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For the Oil & Gas Industry, Anything Less Than a **TURBOTWIN™** Starter is a Compromise.

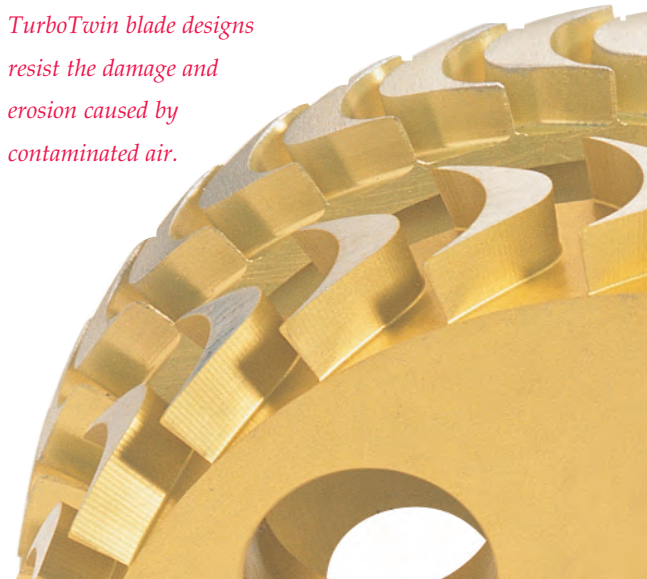
Nothing lasts as long as a TurboTwin.

If you're not "making hole" or "on-line" moving gas when you press that button, you're losing money. Lots of money. That's why selecting a reliable engine starter is so important.

The TurboTwin line of turbine air starters is the recognized leader in dependable starts for the oil and gas industry. They last longer. Require less maintenance. And are designed specifically to handle the unique challenges of remote starts.

Dirty air and sour gas have no effect on TurboTwin. Our unique aerodynamic speed control protects against gear box burnout.

TurboTwin blade designs resist the damage and erosion caused by contaminated air.



TurboTwin handles the dirtiest, messiest environments.

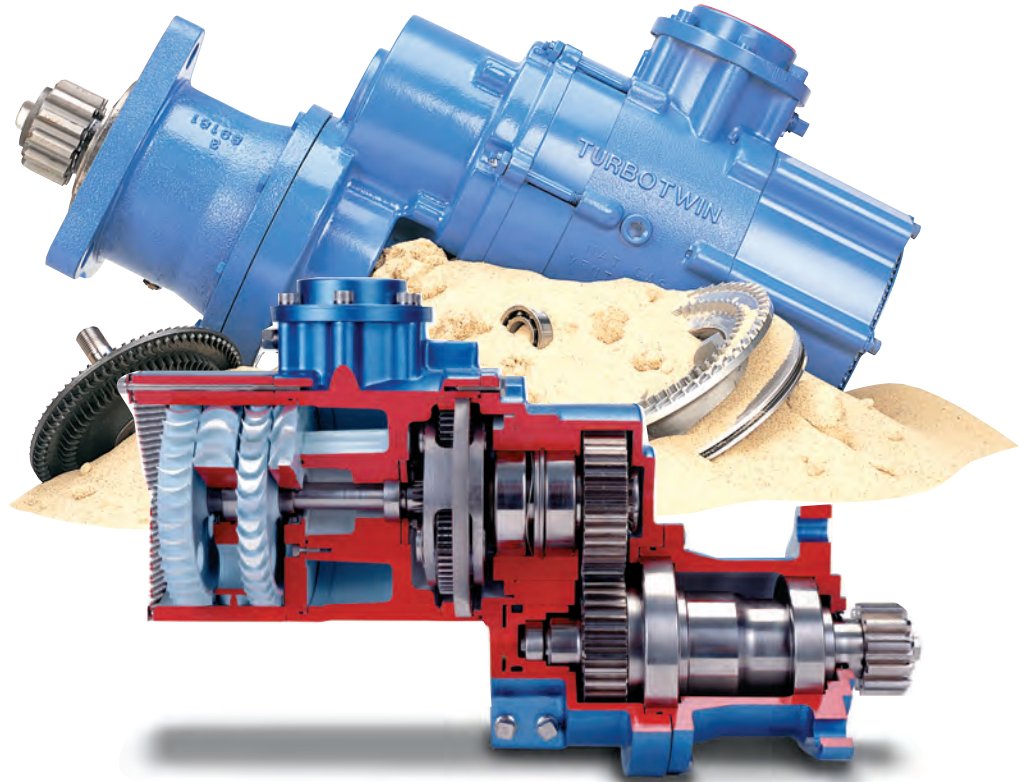
Extended Crank Cycles

TurboTwin's aerodynamic speed control invites you to "give it all you've got." Don't worry about gear box burnout. It handles your longest cranking cycles without problems.



No Plastic Parts

Our starters are all about quality. No plastic parts—only rugged steel and aluminum alloy components built to last.



No Lubrication Means No Starter Maintenance, No Messy Oily Discharge, No Hazardous Fugitive Oil Mist

TurboTwins are grease-packed for life. No lubrication required and no need to schedule maintenance visits to remote locations.

Dirt, Sand, Water, Or Salty Air Won't Contaminate TurboTwin

TurboTwin was designed specifically for ultimate reliability in the harsh environments of the oil and gas industry. No rubbing parts to stick or swell, and a unique

open air path design with extremely large openings passes contaminants that lodge in lesser starter models.

Can Your Remote Sites Afford Less Than TurboTwin Reliability?

The lost time and money for attending to a faulty starter are enormous. With so much riding on each start, doesn't it make sense to rely on the starter that lasts longer, requires less maintenance and is designed specifically for the long, extended cranking cycles of the oil and gas industry?

TURBOTWIN™ **T100** **Series** **Turbine** **Air Starters**

Uncompromising Performance, Reliability, and Longevity for Large Engines Up to 300 Liters

Large engines doing big jobs cannot afford starting problems. This is why the TurboTwin T100 Series has been designed for ultimate reliability, durability, and long life. Long cranking cycles, contaminated air, and improper maintenance—a starter's worst

enemies—have almost no effect on the T100. That's because the T100's superior design effectively manages these problems. Here's how:

Ready For The World's Most Contaminated Air

The T100's vaneless turbine motor has no rubbing vanes to stick, swell, or wear out—wet air or gas have no effect on internal parts. Contaminated air that clogs, damages, and shuts down lesser units passes through TurboTwin's "open air path" design. Even sour natural gas is no match for the T100's corrosion-resistant interior. It all adds up to unmatched reliability—regardless of the conditions you operate in.

Aerodynamic Speed Control Permits Longer Cranking... and No Burnout

Long crank cycles are a reality and can burn out the gearbox of lesser-grade starters. TurboTwin's lower gear ratios reduce starter workload and

allow cool running which prevents starter burnout.

No Compromise On Any TurboTwin Part

T100 uses only high-quality, high-strength steel and aluminum alloys machined to the industry's tightest tolerances. There's no cutting corners, and definitely no plastic parts as used in other turbine air starters.

Simplicity Means Reliability

Where suitable, TDI's inertia-engaged models offer the greatest simplicity of design and superior reliability on the poorest quality air/gas supply. Repairs are fast, simple, and at the very lowest cost.

No Oil Means No Fugitive Emissions, Reduced Maintenance, And A Cleaner, More Reliable Starter

The T100 is grease-packed for life so there is no need for oil lubrication, no oily fugitive exhaust emissions, and no maintenance required.



The T100's vaneless motor design contributes to longer life.

More Power. Faster Starts.

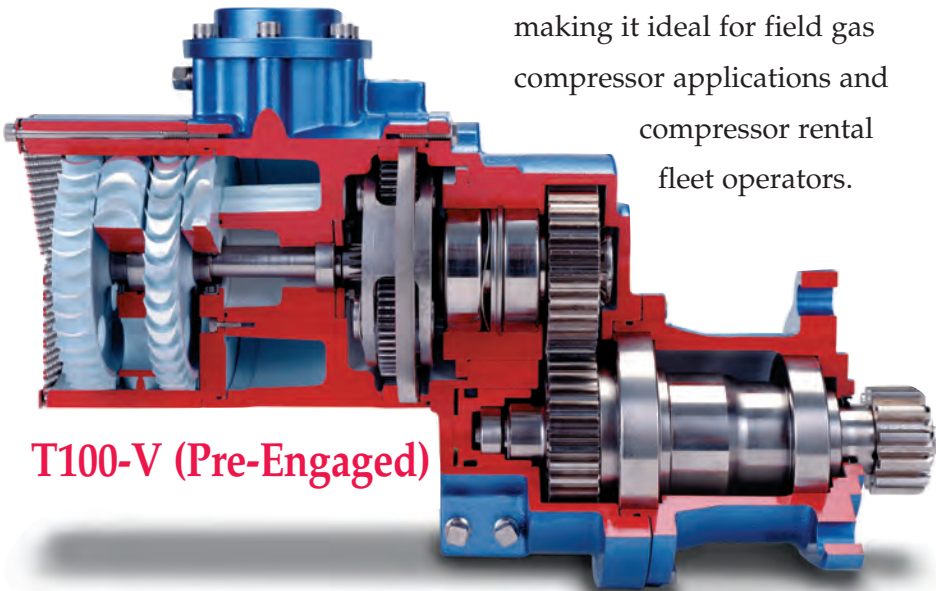
TurboTwin produces up to 25% more horsepower and a superior turbine torque on a unit of

air, and delivers faster cranking RPM for quick starts.

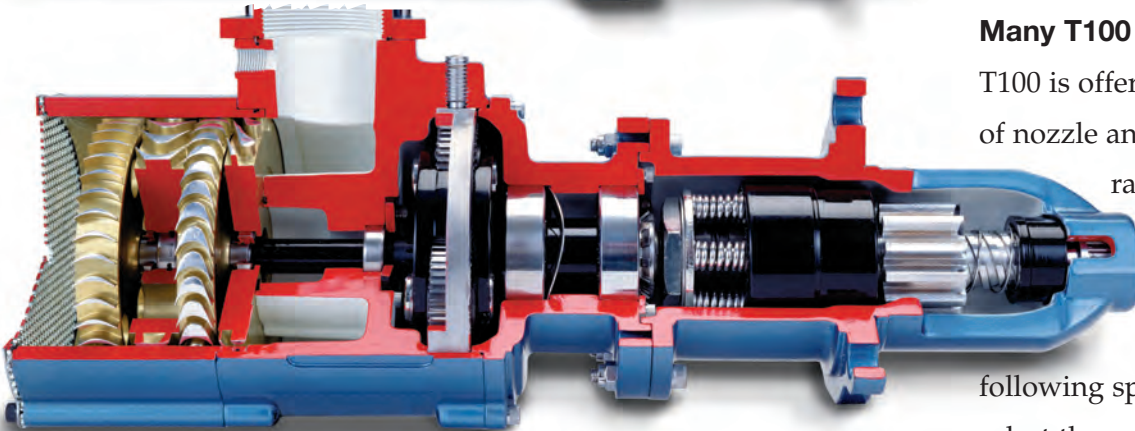
Ultra Low Pressure Starts

T100 can provide reliable starts at pressures as low as 30 psig, making it ideal for field gas compressor applications and

compressor rental fleet operators.



T100-V (Pre-Engaged)



T100-B (Inertia)

T100 Turbine Air Motor has large air passages...won't clog or break

Clean Exhaust...no oily exhaust mist means emissions compliance

Aerodynamic Speed Control...prevents starter over-speed

Robust steel & aluminum alloy construction...no plastic or fragile parts

Vaneless Air Motor requires no lubrication of the air/gas supply

Grease-Packed Gearbox Design...no oil sump to check, change, or fill

Pre-engaged Pinion Gear...ideal for multiple starter applications (T100-V)

Offset, Overhung Pinion Gear offers fit, flexibility and more pinion options

All TurboTwin Engine Air Starters feature grease-packed gears and bearings, and aerodynamic speed control, to provide long, trouble-free operation.

Lightweight rotating elements provide "soft engagement"... extending the life of both ring and pinion gears

The T100-V Offers a Pre-Engaged Solution
The T100-V allows a flexible fit for applications requiring pre-engagement. With T100-V, you can get the legendary durability and reliability of TurboTwin, with pre-engagement.

Lightweight

At 43–50 lbs., T100 is not only lighter and more compact than other starters in its class, but installation can be a one-man operation.

Choose From Many T100 Models

T100 is offered in a variety of nozzle and pinion configurations to meet your exact application requirements.

---See the following specification pages to select the appropriate model.

