TDI TurboTwin™
AIR STARTERS FOR
MINING APPLICATIONS

Lightweight, Powerful Turbine Air Starters That Last Longer And Require No Maintenance

www.tdi-turbotwin.com
For Mine Haul Trucks, Anything Less Than a TurboTwin™ Starter is a Compromise.

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.

Nothing lasts as long as a TurboTwin.

TurboTwin blade designs optimize air throughput for greater starting power.
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.

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.

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.

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.

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.

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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.

**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.

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**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.
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 TurboTwin™ Engine Air Starters**

For Pre-Engaged and Small-Space Mounting Environments

**Engine Displacement Chart**

- **For T100-V/VE/DP Series Air Starters**

<table>
<thead>
<tr>
<th>CID Liters</th>
<th>Diesel</th>
<th>Spark-Ignited</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.875</td>
<td>375</td>
<td></td>
</tr>
<tr>
<td>20.130</td>
<td>330</td>
<td></td>
</tr>
<tr>
<td>17.385</td>
<td>285</td>
<td></td>
</tr>
<tr>
<td>14.640</td>
<td>240</td>
<td></td>
</tr>
<tr>
<td>11.895</td>
<td>195</td>
<td></td>
</tr>
<tr>
<td>9.105</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>6.405</td>
<td>105</td>
<td></td>
</tr>
</tbody>
</table>

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

**DIMENSIONAL DATA**

TDI TurboTwin™

T112-V/T121-V

- **1/4" NPT Pressure Check Port**
- **1/4" NPT "Inlet" Port**
- **2" NPT Inlet" Port**
- **1/4" NPT Pressure Check Port**

Exhaust Elbow with Weld Flange (T105-208-001) Shown

- **1.8 (45.7)**
- **1.15 (29.45)**
- **2.0 (50.8)**
- **4.00 (101.60)**

**T112-V Performance Curve**

- 12 Nozzles, Compressed Air, 0.28:1 Ratio

**T121-V Performance Curve**

- 21 Nozzles, Compressed Air, 0.35:1 Ratio

The power of T100 in a pre-engaged package.
### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Engines:</th>
<th>Starts Engines up to 300 Liters (18,000 CID)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Configuration:</td>
<td>Pre-Engaged; Offset; Overhung</td>
</tr>
<tr>
<td>Common Pinion Configurations:</td>
<td>6/8 Pitch, 12 Tooth 3.5 Module, 15 Tooth 6/8 Pitch, 15 Tooth</td>
</tr>
<tr>
<td>Mounting:</td>
<td>SAE 3 Mounting Flange</td>
</tr>
<tr>
<td>Horsepower:</td>
<td>68 hp (50.75 kW)</td>
</tr>
<tr>
<td>Cranking Power:</td>
<td>at only 150 psig (10.3 BAR)</td>
</tr>
<tr>
<td>Weight:</td>
<td>54 lbs. (23 kg)</td>
</tr>
<tr>
<td>Rotation:</td>
<td>(Facing Pinion Orientation) Right-hand/clockwise and Left-hand/counter clockwise</td>
</tr>
<tr>
<td>Air/Gas Supply:</td>
<td>Compressed Air or Natural Gas</td>
</tr>
<tr>
<td>Lubrication:</td>
<td>Grease-Packed For Life, None Required</td>
</tr>
<tr>
<td>Gear Ratio:</td>
<td>9.25:1</td>
</tr>
<tr>
<td>Custom:</td>
<td>Other models and configurations available. Consult your local TDI distributor.</td>
</tr>
</tbody>
</table>

**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.

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**

**TURBO TWIN™**

Engine Air Starters

The Most Popular T100 Configurations

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**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.

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**DIMENSIONAL DATA**

TDI TURBO TWIN

T112-B/T121-B

T109-P/T115-P

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

**Engines:**
Starts Engines from 50 (3000 CID) 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 3 Mounting Flange

**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.

**Weight:**
48 lbs. (22 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:**
- **T112-B/T121-B:** 7.5:1
- **T109-P:** 9.0:1

**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>T109-P</td>
<td>9</td>
<td>30–150</td>
<td>2–10.3</td>
</tr>
<tr>
<td>T112-B</td>
<td>12</td>
<td>60–150</td>
<td>4.1–10.3</td>
</tr>
<tr>
<td>T121-B</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.**
Specifications:

**T100-D TURBOTWIN™**

Engine Air Starters

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

**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 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**

T100-D Standard Mesh

T100-D Long Mesh

- 2" NPT Inlet
- 1/4" NPT Pressure Check
- Motor may be rotated to (12) different positions relative to drive opening for best inlet part location

