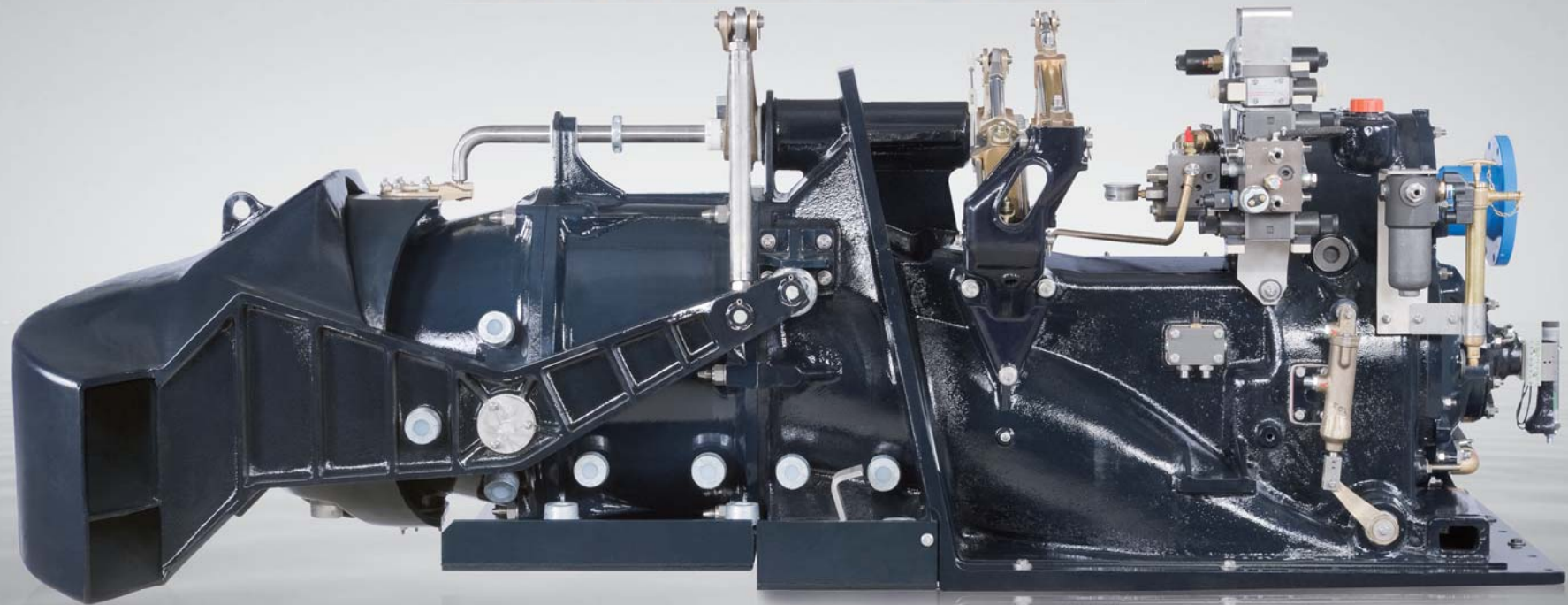


***TURBODRIVE***  
**490 H.C.**  
**WATERJET**



**ADVANCED HIGHLY EFFICIENT MARINE PROPULSION SYSTEM**

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THE CASTOLDI **TURBODRIVE 490 H.C.** IS NOT ONLY THE RESULT OF ALL THE EXPERIENCE GAINED SINCE 1962 THROUGH THE SUPPLY AND INSTALLATION OF MORE THAN 40.000 WATERJETS WORLD-WIDE. IT IS THE OUTCOME OF SPECIFIC INTENSIVE RESEARCH AND DEVELOPMENT ACTIVITIES AIMED AT FURTHER IMPROVING THE HIGH EFFICIENCY OF CASTOLDI WATERJETS. THIS GOAL WAS PURSUED THROUGH SELF-PROPULSION TRIALS (USING 24 TRUE-SCALE MODELS) PERFORMED BY MEANS OF AN INSTRUMENTED LABORATORY BOAT.

