

OIL&GAS

INNOVATIVE SYSTEM FOR WELDING AND
CUTTING GAS CONDITIONING THAT ALLOW
HIGHEST SAFETY STANDARDS



ENGINEERING - GAS EQUIPMENT



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Cryotek Eng Srl has been on the market since the 60's (*previously as CVC Srl and then as Cryotek Srl*) as a producer of:

- FLOWMETERS
 - CALIBRATED FLANGES,
- and afterwards it also developed in the field of:
- PRESSURE REGULATORS,
 - GAS MIXERS,
 - DECOMPRESSION BOARDS,
 - INDUSTRIAL PLANTS AND CYLINDERS

That is to say whatever it concerns gas conditioning, both with standard and customized products which can satisfy the particular requirements of the single user. With reference to the production in general, Cryotek Eng srl, in order to face the more and more particular requirements of the market, has divided its line of products in the different

FIELDS OF TECHNOLOGY:

- WELDING
- HEAT TREATMENTS
- CHEMICAL INDUSTRY
- METALIZATION
- GOLDSMITHERY
- FOOD INDUSTRY
- GAS CONDITIONING

and a specific line of products for

- LASER INDUSTRY.

The factory is located in Cologno Monzese, province of Milan, and cover a floor space of more than 2,000 sq. mt. The distinguishing feature of the Company is its **high level of quality**, resulting from 40 years of **experience** and the use of **leading-edge technologies**.

Our technological production allows us to cooperate with very important company (as Saipem, Ghizzoni, Sicim, Salp, Enel, Avir and Fincantieri) and **to sell all the world over**.

Our range of products also includes special versions (suitable for sea environments) for naval & shipyard use, in fact during the last 10 years we have been working for some important on- & offshore pipeline companies operating all over the world (Nigeria, Congo, South Africa, Sakhalin, Qatar, Kazakhstan, U.A.E., Indonesia, China, etc...). With a view to improving and upgrading the quality of their existing gas systems, and in order to overcoming the troubles rising from the old devices still in use, we have been asked to design and develop special appliances for gas conditioning, and in some cases we have been commissioned to lay new complete gas plants. In our production we have a line of products for the use at very low temperature.

We can also supply complete gas lines, gas-refilling plants (for Ar and CO₂), cryogenic pumps and system to produce gas.





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SOME SAMPLES...

OFF-SHORE

GAS MIXING SYSTEM
GAS DECOMPRESSION BOARD
GAS DISTRIBUTION STATION
GAS PRE HEATING SYSTEM
TESTER FOR PRESSURE AND FLOW RATE OF WELDING TORCH
PURGING SYSTEM

ON-SHORE

GAS MIXER FOR PAYWELDER
GAS MIXING SYSTEM
DECOMPRESSION BOARD WITH PREHEATER
GAS REFILLING PLANT

WELDING CONTACT TIPS
FULL SERVICE OF OUR PRODUCTS AND PLANT ALL OVER THE WORLD,

• CUSTOMIZED ENGINEERING AND PRODUCTS FOR ON/OFF-SHORE COMPANIES

Operating in the industry for several decades, our company has won the trust of the most important companies in the sector of the oil and gas and thus acquiring further experience in the field. As evidence of the strong partnership with these companies over the last decade Cryotek has dedicated **their own line customized able to fit the specific needs of the customer**, both in terms of **quality and efficiency** and **high precision**. All the above supported by what Cryotek recognizes as its own flagship, the global assistance service that allows us to reach our customers wherever they are in a very short time, giving an **immediate technical support** where it would be necessary and / or by checking maintenance and certification of the equipment in use.

Cryotek is synonymous with professionalism, efficiency and cutting-edge as it is the **Italian excellence able to design, build, deploy and assist his client from the initial stage of the project to the final of maintenance**, all having only a single referent.

• ASSISTANCE h 24

Assistance service for our customers in the whole world.

• DEDICATED TRAINING

Technical formation courses and courses about the safe use of the gas.



ASSISTANCE **24h**
all over the world

CRYOTEK



GAS MIXING SYSTEM S4

Thanks to new techniques of construction, to the use of innovative materials and to the employment of self-adjusting gas control systems **the system becomes reliable, flexible and easy to be managed.** It is easy to realize the advantage in having 4 self-contained gas mixers combined in only one frame. In addition to the reduction in prices there is a great advantage for what concerns the use of spaces, the organization of checkings and the possibility of presetting 4 different mixtures by a simple turn of a selecting valve. The gas mixer is equipped with an exclusive system for the visualization and the adjustment of the Mixture; this **system works with high precision flowmeters in high-thickness borosilicate glass** which have been produced by our workshops since 1966. The wetted parts of the flowmeters are made of OT58. These instruments assure an **immediate and intuitive control** of the gas mixing process preserving the possibility of a simple running and an easy maintenance which may be carried out even by non-professional operators.



