PSU & PSY
Lifters

Stepping foreard together with our customers

For more than 50 years, ***SANKYO OILLESS*** has been one of the leading manufacturers of maintenance-free sliding elements. As a leading supplier and pioneer in the production of stamping and press tool components for the automotive industry, ***SANKYO OILLESS*** supplies an products for many other applications such as mold making, engineering, packaging, heavy industry, aerospace and many more.

The technologies developed by ***SANKYO OILLESS*** have reduced or eliminated friction, wear and tear. In addition, ***SANKYO OILLESS*** provides services and quality products to offer you the best possible solutions for your requirements at all times.

The benefits of slide bearings versus roller bearings

In a variety of applications, designers are increasingly replacing roller bearings with slide bearings. In addition to ease of installation and cost effectiveness, slide bearings offer a number of distinct advantages. Slide bearings require less installation space, have a larger load bearing capacity, are maintenance-free or require little maintenance, are easier to assemble and are less susceptible to noise and vibration.

The following list gives an overview of the general advantages of bearings compared to bearings.

Slide bearing

- Higher load bearing capacity and reduced footperint
- Higher resistance to vibration and increased lifetime
- Easier installation
- Lower installation costs
- Increased shaft tolerances possible
- Compensates misalignment and reduces the edge load

Roller bearing

- sensitive to shock, vibration and edge load
- high costs for bearings, housings, counterfaces and - fixing materials
- large space required
- is prone to noise development

Technologies for top performance

SANKYO products are manufactured in our own plants and distributed worldwide.

We offer high quality maintenance-free sliding elements acc. to international standards and standards for use in

- pressing tools
- injection molds
- general engineering

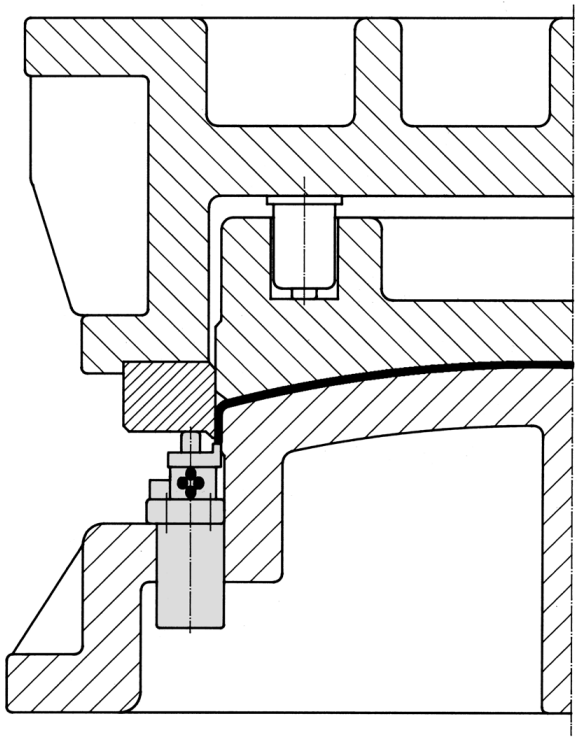
As an experienced specialist, we have the appropriate know-how in tribology to always offer the best solutions for your needs. We supply a large portfolio of lubrication-free sliding elements and also offer custom products acc. to customer drawing.

Quality and performance are our constant commitment!

Lifters

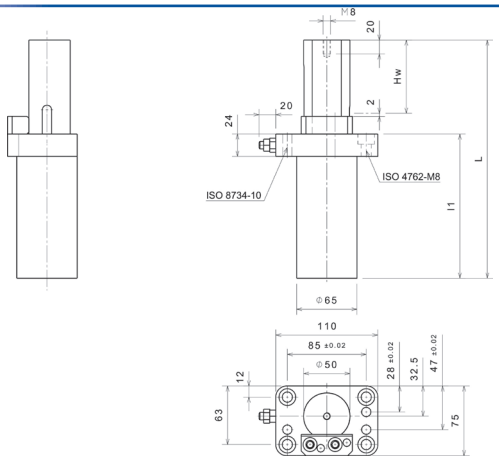
Designed to lift panel flanges in trimming dies. Therefore the flange lifter is fixed in vertical (PSU) or horizontal (PSU/PSY) at the lower tool. The lifter shaft is made out of our SANKYO bronze with graphite, which means the flange lifter is maintenance-free.

