



5 Tesla Cryofilter Technology

**5 Tesla Superconducting Magnet
Reciprocating Action
Persistent Mode
Simple Cryogenic system
Low Power / Low Running Cost
Capacity Options**

Why 5 Tesla?

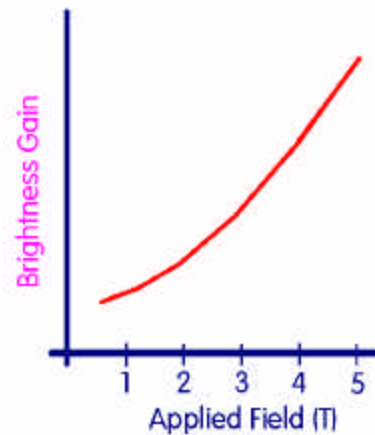
5 Tesla provides a superior separation force and is the key to high capacity slurry beneficiation. As the separation force is proportional to field and field gradient, then 5 Tesla systems offer unrivalled performance

If the contamination reacts easily to separation:

- 5 tesla = high throughput

If the contamination is difficult to separate:

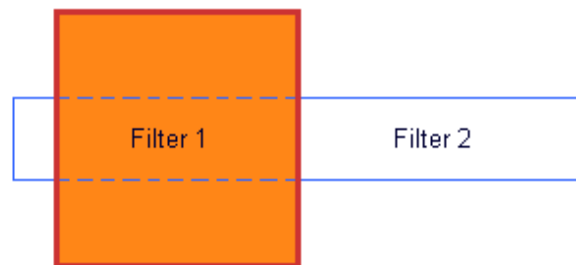
- 5 Tesla = the highest available separation force



Why Reciprocating Action?

Reciprocating Action removes the necessity for fast ramping highly stressed magnet coils. The filter elements are moved in and out of the magnetic field by a simple and reliable mechanical device. Once outside the magnetic field the trapped magnetic material is easily removed by flushing the filter element

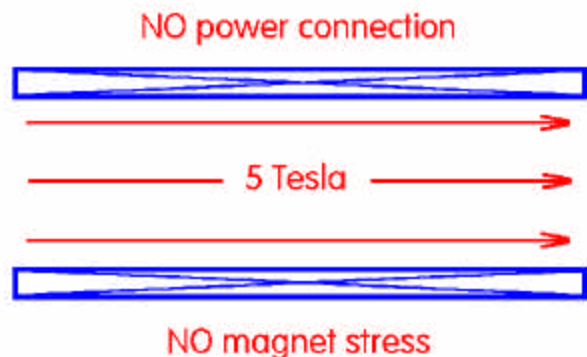
Reciprocation is the key to high magnetic fields, high duty factors and extremely simple cryogenic systems.



Why Persistent Mode?

It allows a superconducting magnet to be at full field indefinitely without requiring any electrical power, therefore eliminating the need for a complex power supply. Persistent Mode operation means that the power supply is switched-off and the magnet coil loop closed into a continuous circuit. The zero resistance associated with superconductivity ensures the current in the magnet continues to flow. The simplicity of this mode of operation ensures that the magnet experiences the lowest possible stress levels and guarantees long life. In persistent mode the magnet is totally immune to outside influences such as power loss or peripheral equipment failure.

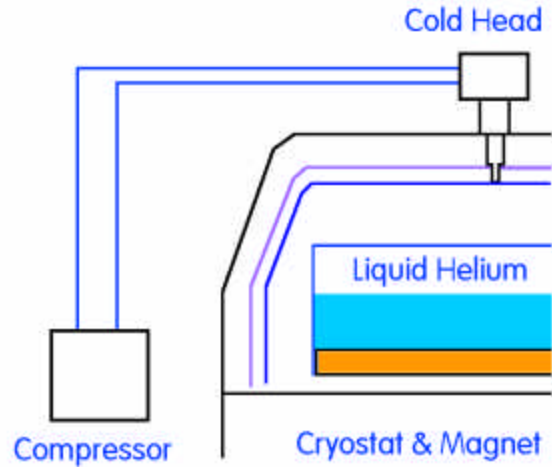
Persistent Mode operation is key to reliable high field, low stress coils.



Why Simple cryogenic systems?

As the 5 Tesla superconducting magnet is operated in persistent mode, the magnets' containment vessel can be purpose designed to ensure maximum helium hold time. Based on well proven MRI technology (1000's of systems in the field), the magnet is immersed in liquid helium (@4.2K) ensuring it is ALWAYS at its operating temperature. A simple cold head minimises the loss of the helium, giving a hold time of more than 1 year between re-fills. In some instances it is possible to completely eliminate helium boil off.

Simple cryogenic systems are the key to long term helium retention and trouble free running - anywhere in the world.



Why Low Running Costs?