Specifications:

T100-V

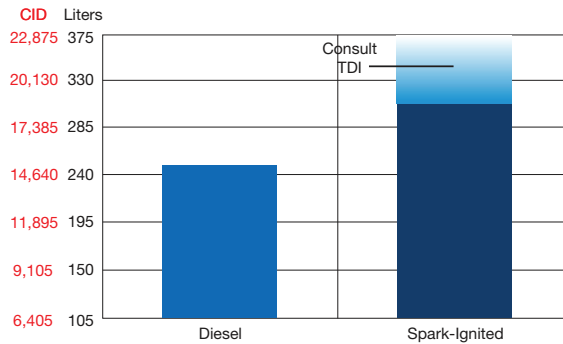
TURBOTWIN™

Engine Air Starters

For Pre-Engaged and Small-Space Mounting Environments



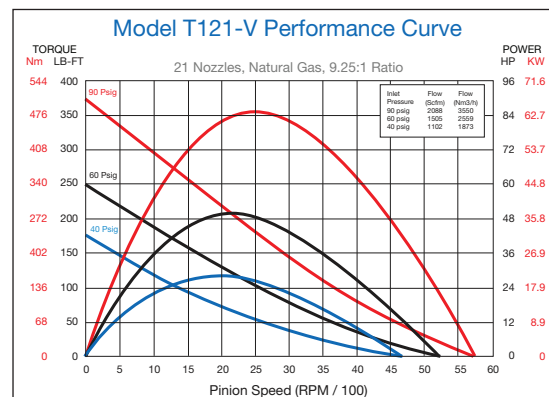
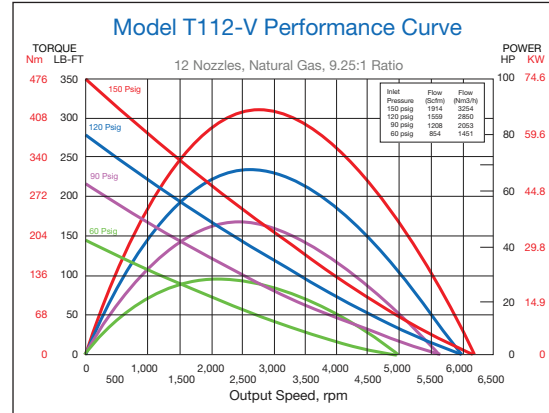
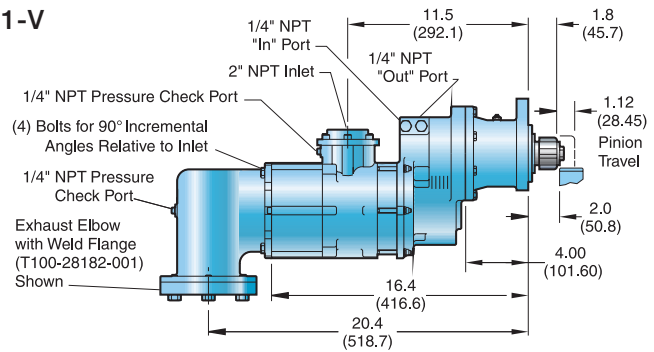
Engine Displacement Chart For T100-V/VE/DP Series Air Starters



Consult your TDI distributor and the TDI Selection Guide before choosing a TDI TurboTwin starter for any application.

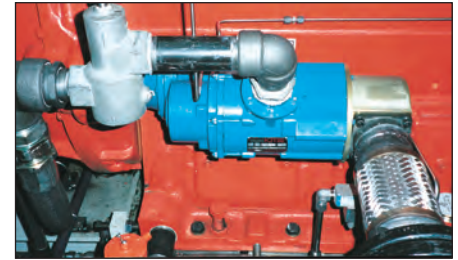
This selection chart shows basic starter capability by engine size. Note the chart shows four-stroke diesel engine size on the left and four-stroke, spark-ignited engine sizes on the right. Always consult TDI for application-specific capability.

DIMENSIONAL DATA TDI TURBOTWIN T112-V/T121-V



The power of T100 in a pre-engaged package.

T100-V's grease-packed for life feature eliminates wear, reduces maintenance, and delivers a significantly longer starting life.



Pressure check ports on both starter inlet and exhaust allow easy troubleshooting of compressed starting air/gas supply valves, filters, piping, and regulators. (Shown here TurboTwin Model T100-V and TurboValve.)

SPECIFICATIONS

Engines:	Starts Engines up to 300 Liters (18,000 CID)	Rotation:	(Facing Pinion Orientation) Righthand/clockwise and Lefthand/counter clockwise
Design Configuration:	Pre-Engaged; Offset; Overhung	Air/Gas Supply:	Compressed Air or Natural Gas
Common Pinion Configurations:	6/8 Pitch, 12 Tooth 3.5 Module, 15 Tooth 6/8 Pitch, 15 Tooth	Lubrication:	Grease-Packed For Life, None Required
Mounting:	SAE 3 Mounting Flange	Gear Ratio:	9.25:1
Horsepower: (on Methane)	85 hp (63 kW) Cranking Power at only 150 psig (10.3 BAR)	Custom:	Other models and configurations available. Consult your local TDI distributor.
Weight:	54 lbs. (23 kg)		

Operating Pressure Range:

MODEL	NOZZLES	PSI	BAR
T112-V	12 (standard)	40 – 150	2.7 – 10.3
T121-V	21 (low pressure)	40 – 90	2.7 – 6.2

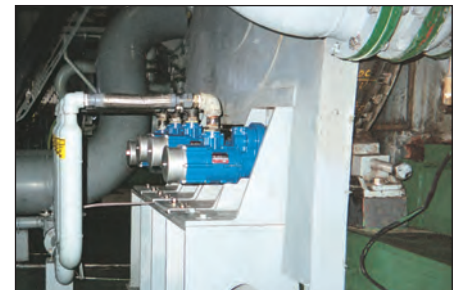
9 and 15 nozzles available for special applications. Consult your TDI distributor for best nozzle configuration.

The Power of T100-V for a Variety of Small-Space, Pre-Engaged Applications



The TurboTwin Model T100-V starter's offset and overhung pinion design provides a "bolt-on fit" to most large-displacement industrial engines. It installs in minutes when replacing other turbine-type starters. (Shown here on a Cooper Superior Series 2408G Spark-Ignited Gas Engine.)

FOR ENGINE COMPATIBILITY AND STARTER REPLACEMENT INFORMATION, SEE TABLE ON PAGE 31 OR CONSULT YOUR TDI DISTRIBUTOR.



A multiple-starter application on a Clark TCV-12 lowered air consumption by 40% over competitive turbine starters originally applied.

Specifications:

T100-B T100-P

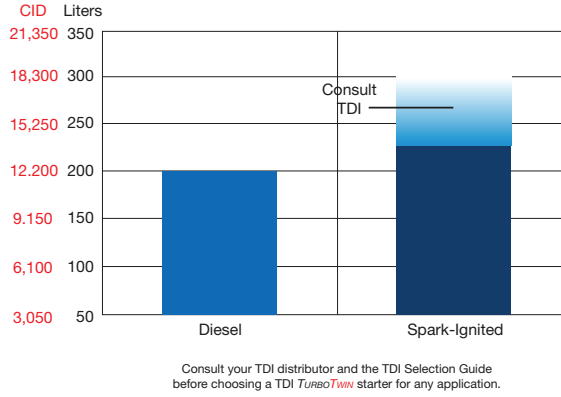
TURBOTWIN™ Engine Air Starters

The Most Popular T100 Configurations



TDI turbine designs feature larger air channels to optimize starting power.

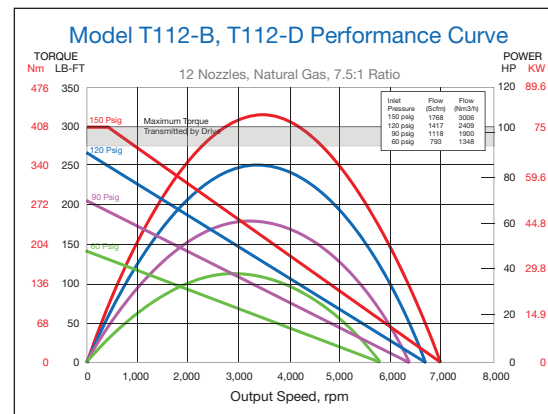
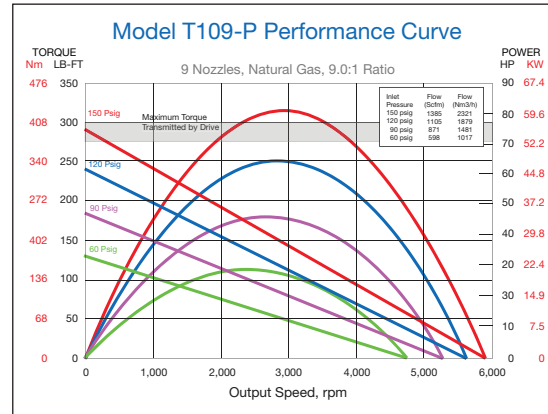
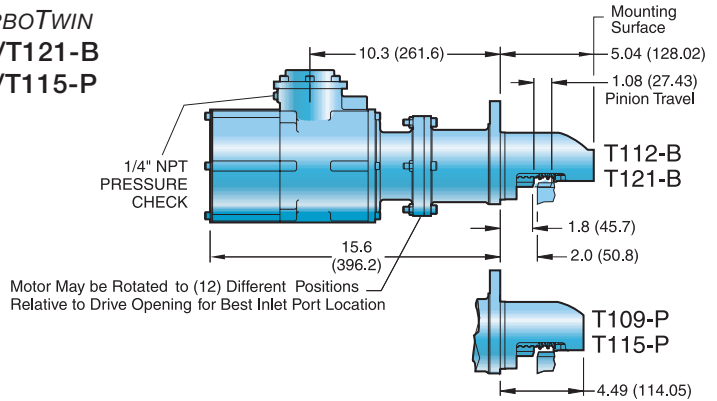
Engine Displacement Chart For T100-B/D/P Series Air Starters



This selection chart shows basic starter capability by engine size. Note the chart shows four-stroke diesel engine size on the left and four-stroke, spark-ignited engine sizes on the right. Always consult TDI for application-specific capability.

DIMENSIONAL DATA

TDI TURBOTWIN
T112-B/T121-B
T109-P/T115-P



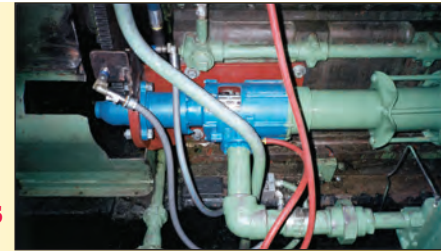
For low-pressure version curve, see T121-D performance curve on page 10.

SPECIFICATIONS

Engines:	Starts Engines from 50 (3000 CID) up to 250 Liters (15,000 CID)	Rotation:	(Facing Pinion Orientation) Righthand/clockwise and Lefthand/counter clockwise
Design Configuration:	Inline; Inertia-Engaged	Air/Gas Supply:	Compressed Air or Natural Gas
Common Pinion Configuration:	6/8 Pitch, 12 Tooth (2-inch pitch diameter pinion)	Lubrication:	Grease-Packed For Life, None Required
Mounting:	SAE 3 Mounting Flange	Gear Ratio:	
Horsepower: (on Methane)		T112-B/T121-B:	7.5:1
T112-B:	105 hp (78 kW) Cranking Power at 150 psig (10.3 BAR) Max.	T109-P:	9.0:1
T121-B:	105 hp (78 kW) Cranking Power at 90 psig (6.2 BAR) Max.	Custom:	Other models and configurations available. Consult your local TDI distributor.
T109-P:	84 hp (63 kW) Cranking Power at 150 psig (10.3 BAR) Max.		
Weight:	48 lbs. (22 kg)		

T100-B/P's grease-packed for life feature eliminates wear, reduces maintenance, and delivers a significantly longer starting life.

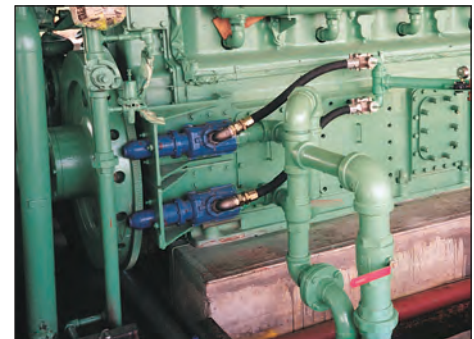
Power and Reliability for Engines up to 300 Liters and Larger.



The TDI TurboTwin Starter Model T100-B offers simplicity and a perfect fit, even within the tightest installations.



Model T100-B outboard-mounted starter on a slow-speed spark-ignited engine.



T100-B dual starter mounted on a Worthington SL-10. Simple installation, power and reliability make the T100-B ideal for starting engines up to 300 liters.

Operating Pressure Range:

MODEL	NOZZLES	PSI	BAR
T109-P	9	30 – 150	2 – 10.3
T112-B	12	60 – 150	4.1 – 10.3
T121-B	21	30 – 90	2 – 6.2

For applications in the 30–90 psig (2.1–6.2 BAR) range, consult your TDI distributor for best nozzle configuration.

FOR ENGINE COMPATIBILITY AND STARTER REPLACEMENT INFORMATION, SEE TABLE ON PAGE 31 OR CONSULT YOUR TDI DISTRIBUTOR.

