

STRUCTURAL STEELS

Steel Grades

S185

S235JR

S235JRG2

S235JO

S235J2G3

S235J2G4

S275JR

S275JO

S275J2G3

S275J2G4

S355JR

S355JO

S355J2G3

S355J2G4

S355K2G3

S355K2G4

E295

E335

E360

STRUCTURAL STEELS

The unalloyed structural steels are the series of the typical high-strength steels, characterised by a guaranteed minimum yield strength with additional steel-grade-specific guaranteed values such as tensile strength, fracture elongation and notch impact energy.

TYPICAL HIGH-STRENGTH STEELS

The steels are used for slight drawing stress as well as for shaping and edging.

STEEL GRADES

COMPARISON TABLE

Comparison Table

Steel Grade	Material No.	EN 10025: 1990	DIN 17100	France NFA 35-501	BS 1449	UNI 7070
S185	1.0035	Fe 310-0	St 33	A 33		Fe 320
S235JR	1.0037	Fe 360 B	St 37-2	E 24-2		Fe 360 B
S235JRG2	1.0038	Fe 360 BFN	Rst 37-2		40 B	
S235JO	1.0114	Fe 360 C	St 37-3 U	E 24-3	40 C	Fe 360 C
S235J2G3	1.0116	Fe 360 D1	St 37-3 N	E 24-4	40 D	Fe 360 D
S235J2G4	1.0117	Fe 360 D2	-			
S275JR	1.0044	Fe 430 B	St 44-2	E 28-2	43 B	Fe 430 B
S275JO	1.0143	Fe 430 C	St 44-3 U	E 28-3	43 C	Fe 430 C
S275J2G3	1.0144	Fe 430 D1	St 44-3 N	E 28-4	43 D	Fe 430 D
S275J2G4	1.0145	Fe 430 D2	-			
S355JR	1.0045	Fe 510 B	-	E 36-2	50 B	Fe 510-B
S355JO	1.0553	Fe 510 C	St 52-3 U	E 36-3	50 C	Fe 510-C
S355J2G3	1.0570	Fe 510 D1	St 52-3 N		50 D	Fe 510-D
S355J2G4	1.0577	Fe 510 D2	-			
S355K2G3	1.0595	Fe 510 DD1	-	E 36-4	50 DD	
S355K2G4	1.0596	Fe 510 DD2	-			
E295	1.0050	Fe 490-2	St 50-2	A 50-2		Fe 490
E335	1.0060	Fe 590-2	St 60-2	A 60-2		Fe 590
E360	1.0070	Fe 690-2	St 70-2	A 70-2		Fe 690

CHEMICAL COMPOSITION

Guaranteed values of heat analysis in %

Steel Grade	Material No.	C ≤16 mm max.	C >16 mm max.	Si max.	Mn max.	P max.	S max.	N max.
S185	1.0035							
S235JR	1.0037	0.17	0.20	–	1.40	0.045	0.045	–
S235JRG2	1.0038	0.17	0.17	–	1.40	0.045	0.045	–
S235JO	1.0114	0.17	0.17	–	1.40	0.045	0.045	–
S235J2G3	1.0116	0.17	0.17	–	1.40	0.035	0.035	–
S235J2G4	1.0117	0.17	0.17	–	1.40	0.035	0.035	–
S275JR	1.0044	0.21	0.21	–	1.50	0.045	0.045	–
S275JO	1.0143	0.18	0.18	–	1.50	0.040	0.040	–
S275J2G3	1.0144	0.18	0.18	–	1.50	0.035	0.035	–
S275J2G4	1.0145	0.18	0.18	–	1.50	0.035	0.035	–
S355JR	1.0045	0.24	0.24	0.55	1.60	0.045	0.045	–
S355JO	1.0553	0.20	0.20	0.55	1.60	0.040	0.040	–
S355J2G3	1.0570	0.20	0.20	0.55	1.60	0.035	0.035	–
S355J2G4	1.0577	0.20	0.20	0.55	1.60	0.035	0.035	–
S355K2G3	1.0595	0.20	0.20	0.55	1.60	0.035	0.035	–
S355K2G4	1.0596	0.20	0.20	0.55	1.60	0.035	0.035	–
E295	1.0050	–	–	–	–	0.045	0.045	0.012
E335	1.0060	–	–	–	–	0.045	0.045	0.012
E360	1.0070	–	–	–	–	0.045	0.045	0.012

The following additional code letters are required for steel grades S235JR to S355K2G4 for special applications:

