B O W T H R U S T E R S

TWIN DISC®

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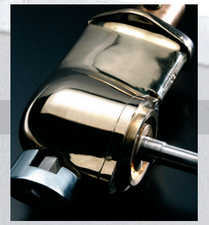
Throughout our nearly sixty years of experience, BCS has become a leading company in the production and worldwide distribution of high quality marine equipment. The acquisition by Twin Disc, Inc. – leader in several different areas such as marine and industrial, heavy duty transmissions and the oil extraction industry – has consolidated its position on the market as part of a multinational group.

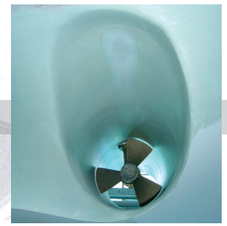
Twin Disc SRL combines BCS, BCS Service, Twin Disc Technodrive and Twin Disc Propulsion. Twin Disc SRL is also supported by a sister-company, Rolla SP Propellers.

Global 'Package'
Twin Disc SRL offers to boat builders and design engineers a complete "package" of products, from propulsion systems to gearboxes and transmissions up to control and steering systems, together with customized solutions and efficient technical support. A global customer service for the development and realization of the whole kinematics system.

A dynamic team of engineers, technicians and professional people is devoted to support the customer in any step: from concept of the project to the planning, through prototype development and design definition, up to bench and field testing, production, assembly, installation and service also on board.

Production plants in Limite sull'Arno





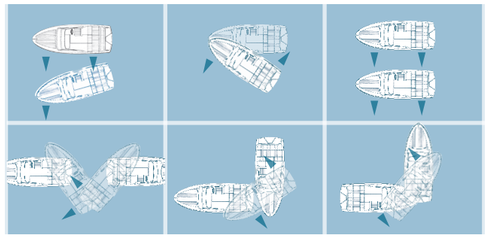
From concept to production: prototype development, care for design, field testing, product definition

Twin Disc SRL works alongside the customer every day. We have established a unique worldwide system dedicated to the marine industry based on our ability to acknowledge and anticipate market requests, the certified reliability of our products, skilled service and the continuous research of technological innovation.

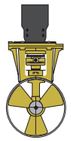
The production plant of Limite sull' Arno produces equipment covering several application fields: Hydraulic and electronic steering systems, complete shaft lines for boats up to 40 meters, trim tab systems in stainless steel or aluminum, electric and hydraulic bow and stern thrusters, electrohydraulic gangways and side ladders for large applications, as well as a large variety of stainless steel hydraulic actuators and multi-function electrohydraulic power units.

INTRODUCTION

ELECTRIC THRUSTER



HYDRAULIC THRUSTER



Whether in strong winds or streams, harbors or marinas, mooring or setting sail, Twin Disc bow and stern thrusters become absolutely necessary to ensure the best manueverability and total comfort. Simply push a button or move the joystick on the control panel of the dashboard to maneuver the bow or stern thrusters.

Twin Disc thrusters' compact design allow them to be installed in limited spaces. Our many years of production and large number of applications are a guarantee of high quality and trouble-free performance.

Twin Disc offers a wide variety of bow and stern thrusters, both electric and hydraulic, covering a large range of applications from very small up to 40 mt.

marine currents

wind attack

ELECTRIC BOW THRUSTERS

HOW TO CHOOSE THE RIGHT MODEL

To choose the most suitable model, it is important to consider crucial factors such as the boat dimensions and weight, but in particular the total surface exposed to the wind and marine currents.

In order to help our customers to select the right system, we have created a simple order guide on pages 8-9 for easy and fast reference.

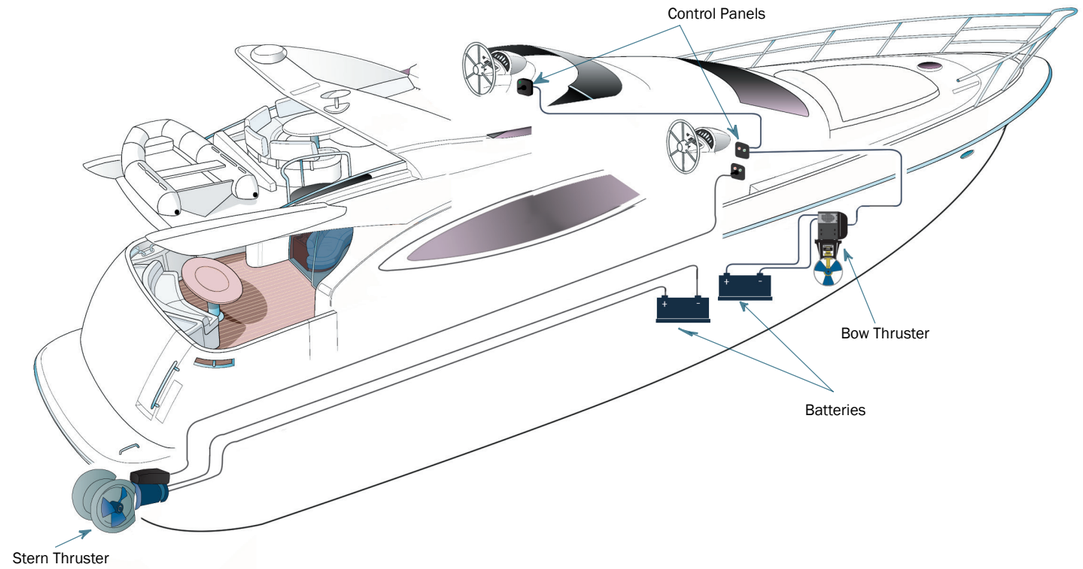
It is possible to determine the most suitable system using only boat size. However, it is very important to know some general factors that highly influence the thruster performance and can affect the thrust:

- Total surface exposed to the wind force and the marine currents: the bigger the surface is, the more powerful the thruster
- Tunnel diameter: the larger the tunnel diameter is, the bigger the potential thrust is, and greater the amount of water moved
- In applications where a longer working time is requested it is preferable to choose a hydraulic thruster option
- Tunnel length: the longer tunnel, the higher loss of efficiency; so it should be as short as possible within the limitations indicated on page 17
- Any grid placed at the ends of the tunnel may affect the thrust

Please take into consideration these general rules and keep in mind that the suggestions in the Order Guide shall be intended as merely indicative. For any information about the specific application, it is suggested to consult the Twin Disc Technical Department or one of our authorized dealers.

