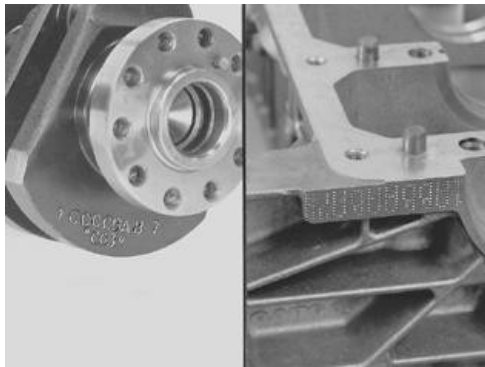
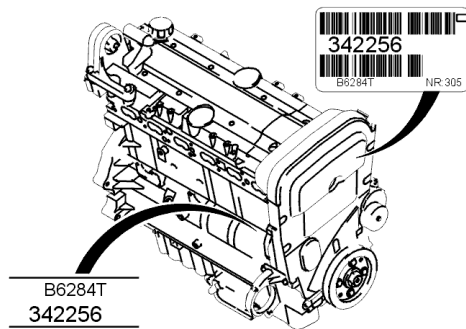


Specifications

Note! The illustrations in this service information are used for different model years and / or models. Therefore there may be some variation. However, the essential information in the illustrations is always correct.

Engine manufacture number, engine serial number and type

The engine serial number and type are stamped on the left side of the cylinder block at the top of the mounting for the water pump. There is also a decal on the timing cover with the engine type, manufacture number and serial number.



Classification of main bearings

The marking is stamped on the cylinder block and crankshaft.

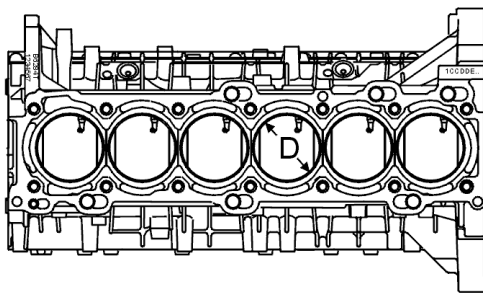
Cylinder block classification / Crankshaft classification	A small diameter		B medium diameter		C large diameter	
	block	intermediate section	block	intermediate section	block	intermediate section
A small diameter	yellow medium	yellow medium	yellow medium	blue thick	blue thick	blue thick
B medium diameter	red thin	yellow medium	yellow medium	yellow medium	yellow medium	blue thick
C large diameter	red thin	red thin	red thin	yellow medium	yellow medium	yellow medium

General data

	B6284T	B6294S
Output (kW) at rpm	200/5400	147/6000
Maximum torque (Nm) at rpm	280/4200	380/2100-4980
Maximum engine speed (rpm)	6200	6500

Idling speed	650	650
No. of cylinders	6	6
Bore mm	81.0	83.0
Stroke mm	90.0	90.0
Cylinder displacement cm ³	2783	2922
Firing order	1-5-3-6-2-4	1-5-3-6-2-4
Compression ratio	8.5:1	10.3:1
Total weight, (including oil)kg	approximate 190	approximate 180

Cylinder block



Bore (D) in mm		
Standard	B6284T	B6294S
C-marked ¹	81.00-81.01	83.00-83.01
D-marked ¹	81.01-81.02	83.01-83.02
E-marked ¹	81.02-81.03	83.02-83.03

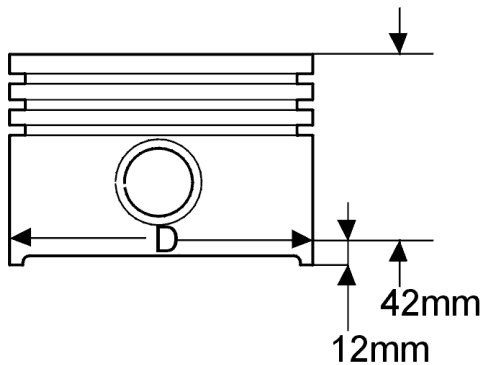
¹The bore classification is stamped on top of the engine block.

