

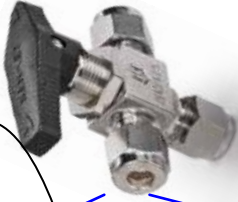
Improved Performance
TEE Ball Valve

V1



GasCon UltraHigh Purity Helium Regulator
(SS Diaphragm Nickel-plated Brass)

1



22605

22475

VICI -Matsen
Purifier
22600



Click-on
OxyTrap
22468

22479



Indicator
OXYTrap
22019

2



Super Clean System

22025

22020



20623

High
Ca-
pa

4

Improved Performance
2-Way Ball Valve

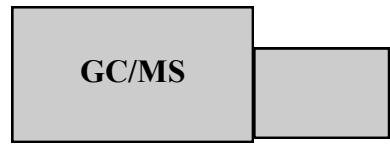
V2



Click-on System

3

GC/MS



Simple Helium Gas Purifier system

Options for GC/MS

99.9% Start > <<1ppM O₂

1 VICI-Matsen Helium Purifier (High Capacity ~4 Cylinders)

\$22600

In-line Indicating OxyTrap #22019

2 Click-On System (self-piercing connectors - minimum Air ingress)

#22475 Click-on End-Connector

High Capacity Click-On OxyTrap #22468

#22479 Click-on Double Trap Connector

Click-On Indicator Trap #22474

3 Super-Clean System

3x Adsorbent Replacement Cartridge #22020

Fixed Base Plate #22025

4 High Capacity Oxytrap #20623

(replacement Cartridges #20625 are self-piercing - minimum Air ingress)

Ultra High Purity Gascon Helium Regulator HD5S-A-700-GGP-T10-F/A-He

A10 Bottle spigot Fitting

Option (but redundant Diaphragm or Needle Valve)

SS Ball Valve Improved design

(MAX 0.1cc/min N₂ @1000psi leak tested / certified)

2-Way Gas Isolation > when GC/MS Off-line V₂

Tee-Valve > for venting V₁

Assumptions : a Basic Capillary GC /MS

Single column 5cc./min He Max operating, Spasmodic Splitter operation

@ 50ml/min

NO leaks 2>20cubft cylinder should last 400 days if left running 24/7

Changing of cylinder and venting will help preserve Oxytraps

Indicator trap on outlet of Main OxyTrap (non-see thru') is essential

Assume Commercial Helium is suspect and 99.95% purity is OK but triple traps recommended to ensure <1ppM moisture, HCs clean up

High Purity Helium assumed 10-100ppM impurities

Some Hints

- When leak checking > Human Nature is to over-tighten adfinitum
- DON'T—eventually the cone on Swagelok will “bell out” and seal will be compromised
- Do Not mix and match different brands of fittings and ferrules Swagelok and Parker maybe > but NOT good practice
- NEVER use Sulfinert/Silcosteel ferrules in similarly treated fittings they just do NOT seal at all—like sandpaper on sand paper !
- Teflon Thread sealing Tape can be of marginal use Teflon tends to be air porous at trace levels
Ultra High Purity threads generally use industrial thread “goo” wax such fittings can be very difficult to disassemble without proper tools (WE don't do it due to risk of damaging scoring expensive fittings regulators etc DO IT AT YOUR OWN RISK !
- Use old fittings ferrules tubing sets at YOUR RISK
You can ruin expensive Oxytraps and GC columns and mass Spec filament if ANY leaks
- Never use industrial Regulators these have rubber diaphragms and infuse air badly (albeit at “trace” levels but disastrous long term for Oxytraps columns etc
- An Oxytrap properly used will absorb up to 1000cc of O2 depending on size of trap etc
Manually changing traps etc can easily ingress 10cc of Air if you are not careful
- Regulators can have a dead volume of 100 to 500ul and should be sensibly purged when changing cylinders and traps
- For both GC and particularly GC/MA use an isolation valve on inlet of GC
On standby/closedown the GC System can back diffuse air throughout the system
Any dead pockets in fittings, Tees gauges can act as exponential dilution flask and take “hours” to slowly diffuse air out
- Of course any rubber diaphragm, O-rings Teflon Components will slowly release absorbed air/O2
 - 30mins purge time from start-up is recommended before heating columns or activating a Mass Spec system
- NEVER EVER use water or SNOOP Leak Detector solution on ANT fitting columns connectors etc
Even against positive pressure this “contamination can diffuse in
- Use a Electronic Leak Detector
MORE > Use a bit of “common sense”
- DON'T Let a “bean counter” or “bush mechanic” anywhere near your GC/MS with a 24” Shifter spanner
“False Economy” by skimping on maintenance and old parts - you are dealing with expensive delicate instrument (100's of 1000's of \$\$\$'s maybe “ think of the consequence due to ANY down time !
- ALWAYS use a secondary Indicator Trap DON'T rely on Unsight(ly) manifold systems mounted Traps
- Install close to the GC AND actually look at the indicator as they get used Change the “Main Trap on a first change in color.

Some Pricing . . . Ex GST etc July 2017 USD/AUD 0.72)

22600 Purifier Module Helium 1/4in Fittings : \$610

22019 Super-Clean Gas Filters Complete Carrier Gas Filter Kit. Baseplate and Triple Filter. Oxygen Moisture and Hydrocarbon trap (1/8in) :\$932

22468 Super-Clean Click-on Trap Replacement Oxygen Trap Ultra High Capacity : \$295

22479 Click-On Trap Connectors Double Connector : \$535

22474 Super-Clean Click-on Trap Indicating Cartridge : \$306

22020 Super-Clean Gas Filters Replacement Triple Trap for Carrier Gas. Filters Oxygen Moisture & Hydrocarbons :\$395

22025 Super-Clean Baseplate Single Position Baseplate for One Cartridge Filter 1/8in Brass Fittings : \$547

20623 Trap Oxygen Indicating High Capacity 1/4" Fittings : \$747

20625 Trap Oxygen Indicating High Capacity Refill Cartridge For Cat #'s 20624/20623 Only : \$569

HD5S-A-700-GGP-T10-F/A-He \$780

SS Diaphragm Ni-plated Brass Body Helium Australian A10 Spigot On/OFF Valve 1/8 Swagelok Fitting Outlet

To be advised Standard Industrial Ball are ABSOLUTELY USELESS !

Even most Precision Engineered versions have Teflon Ball CTFE Seats or Teflon-coated internal components whilst the better ones are certified to MAX N2 leak test of 0.1cc/min at 1000psi

Few if ANY OEMS are “game enough” to rate them for GC/MS use re Air in-diffusion

Chromtech is “sourcing” similarly Valves with PEEK innards to absolutely Minimise these potential problems

ASK for more details !

INVEST IN PROPERLY DESIGNED Quick-Connect Traps such as Click-on or Easy-Clean despite the high cost they can be still ultimately COST EFFECTIVE !

V1

V2

