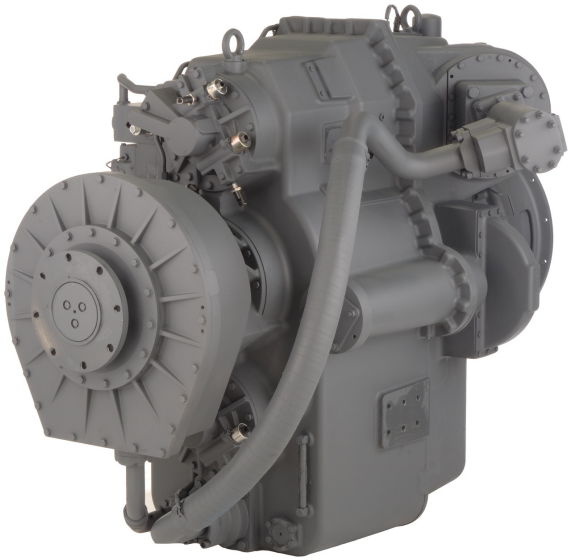
Palmer Johnson Power Systems

Twin Disc 7600 Transmission

Twin Disc Pressure Pumping Products

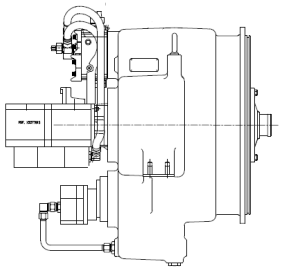
TA90-7500



TA90-7600

TA90-8501

TA90-8703



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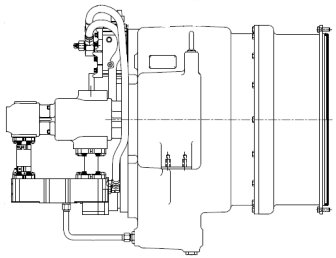

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TA90-7500 Specifications

TA90-7500	
Gross Input Power	1939 kW (2600 hp)
Gross Input Torque	10,460 Nm (7715 lb-ft)
Max Input Speed	1900 rpm
Weight, Dry	2041 kg (4500 lbs)
Length	1546 mm (61.0 in)
Height	1494 mm (58.8 in)
Width	1084 mm (42.6 in)
PTO Ratings	149 kW (200 hp)

Gear Ratios									
1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Overall
2.95	2.545	2.165	1.817	1.568	1.333	1.159	1.00	0.851	3.46

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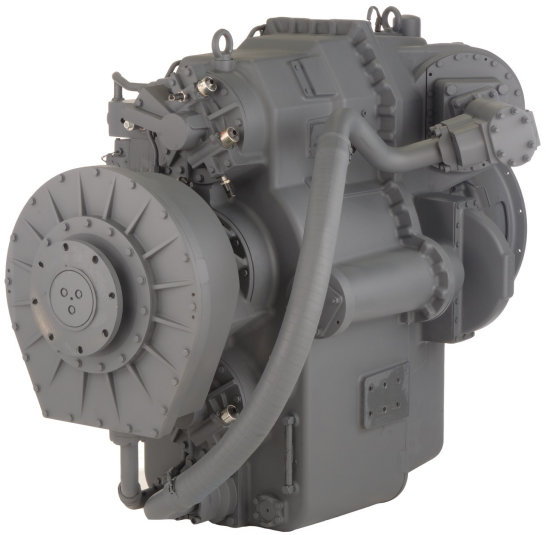
TA90-7600 Specifications

TA90-7600	
Gross Input Power	1939 kW (2600 hp)
Gross Input Torque	10,460 Nm (7715 lb-ft)
Max Input Speed	1900 rpm
Weight, Dry	2616 kg (5767 lbs)
Length	1851 mm (72.8 in)
Height	1494 mm (58.8 in)
Width	1084 mm (42.6 in)
PTO Ratings	149 kW (200 hp)



Gear Ratios									
1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Overall
4.445	3.835	3.262	2.738	2.363	2.009	1.746	1.507	1.282	3.46

