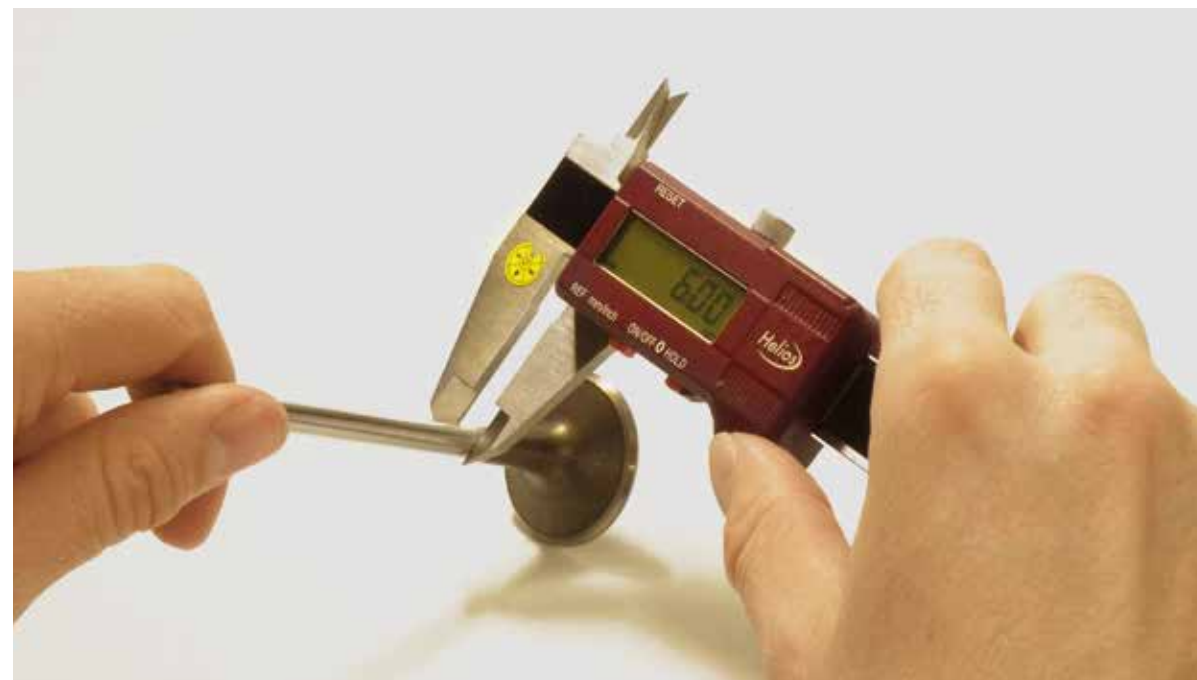


# Valve fitting



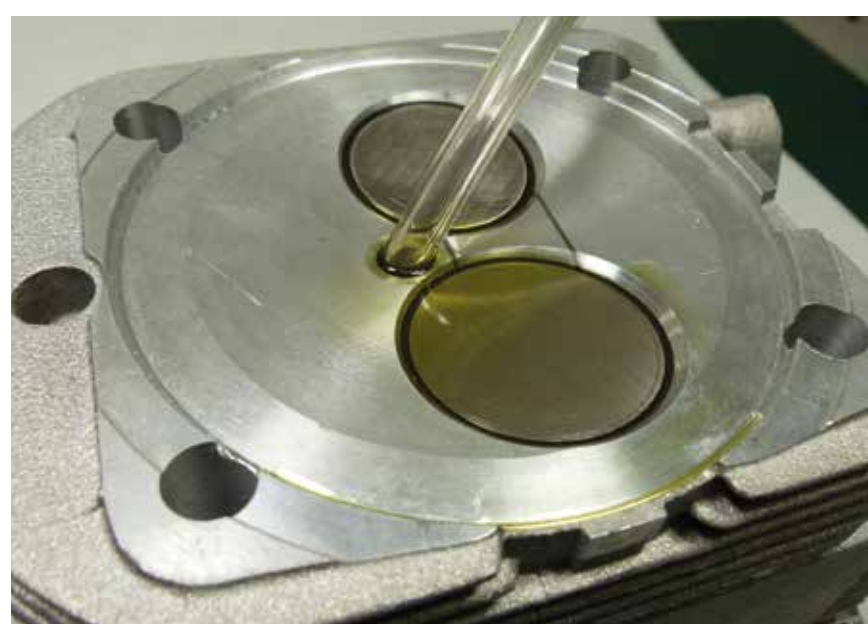
## 1. Removal

- Remove the cylinder head as per manufacturer specifications.
- Mark all parts and note the installation direction.
- Do not place the removed cylinder head on its end face as this could damage the valve.
- Remove the hydraulic followers.
- Using an appropriate tool, preload the valve spring and remove the valve collets. Important: Old valve collets must not be reused.
- Remove the valve springs.
- Remove the valve stem seals.
- If necessary, drive out the valve guides and bore out the valve seat inserts.



## 2. Inspection

- If used parts are refitted, they must all be inspected for dimensional accuracy and damage.
- Check the cylinder head for distortion and cracks.
- Bent valves are indicative of impact on the piston—due to overspeed or incorrect valve protrusion, for example. Therefore, check the valve clearance, timing, and depth.
- Burnt valve disks indicate that the valves are overheating—due to incorrect valve clearance, a poorly machined seat, or restricted rotation when using old valve collets.
- Check the valve springs for dimensional accuracy and perpendicularity.
- Prior to fitting, compare the old part with the new part.
- Caution: Use extreme caution when reworking sodium-filled hollow valves. Damage to the cavity and sodium leakage must be avoided at all costs.



## 3. Fitting

- If new seat rings are fitted, these must be shrink-fitted and milled to the correct angle.
- Used valves may have to be resealed with diamond grinding paste.
- Check the leaktightness of the valves—either with a vacuum tester or using fuel. When doing so, check to see if fluid is leaking or if the valves are sealing tightly and the fuel remains in the circuit.
- New valve guides must be reamed to the correct diameter since deformation can occur as a result of pressing in.
- Prior to assembly, clean all parts and lubricate well.
- Always use a mounting device to fit new valve stem seals.
- After fitting the valve spring, make sure it is seated properly—otherwise the valve may shear off if the spring cants.
- Use new valve collets.
- If necessary, adjust the valve clearance as specified.
- For engines with hydraulic valve lash compensation (hydraulic followers), wait at least 30 minutes after fitting before starting the engine.

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