3. Hot-rolled steel flats

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

Figure 3.10. Thickness-to-width relation

Strip thickness, mm	Strip width, mm							
	900	1280	1360	1440	1550	1640	1710	1850
1.8	■	■						
1.9	■	■	■					
2.0	■	■	■	■	■			
3.0	■	■	■	■	■	■		
4.0	■	■	■	■	■	■	■	■
up to 14.0	■	■	■	■	■	■	■	■

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

3.2.7. Hot-rolled steel (strength class — 430 MPa)

Table 3.19. Mechanical properties of steel

Steel grade	Standard	Strip thickness, mm	Mechanical properties				
			Tensile strength MPa (N/mm^2)	Yield point MPa (N/mm^2)	Elongation%, min	Mandrel diameter at 180° bending	Impact energy J, min (T, °C)
S275JR	EN 10025:2-2004	1.80 – 2.90	430–580	275	15–17**	d=3.0–4.0 mm	27 (+20)
S275JR	EN 10025:2-2004	3.00 – 14.00	410–560	275	21	d=4.0–28 mm	27 (+20)
40	ASTM A 1011 (ASTM A 570)	1.80 – 2.49	380 min	275	20	d=2.0a	…
40	ASTM A 1011 (ASTM A 570)	2.50 – 4.45	380 min	275	21	d=2.0a	…
40	ASTM A 1018 (ASTM A 907)	4.50 – 14.00	380 min	275	21	…	…
1020	ASTM A 659	1.80 – 4.45	…	…	…	d=2.0a	…
1020	ASTM A 635	4.50 – 14.00	…	…	…	…	…
	ASTM A 36	4.50 – 14.00	400–550	250	23	…	…

… — parameter not limited by standard
a — strip thickness.
* — impact energy with sample width of 5.0–9.9 mm for steels S275JR under EN 10025 corresponds to St 44-2 under DIN 17100
** — depending on strip thickness.
Previous standard designation is given in parenthesis.

When ordering hot-rolled steel under EN 10025 letter “N” is added to the steel grade name for normalized rolled steel.

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

3. Hot-rolled steel flats

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

Table 3.20. Chemical composition of steel

Fraction of total mass, %									
C	Si	Mn	Al	S	P	Cr	Ni	Cu	N
0.17–0.21	0.15–0.25	0.40–0.60	0.02–0.07	0.035 max	0.030 max	0.15 max	0.20 max	0.20 max	0.008 max

For steel grade 40 under A1011(ASTM A570) 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 %, and Cr + Mo shall be 0.16 % maximum.

For steel grade 40 under ASTM A1018 (ASTM A907) 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 and Mo must not exceed 0.50 %, and Cr + Mo shall be 0.16 % maximum.

For steel grade 1020 under ASTM A 635 and ASTM A 659 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 %.

Table 3.21. Shape and dimensional tolerances

Standard for technical specification	EN 10025	ASTM A 659 ASTM A 1011 (ASTM A 570) ASTM A 659	ASTM A 635 ASTM A 1018 (ASTM A 907)
Standard for product mix, geometry and tolerances	EN 10051 EN 10029	ASTM A 568	ASTM A 635

Previous standard designation is given in parenthesis.

Figure 3.11. Thickness-to-width relation

Strip thickness, mm	Strip width, mm							
	900	1280	1360	1440	1550	1640	1710	1850
1.8	■	■						
2.0	■	■	■	■	■			
4.0	■	■	■	■	■	■	■	
up to 14.0	■	■	■	■	■	■	■	

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