

# HamiltonJet 212

The HamiltonJet 212 is the world's most popular waterjet unit and the ideal propulsion solution for a wide range of trailerable boats.

Its compact, highly efficient axial flow design provides low speed power together with high top end performance to suit many diverse applications and environments. From small recreational craft used on rivers and lakes, to larger thrill-seeking tourist craft operating in river gorges and ocean harbours, the 212 provides the ultimate level of performance, efficiency, safety and reliability.

Quality manufacturing ensures the 212 waterjet package is easy to install and maintain, strong and hard wearing, and able to handle the toughest and most challenging situations any vessel is subjected to.

HamiltonJet has over 54 years experience in designing and manufacturing waterjet propulsion systems for vessels up to 60m long. All HamiltonJet products are backed up by a comprehensive international sales and support network, including Authorised Distributors and Service Agents, and company offices in the United States, United Kingdom and New Zealand.



## The Ultimate High Thrust Marine Waterjet for Trailerable Boats

### Design Specifications

The HamiltonJet 212 is designed to be the best all-round waterjet propulsion unit available, offering reliability and durability, ease of use and maintenance, and, most of all, high performance across a wide range of applications and boating situations. The 212 delivers excellent efficiency across the speed range while maintaining a high resistance to cavitation.

### Steering

A JT type steering nozzle directs the jetstream to either side for precise control with minimal loss of thrust during a turn. Control is via a push/pull cable system but a manual hydraulic system may be installed as an option. This nozzle can be rotated to adjust vessel trim if required.

### Reverse

A manually operated split duct astern deflector reverses the jetstream while

maintaining high thrust and efficiency. The deflector locks in any position between full ahead and astern. By working steering and reverse controls in unison, thrust can be obtained in any direction for 360° manoeuvring ability, even at zero speed.

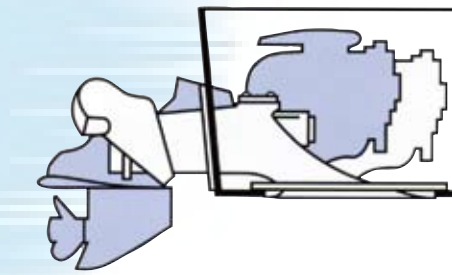
### Efficiency

The advanced impeller, intake and nozzle design of the 212 make it an extremely efficient propulsion option. The waterjet can be direct driven by a wide range of engines, saving the weight and cost of a gearbox as well as eliminating power loss to improve performance and fuel consumption.

### Compact Installation

The 212 has been designed for close coupling to the engine near the transom, maximising usable space within the boat while keeping weight low for stability. The steering/astern deflector arrangement reduces

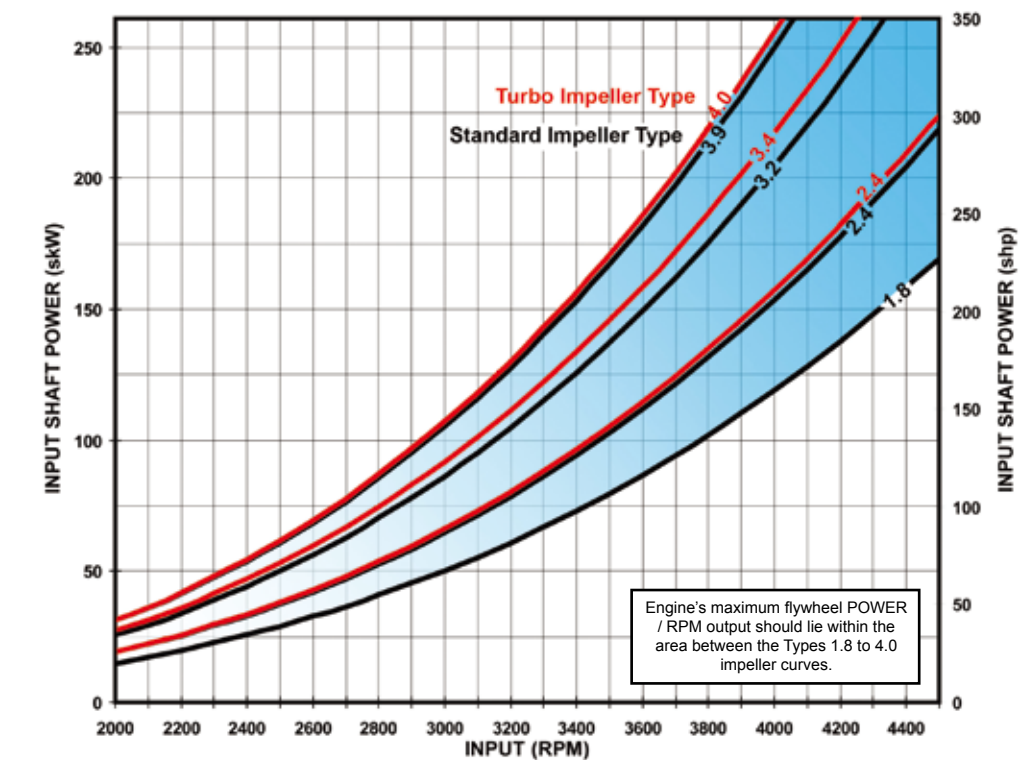
overhang beyond the transom. And of course, being a waterjet, the 212 has no underwater appendages exposed to damage in shallow waterways, or posing any risk to swimmers.