GAS MIXING SYSTEM S6

The appliance is fit to be used in the **very heavy working processes**, when it is indispensable to have an instrument able to produce Mixture with percentage from 0 to 100% on each fluid. Laboratories, research centres and productive structures with high technology may find in this gas mixing system the appliance that, with its minimum dimensions, shall allow the easy and rapid experimentation of new Mixtures, or the production of wide flowrates of special Mixtures, without the inconvenience of a large number of cylinders or long and hard preparation times, but most of all without the risk of having a stratified Mixture which could compromise the final issue, making it impossible to carry out constant cycles. Thanks to the use of **highly reliable materials** and to an **innovative constructive conception** the appliance can stand the hardest situations, with precision and constancy. The appliance is equipped with an **exclusive system for the visualization and the adjustment of the Mixture**; this system works with high precision flowmeters in high-thickness borosilicate glass. These instruments assure an immediate and intuitive control of the gas mixing process preserving the possibility of a simple running and an **easy maintenance** which may be carried out even by non-professional operators. Integrated to the gas mixing system there are an analysis jack for Mixture drawing, an automatic tank system that can adjust itself according to the demand of Mixture and a set of alarms which, at the right time, warns the operator about anomalies or lack of gas at the inlet. The appliance is inside a 19" locker provided with a window for a good visualization of the gauges and with a safety lock in order to prevent actions on behalf of non-allowed operators. Our Assistance Service shall be at your disposal to carry out the maintenance and the calibration of the instrument directly on your structure, avoiding dead times and shipment risks.



GAS DECOMPRESSION BOARD S2

The decompression unit is a complete gas reducing/controlling station in fact it does not need any further appliance since it is equipped with an **inlet filtering system** (83 micron), **1st stage pressure regulators** and an **integrated differential system** which can manage inlet pressures up to 200 bar and outlet pressures up to 10 bar. This unit is also provided **with electronic pressure transducers interfaced to the alarms system** that warns the operator of the cylinders in reserve. It has an automatic switching system that can automatically move on the full cylinder once the cylinder in use is in reserve. In order to be sure that the decompression unit is working with the full cylinders the alarms can not be stopped till the cylinders are replaced and the starting pressure is set by acting on the selector placed on the front panel. The decompression unit may be interfaced to a separate electric alarm system (mod. MICAL 221-MC) showing the pressure of the cylinders in use. An essential graphic and the frontal dislocation of **all the visualizing systems make easy and intuitive the use** of this unit and the calibration of the pressure.



GAS DISTRIBUTION STATION S15S

Distribution system of mixing gas that can work with two different blend or work with only one blend on every work station. S15s, composed by six work station(s10) that are composed by pressure regulator, plexiglass flowmeter (without scale), is very simple to use and regulate. Besides it could suit any working condition.

Gas distribution system, **equipped with three thermal switch dry pre-heaters** with safety double-thermostat and "work stations" with flowmeter.

This system allows an **optimal delivery of the mixture** by means of the preheaters which allow the gas to keep a constant temperature and therefore a steady mixture. The "work stations" for welding are equipped with a direct-reading flowmeter that, thanks to a settable flow-rate indicator, allows to store the flow rate in order to standardize work parameters.

The "work stations" are made of a wrought aluminium lump, this allows to obtain an efficient seal, avoiding any possible blow-by from joints and connections. They are also equipped with a compensating chamber in order to ensure a constant flow rate and an exact pressure set.



GAS PRE HEATING SYSTEM S12

Pre-heating units with filtering system suitable for 2 gases. They consist of: 4 pre-heaters mod. ARVAS55 S16 code 9002001-P with **dry pre-heating system and pipe coil** in stainless steel 316 buried in aluminium casting. The appliance is equipped with inlet and outlet connections in stainless steel with silver-plated ogive, irreversible differential switch (CE 16/6H/200-250V 2P-N), thermometer for gas temperature verification (type IY60-R, unipolar with bimetal disk), thermostat that can be set from 0° to 90°, lights and electrical power supply, candle resistance (armored-type in stainless steel) and line switch. Heating power 2250 watt, 10 Amp, External solvent-proof treatment, CESI EX 99.E.067 certified, conforming with the present ATEX regulations. 4 high pressure filters, connections 3/8", equipped with cartridge in stainless steel 50 Micron, with examinable body and decanting chamber. Body made of OT58, compatible with the surface treatment suitable for sea-environment. Equipped with needle shutoff valves suitable to receive the fluid from two gas sources, and to drive the gas to the analogical instrumentation for pressure visualization. This system has a series of quick-closing valves to be used in case of emergency. Casing in satiny stainless steel 304 sea-type, with door in anti-breakdown tempered glass with total opening and lock in anticorrosion polyamides.