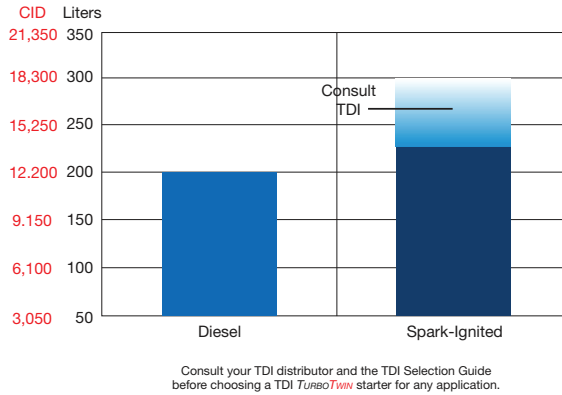
Specifications:

T100-D

TURBOTWIN™

Engine Air Starters

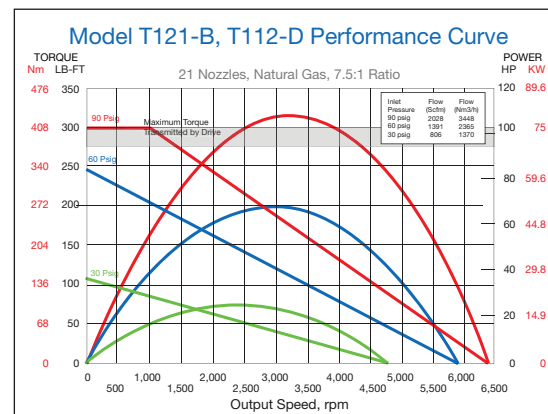
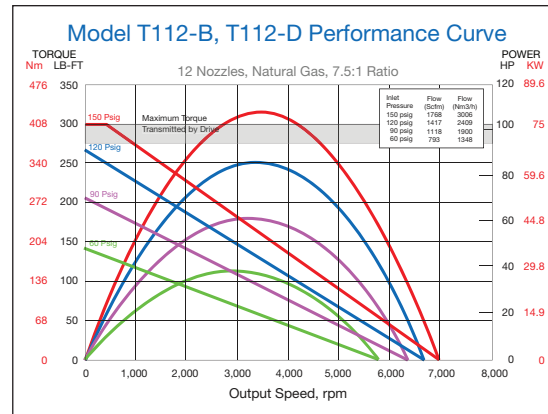
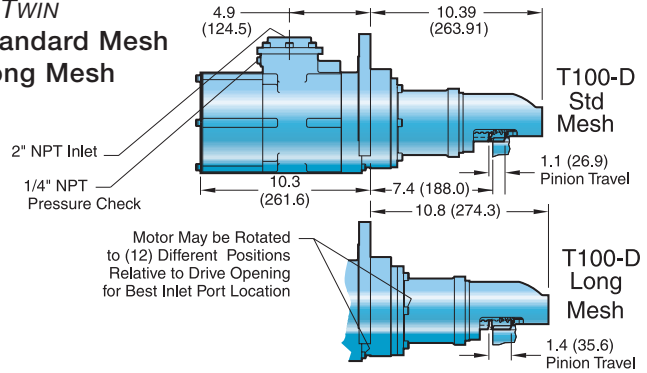
Engine Displacement Chart For T100-B/D/P Series Air Starters



This selection chart shows basic starter capability by engine size. Note the chart shows four-stroke diesel engine size on the left and four-stroke, spark-ignited engine sizes on the right. Always consult TDI for application-specific capability.

DIMENSIONAL DATA

TDI TURBOTWIN
T100-D Standard Mesh
T100-D Long Mesh

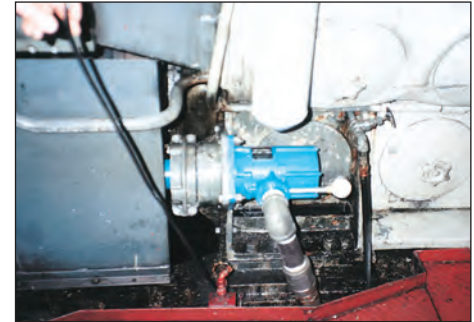


Eliminate remote service trips with the reliability of T100-D.

SPECIFICATIONS

Engines:	Starts Engines up to 250 Liters (15,000 CID)	Rotation:	(Facing Pinion Orientation) Righthand/clockwise and Lefthand/counter clockwise
Design Configuration:	Inline; Inertia-Engaged	Air/Gas Supply:	Compressed Air or Natural Gas
Common Pinion Configuration:	6/8 Pitch, 12 Tooth (2 inch pitch diameter pinion)	Lubrication:	Grease-Packed For Life, None Required
Mounting:	SAE D-Style Flange	Gear Ratio:	7.5:1
Horsepower: (on Methane)		Custom:	Other models and configurations available. Consult your local TDI distributor.
T112-D:	105 hp (78 kW) Max. at 150 psig (10.3 BAR)		
T121-D:	105 hp (78 kW) Max. at 90 psig (6.2 BAR)		
Weight:	70 lbs. (32 kg)		

T100-D's grease-packed for life feature eliminates wear, reduces maintenance, and delivers a significantly longer starting life.



Two views of a T100-D on an EMD 16-567 diesel engine



T100-D was designed specifically to resist marine contaminants like salt air, humidity, and pipescale.

Operating Pressure Range:

MODEL	NOZZLES	PSI	BAR
T112-D	12	30 - 150	2 - 10.3
T121-D	21	30 - 90	2 - 6.2

For applications in the 30–90 psig (2.1–6.2 BAR) range, consult your TDI distributor for best nozzle configuration.

Long Cranking Cycles and Remote-Start Reliability Make T100-D Ideal for the Oil and Gas Fields



A trio of T100-Ds on a Clark gas engine provide the reliability to handle the higher cranking speeds.

FOR ENGINE COMPATIBILITY AND STARTER REPLACEMENT INFORMATION, SEE TABLE ON PAGE 31 OR CONSULT YOUR TDI DISTRIBUTOR.

Specifications:

T100-F

TURBOTWIN™

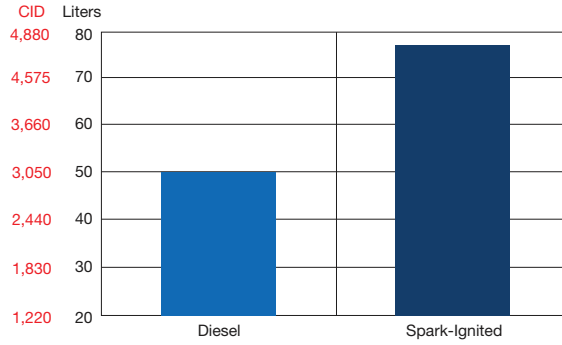
Engine Air Starters

An Economical Configuration of T100 for Medium-Range Engines from 20–50 Liters



TDI's state-of-the-art manufacturing facility produces some of the world's most sophisticated turbine/compressor designs.

Engine Displacement Chart For T100-F Series Air Starters

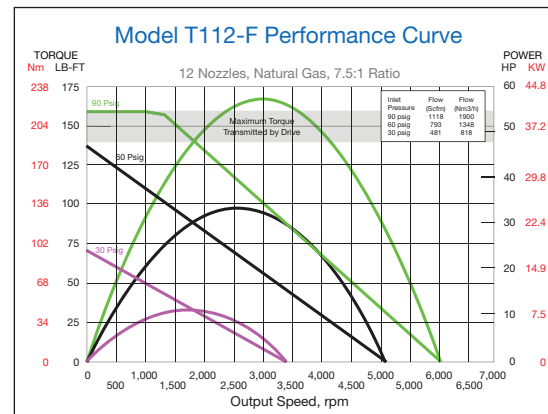
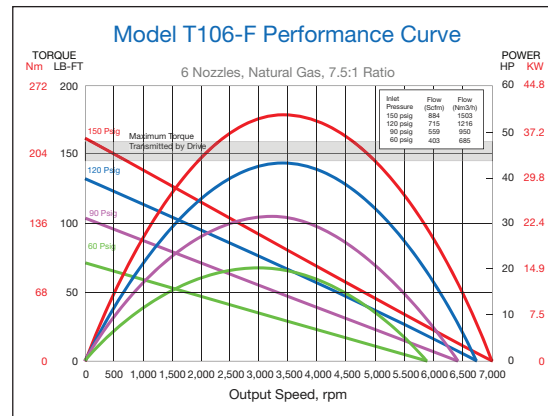
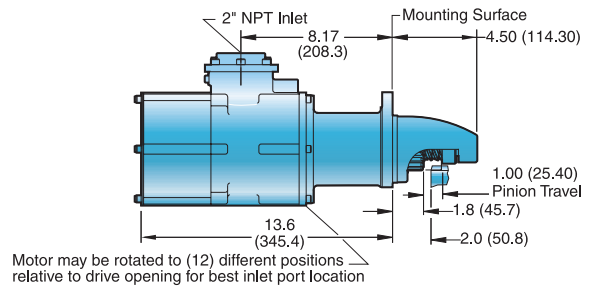


Consult your TDI distributor and the TDI Selection Guide before choosing a TDI TurboTwin starter for any application.

This selection chart shows basic starter capability by engine size. Note the chart shows four-stroke diesel engine size on the left and four-stroke, spark-ignited engine sizes on the right. Always consult TDI for application-specific capability.

DIMENSIONAL DATA

TDI TURBOTWIN
T106-F/T112-F



SPECIFICATIONS

Engines:	Starts Engines up to 50 Liters (3000 CID)	Rotation:	(Facing Pinion Orientation) Righthand/clockwise and Lefthand/counter clockwise
Design Configuration:	Inline; Inertia-Engaged	Air/Gas Supply:	Compressed Air or Natural Gas
Common Pinion Configuration:	6/8 Pitch, 12 Tooth (2 inch pitch diameter pinion)	Lubrication:	Grease-Packed For Life, None Required
Mounting:	SAE 3 Flange, Standard	Gear Ratio:	7.5:1
Horsepower: (on Methane)		Custom:	Other models and configurations available. Consult your local TDI distributor.
T106-F:	54 hp (41 kW) Max. at 150 psig (10.3 BAR)		
T112-F:	54 hp (41 kW) Max. at 90 psig (6.2 BAR)		
Weight:	42 lbs. (19 kg)		

T100-F's grease-packed for life feature eliminates wear, reduces maintenance, and delivers a significantly longer starting life.



T106-F installed on Caterpillar 3412 engine.

T100-F Provides Big Cranking Power in a Small Package



T100-F installed on Detroit Diesel 16V2000 engine.

Operating Pressure Range:

MODEL	NOZZLES	PSI	BAR
T106-F	6	60 – 150	4.1 – 10.3
T112-F	12	30 – 90	2 – 6.2

For applications in the 30–90 psig (2.1–6.2 BAR) range, consult your TDI distributor for best nozzle configuration.

FOR ENGINE COMPATIBILITY AND STARTER REPLACEMENT INFORMATION, SEE TABLE ON PAGE 31 OR CONSULT YOUR TDI DISTRIBUTOR.



The large channels of TDI turbine blades create an open air path that allows contaminants to pass through rather than get lodged in the starter and cause breakdowns.

TURBOTWIN™ **T50-P** **Series** **Turbine** **Air Starters**

**The Lightest, Most
Compact Starters
for Diesel Engines
Up to 70 Liters**



TurboTwin turbine blade designs work together to maximize air throughput for added starting power.

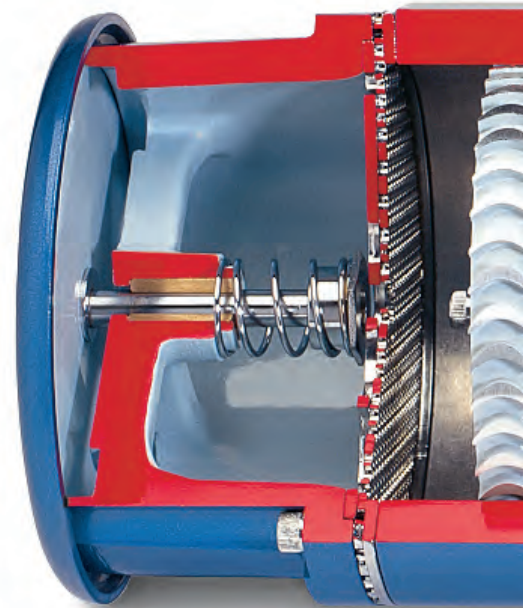
The T50 Turbine Air Starter delivers 70 hp of cranking power for starting medium-size gas and diesel engines. At only 34 lbs. (15.4 kg) and 6 in. (152 mm) in diameter, its size-to-power ratio sets the industry standard. Refinements to the TurboTwin design have reduced noise levels below standards previously thought to be unattainable in air starters. It's easily the quietest starter in its class. Additional design refinements have further reduced the number of contact parts which will yield even longer life and provide maintenance-free operation.

70 Hp At Only 34 lbs. It's A Powerhouse!

T50 is truly a breakthrough design, delivering unparalleled power for engines up to 70 liters. That's over 25% more torque and power than competitive models per unit volume of air—all in a lightweight, compact package.

The World's Most Contaminated Air Has No Effect On T50

The T50's turbine motor has no rubbing vanes to stick, swell, or wear out—dirty, wet air has no effect on internal parts. Contaminated air that clogs, damages, and shuts down other starters is flushed through TurboTwin's open air path design.



The T50's efficiency means you use less air and engines start quicker...even in bitter cold or sweltering heat.

