

Oil-Free Machinery® Foil Bearings Catalog

Please read footnotes for more details

17-Jul-2025

Journal Bearings

Journal Bearings						Temperature Limits		
Journal Bearing Nominal Size	Nominal Length	TYPICAL, Full Performance Speed Range ¹		Long COATING Life Static Load ²	Max Transient Load ³	w/Teflon, Stainless Spring and Cartridge	w/ Hi-Temp, Stainless Spring and Cartridge	w/ Hi-Temp, IN718 Spring and Cartridge
		Low Speed	Hi Speed					
		mm	mm					
15.5	15.5	50	195	6	Infinite	200°C	400°C	600°C
21	22.1	35	140	10	Infinite	200°C	400°C	600°C
27	27	28	110	23	Infinite	200°C	400°C	600°C
29	31.75	25	105	25	Infinite	200°C	400°C	600°C
32	31.75	24	95	25	Infinite	200°C	400°C	600°C
35.5	38.5	23	90	34	Infinite	200°C	400°C	600°C
38	39	20	79	37	Infinite	200°C	400°C	600°C
39	40	20	77	40	Infinite	200°C	400°C	600°C
41	48.5	18	73	50	Infinite	200°C	400°C	600°C
56	64.5	13	54	90	Infinite	200°C	400°C	600°C
80	90	9	38	180	Infinite	200°C	400°C	600°C
130	145	6	23	450	Infinite	200°C	400°C	600°C

Thrust Bearings (ML Types)

Thrust Bearing Nominal Size		TYPICAL, Full Performance		Efficiency Load	Max Linear	Max Transient	w/Teflon, Stainless	w/ Hi-Temp, Stainless	w/ Hi-Temp, IN718 Spring
OD	ID	Low Speed	Hi Speed	Point ⁴	Load ⁴	Load ⁴	Spring and Foils	Spring and Foils	and Foils
mm	mm	krpm	krpm	N	N	N	°C	°C	°C
26	17	50	195	25	90	Infinite	200°C	400°C	600°C
41	23	35	140	60	200	Infinite	200°C	400°C	600°C
53	30	28	110	105	375	Infinite	200°C	400°C	600°C
70	36.5	24	95	200	700	Infinite	200°C	400°C	600°C
77	45	20	79	215	750	Infinite	200°C	400°C	600°C
110	61.5	13	54	460	1600	Infinite	200°C	400°C	600°C
160	90	9	38	1000	3500	Infinite	200°C	400°C	600°C
230	136	6	23	2000	7000	Infinite	200°C	400°C	600°C

NOTES:

- Speed limitations are guidelines based on assumed typical conditions and tradeoffs. Values may change significantly with different applications. These values do not consider critical speeds or other system level issues.
- Static loading is maintained at low levels in order to achieve cyclic life in the 330-500,000 start-stop range with Teflon coating. Increased static loading will NOT impact dynamic performance, but will significantly shorten the product life.
- Transient loading is unlimited. With beam spring bearings, the spring will not yield when flat against the cartridge. Therefore there is no load that will MECHANICALLY damage the bearing. Massive heat is generated during high loading, so the practical load limit for continuous operation is based on the system cooling capability. Bump spring designs cannot
- Thrust bearing loading is STATIC without significant dynamic component. OFM recommends thrust balancing to the "Efficiency Load Point" to keep cooling requirements manageable and to leave a large linear load capacity region for transient events. Like the journal bearings, infinite transient loads are permitted, but thermal runaway is possible with a sustained load due to the massive heat generation.