

Refrigerant Transfer Pumps

RTP

RTP - Devices to pressurize and transfer refrigerant to delivery lines

RTP Pumps are designed specifically for the transfer and pressurization of refrigerants. They are provided with a complete set of accessories, which include:

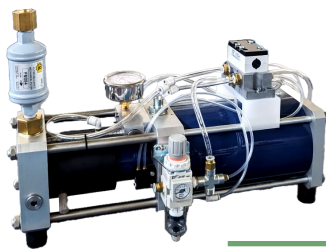
- Pressure regulator fluid in the supply line
- Gauge pressure of the fluid in the supply line
- Safety valve by-pass to protect the RTP from possible over-pressure in the discharge line
- Unit filter / dryer for compressed air

Suggested accessories :

- High capacity filter on the inlet, to protect the pump from solid impurities that may be present in the refrigerant
- Quick couplings with flat faces, to enable rapid

connections and disconnections from the refrigerant lines, in case of pump maintenance operations

- Suction hose to connect the filter to the storage tank and to the pump
- Hose in the supply to connect the pump directly to the refrigerant charging unit
- Safety valve for emission of refrigerant to the outside or inside the tank in case of emergency
- Hydro-pneumatic accumulator to maintain stable discharge pressure in case of unexpected refrigerant flow variation in the distribution system



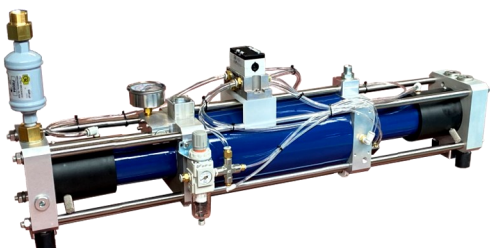
RTP 6315

Maximum rate 6,0 l/min

Dimension 540x200x340 mm

Single compression action

One Hydraulic cylinder



RTP 6315T

Maximum rate 10,0 l/min

Dimension 700x200x340 mm

Double compression action

Two Hydraulic cylinders

Technical characteristic	RTP 6315 (-HC)	
Maximum rate	6,0 l/min	
dimensions	540x200x340 mm	
Weight	15kg	
Number of Hydraulic cylinders	Single compression action	
Refrigerant compatibility	HFC, HCFC, HFO, HC	
Geometrical multiplier ratio	4,27 ** Equal to the ratio: refrigerant delivery pressure–refrigerant supply pressure) / compressed air pressure features subject to change without notice; please contact FT Sales Service for more information	
Integrated safety valve setting	4000 kPa	
Delivery line connection	3/8" GAS-M	
Suction line connection	3/4" GAS-M	
Compressed air supply	Dried, filtered, not lubricated	
Compressed air Pressure	2 ÷ 6 bar	
Compressed air Pressure pipe typology	RILSAN Øe 8 mm	

Technical characteristic	RTP 6315T (-HC)	RTP 6325T (-HC)
Maximum rate	10,0 l/min	13,0 l/min
dimensions	700x200x340 mm	1100x200x340 mm
Weight	17kg	40kg
Number of Hydraulic cylinders	Double compression action	Double compression action
Refrigerant compatibility	HFC, HCFC, HFO, HC	

Optional features and devices	
RTP Connection KIT	
Automatic RTP Stopping System (RTP SS) (with acoustic alarm, red -green light, HFC or HC)	
Automatic Tank Change system (TCS)	
Customization on special platform composed by RTP SS + TCS + Hydro-pneumatic accumulator	

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

Refrigerant Transfer Pumps

Hydro-pneumatic Accumulators

The **hydro-pneumatic accumulator** is a device designed specifically for the storage of liquids under pressure. As liquids are, for all practical purposes, incompressible, the storage is achieved by making use of the compressibility of gases.

The accumulators can be conveniently used in different applications, such as:

- Keep the liquid under pressure, to temporarily maintain high levels of flow rate.
- Stabilization of pressurized lines, to limit the fluctuations of temperature or flow rate.
- Energy storage in the form of pressurized fluid or hydraulic spring.
- Absorb hammering or pulsation of the fluid.

The accumulators are available for many standard Industrial Refrigerants and fluids such as:

- Refrigerants HFC (R134a, R404A, R407C, R410A,

R507, others)

- Refrigerants HCFC
- Refrigerants CFC
- Refrigerants HC and HFO (R600a, R290, R32, R1234ze R1234yf)
- Other “natural gases” as NH₃ (R717) e CO₂ (R744), industrial oils or general fluids
- CE-PED, ATEX and ML available on request

* FT srl provides accumulators with preloaded pressurized nitrogen as standard.

* When choosing an accumulator please contact the technical department of FT srl to communicate the nature of the fluid used.



