



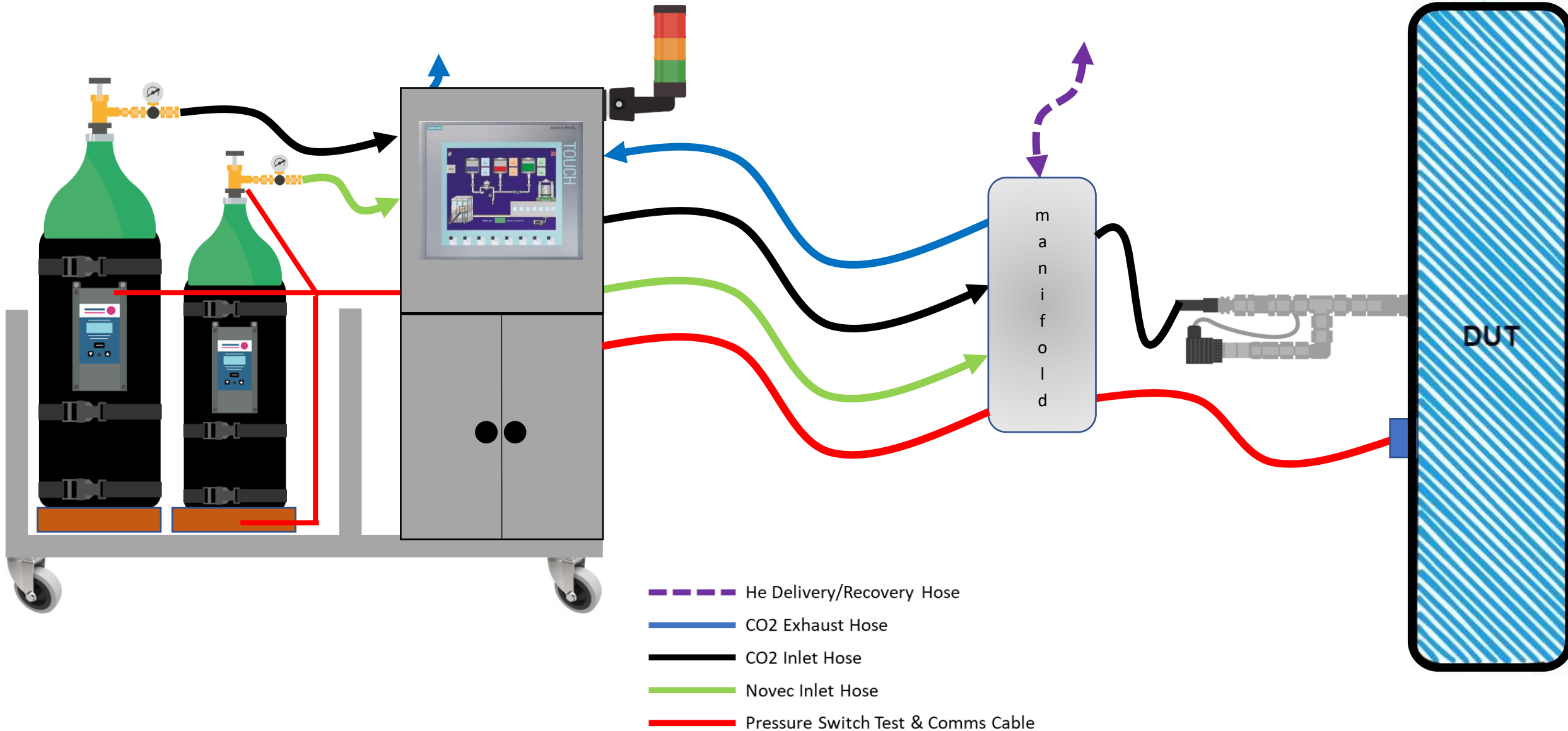
Introducing
emt

SmartMix

EMT have many years experience in handling, mixing and control of gas delivery solutions

