



Process Compressors

Designed to optimize your business

Answers for energy.

SIEMENS



Turbocompressors from Siemens – covering the complete spectrum

Siemens offers a full range of turbocompressors to meet the needs of the oil and gas and process industries: in-line, axial or axial-radial, or integrally geared compressors can be matched with a range of drivers – steam turbine, gas turbine or electric motor – in a solution to match each unique customer

A wide range of products and a wealth of experience

With our unrivalled competence in complete compressor train solutions from a single source, Siemens offers an extensive range of standard or customized compressor solutions (Siemens Turbocompressors – STC™). Our standard units with predefined engineering options ensure low investment costs and short delivery times. For the more complex processes such as Gas-to-Liquids (GTL), Coal-to-Liquids (CTL), methanol and integrated gasification combined cycle plants (IGCC), we provide a uniquely tailored solution.

Air separation, petrochemical plants & refineries, catalyst regeneration and synthetic fiber production are amongst the most common applications for our compression solutions.

Catering for mega-scale applications

As a technology of the future, GTL is worth a mention in its own right. This complex process demands a considerable variety of very large rotating machinery. Siemens offers compression and power generation packages for air separation, the syngas process and the refinery process with its own steam turbine, gas turbine or electric motor drive.

Siemens has successfully supplied the largest air compressors and the largest mechanical drive steam turbines ever made. This experience makes Siemens the partner of choice for all compression and power requirements in all sections of the GTL process up to a complete power island.



1. STC-SR
Siemens axial-radial flow compressor

2. STC-SX
Siemens axial flow compressor

3. STC-SV
Siemens single-shaft centrifugal compressor with vertically split casing

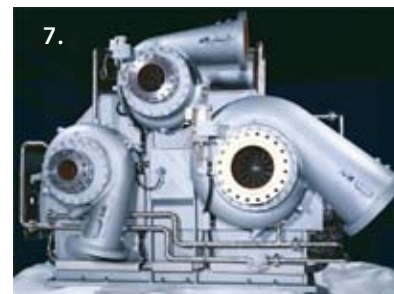
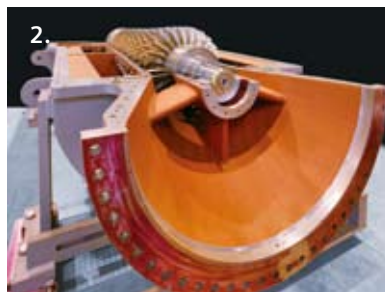
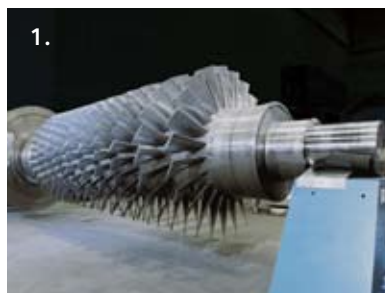
4. STC-SH
Siemens single-shaft centrifugal compressor with horizontally split casing

5. STC-SP
Siemens single-stage axial inlet overhung centrifugal turbocompressor

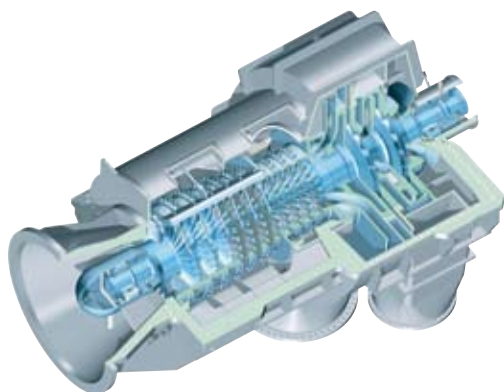
6. STC-GC
Siemens compact integrally geared centrifugal turbocompressor

7. STC-GV
Siemens integrally geared centrifugal turbocompressor

8. STC-GT
Siemens integrally geared process gas radial turbine



The comprehensive portfolio



STC-SR

The perfect match for large air volume flows

Siemens STC-SR axial-radial isothermal turbocompressors are the perfect solution to handle large volume air flows whilst maintaining excellent efficiencies.

The STC-SR series is ideal for applications requiring higher pressure ratios and intercooling. The design incorporates an axial process stage followed by one or more centrifugal process stages. STC-SR compressors combine excellent efficiency with highest quality due to proven components and compliance with API standards.