MAIN FEATURES OF ELECTRIC THRUSTERS

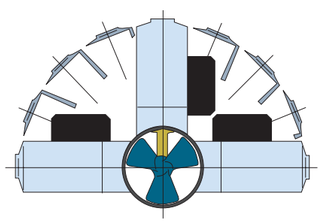
- Compact, effective design for easy installation, even in restricted areas
- Bow- and stern-mounting options
- Reversible electric motor at continuous current
- Low hydro-dynamic resistance
- Transmission gears built in high tensile materials
- Quiet operation
- Complete range for applications from 6mt to 18mt (20' - 60')
- Wide range of accessories for a complete system
- Durable materials suitable for the marine environment
- Conforms to the highest production standards

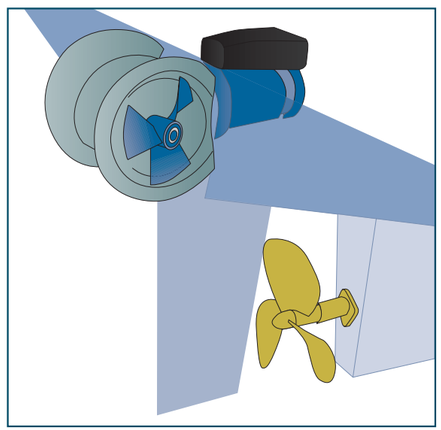


COMPLETE FREEDOM OF MOVEMENT

All Twin Disc thrusters (except for the BT-35) can be installed either in front or at rear of the boat, working as bow or stern thruster.

A stern thruster is simply the standard Twin Disc thruster, which is installed horizontally through the transom by means of a special tunnel. The electric motor can be placed in any position, either vertically or horizontally, with no affect on system performance.





SYSTEM COMPOSITION

All Twin Disc bow and stern thrusters have a compact design, allowing an easy installation even in very limited space. The thruster, in its basic version, is composed of the elements listed below.

The system can be integrated with a large range of accessories such as control panels, time-lapse devices and connection cables. All available accessories are included on pages 10-12.

1 The electric motor is reversible at continuous current, available either at 12V or 24V. It is suitable for a continuous running at max. speed. The quality level is very high, according to the best production standards, in order to ensure a bigger efficiency and a longer, trouble-free life. Working times are shown on the motor label.

2 The start-up relay placed behind the cover has the function to start the electric motor, as well as reverse the rotation direction.

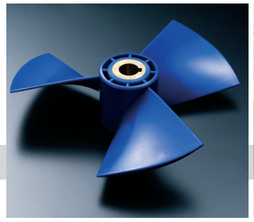
4 The thruster leg is bronze and is designed to reduce the hydrodynamic resistance for better efficiency. It is also provided with a zinc anode for protection against electrolytic corrosion. All transmission gears inside the leg are comprised of high tensile materials and are treated to provide a long working life, even under heavy-duty conditions. The thruster leg was also designed to reduce the noise on all models. The transmission gears are protected by elastic couplings, as well as a shear and drive pin.

3 The motor flange is directly installed on the thruster leg (4) and has the function to support the motor itself and affix to the tunnel. Made of special alloy, the motor flange has a strong structure to ensure the best stability.

5 The three-blade propeller provides the most system efficiency. The propeller is made of a compound material and is therefore very light and free from corrosion problems, while its design guarantees an equal thrust on both sides. The propeller was designed to avoid any cavitation effect, which would result in a considerable loss of thrust, as well as noise and vibrations.

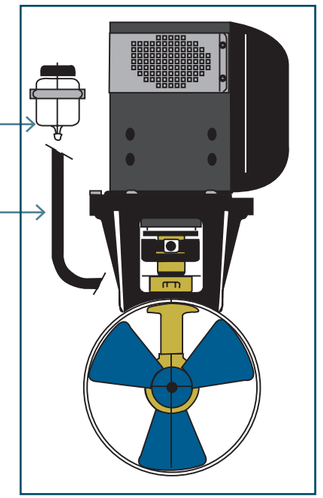
CONTROL SYSTEM PCS

In order to ensure a higher safety level, all Twin Disc electric bow thrusters have been provided with a PCS control system. This new device checks temperature levels and, when necessary, regulates switching on-off. In case of a sudden rise in temperature, for example, the PCS device shuts down the thrusters to avoid damages.



6 The small plastic tank (6) contains the hydraulic fluid for the gears lubrication of the leg, which is connected to by means of a flexible hose (7), and has the important function to reduce friction and ensure a longer life and a better efficiency of the thruster. This kit is already included in the standard thruster set and, even if it has been eliminated by several manufacturers, Twin Disc suggests its installation as an additional safety measure. The thruster can actually work even without the lubricating kit, as the leg is already filled with oil. However, when the kit is installed any possible oil leak from the leg seals can be immediately discovered by the lowering of the oil level into the tank.

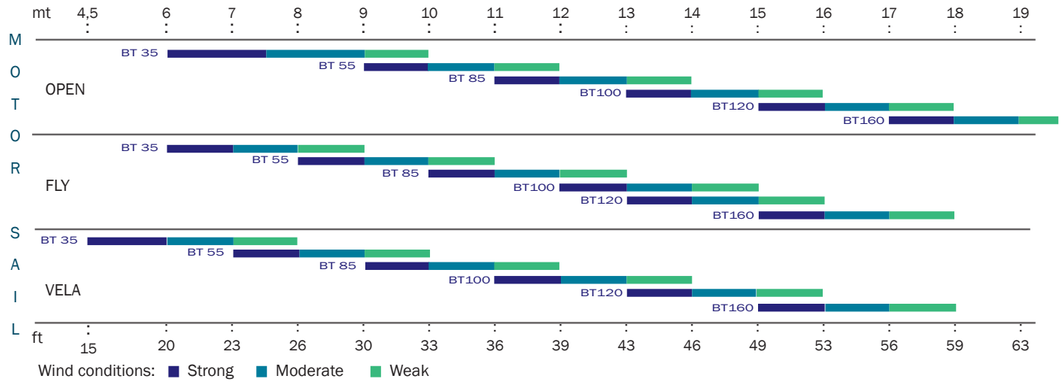
7



ORDER GUIDE

Model	Description	Code
BT 35N/12	Electric Bow Thruster 35 Kgf at 12 Vdc	IT25657
BT 55N/12	Electric Bow Thruster 55 Kgf at 12 Vdc	IT25658
BT 55N/24	Electric Bow Thruster 55 Kgf at 24 Vdc	IT25659
BT 85N/12	Electric Bow Thruster 85 Kgf at 12 Vdc	IT25660
BT 85N/24	Electric Bow Thruster 85 Kgf at 24 Vdc	IT25661
BT 100N/12	Electric Bow Thruster 100 Kgf at 12 Vdc	IT25662
BT 100N/24	Electric Bow Thruster 100 Kgf at 24 Vdc	IT25663
BT 120N/24	Electric Bow Thruster 120 Kgf at 24 Vdc	IT25664
BT 160N/24	Electric Bow Thruster 160 Kgf at 24 Vdc	IT25665

WIND INFLUENCE



PCS Provided with a PCS control system that guarantees increased safety on board.

