Side-Power Thrusters Advantages

1. Performance

The high performance of a Side-Power thruster is a result of continuous efforts in product development and testing.

- Propulsion technology know-how.
- Lightweight composite propellers.
- Purpose-built high power electric motors.
- Streamlined gearhouse design.

2. Installation

Based on our experience and cooperation with major boatbuilders, we supply systems to ensure it is easy to install a Side-Power thruster correctly.

- Compact-sized units.
- "Plug & Go" electric wiring.
- Easily accessible battery cable terminals.
- Easy installation of control panels.
- Fast and safe propeller mounting with locknut.
- Professional and solid GRP/composite stern thruster kits.
- Easy access zinc anodes.
- Easy fit sealed gearlegs.

3. Safety & Reliability

The safety of the boat and those on board is our utmost priority. All Side-Power thrusters include standard features that protect against operator errors and technical problems, minimizing potential consequences. Side-Power thrusters are purpose built for professional use with no compromise on quality.

- Overheat protection of electric motor.
- Mechanical protection of drive gear.
- Self-locking "high pressure" contacts.
- Extra wear and heat protection of internal wires.
- Non conductive and self extinguishing solenoid covers.
- Control panels have child safe On/Off (instant On) and automatic deactivation timed from last use.
- In-house manufacturing, assembly and quality control.
- 2-year limited warranty.

Thruster Sizing

By definition, any thruster will to some extent do a job in any boat. The key is to ensure that the chosen thruster will do the job you want it to in your boat. This is one of two main factors deciding the right thruster size for each boat. Today most pleasure craft over 35' have a bow thruster as standard equipment which normally will meet the expectations of most customers when using the boat under normal weather conditions. The sizes used by the boat builders will vary depending on the boat's intended usage and price level. In today's production boats, the typical thruster will push the boat's bow against a direct side wind of 21-23 knots. For boat owners that use their boats in more demanding conditions or have, for example, a strong current in their local marina , or for other reasons require very high performance, many boat builders offer upgrades to a more powerful thruster system.

Charts

The charts shown here are general guidelines and your dealer will be able to give more detailed advice on the thruster size to use for your boat.

Electric Thrusters

Boat Size (m)	6	9	12	15	18	21	24	27	30
ø 125 mm	SE30 SE40								
ø 185 mm		SE60 SE80 SE100							
ø 215 mm			SE120 SE150						
ø 250 mm				SE130 SE170 SE210					
ø 300 mm					SP240TCi SP285TCi				

Hydraulic Thrusters

Boat Size (m)	9	12	15	18	21	24	27	30	33	36	39	42	45
ø 185 mm	SH 100												
ø 215 mm		SH 160											
ø 250 mm			SH 240										
ø 300 mm				SP300HYD									
ø 385 mm						SH420 SH550							

Conclusion

The two main factors that decide correct thruster sizing are:

- Boat owner's performance requirements
- Boat size, type and shape

DC Thruster Models

To enable the most safe and easy installation as well as the best possible performance for a variety of boats and usages, Side-Power thrusters are offered in several versions to satisfy all requirements.

SE Series – Standard Bow and Stern Thrusters

The standard bow and stern thruster series are the base for all our extensive range of DC electric thrusters. They are fitted in a tunnel through the bow, or into our stern tunnels to use as a stern thrusters. The electric motors, patented IPC control system and the mechanical parts of the propulsion system are all totally custom designed and built, utilizing the extensive experience gained through years of leadership in the global thruster market.

IP Versions – For Demanding Environments

The IP – ignition protected – versions are equipped with a hermetically sealed cover around the motor and switch gear. This means that it is safe to use in gasoline boats or other areas where there is a risk of explosive fumes as well as excellent for installation in wet areas (not for submerged installation). Can be used for both bow or stern applications.

SR Series – Retractable Thrusters

Our retractable thrusters are excellent for use as bow or stern thrusters in boats with shallow or flat bottomed hulls, or where a tunnel opening in the hull at all is not desirable. Designed in true Side-Power spirit with reliability and durability as main factors, they are exceptionally sturdy and compact with the same high performance as all other Side-Power thrusters. Unique advantages by use of the latest technology including our S-link intelligent bus control provides a further benefit in use and control for the operator. Available also as speed control versions with the designation SRP.