AS A RESULT, THE CASTOLDI **TURBODRIVE 490 H.C.**, IS THEREFORE AN ADVANCED TOP-PERFORMANCE HIGH SPEED WATERJET. FITTED WITH A SINGLE STAGE AXIAL FLOW IMPELLER, IT CAN BE DRIVEN BY A GASOLINE OR A DIESEL ENGINE, WITH A MAXIMUM OUTPUT OF 1.324 KW DEPENDING ON BOAT SPEED.

THE **TURBODRIVE 490 H.C.** IS A MASS-PRODUCED UNIT IN HIGH-STRENGTH MARINE ALUMINUM ALLOY CASTINGS ALLOWING IT TO MEET THE GOAL OF BEING A LIGHT AND STRONG PROPULSION SYSTEM. IT IS PROTECTED BY THE MOST UP-TO-DATE AND SOPHISTICATED ANTI-CORROSION TREATMENTS.

THE IMPELLER, THE SHAFTS, THE GEAR WHEELS AND ALL OTHER METAL ITEMS NOT IN ALUMINUM ALLOY ARE MADE OF HIGH-GRADE STAINLESS STEEL, STEEL, TITANIUM AND BRONZE ALUMINUM ALLOY.

THE **TURBODRIVE 490 H.C.** IS EQUIPPED WITH EXCLUSIVE PARTICULARS WHICH MAKE THIS MODEL A COMPLETE, UNIQUE AND TRUE MARINE PROPULSION UNIT. THESE INCLUDE THE INTEGRATED MULTI-RATIO GEARBOX WHICH FINELY MATCHES THE POWER AND R.P.M. CHARACTERISTICS OF THE ENGINE TO THE WATERJET, THE HYDRAULIC MULTI-DISC DISCONNECTING CLUTCH FOR ENGAGING AND DISENGAGING THE UNIT, THE FLUSH MOUNTED MOVABLE GRID FOR PREVENTING THE ASPIRATION OF DEBRIS INTO THE WATERJET AND CLEANING THE INTAKE DUCT, JUST TO NAME A FEW.

IT IS ALSO EQUIPPED WITH A SPECIALLY DEVELOPED PACKAGED CONTROL SYSTEM AND OTHER EQUIPMENT WHICH ALLOW MAXIMIZATION OF ITS IMPRESSIVE INHERENT MANOEUVRING CAPABILITIES.

## TURBODRIVE 490 H.C.



### BENEFITS

#### PERFORMANCE

- The highest efficiency in the 25 to 60 knot speed range
- Much higher top speed versus fixed pitch propeller system, higher top speed versus pod-drives and competitor waterjets and consequent better fuel economy (from 25 knots and up)
- Fast acceleration
- No interference in multiple installations
- Waterjet power absorption is insensitive to boat speed meaning full thrust is maintained when boat drag changes

#### SAFETY

- Absence of open rotating blades
- Absence of any appendage under hull
- Unrivaled emergency crash stop capability
- Virtually invulnerable to floating debris and to unexpected boat grounding

### PRACTICALITY

- Maximum endurance and protection from marine corrosion
- Ease of installation and alignment
- Operation in shallow waters and easy beaching
- Minimum service requirements
- Ease of maintenance
- Limited in-board room requirements
- Lower weight compared to any other propulsion system fitted with marine transmission
- Reduced magnetic signature
- More uniform engine loading allows for longer engine life

### COMFORT

- Absence of vibration and reduced internal noise

### MANOEUVRABILITY

- Outstanding maneuverability at all speeds
- Easier handling for docking (zero speed with 360° high thrust availability)
- In multiple installations, the vessel can even move sideways (no need of bow thrusters)

