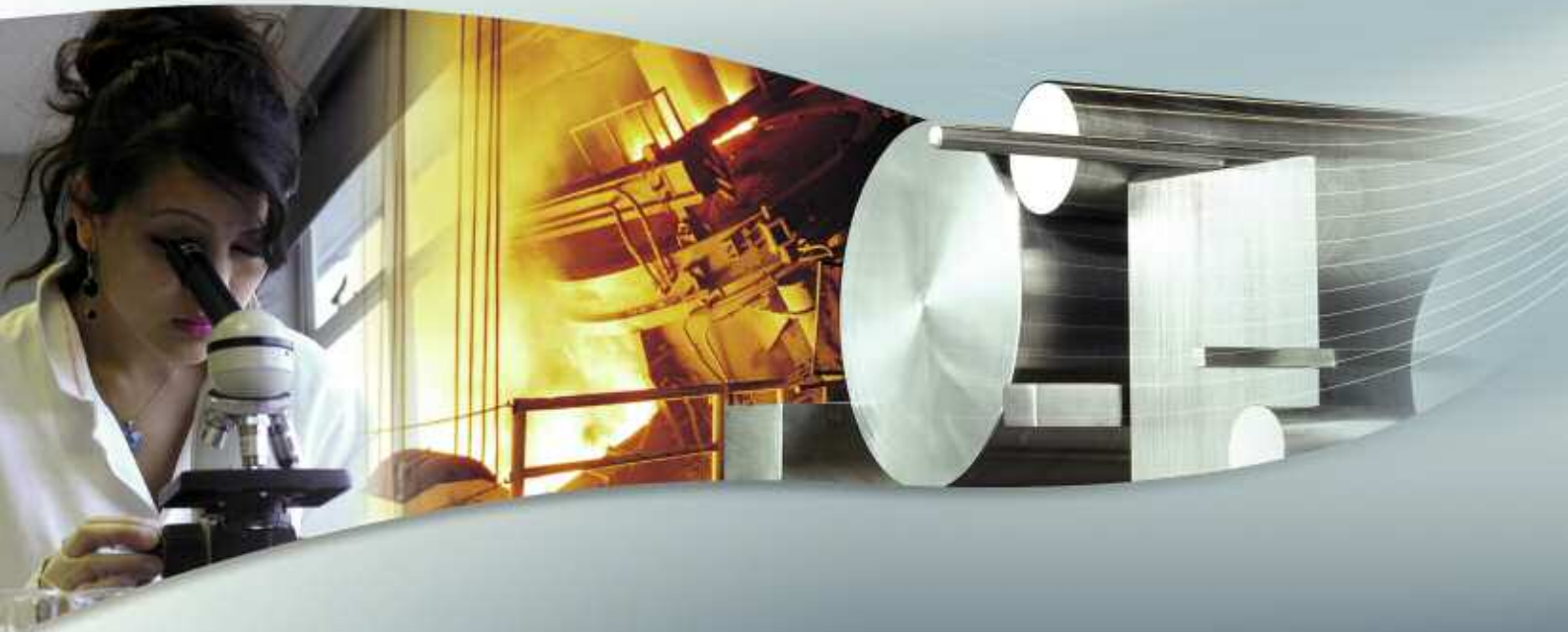


AUBERT&DUVAL



Special Steels and Superalloys for Bars



Enhancing your performance

OUR COMMITMENT:

Know-how

Bars, billets, semi-products...

Our business is to design, melt and convert metallurgical ideas into reality as high quality steels, superalloys, aluminium alloys and titanium alloys.

Our bars are used for advanced technologies as diverse as : aerospace, space transport, power generation, automotive and motor sport, engineering, transport, marine, etc.

Research & development

Our R & D teams, our technical service department and our laboratories have acquired a degree of technical and industrial experience which is renowned world-wide.

We can propose innovative solutions to your most demanding situations.

Production capacity

Our production capacity is based on a unique integrated system for industrial melting and converting.