SX Versions – Externally Fitted Stern Thrusters.

The fully external stern thrusters. Very popular for boats with twin stern drives together with the special cowls directing the water flow past the drives or in boats that have limited internal space in the back of the boat. Exceptionally easy installation is a bonus with the SX stern thrusters. Two size models are available now, the 80 and 100 kg thrust models and you can get both SE and SEP series in SX versions.

SEP Series – The Speed Controlled Thrusters

The SEP series are basically SE thrusters with the addition of the DC Power control system. Providing even more accurate control by fully regulating the power of the thruster as well as providing even longer run times, this is the latest in DC electric thrusters. The noise reduction and automatic "Hold" function are further benefits provided by the SEP series.

A Complete Thruster System

There are several components in a complete system for your boat; besides the thrusters and tunnels (bow or stern or both) – you will need control cables, main switches – automatic or manual – fuse & fuse – holder, control panel(s) and main power cables, even a radio remote is a normal part of a thruster system today. To simplify installation and further increase the safety, we recommend to use the original Side-Power Automatic Main switch which also has a built-in fuse reducing the number of necessary components. Where the Automatic Main switch is used , you need a 5 lead control cable between the panel and main switch, while only a 4 lead is needed to the thruster or if a manual or other auxiliary main switch and separate fuse is used. The powerful electric motors used on the thrusters require a good electric power supply for safe operation and to achieve the desired power. Thereby, both the main power cable sizes as well as the available battery capacity is important. It is the actual delivered voltage at the thruster when it is running after the voltage drop both in the batteries as well as through the cables, main switch and fuse, that decides the actual power of the electric motor and thereby the possible thrust. So, getting this right will be important for your product satisfaction.

It is also important to remember that different types of batteries have different capabilities and specialties, and what is important for thrusters is the cranking capacity, the batteries ability to deliver a high current for a shorter period of time.

DC Speed Control

System Features

A DC Speed Control system contains three main elements - proportional control panels, a power control unit and a DC electric thruster - all tied together with the new S-link control system. The thrusters used in a speed control system is almost identical to the familiar SE range of DC thrusters, the only difference being the addition of a temperature sensor and a new electronic control box. All mechanical and main electric parts are from the well proven thruster range produced by Side-Power for many years. All 12 & 24 volt DC electric thrusters produced by Side-Power can be enabled for DC Speed Control by authorized Side-Power service personnel ,even the oldest models.

PJC 212 Control Panel

- Plug and play S-link control cable wiring (waterproof plugs).
- Finger tip control with purpose designed joysticks.
- Hold - function for easy docking, runs thrusters at selected power.
- Back-lit LCD display with instant feedback;
  - Amount of thrust & direction of thrust.
  - Thruster temperature/remaining run time.
  - Battery status.
  - Selectable LCD colour & level for both night and day.
  - System monitoring simplifies troubleshooting.
- Interactive multilingual menus.
- Built-in audible alarm "buzzer".

PPC 800 Power Control Unit

- Plug and play S-link control cable wiring.
- Easy to access, solid main cable terminals.
- Easy to place as it can be located anywhere between the batteries and the thruster, also in areas requiring ignition protected parts.
- Reliable solid state switching.
- Thermal and over current protection.
- Active cooling for continuous usage.

Side-Power Features

1. The new 5 blade special skew propellers have been designed to reduce the noise level, while maintaining the exceptional efficiency of the old 4 blade Side-Power propellers.
   - Noise reductions of up to 75% measured in controlled environments.
   - The expected and tested normal noise reduction in "average installations" 20-40%.
   - Standard on all Side-Power models except the SH420/386TC and SH550/386TC.
   - Upgrade kits are available for most "SP" series thrusters with special adaptors.

2. The gearhouse/drive legs of most Side-Power DC Electric thrusters are now fully galvanically isolated/separated from the electric motor and motor bracket. This ensures that even if there is an accidental short circuit or a current leak for other reasons, the immersed parts are not affected as they could be with direct electric contact.

3. The Side-Power unique thruster controller that intelligently protects the thruster from potential inherent problems in all high current applications as well as user faults. It includes several important safety features imperative in a product with such high power, run by DC electrics, as a thruster.
   - Provides delay between drive directions
   - Monitors solenoid functions to reduce the chance of solenoid lock-in
   - Will stop the thruster in case of a locked-in solenoid, without extra user action and even without controlling a main switch.

