

► **TECHNICAL SPECIFICATIONS**

COMPONENTS: MEASURES, ADJUSTS AND TOLERANCES

ENGINE BLOCK	MILIMETERS
Total height, between finished surfaces	348.28 - 348.46
Cylinder bore, after burnished	93.000 - 93.013
Rugosity, after burnished (CLA)	0.45 μm - 0.70 μm
Burnishing angle	38 - 42°
Shell housing diameter	67.704 - 67.721
Camshaft bushing housing diameter	49.99 - 50.01
Tappet housing diameter	34.925 - 34.950

MAIN BEARING SHELLS	MILIMETERS
Outer diameter	67.704 - 67.721
Inner diameter, after assembly	63.535 - 63.536
Oversize (0.25 μm)	63.281 - 63.282
Main bearings shells width nr. 1, 2, 3 and 4	24.25 - 24.50
Main bearing shell width nr. 5 (rear)	34.81 - 35.06
Thickness	2.083 - 2.093
Clearance between shell and main journal (diametrical)	0.030 - 0.080

CAMSHAFT GEAR	MILIMETERS
Number of teeth	24
Gear housing diameter	38.030 - 38.075

CAMSHAFT PULLEY	MILIMETERS
Seal ring diameter	56.975 - 57.025

CRANCKSHAFT	MILIMETERS
Main journals diameter, standard	63.471 - 63.491
Undersize (0.25 mm)	63.217 - 63.237
Main journal length nr. 1 - standard	31.090 - 31.850
Main journal length nr. 2 - standard	34.393 - 34.645
Main journal length nr. 3 - standard	33.275 - 33.325
Main journal length nr. 4 - standard	34.393 - 34.645
Main journal length nr. 5 - standard	44.704 - 44.958
Crankpin diameter - standard	58.725 - 58.745
Undersize (0.25 mm)	58.471 - 58.491
Crankpins length - standard	33.249 - 33.401
Main journals fillets / roller crankpins	3.3 - 3.7
Main journals / crankpins maximum out-of-roundness	0.007
Main journals / crankpins rugosity (CLA)	0.25 µm
Fillets rugosity (CLA)	0.8 µm (*)
Rear flange diameter	99.495 - 99.517
Rear flange width	21.122 - 22.176
Maximum eccentricity - Main journals nr. 1 and 5	supported
Maximum eccentricity - Main journal nr. 3	0.025
Axial clearance	0.05 - 0.15

(*) = up to 45°; in the remaining direction of the ray, in direction to the mirror, rugosity must be 1.6 mm.

CONNECTING ROD	MILIMETERS
Shell housing diameter	62.433 - 62.446
Bushing housing diameter	36.650 - 36.675
Distance between centers (shell housing / connecting rod bushing housing)	175.388 - 175.438
Maximum radial clearance	0.029
Crankshaft axial clearance	0.15 - 0.35

CONNECTING ROD SHELLS	MILIMETERS
Outer diameter (assembled)	62.433 - 62.446
Inner diameter, after assembly	58.779 - 58.780
Thickness	1.827 - 1.833
Oversize (0.25 mm)	1.952 - 1.958
Shells width	24.750 - 25.000
Clearance between shell and main journal (diametrical)	0.025 - 0.076

CONNECTING ROD BUSHING	MILIMETERS
Outer diameter	36.650 - 36.675
Inner diameter after finish	32.020 - 32.035
Clearance between pin and bushing	0.020 - 0.041

PISTON	MILIMETERS
Type: Aluminum alloy with combustion camera in the convex head.	
Side covering with graphite	0.500 - 0.800
Height, in relation to engine block surface	

PISTON PIN	MILIMETERS
Diameter	31.994 - 32.000

PISTON RING	MILIMETERS
Side clearance in the 1st and 2nd grooves, compression	0.050 - 0.090
Side clearance in the 3rd groove, oil ring	0.030 - 0.065
Clearance between ends of the 1st ring, compression	0.400 - 0.600
Clearance between ends of the 2nd ring, compression	0.300 - 0.550
Clearance between ends of the 3rd ring, oil ring	0.300 - 0.550

CAMSHAFT PULLEY	MILIMETERS
Number of teeth	48
Pulley hole bore	30.000 - 30.035

CAMSHAFT	MILIMETERS
Axial clearance	0.100 - 0.200
Bushing diameter	46.812 - 46.825
Camshaft bearing diameter	46.760 - 46.780

