

Slitted coils

Dimensions – thickness – materials



In addition to standard and special grade products, we also produce high-strength and ultra-high strength coils on our slitting lines. Thanks to our high capacities and flexible manufacturing technologies we can supply most requests at short notice. Computer-optimised shaft tipping, minimum process tolerances, ultra-short set-up times and automated production processes, including packaging, make Stahlo's slitting lines particularly flexible and help us to provide made-to-measure slitted coils.

Properties	Dimensions and weights
Max. coil/ring weight, primary material	40 to
Max. coil diameter, primary material	2,100 mm
Coil inner diameter	508/610 mm
Max. coil/ring weight, finished product	40 to
Max. coil diameter, finished product	2,000 mm
Max. coil diameter for pallets	2,100 mm
Max. pallet weight	6,000 kg
Strip width	min. 10 mm, max. 1,850 mm
Max. tensile strength	1,900 MPa *

* For strengths > 1,400 MPa, individual agreements on edge quality must be made depending on the intended use.

Thickness	0.45 – 6.0 mm	Materials
		Hot rolled, pickled, oiled, uncoiled
		Cold rolled, oiled, uncoiled
		Hot-dip galvanised and zinc-plated
		Coated, with or without protective film
		High grade to ultra-high grade steel with a tensile strength of 1,900 MPa
		Special grades on demand

Cut-to-size sheets

Dimensions – thickness – materials



Stahlo provides cut-to-size sheets in all standard grades with thicknesses of 0.45 – 3.0 mm, lengths of 400 – 6,000 mm, and widths of 400 – 2,000 mm. Our state-of-the-art slitting and cut-to-length lines work with high feed rates and highest precision. Each sheet undergoes an automatic in-process inspection for length, width and diagonal measures. Smaller dimensions are also available upon request.

Properties	Dimensions and weights
Max. coil weight	40 to
Max. coil diameter	2,300 mm
Pack weight	max. 4,000 kg
Sheet width	min. 400 mm, max. 2,000 mm
Sheet length	min. 400 mm, max. 6,000 mm
Special / small cuttings	from 50 mm on demand

Thickness	0.45 – 3.0 mm	Materials
		Hot rolled, pickled, oiled, uncoiled
		Cold rolled, oiled, uncoiled
		Hot-dip galvanised and zinc-plated
		Coated, with or without protective film
		Special grades, high-strength grades on demand

Standard sheets

Dimensions – thickness – materials



Stahlo standard formats are also part of our made-to-measure product range. According to our customer needs, we keep a wide range of standard size sheets in stock.

Our standard formats are available in thicknesses 0.45 – 3.0 mm and have the following dimensions:

Available standard formats	
1,000 × 2,000 mm	Small format
1,250 × 2,500 mm	Medium format
1,500 × 3,000 mm	Large formate
2,000 × 4,000 mm	Maxi format
2,000 × 6,000 mm	Oversize

Contoured blanks

Dimensions – thickness – materials



Our site in Gera hosts one of the largest and most advanced blanking lines in Europe. It combines a 8,000 – 10,000 kN press with a 2,750 – 5,100 mm tool table to produce trapezoids, parallelograms, O5 automotive body sheet blanks and standard blanks from 40 to coils. We supply blanks as finished products, so your press capacity is optimised, and you can start forming straight away. We also reduce expensive scrap-handling in press plants since blanks and scrap have been separated up front. We will gladly take over the entire tool handling for you.

Properties	Dimensions and weights
Max. coil weight	40 to
Coil width	300 – 2,150 mm
Coil outer diameter	800 – 2,300 mm
Coil inner diameter	508/610 mm
Press	max. 10,000 kN
Tool table	4,750 × 2,750 – 5,100 mm
Levelling machine	Includes a spare unit
Max. tensile strength	1,450 MPa
Trapezoids/parallelograms	+30° to -30°
Max. stacking weight	10 to

Thickness	0.5 – 3.0 mm *	Materials
* < 0.5 mm on demand		Hot rolled, pickled, oiled, uncoiled
		Cold rolled, oiled, uncoiled
		Hot-dip galvanised and zinc-plated
		Coated, with or without protective film
		High grade to ultra-high grade steel with a tensile strength of 1,450 MPa, O5 automotive body sheets
		Special grades on demand

Steel grades

Cold rolled flat products



Restrictions and exceptions can be found in the valid standard.
In case of doubt, the valid standard applies.

Mild steels – cold rolled low carbon steel flat products for cold forming according to DIN EN 10130

Designation		Mechanical properties (transverse direction)					Chemical composition					
Steel name	Steel number	Yield strength	Tensile strength	Elongation	Plastic strain ratio	Strain hardening exponent	cast analysis % by mass max.					
		R_p N/mm ²	R_m N/mm ²	A_{80} % min.	r_{80} min.		C	P	S	Mn	Ti	
DC01	1.0330	-/280	270 - 410	28	-	-	0,12	0,045	0,045	0,60	-	
DC03	1.0347	-/240	270 - 370	34	1,3	-	0,10	0,035	0,035	0,45	-	
DC04	1.0338	-/210	270 - 350	38	1,6	0,180	0,08	0,030	0,030	0,40	-	
DC05	1.0312	-/180	270 - 330	40	1,9	0,200	0,06	0,025	0,025	0,35	-	
DC06	1.0873	-/170	270 - 330	41	2,1	0,220	0,02	0,020	0,020	0,25	0,3	
DC07	1.0898	-/150	250 - 310	44	2,5	0,230	0,01	0,020	0,020	0,20	0,2	

Surface type: A – regular surface | B – best surface

Surface finishes: b – particularly smooth | g – smooth | m – matte | r – rough

Micro-alloyed steels – cold rolled steel flat products with high yield strength for cold forming according to DIN EN 10268