4. To provide reliable and safe thruster installations in more boats, we offer modified version of our DC electric thrusters in watertight housings for use in stern and other locations that may get wet or be exposed to petrol fumes. These thrusters are fully ignition protected (ISO 8846) for use in boats with petrol engines. They have a hermetically sealed composite housing around all electric parts. This provides the ignition protection as no petrol fumes can enter and be ignited by sparks.

5. The thruster gearleg is filled with oil from a remote reservoir located above the waterline. This generates overpressure, making an effective seal against water intrusion in the gear leg.
   - Separate oil reservoir placed above the waterline.
   - Allows easy access for oil changes.

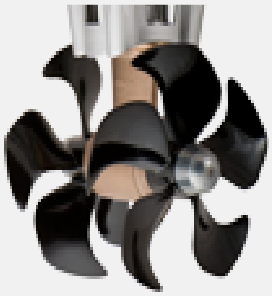
6. Sealed gear leg with long-life "mechanical" seal where highly polished ceramic and carbon surfaces form the only moving sealing surfaces, ensuring protection against damaging water intrusion into the gear leg. Pre-filled with special gear oil for lifetime lubrication.
   - "Mechanical" seals with surfaces of ceramic and carbon for ultimate security against water intrusion.

Single Propeller

A properly engineered single propeller system will be the most energy efficient thruster. Its compact design fits easily into narrow bows making it the perfect match for our smaller models. With more than 70000 single propeller thrusters in use, the Side-Power single series system has proven its reliability.

Twin Propellers

The twin propeller system can give more thrust than a single propeller system in the same tunnel diameter. This is our choice for our mid-range models where high thrust is required in a small tunnel diameter. Due to the compact design and high performance, the twin models have become the thrusters of choice among boat builders around the world.



Twin Counter Rotating Propellers

Two counter-rotating propellers can give the most thrust at a good performance ratio in a minimal tunnel diameter. This system is used in our larger thrusters for maximum power. The TC models are the favourite thrusters among leading boat builders for their high-end yachts.

Tunnel Size

Tunnel Size	
ø (mm)	125 - 185 - 215 - 250 - 300 - 386 - 513 - 610

Facts about Tunnel Sizes:

- Principally, a larger tunnel diameter will always be more energy efficient than a smaller tunnel diameter for the same thrust. The factor is water speed, and this is decided by the amount of water you move through the possible opening which is the square area of the tunnel less the area blocked by the thrusters gearleg.
- The opening in the boat hull is not only the circular size of the tunnel diameter. Because the hull is angled, you get a much larger oval opening, and this makes a larger tunnel diameter more difficult to fit properly into the hull.

DC Thruster Range

SE Series thrusters	SE 30/125 S	SE 40/125 S	SE 60/185 S	SE 80/185 T	SE 100/185 T	SE 120/215 T
Thrust at 10.5V/ 21V* (kg • lbs)	30 • 66	40 • 88	60 • 132	80 • 176	100 • 220	120 • 264
Thrust at 12V/ 24V* (kg • lbs)	40 • 88	48 • 105	73 • 161	96 • 212	116 • 256	42' - 60' • 13 - 18
Typical boat size (ft • m)	20' - 28' • 6 - 8.5	26' -125 • 4.92"	29' - 38' • 9 - 12	35' - 48' • 10 - 15	35' - 55' • 12 - 17	139 • 306
Tunnel I.D. (mm • in)	125 • 4.92"	34' • 8 - 10.5	185 • 7.3"	185 • 7.3"	185 • 7.3"	215 • 8.46"
Propulsion system	Single	Single	Single	Twin	Twin	Twin
Power at 10.5V/ 21V* (kw • Hp)	1.5 • 2	2.2 • 3	3.1 • 4	4.4 • 6	6.3 • 8.4	6.4 • 8.55
For DC system (V)	12	12	12/24	12/24	12/24	24
Weight (kg • lbs)	9.5 • 21	10 • 22	16 • 35	20 • 44	31 • 68	34 • 74
Min. Batt. Cap (CCA** 12/24V)	200	300	350 • 175	550/300	750/400	400

