

**AUBERT&DUVAL**



**Special Steels, Superalloys, Aluminum and Titanium  
for the Naval and Marine Industries**



**Enhancing your performance**

# A Proven Record in Marine Industry

With a proven record in the marine industry, Aubert & Duval offers metallic solutions for every situation.

Our pledge:  
**your satisfaction**

## A wide array of solutions for small and mid-size critical components

Merchant vessels, warships, submarines and offshore vessels: this market represents approximately \$300 billion in the next 20 years.

When it comes to small and mid-size components able to guarantee safety, increase performance and withstand sea-water corrosion, think of Aubert & Duval. We are proud to participate in the development of cooling circuits for submarines, precision shafts for water-jet-turbines, landing grids for helicopters and UAV (Unmanned Aerial Vehicle), as well as in numerous other marine projects.

### A proven history in marine industry

For more than 30 years, Aubert & Duval has been a leader in the most demanding marine applications. Our reputation has gained partnerships such as with DCNS, Areva/Technicatome, Rolls-Royce Marine, BAE Systems and Navantia.

### Qualified Products and Process

Aubert & Duval follows the most stringent requirements in terms of grade composition, microstructural integrity, dimensional tolerances and quality control. Our products comply with multiple military standards.

### Development

With R&D equal to 2% of turnover spent every year, and with dedicated investments in melting, remelting, machining, and testing equipment, Aubert & Duval makes sure that it remains competitive in terms of performance, quality and cost.

Because we believe in the future of titanium, Aubert & Duval is investing in a dedicated forging workshop, together with UKTMP, a leading supplier in Ti raw material.

In order to save on raw materials and costly operations for its customers, Aubert & Duval is constantly promoting innovative near net shape (NNS) solutions. This includes Powder Metallurgy hiped products, developed in cooperation with Erasteel, a sister-company of Aubert & Duval.

### Dedicated capabilities

To meet specific requests for critical parts in the Marine industry, Aubert & Duval offers an extensive product range. It provides the optimum compromise between mechanical properties (yield strength, fatigue) and resistance to localized corrosion (pitting and crevice).

The following processes are available within Aubert & Duval, or qualified subcontractors:

- Steel making for any special, stainless steel or superalloy : EAF + AOD/VOD, VIM, gas-atomization powder.
- Remelting ESR or VAR
- Open-die forging (parts up to 30 tons)
- Closed-die forging parts up to 8 Tons (with presses from 4800 to 65000 tons)
- Rolling of bars, sheets and plates
- Heat treatment for up to 21-meter long forged parts (eg shafts and tubes)
- Machining up to 20 meters

*Aubert & Duval is also a leader in steel and superalloy parts for Aerospace, Oil & Gas, Land and Sea Transportation and the Defense markets. Please ask for the corresponding brochures.*





## Aubert & Duval Proprietary Steels

Grade	Type	Applications
<b>Super-Austenitic Stainless Steel</b>		
<b>NYB66*</b>	S31266	Sea water circuit, cups, piston, bell for flexible
<b>Martensitic Stainless Steel</b>		
<b>APX4</b>	X4CrNiMo16-5-1	Periscope masts
<b>Precipitation Hardening Steels</b>		
<b>MARVALX12 MLX17 MLX19</b>	X1CrNiMoAlTi12-9-2 X1CrNiMoAlTi12-11-2 X1CrNiMoAlTi12-12-2	Helicopter / UAV landing grids
<b>Maraging Steels</b>		
<b>MARVAL18 MY19</b>	Maraging 250 Maraging 300	Motor case for submarine vehicles, cups, sheets

\*Copatented by Aubert & Duval and Industeel, the NY B66 is particularly suited for crevice-corrosion resistance in sea-water environment.

## Standard Steels

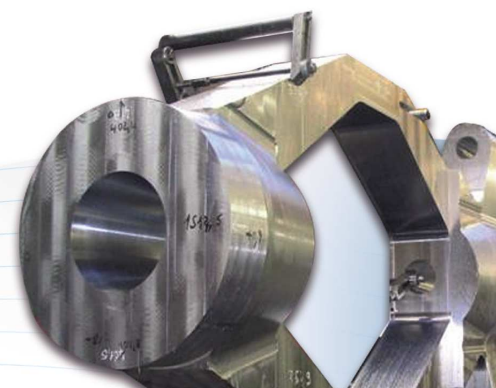
Grade	Type	Grade	Type	Applications
<b>Alloyed Steels</b>		<b>Duplex Stainless Steel</b>		Launch Torpedo Tubes, Spindles, Rods, Shafts, Sleeves, Manholes, Pump elbows, Blocks, Rings, Flanges, Nozzles, Filters, Caps, Covers, Grids, Shells, Bells for Flexible, Steering Gears, Press Main shafts...
<b>80HLES 100HLES</b>	12NiCrMoV18 X10NiMoCrV6	<b>URANUS 47N</b>	Type 24.07	
<b>ASTM A508 Gr3</b>	16MnD5	<b>Superduplex Stainless Steels</b>		
<b>HY80 HY100</b>	K31820 K32045	<b>URANUS 47N+</b>	S32750	
<b>Austenitic Stainless Steels</b>		<b>URANUS 52N</b>	S32550	
<b>AISI 304L</b>	S30403	<b>URANUS 52N+</b>	S32520	
<b>AISI 316L</b>	S31603	<b>Non magnetic Stainless Steels</b>		
<b>AISI 347</b>	S34700	<b>URANUS C1</b>	W1.3964	
<b>AISI 316LN</b>	S31653	<b>URANUS C2 (XM19)</b>	S20910	
<b>AISI 316Nb</b>	S31640			

## Superalloys and Titanium

Grade	Applications
<b>Titanium Alloys</b>	Closed-die forged cups
<b>Inconel 625 gr 1&amp;2 PYRAD53NW</b>	Flanges, fittings, valves

## Aluminum

Grade	Applications
<b>Al 2214 T654 Al 7010 T74 Al 6082 T6 Al 6082 T652</b>	Torpedos



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