

**PRODUCT
RANGE**

ALAMARIN-JET

CONTENT

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WATERJETS - AJ Series

AJ 160..... 6

The AJ 160 is the smallest jet in the Alamarin-Jet range, with the majority of applications in luxury pleasure tenders and small commercial vessels. AJ 160 is the only commercially rated waterjet of its size available and as with all Alamarin-Jet products there are no limits on operational profiles.

AJ 180/185..... 8

The AJ 180 and AJ 185 are often used in both leisure and commercial applications, with the majority of applications in luxury pleasure tenders and small commercial vessels, often requiring SOLAS certification. As with all Alamarin-Jet products there are no limits on operational profiles.

AJ 230 10

The AJ 230 is the best selling Alamarin-Jet product of all time, it is now the industry standard for SOLAS Fast Rescue Craft and is renown world wide for its extremely robust and simply design while maintaining high cavitation limits with high speed vessel performance.

AJ 245..... 12

The AJ 245 is the first jet in the COMBI-FRAME series. The patented Combi-Frame technology allows designers, builders and owners maximum flexibility when locating the position of the propulsion system within the vessel.

AJ 285 14

The AJ 285 is the newest jet in the COMBI-FRAME series. Choosing between 2 different hull installation inserts allows the jet to be installed either in LONG TAIL or SHORT TAIL configuration. Following the success of AJ 245 many customers requested the combi-frame installation method for larger, more powerful vessels. AJ 285 is suitable for engines up to 366 kW/500 HP.

AJ 340 16

The AJ 340 is a lightweight, compact and highly efficient commercial waterjet. Cavitation limits are the highest in class due to Alamarin-Jets leading hydrodynamic design, without reducing top speed capabilities. AJ 340 is suitable for large military and commercial fast craft, as well as pleasure craft applications.

WATERJETS - Omega Series

Omega 37..... 18

The Omega 37 is the second largest waterjet in Omega Series, with a max input power of 1000 kW/1360 HP

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The Omega 42 is the first model in the Alamarin-Jet OMEGA SERIES, with a max input power of 1500 kW/2040 HP.



CONTROL SYSTEMS

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The Actuator Control Unit system or ACU system is a modular propulsion control system designed to be adaptable for multiple configurations with simple selection of modular components.

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Alamarin-Jet Sigma Control System is an electro-hydraulic integrated drive-by-wire control system. It supports installations from single to quadruple waterjets.

DELTA DP CONTROL SYSTEM 26

Delta DP is a modular high-level propulsion control system that integrates vessel's propulsion, steering and navigation systems. It provides three main controlling modes: Manual control, Dynamic Positioning mode and Autopilot mode.

ALAMARIN-JET NETWORK

Alamarin-Jet Oy are world leading manufacturer of waterjet propulsion units and control systems. Suitable for input power up to 1500 kW / 2040 HP, Alamarin-Jet are renowned for an innovative, robust and efficient design philosophy.

Alamarin-Jet have been pushing waterjet innovation particularly in the last 10 years introducing technical features such as the patented Combi-Frame, a jet frame design which allows for multiple installation methods in AJ 245 and AJ 285 as well as the patented Dual Angle Shaft recently introduced in the Omega Series jets which allows 2 different shaft angles without changing jet inclination. Alamarin-Jet see the importance in future technologies within the marine industry and therefore have invested heavily in next generation control and monitoring system, this includes autonomous operations, remote surveillance and remote monitoring. All built on the Sigma control platform.

A RELIABLE AND SKILLED DEALER NETWORK COVERS 50+ COUNTRIES ALL AROUND THE WORLD, PROVIDING RAPID RESPONSE AND DELIVERING SERVICE AND SPARE PARTS WHEN NEEDED THE MOST. ALAMARIN-JET CONSTANTLY WORK ON DEVELOPING THE NETWORK IN ORDER TO MAINTAIN HIGHEST POSSIBLE LEVEL OF SUPPORT.



**ALMOST 50 YEARS SUCCESSFUL EXPERIENCE
IN DESIGNING, MANUFACTURING, AND SUPPLYING
WATERJET PROPULSION SYSTEMS
AROUND THE WORLD**

**FINNISH QUALITY. OVER 90% MADE IN FINLAND,
10% REMAINING EUROPEAN UNION**

**BROAD RANGE OF JET SIZES SUITABLE
FOR INPUT POWER UP TO 1,500 KW**

**BEST POWER/SIZE/WEIGHT CHARACTERISTICS
IN THE MARKET**

**HIGHLY ACCURATE PERFORMANCE CALCULATIONS
USING THE LATEST SOFTWARE COMBINED
WITH YEARS OF EXPERIENCE**

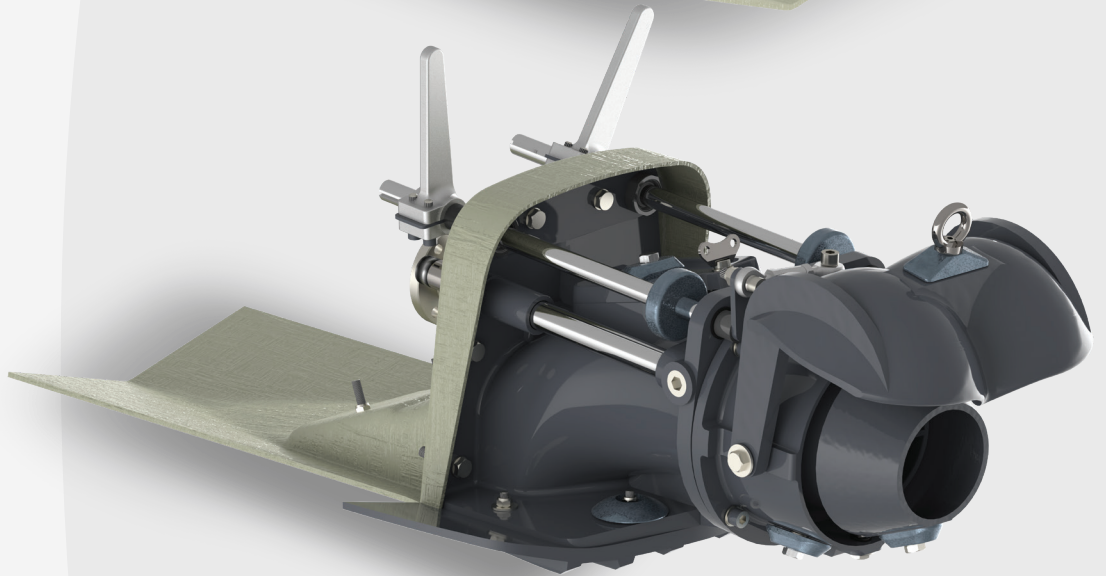
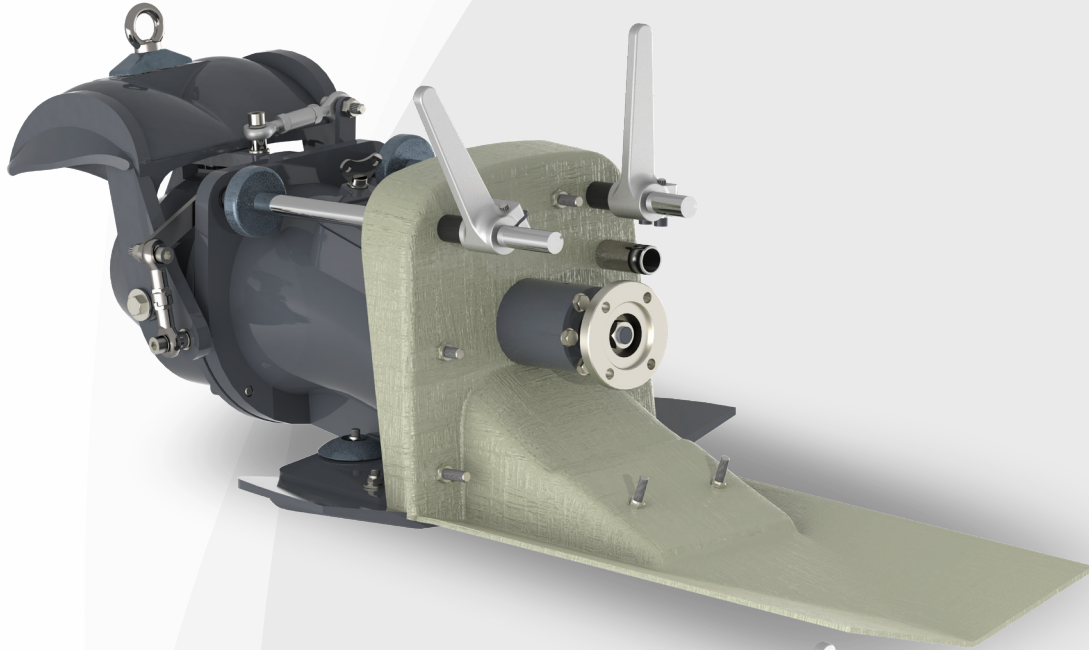
**FASTEST PRODUCTION LEAD TIMES
IN THE INDUSTRY**

COMPANY DEDICATED TO SERVICE AND SUPPORT

DEALER/SERVICE NETWORK IN 50+ COUNTRIES

DIRECT FACTORY SUPPORT FOR ALL CUSTOMERS

A160



REVERSING
DEFLECTOR
CONTROL

SPECS



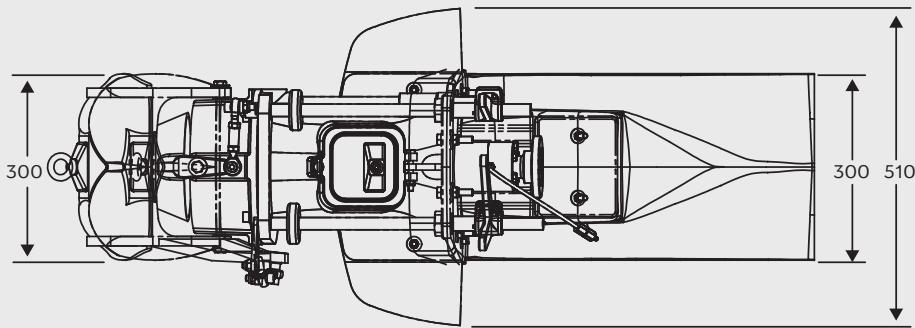
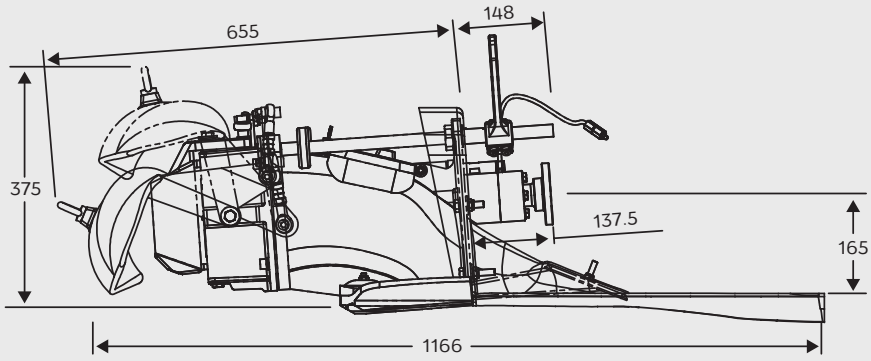
PUMP TYPE
MIXED FLOW,
SINGLE STAGE



IMPELLER SHAFT RPM
MAX. 5000 1/MIN



JET WEIGHT
38 KG
(84 LBS)



IMPELLER DIAMETER
MAX. 186 MM
(7.3")



MAX INPUT POWER
100 KW
(136 MHP)

