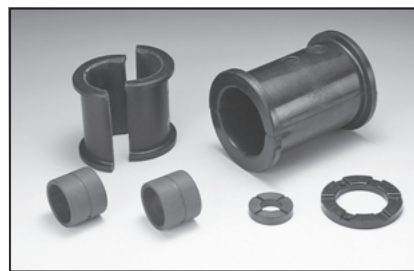


Oiles 470-02/02W Carbon fiber composite bearings for underwater use



Feature

- Has self-lubricating performance. Demonstrates low coefficient of friction and superior wear performance especially in water, chemicals, or oil.
- Demonstrates superior wear performance and maintains stable performance even under abrasive conditions subject to soil, sand, foreign matter or rust on the mating parts.
- A multi-layer type (470-02W), which incorporates 470-02 on the sliding surface and 250 or 425 as the backing material is also available.
- The standard split metal for flocculators and bearing units are available on order.

Service range

Lubrication condition	underwater
Service temperature range °C	-40~+90
Allowable max. pressure P N/mm ² {kgf/cm ² }	15 {153}
Allowable max. velocity V m/s {m/min}	16.5 {990}
Allowable max. PV value N/mm ² · m/s {kgf/cm ² · m/min}	8.15 {4,990}

Condition: underwater, bushing, shaft rotation.

※Contact us when temperature exceeds the range.

Mechanical properties

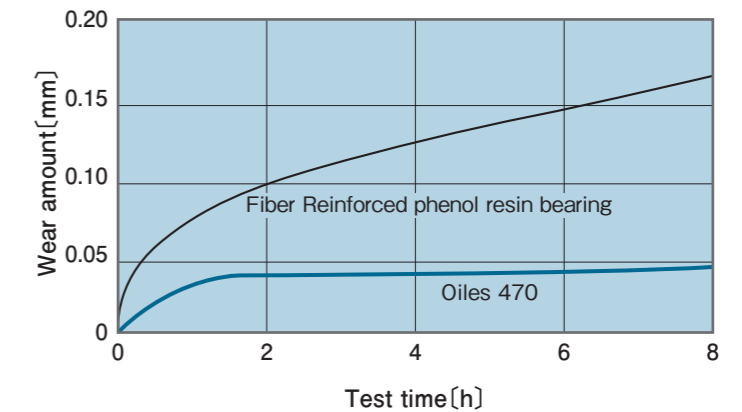
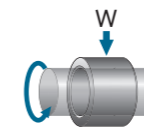
Specific gravity	JIS K 6911	—	1.4
Tensile strength	JIS K 6911	N/mm ² {kgf/mm ² }	45 {4.6}
Flexural property	JIS K 6911	N/mm ² {kgf/mm ² }	75 {7.7}
Compressive strength	JIS K 6911	N/mm ² {kgf/mm ² }	124 {12.7}
Hardness	JIS K 6911	HRM	103
Izod impact strength (with notch)	JIS K 6911	J/m {kgf·cm/cm}	58.8 {6}
Co-efficient of linear expansion	ASTM D 696	×10 ⁻⁵ °C ⁻¹	2~2.5
Swelling rate	—	%	470-02 : 0.8% (room temp) 470-02W : 1.2% (room temp)

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

Test data

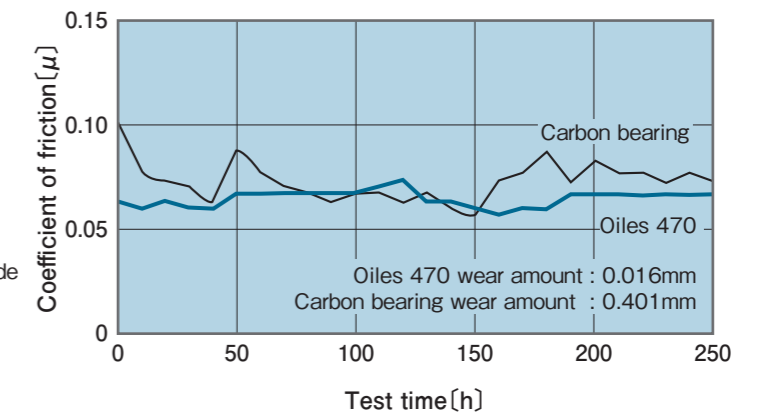
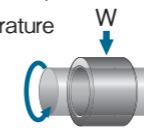
High speed underwater journal rotation test

<Testing conditions>
 Mating material : SUS403
 Pressure : 1.96N/mm²{20.0kgf/cm²}
 Velocity : 5m/s{300m/min}
 Test time : 8h
 Atmosphere : purified water



