

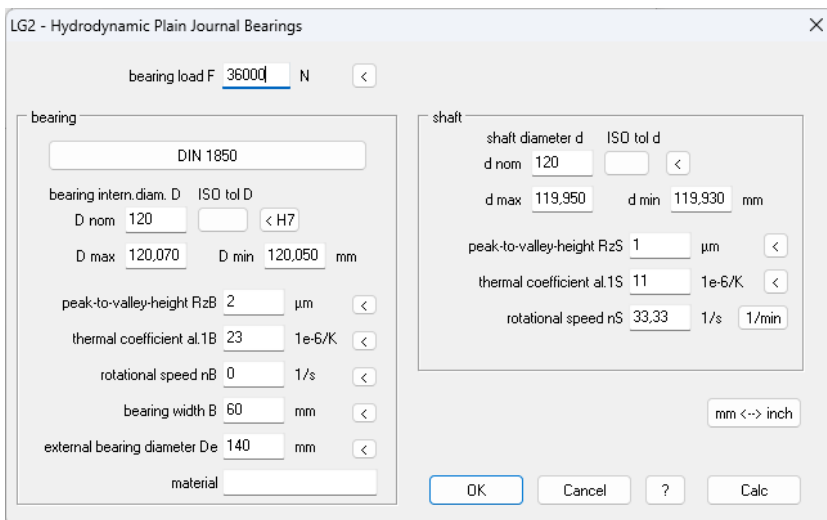
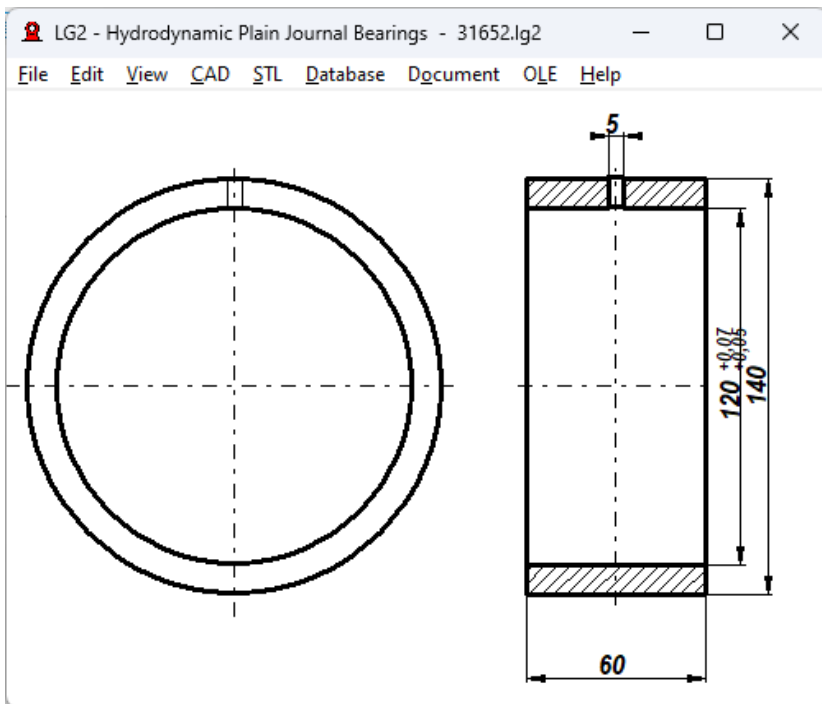
LG 2



Software for Hydrodynamic Plain Journal Bearings according to DIN 31652

for Windows

© Copyright 2002-2024 by HEXAGON Software, Kirchheim, Berlin, Neidlingen



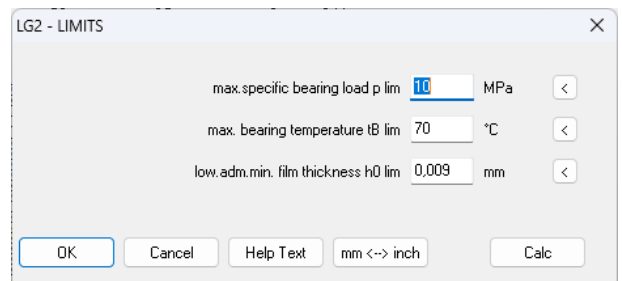
Calculation Base

LG2 calculates hydrodynamic plain journal bearings with 360° enclosing angle under steady-state conditions according to DIN 31652. The software calculates self-lubricated bearings under ambient heat flow by convection as well as forced lubrication bearings with heat removal by the lubricant. Bearing temperature or lubricant outlet temperature are calculated iterative according to DIN 31652 part 1.