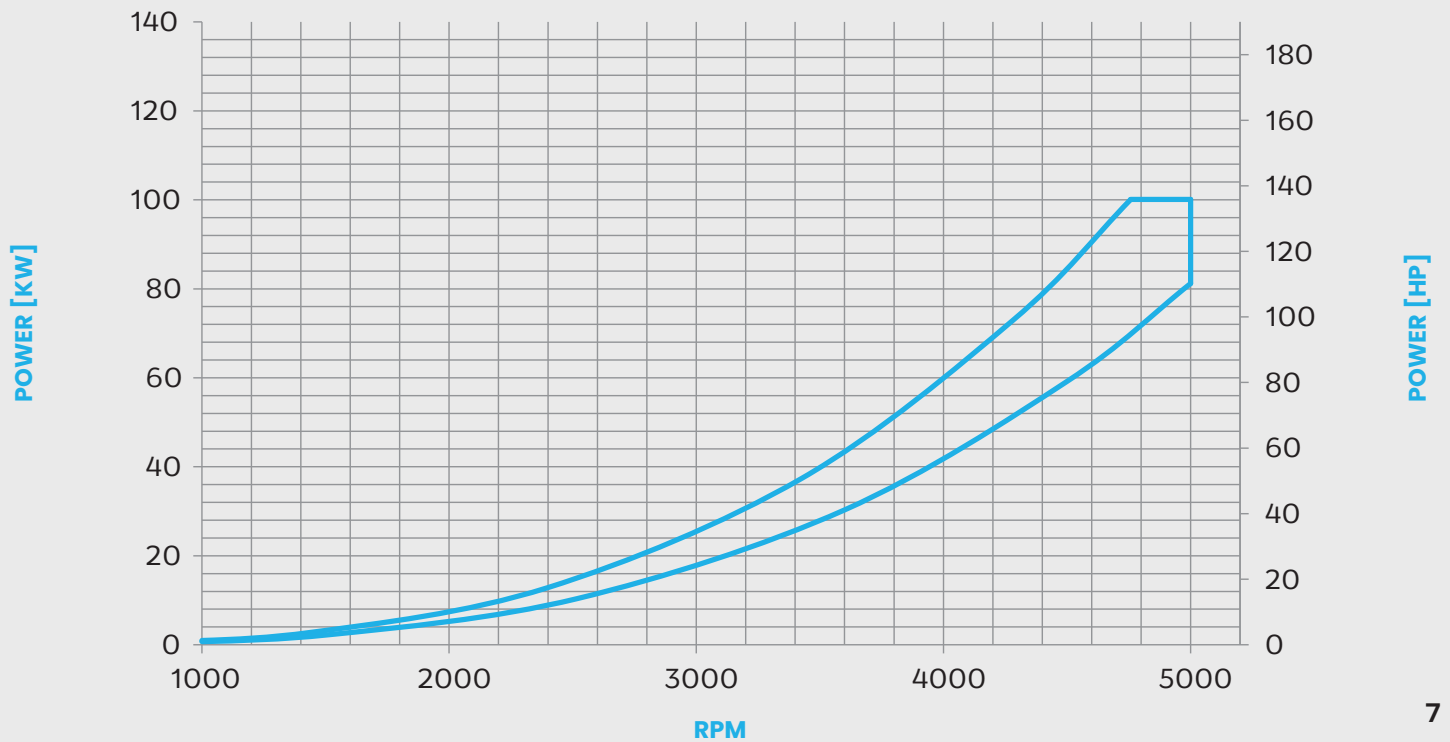


JET CONSTRUCTION
ALUMINIUM,
STAINLESS STEEL

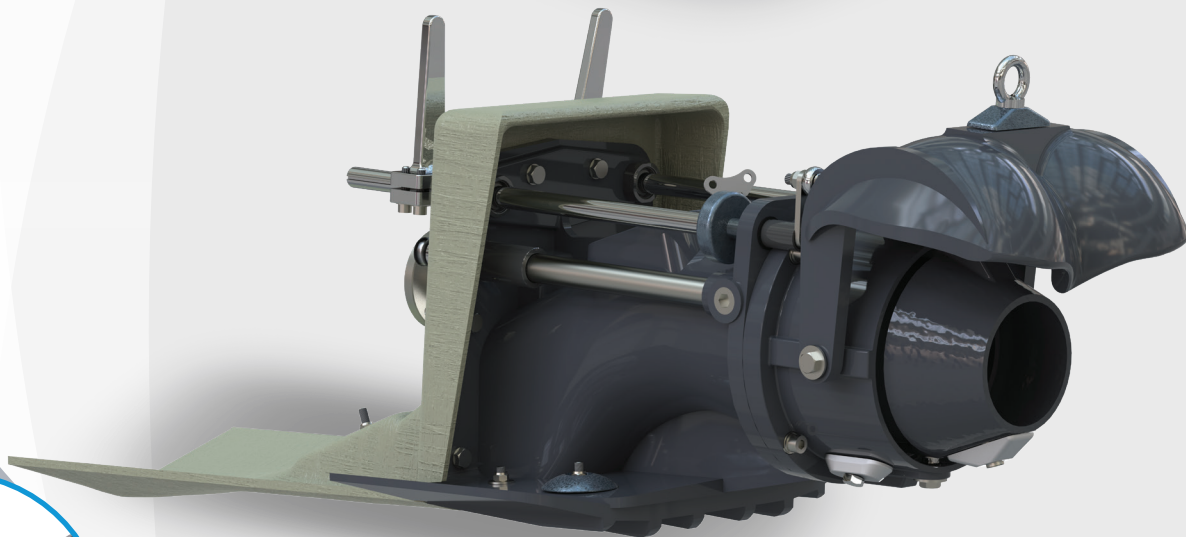
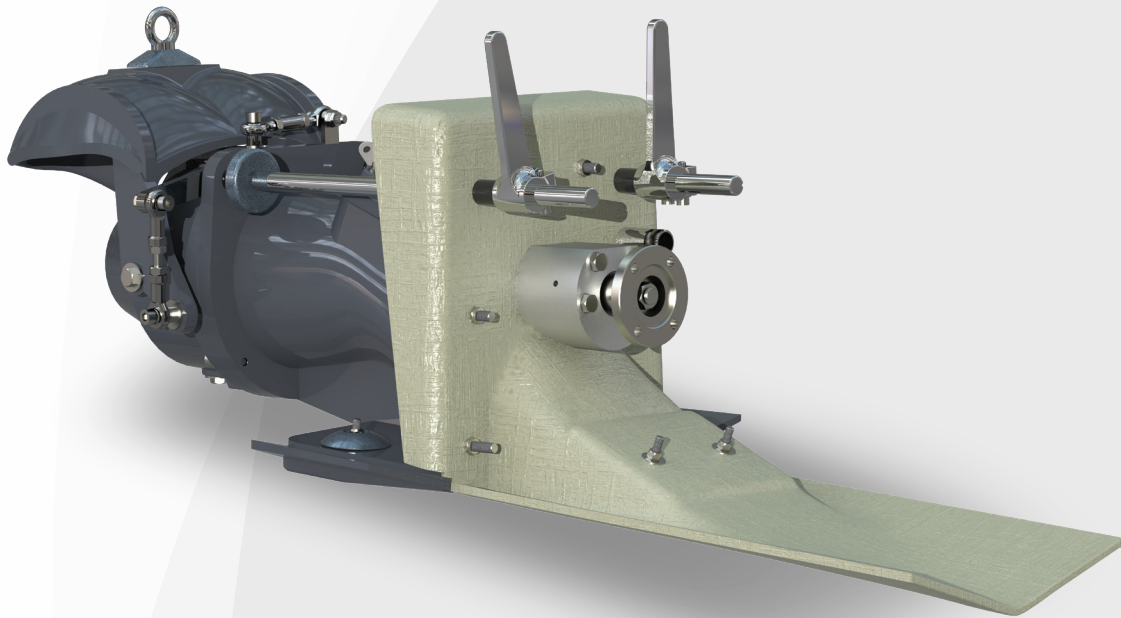


REVERSE DEFLECTOR CONTROL
MECHANICAL OR
ELECTRICAL (ACU)

AJ 160 POWER/RPM COVERAGE



A/180/185



REVERSING
DEFLECTOR
CONTROL

SPECS



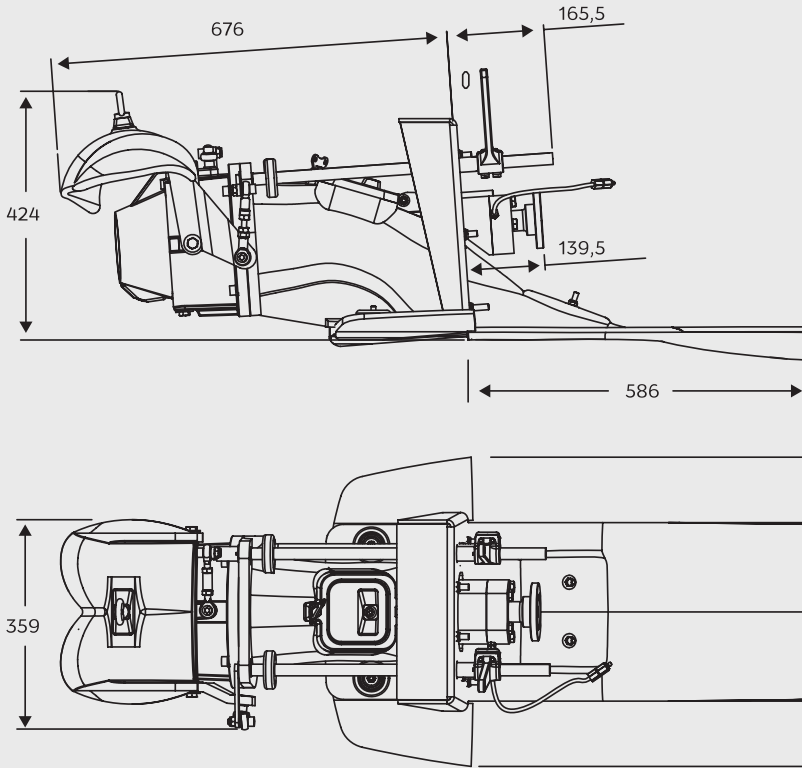
PUMP TYPE
MIXED FLOW,
SINGLE STAGE



IMPELLER SHAFT RPM
MAX. 5000 1/MIN



JET WEIGHT
48 / 50 KG
(106 / 110 LBS)



IMPELLER DIAMETER
MAX. 192 / 197 MM
(7.6" / 7.8")



MAX INPUT POWER
120 KW
(163 MHP)