Example: 1CCDDEE Is read as follows:

Cylinder 1=C; Cylinder 2=C; Cylinder 3=D;

Cylinder 4=D; Cylinder 5 =E; Cylinder 6=E.

Pistons



Piston diameter (D)		
Standard	B6284T The diameter is measured 42 mm from the top of the piston	B6294S The diameter is measured 12 mm from the bottom of the piston
C-marked ¹	80.98-80.99	82.98-82.99
D-marked ¹	80.99-81.00	82.99-83.00
E-marked ¹	81.00-81.01	83.00-83.01

¹The classification is marked on the top of the piston.

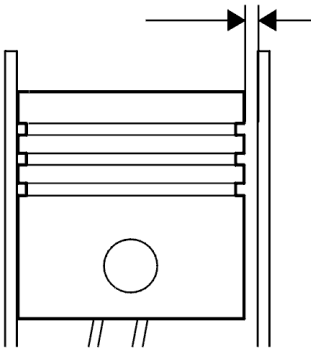
Piston running clearance (example)

Measured cylinder diameter..... 81.015 mm

Measured piston diameter..... 80.995 mm

The piston running clearance is..... 0.020 mm

The piston running clearance must be 0.010–0.030 mm.



Piston rings

Axial clearance

Upper compression ring.....	0.030-0.070 mm
Lower compression ring.....	0.030-0.070 mm
Oil control ring assembly.....	0.038-0.142 mm

Compression ring dimension

Upper.....	1.200 -0.010/-0.030mm
Lower.....	1.500 -0.010/-0.030mm

Dimension, three piece oil ring

Spring.....	1.510 ± 0.020 mm
Rail.....	0.460 ± 0.011 mm

Piston pin

B6284T

Diameter.....	23.000 +0/-0.004 mm
Length.....	61.000 +/-0.200 mm

B6294S

Diameter.....	21.000 +/-0.004 mm
Length.....	57.000 +/-0.200 mm

Valves

Valve crown diameter (A)

B6284T

Inlet.....	31.00 ± 0.15 mm
Exhaust.....	27.00 ± 0.15 mm

B6294S

Inlet.....	32.00 ± 0.15 mm
Exhaust.....	27.00 ± 0.15 mm

Valve stem diameter (B)

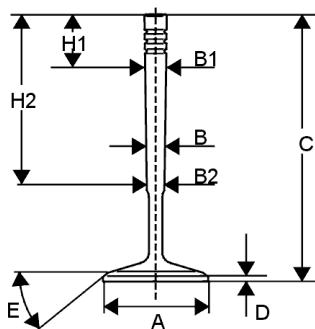
B6284T

Inlet (early versions).....	6.970 +0/-0.015 mm
Inlet (late versions).....	5.970 +0/-0.015 mm

B6294S

Inlet (early versions).....	6.963 +/-0.007 mm
Inlet (late versions).....	5.970 +0/-0.015 mm

Valve stem diameter (B1/B2)



B6284T

Exhaust (early versions)

H1 = 22.7 mm..... B1 = 6.962 ± 0.007 mm

H2 = 65.1 mm..... B2 = 6.954 ± 0.007 mm

Exhaust (late versions)

H1 = 22.7 mm..... B1 = 5.962 ± 0.007 mm

H2 = 65.1 mm..... B2 = 5.954 ± 0.007 mm

B6294S

Exhaust (early versions, alternative 1)

H1 = 17.4 mm..... B1 = 6.963 ± 0.007 mm

H2 = 70.4 mm..... B2 = 6.953 ± 0.007 mm

Exhaust (early versions, alternative 2)

H1 = 22.7 mm..... B1 = 6.962 ± 0.007 mm

H2 = 65.1 mm..... B2 = 6.954 ± 0.007 mm

Exhaust (late versions)

H1 = 22.7 mm..... B1 = 5.962 ± 0.007 mm

H2 = 65.1 mm..... B2 = 5.954 ± 0.007 mm

Total valve length (C)

Inlet..... 102.00 ± 0.07 mm

Exhaust..... 101.05 ± 0.07 mm

Disc edge height (D)

