

Oiles Techmet E Polytetrafluoroethylene plastic multi-layer bearings with back metals



Feature

- Serviceable without the need for lubrication. Features superior dimensional stability, mechanical strength, and thermal conductivity with a thin, lightweight, and compact design. (Available from Thickness 0.5 mm)
- Features low coefficient of friction and superior wear resistance.
- Electrically conductive

Service range

Lubrication condition	Dry
Service temperature range °C	-50~+250
Allowable max. pressure P N/mm ² [kgf/cm ²]	49 (137) {500 (1,400)}
Allowable max. velocity V m/s [m/min]	0.5 {30}
Allowable max. PV value N/mm ² · m/s [kgf/cm ² · m/min]	3.27 {2,000}

The values in parentheses are static bearing pressures, which are the bearing pressures in applications with no motion or very small motion (≤ 0.0017 m/s[0.1m/min]).

Mechanical properties

Tensile strength	JIS Z 2241	N/mm ² [kgf/cm ²]	380 {3,875}
Elongation	JIS Z 2241	%	27
Hardness	JIS Z 2244	HV	107

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

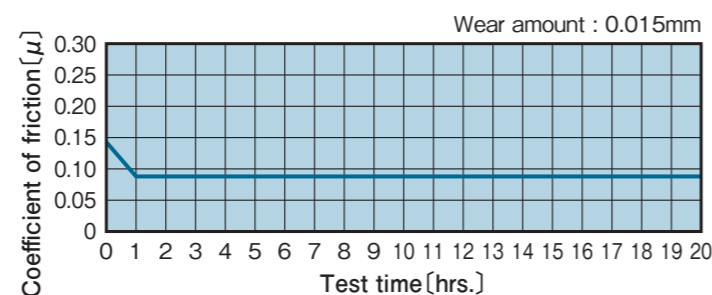
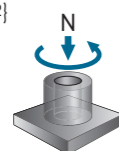
※The values shown above are values of back metal.

Test data

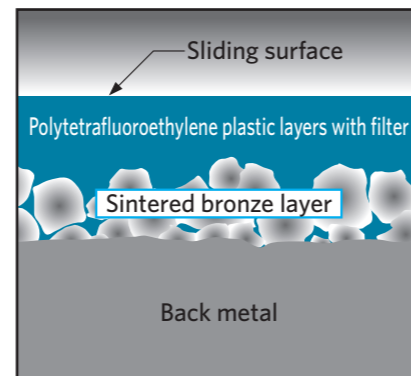
Thrust rotation test

<Testing conditions>

- Mating material : S45C-N (surface roughness Rz1.6μm)
- Pressure : 9.8N/mm² {100kgf/cm²}
- Velocity : 0.167m/s {10.0m/min}
- Test time : 20hrs
- Lubrication : dry

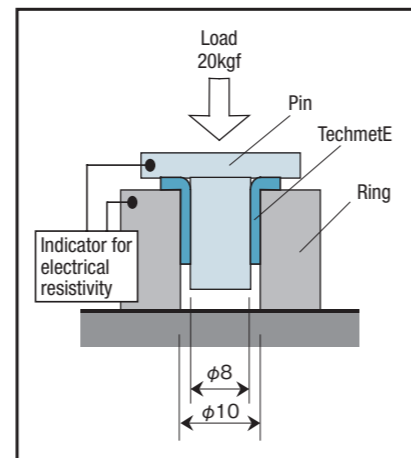


◎Please refer to the fitting method of Drymet LF. (P.153, 154)



image

Electrical resistivity
1000Ω or less with below measurement method



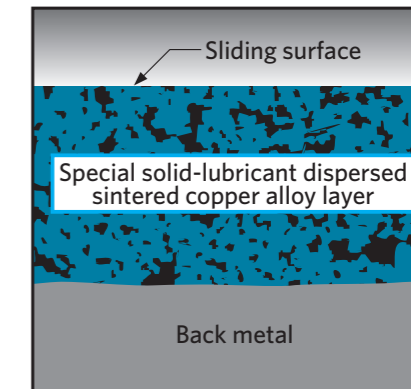
Oiles Toughmet Solid-lubricant dispersed sintered bearings with back metals

