

# Touch-Free™

Oil-Free • Carbon-Free • Care-Free



# The Tamturbo Package

All Tamturbo® air compressors are assembled and tested at our factory before shipment. This means the customer receives **All-in-One solution**, without any hidden onsite assembly costs. Compressors can be stripped and transported separately if required.

## What's in the Tamturbo Package exactly?

Our Compressor Solution is All-in-One package includes

- ⦿ Highly efficient PM (Permanent Magnet) motors,
- ⦿ Integrated high grade titanium impellers directly mounted on motor shaft,
- ⦿ Liquid cooled high-end VSDs (Variable Speed Drives),
- ⦿ Uniquely sophisticated control system PLC with optional PLS and SLC,
- ⦿ Cooling heat exchangers with Zero-Loss drains,
- ⦿ Built-In BOV (Blowoff Valve) silencers without external components,
- ⦿ Remote support, Bi-directional connection,
- ⦿ Independent of user IT network
- ⦿ 24/7 factory monitoring, optimization and support

We can integrate Energy Recovery with our unique SHR (Standard Heat Recovery), BHR (Boost Heat Recovery) and HMU (Heat Management Unit) solutions to the compressor onsite during installation.



# Energy Saving Standard Features

Our innovative approach and design is driven by the principle of giving our customers the lowest energy consumption and maximum energy recovery, as a fully integrated option.

## Diffuser

Diffuser guide vanes are designed for specific flow and pressure to reduce energy consumption at reduced flows. The diffusers work together with the twin Variable Speed Drives (VSDs).

## Integrated Air Inlet Filter

Inlet air filters are oversized to flow rates within each frame size. These polyester filters minimize any inefficient inlet air pressure drops while maximizing filtration performance.

Polyester filter material is superior to commonly used paper elements with better and more consistent filtration with longer life.

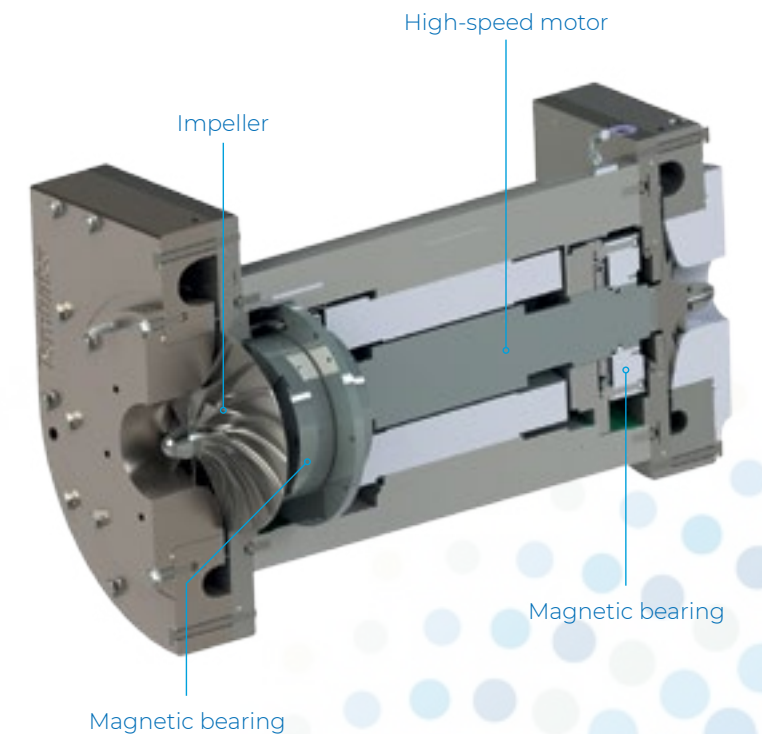
Each compressor has multiple filters for both compressed air and for motors.



## Direct Drive PM Motors

The range of Tamturbo air compressors are driven by two air and water cooled, high speed Permanent Magnet (PM) motors. Both motors utilize continuously monitored Touch-Free™ Technology with Active Magnetic Bearings (AMBs).

By utilizing high efficiency PM motors motors, with AMBs, our compressors are capable of recovering up to 90% of input power in heat recovery.





# Modern Simplicity vs Old Complexity

Our 2-stage and 3-stage compressors are designed and manufactured in-house using next-generation technology developed over 20 years.

The compressors feature oil-free centrifugal impellers, PM motors, and VSDs, which provide high capacity turndown with low energy consumption, as well as high compressor package drive train efficiency due to minimized pressure drops, no internal gearing, non-contact seals and non-contact bearings.

