



# Product Range

Compressors and solutions for refrigeration  
and air conditioning

**Frescold<sup>®</sup>**



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Frascold celebrates its 75th anniversary from foundation looking towards the future. From 1936 till now, it has been a long path made of transformations and consideration for the changes.



Founded as Frascini Giuseppe Officina Meccanica (only in 1975 did its name change to the actual one) Frascold has travelled the long path of innovation, building its reputation and its success by means of an high ability in constantly improving products and technologies, developing at the same time relations with its customers.

During all this time, Frascold has manufactured several types of compressors for applications in refrigeration and air conditioning.

The range of Frascold products includes semi-hermetic reciprocating compressors and semi-hermetic twin screw compressors that covers a range of refrigerating capacities up to 1400 kW and are characterized by their sturdiness, reliability, high performances and flexibility of application.

Since 1998, manufacturing activities are based in the new industrial facility in Rescaldina. This facility, built for a production capacity of 100.000 reciprocating compressors per year, is equipped with machines integrated with an high level of automation.

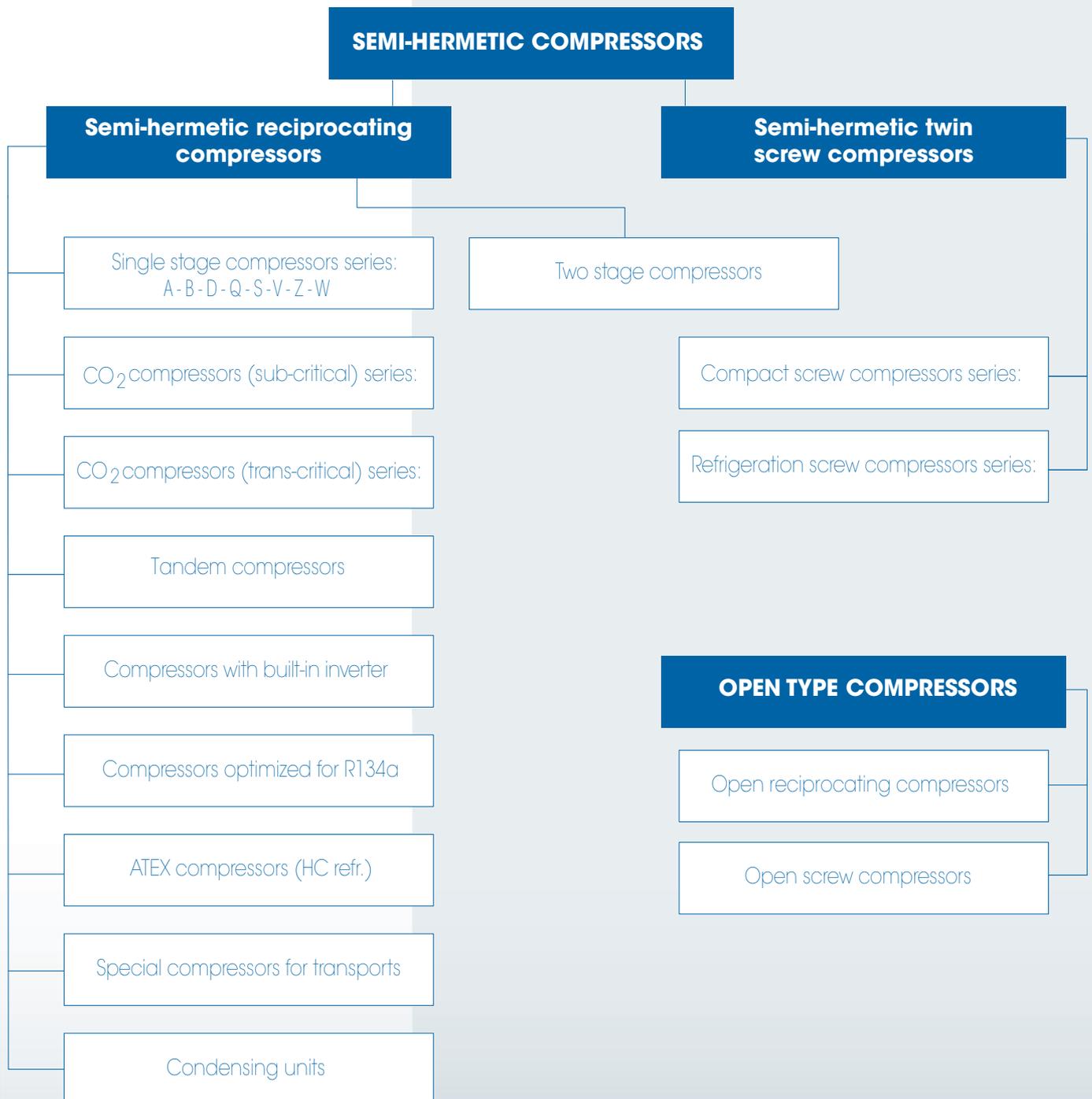
In this facility Frascold has invested several millions euro to realize the new production lines for semi-hermetic screw compressors and built an advance R&D laboratory to develop products and technologies for future applications.