C → suitable for shaping and edging

T → tube quality

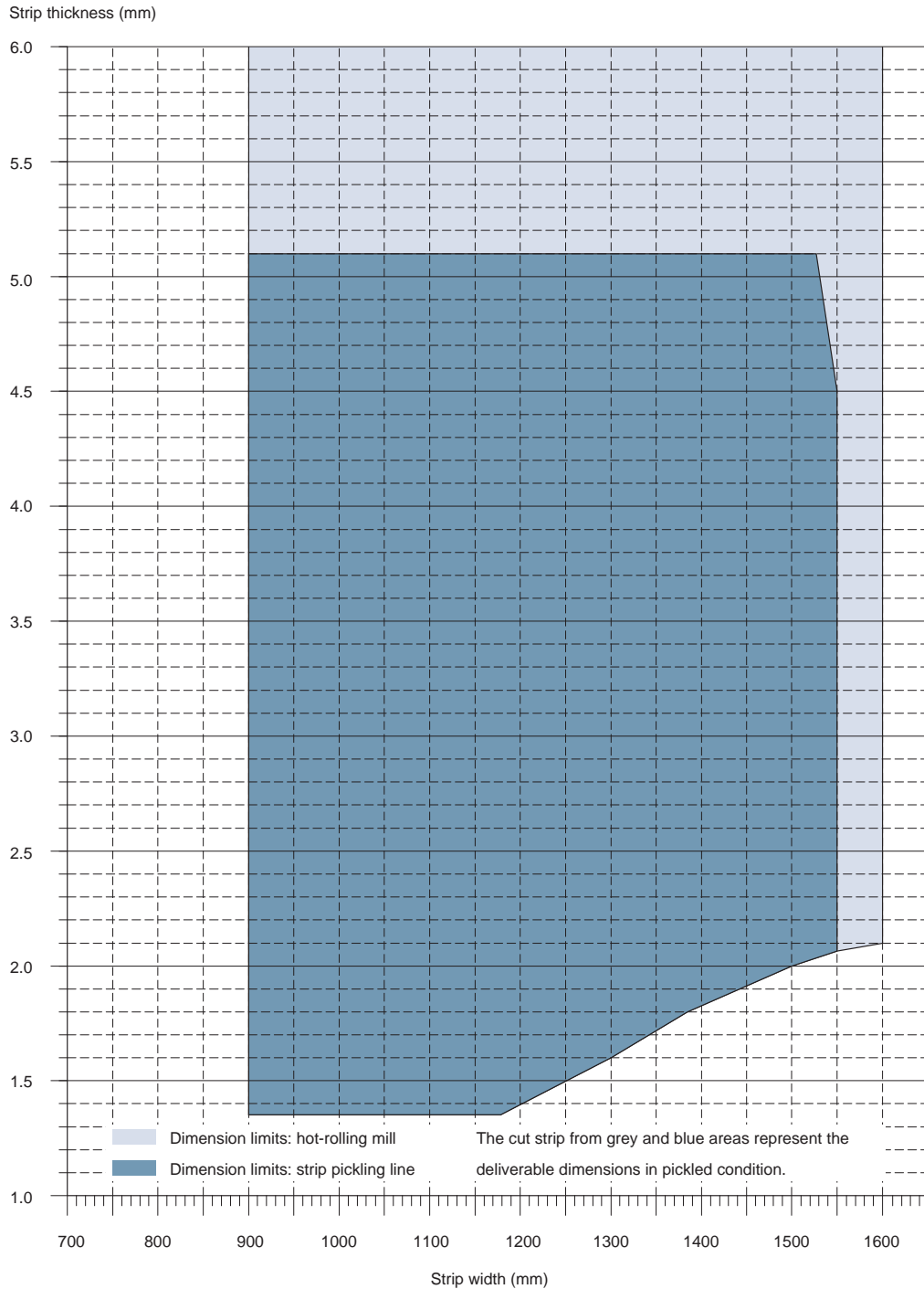
MECHANICAL PROPERTIES
MECHANICAL PROPERTIES

Steel Grade	Yield Strength R_{eH} [N/mm ²] transv. min.		Tensile Strength R_m [N/mm ²] transv.		Fracture Elongation [%] transv. min.					Notch Impact Energy ¹⁾ Ch V complete sample longitud. min [J]	
	≤ 16 mm	> 16 mm	< 3 mm	≥ 3 mm	A ₈₀	A ₅	A ₅	A ₅	A ₅	Temp. [C]	AV [J]
					Up to 1.50 mm	1.51– 2.00 mm	2.01– 2.50 mm	2.51– 2.99 mm	≥ 3 mm		
S185	185	175	310– 540	290– 510	9	10	11	12	16	x x	x x
S235JR										20	27
S235JRG2										20	27
S235JO	235	225	360– 510	340– 470	16	17	18	19	24	0	27
S235J2G3										-20	27
S235J2G4										-20	27