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TA90-8501 Specifications

TA90-8501	
Gross Input Power	2237 kW (3000 hp) @ 1900 rpm
Gross Input Torque	12,880 Nm (9500 lb-ft)
Max Input Speed	2100 rpm
Weight, Dry	2277 kg (5020 lbs)
Length	1367 mm (53.8 in)
Height	1136 mm (44.7 in)
Width	1047 mm (41.2 in)

Gear Ratios									
1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Overall
4.47	3.57	2.85	2.41	1.92	1.54	1.25	1.00	0.798	5.60

TA90-8703 Specifications

TA90-8703	
Gross Input Power	2460 kW (3300 hp)
Gross Input Torque	12,880 Nm (9500 lb-ft)
Max Input Speed	1900 rpm
Weight, Dry	2419 kg (5334 lbs)
Length	1424 mm (56.0 in)
Height	1136 mm (44.7 in)
Width	1047 mm (41.2 in)

Gear Ratios									
1st	2nd	3rd	4th	5th	6th	7th	8th	9th	Overall
4.47	3.57	2.85	2.41	1.92	1.54	1.25	1.00	0.798	5.60

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TA90-7500/7600 Features and Benefits

Up to 1939 kW (2600 hp) at 1900 rpm

Designed to match engine life, the new 7500/7600 Series automatic transmission consists of a 9-speed coaxial power-shift transmissions and an advanced electronic control system, with a maximum gross input power rating up to 1939 kW (2600 hp) at 1900 RPM.

Features and Benefits

- Lightweight yet durable aluminum housings reduce overall vehicle weight.
- Does not require a torque converter, further contributing to overall weight savings.
- Compact in size and able to fit between a mobile equipment's frame rails.
- Overall length of 1546 mm (61 in) provides a small footprint.
- Smaller gear ratio steps provide delivery of higher average power.
- Less complicated plumbing makes it easier to fit into the cramped quarters of a frac rig.
- Offers two live 149 kW PTOs. The TA90-7600 provides a lower PTO pad for mounting of the power end lube pump.
- In most cases, standard engine oil may be used, simplifying servicing requirements.
- Includes a torsional coupling.
- Automatic electronic oil level system available.
- Designed to match engine life.
- Internal Brake Range.

TA90-7500/7600 Advantages Over Competition

Advantages

- The robust, simplicity of the counter shaft design provides for an expected life of 10,000 hours.
- Since the transmission uses standard engine oil the customer is able to stock only one type of oil for both the engine and transmission.
- The oil fill port is accessible from the ground. The competition's oil fill ports are located on top of the transmission requiring the use of ladders, increasing the risk of fall injuries.
- The oil fill port and sight glass are located in the same location, making oil fills a one man operation.
- Remote mount filters with electronic bypass indicators make servicing easier. The competition makes no mention of filter monitoring.
- Designed specifically for the frac market, the transmission does not require throttle dipping for any of the range to range shifts. The transmission is designed to be power shifted under all loaded or unloaded situations.
- If a deeper set of ratios is required, the existing TA90-7500 can be converted to the TA90-7600 with minimal rework.

TDEC-400/500 Features and Benefits

The TDEC-400/500 are the latest state-of-the-art full authority microprocessor based electronic control systems for Twin Disc automatic transmissions used in heavy duty, off-highway applications.

Features

- On board built-in diagnostics.
- Interactive display.
- SAE J1939 CAN Bus.
- Environmentally robust.
- Non volatile memory with real time clock giving time/date stamp for diagnostics.
- Health and trend capability with fault isolation via user accessible fault and status codes for all operational modes

Benefits

- More than a shift control, the TDEC-400/500 integrates the transmission, engine and other vehicle systems.
- Controller shift profiles are specifically developed for each application, to ensure maximum clutch life and smooth shifting.
- Flexibility to tailor features and operation for optimum rig performance.
- Speed and shift inhibits protect equipment from unintentional damage.

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How Does Twin Disc Compare to the competition?

