

Seamless pipes DIN EN 10216-5 (DIN 17458/17459)

Stainless steel pipes

Area of applications	Pipeline and plant engineering (transport of corrosive materials), pressure vessel and apparatus engineering		
Order text example	Pipe, seamless, DIN EN ISO 1127 / DIN EN 10216-5 TC2, 1.4571, inspection certificate acc. to DIN EN 10204 / 3.1, requirements acc. to AD 2000-Merkblatt W2 / W10 168.3 × 4.5 mm		
Materials (Extract)			
	Material number	Designation acc. to EN	Comparable to ASTM A312/SA790
	1.4301	X5CrNi18-10	TP 304
	1.4306	X2CrNi18-9	TP304L
	1.4307	X2CrNi18-9	TP 304L
	1.4541	X6CrNiTi18-10	TP 321
	1.4401	X5CrNiMo17-12-2	TP 316
	1.4404	X2CrNiMo17-12-2	TP 316L
	1.4571	X6CrNiMoTi17-12-2	TP 316Ti
	1.4410	X2CrNiMoN25-7-4	Super Duplex 2507
	1.4462	X2CrNiMoN22-5-3	Duplex 2205
	1.4539	X1NiCrMoCu25-20-5	TP 904L
Regulations acc. to AD 2000-W2			
	Purpose of use		Requirements acc. to
	Internal tubes (purpose in closed pressure vessel)		AD 2000-W2 / TC1
	Line pipes Ø ≤ 42.4 mm and wall thickness ≤ 3.6 mm		AD 2000-W2 / TC1
	Ø > 42.4 mm or wall thickness > 3.6 mm		AD 2000-W2 / TC2
Casting pipes for pressure vessel		AD 2000-W2 / TC2	
Scope of testing	TC1	Tensile test, 1 ring test per unit	
	TC2	Tensile test per unit, 1 ring test per pipe	
Delivery lengths	5 to 7 meter or double random lengths		
Range of sizes	6.0 to 610.0 mm		
Wall thicknesses	1.0 bis 14.2 mm		
Dimensions and weights	According to DIN EN ISO 1127		
Inspection certificate	According to DIN EN 10204 / 3.1 or 3.2		
Official regulations	AD 2000-W2 / W10 (for low temperature), VdTÜV-Werkstoffdatenblätter		
Marking	Manufacturer's mark, dimension, EN standard, material number, heat number, test category, mark of the inspection representative, identification number (e. g. order or item number)		

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Tolerance classes for hot finished pipes

Outside diameter D mm	Tolerances outside diameter D		Tolerances wall thickness T	
	Class	Tolerance	Class	Tolerance
30 ≤ D ≤ 219.1	D ₂	± 1 % or ± 0.5 mm, whichever is the greater	T ₁	± 15 % or ± 0.6 mm, whichever is the greater ^b
			T ₂	± 12.5 % or ± 0.4 mm, whichever is the greater
219.1 ≤ D ≤ 610	D ₁	± 1.5 % or ± 0.75 mm, whichever is the greater ^a		+ 22.5 % / - 15 % ^c
			T ₁	± 15 % or ± 0.6 mm, whichever is the greater ^d
			T ₂	± 12.5 % or ± 0.4 mm, whichever is the greater

^a Option 19: The pipes shall be ordered with sized ends. In this case a permissible deviation of the outside diameter of ± 0.6 % applied to the pipe ends over a length of approx. 100 mm.

^b Applies to pipes with wall thickness T ≤ 4 mm.

^c Applies to pipes with wall thickness T ≤ 0.05 D.

^d Applies to pipes with wall thickness 0.05 D < T ≤ 0.09 D.

^e Applies to pipes with wall thickness T > 0.09 D.

Tolerance classes for cold finished pipes

Tolerances outside diameter D ≤ 219.1 mm		Tolerances wall thickness T	
Class	Tolerance	Class	Tolerance
D ₃	± 0.75 % or ± 0.3 mm, whichever is greater	T ₃	± 10 % or ± 0.2 mm, whichever is greater
D ₄ ^a	± 0.50 % or ± 0.1 mm, whichever is greater	T ₄ ^f	± 7.5 % or ± 0.15 mm, whichever is greater

^f Option 20: Tolerance classes D₄ and T₄ is specified for cold finished pipes.

Delivery conditions ^a

EN symbol ^b	Type of delivery condition	Surface condition
HFD	Hot finished heat treated, descaled	Metallically clean
CFD	Cold finished heat treated, descaled	Metallically clean
CFA	Cold finished bright annealed	Metallically bright
CFG	Cold finished heat treated, ground	Metallically bright-ground, the type and degree of roughness shall be agreed at the time of enquiry and order ^c
CFP	Cold finished heat treated, polished	Metallically bright-polished, the type and degree of roughness shall be agreed at the time of enquiry and order ^c

^a Combinations of the different conditions may be agreed at the time of enquiry and order.

^b The symbol are abbreviations for type of condition. Example CFD= Cold Finished Descaled.

^c The enquiry and the order shall indicate whether the roughness requirement applies on the internal or external tube surface, or internal and external.