The company is busy with the development of advanced products for applications with natural refrigerants like CO<sub>2</sub> and HC, for chemical refrigerants with low GWP level, like HFO and for optimization of compressors for traditional HFC refrigerants.

Another branch of development is the integration of electronic products with advanced protection and diagnostic functions.

Frascold has a consolidated presence in the European markets with a detailed network of partners in all countries and, operating in close collaboration with them, is one of the leaders in this industrial sector. Now it is developing its worldwide network, which already includes 140 partners, to guarantee product supply and a professional and quick customer service in every country.

For 75 years Frascold has designed, manufactured and marketed compressors for refrigeration, air conditioning and heat pumps industry. The range is one of the largest in the world including semi-hermetic reciprocating and screw compressors covering a range of capacities up to 1400 kW characterized by their sturdiness, reliability, high performance and flexibility of application. Furthermore Frascold offers new solutions to reduce its impact on the environment: with inverter drives, high pressure trans-critical CO<sub>2</sub> compressors, ATEX product for HC and optimized solutions for different refrigerants.



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## Compressors' technologies and capacity ranges

### Reciprocating compressors

Displacement @ 50 Hz (m³/h)

	0	50	100	150	200	250	300	350	400	450	500
Standard semi-hermetic											
Semi-hermetic tandem version											
Semi-hermetic two stage											
Semi-hermetic AX (ATEX version)											
Semi-hermetic ECOinside version											
Semi-hermetic VS (built-in inverter)											
Semi-hermetic transport applications											

### Reciprocating compressors CO<sub>2</sub>

Displacement @ 50 Hz (m³/h)

	0	2,5	5	7,5	10	12,5	15	20	25	30	35
Semi-hermetic CO <sub>2</sub> 55-bar											
Semi-hermetic CO <sub>2</sub> 140-bar											

### Reciprocating compressors AXH (HC)

Displacement @ 50 Hz (m³/h)

	0	50	100	150	200	250	300	350	400	450	500
Semi-hermetic											

### Twin Screw compressors

Displacement @ 50 Hz (m³/h)

	0	100	200	300	400	500	600	700	800	900	950
Semi-hermetic twin screw											
Semi-hermetic twin screw compact											
Open screw											

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## Applications



### Commercial refrigeration

Frascold is a European leader in commercial refrigeration, a global partner for different applications with the widest range of compressors. Specialized companies throughout the world are using Frascold compressors in their refrigeration systems: rack units or condensing units, split systems or monoblocks for cold rooms or large cold storage, cabinets and refrigerated display cases, machines and cases for ice creams and pastries, shock freezers, ice machines, food and beverages coolers.



