We are a leading innovative company, sustainably providing proactive customer service, supported by a strong culture encompassing skilled and engaged personnel.

Samuel ZOUAGHI
President

As a pioneer in the design and manufacture of cryogenic equipment, CRYOSTAR started out in 1967 producing cryogenic pumps for liquefied industrial gases. The company has become a major actor in the field of industrial and medical gases, clean power generation, LNG and hydrocarbon applications. CRYOSTAR brings to you over 50 years of experience and know-how.

CRYOSTAR has equipped thousands of plants. Cryogenic pumps, expansion turbines, cryogenic compressors, small scale liquefaction plants, LNG vaporizers, cylinder filling stations, and natural gas fueling stations... these are at the heart of CRYOSTAR's products range.

To optimize your plant availability and consequent uptime, CRYOSTAR also offers full service solutions : on-site installation and commissioning based on strict safety standards (24/7 technical support, service contracts, on site training support), maintenance and repair (technology updates, factory and on-site maintenance agreements), as well as equipment lifelong recurrent and up-to-date training sessions. Through our locations based on all continents, we make sure there is always a CRYOSTAR helper near you.

CRYOSTAR company ensures a local presence for sales and service through its business centres and business partners network.

Product specialists will give you technical assistance by phone, and can launch an urgent intervention where necessary.

CRYOSTAR Business Centers
Certified service partner

CRYOSTAR offers solutions to minimise downtime for its machines such as maintenance contracts, spare parts management and remote maintenance.

weslisten@cryostar.com

CRYOSTAR offers service partners able to do service on road tanker could also modify the external piping to replace an existing type of pump with another one.

* Certified service partner

** * Certified service partner

Headquarters in France
HEALTH, SAFETY, ENVIRONMENT

CRYOSTAR’s HSE policy is based on a double certification: OHSAS 18001 and ISO 14001 (V2015).

This structuring approach made it possible to anchor continuous improvement in the company’s culture. CRYOSTAR guarantees its machines’ compliance with customer specifications and the regulations in the country where they are installed to enable customers to operate equipment with complete confidence. Safety of both property and people is our priority.

CRYOSTAR is committed to the social and societal area for its employees’ well-being. Therefore, diversity, balance and well-being at work are notions which CRYOSTAR views as being of vital importance through targeted actions at the heart of its human resources policy.

QUALITY

The Quality department features a large and highly qualified multi-disciplinary team, which is involved in implementing Quality strategy in areas of the utmost importance:

- Metrology / Quality System
- Supplier Quality
- Operational Quality
- Engineering Quality
- Product Safety

TRAINING

CRYOSTAR Training Center offers training sessions adapted to all the equipment and solutions.

Theoretical courses can be combined with practical sessions, depending on the availability of the equipment on the customer’s site or in CRYOSTAR’s factory.

- Get the best out of your equipments
- Maintain the equipment safely & efficiently
- Improve your awareness to increase the MTBF

INNOVATION

At CRYOSTAR, innovation is at the heart of everything we do, not just for teams dedicated to Research & Development, but also for teams who work every day to design the equipment we sell.

A community of Experts, Specialists and Referents also capitalizes on their own experience and the feedback received from customers to continue to innovate.

TESTING

Every product – be it fresh off the assembly line or recently refurbished – is subject to stringent testing on CRYOSTAR cryogenic test facility.

The performance test with liquid nitrogen ensures guaranteed performance for CRYOSTAR customers.

A copy of the performance test is systematically included in the instruction and operating manual delivered together with the equipment.

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COMPREHENSIVE RANGE OF CENTRIFUGAL PUMPS

CRYOSTAR centrifugal pumps are suitable for any kind of installation and duty for cryogenic fluids such as liquid oxygen, nitrogen, argon, nitrous oxides, carbon dioxide, natural gas or ethylene. These pumps are available in different constructions and executions to comply with various applications:

- Stationary transfer
- Mobile tanker loading/unloading
- LNG refueling
- LNG bunkering