Designation		Mechanical properties (longitudinal)							Chemical composition							
Steel name	Steel number	Proof strength	Bake-Hardening Index	Tensile strength	Elongation	Plastic strain ratio	Plastic strain ratio	Strain hardening exponent	cast analysis % by mass max.							
		$R_{p0,2}$ N/mm ²	BH_2 min. N/mm ²	R_m N/mm ²	A_{80} % min.	r max.	r min.		n min.	C	Si	Mn	P	S	Al _{min.}	Ti
HC180Y	1.0922	180 - 230	-	330 - 400	35	-	1,7	0,19	0,01	0,3	0,7	0,06	0,025	0,01	0,12	0,09
HC180B	1.0395	180 - 230	35	290 - 360	34	-	1,6	0,17	0,06	0,5	0,7	0,06	0,030	0,015	-	-
HC220Y	1.0925	220 - 270	-	340 - 420	33	-	1,6	0,18	0,01	0,3	0,9	0,08	0,025	0,01	0,12	0,09
HC220I	1.0346	220 - 270	-	300 - 380	34	1,4	-	0,18	0,07	0,5	0,6	0,05	0,025	0,015	0,05	-
HC220B	1.0396	220 - 270	35	320 - 400	32	-	1,5	0,16	0,08	0,5	0,7	0,085	0,030	0,015	-	-
HC260Y	1.0928	260 - 320	-	380 - 440	31	-	1,4	0,17	0,01	0,3	1,6	0,10	0,025	0,01	0,12	0,09
HC260I	1.0349	260 - 310	-	320 - 400	32	1,4	-	0,17	0,07	0,5	1,2	0,05	0,025	0,015	0,05	-
HC260B	1.0400	260 - 320	35	360 - 440	29	-	-	-	0,10	0,5	1,0	0,10	0,030	0,015	-	-
HC260LA	1.0480	260 - 330	-	350 - 430	26	-	-	-	0,10	0,5	1,0	0,030	0,025	0,015	0,15	0,09
HC300I	1.0447	300 - 350	-	340 - 440	30	1,4	-	0,16	0,08	0,5	0,7	0,08	0,025	0,015	0,05	-
HC300B	1.0444	300 - 360	35	390 - 480	26	-	-	-	0,10	0,5	1,0	0,12	0,030	0,015	-	-
HC300LA	1.0489	300 - 380	-	380 - 480	23	-	-	-	0,12	0,5	1,4	0,030	0,025	0,015	0,15	0,09
HC340LA	1.0548	340 - 420	-	410 - 510	21	-	-	-	0,12	0,5	1,5	0,030	0,025	0,015	0,15	0,09
HC380LA	1.0550	380 - 480	-	440 - 580	19	-	-	-	0,12	0,5	1,6	0,030	0,025	0,015	0,15	0,09
HC420LA	1.0556	420 - 520	-	470 - 600	17	-	-	-	0,14	0,5	1,6	0,030	0,025	0,015	0,15	0,09
HC460LA	1.0574	460 - 580	-	510 - 660	13	-	-	-	0,14	0,6	1,8	0,030	0,025	0,015	0,15	0,09
HC500LA	1.0573	500 - 620	-	550 - 710	12	-	-	-	0,14	0,6	1,8	0,030	0,025	0,015	0,15	0,09

Surface type: A – regular surface | B – best surface

For LA varieties, only surface type A is considered.

Surface finishes: b – particularly smooth | g – smooth | m – matte | r – rough

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Steel grades

Cold rolled flat products



Restrictions and exceptions can be found in the valid standard.
In case of doubt, the valid standard applies.

Enamelling steel – cold rolled low carbon steel flat products for vitreous enamelling according to DIN EN 10209

Designation		Mechanical properties (transverse direction)				Chemical composition						
Steel name	Steel number	Yield strength	Tensile strength	Elongation	Plastic strain ratio	cast analysis % by mass max.					carbon content (product analysis) % max.	
		R_e N/mm ² max.	R_m N/mm ²	A_{80} % min.	r min.	C	Ti	Mn	P	S		
DC01EK	1.0390	270	270 - 390	30	-	0,08	-	0,60	0,045	0,050		
DC04EK	1.0392	220	270 - 350	36	-	0,08	-	0,50	0,030	0,050		
DC05EK	1.0386	220	270 - 350	36	1,5	0,08	-	0,50	0,025	0,050		
DC06EK	1.0869	190	270 - 350	38	1,6	0,02	0,30	0,50	0,020	0,050		
DC03ED	1.0399	240	270 - 370	34	-	-	-	0,40	0,035	0,050	0,004	
DC04ED	1.0394	210	270 - 350	38	-	-	-	0,40	0,030	0,050	0,004	
DC06ED	1.0872	190	270 - 350	38	1,6	0,02	0,30	0,35	0,020	0,050		

Surface type: The products according to this standard are supplied with a surface type that does not impair the forming and the application of the enamel layer, as well as ensuring a uniform appearance of the enamel layer on the visible side.

Surface finishes: The surface finish can be either matte or rough.

Multiphase steel – cold rolled non-coated products of multiphase steels for cold forming according to DIN EN 10338

