

Contents

4-13T100 for Automatic Gas Compressors, Automated Start Cycles & Low-Pressure Gas Fields

4-5T100 Features

6-7T100-V Specifications

8-9T100-B & T100-P Specifications

10-11T100-D Specifications

12-13T100-F Specifications

14-17T50 for Medium-Sized Gas Compressors & Gen Sets

14-15T50 Features

16-17T50 Specifications

18-21T30 is Ideal for Small Rental Compressor Fleets & Drill Rigs with Low-Pressure Gas Starting Requirements

18-19T30 Features

20-21T30 Specifications

22-25T25 for 6-16 Liter Marine Engines

22-23T25 Features

24-25T25 Specifications

26-29T20 for 6 Liter & Smaller Engine Applications

26-27T20 Features

28-29T20 Specifications

30.....Valves & Starter Accessories

31.....Engine Compatibility Chart

**For Mine Haul Trucks,
Anything Less Than a
TURBOTWIN™ Starter is a
Compromise.**

Nothing lasts as long as a TurboTwin.

For mine haul trucks, your needs are simple. Reliable starting. No maintenance. No replacing starters every 6 months.

TDI TurboTwin Air Starters are the mining industry's standard for long-lasting reliability. Ask the mechanics who install them and you'll find that no other starter lasts as long, delivers more starts, and withstands the harshest environments better than TurboTwin.

It's literally the starter you install and forget about. Our grease-packed gears and bearings eliminate oily mess and reduce maintenance. And you won't even have to lubricate the supply air gas as on vane-type starters.

TurboTwin blade designs optimize air throughput for greater starting power.

Lightweight Starters Simplify Installation

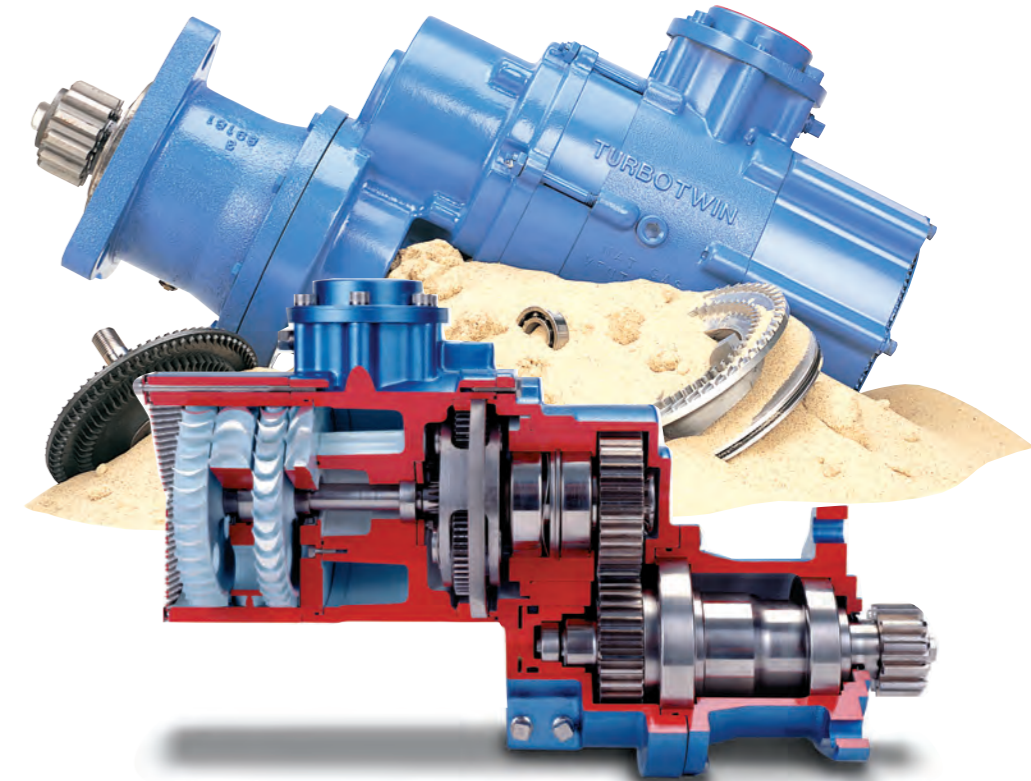
Our lightest starter for Mine Haul Trucks weighs only 35 lbs. We understand the difficulty of overhead installation and designed our starters to be a one-person job.



No Plastic Parts

Our starters are engineered for the long haul, not the discount aisle. No plastic parts like lesser-grade starters.

TurboTwin handles the dirtiest, messiest environments.



More Power From TurboTwins

Expect up to 25% more starting power from TurboTwin, even in sub-zero weather or sweltering heat.

Less Mess

No added lubrication required. That says it all.

An Air Supply That Lasts Longer

TurboTwin offers the most power and torque per unit of air. On a truck with a limited air supply, TurboTwins gets your truck started fast... with air to spare.

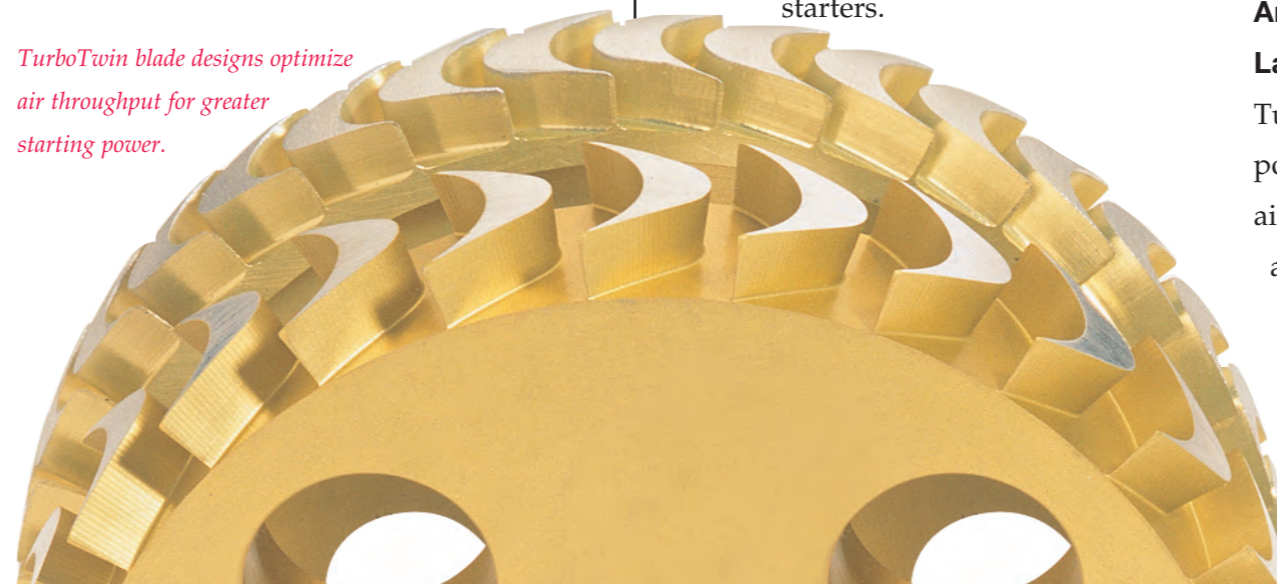
The Quietest Turbine Air Starter

In independent tests, the TurboTwin T50 has achieved sound levels thought to be unattainable from a turbine starter. So the lightest starter is also the quietest.

Install It. Forget About It.

The industry's longest-lasting starter uses better-quality parts, a superior design tolerant to contaminants, and delivers maintenance-free service. It's that simple.

High-Performance TurboTwin Starters are the long-lasting alternative to vane-type starters.



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

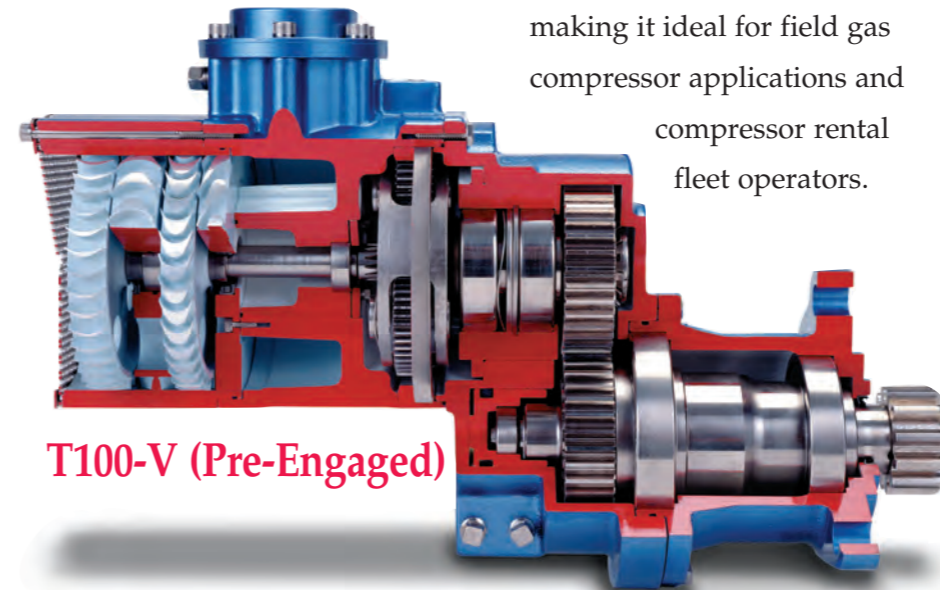
The T100 is grease-packed for life so there is no need for oil lubrication, no oily fugitive exhaust emissions, and no maintenance required.

air, and delivers faster cranking RPM for quick starts.

