

Vacuum and Charging Injectors

HCFC, HFC Application



Hansen Connector

- 1/4" or 3/8" Hansen quick coupler (ISO 7241B)
- automotive connection (suction or send side)
- 1/4" SAE quick coupler with Schrader valve



Gustav

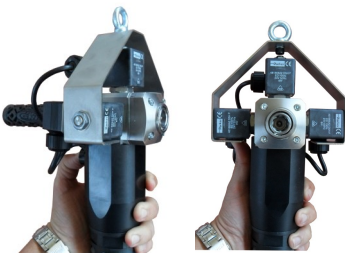
- 1/4" Hansen quick coupler (ISO 7241B)
- Only vacuum coupler



Pluvio V2

- 1/4" or 3/8" Hansen quick coupler (ISO 7241B)
- automotive connection (suction or send side)
- 1/4" SAE quick coupler with Schrader valve

High Performances HC Applications, Multi Refrigerant



PLUVIO V3

- 1/4" or 3/8" Hansen quick coupler (ISO 7241B)
- automotive connection (suction or send side)
- 1/4" SAE quick coupler with Schrader valve
- Start Button integrated
- Charge speed 40 g/s (Refrigerants HCFC)



PLUVIO V4

- 1/4" or 3/8" Hansen quick coupler (ISO 7241B)
- automotive connection (suction or send side)
- 1/4" SAE quick coupler with Schrader valve
- Start Button integrated
- Charge speed 80 g/s (Refrigerants HCFC)

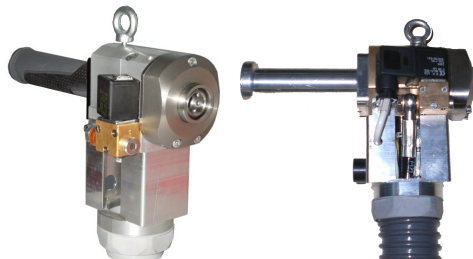


PLUVIO V5

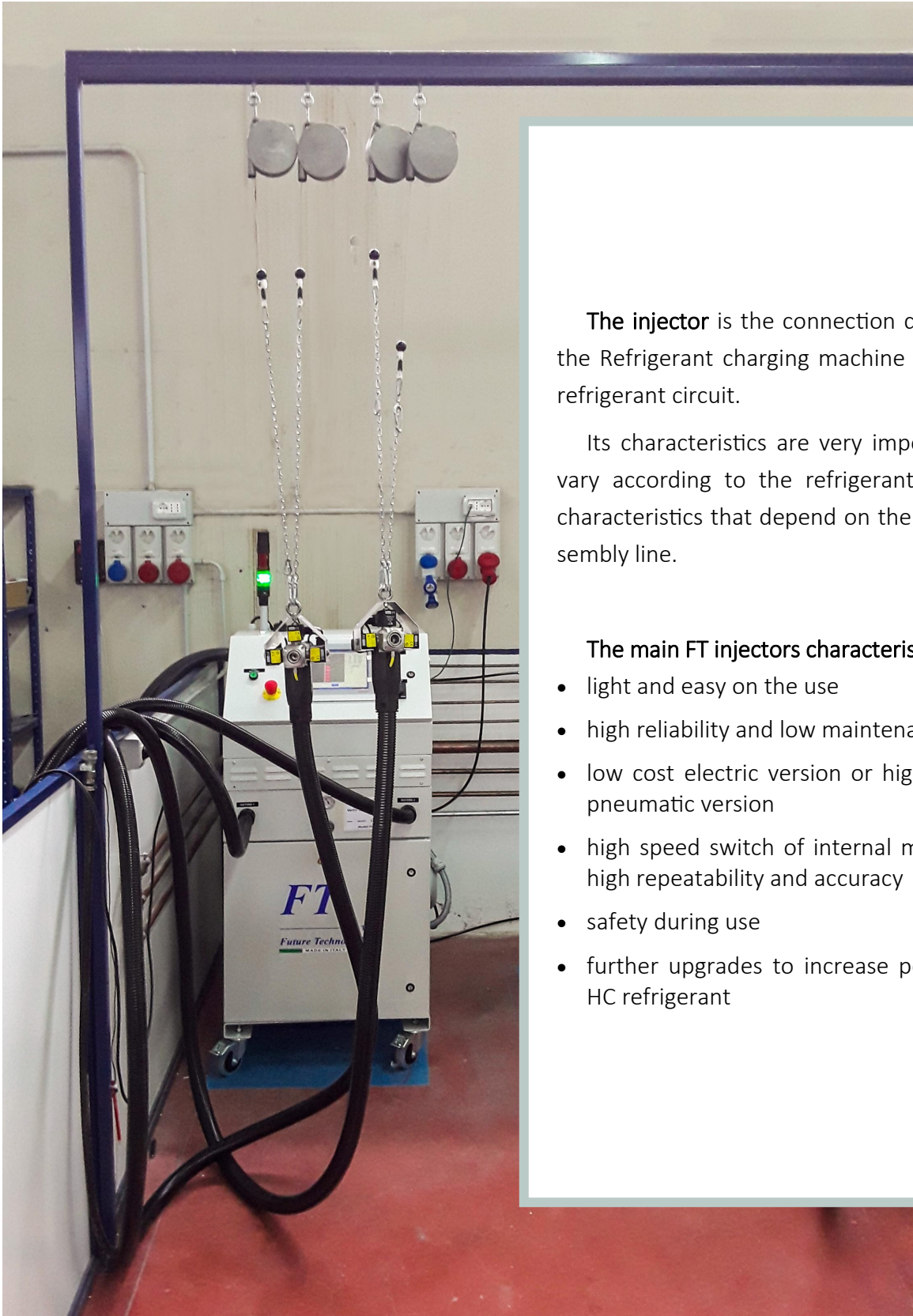
- 1/4" or 3/8" Hansen quick coupler (ISO 7241B)
- automotive connection (suction or send side)
- 1/4" SAE quick coupler with Schrader valve
- Start Button integrated
- Charge speed 40 g/s (Refrigerants HCFC)