- Melting shop, with arc furnaces up to 65 tonnes
- Ladle refining
- AOD/VOD converters
- VIM furnaces up to 12 tonnes
- ESR furnaces up to 25 tonnes
- VAR furnaces up to 30 tonnes
- Powder atomisation
- Hammers from 3500 to 60000 kg.m
- Horizontal forging machine
- Forging presses from 1200 to 4500 tonnes
- Rolling mill for bars from 7 to 200 mm diameter
- Heat treatment furnaces for bars up to 21 m long
- NDT - ultrasonic controls by immersion and contact



From design to finished production, our quality management system is totally integrated into all areas of the company. With the support of our sophisticated control equipment we thus guarantee the quality of our products. The excellence of our know-how is recognized by a large number of quality organisations.

Approvals



- COFRAC Laboratory certification to EN 17025
- Special processes: PRI-NADCAP
- RCCM/ASME

YOUR SATISFACTION



Service

Our sales network and our technical support service operate in close partnership with our customers to provide a prompt and efficient service which is tailored to customer needs.

Our Distribution Center is EN9120 certified : our highest priority is customer satisfaction with a view to providing a rapid

and flexible service from our extensive stock of steels and alloys stored in a modern premises. Our computerised stock control system provides the facility to organise and plan your current and future requirements so that we can provide a regular call-off service for your long term needs.

PRODUCTS	DIAMETERS (mm) (please contact us for other requirements)	TOLERANCES (mm)	LENGTHS (mm) (please contact us for other requirements)	STRAIGHTNESS	SURFACE FINISH
Black round bars	Ø 7.5 to 350	Ø ≤ 20 +/- 0.25	3500 à 6000	2mm/m with < 0.12 % of total length	Ra ≤ 12.5 µm
		20 < Ø ≤ 40 +/- 1.25 % Ø			
		40 < Ø ≤ 125 +/- (0.1 + 1 % Ø)			
		125 < Ø ≤ 140 - 0/+ (0.2 + 2 % Ø)			
		140 < Ø ≤ 190 - 0/+ 3			
190 < Ø ≤ 350 +/- 3	3500 à 8000	3 mm/m			
Peeled round bars	Ø 10 to 350	10 < Ø ≤ 20 +/- 0.25	3500 à 6000	2 mm/m with < 0.12 % of total length	Ra ≤ 6.3 µm
		20 < Ø ≤ 40 +/- 1.25 % Ø			
		40 < Ø ≤ 125 +/- (0.1 + 1 % Ø)			
		125 < Ø ≤ 140 - 0/+ (0.2 + 2 % Ø)			
		140 < Ø ≤ 190 - 0/+ 3			
190 < Ø ≤ 350 +/- 2	3500 à 8000	3 mm/m			
Ground round bars	Ø 14 to 190	14 < Ø ≤ 20 +/- 0.25	3500 à 6000	2 mm/m with < 0.12 % of total length	Ra ≤ 3.2 µm
		20 < Ø ≤ 40 +/- 1.25 % Ø			
		40 < Ø ≤ 125 +/- (0.1 + 1 % Ø)			
		125 < Ø ≤ 140 -0/+ (0.2 + 2 % Ø)			
		140 < Ø ≤ 190 *			
Flats	Thickness ≤ 170 Width ≤ 400	Please contact us			
Square bars	Sq. 70	Side ≤ 20 +/- 0.20	2000 à 6000	3 mm/m	Ra ≤ 12.5 µm
		20 < C ≤ 40 +/- 1.25 % C			
		40 < C ≤ 70 +/- (0.1 + 1 % C)			
Square billets	Side	+/- 3 % C	2000 à 6000	4 mm/m	-
	50 ≤ C ≤ 105				
	115 ≤ C ≤ 220				
220 ≤ C ≤ 310	+/- 2				
Blooms	Thickness: 120 to 220	- 3/- 5	2000 à 6000	4 mm/m	-
	Length: 140 to 250				