		MEASURE	BT 35N	BT 55N	BT 85N	BT 100N	BT 120N	BT 160N
Typical boat size*	Open	(mt • ft)	6 - 10 • 20' -33'	9 - 12 • 30' - 38'	11 - 14 • 36' - 46'	13 - 16 • 43' - 53'	15 - 18 • 49' -59'	17 - 19 • 56' - 63'
	Fly		6 - 9 • 20' - 30'	8 - 11 • 26' - 36'	10 - 13 • 33' - 43'	12 - 15 • 39' - 49'	13 - 16 • 43' - 53'	15 - 18 • 49' - 59'
	Sail		4,5 - 8 • 15' - 26'	7 - 10 • 23' - 33'	9 - 12 • 30' - 39'	11 - 14 • 36' - 46'	13 - 16 • 43' - 53'	15 - 18 • 49' - 59'
Thrust		(Kgf • lbs • N)	35 • 78 • 343	55 • 122 • 540	85 • 188 • 834	100 • 220 • 981	120 • 265 • 1177	160 • 353 • 1570
Tunnel I.D.		(mm • in)	125 • 4,92"	185 • 7,28"	185 • 7,28"	185 • 7,28"	185 • 7,28"	250 • 9,84"
Power		(KW • Hp)	2,2 • 3	3 • 4	5,3 • 7,1 (12V) – 4,8 • 6,4 (24V)	6 • 8	8 • 10,7	8 • 10,7
Voltage		(V)	12	12 • 24	12 • 24	12 • 24	24	24
Battery cable: max length from positive and negative in (m) given the cable section (mm2)		m	6 9 14 18	5 7 10 14 18 22 N/R N/R	4 6 8 10 16 20 25 29 12 16 24 32	N/R N/R N/R N/R N/R N/R N/R 6 8 12 15 20 N/R N/R 10 20 25 35 40 N/R	6 10 12 20 25 35 45 N/R	N/R 6 10 20 25 35 45 N/R
		mm^2	25 35 50 70	25 35 50 70 25 35 50 70	25 35 50 70 95 120 150 175 25 35 50 70	95 120 150 175 25 35 50 70 95 120 150 175 25 35 50 70 95 120 150 175	25 35 50 70 95 120 150 175	25 35 50 70 95 120 150 175
Fuse		(A)	250	250 125	355 160	500 355	355	425
Power consumption		(A)	273 (12V)	350 (12V) • 175 (24V)	580 (12V) • 280 (24V)	600 (12V) • 420 (24V)	433 (24V)	433 (24V)
Weight		(Kg • lb)	10,5• 23,2	20 • 44	25 • 55,1	26 • 57,3	45 • 99	52 • 114,6

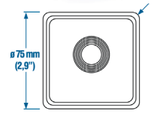
*These values shall be intended as indicative. The performances of each thruster depends on several different factors.

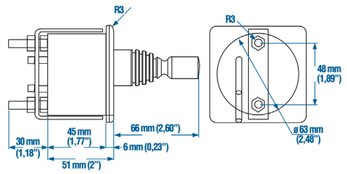
ACCESSORIES

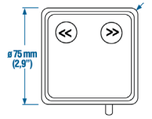
CONTROL PANELS

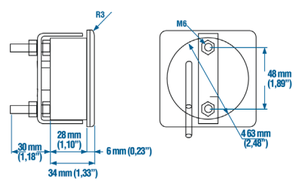
With a more compact and modern design, the control panels will improve safety on board. The panels are very easy to install, due to fast front mounting with no screws and reduced dimensions. Two models are available: the popular version with joystick or the new version with touch pad.

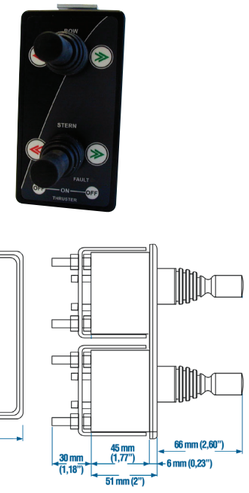
MAIN FEATURES
- UV ray resistant
- Waterproof type IP65
- Child-safe on/off system
- Automatic deactivation with acoustic alarm after ten minutes
- Automatic deactivation with acoustic alarm after three minutes of continuous running in one direction
- Acoustic alarm for motor overheating
- Built in time delay
- Provided with fast-lock wires suitable for one or more control station











MODEL	DESCRIPTION	CODE
BTJOYN	Bow thruster control panel with joystick	IT25513
BTINTN	Bow thruster control panel with touch pad	IT25514
BTJOY2N	Bow thruster control panel with dual joystick	IT25689

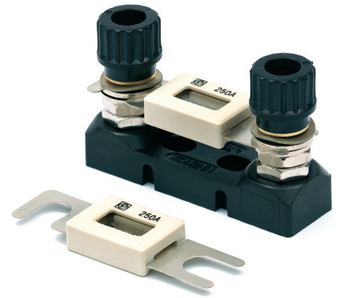
CONTROL PANEL LOOMS

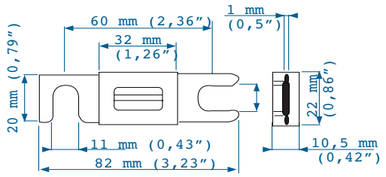
The electric connection cables are available in several different lengths from 6mt/20' to 18 mt/54' and are provided with "fast-lock" terminals for a fast connection to the control panels.

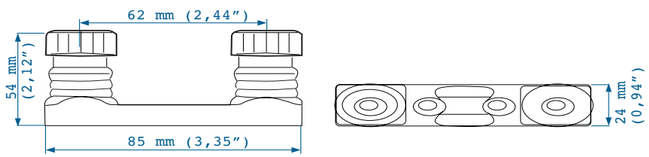
DESCRIPTION	CODE
Electric connection cable provided with connectors L= 6 mt / 20 ft	IT25524
Electric connection cable provided with connectors L= 10 mt / 33 ft	IT25525
Electric connection cable provided with connectors L= 18 mt / 54 ft	IT25526

FUSE - FUSE HOLDER

Twin Disc fuses are engineered to protect the system against any possible current overload that would damage the electric components. They can be combined with any Twin Disc bow thruster and can be provided with a fuse holder with reduced dimensions.

