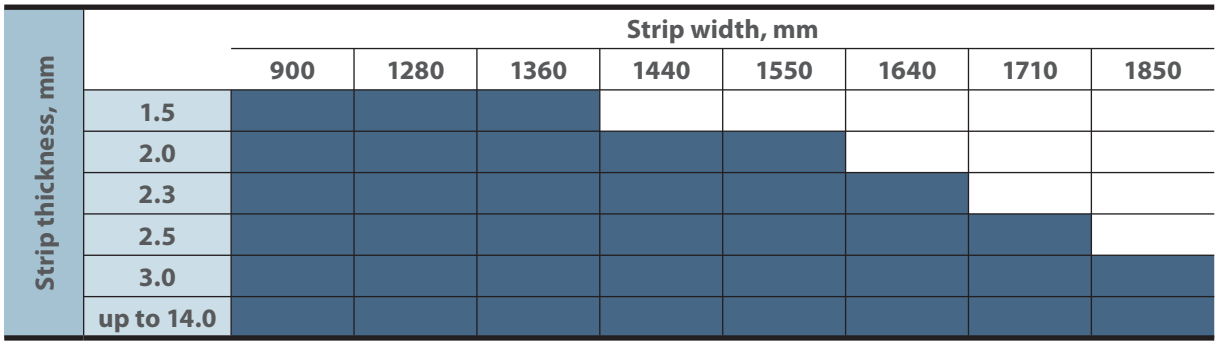
3. Hot-rolled steel flats

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

Table 3.6. Shape and dimensional tolerances

Standard for technical specification	EN 10111	ASTM A 635	SAE J403	DIN 1614-1, DIN 1614-2
Standard for product mix, geometry and tolerances	EN 10051	ASTM A 635	ASTM A 568	DIN 1016

Figure 3.6. Thickness-to-width relation of the hot-rolled strip



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.

3.2.3. Special-deoxidation drawing-quality hot-rolled steel

Table 3.7. 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 13	EN 10111	1.45 – 1.90	400 max	170–330	28	d=0
DD 13	EN 10111	2.00 – 2.90	400 max	170–310	29	d=0
DD 13	EN 10111	3.00 – 8.00	400 max	170–310	33	d=0
DS	ASTM A 1011	1.45 – 4.45	…	…	…	…
DQSK	ASTM A 635	4.50 – 14.00	...	...	...	...
St 24	DIN 1614 p.1	1.50 – 8.00	...	...	...	...
StW 24	DIN 1614 p.2	1.50 – 2.90	410 max	320 max	30	...
StW 24	DIN 1614 p.2	3.00 – 8.00	410 max	320 max	34	...
StW 24	DIN 1614 p.2	8.10 – 14.00	...	...	...	...

... — parameter not limited by standard
* — chemical composition only.

3. Hot-rolled steel flats

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

On customer demand hot-rolled steel with agreed mechanical properties may be produced.

Elongation of hot-rolled steel grade DD 13 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.

Table 3.8. Chemical composition of steel

Fraction of total mass,%									
C	Si	Mn	Al	S	P	Cr	Ni	Cu	N
0.05 max	0.03 max	0.15-0.22	0.02-0.06	0.025 max	0.020 max	0.4 max	0.08 max	0.10 max	0.006 max

For steel grade DS under ASTM A 1011 fraction of total mass of molybdenum, vanadium, niobium and titanium is determined, which must not exceed:

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

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

For steel grade DQSK under ASTM A 635 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, Mo must not exceed 0.50 %.

Table 3.9. Shape and dimensional tolerances

Standard for technical specification	EN 10111	ASTM A 635	ASTM A 1011	DIN 1614-1, DIN 1614-2
Standard for product mix, geometry and tolerances	EN 10051	ASTM A 635	ASTM A 568	DIN 1016

Figure 3.7. Thickness-to-width relation

Strip thickness, mm	Strip width, mm							
	900	1280	1360	1440	1550	1640	1710	1850
1.45	■	■	■					
2.0	■	■	■	■	■			
2.3	■	■	■	■	■	■		
2.5	■	■	■	■	■	■	■	
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.