* from quality 12 (eg H12) upwards

AD GRADES	SPECIFICATIONS			MAIN STANDARDS									CHEMICAL COMPOSITION					HEAT TREATMENT see key below	MECHANICAL PROPERTIES					APPLICATIONS	
	European standard	USA	Common designation	AIR		WL	AMS	NF - EN / NF-EN-ISO / NF-A			ASTM		C	Ni	Cr	Mo	V		Others	UTS (N/mm ²)	0.2%YS (N/mm ²)	A (%)	KCU (J/cm ²)		KV (J)
				Specification	Standard	Standard	Standard	Symbol	Numerical	Standard	Grade	Standard													
STEELS FOR CARBURIZING																									
FADH ⁽³⁾	14NiCrMo13-4	-	-	16 NCD 13	9160/C	1.6657	-	-	-	-	-	-	0.16	3.2	1	0.25	-	-	T+Rv 150 °C	1350	1000	14	100	-	Various heavily stressed mechanical parts, safety-critical parts for the aerospace industry.
FDG ⁽⁴⁾	20NiCrMo13	-	-	-	-	-	-	-	-	-	-	-	0.2	3.2	1	0.5	-	-	T+Rv 150 °C	1500	1250	13	90	-	Gears exposed to high stresses, various wear-resistant parts exposed to fatigue in service.
FND ⁽³⁾	15NiMoCr10	-	-	-	-	-	-	-	-	-	-	-	0.15	2.5	1	2	-	Si : 1.1	T+F+Rv 300 °C Tgaz+F+Rv 300 °C	1400 1350	1120 1030	13	- 110	120	Mechanical parts (temperatures above 150°C): gear sets, fuel injection, parts requiring a PVD coating.
THROUGH HARDENING STEELS																									
819AW	35NiCrMo16	-	-	E 35 NCD 16 H	9160/C	-	-	-	-	-	-	-	0.38	4	1.75	0.5	-	-	T+F+Rv 200 °C T+Rv 650 °C	1900 1050	1500 900	10 18	50 110	-	Aerospace parts exposed to high stresses. Various heavily stressed mechanical parts.
819B	36NiCrMo16	-	-	35 NCD 16	9160/C	-	-	36NiCrMo16 36NiCrMo16	1.6773 1.6773	NF A35571 NF EN 10083-1 NF EN 10250-3	-	-	0.35	3.8	1.7	0.3	-	-	T+F+Rv 200 °C T+Rv 650 °C	1850 1000	1400 850	8 19	40 130	-	Large mechanical parts of complex shape exposed to high stresses.
CNS	35NiCr6	-	-	35 NC 6	9160/C	-	-	-	-	-	-	-	0.35	1.2	0.85	-	-	-	T+Rv 550 °C T+Rv 650 °C	1100 900	950 750	14.5 18	85 120	-	Various crankshafts, shafts, fasteners, gears.
F65 ⁽¹⁾	34CrMo4	-	-	35 CD 4	9160/C	1.7220 1.7224	-	34CrMo4 34CrMo4	1.7225 1.7225	NF EN 10083-1 NF EN 10250-3	-	-	0.35	-	1	0.2	-	-	T+Rv 600 °C T+Rv 675 °C	1050 900	950 750	16.5 20	100 140	-	Truck, turbine or rotor drive shafts, gearbox gears.
FDMA ⁽¹⁾	30NiCrMo16	-	-	30 NCD 16	9160/C	-	-	-	-	-	-	-	0.3	3.5	1.2	0.45	-	-	T+Rv 200 °C T+Rv 625 °C	1750 1000	1250 900	12 19	70 140	-	Parts requiring excellent fatigue and impact resistance.
GH4	40CrMoV13-9	-	-	40 CDV 12	9160/C	-	-	40CrMoV13-9	1.8523	NF EN 10250-3	-	-	0.4	-	3	1	0.2	-	T+Rv 200 °C T+Rv 600 °C	1950 1400	1450 1150	10 13	60 65	-	Parts for the aerospace industry exposed to high stresses (mechanical strength of the order of 1400 N/mm ²).
NC40M ⁽¹⁾	41NiCrMo7-3-2	UNS : G43400 AISI / SAE : 4340	4340	-	-	-	6415 6359	41NiCrMo7-3-2	1.6563	NF EN 10269	B23 L23	A540 A320	0.4	1.8	0.8	0.25	-	-	T+Rv 600 °C	1100	950	17	100	-	Parts requiring excellent fatigue resistance (shafts, gears, various safety-critical mechanical parts).
V300 ⁽¹⁾	46SiCrMo6	-	45SiCrMo6	45 SCD 6	9160/C	-	-	46SiCrMo6	1.8062	NF EN 10089	-	-	0.45	-	0.6	0.25	-	Si : 1.6	T+Rv 450 °C T+Rv 600 °C	1600 1150	1400 1000	10 18	30 60	-	Springs and torsion bars exposed to heavy workloads.
MARAGING STEELS																									
MARVAL18	X2NiCoMo18-8-5	UNS : K92890	Maraging 250	EZ 2 NKD 18	9160/C	1.6359	6512	-	-	-	72	A579	0.03	18	-	5	-	Ti : 0.5 Co : 8	H H+V 480 °C	1070 1850	870 1780	14 9	- 40	-	High strength parts for the aerospace and space industry (structural and defence components, fasteners, welded assemblies).
