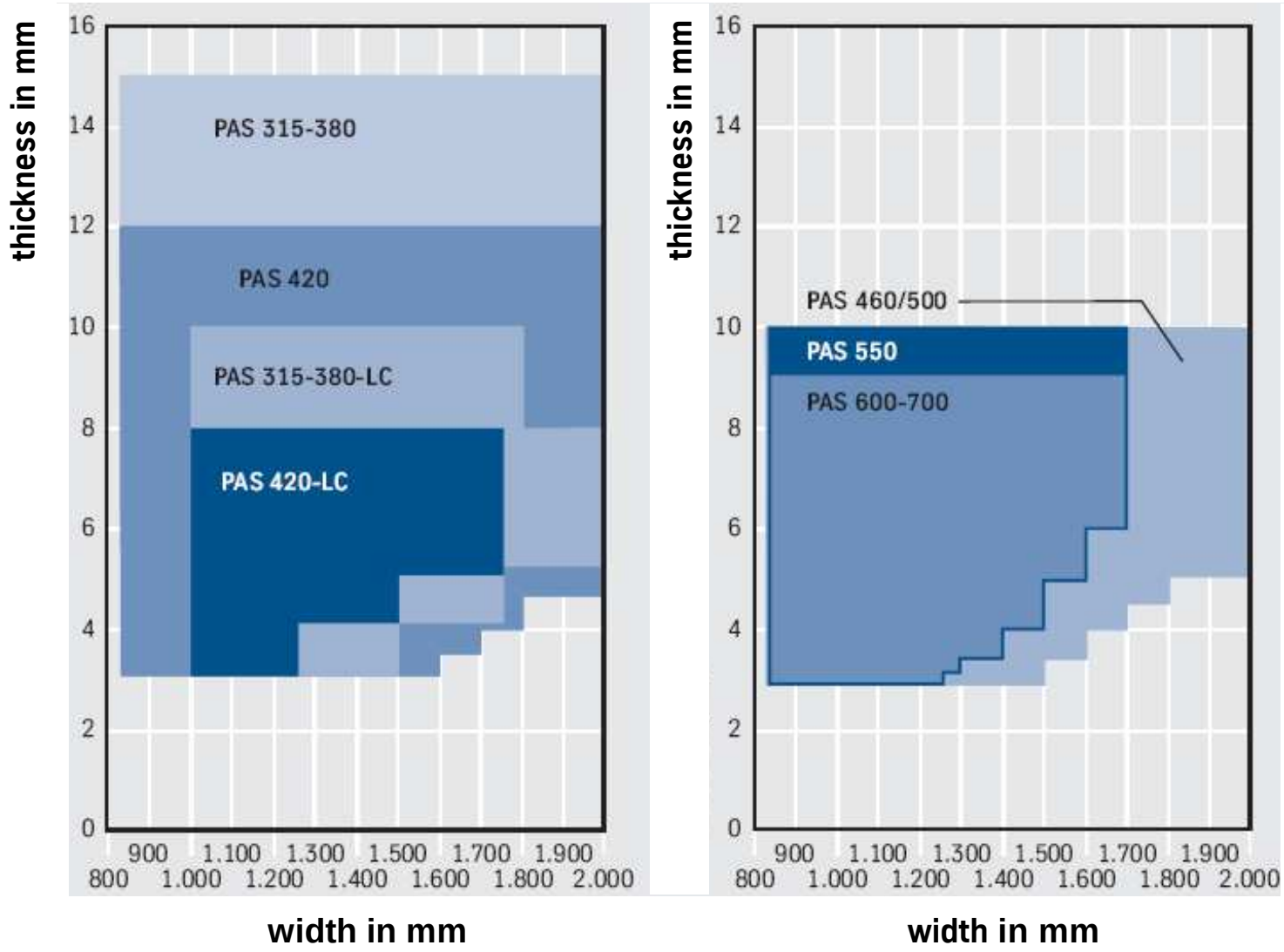
PAS steels / available strip plate dimensions depending on width