### Simplicity

The 212 waterjet is supplied as a single packaged module, ready for easy installation. Engine alignment and controls set-up are simple, and an inboard inspection hatch allows access to the interior of the waterjet. For routine servicing the unit can be dismantled from outside the boat without disturbing the hull seal.

### Power / RPM Curves – 212 Standard & Turbo Impellers

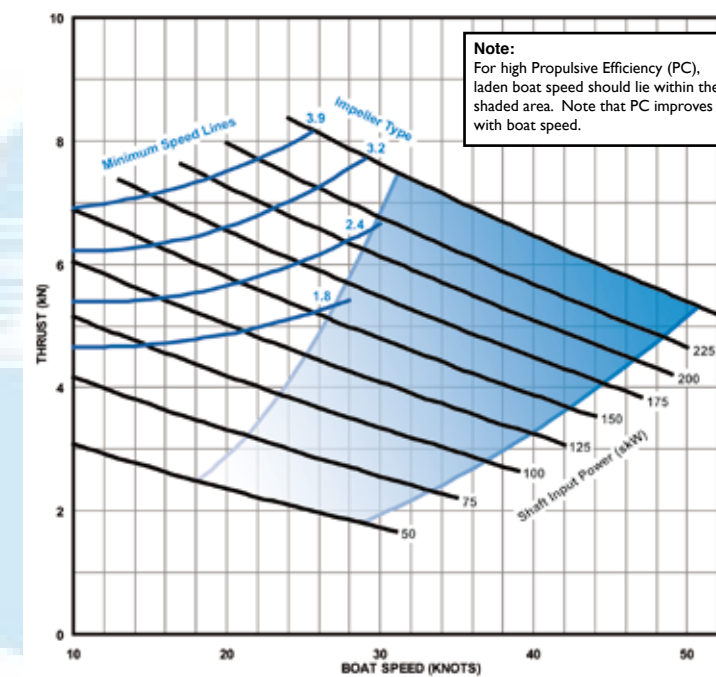


Use this graph to match your proposed engine's power and RPM specifications to the most suitable impeller.

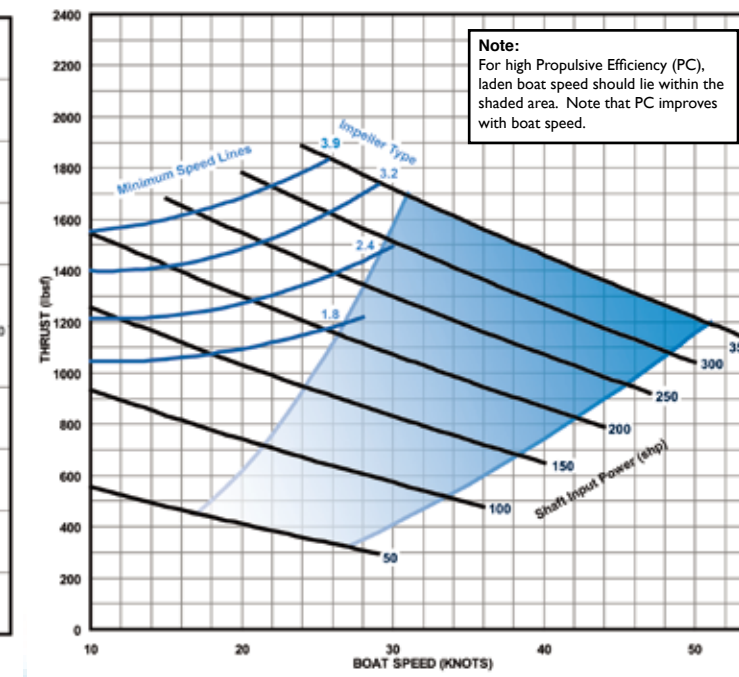
**Note:** with petrol engines there is some flexibility between impellers to get the desired performance. However, in most cases it is recommended you choose the coarsest impeller available (highest kW rating) to provide the best cavitation performance, high acceleration and optimum cruise efficiency.

