



Heat Treatment Instructions for KPMI Part No:

20-20975 • 20-20980 • 20-20985

Bimetallic White Diamond[®] Blank Valves

Recommended Flame Hardening Procedure:

1. These valves are bimetallic providing the ability to flame harden the tips as desired.
2. After cutting the groove and length, spot harden the tip using an oxy-acetylene, propane, or MAPP™ gas torch until glowing yellow-orange (approximately* 1050 °C / 1922 °F).
3. Quench in oil. (Example: SAE30 Motor Oil)
4. Remove carbon build up with fine grain Scotch-Brite™ or other light abrasive.
5. Recommended final hardness is 50-55 HRc.

Notes:

1. These valves should NOT and CANNOT be welded or hardfaced.
2. Valve overall length must be adjusted by using a parting tool so as to not work-harden the part.
3. Remove a maximum of 0.002"-0.004" of material when grinding to limit effects on pre- or post-heat treated material.
4. Instructions provided should only be carried out using proper equipment with prior training.
 - a. *Use of an infrared thermometer is advisable to measure temperature during heat treatment.
 - b. Heat sinks should be used during heating to preserve White Diamond[®] finish on valve stem and to isolate the valve tip during hardening. Heat sinks can be made by drilling 1.5" long bronze bar stock to the approximate valve stem size and cut in half. A hose clamp can then be used to hold the heat sink on the valve stem and should expose approximately 0.250" of the valve's tip.
5. Failure to obtain recommended tip hardness can result in accelerated wear or damage.
6. Always use proper safety equipment when performing the above hardening technique.