30ChGSA Included in 13 standards (CIS Countries)

Standards

GOST 10702-78	Steel bars, carbon and alloy, structural, for cold extruding and upsetting. Specifications.
GOST 11268-76	Alloyed structural high-grade rolled steel sheets for special purposes. Specifications.
GOST 12132-66	Electrowelded and seamless steel tubes for automotive and bicycle industries. Specifications.
GOST 21729-76	Cold-deformed and hot-deformed structural carbon and alloyed steel tubes. Specifications.
GOST 23270-89	Tubes-billets for mechanical treatment. Specifications.
GOST 4543-71	Structural alloy steel bars. Specifications.
GOST 8731-74	Seamless hot-deformed steel pipes. Specifications.
GOST 8733-87	Seamless cold-deformed and thermal-deformed steell pipes. Specifications.
GOST R 54159-10	Seamless and welded cold deformed steel pipes for general purposes. Specifications
TU 14-1-1213-75	Hot-rolled and forged square and rectangle billet of quality carbon, alloy , high alloy and special properties steel
TU 14-1-1409-75	Rolled structural alloyed and spring steel plates
TU 14-1-4118-76	General purpose structural alloy steel sheets
TU 14-4-385-73	Cold-heading steel wire

Chemical composition

C	0.28 - 0.34	**Si**	0.9 - 1.2	**Mn**	0.8 - 1.1	**P**	< 0.025
S	< 0.025	**Cr**	0.8 - 1.1	**Mo**	< 0.15	**Ni**	< 0.3
V	< 0.05	**Ti**	< 0.03	**Cu**	< 0.3	**N**	< 0.008
W	< 0.2	**Fe**	Rest				

Steel is done by electric slag melting - Sh, (P < 0.025%, S < 0.015%, Cu < 0.25%). N < 0.006% is permittable for sheet and band.
Ni < 0.4%, Cr<0.4% are permittable for scrap-and-pig.
In case of melting in furnace with acid lining P < 0.03%

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Properties

By GOST 8731-74
- Group V
  - **Tensile Strength: > 686 MPa**
  - **Elongation: > 11 %**

By GOST 8733
- Wall thickness: < 10 mm ;
  - **Tensile Strength: > 491 MPa**
  - **Elongation: > 18 %**
- Wall thickness: > 10 mm ;
  - **Tensile Strength: > 491 MPa**
  - **Elongation: > 18 %**
  - **Hardness HB: < 229**
  - **Diameter cone impression: > 4 mm**

Pipes GOST 21729
- Heat-treated
  - **Tensile Strength: > 490 MPa**
  - **Elongation: > 18 %**

Tubes-billets GOST 23270
- *Hardness is tested if wall thickness is above 10 mm*
- Hot finished
  - **Tensile Strength: > 686 MPa**
  - **Elongation: > 11 %**
- Cold-deformed
  - **Tensile Strength: > 491 MPa**
  - **Elongation: > 18 %**
  - **Hardness HB: < 220**
  - **Diameter cone impression: > 4 mm**

Seamless pipes GOST 12132
- Heat-treated
  - **Tensile Strength: > 485 MPa**
  - **Elongation: > 18 %**
  - **Hardness HRB: < 98**

Production GOST 11268
- Softening or normalization
  - *It is allowed to increase the strength by 5 N/mm2 for normalized sheet if elongation is observed.*
- 1 category

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Thickness: < 0.9 mm ;
Tensile Strength: 490 - 740 MPa
Thickness: 1.0 - 3.9 mm ;
Tensile Strength: 490 - 740 MPa
Elongation: > 20 %

3 category
Thickness: < 0.9 mm ;
Tensile Strength: 490 - 740 MPa
Thickness: 1.0 - 3.9 mm ;
Tensile Strength: 490 - 740 MPa
Elongation: > 20 %

4 category
Thickness: < 0.5 mm ;
Tensile Strength: 490 - 740 MPa
Thickness: 0.5 - 0.6 mm ;
Tensile Strength: 490 - 740 MPa
Indentation Depth: 7 mm
Thickness: 0.6 - 0.7 mm ;
Tensile Strength: 490 - 740 MPa
Indentation Depth: 7.2 mm
Thickness: 0.7 - 0.8 mm ;
Tensile Strength: 490 - 740 MPa
Indentation Depth: 7.5 mm
Thickness: 0.8 - 0.9 mm ;
Tensile Strength: 490 - 740 MPa
Indentation Depth: 7.7 mm
Thickness: 0.9 - 1.0 mm ;
Tensile Strength: 490 - 740 MPa
Indentation Depth: 8 mm
Thickness: 1 mm ;
Tensile Strength: 490 - 740 MPa
Elongation: > 20 %
Indentation Depth: 8.2 mm
Thickness: 1.0 - 3.9 mm ;
Tensile Strength: 490 - 740 MPa
Elongation: > 20 %