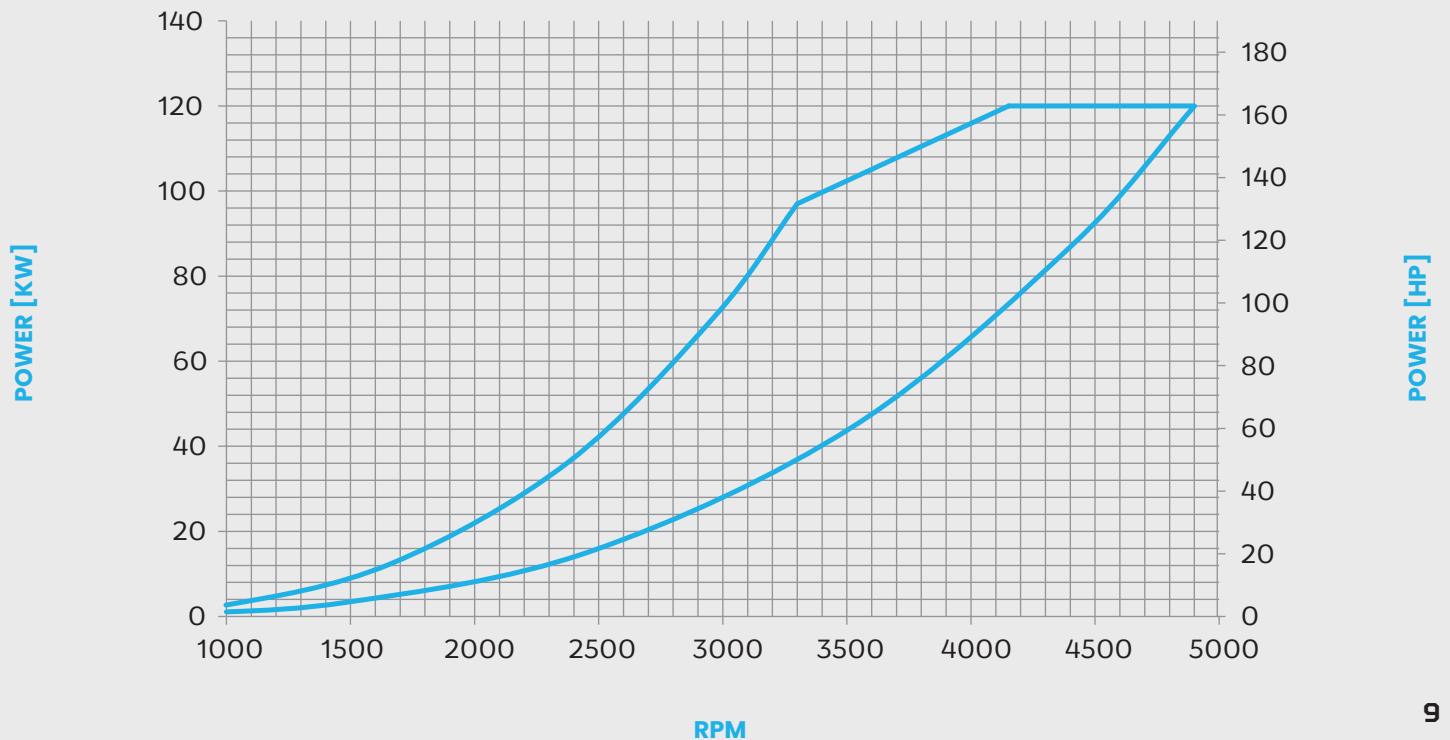


JET CONSTRUCTION
ALUMINIUM,
STAINLESS STEEL

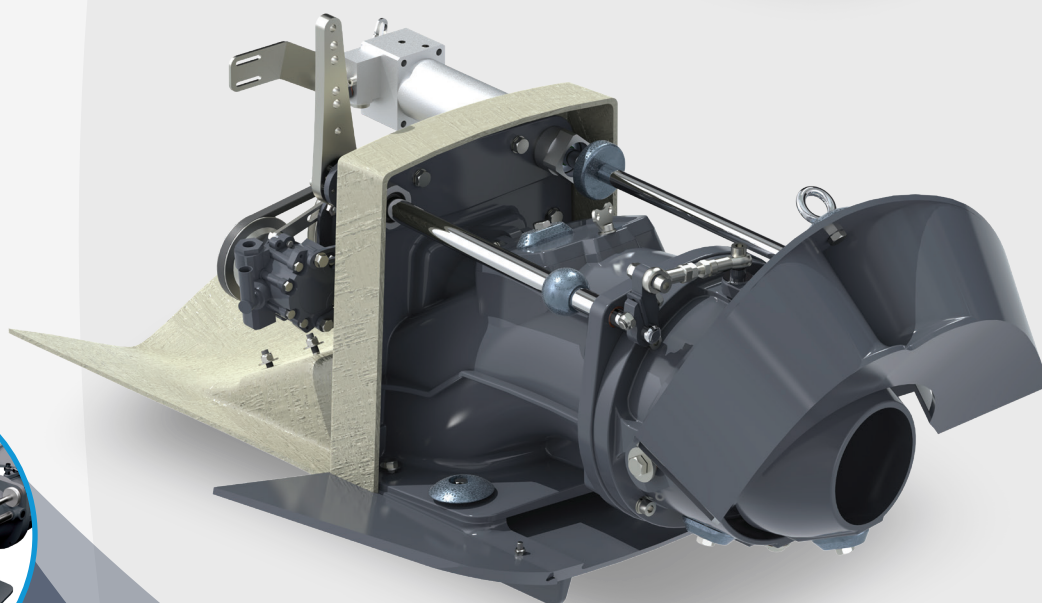
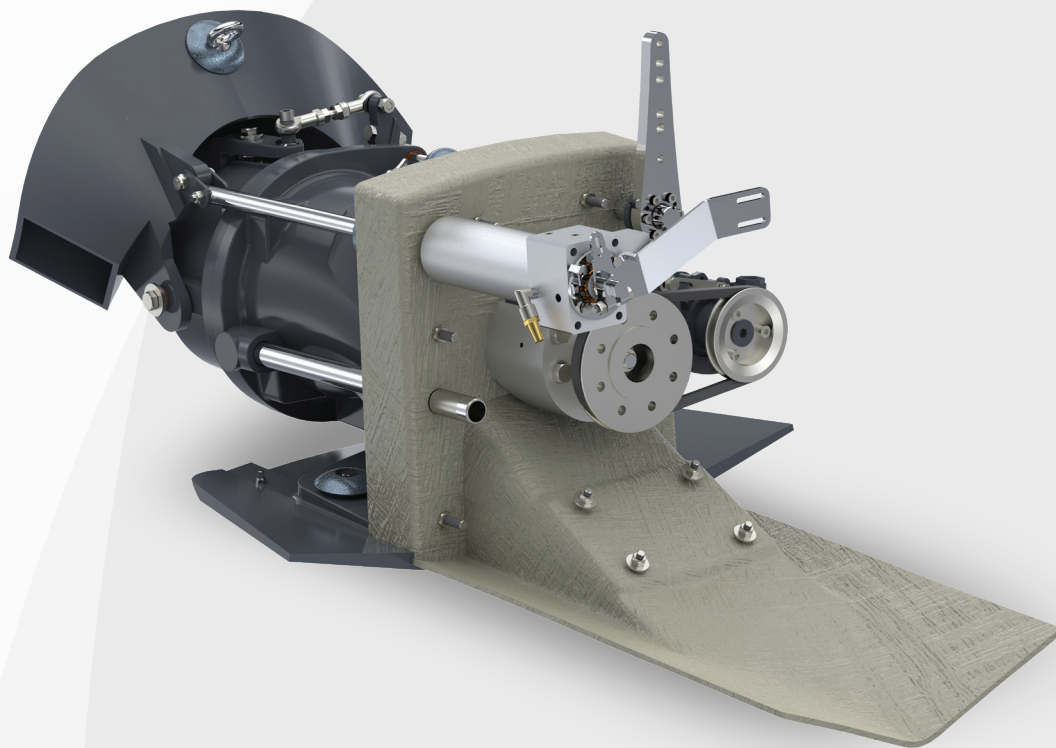


REVERSE DEFLECTOR CONTROL
MECHANICAL OR
ELECTRICAL (ACU)

AJ 180/185 POWER/RPM COVERAGE



A/230



SPECS



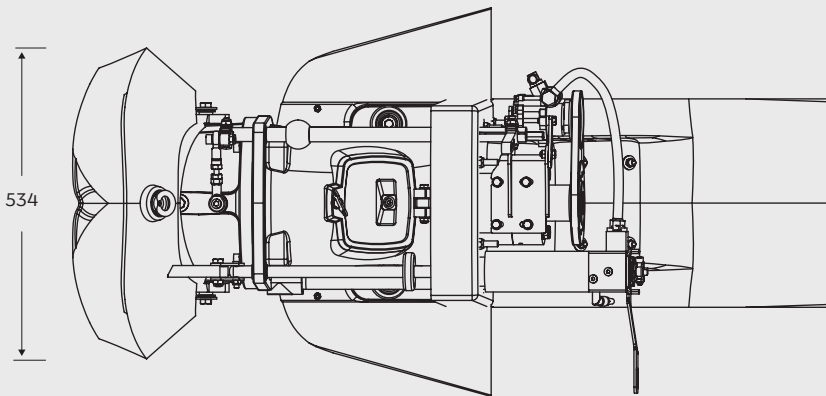
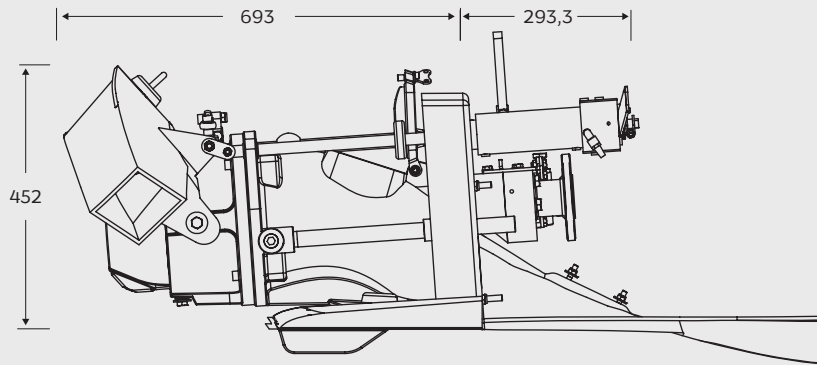
PUMP TYPE
MIXED FLOW



IMPELLER SHAFT RPM
MAX. 4600 1/MIN



JET WEIGHT
81 KG / 179 LBS



IMPELLER DIAMETER
MAX. 228 MM / 9"