These technological solutions result in an energy-saving air compressor range that offers the lowest total cost of ownership for end-users.

## Stainless Steel Intercoolers and Aftercoolers

Tamturbo's shell and tube intercoolers, and aftercoolers use stainless steel tubes to increase resistance against erosion and corrosion at the lowest pressure drop. High-grade fins create optimal thermal transfer and compactness.

This ensures low approach temperatures and maximum compression efficiency with minimal pressure drop.

## Truly Oil-Free™

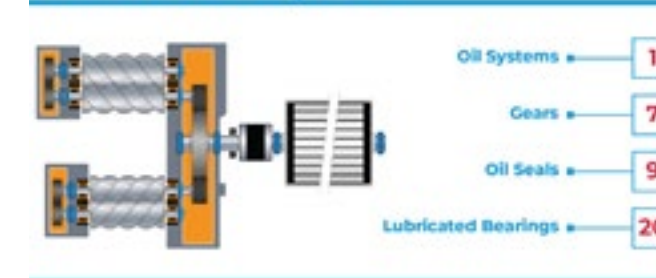
The proven, superior titanium centrifugal impeller compression technology, coupled with twin drive control means no gears, no lubrication and no potential oil mist inside the air compressor cabinet.

Next level Class Zero+ air quality allows for improved pressure control and reduced maintenance costs.