Technical data

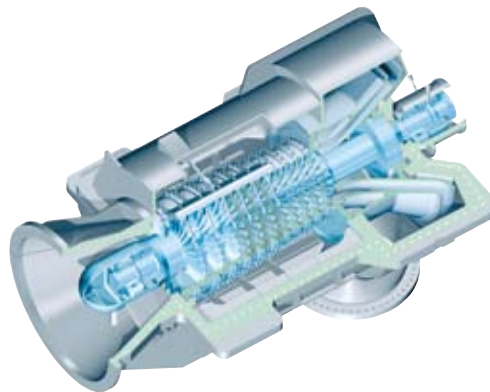
- Flow rates from 50,000 to 1,300,000 m³/h
- Pressure ratio between 5.8 and 16
- Driver of your choice

Fields of application

- Large-volume air separation plants e.g. for
 - GTL (Gas-to-Liquids)
 - CTL (Coal-to-Liquids)
 - Methanol

Features

- Highest degree of efficiency
- Modular design principle
- Also available with overhung design
- Up to 10 axial and 3 radial compression stages



STC-SX

The optimum solution for blast furnace air

The STC-SX series are axial-flow compressors designed to handle large volume air flows and other clean gases within relatively small casings. This axial-flow turbocompressor is typically an uncooled straight-through compressor, designed for discharge temperatures up to 350°C. Outstanding blading technology and unique material usage result in optimized performance and reliability.

Technical data

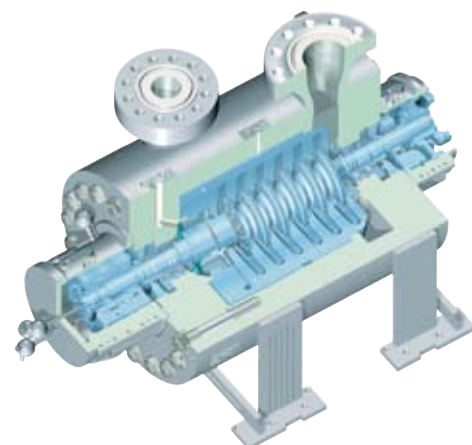
- Flow rates from 50,000 to 1,300,000 m³/h
- Pressure ratio between 1.9 and 6.0
- Driver of your choice

Fields of application

- Blast furnace air
- FCC air (Fluid Catalytic Cracking)

Features

- Excellent efficiency
- Modular design principle
- Extended operation range
- Highest quality standards
- Casings with axial inlets
- Up to 19 axial compression stages



STC-SV

The allrounder

The STC-SV is a single-shaft centrifugal compressor with vertically split barrel-type casing, designed for direct drive concepts in accordance with API 617. All compressor internals are assembled into one bundle for easy installation and maintenance. The STC-SV allows for perfect matching of compressor performance and rotor dynamics and is the perfect solution to compress gases of any molecular weight.

The single-stage STC-SV (S) is a packaged-unit concept – compressor, driver and auxiliaries form one single lift unit which facilitates transport and reduces site installation work to a minimum.

Technical data

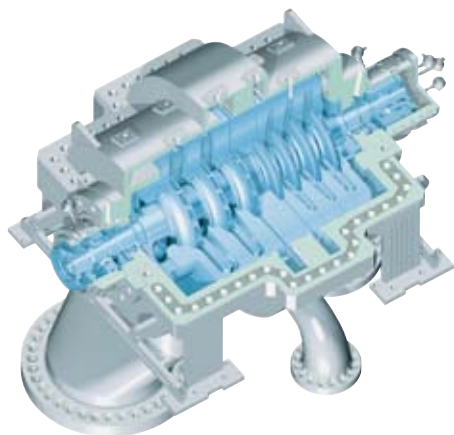
- Flow rates from 250 to 480,000 m³/h
- Discharge pressure up to 1,000 bar
- Driver of your choice

Fields of application

- On/offshore oil and gas
- Petrochemicals
- Methanol
- Natural gas distribution and storage
- Refineries
- Fertilizers
- FPSO

Features

- Wide variety of sealing systems
- Can be operated with any drive system
- High part-load efficiencies
- Suitable for light gases and high pressures
- Can be designed for up to four process stages and with up to 10 impellers



STC-SH

Robust and dependable

The STC-SH is a centrifugal compressor with horizontally split casing. All compressor internals are easily accessed by simply lifting the upper casing. The flexible single-shaft STC-SH compressors are designed according to API 617 and can be used for most process applications and a wide range of gases of any molecular weight, including toxic and hazardous applications.