### Supermarkets and commercial areas

Frascold compressors are designed and manufactured to cover the various technologies applied in cooling and freezing systems of supermarkets, hypermarkets and in climate control packages for big commercial areas. In this sector Frascold has a reputation for a long operative life of its compressors, for the low running costs and for the consequent minimal footprint on environment. Frascold offers innovative solutions to satisfy the needs of this business segment:

- Inverter technology
- Hybrid cascade systems products (HFC+CO<sub>2</sub>)
- Products for booster applications
- Natural refrigerant applications (CO<sub>2</sub>, HC, NH<sub>3</sub>)



### Transport refrigeration

Frascold is a leader in mobile refrigeration systems being prime supplier of all main companies producing systems for refrigerated trucks and offering a dedicate line of compressors designed for mobile cooling applications. Frascold products are suitable to be used in almost all the application of the "cold chain" maintaining conservation and quality of transported goods



## Industrial applications and logistic

For 75 years Frascold has, and continues to develop compressors for all the processes applied in industrial cooling and freezing. With its wide range of reciprocating and screw compressors, it achieves the best of results in terms of performance, energy efficiency and smooth running. Thanks to their sturdy construction, these products can maintain for a long time a very high level of performance in different operating conditions, even the most critical; they are designed to work for very long periods of time without failure and with minimal maintenance.



## Climate and Comfort

More than 60 different compressor's models are offered by Frascold for climate control of large industrial or commercial applications, like large shopping centres or office buildings, to guarantee the appropriate environmental comfort for high quality living and working standards. Other lines of products are specifically designed for railway or marine A/C. Frascold products are perfectly adapted for these specific working conditions and are optimized for low energy consumption, at full or partial load, and silent running.



## Special applications

Several Frascold compressors are successfully applied also in the most special refrigeration systems: precise industrial processes, medical and scientific cold rooms, cryogenic applications, laboratories, industrial dehumidifier, and environmental chambers.



### Single stage compressors

Sturdy, compact, high performance and with very low operating costs compared with competitors products, a perfect project solution with the most advanced technologies to cover the full range of applications, both with natural or chemical refrigerants, designed to significantly reduce the impact on the environment.

Starting from V 15 59 Y model, Frascold compressors employ its well tested system of forced lubrication as standard, equipped with electronic pressure switch protection. All models are equipped as standard with electronic protection. Enhanced protection and diagnostic devices are available for a comprehensive reliability of the system. Nowadays all compressors are designed to be controlled by "inverter technology".



### Two Stages compressors

These compressor models, specifically designed to compress the gas in two steps with the possibility to cool the refrigerant between the two stages, provide a higher efficiency for applications with high pressure ratios. Further improvements in the system efficiency can be achieved by installing a liquid sub cooling system, composed by plate heat exchanger, expansion valve, solenoid valve, sight glass and filter dryer.

The liquid sub cooler can be pre-installed in the factory and is available for different refrigerants like R22 or R404A/R507.



### SK2 compressors for sub-critical CO<sub>2</sub>-55 bar

To fulfil the very demanding requirements of CO<sub>2</sub> applications, this range employs the very best in manufacturing producing an extremely sturdy design with top class materials. This line of Frascold compressors, SK2, is optimized for subcritical cascade systems and offers several advantages in supermarket and industrial cooling applications.

These compressors are designed for operations up to 55 bar on discharge side (15°C condensing temperature) and are equipped as standard with safety valves for safe operations.

Compressors are charged with a special synthetic oil with high resistance to thermal loads and proper solubility and miscibility with CO<sub>2</sub>.



### TK compressors for trans-critical CO<sub>2</sub>-140 bar

A range of models suitable for the new refrigeration and heating technologies using CO<sub>2</sub> refrigerant. Urged by the growing consciousness of environmental protection and frequently supported by governments in many countries, these applications are more and more requested. For their special characteristics, TK compressors are suitable to run at high pressure up to 140 bar on discharge side, they are equipped with safety valves and connections, on suction and discharge valves, for stainless steel piping. They are charged with special synthetic PAG oil with high resistance to thermal loads, solubility and miscibility with CO<sub>2</sub>.