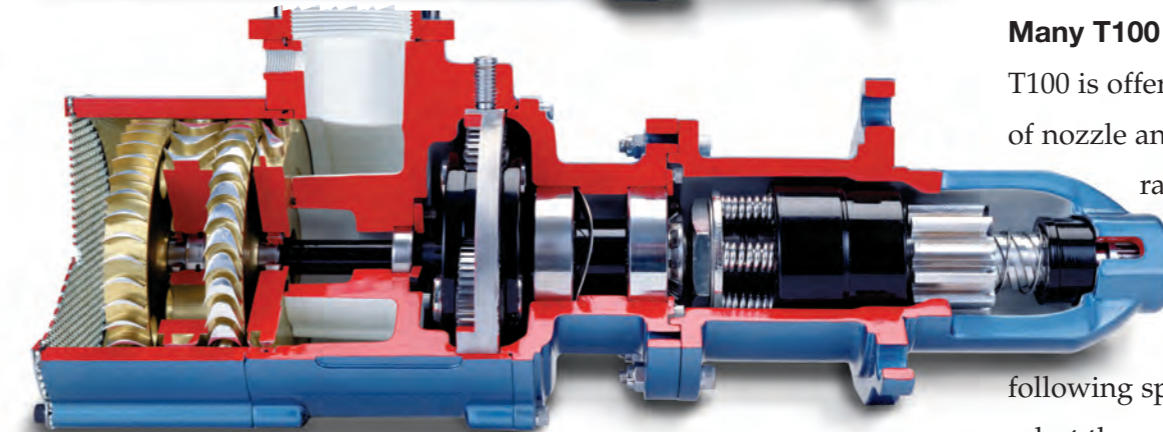
Ultra Low Pressure Starts

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.



Unparalleled aerodynamic elements manufacturing experience makes

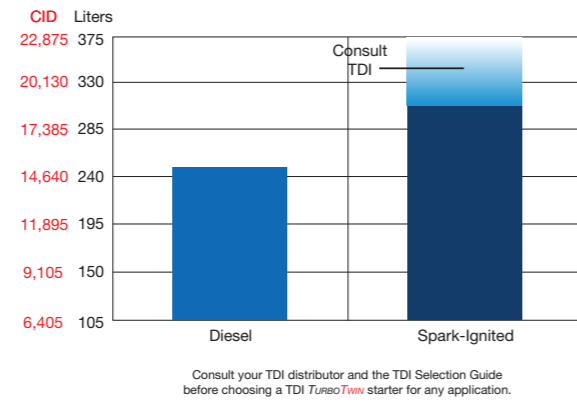
TurboTwin the leader in power and reliability.

Specifications:

T100-V TURBOTWIN™ Engine Air Starters

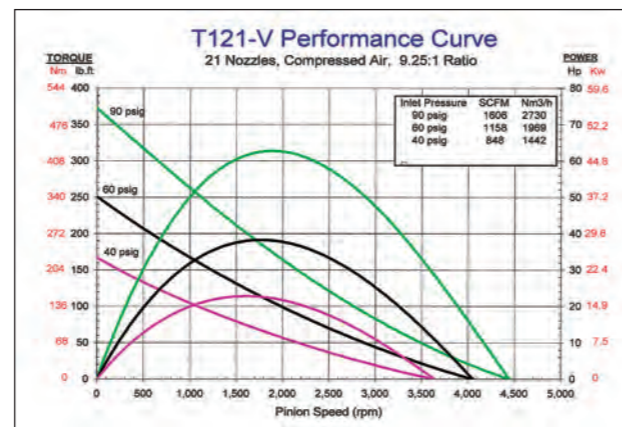
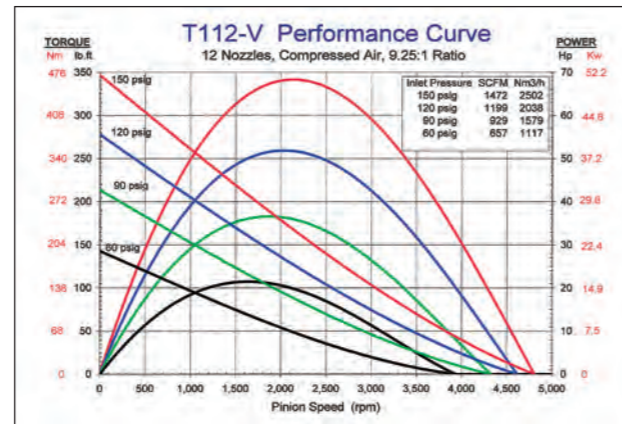
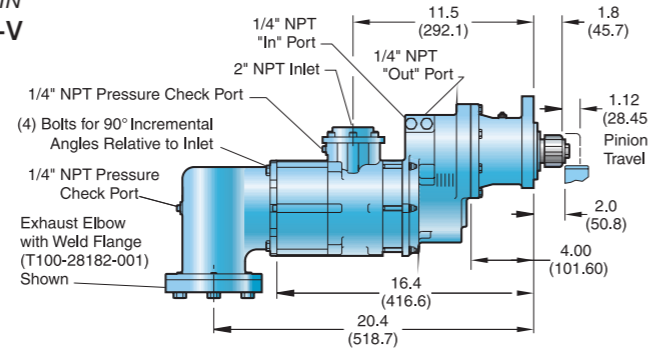
For Pre-Engaged
and Small-Space
Mounting
Environments

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



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.

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)	68 hp (50.75 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)		

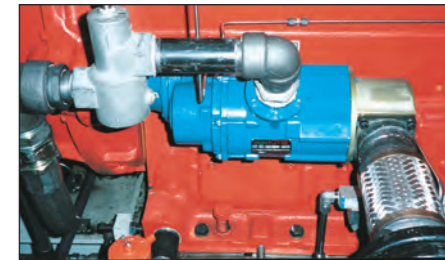
Operating Pressure Range:

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.

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

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.)

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.)



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

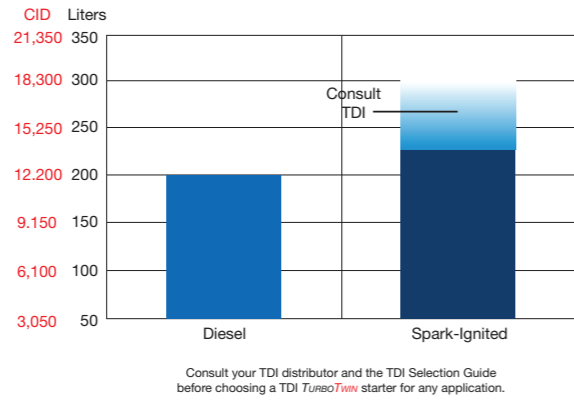
TURBOTWIN™ Engine Air Starters

The Most Popular T100 Configurations



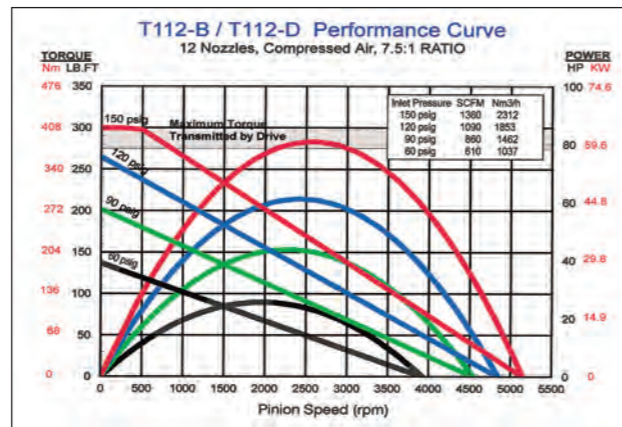
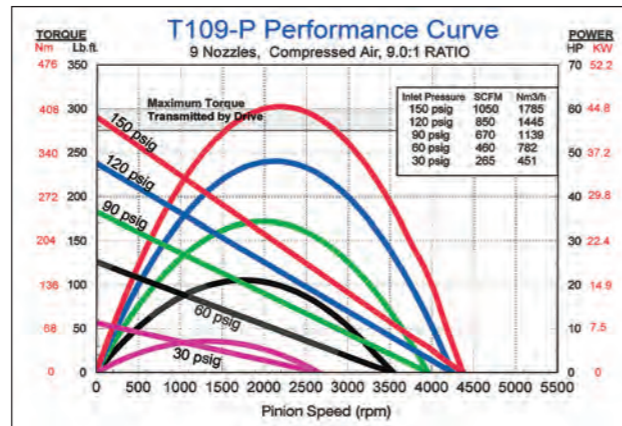
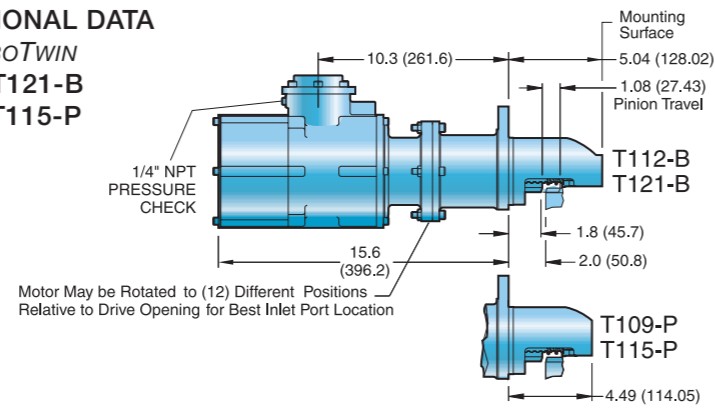
TDI turbine designs feature larger air channels to optimize starting power.

