

# UNI EN 10111

## CHEMICAL CHARACTERISTICS AND COMPOSITION OF PRODUCTS

Quality <sup>1</sup>	Numerical Designation	Deoxidation method	Chemical composition <sup>2</sup>				Mechanical characteristics <sup>1-3</sup>								Quality
							ReL <sup>4</sup>		Rm	Minimum elongation after fracture					
			C max. %	Mn max. %	P max. %	S max. %	1,0 mm ≤ e < 2 mm MPa	2 mm ≤ e ≤ 11 mm MPa	max. MPa	L0 = 80 mm		L0=5,65√So			
										MPa	1,0 mm ≤ e < 2 mm %	1,0 mm ≤ e < 3 mm %	3 mm ≤ e ≤ 11 mm	month	
DD11	1.0332	At manufacturer's discretion	0,12	0,60	0,045	0,045	170 a 360	170 a 340	440	22	23	24	28	- <sup>5</sup>	
DD12	1.0398	At manufacturer's discretion	0,10	0,45	0,035	0,035	170 a 340	170 a 320	420	24	25	26	30	6	
DD13	1.0335	At manufacturer's discretion	0,08	0,40	0,030	0,030	170 a 330	170 a 310	400	27	28	29	33	6	
DD14	1.0389	At manufacturer's discretion	0,08	0,35	0,025	0,025	170 a 310	170 a 290	380	30	31	32	36	6	

NOTE: 1 MPa = 1 N/ mm<sup>2</sup>

1) Mechanical properties relating only to hot-rolled products, PICKLED, non-descaled or chemically descaled and oiled, skin-passed or not.

2) Unless otherwise agreed at the time of the request or order, nitrogen-fixing elements such as titanium and boron can be added at the discretion of the manufacturer.

3) As long as the width of the product permits, the part taken for elasticity analysis must be taken in a transverse direction with respect to the rolling direction.

4) Rp0.2 will be used instead of ReL in case the product does not show any sign of yielding.

5) It is recommended to process DD11 products within the 6 weeks of product validity.