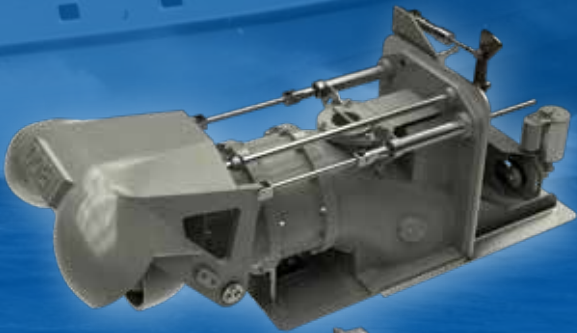




**DOEN**  
**WATER JETS**



**PERFORMANCE RELIABILITY SIMPLICITY**



Blade - 44m Italian Superyacht

## Doen WaterJets

Established in 1971, in Melbourne, Australia, Doen WaterJets is a leading designer and manufacturer of waterjet propulsion systems focused on offering high-quality waterjet products that excel in the harsh operating conditions of the commercial and military marine markets.

Supported by nearly 50 years of R&D, countless engineering applications, and a few exclusive technologies, Doen WaterJets is uniquely positioned to partner with designers, shipbuilders and operators as a solution provider.

Currently there are 15 waterjet models in our standard range suiting engine powers from 80kW to 4000kW.

Our key value proposition promise remains to be superior **Performance**, excellent **Reliability** and sheer **Simplicity** of installation, operation and maintenance across our entire product range.

The design and construction of all models comply with the most stringent industry standards and Classification Societies requirements, and they have been certified to ABS, BV, DNV-GL, Lloyds, Rina and other marine standards upon customer request.

Working closely with our global network of sales and service partners, Doen WaterJets ensures customer's waterjet requirements are met anywhere in the world.



# Kompakt Series

DOEN **Kompakt Series** range of models can be matched to engine powers up to 710kW. These commercially rated units employ the latest in waterjet propulsion technology.

The Kompakt Series waterjets are installed using Doen's simple and quick 'transom mount' method where a hull insert, manufactured in hull material is used to form the initial part of the intake tunnel and provide a rigid and flat mounting face for the waterjet.

## Some of the key features of Kompakt Series:

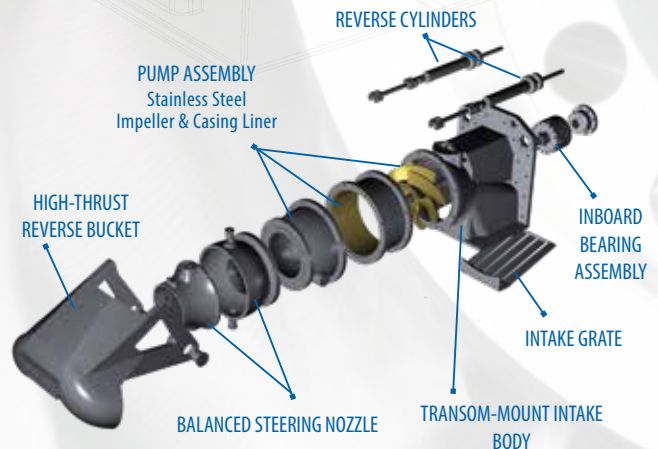
- Minimum invasion into invaluable inboard space and flexibility in the longitudinal position of waterjet in the hull
- Single stage latest axial pump impeller design, optimised to deliver excellent top speed performance together with superior cavitation resistance and enhanced load-carrying ability
- Best of class material complemented by sacrificial anode protection
- Modular construction for simple and easy maintenance
- No special tools required for installation or repair



Every Doen waterjet has a comprehensive range of impellers to provide for correct selection, optimal performance and matching of waterjet, engine and gearbox combinations.

Kompakt Series waterjets can be installed as single, twin or multiple jets in fibreglass, aluminium, wooden, HDPE or steel hulls. They can also be supplied as Booster or 'Direct Thrust' variants.

