1200	4100	2100	1100	3200	1600	900	35
PNP1.1/4CR	6000	3000	1500	4300	2100	1200	4100	2100	1100	3200	1600	900	35
PNP1.7/16CR	6000	3000	1500	4300	2100	1200	4100	2100	1100	3200	1600	900	35
PNP40CR	10700	5300	2900	8000	4000	2200	6800	3400	1900	5200	2600	1400	40
PNP1.1/2CR	10700	5300	2900	8000	4000	2200	6800	3400	1900	5200	2600	1400	40

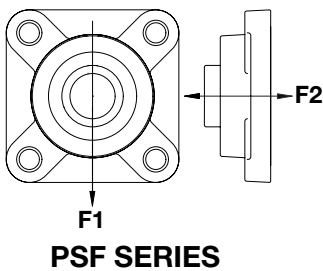
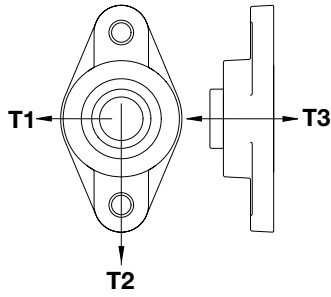


Table 10 PSF Four-Bolt Flange – Housing Load Capacity

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
PSF3/4CR	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
PSF1.3/16CR	4600	2300	1300	2200	1100	600	30
PSF1.1/4RCR	4600	2300	1300	2200	1100	600	30
PSF35CR	6200	3100	1700	2600	1300	700	35
PSF1.1/4CR	6200	3100	1700	2600	1300	700	35
PSF1.7/16CR	6200	3100	1700	2600	1300	700	35
PSF40CR	6200	3100	1700	4000	2000	1100	40
PSF1.1/2CR	6200	3100	1700	4000	2000	1100	40

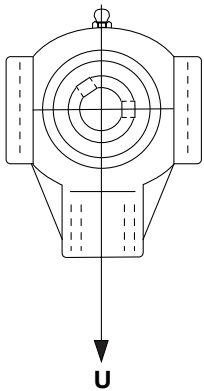


PSFT SERIES

Table 11 PSFT Silver-Lube® Two-Bolt Flange – Housing Load Capacity

RHP DESIGNATION	MAXIMUM HOUSING LOAD (N) AT 20°C									MAXIMUM FIXING BOLT TORQUE (Nm)
	T1			T2			T3			
	INTERMITTENT LOADING	CONTINUOUS LOADING	CYCLICAL LOADING	INTERMITTENT LOADING	CONTINUOUS LOADING	CYCLICAL LOADING	INTERMITTENT LOADING	CONTINUOUS LOADING	CYCLICAL LOADING	
PSFT20CR	4400	2200	1200	1900	900	500	1300	700	400	18
PSFT3/4CR	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
PSFT1.3/16CR	5900	2900	1600	3300	1600	900	2000	1000	500	30
PSFT1.1/4RCR	5900	2900	1600	3300	1600	900	2000	1000	500	30
PSFT35CR	6400	3200	1700	3900	2000	1100	2800	1400	800	35
PSFT1.1/4CR	6400	3200	1700	3900	2000	1100	2800	1400	800	35
PSFT1.7/16CR	6400	3200	1700	3900	2000	1100	2800	1400	800	35
PSFT40CR	9000	4500	2500	3900	2000	1100	3300	1600	900	40
PSFT1.1/2CR	9000	4500	2500	3900	2000	1100	3300	1600	900	40

Table 12 PST Silver-Lube® Take-Up – Housing Load Capacity



PST SECTION

RHP DESIGNATION	MAXIMUM HOUSING LOAD (N) AT 20°C			
	Intermittent Loading	Continuous Loading	Cyclical Loading	MRFL (kN)
PST20CR	5700	2800	1600	17.01
PST3/4CR	5700	2800	1600	17.01
PST25CR	5400	2700	1500	16.25
PST1CR	5400	2700	1500	16.25
PST30CR	8100	4000	2300	24.32
PST1.3/16CR	8100	4000	2300	24.32
PST1.1/4RCR	8100	4000	2300	24.32
PST35CR	7800	3900	2200	23.52
PST1.1/4CR	7800	3900	2200	23.52
PST1.7/16CR	7800	3900	2200	23.52
PST40CR	8100	4000	2300	24.26
PST1.1/2CR	8100	4000	2300	24.26

Note that there is no Maximum Fixing Bolt Torque applicable for Take-Up Units.

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.



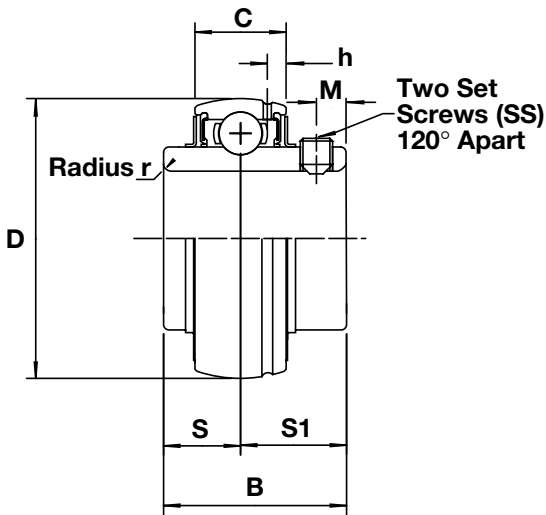
FROM FOOD TO PHARMACEUTICALS

SILVER-LUBE® BEARING INSERTS

The grease in this product is an aluminium complex food grade grease. In the event of relubricating being necessary, this type of grease is the first choice replacement. Please note that Silver-Lube® bearings were previously charged with Chevron Poly FM2 grease, which is incompatible with the current aluminium complex food grade grease.