DC Thruster Range

SX Series thrusters	SX 80/185 T	SX 100/185 T
Thrust at 10.5V/ 21V* (kg • lbs)	80 • 176	100 • 220
Thrust at 12V/ 24V* (kg • lbs)	96 • 212	116 • 256
Typical boat size (ft • m)	35' - 48' • 10 - 15	35' - 55' • 12 - 17
Tunnel I.D. (mm • in)	185 • 7.3"	185 • 7.3"
Propulsion system	Twin	Twin
Power at 10.5V/ 21V* (kw • Hp)	4.4 • 6	6.3 • 8.4
For DC system (V)	12/24	12/24
Weight (kg • lbs)	52 • 115	57 • 125
Min. Batt. Cap (CCA** 12/24V)	550/300	750/400

SX Series thrusters	SR 80/185 T	SR 100/185 T
Thrust at 10.5V/ 21V* (kg • lbs)	80 • 176	100 • 220
Thrust at 12V/ 24V* (kg • lbs)	96 • 212	116 • 256
Typical boat size (ft • m)	35' - 48' • 10 - 15	35' - 55' • 12 - 17
Tunnel I.D. (mm • in)	185 • 7.3"	185 • 7.3"
Propulsion system	Twin	Twin
Power at 10.5V/ 21V* (kw • Hp)	4.4 • 6	6.3 • 8.4
For DC system (V)	12/24	12/24
Weight (kg • lbs)	31 • 68	44.97
Min. Batt. Cap (CCA** 12/24V)	550/300	750/400

SE 130/250 T	SE 150/215 T	SE 170/250 TC	SE 210/250 TC	SP 240 TCi	SP 285 TCi
130 • 284	150 • 330	170 • 374	210 • 462	240 • 528	285 • 627
160 • 352	182 • 400	210 • 462	250 • 550	300 • 660	340 • 748
42' - 62' • 13 - 19	44' - 64' • 14 - 20	50' - 70' • 15 - 22	55' - 78' • 17 - 24	60' - 84' • 18 - 25	74' - 100' • 22 - 30
250 • 9.8"	215 • 8.46"	250 • 9.8"	250 • 9.8"	300 • 11.8"	300 • 11.8"
Twin	Twin	Twin Counter rot.	Twin Counter rot.	Twin Counter rot.	Twin Counter rot.
6.5 • 8.7	8.8 • 11.8	8 • 10.7	10 • 13.15	11.4 • 15.5	15 • 20
12/24	24	24	24	24	24 (48V motor)
37 • 77	38 • 79	44 • 97	68 • 150	70 • 154	73 • 160
750/400	560	550	650	700	2x450 - 24V

Side-Power Benefits

1. Compact sized and modern styled control panels with hidden screw heads.
2. The round cut-out hole, the pre-fitted seal and easy front mount with hidden screws ensures fast and flawless installation.
3. Side-Power thrusters come standard with an integrated processor, protecting the unit against operator errors and technical problems.
4. Lightweight, sturdy and non-corrosive, composite propellers are perfect for thrusters of all sizes.
5. Hardened spiral-cut gears for extended lifetime, low noise and more compact gearleg design.
6. Machined and assembled to perfect tolerances, using high end purpose made components ensures extended lifetime for professional use.
7. Side-Power developed electric motors for maximum performance and efficiency in real-life onboard conditions. Details increasing safety and ease of installation are standard.
8. The child safe on/off system minimizes the risk of accidental or unintentional operation.
9. While other joysticks might appear similar, the unique Side-Power joysticks are made of fully UV protected silicon based rubber to ensure long term reliability.
10. Side-Power's zinc anodes are outside the propellers for easy access and replacement.

External Sternthruster - The SX Series

Finally, a functional stern thruster option for boats with twin stern drives. Side-Power now offers a complete external sternthuster assembly, specially designed for installation on boats with twin stern drives. It utilizes special cowls to enable good performance by diverting the waterflow past the stern drive legs, which normally blocks the thrust. The units come pre-assembled, wired and sealed in the waterproof box,and only require a small hole into the boat's transom to attach the power and control cables. The cable connection points are fully sealed, so that it is Ignition Protected and can be installed in petrol powered boats. This stern thruster option can also be the best choice for boats without stern drives, if the inside configura--tion of the boat's stern makes a standard thruster installation impractical. Available with two different size thrusters, SX80 and SX100. Also available in SXP versions with DC speed control.