Designation		Mechanical properties (longitudinal)					Chemical composition									
Steel name	Steel number	Yield strength	Tensile strength	Elongation	Strain hardening exponent	Bake-Hardening Index	cast analysis % by mass max.									
		$R_{p0,2}$ N/mm ²	R_m N/mm ² min.	A_{80} % min.	n_{10-UE} min.	BH ₂ N/mm ² min.	C	Si	Mn	P	S	Al _{total}	Cr + Mo	Nb + Ti	V	B
Dual-phase steel																
HCT450X	1.0937	260 - 340	450	27	0,16	30	0,14	0,75	2,00	0,080	0,015	0,015 - 1,0	1,00	0,15	0,20	0,005
HCT490X	1.0939	290 - 380	490	24	0,15	30	0,14	0,75	2,00	0,080	0,015	0,015 - 1,0	1,00	0,15	0,20	0,005
HCT590X	1.0941	330 - 430	590	20	0,14	30	0,15	0,75	2,50	0,040	0,015	0,015 - 1,5	1,40	0,15	0,20	0,005
HCT780X	1.0943	440 - 550	780	14	-	30	0,18	0,80	2,50	0,080	0,015	0,015 - 2,0	1,40	0,15	0,20	0,005
HCT980X	1.0944	590 - 740	980	10	-	30	0,20	1,00	2,90	0,080	0,015	0,015 - 2,0	1,40	0,15	0,20	0,005
HCT980XG	1.0997	700 - 850	980	8	-	30	0,23	1,00	2,90	0,080	0,015	0,015 - 2,0	1,40	0,15	0,20	0,005
TRIP-steel																
HCT690T	1.0947	400 - 520	690	23	0,19	40	0,24	2,00	2,20	0,080	0,015	0,015 - 2,0	0,60	0,20	0,20	0,005
HCT780T	1.0948	450 - 570	780	21	0,16	40	0,25	2,20	2,50	0,080	0,015	0,015 - 2,0	0,60	0,20	0,20	0,005
Complex-phase steel																
HCT600C	1.0953	350 - 500	600	16	-	30	0,18	0,80	2,20	0,080	0,015	0,015 - 2,0	1,00	0,15	0,20	0,005
HCT780C	1.0954	570 - 720	780	10	-	30	0,18	1,00	2,50	0,080	0,015	0,015 - 2,0	1,00	0,15	0,20	0,005
HCT980C	1.0955	780 - 950	980	6	-	30	0,23	1,00	2,70	0,080	0,015	0,015 - 2,0	1,00	0,15	0,22	0,005
Multiphase steel																
HCT1180G2	1.0969	900 - 1150	1180	4	-	30	0,23	1,20	2,90	0,080	0,015	0,015 - 1,4	1,20	0,15	0,20	0,005

Surface type: Surface type A supplied according to DIN EN 10130.

Surface finishes: b – particularly smooth | g – smooth | m – matte | r – rough

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Steel grades

Electrolytically galvanised flat products



Restrictions and exceptions can be found in the valid standard.
In case of doubt, the valid standard applies.

Mild steels – electrolytically zinc coated cold rolled steel flat products for cold forming according to DIN EN 10152

Designation		Mechanical properties (transverse direction)					Chemical composition					
Steel name	Steel number	Symbols for the types of available coatings	Yield strength $R_{p0.2}$ N/mm ²	Tensile strength R_m N/mm ²	Elongation A_{80} % min.	Plastic strain ratio r_{90} min.	Strain hardening exponent n_{90} min.	cast analysis % by mass max.				
								C	P	S	Mn	Ti
DC01	1.0330	+ZE	-/280	270 - 410	28	-	-	0,12	0,045	0,045	0,60	-
DC03	1.0347	+ZE	-/240	270 - 370	34	1,3	-	0,10	0,035	0,035	0,45	-
DC04	1.0338	+ZE	-/220	270 - 350	37	1,6	0,170	0,08	0,030	0,030	0,40	-
DC05	1.0312	+ZE	-/200	270 - 330	39	1,9	0,190	0,06	0,025	0,025	0,35	-
DC06	1.0873	+ZE	-/180	270 - 350	41	2,1	0,210	0,02	0,020	0,020	0,25	0,3
DC07	1.0898	+ZE	-/160	250 - 310	43	2,5	0,220	0,01	0,020	0,020	0,20	0,2

Micro-alloyed steels – cold rolled steel flat products with high yield strength for cold forming according to DIN EN 10268; with an additional coating designation, this standard also applies to electrolytically galvanised flat products

Designation		Mechanical properties (longitudinal)							Chemical composition							
Steel name	Steel number	Proof strength $R_{p0.2}$ N/mm ²	Bake-Hardening Index BH_2 N/mm ²	Tensile strength R_m N/mm ²	Elongation A_{80} in % min.	Plastic strain ratio r max.	Plastic strain ratio r min.	Strain hardening exponent n min.	cast analysis % by mass max.							
									C	Si	Mn	P	S	Al _{min.}	Ti	Nb
HC180Y	1.0922	180 - 230	-	330 - 400	35	-	1,7	0,19	0,01	0,3	0,7	0,06	0,025	0,01	0,12	0,09
HC180B	1.0395	180 - 230	35	290 - 360	34	-	1,6	0,17	0,06	0,5	0,7	0,06	0,030	0,015	-	-
HC220Y	1.0925	220 - 270	-	340 - 420	33	-	1,6	0,18	0,01	0,3	0,9	0,08	0,025	0,01	0,12	0,09
HC220I	1.0346	220 - 270	-	300 - 380	34	1,4	-	0,18	0,07	0,5	0,6	0,05	0,025	0,015	0,05	-
HC220B	1.0396	220 - 270	35	320 - 400	32	-	1,5	0,16	0,08	0,5	0,7	0,085	0,030	0,015	-	-
HC260Y	1.0928	260 - 320	-	380 - 440	31	-	1,4	0,17	0,01	0,3	1,6	0,10	0,025	0,01	0,12	0,09
HC260I	1.0349	260 - 310	-	320 - 400	32	1,4	-	0,17	0,07	0,5	1,2	0,05	0,025	0,015	0,05	-
HC260B	1.0400	260 - 320	35	360 - 440	29	-	-	-	0,10	0,5	1,0	0,10	0,030	0,015	-	-
HC260LA	1.0480	260 - 330	-	350 - 430	26	-	-	-	0,10	0,5	1,0	0,030	0,025	0,015	0,15	0,09
HC300I	1.0447	300 - 350	-	340 - 440	30	1,4	-	0,16	0,08	0,5	0,7	0,08	0,025	0,015	0,05	-
HC300B	1.0444	300 - 360	35	390 - 480	26	-	-	-	0,10	0,5	1,0	0,12	0,030	0,015	-	-
HC300LA	1.0489	300 - 380	-	380 - 480	23	-	-	-	0,12	0,5	1,4	0,030	0,025	0,015	0,15	0,09
HC340LA	1.0548	340 - 420	-	410 - 510	21	-	-	-	0,12	0,5	1,5	0,030	0,025	0,015	0,15	0,09
HC380LA	1.0550	380 - 480	-	440 - 580	19	-	-	-	0,12	0,5	1,6	0,030	0,025	0,015	0,15	0,09
HC420LA	1.0556	420 - 520	-	470 - 600	17	-	-	-	0,14	0,5	1,6	0,030	0,025	0,015	0,15	0,09
HC460LA	1.0574	460 - 580	-	510 - 660	13	-	-	-	0,14	0,6	1,8	0,030	0,025	0,015	0,15	0,09
HC500LA	1.0573	500 - 620	-	550 - 710	12	-	-	-	0,14	0,6	1,8	0,030	0,025	0,015	0,15	0,09

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Steel grades

Electrolytically galvanised flat products



Restrictions and exceptions can be found in the valid standard.
In case of doubt, the valid standard applies.