MAX INPUT POWER
190 KW / 260 HP

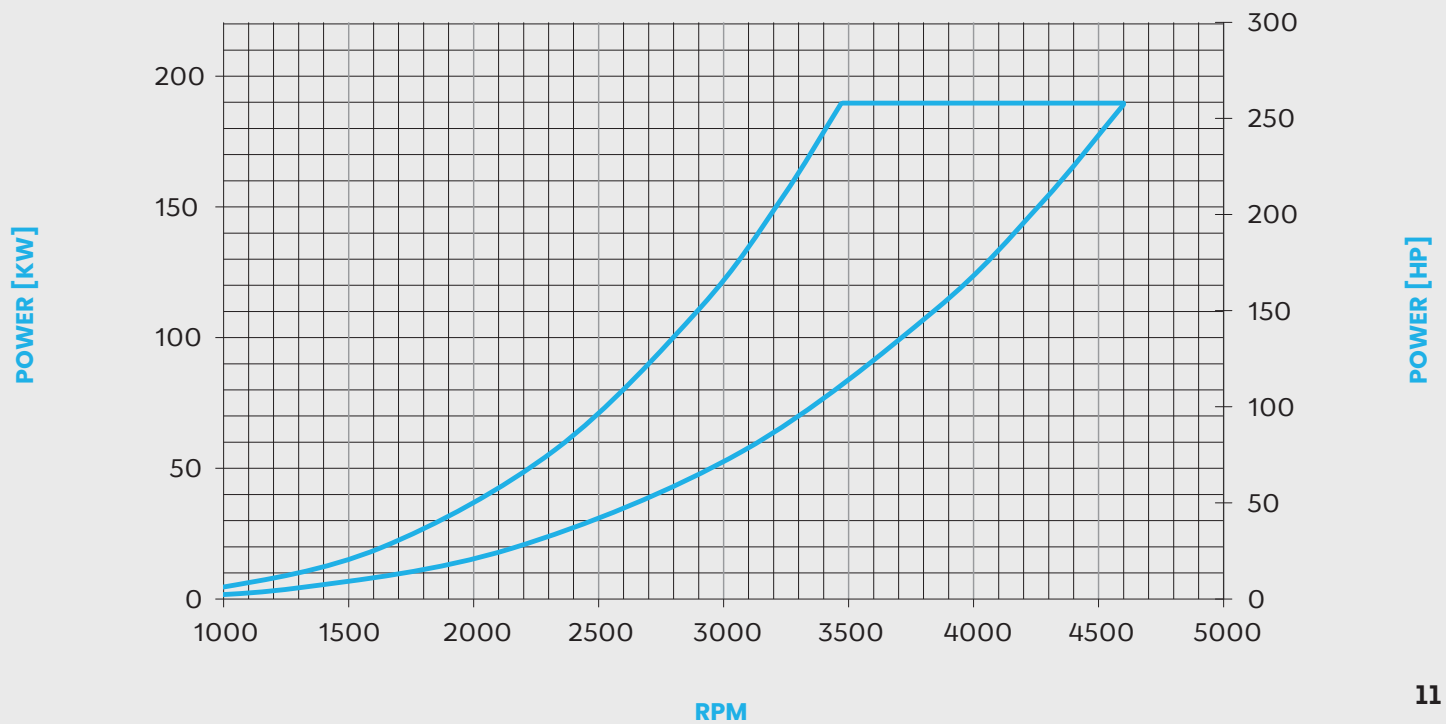


JET CONSTRUCTION
ALUMINIUM,
STAINLESS STEEL

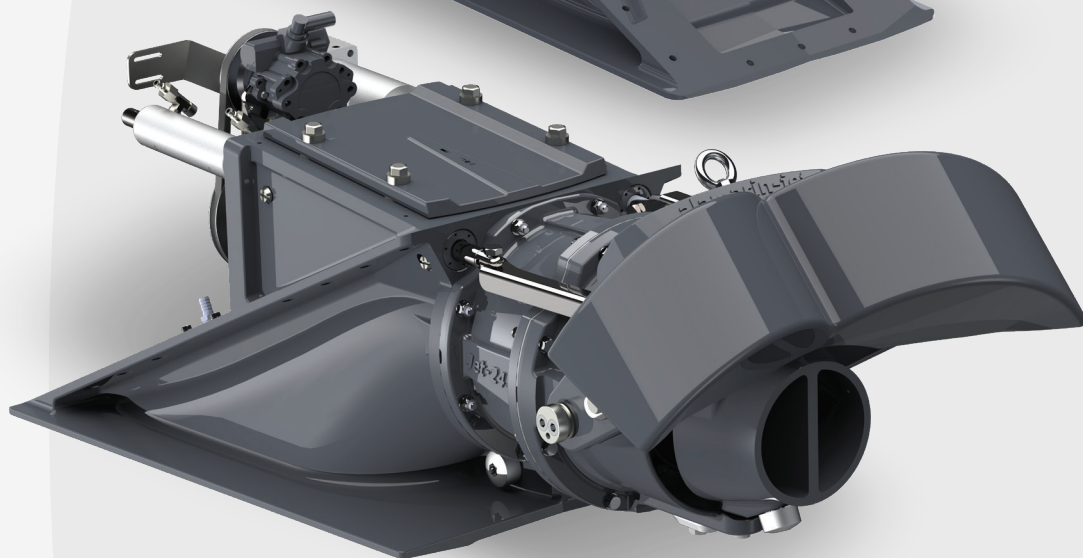
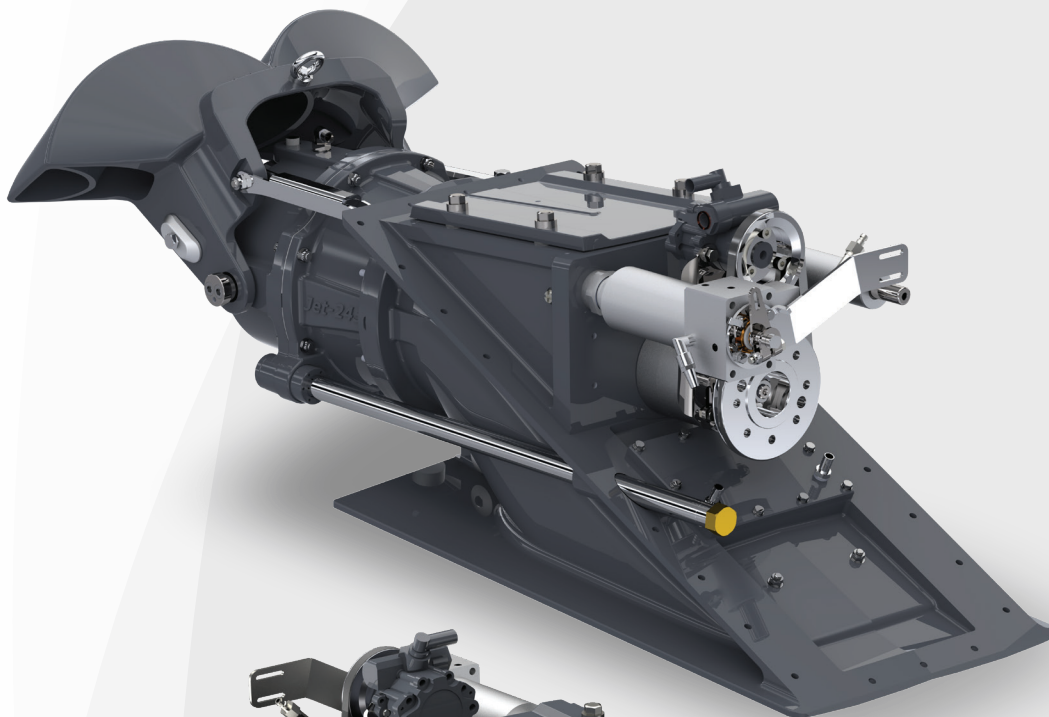


REVERSE DEFLECTOR CONTROL
HYDRAULIC

AJ 230 POWER/RPM COVERAGE



AJ 245



**PATENTED
COMBI-FRAME
TECHNOLOGY**

**Integrated
oil cooler
and steering
cylinder**

**TWO INSTALLATION
OPTIONS**

SPECS



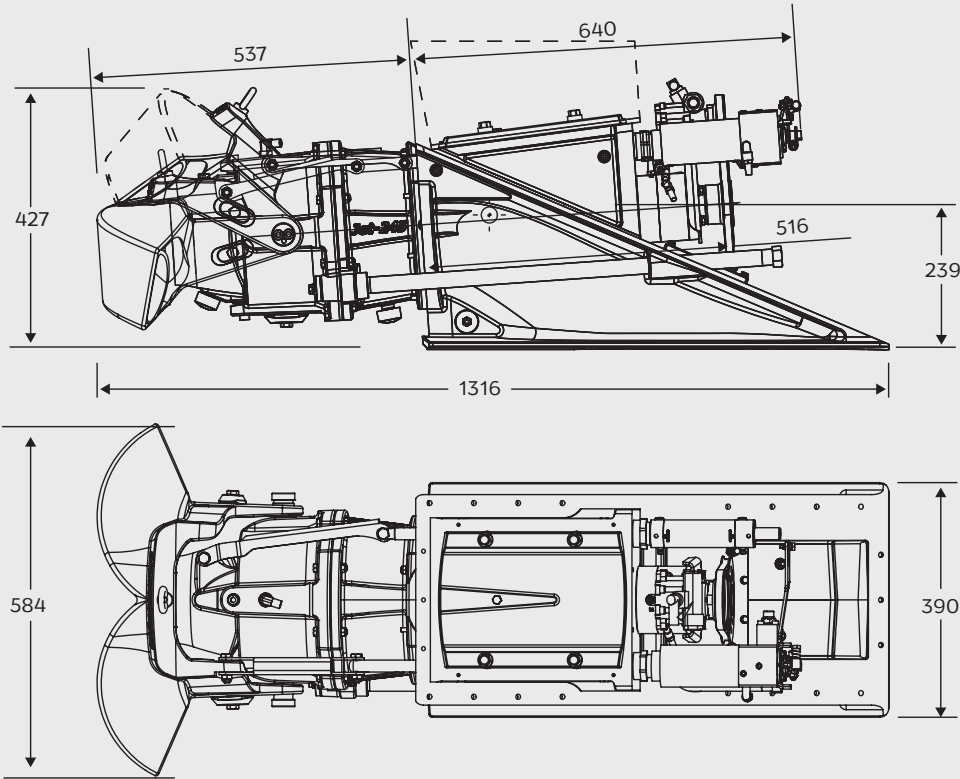
PUMP TYPE
MIXED FLOW,
SINGLE STAGE



IMPELLER SHAFT RPM
MAX. 4600 1/MIN



JET WEIGHT
105 KG
(231 LBS)



IMPELLER DIAMETER
MAX. 245 MM
(9.6")



MAX INPUT POWER
235 KW
(320 MHP)

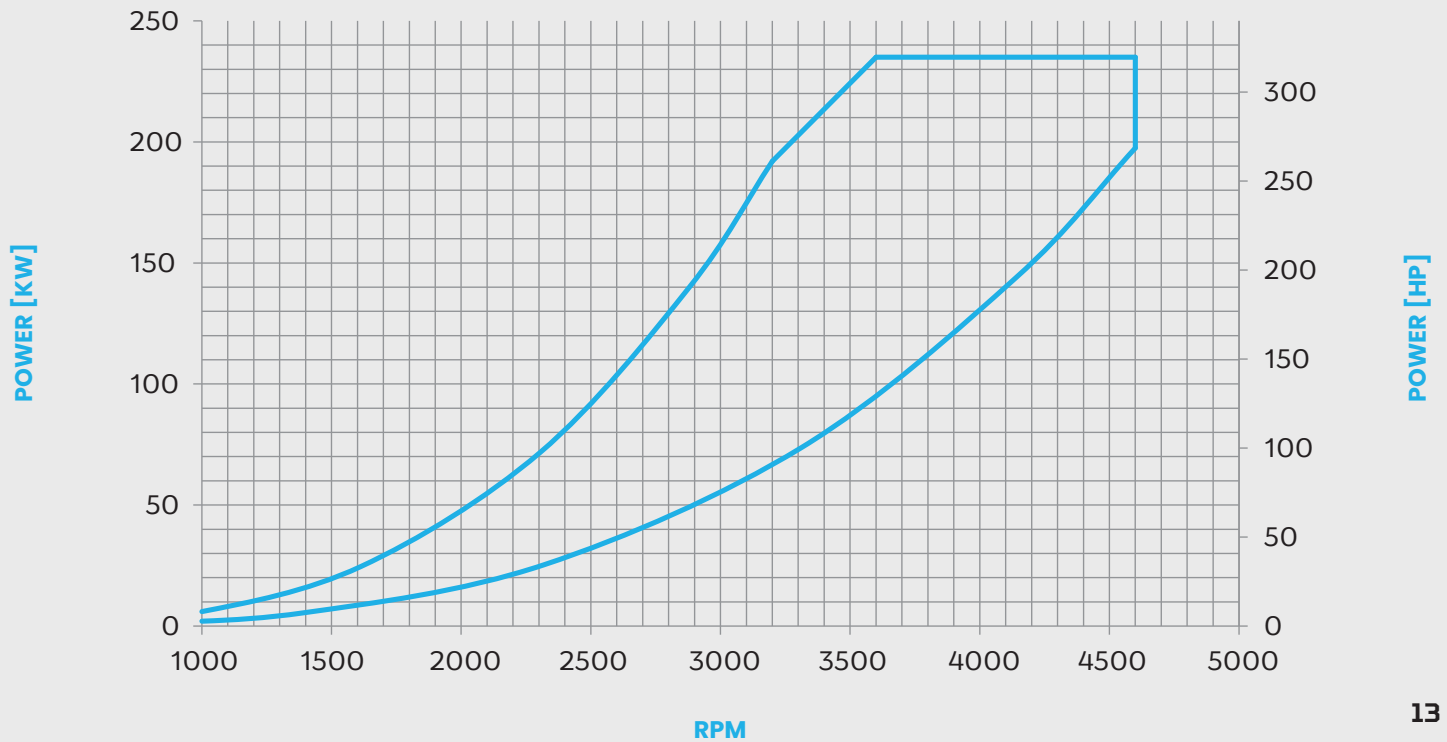


JET CONSTRUCTION
ALUMINIUM,
STAINLESS STEEL

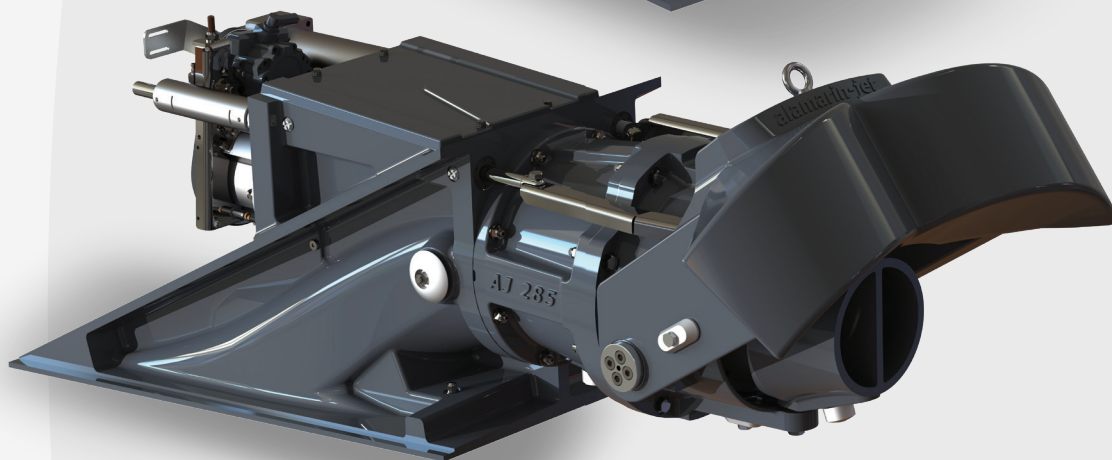
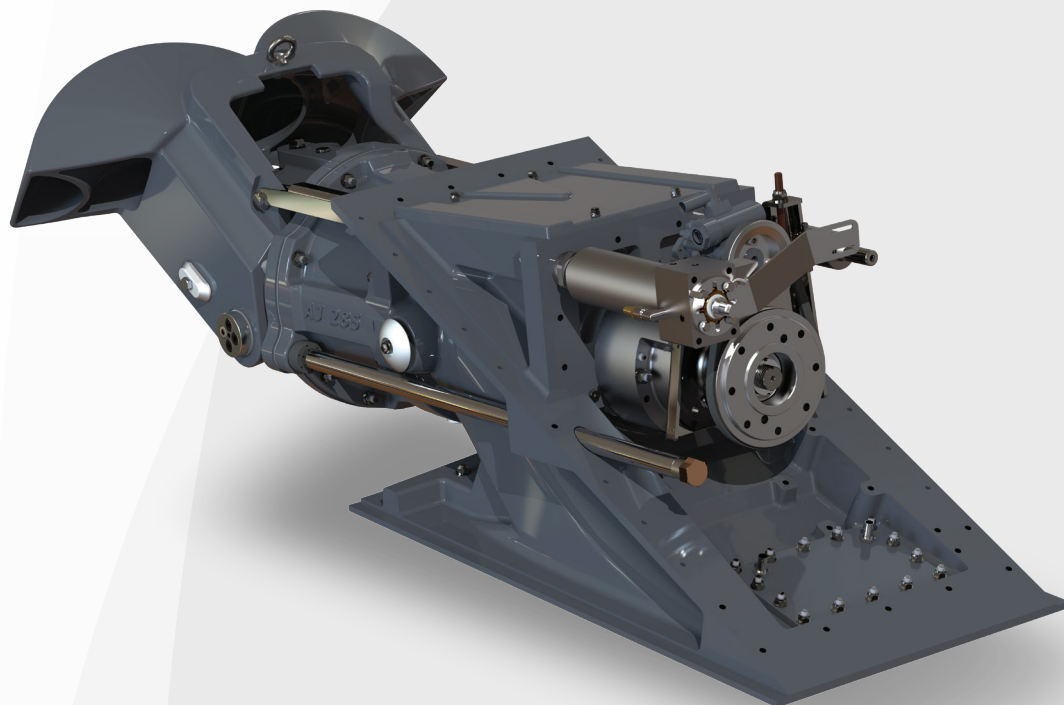