## Modular Construction



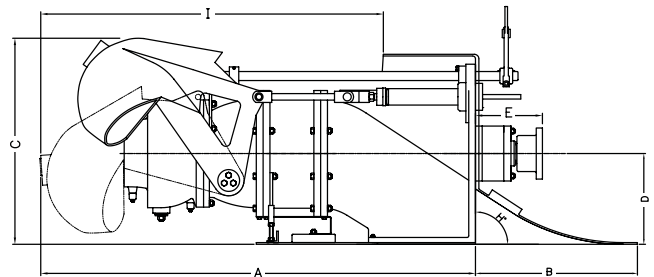
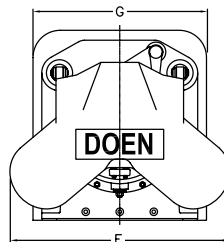
# KOMPAKT SERIES

# MODELS

Waterjet model	DJ85	DJ100G	DJ112	DJ120	DJ142	DJ152	DJ172	
Impeller Size Ø mm (in)	217 (8.5)	254 (10)	280 (11)	310 (12.2)	356 (14)	381 (15)	432 (17)	
Max Power kW <sup>(1)</sup> (hp)	200 (270)	300 (400)	360 (480)	485 (650)	560 (750)	670 (900)	710 (950)	
Max. Rpm	4200	4300	3055	2800	2400	2250	1975	
Dry Weight <sup>(2)</sup> Kg	85	125	175	225	315	380	470	
Jet Variants <sup>(3)</sup>	B, DT	B	B, DT	B, DT	B, DT	B, DT	B, DT	
Dimensions <sup>(4)</sup> (mm)	A	905	895	1180	1340	1535	1655	1825
	B	305	440	535	490	570	500	620
	C	400	505	540	620	720	770	835
	D	212	200	250	265	320	335	375
	E	145	320	200	225	236	260	260
	F	450	595	610	680	775	810	940
	G	350	435	490	500	612	645	700
	H	95°	90°	90°	90°	90°	90°	90°
	I	730-810	895	720-1125	860-1170	965-1350	1060-1500	1185-1620

### Note

- (1) Max Rec. Power for standard model (subject to application eng. review)
- (2) Includes Std. Reverse Control System - Excludes Entrained Water
- (3) Booster (B) or Direct Thrust (DT) waterjet
- (4) Typical only - not to be used for construction purposes







Incat Crowther designed 36m Crew Boat

# Optima Series

This group of waterjets all utilize optimised intake duct, designed to best suit the speed regime of the craft, and to completely integrate into the hull. The range of models in **Optima Series** can be matched to engine powers from 400kW to 4000kW.

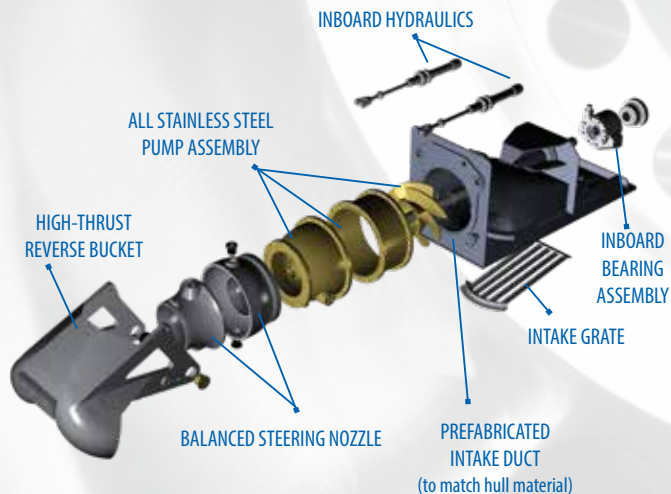
For Aluminium or steel vessels, the Optima Series waterjets are supplied with prefabricated intake ducts manufactured from matching hull material. This results in an extremely strong and lightweight structure that is fully machined and ready to weld directly into the hull. For fibreglass boats the "IWJ" variant provides for the intake duct to be moulded into the hull. Furthermore, customized intake duct are possible for Optima Series to improve installation and machinery interfacing.

