TDI TurboTwin™
Air Starters For
Marine Applications

TurboTwin: The Only Turbine Air Starter That Thrives On Salt Water.

www.tdi-turbotwin.com
At Sea or in Fresh Water, Anything Less Than a TurboTwin™ Starter is a Compromise.

Nothing lasts as long as a TurboTwin.

Salt water, wetness, and humidity destroy your engine and its components. Wouldn’t it be nice to have one piece of equipment you didn’t have to worry about?

That’s what we thought when we designed TurboTwin Turbine Air Starters for marine applications. Our vaneless design has no rubbing vanes to stick, swell, or wear out—salt air, wetness, contaminated air and humidity do not affect the TurboTwin. Our unique open air path design features extremely large openings allowing contaminants to be flushed out with every start instead of lodging inside as they do on competitive models.

TurboTwin blade designs optimize air throughput for greater starting power.
No Lubrication. No Mess
TurboTwins are grease-packed for life. That means no lubrication, no oily mess.

On The Water Is No Place For Problems
Your work—even your life—is at risk on the open water. Starter reliability is critical. Why not step up to the starter that delivers more cranks, requires less maintenance, has the design and part quality to last longer than any other starter on the water?

Contamination — No Problem
Pipe Scale. Salt Water. Corrosion. Other starter manufacturers don’t like to talk about these subjects. TurboTwin air starters for marine applications are specifically designed to handle them. No starter tolerates contamination as does the TurboTwin.

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

An Air Supply That Lasts Longer At Sea Can Be Critical
On the water, there’s no place to go if you run out of air. TurboTwin offers the most power and torque per unit of air. That’s efficiency. That’s TurboTwin reliability.

High-Performance TurboTwin Starters are the long-lasting alternative to vane-type starters.
Unparalleled aerodynamic elements manufacturing experience makes TurboTwin the leader in power and reliability.

**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.

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.

T100-V (Pre-Engaged)

T100-B (Inertia)

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.
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.

Specifications:

**T100-V**

**TURBOTWIN™**

Engine Air Starters

For Pre-Engaged and Small-Space Mounting Environments

---

**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) |
| Design Configuration: | Pre-Engaged; Offset; Overhung |
| Common Pinion Configurations: | 6/8 Pitch, 12 Tooth, 3.5 Module, 15 Tooth, 6/8 Pitch, 15 Tooth |
| Air/Gas Supply: | Compressed Air or Natural Gas |
| Lubrication: | Grease-Packed For Life, None Required |
| Gear Ratio: | 9.25:1 |
| Custom: | Other models and configurations available. Consult your local TDI distributor. |
| Rotation: | (Facing Pinion Orientation) Right-hand/counter clockwise |
|  | Left-hand/clockwise |
| Rotation: | SAE 3 Mounting Flange |
| Horsepower: (on Methane) | 68 hp (50.75 kW) Cranking Power at only 150 psig (10.3 BAR) |
| Weight: | 54 lbs. (23 kg) |

**Operating Pressure Range:**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>NOZZLES</th>
<th>PSI</th>
<th>BAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>T112-V</td>
<td>12 (standard)</td>
<td>40 – 150</td>
<td>2.7 – 10.3</td>
</tr>
<tr>
<td>T121-V</td>
<td>21 (low pressure)</td>
<td>40 – 90</td>
<td>2.7 – 6.2</td>
</tr>
</tbody>
</table>

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

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.

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

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

<table>
<thead>
<tr>
<th>CID Liters</th>
<th>Diesel</th>
<th>Spark-Ignited</th>
</tr>
</thead>
<tbody>
<tr>
<td>21,350</td>
<td>350</td>
<td>300</td>
</tr>
<tr>
<td>18,300</td>
<td>300</td>
<td>250</td>
</tr>
<tr>
<td>15,250</td>
<td>250</td>
<td>200</td>
</tr>
<tr>
<td>12,200</td>
<td>200</td>
<td>150</td>
</tr>
<tr>
<td>9,150</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>6,100</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>3,050</td>
<td>50</td>
<td>0</td>
</tr>
</tbody>
</table>

For low-pressure version curve, see T121-D performance curve on page 10.
T100-B/P’s grease-packed for life feature eliminates wear, reduces maintenance, and delivers a significantly longer starting life.