REVERSE DEFLECTOR CONTROL
HYDRAULIC OR
SIGMA CONTROLS

AJ 245 POWER/RPM COVERAGE



AJ 285



PATENTED
COMBI-FRAME
TECHNOLOGY

Integrated
oil cooler
and steering
cylinder

TWO INSTALLATION
OPTIONS

SPECS



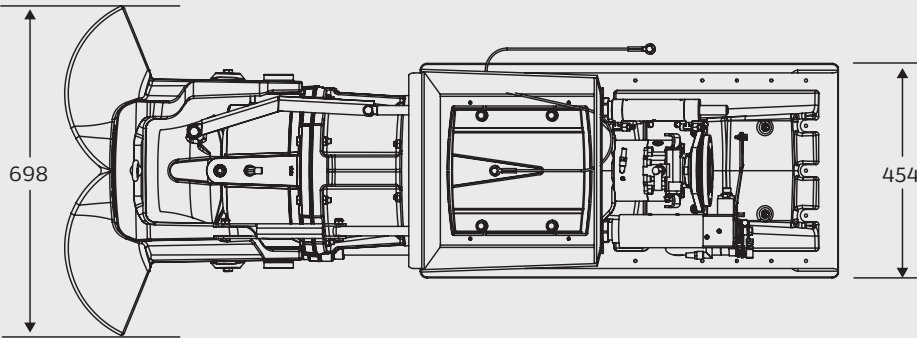
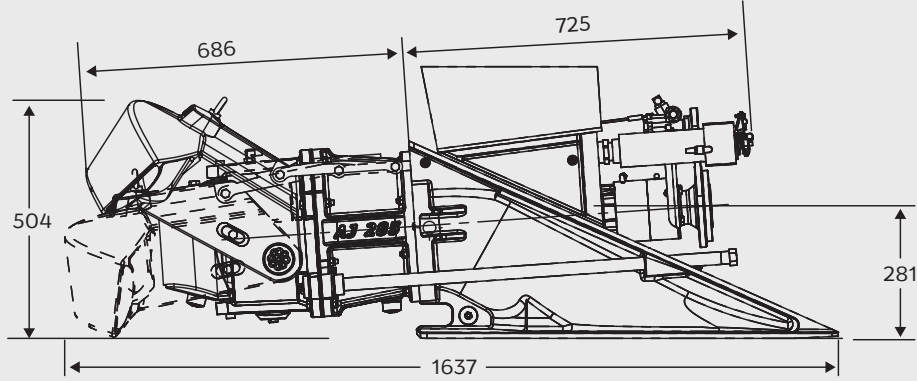
PUMP TYPE
MIXED FLOW,
SINGLE STAGE



IMPELLER SHAFT RPM
MAX. 3700 1/MIN



JET WEIGHT
181 KG
(399 LBS)



IMPELLER DIAMETER
MAX. 288 MM
(11.3")



MAX INPUT POWER
368 KW
(500 MHP)

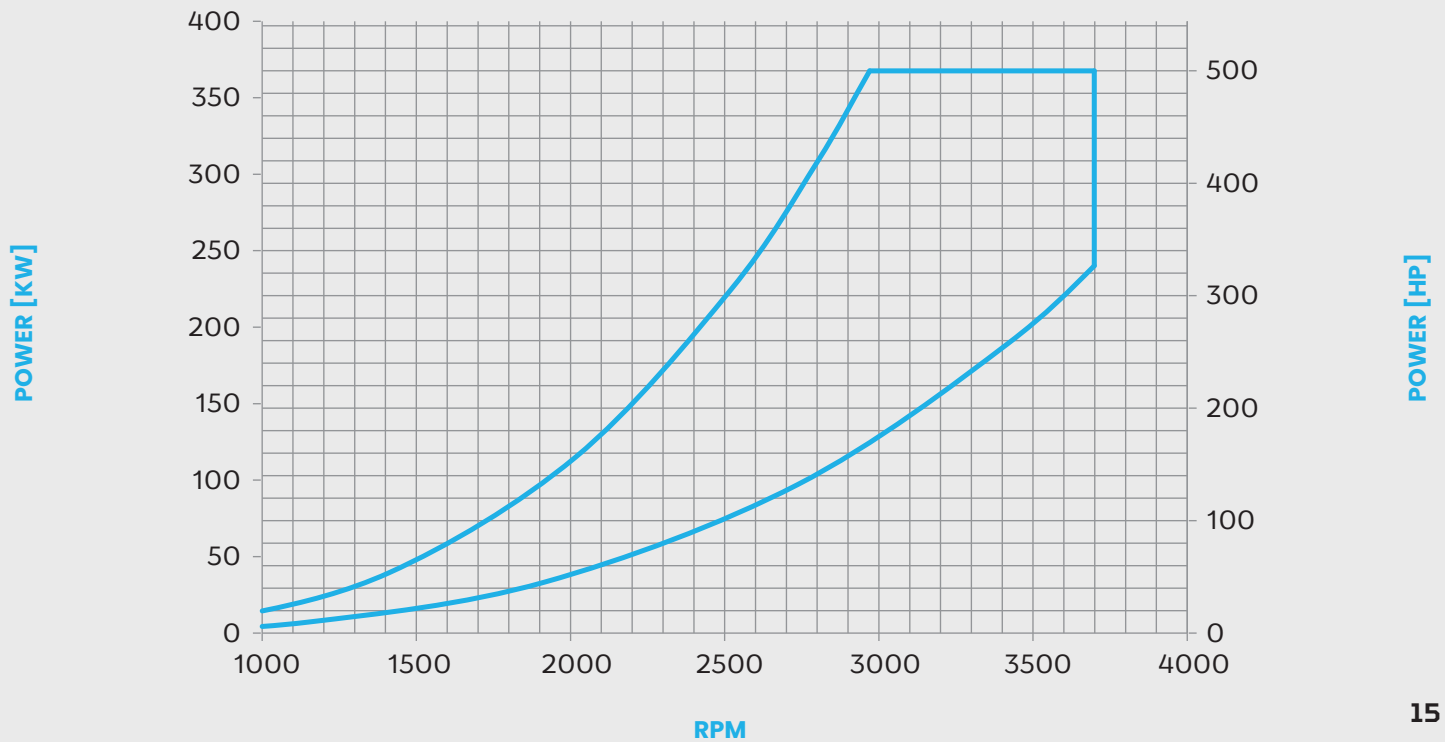


JET CONSTRUCTION
ALUMINIUM,
STAINLESS STEEL

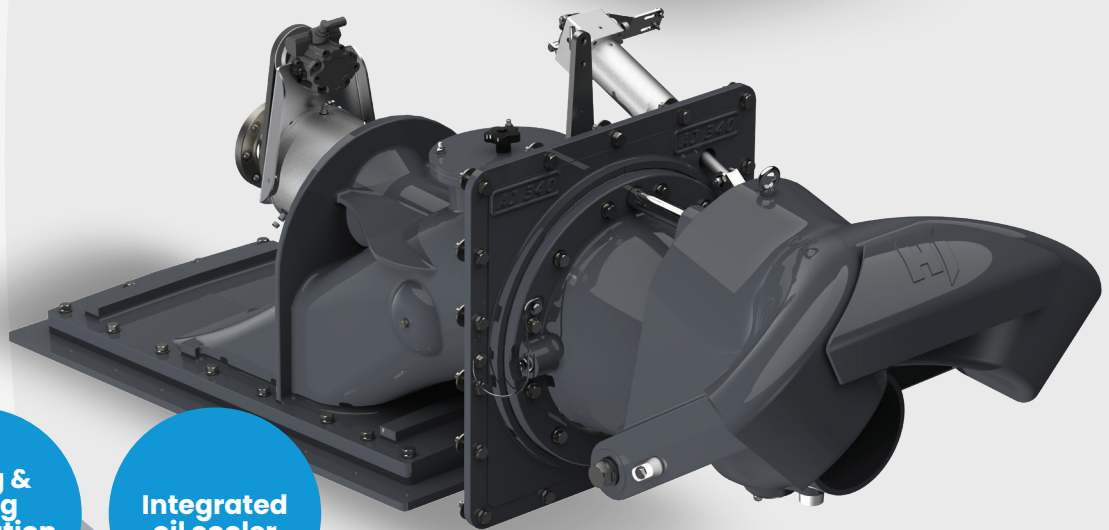
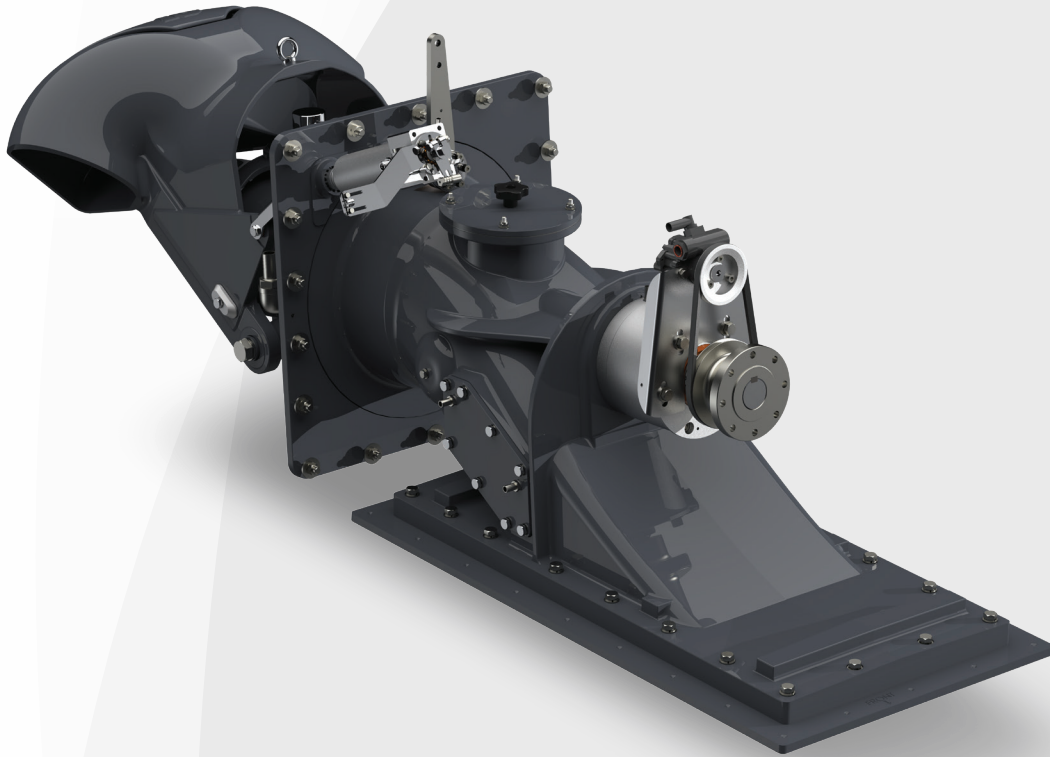