**EXTERNAL WITH SHAFT SEAL**

- Flow rate: Up to 130 m³/h
- Differential head: Up to 460m
- Power: Up to 90kW

**SUBMERGED**

- Flow rate: Up to 520 m³/h
- Differential head: Up to 500m
- Power: Up to 200kW

**EXTERNAL – SEALLESS (NOT SUITABLE FOR O₂ OR N₂O)**

- Flow rate: Up to 30 m³/h
- Differential head: Up to 220m
- Power: Up to 30kW

**SUBMERGED (NOT SUITABLE FOR O₂ OR N₂O)**

- Flow rate: Up to 230 m³/h
- Differential head: Up to 100m
- Power: Up to 200kW

**THICK INSULATION PLATE**

- Reduces radial thrust load

**CLOSED IMPELLER**

- High efficiency

**HELICAL INDUCER WITH INCREASED DIAMETER**

- Lower NPSH requirement along the whole flow range

**CRYOSTAR SHAFT SEAL**

- Extended lifetime

**FRONT OPENING OF HOUSING**

- Easy maintenance

**SAFETY GUARD**

- Compliance with Machinery Directive 2006/42/EC

**EXTENDED LIFETIME**

- Insulation plate

**REDUCED RADIAL THRUST LOAD**

- Closed impeller

**HIGH EFFICIENCY**

- Helical inducer with increased diameter

**LOW NPSH REQUIREMENT**

- Lowest NPSH requirement along the whole flow range

**EXTENDED LIFETIME**

- CRYOSTAR shaft seal

**EASY MAINTENANCE**

- Front opening of housing

**SAFETY GUARD**

- Compliance with Machinery Directive 2006/42/EC

**COMPLIANCE WITH MACHINERY DIRECTIVE 2006/42/EC**

- Thick insulation plate

- Insulation plate

- Compliance with Machinery Directive 2006/42/EC

**EXTENDED LIFETIME**

- Insulation plate

- Compliance with Machinery Directive 2006/42/EC

**EASY MAINTENANCE**

- Front opening of housing

**SAFETY GUARD**

- Compliance with Machinery Directive 2006/42/EC
ELECTRIC DRIVEN PUMPS FOR MOBILE TANKER UNLOADING

Electric driven pumps tailor-made for mobile applications:
- Low weight to maximize the payload
- Compact to fit into restricted space
- Robust design for intensive use

The “Plug’in” system is powered through on site grid.
The “Mixtran” system consists of an additional alternator coupled to the truck Power Take Off (PTO) that is powering the pump in standalone mode.

SAFETY
- O2 compatible materials & lubricants
- ATEX certified pumps for hazardous area
- Dry running protection through motor loadloss or differential pressure monitoring

Micro bulk

LEGEND

PLUG’IN
On site power supply
50-60 Hz

FREQUENCY INVERTER
60-150 Hz

MIXTRAN
Alternator driven by take off (PTO) 50-60 Hz

GB5D / CBSD
External pump
Variable speed

GBS / CBS
External pump
Fixed speed + gearbox

CO120
External pump
Variable speed

SUBTRAN 22
Submerged motor
Variable speed

Flow
Pressure

LO2 - LN2O
LN2 - LAr - LCO2
LNG - LC2H4

Duty

Flow
Pressure

LO2 - LN2O
LN2 - LAr - LCO2
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Duty

Flow
Pressure

LO2 - LN2O
LN2 - LAr - LCO2
LNG - LC2H4

Flow
Pressure

150 450 700 (l/min)
40 120 185 (gpm)
10 20 35 (bar)
150 300 550 (psi)

GBS / CBS
External pump
Fixed speed + gearbox

GBS / CBSD
External pump
Variable speed

VS
Submerged motor
Variable speed

GBS / CBSD
External pump
Variable speed

VS
Submerged motor
Variable speed

SUBTRAN 22
Submerged motor
Variable speed

Semi trailer / ISO tank

Semi trailer / ISO tank

Semi trailer / ISO tank

LEGEND

Flow
Pressure

20-25 65-76 Bar
90-94 1300 Bar
150-155 2100 Bar

Micro bulk

Semi trailer / ISO tank

GBS / CBS
External pump
Fixed speed + gearbox

GBS / CBSD
External pump
Variable speed

CO120
External pump
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SUBTRAN 22
Submerged motor
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Fixed speed + gearbox

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External pump
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CO120
External pump
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SUBTRAN 22
Submerged motor
Variable speed

Semi trailer / ISO tank

Semi trailer / ISO tank

Semi trailer / ISO tank

LEGEND

Flow
Pressure

20-25 65-76 Bar
90-94 1300 Bar
150-155 2100 Bar

Micro bulk
DIRECT COUPLED PUMPS – VARIABLE SPEED

GBSD

27kW (@125Hz)
45kW (@150Hz)

400
0
Flow (l/min)

0
100
200
300
400
500
600
700
800

Head (m)

0
100
200
300
400
500

GBSD 190/4

GBSD 155/4,5

LN2 LO2 LAr

37bar

30bar

20bar

37bar

30bar

20bar

GBSD 155/4,5

FREQUENCY INVERTER & CONTROL BOX

Powered through electric network or alternator
IP 66 / Type 4x
Resistance to vibration up to 3G
Traceability with default codes record (up to 40)
Instrumentation ready
Motor loadloss for dry running monitoring
PTC winding protection for motor overloading monitoring
PT100 temperature probe for cooling down monitoring (optional)
Relay and time lag for DPS monitoring (optional)