MY19	X2NiCoMo18-9-5	UNS : K93120	-	-	-	1.6358	-	-	-	-	-	-	<0.01	18	-	4.9	-	Ti : 0.7 Co : 8.75 Al : 0.1	H H+V 480 °C	1070 2050	870 1980	14 8.5	- 25	-	Structural and defence components, centrifuge components.
STEELS FOR NITRIDING																									
GKH ⁽³⁾	33CrMoV12-9	UNS : K24340	-	32 CDV 13	9160/C	-	-	-	-	-	-	-	0.3	-	3	1	0.2	-	T+Rv 600 °C T+Rv 660 °C	1300 1000	1100 850	15 20	70 170	-	Components (particularly aerospace parts) requiring very good mechanical properties in the core (surface hardness approximately 850 Vickers).
GKP ⁽²⁾	32CrMoV5	-	-	-	-	-	-	-	-	-	-	-	0.3	-	1.4	1.2	0.3	-	T+Rv 640 °C T+Rv 660 °C	1250 1130	1175 1060	15 16	- 110	80	Parts which must be highly stable (gears, spindles, crankshafts, precision parts, aerospace parts).
STEELS FOR SPECIAL APPLICATIONS																									
BED	43CrMo4	-	-	-	-	-	-	42CD4TS	-	NF A 35563	-	-	0.43	-	1	0.2	-	-	T+Rv 675 °C	1000	800	19	95	-	Various wear-resistant mechanical parts (ball screws, flattening rolls).
CLARM HBR	30NiCrMoV14	-	-	-	-	-	-	-	-	-	-	-	0.3	3.5	1.5	0.4	0.18	Mn : 0.2	T+Rv 600 °C T+Rv 570 °C	1200 1300	1100 1220	15	-40°C: 60 -40°C: 40	-	Large caliber gun barrels and accessories (breach rings, breach blocks, muzzle brakes, etc...) Pressure vessels. Mechanical parts in the range of YS 900 to 1200 N/mm ² .
CLARM HB3	33NiCrMoV15	-	-	-	-	-	-	-	-	-	-	-	0.33	3.5	1.4	0.5	0.2	Mn : 0.2	T+Rv 615 °C T+Rv 560 °C	1325 1420	1200 1300	14	-40°C: 45 -40°C: 28	-	Large caliber gun barrels and accessories (breach rings, breach blocks, muzzle brakes, etc...) Pressure vessels. Mechanical parts in the range of YS 1200 to 1300 N/mm ² .
CLARM HB7	40NiCrMoV15	-	-	-	-	-	-	-	-	-	-	-	0.4	3.7	1.6	0.9	0.3	Mn : 0.1	T+Rv 560 °C T+Rv 585 °C	1480 1350	1350 1260	13	-40°C: 32 -40°C: 40	-	Large caliber gun barrels and accessories (breach rings, breach blocks, muzzle brakes, etc...) Pressure vessels. Mechanical parts in the range of YS 1250 to 1400 N/mm ² .
NC310YW	40SiNiCrMo10	-	-	-	-	-	-	-	-	-	-	-	0.4	1.75	0.85	0.4	0.2	Si : 2.7	T+F+2xRv 300 °C	2150	1790	9	-	-	Various heavily stressed mechanical parts. Carburising possible (torsion bars, gears, transmission shafts).
NC40SW	40NiSiCrMo7	UNS : K44220	300M	-	-	-	6417 6419 6257	-	-	-	32	A579	0.4	1.8	0.85	0.4	-	Si : 1.6	T+2xRv 300 °C T+Rv 600 °C	2050 1450	1700 1300	12 14	50 60	-	Shafts, gears, various safety-critical mechanical parts, various heavily stressed aerospace mechanical parts.
RA50YW	80MoCrV42-16	UNS : T11350	M50	E 80 DCV 40	9160/C	1.3552	6490 6491	-	-	-	-	-	0.83	-	4.15	4.25	1	-	T+Rv 550 °C	hardness: 60 / 64 HRC					Aerospace bearings exposed to high stresses.
RAD ⁽³⁾	100Cr6	UNS : G52986 AISI / SAE : E52100	-	100 C 6	9160/C	1.3504	-	100Cr6	B1	NF EN ISO683-17	E52100	A322	1	-	1.5	-	-	-	T+Rv 130 °C T+Rv 300 °C	hardness: 800 HV hardness: 630 HV					Ball, roller or needle bearings, bearing races, thrust bearings, cams, rollers, etc...
SCV ⁽³⁾	15CrMoV6	-	-	15 CDV 6	9160/C	1.7734	-	-	-	-	-	-	0.15	-	1.25	0.9	0.25	-	T+Rv 650 °C T+Rv 625 °C	1050 1150	850 1100	16 17	- 130	-	Welded assemblies requiring high mechanical properties. Complies with the requirements of the aerospace industry.

