

Refinishing Dimensions

Model	M 116, M 117	
Valve seat width "a"	Inlet 1.8–2.5	Exhaust 1.5–2.0
Adjusting angle "α" for machining valve seat	45°	
Perm. runout of valve seat	0.03	
Relief "b" of valve seat	at least 0.1 mm cut with relieving cutter	

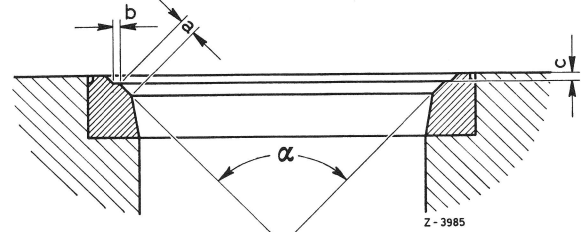


Fig. 1
a Valve seat width
b Relief of valve seat
c Depth of relief (results from valve seat width)
d Valve seat angle

Special Tools

Plug gauge Inlet 9 mm dia.	636 589 00 21 00 replaced by	116 589 08 21 00
Plug gauge Exhaust 11 mm dia.	108 589 01 21 00 replaced by	116 589 09 21 00
Valve seat turning tool		000 589 11 69 00
Valve holder		000 589 56 63 00
Test set		000 589 12 69 00
Swing guide with sleeve and disc		000 589 54 63 00
Cylinder brush		conventional

Checking of Valve Guides

- 1 Clamp cylinder head to valve holder.
- 2 Clean valve guides with a cylinder brush. Then check with plug gauge whether ID is still within tolerance range. If not, replace valve guides (05.0–135).

Also check whether the maximum distance between the valve disc and the cylinder head parting surface has been attained and whether new valve seat rings must be installed (05.0–140).

Refinishing of Valve Guides

- 3 Select correct pilot (5) with matching collet (Fig.2). Slide pilot with slack collet into valve guide until collet shoulder rests on valve guide. Clamp pilot.
- 4 Fit suitable turning bit. Slide turning tool over pilot.
- 5 Adjust rapid adjustment (10) on carriage until the tip of the turning tool rests against the center of the valve seat.

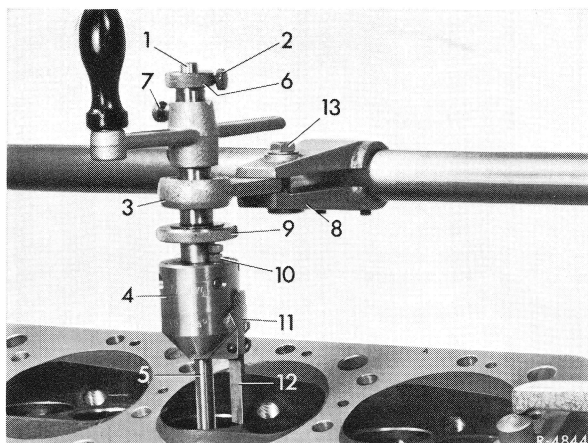


Fig. 2

- | | |
|------------------------------|-------------------------------|
| 1 Pilot support (drop pin) | 7 Clamping screw of chip feed |
| 2 Clamping screw | |
| 3 Backrest bearing | 8 Backrest |
| 4 Head with built-in gearing | 9 Feed actuation |
| 5 Pilot | 10 Quick adjustment |
| 6 Chip feed | 11 Carriage |
| | 12 Turning bit |

6 Push pilot support (1) lightly down against pilot and tighten with clamping screw (2).

7 Move carriage (11) inwards with quick adjustment until the turning bit is free. Slightly tighten counter nut.

8 Move backrest (8) into suitable position in relation to turning tool.

9 Slide backrest bearing (3) in between the surfaces of the backrest and tighten with clamping screw (13).

Note: Backrest and backrest bearing should be as much as possible in one plane.

10 Hold feed actuation and turn crank clockwise until tip of turning bit moves outwards and is no longer cutting any chips.

11 Keep feeding turning bit forward until seat is clean. The required chip feed (determination of chip size) is obtained by turning the chip feed (6) in direction of arrow after loosening fastening screw (7). One graduation mark equals 0.1 mm.

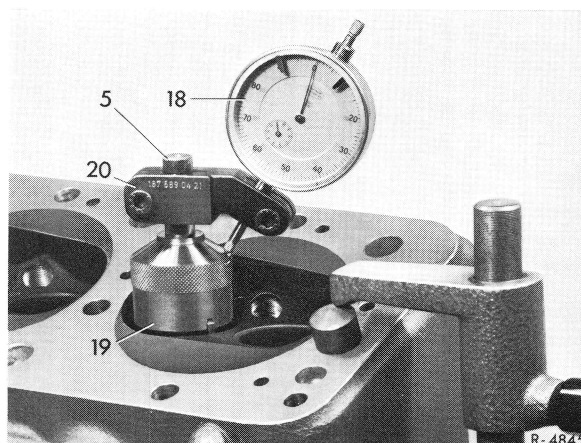


Fig. 3

- | | |
|---------------|----------------------|
| 5 Pilot | 19 Test sleeve |
| 18 Dial gauge | 20 Dial gauge holder |

12 To finish valve seat without additional feed (no feeding turn) repeat step according to item 10.

13 Place testing sleeve (19) on same pilot (5) (Fig. 3). Attach dial gauge (18) by means of dial gauge holder (20) to rotate test sleeve.

Permissible runout of valve seat 0.03 mm.

14 Measure valve seat width "a".

Inlet 1.8–2.5 mm
Exhaust 1.5–2.0 mm

Adjust valve seat width by relieving valve seat as required.

Then finish transition between valve seat ring and cylinder head (inside).

Both steps can be completed with the turning tool (refer to operating instructions of valve seat turning tool).