Multiphase steel – cold rolled products of multiphase steels for cold forming according to DIN EN 10338;
with an additional coating designation, this standard also applies to electrolytically galvanised flat products

Designation		Mechanical properties (longitudinal)					Chemical composition										
Steel name	Steel number	Yield strength	Tensile strength	Elongation	Strain hardening exponent	Bake-Hardening Index	cast analysis % by mass max.										
		$R_{p0,2}$ N/mm ²	R_m N/mm ² min.	A_{30} % min.	$n_{10,LE}$ min.	BH_2 N/mm ² min.	C	Si	Mn	P	S	Al _{total}	Cr+Mo	Nb+Ti	V	B	
Dual-phase steel																	
HCT450X	1.0937	260 - 340	450	27	0,16	30	0,14	0,75	2,00	0,080	0,015	0,015 - 1,0	1,00	0,15	0,20	0,005	
HCT490X	1.0939	290 - 380	490	24	0,15	30	0,14	0,75	2,00	0,080	0,015	0,015 - 1,0	1,00	0,15	0,20	0,005	
HCT590X	1.0941	330 - 430	590	20	0,14	30	0,15	0,75	2,50	0,040	0,015	0,015 - 1,5	1,40	0,15	0,20	0,005	
HCT780X	1.0943	440 - 550	780	14	-	30	0,18	0,80	2,50	0,080	0,015	0,015 - 2,0	1,40	0,15	0,20	0,005	
HCT980X	1.0944	590 - 740	980	10	-	30	0,20	1,00	2,90	0,080	0,015	0,015 - 2,0	1,40	0,15	0,20	0,005	
HCT980XG	1.0997	700 - 800	980	8	-	30	0,23	1,00	2,90	0,080	0,015	0,015 - 2,0	1,40	0,15	0,20	0,005	
TRIP-steel																	
HCT690T	1.0947	400 - 520	690	23	0,19	40	0,24	2,00	2,20	0,080	0,015	0,015 - 2,0	0,60	0,20	0,20	0,005	
HCT780T	1.0948	450 - 570	780	21	0,18	40	0,25	2,20	2,50	0,080	0,015	0,015 - 2,0	0,60	0,20	0,20	0,005	
Complex-phase steel																	
HCT600C	1.0953	350 - 500	600	16	-	30	0,18	0,80	2,20	0,080	0,015	0,015 - 2,0	1,00	0,15	0,20	0,005	
HCT780C	1.0954	570 - 720	780	10	-	30	0,18	1,00	2,50	0,080	0,015	0,015 - 2,0	1,00	0,15	0,20	0,005	
HCT980C	1.0955	780 - 950	980	6	-	30	0,23	1,00	2,70	0,080	0,015	0,015 - 2,0	1,00	0,15	0,22	0,005	
Multiphase steel																	
HCT1180G2	1.0969	900 - 1150	1180	4	-	30	0,23	1,20	2,90	0,080	0,015	0,015 - 1,4	1,20	0,15	0,20	0,005	

Coatings according to DIN EN 10152

Coating designation	Coating thickness per surface		Minimum value of coating thickness per surface		Density g/cm ³
	Thickness μm	Mass g/m ²	Thickness μm	Mass g/m ²	
ZE 25/25	2,5	18	1,7	12	7,1
ZE 50/50	5,0	36	4,1	29	
ZE 75/75	7,5	54	6,6	47	
ZE 100/100	10,0	72	9,1	65	

Surface type: A – regular surface | B – best surface

For LA varieties according to DIN EN 10268 and grades according to DIN EN 10338, only surface type A is considered.

Surface treatment: P – phosphated | PC – phosphated and chemically treated | C – chemically passivated | PCO – phosphated, chemically treated, and oiled | CO – chemically passivated and oiled | PO – phosphated and oiled | O – oiled | S – sealed | U – galvanized, without surface treatment

Surface finish: Upon agreement during inquiry and order, a range for surface roughness values (Ra values) may be specified for special end-use purposes.

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Steel grades

Hot-dip galvanised flat products



Restrictions and exceptions can be found in the valid standard.
In case of doubt, the valid standard applies.

Mild steels – hot-dip galvanised low carbon steel flat products for cold forming according to DIN EN 10346