MFIL

- High mass production and high precision
- 1/4" or 3/8" Hansen quick coupler (ISO 7241B)
- automotive connection (suction or send side)
- Start Button integrated
- Charge speed 60 g/s (Refrigerants HCFC)



General overview



The **injector** is the connection device between the Refrigerant charging machine and the cooler refrigerant circuit.

Its characteristics are very important and can vary according to the refrigerant charging unit characteristics that depend on the production assembly line.

The main FT injectors characteristics are:

- light and easy on the use
- high reliability and low maintenance frequency
- low cost electric version or high performance pneumatic version
- high speed switch of internal micro-valves for high repeatability and accuracy
- safety during use
- further upgrades to increase performance on HC refrigerant

Vacuum and Charging Injectors

HCFC, HFC Application



Hansen Connector



Gustav



PLUVIO V2

The **Hansen Connector** is used for pressurization systems up to 55 bar. The diameter is $\frac{1}{4}$ " or $\frac{3}{8}$ " Hansen quick coupler (ISO 7241B).

- This connector is used only with **iAmiata** units.

The **Gustav** injector is used to speed up vacuum performance of the vacuum and charging unit. The diameter is $\frac{1}{4}$ " Hansen quick coupler (ISO 7241B) with automatic pneumatic needle control.

The **PLUVIO V2** is part of the PLUVIO injectors series, which are electromagnetic piloted to better control the vacuum and refrigerant charge.

It is equipped with $\frac{1}{4}$ " Hansen quick connector or optionally with $\frac{1}{4}$ " SAE Schrader.

PLUVIO V2 is equipped with an ergonomic handle and START button, and can be supplied on request with an Automatic quick release

- **PLUVIO V2** is supplied as standard injector in **iTeide TTD** and **iRockall** units.

* The standard length of the injector is 3,5 m but longer ones are available on request.



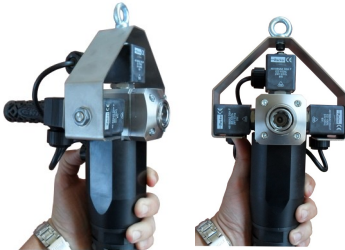
iAmiata unit pressurization systems
The Hansen Connector



PLUVIO V3
connected to the customer's unit



High Performances HC Applications, Multi Refrigerant



PLUVIO V3



PLUVIO V4



PLUVIO V5

PLUVIO series (V3, V4, V5) are vacuum and charging injectors with pneumatic/electromagnetic control, which minimize any dead spaces to ensure the maximum compactness and lossless transfer towards the group circuit from the charging station.

PLUVIO is an injector with no refrigerant release to the environment, designed for medium/low throughput production lines.

The pneumatic needle valve and automatic connection used are 1/4 "or 3/8" Hansen (ISO 7241B). Alternative 1/4 "or 3/8" SAE Automotive connections are also available on request.

- * The standard length of the injector is 3.5 m but longer ones are available on request.

PLUVIO is supplied as standard in iRockall HC, but it can be specially configured for other applications

such as the CO2 or High Speed applications.

Multi Refrigerant Injectors (V5) (1/4" quick connectors)

These multi refrigerant injectors are designed for special applications where the customer requires a more compact solution in a limited space, or a general multi stadium filling mixture composed by two or more refrigerants.