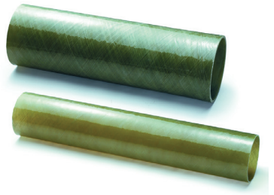






BOW THRUSTER		FUSE		
BOW THRUSTER CODE	DESCRIPTION	FUSE CODE	POWER CONSUMPTION	FUSE HOLDER CODE
IT25657	BOW THRUSTER 35 Kgf - 12V	IT24980	Fuse 250 A	IT24984
IT25658	BOW THRUSTER 55 Kgf - 12V	IT24980	Fuse 250 A	
IT25659	BOW THRUSTER 55 Kgf - 24V	IT24978	Fuse 125 A	
IT25660	BOW THRUSTER 85 Kgf - 12V	IT24981	Fuse 355 A	
IT25661	BOW THRUSTER 85 Kgf - 24V	IT24979	Fuse 160 A	
IT25662	BOW THRUSTER 100 Kgf - 12V	IT24983	Fuse 500 A	
IT25663	BOW THRUSTER 100 Kgf - 24V	IT24981	Fuse 355 A	
IT25664	BOW THRUSTER 120 Kgf - 24V	IT24981	Fuse 355 A	
IT25665	BOW THRUSTER 160 Kgf - 24V	IT24982	Fuse 425 A	

BOW THRUSTER TUNNEL

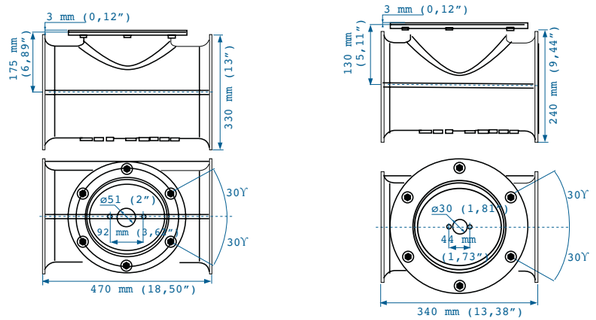


Tunnels in reinforced GRP are available in diameters of 125 mm - 185 mm - 250 mm (4,92” - 7,28” - 9,84”) in different standard lengths. Specific lengths can be supplied on demand.

TUNNEL PER METER		CODE
GRP tunnel d. 125 mm - per meter		IT21474
GRP tunnel d. 185 mm - per meter		IT23891
GRP tunnel d. 250 mm - per meter		IT15304
STANDARD LENGTHS		
BT 35		
GRP tunnel d. 125 mm	L= 1mt	IT21345
GRP tunnel d. 125 mm	L= 1,5mt	IT27853
BT 55 - BT 85 - BT 100 - BT 120		
GRP tunnel d. 185 mm	L= 1mt	IT23892
GRP tunnel d. 185 mm	L= 1,5mt	IT23893
BT 160		
GRP pre-holed tunnel d. 250 mm	L= 2mt	IT21349
GRP pre-holed tunnel d. 250 mm	L= 1,5mt	IT21348

STERN THRUSTER KIT

The stern thruster installation kit in composite material is provided with coupling flange and fixing screws for connection to the transom. Available in diameters of 185 mm and 250 mm.



DESCRIPTION	CODE
Stern Thruster kit for BT 55-85-100-120 d. 185 mm - 7,28 in	IT25492
Stern Thruster kit for BT 160 d. 250 mm - 9,84 in	IT25499

LEG LUBRICATING KIT

The thruster leg lubricating kit is included in the standard thruster set and ensures lubrication of the transmission gears to reduce friction and extend life. See pages 6-7 for further details. Suitable for any model.

DESCRIPTION	CODE
Thruster leg lubricating kit for BT 35	IT21466
Thruster leg lubricating kit for BT 55 - BT 85 - BT 100 - BT 120 - BT 160	IT10393

HYDRAULIC THRUSTERS

HOW TO CHOOSE THE RIGHT MODEL

A hydraulic thruster combines higher thrust and longer working cycles with the builders' need for low total weight, dimensions and the final system cost.

To choose the most suitable model it is important to determine: the total thrust amount necessary - such as the boat dimensions and the weight - as well as the total surface exposed to the wind and the marine currents (see page 4 for a more detailed explanation). It is equally important to evaluate the boat use (i.e. pleasure or commercial).

The final performance of the system depends on the type and the power of the main engines, the type of system configuration, and the size of the different hydraulic components.

Every hydraulic thruster system should be designed and sized specifically for each individual application. Please consult the Twin Disc Technical Department for the necessary support for the best configuration.

The suggestions shown in the Order Guide on page 17 shall be intended as indicative.

A hydraulic thruster is independent from the battery sets and takes all necessary power from either the main engine or a generator set installed on board, that can be:

- main engine, must have sufficient power at the minimum rpm (*)
- PTO (power take off) on the gearbox
- generator set, also having a sufficient power (*)
- an electro-hydraulic set suitable for the specific application (not included in the Twin Disc range)

Twin Disc marine gears are provided with a PTO which transmits the necessary power to the system and provides a connection for the hydraulic pump.

(*) For the minimum power required by each model, please consult the Order Guide table on page 17.

MAIN FEATURES

- Available for applications up to 40 mt - 131’
- Design for a low hydrodynamic resistance
- Double counter-rotating propeller
- Transmission gears built in high tensile materials
- Quiet operation
- High quality materials suitable to the marine environment
- Wide range of hydraulic components in different sizes for a complete system and different configurations
- Bow and stern mounting options
- Easy installation
- Conforming to the highest production standards
- Easy access to spare parts

WORKING PRINCIPLE OF CLOSED-CIRCUIT SYSTEM

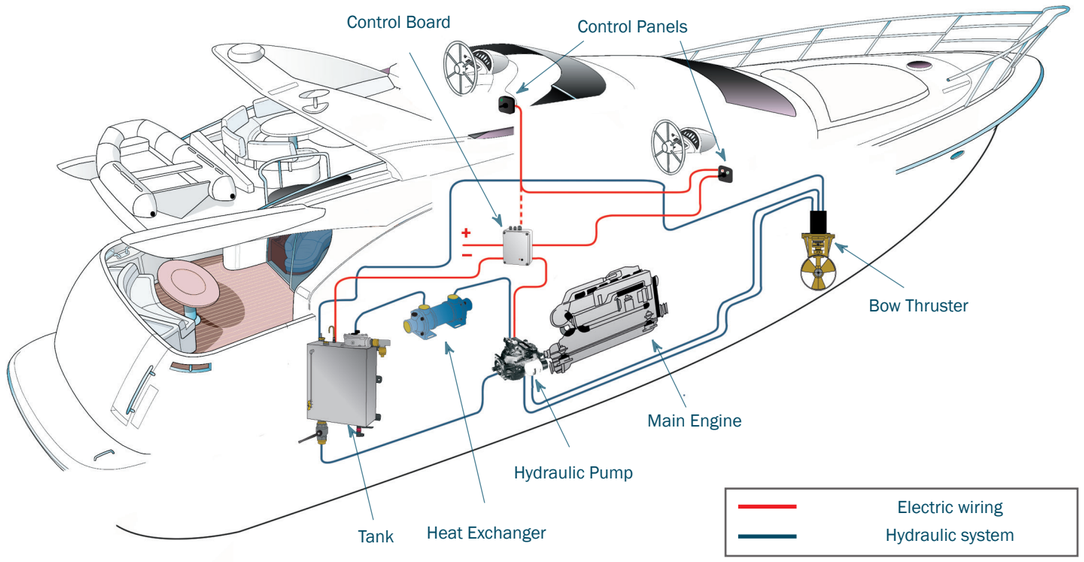
The closed-circuit bow thruster system represents the right solution when there is no need to add other applications (i.e. stern thruster).