TESTER FOR PRESSURE AND FLOW RATE OF WELDING TORCH S19

Analogical appliance for the control and the measurement of the flow and of the pressure coming out from the torch.

This instrument has been designed to be independent from any external electrical power supply. **Easy-to-use and immediate in its functionality**, it can be used even by unskilled workers and its versatility is assured by a switch that allows to read flow-rate values or pressure, according to necessities.

The internal flowmeter is made of worm-calibrated borosilicate glass and it allows a 3% precision at full scale. A calibration statement will be issued every 12 months.

PURGING SYSTEM 1000

The system is composed by:

- a decompression line for the pneumatic management of the coupler;
- a purging line for low flow rate for the pipeline until 20" equipped with flow meters in high-precision borosilicate glass scale ESM/R 4,5 – 38 NL/MIN (cleaning) 1-16 NL/MIN (maintenance) ;
- a line of purging for high flow rate for pipelines until 70" equipped with two decompression systems, flowmeters mod.ESM/R in high precision borosilicate glass scales 12-130 NL/MIN (cleaning) 1-16 NL/MIN (maintenance);
- an enrichment line equipped with two decompression system, flowmeter mod. ESM/R in high precision borosilicate glass scales 12-130 NL/MIN.

Each line is provided with 3-ways ball valves 3/8"F-F.

- Pressure gauge scale 0-12 bar.
- Max inlet pressure 25 Bar - Max outlet pressure 2 Bar.

The system will be provided with manual valve and equipped with a kit for the transformation in an automatic system commanded at distance equipped with two 2-way solenoid valve 1/2"F-F 24V - 50HZ. D.C. - P.12 BAR.



GAS MIXER FOR PAYWELDER

Two Gas mixing system in one! Gas mixer for two gases (Argon and Co₂) with two different lines for the delivery of the mixture. Suitable for welding gases, equipped with 1 flow meter for Argon and 1 flow meter for CO₂ on each line. Ip65 box in stainless steel, insulation system conforming with the 626 Standard, multipolar IP65 electric connector.

System suitable for two gas mixtures (Argon-Co₂). **This appliance is fit to be employed in heavy working processes**, where it is essential to have an instrumentation able to produce a gas mixture with percentages from 5% to 100% on each fluid. This appliance is equipped with a system for regulation that is based on our own high-precision flow meters, made of high thickness borosilicate glass with wetted parts in brass OT58. The flow meters ensure an immediate and intuitive control on gas-mixing process, preserving the simplicity of their own design and easiness of their maintenance, which can be performed even by unskilled operators. Any of the two mixer system is equipped with two thermal switch dry preheaters with safety double-thermostat, subsonic ignition system with Venturi-meter, analogical pressure displaying systems located on the front side of the board and a valve that changes from mixture to Co₂.

Max Inlet pressure 15 bar – outlet pressure 2 bar - Flow rate 30 NI/min Precision F.S 3%



GAS MIXING SYSTEM S42 - S20

Handy, **easy to be used and flexible**, this is the S42 gas mixer. Thanks to new technologies of construction and to the employment of innovative materials and gas control systems, which can adjust themselves, the system becomes reliable, flexible and easy to be managed. The appliance is equipped with a selecting valve which can move the gas delivery from a pre-set mixture to CO₂ only. The CO₂ dosage can be calibrated by means of a micrometric valve which has a slot on its front side. The gas mixer is equipped with an exclusive system for the visualization and **adjustment of the mixture working with high precision flowmeters** in highthickness borosilicate glass which have been produced by our workshops since 1966; the wetted parts of the flowmeters are made of OT58. These instruments allows an immediate and easy control of the gas mixing process, preserving the possibility of a simple running and an easy maintenance which may be carried out even by non-professional operators.

Max Inlet pressure 15 bar – outlet pressure 2 bar - Flow rate 30 NI/min Precision F.S 3%



DECOMPRESSION BOARD WITH PREHEATER

The decompression unit is a complete gas reducing/controlling station, with four inlets and one outlet. In fact it does not need any further appliance since it is equipped with inlet filtering systems (83 micron), pre heating device and a 1st stage pressure regulator. This unit could also be provided with electronic pressure transducers interfaced to the alarms system that warns the operator of the cylinders in reserve. An essential dislocation of all make easy and intuitive the use of this unit and the calibration of the pressure.