- Gear Ratios
- Overall Length
- PTO Locations
- Operational Performance

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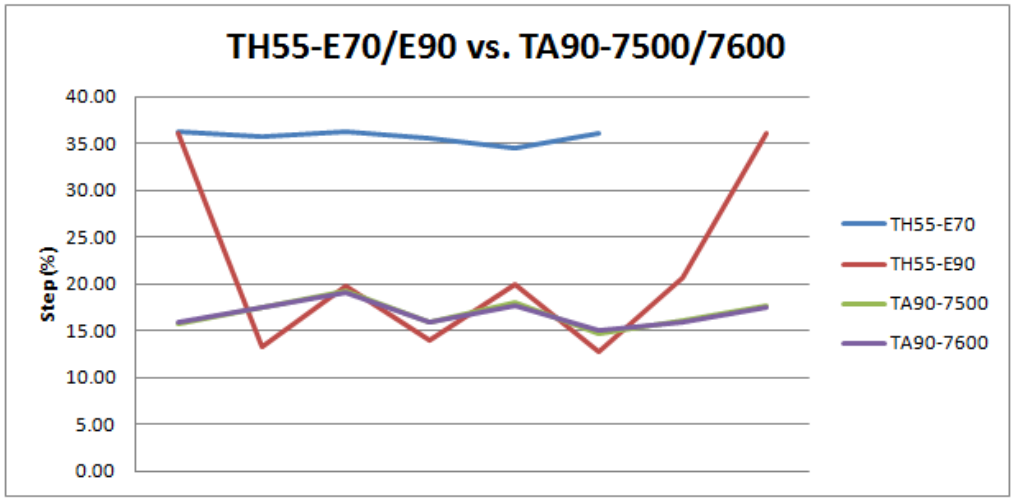
Gear Ratio Comparison
TD90-7500/7600 vs. TH55-E70/E90

	TH55-E70		TH55-E90		TA90-7500		TA90-7600	
Gear	Ratio	Step (%)	Ratio	Step (%)	Ratio	Step (%)	Ratio	Step (%)
1st	6.25		4.67		2.95		4.445	
2nd	4.59	36.17	3.43	36.15	2.55	15.69	3.835	15.91
3rd	3.38	35.80	3.03	13.20	2.17	17.51	3.262	17.57
4th	2.48	36.29	2.53	19.76	1.82	19.23	2.738	19.14
5th	1.83	35.52	2.22	13.96	1.57	15.92	2.363	15.87
6th	1.36	34.56	1.85	20.00	1.33	18.05	2.009	17.62
7th	1	36.00	1.64	12.80	1.16	14.66	1.746	15.06
8th			1.36	20.59	1	16.00	1.507	15.86
9th			1	36.00	0.85	17.65	1.282	17.55

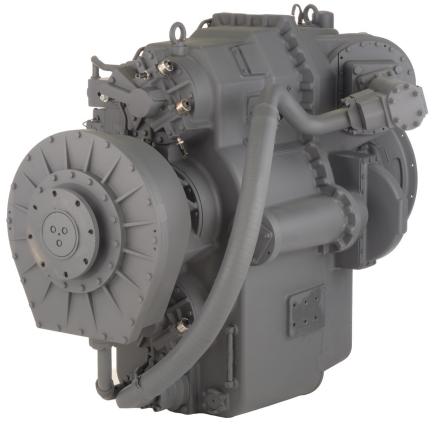


- Smaller transmission step sizes provide for more efficient use of engine horse power.
- Overall, the Twin Disc TA90-7500 and TA90-7600 offer more even and smaller step sizes when compared to the TH55-E90.
- The TH55-E70 does provide more even steps when compared to the TA90-7500/7600 but the step sizes are almost twice the size. Large step sizes are a major disadvantage when trying to optimize engine horse power.

Overall Length Comparison

The Twin Disc TA90-7500 and TA90-7600 are significantly shorter than the CX48-P2300 and the TH55.