No Compromise On Any TurboTwin Part

T50 uses only high-quality, high-strength steel and aluminum alloys machined to the industry's tightest

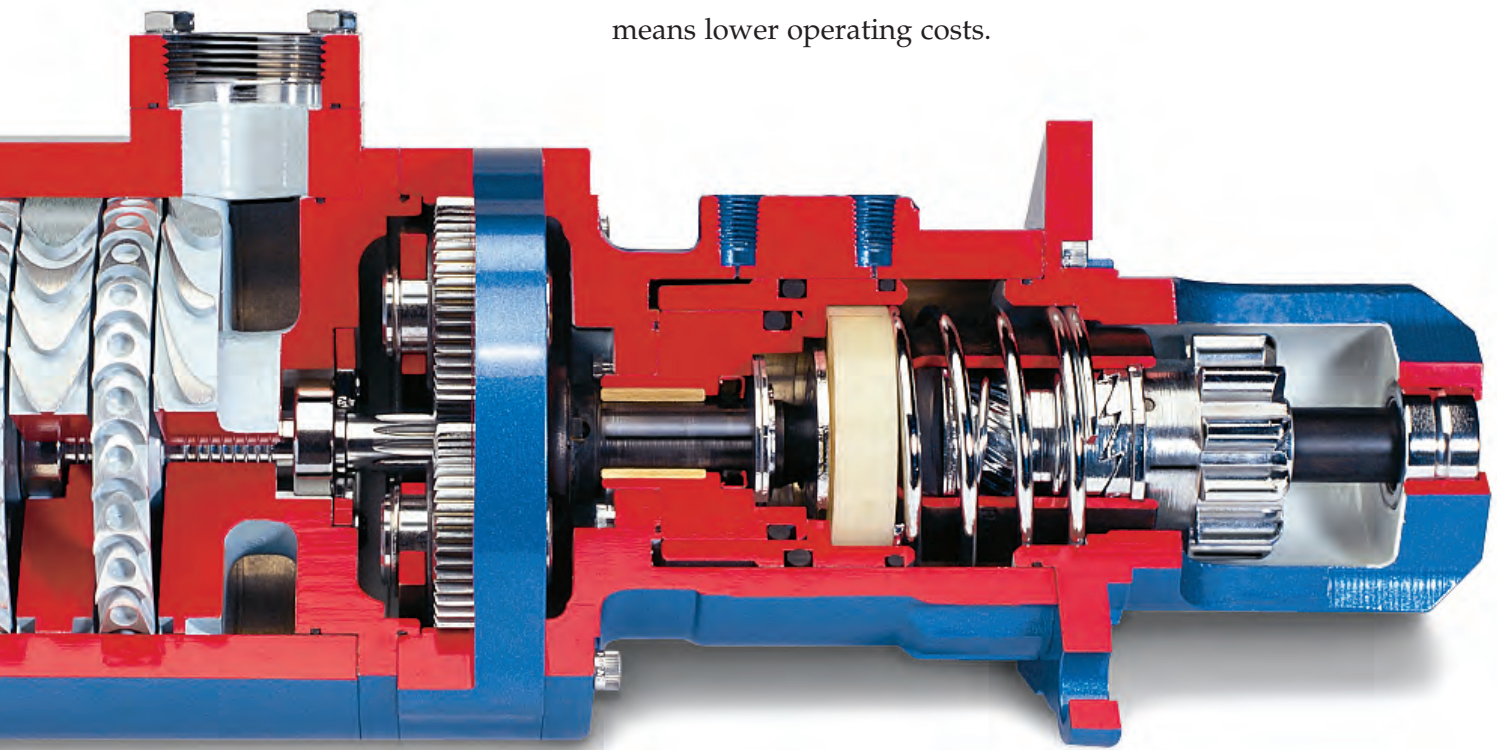
tolerances. There's no cutting corners, and definitely no plastic parts as used in other turbine air starters.

Fewer Moving Parts Means Fewer Repairs

T50 features half the moving parts found on other turbine air starters. Its design yields greater reliability and minimizes part count. This means lower operating costs.

No Oil Means Easier EPA Compliance And A More Reliable Starter

The T50 gearbox is grease-packed for life; there is no need to add starter lubrication and there are no fugitive exhaust emissions. Cleaner operation means greater workplace safety.



T50 Turbine Air Motor has large air passages...won't clog or break

Clean Exhaust...no oily exhaust mist means emissions compliance

Aerodynamic Speed Control...prevents starter over-speed

Vaneless Air Motor requires no lubrication of the air/gas supply

Grease-Packed Gearbox Design...no oil sump to check, change, or fill

Pre-engaged Pinion Gear...ideal for multiple starter applications

*All **TURBOTWIN** Engine Air Starters feature grease-packed gears and bearings, and aerodynamic speed control, to provide long, trouble-free operation.*

Lightweight, low-inertia, rotating elements provide "soft engagement"... extending the life of both ring and pinion gears

Specifications:

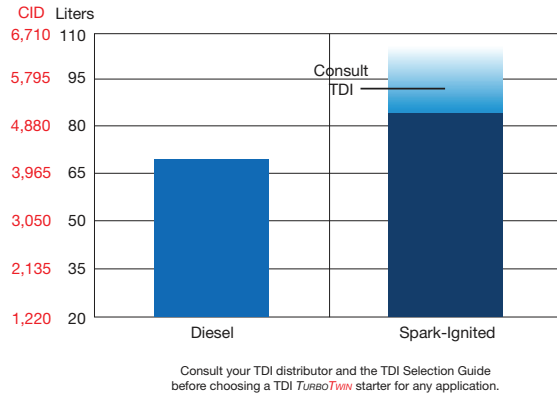
T50-P

TURBOTWIN™

Engine Air Starters

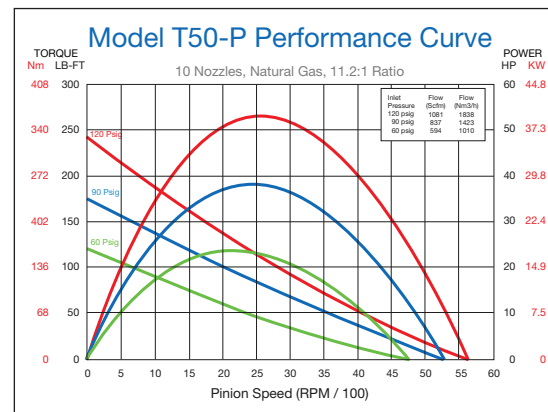
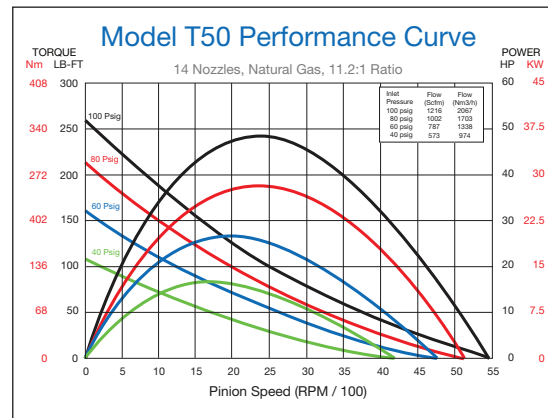
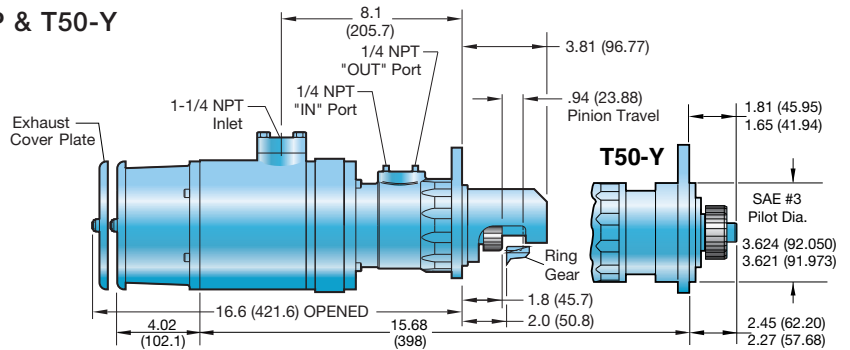


Engine Displacement Chart For T50 Series Air Starters



This selection chart shows basic starter capability by engine size. Note the chart shows four-stroke diesel engine size on the left and four-stroke, spark-ignited engine sizes on the right. Always consult TDI for application-specific capability.

DIMENSIONAL DATA TDI TURBOTWIN T50-P & T50-Y



At 34 lbs. and 6" in diameter, the compact T50 delivers 40 hp of cranking power.

SPECIFICATIONS

Engines: Starts Engines up to 70 Liters (4200 CID)

Design Configuration: Inline; Pre-Engaged

Common Pinion Configuration: 6/8 Pitch, 11 Tooth

Mounting: SAE 3

Horsepower: (on Methane) Standard: 70 hp (53 kW) Max. at 120 psig (8.3 BAR)

Low Pressure: 49 hp (41 kW) Max. at 100 psig (6.9 BAR)

Weight/Size: **T50-P**
34 lbs. (15.4 kg),
6" diameter (152 mm)
T50-Y
38 lbs. (17.2 kg),
6" diameter (152 mm)

Rotation: (Facing Pinion Orientation)
Righthand/clockwise and Lefthand/counter clockwise

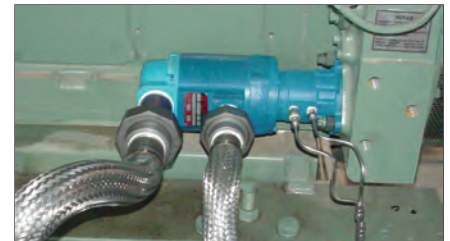
Air Supply: Compressed Air or Natural Gas

Lubrication: Grease-Packed For Life, None Required

Gear Ratio: 11.2:1

Custom: Other models and configurations available. Consult your local TDI distributor.

T50-P's grease-packed for life feature reduces wear, eliminates starter maintenance, and delivers a significantly longer starter life.

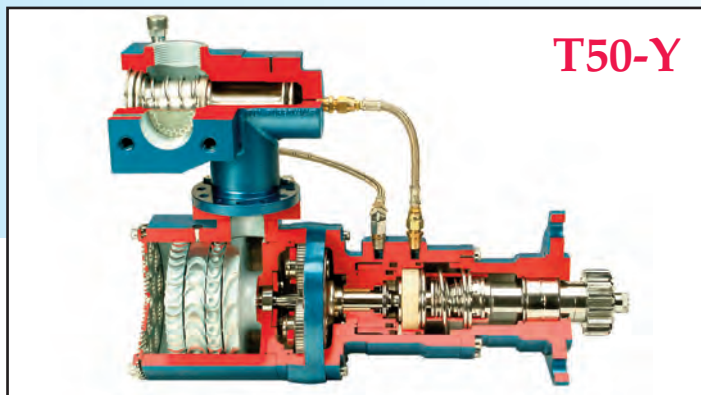


T50-P installed on Caterpillar 3516 engine.

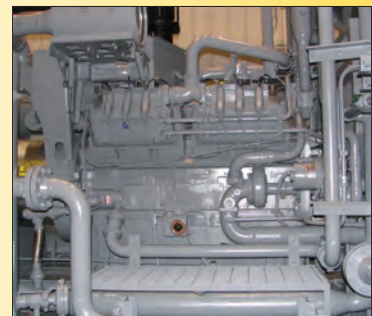
Operating Pressure Range:

MODEL	NOZZLES	PSI	BAR
T508-P/Y	8	40 – 150	2.7 – 10.3
T510-P/Y	10	40 – 120	2.7 – 8.3
T514-P/Y	14	40 – 100	2.7 – 6.9

For applications in the 60–90 psig (4.1–6.2 BAR) range, consult your TDI distributor for best nozzle configuration.



FOR ENGINE COMPATIBILITY AND STARTER REPLACEMENT INFORMATION, SEE TABLE ON PAGE 31 OR CONSULT YOUR TDI DISTRIBUTOR.



The T50-P air starter installed on Cummins KTA 38 engine.



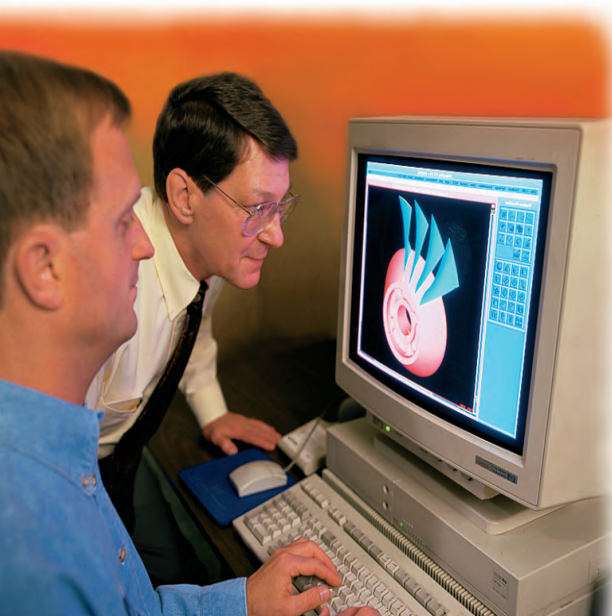
At only 34 lbs., one-person installation is a reality.