## Tandem compressors

Frascold compressors with 4, 6 or 8 cylinders are available also in tandem version. Two compressors with the same displacement coupled with a common suction flange and a unique suction valve. Compared with a single compressor of same displacement, tandem design offers an higher flexibility for capacity control that always is reflected in an higher system efficiency due to better adaptability of the compressor to the system requirements. All models are supplied as standard mounted on a sub frame with piping to equalize crankcase pressures and oil levels.



## ECOinside compressors

This range of compressors is optimized for cooling and freezing applications with R134a. The application envelope of the ECOinside range, compared with standard models, is extended to lower evaporating and condensing temperature. This characteristic together with the optimized valve plates and electric motor, brings advantages up to 20% better COP. Another characteristic of Frascold ECOinside compressors is the extremely low noise and their adaptability to hybrid R134a/CO<sub>2</sub> cascade systems.



## AX and AXH compressors

On traditional range of compressors, Frascold has developed a new line of products call AX/AXH, technically modified to comply with the necessary safety standards for application with hydrocarbons, according to ATEX 94/9/CE directive for use in environment classified dangerous for flammable gas presence (Zone2, group GAS IIB). The reliable lubrication system, the sturdy design and the charge of special oil for HC refrigerant, ensures safe and reliable operation.



## VS Compressors with built-in inverter

A range of models of traditional Frascold compressors is offered in VS version with built-in inverter, in order to achieve a compact, flexible and reliable solution. The perfect combination of compressor-inverter permits higher system efficiency due to the reduced fluctuation of suction pressure and ensures higher compressor reliability due to reduced number of stop – starts.

Further advantages come from the lower power absorption in partial load conditions compared with mechanical capacity controls, from the smoother compressor running and from the reduced overall noise level. The inverter is ready to be used, connected and pre-programmed in the factory, in order to reduce installation and start-up time.



### Compact semi-hermetic screw compressors CXH and CXW

The models of these new ranges of products are used for production of water chillers, climate control systems and heat pumps, apart from the different applications of industrial cooling. They are designed to operate reliably and for long periods with very limited maintenance. They have higher coefficients of performances compared with equivalent products on the market and incorporate advanced technical solutions dedicated to noise reduction.

Their main characteristics are: the exclusive and innovative N-profile of their screws, the original three stage oil separator, the efficient and safe oil management system, the generous dimensioning of bearings with very high resistance to high pressures, the sophisticated and stable slide valve for capacity control that ensures an extremely high efficiency also at partial load, the electronic protection devices with diagnostic functions, the optimal motor selection and the efficient oil cooling system.



### Semi-hermetic screw compressors for refrigeration

These new concept compressors, with compact dimensions and innovative design, have an universal application in commercial and industrial cooling and freezing system and suitable for parallel installation.

They are designed to operate reliably and for long periods with very limited maintenance. They have higher coefficients of performances compared with equivalent products on the market and incorporate advanced technical solutions to minimize noise and pulsation. The electronic protection devices, with additional diagnostic functions, with the exclusive oil management system can ensure very high standards of reliability. The sophisticated and stable slide valve for capacity control ensures an extremely high efficiency also at partial load.



### Open screw ATS

The new generation of Frascold ATS screw compressor are suitable to operate with HFC and R717 (ammonia) refrigerants in a wide range of applications in industrial refrigeration, process systems, air conditioning and heat pumps, with a wide range of refrigerating capacities.

They are designed to operate reliably and for long periods with very limited maintenance. They incorporate advanced technical solutions to minimize noise and pulsation.

These compressors can be used also at partial load and it's possible to use an economiser to have higher efficiency.



### Air cooled condensing units laBLU

The LaBLU condensing unit range is available in seventy different models and satisfy a wide range of applications in medium and low temperature with R134a, R404A, R407C, R22 refrigerants. They include semi-hermetic reciprocating compressors of nominal motor powers from 0,5 to 20 Hp with performances, reliability and flexibility significantly higher than market standards.