Ignition Protected - The IP Series

For several years, Side-Power has manufactured ignition protected thruster models. Now, the second generation is here with added features and many more models.

High Safety Standards

To provide reliable and safe thruster installations in more boats, we offer modified versions of our DC electric thrusters in watertight housings for use in stern and other locations that may get wet or be exposed to petrol fumes. These thrusters are fully ignition protected (ISO 8846) for use in boats with petrol engines. They have a hermetically sealed composite housing around all electric parts. This provides the ignition protection as no petrol fumes can enter and be ignited by sparks. The other advantage is that the electric parts that could be damaged by water are also covered and protected, making these thrusters the ideal choice for other stern thruster installations where it is difficult to ensure that the thruster will always remain dry.

Tunnels and Stern Thruster Kits

GRP tunnels are available in several lengths for each thruster model. They are purpose built for our thrusters and provide ultimate strength, accuracy and osmosis protection to ensure an easy and safe thruster installation. The wall thickness is adapted to each thruster's power and boat size. We also offer a selection of aluminium and steel tunnels.

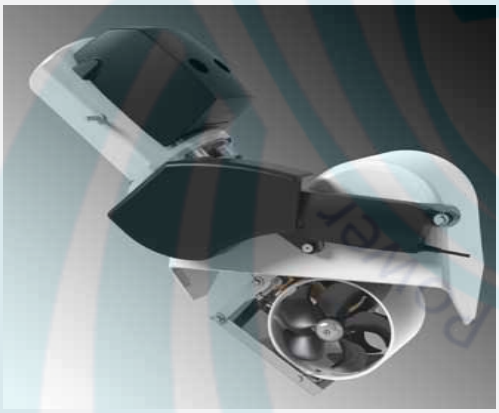
These transom-mounted tunnels are designed to enhance the performance of the thruster. Manufactured in fibreglass, they are extremely strong and durable. The complete installation is very easy and meets the high Side-Power standards. The additional cowls make it possible to allow a stern thruster installation in boats with shallow draft or obstructions on the stern.

Injection Mould Stern Tunnels

Injection mould tunnels with extra safety features 30% stronger and specific breaking point design. Available for 125mm, 185mm and 250mm tunnel diameter thrusters. The new 250mm tunnel features split tunnel assembly for easier installation and integrated support for thruster motor and bracket, eliminating the need for an external support strut.

Control Cables

Make sure that the complete installation meets the Side-Power quality standard and take advantage of our "Plug & Go" wiring system by using original control looms. They are available in many different lengths and Y-connectors tie multiple control positions together. Colour coded to match the wiring diagrams with high quality connectors to ensure a correct install--ation.



Retractables - The SR Series

185mm Tunnel Diameter

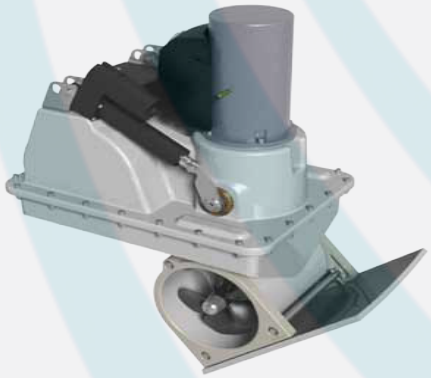
Some boats do not have the possibility to fit a tunnel thruster and thereby require a retract-able thruster. Side-Power have talked to the market and identified the weaknesses in existing solutions and improved these to offer retractable thrusters in true Side-Power spirit with no compromise on sa fety and reliability. The retracting thrusters are built with the same high safety standards as all Side-Power products, and incorporate all features introduced with the SE-series thrusters. Our focus on safety is a totally integral part of the product design so that everything from build quality to ease of installation is thought of to ensure long term reli--ability.

The 185mm retractable thrusters are available in the following models:

- SR80/185T - 80kg thrust, available for 12V and 24V.
- SR100/185T - 100kg thrust, available for 12V and 24V.

Specific Retracting Thruster Features

- Plug and play S-Link two way communication control cable wiring.
- Motor assembly rigid mounted on retract casing - no moving parts during retract operation.
- Compact measures .
- Reliable retract mechanism, avoids sticking.
- Fast deployment time.
- Easy to use control panel with status feedback from thruster.
- Available as SRP versions with DC Speed Control.



