Stainless and Specialty Steels for

OIL & GAS

LONG PRODUCTS

Project Leader Global-Links

ACCIAIERIE VALBRUNA
High quality is our standard

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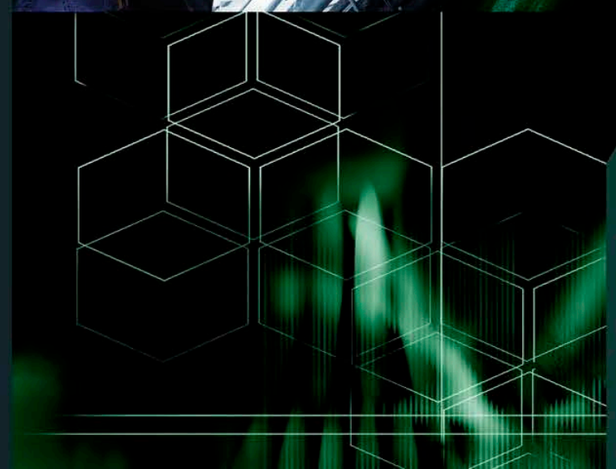

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Stainless and Specialty Steels for

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LONG PRODUCTS

Vicenza plant, Italy

Valbruna, founded in 1925 and leader in the production of Stainless Steels, Nickel Alloys and Titanium long products, is underpinned by long experience and a highly qualified customer service.

Bolzano plant, Italy

Fort Wayne plant, IN-USA

ITALY: Vicenza, Bolzano
Mills
USA: Fort Wayne

ITALY
Ancona
Torino
Milano
Brescia
Parma
Bologna
Treviso

EUROPE
Germany
France
England
Spain
Ireland
Denmark
Switzerland
Nederland
Poland
Finland
Sweden

AMERICA
Canada
United States
Mexico

ASIA - OCEANIA
Hong Kong
Australia
Malaysia
UAE

VALBRUNA...
SUCH A GREAT REALITY!

Our extensive and strategic distribution network is our corner stone in a global market, granting not only a worldwide commercial presence but also a continuous feedback with our customers.

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OIL AND GAS

STAINLESS AND SPECIALTY STEELS FOR OIL & GAS

Many grades of Stainless Steels and High Nickel alloys are extensively used in oil and gas applications thanks to their unique combination of high strength and excellent resistance to corrosion, in chloride containing environments and environments where induced cracking is a problem.

STAINLESS STEELS

VALBRUNA GRADE	STEEL TYPE	AISI NUMBER	EN NAME	EN NUMBER	UNS NUMBER	ASTM	BS NUMBER
* V2018MN	Austenitic	F44	X1CrNiMoCuN20-18-7	1.4547	S31254	A479+A276	-
NTR50	Austenitic	XM-19	-	-	S20910	A479+A276	-
NTR60	Austenitic	-	-	-	S21800	A479+A276	-
AIST	Austenitic	321	X6CrNiTi18-10	1.4541	S32100	A479+A276	321S31
AISC	Austenitic	347/347H	X6CrNiNb18-10/X5CrNiNb18-10	1.4550/1.4546	S34700/S34709	A479+A276	347S31/347S20
AMSL	Austenitic	317/317L	-	-	S31700/S31703	A479	-
V174	Precip. Hard.	630	X5CrNiCuNb16-4	1.4542	S17400	A564	-
V174/1	Precip. Hard.	630	X5CrNiCuNb17-4-4	1.4548	S17400	-	-
V155	Precip. Hard.	XM-12	X5CrNiCuNb15-5	1.4545	S15500	A564	-
X135M	Precip. Hard.	-	-	-	S41426	-	-
X154MU/2	Precip. Hard.	-	X5CrNiMoCuNb14-5	1.4594	-	-	-
VAL1	Martensitic	410	X12Cr13	1.4006	S41000	A479+A276	-
X134M	Martensitic	F6NM	X3CrNiMo13-4	1.4313	S41500	A479+A276	-
X164M	Martensitic	-	X4CrNiMo16-5-1	1.4418	-	-	-
VAL1BC	Martensitic	410CB	-	-	S41040	-	-
VAL2AH	Martensitic	420MOD	-	-	S42000	-	-
VCD7/1	Alloy Steel	504	9Cr1Mo	-	S50400	-	-
* V225MN	Duplex	F51/F60	X2CrNiMoN22-5-3	1.4462	S31803/S32205	A276+A479	-
* V257M	Superduplex	F53	X2CrNiMoN25-7-4	1.4410	S32750	A276+A479	-
* V257MWU	Superduplex	F55	X2CrNiMoCuWN25-7-4	1.4501	S32760	A276+A479	-