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:	T112-B/T121-B: 7.5:1 T109-P: 9.0:1
Horsepower:	T112-B: 80 hp (60 kW) Cranking Power at 150 psig (10.3 BAR) Max. T121-B: 80 hp (60 kW) Cranking Power at 90 psig (6.2 BAR) Max. T109-P: 60 hp (41 kW) Cranking Power at 150 psig (10.3 BAR) Max.	Custom:	Other models and configurations available. Consult your local TDI distributor.
Weight:	48 lbs. (22 kg)		

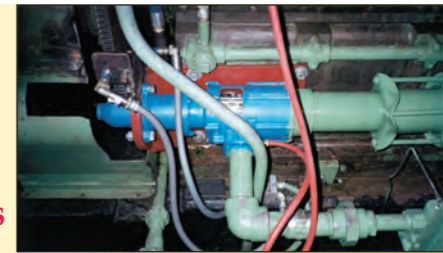
Operating Pressure Range:

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.

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

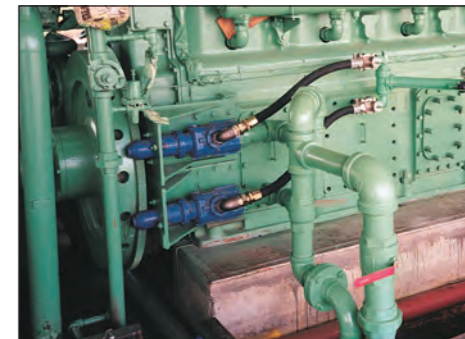


Power and Reliability for Engines up to 300 Liters and Larger.

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.



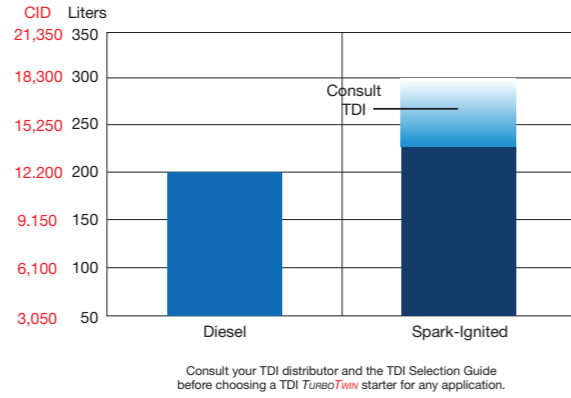
T100-B dual starter mounted on a Worthington SL-10. Simple installation, power and reliability make the T100-B ideal for starting engines up to 300 liters.

Specifications:

T100-D TURBOTWIN™ Engine Air Starters



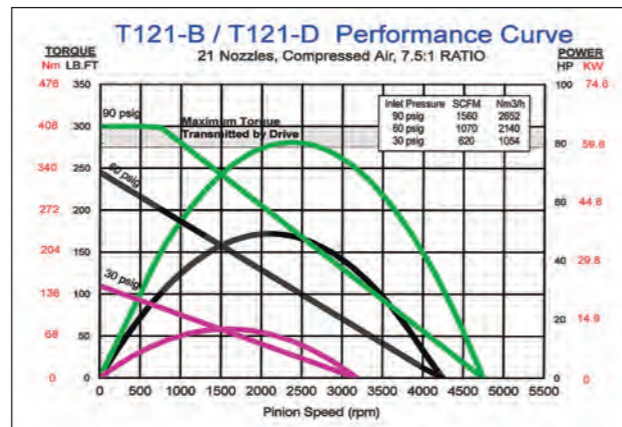
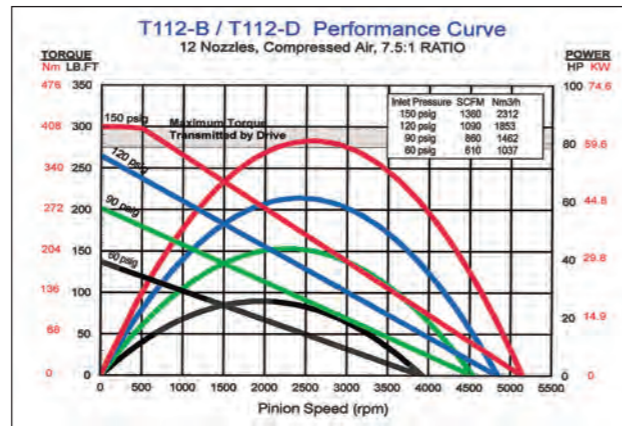
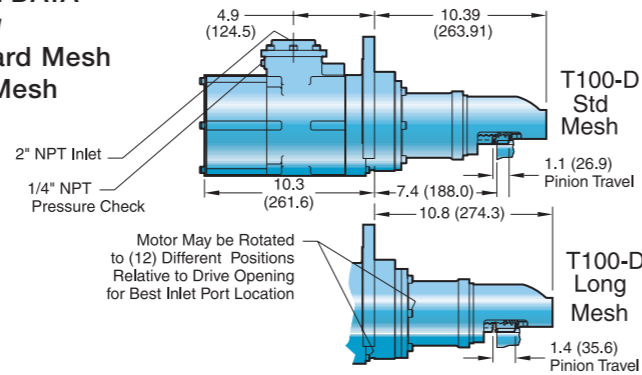
Engine Displacement Chart For T100-B/D/P Series Air Starters



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:		Custom:	Other models and configurations available. Consult your local TDI distributor.
T112-D:	80 hp (60 kW) Max. at 150 psig (10.3 BAR)		
T121-D:	80 hp (60 kW) Max. at 90 psig (6.2 BAR)		
Weight:	70 lbs. (32 kg)		

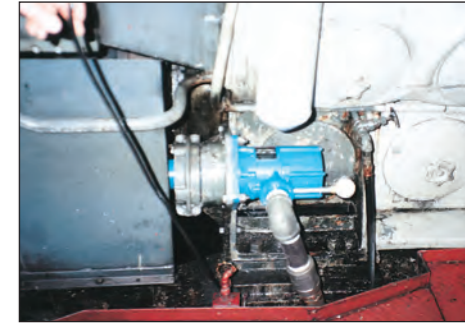
Operating Pressure Range:

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.

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

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.

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.

Specifications:

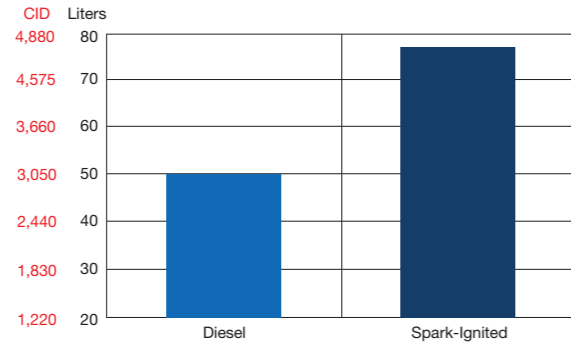
T100-F TURBOTWIN™ Engine Air Starters

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.

