



STEEL BARS FOR MISSILES

Aubert & Duval is a leading supplier of high performance steels for defense applications, including missile systems, with a long history of supplying material to missile manufacturers worldwide.

Choose the best grade for your application

Due to their expertise, Aubert & Duval develops and produces a range of precipitation hardening steels that meet missile producers'/designers' needs:

- + High UTS up to 2000 MPa
- + Simple heat treatment
- + Control of distortions during the process
- + Best compromise between UTS and toughness (at room and low temperatures)
- + Welding and flowforming ability
- + Corrosion and stress corrosion cracking resistance

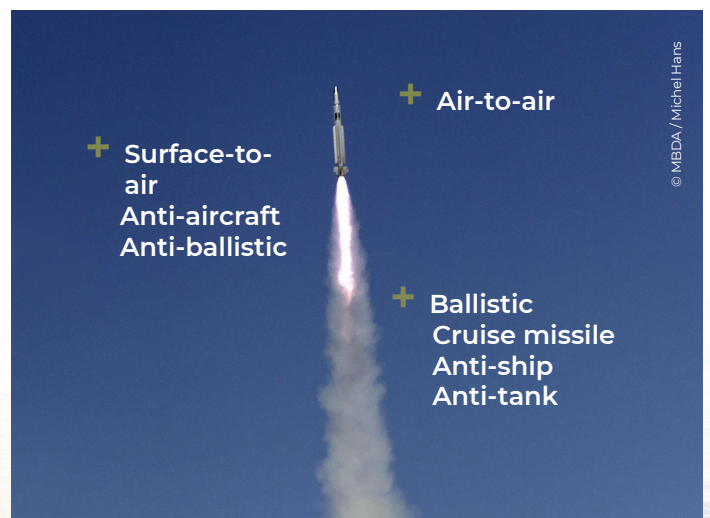


Customer benefits

- + Weight optimization
- + Customized alloys grades
- + A global supplier of the missiles systems manufacturers
- + Technical Support
- + Dedicated R&D Team

Product range

Forged and rolled bars for:



MISSILES

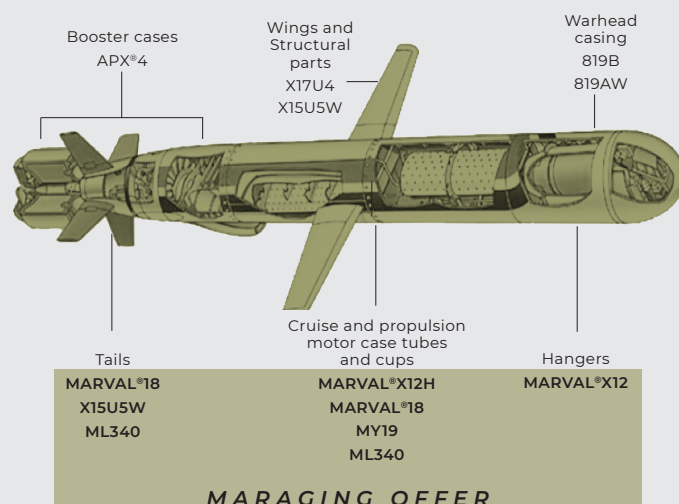
Metallurgical expertise

Precipitation hardening steels are key candidates to fulfill requirements for missiles structural parts such as body, frames and hangers:

- + High static and fatigue properties
- + Best combination of high strength and high toughness (even at low temperature)
- + High stress corrosion cracking performances
- + Suitable for welding and flowforming

Non stainless steels

High Performance Steels for missiles structural parts



	819B	819AW	MARVAL®18	MY19	ML340
Type	Martensitic steels		Precipitation hardening steels		
EN designation	36CrNiMo16	36CrNiMo16	Maraging 250	Maraging 300	X23NiCoCrMoAl13-6-3
UTS (MPa)	≥ 1230	≥ 1760	≥ 1720	≥ 1930	2220
YS 0.2% (MPa)	≥ 1030	≥ 1420	≥ 1600	≥ 1860	1900
EI (%)	≥ 8	≥ 6	≥ 6	≥ 5	10
KV (J)	≥ 25	≥ 17	≥ 15	≥ 12	≥ 20

Stainless steels

	APX®4	X17U4	X15U5W	MARVAL®X12	MARVAL®13X	MARVAL®X12H	MLX®17		
Type	Martensitic steel	Precipitation hardening steels							
EN designation	X4CrNiMo16-5-1	17-4PH	15-5PH	X1CrNiMoTiAl12-9	PH13-8Mo	X1CrNiMoTiAl12-10	X1CrNiMoTiAl12-11		
UTS (MPa)	≥ 950/1050	≥ 1150	≥ 1070	≥ 1070	≥ 1200	≥ 1200	≥ 1400	≥ 1520	≥ 1650
YS 0.2% (MPa)	≥ 700	≥ 900	≥ 1000	≥ 1000	≥ 1100	≥ 1140	≥ 1300	≥ 1380	≥ 1520
EI (%)	≥ 16	≥ 14	≥ 10	≥ 10	≥ 12	≥ 10	≥ 9	≥ 10	≥ 10
KV RT (J)	≥ 120	≥ 100	-	≥ 80	≥ 90	≥ 40	≥ 50	≥ 30	≥ 15
KV -40° (J)	≥ 70	≥ 60 (-30°C)	-	≥ 35(-30°C)	≥ 30	-	≥ 20	-	-

Ni-based alloys

Aubert & Duval provides Ni-based alloys for high temperature applications:

AD730®
PYRAD53NW (INCO718)

Titanium alloys

Aubert & Duval provides titanium alloy for missiles structural parts & systems:

Ti6Al4V