250mm Tunnel Diameter

The new retractable thrusters for 250mm tunnel diameter features a split casing for easier installation and maintenance as well as dual actuators to handle the heavier load. The design has also been revised to get the thruster as compact as possible even with theheavier motors required for the higher performance of these models.

The 250mm retractable thrusters are available in the following models:

- SR130/250T - 130kg thrust, available for 12V and 24V.
- SR170/250TC - 170kg thrust, 24V.
- SR210/250TC - 210kg thrust, 24V.

Specific Retracting Thruster Features

- Plug and play S-Link two way communication control cable wiring.
- Motor assembly rigid mounted on retract casing - no moving parts during retract operation.
- Compact measures.
- Split casing for easy installation and maintenance.
- Reliable retract mechanism, avoids sticking
- Fast deployment time
- Easy to use control panel with status feedback from thruster
- Available as SRP versions with DC Speed Control.

8950 G

8955

8960 G

8965

Control Panels for DC Thrusters

Side-Power offers a unique series of «smart» control panels, an important part of a thruster system. Choose between our compact touch button, the popular joystick controls, the docking control panel with the most intuitive thruster control ever or the new exclusive round panel. Why not try the radio remote control for full mobility onboard, being the perfect tool for short handed boating. Radio linked panels are also an option.

Easy Installation

- Round cut-out hole (std.instrument size).
- Installs from front side
- Pre-fitted O-ring seal
- Multi-voltage (12 & 24V)

Safety

- Child-safe on / off system
- Power / control light
- Automatic deactivation
- Easy operation

Quality

- Waterproof (IP65-front)
- UV safe
- CE -approved

Design

- Compact size
- Modern styling
- No visible screw heads

Control Panel	Item code	H (mm)	W (mm)	No. thrusters
Touch panel	8950 G	70	70	1
Round touch panel	8955 G	ø 86,5	-	1
Joystick panel	8960 G	70	70	1
Boat switch panel	8965	ø 86,5	-	1
Dual joystick panel	8940 G	120	70	2
Docking panel	8909 c	120	70	2

Handheld Radio Remotes

A radio remote control makes your thruster system even more helpful around the docks. Providing full simultaneous control of a bow and a stern thruster or a bow thruster and a windlass, making shorthanded boating much easier.

	Item code
Radio remote set (bow + stern thruster) / Radio remote set (bow thruster + windlass)	8980 / 8985
Extra transmitter (bow + stern thruster) / Extra transmitter (bow thruster + windlass)	8981 / 8986

Hydraulic Thruster Systems

There is a limit to the power you can practically generate with DC electrical systems, so for super yachts and other larger, heavier vessels DC thrusters are rarely an option. Larger thruster models and extended run time make hydraulic thrusters the ideal choice for commercial crafts and other less maneuverable yachts. In conjunction with a good hydraulic system these thrusters offer continuous operation and you can get variable speed control with proportional control and valves. The last generation hydraulic thruster systems features the S-link control system with two way communication, opening for a whole new range of features. With models from 100 to 1400kg of thrust for use as either bow or stern thrusters, Side-Power has suitable models for a wide variety of yachts and commercial vessels. To ensure matching quality of all components in a hydraulic thruster system, we also offer complete hydraulic systems with guaranteed performance and reliability.

A hydraulic thruster system is the natural choice when extensive thruster usage or long run cycles are required. We design our hydraulic systems with the style needed for pleasure craft and the reliability necessary for commercial use. For many vessels, a hydraulic system offers an economic advantage because of the possibility to run several systems onboard from a central--ized hydraulic power source. This will save cost on the individual components so that the complete package ends up with a more favorable cost compared to running all items with individual DC electric motors. Equipment that is often powered by a centralized hydraulic system includes windlasses, stabilizers, winches, cranes, and lifting mechanisms, etc.

SH1000 & SH1400

The SH1000 delivers up to 1000 kg of thrust from a 20 inch tunnel while the SH1400 delivers up to 1400 kg from a 24 inch tunnel. Both the SH1000 and the SH1400 are type approved by Det Norske Veritas and comply with all other shipping standards. As with all other Side-Power systems, they can be controlled using the S-Link system thus benefiting from all the advantages of a bus based digital control system.The S-link system also has the benefit that one single control bus can be used to control a mixed system with Side-Power hydraulic thrusters, Side-Power AC thrustersand stabilizers.