TURBOTWIN™

**T30-I
T30-P
and
T30-Y**

**Fast, Compact
Starting Power
For Engines
Up to 20 Liters**

TDI's unique aerodynamic element design expertise has been called upon to develop a variety of state-of-the-art aircraft engine simulators used in the aerospace industry.



The T30 generates up to 25% more stall torque than other starters in its class. Its highly efficient twin-turbine motor design gives you more cranking power with less air for faster starts. The versatile T30 is available with inertia-engagement, pre-engagement, and now with a pre-engaged, over-hung pinion for European engines.

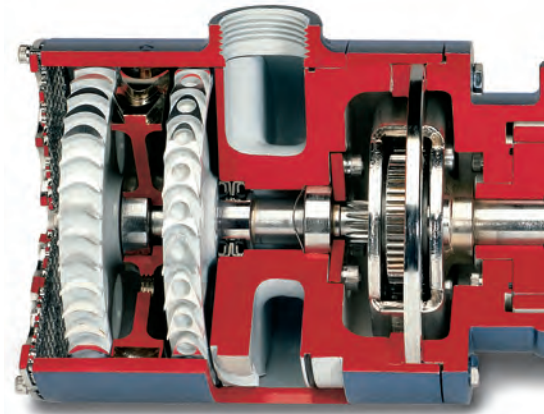
Lightweight.

At 29 lbs. (13.2 kg), T30 is lighter and more compact than other starters in its class.

The Longest Lasting, Most Reliable Engine Starter — Here's Why:

The T30 Turbine is designed to thrive in the world's dirtiest, messiest environments. Wet or contaminated air have no effect on the T30. There are no rubbing vanes to stick, swell, or wear out — which translates into longer lasting, more reliable starting, regardless of conditions.

T30-P



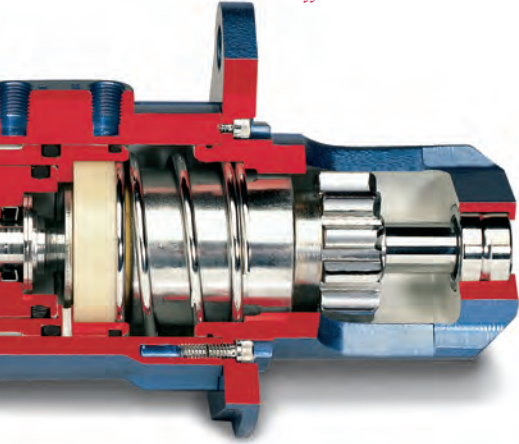
No Mess. No Fugitive Emissions.

The vaneless design of the T30 is grease-packed for life, thereby eliminating fugitive starter exhaust emissions caused by messy, oily exhaust residues. Less mess, less maintenance, and a clean environment for your engine makes sense, doesn't it?

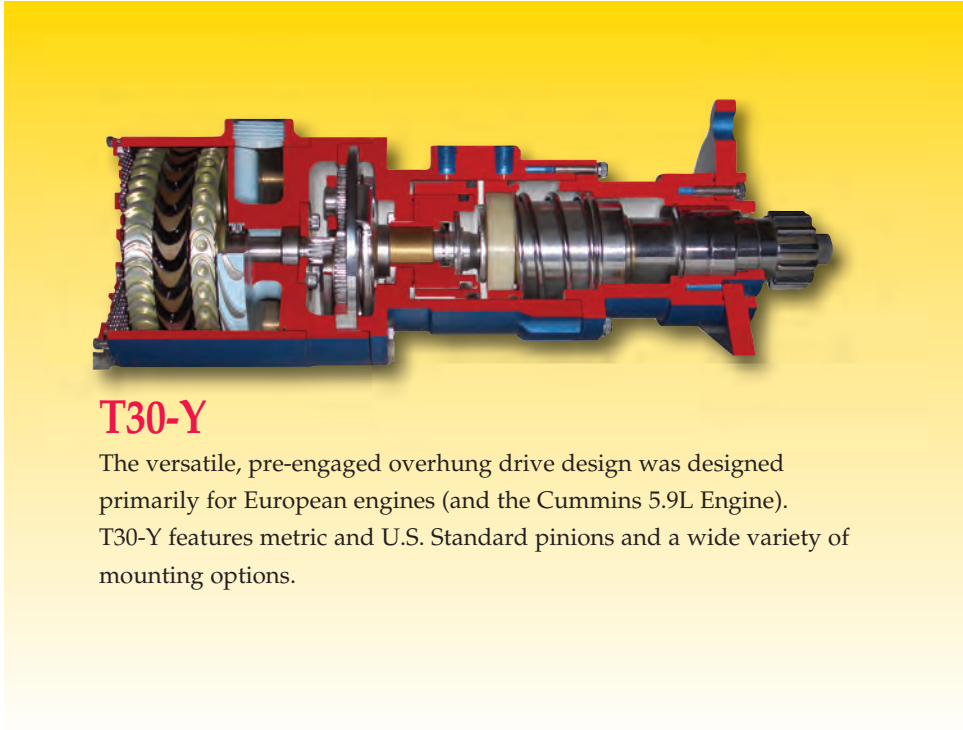
Half The Moving Parts and No Fragile Plastic Parts.

Quality has been designed into the T30. We've minimized the moving parts (less than half the number on competitive models). Plastic rotating parts wear out quicker. We refuse to compromise by cutting corners on material, which is why all of our rotating parts

TDI's TurboTwin™ design flourishes in contaminated air. The world's harshest wet and dry environments have no effect on the T30's reliable cranking power.



are made of high-strength steel and aluminum alloys that deliver significantly longer life than other similar-size starting systems.



T30-Y

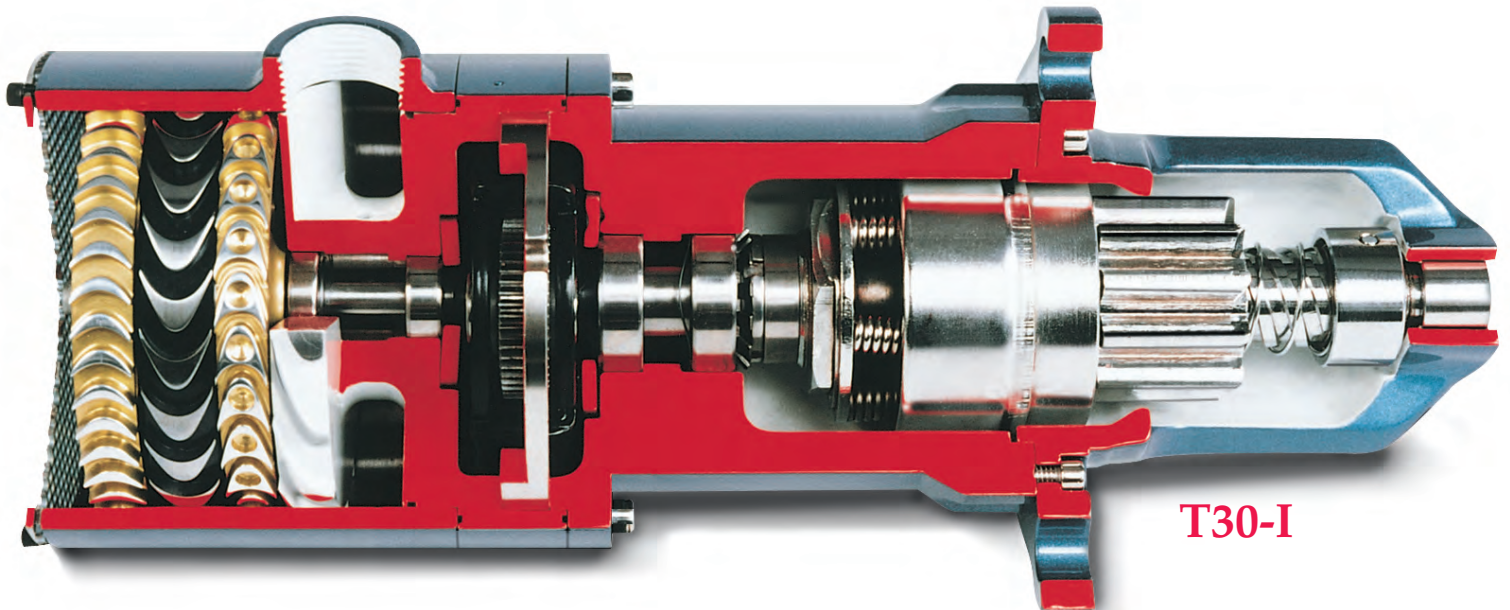
The versatile, pre-engaged overhung drive design was designed primarily for European engines (and the Cummins 5.9L Engine). T30-Y features metric and U.S. Standard pinions and a wide variety of mounting options.

Low-consumption one-inch NPT inlet.

Weighs 29 lbs. and is 11.5 inches from mounting flange to exhaust.

Rotatable mounting flange provides installation flexibility.

Heavy-duty construction all metal parts. No plastic or composite parts.



T30-I

Aerodynamic speed control prevents over-speed.

Vaneless turbine motor is dependable even on dirty, wet air/gas.

Environmentally safe with no required lubrication of the drive air/gas, bearings, or gears.

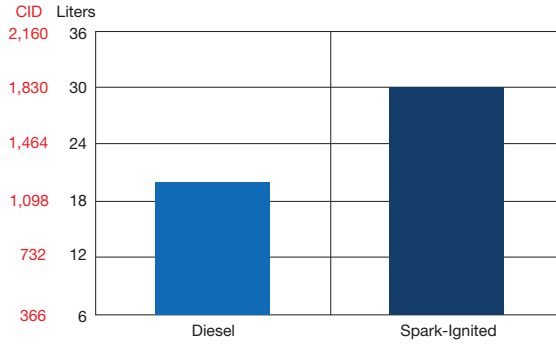
No oil sumps to check and fill.

Half the moving parts of other turbine starters. All parts are individually replaceable.

Specifications:

T30-I T30-P and T30-Y TURBOTWIN™ Engine Air Starters

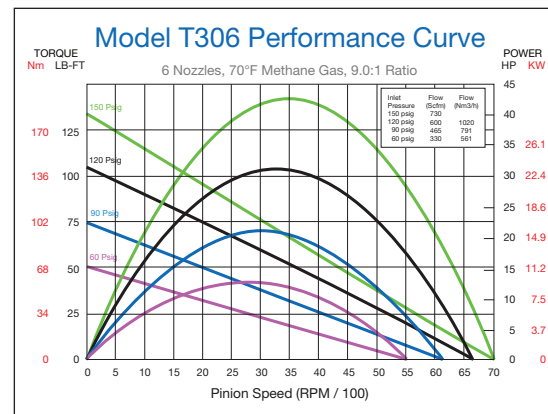
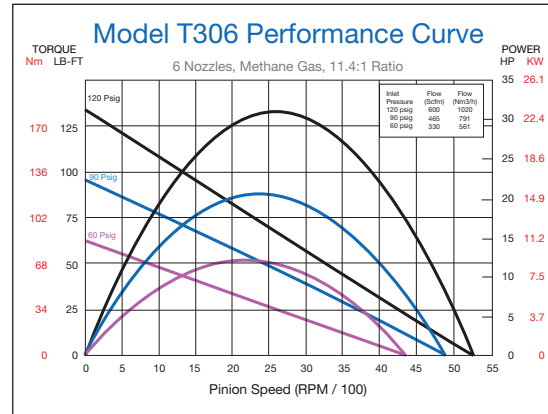
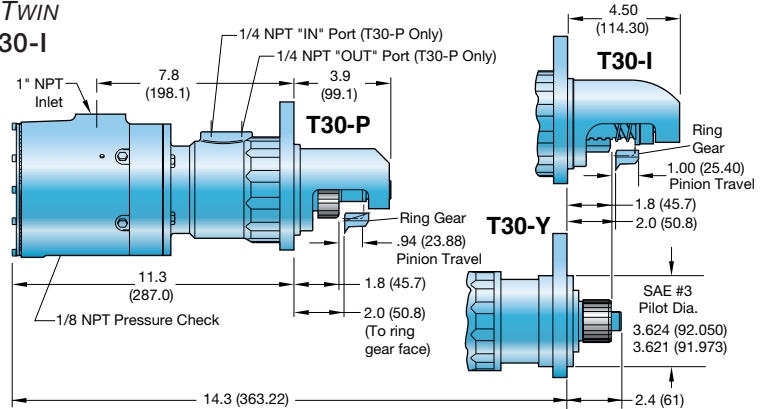
Engine Displacement Chart For T30 Series Air Starters



Consult your TDI distributor and the TDI Selection Guide before choosing a TDI TURBOTWIN starter for any application.

This selection chart shows basic starter capability by engine size. Note the chart shows four-stroke diesel engine size on the left and four-stroke, spark-ignited engine sizes on the right. Always consult TDI for application-specific capability.

DIMENSIONAL DATA TDI TURBOTWIN T30-P & T30-I



Lots of torque with low air flow sets T30 as the standard for cranking power in engines up to 20 liters.