Standard product/Custom-made product



Feature

- Has superior load resistance and heat resistance. Also conductive.
- Demonstrates superior performance even in reciprocating, oscillating, and intermittent operations.
- Demonstrates much superior performances by the action of oil retaining power of the sintered copper alloy layer and solid lubricant if lubricating oil is used together.
- Thin bearing allows compact design.
- Electrically conductive.
- The standard products are available in various sizes.



image

Service range

Lubrication condition	Dry
Service temperature range °C	-40~+350
Allowable max. pressure P N/mm ² [kgf/cm ²]	24.5 (49) {250 (500)}
Allowable max. velocity V m/s [m/min]	0.40 {24}
Allowable max. PV value N/mm ² · m/s [kgf/cm ² · m/min]	1.65 {1,010}

The values in parentheses are static bearing pressures, which are the bearing pressures in applications with no motion or very small motion (≤ 0.0017 m/s [0.1m/min]).

Mechanical properties

Tensile strength	JIS Z 2241	N/mm ² [kgf/cm ²]	380 {3,875}
Elongation	JIS Z 2241	%	27
Hardness	JIS Z 2244	HV	107

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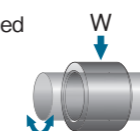
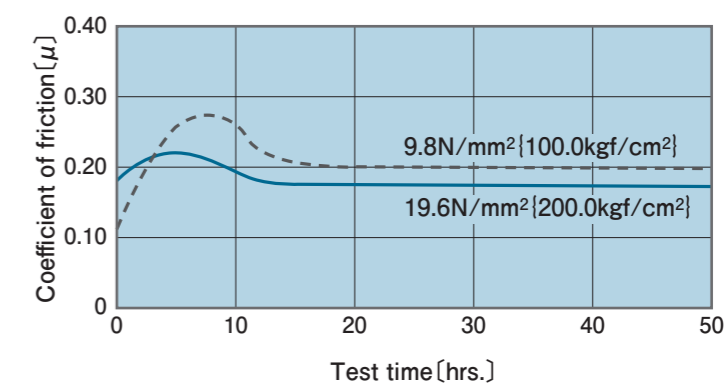
※The values shown above are values of back metal.

Test data

Journal oscillation test

<Testing conditions>

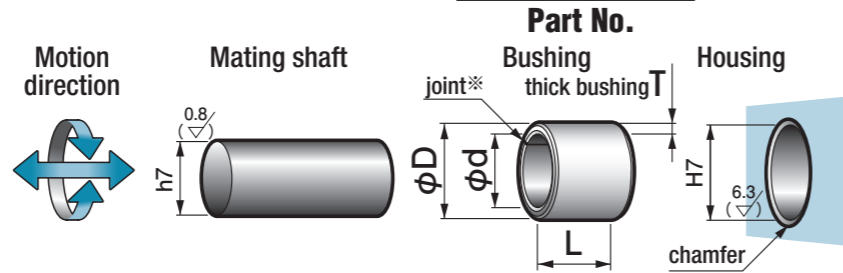
- Bearing dimension : φ 40×φ44×ℓ 30
- Pressure : 9.8N/mm² {100.0kgf/cm²}
- 19.6N/mm² {200.0kgf/cm²}
- Velocity : 0.014m/s {0.84m/min}
- Oscillating angle : ±20°
- Oscillating cycle : 30cpm
- Test time : 50hrs.
- Lubrication : grease is applied at assembly.



