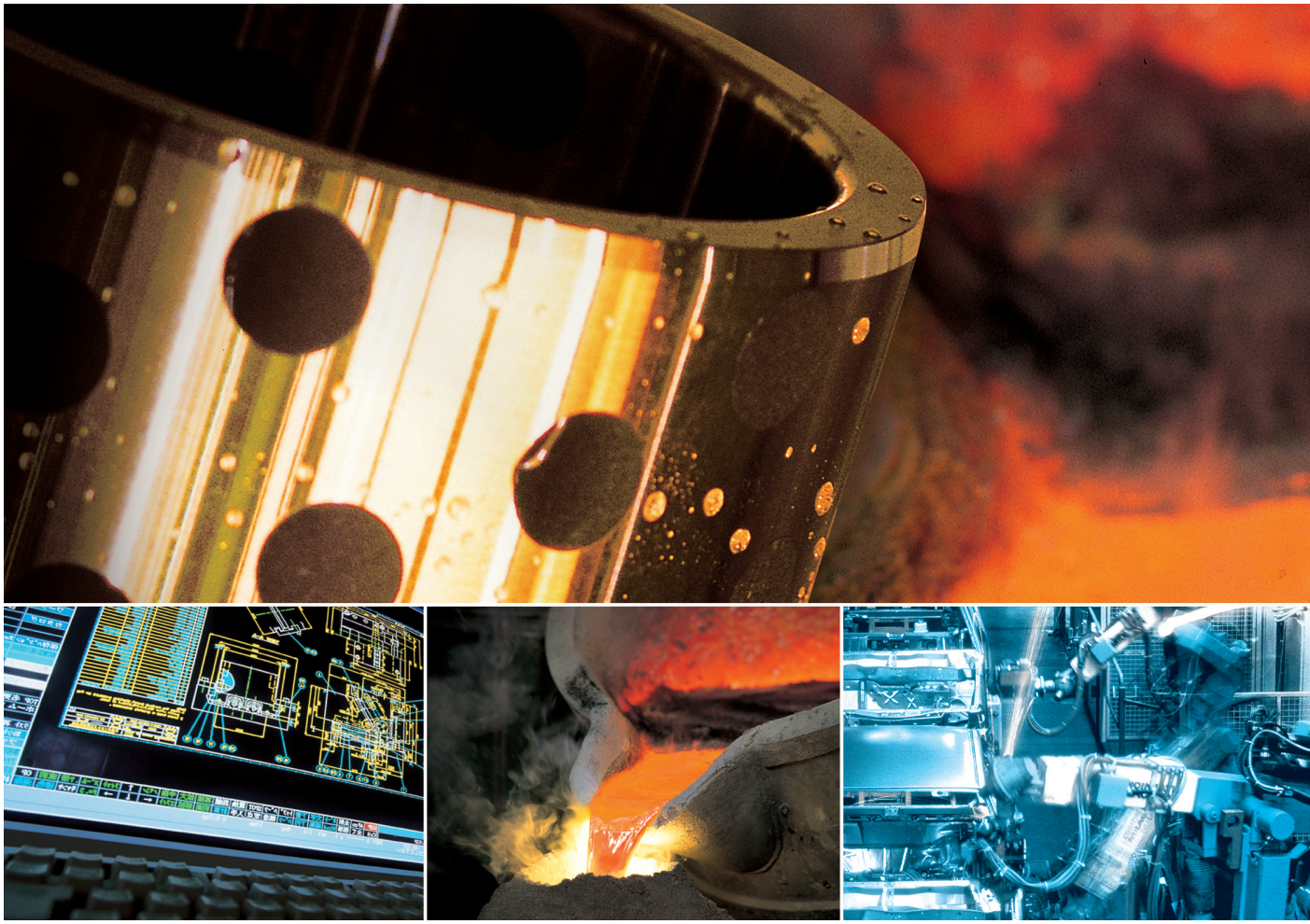
SANKYO OILLESS Industry GmbH



Maintenance-free sliding elements

Reliable, efficient and environment-friendly

For more than 50 years Sankyo Oilless has been one of the leading manufacturers of maintenance-free sliding elements for the automotive industry, tool and moulding industries, as well as general mechanical engineering, according to the worldwide standards and norms. In addition to maintenance-free bearings, we are also able to offer a wide range of standard cam units. In doing so, almost all applications can be considered.