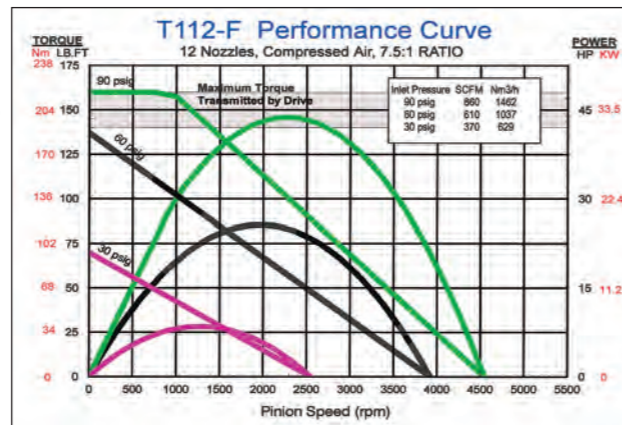
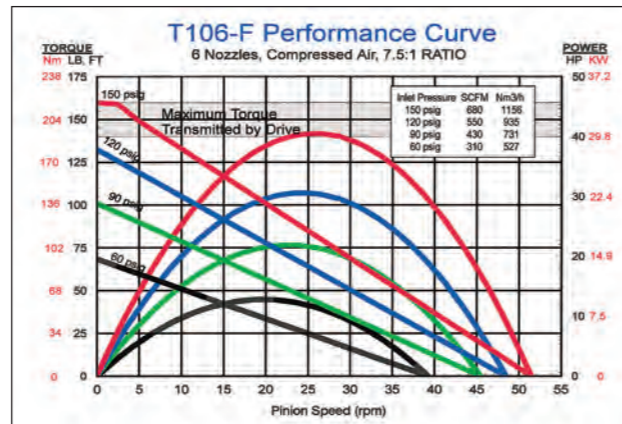
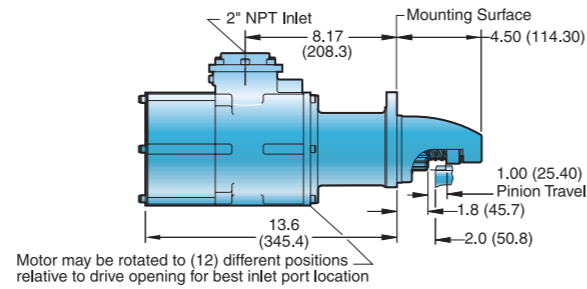
Engine Displacement Chart For T100-F Series Air Starters



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 sizes 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:		Custom:	Other models and configurations available. Consult your local TDI distributor.
T106-F:	44 hp (33 kW) Max. at 150 psig (10.3 BAR)	T112-F:	44 hp (33 kW) Max. at 90 psig (6.2 BAR)
Weight:	42 lbs. (19 kg)		

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.

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

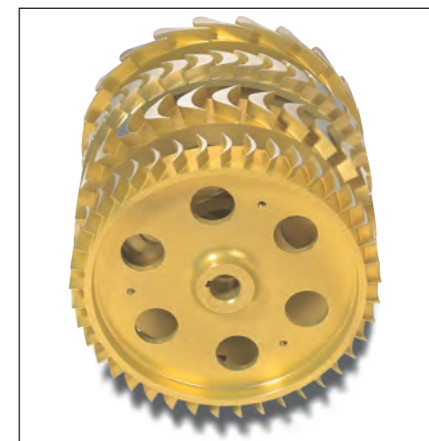


T106-F installed on Caterpillar 3412 engine.

T100-F Provides Big Cranking Power in a Small Package



T100-F installed on Detroit Diesel 16V2000 engine.



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

The T50 Turbine Air Starter delivers 40 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.

40 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

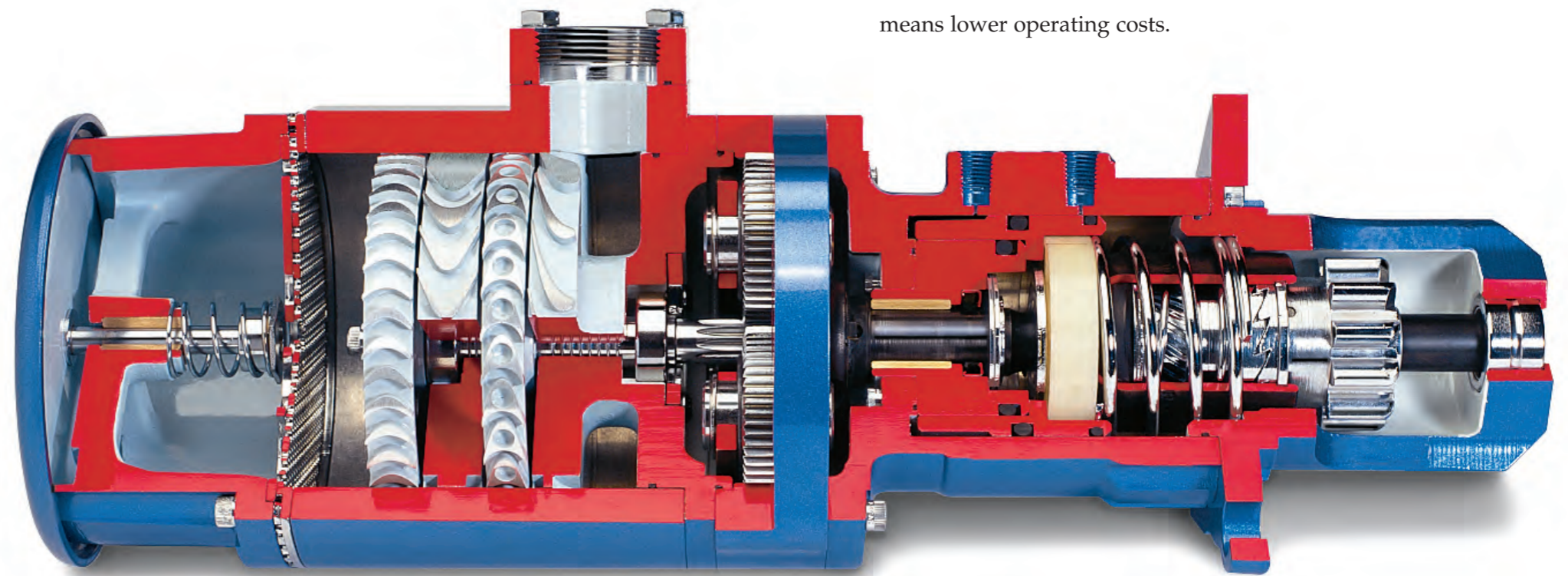
tolerances. There's no cutting corners, and definitely no plastic parts as used in other turbine air starters.

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.



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

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.

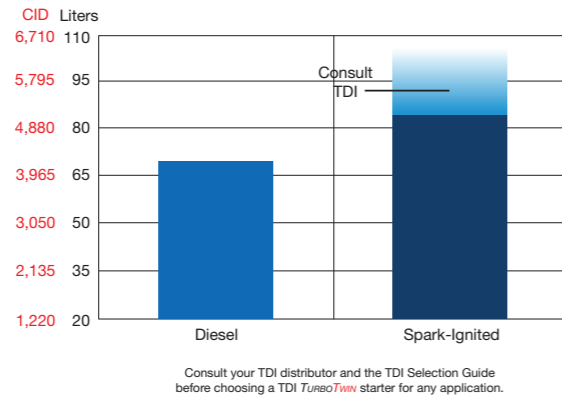
Lightweight, low-inertia, rotating elements provide "soft engagement"...extending the life of both ring and pinion gears

Specifications:

T50-P TURBOTWIN™ Engine Air Starters



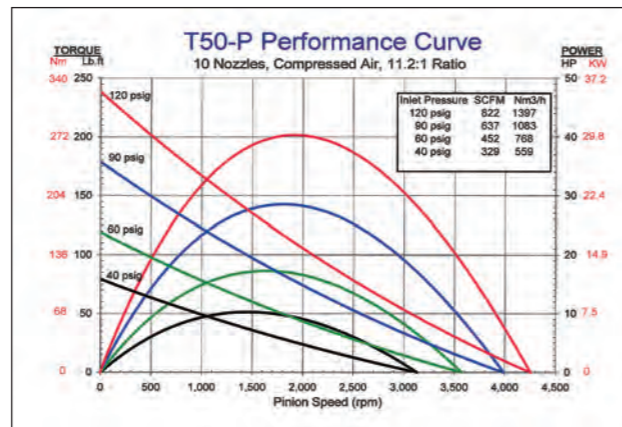
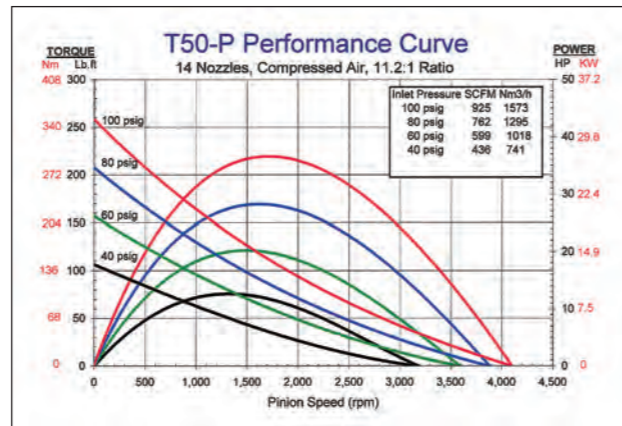
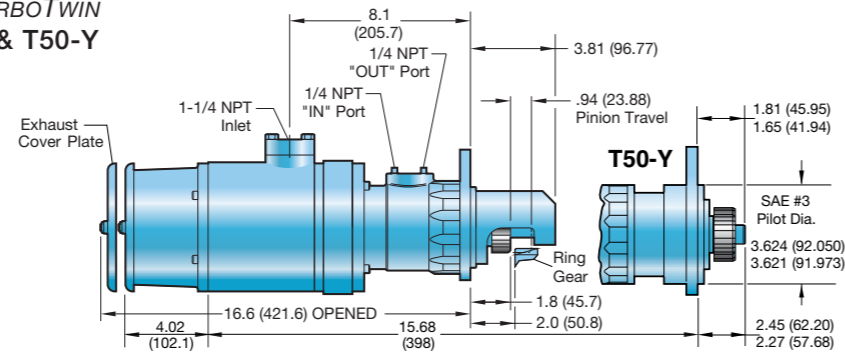
Engine Displacement Chart For T50 Series Air Starters



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.