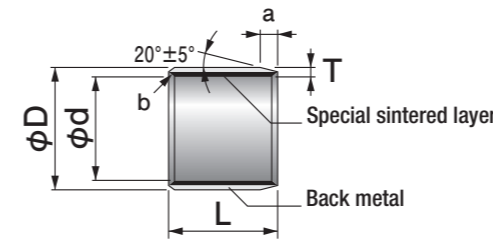
◎Please refer to the fitting method of Drymet LF. (P.153, 154)



Specify Part No. by required I.D. and length.
 (e.g.) I.D. is 25mm and length is 20mm. **TMB - 2520**



※The joint causes no influences upon rotation of the shaft. Be careful when press-fitting so that the joint is not at the position to which the maximum load is applied.



a: O.D. chamfering for the bushing I.D. of φ10 or more

T	1.0	1.5	2.0	2.5
a	0.5	0.8	1.0	1.0

(mm)

b: I.D. chamfering for the bushing I.D. of φ10 or more

T	1.0	1.5	2.0	2.5
b	0.3	0.5	0.5	0.5

(mm)

※Chamfering of inner or outer diameters less than φ10 mm is done only to remove burrs.

Shaft Size	Housing Size	I.D. φd	O.D. φD	Wall thickness T	Length L Tolerance -0.3						
					5	6	8	10	12	15	
5	7	5	7	1.0	0505		0508				
6	8	6	8	1.0		0606		0610			
7	9	7	9	1.0					0712		
8	10	8	10	1.0			0808	0810	0812	0815	
9	11	9	11	1.0				0910			
10	12	10	12	1.0				1010		1015	
12	14	12	14	1.0				1210		1215	
14	16	14	16	1.0		1406		1410		1415	
15	17	15	17	1.0				1510		1515	
16	18	16	18	1.0						1615	
18	20	18	20	1.0						1815	
20	23	20	23	1.5					2012	2015	
22	25	22	25	1.5				2210			
24	27	24	27	1.5							
25	28	25	28	1.5				2510		2515	
26	30	26	30	2.0							
28	32	28	32	2.0							
30	34	30	34	2.0						3015	
31	35	31	35	2.0							
32	36	32	36	2.0							
35	39	35	39	2.0						3515	
38	42	38	42	2.0							
40	44	40	44	2.0							
42	47	42	47	2.5							
45	50	45	50	2.5							
50	55	50	55	2.5							
55	60	55	60	2.5							
60	65	60	65	2.5							
65	70	65	70	2.5							
70	75	70	75	2.5							
75	80	75	80	2.5							
80	85	80	85	2.5							
85	90	85	90	2.5							
90	95	90	95	2.5							
100	105	100	105	2.5							

※Outer diameter is measured by exclusive gauge.
 ※The I.D. tolerance after press fitting is for reference only.

Length L Tolerance -0.3											I.D. tolerance after press fitting (reference)	I.D. φd
20	25	30	35	40	50	60	70	80	95	105		
											+0.165	5
											+0.165	6
											+0.165	7
											+0.165	8
											+0.168	9
1020											+0.168	10
1220											+0.168	12
1420											+0.188	14
1520	1525										+0.188	15
1620	1625										+0.188	16
	1825										+0.191	18
2020	2025	2030									+0.201	20
2220		2230									+0.201	22
		2430									+0.201	24
2520	2525	2530	2535								+0.201	25
		2630									+0.201	26
2820		2830		2840							+0.205	28
3020	3025	3030	3035	3040							+0.205	30
				3140							+0.205	31
3220				3240							+0.205	32
	3525	3530		3540	3550						+0.205	35
		3830			3850						+0.205	38
	4025	4030		4040	4050						+0.205	40
					4250						+0.215	42
		4530			4550						+0.215	45
	5025	5030		5040	5050	5060					+0.220	50
	5525			5540			5570				+0.220	55
		6030		6040		6060					+0.220	60
		6530		6540		6560					+0.220	65
		7030		7040				7080			+0.220	70
				7540				7580			+0.220	75
				8040				8080			+0.225	80
				8540				8580			+0.225	85
				9040		9060					+0.225	90
					10050				10095		+0.265	100