1. By actuating the control panel in the desired direction, an electrical impulse is sent to the control board.

2. This signal is then transmitted to the electro-valve of the pump coupled to the main engine.

3. The pump, going in stroke, suctions oil from the tank and sends it to the hydraulic motor of the thruster. The propeller starts to turn.

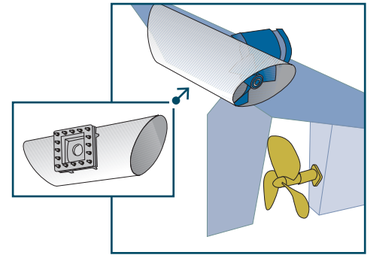
4. A part of the oil flow from the pump goes back to the tank passing through the heat exchanger in order to be cooled. The oil coming out from the thruster goes back directly to the tank.



COMPLETE FREEDOM OF MOVEMENT

All Twin Disc hydraulic thrusters can be installed either in front or at rear of the boat, placed in any position, either vertically or horizontally.

The stern thruster is installed horizontally through the transom by means of a special resin tunnel of stainless steel fixed to the boat itself. The stern tunnels are available in two models for each diameter, (please see the section “Accessories” on pages 18-21) having a different shape and length for maximum flexibility in mounting on the transom and minimum interference with other equipment on board.



WORKING PRINCIPLE OF OPEN-CIRCUIT SYSTEM

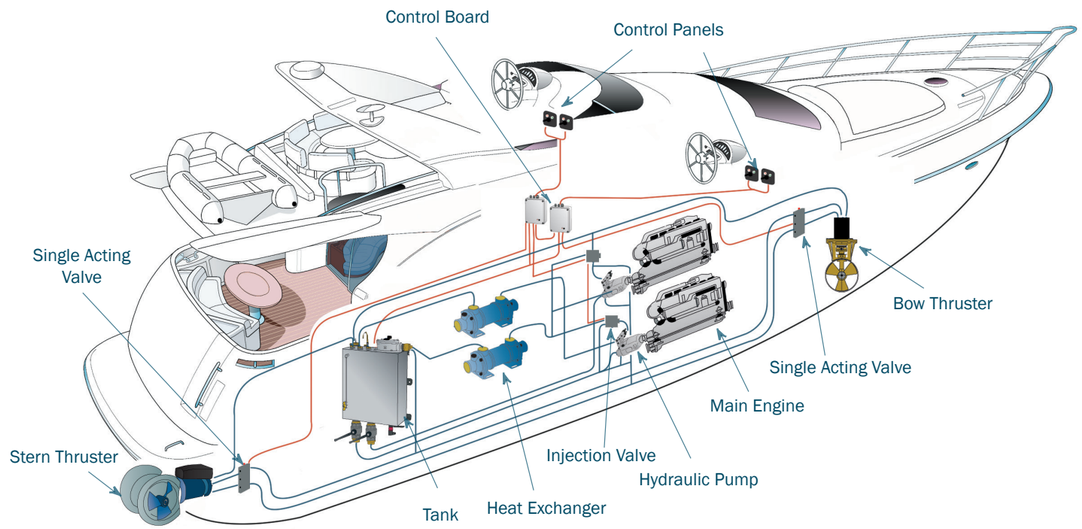
The open circuit system has a more complex configuration that offers many advantages such as the integration of a stern thruster or stabilizer, as well as the possibility of passing from one engine to the other. The working principle is as follows:

1. By actuating the control panel of the thruster, an electrical impulse is sent to the relative control board.

2. This signal is transmitted to both the single acting valve which determines the rotation direction, and to the injection valve that makes the pump go in stroke and activate the circuit.

3. The pump suctions oil from the tank and sends it to the single acting valve that allows it to flow to the hydraulic motor of the thruster. The propeller starts to turn.

4. A part of the oil flow from the pump goes back to the tank passing through the heat exchanger in order to be cooled. The oil coming out from the thruster goes back directly to the tank.

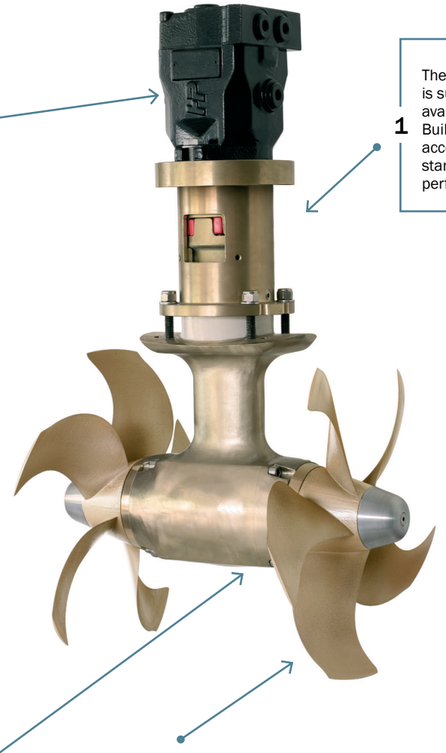


SYSTEM COMPOSITION

All hydraulic components to complete the system such as pumps, tanks, tunnels, stern-thruster kits, heat exchangers, control boards and control panels are available in several models and sizes for a wide variety of configuration possibilities to satisfy many applications. See pages 18-21.

Twin Disc hydraulic thrusters include two counter-rotating propellers. The basic composition is as follows:

2 The motor flange is installed on the thruster leg (3) and has the function to support the motor itself and affix to the tunnel. Made of special alloy, the motor flange has a strong structure to ensure the best stability.



1 The hydraulic motor of the piston type is suitable for continuous duty and available in different displacements. Built of high-quality materials and according to the highest production standards, the motor ensures optimal performance and longevity.

3 The thruster leg is bronze and has a special compact design to minimize the hydrodynamic resistance and increase efficiency. It is provided with two zinc anodes on the propeller hubs for protection against electrolytic corrosion. All transmissions gears inside the leg are made of highly resistant materials and are appositely treated to provide a long life even under heavy-duty working conditions. Transmission gears were also designed to minimize noise.