Designation			Mechanical properties (transverse direction)					Chemical composition					
Steel name	Steel number	Symbols for the types of available coatings	Yield strength	Tensile strength	Elongation	Plastic strain ratio	Strain hardening exponent	cast analysis % by mass max.					
			R_e N/mm ²	R_m N/mm ²	A_{30} % min.	r_{90} min.	n_{90} min.	C	Si	Mn	P	S	Ti
DX51D	1.0917	+Z, +ZF, +ZA, +ZM, +AZ, +AS	-	270 - 500	22	-	-	0,18	0,50	1,20	0,12	0,045	0,30
DX52D	1.0918	+Z, +ZF, +ZA, +ZM, +AZ, +AS	140 - 300	270 - 420	26	-	-	0,12	0,50	0,60	0,10	0,045	0,30
DX53D	1.0951	+Z, +ZF, +ZA, +ZM, +AZ, +AS	140 - 260	270 - 380	30	-	-	0,12	0,50	0,60	0,10	0,045	0,30
DX54D	1.0952	+Z, +ZA	120 - 220	260 - 350	36	1,6	0,18	0,12	0,50	0,60	0,10	0,045	0,30
DX54D	1.0952	+ZF, +ZM	120 - 220	260 - 350	34	1,4	0,18	0,12	0,50	0,60	0,10	0,045	0,30
DX54D	1.0952	+AZ	120 - 220	260 - 350	36	-	-	0,12	0,50	0,60	0,10	0,045	0,30
DX54D	1.0952	+AS	120 - 220	260 - 350	34	1,4	0,18	0,12	0,50	0,60	0,10	0,045	0,30
DX55D	1.0962	+AS	140 - 240	270 - 370	30	-	-	0,12	0,50	0,60	0,10	0,045	0,30
DX56D	1.0963	+Z, +ZA	120 - 180	260 - 350	39	1,9	0,21	0,12	0,50	0,60	0,10	0,045	0,30
DX56D	1.0963	+ZF, +ZM	120 - 180	260 - 350	37	1,7	0,20	0,12	0,50	0,60	0,10	0,045	0,30
DX56D	1.0963	+AZ, +AS	120 - 180	260 - 350	39	1,7	0,20	0,12	0,50	0,60	0,10	0,045	0,30
DX57D	1.0853	+Z, +ZA	120 - 170	260 - 350	41	2,1	0,22	0,12	0,50	0,60	0,10	0,045	0,30
DX57D	1.0853	+ZF, +ZM	120 - 170	260 - 350	39	1,9	0,21	0,12	0,50	0,60	0,10	0,045	0,30
DX57D	1.0853	+AS	120 - 170	260 - 350	41	1,9	0,21	0,12	0,50	0,60	0,10	0,045	0,30

Construction steel – hot-dip galvanised products of structural steels according to DIN EN 10346

Designation			Mechanical properties (longitudinal)			Chemical composition				
Steel name	Steel number	Symbols for the types of available coatings	Proof strength	Tensile strength	Elongation	cast analysis % by mass max.				
			$R_{p0,2}$ N/mm ² min.	R_m N/mm ² min.	A_{80} % min.	C	Si	Mn	P	S
S220GD	1.0241	+Z, +ZF, +ZA, +ZM, +AZ	220	300	20	0,20	0,60	1,70	0,10	0,045
S250GD	1.0242	+Z, +ZF, +ZA, +ZM, +AZ, +AS	250	330	19	0,20	0,60	1,70	0,10	0,045
S280GD	1.0244	+Z, +ZF, +ZA, +ZM, +AZ, +AS	280	360	18	0,20	0,60	1,70	0,10	0,045
S320GD	1.0250	+Z, +ZF, +ZA, +ZM, +AZ, +AS	320	390	17	0,20	0,60	1,70	0,10	0,045
S350GD	1.0529	+Z, +ZF, +ZA, +ZM, +AZ, +AS	350	420	16	0,20	0,60	1,70	0,10	0,045
S390GD	1.0238	+Z, +ZF, +ZA, +ZM, +AZ	390	460	16	0,20	0,60	1,70	0,10	0,045
S420GD	1.0239	+Z, +ZF, +ZA, +ZM, +AZ	420	480	15	0,20	0,60	1,70	0,10	0,045
S450GD	1.0233	+Z, +ZF, +ZA, +ZM, +AZ	450	510	14	0,20	0,60	1,70	0,10	0,045
S550GD	1.0531	+Z, +ZF, +ZA, +ZM, +AZ	550	560	-	0,20	0,60	1,70	0,10	0,045

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Restrictions and exceptions can be found in the valid standard.
In case of doubt, the valid standard applies.

Micro-alloyed steels – hot-dip galvanised steel flat products with high yield strength for cold forming according to DIN EN 10346

Designation			Mechanical properties (transverse direction)					
Steel name	Steel number	Symbols for the types of available coatings	Proof strength	Bake-Hardening Index	Tensile strength	Elongation	Plastic strain ratio	Strain hardening exponent
			$R_{p0.2}$ N/mm ²	BH _{1/2} N/mm ² min.	R_m N/mm ²	A_{80} % min.	r_{90} min.	n_{90} min.
HX160YD	1.0910	+Z, +ZF, +ZA, +ZM, +AZ, +AS	160 - 220	-	300 - 360	37	1,9	0,20
HX180YD	1.0921	+Z, +ZF, +ZA, +ZM, +AZ, +AS	180 - 240	-	330 - 390	34	1,7	0,18
HX180BD	1.0914	+Z, +ZF, +ZA, +ZM, +AZ, +AS	180 - 240	30	290 - 360	34	1,5	0,16
HX220YD	1.0923	+Z, +ZF, +ZA, +ZM, +AZ, +AS	220 - 280	-	340 - 420	32	1,5	0,17
HX220BD	1.0919	+Z, +ZF, +ZA, +ZM, +AZ, +AS	220 - 280	30	320 - 400	32	1,2	0,15
HX260YD	1.0926	+Z, +ZF, +ZA, +ZM, +AZ, +AS	260 - 320	-	380 - 440	30	1,4	0,16
HX260BD	1.0924	+Z, +ZF, +ZA, +ZM, +AZ, +AS	260 - 320	30	360 - 440	28	-	-
HX260LAD	1.0929	+Z, +ZF, +ZA, +ZM, +AZ, +AS	260 - 330	-	350 - 430	26	-	-
HX300YD	1.0927	+Z, +ZF, +ZA, +ZM, +AZ, +AS	300 - 360	-	390 - 470	27	1,3	0,15
HX300BD	1.0930	+Z, +ZF, +ZA, +ZM, +AZ, +AS	300 - 360	30	400 - 480	26	-	-
HX300LAD	1.0932	+Z, +ZF, +ZA, +ZM, +AZ, +AS	300 - 380	-	380 - 480	23	-	-
HX340BD	1.0945	+Z, +ZF, +ZA, +ZM, +AZ, +AS	340 - 400	30	440 - 520	24	-	-
HX340LAD	1.0933	+Z, +ZF, +ZA, +ZM, +AZ, +AS	340 - 420	-	410 - 510	21	-	-
HX380LAD	1.0934	+Z, +ZF, +ZA, +ZM, +AZ, +AS	380 - 480	-	440 - 560	19	-	-
HX420LAD	1.0935	+Z, +ZF, +ZA, +ZM, +AZ, +AS	420 - 520	-	470 - 590	17	-	-
HX460LAD	1.0990	+Z, +ZF, +ZA, +ZM, +AZ, +AS	460 - 560	-	500 - 640	15	-	-
HX500LAD	1.0991	+Z, +ZF, +ZA, +ZM, +AZ, +AS	500 - 620	-	530 - 690	13	-	-