The flange lifter is assembled either with a gas spring or coil spring. There is a thread in the piston rod for attaching the scraper.



PSU & PSY - Lifters

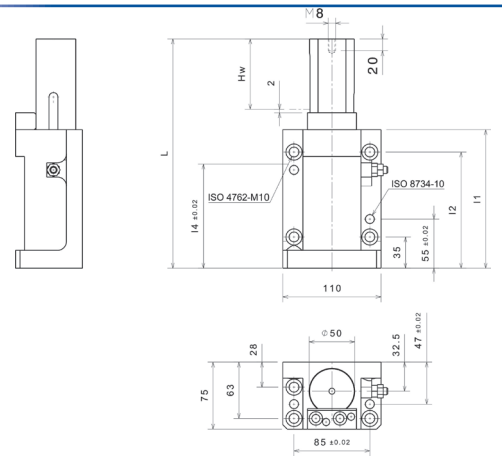
Article informationen



Properties:

Base material	Special brass (SO#50SP2)
Self-lubricating	Yes
Lubricant	Graphite
Max. surface pressure P	100 N/mm²
Max. sliding speed v	30 m/min
Max. P*v-Wert	200 N/mm² x m/min
Operating temperature	-50°C / +200°C (max. 300°C)
Friction coefficient	0,07

Article no.:	Article name:	Length L:	Stroke Hw:	l1:	Starting force (N):	Max. force (N):	Spring:
75200050050	PSU 050-G-50	196	50	125	500	650	G
75200050100	PSU 050-G-100				1000	1350	
75200050150	PSU 050-G-150				1500	2000	
75200050200	PSU 050-G-200				2000	2600	
75200051	PSU 050-S-10				100	850	S
75200080050	PSU 080-G-50	256	80	155	500	650	G
75200080100	PSU 080-G-100				1000	1350	
75200080150	PSU 080-G-150				1500	2000	
75200080200	PSU 080-G-200				2000	2600	
75200081	PSU 080-S-46				460	1950	S
75200100050	PSU 100-G-50	296	100	175	500	650	G
75200100100	PSU 100-G-100				1000	1350	
75200100150	PSU 100-G-150				1500	2000	
75200100200	PSU 100-G-200				2000	2600	
75200101	PSU 100-S-15				150	1900	S



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Article no.:	Article name:	Length L:	Stroke Hw:	l1:	l2:	l3:	Starting force (N):	Max. force (N):	Spring:
75210050050	PSY 050-G-50	196	50	125	100	80	500	650	G
75210050100	PSY 050-G-100						1000	1350	
75210050150	PSY 050-G-150						1500	2000	
75210050200	PSY 050-G-200						2000	2600	
75210051	PSY 050-S-10						100	850	S
75210080050	PSY 080-G-50	256	80	155	130	110	500	650	G
75210080100	PSY 080-G-100						1000	1350	
75210080150	PSY 080-G-150						1500	2000	
75210080200	PSY 080-G-200						2000	2600	
75210081	PSY 080-S-46						460	1950	S
75210100050	PSY 100-G-50	296	100	175	150	130	500	650	G
75210100100	PSY 100-G-100						1000	1350	
75210100150	PSY 100-G-150						1500	2000	
75210100200	PSY 100-G-200						2000	2600	
75210101	PSY 100-S-15						150	1900	S