Original Chevron greased inserts can be identified by there being only three markings on the flinger, for example: 'RHP JAPAN J1025-25GCR'. Inserts charged with an aluminium complex food grade grease can be identified by the presence of an additional letter between RHP and Japan; for example Kyodo Yushi-greased inserts were marked with a 'K' to give 'RHP K JAPAN J1025-25GCR'.

If an aluminium complex food grade grease is not available, it is essential that any alternative grease is USDA 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 from the system before relubrication. NSK should be consulted if necessary.



INSERT DESIGNATIONS, DIMENSIONS AND WEIGHTS

Table 13

Insert Dimensions

RHP DESIGNATION	BORE DIA	D	C	B	S	S1	r	h	M	SS	Cr (N)	Cor (N)	WEIGHT (kg)
J1020-20GCR	20	47	16	31.0	12.7	18.3	1.5	4.0	5.0	M6	9910	5350	0.16
J1020-3/4GCR	3/4"	47	16	31.0	12.7	18.3	1.5	4.0	5.0	M6	9910	5350	0.16
J1025-25GCR	25	52	17	34.0	14.3	19.7	1.5	3.5	5.5	M6	10820	6300	0.20
J1025-1GCR	1"	52	17	34.0	14.3	19.7	1.0	3.5	5.5	M6	10820	6300	0.20
J1030-30GCR	30	62	19	38.1	15.9	22.2	1.5	4.5	6.0	M6	15000	9050	0.32
J1030-1.3/16GCR	1.3/16"	62	19	38.1	15.9	22.2	1.0	4.5	6.0	M6	15000	9050	0.32
J1030-1.1/4GCR	1.1/4"	62	19	38.1	15.9	22.2	1.0	4.5	6.0	M6	15000	9050	0.32
J1035-35GCR	35	72	20	42.9	17.5	25.4	2.0	4.5	6.5	M8	19820	12300	0.48
J1035-1.1/4GCR	1.1/4"	72	20	42.9	17.5	25.4	2.0	4.5	6.5	M8	19820	12300	0.48
J1035-1.7/16GCR	1.7/16"	72	20	42.9	17.5	25.4	1.5	4.5	6.5	M8	19820	12300	0.48
J1040-40GCR	40	80	21	49.2	19.0	30.2	2.0	4.5	8.0	M8	22540	14300	0.64
J1040-1.1/2GCR	1.1/2"	80	21	49.2	19.0	30.2	2.0	4.5	8.0	M8	22540	14300	0.64

All dimensions in mm except inch bores. Cr = basic dynamic load rating. Cor = basic static load rating. Contact NSK for guidance on life estimation.

COMPONENT MATERIALS

Table 14

STANDARD	BEARING RINGS	BALL	FLINGER	SET SCREW	CAGE
JIS	SUS440C	SUS440C	SUS304	SUS410	SUS304
AISI/ASTM	AISI440C	AISI440C	AISI304	AISI410	AISI304

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 details see table 15.

Table 15

Tolerances and Speeds

BASIC BEARING INSERT	BEARING LIMITING SPEED (RPM)	ISO h7		BEARING LIMITING SPEED (RPM)	ISO h9	
		SHAFT TOLERANCE HIGH (0.001 mm UNITS)	SHAFT TOLERANCE LOW (0.001 mm UNITS)		SHAFT TOLERANCE HIGH (0.001 mm UNITS)	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



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 below should not be exceeded.

Table 16

Tightening Torques

RHP DESIGNATION	SET SCREW	MAXIMUM TIGHTENING TORQUE (Nm)
J1020-20GCR	M6 x 7.0 LONG	4
J1020-3/4GCR	M6 x 7.0 LONG	4
J1025-25GCR	M6 x 7.0 LONG	4
J1025-1GCR	M6 x 7.0 LONG	4
J1030-30GCR	M6 x 7.0 LONG	4
J1030-1.3/16GCR	M6 x 7.0 LONG	4
J1030-1.1/4GCR	M6 x 7.0 LONG	4
J1035-35GCR	M8 x 9.0 LONG	8
J1035-1.1/4GCR	M8 x 9.0 LONG	8
J1035-1.7/16GCR	M8 x 9.0 LONG	8
J1040-40GCR	M8 x 9.0 LONG	8
J1040-1.1/2GCR	M8 x 9.0 LONG	8

BORE TOLERANCE

Silver-Lube® inner ring bore tolerances are on the plus side of the nominal bore. This enables the bearing to slip freely over standard shafting.

Table 17

Bore Tolerances

NOMINAL BORE DIAMETER d (mm)		BORE TOLERANCE (0.001 mm UNITS)	
OVER	INCLUDING	MAX	MIN
10	18	+15	0
18	30	+18	0
30	50	+21	0

In line with our policy of continuous improvement, we reserve the right to amend the details in this catalogue without prior notice.