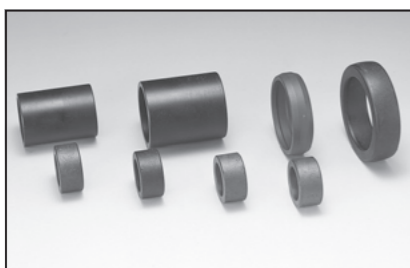


Oiles 425 Phenolic bearings for underwater applications



Certified according to NIPPON KAIJI KYOKAI as the material of Nonmetallic rudder bearing.

Feature

- Has superior wear resistance.
- Has superior foreign matter immersion characteristics, impact resistance, and noise suppressing characteristics.
- Has superior chemical resistance, and corrosion resistance.
- Usable in water or chemicals.
- The 250 material for machining may be used. Contact us about the handling methods.

Service range

Lubrication condition	underwater
Service temperature range °C	room temperature
Allowable max. pressure P N/mm ² {kgf/cm ² }	15 {153}
Allowable max. velocity V m/s {m/min}	15 {900}
Allowable max. PV value N/mm ² · m/s {kgf/cm ² · m/min}	4.90 {3,000}

Condition: underwater, bushing, shaft rotation.

※Contact us about the handling besides normal temperatures.

Lathe turning

Cutting tool	carbide tool (JIS) · diamond (JIS)		Condition	Speed (m/min)	60~150
	Relief angle	5~10°		Cut depth (mm)	0.05~0.10
Rake angle	5~10°		Feed (mm/rev)	0.05~0.20	
Nose radius (mm)	0.40~0.80				

Attention should be paid to dimensional variances due to thermal expansion, chucking, and bend of the material.

※When used in water, fitting must be design considering swelling characteristic. Please add swelling correction value at page 349-350, when you set a fitting.

※Contact us for grinding and milling information.

Machining accuracy (bushing)

I.D.	O.D.	Length
class 8 to 9	class 7 to 8	class 9 to 10

Classes here are in JIS standard.

This product demonstrates satisfactory performance at the slide surface roughness of Rz6.3 to 12.5μm.

Dimensions may change due to thermal expansion, chucking pressure, moisture absorption deformation, etc. High accuracy is ensured if the product is installed on the housing and then ground.

Mechanical properties		425-03	425-06	425-07	425-17	
Specific gravity	JIS K 6911	—	1.3~1.4	1.3~1.4	1.3~1.4	
Tensile strength	JIS K 6911	N/mm ² {kgf/mm ² }	45 {4.6}	50 {5.1}	110 {11.2}	95 {9.7}
Flexural property	JIS K 6911	N/mm ² {kgf/mm ² }	70 {7.1}	100 {10.2}	110 {11.2}	105 {10.7}
Compressive strength	JIS K 6911	N/mm ² {kgf/mm ² }	124 {12.7}	—	195 {19.9}	—
Radial crushing strength	JIS Z 2507	N/mm ² {kgf/mm ² }	50 {5.1}	124 {12.7}	175 {17.9}	165 {16.8}
Hardness	JIS K 6911	HRM	91	60	95	100
Izod impact strength (with notch)	JIS K 6911	J/m {kgf·cm/cm}	78.5 {8}	196 {20}	157 {16}	186 {19}
Co-efficient of linear expansion	ASTM D 696	×10 ⁻⁵ °C ⁻¹	2~3	2~3	2~3	2~3
Swelling rate	—	%	1.5 (room temperature)	—	1.5 (room temperature)	0.6 (room temperature)
	—	%	3.0 (water temperature is 50°C)	—	3.6 (water temperature is 80°C)	1.2 (water temperature is 50°C)
Shape of base material (Note)	—	—	chip and others	sheet	sheet	sheet

※The values shown above are typical values, not the standard values.

(Note) Shape of base material→chip and others : Shape of base material→sheet

When chip-shaped base material is used, the tensile strength, compression strength and impact strength are measured at right angles to the forming direction and the bending strength is measured in parallel with the forming direction. When sheet-shaped base material is used, the bending strength, compression strength and impact strength are measured at right angles to the layers and the tensile strength is measured in parallel with the layers.

Test data

Journal rotation test in water

<Testing conditions>

Bearing dimension : φ120×φ150×ℓ 120

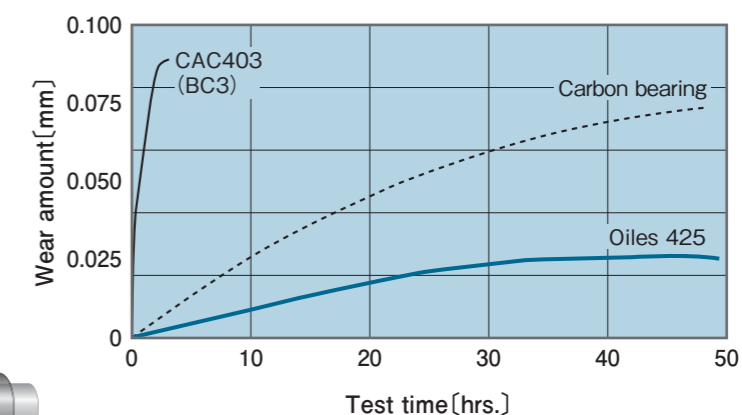
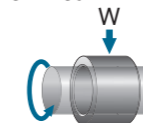
Mating material : SUS420J
(surface roughness Rz3μm)

Pressure : 0.4N/mm² {4.0kgf/cm²}

Velocity : 7.5m/s {450.0m/min}

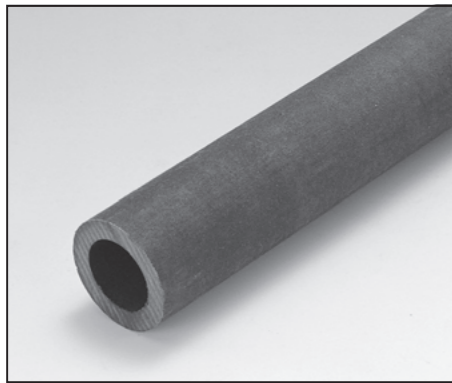
Test time : 50hrs.