The dimensioning of heat exchange surfaces of the condensers permits to install them in several different climatic areas around the world. Their compact design and the low operating noise make them suitable also for installation in residential areas. LaBLU condensing units are offered in standard or tropicalized version, with standard or VS compressors with a series of accessories pre-installed and tested in Frascold's factory. Their special weather protection housings make them suitable for external installation.



### Water cooled condensing units SH

This range of units, functional, compact and silent, is composed by 45 different models for universal application with R134a, R404A, R407C, R22 refrigerants. They include semi-hermetic reciprocating compressors of nominal motor powers from 0,5 to 40 Hp with performance, reliability and flexibility significantly higher than market standards, and shell and tube heat exchangers with large exchange surfaces.

SH units are available in standard version or with VS compressors. Their compact design and silent operations make them suitable for installation in residential areas.

Upon request, sea water condensers are available



## Assistance

Frascold offers to its customers a complete range of services to support the perfect functioning of its products.

The Frascold service team of specialists is fully trained to give comprehensive assistance in compressor selection, installation, start-up, maintenance, including support for possible operating problems, for refurbishing or repair of Frascold products.



## Application engineering

Frascold carries out its promise of assistance to its customers with a competent engineering support for applications and definitions in order to optimise performance of refrigeration systems and extend reliability of compressors.

Our team is keen to share with all customers the advantages of the long experience and the high competences built in 75 years of refrigeration technology know-how.



## Training and updating courses on compressor technologies

Compressor technologies and refrigeration systems are in continuous development, Frascold experts can assist the operators of this business sector in acquiring the necessary knowledge.

Training and updating courses on compressor technology and applications are organised, at Frascold's headquarters or directly at the customer premises, with special care to assistance, maintenance, and failure diagnostics necessary to identify and solve system problems



## Frascold Web Site

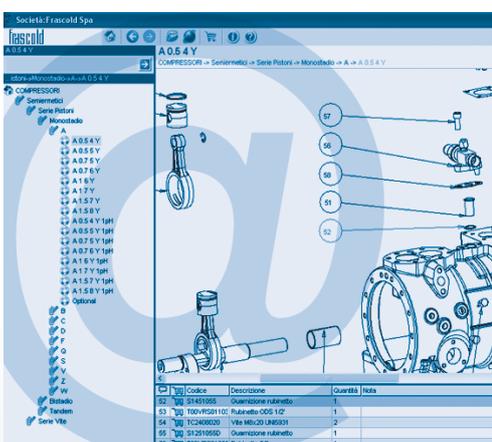
[www.frascold.it](http://www.frascold.it) Welcome to Frascold's new web site that contains all available information about its products online.

A wide range of material may be downloaded, technical datasheets, catalogues and brochures, manuals and operating guides, dimensional drawings, selection software and spare parts software. It is possible to obtain information about the company, its organisation, its sales and distribution network in the international markets.



## Frascold Selection Software

Frascold selection software is a powerful tool to select the correct products and to calculate compressor performances with many refrigerants. Easy to use and accurate in calculation, this software permits the enquirer to obtain several aspects of operating data about compressors in different conditions. It is possible to change the units of measurement of each data from SI system to imperial units. Also to print performance tables, drawings and connection schematics. Software is free and available for any user.



## Frascold Spare Part Software

Frascold offers a comprehensive selection of spare parts for the full range of its products. The process of design and manufacturing of spare parts has the same excellent quality standards of the compressor manufacturing process. The logistical organisation is optimised to have the parts immediately available to minimize inconveniences due to compressor shutdown. With an interactive navigation, this practical software visualizes an exploded view of the product for easy identification of the part needed and, through a list of spare part kits, permits quick and simple orders to Frascold commercial dept. Software is free and available for any user.

**Blue is better**

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