The solution can be used for two or three refrigerants, vacuum and service exhaust, thanks to its modular design, to host the related Electric Valves, also available in ATEX configuration.

The Automatic coupling and the needle are pneumatically operated.

Company Profile

Vacuum and Charging units

HC Refrigerants handling systems

Special Units

Vacuum and Charging Injectors

Refrigerant transfer pump

Pressure test units leak detectors

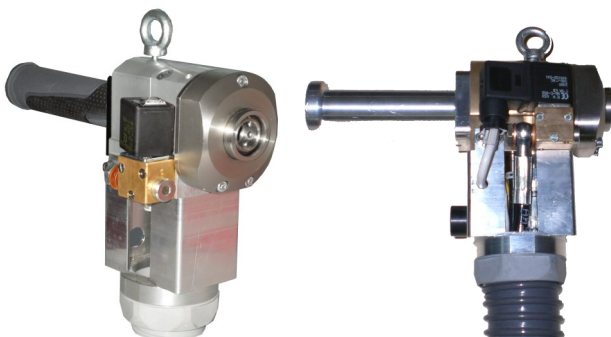
Preliminary evacuation

Electrical and functional test

Ultrasonic tube sealers

IPCS & IPCS PLUS

MFIL



For **High Productivity processes** FT suggests the use of the MFIL Injector.

Thanks to its micro pneumatic technology combined with the speed of the Electric Valves, this Injector is capable to manage very frequent charge cycles without problems. The typical use, for instance, is mass production where it is strictly required to continuously work h-24 with small quantity charges high reliability.

真空和充注注射器

HCFC, HFC的应用



Hansen连接器

- 1/4" 或 3/8" Hansen 快速接头 (ISO 7241B)
- 汽车连接 (吸入侧或发送侧)
- 1/4" SAE快速接头, 带Schrader阀



Gustav

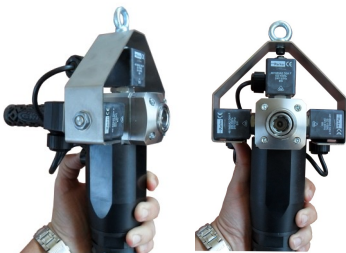
- 1/4" Hansen快速接头 (ISO 7241B)
- 仅真空联轴器



PLUVIO V2

- 1/4" 或 3/8" Hansen 快速接头 (ISO 7241B)
- 汽车连接 (吸入侧或发送侧)

高性能HC应用, 多制冷剂



PLUVIO V3

- 1/4" 或 3/8" Hansen 快速接头 (ISO 7241B)
- 汽车连接 (吸入侧或发送侧)
- 1/4" SAE快速接头, 带Schrader阀
- 集成启动按钮
- 充注速度40 g/s (制冷剂HCFC)



PLUVIO V4

- 1/4" 或 3/8" Hansen 快速接头 (ISO 7241B)
- 汽车连接 (吸入侧或发送侧)
- 1/4" SAE快速接头, 带Schrader阀
- 集成启动按钮

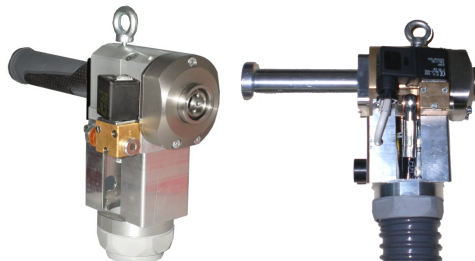


PLUVIO V5

- 1/4" 或 3/8" Hansen 快速接头 (ISO 7241B)
- 汽车连接 (吸入侧或发送侧)
- 1/4" SAE快速接头, 带Schrader阀
- 集成启动按钮
- 充注速度40 g/s (制冷剂HCFC)

MFIL

- 大批量生产, 高精度
- 1/4" 或 3/8" Hansen 快速接头 (ISO 7241B)
- 汽车连接 (吸入侧或发送侧)
- 集成启动按钮
- 充注速度60 g/s (制冷剂HCFC)



总体概述



注射器是制冷剂充注机和冷却器制冷剂回路之间的连接装置。

它的特性非常重要，并且可以随着生产装配线决定的制冷剂充注装置特性而变化。

FT注射器的主要特点是：

- 轻便且易于使用
- 可靠性高，维护频率低
- 低成本电动版本或高性能气动版本
- 内部微型阀的高速开关可实现高重复性和准确性
- 使用过程中的安全
- 进一步升级，以提高HC制冷剂的性能

真空和充注注射器

HCFC, HFC的应用



Hansen连接器



Gustav



PLUVIO V2

Hansen 连接器用于高达 55 bar 的加压系统。直径为 $\frac{1}{4}$ " 或 $\frac{3}{8}$ " Hansen 快速接头 (ISO 7241B)。