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

DIMENSIONAL DATA TDI TURBOTWIN T50-P & T50-Y



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

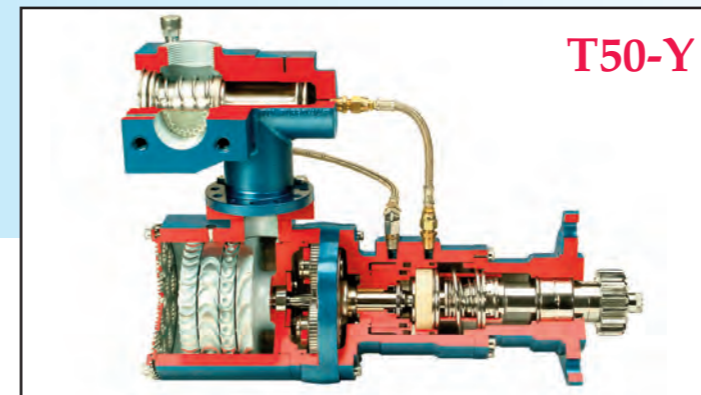
SPECIFICATIONS

- Engines:** Starts Engines up to 70 Liters (4200 CID)
- Rotation:** (Facing Pinion Orientation) Righthand/clockwise and Lefthand/counter clockwise
- Design Configuration:** Inline; Pre-Engaged
- Common Pinion Configuration:** 6/8 Pitch, 11 Tooth
- Mounting:** SAE 3
- Air Supply:** Compressed Air or Natural Gas
- Horsepower: Standard:** 40 hp (30 kW) Max. at 120 psig (8.3 BAR)
- Lubrication:** Grease-Packed For Life, None Required
- Low Pressure:** 35 hp (26 kW) Max. at 100 psig (6.9 BAR)
- Gear Ratio:** 11.2:1
- Weight/Size: T50-P**
34 lbs. (15.4 kg), 6" diameter (152 mm)
- T50-Y**
38 lbs. (17.2 kg), 6" diameter (152 mm)

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.

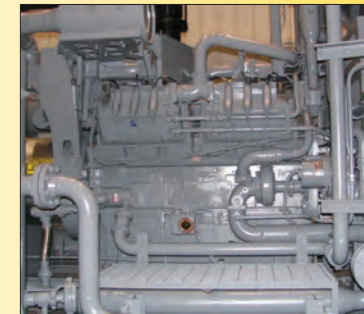


FOR ENGINE COMPATIBILITY AND STARTER REPLACEMENT INFORMATION, SEE TABLE ON PAGE 31 OR CONSULT YOUR TDI DISTRIBUTOR.

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.



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

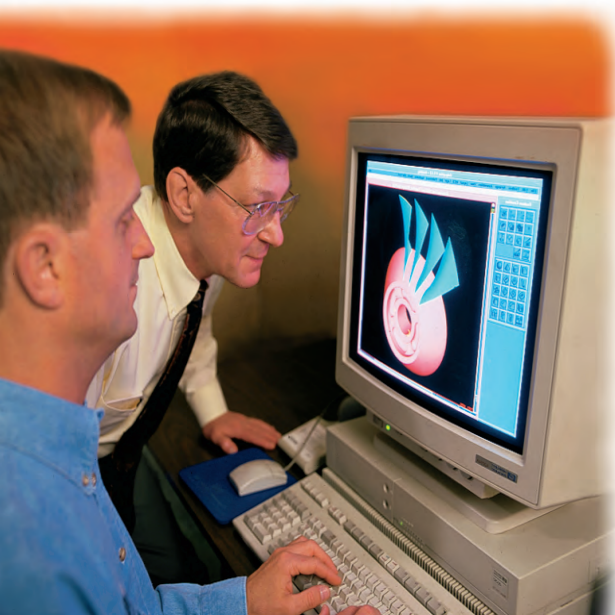


At only 34 lbs., one-person installation is a reality.

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, overhung pinion for European engines.

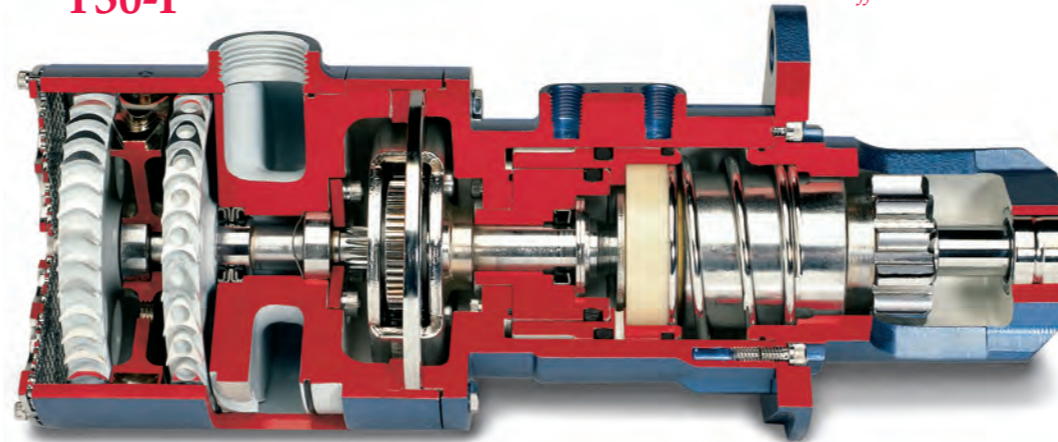
Lightweight.

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.

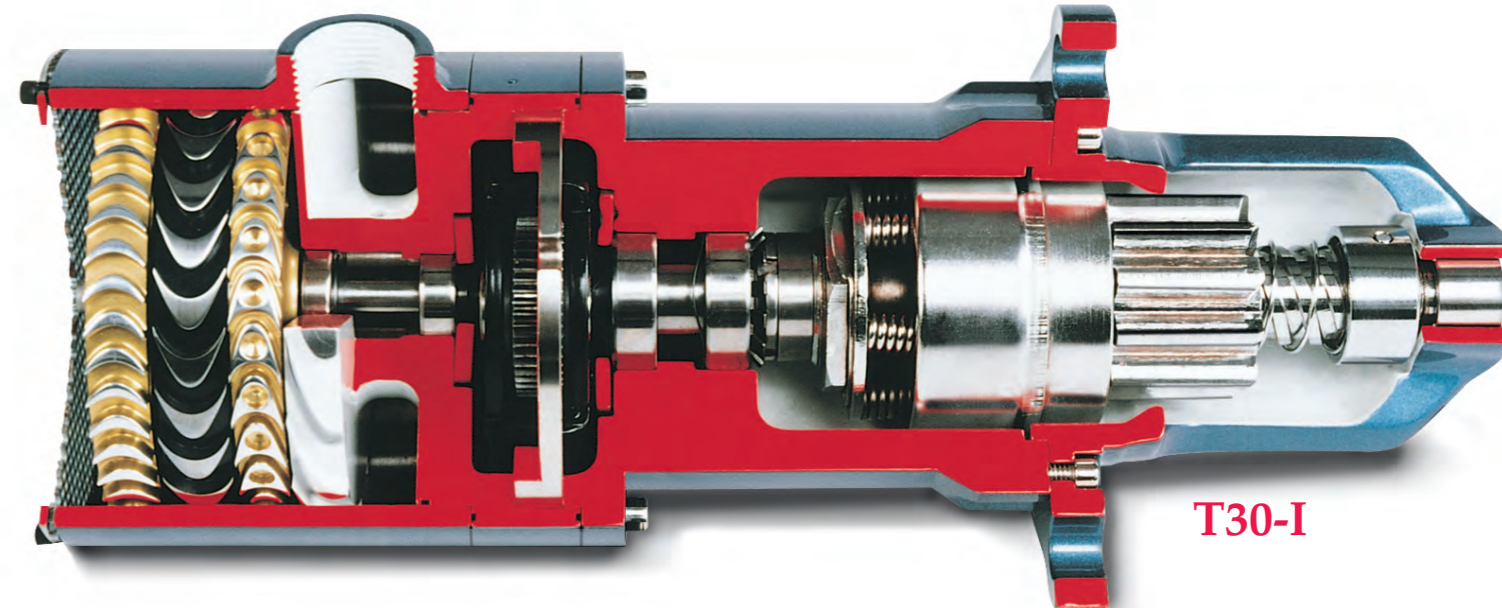
are made of high-strength steel and aluminum alloys that deliver significantly longer life than other similar-size starting systems.

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.



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.

