

Wärtsilä Linesafe bearing

**Created to give you
complete control**

PRODUCT DATASHEET



The Wärtsilä Linesafe bearing is an evolutionary design which has been developed to combine the fundamentals from the existing shaft line bearing range into one simple design that meets the market needs for today and for the future.

LEAN PHILOSOPHY ALLOWS FLEXIBILITY

Flexibility is allowed within the standard configuration, with one bearing design suitable for multiple different configurations, such as forced lubrication or self-lubrication. This means that Wärtsilä can meet the demands of any customer, with improved response times and a first-rate product tailored to their needs. As it is fitted with the PT-100 device, the Wärtsilä Linesafe bearing comes digital-ready as standard. This allows for modern condition monitoring systems to be easily integrated.

The Wärtsilä Linesafe bearing offers a lean and cost-efficient design that is flexible to specific customer needs. The customer is always in control of the final product.

HIGHEST QUALITY DESIGN AND MATERIALS

The Wärtsilä Linesafe bearing is a fully split, hydrodynamic bearing with a self-aligning design. It consists of a modular housing made of high-quality cast iron. The plain bearing is also made of high-quality cast iron, lined with environmentally friendly white metal, giving the optimal running surface. The ideal ratio between bearing shell length to shaft diameter, along with our unique white metal application process, allows for the highest radial loads. The Wärtsilä Linesafe bearing also requires less installation space due to its smaller size and lighter weight, yet has similar radial loads compared to similar designs on the market.

Fig.1 The Wärtsilä Linesafe bearing standard design



Our engineers listened

By listening to what our customers want and need, our engineers developed a solution that meets market demands and ensures that customers can:

- save costs with the new white metal application process;
- speed up resources with easy installation and alignment; and
- enjoy and additional level of reliability and safety.

New design, fit for the future

FEATURES	ADVANTAGES	BENEFITS
New white metal application process.	Greater adhesion of white metal to the bearing shell.	Higher radial load capacity per bearing size, resulting in cost savings.
Spherical seat as standard.	Accepts higher angular misalignment.	Operates effectively on ships with hull deformation.
Self-aligning design.	Slight installation misalignments are corrected due to the spherical seat.	Easy installation and alignment.
Modular design.	Gives the ability for a customer to select any optional extras they would like.	The customer is fully in control of the product they are purchasing.
Upper and lower bearing shell interchangeable.	In the event of an emergency, the upper bearing shell can be used as the lower shell to support the shaft.	Additional level of reliability and increased safety.
Temperature sensor and oil level dipstick included.	Allows for complete control of temperature and oil levels.	No need to purchase extras as options come as standard.
One oil sump, not the standard two.	Reduction in oil quantity.	Lower bearing running costs.



Fig.2 The Wärtsilä Linesafe bearing being measured

LUBRICATION

Self-lubrication comes as standard due to the high-quality cast aluminium oil ring and oil scraper fitted on the bearing. Additionally, the modular design enables connection to external forced lubrication if necessary. Oil leakage is prevented by means of two shaft pass covers, made of high-quality cast aluminium. The oil scraper joints and deflection rings allow the shaft to freely rotate, preventing dirt particles from entering the housing.

INSTALLATION

The Wärtsilä Linesafe bearing is a fully split and self-aligning design, facilitating easy installation and service. Moreover, it is highly tolerant of installation misalignments, designed to correctly operate on permanent sloped shaft lines of up to 4° without needing any custom designed seal. The shaft line survey, inspection and serviceability in situ is significantly improved by the

increased distance between the housing legs. This gives space for the intermediate shaft to be stored temporarily. With this clever design, the Wärtsilä Linesafe bearing helps by saving time and providing a safe environment for service personnel during installation and shaft repair.

OPERATION

The self-aligning design assists an accurate alignment and helps to avoid misalignments in operation, overloads and wear down. This increases the lifetime of both the rotary shaft and the bearing surface. Because of its capability to accept higher angular misalignments, it is the ideal solution for vessel types or hull structures that have higher hull bending effects, for example, when the stern tube is designed with only one AFT bearing. When it is fitted with our SRtP kit, the bearing ensures compliance with the latest Safe Return to Port requirements.

Technical specification

PRODUCT OPTIONS

Bearing type	Pedestal or saddle*
Bearing seat	Spherical seat or straight seat*
Bearing housing	Cast iron or spheroidal cast iron*
Shaft pass cover	Cast aluminium or SRtP kit*
Lubrication	Self lubrication or external lubrication*
Cooling	Natural convection cooling or water cooling*
Device control	Local thermometer, PT-100 and dipstick (other devices on request)
External paint	Grey epoxy primer RAL 7038 (other colours are available on request)

STANDARD OPERATING CONDITIONS

Maximum pressure static	1.0MPa or 1.5MPa* (10bar or 15bar*)
Maximum pressure dynamic	1.8MPa (18bar)
Oil grade	ISO VG100 (SAE 30)
Maximum environmental temperature	45°C (113°F)

