20MnCr5 is used for materials with a required core tensile strength of 1000 – 1300 N/mm² and just right carrying resistance as boxes, piston bolts, spindles, camshafts, gears, shafts and other mechanical controlling materials.

Alloyed case hardening steel for parts with a required core tensile strength of 1000 – 1300 N/mm² and good wearing resistance as boxes, piston bolts, spindles, camshafts, gears, shafts and other mechanical controlling parts.

### Physical properties

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Thermal conductivity (W/(m·K))</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>11.7</td>
</tr>
<tr>
<td>350</td>
<td>12.5</td>
</tr>
<tr>
<td>700</td>
<td>13.8</td>
</tr>
</tbody>
</table>

### Applications

Heat treatment:
- **Soft annealing**: 750-780 °C, Cooling: Furnace, Hardness: HB max. 218
- **Stress-relief annealing**: 550-600 °C, Cooling: Furnace

1st pre-heating **up to approx. 400 °C** in an air-circulating furnace

- 2nd and 3rd pre-heating **up to approx. 780 °C**
- **Hardening**: 780-820 °C
- **Quenching**: a) Oil, b) Saltbath

b) **Tempering**
- **Tempering** 780 and 850 °C
- **Hardness after tempering**: HRC 60-62

**Tempering Graph**

**Hardness Graph**