Material data

Material		SO#50SP2*	SO#50SP5	SO#50SP7	SO#50SP8	SO#50SP13	SO#50B
		Hard brass with graphite	*Alu-bronze with graphite*	*Alu-bronze with graphite*	*Hard brass with graphite*	*Bronze with graphite*	*Red brass with graphite*
Self-lubricating		Yes	Yes	Yes	Yes	Yes	Yes
Lubricant		Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
Max. surface pressure *[N/mm²]*		100	100	120	130	120	50
Max. sliding speed *[m/min]*		30	10	10	15	10	50
Max. P*v-Wert *[N/mm² * m/min]*		200	150	200	200	200	100
Temperature *[°C]*	*Standard* *Max*	-50 / +200 +300	-50 / +200 +300	-50 / +200 +300	-50 / +200 +300	-50 / +200 +300	-50 / +200 +400
Friction coefficient**	*initial* *long term*	0,15 0,07	0,15 0,07	0,15 0,07	0,15 0,07	0,2 0,15	0,15 0,07
Brinell hardeness *[HB]*		>210	>210	>260	220 ~ 260	>280	>60
Further informatio							
Elongation *[%]*		>12	>18	>2	>3	>0,5	>15
Density *[kg/dm³]*		7,9	7,7	7,8	7,8	7,2	8,7
Tensile strength *[N/mm²]*		>755	>686	>833	>700	>550	>195
Yield strength *[N/mm²]*		>412	>372	>509	-	-	>105
E-Module *[N/mm²]*		97000	108000	123600	108000	145000	96000
Thermal expansion *[10-5 * grd.-1]*		1,9	1,6	1,6	1,9	1,71	1,8

: Material used according to **SANKYO OILLESS standards*

***: against steel, hardened and grinded*

Tin bronze	Sinter-bronze	SO#50PB	CuSn8	SO#50S45C	SO#50F	Polyacetal
		Ton bronze	*acc. to DIN 17662*	*Steel with graphite*	*Grey cast iron with graphite*	*Plastic*
No	Yes	No	No	Yes	Yes	No
-	Oil	-	-	Graphite	Graphite	Graphite
80	50	80	40	30	5	25 35 (with oil)
20	300	50	120	10	10	50 200 (with oil)
-	96	100	-	80	50	100 200 (with oil)
-50 / +200 +300	-12 / +90	-50 / +200 +300	-200 / +200	-50 / +150	-50 / +150	-50 / +80
0,16	0,09	0,15 0,07	-	0,01	-	-
>80	>25	>80	-	>375	160 ~ 220	115 (HRR)
n						
>6	-	>5	-	19	-	73
8,7	6,5 ~ 7,0	8,2	8,8	7,8	7,1 ~ 7,3	1,4
>295	-	>295	-	>690	>250	69
>161	-	>161	-	-	-	-
108000	-	108000	115000	-	-	-
1,8	-	1,8	-	1,1	1	7,7

Chemical resistance

Water

Material	SO#50SP2 SO#50SP8	SO#50B	SO#50SP5 SO#50SP7 SO#50SP13 SO#50AlB	SO#50F	SO#50S45C	Polyacetal
	High strength brass casting	*Red brass*	*Alu-bronze*	*Grey cast*	*Steel*	*Red brass mit FSS*
Fresh Water	O	◎	◎	X	◎	O
Sea Water	△	O	O	X	◎	O

Acid

Material	SO#50SP2 SO#50SP8	SO#50B	SO#50SP5 SO#50SP7 SO#50SP13 SO#50AlB	SO#50F	SO#50S45C	Polyacetal
	High strength brass casting	*Red brass*	*Alu-bronze*	*Grey cast*	*Steel*	
Alcohol	◎	◎	◎	-	◎	-
Formic acid	-	-	-	-	-	X
Chlorine (dry)	◎	◎	◎	-	◎	-
Chlorine (wet)	X	△	△	-	-	-
Chromic acid	X	X	X	X	-	-
Acetic acid	X	X	◎ (20°C) △ (118°C)	X	◎	O
Hydrochloric acid	-	O	O	X	-	X
Concentrated hydrochloric acid	X	X	△	X	X	-
Lactic acid	X	X	X	X	O	X
Phenol	-	-	-	-	-	X
Phosporic acid	X	O	O	X	△	X
Nitric acid	X	X	X	X	O	-
Sulfuric acid (40-80%)	X	△	△	X	△	X* △**
Sulfuric acid (80-95%)	X	O	O	X	△	X* △**
Diluted hydrocloric acid	△	-	-	-	-	X
Hydrogen peroxide	△	O	O	X	O	-

**: High concentration*

***: Low concentration*

Explanation		
◎: Preferred	O: no problem in use	△: Affected
X: Not allowed for use	-: unknown	