Transmission	Length
TA90-7500	1546 mm (61.0 in)
TA90-7600	1851 mm (72.8 in)
CX48-P2300	1893 mm (74.5 in)
TH48-E80	1960 mm (77 in)
TH55-E70	2132 mm (84 in)
TH55-E90	2132 mm (84 in)



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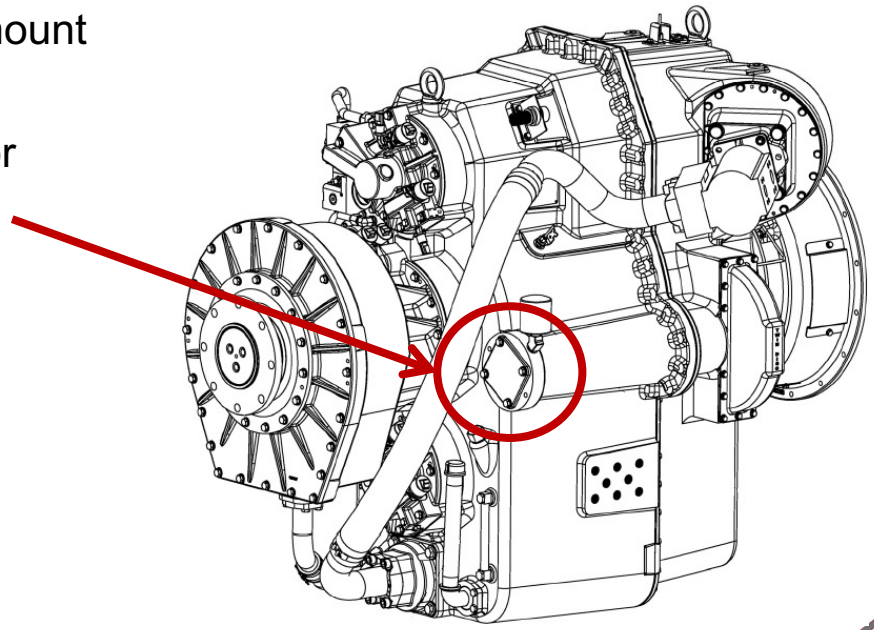
PTO Locations

The Twin Disc pressure pumping products offer multiple PTO pads with significantly higher ratings than the CX48-P2300 or TH55.

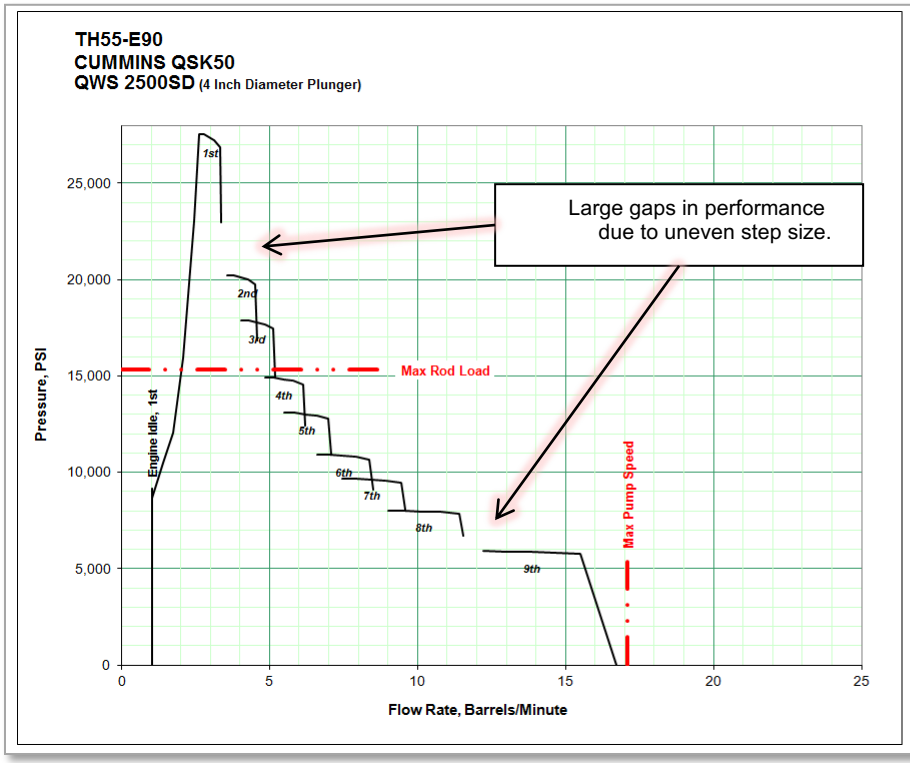
For cold weather markets, where high mount PTO locations are not preferred, the TA90-7600 provides a lower PTO pad for mounting of the power end lube pump.