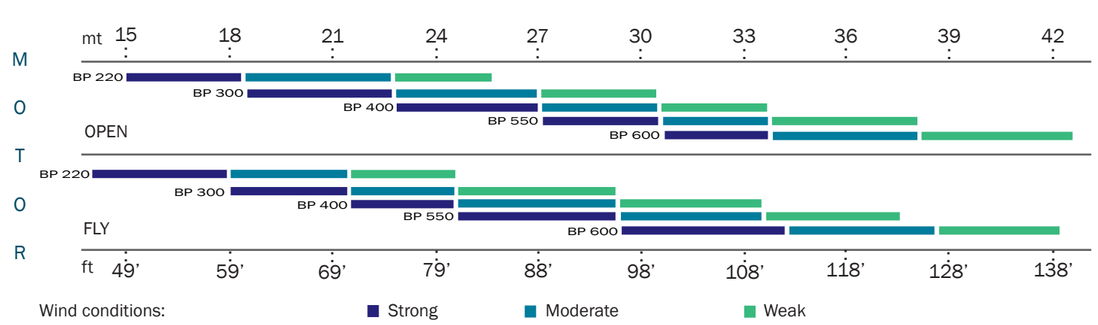
4 The propellers are NiBrAl, a special bronze alloy highly resistant to corrosion. These hydraulic thrusters have two counter-rotating propellers turning in opposite directions, which allow for much higher thrusts with the same tunnel diameters, and ensure an equal thrust in both directions.

ORDER GUIDE

		Measure	BP 220	BP 300	BP 400	BP 550	BP 600
Typical boat size*	Open	mt • ft	13 - 24 • 42' - 78'	17 - 31 • 56' - 102'	20 - 35 • 65' - 115'	27 - 38 • 88' - 124'	29 - 43 • 95' - 141'
	Fly		15 - 23 • 49' - 75'	18 - 28 • 59' - 92'	21 - 33 • 69' - 108'	28 - 36 • 92' - 118'	30 - 41 • 98' - 134'
Nominal thrust		Kgf • N lbs	220 • 2158 485	300 • 2943 661	400 • 3924 881	550 • 5886 1322	600 • 5886 1333
Tunnel I.D.		mm in	250 9,83"	300 11,8"	355 14"	400 15,75"	450 17,72"
Nominal Power		KW Hp	18,7 25	28,5 38	35 47	48,5 65	60 82
Hydraulic motor		cc in/cu	11 / 14 0,67 / 0,87	18 / 21 1 / 1,28	21 / 26 1,28 / 1,58	50 / 58 3 / 3,54	50 / 58 3,54
Weight		Kg lb	24 53	35 77	45 99	75 165	85 189

* These values shall be intended as merely indicative. The performances of each thruster depend on several different factors and on the sizing of the hydraulic components. Ask the Twin Disc Technical Department for suggestions on the most suitable configuration.

WIND INFLUENCE



ACCESSORIES

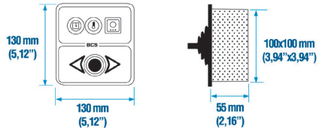
CONTROL PANELS

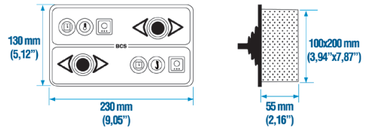
Twin Disc offers two different types of control panels for thrusters:

- ON/OFF Panel - Switch on and perform the needed maneuvers. This is also available with a dual joystick in order to control both bow and stern thrusters.
- Proportional Speed Panel - Increase or decrease total thrust control by adjusting operator pressure on the joystick. Its small dimensions allow a dual mounting configuration either horizontally or vertically, in case of a bow and stern thrusters system.

- Warning lights and acoustic alarm for temperature or oil level
- Waterproof (IP65)
- Power on/off
- Compact design
- Reduced dimensions for easy installation anywhere
- Easy installation
- Conforming to the highest production standards
- Easy access to spare parts

ON/OFF PANEL





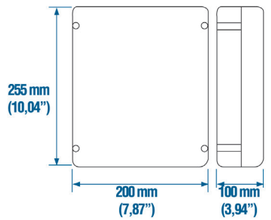
Description	Code
ON/OFF single control panel for bow thruster for BP 220 - BP 300 - BP400 - BP 550 - BP 600	IT23530
ON/OFF double control panel for thrusters for BP 220 - BP 300 - BP400 - BP 550 - BP 600	IT23531

PROPORTIONAL PANEL

Description	Code
Single proportional control panel for thruster for BP 220 - BP 300 - BP 400 - BP 550 - BP 600	IT30043

CONTROL BOARD

The control board contains the electric terminal block for the wiring of the system and the connection to the control panels. The control panel is provided with lights on the cover relating to the different functions.



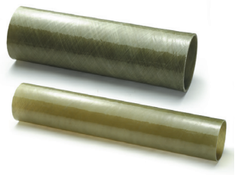
Description	Code
Electric control board for BP 220 - BP 300 - BP 400 - BP 550 - BP 600 with ON/OFF control panels	IT10436
Electric control board for BP 220 - BP 300 - BP 400 - BP 550 - BP 600 proportional	IT30042

BOW THRUSTER LEG

Bronze thruster leg with a compact and effective design for the minimum hydrodynamic resistance. It is provided with two counter-rotating propellers and two zinc protection anodes placed on the propeller hubs.

Model	Description	Code
BP 220	Bow thruster leg 220 Kgf - d. 250 mm - 14cc/rev motor - without tunnel	IT27898
BP 300	Bow thruster leg 300 Kgf - d. 300 mm - 21cc/rev motor - without tunnel	IT27485
BP 400	Bow thruster leg 400 Kgf - d. 355 mm - 28cc/rev motor - without tunnel	IT27486
BP 550	Bow thruster leg 550 Kgf - d. 400 mm - 58cc/rev motor - without tunnel	IT29965
BP 600	Bow thruster leg 600 Kgf - d. 450 mm - 50cc/rev motor - without tunnel	IT23882

BOW THRUSTER TUNNEL

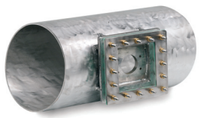


The bow-thruster tunnel is in reinforced GRP and is available in the diameters of 250 mm - 300 mm - 355 mm - 400 mm - 450 mm in combination with several different lengths. It is pre-drilled for the mounting of the thruster leg.