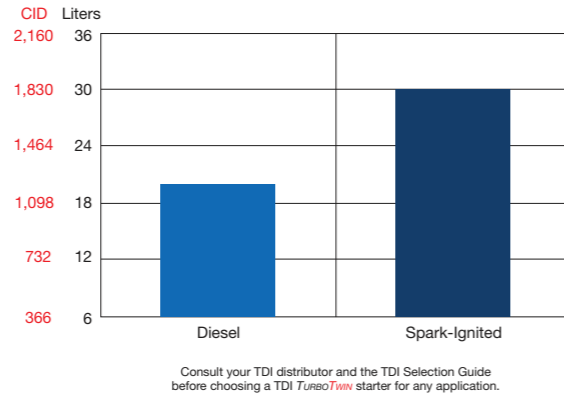
T30-I

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

Specifications:

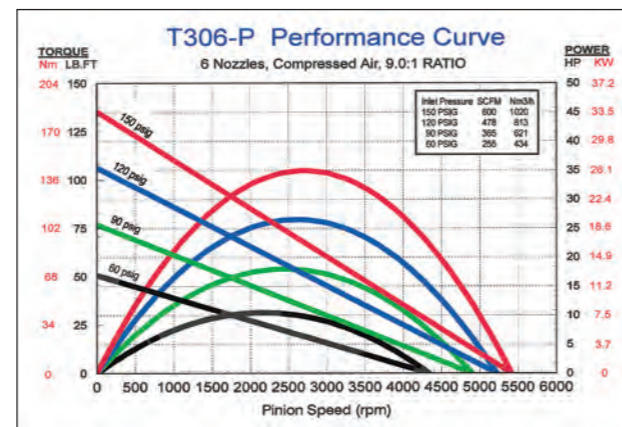
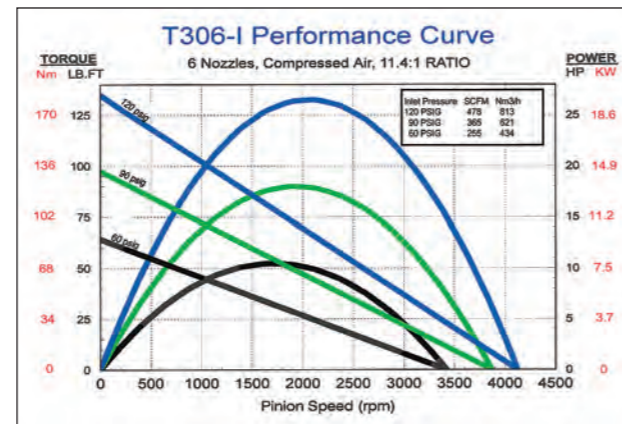
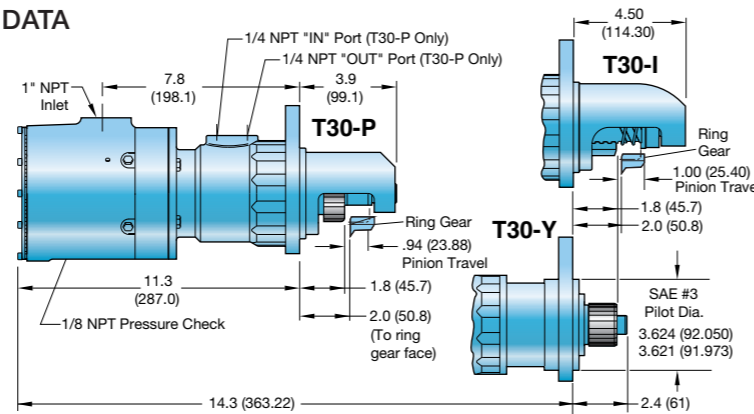
T30-I T30-P and T30-Y TURBOTWIN™ Engine Air Starters

Engine Displacement Chart For T30 Series Air Starters



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



SPECIFICATIONS

Engines:	Starts Engines up to 20 Liters (1200 CID)	Rotation:	(Facing Pinion Orientation) Righthand/clockwise and Lefthand/counter clockwise
Design Configuration:	T30-I Inertia-Engaged T30-P Pre-Engaged T30-Y Pre-Engaged - Overhung	Air/Gas Supply:	Compressed Air or Natural Gas
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:	21 hp (15.65 kW) Cranking Power at only 120 psig (8 BAR) 34 hp (25.4 kW) Max.	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)		

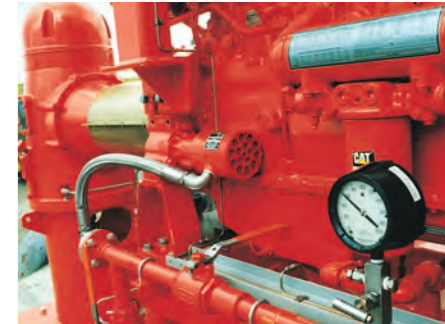
Operating Pressure Range:

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'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 Unequalled Reliability



Model T306-P on Luggar Marine Diesel Engine



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

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

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!

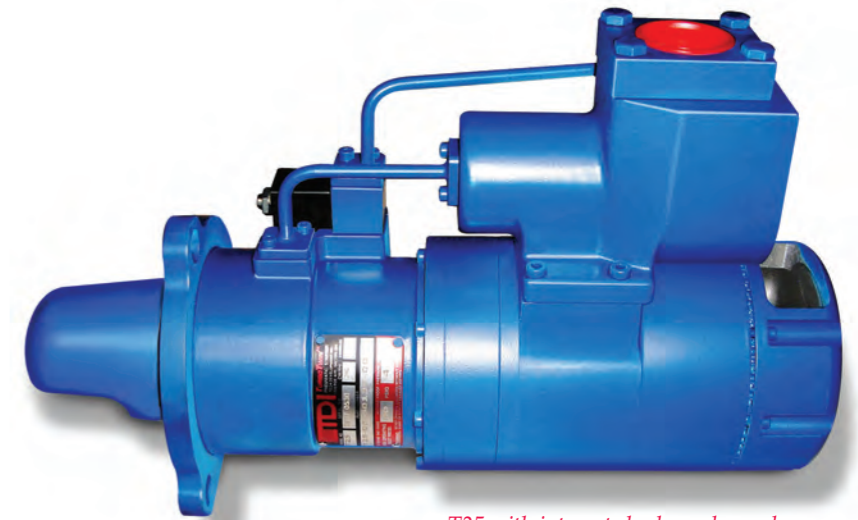
Users have been amazed at how easy it is to upgrade to TurboTwin. Installation is literally attaching one hose, connecting two wires, and screwing in three bolts.

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."

Integrated controls for easy installation.

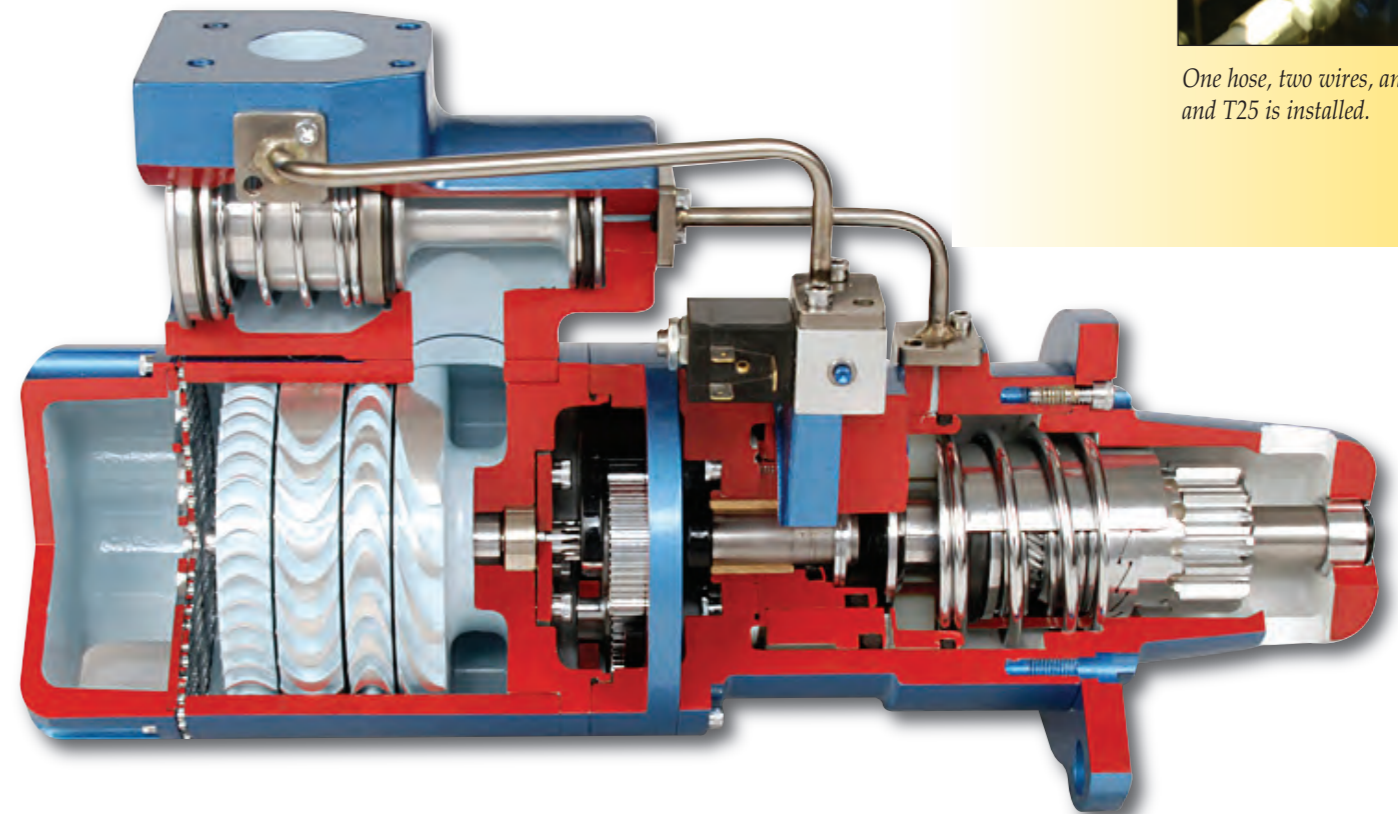


T25 with integrated relay valve makes starter installation a 2-3 minute operation.