(1) : also available in the remelted version (W) • (2) : also available in the vacuum primary melted and secondary remelted version (YW) • (3) : (1) + (2)

KEY TO HEAT TREATMENT SYMBOLS			
SOLUTION TREATED	H	ANNEALED	R
THERMO-MECHANICAL TREATMENT	TM	QUENCHED AND TEMPERED	T+Rv
SUB-ZERO TREATMENT	F	SOLUTION TREATED AND AGED	H+V

The list of products in the table is not exhaustive, please consult us for other materials.

AD GRADES	SPECIFICATIONS			MAIN STANDARDS								CHEMICAL COMPOSITION											HEAT TREATMENT see key below	MECHANICAL PROPERTIES					APPLICATIONS	
	European standard	USA	Common designation	AIR		WL	AMS	NF - EN / NF-EN-ISO / NF-A			ASTM		C	Ni	Cr	Mo	V	Ti	Nb	Al	AZ	CU		Others	UTS (N/mm²)	0.2%YS (N/mm²)	A (%)	KCU (J/cm²)		KV (J)
				Specification	Standard	Standard	Standard	Symbol	Numerical	Standard	Grade	Standard																		
MARTENSITIC STAINLESS STEELS																														
56CW	X8CrCoNiMo10-6	-	FV535	Z 10 CKD 10	9165	1.4911	-	X8CrCoNiMo10-6	1.4911	NF EN 10302	-	-	0.1	-	10.5	0.8	0.3	-	0.5	-	-	-	Co : 6	T+2xRv 615 °C	1100	950	14	-	-	Turbine parts, compressor parts and miscellaneous parts requiring good creep resistance.
56T5	X19CrMoNbW11-1	-	-	Z 20 CDNb 11	9165	-	-	X19CrMoNbW11-1	1.4913	NF EN 10269	-	-	0.2	-	11	0.7	0.18	-	0.4	-	-	-	-	T+Rv 675/700 °C	1000	800	12	-	-	Aerospace parts, fasteners for high temperature environments, gas turbine rotors and blades, miscellaneous steam turbine parts.
APX	X17CrNi16-2	UNS : S43100 AISI / SAE : 431	431	Z 15 CN 17-03	9160/C	1.4044	-	X17CrNi16-2 X17CrNi16-2 X17CrNi16-2 X17CrNi16-2	1.4057 1.4057 - 1.4057	NF EN 10088-1 NF EN 10088-3 NF S 94-090 NF EN 10272	431 431 431	A276 A479 F899	0.16	2	17	-	-	-	-	-	-	-	T+Rv 400 °C T+Rv 630 °C	1400 1000	1050 750	13 15	40	-	Aerospace, chemical, oil production and nuclear industries, parts exposed to marine corrosion.	
APX4⁽¹⁾	X4CrNiMo16-5-1	-	-	Z 8 CND 17-04	9160/C	-	-	X4CrNiMo16-5-1 X4CrNiMo16-5-1 X4CrNiMo16-5-1 X4CrNiMo16-5-1	1.4418 1.4418 1.4418 1.4418	NF EN 10088-1 NF EN 10088-3 NF S94-090 NF EN 10272	-	-	0.06	4	16	1	-	-	-	-	-	-	+Rv 400 °C T+Rv 580 °C	1200 1000	950 750	16 18	100 120	-	Nuclear energy, weldable safety-critical parts exposed to marine corrosion (hydraulic pumps and turbines, shafts, tie rods, fasteners).	