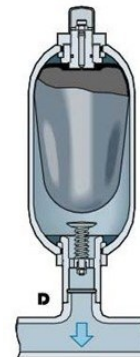
A- A flexible separator bladder is fitted into a pressure vessel (accumulator shell).



B- An inert gas (nitrogen) is introduced into the bladder through a special valve with pressure P_0 . The bladder expands, filling the entire volume V_0 of the accumulator shell.



C- When circuit pressure P_1 is higher than the gas pre-charge pressure P_0 , the liquid valve opens, and the bladder is compressed reducing the gas volume to V_1 .



D- When the liquid pressure rises to P_2 , the volume of gas reduces to V_2 with an attendant rise in pressure, thus balancing the liquid pressure. This means that the accumulator has been pressurised $\Delta V = V_1 - V_2$ and a potential energy has been created to be utilised as desired.

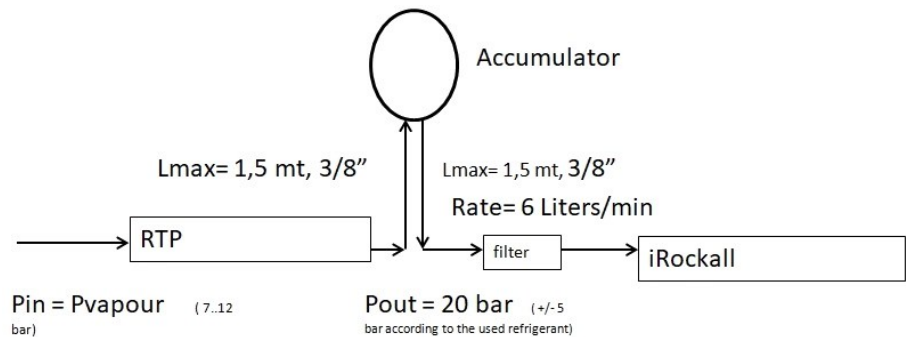
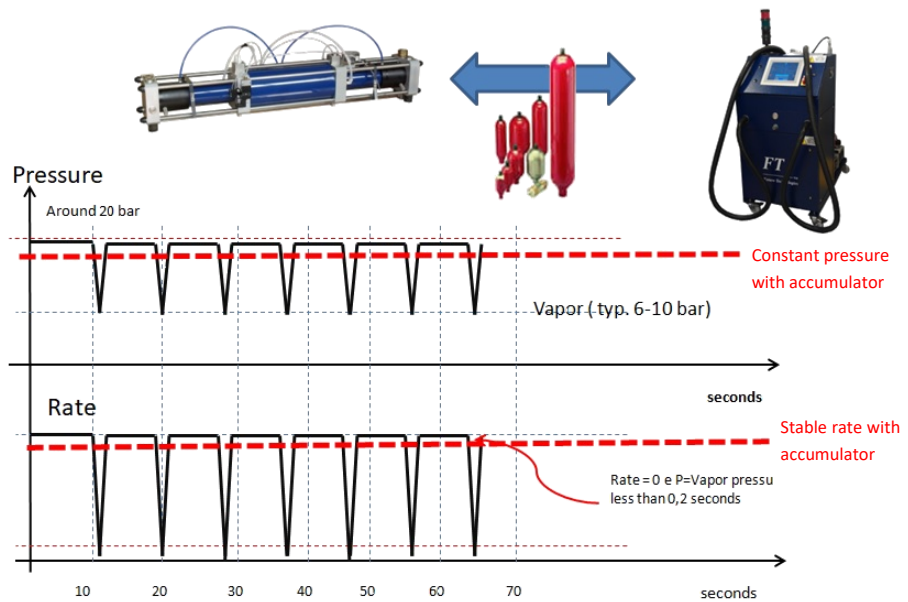
Typical Charge Amount on Refrigerant Circuit	Available and suggested capacity	Dimensions (H x D mm) weight (kg)
from 30 g to 100 g	0,35 Litres	190 x 70mm 2,5 kg
from 100 g to 300 g	0,70 Litres	220 x 92mm 3,2 kg
from 300 g to 1 kg	1,5 Litres	270 x 115mm 6,2 kg
from 1 kg to 3 kg	3,0 Litres	400 x 115mm 9,8 kg
from 3 kg to 10 kg	5,0 Litres	365 x 168mm 15 kg
from 10 kg to 25 kg	15,0 Litres	750 x 168mm 25 kg
over 25 kg	25 Litres	750 x 220mm 36kg

* Contact the technical FT srl for proper sizing accumulators, size and accessory piping

Example of connection and functionality

The pictures show the rate and relevant waveform smoothing in presence of the accumulator (red line).

The FT charging units operate at maximum accuracy when the accumulator is working correctly.