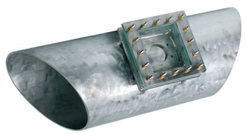
Description		Code
Bow thruster tunnel in GRP d. 250 mm	sold per meter - for BP 220	IT15304
Bow thruster tunnel in GRP d. 250 mm with pre-drilling	L= 1,5 mt for BP 220	IT21348
Bow thruster tunnel in GRP d. 250 mm with pre-drilling	L= 2 mt for BP 220	IT21349
Bow thruster tunnel in GRP d. 300 mm with pre-drilling	L= 1,5 mt for BP-300	IT28443
Bow thruster tunnel in GRP d. 300 mm with pre-drilling	L= 2 mt for BP-300	IT27498
Bow thruster tunnel in GRP d. 300 mm with pre-drilling	L = 2,5 mt for BP 300	IT31467
Bow thruster tunnel in GRP d. 355 mm with pre-drilling	L= 2 mt for BP 400	IT27499
Bow thruster tunnel in GRP d. 355 mm with pre-drilling	L= 2,5 mt for BP 400	IT27500
Bow thruster tunnel in GRP d. 400 mm with pre-drilling	L= 2 mt for BP 550	IT30033
Bow thruster tunnel in GRP d. 400 mm with pre-drilling	L= 2,5 mt for BP 550	IT30034
Bow thruster tunnel in GRP d. 400 mm with pre-drilling	L= 3 mt for BP 550	IT30035
Bow thruster tunnel in GRP d. 450 mm with pre-drilling	L= 2 mt for BP 600	IT23834
Bow thruster tunnel in GRP d. 450 mm with pre-drilling	L= 2,5 mt for BP 600	IT23835
Bow thruster tunnel in GRP d. 450 mm with pre-drilling	L= 3 mt for BP 600	IT23836

STERN THRUSTER TUNNEL

The stern thruster tunnel is completely in AISI316 stainless steel and is available in the diameters of 250 mm - 300 mm - 355 mm - 400 mm - 450 mm. It is available in two different shape/ length combinations (models “S” and “P”) in order to satisfy any requirement and offer minimum interference with other equipment on board. A mounting flange is provided for connection to the transom.



Model S



Model P

Description		Code
Stern thruster tunnel in AISI316 stainless steel - mod. S - d. 250 mm	for BP 220	IT20694
Stern thruster tunnel in AISI316 stainless steel - mod. P - d. 250 mm	for BP 220	IT19977
Stern thruster tunnel in AISI316 stainless steel - mod. S - d. 300 mm	for BP 300	IT30023
Stern thruster tunnel in AISI316 stainless steel - mod. P - d. 300 mm	for BP 300	IT30027
Stern thruster tunnel in AISI316 stainless steel - mod. S - d. 355 mm	for BP 400	IT27911
Stern thruster tunnel in AISI316 stainless steel - mod. P - d. 355 mm	for BP 400	IT27909
Stern thruster tunnel in AISI316 stainless steel - mod. S - d. 400 mm	for BP 550	IT30031
Stern thruster tunnel in AISI316 stainless steel - mod. P - d. 400 mm	for BP 550	IT30028
Stern thruster tunnel in AISI316 stainless steel - mod. S - d. 450 mm	for BP 600	IT23884
Stern thruster tunnel in AISI316 stainless steel - mod. P - d. 450 mm	for BP 600	ITBP0150600P

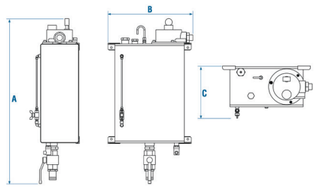
PUMPS

The piston pumps for hydraulic bow thrusters have a variable displacement and are available in a wide range from 46 cc/rev to 115 cc/rev. Certain models are suitable for closed circuit and others for open circuit applications. All can work at high pressures. Pumps are provided with built-in relief valves and several models have built-in filters. Twin Disc can supply a wide variety of coupling flanges type SAE for the connection of the pump to the PTO, to be selected according to the different engine makes and system configurations.

MAIN FEATURES
- Reduced dimensions
- Built-in relief valves
- Low noise emission
- Short response time
- High rotation speed
- Multiple pumps mounting possibility
- High quality and reliability

HEAT EXCHANGER

The heat exchanger has the important function of cooling oil. The heat exchanger actually transfers a certain heat amount from a warmer fluid, like oil of the hydraulic system, to a colder one, like sea water, without any contact. The two fluids never touch due to a metal wall dividing them. It is provided with two input sections and two output sections. The heat exchanger is available in two models.



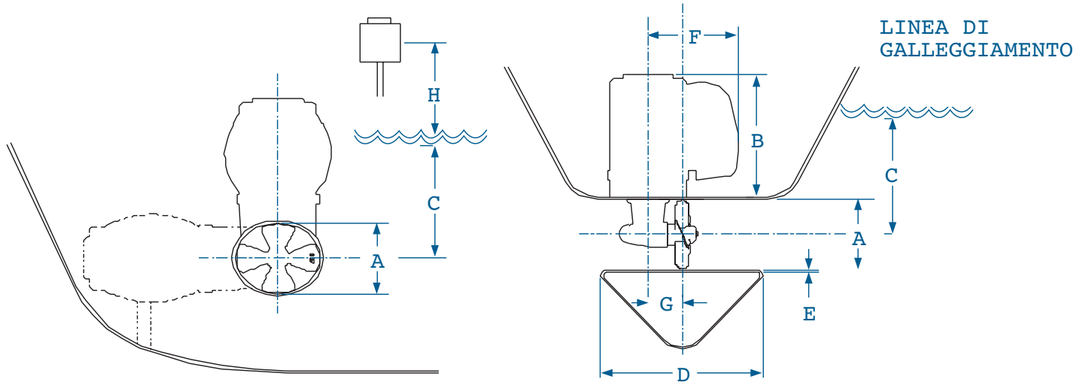
STAINLESS STEEL TANK

The stainless steel tank contains the hydraulic fluid necessary for the system. It is available in three capacities: 35 - 50 - 90 liters according to application type, system configuration, and single or double connection for the installation of other equipment. It is provided with a filter on the return line, as well as a high temperature sensor and a low level device connected to the dashboard control panel.

DIMENSIONS				
Code	Description	A	B	C
IT15565	Vertical mounting tank 35 lt single connection	780 mm 30,70 in	490 mm 19,29 in	287 mm 11,30 in
IT11236	Vertical mounting tank 50 lt single connection	950 mm 37,40 in	490 mm 19,29 in	287 mm 11,30 in
IT11237	Vertical mounting tank 50 lt double connection	950 mm 37,40 in	490 mm 19,29 in	287 mm 11,30 in
IT19128	Horizontal mounting tank 90 lt double connection	936 mm 36,85 in	730 mm 28,74 in	386 mm 15,19 in