LG2 calculates temperature-dependent viscosity of ISO VG lubricants to DIN 51563. Sommerfeld number, friction coefficients, eccentricity, lubricant flow and film thickness are calculated according to DIN 31652 part 2. LG2 suggests limit values for allowable minimum film thickness, surface pressure and bearing temperature according to DIN 31652 part 3. LG2 calculates ISO tolerances of shaft diameter for optimal bearing clearance according to DIN 31652.

Pre-Dimensioning

Enter only radial load and shaft speed, LG2 calculates dimensions of bearing and shaft, bearing clearance and tolerances. The program selects forced lubrication, if required, and chooses lubricant according to requirements of film thickness and friction.



LG2 - lubricant supply

lubricant

lubricant ISO VG 100

density lubricant rho 900 kg/m³

specific thermal capacity c 2000 J/(kg K)

kinematic viscosity nue 40 100 mm²/s

kinematic viscosity nue 100 10.23 mm²/s

lubricant ISO VG 100

forced lubrication (heat removal by lubricant)

heat emission by convection

ambient temperature ta 40 °C

surface of bearing case A 0.3 m²

heat transfer coefficient k 20 W/(m²K)

lubricant supply (forced lubrication)

lubricant hole, 180° against direction of load

lubrication hole diameter dH 5 mm

lubricating groove width bG 0 mm

width bore relief bp 0 mm

lubric.groove angle begin phi A 0 °

lubric.groove angle end phi E 0 °

lubricant inlet temperature t1 58 °C

lubricant inlet pressure pE 0.5 MPa

OK Cancel Help Text Aux. Image mm <-> inch Calc

Re-Calculation

Enter bearing load and dimensions, tolerances, roughness and thermal coefficient of bearing and shaft. LG2 can calculate min and max values of bearing diameter by input of ISO tolerances, and tolerances of shaft diameter from suggested bearing clearance according to DIN 31652.

Lubrication

LG2 handles lubricants ISO VG 2 to ISO VG 1500. If you choose forced lubrication, input of lubrication hole, lubrication groove or lubrication relief is required, as well as lubricant inlet pressure and lubricant inlet temperature. For self-lubricated bearings (heat removal by convection), ambient temperature, surface of bearing case and heat transfer coefficient are required.

Database

Reference values for bearing clearance and admissible minimum lubricant film thickness are included as database, as well as bearing dimensions according to DIN 1850, Type G.

Printout

A table with all input values and calculation results may be printed, saved as text file or HTML file, or exported to Excel.

Quick-View

Quick-View shows tables with most essential data on one page.

Production Drawing

Drawing with bearing dimensions can be saved as DXF or IGES file.

Diagrams

Dynamic and kinematic viscosity of the lubricant as function of temperature is displayed as diagram.

Interfaces

All drawings and diagrams can be saved as DXF or IGES file to be loaded with CAD programs. The OLE interface of LG2 lets you import/export data from/to Excel.

System Requirements

LG2 is available as 32-bit app or as 64-bit app for Windows 11, Windows 10, Windows 7.

Scope of Delivery

Program with user manual (pdf), example applications and help images, non-expiring license for unlimited time use with update rights.

Software Maintenance

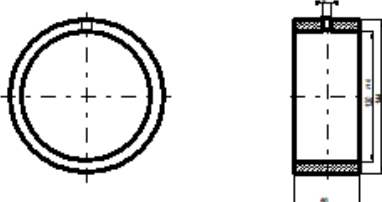
HEXAGON Software is continuously improved and updated. Registered users are regularly kept informed of updates and new editions.

Guarantee

HEXAGON gives a 24 month guarantee on full functionality of the software. We provide help and support by email without extra charge.