Safety

Side-Power thrusters include several features to ensure the safety of your vessel and its passengers. These features protect against technical and operator faults.

- Mechanical protection of drive gear with flex couplers.
- Electronic protection against sudden change of drive direction.
- Protection against accidental operation incorporated in control panels.

Performance

Investing in product development and testing is an important reason why Side-Power is the leading thruster brand today. Now larger vessels can benefit from these investments that have resulted in modern, cost effective production of highly efficient and reliable thrusters.

- Propulsion technology know-how.
- 5-bladed composite or NiBrAl propellers.
- Improved water flow from streamlined gear leg design.
- High thrust and efficiency in compact tunnel diameters.
- All hydraulic components are supplied by high quality manufacturers like Parker Hannifin, Sauer Danfoss, Bosch Rexroth & Bowman.

Installation

Side-Power hydraulic systems are designed for ultimate reliability, performance and easy installation. For the installer, perhaps the most important feature of any hydraulic system is that they are delivered ready for installation. Side-Power hydraulic systems are manufactured with this in mind and each hydraulic system is tailored specifically to each vessel and its specific needs. Side-Power hydraulic systems come pre-fitted with all internal hydraulic and electrical components ensuring correct installation and potentially saving hours of work for the installer. Side-Power systems do require the installation of external hydraulic and electrical connections, which can only be done onboard.

Side-Power Hydraulic System Features

- Compact-sized units.
- "Plug & Go" electric wiring.
- All hydraulic connections internally on the tank are pre-fit.
- Delivered ready with all hydraulic settings.
- All electric connections are pre-wired for thrusters on tank.
- Full documentation, including installation and user manual, startup manual etc.
- Fast and safe propeller mounting with locknut.
- Easy access anodes.

Hydraulic System Components

1. Tank

A thruster will normally be the most demanding consumer among the hydraulic parts on board, so it is important that the system be correctly built and sized. A Side-Power hydraulic system is specifically designed for ultimate flexibility to support any of the other hydraulic parts on board. It has been designed using the same stringent standards as all other Side-Power, parts,focusing on:

- Reliability
- Safety
- Performance
- Easy & safe installation
- Easy maintenance

Perhaps the most important feature of any complete hydraulic system is for it to be delivered as ready as possible for installation. Side-Power systems require only the external hydraulic and electrical connections (which can only be done onboard), saving time and trouble for the installers. A Side-Power system is delivered with all necessary drawings, installation manuals, system startup manual, service manuals etc. to ensure an easy and correct installation and a life time of reliability and service ability.

Cooling & Filteration

It is important for the lifetime and reliability of a hydraulic system that the oil stays clean and within accepted temperatures to avoid excessive wear and damage to any of the components in the system. The Side-Power hydraulic system is designed to achieve this by having:

- Dual internal oil cooler (optional).
- Air filter in ventilation cap.
- High pressure filter with service gauge.
- Return filter with service gauge.
- Oil fill with filter.
- Additional oil cooler for extra cooling requirements (optional).

Information and Warning System

For safety and ease of service there are several sources of information and warnings on the tank.

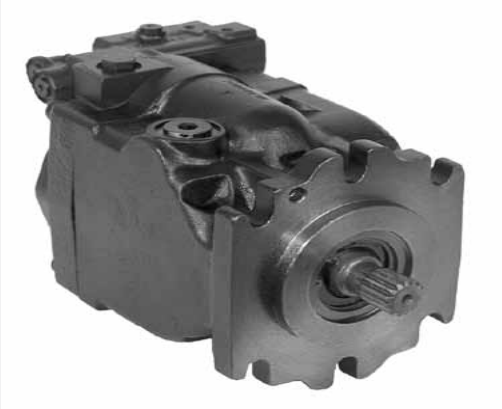
- Oil level and temperature gauge on the tank.
- Electric alarm outputs for oil level and temperature to Side-Power control panels with alarm lights and sound.
- Both filters have gauges that indicate the condition of their filters and when they need changing.
- Pressure gauge on valve shows oil pressure from pump.