Properties of special structural steels for cold forming

ThyssenKrupp high form PAS

Grade acc. EN 10149-2	Steel grade	Chemical composition, typical [%]					Mechanical properties			
		C	Si	Mn	Nb	V	Ys [MPa]	Ts [MPa]	A_{min} [%]	D min.
S315MC	PAS 315	0.07	0.03	0.40-1.50	0.02-0.04	-	315	390-510	24	0 t
S355MC	PAS 355						355	430-550	23	0.5 t
-	PAS 380						380	450-590	23	0.5 t
S420MC	PAS 420						420	480-620	19	0.5 t
S460MC	PAS 460				0.045-0.060	0.045	460	520-670	17	1 t
S500MC	PAS 500					0.085	500	550-700	14	1 t
S550MC	PAS 550					0.090	550	600-750	14	1.5 t
S650MC	PAS 650		0.45	1.60		-	650	700-880	12	2 t
S700MC*)	PAS 700	0.06	0.50	1.80	0.065		700	750-950	12	2 t

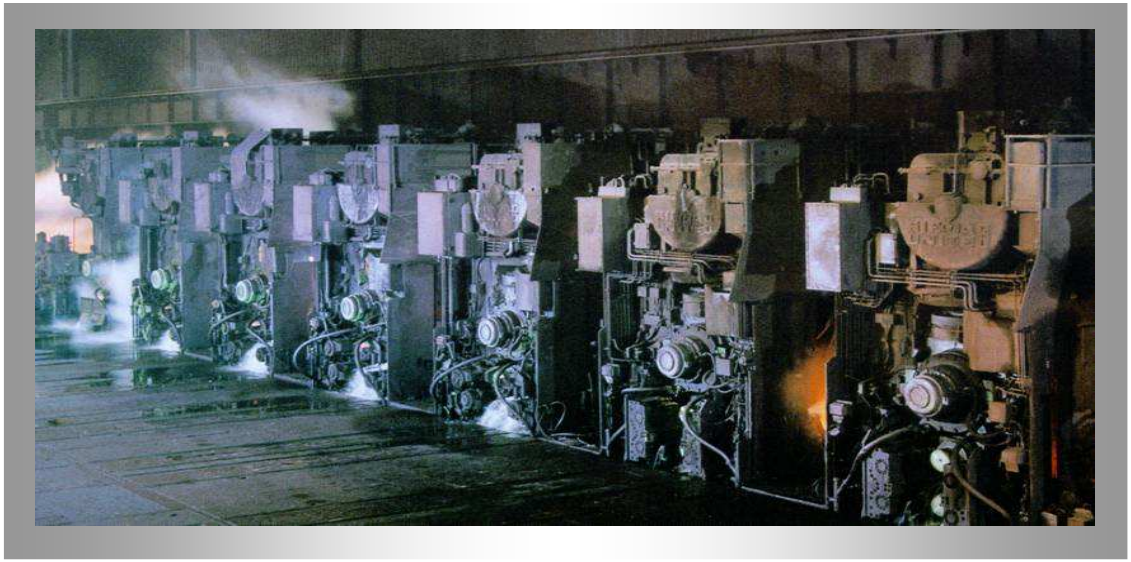
*) additionally: 0.11% Ti; 0.0020% B

Properties of cold forming steels ThyssenKrupp high form PAS compared to S355J2C (cold forming quality)

Steel grade	Chemical composition, typical [%]					Mechanical properties				Min. bending radii
						Ys	Ts	A	Impact energy	
	C	Si	Mn	Nb	V	[MPa]		[%]	-20 °C, [J]	(6 mm plate thickness)
PAS 355	0.10	0.15	1.50	0.06	0.08	355	430 - 550	23	40	3 mm
PAS 380	0.10	0.15	1.50	0.06	0.08	380	450 - 590	23	40	3 mm
PAS 420	0.10	0.15	1.60	0.07	0.10	420	480 - 620	19	40	6 mm
PAS 460	0.10	0.15	1.60	0.08	0.10	460	520 - 670	17	40	6 mm
S355J2C	0.20	0.55	1.60	0.06	0.10	355	490 - 630	20	27	12 mm