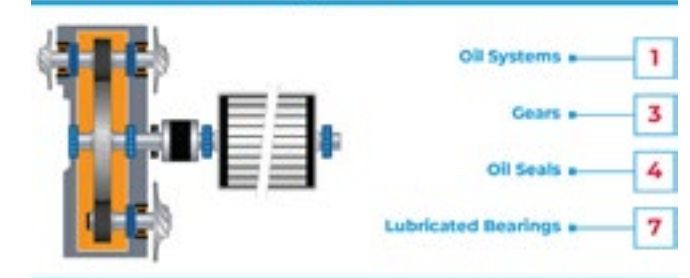
### Tamturbo Compressor



### "Oil-Free" Screw Compressor



### Traditional Turbo Compressor



## Remote Monitoring

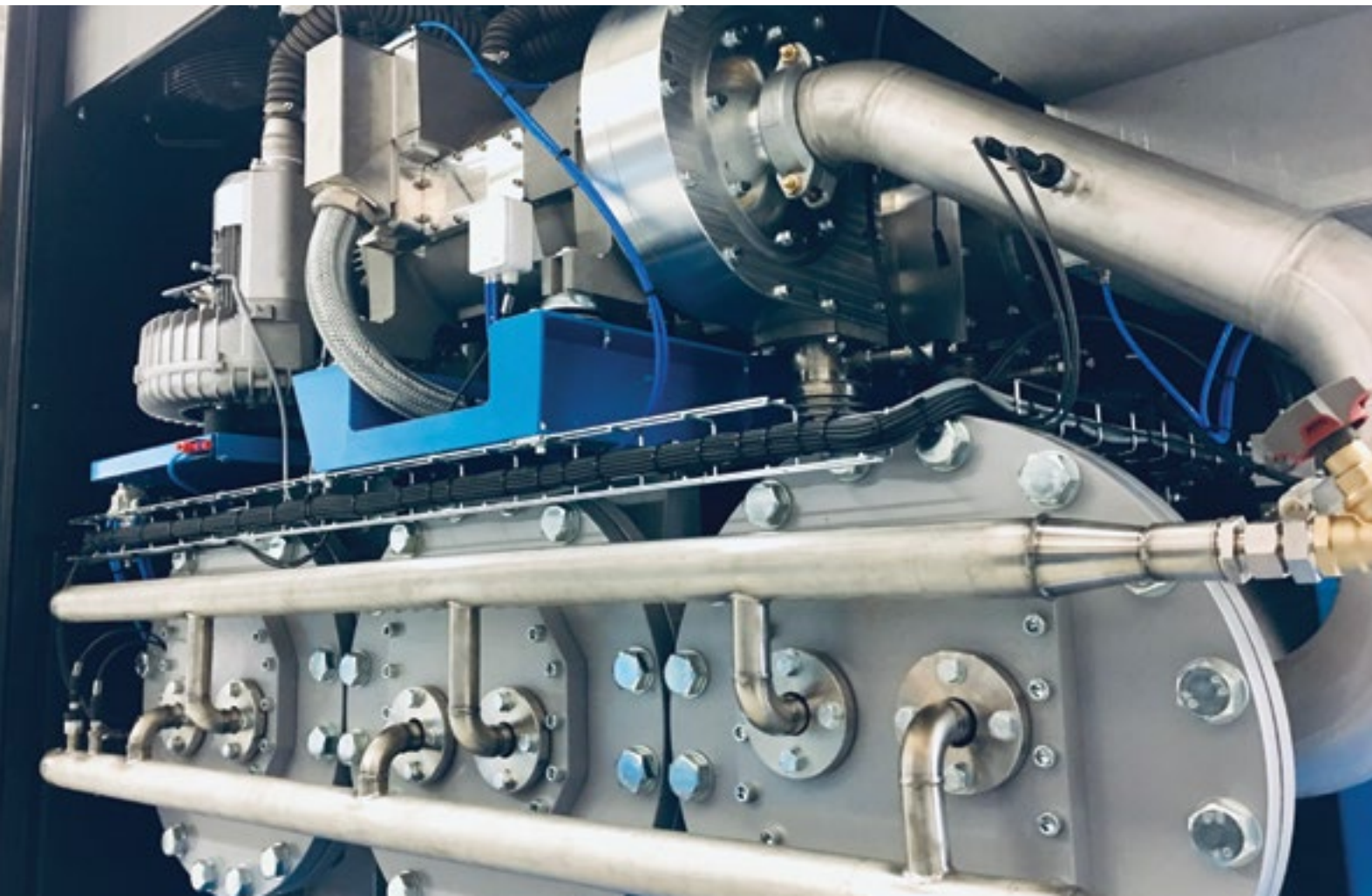
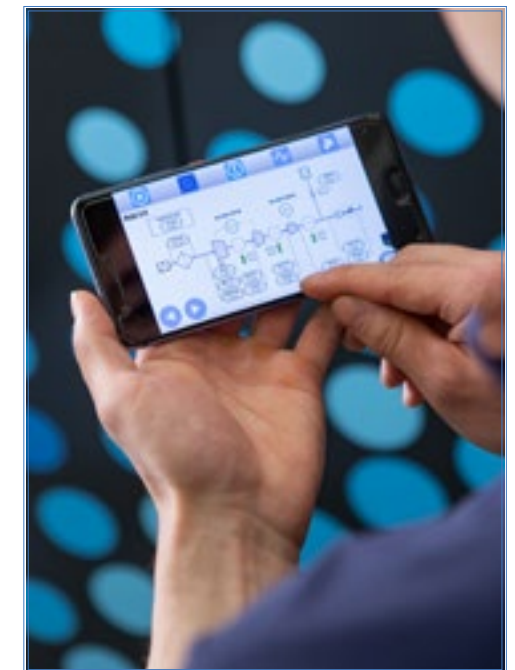
The HMI controller is designed to fully support remote monitoring with its bi-directional interactive diagnostics, messaging and 360° communication. This is to further maximize the performance of your compressor under a variety of working conditions.

With remote monitoring, we can optimize compressor parameters, correct and fix issues resulting from operational incidents such as:

- Power failures
- Cooling system issues
- Environmental conditions

## User Friendly Interface

Easy to read UI icons lets our customers to access pressure, flow, speed, terminal power and 250 other parameters.





# Working Principles of Our Systems

## The Air System

The compressor can be either 2-stage or 3-stage system, meaning that the compressor has two or three turbo impellers. This affects the air system process steps:

**First Step:** In the first stage an air intake filter bank removes airborne particulate from the air flow to protect primarily the first compression stage. The air temperature is then reduced with a water cooled intercooler before moving to the next step.

**Second Step:** In the second stage the process has two options; on a 2-stage compressor the air passes through an aftercooler, and on a 3-stage compressor the air passes through a second intercooler before moving to the last step.

**Third Step:** In the third stage the air is passed through the final aftercooler and then discharged into the customers network, either into downstream compressed air treatment or into a pressure storage vessel.

The compressor has an integrated pressure transducer to regulate motor and impeller speed to maintain constant air pressure by matching the air demand. The motor drive responds, when air demand falls below the minimum flow rate (surge point), by opening a proportional blowoff valve (BOV) to release the necessary amount of air. The compressor has a standard MPV - Check Valve at the compressor package discharge with a standard Victaulic connection.