- Global supplier of switchgear and electrical equipment to the electricity T&D Market approached EMT for an engineering solution to their gas mixing issues
- Their process was at R&D/Prototype stage and needs scaling up to production level capability
- The process was very manual in both filling and removing gas; quality depends on ability and focus of engineer
- During the fill process key components could become damaged and so needs testing, this was a manual and timely process; recording of results and audit trail is manual/paper based
- Process required a large volume of gas in a short period of time, which led to line freezing, cooling of gas and unstable pressure measurement.
- Novec gas needs to maintain a temperature of 40-60C during filling to ensure miscibility with CO₂
- There was potential for repeatability issues, as operators can have a different ways of completing the process

EMT Smart Mix



EMT Smart Mix

3



Cylinder heater blanket provides controlled heat to Novec cylinder increasing miscibility

Heater blanket on CO2 cylinder to maintain even temperature during depressurization

2



Integrated weighing scales provide accurate & repeatable measurement of gas delivered to the DUT.

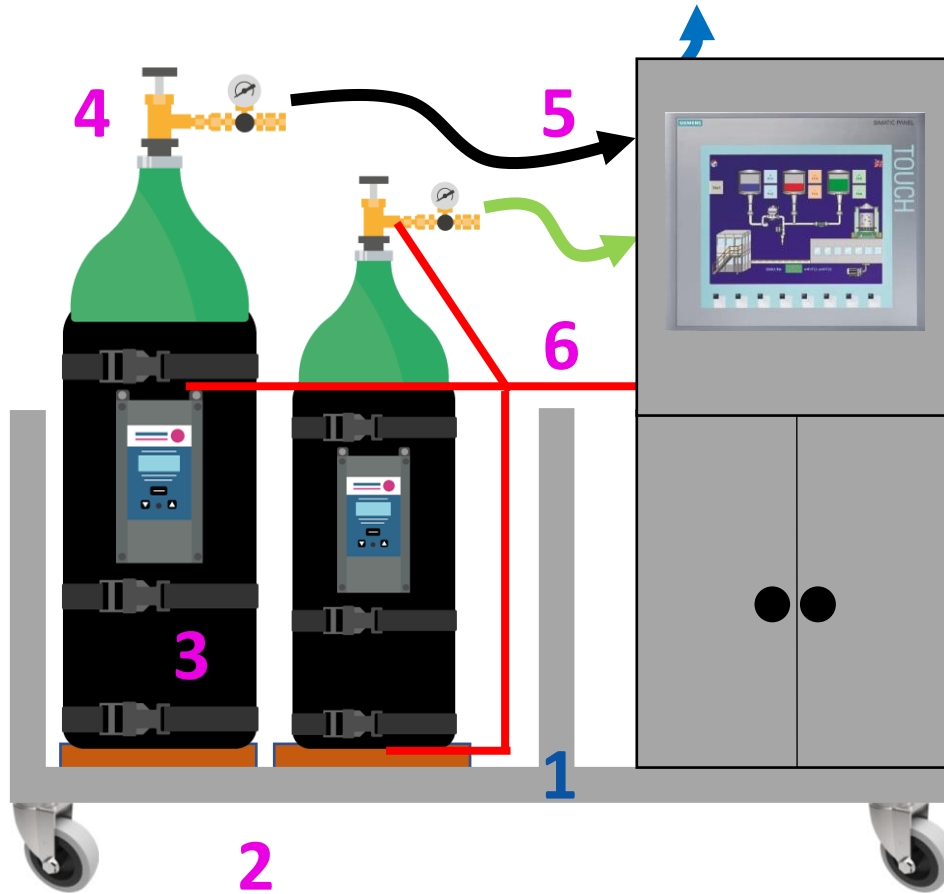
Delivery weights are recorded creating automated audit trails

1



Powder coated or Stainless Steel framework to house entire enclosure and gas cylinders.

Framework to be on wheels and/or forklift connections for full mobility



4



Heated Cylinder Regulators ensures Novec gas remains at target temperature.

Prevents icing of CO2 regulator and gas cooling from Joule Thompson effect

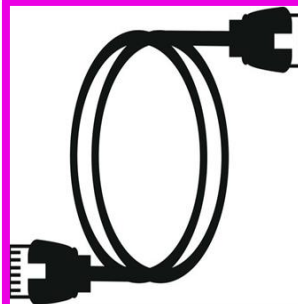
5



Heated hoses ensures Novec gas remains at target temperature.