Economics

With the embedded solid lubrication in our products, you save time and money. The maintenance rate will be reduced to a minimum, which in turn, equals more productivity and efficiency. Using less lubricants also the benefits the environment.

Strengths

Sankyo have especially developed, a high strength, cooper / brass alloy SO#50SP2 which is extremely tough and low-wearing.

Bespoke

In addition to our standard range of products, we are able to offer bespoke solutions according to your specific requirements, data and drawings. All components are manufactured to the exacting high SANKYO quality standards.

No lubrication

Our maintenance-free bearings are very suitable for a vast range of applications.
Such as:

- where lubrication is difficult
- where oil supply is only possible by a costly and complex means of application
- where a lubrication is difficult due to high or low temperatures
- in extreme chemical and atmospheric conditions, such as a vacuum
- where impact effects are unavoidable
- due to the low sliding speed no lubrication effect can be expected

Dealing with friction problems found in bearings

In situations and applications were possible problems may arise due to operator error, or down to the failure of a lubrication system. By using Sankyo self-lubricating materials, maintenance-free operation can be achieved, even in the case of extremely high loads and low operating speeds, therefore avoiding scoring or seizure issues.

Reduced maintenance with increased durability

Routine and sometimes troublesome lubrication is no longer necessary, resulting in only periodic maintenance. No scuffing develops, even when the required tolerances have been reached by normal wear. Leading to therefore, notable increases in productivity.

Environmentally friendly, no waste oil or lubricants

Without the use of oil, there are no pollutants or further waste products. Therefore, ensuring a clean and healthy production and working environment. Dangers and associated risks when using lubricants, such as oil are completely done away with and eliminated.

Overall economies

In the case of equipment design and manufacture, which would normally perhaps include a lubrication system as part of the equipment.
The need for this can be completely removed and replaced with a suitable oilless material. Once the machinery has been installed, there is no need to have a planned maintenance program for either oil or grease, eliminating this requirement. Thus, leading to considerable material and time savings.

Typical Areas of Application



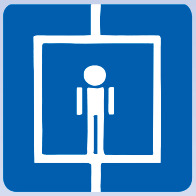
Automotive production

- Press lines
- Welding cells
- Assembly lines
- Chain conveyors



High risk applications using lubrication

- Automotive engineering
- Drive components
- Aircraft



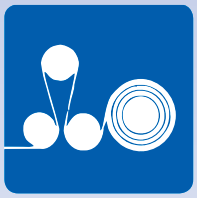
High performance machinery

- Injection moulding machines
- Lifting equipment
- Pile drivers
- Hoists
- Steel rolling mills



Bridges, sluice gates & water works

- Bridge bearings
- Gates for irrigation systems
- Wheel-mounted gates
- Weir gate
- Caterpillar protection

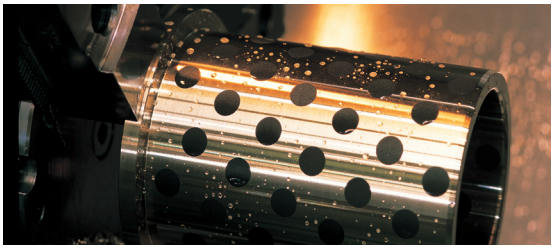


Applications where Impurities may lead to pollution due to unwanted oil and grease

- Clean-room production e.g. in the medical industry
- Food processing machinery
- Paper mills

Material Properties

SANKYO maintenance-free bearings are manufactured using high-strength bronze and cooper alloy materials. After which the solid lubricant is inserted and glued into prepared holes of a certain configuration. Once installed the bearing is ready for use. The solid lubricant inserts take the applied load and acts as a long-term lubricant.