S275JR										20	27
S275JO										0	27
S275J2G3	275	265	430– 580	410– 560	13	14	15	16	20	-20	27
S275J2G4										-20	27
S355JR										20	27
S355JO										0	27
S355J2G3										-20	27
S355J2G4	355	345	510– 680	490– 630	13	14	15	16	20	-20	27
S355K2G3										-20	40
S355K2G4										-20	40
E295	295	285	490– 600	470– 610	11	12	13	14	18	x x	x x
E335	335	325	590– 770	570– 710	7	8	9	10	14	x x	x x
E360	360	355	690– 900	670– 830	4	5	6	7	10	x x	x x

¹⁾ If requested in the order, the notch impact energy is calculated from plate thickness ≥ 6.0 mm.

AVAILABLE DIMENSIONS STRUCTURAL STEELS

S185

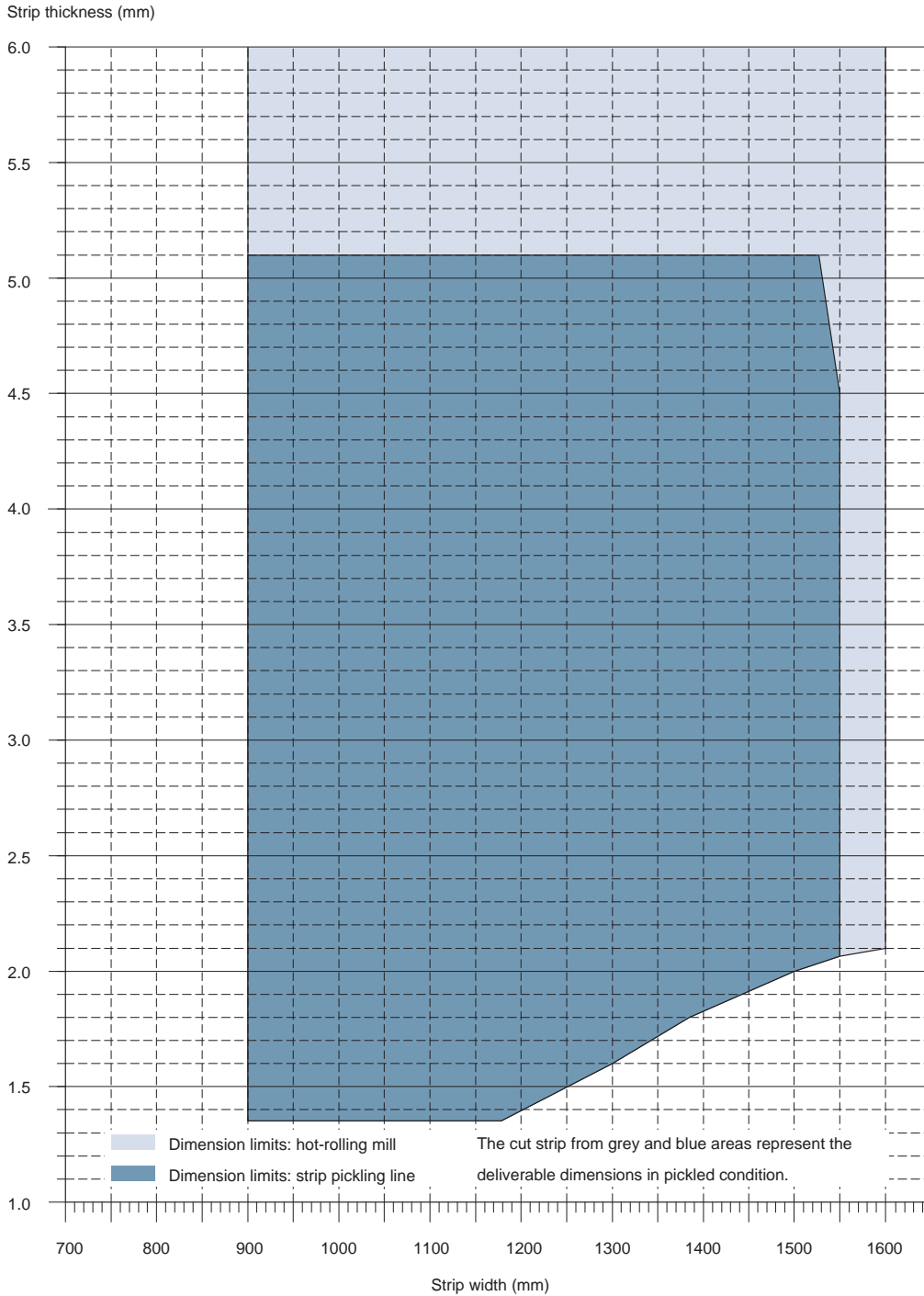


The graphs represent thickness with symmetric tolerances.