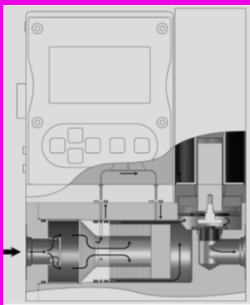
Raises temperature of CO2 delivered increasing miscibility with Novec

6



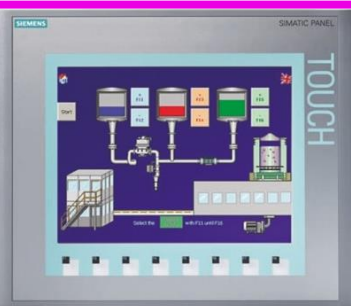
Feedback data from the heater blankets, scales and regulators ensures the system cannot operate unless all parameters are good.

In addition all data is recorded for audit.



3

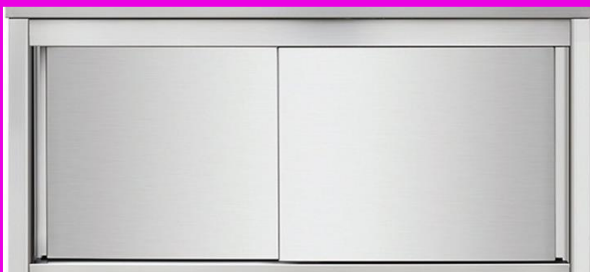
Utilizing Mass Flow Controller (MFC) technology, the system delivers a smooth and laminar flow of gas, accurately measuring the mass of gas through the system ensuring a consistent fill process



2

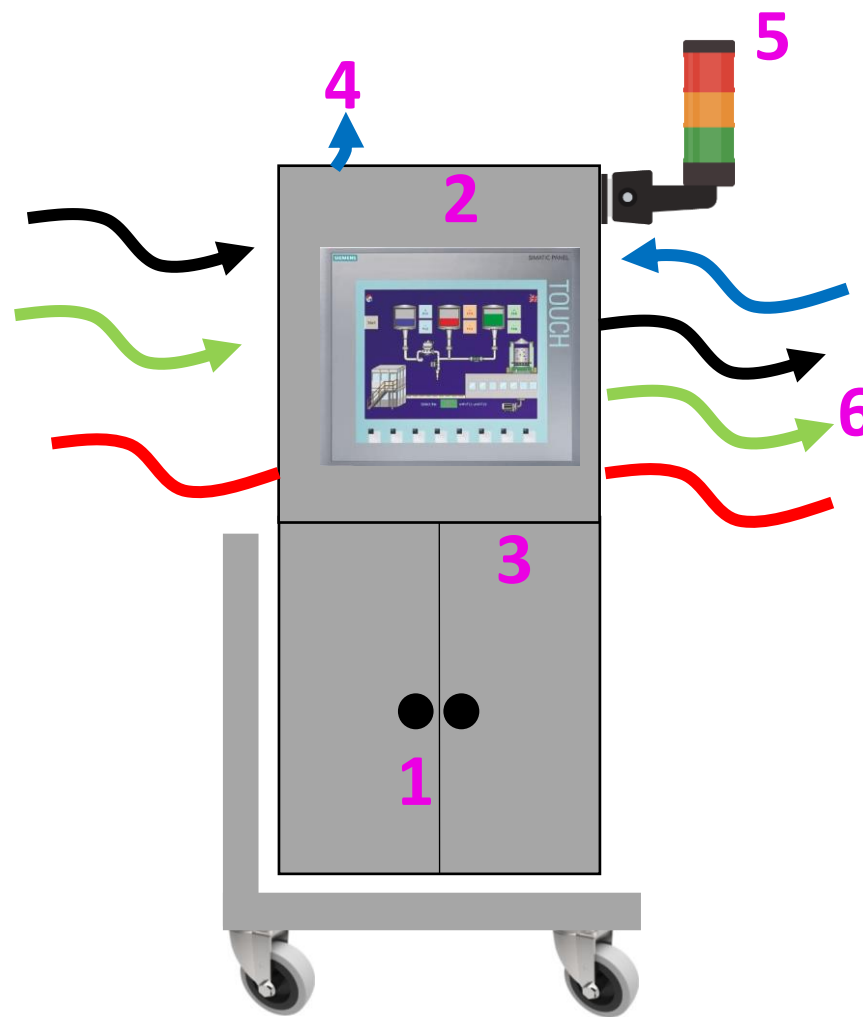
Large touch screen interface for ease of use and understanding.