Material characteristics of SANKYO original materials

Material	SO#50SP2	SO#50SP5	SO#50SP7	SO#50SP13	SO#50PB	SO#50B	SO-220
Max. surface pressure (dynamic) [N/mm²]	100 (130)	100 (120)	120 (150)	120	80	50	50
Max. surface pressure (static) [N/mm²]	288	260	356	235	113	75	115
Max. sliding speed [m/min]	30	30	20	20	50	50	60
Max. pv-value [N/mm² x m/min]	200	200	250	250	100	100	>100
Operatingtemperature range (standard) -max.* [°C]	-50 ~ +200 +300	-50 ~ +200 +300	-50 ~ +200 +300	-50 ~ +200 +300	-50 ~ +200 +300	-50 ~ +200 +400	-40 ~ +120
Hardness [HB]	>210	>210	>260	>280	>80	>60	>70
Elongation(%)	>12	>18	>2	>0,5	>5	>15	--
Coefficient of friction (initial)	0,15	0,15	0,15	0,20	0,15	0,15	0,12
Coefficient of friction (permanenet)	0,07	0,07	0,07	0,15	0,07	0,07	0,08
Specific gravity [kg/dm³]	7,9	7,7	7,8	7,2	8,2	8,7	6,2
Tensile strength[N/mm²]	>755	>686	>833	>550	>295	>195	--
Yield strength[N/mm²]	>412	>372	>509	--	>161	>105	>200
E-Modul[N/mm²]	97000	108000	126000	145000	108000	96000	--
Linear expansion coef-ficient (10^{-5}/°C)	1,9	1,6	1,6	1,71	1,8	1,8	1,3
Proportion of solid lubri-cant in relation to totally sliding surface [%]	macro 25 ± 5	macro 25 ± 5	macro 25 ± 5	macro 25 ± 5	macro 25 ±5	macro 25 ±5	micro >18
Base material	special high-strength brass with solid lubricant	special aluminium bronze with solid lubricant	special aluminium bronze with solid lubricant	special aluminium bronze with solid lubricant	special tin bronze with solid lubricant	special gunmetal bronze with solid lubricant	copper powder sintered

*)please contact our technical support

- SANKYO offer a range of standard components which are tailored for your demands.
- Further detail information can be found at the following SANKYO website:
  www.de.sankyo-oilless.com

Guide bushing SOB

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Guide bushing SOBF

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Guide bushing TSOEG / SOSG

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Guide bushing SOBC

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C

designed for higher speeds



Material: SO#50B
Gunmetal with solid lubricant, maintenance-free

Guide bushing SOBB

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Washer SOBW - SOBWN

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Guide bushing SOBB-2

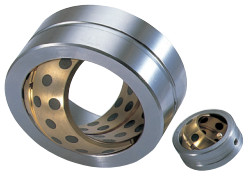
Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Spherical bearing SOBS

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Material:
Spherical: SO#50SP2
Brass with solid lubricant, maintenance-free
Housing: steel

*)please contact our technical support

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Guide plate complying with VDI 3357 — VDI - VSM

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C

thickness: 20mm VDI
12mm VSM



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Slide plate — SESW - SESWT

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C

thickness: 20mm



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Slide plate — UWP

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C

thickness: 5mm



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Slide plate — SESF - SESFT

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C

thickness: 20mm



Material: SO#50F
Cast iron with solid lubricant, maintenance-free

Slide plate — TLP

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C

thickness: 10mm

for high surface pressure



Material: SO#50SP7
Special bronze with solid lubricant, maintenance-free

Slide plate — FRP

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C

thickness: 20mm



Material: C45
hardened, with solid lubricant, maintenance-free

Slide plate — TWP TWPT

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C

thickness: 10mm



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Slide plate — TSP

Temperature operating conditions:
Standard: -50°C ~ +200°C

thickness: 10mm



Material: 100MnCrW4
hardened, with solid lubricant, maintenance-free

*)please contact our technical support

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  www.de.sankyo-oilless.com

Slide plate SOLP

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C

thickness: 10mm



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Slide plate SOML

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C

thickness: 10mm



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Slide plate SOX - SOXT

Temperature operating conditions:
Standard: -40°C ~ +120°C

thickness: 20mm



Base material: SS400
Coating material: SO#220 Sinter, maintenance-free

Slide plate TWX - TWXT

Temperature operating conditions:
Standard: -40°C ~ +120°C

thickness: 10mm



Base material: S45C
Coating material: SO#220 Sinter, maintenance-free

Slide guide SOL

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Slide guide in finished length without holes SOL 1~7

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Cam slide plate with 2 sliding surfaces 2GLF

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Cam slide plate with 3 sliding surfaces 3GLF

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



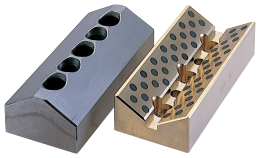
Material: SO#50SP2
Brass with solid lubricant, maintenance-free

*)please contact our technical support

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Prismatic guide — VPON - VPUN
complying with VDI 3357

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Material: VPON: C45 surface layer hardened
Material: VPUN: SO#50SP2
Brass with solid lubricant, maintenance-free

