SINTF
Flanged sinter bushes, oil soaked

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!

Oil losses - additional lubrication

During installation and storage, ensure that the bushings do not come into contact with absorbent materials, otherwise oil losses will occur quickly. The ideal solution is to store it in its original packaging. In case of oil loss, re-soak by dipping in hot oil (80 °C) and let it cool down in it. Additional lubrication is normally not necessary. However, it can be advantageous under extreme operating conditions.

Shaft

Hardened and unhardened shaft materials with grinded surfaces can be used. In subordinate applications, drawn shafts can also be used.

We recommend roller burnishing or hard chrome plating of the surface when using stainless steel shafts to prevent the abrasive effect of these materials.

Shaft tolerance **h6 - h9** with bushing tolerance E7

Finishing

Sintered materials can be machined with **carbide (K20/K01)** or **diamond tools**. **Cutting speed 100 - 150 m/min**.

Do not rub or grind sliding surfaces of oil-impregnated bearings, as this will close the oil-promoting pores.

Special dimensions and tolerances

Thanks to our large tool stock, our manufacturing plant can also produce many special sizes in standard (E7 / r7) or special tolerances. Length tolerance of thin-walled bearings t<2:h14.

Impregnation oils

Standard impregnation according to ISO VG 68

Min. working temperature:	–12 °C
Max. working temperature:	+90 °C
Viscosity:	°E/50°C 3 – 5
Kinematic Viscosity:	cSt 20 – 35

For extreme loads, temperatures or speeds, other lubricants can be selected.

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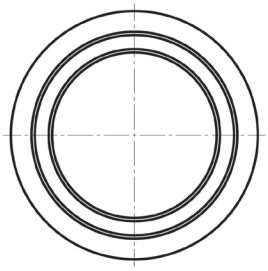
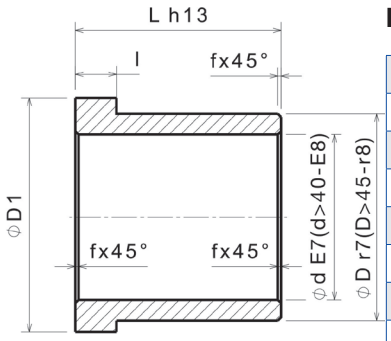
Article informationen





Properties:

Base material	Sinterbronze
Self-lubricating	Yes
Lubricant	Oil
Max. surface pressure P	50 N/mm²
Max. sliding speed v	300 m/min
Max. P*v-Wert	96 N/mm² x m/min
Operating temperature	-200°C / +200°C
Friction coefficient	0,09

Article no.:	Article name:	Inner Ø d:	Outer Ø D:	Length L:	D1 :	l:	f:
99303050408	SINTF 3-5-4	3	5	4	8	1,5	0,3
99303060409	SINTF 3-6-4		6		9		
99303060609	SINTF 3-6-6			6			
99303061009	SINTF 3-6-10			10			
99304080412	SINTF 4-8-4	4	8	4	12	2	
99304080610	SINTF 4-8-6-F1			6	10	1,5	
99304080612	SINTF 4-8-6-F2				12	2	
99305090413	SINTF 5-9-4	5	9	4	13		
99305090513	SINTF 5-9-5			5			
99305090813	SINTF 5-9-8			8			
99305100612	SINTF 5-10-6		10	6	12		
99306100414	SINTF 6-10-4	6		4	14		
99306100614	SINTF 6-10-6			6			
99306101014	SINTF 6-10-10			10			
99306120614	SINTF 6-12-6		12	6			
99308120616	SINTF 8-12-6	8			16		
99308120816	SINTF 8-12-8			8			
99308121016	SINTF 8-12-10			10			
99308121216	SINTF 8-12-12			12			
99308140818	SINTF 8-14-8		14	8	18	3	
99310131016	SINTF 10-13-10	10	13	10	16	1,5	
99310131616	SINTF 10-13-16			16			
99310132016	SINTF 10-13-20			20			
99310160820	SINTF 10-16-8-F1		16	8	20	3	
99310160822	SINTF 10-16-8-F2				22		
99310161020	SINTF 10-16-10-F1			10	20		
99310161022	SINTF 10-16-10-F2				22		
99310161622	SINTF 10-16-16			16	22		0,5
99312180824	SINTF 12-18-8	12	18	8	24		
99312181022	SINTF 12-18-10			10	22		
99312181222	SINTF 12-18-12-F1			12	22		
99312181224	SINTF 12-18-12-F2				24		
99312182024	SINTF 12-18-20			20	24		
99314201025	SINTF 14-20-10-F1	14	20	10	25		
99314201026	SINTF 14-20-10-F2				26		
99314201225	SINTF 14-20-12			12	25		
99314201426	SINTF 14-20-14			14	26		
99314202026	SINTF 14-20-20			20	26		