Lubrication : Foundry sand 0.1wt% is mixed in tap water



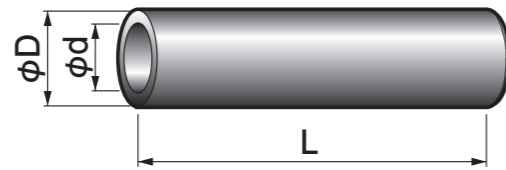
25S

Oiles 250-07 (425-07) Pipe Stock



Specify Part No. by required I.D. and O.D.
(e.g.) I.D. is 53mm and O.D. is 74mm.

25S - 5374
Part No.

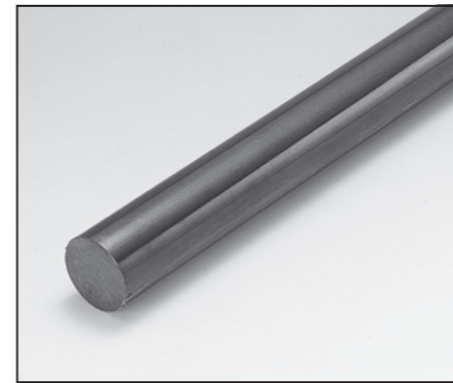


- The 250-07 pipe stock may be used as the 425-07 (for underwater use) if it is machined and processed with paraffin then.

Part No.	I.D.		O.D.		Length L
	φd	Tolerance	φD	Tolerance	
25S-1932	19	±0.3	32	+2.0 0	500
25S-2437	24	±0.3	37	+2.0 0	500
25S-2944	29	±0.3	44	+2.0 0	500
25S-3447	34	±0.3	47	+2.0 0	500
25S-3952	39	±0.3	52	+2.0 0	500
25S-3958	39	±0.3	58	+2.0 0	500
25S-4362	43	±0.3	62	+2.0 0	500
25S-4972	49	±0.3	72	+2.0 0	500
25S-5374	53	±0.5	74	+2.0 0	500
25S-5882	58	±0.5	82	+2.0 0	500
25S-6384	63	±0.5	84	+2.0 0	500
25S-6889	68	±0.5	89	+2.0 0	500
25S-7395	73	±0.5	95	+2.0 0	500
25S-78103	78	±0.5	103	+3.0 0	1,000
25S-83108	83	±0.5	108	+3.0 0	1,000
25S-88113	88	±0.5	113	+3.0 0	1,000
25S-98123	98	±0.5	123	+3.0 0	1,000
25S-103128	103	±0.5	128	+3.0 0	1,000
25S-108133	108	±0.5	133	+3.0 0	1,000
25S-118143	118	±0.5	143	+3.0 0	1,000

25M

Oiles 250-07 (425-07) Bar Stock



Specify Part No. by required diameter.
(e.g.) Diameter is 40mm.

25M - 40
Part No.

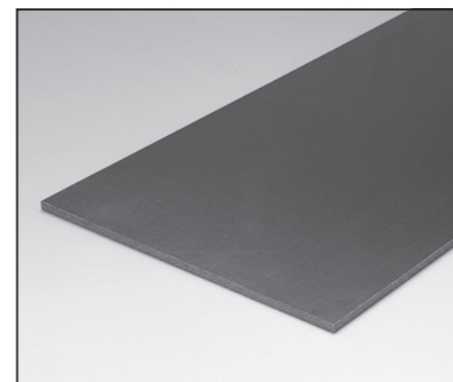


- The 250-07 bar stock may be used as the 425-07 (for underwater use) if it is machined and process with paraffin then.

Part No.	Diameter		Thickness L
	φD	Tolerance	
25M-30	30	+2.0 +1.0	500
25M-40	40	+2.0 +1.0	500
25M-50	50	+2.5 +1.0	500
25M-60	60	+2.5 +1.0	500

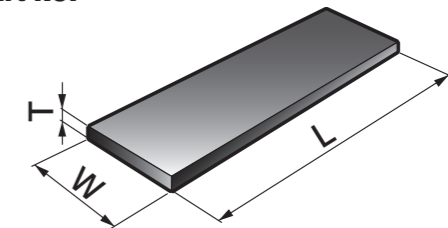
25P

Oiles 250-07 (425-07) Plate Material



Specify Part No. by required width and thickness.
(e.g.) Wide is 250mm, thickness is 11mm.

25P - 2511
Part No.



- The 250-07 plate material may be used as the 425-07 (for underwater use) if it is machined and processed with paraffin then.

Part No.	Width		Thickness		Length L
	W	Tolerance	T	Tolerance	
25P-2506	250	+10.0 + 1.0	6	+2.0 0	500
25P-2511	250	+10.0 + 1.0	11	+2.0 0	500
25P-2521	250	+10.0 + 1.0	21	+2.0 0	500