Optima Series waterjets can also be supplied as Booster, 'Direct Thrust', and 'Integrated Waterjet' variants.

## Some of the key features of the Optima Series:

- Light weight yet strong, ready-to-install intake duct that provides for best hull integration/material match and flexibility for custom design
- Single stage latest impeller technology to deliver mixed flow type, high speed performance, within an axial build
- Stainless steel pump assembly (standard or optional), including impeller, impeller casing and discharge nozzle
- Inboard hydraulics protected from corrosion
- Modular construction for simple and easy maintenance
- No special tools required for installation or repair

## Modular Construction



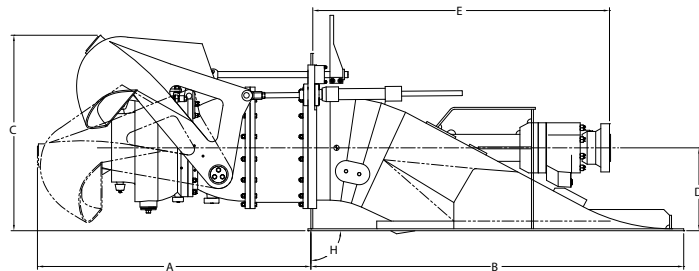
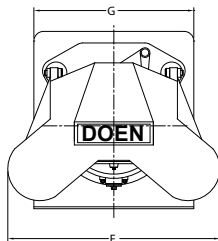
# OPTIMA SERIES

# MODELS

Waterjet model	DJ140HP	DJ170HP	DJ200	DJ220	DJ260	DJ290	DJ330	DJ350	
Impeller Size Ø mm (in)	381 (15)	432 (17)	520 (20.5)	559 (22)	660 (26)	736 (29)	838 (33)	890 (35)	
Max Power <sup>(1)</sup> kW (hp)	745 (1000)	970 (1300)	1265 (1700)	1450 (1950)	2010 (2700)	2535 (3400)	3280 (4400)	3725 (5000)	
Maximum RPM	2250	1975	1680	1525	1290	1160	1020	970	
Dry Weight <sup>(2)</sup> Kg	430	510	875	1050	1700	2340	3250	3650	
Jet Variants <sup>(3)</sup>	B, DT, IWJ	B, DT, IWJ	B, DT, IWJ	B, DT, IWJ	B, DT, IWJ	B, DT, IWJ	B, DT	B, DT	
Dimensions <sup>(4)</sup> (mm)	A	1105	1225	1420	1775	1975	2195	2415	2415
	B	1420	1670	1935	2170	2520	2850	3520	3520
	C	755	815	1015	1210	1365	1565	1755	1755
	D	320	350	430	460	540	600	685	685
	E	1225	1355	1540	1785	1945	2195	2550	2630
	F	810	940	1100	1200	1475	1700	2040	2040
	G	620	690	830	840	950	1040	1250	1250
H <sup>(5)</sup>	90°	90°	90°	90°	90°	90°	90°	90°	

## Note

- (1) Max Rec. Power for standard model (subject to application eng. review)
- (2) Includes std. Reverse control system. Excludes entrained water
- (3) Booster (B), Direct Thrust (DT) or Integrated Waterjet (IWJ)
- (4) Typical only – not to be used for construction purposes
- (5) Standard stated – custom shaft angles available



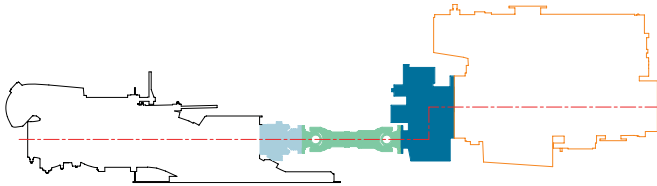
# Exclusive Technologies

All models in Doen WaterJets range are also available in Direct Thrust (DT) variant.