X13VD⁽³⁾	X12CrNiMoV12-3	UNS : S64152	JETHETE M152	Z 12 CNDV 12	9160/C	1.4933	-	X12CrNiMoV12-3	1.4938	NF EN 10269	XM32	A565	0.12	2.5	11.5	1.6	0.3	-	-	-	-	-	T+Rv 250 °C T+Rv 650 °C	1350 1050	1000 700	17 15	110 120	-	Various mechanical parts, especially for the aerospace industry and gas and steam turbines.	
XD15NW	X40CrMoVN16-2	UNS : S42025	-	-	-	-	5925	X40CrMoVN16-2	1.4123	NF EN 10088-1	-	-	0.42	-	16	1.8	0.35	-	-	-	0.2	-	T+F - Rv 180 °C	hardness: ≥ 58 HRC			Bearings, ball screws, valve seats, guide collars.			
XD16N	X50CrSiMnVN16-1	-	-	-	-	-	-	-	-	-	-	-	0.5	-	16	0.3	0.3	-	-	-	0.1	-	T+F+Rv 180°C	hardness: 59 HRC			Bearings, bearing components. Knives. Fasteners. Valve seats.			
XDBD⁽³⁾	X105CrMo17	UNS : S44004 AISI / SAE : 440C	440C	Z 100 CD 17	9160/C	-	5630 5880	X105CrMo17 X105CrMo17 X105CrMo17 X108CrMo17	1.4125 1.4125 1.4125 B52	NF EN 10088-1 NF EN 10088-3 NF S 94-090 NF EN ISO 683-17	440C 440C 440C 440C	A276 A314 F899 A473	1	-	17	0.5	-	-	-	-	-	T+F+Rv 140 °C	hardness: 59 HRC			Bearing parts exposed to corrosive effects or operating at temperatures of up to 500 °C.				
AUSTENITIC STAINLESS STEELS																														
M25W	X2CrNiMo18-14-3	UNS: S31673	-	-	-	-	-	X2CrNiMo18-14-3	1.4435	-	-	F138 F139	< 0.03	14	18	3	-	-	-	-	-	-	H	540	210	60	250	-	Manufacturing of orthopaedic implants, hip prosthesis, endomedulary nails, spine systems, rods and screws.	
M30NW	X4CrNiMoN21-9-4	-	-	-	-	-	-	-	-	ISO 5832-9	-	F1586	< 0.06	9	21	2.2	-	-	-	-	0.4	-	Mn : 4	H	860	450	45	-	-	Surgical implants.
NYB66	X1CrNiMoWN24-22-6	UNS: S31266	-	-	-	-	-	-	-	-	-	-	< 0.03	22	24	5.5	-	-	-	-	0.5	-	W: 2.00	H	> 800	> 420	> 50	-	-	Various mechanical and fabricated components operating in corrosive environments: sea water, chlorinated media, acid gases (H2S). The grade is specifically used in: offshore oil production industry (ASTM A182 Grade F58), marine industry, paper pulp industry, chemical industry.
FERRITIC STAINLESS STEELS																														
NY32760	X2CrNiMoCuWN25-7-4	UNS : S32760	-	-	-	-	-	X2CrNiMoCuWN25-7-4	1.4501	-	-	-	< 0.03	6.5	25	3.5	-	-	-	-	0.25	0.6	W : 0.6	H	> 750	> 550	> 30	-	-	Parts exposed to corrosion (flanges, valves, pumps, tubes).
STAINLESS STEELS WITH STRUCTURAL HARDENING																														