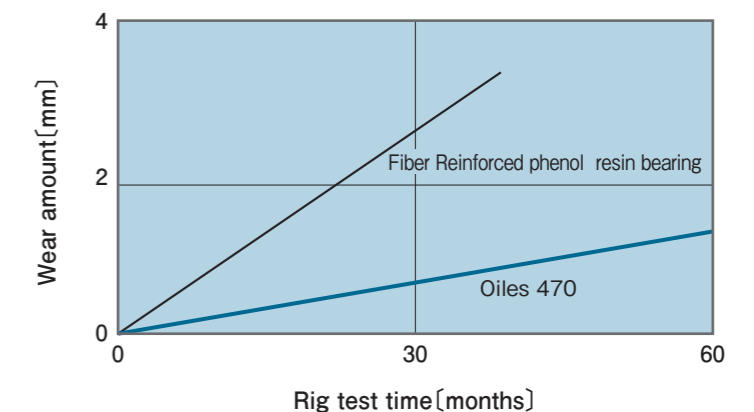
High speed underwater journal rotation test

<Testing conditions>
 Bearing dimension : φ60×φ75×ℓ60
 Pressure : 0.13N/mm²{1.4kgf/cm²}
 Velocity : 5.65m/s{339.0m/min}
 Rotation frequency : 1,800rpm
 Atmosphere : muddy water
 (500 ppm of testing dust JIS grade 2 and 3 are blended equally as foreign particle.)
 Test temperature : room temperature
 Duration : 250h



Water processing machine

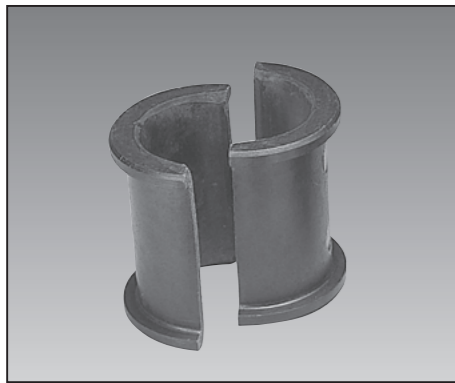
<Testing conditions>
 Mating material : S45C
 Pressure : 0.49N/mm²{5.0kgf/cm²}
 Velocity : 0.067m/s{4.0m/min}
 Atmosphere : muddy water



47H

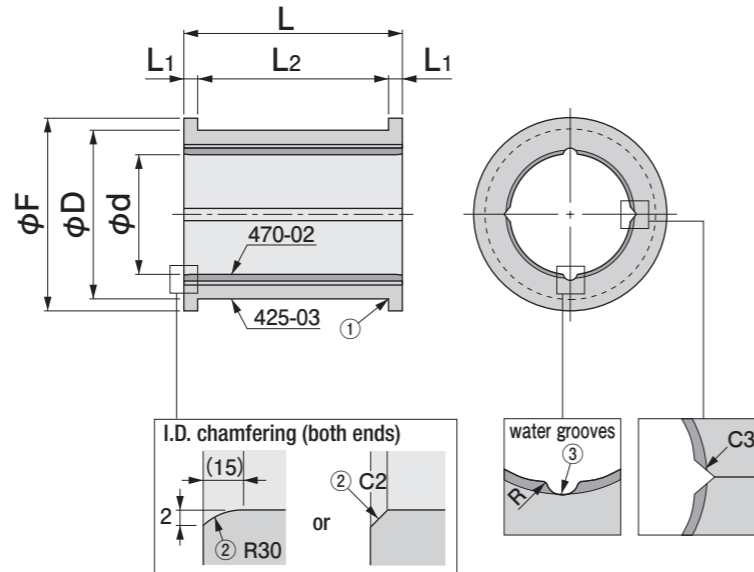
Split Bearings for Flocculator

Made-to-order



Specify Part No. by required I.D., O.D. and Length.
(e.g.) I.D. is 90mm, O.D. is 120mm, and length is 120mm.

47H - 90120120
Part No.



- The recommended mating shaft should be hard chrome-plated (50μ or more) or stainless steel (or a shrinkage-fit sleeve).
- The dimensional tolerance of the mating shaft should be h7.
- This product is supplied in a set of two.
- This product is made to order.

