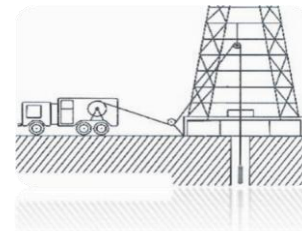


SPECIAL ALLOYED WIRE FOR SERVICE ON OIL AND GAS WELLS



CHEMICAL COMPOSITION OF STAINLESS STEELS OF PRODUCT STANDARTS EN/DIN 10088-3 / 2014

Wire brand	C	Si	Mn	P	S	Cr	Mo	Ni	N	Cu	Ti	Fe	PREN
ECO 316 UNS (S31600)	0,019	0,35	1,83	0,031	0,026	16,94	2,08	10,05	0,077				24
ECO 316Ti UNS (S31635)	0,08	1,0	2,0	0,045	0,030	16,5-18,5	2,0-2,5	10,5-13,5		0,3	0,70		26
DUPLEX 2205 UNS (S31803)	0,03	0,4	1,0-2,0	0,035	0,02	23,5-25,0	2,5-3,5	5,8-6,8	0,05-0,15	0,03	0,1	0,1	35
UNIVERSAL 21 UNS (N08904)	<0,020	<0,70	<2,0	<0,030	<0,010	19-21	4,0-5,0	24-26	0,150	1,2-2,0			37
UNIVERSAL UNS (N08926)	<0,020	<0,50	<1,0	<0,030	<0,010	20-21	6,0-7,0	24,5-25,5	0,18-0,25	0,5-1,5			47

MECHANICAL COMPOSITION

Wire Diameter	Maximum length	Weight 1000 m	Tensile strength			Min. Breaking	Force
Inch / mm	l/m	kg	N/mm ² (MPa)	Ksi (PSI)	Kg/mm ²	lbf	Newton (N)
0,072 / 1,83	15.000	20,76	1580-1770	229-256	161-180	229-256	1.018-1.139
0,082 / 2,08	16.200	26,90	1560-1750	226-253	159-178	226-253	1.005-1.125
0,092 / 2,34	13.000	33,95	1550-1750	224-253	158-178	224-253	996-1.125
0,108 / 2,74	9.300	46,65	1480-1740	214-252	150-177	214-252	951-1.121
0,125 / 3,18	7.000	62,50	1450-1720	210-249	147-175	209-248	934-1.103

COMPARISON OF THE CHARACTER. OF STEEL BRANDS IN DIFFERENT CORROSIVE MEDIA

ECO 316	DUPLEX 2205	UNIVERSAL 21	UNIVERSAL
Hydrogen sulfide, carbon dioxide			
Acid resisting, it may be used in concentrations up to 30% CO ² , without the presence of H ₂ S	Very good corrosion resistance in CO ² concentrations up to 35%	Excellent corrosion resistance in every concentration	Excellent corrosion resistance in every concentration
Chlorides, seawater, salty solutions, etc.			
It may be used in concentrations up to 2 – 3% chlorides provides resistance to pitting corrosion	Excellent resistance to corrosion cracking in concentrations up to 30% chlorides	Excellent resistance to corrosion cracking and pitting corrosion	Excellent resistance to corrosion cracking and pitting corrosion
Chloride, hydrogen sulfide, carbon dioxide			
It may be used in concentrations of H ₂ S + CO ² up to 30% provided that chlorides don't exceed 2 - 3%, without the presence of H ₂ S Temperature-up to 150°C	Very good resistance to general corrosion, pitting corrosion and occurrence of intergranular corrosion Temperature-up to 150°C	Very good resistance to corrosion cracking and intergranular corrosion Temperature-up to 250°C	Very good resistance to stress corrosion cracking, pitting and intergranular corrosion All Concentration of H ₂ S+CO ² Temperature-up to 250°C

For obtaining technical information write us on **Harms GmbH**, Kanalweg 2, 32361 Pr. Oldendorf, Germany