Designation			Chemical composition							
Steel name	Steel number	Symbols for the types of available coatings	cast analysis % by mass max.							
			C	Si	Mn	P	S	Al _{total}	Nb	Ti
HX160YD	1.0910	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,01	0,30	0,60	0,060	0,025	≥ 0,010	0,09	0,12
HX180YD	1.0921	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,01	0,30	0,70	0,060	0,025	≥ 0,010	0,09	0,12
HX180BD	1.0914	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,06	0,50	0,70	0,060	0,025	≥ 0,015	0,09	0,12
HX220YD	1.0923	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,01	0,30	0,90	0,080	0,025	≥ 0,010	0,09	0,12
HX220BD	1.0919	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,08	0,50	0,70	0,085	0,025	≥ 0,015	0,09	0,12
HX260YD	1.0926	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,01	0,30	1,60	0,10	0,025	≥ 0,010	0,09	0,12
HX260BD	1.0924	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,10	0,50	1,00	0,10	0,030	≥ 0,010	0,09	0,12
HX260LAD	1.0929	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,11	0,50	1,00	0,030	0,025	≥ 0,015	0,09	0,15
HX300YD	1.0927	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,015	0,30	1,60	0,10	0,025	≥ 0,010	0,09	0,12
HX300BD	1.0930	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,11	0,50	0,80	0,12	0,025	≥ 0,010	0,09	0,12
HX300LAD	1.0932	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,12	0,50	1,40	0,030	0,025	≥ 0,015	0,09	0,15
HX340BD	1.0945	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,11	0,50	0,80	0,12	0,025	≥ 0,010	0,09	0,12
HX340LAD	1.0933	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,12	0,50	1,40	0,030	0,025	≥ 0,015	0,10	0,15
HX380LAD	1.0934	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,12	0,50	1,50	0,030	0,025	≥ 0,015	0,10	0,15
HX420LAD	1.0935	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,12	0,50	1,60	0,030	0,025	≥ 0,015	0,10	0,15
HX460LAD	1.0990	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,15	0,50	1,70	0,030	0,025	≥ 0,015	0,10	0,15
HX500LAD	1.0991	+Z, +ZF, +ZA, +ZM, +AZ, +AS	0,15	0,50	1,70	0,030	0,025	≥ 0,015	0,10	0,15

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Hot-dip galvanised flat products



Restrictions and exceptions can be found in the valid standard.
In case of doubt, the valid standard applies.

Multiphase steel – hot-dip galvanised products of multiphase steels for cold forming according to DIN EN 10346

Designation		Mechanical properties (longitudinal)						Chemical composition									
Steel name	Steel number	Symbols for the types of available coatings	Proof strength	Tensile strength	Elongation	Strain hardening exponent	Bake-Hardening Index	cast analysis % by mass max.									
			$R_{p0,2}$ N/mm ²	R_m N/mm ² min.	A_{90} % min.	n_{10-UE} min.	BH_{15} N/mm ² min.	C	Si	Mn	P	S	Al _{total}	Cr + Mo	Nb + Ti	V	B
Dual-phase steel																	
HCT450X	1.0937	+Z, +ZF, +ZA, +ZM	260 - 340	450	27	0,16	30	0,14	0,75	2,00	0,080	0,015	0,015 - 1,0	1,00	0,15	0,20	0,005
HCT490X	1.0995	+Z, +ZF, +ZA, +ZM	290 - 380	490	24	0,15	30	0,14	0,75	2,00	0,080	0,015	0,015 - 1,0	1,00	0,15	0,20	0,005
HCT590X	1.0996	+Z, +ZF, +ZA, +ZM	330 - 430	590	20	0,14	30	0,15	0,75	2,50	0,040	0,015	0,015 - 1,5	1,40	0,15	0,20	0,005
HCT780X	1.0943	+Z, +ZF, +ZA, +ZM	440 - 550	780	14	-	30	0,18	0,80	2,50	0,080	0,015	0,015 - 2,0	1,40	0,15	0,20	0,005
HCT980X	1.0944	+Z, +ZF, +ZA, +ZM	590 - 740	980	10	-	30	0,20	1,00	2,90	0,080	0,015	0,015 - 2,0	1,40	0,15	0,20	0,005
HCT980XG	1.0997	+Z, +ZF, +ZA, +ZM	700 - 850	980	8	-	30	0,23	1,00	2,90	0,080	0,015	0,015 - 2,0	1,40	0,15	0,20	0,005
TRIP-steel																	
HCT690T	1.0947	+Z, +ZF, +ZA, +ZM	400 - 520	690	23	0,19	40	0,24	2,00	2,20	0,080	0,015	0,015 - 2,0	0,60	0,20	0,20	0,005
HCT780T	1.0948	+Z, +ZF, +ZA, +ZM	450 - 570	780	21	0,18	40	0,25	2,20	2,50	0,080	0,015	0,015 - 2,0	0,60	0,20	0,20	0,005
Complex-phase steel																	
HCT600C	1.0953	+Z, +ZF, +ZA, +ZM	350 - 500	600	16	-	30	0,18	0,80	2,20	0,080	0,015	0,015 - 2,0	1,00	0,15	0,20	0,005
HCT780C	1.0954	+Z, +ZF, +ZA, +ZM	570 - 720	780	10	-	30	0,18	1,00	2,50	0,080	0,015	0,015 - 2,0	1,00	0,15	0,20	0,005
HCT980C	1.0955	+Z, +ZF, +ZA, +ZM	780 - 950	980	6	-	30	0,23	1,00	2,70	0,080	0,015	0,015 - 2,0	1,00	0,15	0,22	0,005
Ferritic-bainitic steel																	
HDT450F	1.0961	+Z, +ZF, +ZM	300 - 420	450	24	-	-	0,18	0,50	2,00	0,050	0,010	0,015 - 2,0	1,00	0,15	0,15	0,005
HDT580F	1.0994	+Z, +ZF, +ZM	460 - 620	580	15	-	-	0,18	0,50	2,00	0,050	0,010	0,015 - 2,0	1,00	0,15	0,15	0,01
Dual-phase steel																	
HDT580X	1.0936	+Z, +ZF, +ZM	330 - 450	580	19	0,13	-	0,14	1,0	2,20	0,085	0,015	0,015 - 1,0	1,40	0,15	0,20	0,005
Complex-phase steel																	
HDT750C	1.0956	+Z, +ZF, +ZM	620 - 760	750	10	-	-	0,18	0,80	2,20	0,080	0,015	0,015 - 2,0	1,00	0,15	0,20	0,005
HDT760C	1.0998	+Z, +ZF, +ZM	660 - 830	760	10	-	-	0,18	1,00	2,50	0,080	0,015	0,015 - 2,0	1,00	0,25	0,20	0,005
HDT950C	1.0958	+Z, +ZF, +ZM	720 - 950	950	9	-	-	0,25	0,80	2,70	0,080	0,015	0,015 - 2,0	1,20	0,25	0,30	0,005