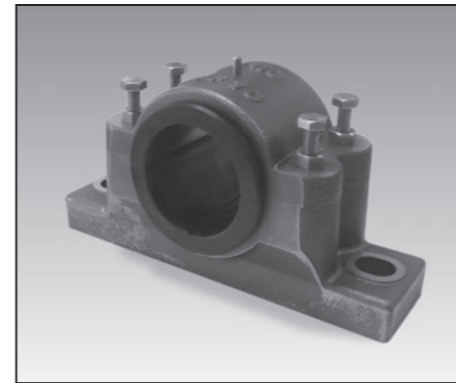
Part No.	I.D.		O.D.	Flange	Length				Chamfer · water grooves			Recommended housing I.D.	
	φd	Tolerance			φD	L	L1	L2	Tolerance	①	②	③	Size
47H-6076105	60	$\begin{smallmatrix} +0.6 \\ +0.2 \end{smallmatrix}$	(76)	92	105	8	89	$\begin{smallmatrix} +0.5 \\ 0 \end{smallmatrix}$	2-R1	C2	R1.5	φ76	$\begin{smallmatrix} 0 \\ -0.14 \end{smallmatrix}$
47H-7086105	70	$\begin{smallmatrix} +0.6 \\ +0.2 \end{smallmatrix}$	(86)	102	105	8	89	$\begin{smallmatrix} +0.5 \\ 0 \end{smallmatrix}$	2-R1	R30	R2.5	φ86	$\begin{smallmatrix} 0 \\ -0.14 \end{smallmatrix}$
47H-80105120	80	$\begin{smallmatrix} +0.8 \\ +0.2 \end{smallmatrix}$	(105)	130	120	15	90	$\begin{smallmatrix} +0.6 \\ 0 \end{smallmatrix}$	2-R1	R30	R4	φ105	$\begin{smallmatrix} 0 \\ -0.14 \end{smallmatrix}$
47H-90120120	90	$\begin{smallmatrix} +0.8 \\ +0.2 \end{smallmatrix}$	(120)	150	120	15	90	$\begin{smallmatrix} +0.6 \\ 0 \end{smallmatrix}$	2-R1	R30	R4	φ120	$\begin{smallmatrix} 0 \\ -0.14 \end{smallmatrix}$
47H-100130140	100	$\begin{smallmatrix} +0.8 \\ +0.2 \end{smallmatrix}$	(130)	154	140	15	110	$\begin{smallmatrix} +0.6 \\ 0 \end{smallmatrix}$	2-R1	C2	R4	φ130	$\begin{smallmatrix} 0 \\ -0.14 \end{smallmatrix}$

※The inner diameters (φd) are the values measured when set in jigs of the minimum recommended housing inner diameters.
※Dimensions may vary if the product is stored for a long time. Please use it as soon as possible after delivery. If long-term storage is required, please contact us when placing an order.

UPF

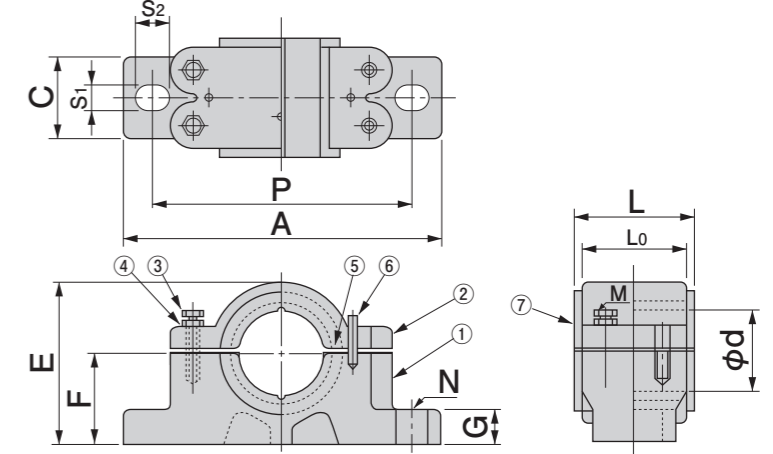
Flocculator Bearing Units

Made-to-order



Specify Part No. by required diameter.
(e.g.) Diameter is 90mm

UPF - 90
Part No.



- Bearing unit composed of a bearing set in a housing.
- The sliding surface is made of 470-02W featuring superior wear resistance.
- Exclusive for underwater use.
- This unit is not painted.
- The dimensional tolerance of the mating shaft should be h7.
- This product is made to order.
- Company name and Part No. are incused at the surface of housing (base).

Part	Material
1 Base	FC250
2 Cover	FC250
3 Bolt	SUS304
4 Nut	SUS304
5 Spring pin	SUS304
6 Bearing	470-02W

Part No.	I.D.	Form							Mounting hole · Bolt					
		φd	A	C	L	L0	E	F	G	P	S1	S2	N	M
UPF-70	70	270	70	105	89	138	80	30	220	22	27	M20	M10	
UPF-80	80	285	70	120	90	158	90	30	230	22	27	M20	M10	
UPF-90	90	330	70	120	90	180	100	30	270	27	32	M24	M10	
UPF-100	100	335	90	140	110	195	110	35	270	27	32	M24	M12	

※Dimensions may vary if the product is stored for a long time. Please use it as soon as possible after delivery. If long-term storage is required, please contact us when placing an order.