

# Range of products

## Hot-rolled thin-gauge sheet

### Low-carbon steels

Continuously hot-rolled low carbon steel sheet and strip for cold forming DIN EN 10111

Designation to		Mechanical properties					Chemical composition			
EN 10111	EN 10027-2 Material code	Re (N/mm <sup>2</sup> )		Rm (N/mm <sup>2</sup> ) max.	A80 min. (%)		C (%) max.	Mn (%) max.	P (%) max.	S (%) max.
		1,5<e<2	2<e<8		1,5<e<2	2<e<3				
DD11	1.0332	170 to 360	170 to 340	440	23	24	0,12	0,60	0,045	0,045
DD12	1.0398	170 to 340	170 to 320	420	25	26	0,10	0,45	0,035	0,035
DD13	1.0335	170 to 330	170 to 310	400	28	29	0,08	0,40	0,030	0,030
DD14	1.0389	170 to 310	170 to 290	380	31	32	0,08	0,35	0,025	0,025

Continuously hot-rolled low carbon steel sheet and strip for cold forming, extract from VDA 239-100

Designation to		Mechanical properties					Chemical composition							
VDA239-100	Rp0,2(Mpa)	Rm0,2(Mpa)	A% min	A50mm% min	A80mm% min	n10-20/ kg	C (%)	Si (%)	Mn (%)	P (%)	S (%)	Al (%)	Ti+Nb	Cr+Mo
HR2	180 bis 290	270 bis 400	34	32	30	0,16	0,10	0,50	0,50	0,030	0,03	0,015		

### Microalloyed steels

Hot-rolled flat products made of high yield strength steels for cold forming DIN EN 10149 T1-T2

Designation to		Mechanical properties					Chemical composition									
EN 10149	EN 10027-2 Material code	SEW 092	Re (N/mm <sup>2</sup> ) min.	Rm (N/mm <sup>2</sup> )	A min. (%)		C (%) max.	Mn (%) max.	Si (%) max.	P (%) max.	S (%) max.	Al (%) max.	Nb (%) max.	V (%) max.	Ti (%) max.	
					<3 Lo=80mm	≤3 Lo=5,65										
S 315 MC	1.0972	-	315	390 to 510	20	24	0,12	1,3	0,5	0,025	0,02	0,015	0,09	0,2	0,15	
-	1.0974	QStE340 TM	340	420 to 540	19	23	0,12	1,3	0,5	0,03	0,03	0,015	0,09	-	0,22	
S 355 MC	1.0976	-	355	430 to 550	19	23	0,12	1,5	0,5	0,025	0,02	0,015	0,09	0,2	0,15	
-	1.0978	QStE380 TM	380	450 to 590	18	21	0,12	1,4	0,5	0,03	0,03	0,015	0,09	-	0,22	
S 420 MC	1.0980	QStE420 TM	420	480 to 620	16	19	0,12	1,6	0,5	0,025	0,015	0,015	0,09	0,2	0,15	
S 460 MC	1.0982	QStE460 TM	460	520 to 670	14	17	0,12	1,6	0,5	0,025	0,015	0,015	0,09	0,2	0,15	
S 500 MC	1.0984	QStE500 TM	500	550 to 700	12	14	0,12	1,7	0,5	0,025	0,015	0,015	0,09	0,2	0,15	

Other grades and delivery states on request

### Structural steels

Hot-rolled products of non-alloyed constructional steels DIN EN 10025

Designation to		Mechanical properties				Chemical composition					
EN 10025	EN 10027-2 Material code	Re (N/mm <sup>2</sup> ) min.	Rm (N/mm <sup>2</sup> )		A80 min. (%) depending on thickness	C (%) max.	Mn (%) max.	P (%) max.	S (%) max.	N (%) max.	Cu (%) max.
			<3	≤3							
S185	1.0035	185	310 to 540	290 to 510	10 to 18	-	-	-	-	-	-
S235 JR	1.0038	235	360 to 510	360 to 510	17 to 26	0,17	1,4	0,035	0,035	0,012	0,55
S 275 JR	1.0044	275	430 to 580	410 to 560	15 to 23	0,21	1,5	0,035	0,035	0,012	0,55
S355 JR	1.0045	355	510 to 680	470 to 630	14 to 22	0,24	1,6	0,035	0,035	0,012	0,55

Other grades and grade categories on request

Restrictions, specifications for the test direction and exceptions can be found in the applicable standard.

# Range of products

## Hot-rolled thin-gauge sheet

### Multiphase steels

Hot-rolled multiphase steel strip and sheet for cold forming DIN EN 10338

Designation to		Mechanical properties					Chemical composition										
EN 10338	EN 10027-2 Material code	Re (N/mm <sup>2</sup> ) transverse	BH2 (N/mm <sup>2</sup> ) transverse min.	Rm (N/mm <sup>2</sup> ) transverse min.	A80 (N/mm <sup>2</sup> ) transverse min.	n (N/mm <sup>2</sup> ) transverse min.	C (%) max.	Si (%) max.	Mn (%) max.	P (%) max.	S (%) max.	Al (%) max.		CR+Mo (%) max.	Nb+Ti (%) max.	V (%) max.	B (%) max.
<b>FB steel</b>																	
HDT450F	1.0961	320 to 420	30	450	23	-	0,18	0,5	1,2	0,030	0,01	0,015	-	0,3	0,05	0,15	0,005
HDT560F	1.0959	460 to 570	30	560	16	-	0,18	0,5	1,8	0,025	0,01	0,015	-	0,3	0,15	0,15	0,005
<b>DP steel</b>																	
HDT580X	1.0936	330 to 460	30	580	19	0,13	0,17	0,8	2,2	0,08	0,015	-	2,00	1,0	0,15	0,2	0,005
<b>CP steel</b>																	
HDT750C	1.0956	620 to 760	30	750	10	-	0,18	0,8	2,2	0,08	0,015	-	2,00	1,0	0,15	0,2	0,005
HDT780C	1.0957	680 to 830	30	780	10	-	0,18	0,8	2,2	0,08	0,015	-	2,00	1,0	0,15	0,2	0,005
HDT950C	1.0958	720 to 920	30	950	9	-	0,23	0,8	2,2	0,08	0,015	-	2,00	1,2	0,15	0,2	0,005
<b>MS steel</b>																	
HDT1200M	1.0665	900 to 1150	30	1200	5	-	0,25	0,8	2,0	0,06	0,015	-	2,00	1,2	0,15	0,22	0,005

The availability of each grade must be clarified technically in each individual case.

### Options for surface finish and after-treatment

Surface finish	Surface treatment
unpickled / pickled (descaled)	oiled, unoled