* Steels certified according to Norsok/Statoil M 650 Ed. 4

HIGH NICKEL GRADES

Valbruna Grade	Commercial name	UNS	W.N.	BS	International Designation	ASTM	ASME	AMS	EN	DIN	BS	OTHER
EG1	Alloy 400	N04400	(2.4360)	NA13	NiCu30Fe	B164 B564	SB164 SB564	4674	-	(17743) (17752)	3076	QQ-N-281 D/2
EG2	Alloy K500	N05500	(2.4375)	NA18	NiCu30Al	B865	-	4676	-	(17743) (17752)	3076	QQ-N-286 E/2
GL3	Alloy 625	N06625	2.4856	NA21	NiCr22Mo9Nb	B446 B564	SB446 SB564	5666	17744	-	3076	-
GL5	Alloy 601	N06601	2.4851	NA49	NiCr23Fe	B166 B564	SB166 SB564	5715	10095	17742 17752 1736	2901-5	-
AV718CRV	Alloy 718	N07718	2.4668	NA51	NiCr19Fe19Nb5Mo3; NiCr19NbMo	B637	SB637	-	-	-	-	API 6A/718
AVC276	Alloy C276	N10276	2.4819	-	NiMo16Cr15W	B564 B574	SB564	-	-	-	-	-
VAL4529	Alloy 926	N08926	1.4529	-	X1NiCr-MoCuN25-20-7	B472 B649	SB649	-	10088-3	-	-	SEW 400
	Alloy 367	N08367	-	-	-	A182 B472 B564 B691	SB564	-	-	-	-	-
AN1	Alloy 800 Alloy 800H Alloy 800HT	N08800 N08810 N08811	1.4876	NA15 NA15H	X10NiCrAlTi32-21; X10NiCrAlTi32-20	B408 B564	SB408 SB564	5766	10095	-	3076	SEW 470
AN2	Alloy 825 Alloy 65	N08825 N08065	2.4858	NA16 NA41	NiFe30Cr21Mo3	B425 B564 F45	SB425 SB564	-	-	17744 1736	3076 2901	A5.14 ERNiFeCr-1
AV925	Alloy 925	N09925	-	-	-	-	-	-	-	-	-	NACE MR0175
AN5	Alloy A286	S66286	1.4980	286S31	X6NiCrTiMoVB25-15-2	A638 A453	-	5731 5732 5734 5737	10269 10302	-	-	-
SG5	Alloy 36	K93601	1.3912	-	Ni36	B753 F30	-	-	-	17745	-	SEW 385
AV20	Alloy 20	N08020	2.4660	-	NiCr20CuMo	B473 B472	SB473	-	-	-	-	-

MECHANICAL PROPERTIES

ACCIAIERIE VALBRUNA
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STAINLESS STEELS