Please contact our sales departments for dimensions in thicknesses below 900 mm (production in transverse and longitudinal slitting lines).

AVAILABLE DIMENSIONS STRUCTURAL STEELS

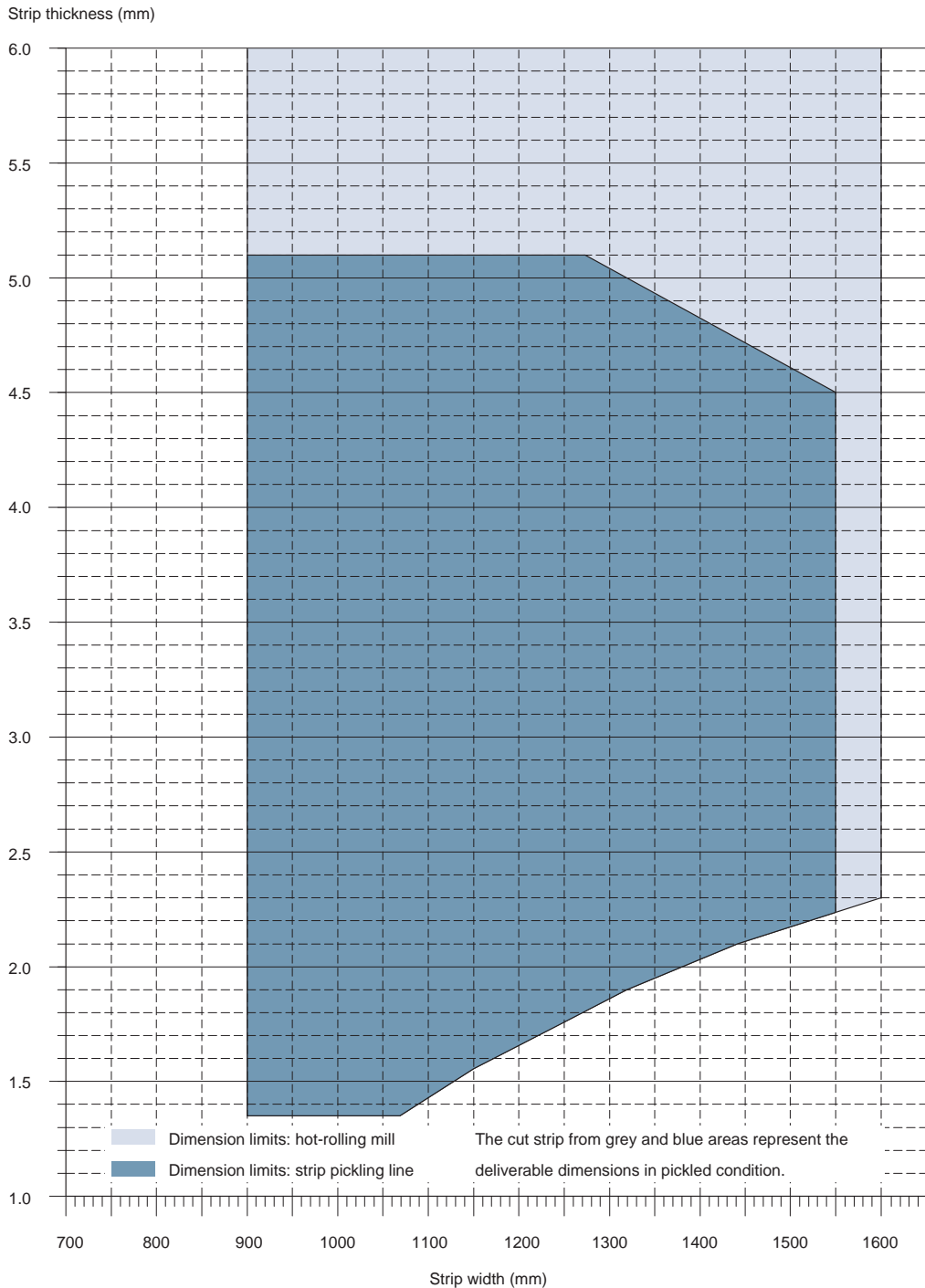
S235JR



The graphs represent thickness with symmetric tolerances.

