

Engine Timing

Job No.

05-5

Change: Model 180 c and chain tensioner 3rd and 4th version added.

A. Testing and Grinding Valves

This procedure is for models 180 a, 180 b, 180 c, 190 b, 190 SL, 220 a, 219, 220 S and 220 SE the same as for model 190.

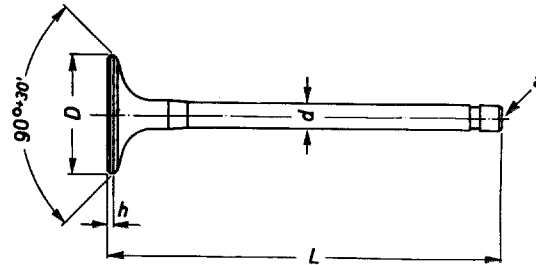


Fig. 05-5/1

Dimensions of Valves

Model	Valve head dia. D	Stem dia. d	Length L	Height "h" of valve head ¹⁾		Valve seat angle	Hardness at valve stem tip a
				when new	machining limit		
Inlet Valve							
180 a, 180 b, 180 c 190, 190 b 190 SL	$\frac{44.2}{44.1}$	$\frac{8.970}{8.948}$	128	1.5	1	90° + 30'	HRc 55
220 a, 219 220 S, 220 SE	$\frac{39.2}{39.1}$						
Exhaust Valve							
180 a, 180 b, 180 c ²⁾ 190, 190 b ²⁾	$\frac{37.2}{37.1}$	$\frac{9.950}{9.928}$	112.75	2.25	1.5	90° + 30'	HRc 55
190 SL ²⁾	$\frac{37.25}{36.95}$		112.70	2.35—2.55			HRc 50
220 a 219 (e = 7.6:1)	$\frac{35.2}{35.1}$		112.75	2.25			HRc 50
$\left. \begin{matrix} 219 \\ 220 S \\ 220 SE \end{matrix} \right\} \begin{matrix} a) \\ b) \end{matrix}$	$\frac{35.25}{34.95}$		112.70	2.35—2.55			HRc 50

¹⁾ Refer also to Fig. 05-5/2 and 05-5/3.

²⁾ Sodium-cooled.

³⁾ At a compression ratio $\epsilon = 8.7:1$.

Note: Permissible run-out between valve stem and valve cone max. 0.03 mm.

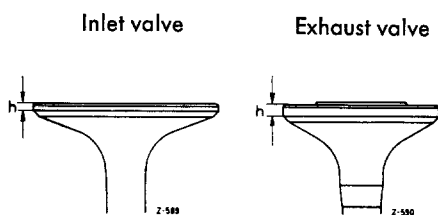


Fig. 05-5/2

Fig. 05-5/3

Sodium cooled exhaust valves (Fig. 05-5/3) have been installed as standard parts on model 190 SL as from engine end No. 6502311, on model 219 as from engine end No. 7504348, and on 220 S and 220 SE as from 1st engine.

Observe safety regulations when scrapping sodium-cooled valves (refer to Job No. 01-4, Section C).