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99315201527	SINTF 15-20-15	15	20	15	27	3	0,5
99315202527	SINTF 15-20-25			25			
99315211027	SINTF 15-21-10		21	10			
99315211527	SINTF 15-21-15			15			
99315212527	SINTF 15-21-25			25			
99315221228	SINTF 15-22-12		22	12	28		
99315221628	SINTF 15-22-16			16			
993162212284	SINTF 16-22-12-F1	16		12		4	
99316221228	SINTF 16-22-12-F2					3	
993162216284	SINTF 16-22-16-F1			16		4	
99316221628	SINTF 16-22-16-F2					3	
99316222528	SINTF 16-22-25			25			
99318241230	SINTF 18-24-12	18	24	12	30		
99318241830	SINTF 18-24-18			18			
99318243030	SINTF 18-24-30			30			
99318251232	SINTF 18-25-12		25	12	32	4	1
99318251632	SINTF 18-25-16			16			
99320261532	SINTF 20-26-15	20	26	15		3	
99320262032	SINTF 20-26-20			20			
99320262532	SINTF 20-26-25			25			
99320263032	SINTF 20-26-30			30			
99320281635	SINTF 20-28-16		28	16	35	4	
99320282035	SINTF 20-28-20			20			
99325322039	SINTF 25-32-20	25	32		39	3,5	
99325322539	SINTF 25-32-25			25			
99325323039	SINTF 25-32-30			30			
99325351645	SINTF 25-35-16		35	16	45	5	
99325352545	SINTF 25-35-25			25			
99330382046	SINTF 30-38-20	30	38	20	46	4	
99330382546	SINTF 30-38-25			25			
99330383046	SINTF 30-38-30			30			
99330402050	SINTF 30-40-20		40	20	50	5	
99330403050	SINTF 30-40-30			30			
99335452055	SINTF 35-45-20	35	45	20	55		
99335452555	SINTF 35-45-25			25			
99335453555	SINTF 35-45-35			35			1,5
99335454055	SINTF 35-45-40			40			
99340502560	SINTF 40-50-25	40	50	25	60		
99340503060	SINTF 40-50-30			30			
99340504060	SINTF 40-50-40-F1			40			
993405040606	SINTF 40-50-40-F2			40			
99340505060	SINTF 40-50-50			50			
99345553065	SINTF 45-55-30	45	55	30	65		
99345553565	SINTF 45-55-35			35			
99345554565	SINTF 45-55-45-F1			45			
993455545656	SINTF 45-55-45-F2			45			
99345555565	SINTF 45-55-55			55			
99350603070	SINTF 50-60-30	50	60	30	70		
99350603570	SINTF 50-60-35			35			
99350605070	SINTF 50-60-50-F1			50			2

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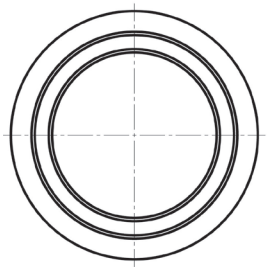

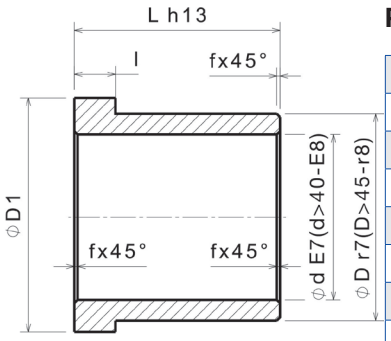

Properties:

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Self-lubricating	Yes
Lubricant	Oil
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Max. sliding speed v	300 m/min
Max. P*v-Wert	96 N/mm² x m/min
Operating temperature	-200°C / +200°C
Friction coefficient	0,09

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993506050706	SINTF 50-60-50-F2	50	60	50	70	6	2
99360725084	SINTF 60-72-50	60	72	50	84		
99360726084	SINTF 60-72-60			60			
99360753585	SINTF 60-75-35	60	75	35	85	8	
99360756085	SINTF 60-75-60			60			
99370856095	SINTF 70-85-60	70	85	60	95		
993809570105	SINTF 80-95-70	80	95	70	105		
993911050120	SINTF 90-110-50	90	110	50	120		
993991280120	SINTF 100-120-80	100	120	80	130		

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