LG2 - Hydrodynamic Plain Journal Bearings - 31652.lg2

File Edit View CAD STL Database Document OLE Help



Prod. Dim.	Max. Dim.	Min. Dim.
120 H 6	120 G22	120 g99

Gleitlager 31652		L1M75	
Bemerkungsbearbeitet	Max. spezif. Belastung	p [N/mm²]	7,0
Aus DIN 31652 Teil 1	Max. Betriebstemperatur	tB [°C]	90,0
	Low. admiss. min. Film thickness	hd [µm]	0,060

Bearing		Shaft	
Bearing inner diam.	D [mm]	120 H 6	
Bearing outer diam.	Dmax [mm]	120 G22	
Bearing inner diam.	Dmin [mm]	120 g99	
Thermal coefficient	al [1/K]	0,000023	
Bearing width	B [mm]	60 g99	
		Shaft diameter	d [mm]
		Shaft diameter	dmax [mm]
		Shaft diameter	dmin [mm]
		Thermal coefficient	al [1/K]
		Rotational speed shaft	nS [1/s]

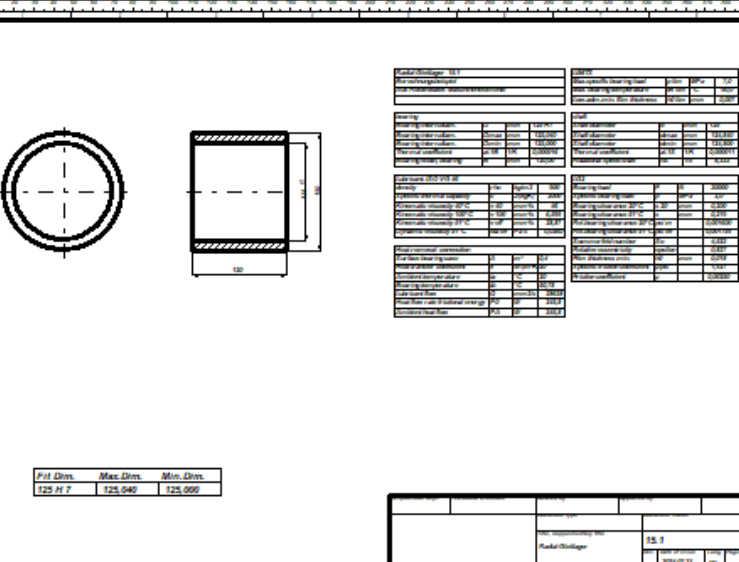
Lubricant ISO VG 32		LG2	
density	rho [kg/m³]	900	
Specific thermal capacity	c [J/(kgK)]	2000	
Kinematic viscosity 40°C	nu 40 [mm²/s]	32	
Kinematic viscosity 50°C	nu 50 [mm²/s]	5,550	
Kinematic viscosity 60°C	nu 60 [mm²/s]	14,70	
Dynamic viscosity 60°C	eta 60 [Pa.s]	0,0132	
		Bearing load	F [N]
		Specific bearing load	p [MPa]
		Bearing clearance 20°C	a 20 [mm]
		Bearing clearance 60°C	a [mm]
		Min. bearing clearance 20°C	hd 20 [µm]
		Min. bearing clearance 60°C	hd 60 [µm]
		Sommerfeld number	So
		Relative eccentricity	eps[rel]
		Film thickness min.	hd [mm]
		Specific friction coefficient	mu[sp]
		Friction coefficient	mu

Heat removal: lubricant (forced lubrication)	
Lubricant inlet pressure	pE [MPa]
Lubricant inlet temperature	t1 [°C]
Lubricant outlet temperature	t2 [°C]
Lubrication temperature	t [°C]
Lubricant flow	Q [m³/s]
Heat flow rate frictional energy	W [W]
Heat flow rate lubricant	PD [W]

LG2 - Hydrodynamic Plain Journal Bearings - ROLOFF1.lg2

File Edit View CAD STL Database Document OLE Help

HEXAGON LG2 - Hydrodynamic Plain Journal Bearings V3.1



Prod. Dim.	Max. Dim.	Min. Dim.
125 H 7	125 G40	125 g99