DIMENSIONS AND TECHNICAL SPECIFICATIONS

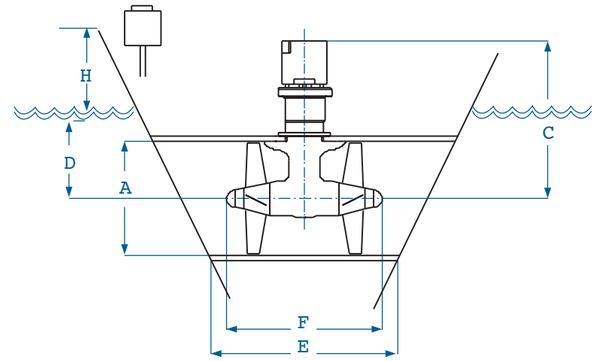
ELECTRIC THRUSTERS



Model	BT 35	BT 55	BT 85	BT 100	BT 120	BT 160
A (mm • in)	125 • 4,92”	185 • 7,28”	185 • 7,28”	185 • 7,28”	185 • 7,28”	250 • 9,83”
B (mm • in)	218 • 8,58”	280 • 11,02”	340 • 13,38”	352 • 13,86”	425 • 16,73”	475 • 18,70”
C (mm • in) minimum	125 • 4,92”	185 • 7,28”	185 • 7,28”	185 • 7,28”	185 • 7,28”	250 • 9,83”
D (mm • in)	250 – 500 9,83” – 19,68”	370 – 740 14,57” – 29,13”	370 – 740 14,57” – 29,13”	370 – 740 14,57” – 29,13”	370 – 740 14,57” – 29,13”	500 – 1000 19,68” – 39,37”
E (mm • in)	4 • 0,16”	5 • 0,20”	5 • 0,20”	5 • 0,20”	5 • 0,20”	7 • 0,28”
F (mm • in)	135 • 5,31”	150 • 5,90”	175 • 6,89”	175 • 6,89”	160 • 6,30”	160 • 6,30”
G (mm • in)	50 • 1,97”	70 • 2,76”	70 • 2,76”	70 • 2,76”	70 • 2,76”	105 • 4,13”
H (mm • in) minimum	500 • 19,68”	500 • 19,68”	500 • 19,68”	500 • 19,68”	500 • 19,68”	500 • 19,68”
Technical Details						
Thrust (kg • lbs • N)	35 • 78 • 343	55 • 122 • 540	85 • 188 • 834	100 • 220 • 981	120 • 265 • 1177	160 • 353 • 1570
Power (Kw • Hp)	2,2 • 3	3 • 4	5,3 • 7,1 (12V) 4,8 • 6,4 (24V)	6 • 8	8 • 10,7	8 • 10,7
Voltage (V)	12	12 • 24	12 • 24	12 • 24	24	24
Weight (Kg • lb)	10,5 • 23,5	20 • 44	25 • 55,1	26 • 57,3	45 • 99	52 • 114,6

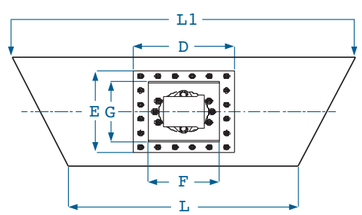
DIMENSIONS AND TECHNICAL SPECIFICATIONS

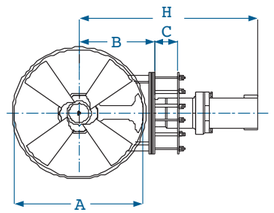
HYDRAULIC THRUSTERS



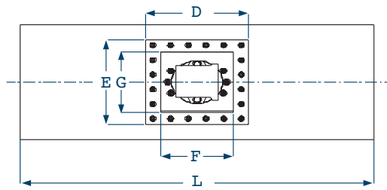
Model	BP 220	BP 300	BP 400	BP 550	BP 600
A (mm • in)	250 • 9,83”	300 • 11,8”	355 • 14”	400 • 15,75”	450 • 17,72”
C (mm • in)	352 • 13,8”	465 • 18,30”	495 • 19,5”	600 • 23,6”	625 • 24,61”
D (mm • in) minimum	250 • 9,83”	300 • 11,81”	360 • 14,17”	400 • 15,75”	450 • 17,72”
E (mm • in)	500 - 1000 19,68” - 39,37”	580 - 1160 22,83” - 45,6”	700 - 1360 27,56” - 53,54”	800 - 1600 31,5”- 63”	800 - 1600 31,5”- 63”
F (mm • in)	348 • 13,7”	425• 16,73”	425• 16,73”	498 • 19,6”	508 • 20,00”
H (mm • in) minimum	500 • 19,68”	500 • 19,68”	500 • 19,68”	500 • 19,68”	500 • 19,68”
Technical Details					
Thrust (kg • lbs • N)	220 • 485 • 2158	300 • 661 • 2943	400 • 881 • 3924	550 • 1322 5886	600 • 1333 5886
Power (Kw • Hp)	18,7 • 25	28,5 • 38	35 • 47	48,5 • 65	60 • 82
Weight (Kg•lb)	24 • 53	35 • 77	45 • 99	75 • 165	85 • 189
Standard length of tunnel (mm • in)	1500 - 2000 78,74”	1500 - 2000 78,74”	2000 - 2500 78,74” - 98,42”	2000 - 2500 3000 78,74” - 98,42” 118,11”	2000 - 2500 3000 78,74” - 98,42” 118,11”

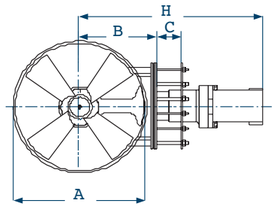
DIMENSIONS OF STERN THRUSTER TUNNELS





MODEL “P”





MODEL “S”

Model	BP 220/S	BP 220/P	BP 300/S	BP 300/P	BP 400/S	BP 400/P	BP 550/S	BP 550/P	BP 600/S	BP 600/P
A mm ft	250 9,83”	250 9,83”	300 11,81”	300 11,81”	355 13,98”	355 13,98”	400 15,75”	400 15,75”	450 17,72”	450 17,77’’
B	162 6,38”	162 6,38”	187 7,36”	187 7,36”	214,5 8,44”	214,5 8,44”	239 9,41”	239 9,41”	264 10,39”	264 10,39’’
C	80 3,15”	80 3,15”	80 3,15”	80 3,15”	80 3,15”	80 3,15”	80 3,15”	80 3,15”	80 3,15”	80 3,15’’
D	345 13,58”	345 13,58”	270 10,63”	270 10,63”	270 10,63”	270 10,63”	350 13,78”	350 13,78”	350 13,78”	350 13,78’’
E	345 13,58”	345 13,58”	250 9,83”	250 9,83”	250 9,83”	250 9,83”	350 13,78”	350 13,78”	350 13,78”	350 13,78’’
F	250 9,83”	250 9,83”	165 6,50”	165 6,50”	165 6,50”	165 6,50”	250 9,83”	250 9,83”	250 9,83”	250 9,83’’
G	250 9,83”	250 9,83”	150 5,91”	150 5,91”	150 5,91”	150 5,91”	250 9,83”	250 9,83”	250 9,83”	250 9,83’’
H	390 15,35”	390 15,35”	465 18,31”	465 18,31”	492,5 18,70”	492,5 19,39”	600 23,62”	600 23,62”	625 24,61”	625 24,61’’
L	500 19,68”	500 19,68”	600 23,62”	550 21,65”	700 27,56”	700 27,56”	700 27,56”	700 27,56”	1000 39,37”	804 31,65’’
L1	/	850 33,46”	/	950 37,4”	/	1000 39,37”	/	1000 39,37”	/	1200 47,24

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WARRANTY CONDITIONS

See Company Literature page at www.twindisc.com for warranty information.

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