CYLINDER HEAD	MILIMETERS
Height	127.87 - 128.13
Valve guides hole diameter: Standard	14.000 - 14.018
Intake valve seat housing diameter: Standard	40.400 - 40.416
Intake valve seat housing depth	11.000 - 11.100
Exhaust valve seat housing diameter: Standard	38.000 - 38.016
Exhaust valve seat housing depth	11.000 - 11.100

INTAKE VALVE SEAT	MILIMETERS
Outer diameter	40.490 - 40.505

EXHAUST VALVE SEAT	MILIMETERS
Outer diameter	38.080 - 38.100

INTAKE VALVE GUIDE	MILIMETERS
Inner diameter after assembly	8.000 - 8.015
Outer diameter	14.050 - 14.060

EXHAUST VALVE GUIDE	MILIMETERS
Inner diameter after assembly	8.000 - 8.015
Outer diameter	14.050 - 14.060

INTAKE VALVE	MILIMETERS
Valve rod diameter	7.957 - 7.977
Clearance of valve in guide	0.023 - 0.058
Head diameter	38.750 - 39.050
Seat surface angle	60° to 60° 30'
Valve depth, under cylinder head surface: Standard	0.810 - 1.090
Total length	116.14 - 116.62

EXHAUST VALVE	MILIMETERS
Valve rod diameter	7.940 - 7.960
Clearance of valve in guide	0.040 - 0.075
Head diameter	36.35 - 36.65
Seat surface angle	44° 30' to 45°
Valve depth, under cylinder head surface: Standard	0.860 - 1.140
Total length	116.29 - 116.77

VALVE SPRING		MILIMETERS
Spring inner diameter		23.7
Free length		47.1
Minimum length, under load of	304 to 336 N	39.8
	652.5 to 707.5 N	32.0

ROCKER ARM		MILIMETERS
Bushing housing diameter		20.310 - 20.340
Bushing outer diameter		20.354 - 20.380
Bushing assembly interference		0.014 - 0.070
Bushing inner diameter		18.034 - 18.049
Clearance of the shaft in the bushing		0.050 - 0.076

ROCKER ARM SHAFT		MILIMETERS
Diameter		17.973 - 17.984
Total length		469.850 - 470.150

TIMING HOUSING COVER		MILIMETERS
Seal housing diameter		74.000 - 74.046
Seal housing width		10.7

LUBRICANT OIL FILTER	
Valve opening pressure	117.21 kN/m ² ± 20.7 kN/m ²

THERMOSTAT	
Type	Wax capsule
Opening temperature	86° to 90 °C (187 to 194 °F)
Valve minimum course at maximum opening temperature	9 mm
Maximum opening temperature	102 °C (216 °F)

FUEL INJECTION PUMP	
Mark	Bosch
Type	VE Rotary
Rotation sense	Clockwise
Pump service code (Bosch)	VE4/12F1900R905-1 (WG)
Pump service code (Bosch)	VE4/12F1900R905-1 (VNT)
Pump piston displacement	1.44 mm
Fuel injection pump International Nr.	77529 N° Bosh: 0460424237 (WG)
Fuel injection pump International Nr.	77528 N° Bosh: 0460424234 (VNT)

NOZZLE HOLDER	
Mark	Bosch
Type	DSLA 140P112
Set number	N° International: 77530 N° Bosh:
1st stage opening pressure	200 bar
2nd stage opening pressure	330 bar
Nozzle height (in relation to cylinder head)	1.82 mm - 2.10 mm

FUEL LIFT PUMP	
Type	Mechanic, of diaphragm
Flux pressure, static	42 to 55 kN/m ²
Gasket thickness to engine block	0.4 mm - 0.6 mm

FUEL INJECTION PUMP PULLEY	
Number of teeth	48

STARTER	
Mark	Prestolite Indiel
Tension	12 v
Power	2.8 cv
No. of gear teeth	z=9

TURBOCHARGER	
Mark	GARRETT
Type	GT 20 (52S) WG GT 22 (56V) VNT
Operation pressure	1.2 Bar
Wastegate type (WG)	Diaphragm
Actuator valve type (VNT)	Diaphragm