MARVALX12	X1CrNiMoAlTi12-9-2	-	-	-	-	-	-	X1CrNiMoAlTi12-9-2 X1CrNiMoAlTi12-9	1.4530	NF EN 10088-1 NF S 94-090	-	-	≤ 0.02	9	12	2	-	0.3	-	0.7	-	-	H+V 555 °C H+V 520 °C	1240 1430	1195 1385	12.5 10.5	-	120 45	Welded parts and assemblies requiring good corrosion resistance and very good mechanical properties.	
MARVALX12H	X1CrNiMoAlTi12-10-2	-	-	-	-	-	-	X1CrNiMoAlTi12-10-2	1.4596	NF EN 10088-1	-	-	≤ 0.02	10	12	2	-	0.3	-	0.9	-	-	H+V 540 °C H+V 510 °C	1440 1570	1370 1490	10.5 10.0	-	60 35	Various heavily stressed mechanical parts requiring good corrosion resistance and very good mechanical properties spacial industry.	
MARVALX13X	X3CrNiMo13-8-2	UNS : S13800	PH13-8Mo	-	-	1.4534	5629 5864	X3CrNiMoAl13-8-2	1.4534	NF S 94090	XM13 XM13	A564 A705	≤ 0.05	8.3	12.5	2.1	-	-	1	-	-	-	H+V 540 °C H+V 565 °C	1450 1280	1350 1180	11 13	-	-	Corrosion resistant mechanical parts requiring very good mechanical properties.	
MLX17	X1CrNiMoAlTi12-11-2	-	-	-	-	-	-	-	-	-	-	-	≤ 0.02	11	12	2	-	0.3	-	1.5	-	-	H+V 535 °C H+V 510 °C	1590 1725	1500 1610	12 11	-	45 25	Various heavily stressed mechanical parts requiring good corrosion resistance and very good mechanical properties (aerospace and defence industries).	
X15U5W	X5CrNiCu15-5	UNS : S15500	15-5PH XM12	-	-	1.4545	5659 5862	-	-	-	XM12	A564	≤ 0.07	5	15	-	-	0.3	-	-	3	-	H+V 550 °C H+V 620 °C	1120 950	1060 750	15 16	-	130 160	Mechanical parts requiring very good mechanical properties and a good coefficient of friction.	
X17U4⁽⁴⁾	X5CrNiCuNb16-4	UNS : S17400	17-4PH 630	-	-	-	5604 5643	X5CrNiCuNb16-4	1.4542	NF EN 10088-1 NF EN 10088-3	630	A564	≤ 0.07	4	16.5	-	-	0.35	-	-	4	-	H+V 550 °C H+V 620 °C	1070 950	1000 750	10 16	-	120 140	Mechanical parts requiring very good mechanical properties and an acceptable coefficient of friction.	
STAINLESS STEELS FOR HIGH TEMPERATURES																														
NY810	X10NiCrTiAl32-21	UNS : N08810	Incoloy 800H	-	-	-	-	-	-	-	N08810	B408 B564	0.07	31	20	-	-	0.4	-	0.3	-	-	Si : 0.7	H	≥ 450	≥ 170	≥ 30	-	-	Chemical industry, pipes for nuclear boilers.
XN26TW	X6NiCrTiMoVB25-15-2	UNS : S66286	A286	E-Z 6 NCT 25	9165 9160 / C	1.4944	5525 - 5731 5732 - 5734 5737 - 5726	X6NiCrTiMoVB25-15-2	1.4980	NF EN 10269	660	A453	0.05	26	15	1.25	0.25	2	-	-	-	-	H+V 720 °C	1000	650	25	80	-	Gas and steam turbine blades, fasteners for high temperature environments, parts operating at high temperature stress levels.	