For engine compatibility and starter replacement information, see table on page 31 or consult your TDI distributor.

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

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

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

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

**DIMENSIONAL DATA**

TDI TurboTwin

T100-D Standard Mesh

T100-D Long Mesh

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.
SPECIFICATIONS

| Engines:         | Starts Engines up to 250 Liters (15,000 CID) |
| Design Configuration: | Inline; Inertia-Engaged |
| Common Pinion Configuration: | 6/8 Pitch, 12 Tooth (2 inch pitch diameter pinion) |
| Mounting:        | SAE D-Style Flange |
| Horsepower:      | 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) |

| Rotation:         | (Facing Pinion Orientation) Righthand/clockwise and Lefthand/counter clockwise |
| Air/Gas Supply:   | Compressed Air or Natural Gas |
| Lubrication:      | Grease-Packed For Life, None Required |
| Gear Ratio:       | 7.5:1 |
| Custom:           | Other models and configurations available. Consult your local TDI distributor. |

Operating Pressure Range:

<table>
<thead>
<tr>
<th>MODEL</th>
<th>NOZZLES</th>
<th>PSI</th>
<th>BAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>T112-D</td>
<td>12</td>
<td>30 – 150</td>
<td>2 – 10.3</td>
</tr>
<tr>
<td>T121-D</td>
<td>21</td>
<td>30 – 90</td>
<td>2 – 6.2</td>
</tr>
</tbody>
</table>

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**

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

Motor may be rotated to (12) different positions relative to drive opening for best inlet port location.

**T106-F Performance Curve**

8 Nozzles, Compressed Air; 7:1 RATIO

**T112-F Performance Curve**

12 Nozzles, Compressed Air; 7:5:1 RATIO

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

<table>
<thead>
<tr>
<th>MODEL</th>
<th>NOZZLES</th>
<th>PSI</th>
<th>BAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>T106-F</td>
<td>6</td>
<td>60 – 150</td>
<td>4.1 – 10.3</td>
</tr>
<tr>
<td>T112-F</td>
<td>12</td>
<td>30 – 90</td>
<td>2 – 6.2</td>
</tr>
</tbody>
</table>

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 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.
Specifications:

T50-P

**TurboTwin™**

Engine 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.

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:** In-line, Pre-Engaged

**Common Pinion Configuration:** 6/8 Pitch, 11 Tooth

**Mounting:** SAE 3

**Horsepower:**
- **Standard:** 40 hp (30 kW) Max. at 120 psig (8.3 BAR)
- **Low Pressure:** 35 hp (26 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)

**Operating Pressure Range:**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>NOZZLES</th>
<th>PSI</th>
<th>BAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>T50-P/Y</td>
<td>8</td>
<td>40–150</td>
<td>2.7–10.3</td>
</tr>
<tr>
<td>T510-P/Y</td>
<td>10</td>
<td>40–120</td>
<td>2.7–8.3</td>
</tr>
<tr>
<td>T514-P/Y</td>
<td>14</td>
<td>40–100</td>
<td>2.7–6.9</td>
</tr>
</tbody>
</table>

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.

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

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
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.

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.

T30-I

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-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.
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.