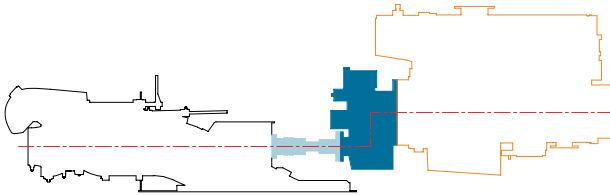
With Doen's DT waterjet products the impeller main shaft is arranged to thrust directly to the gearbox just like a conventional propeller arrangement.

The waterjet shaft line uses a conventional shaft seal and connects directly to the gearbox output coupling for a very compact installation without need for intermediate shafting.

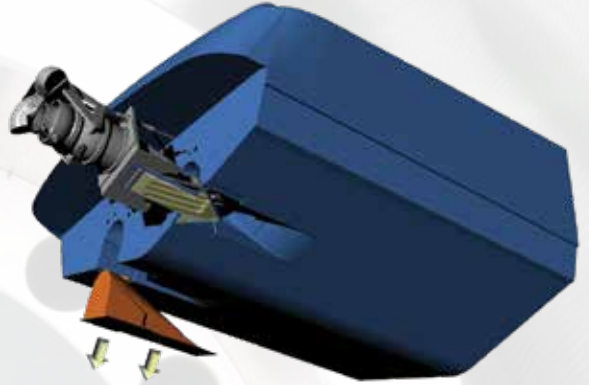
Having no thrust bearing, DT waterjets are mechanically simpler, and more cost-effective to operate and maintain. For Optima Series, the DT version is significantly cheaper than the standard version. Across the range, the DT waterjet also allows for savings by eliminating the intermediate drive shaft.



Typical machinery arrangement for standard waterjets



Typical machinery arrangement for DT waterjets



Typical IWJ installation

**Optima Series can also be supplied as Integrated Waterjet (IWJ).**

For fibreglass and composite hulls, the IWJ variant provides the simplest and most cost-effective method for installing waterjets into vessels; a re-usable plug is deployed in the hull mould to laminate over and shape the intake duct surface. The IWJ is then installed directly into the hull as moulded.

Benefiting from DT shaftline and empowering the customer to mass produce intake ducts as part of hull production, the IWJ product variants offer significant cost savings, simpler maintenance and more compact installation.

**Consult with Doen WaterJets or one of our authorized Sales partners to appraise whether DT or IWJ product variants are suitable for your application.**



ECS400: fully integrated electronic control system

## Control Systems

Combining the reverse and steering functions into one rugged system, waterjet propulsion provides for excellent manoeuvrability at high speeds as well as low speeds – and full steerability even when the boat is neither moving ahead nor astern.

Doen WaterJets offers a complete range of dedicated waterjet controls; from simple hydro-mechanical to sophisticated fully integrated electronic systems, each waterjet model has several options to best suit different application and budget requirements.

By default Kompakt Series waterjets are supplied with follow-up hydraulic **Rotary Servo Control (RSC)** for the reverse bucket and manual or power assisted steering. **RSC** is operated by conventional hand lever and push-pull cable.

All models can also be supplied with our own electronic control systems; **ECS-lite** or **ECS400**, in single or multiple waterjet configurations.

For budget driven projects, **ECS-lite** provides for a simple and low-cost electronic control system which combines the reverse bucket and engine throttle controls by way of single double function lever. It also provides for gear select and basic alarm functions.

The standard control for Optima Series waterjets is **ECS400**; our Class compliant electronic control system that integrates waterjet controls (steering and reverse), engine throttle and marine gear select into one state of the art system. ECS400 also provides for alarm, monitoring, backup and emergency control functions.

CAN bus technology and the open architecture of ECS400 allows us to offer integration into third party systems such as autopilot, bow thruster, dynamic positioning (DP) or remote control in unmanned (USV) applications.



For the ultimate docking control and low speed manoeuvring, ECS400 can be fitted with our **eDOCK** panel that coordinate the functions of all waterjets and engines speed in such manner to deliver intuitive vector control by way of a single joystick.



eDOCK: Multifunction Joystick Panel



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