AD GRADES	SPECIFICATIONS			MAIN STANDARDS								CHEMICAL COMPOSITION											HEAT TREATMENT see key below	MECHANICAL PROPERTIES					APPLICATIONS
	European Standard	USA	Common designation	AIR		WL	AMS	NF - EN / NF-EN-ISO / NF-A			ASTM		C	Ni	Cr	Mo	Si	Ti	Co	Fe	Al	Others		UTS (N/mm²)	0.2%YS (N/mm²)	A (%)			
				Specification	Standard	Standard	Standard	Symbol	Numerical	Standard	Grade	Standard																	
NICKEL ALLOYS																													
NY690	NiCr29Fe	UNS : N06690	Inconel 690	-	-	2.4642	-	-	-	-	N06690	B166 B168	≤ 0.05	Balance	30	-	-	-	-	10	-	-	H	≥ 585	≥ 240	≥ 30	-	-	Nuclear industry.
NY925	NiCr20FeMo3TiCuAl	UNS : N09925	-	-	-	-	-	-	-	-	-	-	< 0.030	44	21	3	-	2	-	> 22	-	Cu : 2	H+V	1150	795	28	-	-	Parts combining a high elastic limit with corrosion resistance or non-magnetic properties for the offshore environment.
PER625	NiCr22Mo9Nb	UNS : N06625	INCO 625	-	-	-	-	-	5599 5666	-	N06625	B446	≤ 0.05	Balance	22	9	≤ 0.50	≤ 0.40	≤ 1	≤ 5	≤ 0.4	Mn : 0.5 Nb : 3.6	H - Grade 1 H - Grade 2	850 750	450 350	40 65	-	-	Excellent resistance to oxidation combined with very good mechanical properties at high temperatures. Good low temperature resistance and corrosion resistance.
PER72	NiCr18Co15TiMoAl	-	UDIMET 720	-	-	-	-	-	-	-	-	-	0.04	Balance	18	3	-	5	15	-	2.5	W : 1.2	H+V	1530	1150	14	-	-	Turbojet and gas turbine blades.
PER718	NiCr19Fe19Nb5Mo3	UNS: N07718	INCO 718	-	-	-	-	NiCr19Fe19Nb5Mo3	2.4668	-	-	-	0.04	Balance	18	3	-	0.9	-	18.5	0.5	Nb: 5.20	H+V	1360	1120	18	-	-	Aerospace industry, fasteners or various parts requiring a particularly high elastic limit, corrosion resistance or non-magnetic properties, parts operating at between 600 to 700 °C.
COBALT ALLOYS																													
M64BC	CoCr28Mo	UNS : R31537	-	-	-	-	-	-	-	ISO 5832-12	Alloy 1	F1537	≤ 0.15	≤ 1	28	6	-	-	Balance	-	-	-	TM H	≥ 1175 1160	≥ 850 650	≥ 14 35	-	-	Surgical implants.
XSH	CoCr20W15Ni	UNS : R30605	HS25 L605	KC 20 WN	9165	2.4964	5537 5759	-	-	ISO 5832-5	-	F90	0.1	10	20	-	≤ 0.30	-	Balance	≤ 3.0	-	Mn : 1.2 W : 15	H	1005	460	-	-	-	Aerospace parts for turbomachines exposed to high temperatures (blades, combustion chambers, nozzles, etc). Surgical implants

The information and the data presented herein are typical or average values and are not a guarantee of maximum or minimum values. Applications specifically suggested for material described herein are made solely for the purpose of illustration to enable the reader to make his own evaluation and are not intended as warranties, either express or implied, of fitness for these or other purposes. Aubert & Duval 's liability shall not extend, under any circumstances, to the choice of the Product and its consequences.

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