				MECHANICAL PROPERTIES			
VALBRUNA GRADE	AISI NUMBER	EN NUMBER	Heat Treatment Condition	HB	T.S. N/mm²	Y.S. (0,2%) N/mm²	E%
V2018MN	F44	1.4547	Annealed	≤ 260	650-850	≥ 300	≥ 35
NTR50	XM-19	-	Annealed	-	690-950	≥ 380	≥ 35
NTR60	S21800	-	Annealed	≤ 241	≥ 655	≥ 345	≥ 35
AIST	321	1.4541	Annealed	≤ 215	500-750	≥ 205	≥ 40
AISC	347/347H	1.4550/1.4546	Annealed	≤ 230	510-740	≥ 205	≥ 40
AMSL	317/317L	-	Annealed	≤ 215	≥ 515	≥ 205	≥ 30
V174	630	1.4542	Annealed	≤ 363	-	-	-
			Aged H900	-	≥ 1310	≥ 1170	≥ 10
			Aged H1150	-	≥ 930	≥ 725	≥ 16
V174/1	630	1.4548	Annealed	≤ 363	-	-	-
			Aged H900	-	≥ 1310	≥ 1170	≥ 10
			Aged H1150	-	≥ 930	≥ 725	≥ 16
V155	XM-12	1.4545	Annealed	≤ 363	-	-	-
			Aged H1025	-	≥ 1069	≥ 1000	≥ 12
			Aged H1075	-	≥ 1000	≥ 862	≥ 13
X135M	S41426	-	Hardened and double tempered	RC≤ 32	≥ 830	760-895	≥ 15
X154MU/2	-	1.4594	Annealed	≤ 360	-	-	-
			Aged H930	-	930-1100	≥ 720	≥ 15
			Aged H1070	-	1070-1270	≥ 1000	≥ 10
VAL1	410	1.4006	Annealed	167-229	≥ 585	≥ 380	≥ 18
			Hardened and Tempered	235-302	≥ 760	≥ 585	≥ 15
X134M	F6NM	1.4313	Hardened and Tempered (QT900)	-	900-1100	≥ 800	≥ 10
			Hardened and Tempered (QT780)	-	780-980	≥ 620	≥ 12
			Hardened and Tempered (Q650)	-	650-830	≥ 520	≥ 12
			Annealed	≤ 320	≤ 1100	-	-
X164M	-	1.4418	Annealed	≤ 320	≤ 1100	-	-
			Hardened and Tempered	-	900-1100	≥ 700	≥ 16
VAL1BC	410CB	-	Annealed	≤ 223	485-790	≥ 275	≥ 20
			Hardened and double tempered	≤ 235	≥ 690	590-655	≥ 20
VAL2AH	420MOD	-	Annealed	≤ 302	-	-	-
			Hardened and double tempered	≤ 241	≥ 690	590-655	≥ 20
VCD7/1	504	-	Normalized and Tempered	≤ 235	≥ 660	555-755	≥ 20
V225MN	F51/F60	1.4462	Annealed	≤ 260	680-900	≥ 450	≥ 25
V257M	F53	1.4410	Annealed	≤ 310	≥ 800	≥ 550	≥ 15
V257MWU	F55	1.4501	Annealed	≤ 290	≥ 750	≥ 550	≥ 25

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HIGH NICKEL GRADES

			MECHANICAL PROPERTIES AT ROOM TEMPERATURE			
VALBRUNA GRADE	ALLOY	Condition (rod and bar)	T.S. min [Mpa]	Y.S. min [Mpa]	E4d min [%]	HB
EG1	400	Cold Drawn - As Hot Worked	760	585	8	-
		Cold Drawn - Stress Relieved	580-600	345-415	10-20	max 320
		Hot Worked - Hot Worked	515-550	276	30	max 320
		Hot Worked - Stress Relieved	515-550	276	30	max 320
		Cold Drawn - Sol Annealed	480	170	35	max 320
		Hot Worked - Sol Annealed	480	170	35	145-325
		Hot Worked - High Tensile (Stress Relieved)	580-680	415-480	20-25	-
EG2	K500	Hot Worked - As Hot Worked	620	300	40	max 245
		Cold Drawn - As Hot Worked	830	600	15	max 280
		Cold Drawn - Sol Annealed	600	210	20	max 185
		Hot Worked - Sol Annealed	580	200	40	max 185
		Cold Drawn - Aged	930-1000	655-760	15-20	255-300 min
		Hot Worked - Aged	965	689	20	265 min
		Cold Drawn - Sol Annealed - Aged	896	586-655	20	max 250
		Hot Worked - Sol Annealed - Aged	896	586-655	20	max 250
GL3	625	Hot Worked - Annealed (grade1)	760-830	345-415	25-30	max 325
		Cold Worked - Annealed (grade1)	760-830	345-415	25-30	max 325
		Hot Worked - Annealed (grade1)	760-830	345-415	25-30	max 325
		Hot Worked - Sol Annealed (grade2)	690	276	30	max 325
GL5	601	Hot Worked - Sol Annealed	550	205	30	-
		Cold Worked - Sol Annealed	550	205	30	-
AV718CRV	718	Hot Worked - Sol Annealed	-	-	-	max 277
		Hot Worked - Sol Annealed - Aged	1275	1035	12	331 min
AVC276	C276	Hot Worked - Sol Annealed	690	283	40	-
VAL4529	926	Cold Drawn - Sol Annealed	650	295	35	194-316
		Hot Worked - Sol Annealed	490	220	35	max 250
	367	Cold Drawn - Sol Annealed	650	295	35	194-316
		Hot Worked - Sol Annealed	490	220	35	max 250
AN1	800	Hot Worked - As Hot Worked	550	240	25	-
		Hot Worked - Sol Annealed	515	205	30	-
		Cold Worked - Sol Annealed	515	205	30	155-268
	800H	Cold Worked - Sol Annealed	450	170	30	155-268
		Hot Worked - Sol Annealed	450	170	30	155-192
	800HT	Cold Worked - Sol Annealed	450	170	30	155-268
		Hot Worked - Sol Annealed	450	170	30	155-192
AN2	825	Cold Drawn - Sol Annealed	586	241	30	176-325
		Hot Worked - Sol Annealed	586	241	30	176-325
AV925	925	Hot Worked - Sol Annealed	517	240	56	-
		Cold Worked - Sol Annealed - Aged	965	724	25	max 341
		Hot Worked - Sol Annealed - Aged	965	758	25	max 341
AN5	660/A286	Hot Worked - Sol Annealed (class A)	580	260	40	-
		Hot Worked - Sol Annealed and Aged (class A)	895	585	15	248-341
		Hot Worked - Sol Annealed (class B)	580	260	40	-
		Hot Worked - Sol Annealed and Aged (class B)	895	585	15	248-341
		Hot Worked - Sol Annealed (class D)	580	260	40	-
		Hot Worked - Sol Annealed and Aged (class D)	895	725	15	248-325
SG5	36	Hot Worked - Sol Annealed	450	200	30	max 220
AV20	20	Cold Drawn - Sol Annealed	551	241	30	min 165
		Hot Worked - Sol Annealed	551	241	30	164-300