Accessories suggested with Accumulators

Support brackets

Holding collars

Kit pipe / fitting for interfacing with systems RTP

Nitrogen accumulator control kit

- 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

制冷剂输送泵

RTP

RTP - 加压制冷剂并将其输送至输送管线的设备

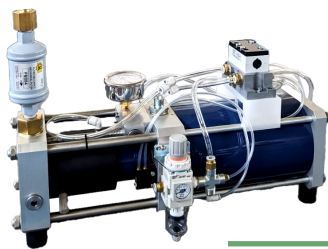
RTP泵专为制冷剂的输送和加压而设计。它们配备了一整套配件，其中包括：

- 供应管线中的压力调节器流体
- 供应管线中的流体压力计
- 安全阀旁路可保护RTP免受排放管线中可能出现的过压影响
- 压缩空气装置过滤器/干燥器

推荐配件：

- 入口处的大容量过滤器，可保护泵免受制冷剂中可能存在的固体杂质的影响
- 具有平坦面的快速接头，可在泵维护操作时快速连接和断开制冷剂管路

- 用于将过滤器连接至储罐和泵的抽吸软管
- 供应软管将泵直接连接到制冷剂充注装置
- 安全阀，用于在紧急情况下将制冷剂排放到罐外或罐内
- 在分配系统中制冷剂流量意外变化时，液压气动蓄能器可保持稳定的排出压力

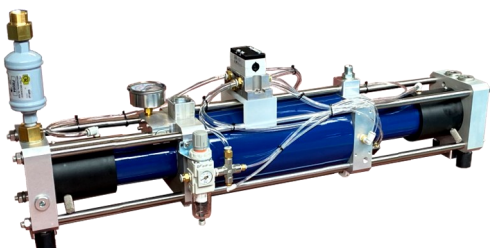


RTP 6315

最大流量 6.0 L/min

尺寸 540x200x340 mm

单压缩动作



RTP 6315T

最大流量 10.0 L/min

尺寸 700x200x340 mm

双压缩动作

两个液压缸

技术特性	RTP 6315 (-HC)	
最大速率	6.0 L/min	
尺寸	540x200x340 mm	
重量	15kg	
液压缸数量	单压缩动作	
制冷剂兼容性	HFC、HCFC、HFO、HC	
几何乘数比	4.27**等于比率：制冷剂输送压力 - 制冷剂供应压力 / 压缩空气压力特性如有更改，恕不另行通知；请联系FT销售服务了解更多信息	
集成安全阀设置	4000 kPa	
输送线连接	3/8" GAS-M	
抽吸线连接	3/4" GAS-M	
压缩空气供应	已干燥、过滤、未润滑	
压缩空气压力	2 - 6 bar	
压缩空气压力管道类型	RILSAN Øe 8 mm	

技术特性	RTP 6315T (-HC)	RTP 6325T (-HC)
最大速率	10.0 L/min	13.0 L/min
尺寸	700x200x340 mm	1100x200x340 mm
重量	17kg	40kg
液压缸数量	双压缩动作	双压缩动作
制冷剂兼容性	HFC、HCFC、HFO、HC	

可选功能和设备	
RTP连接套件	
自动RTP停止系统 (RTP SS) (带声音警报、红绿灯、HFC或HC)	
自动储罐充注系统 (TCS)	
RTP SS+TCS+油气蓄能器组成的专用平台定制	

公司简介
真空和冷媒充注装置
R12制冷剂处理系统
特殊装置
真空和冷媒充注装置
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
超声波密封口机
IPCS和IPCS PLUS

制冷剂输送泵

液压气动蓄能器

液压气动蓄能器 是专门为储存压力液体而设计的装置。由于液体在所有实际用途中都是不可压缩的，因此通过利用气体的可压缩性来实现存储。

蓄能器可以方便地用于不同的应用，例如：

- 使液体保持在压力下，以暂时保持高水平的流速。
- 稳定加压管线，以限制温度或流量的波动。
- 以加压流体或液压弹簧的形式储存能量。
- 吸收流体的锤击或脉动。

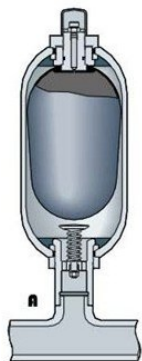
蓄能器适用于许多标准工业制冷剂和液体，例如：

- 制冷剂HFC (R134a、R404A、R407C、R410A、R507等)
- 制冷剂HCFC
- 制冷剂CFC

- 制冷剂HC和HFO (R600a、R290、R32、R1234ze R1234yf)
- 如NH₃ (R717)和CO₂ (R744)等其他“天然气”、工业油或一般液体
- 可根据要求提供CE-PED、ATEX 和 ML

