You've now got your hands on
the best marine transmission
in the world

QUICKSHIFT™
You've got to feel it to believe it.

1328 RACINE STREET

RACINE, WISCONSIN 53403 USA

WWW.TWINDISC.COM

TWIN DISC
POWER TRANSMISSION EQUIPMENT

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SMOOTH, SEAMLESS SHIFTS AND INSTANT POWER TO THE PROPELLER

For years, transmission manufacturers have been trying to come up with a marine transmission with the characteristics of an automatic transmission – smooth, seamless shifts and instant power to the propeller.

From the beginning, engine powered boats have had an inherent, predictable shift characteristic. The transmission of power from the engine to the propeller has involved a delay, a hard connection, a sudden jolt, and then excessive engine loading through the low speed power range until the boat has enough momentum to efficiently climb the power curve.

WHY FASTER SHIFTS ARE IMPORTANT:

- SMOOTH, RESPONSIVE THRUST
- MORE RESPONSIVE MANOEUVRING (SUCH AS SLOW SPEED/IDLE ZONES)
- INSTANT VESSEL CONTROL

WHY SMOOTHER SHIFTS ARE IMPORTANT:

- MORE PRECISE CONTROL UNDER ALL CONDITIONS
- REDUCED STRESS ON DRIVELINE
- REDUCED STRESS ON PASSENGERS AND CREW

Until now, all that torque, all those mechanical linkages, all that resistance of water against the propeller created hard, abrupt shifts and delayed actuation of the propeller. So precise boat control was difficult to attain. And the bigger the boat, the bigger the problem.

For more than half a century, boat operators have adjusted to this shift characteristic; they've had no choice. They've learned to compensate for the transmission's less than precise performance, especially during critical manoeuvres such as docking. Add some wind and chop, and docking can be downright challenging. And where you need the most control, at low speed, is where you least had it.

The popularity of boating and demand for bigger and larger horsepower boats has raised the stakes. Marinas are becoming crowded with large, expensive craft. Now docking consists of threading a needle between million dollar neighbours. With QuickShift™, both seasoned skippers and the less experienced operators can handle their boats with ease.

Better control, smoother boat operation – especially at low speed – is not only desirable, it's becoming essential. And that control begins and ends with the transmission.

Twin Disc has solved the problem of slow, abrupt shifts and delayed actuation with the introduction of its QuickShift™ series of marine transmissions.

QUICKSHIFT™
You've got to feel it to believe it.

Now you have incredibly fast smooth shifts and instant thrust even at low rpm, providing unparalleled and previously unavailable precision boat control. That's what the new Twin Disc QuickShift™ line of marine transmissions offers.

