Fans for Petrochemical Industry
The next generation of technology
Company Overview.

Fans under hard operating conditions.
Fans in petrochemical plants.

Difficult conditions like high speed, high and changing temperatures, corrosive gases, wear and much more!

How do you cope with these challenges?
That is exactly the field of application, where our fans were applied.

Fans in petrochemical plants are typical “centrifugal fans” (single or dual driven). They can be found for example in the heater & reformer section, Ammonia Urea plants, heat recovery steam generators and much more.

The challenge of fans in petrochemical plants is the fact, the fan has a long period between maintenance outages. So, it is absolutely necessary, that the individual plants are working well.

Behind every fan stands our high class product quality and the strong fan brand.

In order to provide our customers with the utmost products, our departments offer their best performance.

Innovations of TLT-Turbo

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1873</td>
<td>First centrifugal flow fan for mine ventilation</td>
</tr>
<tr>
<td>1950</td>
<td>First axial flow fan with blade adjustment for mine ventilation</td>
</tr>
<tr>
<td>1985</td>
<td>First fan for ‘wet’ flue gas desulphurisation</td>
</tr>
<tr>
<td>1997</td>
<td>First wind tunnel fan with CFRP-impeller</td>
</tr>
<tr>
<td>2007</td>
<td>Centrifugal fan with an impeller diameter of 5,3 m</td>
</tr>
<tr>
<td>2011</td>
<td>Fan for quietest aero-acoustic wind tunnel</td>
</tr>
<tr>
<td>2015</td>
<td>Centrifugal fan with 12,3 MW required power</td>
</tr>
<tr>
<td>2016</td>
<td>First MVR Turbo Fan with ceramic hybrid bearing</td>
</tr>
</tbody>
</table>

TLT-Turbo check of facts

- More than 140 years of expertise in construction of fans
- Present in 9 countries with own business locations and with 50 representatives across 40 countries
- More than 6000 installed fans worldwide
- Locations for manufacturing and development in Germany, USA, China and South Africa
- Test stands in Germany, China and USA
- Use of the latest design tools like FEM and CFD

Our R&D department provides their excellent engineering capabilities, followed by our project management with a guaranteed high process quality and finally a correct and unproblematic installation by our field service.
Fans for Petrochemical Industry.

- API standards 560 / 673
- Explosion proofed design possible
- Configuration as dual drive with motor and turbine possible.
- Stainless steel or wear protection possible
- Necessary accessories

TLT-Turbo Fans for Heater and Reformer.

- Combustion Air Fans
- Recirculation Fans
- Flue Gas Fans
With all necessary accessories.

A Centrifugal fan with dual drive.

Centrifugal fan with steam turbine for a petrochemical application

Reinery
TLT-Turbo Fans for Ammonia / Urea Plants.

- Granulation Fan
- First Cooler Fluidization Fan
- Granulator Scrubber Exhaust Fan
- Cooler Scrubber Exhaust Fan
- Dedusting Fan
- Final Cooler Fluidization Fan
- Fumes Extraction Fan
- Prilling Tower Fans (Axial)

With all necessary accessories.

Fans for Heat Recovery Steam Generators.

- FD-Fan
- ID-Fan

With all necessary accessories.

Petrochemical plant.

Ammonia / Urea fertilizer

Centrifugal Impeller made of stainless steel.

Heat Recovery Steam Generator.
Motors / Frequency Converters
Turbiners
Dual Drive (Turbine and Motor)
Oil Supply Units
Overrunning Clutches
Suction Towers / Silencers
Filters
Venturi Tubes
Spacer Type Couplings
Fan Instrumentation according Customers demands
Inlet Guide Vane / Damper electrically or pneumatically controlled

Overrunning clutch. (Photo: Ringspann GmbH)

Example of a sleeve bearing seat.

Vibration monitoring. (Photo: Bently Nevada)

Steam Turbine as fan drive.

3d model oil supply unit. (Photo: COED S.r.l.)
Tests and Certificates.

Our Service for You. 24 hrs hotline.

- Mechanical Running Tests
- Performance Tests
- Ultrasonic Tests
- MT Testing
- Dye Penetration Testing
- Dynamic Balancing of Rotor
- CFD Simulations
- FEM Calculations

- General consulting for fan operation
- Plant Diagnostics and Optimization
- Trouble shooting
- Maintenance activities and audits on site
- Recommendations on spare parts inventory and storage
- Manufacturing and delivery of spare parts
- Installation and commissioning activities
- Aerodynamic design and determination of process data
- Oscillation measurement and frequency analysis
- Noise-protection engineering and associated measures
- Wear protection concepts
- Non-destructive materials testing

TLT-Turbo ist certified.

Our fans meet following standards.

- DIN EN ISO 9001
- DIN EN ISO 14001
- BS OHSAS 18001
- SCCP (Petrochemical)

- DIN
- EN
- ISO

Welding works on a big centrifugal impeller.