~360mm

17mm shorter than GBSD

~840mm

~110mm

8,8kW (@87Hz)

CRYOGENIC TRANSFER PUMPS FOR LIQUEFIED GASES

Pump flanges, size and position identical to GBSD 185/3
Suction: 2”1/2 150lbs
Discharge: 1”1/2 300lbs

Single vs. Double volute

Reduced radial/Thrust load

Single shaft configuration
Compact and robust (reduced length)
Higher margin against critical speed

Anti-vortex
Reduced turbulences

New impeller labyrinth design
Increased seal lubrication flow

Double volute
Reduced radial load

Double slinger ring
Higher heat exchange surface

CO (FOR MINIBULK)

ILR6W (@97Hz)

LN2 LO2 LAr

37bar

30bar

20bar

LN2 LO2 LAr

37bar

30bar

20bar

LNG

10bar

5bar

LNG

10bar

5bar

8,8kW (@87Hz)
PUMPS WITH GEARBOX* - FIXED SPEED

- 30 to 37kW
- 5,5 or 9kW
- 22kW

SEALESS PUMPS - FIXED OR VARIABLE SPEED

- V5 3x2x7
- 5,5 or 9kW

SUBMERGED PUMPS - VARIABLE SPEED

- to be fitted into a sump

* gearbox with O2 compatible oil (optional: N2 purge; oil heating cartridge for extreme cold temperature)
HYDRAULIC DRIVEN PUMPS FOR MOBILE TANKER UNLOADING

Hydraulic driven pumps tailor-made for mobile applications:
- Low weight to maximize the payload
- Compact to fit into restricted space
- Robust design for intensive use

The "Hytran" system consists of a complete hydraulic package powered through truck Power Take Off (PTO) providing higher power than electric systems and offering a standalone operation.

HYTRAN-H
High speed hydraulic system driven by power take off (PTO) up to 8'000 rpm

HYTRAN-L
Low speed hydraulic system driven by power take off (PTO) up to 2'500 rpm

CSH
Grease lubricated
Variable speed

C3SH
Oil lubricated
Variable speed

P4
Grease lubricated
Variable speed

CSH OL
Grease lubricated
Variable speed

LEGEND

Flow
Pressure

Micro bulk

Semi trailer / ISO tank

150 450 700 (l/min)
40 120 185 (gpm)
10 20 35 (bar)
150 300 550 (psi)
LOADING & TRANSFER PUMPS

- LO2
- LN2
- LO2
- LN2
- Carbon dioxide
- Cyclopropane (CP)
- CS
- VS
- Subtran

Oxidising gases (Oxygen / Nitrous oxide)
Inert Gases (Nitrogen / Argon)

Cryogenic transfer pumps for liquefied gases

- Cryogenic gases (Oxidising / Inert / Explosive gases)

Mobile tanker loading
Tank to tank
Customer application

Bunkering
Refueling
LOADING & TRANSFER PUMPS

CS & CBSD

SEALESS PUMPS - FIXED OR VARIABLE SPEED

VS

SUBMERGED PUMPS - VARIABLE SPEED

SUBTRAN

CRYOGENIC TRANSFER PUMPS FOR LIQUEFIED GASES
CRYOSTAR offers standard or tailor made skidded units as a turnkey solution for any kind of process applications.

SAFE
- Degreased for oxygen use
- Safety valves
- Compliance with pressure equipment directive
- ATEX certified for installation in explosive area

MODULAR
- Manual or automatic execution
- Movable
- Wide range of options
- Up to 3 pumps on one skid

TURNKEY
- Pre-tested & pre-cabled => ready to be connected
- Pre-setted control panel (when supplied)
- Complete package for ease of operation
- Limited on site piping and welding work

PROTECT YOUR PUMP
- Cooling down monitoring
- Soft start
- Dry running protection
- Leak detection

CRYOGENIC TRANSFER PUMPS FOR LIQUEFIED GASES

Single pump skid - Manual
- Manual cryogenic valves
- Ex « d » electric control panel
- Dry Running Protection Panel

Dual pump skid - Full automatic
- Manifold on suction, bypass and delivery
- Pneumatic actuated cryogenic valves
- Complete package suitable for cold climate

Submerged pump skid with sump
- Vacuum insulated suction & discharge lines
- Junction box
- Dry Running Protection panel

Cold box pump skid for cold standby
- Cold box with visit trap on base frame
- Electric Control panel with Frequency Inverter in remote location
For contact and address of the CRYOSTAR locations worldwide, please go to www.cryostar.com/locations