## The Cooling Liquid System

The dual-purpose liquid-cooling system circulates cooled water between the intercoolers and aftercoolers, requiring only one water connection for the client. Intercoolers and aftercoolers have adjustable valves on the return piping, with flexible compensators for vibration-free connections.

If energy recovery options are installed, controlled cooling water flow is distributed to PHE (Plate Heat Exchanger) for the customer side utilization.

Secondary closed loop internal circuit keeps the critical components in constant temperature. This improves the efficiency and extends the component life as airborne contaminants will not affect cooling of motors and VSDs.

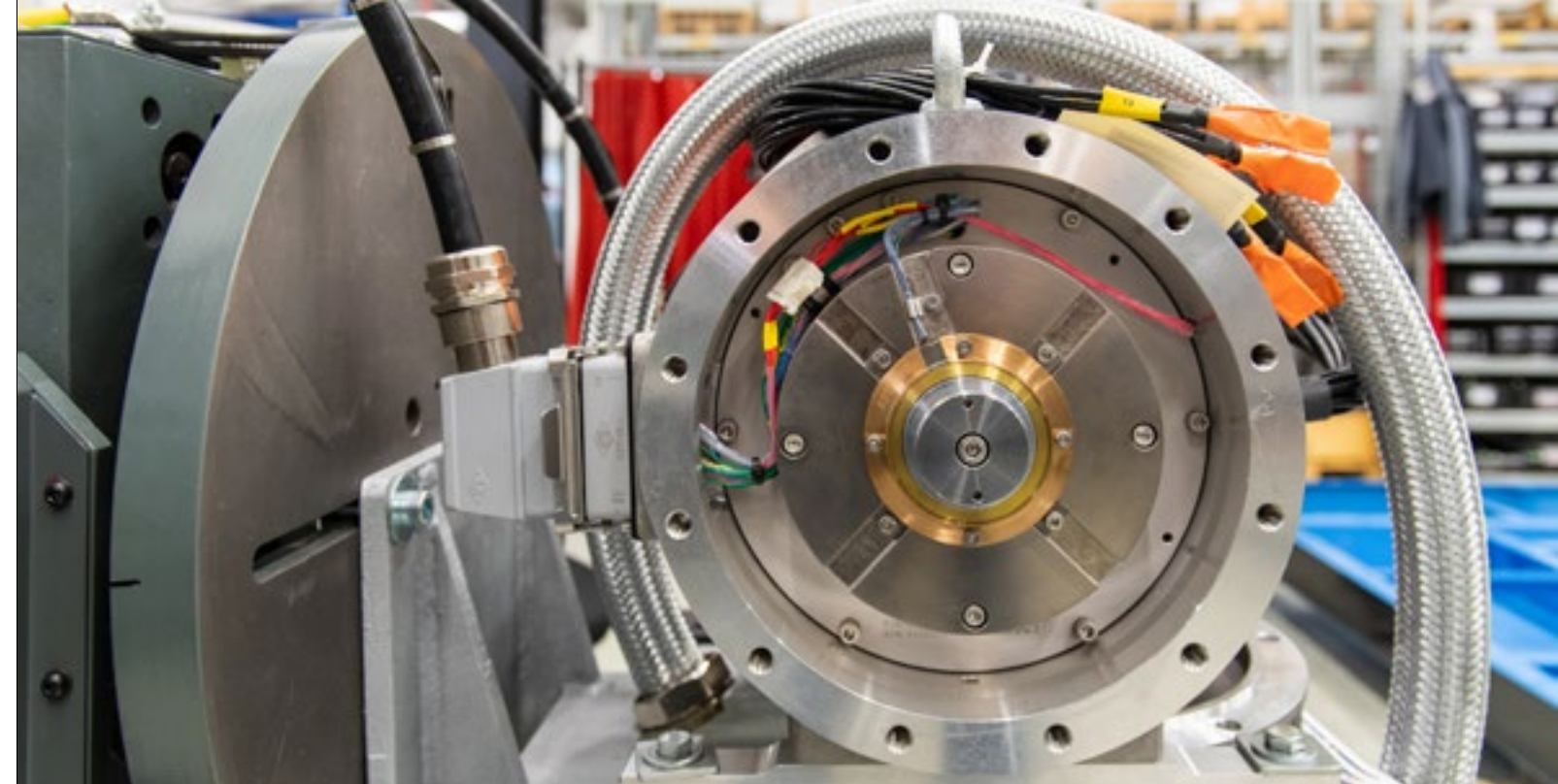
## The Energy Recovery System

Users can recover up to 90% of the input energy as thermal energy, which can be used for preheating boiler makeup water and process water, or heating facilities. The hot water can be used for many needs.