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

<table>
<thead>
<tr>
<th>Engines: Starts Engines up to 20 Liters (1200 CID)</th>
<th>Rotation: (Facing Pinion Orientation) Right-hand/clockwise and Left-hand/counter clockwise</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design Configuration:</strong></td>
<td><strong>Air/Gas Supply:</strong> Compressed Air or Natural Gas</td>
</tr>
<tr>
<td>T30-I Inertia-Engaged</td>
<td><strong>Common Pinion Configurations:</strong> 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</td>
</tr>
<tr>
<td>T30-P Pre-Engaged</td>
<td><strong>Lubrication:</strong> Grease-Packed For Life, None Required</td>
</tr>
<tr>
<td>T30-Y Pre-Engaged - Overhung</td>
<td><strong>Gear Ratio:</strong> T30-I 11:4 T30-P/Y 9:1</td>
</tr>
<tr>
<td><strong>Mounting:</strong> SAE 3 Flange SAE 1 Flange (for P only)</td>
<td><strong>Custom:</strong> Other models and configurations available. Consult your local TDI distributor.</td>
</tr>
<tr>
<td><strong>Horsepower:</strong> 21 hp (15.65 kW) Cranking Power at only 120 psig (8 BAR) 34 hp (25.4 kW) Max.</td>
<td><strong>Weight:</strong> T30-I 29 lbs. (13.2 kg) T30-P 32 lbs. (14.5 kg) T30-Y 32 lbs. (14.5 kg)</td>
</tr>
</tbody>
</table>

| Operating Pressure Range: |  |
|---|---|---|---|
| **MODEL** | **NOZZLES** | **PSI** | **BAR** |
| T30-I | 3 (for Small Engines) | 150 | 10.3 |
| T306-I | 8 (Standard) | 120 | 8.3 |
| T312-I | 12 (Low Pressure) | 80 | 4.1 |
| T308-P/Y | 3 (for Small Engines) | 150 | 10.3 |
| T308-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.**
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.”

Switching to T25 is an Easy and Fast Operation.

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

Integrated controls for easy installation.

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

**T25 TURBOTWIN™ Engine Air Starters**

Ideal for 6–16 Liter Marine Engines

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.

---

**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.

---

**DIMENSIONAL DATA**

<table>
<thead>
<tr>
<th>TDI</th>
<th>TURBOTWIN T25</th>
</tr>
</thead>
</table>

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

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 (6 BAR) @ 2300 rpm (12 Nozzle)

Operating Pressure Range:

<table>
<thead>
<tr>
<th>MODEL</th>
<th>NOZZLES</th>
<th>PSI</th>
<th>BAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>T25</td>
<td>3</td>
<td>150</td>
<td>10.3</td>
</tr>
<tr>
<td>T25</td>
<td>6</td>
<td>150</td>
<td>10.3</td>
</tr>
<tr>
<td>T25</td>
<td>12</td>
<td>90</td>
<td>4.1</td>
</tr>
</tbody>
</table>

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.
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.

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.

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.

Efficient Exhaust Design with Many Configurations.
Exhaust configurations are available for the many applications customers might require.

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

**T20 Was Also Designed for Underground Mining Machines.**

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

**Motors ranging from as small as 6 inches long.**

15hp at just 20 psi!
Specifications:

T20 Turbine Air Starters

Ideal Solution for Low Pressure Gas Fields & Underground Mining

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)

**Design Configuration:**
- Inertia-Engaged

**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:**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>NOZZLES</th>
<th>PSI</th>
<th>BAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>T20</td>
<td>2</td>
<td>150</td>
<td>10.3</td>
</tr>
<tr>
<td>T20</td>
<td>4</td>
<td>60</td>
<td>4.1</td>
</tr>
<tr>
<td>T20</td>
<td>6</td>
<td>40</td>
<td>2.8</td>
</tr>
<tr>
<td>T20</td>
<td>12</td>
<td>20</td>
<td>1.4</td>
</tr>
</tbody>
</table>

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.**
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.
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

