

**Ascential**

Technologies | Test & Measurement Systems

## Hydrocarbon line accessories

Automatic evacuation and refrigerant charging equipment for flammable gases

**Galileo**

## Wind-X

### Ventilation systems for flammable gases

The **Wind-X** was designed to exhaust flammable gases that might be present in work environments and other areas there they are used. Wind-X is available in two versions. Wind-X I (equipped with one single main exhaust fan) and Wind-X II (with one main exhaust fan and a backup fan). Wind-X is composed of:

- ▲ Main exhaust fan with 2 speed electrical motor
- ▲ Back-up exhaust fan with 2 speed electrical motor (only for **Wind-X II** version)
- ▲ Air flow sensor (e.g. differential pressure switch)
- ▲ Ventilation hoods to be installed in the various areas where these gases might be present (charging machines, storage systems, detection valves, recovery systems)
- ▲ Ventilation ductwork to the exhaust fans, and exhaust ducted outside the working area into a safe zone

#### Electrical control panel

The electrical panel controls the exhaust fan's operation according to the following incoming signals:

- ▲ Input to control sufficient air flow ventilation
- ▲ Input supplied by a gas detection system (**Cerberus**) which indicates that a dangerous level of gas has been detected



#### Technical data sheet

<b>Power supply</b>	400 V 3ph 50 Hz <i>(other on request)</i>
<b>Power consumption</b>	<i>(Wind-X I/Wind-X II)</i> 5,5 kW
<b>Fan capacity</b>	3000/6000 m <sup>3</sup> /h
<b>Fan</b>	Anti-spark
<b>Electric motor explosion</b>	Proof EEx d IIB T3
<b>Main duct diameter</b>	300 mm
<b>Branch duct diameter</b>	125 mm
<b>Weight</b>	<i>(Wind-X I/II)</i> 200 kg/350 kg
<b>Dimensions</b>	<i>(Fan only Wind-X I/II)</i> 700 × 970 × 870mm / 800 × 1500 × 1700 mm

A technical evaluation is necessary to calculate the dimensions/volume of the area to be exhausted.



## SYNC TP / TAF

### Refrigerant distribution control system

**Galileo TP** provides custom solutions for the control of storage areas and refrigerant supply lines, although standard solutions have been developed to meet some of the most common requests. **SYNC TP** represents the natural solution to the automatic control of transfer pumps for hazardous and non-hazardous areas.

Designed to manage single or multiple transfer pumps, SYNC TP guarantees the maximum stability of outlet pressure and maximum flow rate in variable environment conditions.

It can be connected to RP2 and RP4 models of Galileo TP's transfer pumps. The system is completely automatic and is composed of an electronic device with an LED HMI, alarms and a pressure regulator system that controls the air driving the transfer pumps. The TAF changeover tank system is reliable, ensuring refrigerant does not run out. The system checks the level of the storage tanks and manages the changeover when a tank is empty. This is achieved through the use of optical sensors that check the presence of refrigerant in a liquid state on the inlet of the transfer pumps.

The model SYNC TP + TAF is also available combining all the above mentioned features.



### Technical data sheet

Dimension (LxPxH)	350 × 300 × 500 mm
Weight	20 kg
Electrical power supply	115-230 V50/60 hz 1 ph+ground
Power consumption	50 W
Working temperature	-10°÷ +50°C
Air pressure supply	600 – 1000 kPa (6-10 barg)
Compressed air consumption	Up to 4500 NI/min depending from the transfer pumps connected

### Available models

Model	Hazardous area installation
Sync TP	No
TAF	No
Sync TP + TAF	No
Sync TP EX	Yes
TAF EX	Yes
Sync TP + TAF EX	Yes

## Sync TP / TAF

### Refrigerant distribution control system

**Cerberus X1 is a gas monitoring system for any flammable gases such as R600, R170, R290 and R32.**

**Cerberus X1** manages the safety logics of all Galileo TP equipment involved in the flammable charging station and storage area. The system is able to control the functioning of the ventilation system and enable power supply for the storage system, charging equipment, exhaust equipment and all electrical equipment installed in dangerous areas.

*A technical evaluation is necessary to set the required gas sensors quantity and their positioning for each specific case.*

#### Technical data sheet

<b>Dimension (HxWxL)</b>	500 × 500 × 200
<b>Inlet power supply</b>	230Vac 50Hz 1ph 150VA (with n. 3 sensors)
<b>Gas sensor</b>	Infrared/catalytic: up to n° 8 sensors
<b>Outlet for fan power supply</b>	Low power free-of-voltage changeover contacts (Wind-X I or II required)
<b>Outlet for charging machine</b>	Power supply 1 outlet 400Vac 50Hz 3ph Pmax = 4kVA
<b>Control Safety</b>	Relays
<b>Operator interface</b>	Touch screen and display, lights
<b>Low level alarm output</b>	Voltage free contact (max 250Vac-3A)
<b>High level alarm output</b>	Voltage free contact (max 250Vac-3A)
<b>Ventilation fault outlet</b>	Voltage free contact (max 250Vac-3A)



## HC DS02

### Valves distribution group for flammable gases

The **HC DS02** is located between the refrigerant gas storage tank and the distribution line which takes the gas all the way to the charging machine by means of a RP4 transfer pump (to be purchased separately).