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## TECHNICAL SPECIFICATIONS

**INPUT FLANGE:** SUITS UP TO 9,84" (250 MM) DIAMETER DRIVE SHAFT FLANGE

**IMPELLER TYPE:** THREE BLADES, SINGLE STAGE, AXIAL FLOW

**IMPELLER DIAMETER:** 490 MM - AT THE INLET

**INTEGRATED GEARBOX:** WITH 20 GEAR WHEEL-RATIOS AVAILABLE

**WATERJET IMPELLER DISCONNECTING SYSTEM:** BUILT-IN MULTI-DISC HYDRAULIC CLUTCH, ELECTRICALLY OPERATED

**UNIT DRY WEIGHT:** 890 KG INCLUDING: GEARBOX, HYDRAULIC CLUTCH, WATER INTAKE, DUCT, ANODES, LEVERS

**HYDRAULIC WEIGHT:** 54 KG INCLUDING: OIL PUMP, HYDRAULIC ACTUATORS, BRACKETS, VALVES AND PIPES

**VOLUME OF WATERJET OIL:** 35 LT (GEARBOX AND HYDRAULICS)

**VOLUME OF ENTERTAINED WATER :** 210 LT

**TRANSOM ANGLE:** 12°

**ROTATION:** CLOCKWISE VIEWED ON INPUT SHAFT

**INSPECTION HATCH:** INBOARD

**HYDRAULIC ACTUATORS:** INBOARD, MOUNTED ON WATERJET INTEGRATED BRACKETS FOR REVERSING AND STEERING CONTROL

**STATOR:** WITH N. 5 BLADES

**WATER PICK-UP FOR ENGINE COOLING:** SUIT 3" GAS

**HYDRAULIC:** OIL PUMP DIRECTLY SPLINED TO THE INPUT SHAFT

**REVERSING SYSTEM:** SPECIAL TWIN-DUCT TYPE BUCKET. (75 % OF THE FORWARD STATIC THRUST), HYDRAULICALLY ACTUATED

**STEERING SYSTEM:** STEERING NOZZLE, HYDRAULICALLY ACTUATED

**WATER INTAKE PROTECTION:** DEBRIS SCREEN GRID WITH HYDRODINAMICALLY PROFILED MOVABLE BARS, HYDRAULICALLY ACTUATED

**B.P.R.:** ADDITIONAL WATER INTAKE FOR SLOW AND/OR HEAVY VESSELS. (OPTIONAL)

**CLEAR-DUCT:** WATERJET DUCT AND INTAKE CLEANING SYSTEM ASSURED THROUGH THE SYNCHRONIZED SIMULTANEOUS ELECTRICALLY CONTROLLED OPERATIONS OF IMPELLER ROTATION REVERSING AND THE DEBRIS SCREEN GRID OPENING. (OPTIONAL)

**INPUT POWER:** FOR PLANING BOATS UP TO 1.324 KW (1.800 mHP) INTERMITTENT DUTY; UP TO 1.103 KW (1.500 mHP) CONTINUOUS DUTY