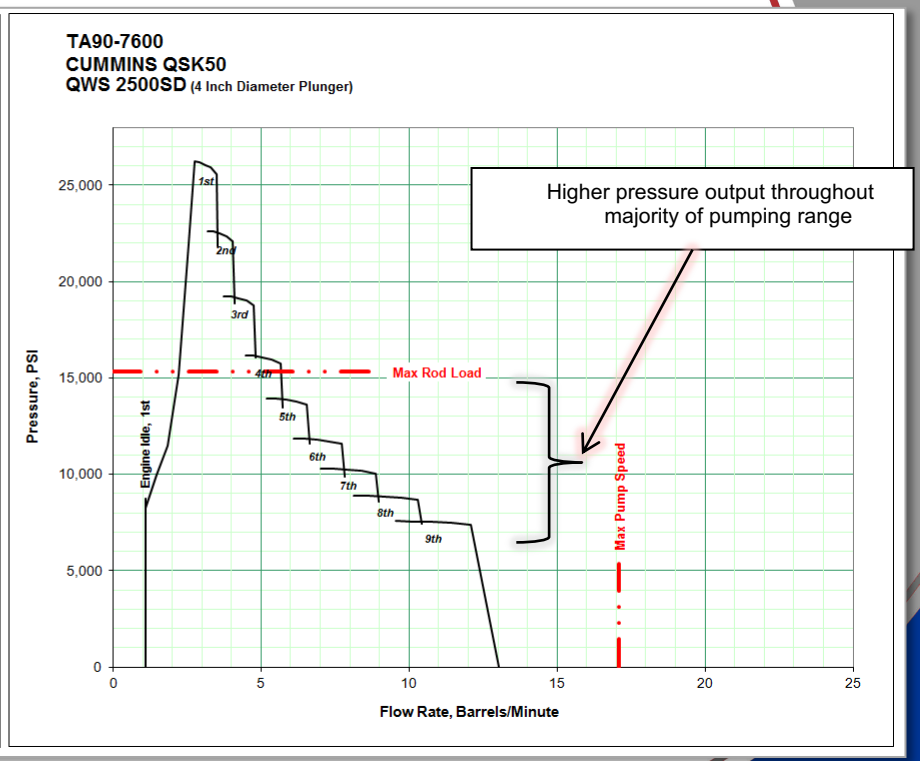


Operational Performance

TA90-7600 vs. TH55-90

Direct Drive Pumping Performance Curves

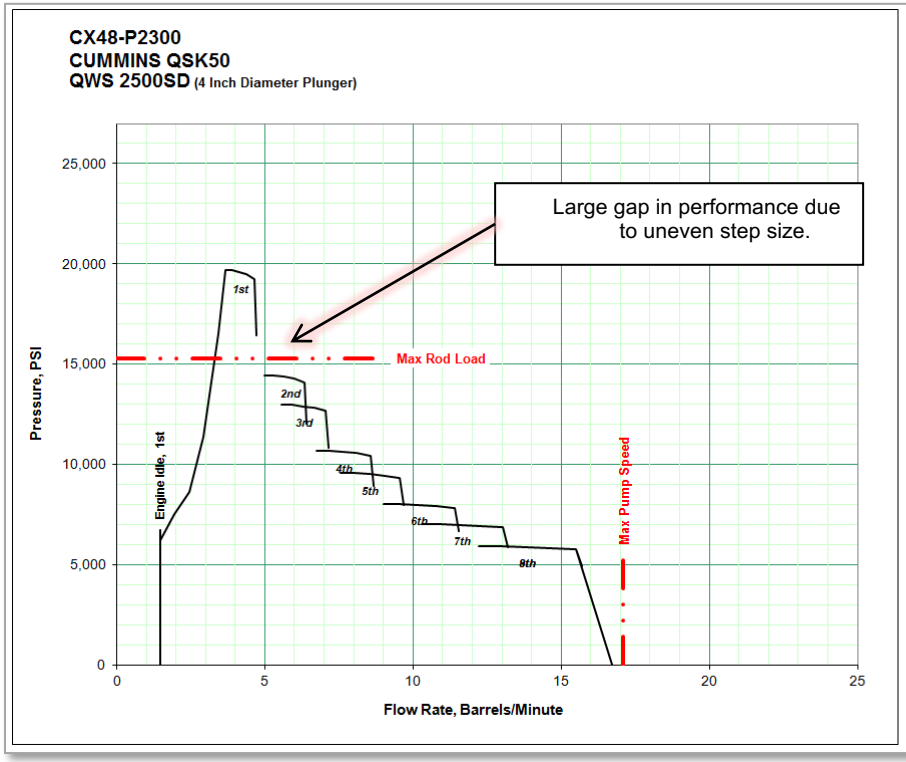


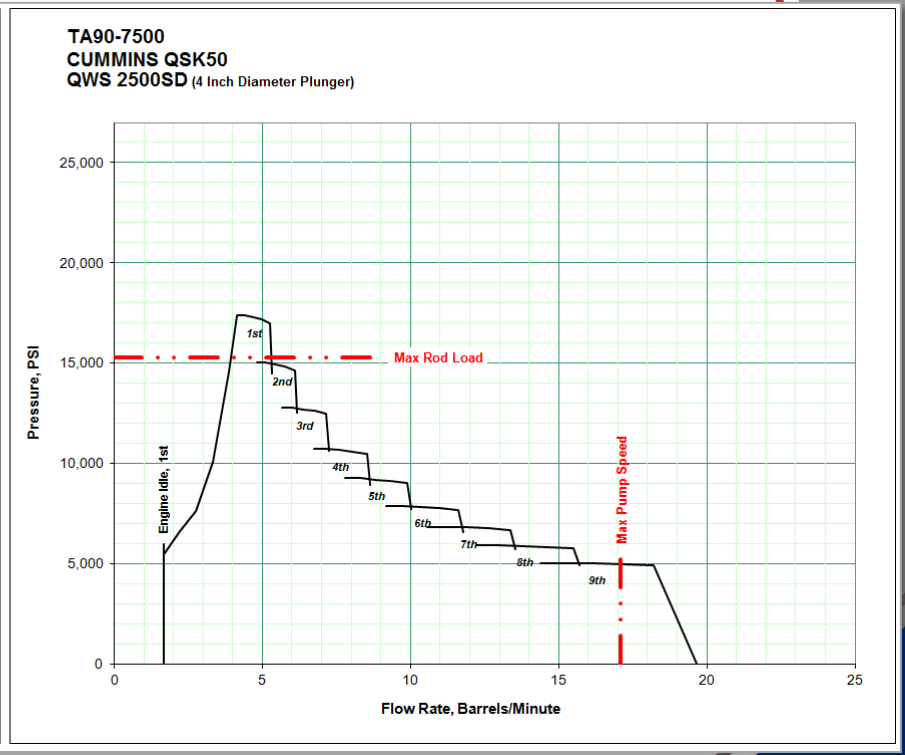


Operational Performance

TA90-7500 vs. CX48-P2300

Direct Drive Pumping Performance Curves





24/7 Support and Service

- Palmer Johnson Power Systems has invested significantly in supporting our Oil & Gas Market
- We have two locations in Texas with 24/7 Service and Product Support
- We have over $2m in Twin Disc Parts in Stock to Support the Oil & Gas market
- We have a total of 11 Reman Swing Packages between our Twin Disc 8500's and 7600's
- Our Techs are factory trained and our service and warranty are best-in-class.