Technical data

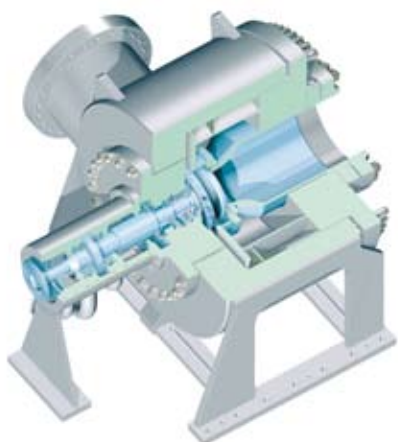
- Flow rates from 500 to 480,000 m³/h
- Discharge pressure for oxygen and inert gas up to 100 bar
- Discharge pressure for other process gases up to 50 bar
- Driver of your choice

Fields of application

- On/offshore oil and gas
- Petrochemicals
- Fertilizers
- Olefins
- Refineries
- General chemicals
- Dry chlorine gas

Features

- Flexible design concept
- Wide variety of sealing systems allowing dry-dry (oil-free) operation
- Can be operated with any drive system
- High part-load efficiencies
- Can be designed for up to four process stages and with up to 10 impellers



STC-SP

Efficient operation and maintenance

The STC-SP is a single-stage axial inlet overhung centrifugal compressor, designed in accordance with API 617. It offers a wide operating range thanks to its custom-designed impellers and vaneless diffusers. STC-SP is designed for easy maintenance, the rotor cartridge being accessible without disassembly of the process pipe work. The standard ranges ensure highest reliability, quick availability and cost efficiency.

STC-SP (P) is a well-proven fully parametric aerodynamic design concept that allows the perfect matching of compressor performance and rotor dynamics for any pipeline application.

Technical data

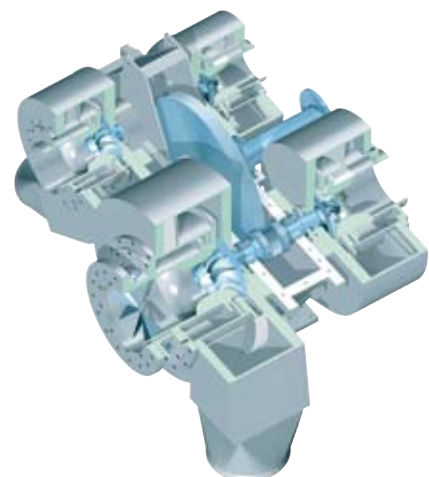
- Flow rates from 200 to 130,000 m³/h
- Pressure ratio 1.01-1.45 depending on gas characteristics and driver speed
- Casing pressure ratings up to 50 bar
- Driver of your choice

Fields of application

- Polyethylene plants
- Polypropylene plants
- Gas boosting
- Ethylene oxide plants
- Ethylene glycol plants
- Oxo plants

Features

- Advanced dry-gas sealing
 - With oil-lubricated bearings (dry-wet)
 - With active magnetic bearings (dry-dry)
- Adjustable inlet guide vanes to improve part-load performance
- Barrel-type design



STC-GC

The compact solution for air separation

The STC-GC is an integrally geared compact turbocompressor available in several different frame sizes and with a wide range of options in a compact single-lift unit. The STC-GC series is the standard version of the customized integrally geared compressor series STC-GV, the trusty workhorse of the air separation and process industries.

Technical data

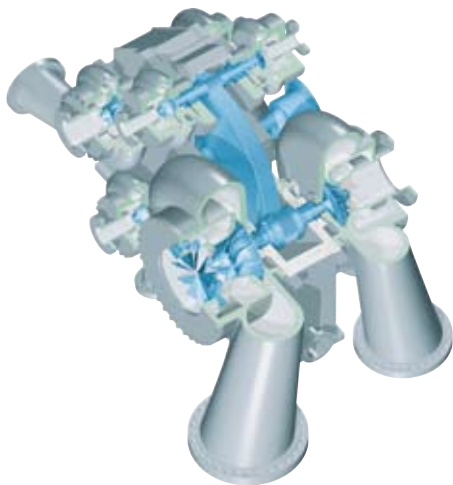
- Flow rates from 3,600 to 120,000 m³/h
- Pressure ratio up to 20
- Driver: Electric motor

Fields of application

- Air separation
- Compression of process air
- Compression of nitrogen

Features

- Standardized design
- Standardized, pre-engineered components for economy and reliability
- Compact, single-lift unit



STC-GV/STC-GVT

The robust multitalent

The STC-GV integrally geared centrifugal compressors feature a multi-shaft arrangement with different speeds and up to eight compressor stages around a central bull gear, forming a compact unit for the multi-stage compression of a wide range of gases. These trains are typically supplied as complete packages, including all rotating equipment, intercoolers and oil console. With STC-GV (S), the GV turbocompressor is also available with one single-stage spur gear resulting in minimized installation site work.