REVERSE DEFLECTOR CONTROL
HYDRAULIC OR
SIGMA CONTROLS

AJ 285 POWER/RPM COVERAGE



A/340



0-deg &
5-deg
installation
options

Integrated
oil cooler

SPECS



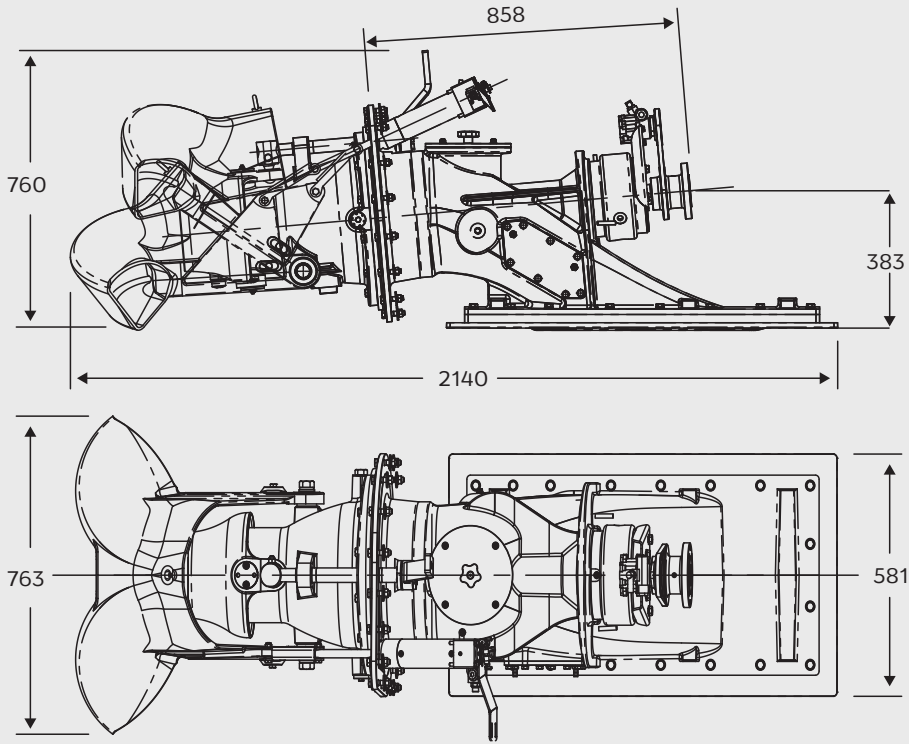
PUMP TYPE
MIXED FLOW,
SINGLE STAGE



IMPELLER SHAFT RPM
MAX. 3300 1/MIN



JET WEIGHT
272 KG
(540 LBS)



IMPELLER DIAMETER
MAX. 335 MM
(13.2")



MAX INPUT POWER
550 KW
(750 MHP)

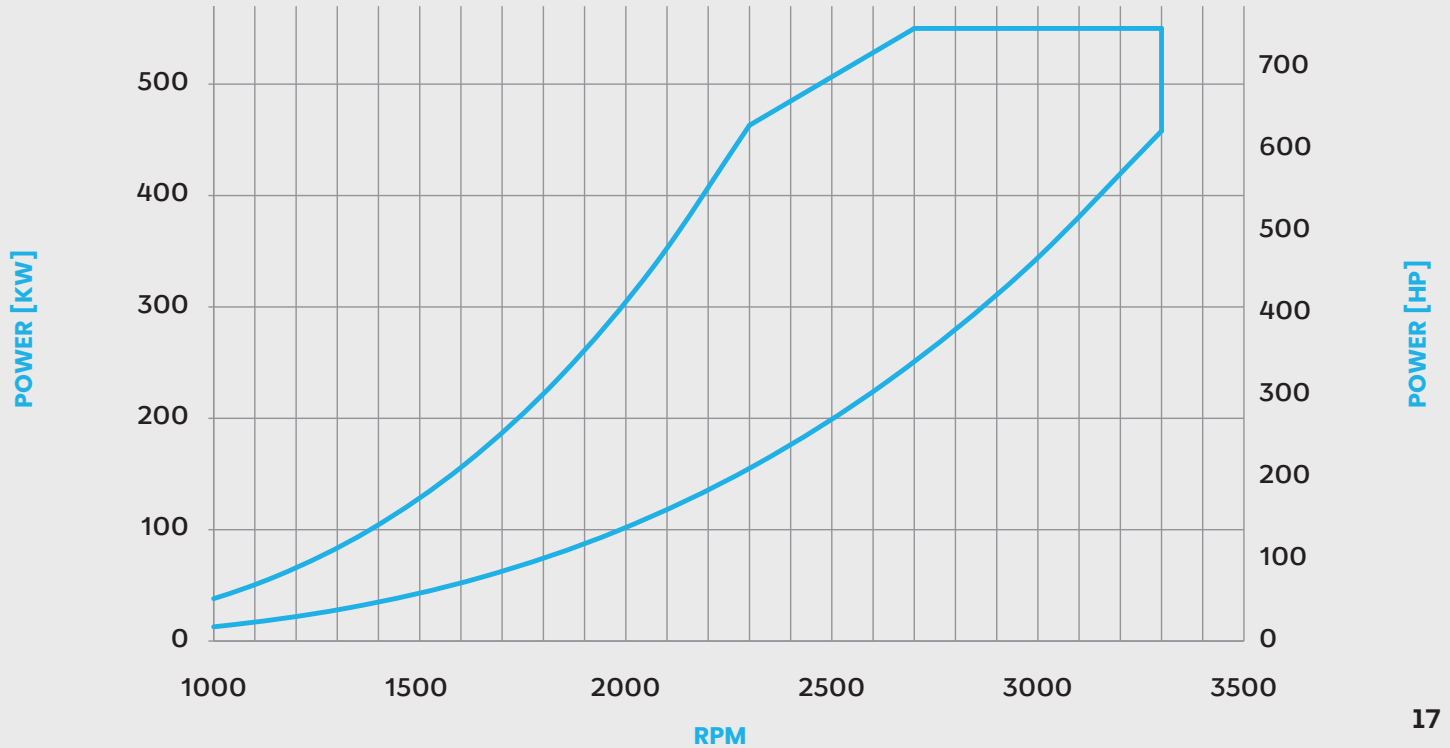


JET CONSTRUCTION
ALUMINIUM,
STAINLESS STEEL



REVERSE DEFLECTOR CONTROL
HYDRAULIC OR
SIGMA CONTROLS

AJ 340 POWER/RPM COVERAGE



Omega37



STAINLESS STEEL
PUMP UNIT

DAS:
0-deg &
4-deg shaft
options

Integrated
Sigma
Control
System

FIBS:
Frame
Integrated
Bearing
Structure

MIG:
Modular
Intake
Geometry

Structural
bulkhead
adapter

SPECS



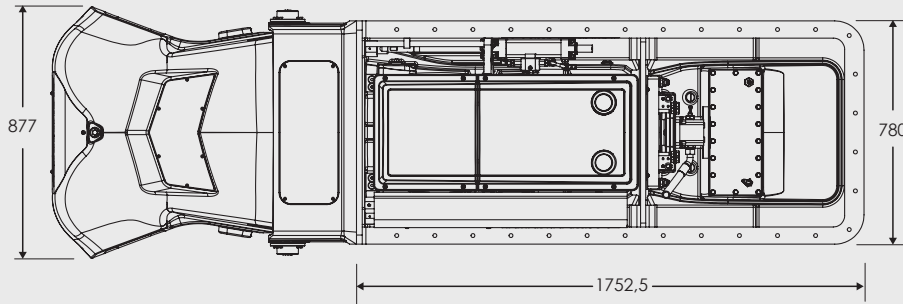
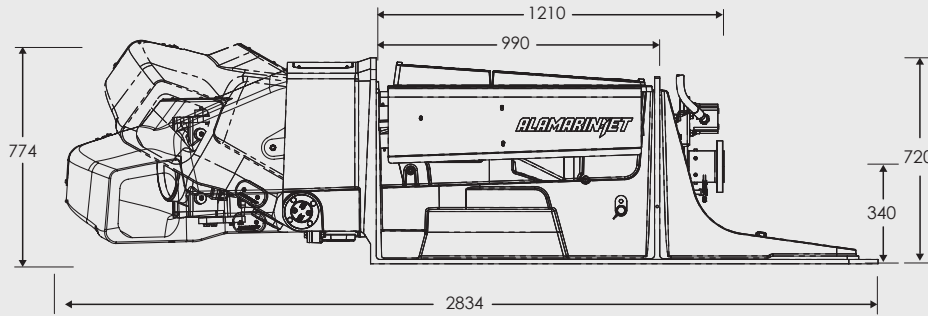
PUMP TYPE
MIXED FLOW,
SINGLE STAGE



IMPELLER SHAFT RPM
MAX. 2550 1/MIN



JET WEIGHT
750-770 KG



IMPELLER DIAMETER
MAX. 430 MM
(16.9")



MAX INPUT POWER
1000KW
(1360 HP)

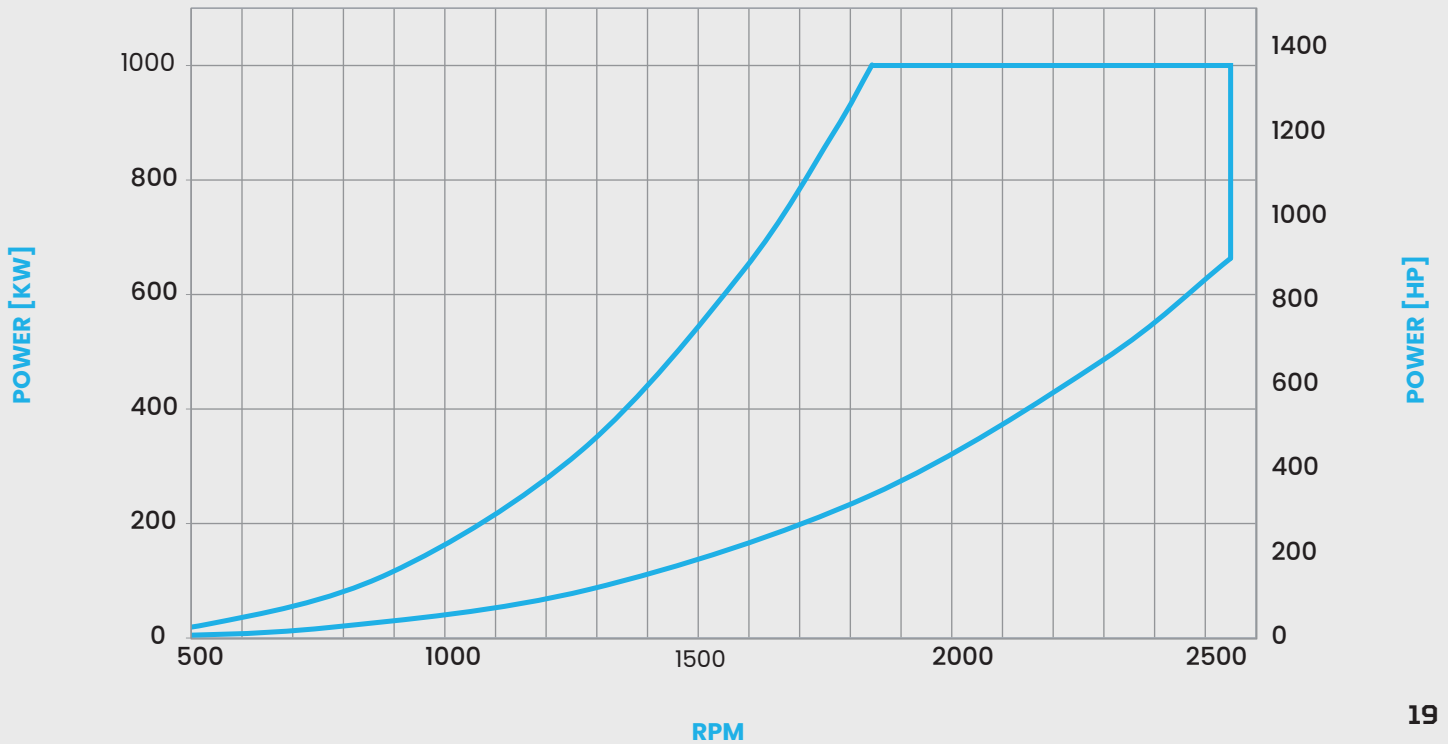


JET CONSTRUCTION
ALUMINIUM,
STAINLESS STEEL



REVERSE DEFLECTOR CONTROL
HYDRAULIC OR
SIGMA CONTROLS

OMEGA 37 POWER/RPM COVERAGE



Omega 42



DAS:
0-deg & 4-deg
shaft options

**Integrated
Sigma
Control
System**

FIBS:
Frame
Integrated
Bearing
Structure

MIG:
Modular Intake
Geometry

SPECS



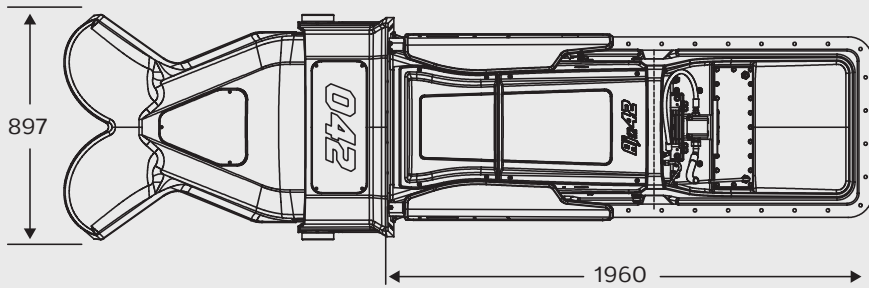
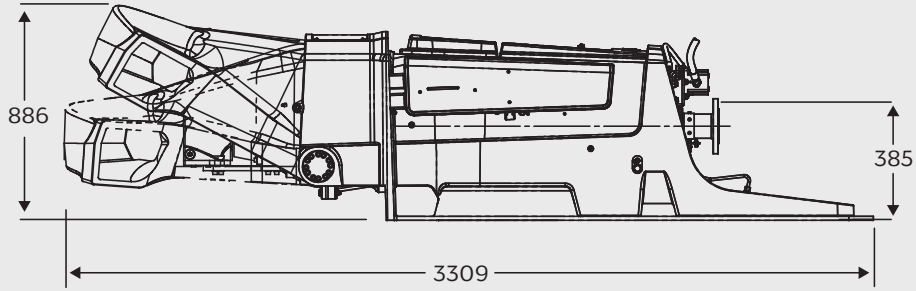
PUMP TYPE
MIXED FLOW,
SINGLE STAGE