Valve System

- Safety relief valve on feed protects system against over pressure.
- Can be built to control of up to seven hydraulic units onboard.
- Individual pressure and flow adjustments (preset) for all components.
- Shock valve on outputs to all components.
- Hydraulic flow curve specialized on thruster modules to match propellers thrust curves (proportional controlled systems).
- Manual activation of each consumer for easy servicing and trouble shooting.
- Identification of each valve system for reference to factory specifications.

Tank Features

- Powder coated stainless steel.
- Soft mounting feet to avoid structural carried noise on floor mounted tanks.
- Internal swash plate that also helps remove air from the oil.
- Angled bottom of tank with drain plug at lowest point on floor mounted tanks.
- All internal hydraulic connections on tank are pre-fitted.
- All internal electric connections for thrusters pre-wired, ready with extension connectors.
- Optional temperature controlled water pump for oil cooler.



2. Pumps

Side-Power hydraulic systems use almost exclusively variable displacement load sense pumps. They offer a high level of reliability, efficiency and flexibility without generating unnecessary noise or the need for huge tanks and oil cooling systems.

Powering a Thruster System

A thruster is almost always the most power demanding part of a hydraulic system. That's why the hydraulic system must be dimensioned to the thruster(s).

Advantages with Load Sense System

- Reliable and well proven system.
- Delivers only the flow and pressure that is actually needed at the time.
- The load sense control of the pump is more reliable than an electric clutch.
- Low heating and energy waste.
- High efficiency piston pumps.
- Low noise in both running and standby mode.
- Ignition protected for fitting in gas/petrol areas.

How to connect and Power Hydraulic Pumps

The most common way of fitting pumps is by a PTO (Power Take Off). This is the preferred method if available, because everything is then matched together by standards so that the fitting is safe and reliable. If there is no PTO available, it is normally possible to fit the pump with a bracket and a flexible coupling to the front end of any engine. Some also use belt drives, but we prefer not to do so because of the high torque needed by a thruster system. Another option is to power the hydraulic pump by using an AC electric motor.

3. Thrusters

The 5 blade special skew propellers have been designed to reduce the noise level, while maintaining the exceptional efficiency of the old 4 blade Side-Power propellers.This goal was achieved, and we even chose to make a little bit more aggressive on some models, increasing the thrust on most thrusters.

- Noise reductions of up to 75% measured in controlled environments.
- The expected and tested normal noise reduction in "average installations 20-40%.

The thruster gearleg is filled with oil from a remote reservoir located above the waterline.This generates over-pressure, making an effective seal against water intrusion in the gear leg.

- Separate oil reservoir placed above the waterline.
- Allows easy access for oil changes.
- Having the advantage to be able to change oil in units used commercially, with hundreds of running hours per year.

Sealed gear leg with long-life "mechanical " seal where highly polished ceramic and carbon surfaces form the only moving sealing surfaces, ensuring protection against damaging water intrusion into the gear leg. Pre-filled with special gear oil for lifetime lubrication.

- "Mechanical" seals with surfaces of ceramic and carbon for ultimate security against water intrusion.

Twin Propellers

The twin propeller system can give more thrust than a single propeller system in the same tunnel diameter. This is our choice for our mid-range models where high thrust is required in a small tunnel diameter. Due to the compact design and high performance, the twin models have become the thrusters of choice among boat builders around the world.

Twin Counter Rotating Propellers

Two counter-rotating propellers can give the most thrust at a good performance ratio in a minimal tunnel diameter. This system is used in our larger thrusters for maximum power. The TC models are the favourite thrusters among leading boat builders for their high-end yachts. With the ever growing demand for increased performance, we continue to expand our offering of tunnel diameters to allow customers to choose more powerful thrusters in tunnel sizes that will fit in their boat.

Facts about Tunnel Sizes

- Principally a larger tunnel diameter will always be more energy efficient than a smaller tunnel diameter for the same thrust. The factor is water speed, and this is decided by the amount of water you move through the possible opening which is the square area of the tunnel less the area blocked by the thrusters gearleg.
- The opening in the boat hull is not only the circular size of the tunnel diameter. Because the hull is angled, you get a much larger oval opening, and this makes a larger tunnel diameter more difficult to fit properly into the hull.