GL POWER

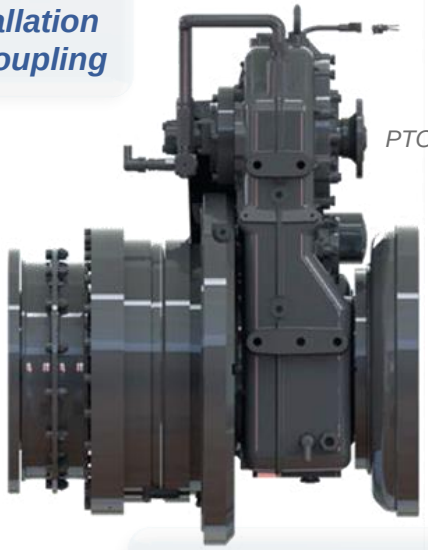
PARALLEL HYBRID SOLUTIONS

Great Lakes Power offers Parallel Hybrid Transmissions (PHT) and Hybrid Electric Solution Packages (HESP) designed for both marine and industrial heavy-duty use in applications where combining two sources of power, diesel and electric, in one drive system is beneficial.

The PHT can be easily installed between the diesel engine and the marine (or industrial) gearbox, via SAE connections, or as a freestanding unit to be connected to the diesel engine through a torsional coupling.

Rigid SAE-SAE Installation

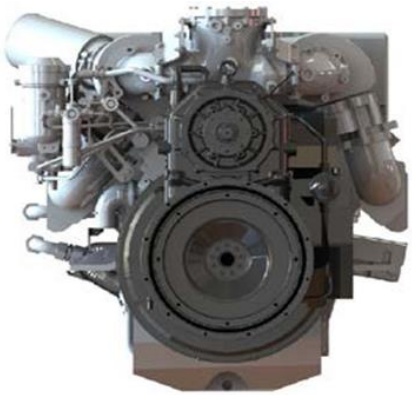
Free-standing installation with high elastic Coupling



The PHT has an integrated, robust electromagnetic clutch for disconnecting the diesel engine from the main driveline.

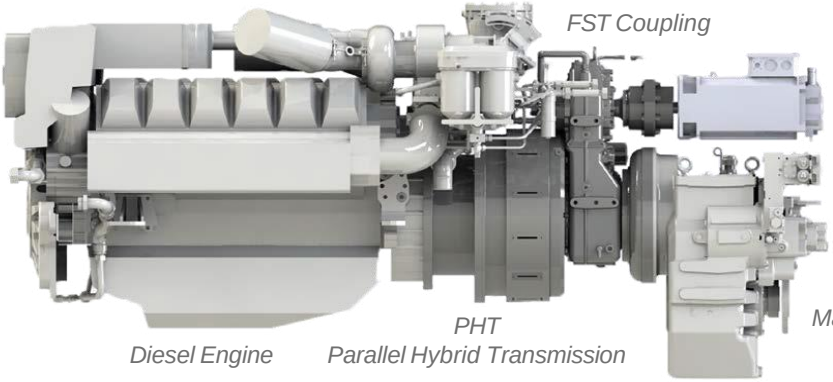
The PHT standard models suit engines up to 5200 ft-lbf torque, or 147kW/200HP to 1655kW/2250HP. The PHT unit can be installed vertically, horizontally or at an offset angle.

Vertical installation of the PHT



Horizontal installation of the PHT

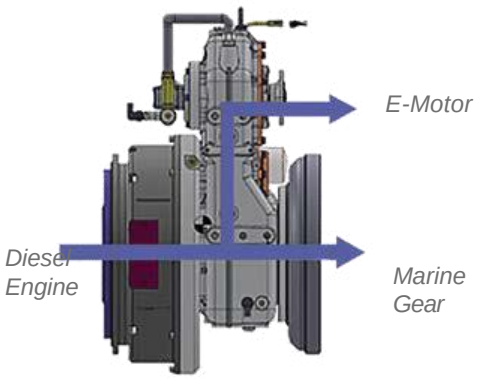
HYBRID INSTALLATION WITH GREAT LAKES POWER'S PARALLEL HYBRID TRANSMISSION



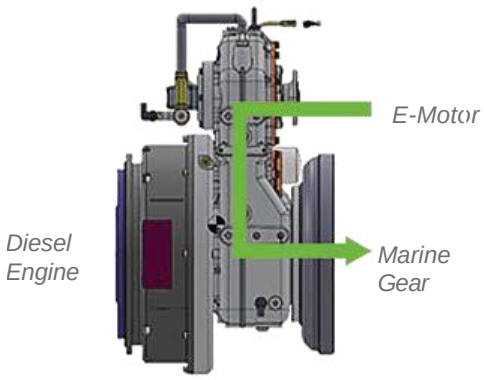
PHT WORKING PRINCIPLE

The PHT unit is designed to connect two power sources: Diesel engine and Emotor into one parallel hybrid driveline. The PHT Electromagnetic clutch works independently from any other part of the transmission, allowing engagement and disengagement of the diesel engine from the main driveline.

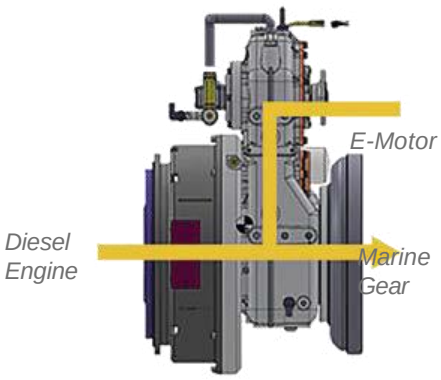
Diesel



E-Motor



Diesel & E-Motor



With PHT clutch engaged, power of the diesel engine is transmitted directly to the marine gear like in a conventional diesel installation.

The E-machine (motor/generator) is connected to the secondary input/output of the PHT, located above the main output, through a flexible or elastic coupling.

The PTO/PTI output has an integrated gear reduction built in (1.27, 1.47 or 1,70). The ratio allows all of the installed E-power to be available for propulsion.

When operating the Diesel engine with the E-machine in generator mode, the speed of the PTO output is increased by the gear ratio.

Maximum generating capacity is achieved with the Diesel engine running at lower speeds with the beneficial gear ratio.

Standard PHT Models

	PHT 300A	PHT 420A	PHT 700A	PHT 700B	PHT 900A
Electromagnetic clutch	24 VDC	24 VDC	24 VDC	24 VDC	110VDC
Max main input torque	1100 ft-lbf	1550 ft-lbf	2300 ft-lbf	3800 ft-lbf	5200 ft-lbf
Max PTO/PTI torque	1100 ft-lbf	1100 ft-lbf	1100 ft-lbf	1100 ft-lbf	1100 ft-lbf
Ratio to PTO/PTI	1.27 1.47 1.70	1.27 1.47 1.70	1.27 1.47 1.70	1.27 1.47 1.70	1.27 1.47 1.70
Main Input	SAE 2 & 11.5” SAE 3 & 11.5” SAE 4 & 10” Elastic 11.5”	SAE 1 & 14”	SAE 1 & 14” Elastic 14”	SAE 1 & 14” SAE 0 & 18” Elastic 14” Elastic 18”	SAE 1 & 14” SAE 0 & 18” SAE 00 & 21”
Main Output	SAE 3 & 11.5” SAE 1 & 14” Flange	SAE 3 & 11.5” SAE 1 & 14” Flange	SAE 1 & 14” Flange	SAE 1 & 14” FW 18” Flange	SAE 1 & 14” FW 18” Flange