**FOR DISPLACEMENT BOATS:** UP TO 408 KW (555 mHP)

## MAIN PART MATERIALS

**IMPELLER:** DUPLEX STAINLESS STEEL

**IMPELLER HOUSING:** G.AI.SI.9 ALUMINUM ALLOY

**IMPELLER HOUSING WEAR RING:** TITANIUM

**IMPELLER SHAFT:** AQUAMET 17 STAINLESS STEEL

**INPUT SHAFT:** 39 NI.CR.MO. 3 HIGH GRADE STEEL

**STATOR:** G.AI.SI.7 ALUMINUM ALLOY

**STEERING NOZZLE AND REVERSING BUCKET:** G.AI.SI.7 ALUMINUM ALLOY

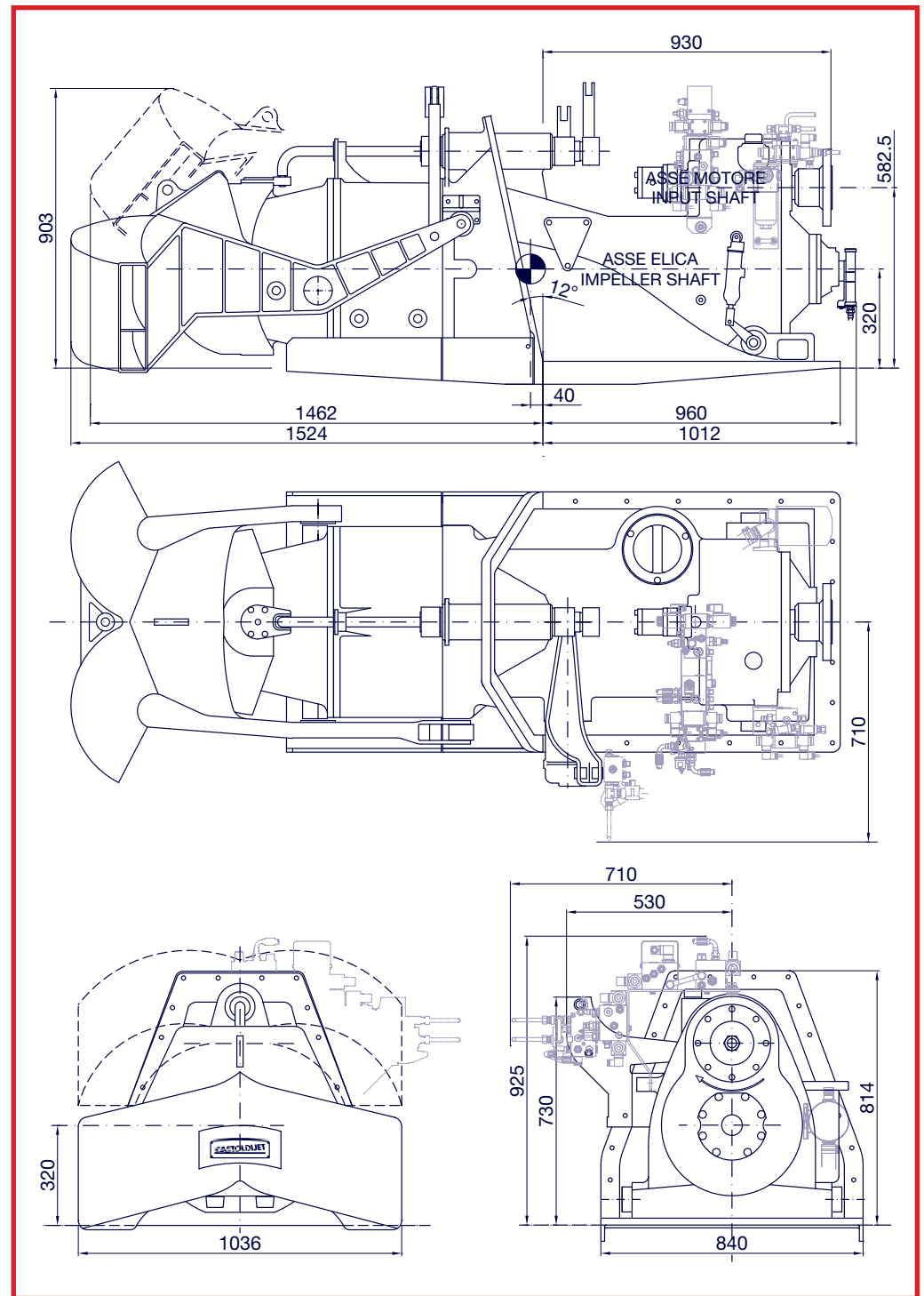
**STEERING SHAFT:** NITRONIC 50

**REVERSING SHAFT:** AISI 316 STAINLESS STEEL

**WATERJET BODY:** G.AI.SI.9 ALUMINUM ALLOY

**GEAR WHEELS:** SURFACE CARBO HARDENED HIGH GRADE 18 NI.CR.MO. 5 STEEL

THE WHOLE UNIT IS PROTECTED BY A HARD ANODIZING TREATMENT, PLATING ALL LIGHT-ALLOY COMPONENTS WITH 60 MICRONS THICKNESS OF ALUMINUM OXIDE (CERAMIC), THREE LAYERS OF SPECIAL PAINT AND CATHODIC PROTECTION BY ZINC ANODES





**CASTOLDI**

**SINCE 1962 LEAPS AHEAD IN MARINE PRODUCTS**