Guide bar — LF

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Material: C45, inductive hardened, 58 - 60 HRC Eht > 1mm
with solid lubricant, maintenance-free

Sintered bronze bush — SINTB - SINTF

Temperature operating conditions:
Standard: -20°C ~ +90°C



Material: Alloy SINT A 51
DIN 30910/3 - maintenance-free

Gas spring — ISO, VDI, CNOMO

Temperature operating conditions:
Maximum: +80°C



according to EU guideline PED
PED 97 / 23 / CE

By observing the assembly details a durability
of more than 1,6 mio. strokes is possible

Spring plunger — SVA

Temperature operating conditions:
Maximum: +80°C



Spring bolt: steel nitrated
Spring bolt guide: SANKYO guide bush
Material: SO#936FR maintenance-free

Inclined ejector unit — KOCU

Temperature operating condition
Standard: -50°C ~ +200°C
* Maximum: +300°C



Slide plate:
Material: SO#50SP2
Brass with solid lubricant, maintenance-free

Oilless resin bush — POB / POF

Temperature operating conditions:
Standard: -40°C ~ +80°C



Suitable for food

Excellent velocity characteristics
Material: SO # 25-90
Oil-impregnated Polyacetal resin bearing, maintenance-free

*)please contact our technical support

Drystar bush / thrust washer — LBM/LBMF/LWM

Temperature operating conditions:
Standard: -200°C ~ +280°C



Material: SO#936FR maintenance-free
Double-layer bearing comprising bronze powder sintered
on steel back metal and PTEF + lead mixture impregnated

- SANKYO offer a range of standard components which are tailored for your demands.
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  www.de.sankyo-oilless.com

Coil spring — ISO 10243 / JIS

Temperature operating conditions:
Standard: ~ +150°C



Material:
ISO 10243: 50CrV4 / JIS: DIN 17221 (54SiCr6)

Flange lifter — PSU / PSY

Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Optional with gas or coil spring
lifter shaft made from bronze, maintenance-free

Spring plunger with short stroke — SP / SPS

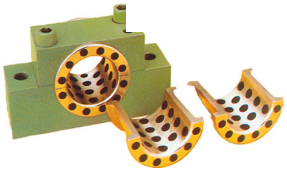
Temperature operating conditions:
Standard: ~ +150°C



Spring bolt: tool steel w no.1.1625 HRC 36 - 40
Housing: 34CrMo54 black chromated

Bearing set split type — BOT / BO

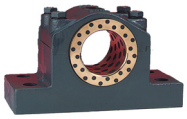
Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Material:
Guide bush: SO#50SP2
Brass with solid lubricant, maintenance-free

Bearing set compyling with DIN 506 — SLB 506

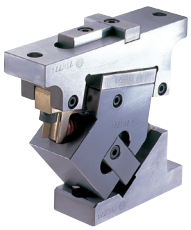
Temperature operating conditions:
Standard: -50°C ~ +200°C
* Maximum: +300°C



Material:
Guide bush: SO#50SP2
Brass with solid lubricant, maintenance-free

Aerial Cam Units

compyling with VDI / BAK / NAAMS / CNOMO specification



Maintenance-free standard cam units
for high Loads and long life
(1 million strokes guaranteed

Die Mounted Cam Units

compyling with VDI / BAK / NAAMS / CNOMO specification



Maintenance-free standard cam units
for high Loads and long life
(1 million strokes guaranteed

VALCAM®

Latest standard cam units technology



Maintenance-free standard cam Units
for high Loads and long life
(1 million strokes guaranteed

*)please contact our technical support

MATERIAL SELECTION DETAILS

APPLICATION (brief description of use):

BEARING TYPE (bush, plate or other):

BEARING SIZE (Please state tolerance if specified):

QUANTITY REQUIRED:

MATING MEMBER: _____ Material:_____

Treatment: _____

CONDITIONS OF USE:

1) Load: _____ N/piece or _____ N/mm^2

2) Sliding speed: _____ m/min (or _____ r.p.m. or _____ s.p.m.)

3) Ambient temperature: _____ °C

4) Environment: (atmosphere, water etc.): _____

5) Foreign matter (if present): _____

ADDITIONAL INFORMATION:

SKETCH (Please attach drawing if available):

Company: _____ Product range:_____

Name: _____ Department: _____

Address: _____

_____

Date: _____ Signature: _ _____

please use this sheet for enquiry of non-standard sliding parts.

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