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Restrictions and exceptions can be found in the valid standard.
In case of doubt, the valid standard applies.



Coatings according to DIN EN 10346

Coating designation	Minimum total coating mass both surfaces g/m ²		Theoretical guidance values for coating thickness per surface in the single spot test µm		Density g/cm ³
	Triple spot test	Single spot test	Typical value	Range	
Zinc coating masses (Z)					
Z100	100	85	7	5 - 12	
Z140	140	120	10	7 - 15	
Z200	200	170	14	10 - 20	
Z225	225	195	16	11 - 22	
Z275	275	235	20	13 - 27	7,1
Z350	350	300	25	17 - 33	
Z450	450	385	32	22 - 42	
Z600	600	510	42	29 - 55	
Zinc-iron coating masses (ZF)					
ZF100	100	85	7	5 - 12	
ZF120	120	100	8	6 - 13	7,1
Zinc-aluminium alloy coating masses (ZA)					
ZA095	95	80	7	5 - 12	
ZA130	130	110	10	7 - 15	
ZA185	185	155	14	10 - 20	
ZA200	200	170	15	11 - 21	
ZA255	255	215	20	15 - 27	
ZA300	300	255	23	17 - 31	6,6
Zinc-magnesium alloy coating masses (ZM)					
ZM060	60	50	4,5	4 - 8	
ZM070	70	60	5,5	4 - 8	
ZM080	80	70	6	4 - 10	
ZM090	90	75	7	5 - 10	
ZM100	100	85	8	5 - 11	
ZM120	120	100	9	6 - 14	
ZM130	130	110	10	7 - 15	
ZM140	140	120	11	8 - 16	
ZM150	150	130	11,5	8 - 17	
ZM160	160	130	12	8 - 17	
ZM175	175	145	13	9 - 18	
ZM190	190	160	15	10 - 20	
ZM200	200	170	15	10 - 20	
ZM250	250	215	19	13 - 25	
ZM300	300	255	23	17 - 30	
ZM310	310	265	24	18 - 31	
ZM350	350	300	27	19 - 33	
ZM430	430	365	35	26 - 46	6,2 - 6,6

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Hot-dip galvanised flat products

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In case of doubt, the valid standard applies.



Coatings according to DIN EN 10346

Coating designation	Minimum total coating mass both surfaces g/m ²		Theoretical guidance values for coating thickness per surface in the single spot test μm		Density g/cm ³
	Triple spot test	Single spot test	Typical value	Range	
Aluminium-zinc alloy coating masses (AZ)					
AZ100	100	85	13	9 - 19	3,8
AZ150	150	130	20	15 - 27	
AZ185	185	160	25	19 - 33	
Aluminium-silicon alloy coating masses (AS)					
AS060	60	45	10	7 - 15	3,0
AS080	80	60	14	10 - 20	
AS100	100	75	17	12 - 23	
AS120	120	90	20	15 - 27	
AS150	150	115	25	19 - 33	

Surface type: A – regular surface | B – improved surface | C – best surface

Execution for coating with zinc (Z): N – regular coating thickness | M – reduced coating thickness

Surface treatment: C – chemically passivated | O – oiled | CO – chemically passivated and oiled | U – untreated | S – sealed

Steel grades

Hot rolled flat products

Restrictions and exceptions can be found in the valid standard.
In case of doubt, the valid standard applies.



Mild steels – continuously hot rolled low carbon steel sheet and strip for cold forming according to DIN EN 10111

Designation		Mechanical properties (transverse direction)						Chemical composition				
Steel name	Steel number	Yield strength		Tensile strength	Elongation % min.			cast analysis % by mass max.				
		R_{eL} N/mm ²		R_m N/mm ² max.	$L_0 = 80$ mm	$L_0 = 5,65 \sqrt{S_0}$		C	Mn	P	S	
		$1,0 \leq e < 2,0$	$2 \leq e \leq 11$		$1 < e < 1,5$	$1,5 \leq e < 2$	$2 \leq e < 3$	$3 \leq e \leq 11$				
DD11	1.0332	170 - 360	170 - 340	440	22	23	24	28	0,12	0,60	0,045	0,045
DD12	1.0398	170 - 340	170 - 320	420	24	25	26	30	0,10	0,45	0,035	0,035
DD13	1.0335	170 - 330	170 - 310	400	27	28	29	33	0,08	0,40	0,030	0,030
DD14	1.0389	170 - 310	170 - 290	380	30	31	32	36	0,08	0,35	0,025	0,025

Micro-alloyed steels – hot rolled flat products made of high yield strength steels for cold forming according to DIN EN 10149 T1-T2