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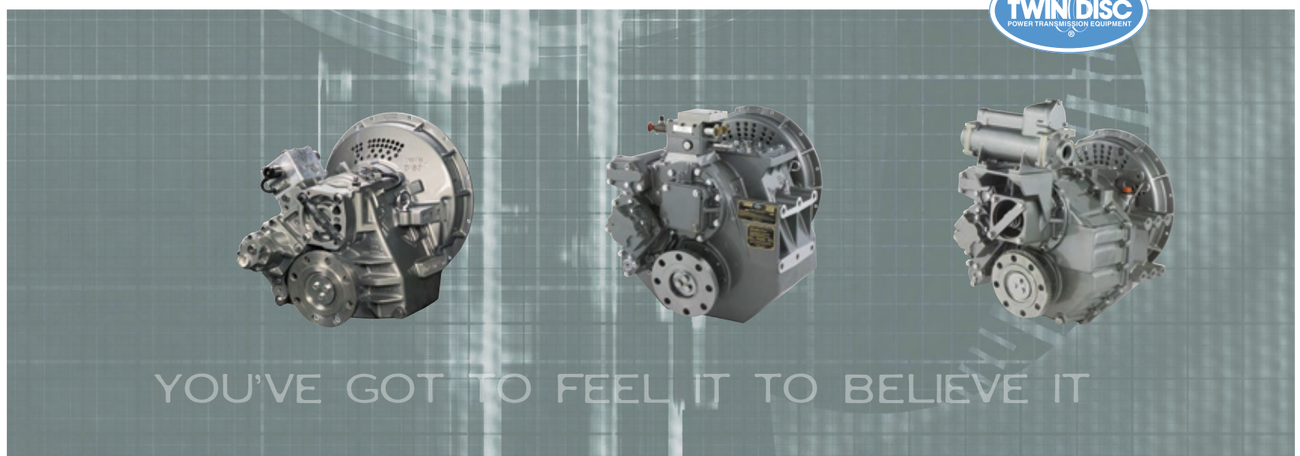
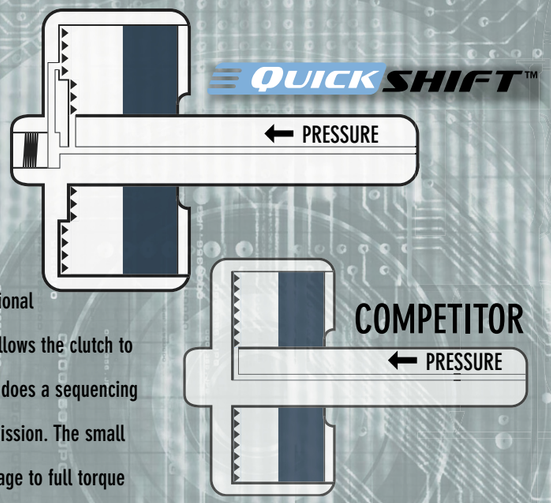


TWIN DISC HAS SOLVED THE PROBLEM OF SLOW, ABRUPT SHIFTS AND DELAYED ACTUATION WITH THE INTRODUCTION OF ITS QUICKSHIFT™ SERIES OF MARINE TRANSMISSIONS

HOW WE PUT THE PRESSURE ON THE COMPETITION

It's a matter of clutch technology. To shift better you've got to have better clutch technology. Twin Disc has been designing and manufacturing rugged and reliable clutches and transmissions for more than 80 years, for all types of applications – pleasure craft and commercial marine, industrial transmissions and power-shift transmissions for critical applications such as crash-fire-rescue vehicles. So QuickShift™, while it is new technology to the marine industry, is built on proven, well-used Twin Disc clutch technology.



To accomplish a faster and smoother clutch engagement, QuickShift™ utilizes a sequenced engagement that operates automatically by design and does not need any adjustment. In the first stage of the engagement it makes up to 80% of the maximum oil pressure available to 20% of the clutch piston area, where conventional clutches have to get filled completely at four to five times lower pressure. This allows the clutch to fill much faster, thereby reducing the shift response time dramatically. Only then does a sequencing valve allow oil flow to the complete clutch piston area to fully engage the transmission. The small difference between the already high torque transfer capability achieved at this stage to full torque provides for a very smooth and seamless engagement. Think how much more propulsion control that gives you. There's never been anything like it.

HOW MUCH FASTER?

The patented Twin Disc QuickShift™ design offers in excess of 15 times faster clutch response and in excess of 10 times faster to full torque. The Twin Disc QuickShift™ with its patented GP-Valve engages in 0.05 seconds, compared to a standard marine transmission's 0.75 seconds, due to clutch fill time. QuickShift™ achieves full torque in .2 seconds, compared to a standard transmission requiring 2.0 seconds.

COMPETITIVE SYSTEMS PROVIDE ONLY A HYDRAULIC/MECHANICAL RATE OF RISE, WHERE CLUTCH PRESSURE CAN ONLY BE ADJUSTED BY SHIMS AND SPRINGS.

THE QUICKSHIFT™ OFFERS 15 TIMES FASTER CLUTCH RESPONSE AND 10 TIMES FASTER TO FULL TORQUE.

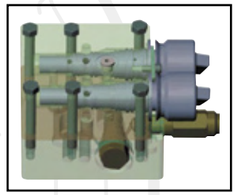
The captain of a large recreational vessel who has the new QuickShift™ marine transmission said, "Docking is where you really appreciate how smooth this transmission is. I can shift from forward to reverse and back again without the usual jarring and jostling. It's more comfortable for the passengers, and it gives me better control of the craft."