Basic features include system set-up, data interrogation and basic USB export of results/audit trail

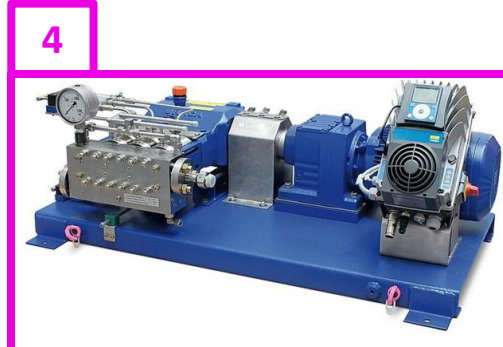


1

Integrated storage solution for housing hoses, fittings and accessories to ensure the work environment is clean, organized and safety.



-  CO2 Exhaust Hose
-  CO2 Inlet Hose
-  Novec Inlet Hose
-  Pressure Switch Test & Comms Cable



4

System will record the amount of CO2 released from the DUT to provide emissions/total CO2 usage data. CO2 will be vented by pipe to site ventilation, or optionally recovered for re-use/recycling



5

System Audible and Visual alert system warns operators when system is operating or in fault.

Clear warning system to ensure operator safety



6

S/Steel Swagelok quick connect couplings ensure the purity and limit moisture ingress.

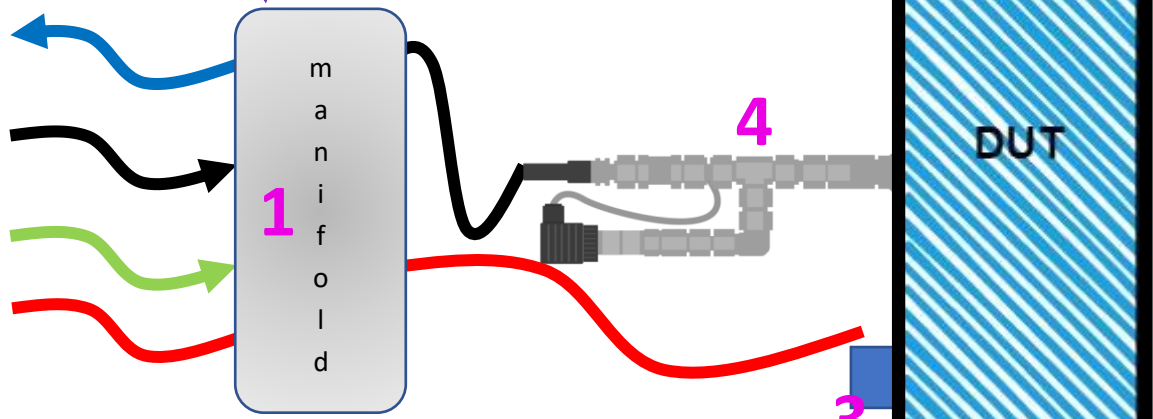
Colour coded and differing connections removes risk of cross contamination or incorrect hose configuration.






1



System controlled solenoid valve manifold to accurately and reliably control fill and evacuation processes.
Manifolds also acts as connection for pressure sensor and optional asset barcode reader

2



-  He Delivery/Recovery Hose
-  CO2 Exhaust Hose
-  CO2 Inlet Hose
-  Novec Inlet Hose
-  Pressure Switch Test & Comms Cable

2



Optional Helium Recovery system and purification process available to reduce Helium costs
ROI on investment calculable

3



Integrated connection to DUT pressure switch automates the pressure switch testing process saving time and potential for error.

4



Stainless Steel Filling connection with integrated high accuracy Abs pressure sensor for measuring DUT pressure levels and recording results for audit trail