MECHANICAL PROPERTIES

CHEMICAL COMPOSITION

STAINLESS STEELS

VALBRUNA GRADE	AISI NUMBER	EN NUMBER	C max	Mn max	Si max	P max	S max	Cr max	Ni max	Mo max	N max	Cu max	Ti max	Cb max	V max
V2018MN	F44	1.4547	0,02	1	0,7	0,03	0,01	19,5 - 20,5	17,5 - 18,5	6 - 6,5	0,18 - 0,22	0,5 - 1	-	-	-
NTR50	XM-19	-	0,06	4 - 6	0,75	0,04	0,03	20,5 - 23,5	11,5 - 13,5	1,5 - 3	0,2 - 0,4	-	-	0,1 - 0,3	0,1 - 0,3
NTR60	S21800	-	0,1	7 - 9	3,5 - 4,5	0,06	0,03	16 - 18	8 - 9	-	0,08 - 0,18	-	-	-	-
AIST	321	1.4541	0,08	2	0,75	0,045	0,03	17 - 19	9 - 12	-	0,1	-	(5X(C+N)) - 0,7	-	-
AISC	347/347H	1.4550/1.4546	0,04 - 0,08	2	0,75	0,045	0,015	17 - 19	9 - 11,5	-	-	-	-	(10XC) - 1	-
AMSL	317/317L	-	0,03	2	1	0,045	0,03	18 - 20	11 - 15	3 - 4	-	-	-	-	-
V174	630	1.4542	0,07	1	0,7	0,04	0,01	15 - 17	3 - 5	0,6	-	3 - 5	-	0,15 - 0,45	-
V174/1	630	1.4548	0,07	1	1	0,025	0,02 - 0,025	15,5 - 17,5	3 - 5	-	-	3 - 5	-	0,15 - 0,45	-
V155	XM-12	1.4545	0,07	1	1	0,03	0,015	14 - 15,5	3,5 - 5,5	0,5	-	2,5 - 4,5	-	0,15 - 0,45	-
X135M	S41426	-	0,04	0,5	0,5	0,02	0,005	11,5 - 13,5	4,5 - 6,5	1,5 - 3	-	-	0,01 - 0,5	-	0,5
X154MU/2	-	1.4594	0,07	1	0,7	0,04	0,015	13 - 15	5 - 6	-	-	1,2 - 2	-	0,15 - 0,6	-
VAL1	410	1.4006	0,15	1	1	0,04	0,03	11.5 - 13.5	-	-	-	-	-	-	-
X134M	F6NM	1.4313	0,05	0,5 - 1	0,6	0,03	0,015	12 - 14	3,5 - 4,5	0,5 - 0,7	0,02 min	-	-	-	-
X164M	-	1.4418	0,06	1,5	0,7	0,04	0,03	15 - 17	4 - 6	0,8 - 1,5	0,02 min	-	-	-	-
VAL1BC	410CB	-	0,15	1	1	0,04	0,03	11,5 - 13,5	1	-	-	-	-	0,05 - 0,2	-
VAL2AH	420MOD	-	0,16 - 0,25	1	1	0,04	0,03	12 - 14	-	-	-	-	-	-	-
VCD7/1	504	-	0,15	1	1	0,04	0,04	8 - 10	-	0,9 - 1,1	-	-	-	-	-
V225MN	F51/F60	1.4462	0,03	2	1	0,03	0,02	22 - 23	4,5 - 6,5	3 - 3,5	0,14 - 0,2	-	-	-	-
V257M	F53	1.4410	0,03	1,2	0,8	0,035	0,02	24 - 26	6 - 8	3 - 5	0,24 - 0,32	0,5	-	-	-
V257MWU	F55	1.4501	0,03	1	1	0,03	0,01	24 - 26	6 - 8	3 - 4	0,2 - 0,3	0,5 - 1	-	-	-