A Twin Disc QuickShift™ transmission with e-Troll has a clutch response after approximately 0.05 seconds, even when operating in trolling mode. This is in excess of 100 times faster than any conventional transmission with a conventional trolling valve.

NOW, FACTOR IN TROLLING

WHERE THE DELAY WENT.

The Twin Disc-developed GP-Valve combines advanced hydraulics with electronic technology, forming an actuation system consisting of two proportional solenoids and electronic profile generator (rate of rise). This simple, "bulletproof" design comprises just 21 off-the-shelf parts. While the system offers remarkably fast, precise engagement, the engineering used does not require any adjustment due to extreme tolerances required by delicate components. It's robust, reliable, and effective.



Competitive systems use a hydraulic/mechanical rate of rise, where clutch pressures are ever changing due to environmental conditions, and can only be adjusted by shims and springs.

BUT WAIT. THERE'S MORE (AND LESS).

The QuickShift™ system also gives you less than competitive products. You don't need to buy an extra trolling valve to get trolling performance. Just add the Twin Disc e-Troll controller and you've got superior trolling capability.

And for an extra measure of reliability, the Twin Disc QuickShift™ system comes equipped with a mechanical override.

Since the GP-Valve fits all Twin Disc transmissions MG-5090 and larger, you've got a vast selection of QuickShift™ transmission models available.

TRULY THE ONLY SLOW SPEED SYSTEM THAT CAN BE USED FOR DOCKING AND MANOEUVRING

NO MARINE TRANSMISSION IN THE WORLD SHIFTS AS SMOOTH AND FAST, AND ALLOWS SUCH LOW SPEED CONTROL.

Tom Ellswoth of Ellsworth Marine in California: "The QuickShift™ system will challenge every skipper's notion of how a game boat should perform. The QuickShift™ system obliterates the shackles of traditional conservative boat handling by putting unlimited control and power back into the hands of the captain."

INTEGRATED, NOT ADDED ON

Unlike competitive systems, the Twin Disc QuickShift™ is a completely integrated transmission system, not merely an externally added-on valve. There's simply more technology, more performance, more reliability to the QuickShift™.

QuickShift™ requires virtually no setup for the boat builder or boat operator – no shims, springs, orifices. And if service is ever needed, it can be done outside the valve by adjusting main pressure or by replacing the controller. This dramatically reduces labor hours for service work.

RIGHT THE FIRST TIME.
RIGHT OUT OF THE BOX.

HOW TO MAKE A FAST BOAT GO SLOW

It's difficult for a powerful diesel vessel to go very slowly with a conventional transmission. Reducing the engine rpms to get the vessel speed below five knots may stall the engine. But, with QuickShift™, Twin Disc has managed to regulate engine torque at extremely low speeds to slow propeller speed down to approximately 100 rpms. This means boat operators have controllable manoeuvring in the previously unattainable range of zero boat speeds – an incredible advantage in docking.

Even docking under calm conditions can be a challenge. In the time it takes to shift from forward to reverse with a conventional transmission, a boat traveling five knots can drift up to 13 feet! Continual manoeuvring compensation is needed to buffer the vessel's direction and momentum. QuickShift's immediate thrust and slow speed control "contains" the movement of the vessel more precisely and easily.

QuickShift™ is truly the only slow speed system that can be effectively used for docking and manoeuvring.

THE VALUE OF QUICKSHIFT™ PERFORMANCE

Fast, smooth shifts combined with slow speed capability mean better vessel control and safer operation under all conditions. In addition, smooth, seamless shifts virtually eliminate damaging driveline shock that can be transferred to engine components. This should enhance the service life of your vessel's drive train components.

And, there's the enjoyment factor. Graceful, efficient docking or departing is more comfortable on passengers and crew and reflects operator competence. It's a pleasure to drive and ride a QuickShift™ equipped boat.

QuickShift™ offers far more technology and significantly better performance than any other marine transmission, at comparable or lower cost.

QUICKSHIFT™

THERE'S FAST,
AND THEN THERE'S
REALLY FAST.

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