IMPELLER SHAFT RPM
MAX. 2300 1/MIN



JET WEIGHT
815 KG
(1796 LBS)



IMPELLER DIAMETER
MAX. 480MM
(18.9")



MAX INPUT POWER
1500 KW
(2040 HP)

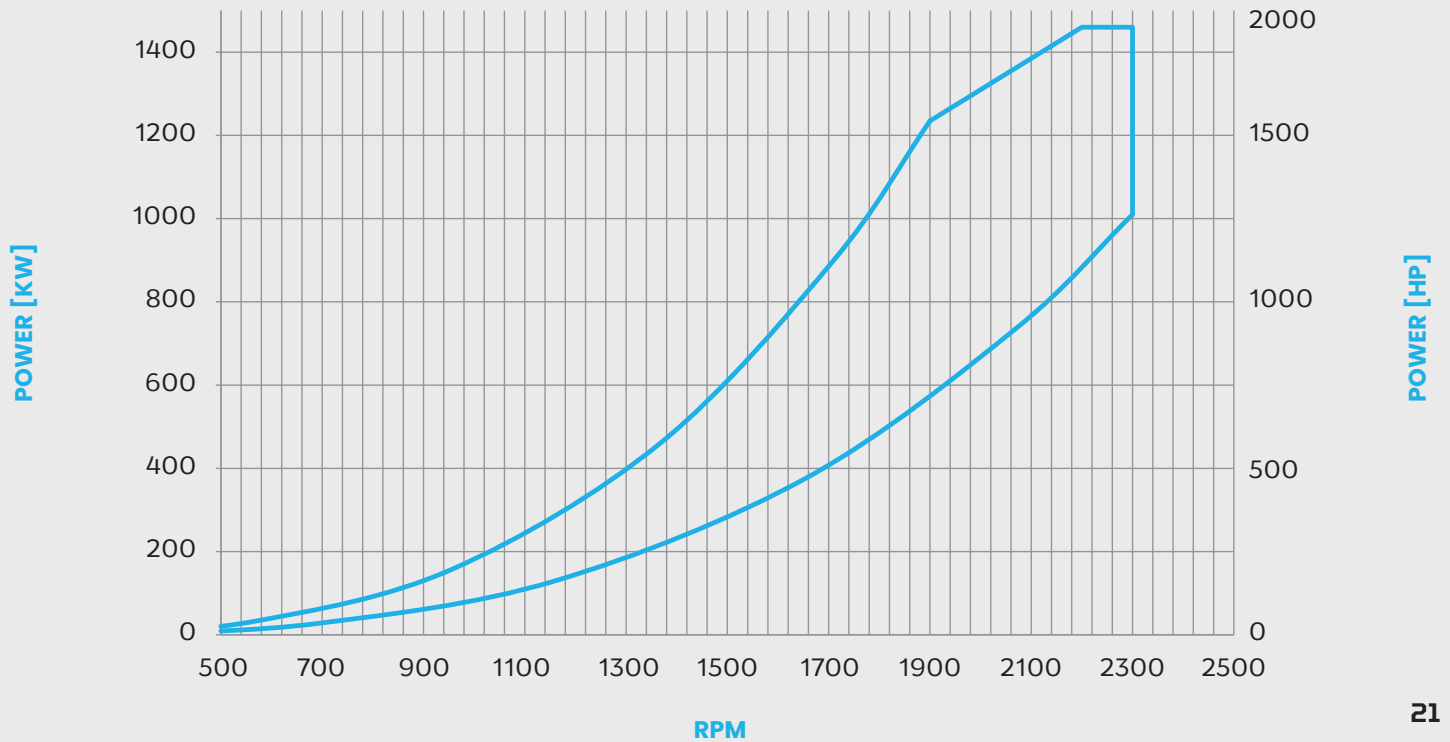


JET CONSTRUCTION
ALUMINIUM,
STAINLESS STEEL



REVERSE DEFLECTOR CONTROL
HYDRAULIC OR
SIGMA CONTROLS

OMEGA 42 POWER/RPM COVERAGE



ACU

The Actuator Control Unit system or ACU system is a modular propulsion control system designed to be adaptable for multiple configurations with simple selection of modular components.

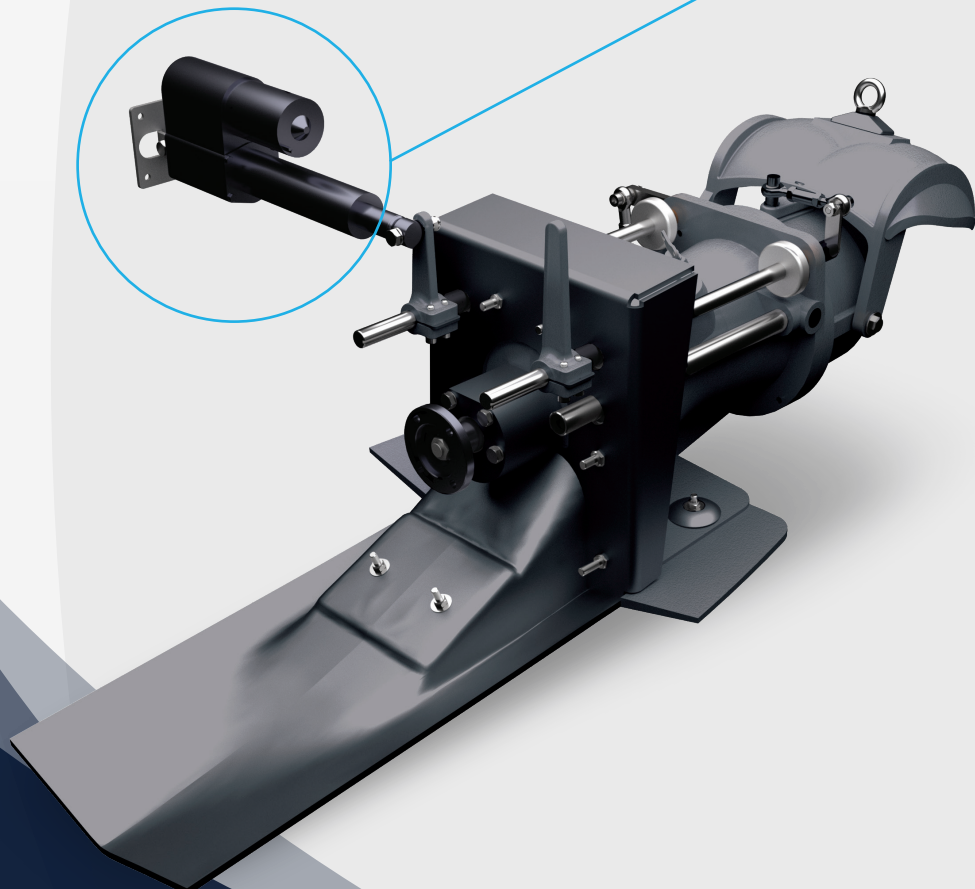
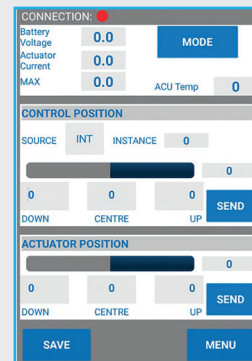
The ACU system can be used to control the waterjet deflector and waterjet steering, as well as engine throttle or gearbox engagement.

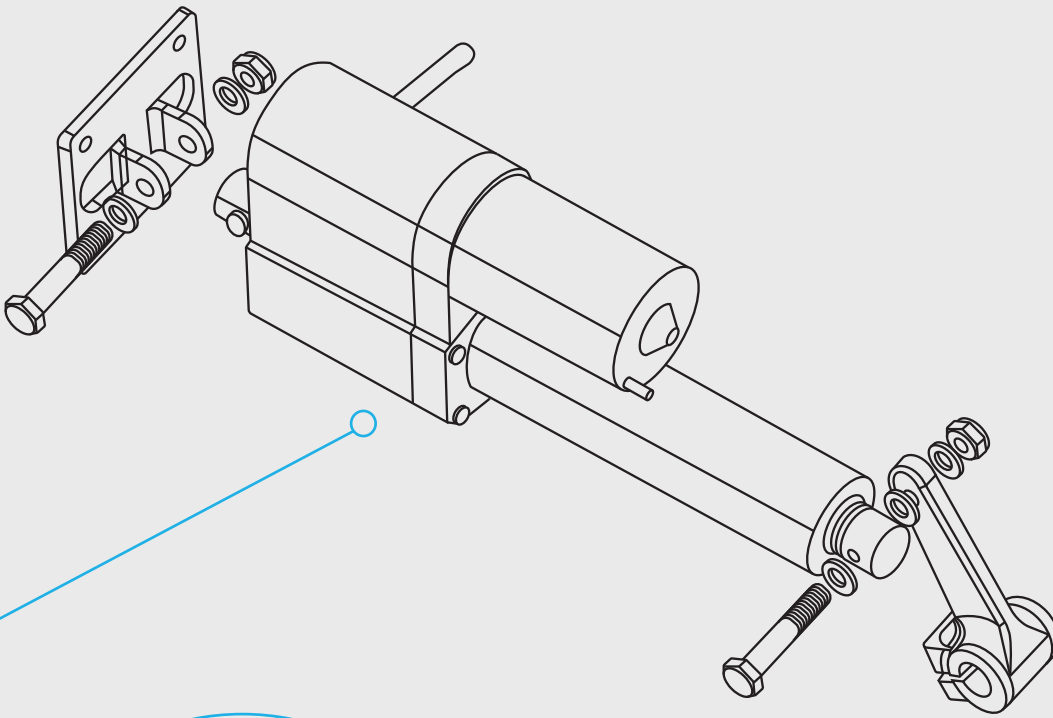
The main unit in the system is the ACU itself. The ACU is a controller box which can control one (1) actuator at a time within the overall system.

The ACU can accept its own internal potentiometer control, an external signal supply (typically 0-5v) or a CAN signal (NMEA 2000, rudder message).

The ACU can be configured via the integrated button and 'traffic light' LED's or a Service Tool item (option).