**T102-B / T112-D Performance Curve**

12 Nozzles, Compressed Air, 7:1 Ratio

**T102-B / T112-D Performance Curve**

21 Nozzles, Compressed Air, 7:1 Ratio
**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Engines: Starts Engines up to 250 Liters (15,000 CID)</th>
<th>Rotation: (Facing Pinion Orientation) Righthand/clockwise and Lefthand/counter clockwise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Configuration: Inline; Inertia-Engaged</td>
<td></td>
</tr>
<tr>
<td>Common Pinion Configuration: 6/8 Pitch, 12 Tooth (2 inch pitch diameter pinion)</td>
<td>Air/Gas Supply: Compressed Air or Natural Gas</td>
</tr>
<tr>
<td>Mounting: SAE D-Style Flange</td>
<td>Lubrication: Grease-Packed For Life, None Required</td>
</tr>
<tr>
<td>Horsepower: T112-D: 80 hp (60 kW) Max. at 150 psig (10.3 BAR)</td>
<td>Gear Ratio: 7.5:1</td>
</tr>
<tr>
<td></td>
<td>Custom: Other models and configurations available. Consult your local TDI distributor.</td>
</tr>
<tr>
<td>Horsepower: T121-D: 80 hp (60 kW) Max. at 90 psig (6.2 BAR)</td>
<td></td>
</tr>
<tr>
<td>Weight: 70 lbs. (32 kg)</td>
<td></td>
</tr>
</tbody>
</table>

**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.**
Specifications:

**T100-F**

**TURBO TWIN™**

Engine Air Starters

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

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**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.

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**DIMENSIONAL DATA**

TDI TURBO TWIN

T106-F/T112-F

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

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

<table>
<thead>
<tr>
<th>Engines:</th>
<th>Starts Engines up to 50 Liters (3000 CID)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Configuration:</td>
<td>Inline; Inertia-Engaged</td>
</tr>
<tr>
<td>Common Pinion Configuration:</td>
<td>6/8 Pitch, 12 Tooth (2 inch pitch diameter pinion)</td>
</tr>
<tr>
<td>Mounting:</td>
<td>SAE 3 Flange, Standard</td>
</tr>
<tr>
<td>Horsepower:</td>
<td></td>
</tr>
<tr>
<td>T106-F:</td>
<td>44 hp (33 kW) Max. at 150 psig (10.3 BAR)</td>
</tr>
<tr>
<td>T112-F:</td>
<td>44 hp (33 kW) Max. at 90 psig (6.2 BAR)</td>
</tr>
<tr>
<td>Weight:</td>
<td>42 lbs. (19 kg)</td>
</tr>
<tr>
<td>Gear Ratio:</td>
<td>7.5:1</td>
</tr>
<tr>
<td>Lubrication:</td>
<td>Grease-Packed For Life, None Required</td>
</tr>
<tr>
<td>Rotation:</td>
<td>(Facing Pinion Orientation) Righthand/clockwise and Lefthand/counter clockwise</td>
</tr>
<tr>
<td>Air/Gas Supply:</td>
<td>Compressed Air or Natural Gas</td>
</tr>
<tr>
<td>Operating Pressure Range:</td>
<td></td>
</tr>
</tbody>
</table>

<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 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.

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.
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.

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

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*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

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: Start 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) |
| 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 |
| 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: |
| 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 – 6.0 |

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

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

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, 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.

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.

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-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

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Specifications:

T30-I
T30-P
and
T30-Y

**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.

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)

Design Configuration:
- 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

Mounting:
- SAE 3 Flange
- SAE 1 Flange (for P only)

Horsepower:
- 21 hp (15.65 kW)
- Cranking Power at only 120 psig (8 BAR)
- 34 hp (25.4 kW) Max.

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:

<table>
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<th>MODEL</th>
<th>NOZZLES</th>
<th>PSI</th>
<th>BAR</th>
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<td>T312-P/Y</td>
<td>12 (Low Pressure)</td>
<td>Consult TDI</td>
<td>Consult TDI</td>
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</tbody>
</table>

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.

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

T30-I mounted on Caterpillar 3406 Engine for fire pump application

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

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

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**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.

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**DIMENSIONAL DATA**

TDI TURBOTWIN T25

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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)
without Relay
27.0 lbs (12.2 kg) with Relay

Design
Configuration: Pre-Engaged; Outboard
supported Nose Cone

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 (8 BAR) @ 2300 rpm
(12 Nozzle)

Operating Pressure Range:

<table>
<thead>
<tr>
<th>MODEL</th>
<th>NOZZLES</th>
<th>PSI</th>
<th>BAR</th>
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<tr>
<td>T25</td>
<td>12</td>
<td>60</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**

With integrated controls for easy installation.

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

**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

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.](image1)

![T20 installed on Deutz 1013 engine.](image2)

![T20 installed on 5.9 Cummins engine.](image3)
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

Air/Gas
Supply: Compressed Air
or Natural Gas

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>
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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.
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.

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.
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.

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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

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