Chemical resistance

Alkali

Material	SO#50SP2 SO#50SP8	SO#50B	SO#50SP5 SO#50SP7 SO#50SP13 SO#50AIB	SO#50F	SO#50S45C	Polyacetal
	High strength brass casting	*Red brass*	*Alu-bronze*	*Grey cast*	*Steel*	
Ammonia (dry)	◎	◎	◎	O	◎ (20°C) X (Gas)	X
Ammonia (wet)	X	X	X	O	◎ (20°C) X (Gas)	X
Ammonia (liquid)	X	X	X	-	◎	X
Iron chloride	X	O	O	X	△	-
Potassium hydroxide	O	O	O	-	-	-
Calcium chloride	X	O	O	△	O	-
Calcium hydroxide	O	◎	◎	O	-	O
Sodium hydroxide	O	O	O	-	◎	-
Sulfur (dry)	◎	O	O	△	-	O
Sulfur (wet)	X	X	X	△	-	O

Solvent

Material	SO#50SP2 SO#50SP8	SO#50B	SO#50SP5 SO#50SP7 SO#50SP13 SO#50AIB	SO#50F	SO#50S45C	Polyacetal
	High strength brass casting	*Red brass*	*Alu-bronze*	*Grey cast*	*Steel*	
Acetone	◎	◎	◎	O	◎	△
Benzene	-	-	-	-	-	△
Ethylene glycol	O	◎	◎	△	-	-
Carbon tetrachloride (dry)	◎	◎	◎	X	◎	-
Carbon tetrachloride (wet)	X	O	O	X	-	-
Methyl alcohol	◎	◎	◎	O	O	△
Toluene	◎	◎	◎	O	-	-

Explanation		
◎: Preferred	O: no problem in use	△: Affected
X: Not allowed for use	-: unknown	

Chemical resistance

Grease and others

Material	SO#50SP2 SO#50SP8	SO#50B	SO#50SP5 SO#50SP7 SO#50SP13 SO#50AlB	SO#50F	SO#50S45C	Polyacetal
	High strength brass casting	*Red brass*	*Alu-bronze*	*Grey cast*	*Steel*	
Gasoline	◎	◎	◎	O	◎	O
Diesel	-	-	-	-	-	O
Crude oil	△	O	O	O	O	-
Lacquer	◎	◎	◎	△	-	-
Kerosene	◎	◎	◎	O	◎	-
Vegetable oil	◎	◎	◎	△	-	-
Lubricants	◎	◎	◎	◎	◎	O
Heavy oil	O	◎	◎	O	O	-
Animal oil	◎	◎	◎	-	-	-

Explanation		
◎: Preferred	O: no problem in use	△: Affected
X: Not allowed for use	-: unknown	

Maintenance and lubrication

Before inserting the sliding elements, clear the mounting surfaces of the housing. An oil film on the back surface will make it easier to mount the bearing. Before mounting the axle, lubricate the sliding surfaces with a light greasy film to avoid wear of the inlet and to activate the solid lubricant.

The following greases should be preferred:

ELKALUB GLS 364	ELKALUB	120°C	For the food industry
ELKALUB GLS 595/N2	ELKALUB	300°C	For the food industry
ELKALUB GLS 993 H1	ELKALUB	150°C	For the food industry
GLEITMO 805	FUCHS	110°C	
ALTEMP QNB 50	KLÜBER	150°C	
Klüberalfa DH 3-350	KLÜBER	230°C	
Klüberfood NH1 CH 2-150	KLÜBER	250°C	For the food & pharmaceutical industry
Klübertemp GR AR 555	KLÜBER	250°C	
PARALIQ P 68	KLÜBER	100°C	For the food & pharmaceutical industry
Gadus S2 V100 2	SHELL	130°C	
Gadus S3 V100 2	SHELL	160°C	
Multi-purpose grease Nr.12511	PRESSOL	80°C	

The greases have to be free of Additives like MoS2 (molybdenum disulfide) and EP.

The work to be carried out is usually limited to an inspection of the wear in the period from ½ to 2 years, depending on the duration of use and load. After each disassembly, a single re-greasing should be carried out, but the sintered sliding film of solid lubricant should not be removed. Continuous introduction of lubricant is not necessary, as the parts are maintenance-free under consideration of the application criteria for sliding elements made of bronze with solid lubricant.

Transport and storage

The parts are to be stored dust-free and dry, mechanical damages during transport and storage are to be avoidded. Contact with organic and inorganic solvents must also be prevented, as this may destroy the solid lubricant.