ACU Service Tool (mobile app)





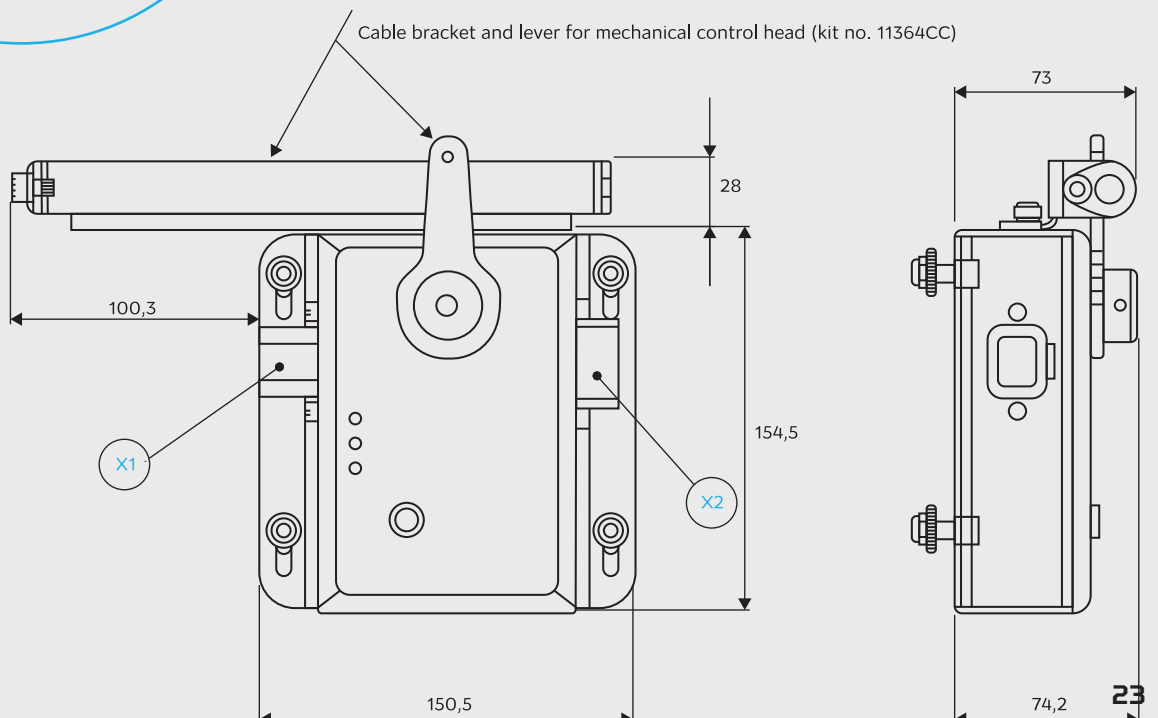
X1

OVDC
+12VDC
Actuator neg
Actuator pos

X2

Pot. 1 GND
Pot. 1 signal
Pot. 1 +5VDC
CAN-L
CAN-H
Alarm
Actuator pot GND
Actuator pot signal
Actuator pot +5V
Pot. 2 GND
Pot. 2 signal
Pot. 2 +5VDC

Cable bracket and lever for mechanical control head (kit no. 11364CC)



SIGMA

ELECTRO-HYDRAULIC INTEGRATED

DRIVE-BY-WIRE CONTROL SYSTEM

Alamarin-Jet Sigma Control System is an electro-hydraulic integrated drive-by-wire control system.

It supports installations from single to quadruple waterjets. The system is based on modular architecture and the level of features depends on the modules integrated based on the user requirements.

In addition to the standard configuration of Sigma Control System, Intelligent Dynamics is also available as an add-on feature.

AJ Intelligent Dynamics has been developed with future markets and industries at its core, such as effortless and straightforward integration with 3rd party autonomous and unmanned systems.

Intelligent Dynamics also features highly sophisticated position and heading keeping functions which give significant operational benefits to a wide variety of vessel types and applications.

TECHNICAL:

The Sigma Control System is built on a CAN network, the core of the system being the Jet Controller Units (JCU) and Helm Control Units (HCU) being connected via a standardised cable system. Each Jet has its own independent JCU and individual control hydraulics for increased redundancy. Each JCU works also as an individual control network node (CAN Bus). The primary BUS system is capable to carry both, electric power for each JCU node and network communications.

In the case of twin installation and upwards, two electrically separated primary BUS lines are used to increase the redundancy level. All primary control heads are capable to deliver isolated dual output. Each Control Head axis of movement has two electronically separated circuits, making each propulsion line truly separated and independent. Any single point of failure does not affect to another Primary BUS propulsion line.



COMPUTING

TWIN THRUST LEVER

**3-AXIS
DOCKING JOYSTICK**

E-HELM

INTELLIGENT DYNAMIC FEATURES

JOYSTICK



Ideal for docking and low-speed maneuvering in harbor environments, Joystick mode allows the vessel to move precisely in the direction and rotation set by the joystick.

The operator can perform all movements, including lateral, diagonal and rotational maneuvers, using only the joystick.

The system automatically calculates and adjusts the propulsion to execute the requested movements accurately, providing smooth and controlled handling.

VIRTUAL ANCHOR

Activating Virtual Anchor mode sets a virtual anchor point that the system uses to maintain the vessel's position within a defined radius, automatically orienting its bow toward the wind for stability.



Instead of a physical anchor, Virtual Anchor relies on GNSS positioning and compass data to hold the vessel in set distance from virtual anchoring point, using precise engine and propulsion adjustments to counteract wind and currents. This allows for fuel-efficient operation at minimal RPM, ensuring smooth, controlled movement.

Virtual Anchor is convenient for the crew, ideal for ROV deployment, and functions effectively even with a single-jet configuration. The system also enables fine-tuning of the anchor point distance while the function is active, helping the vessel to naturally stabilize over time with minimal energy consumption.

SUPPORT FOR EXTERNAL AUTOPILOT



In addition to its built-in Sigma autopilot, the system includes an interface that allows compatibility with external autopilot systems

AUTOPILOT



Heading Hold: Maintains the vessel on a set heading, allowing for natural drift caused by wind and currents. The locked heading is easy to adjust on the fly, reducing user workload and offering intuitive control.

Course Mode: An advanced version of Heading Hold, Course Mode creates a course for the vessel to follow. In this mode, the vessel actively maintains its course, preventing any drift.

Track Mode: Designed for use with an external navigation planner (ECDIS), Track Mode enables the Sigma autopilot to follow a pre-defined route with waypoints. Once a route is activated, the autopilot automatically steers the vessel along the planned path.

DYNAMIC POSITIONING (DP)

When DP mode is activated, the system automatically holds the vessel's GNSS position and heading, keeping it steady in a designated location.



The operator can make precise adjustments to the vessel's position and heading using the joystick without disengaging DP mode, enabling smooth, controlled movements as needed.

Key Features:

- ✓ Maintains set position and heading, counteracting wind, waves, and other external forces.
- ✓ Typically requires high RPMs in adverse weather conditions, making it fuel intensive.
- ✓ Optimally functions with a twin-jet configuration for enhanced stability and performance. Single-Jet require a bow thruster

EXIF – EXTERNAL INTERFACE



USV Ready – Provides a comprehensive CAN bus JET-Control interface with engine management, enabling rapid deployment for Unmanned Surface Vehicles (USVs). EXIF includes essential methods to control the system via an external CAN bus node, and allows access to Sigma's higher-level controls, such as Joystick mode.

SPECIFICATIONS

- ✓ Modular and scalable architecture – From single installation up to 4 jets
- ✓ Multiple control stations
- ✓ Multiple control head arrangement options
- ✓ Flexible BUS architecture – each jet unit acts as an individual BUS node
- ✓ Factory made modular cabling system, no custom cables required
- ✓ Increased Redundancy – Based on individual drive lines and multiple control law levels
- ✓ Easy to approach design
- ✓ Installation is based on plug'n'play modules
- ✓ Intuitive walk through commissioning procedure
- ✓ Simple to use, new High Resolution display with modern UI/UX usability
- ✓ Digital engine interface – Direct digital CAN-CAN Throttle control for responsive throttle management without delays
- ✓ Sophisticated diagnostics – Multiple data logging and diagnostic options
- ✓ Intelligent self-monitoring system. Temperature, Pressure and Fluid Levels are continuously monitored

Delta DP

PRECISE DP CONTROL

FOR THRUSTERS AND RUDDERS

Delta DP is a modular high-level propulsion control system that integrates vessel's propulsion, steering and navigation systems. It provides three main controlling modes: Manual control, Dynamic Positioning mode and Autopilot mode. DP capabilities include dynamic positioning, virtual anchor, and 3-axis joystick propulsion force control. In addition to DP features, Delta DP includes automatic heading keeping, track keeping and has an external waypoint autopilot interface capable of interfacing with NMEA2000 or NMEA0183 autopilot computer.

SYSTEM ARCHITECTURE

- ✓ Modular CAN bus connected system
- ✓ Proprietary J1939 inspired CAN network
- ✓ NMEA2000 interface for GPS and external autopilot
- ✓ 5" Computing Display Unit
- ✓ Robust real-time control module for each thruster

CONTROL HEAD OPTIONS

- ✓ Twin-levers option
- ✓ 3-axis joystick
- ✓ E-Helm

RUDDER CONTROL OPTIONS

- ✓ "Bang bang" control
- ✓ PWM control for proportional valves

BOW THRUSTER

CONTROL OPTIONS

- ✓ Analog signal
- ✓ PWM controlled proportional valves

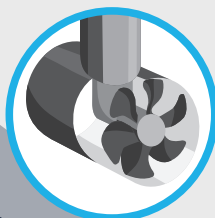
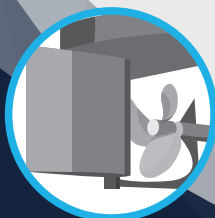
INTELLIGENT FEATURES

- ✓ 3-axis joystick force control
- ✓ Dynamic positioning
- ✓ Virtual anchor
- ✓ Heading autopilot
- ✓ COG autopilot
- ✓ Track following autopilot

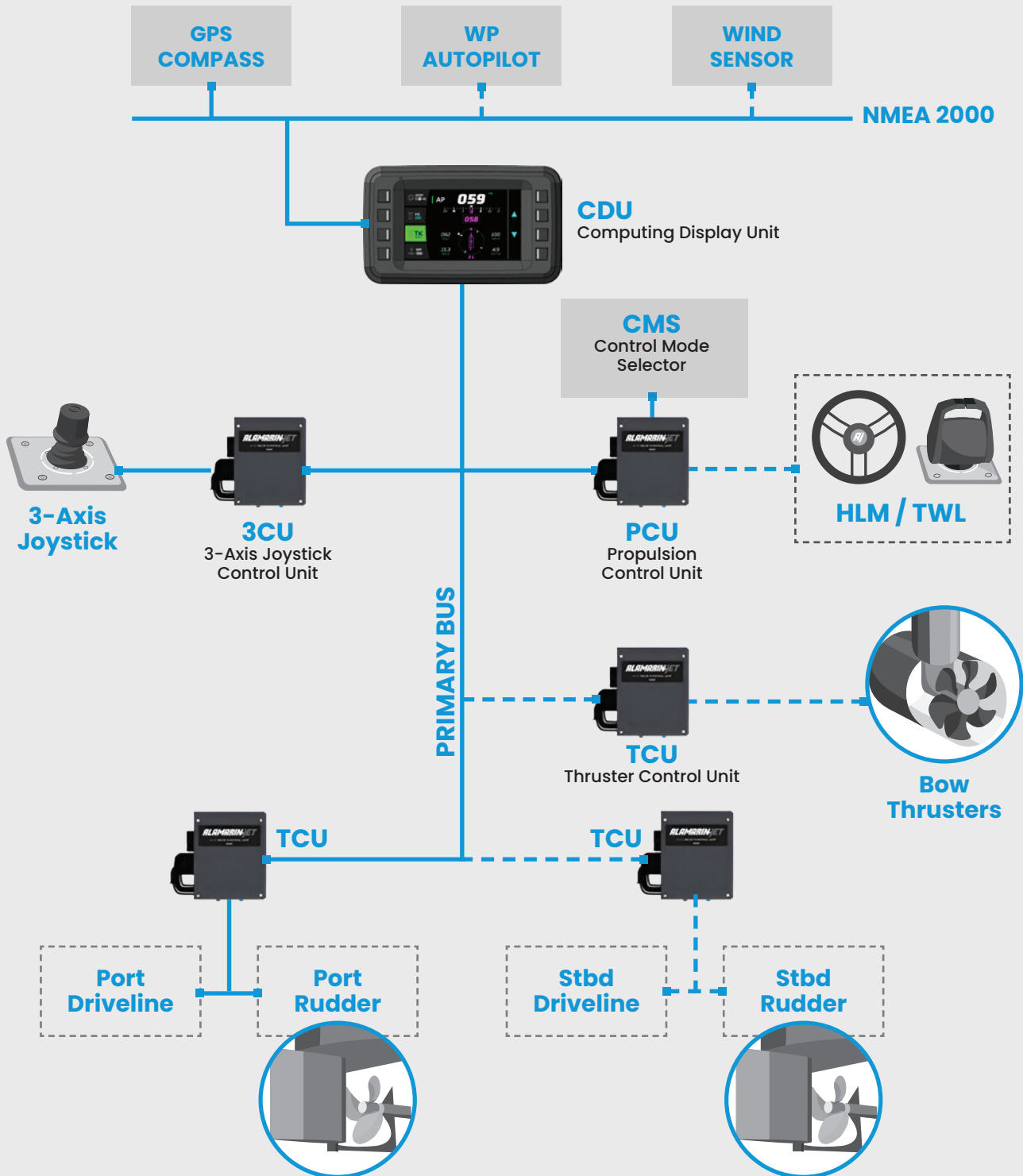
DRIVELINE CONTROL OPTIONS

- ✓ Optoisolated analog engine control
- ✓ J1939 CAN engine control
- ✓ Gearbox solenoid control
- ✓ ZF ClearCommand DP-interface option

**For Thrusters
and Rudders**



Delta DP - System Diagram





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