* FT srl的标配蓄能器预装了加压氮气。

*当选择蓄能器时，请联系FT srl技术部门，告知所用流体的性质。



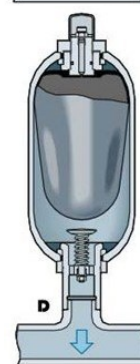
A- 将柔性分离器气囊安装到压力容器（蓄能器外壳）中。



B- 通过压力为P₀的特殊阀门将惰性气体（氮气）引入气囊。气囊膨胀，充满蓄能器外壳的整个体积V₀。



C- 当回路压力P₁高于气体预充压力P₀时，液体阀打开，气囊被压缩，气体体积减少至V₁。



D-当液体压力升高到P₂时，气体体积减少到V₂，压力随之升高，从而平衡液体压力。这意味着蓄能器已被加压 $\Delta V = V_1 - V_2$ ，并且已产生可根据需要使用的势能。

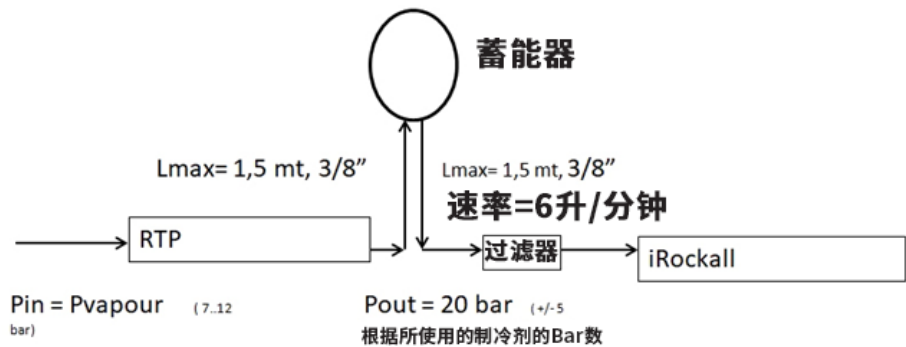
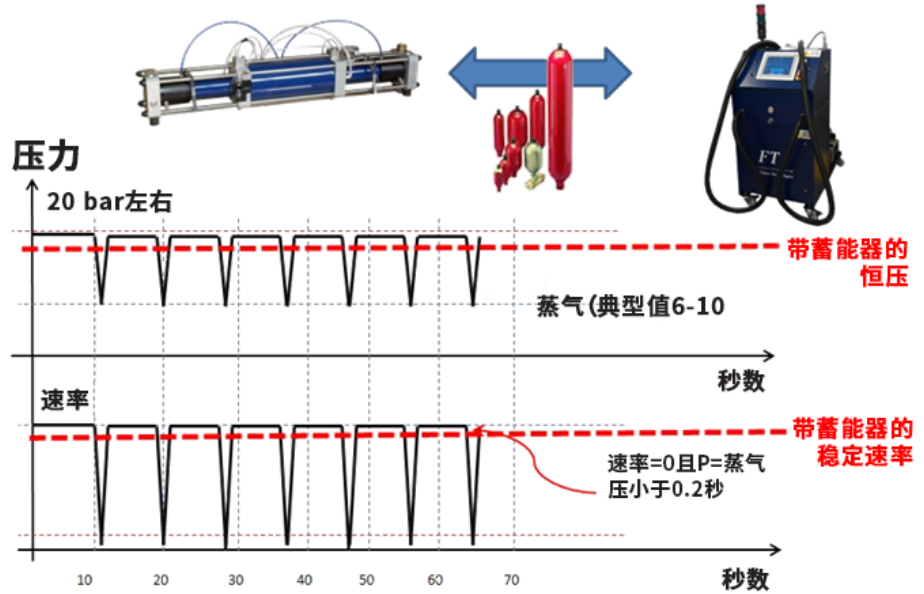
制冷剂回路的典型充注量	可用容量和建议容量	尺寸 (高 x 深mm) 重量 (公斤)
从30 g至100 g	0.35 L	190 x 70mm 2.5 kg
从100 g至300 g	0.70 升	220 x 92mm 3.2 kg
从300 g至1 kg	1.5 L	270 x 115mm 6.2 kg
从1 kg至3 kg	3.0 L	400 x 115mm 9.8 kg
从3 kg至10 kg	5.0 L	365 x 168mm 15 kg
从10 kg至25 kg	15.0 L	750 x 168mm 25 kg
超过25 kg	25 L	750 x 220mm 36 kg

* 请联系FT srl技术人员，了解正确尺寸的蓄能器、尺寸和附件管道

连接和功能示例

图片显示了蓄能器存在时的速率和相关波形平滑 (红线)。

当蓄能器正常工作时，FT 充注装置会以最高精度运行。



建议与蓄能器一起使用的配件

- 支架
- 固定轴环
- 用于与RTP系统连接的套件管道/配件
- 氮气蓄能器控制套件