Designation		Mechanical properties (longitudinal)				Chemical composition										
Steel name	Steel number	Yield strength	Tensile strength	Elongation % min.		cast analysis % by mass max.										
		R_{eH} N/mm ² min.	R_m N/mm ²	< 3 $L_0 = 80$ mm	≥ 3 $L_0 = 5,65 \sqrt{S_0}$	C	Mn	Si	P	S	Al _{total} min.	Nb	V	Ti	Mo	B
S315MC	1.0972	315	390 - 510	20	24	0,12	1,30	0,50	0,025	0,020	0,015	0,09	0,20	0,15	-	-
S355MC	1.0976	355	430 - 550	19	23	0,12	1,50	0,50	0,025	0,020	0,015	0,09	0,20	0,15	-	-
S420MC	1.0980	420	480 - 620	16	19	0,12	1,60	0,50	0,025	0,015	0,015	0,09	0,20	0,15	-	-
S460MC	1.0982	460	520 - 670	14	17	0,12	1,60	0,50	0,025	0,015	0,015	0,09	0,20	0,15	-	-
S500MC	1.0984	500	550 - 700	12	14	0,12	1,70	0,50	0,025	0,015	0,015	0,09	0,20	0,15	-	-
S550MC	1.0986	550	600 - 760	12	14	0,12	1,80	0,50	0,025	0,015	0,015	0,09	0,20	0,15	-	-
S600MC	1.8969	600	650 - 820	11	13	0,12	1,90	0,50	0,025	0,015	0,015	0,09	0,20	0,22	0,50	0,005
S650MC	1.8976	650	700 - 880	10	12	0,12	2,00	0,60	0,025	0,015	0,015	0,09	0,20	0,22	0,50	0,005
S700MC	1.8974	700	750 - 950	10	12	0,12	2,10	0,60	0,025	0,015	0,015	0,09	0,20	0,22	0,50	0,005
S900MC	1.8798	900	930 - 1200	7	8	0,20	2,20	0,60	0,025	0,010	0,015	0,09	0,20	0,25	1,00	0,005
S960MC	1.8799	960	980 - 1250	6	7	0,20	2,20	0,60	0,025	0,010	0,015	0,09	0,20	0,25	1,00	0,005

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Hot rolled flat products

Restrictions and exceptions can be found in the valid standard.
In case of doubt, the valid standard applies.



Construction steel – hot rolled products of structural steels according to DIN EN 10025-2

Designation		Mechanical properties (transverse direction)										Chemical composition						
Steel name	Steel number	Testing direction	Yield strength	Tensile strength			Elongation % min.					cast analysis % by mass max.						
			R_{eH} N/mm ²	R_m N/mm ²			$L_0=80$ mm					C	Si	Mn	P	S	N	Cu
				≤ 16	< 3	≥ 3 ≤ 100	≤ 1	> 1 $\leq 1,5$	$> 1,5$ ≤ 2	> 2 $\leq 2,5$	$> 2,5$ < 3							
S235JR	1.0038	l	235	360 - 510	360 - 510	17	18	19	20	21	26	0,17	-	1,40	0,035	0,035	0,012	0,55
S235JO	1.0114		235	360 - 510	360 - 510	-	-	-	-	-	-	0,17	-	1,40	0,030	0,030	0,012	0,55
S235J2	1.0117	t	235	360 - 510	360 - 510	15	16	17	18	19	24	0,17	-	1,40	0,025	0,025	-	0,55
S275JR	1.0044	l	275	430 - 580	410 - 560	15	16	17	18	19	23	0,21	-	1,50	0,035	0,035	0,012	0,55
S275JO	1.0143		275	430 - 580	410 - 560	-	-	-	-	-	-	0,18	-	1,50	0,030	0,030	0,012	0,55
S275J2	1.0145	t	275	430 - 580	410 - 560	13	14	15	16	17	21	0,18	-	1,50	0,025	0,025	-	0,55
S355JR	1.0045	l	355	510 - 680	470 - 630	14	15	16	17	18	22	0,24	0,55	1,60	0,035	0,035	0,012	0,55
S355JO	1.0553		355	510 - 680	470 - 630	-	-	-	-	-	-	0,20	0,55	1,60	0,030	0,030	0,012	0,55
S355J2	1.0577		355	510 - 680	470 - 630	-	-	-	-	-	-	0,20	0,55	1,60	0,025	0,025	-	0,55
S355K2	1.0596	t	355	510 - 680	470 - 630	12	13	14	15	16	20	0,20	0,55	1,60	0,025	0,025	-	0,55
S450JO	1.0590	l	450	-	550 - 720	-	-	-	-	-	17	0,20	0,55	1,70	0,030	0,030	0,025	0,55

Multiphase steel – hot rolled non-coated products of multiphase steels for cold forming according to DIN EN 10338

Designation		Mechanical properties (longitudinal)					Chemical composition									
Steel name	Steel number	Proof strength	Tensile strength	Elongation % min.		Strain hardening exponent	cast analysis % by mass max.									
		$R_{p0,2}$ N/mm ²	R_m N/mm ²	A_{80}	A_5	n_{10-UE} min.	C	Si	Mn	P	S	Al _{total}	Cr + Mo	Nb + Ti	V	B
				≤ 3 mm	≥ 3 mm											
Ferritic-bainitic steel																
HDT450F	1.0961	300 - 420	450	24	27		0,18	0,50	2,00	0,050	0,010	0,015 - 2,0	1,00	0,15	0,15	0,005
HDT580F	1.0994	460 - 620	580	15	17		0,18	0,50	2,00	0,050	0,010	0,015 - 2,0	1,00	0,15	0,15	0,010
Dual-phase steel																
HDT580X	1.0936	330 - 450	580	19	23	0,13	0,14	1,00	2,20	0,085	0,015	0,015 - 0,1	1,40	0,15	0,20	0,005
Complex-phase steel																
HDT760C	1.0998	660 - 830	760	10	12		0,18	1,00	2,50	0,080	0,015	0,015 - 2,0	1,00	0,25	0,20	0,005
Martensitic steel																
HDT1180G1	1.0960	900 - 1200	1180	4	5		0,25	0,80	2,50	0,060	0,015	0,015 - 2,0	1,20	0,25	0,22	0,005

STEEL SERVICE

COIL TRADING

DIGITAL MARKETPLACE

PROCESSING

CONTRACT PARTNER