3. Hot-rolled steel flats

3.2. HOT-ROLLED STEEL FOR EXPORT ACCORDING TO DOMESTIC AND INTERNATIONAL STANDARDS

Table 3.2. Chemical composition of steel

Fraction of total mass,%									
C	Si	Mn	Al	S	P	Cr	Ni	Cu	N
0.10 max	0.10 max	0.45 max	0.02–0.07	0.035 max	0.030 max	0.10 max	0.20 max	0.20 max	0.007 max

For steel grade CS type B under ASTM A 569 fraction of total mass of molybdenum, vanadium, niobium and titanium is determined, which shall not exceed:

Mo — 0.06 %; V — 0.008 %; Nb — 0.008 %, Ti — 0.008 %

Total content of Cu, Cr, Ni and Mo shall not exceed 0.50 %.

For steel grade 1008 under ASTM A 635, SAE J403 fraction of total mass of molybdenum, vanadium and niobium is determined, which shall not exceed:

Mo — 0.06 %; V — 0.008 %; Nb — 0.008 %

Total content of Cu, Cr, Ni and Mo shall not exceed 0.50 %.

3.3. Shape and dimensional tolerances

Standard for technical specification	DIN 1614-1, DIN 1614-2	ASTM A 635	SAE J403 ASTM A 1011 (ASTM A 569)	JIS G 3131	JIS G 3132
Standard for product mix, geometry and tolerances	EN 10051 (DIN 1016)	ASTM A 635	ASTM A 568	JIS G 3131 JIS G 3193	JIS G 3132 JIS G 3193

Note: previous standard designation is given in parenthesis.

Figure 3.5. Thickness-to-width relation

Strip thickness, mm	Strip width, mm							
	900	1280	1360	1440	1550	1640	1710	1850
1.45	■	■	■					
2.0	■	■	■	■	■			
2.3	■	■	■	■	■	■		
3.0	■	■	■	■	■	■	■	■
up to 14.0	■	■	■	■	■	■	■	■

Hot-rolled material with other product mix requirements, including in terms of thickness to width ratio may be produced on special order subject to an additional agreement.

3. Hot-rolled steel flats

3.2. HOT-ROLLED STEEL FOR EXPORT ACCORDING TO DOMESTIC AND INTERNATIONAL STANDARDS

3.2.2. Drawing-quality hot-rolled steel

Table 3.4. Mechanical properties of steel

Steel grade	Standard	Thickness, mm	Mechanical properties			
			Tensile strength MPa (N/mm²)	Yield point MPa (N/mm²)	Elongation %, min	Mandrel diameter at 180° bending
DD 12	EN 10111	1.50 – 1.90	420 max	170–340	25	d=0
DD 12	EN 10111	2.00 – 2.90	420 max	170–320	26	d=0
DD 12	EN 10111	3.00 – 8.00	420 max	170–320	30	d=0
1006	ASTM A 635	4.50 – 14.00	...	...	...	...
DQ	ASTM A 635	4.50 – 14.00	...	...	...	...
1006	SAE J403	1.45 – 4.45	...	...	...	...
RRSt 23	DIN 1614-1	1.45 – 8.00	...	...	...	...
RRStW 23	DIN 1614-2	1.45 – 2.90	420 max	...	27	...
RRStW 23	DIN 1614-2	3.00 – 8.00	420 max	...	31	...
RRStW 23	DIN 1614-2	8.10 – 14.00	...	...	...	...

... — the parameter is not prescribed by the standard
* — chemical composition only.

Elongation of hot-rolled steel grade DD 12 with thickness of 3–8 mm is determined on samples with initial length of $l_0 = 5.65\sqrt{S_0}$, where S_0 – cross-section area.

On customer demand drawing-quality hot-rolled steel may be supplied with agreed mechanical properties.

Table 3.5. Chemical composition of steel

Fraction of total mass,%									
C	**Si**	**Mn**	**Al**	**S**	**P**	**Cr**	**Ni**	**Cu**	**N**
0.06 max	0.05 max	0.30 max	0.02–0.07	0.030 max	0.020 max	0.10 max	0.10 max	0.15 max	0.007 max

For DQ steel grade under ASTM 635 and steel grade 1006 under ASTM A 635 and SAE J403 fraction of total mass of molybdenum, vanadium and niobium is determined, which must not exceed:
Mo — 0.06 %; V — 0.008 %; Nb — 0.008 %

Total content of Cu, Cr, Ni and Mo must not exceed 0.50 %.

For steel grade 08ps under GOST 9045-93 Si content < 0,04 %.