**Important:** All graphs on this page should be used as guides only. Vessel performance may be affected by other factors which have not been taken into account when producing these Power and Thrust Curves. Consult your HamiltonJet Distributor for more information and assistance with your application.

### 212 Thrust Curves – kW/kN



### 212 Thrust Curves – shp/lbsf



If you have accurate **Resistance Data** for your boat you can determine **Power Input** required to achieve a certain **Boat Speed** or the likely **Boat Speed** with a known **Power Input** (see your boat builder for hull resistance data)....

- Plot required **THRUST PER JET** against required **BOAT SPEED** and read power requirement from the **INPUT POWER** lines.
- Plot known **INPUT POWER** against **THRUST PER JET** and read predicted **BOAT SPEED**.

**Infinitely Variable Detent**  
locks reverse deflector in any position

**Close Coupling Arrangement**  
for compact installation

**O-Ring Transom Seal**  
for resistance to mechanical damage

**Split-Duct Deflector**  
for high efficiency and powerful reverse thrust while maintaining excellent steering control.

**Rear Borg Warner Type Engine Mount** on waterjet for easy installation and alignment

**Large Thrust Bearing** for long bearing life

**Intake Protection Screen** fitted as standard

**Aluminium Intake Block** standard for GRP and aluminium hulls.

**JT-Type Steering Nozzle** provides minimal loss of thrust when steering. Can be assembled to offer an alternative trim angle.

**Stainless Steel Impeller** standard or "Turbo" option available.

**Replaceable Impeller Wear-ring** permits easy maintenance.



# Specifications 212

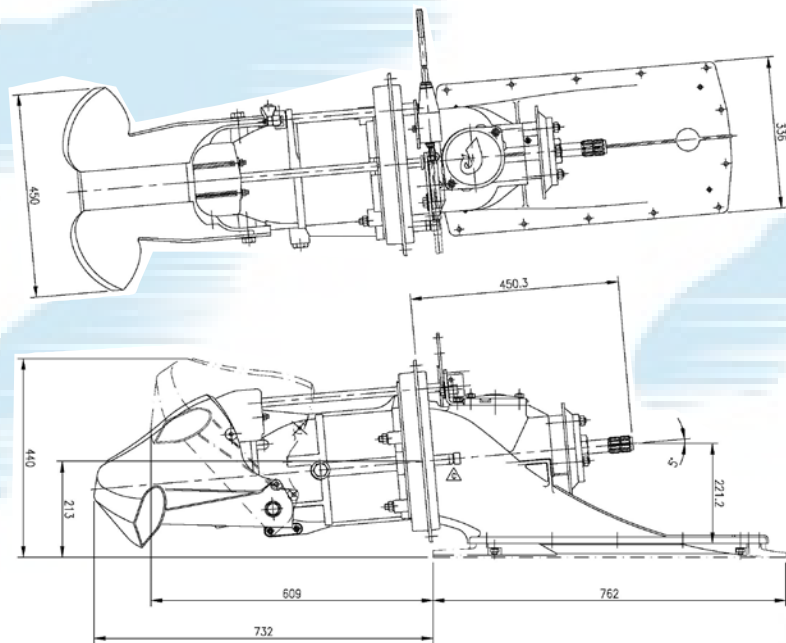
## Scope of Use

The 212 is designed for trailerable craft - it is not suitable for vessels permanently moored in salt water. Operation in the sea is perfectly acceptable provided the jet is thoroughly flushed with fresh water after use. If the boat is to have prolonged use or be moored in salt water, consider the HJ213 waterjet as an alternative option – it is the same size and power rating as the 212 but includes a full complement of cathodic protection.

## Engine Matching

Direct driven by a 4 to 8 litre (240 to 500cu.in) gasoline engine, the 212 jet will accept power inputs up to 260kW (350hp). The 212 is not recommended for direct match to a diesel engine – the alternative HJ213 is designed for use with diesel engines.

## Dimensions



**NOTE:** Dimensions shown above are indicative only. Full installation details and drawings are contained in the HJ212 Product Manual which is supplied with each waterjet.