SPECIFICATIONS

Engines:	Starts Engines up to 20 Liters (1200 CID)	Rotation:	(Facing Pinion Orientation) Righthand/clockwise and Lefthand/counter clockwise
Design Configuration:		Air/Gas Supply:	Compressed Air or Natural Gas
T30-I	Inertia-Engaged		
T30-P	Pre-Engaged		
T30-Y	Pre-Engaged - Overhung		
Common Pinion Configurations:	6/8 Standard, 11 Tooth 8/10 Pitch, 12 Tooth T30-Y 3 Mod, 9 Tooth T30-Y 3 Mod, 11 Tooth T30-Y 3.5 Mod, 11 Tooth	Lubrication:	Grease-Packed For Life, None Required
Mounting:	SAE 3 Flange SAE 1 Flange (for P only)	Gear Ratio:	T30-I 11:4 T30-P/Y 9:1
Horsepower: (on Methane)	32 hp (24 kW) Cranking Power at only 120 psig (8 BAR) 43 hp (32 kW) Max. @ 150 psig (10.3 BAR)	Custom:	Other models and configurations available. Consult your local TDI distributor.
Weight:	T30-I 29 lbs. (13.2 kg) T30-P 32 lbs. (14.5 kg) T30-Y 32 lbs. (14.5 kg)		

T30's grease-packed for life feature eliminates wear, reduces maintenance, and delivers a significantly longer starting life.



T306-I mounted on Caterpillar 3406 Engine for fire pump application

In the Oil Field or at Sea, TURBOTWIN™ Delivers Unequaled Reliability



Model T306-P on Luggar Marine Diesel Engine

Operating Pressure Range:

MODEL	NOZZLES	PSI	BAR
T303-I	3 (for Small Engines)	150	10.3
T306-I	6 (Standard)	120	8.3
T312-I	12 (Low Pressure)	60	4.1
T303-P/Y	3 (for Small Engines)	150	10.3
T306-P/Y	6 (Standard)	150	10.3
T312-P/Y	12 (Low Pressure)	Consult TDI	Consult TDI

For applications in the 60–90 psig (4.1–6.2 BAR) range, consult your TDI distributor for best nozzle configuration.

FOR ENGINE COMPATIBILITY AND STARTER REPLACEMENT INFORMATION, SEE TABLE ON PAGE 31 OR CONSULT YOUR TDI DISTRIBUTOR.



T30-Y installed on GE-Jenbacher GMD 312 engine.

T25
TURBOTWIN™
Air Starters
For 6–16 Liter
Engines
Easy-to-Install,
Compact
Air Starting with
Integrated
Control Package

Lots of Power in a Small Footprint

At just 121mm (4.75") diameter and less than 275mm (11") long, T25 delivers 22kW, (29hp) @ 6.2 Bar (90 psig) on a 12 nozzle package. T25 redefines robust starting and reliability for small space applications.

No More Vane Motor Problems

The superior reliability of turbine technology over vane motors has been proven over the last 30 years. T25 eliminates the sticking, swelling, rubbing, and clogged motor problems inherent to vane-type starters. Its rugged steel construction and no plastic parts make it the most reliable small starter on the water.

Ideal for Small Marine Engine Applications.

T25 has already made a name for itself as an excellent fit for marine applications on a variety of engines around the world. T25 enables vessels with 6-16 Liter engines to take advantage of TDI's TurboTwin technology.

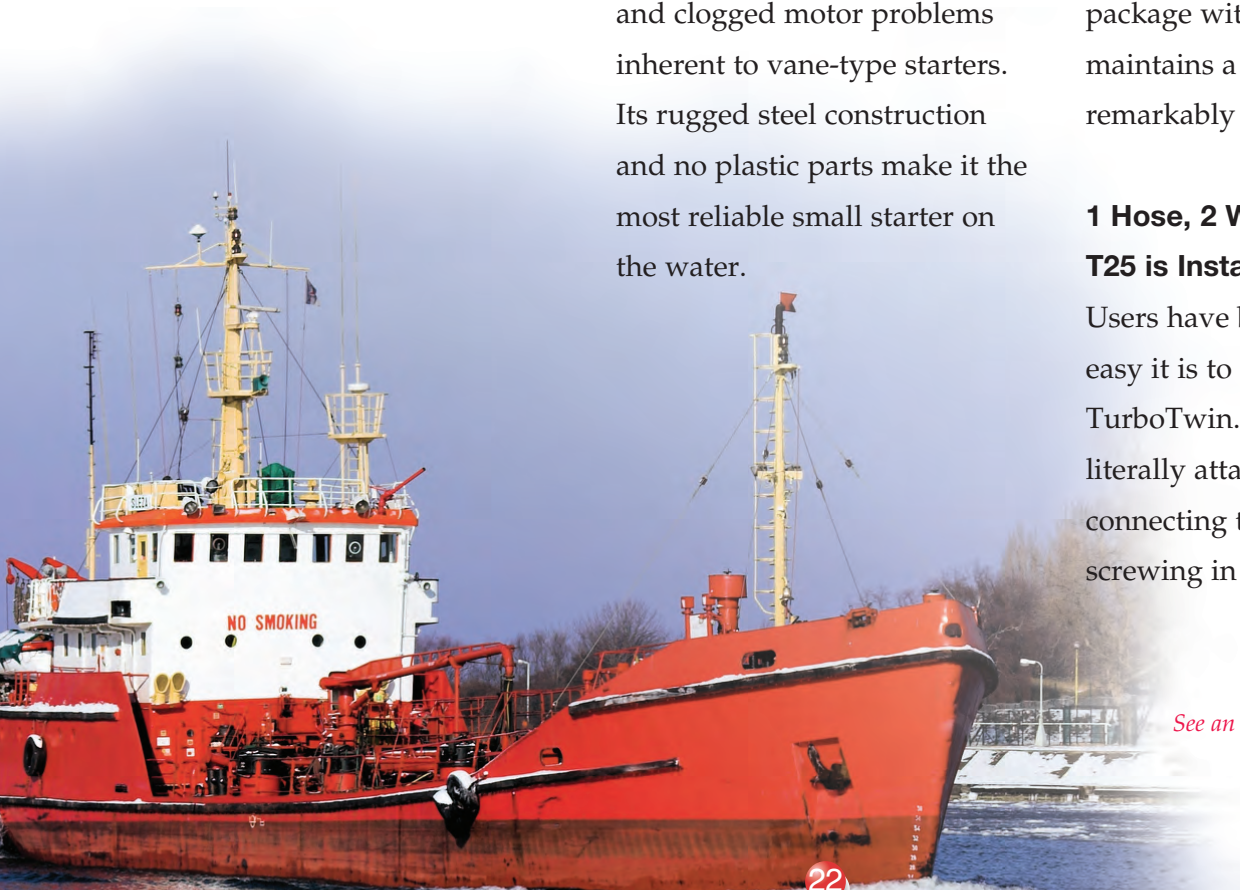
Integrated Controls Make Converting to TurboTwin Technology Easy.

The design of the T25 even eliminates any potential control or wiring issues at installation by including an integrated control package with the unit. T25 maintains a small footprint and is remarkably easy to install

1 Hose, 2 Wires, 3 Bolts and T25 is Installed!

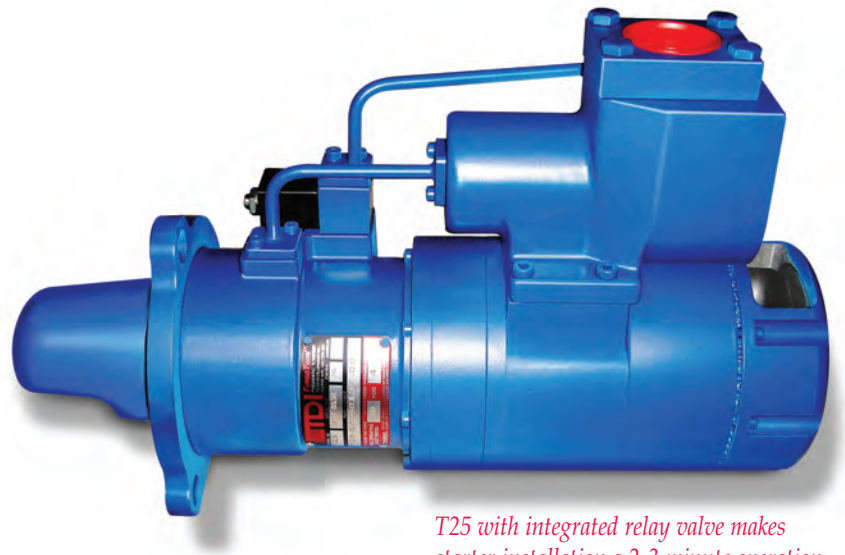
Users have been amazed at how easy it is to upgrade to TurboTwin. Installation is literally attaching one hose, connecting two wires, and screwing in three bolts.

*See an actual T25 installation movie
at www.tdi-turbotwin.com*



TurboTwin Field-Proven Reliability

The TurboTwin brand has the distinction of having the most turbine air starters in the field, and the most turbine air starters operating in the world's harshest and most demanding environments. There is a reason TurboTwin is the number one choice of system integrators, packagers, and aftermarket end users – "unparalleled starting reliability."



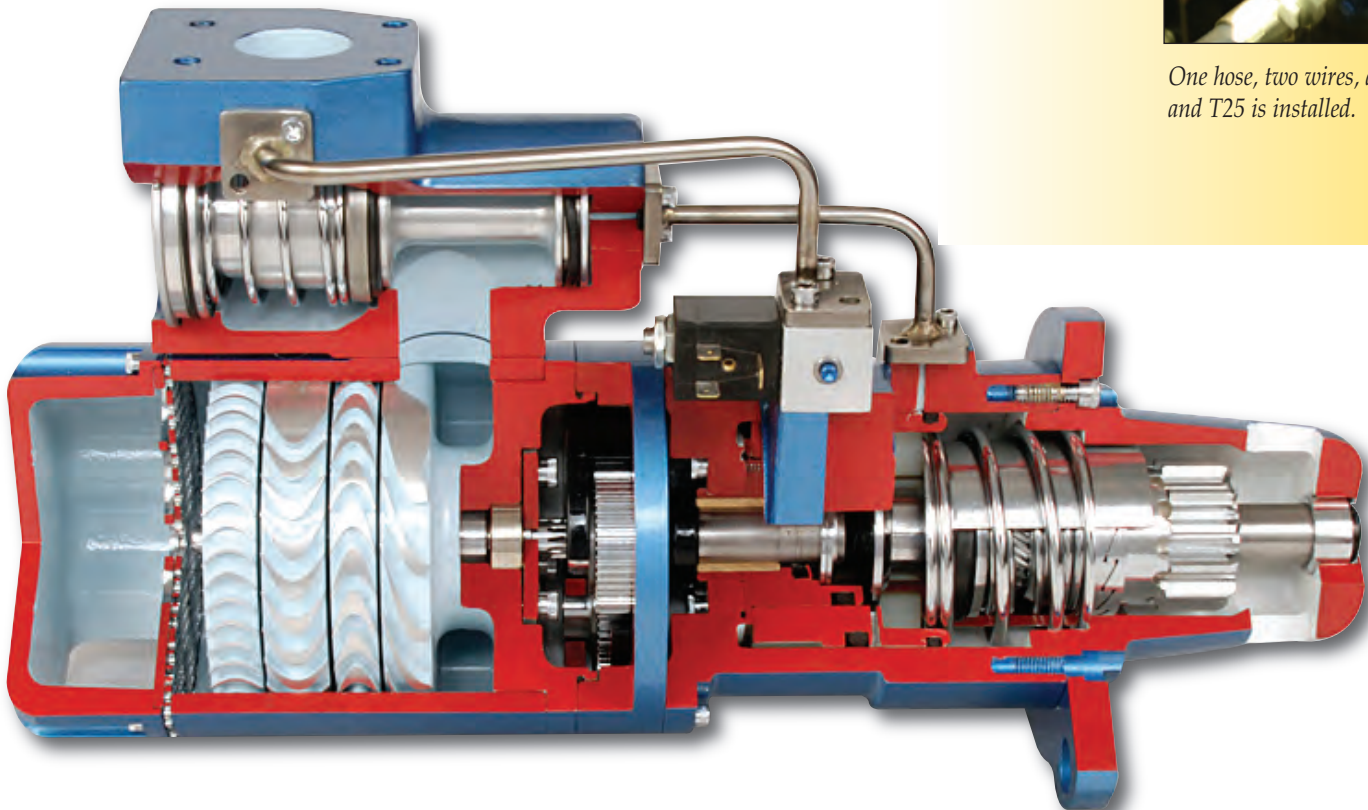
T25 with integrated relay valve makes starter installation a 2-3 minute operation.

Integrated controls for easy installation.

Switching to T25 is an Easy and Fast Operation.



One hose, two wires, and 3 bolts and T25 is installed.