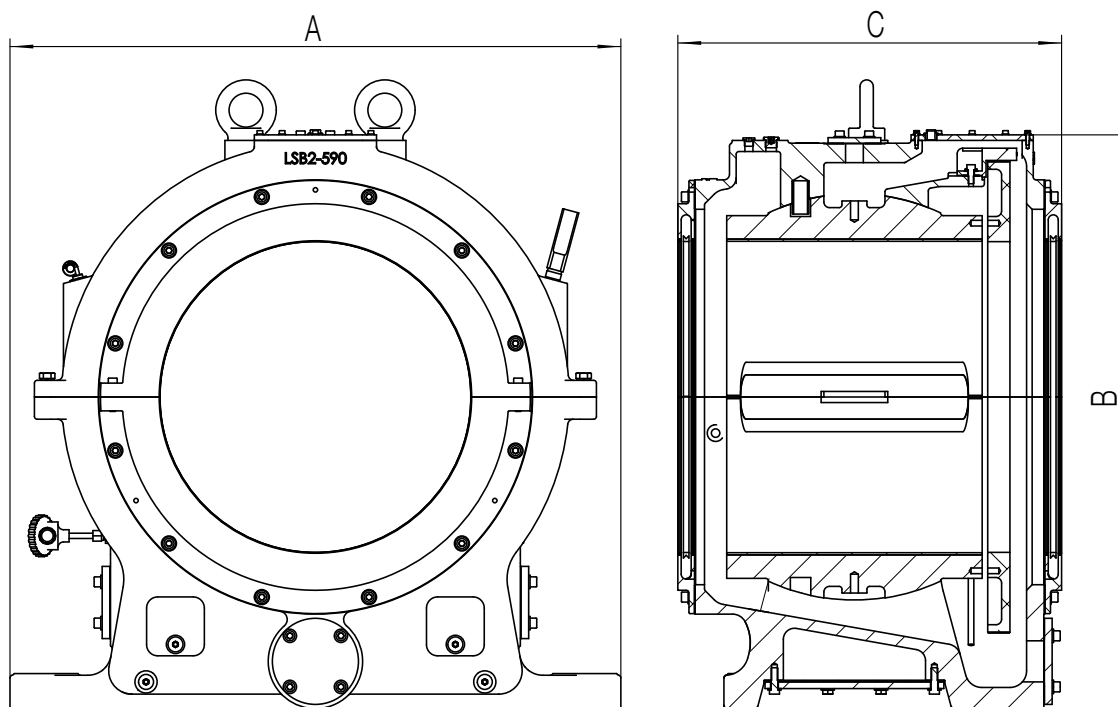


*These options do not come as standard but are available on request.

All measurements are in accordance with DINSPEC and SAE regulations. All specified technical data above is subject to change without notice and should be verified at the time of order.

Bearing size	Shaft diameter				Bearing shell length		Weight		Standard working parameters		
	Min		Max		mm	in	kg	lbs	Radial load (kN)	Min rpm	Max rpm
	mm	in	mm	in							
165	100	3.94	165	6.5	120	4.72	106	233.69	19.8	80	347
210	166	6.54	210	8.27	150	5.91	142	313.06	31.5	62	273
240	211	8.31	240	9.45	180	7.09	176	388.01	43.2	54	239
270	241	9.49	270	10.63	200	7.87	219	482.81	54.0	47	212
300	271	10.67	300	11.81	230	9.06	267	588.63	69.0	43	191
330	301	11.85	330	12.99	250	9.84	305	672.41	82.5	38	173
360	331	13.03	360	14.17	280	11.02	354	780.44	100.8	35	159
400	361	14.21	400	15.75	300	11.81	420	925.94	120.0	31	143
430	401	15.79	430	16.93	330	12.99	551	1214.75	141.9	29	133
470	431	16.97	470	18.5	360	14.17	661	1457.26	169.2	26	122
510	471	18.54	510	20.08	390	15.35	768	1693.15	198.9	24	112
550	511	20.12	550	21.65	420	16.54	902	1988.57	231.0	22	104
590	551	21.69	590	23.23	460	18.11	1083	2387.61	271.0	20	97
630	591	23.27	630	24.8	490	19.29	1286	2835.14	308.7	19	91
670	631	24.84	670	26.38	520	20.47	1397	3079.86	348.4	18	86
710	671	26.42	710	27.95	550	21.65	1715	3780.93	390.5	17	81
750	711	27.99	750	29.53	580	22.83	1885	4155.71	435.0	16	76
800	751	29.57	800	31.49	620	24.41	2195	4839.15	496.0	14	72

Wärtsilä Linesafe bearing



Shaft sizes		165	210	240	270	300	330	360	400	430	470	510	550	590	630	670	710	750	800	
Width	A	mm	460	510	570	600	630	700	720	740	860	890	940	1050	1100	1140	1170	1200	1250	1340
		in	18.11	20.08	22.44	23.62	24.8	27.56	28.35	29.13	33.86	35.04	37.01	41.34	43.31	44.88	46.06	47.24	49.21	52.76
Height	B	mm	411	471	501	552	612	646	689	734	781	844	902	967	1037	1104	1167	1225	1289	1364
		in	16.18	18.54	19.72	21.73	24.09	25.43	27.13	28.9	30.75	33.23	35.51	38.07	40.83	43.46	45.94	48.23	50.75	53.7
Length	C	mm	336	361	402	425	453	473	503	523	553	583	621	651	691	807	846	892	922	987
		in	13.31	14.21	15.83	16.73	17.83	18.62	19.8	20.59	21.77	22.95	24.45	25.63	27.2	31.77	33.31	35.12	36.3	38.86

An industry leader in shaft line components Wärtsilä Shaft Line Solutions delivers a portfolio of end-to-end services and integrated solutions for the marine markets that builds on our core values: lifecycle efficiency, risk reduction, environmental leadership and design excellence. As an original equipment manufacturer operating in 75 countries, we have the capabilities to support customers on a global scale, and remain committed to providing in-country and round-the-clock expertise.



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