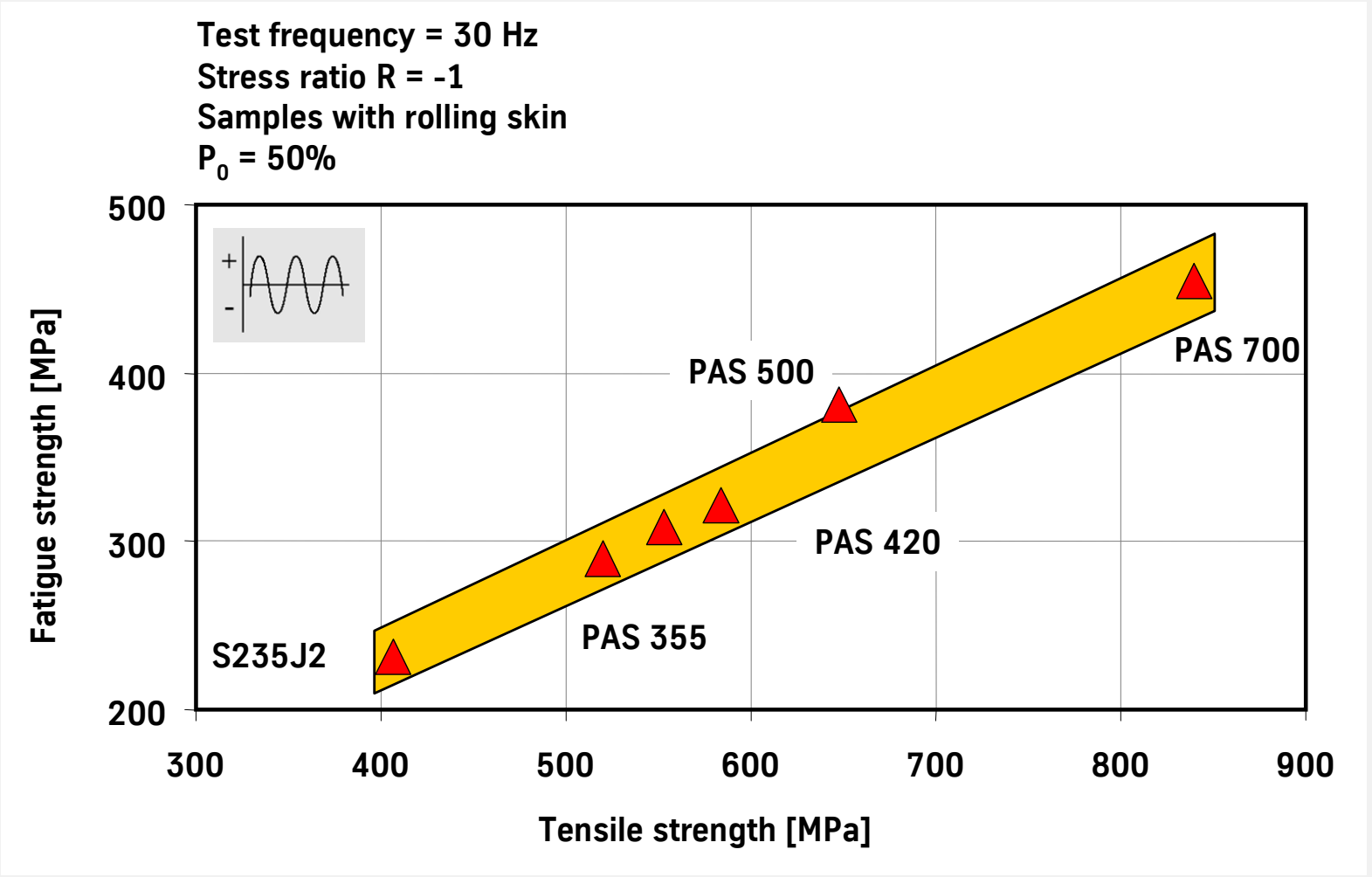
Special structural steel for cold forming (cut coil pates)

ThyssenKrupp high form PAS 700



- Production via TM-rolling, if necessary with additional heat-treatment
- Low micro alloying, low carbon equivalent, excellent weldability, low cold cracking risk, low hardness in HAZ
- Dimensions available: thickness: 3 - 9 mm
  max. width: 1700 mm
- High surface quality
- Superior cold formability
- Charpy-V-toughness 40 J at -20°C or 27 J at -40°C (longitudinal)

Fatigue strength behaviour



Reduction of plate thickness in relation to steel grade S355 by using high-strength cold forming steels