Inlet/exhaust.....1.50 mm

Minimum height after grinding.....1.20 mm

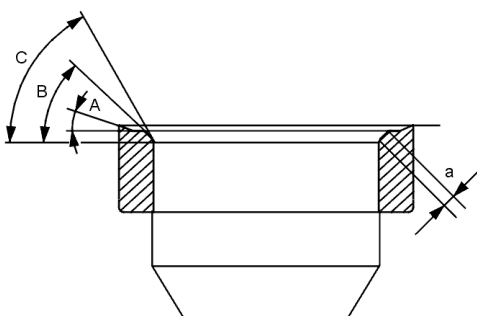
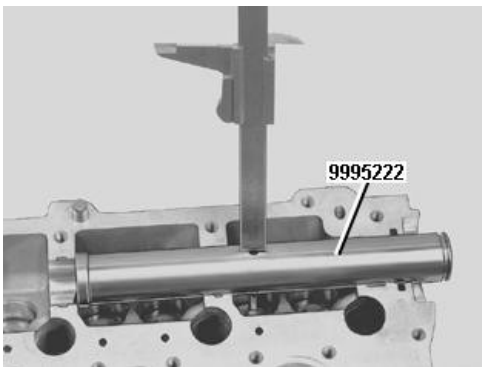
Mating surface angle (E)

Inlet/exhaust..... 44.5°

Valve stem vertical position

Valve stem height..... 48.4 ± 0.5 mm

Maximum machining of the valve stem.....0.5 mm



Valve seats

Upper reduction angle (A)

Inlet..... 20°

Exhaust..... 15°

Matching surface angle (B)

Inlet and exhaust..... 45°

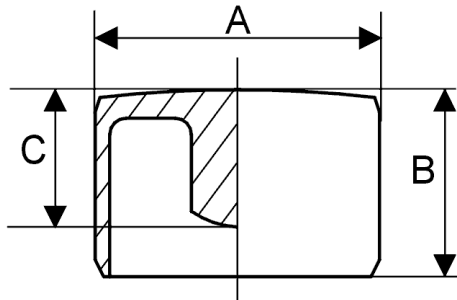
Lower reduction angle (C)

Inlet and exhaust..... 60°

Valve seat, width (a)

Inlet.....1.4-1.8 mm
Exhaust.....1.8-2.2 mm

Tappets



Tappets, dimensions

External diameter (A).....32.000 +0.025/-0.041 mm.

External height (B).....26.0 ± 0.5 mm.

Solid valve lifter shaft length (C)

15.96 mm at 0.02 mm intervals up to 16.16 mm.

The dimensions are listed on the inside of each valve lifter.

Valve springs

Valve springs, dimensions

Length.....45.1 +1.5/-0.5 mm

Type.....Conical

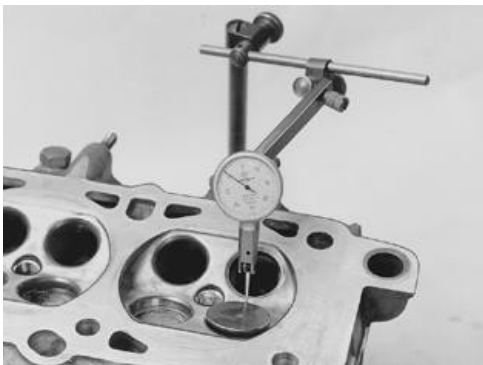
Valve guides

Clearance between new components

Inlet and exhaust.....0.03-0.06 mm

Maximum play for used components

Inlet and exhaust.....0.15 mm



Camshafts

Engine type	Camshaft			
	Marking/ P/N		Maximum lift height	
	Intake	Exhaust	Intake	Exhaust
B6284T	9471686	9471685	8.40	9.05
B6294S	9471687	9465131	9.20	8.80

