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# Thermodur 2383 Supercool

Special Steel for Press Hardening



# Technical Data Sheet

## Thermodur 2383 Supercool

| Chemical composition<br>(standard values in %) | C    | Mn   | Ni   | Mo   | V    |
|--|------|------|------|------|------|
|  | 0,45 | 0,90 | 0,90 | 1,50 | 1,50 |

|              |   |
|--------------|---|
| Applications | <p>Press hardening or hot stamping is an innovative hot forming process for producing extremely high-strength vehicle bodywork components. The sheet metal component is hot-formed and heat treated in a single combined process step. Sheets heated to austenitizing temperature are placed into a cooled press tool and quenched during forming.</p> <p>The thermal conductivity of the tool steel used for forming and hardening the sheets is of crucial importance to the clock rate, and therefore cost-effectiveness, when press hardening. Deutsche Edelstahlwerke developed the hot-work tool steel <b>Thermodur 2383 Supercool</b> specifically for this application.</p> |
|--------------|---|

|            |   |
|------------|---|
| Properties | <ul style="list-style-type: none"> <li>» Outstanding thermal conductivity</li> <li>» Good wear resistance</li> <li>» Good through-hardening</li> <li>» Best long-time tempering resistance</li> <li>» Good high-temperature strength</li> </ul> |
|------------|---|

|                               |  |      |        |      |        |      |        |      |
|-------------------------------|--|------|--------|------|--------|------|--------|------|
| Physical properties at 45 HRC | Thermal conductivity W/(m • K) at                                      |      |        |      |        |      |        |      |
|                               | 100 °C   | 44   | 200 °C | 43   | 300 °C | 41   | 400 °C | 39   |
|                               | Coefficient of thermal expansion 10 <sup>-6</sup> m/(m • K) at 20 °C - |      |        |      |        |      |        |      |
|                               | 100 °C   | 12,0 | 200 °C | 12,3 | 300 °C | 12,7 | 400 °C | 13,1 |

|                |                   |                            |           |           |                                 |           |            |
|----------------|-------------------|----------------------------|-----------|-----------|---------------------------------|-----------|------------|
| Heat treatment | Soft annealing °C | Cooling                    |           |           | Hardness HB                     |           |            |
|                | 860               | Furnace                    |           |           | max. <b>220</b>                 |           |            |
|                | Hardening °C      | Quenching                  |           |           | Hardness after quenching in HRC |           |            |
|                | 1080-1120         | Oil or hot bath 500-550 °C |           |           | <b>52</b>                       |           |            |
|                | Tempering °C      | 300                        | 400       | 500       | 550                             | 600       | <b>650</b> |
|                | HRC               | -                          | <b>48</b> | <b>48</b> | <b>52</b>                       | <b>51</b> | <b>48</b>  |