Specifications:

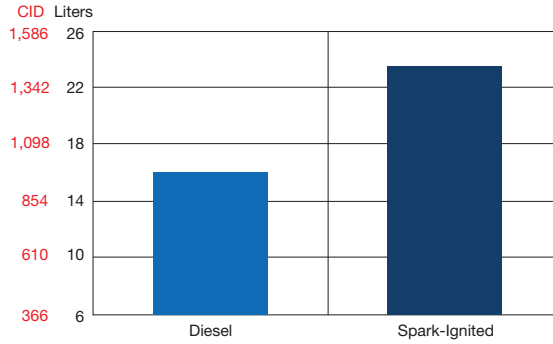
T25

TURBOTWIN™

Engine Air Starters

Ideal for 6–16 Liter Marine Engines

Engine Displacement Chart For T25 Series Air Starters

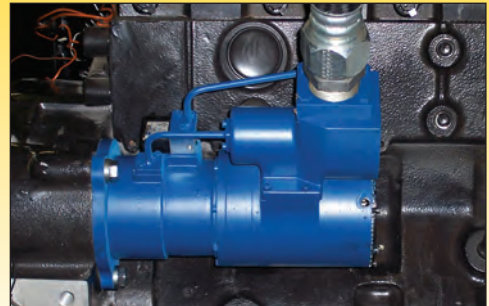
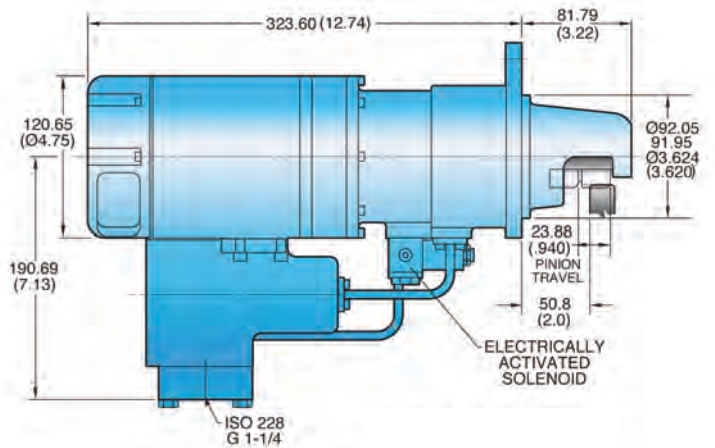


Consult your TDI distributor and the TDI Selection Guide before choosing a TDI TURBOTWIN starter for any application.

This selection chart shows basic starter capability by engine size. Note the chart shows four-stroke diesel engine size on the left and four-stroke, spark-ignited engine sizes on the right. Always consult TDI for application-specific capability.

DIMENSIONAL DATA

TDI TURBOTWIN
T25



T25 on 8.3 liter Cummins.



T25 installed on MAN D2842.

SPECIFICATIONS

Engines: 6-16 Liter Displacement
MAN 2842, 2866
Scania D12 & D16
Volvo D16
MTU BR1600

Weight: 32.1 lbs (14.5 kg)
27.0 lbs (12.2 kg)
without Relay
valve

Design Configuration: Pre-Engaged; Outboard supported Nose Cone

Rotation: RH & LH

Air/Gas Supply: Air only

Common Pinion Configuration: MTU 8/10 Pd /12T (Special)
Std. 8/10 Pd / 12T
3 MOD: 9T
3 MOD: 11T

Lubrication: Grease-Packed for Life

Gear Ratio: 10.25:1

Mounting: SAE #2 & 3
SAE #1

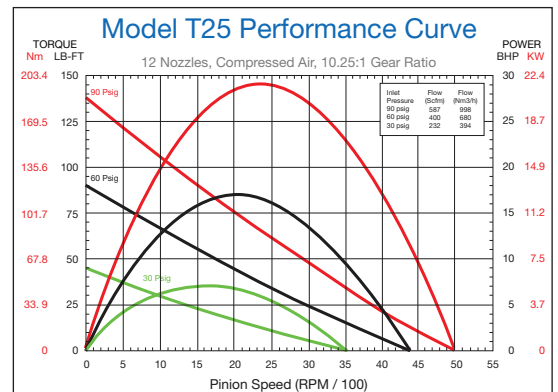
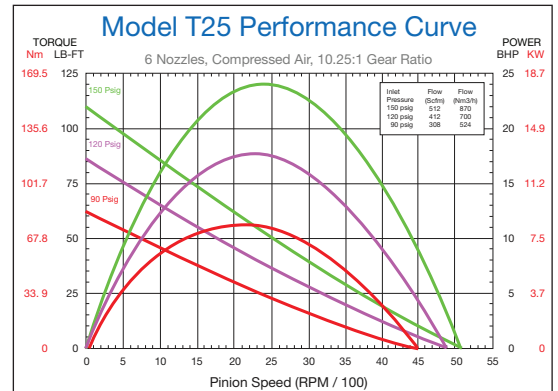
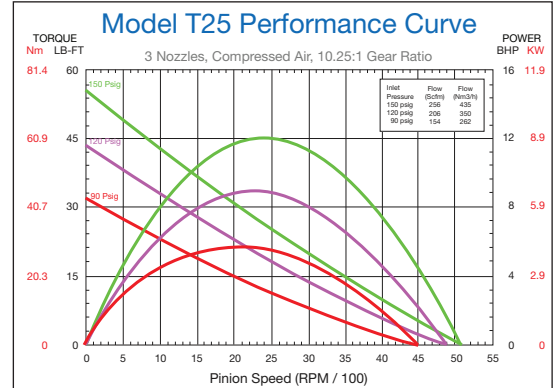
**Horsepower:
(on Compressed Air)**
12 hp (9kW) @ 150 psig
(10.3 BAR) @ 2400 rpm
(3 Nozzle)
24 hp (18kW) @ 150 psig
(10.3 BAR) @ 2400 rpm
(6 Nozzle)
29 hp (22kW) @ 90 psig
(8 BAR) @ 2300 rpm
(12 Nozzle)

Operating Pressure Range:

MODEL	NOZZLES	PSI	BAR
T25	3	150	10.3
T25	6	150	10.3
T25	12	60	4.1

For applications in the 30–90 psig (2.1–6.2 BAR) range, consult your TDI distributor for best nozzle configuration.

FOR ENGINE COMPATIBILITY AND STARTER REPLACEMENT INFORMATION, SEE TABLE ON PAGE 31 OR CONSULT YOUR TDI DISTRIBUTOR.



TURBOTWIN™ **T20** **Turbine** **Air Starters**

**For 9 Liter Gas
Engines & Smaller.
The New Standard
for Low Pressure
Starting.**

T20 was designed to handle the most challenging low pressure gas field applications.

A New Low – 15hp @20 psi.

When you need serious starting power at low pressure, nothing delivers more performance than the new TurboTwin T20. It's the new low pressure starting champion.

Air Starters as Small as 6 Inches Long Delivering up to 18hp!

It's 18hp in the palm of your hands. T20 is the ultimate combination of big power at low pressure in a durable, robust package. It's high performance starting designed for reliability in the world's harshest environments.

Ideal for Underground Mining Applications.

The all steel exterior construction of the T20 coupled with its small footprint and low pressure capability make it perfect for starting engines up to 9 liters displacement.

Great for Low Pressure Gas Applications

Low pressure, dirty, or wet gas is no problem for the T20. The T20 sets the new standard for reliable performance in the world's most challenging applications.

Easy Upgrade Replacement of Electric Starters.

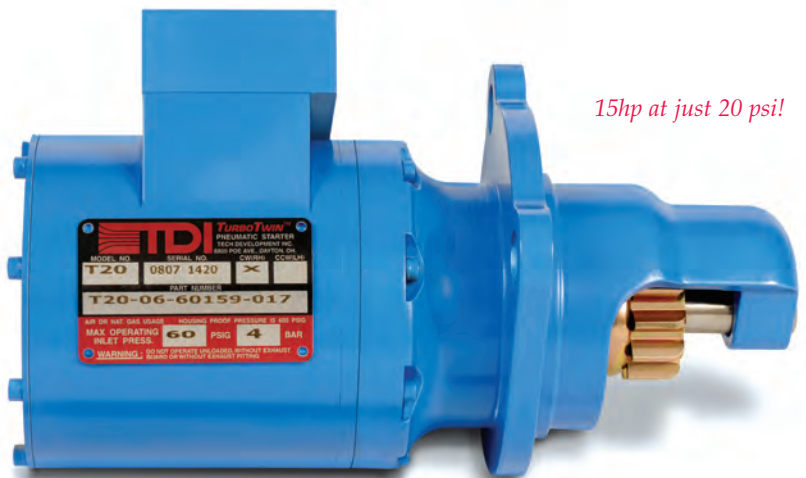
TDI engineers did everything possible to help end users tired of electric and vane-type starters to upgrade to turbine technology. Compare specs, size, air requirements, footprints, and exhaust options. Improving reliability and performance is seamless with T20.

Efficient Exhaust Design with Many Configurations.

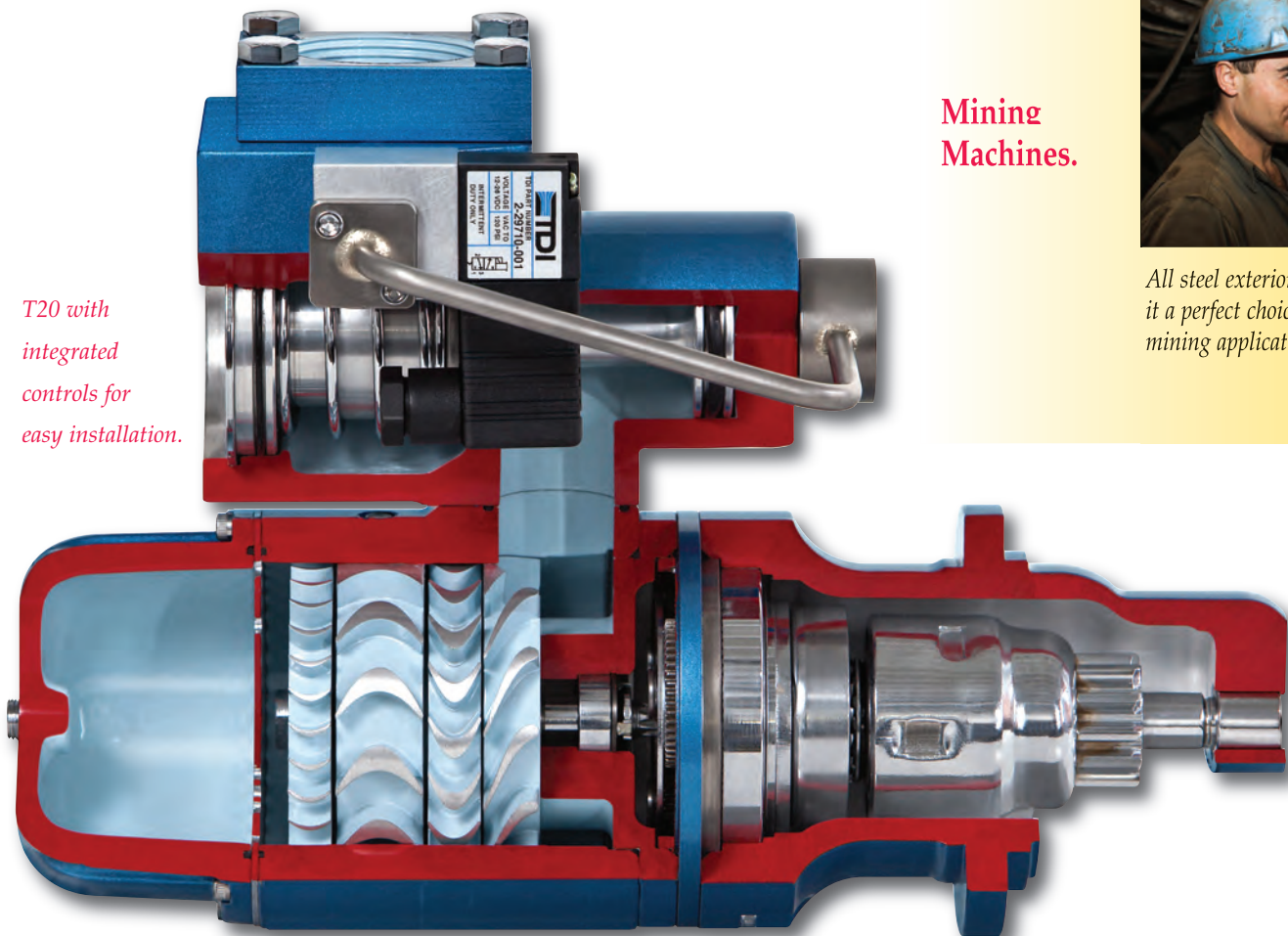
Exhaust configurations are available for the many applications customers might require.

TurboTwin Field-Proven Reliability

The TurboTwin Brand owns the distinction of having the most air/gas turbine starters in the field, and the most turbine air starters operating in the world's harshest and most demanding environments. There is a reason TurboTwin is the number one choice of system integrators, packagers, and aftermarket end users – "unparalleled starting reliability."



Motors ranging from as small as 6 inches long.



T20 with integrated controls for easy installation.

T20 Was Also

Mining Machines.



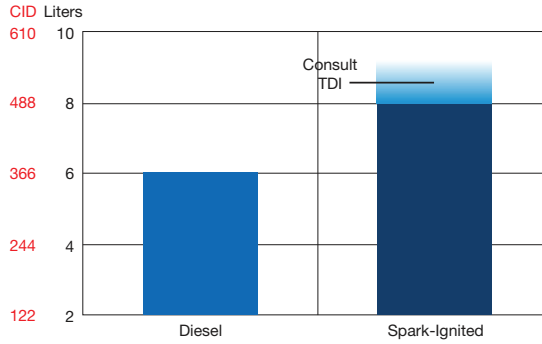
All steel exterior construction make it a perfect choice for underground mining applications.