As the magnet is run in persistent mode then NO power is used to maintain the magnetic field. The only power consumption is that used to drive the cold head. This ensures the lowest possible power consumption at less than 10 kWh. The system employs an extremely efficient cryogenic system with little (<1000 l/yr) or NO helium being consumed. The cold head requires a service only once per year. As all other mechanical components of the system are easily customer serviced, only minimal running costs are experienced.

Low running costs are key to margin recovery on processed product.

Capacity Options

Carpco offers a wide range of Cryofilter systems that will suit any production requirement. In addition the laboratory systems allow customers to use an on site Quality Control system which is directly scalable to production systems.

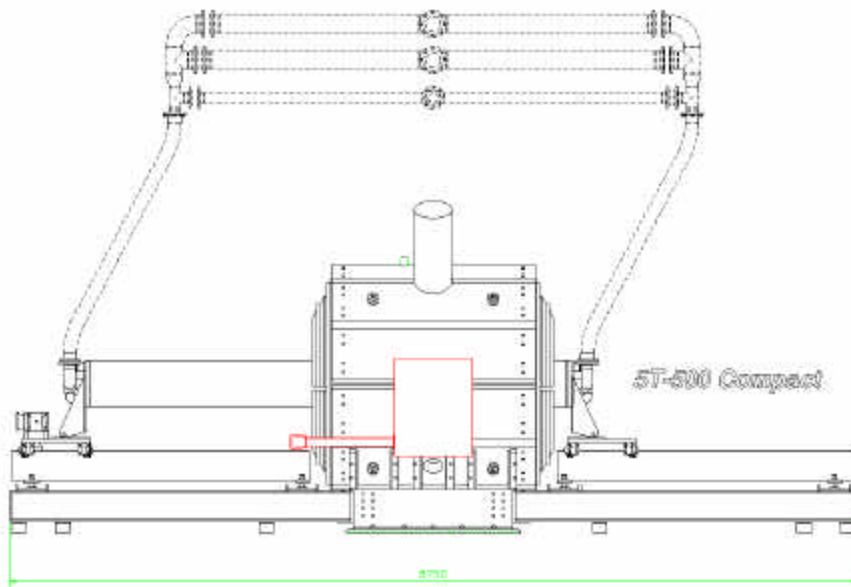
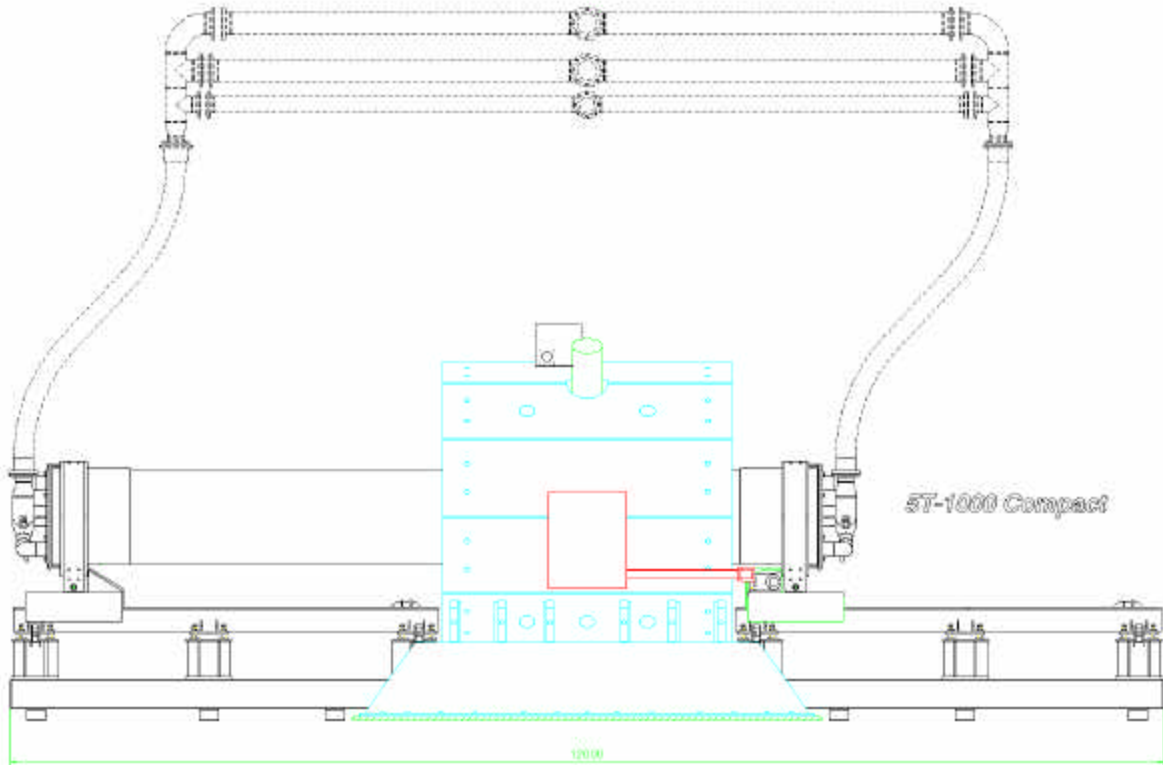
Cryofilter Models:	Capacity:
Laboratory 5T/75 (magnet options)	BATCH / 500 to 1000 kg / day in RC mode
Pilot 5T/200CF/D	~450 kg / hr
Industrial 5T/360, 500, 1000	10, 30, 100 tph