- 该连接器仅与iAmiata装置一起使用。

Gustav 注射器用于加速真空和冷媒充注装置的真空性能。直径为 $\frac{1}{4}$ " 的Hansen快速接头 (ISO 7241B)，带自动气动针控制。

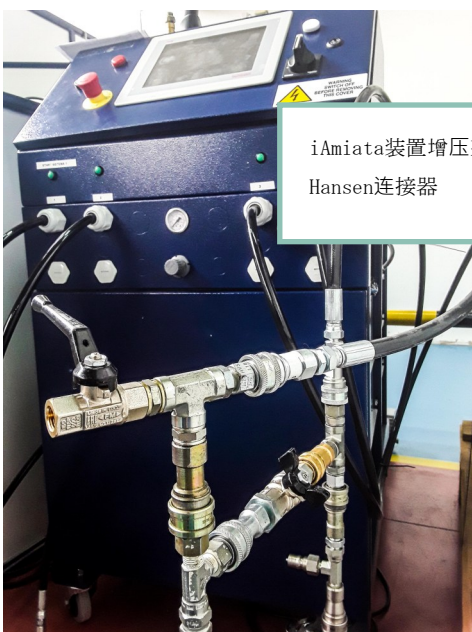
PLUVIO V2是PLUVIO注射器系列的一部分，采用电磁先导，可以更好地控制真空和制冷剂充注。

它配备 $\frac{1}{4}$ " Hansen快速接头或可选配 $\frac{1}{4}$ " SAE Schrader。

PLUVIO V2配备符合人体工程学的手柄和启动按钮，并可根据要求提供自动快速释放装置

- **PLUVIO V2**作为 iTeide TTD 和 iRockall 装置中的标准喷油器提供。

* 注射器的标准长度为3.5 m，但可根据要求提供加长版。



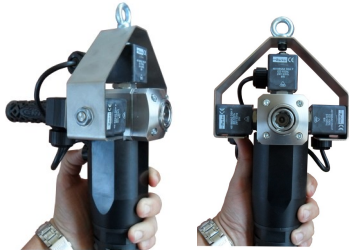
iAmiata装置增压系统
Hansen连接器



PLUVIO V3
连接到客户的装置



高性能HC应用, 多制冷剂



PLUVIO V3



PLUVIO V4



PLUVIO V5

PLUVIO 系列 (V3、 V4、 V5) 是具有气动/电磁控制的真空和充注注射器, 可最大限度地减少任何死角, 确保从充注站到组件电路的最大紧凑性和无损传输。

PLUVIO是一款不会向环境释放制冷剂的注射器, 专为中/低产量生产线而设计。

使用的气动针阀和自动连接是1/4“或3/8”Hansen (ISO 7241B)。还可根据要求提供的1/4”或3/8”SAE汽车连接。

* 注射器的标准长度为3.5 m, 但可根据要求提供加长版。

PLUVIO是iRockall HC的标配, 但可以针对其他应用, 例如CO₂或高速应用进行专门配置。

多制冷剂注射器 (V5) (1/4” 快速接头)

这些多制冷剂注射器专为特殊应用而设计, 在这些应用中, 客户需要在有限的空间内更紧凑的解决方案, 或者由两种或多种制冷剂组成的通用多级填充混合物。

由于其模块化设计, 该解决方案可用于两种或三种制冷剂、真空和工作排空, 以托管相关的电动阀, 也可采用ATEX配置。

自动联轴和针是气动操作的。

公司简介

真空和制冷剂连接

HC制冷剂处理系统

特殊装置

真空和充注注射器

制冷剂输送泵

压力测试单元检漏仪

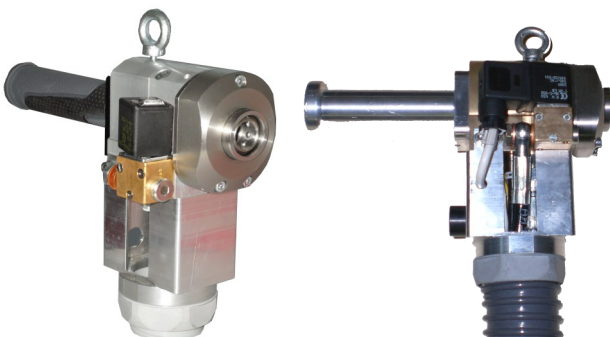
初步排空

电气和功能测试

超声波管封口机

IPCS和IPCS PLUS

MFIL



对于高生产率流程, FT 建议使用MFIL注射器。

由于其微气动技术与电动阀的速度相结合, 该注射器能够轻松管理非常频繁的充注循环。例如, 大规模生产就是典型用途, 严格要求h-24能够以少量装料、高可靠性连续工作。