This system increases the safety of the whole HC line as it interfaces with the charging machine and the supervising safety control unit (Cerberus K).

The system features two functioning modes: AUTO and MAN.

MAN mode is used exclusively for testing, installation and maintenance. In this mode it is possible to check each pneumatic valve and the pump operation.

During the AUTO mode, all the pneumatic valves and the pump movements are controlled by logical "MACHINE ON" and "HC SENSOR OK" pneumatic signals coming from the charging machine and the supervising system Cerberus X1.



#### Technical data sheet

<b>Working pressure</b>	Max 3500 kPa (35 bar)
<b>Calibrated safety valves pressure</b>	3500 kPa (35 bar)
<b>Weight</b>	150 kg (excluding the transfer pump RP4)
<b>Operating temperature</b>	+0 ÷ +45 °C
<b>Storage temperature</b>	-25 ÷ +70 °C
<b>Dimensions</b>	1700 × 1500 × 700 mm
<b>Compressed air supply</b>	600 ÷ 800 kPa (6 ÷ 8 bar)

## Vortex NK

### Discharge system for flammable gases

The **Vortex NK** is a flammable refrigerant gas evacuation system for refrigeration units.

The refrigeration circuit is designed to be used with flammable gases (e.g. R600a) that normally use a compressor lubricated with mineral oil. After the refrigerant charge phase, the refrigerant fluid is partially mixed with the lubricant oil, especially inside the compressor. The mixing percentage may change according to the temperature and the conditions of the oil and may increase if the compressor is turned on or even if the refrigerant unit is moved or shaken.

The mixture of oil and refrigerant persists at low pressures. For this reason, when it is necessary to repair a circuit charged with hydrocarbons, it is not recommended to exhaust it to the atmosphere nor to evacuate it manually.

The Vortex NK can minimize the residual quantity inside the cooling circuit thanks to its special working cycle. The system can automatically perform the preevacuation, refrigerant degassing from the oil by switching on/off the compressor during the working cycle, final evacuation and nitrogen flushing at the end.

The system is composed by:

- ▲ Microprocessor electronic control unit;
- ▲ Pre-evacuation system by venturi pump;
- ▲ Evacuation system;
- ▲ Power supply panel for refrigerators;
- ▲ Nitrogen flushing line.

The equipment has been designed and manufactured according to the strictest international safety standards related to operators and environment protection. Vortex NK meets the regulations required by the CE standard.

### GEDA Interface

The Vortex NK comes with a complete integration with the GEDA (Galileo Equipment Data Acquisition) system for data acquisition and statistics, remote programming as well as external supervision of the line.



### Technical data sheet

Quick connection	1/4" tipo Hansen® female <i>(optional: piercing pliers)</i>
Discharge connection	1/2" G
Vacuum pump	Double stage 18 m <sup>3</sup> /h <1x10 <sup>-2</sup> Pa (1x10 <sup>-4</sup> mbar)
Dimensions (WxLxH)	450 × 700 × 1200 mm
Weight	85 kg
Working temperature	+5 ÷ +50 °C
Power supply	230/400 - 50 Hz - 3ph <i>(other on request)</i>
Power consumption	950 W
Compressor thermal magnetic switch	2.5 - 4.0 A
Compressed air	600 ÷ 800 kPa (6 ÷ 8 bar)
Compressed air consumption	54 l/min.
Pressure N <sub>2</sub>	200 ÷ 400 kPa (2 ÷ 4 bar)



### Venturi Pump

A venturi pump can be used in production lines of refrigeration units to discharge the internal pressure of a unit that has been charged with refrigerant and will later be destined to the repair line.

## GTP UWMEX ultrasonic welder

The safest way to seal in a dangerous area

The **GTP UWMEX** is designed to hermetically seal copper tubes of cooling circuit after charging the refrigerant. Thanks to the use of ultrasonic technology, the system welds different types of copper tubes in a couple of seconds, ensuring high quality reliability and maximum safety.

The GTP UWMEX includes:

- ▲ A compact control unit located on the ultrasonic generator and contains all interfaces to connect with PC, IT network, and barcode readers
- ▲ A portable welding tool (head) which in one step automatically performs crimp, weld and cut off of the tube

A rotational kit for easy left and right cutting without any adjustment is optional.

The welding tool (head) of the "EX proof" models can be easily installed in a hazardous area providing maximum safety.

The welding parts (sonotrode and anvil) have a life of several thousand welds and can be easily and quickly replaced.



### Technical data sheet

GENERATOR	
Dimensions (W x P x H)	450 x 350 x 240 mm
Weight	18 kg
Power output (Max)	3 kW
Input voltage	190-265 V ac 50/60 Hz
Operating frequency	20.000 Hz
Air pressure supply (Min)	600 kPa (6.0 bar)
Digital Port	N°2 RS-232
Ethernet Port	N°1

WELDING HEAD	
Dimensions (W x P x H)	600 x 110 x 230 mm 590 x 80 x 140 <i>without handle</i>
Weight	14 kg
Connection cable length	6 m <i>(other on request)</i>
Cutting type	Left or right on request
Thickness of tube	Up to 1.1 mm
External diameter of tube	Up to 10 mm



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