Dry Pre-heating System. High reliability is characteristic of this appliance, just as easiness in installation and in maintenance is. Compared with the instruments at present in use, and under

the same power conditions, thanks to its up-to-date thermic exchange system, this appliance allows higher pre-heating values (+200%). This is very useful when you have to work at very

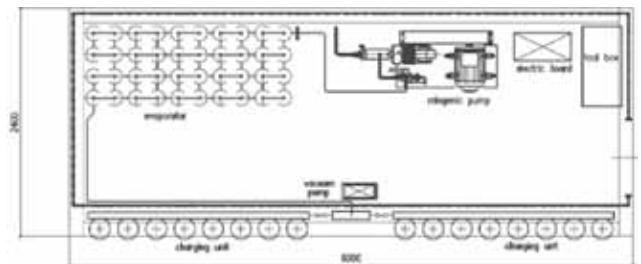
low temperature without problem with the gases.



Gas refilling Plant

This type of plant is used everywhere the great distance, problems with roads or something else make the supply of cylinders ineffective or very expensive. When you locate this plant near the working place, it will be possible to fill continuously the cylinders without organizing long and expensive transportation. You only need a cryogenic tank of liquid gas as supply of gas and a stock of empty cylinders to be filled. The refilling plant for Argon or Co2 will be put on a special transportable skid, appositely planned for your needs. This one could have the standard dimensions of container (6000mm x 2400mm x 2600mm) in order to facilitate the displacements by train or truck. It will be possible to lift the skid with a lift truck, while on the roof will be put some hooks for lifting with crane. The skid could have thermal isolating walls and roof (polyurethane density 40 Kg/m³) to ensure protection from weather and damages. The manifold to charge the cylinders will be put outside the container on a wall, that it will be set back in order to stay in standard dimensions of the container. This decision favours the operations of charging and discharging of cylinders.

Inside the container will be put all devices needed to refill cylinders. The container could have special windows for aeration, one door for admittance of personnel and devices, an electrical plant for illuminating and supply (power 15 Kw). The system doesn't have the cryogenic tank. The plant will be composed by a cryogenic pump with its own electrical panel, a vaporizer, a pump for vacuum with control board, a panel to manage the manifold of charging with safety systems, for Co2 some balances. The tank will be connected to the plant with special cryogenic flexible hoses and after the start will be possible to fill continuously cylinders. The number of cylinders you could refill is variable and we can design a skid on your request. The plant will be completely automatic and so it will be very easy to be used by your personnel, however with the plant you can find all guides.



ENGINEERING- GAS EQUIPMENT

CALIBRATION ON SITE

We can calibrate and make maintenance of our products and plant all over the world, in accordance to regulations of SIT, EUROMET (European Collaboration in Measurement Standards), European cooperation for Accreditation, MRA and dispositions of law 273/1991, regulation UNI 4665-4676:1961 and 97.23.CE

WELDING CONTACT TIPS

With a view to providing to our customers a much more complete service we are produce any model of welding contact tips. All our tips have been provided with high-precision calibrated holes in order to assure the highest efficiency and with materials that allow the highest electrical conductivity.

ENVIRONMENTAL AND SAFETY PROTECTION ONBOARD THE VESSELS.

The environmental and safety protection onboard the vessels is guaranteed by Cryotek Eng through an innovative environmental control system that assures the safety of men and the integrity of vessels during the use of fuel, oxidizing and asphyxiating gases. Thanks to the interaction between active and passive safety systems we reach the highest efficiency level maintaining a simple and intuitive monitoring of the lines.

SOLUTION FOR YARD AND VESSEL

Cryotek Eng's experience in offshore sector has been developed in many years and we are ready to share it with our customers. We often collaborate with client's engineers in order to plan the best solution for their yards, platforms or vessels. In fact our work isn't only installation of gas distribution plant but is also a continuous collaboration for achieve new results. Any problem of our customer is a challenge for us. We plan and produce special container that are truly laboratory for analysis of gases on working site. This laboratories are easily transferable and could be use for different applications. We realizes special studies in order to find the best and cheap solution for the supply of different gases for a large yard in south east of Asia. We make a comparison between costs of production and transfer of the gases and, at the end, we introduce a complete project with technical and economic solutions. For several companies we make a production of transferable welding station that could be used in any situation and condition. These devices could ensure the best performance, efficiency, quality and safety. We could introduce many other samples of our project, but what we would like to say is that you can trust in us and simply we could help you in your job.



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