## Standard Equipment & Specifications

<b>Design</b>	Impeller:	215mm (8.5") Single Stage
	Impeller Options:	Standard – 1.8, 2.4, 3.2, 3.9 Turbo – 2.4, 3.4, 4.0
	Nozzle:	110mm (4.3")
	Rotation:	Left Hand (anti-clockwise looking at engine flywheel)
<b>Features</b>	Thrust Bearing:	Angular Contact Ball type
	Tail Bearing:	Water Lubricated Cutless Rubber type
	Shaft Seal:	Face type Mechanical Seal
	Transom Seal:	O-Ring type
	Intake Screen:	Flush Mounted Steel Bars
	Inspection Hatch:	Inboard
	Water Offtake:	Inboard, supplied plugged – 3/4" BSP Hose Tail supplied loose
<b>Materials</b>	Mainshaft:	431 Stainless Steel
	Casing:	Cast LM6 Aluminium Alloy to BS 1490-1970
	Impeller:	Cast CF8M Stainless Steel to ASTM A743-80a
<b>Controls</b>	Steering:	Balanced Steering Nozzle with Inboard Tiller for Manual Cable or Hydraulic system
	Reverse:	Split-Duct type Deflector with Manual Push/Pull Cable Control
<b>Installation</b>	Transom Angle at Jet:	5° (+/- 3°)
	Close Coupling:	2 Stage Flexible type plus Rear Engine Mount
	Intake Block:	to suit Aluminium or GRP hulls
	Installation Kit:	complete kit of nuts, bolts, washers etc, plus Product Manual
<b>Weights</b>	Unit Weight:	70kg (154.3 lbs) – less coupling & engine mount
	Intake Block:	7kg (15.4 lbs)
	Entrained Water:	17kg (37.5 lbs) – within the boat

## Optional Equipment

- Inspection Hatch Extension
- Weed Rake
- Sand Trap Kit
- Flywheel Adaptor Plate
- 'H'-Bar Driveshaft
- Companion Flange

## Performance Check

Submit the following details to HamiltonJet if computer analysis and speed prediction are required...

- Waterline Length
- Maximum Chine Beam
- Maximum Laden Displacement
- Deadrise Angle – Midship & Transom
- Required Speed – Maximum & Cruise
- Proposed Engine(s) – Make & Model
- Engine Maximum Intermittent & Continuous Ratings – kW/rpm



# Turbo Impeller 212

The HamiltonJet 212 Turbo impeller offers superior performance where acceleration and high thrust in



Turbo Impeller

aerated water are important. With its offset "inducer & kicker" blade configuration

and significantly extended blade area, the Turbo impeller is the ideal option for vessels operating in "white water". Unlike a standard impeller which is most suitable for use where solid, unaerated water is presented to the waterjet intake, the Turbo impeller has greater resistance to cavitation and provides improved "grip" in aerated conditions.

Extensive testing shows the Turbo impeller maintains its "grip" in aerated water up to 50% longer than standard impellers. And in the extreme conditions where "breakaway" does occur, the Turbo impeller exhibits excellent recovery characteristics.

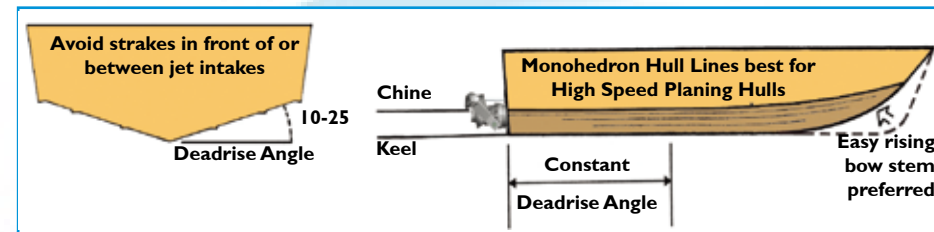


Standard Impeller

# Suitable Hull Forms

Best efficiencies will be achieved in lightweight planing hulls designed for speed over 25 knots. For best directional stability and speed, a monohedron shape hull (constant deadrise over planing area) is recommended. Avoid deep and fine bow stems as, without additional keeling, these can cause directional instability at higher speeds. Also, for directional stability and to avoid air being entrained into the waterjet from bow waves, deadrise angles of between 10° and 25° are generally recommended.

- hull shape and appendages must avoid entraining air into the waterjet inlet.
- hull shape must be directionally stable while avoiding the use of appendages such as keels, planing strakes, etc directly in front of the waterjet intake. Appendages can generally be placed to the outside of the projected area forward of the waterjet inlet(s) without affecting performance.
- water level must be at least up to the waterjet mainshaft when the craft is at rest.



## Typical Vessel Parameters for Single 212 Waterjet Installation

Overall Length	Maximum Weight	Minimum Power to Weight Ratio
6 - 7.5 metres (20 - 24 ft)	2.5 - 3 Tonnes (5510 - 6614 lbs)	50kW/Tonne (30hp/1000 lbs)
Multiple jet unit installations and other hull forms and speed ranges may be suitable for waterjet propulsion Consult HamiltonJet for guidelines		



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Due to HamiltonJet's policy of continuous development, all specifications are subject to change without notice or obligation.

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**HamiltonJet** 212  
The Ultimate in Waterjet Propulsion