

# Database of Steel and Alloy (Marochnik)

[splat.kharkov.com/en](http://splat.kharkov.com/en)

[Home](#) [European steel grades](#) [Steel and Alloy](#) [Search](#) [Equivalent grades](#) [Grading](#) [GOST Standard](#) [Contacts](#)

YOU HERE: [Steel and Alloy](#) -> [Structural steel](#)

## Characteristics for grade 27KHGR ( 27XГP ).

|                    |                         |
|--------------------|-------------------------|
| Grade :            | 27KHGR ( 27XГP )        |
| Classification :   | Alloy structural steel  |
| Equivalent grades: | <a href="#">Go here</a> |

## Chemical composition in % for grade 27KHGR ( 27XГP )

| C           | Si          | Mn      | Ni      | S         | P         | Cr      | Ti       | Cu      | B             |
|-------------|-------------|---------|---------|-----------|-----------|---------|----------|---------|---------------|
| 0.25 - 0.31 | 0.17 - 0.37 | 0.7 - 1 | max 0.3 | max 0.035 | max 0.035 | 0.7 - 1 | max 0.06 | max 0.3 | 0.001 - 0.005 |

## Temperature of critical points for grade 27KHGR ( 27XГP ).

|                                   |
|-----------------------------------|
| $Ac_1 = 715$ , $Ac_3(Ac_m) = 760$ |
|-----------------------------------|

## Mechanical properties under T=20°C for grade 27KHGR ( 27XГP )

| Assortment        | Dimension | Direct. | $\sigma_B$ | $\sigma_T$ | $\delta_5$ | $\psi$ | KCU                 | Heat treatment        |
|-------------------|-----------|---------|------------|------------|------------|--------|---------------------|-----------------------|
| -                 | mm        | -       | MPa        | MPa        | %          | %      | kJ / m <sup>2</sup> | -                     |
| Bar, GOST 4543-71 |           |         | 1370       | 1175       | 8          | 45     | 590                 | Guenching and drawing |

|                                                                 |                               |
|-----------------------------------------------------------------|-------------------------------|
| Brinell hardness for 27KHGR ( 27XГP ) (annealing), GOST 4543-71 | HB 10 <sup>-1</sup> = 217 MPa |
|-----------------------------------------------------------------|-------------------------------|

## Technological properties for grade 27KHGR ( 27XГP )

|                     |                   |
|---------------------|-------------------|
| Weldability:        | hard weldability. |
| Flakes :            | predisposed       |
| Temper brittleness: | predisposed       |

## Equivalent steels for grade 27KHGR ( 27XГP )

Warning! Indicated both exact and nearest equivalents.

|                  |         |
|------------------|---------|
| Germany          | Czechia |
| DIN, WNr         | CSN     |
| 1.5526<br>30MnB4 | 14230   |

## Specification :

### Mechanical properties :

$\sigma_B$  - Tensile strength , [MPa]

|            |                                             |
|------------|---------------------------------------------|
| $\sigma_T$ | - Yield stress , [MPa]                      |
| $\delta_5$ | - Specific elongation at fracture , [ % ]   |
| $\psi$     | - Reduction of area , [ % ]                 |
| KCU        | - Impact strength , [ kJ / m <sup>2</sup> ] |
| HB         | - Brinell hardness , [MPa]                  |

**Weldability :**

|                            |                                                                                                                              |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>without limitations</b> | - welding is done without heating and subsequent heat treating                                                               |
| <b>limited weldability</b> | - welding is possible under heating up to 100-120 grade and subsequent heat treating                                         |
| <b>hard weldability</b>    | - obtaining the quality welding needs the additional operations: heating up to 200-300 grade; the heat treating is annealing |

Database of steels and alloys (Marochnik) contains information about chemical composition and properties more then 2500 steels and alloys (stainless steel, alloy steel, carbone steel, structural steel, tool steel, cast iron, aluminum alloy, titanium alloy, copper alloy, nickel alloy, magnesium alloy and others).  
Helpfull for specialists in grade technology, structural engineer, mechanical engineer, metallurgy and metal trader

[Top](#)

© 2003 - 2013 All rights reserved. [About program.](#)

The entire risk as to use of the Database of Steel and Alloy (Marochnik) content is assumed by you the user