HIGH NICKEL GRADES

Valbruna Grade	Commercial name	C [%]	Mn [%]	Si [%]	S [%]	P [%]	Ni [%]	Cr [%]	Fe [%]	Mo [%]	Cu [%]	Ti [%]	Al [%]	Co [%]	Others [%]
EG1	Alloy 400	max 0,20	max 2,00	max 0,50	max 0,015	max 0,020	min 63	-	max 2,5	-	28-34	-	max 0,50	max 2,00	Pb max 0,006 Sn max 0,006 Zn max 0,02
EG2	Alloy K500	max 0,25	max 1,50	max 0,50	max 0,010	-	min 63	-	max 2,0	-	27-33	0,35-0,85	2,3-3,15	max 2,00	-
GL3	Alloy 625	max 0,10	max 0,50	max 0,50	max 0,015	max 0,015	min 58	20-23	max 5,0	8,0-10	max 0,50	max 0,40	max 0,40	max 1,00	Nb+Ta 3,15-4,15 Ta max 0,50 Nb 3,15-4,15
GL5	Alloy 601	0,03-0,10	max 1,00	max 0,50	max 0,015	max 0,020	58-63	21-25	max 18	-	max 0,50	max 0,50	1,00-1,70	max 1,50	B max 0,006
AV718CRV	Alloy 718	max 0,08	max 0,35	max 0,35	max 0,015	max 0,015	50-55	17-21	balance	2,8-3,3	max 0,30	0,65-1,15	0,20-0,80	max 1,00	Nb 4,75-5,50 Ta max 0,05 B max 0,006 Pb max 5 ppm Se max 3 ppm Bi max 0,3 ppm
AVC276	Alloy C276	max 0,01	max 1,00	max 0,08	max 0,030	max 0,040	balance	14,5-16,5	4-7	15-17	-	-	-	max 2,50	W 3,0-4,50 V max 0,35
VAL4529	Alloy 926	max 0,02	max 2,00	max 0,50	max 0,010	max 0,030	24-26	19-21	min 47	6,0 - 7,0	0,5 - 1,5	-	-	-	N 0,15-0,25
	Alloy 367	max 0,03	max 2,00	max 1,00	max 0,030	max 0,040	23,5-25,50	20-22	min 47	6,0 - 7,0	max 0,75	-	-	-	N 0,18-0,25
AN1	Alloy 800 Alloy 800H Alloy 800HT	0,06-0,10	max 1,50	max 1,00	max 0,015	max 0,030	30-34	19-23	min 39,50	-	max 0,75	0,15-0,60	0,15-0,60	-	-
AN2	Alloy 825	max 0,05	max 1,00	max 0,50	max 0,030	-	38-46	19,50-23,50	min 22	2,5-3,5	1,5-3,0	0,6-1,2	max 0,20	max 2,00	-
AV925	Alloy 925	max 0,03	max 1,00	max 0,50	max 0,030	-	42-46	19,50-22,50	min 22	2,5-3,5	1,5-3,0	1,9-2,4	0,10-0,50	-	Nb 0,5 max
AN5	Alloy A286	max 0,08	max 2,00	max 1,00	max 0,025	max 0,025	24-27	13,5-16	min 56	1,00-1,50	max 0,50	1,9-2,35	max 0,35	max 1,00	V 0,10-0,50 B 0,003-0,10
SG5	Alloy 36	max 0,10	max 0,60	max 0,50	-	-	35-37	-	balance	-	-	-	-	-	-
AV20	Alloy 20	max 0,07	max 2,00	max 1,00	max 0,035	max 0,045	32-38	19-21	-	2-3	3-4	-	-	-	Nb+Ta max 1,0

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