The thermal energy is created and collected from the:

- Active Magnetic Bearings,
- Heat of Compression,
- Heat Management Unit,
- Compressor motors,
- and VSDs.

The compressor's energy recovery options allow to recover heated water from 60°C up to 120°C. The integrated HMU further manages the water temperatures and liquid handling.



## Available Options

### Compressors

- SHR** – Standard Heat Recovery PHE module. Up to 60°C / 140°F water temperature.
  - BHR** – Boost Heat Recovery PHE module. Up to 90°C / 194°F water temperature.
  - HMU** – Heat Management Unit. Controls energy recovery flows and temperatures.
  - CAU** – Compressor Analytics Unit.
  - ANSI or DIN** flanges for connecting energy systems and compressors.
  - Fieldbus Connections** – Modbus RTU, Modbus TCP, PROFINET, PROFIBUS DP.
- A full range of downstream compressed air equipment.  
External auxiliary water circulation pump.

### Software

- PLS** – Parallel Load Share. Energy optimization for two units.
- SLC** – System Load Control. Energy optimization for two or more units.
- CMI** – Customer Monitoring Interface. Local and remote monitoring by us or client.
- CCI** – Customer Control Interface. Local and remote controls by us or client.

### Heating and Cooling Management

- CLC** – Closed Loop Cooling
- ECR** – External Cooling Regulation
- EDC** – External Dry Cooler
- EBP** – External Boost Pump
- EPU** – External Pump Unit
- IPH** – Intake Pre-Heating
- HOC** – Heat of Compression

### Dryers

- Refrigerated Dryers
- Adsorption Dryers
  - Heatless
  - Heat Regeneration
  - O-Purge Heat Regeneration
- Heat of Compression Dryers
- Combination Dryers

### Documentation

- Test certificates
- Witnessed performance test
  - Online or In-person

## Low Pressure Range 2-5 bar (30-75 psi)

Model	Working Pressure		Air Flow		Input Power		Nominal Power		Dimensions		Sound Level dB(A)	Cooling
	bar	psi	m <sup>3</sup> /min	CFM	kW	hp	kW	hp	mm	in		
TT115 MR	2-5	30-75	6.6-20.3	240-720	30-145	41-194	115	155	1821 2173 2059	71.7 85.6 81.1	76	Liquid
TT115 HR	2-5	30-75	10.4-28.1	370-1000	30-145	41-194	115	155	1821 2173 2059	71.7 85.6 81.1	76	Liquid
TT135	2-4.5	30-65	12.2-33.0	440-1170	47-155	60-207	135	180	1821 2173 2059	71.7 85.6 81.1	76	Liquid

## Medium Pressure Range 5-9 bar (75-130 psi)

Model	Working Pressure		Air Flow		Input Power		Nominal Power		Dimensions		Sound Level dB(A)	Cooling
	bar	psi	m <sup>3</sup> /min	CFM	kW	hp	kW	hp	mm	in		
TT145 MR	5-9	75-130	8.0-20.2	290-720	54-199	72-267	145	195	1821 2173 2059	71.7 85.6 81.1	76	Liquid
TT145 HR	5-9	75-130	12.8-28.0	460-990	54-199	72-267	145	195	1821 2173 2059	71.7 85.6 81.1	76	Liquid
TT185	5-9	75-130	14.2-33.0	510-1170	81-236	109-316	185	250	1821 2173 2059	71.7 85.6 81.1	76	Liquid
TT265	5-9	75-130	20.5-37.6	730-1330	131-256	176-343	265	355	2489 2021 2022	98.0 79.6 79.6	76	Liquid
TT305	5-9	75-130	20.5-45.8	720-1620	129-351	173-470	305	410	2489 2021 2022	98.0 79.6 79.6	76	Liquid
TT325	5-8	75-115	22.5-53.3	800-1890	129-351	173-470	325	435	2489 2021 2022	98.0 79.6 79.6	76	Liquid

Cooling liquid OUT temperature\*  
\* with BHR up to

15-60°C (60-150°F)  
90°C (194°F)

Cooling liquid IN temperature  
Ambient and Intake Air temperature

5-35°C (40-95°F)  
5-40°C (40-104°F)

**Tamturbo**  
JUST AIR

info@tamturbo.com  
+1 (314) 576-9001 Americas  
+358 (0)10 423 2303 Global  
www.tamturbo.com

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