<table>
<thead>
<tr>
<th>3 - 20</th>
<th>ARROW</th>
<th>VRG220 VRG330</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATERPILLAR</td>
<td>3044 3304</td>
<td>C7 3306</td>
</tr>
<tr>
<td>CUMMINS</td>
<td>QSB6.5 B5.9</td>
<td>QSB6.7 6C8.3</td>
</tr>
<tr>
<td>DEUTZ</td>
<td>912 913</td>
<td>914 1013</td>
</tr>
<tr>
<td>FORD</td>
<td>300</td>
<td>460</td>
</tr>
<tr>
<td>GENERAL MOTORS</td>
<td>350 496</td>
<td>454 502</td>
</tr>
<tr>
<td>JOHN DEERE</td>
<td>4045 6081</td>
<td>6068</td>
</tr>
<tr>
<td>MAN</td>
<td>D2842 D2866</td>
<td></td>
</tr>
<tr>
<td>MTU</td>
<td>BR1600</td>
<td></td>
</tr>
<tr>
<td>SCANIA</td>
<td>D12 D16</td>
<td></td>
</tr>
<tr>
<td>CATERPILLAR</td>
<td>C9 C11 C15 3406 3408</td>
<td></td>
</tr>
<tr>
<td>CUMMINS</td>
<td>QSM11 N14 QSX15 QSK19</td>
<td></td>
</tr>
<tr>
<td>DETROIT DIESEL</td>
<td>6V92 8V2000 SERIES 60</td>
<td></td>
</tr>
<tr>
<td>WAUKESHA</td>
<td>F19G F119G F817G 6GAK</td>
<td></td>
</tr>
<tr>
<td>DEUTZ</td>
<td>1015 1017</td>
<td></td>
</tr>
<tr>
<td>SCANIA</td>
<td>D11 Series D14 Series</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>20 - 70</th>
<th>CATERPILLAR</th>
<th>C27 C32 3412 3508 3512</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUMMINS</td>
<td>QST30 QSK45</td>
<td>QSK50 QSK60</td>
</tr>
<tr>
<td>WAUKESHA</td>
<td>H24G L36</td>
<td>P48G F1905G</td>
</tr>
<tr>
<td>DEUTZ</td>
<td>912 913</td>
<td>914 1013</td>
</tr>
<tr>
<td>FORD</td>
<td>300</td>
<td>460</td>
</tr>
<tr>
<td>GENERAL MOTORS</td>
<td>350 496</td>
<td>454 502</td>
</tr>
<tr>
<td>JOHN DEERE</td>
<td>4045 6081</td>
<td>6068</td>
</tr>
<tr>
<td>MAN</td>
<td>D2842 D2866</td>
<td></td>
</tr>
<tr>
<td>MTU</td>
<td>BR1600</td>
<td></td>
</tr>
<tr>
<td>SCANIA</td>
<td>D12 D16</td>
<td></td>
</tr>
<tr>
<td>CATERPILLAR</td>
<td>G3606 G3608 G3612 (2) G3616 (2) C280</td>
<td></td>
</tr>
<tr>
<td>COOPER SUPERIOR</td>
<td>1700 Series 825 Series</td>
<td>2400 Series</td>
</tr>
<tr>
<td>COOPER AJAX</td>
<td>DPC-280 DPC-230 DPC-250 DPC-325</td>
<td></td>
</tr>
<tr>
<td>WAUKESHA</td>
<td>L5788 L7042G</td>
<td>L7040G L7044G</td>
</tr>
<tr>
<td>GE</td>
<td>V228 Series V250 Series</td>
<td></td>
</tr>
<tr>
<td>GE JENBACHER</td>
<td>J612GSE111 J616GSE111 J620CGE 624GS</td>
<td></td>
</tr>
<tr>
<td>MAN</td>
<td>L20/27 L23/30 L27/38 L28/32</td>
<td></td>
</tr>
<tr>
<td>WAUKESHA</td>
<td>8L-AT27G 12VAT25G</td>
<td>12VAT27G 12VAT27G (2)</td>
</tr>
</tbody>
</table>

Above 70

<table>
<thead>
<tr>
<th>70</th>
<th>COOPER AJAX</th>
<th>DPC-280 DPC-600 DPC-800</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAUKESHA</td>
<td>L5788 L7042G</td>
<td>L7040G L7044G</td>
</tr>
</tbody>
</table>

| TURBO TWIN™ Air Starters Selection Guide |

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

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.

Distributed By:

TDI

TECH DEVELOPMENT

Anything Less Than a TurboTwin Air Starter is a Compromise

6800 Poe Ave.
Dayton, OH 45414
Tel: 937-898-9600
Fax: 937-898-8431
www.tdi-turbotwin.com