Please contact our sales departments for dimensions in thicknesses below 900 mm (production in transverse and longitudinal slitting lines).

AVAILABLE DIMENSIONS STRUCTURAL STEELS S275JR

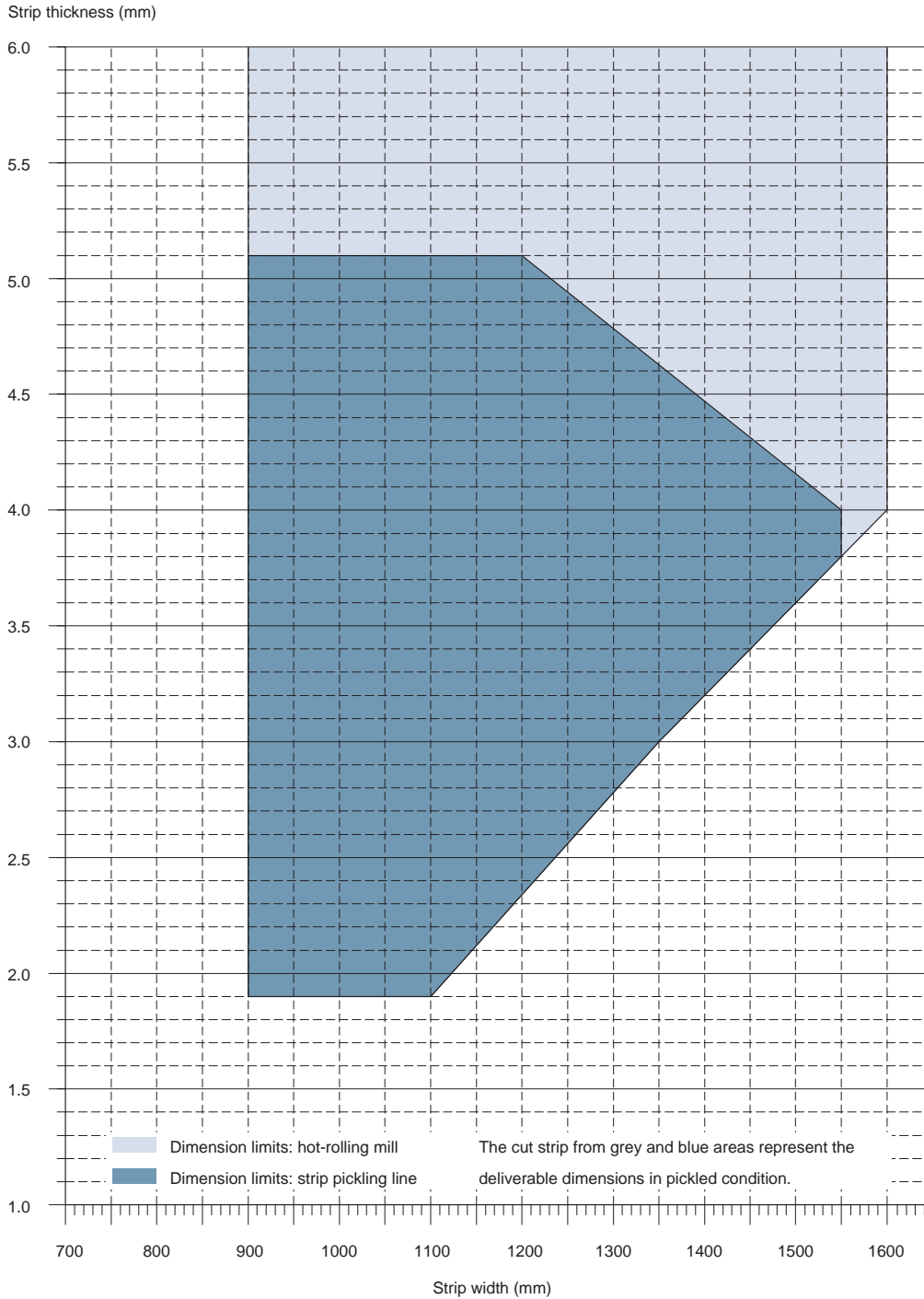


The graphs represent thickness with symmetric tolerances.

Please contact our sales departments for dimensions in thicknesses below 900 mm (production in transverse and longitudinal slitting lines).

AVAILABLE DIMENSIONS STRUCTURAL STEELS

S355J2G3



The graphs represent thickness with symmetric tolerances.

Please contact our sales departments for dimensions in thicknesses below 900 mm (production in transverse and longitudinal slitting lines).