The STC-GVT is an integrally geared multi-stage compressor comprising expander stages, designed in accordance with both API 617 and API 672.

Technical data

- Flow rates from 800 to 480,000 m³/h
- Discharge pressure up to 100 bar
- Driver of your choice

Fields of application

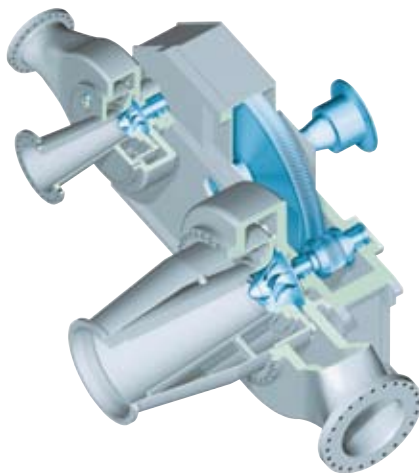
- | | |
|------------------|--------------------|
| • Air separation | • Hydrocarbons |
| • Ethylene oxide | • Refineries |
| • Ammonia | • Synthetic fibers |
| • Petrochemicals | • Metal making |

Features STC-GV

- High efficiency due to tailored aerodynamics
- Wide operating range due to adjustable guide vane units
- Multi-service capability due to finely-graded standard components
- Package design significantly reduces on-site installation time
- Up to eight compression stages

Features STC-GVT

- Inlet guide vane unit in front of each stage
- Interheating between each stage



STC-GT

Proven concept for direct power recovery

The STC-GT is an integrally geared process gas radial turbine used for direct power recovery. Medium or high-temperature gas can be used directly to drive a compressor or electric generator without additional heat exchange or steam generation equipment. STC-GT's sophisticated design is in accordance with both API 617 and API 672.

Technical data

- Discharge volume from 3,000 to 600,000 m³/h
- Expansion ratio 4

Fields of application

- Synthetic fibers, especially
 - Pure Terephthalic Acid (PTA)
 - Dimethyl Terephthalate (DMT)
- Nitric acid

Features

- Adjustable inlet nozzle for economic part-load operation
- Uses many of the proven components from the integrally geared centrifugal compressor concept
- Radial inlet to each stage





The driver of choice

From our comprehensive portfolio of compressors and drives we can recommend the exact configuration that best suits your project requirements.

Industrial steam turbines – the ideal drive for process industry

Siemens steam turbines (SST™) are the ideal driver for process industries with exothermic processes where the heat can be used to generate steam. Steam turbines can be used in a multitude of ways to generate electrical energy or to drive compressors, blowers and pumps. Some fifty percent of the compressors used in cracking and refining processes are driven by steam turbines.

As a solution provider for the petrochemical industry, Siemens satisfies more customers of high power mechanical drive steam turbines than any other manufacturer.

We offer not only the steam turbine, but also the associated field-proven high-tech products, including instrumentation and controls and various auxiliary systems.

Industrial gas turbines – indefatigable and flexible pipeline drivers

Siemens gas turbines (SGT™) are the obvious choice of driver where natural gas is available to fuel the turbine. The gas turbine is thus the driver of choice for pumping and compression for pipeline gas transportation. It also has the advantages of being compact and lightweight for installation on offshore platforms. The gas turbine also can be used to generate electricity to power an electric motor, as is frequently the case on Floating Production, Storage and Off-loading (FPSO) vessels


Electric motors – the individual drive solution

Where energy has to be purchased – i.e. there is no source of natural gas or steam arising from the process – electric motors are the clean and economical alternative. The increasing significance of power saving, environmental requirements and the desire for a wide variable speed band have led to the application of electric motors.

This has resulted in our individual drive solution for specific customer requirements in the industry sector.

An important application for this variable speed electric drive is for refrigeration compressors in Liquefied Natural Gas (LNG) plants, the first such “all-electric” drive system having been successfully built and tested in 2003. Electric drive systems of this class are always custom engineered for the customer’s specific application, allowing the compressor to be optimized in capacity and speed for the process on hand.

From our comprehensive portfolio of compressors and drives we can recommend the exact configuration that best suits your project requirements.



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