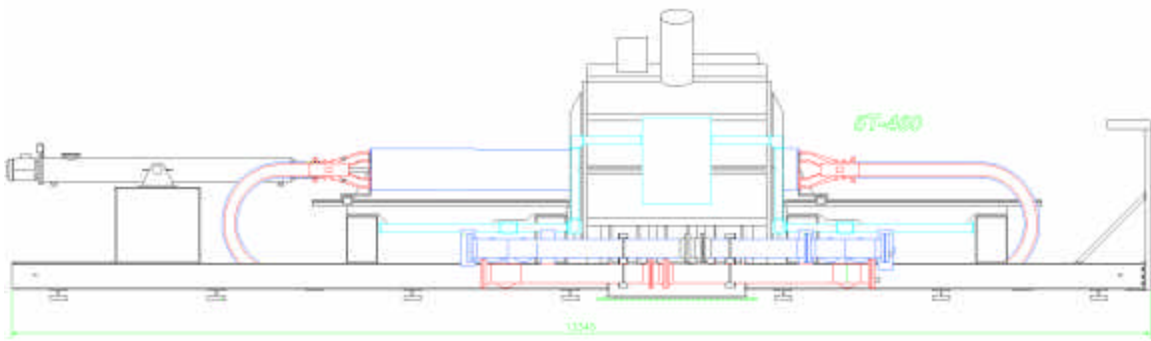
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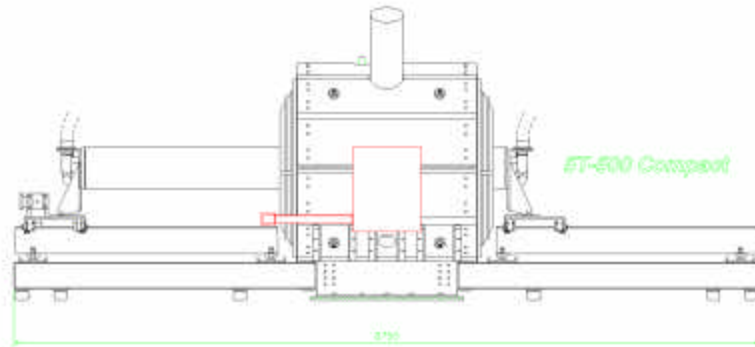
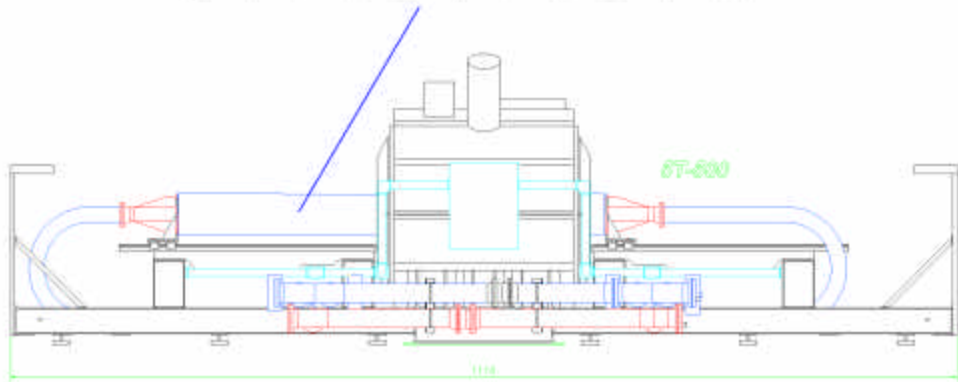
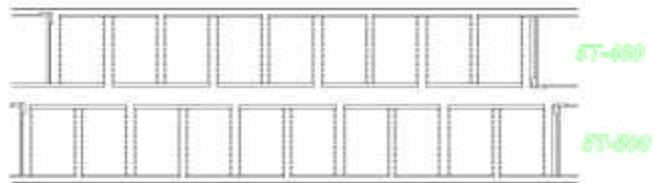


Carpco Cryofilter 5T/1000 prior to shipment (1997)





Filter Section
 11% increase in capacity
 with an extra
 processing section



Evolution of the Cryofilter 5T/460 to 500 "Compact"