Specifications:

T20 Turbine Air Starters

Ideal Solution for
Low Pressure
Gas Fields &
Underground
Mining

Engine Displacement Chart For T20 Series Air Starters



Consult your TDI distributor and the TDI Selection Guide before choosing a TDI TurboTwin starter for any application.

This selection chart shows basic starter capability by engine size. Note the chart shows four-stroke diesel engine size on the left and four-stroke, spark-ignited engine sizes on the right. Always consult TDI for application-specific capability.

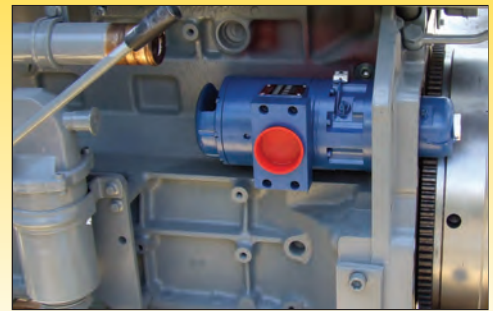
T20 Available in Many Configurations

T20 is a versatile air starter available in many configurations to meet your specific application requirements.

Contact the factory or visit the T20 page on our website at www.tdi-turbotwin.com



T20 on CAT G3306 compressor.



T20 installed on Deutz 1013 engine.



T20 installed on 5.9 Cummins engine.

SPECIFICATIONS

Engines: 6 Liters and Under
John Deere 4045
Cummins 5.9
Caterpillar 3304 and 3306
Ford 460
GM 454
Continental TM27

Weight: SAE #4 with Inlet
18 lbs (8.2 kg)
SAE #3 with Relay
Valve 22.5 lbs. (10.2 kg)

Rotation: RH & LH

Design Configuration: Inertia-Engaged

Air/Gas Supply: Compressed Air
or Natural Gas

Common Pinion Configuration: Std. 8/10 Pd / 12T
Std. 8/10 Pd / 10T
10 Pd / 10T
10 PD / 11T

Lubrication: Grease-Packed
for Life, None
Required

Mounting: SAE #2 & 3
SAE #4
SAE #1 Offset for Cummins
5.9 L engine (Contact TDI)
Ford 460 (special)

Gear Ratio: 13:1

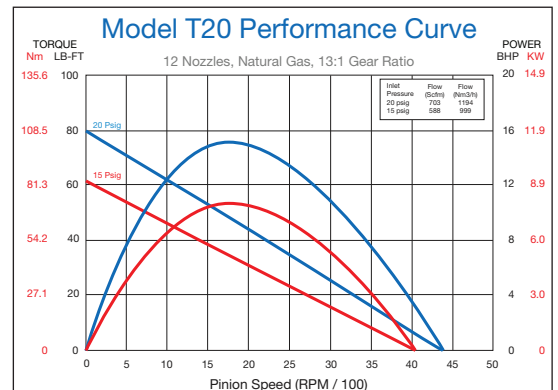
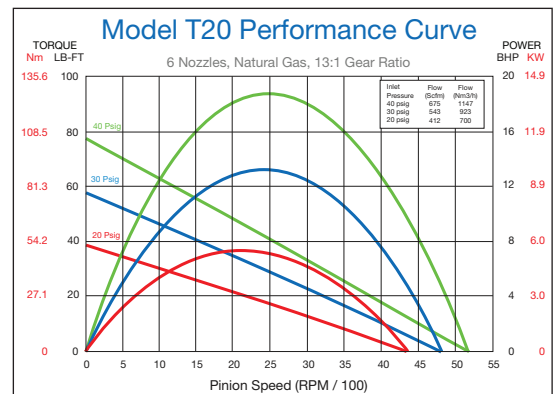
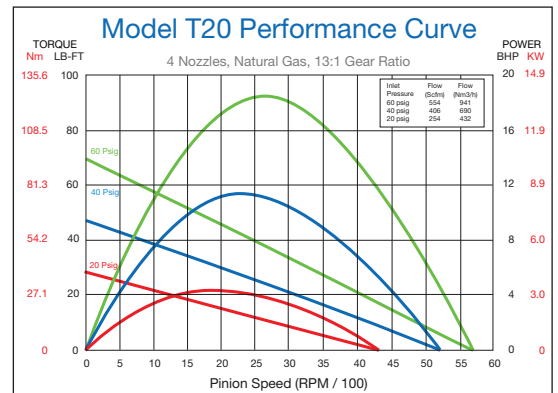
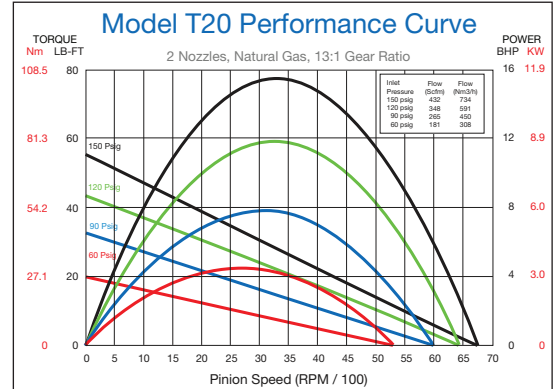
Horsepower: (on Methane)
15 hp (11kW) @ 150 psig
(10.3 BAR) @ 3200 rpm
(2 Nozzle)
17 hp (12.5kW) @ 60 psig
(4.1 BAR) @ 2600 rpm
(4 Nozzle)
18 hp (13.2kW) @ 40 psig
(2.8 BAR) @ 2500 rpm
(6 Nozzle)
15 hp (11kW) @ 20 psig
(1.4 BAR) @ 2300 rpm
(12 Nozzle)

Operating Pressure Range:

MODEL	NOZZLES	PSI	BAR
T20	2	150	10.3
T20	4	60	4.1
T20	6	40	2.8
T20	12	20	1.4

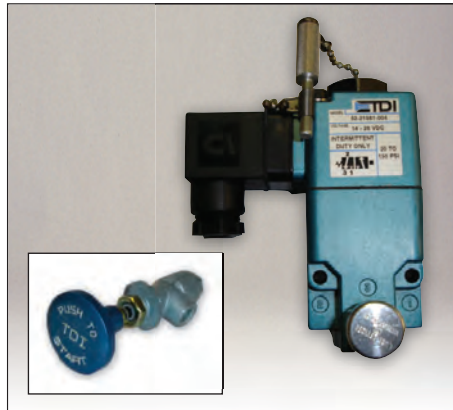
For applications in the 15–30 psig (1–2.1 BAR) range, consult your TDI distributor for best nozzle configuration.

FOR ENGINE COMPATIBILITY AND STARTER REPLACEMENT INFORMATION, SEE TABLE ON PAGE 31 OR CONSULT YOUR TDI DISTRIBUTOR.



TURBOTWIN™ Valves and Accessories

TDI offers a wide variety of valves, fittings, and accessories to help maximize the efficiency of your TurboTwin Starters. Featured here are some of the more popular items. For specific order numbers or additional accessory needs, contact your local distributor or visit our website at www.tdi-turbotwin.com.



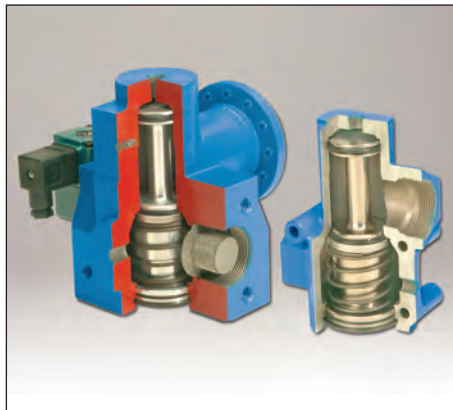
Control Valves

TDI offers both types of control valves (manual push-button and electrically operated solenoid valves) to actuate the pilot-operated TDI TurboValve shown below.



Exhaust Fittings for T30

Muffler and exhaust fittings help manage air discharge on the T30 series air starters.



TurboValve Air Control Relay Valves

Both manual and electrical pilot-operated TurboValves feature high flow capacity which reduces pressure drop through the valve, making it versatile for a wide range of applications. The electrical version features an integrated solenoid eliminating extra plumbing and fittings.



Exhaust Elbows for T100

These elbows channel air exhaust for T100 and T100-V starters.



Air Strainers

This is an ideal attachment that helps assure long starter life by filtering contaminated air or gas.



Exhaust Fittings for T100

These fittings channel air exhaust for T100 air starters.

TURBOTWIN™

Air Starters

Selection Guide

This selection guide will help you retrofit or select the appropriate TurboTwin Air Starter based on the engine you have. Engines are listed by size in liters and by make with the corresponding TurboTwin model number across from it. This chart does not list all compatible engines. For questions concerning other engines, please call the factory at 937-898-9600.

LITERS	ENGINE MAKE/MODEL	TDI PART NUMBER	LITERS	ENGINE MAKE/MODEL	TDI PART NUMBER
3 - 20	ARROW VRG220 VRG330 VR260	T20-02 Inertia Engaged Standard Pressure Max: 150 psig @ 333 SCFM T20-02 Inertia Engaged Low Pressure Max: 40 psig @ 519 SCFM T20-12 Inertia Engaged Very Low Pressure Max: 20 psig @ 541 SCFM	20 - 70	CATERPILLAR C27 C32 3412 3508 C175 3512	T106-F Inertia Engaged Standard Pressure Max: 150 psig @ 680 SCFM T112-F Inertia Engaged Low Pressure Max: 90 psig @ 860 SCFM T510-P Pre-Engaged Standard Pressure Max: 120 psig @ 822 SCFM
	CATERPILLAR 3044 3304 C7 3306			CUMMINS QST30 QSK45 QSK50 QSK60	
	CUMMINS QSB4.5 BT5.9 QSB6.7 6C8.3			WAUKESHA H24G L36 P48G F1905G H2475G P2154G	
	DEUTZ 912 913 914 1013				
	FORD 300 460				
	GENERAL MOTORS 350 496 454 502				
	JOHN DEERE 4045 6081 6068				
	MAN D2842 D2866				
	MTU BR1600				
	SCANIA D12 D16				
Above 70	CATERPILLAR C9 C15 C11 C18 3406 3408	T25-06 Pre-Engaged Standard Pressure Max: 150 psig @ 512 SCFM T306-I Inertia Engaged Standard Pressure Max: 120 psig @ 478 SCFM T312-I Inertia Engaged Standard Pressure Max: 60 psig @ 478 SCFM T306-P Pre-Engaged Standard Pressure Max: 150 psig @ 600 SCFM T306-Y Pre-Engaged Standard Pressure Max: 150 psig @ 600 SCFM	Above 70	COOPER AJAX DPC-280 DPC-360 DPC-230 DPC-600 DPC-250 DPC-800 DPC-325	T112-B Inertia Engaged Standard Pressure Max: 150 psig @ 136—0 SCFM T121-B Inertia Engaged Standard Pressure Max: 90 psig @ 1560 SCFM T112-V Pre-Engaged Standard Pressure Max: 150 psig @ 1472 SCFM T121-V Pre-Engaged Standard Pressure Max: 90 psig @ 1606 SCFM
	CUMMINS QSM11 N14 QSX15 QSK19			WAUKESHA L5788 L7042G L7040G L7044G	
	DETROIT DIESEL 6V92 12V71 8V2000 SERIES 60			CATERPILLAR G3606 G3612 (2) G3608 G3616 (2) C280	
	WAUKESHA F18G F1197G F817G 6GAK			COOPER SUPERIOR 1700 Series 825 Series 2400 Series	
	DEUTZ 1015 1017			GE V228 Series V250 Series	
	SCANIA D11 Series D14 Series			GE JENBACHER J612GSE111 J616GSE111 J620CGE 624GS	
				MAN L20/27 L23/30 L27/38 L28/32	
				WAUKESHA 8L-AT27G 12VAT25G 12VAT27G P9390G 16VAT27G (2)	

The selection information is to be used merely as a guideline. For complete details about a starter or an application, please contact your authorized distributor.

Superior Performance and Reliability from Original Install Through Remanufacturing



Look for this label to assure quality TDI performance

The Industry's Choice for Performance

Choosing TDI TurboTwin means you've selected the industry's best performing and most reliable engine air starter. TurboTwin is the number one choice among system packagers and engine end users. No one has more turbine-powered air starters in the field. And no one has air starters that last as long.

Keep It Real with Genuine TurboTwin Parts

Precise tolerances, better materials and proprietary turbine technology are why TurboTwins are the world's longest lasting, best performing air starters. When it comes time to remanufacture your TDI starter, or replace parts, don't compromise. Keep it real with Genuine TurboTwin parts.

Certified TDI Remans

This label assures that your TDI unit was rebuilt by an Authorized Certified TDI Service Center, using the correct tolerances, procedures and Genuine TurboTwin parts. The Authorized TDI Reman repair process follows our factory manufacturing procedures when building the original starter. Look for the Authorized and Certified Reman SERVICE CENTER label to assure TDI performance, reliability, as well as continued warranty coverage.



Anything Less Than a *TURBOTWIN* Air Starter is a Compromise

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