Switching to T25 is an Easy and Fast Operation.



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



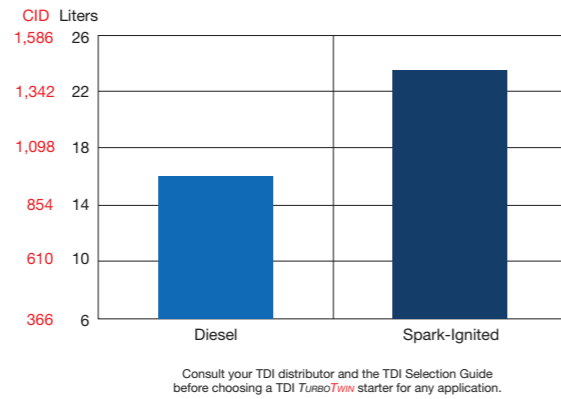
Specifications:

T25

TURBOTWIN™ Engine Air Starters

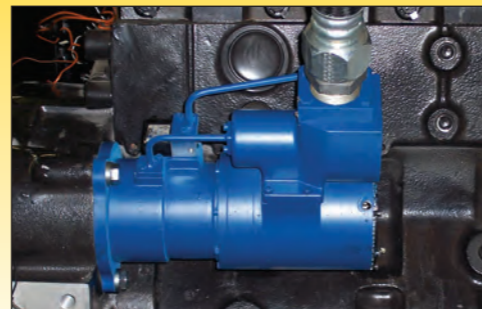
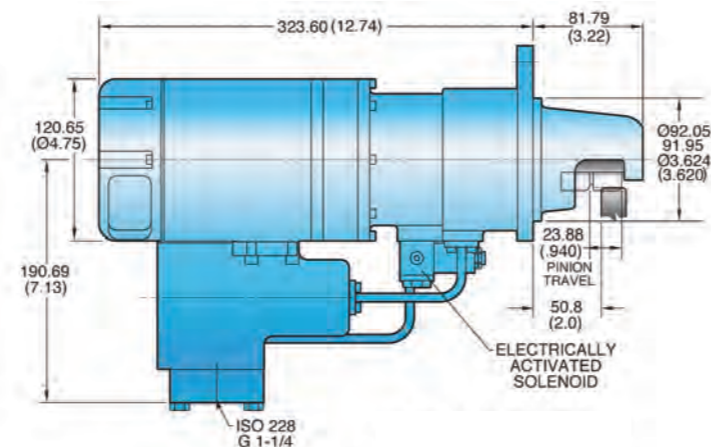
Ideal for 6–16 Liter
Marine Engines

Engine Displacement Chart For T25 Series Air Starters



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.

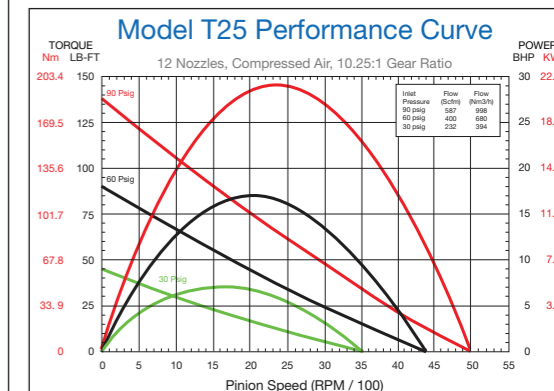
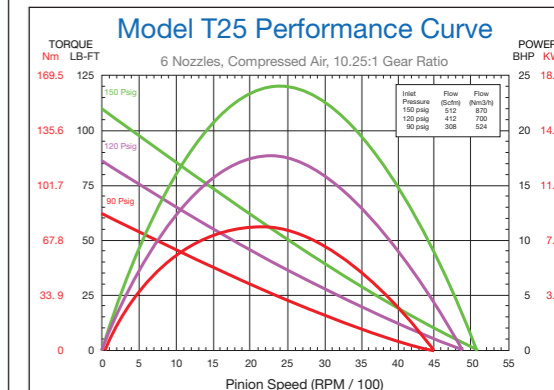
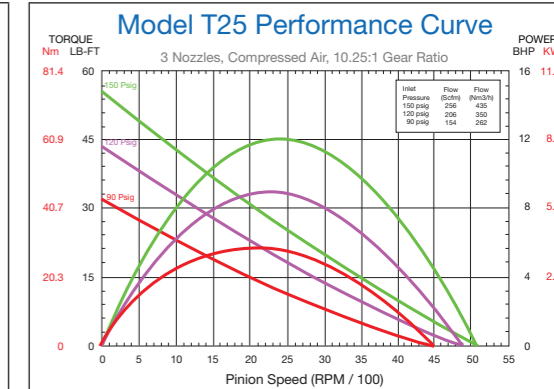
SPECIFICATIONS

- 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
- Common Pinion Configuration:** MTU 8/10 Pd /12T (Special)
Std. 8/10 Pd / 12T
3 MOD: 9T
3 MOD: 11T
- Air/Gas Supply:** Air only
- Lubrication:** Grease-Packed for Life
- 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)
- Gear Ratio:** 10.25:1

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.

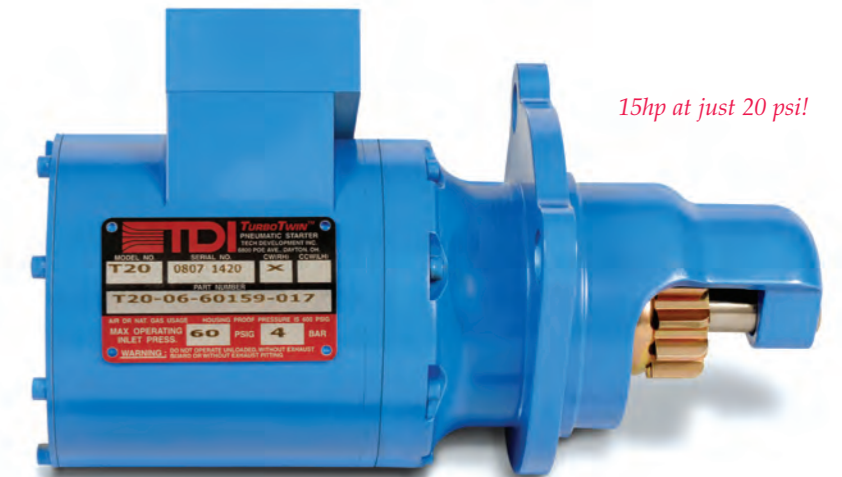
TDI engineers did everything possible to help end users tired of electric and vane-type starters to upgrade to turbine technology. Compare specs, size, air requirements, footprints, and exhaust options. Improving reliability and performance is seamless with T20.

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.”