Cylinder head

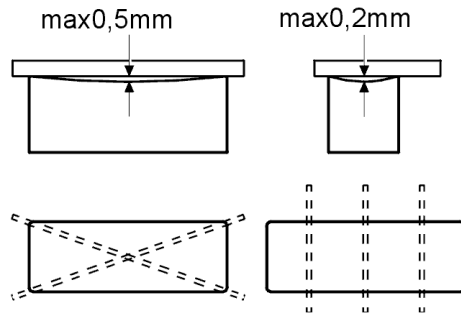
Maximum out-of-true

Front-rear.....0.50 mm

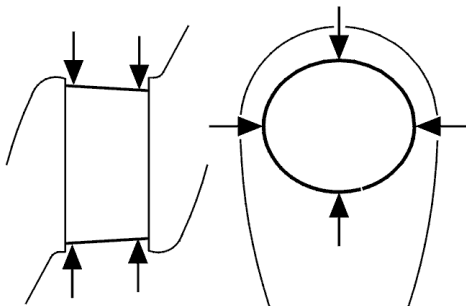
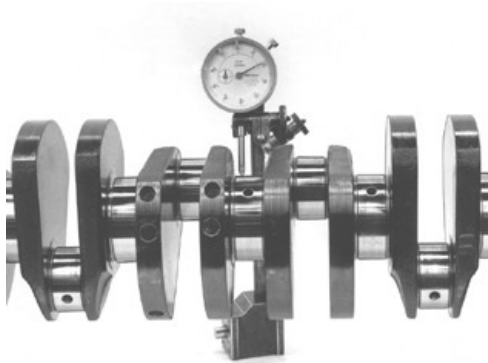
Lateral.....0.20 mm

Cylinder head height, new cylinder head.....129.0 ± 0.05

Maximum machining.....0.30 mm



Caution! Scratches and corrosion on the cylinder head gasket face against the cylinder block must only be machined on a flat cylinder head.



Crank mechanism

Crankshaft

Main bearing journal radial runout.....maximum 0.040 mm

Axial play (Measured in the engine with the intermediate section tightened).....0.08-0.19 mm

Main bearing journal radial runout.....0.020-0.043 mm

Big end journals

Diameter¹.....50.000 +0/-0.016 mm

Bearing recess width.....26.0 ± 0.1 mm

Maximum out-of-round.....0.004 mm

Maximum taper.....0.004 mm

¹The variation in diameter for each bearing journal must not exceed 0.008 mm.

Main bearing journals

Diameter¹.....65.000 +0.003/-0.016 mm

Axial bearing width dimension.....26.00 +0/-0.04 mm

Maximum out-of-round.....0.004 mm

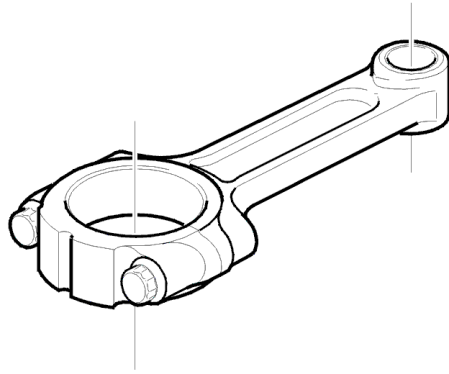
Maximum taper.....0.004 mm

¹The variation in diameter for each bearing journal must not exceed 0.008 mm.

Connecting rods

Diameter, bearing recesses

Designation	B6284T	B6294S
Big end	53.000 - 0/+0.013 mm	53.000 - 0/+0.013 mm
Small end	23.000 +0.011/+0.005	21.000 +0.011/+0.005
Maximum ovality in the	0.006 mm	0.006 mm



bearing recesses		
Length big end-small end	139.5 mm	147 mm

Lubrication and oil system

Engine oil, filling with oil after reconditioning

Oil volume, including filter.....7.2 litres

Oil grade

According to API Service.....lowest SH or SJ
According to ACEA.....Grade A2, A2/B2, A3
or A3/B3

Oil pressure

12.5 r/s (750 r/min).....0.10 Mpa¹
67.7 r/s (4000 r/min).....0.35 Mpa¹
Maximum oil pressure (the relief valve
opens).....0.65 Mpa

¹The oil pressure given is for an oil
temperature of 100°C, which is reached after
10–15 minutes driving.

Cooling system

Thermostat

Marking90
Starts to open at90°C
Fully open at105°C