Heat-treated specimens

2 category
Tensile Strength: > 1080 MPa

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Elongation: > 10 %

3 category

Tensile Strength: > 1080 MPa

Elongation: > 10 %

4 category

Tensile Strength: > 1080 MPa

Elongation: > 10 %

By GOST 4543

Hardness of gauged bars after annealing or high-temperature tempering and hot rolled bars after normalizing annealing may be 15 units HB above .
For bars of diameter or thickness from 80 up to 150 mm it is allowed to decrease percent elongation by 2 abs. %, reduction of area by 5 abs. % and impact elasticity by 10 %.
For bars of diameter or thickness from 151 mm it is allowed to decrease percent elongation by 3 abs. %, reduction of area by 10 abs. % and impact elasticity by 15 %.
For steel with critical tensile strength not less than 1180 N/mm2 it is allowed to decrease the norm of impact elasticity by 9,8 J/sm3 on increasing of tensile strength not less than by 98 N/mm2.

Annealing or high-temperature tempering

Diameter or thickness: > 5 mm ;

Hardness HB: < 229

Diameter cone impression: > 4 mm

Hard-drawn

Diameter or thickness: > 5 mm ;

Hardness HB: < 269

Diameter cone impression: > 3.7 mm

Bainitic hardening

Hardness of gauged bars after annealing or high-temperature tempering and hot rolled bars after normalizing annealing may be 15 units HB above .
For bars of diameter or thickness from 80 up to 150 mm it is allowed to decrease percent elongation by 2 abs. %, reduction of area by 5 abs. % and impact elasticity by 10 %.
For bars of diameter or thickness from 151 mm it is allowed to decrease percent elongation by 3 abs. %, reduction of area by 10 abs. % and impact elasticity by 15 %.
For steel with critical tensile strength not less than 1180 N/mm2 it is allowed to decrease the norm of impact elasticity by 9,8 J/sm3 on increasing of tensile strength not less than by 98 N/mm2.

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Yield Strength: > 1275 MPa
Tensile Strength: > 1620 MPa
Elongation: > 9 %
Impact Value KCU, 20℃: > 39 J/sm2
Reduction of area: > 40 %

By GOST 10702
Heat-treatment
Hot-rolled and hot-rolled with special surface finishing
After tempering or annealing
Dimensiond: < 30 mm ;
Tensile Strength: < 690 MPa
Hardness HB: < 217
Reduction of area: > 57 %
Compression group: 50, 66, 66T, 66I
Dimensiond: > 30 mm ;
Tensile Strength: < 690 MPa
Hardness HB: < 217
Reduction of area: > 57 %
Spheroidizing annealing
Dimensiond: < 30 mm ;
Hardness HB: < 217
Reduction of area: > 57 %
Compression group: 50, 66, 66I
Dimensiond: > 30 mm ;
Hardness HB: < 217
Reduction of area: > 57 %
Calibrated and calibrated wih special surface finishing
After tempering or annealing
Dimensiond: < 28 mm ;
Tensile Strength: < 690 MPa
Hardness HB: < 229
Reduction of area: > 57 %
Compression group: 50, 66, 66T, 66I
Dimensiond: > 28 mm ;
Tensile Strength: < 690 MPa
Hardness HB: < 229
Reduction of area: > 57 %
Spheroidizing annealing
Dimensiond: < 28 mm ;

30ChGSA Included in 13 standards (CIS Countries)

Hardness HB: < 229
Reduction of area: > 57 %
Compression group: 50, 66, 66l
Dimensiond: > 28 mm ;
Hardness HB: < 229
Reduction of area: > 57 %
Hard-darwn
Cold-worked and calbrated with special surface finishing
Dimensiond: < 28 mm ;
Tensile Strength: 490 - 740 MPa
Compression group: 50, 66, 66T, 66l
Dimensiond: > 28 mm ;
Tensile Strength: 490 - 740 MPa
Hot-rolled and hot-rolled with special surface finishing
Dimensiond: < 30 mm ;
Tensile Strength: 490 - 740 MPa
Compression group:
Dimensiond: > 30 mm ;
Tensile Strength: 490 - 740 MPa
Steel wire by TU 14-4-385-73
Tensile Strength: 490 - 735 MPa
By GOST R 54159
Group V
Heat-treated
Tensile Strength: > 491 MPa
Elongation: > 18 %
Hardness HB: < 229
Cold-deformed
Default properties
Yield Strength: > 216 MPa
Tensile Strength: > 315 MPa
Elongation: > 5 %
Weldability
By NAKS
Group: M03 (W03)
Calculated properties
Density: 7.81 g/cm3