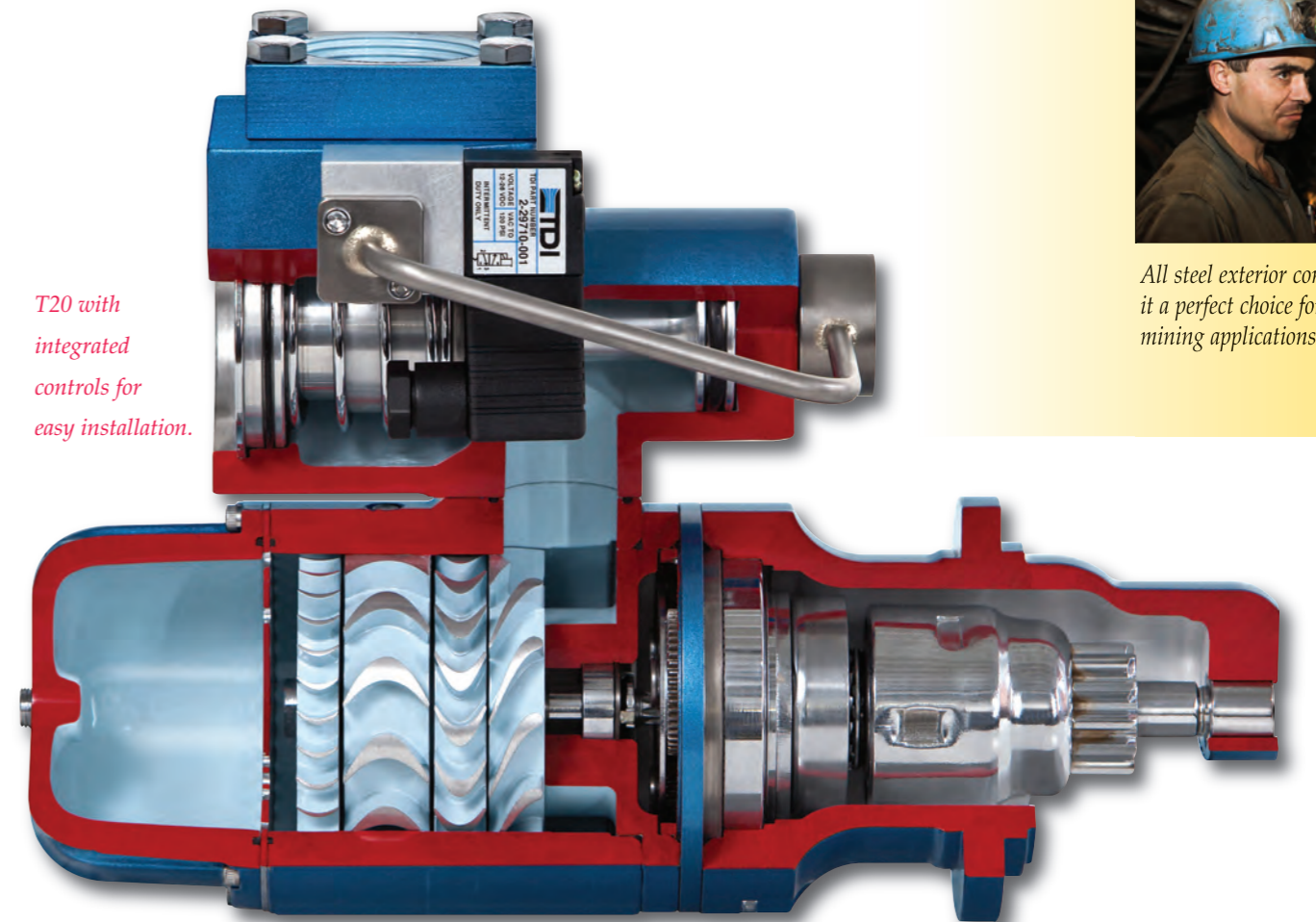
Motors ranging from as small as 6 inches long.



T20 Was Also



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



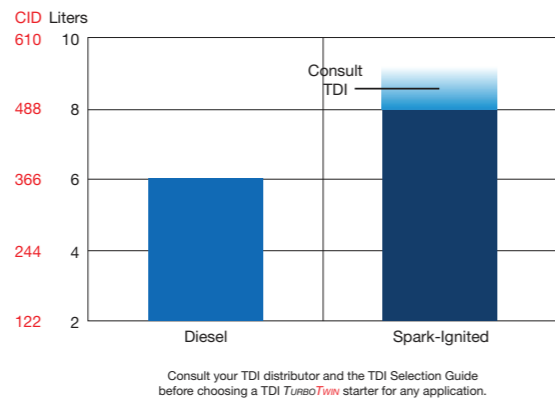
T20 with integrated controls for easy installation.

Specifications:

T20 Turbine Air Starters

Ideal Solution for Low Pressure Gas Fields & Underground Mining

Engine Displacement Chart For T20 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.

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

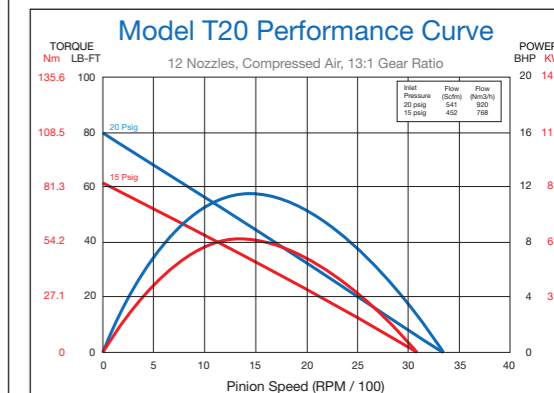
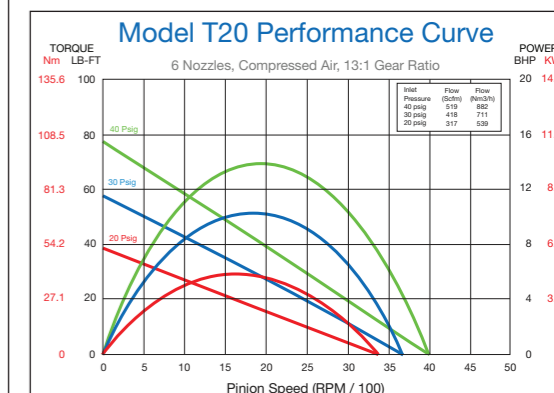
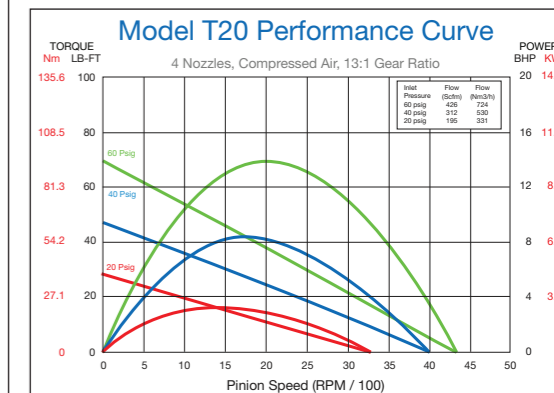
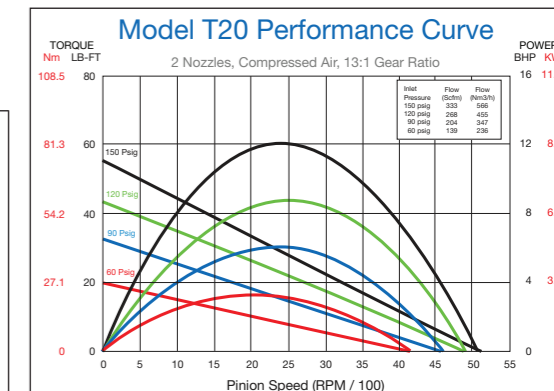
- Engines:** 6 Liters and Under
John Deere 4045
Cummins 5.9
Caterpillar 3304 and 3306
Ford 460
GM 454
Continental TM27
- Weight:** SAE #4 with Inlet 18 lbs (8.2 kg)
SAE #3 with Relay Valve 22.5 lbs. (10.2 kg)
- Rotation:** RH & LH
- Design Configuration:** Inertia-Engaged
- Air/Gas Supply:** Compressed Air or Natural Gas
- Lubrication:** Grease-Packed for Life, None Required
- Common Pinion Configuration:** Std. 8/10 Pd / 12T
Std. 8/10 Pd / 10T
10 Pd / 10T
10 PD / 11T
- 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

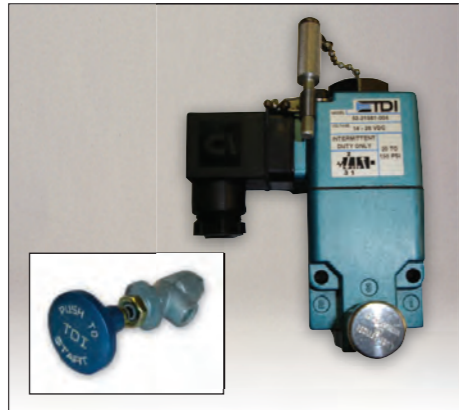
For applications in the 15–30 psig (1–2.1 BAR) range, consult your TDI distributor for best nozzle configuration.

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

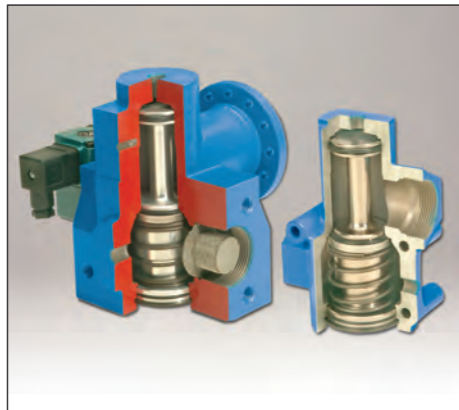


TURBOTWIN™ Valves and Accessories

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.



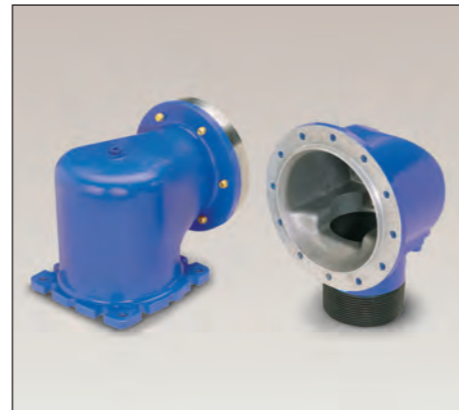
TurboValve Air Control Relay Valves
Both manual and electrical pilot-operated TurboValves feature high flow capacity which reduces pressure drop through the valve, making it versatile for a wide range of applications. The electrical version features an integrated solenoid eliminating extra plumbing and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



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



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



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



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

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.