



Scuba Supplies & Test Equipment



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PAINTBALL FILLING EQUIPMENT

Paintball enthusiasts have discovered that dive shop air is cheaper and more readily available for recharging their gun bottles than is nitrogen or carbon dioxide. GMC sells the special adapters required for filling most paintball tanks.

47211... Converter Bushing Reducer 1/4" to 1/8" NPT, S/S

A stainless steel bushing to change a 1/4" NPT female port to an 1/8" female port. Allows the paintball coupler to be installed in common 1/4" NPTF ports.

56165... Paintball Fill Adapter, Yoke Mode

Mates to any scuba tank filler whip (yoke mode) and allows recharging of small paintball tanks. Consists of a stainless-quick coupler to engage the tank and a metering element to govern the fill rate into the small vessel. 3,200 psi service.

56166... Paintball Fill Adapter, DIN Mode

Identical to #56165, except the whip adapter will connect to a 300-Bar DIN fitting for filling to 4,500 psi.

56167... Paintball Scuba Tank Transfiller, Yoke Mode

Paintballers often buy / rent scuba tanks to transfill their small paintball bottles. #56167 mates to any conventional scuba tank, while the quick coupler on the other end attaches to the paintball tank. A bleeder screw allows depressurization after transfilling has been completed. 3,200 psi service.

56168... Paintball Scuba Tank Transfiller, DIN Mode

Identical to #56167, except this unit has a 300-Bar male DIN fitting to mate to DIN-valved scuba tanks. 4,500 psi service.

56170... Deluxe Paintball Transfiller, Yoke Mode

Identical to #56167, except that a 5,000 psi gauge is installed in the bleeder block so that transfill pressures can be monitored. 3,200 psi service.

56171... Deluxe Paintball Transfiller, DIN Mode

Identical to #56168, except that a 5,000 psi gauge is installed in the bleeder block to permit monitoring of transfill pressures. 4,500 psi service.

56175... Male Paintball Coupler

A small stainless steel quick coupler which mates to most paintball tanks. 1/8" NPT male threads. 4,500 psi service.

56176... Female Paintball Coupler

Identical to #56175, but thread is 1/8" female NPT (not pictured).

56177... Scuba to Paintball Transfiller w/ Hose

A 3-foot hose with a paintball coupler on one end and a scuba yoke & bleeder attachment on the other. For filling paintball tanks from scuba cylinders secured in car trunk or truck bed.

56178... CGA 347 Air to Paintball Transfiller w/ Hose

A 3-foot hose with a paintball coupler on one end and a CGA 347 nut/nipple/ bleeder on the other. For filling paintball tanks from commercial cylinders of hi-pressure air (4,500 psi).



DIVE SUPPORT ACCESSORIES - BAGS



Color Swatch for Bags & Float Covers

CUSTOM MADE BAGS - It is very important to promote your organization, store or club. GMC can make almost any size or shape bag and customize it by silk screening your logo, name, address, or website on them. Customize any of these GMC products: Bags - Stickers - Float Covers - Dive Flags.



Preview Bag
Preview

Preview Bag

This half-mesh / half-fabric bag measures 15" x 30" with a heavy-duty central top zipper. Solid Cordura fabric forms the bottom and about one third (8" x 30") of the sides; each side panel is constructed of our Dura-Mesh. When desired, an internal fabric flap can be unrolled to cover the equipment for security purposes. Each end panel of the bag has a zippered pocket.

70030... Black 70031... Blue 70032... Red 70038... Neon Green



Mesh Gear Bag

Medium

Large

Mesh Gear Bags

A very popular bag constructed of Dura-Mesh with solid nylon end panels. A water-repellent, zippered pocket is sewn onto one end panel. Each bag has a top zipper and wrap around carrying handles.

Medium - 13" x 24"
(no shoulder strap)

Large - 15" x 30"
(shoulder strap included)

70170... Black
70171... Blue
70172... Red
70173... Yellow
70178... Neon Green
70179... Pink

70180... Black
70181... Blue
70182... Red
70183... Yellow
70188... Neon Green
70189... Pink



Mfg. by GMC with materials supplied from companies in the USA.



Economy Bag

Economy Bag

This bag offers rugged Cordura nylon bag at a very affordable price. The large Econo Bag has round, vented mesh end panels with a lengthwise zipper and sewn-in carrying handles. Large Only, 30" x 15".

70400... Black 70401... Blue 70402... Red

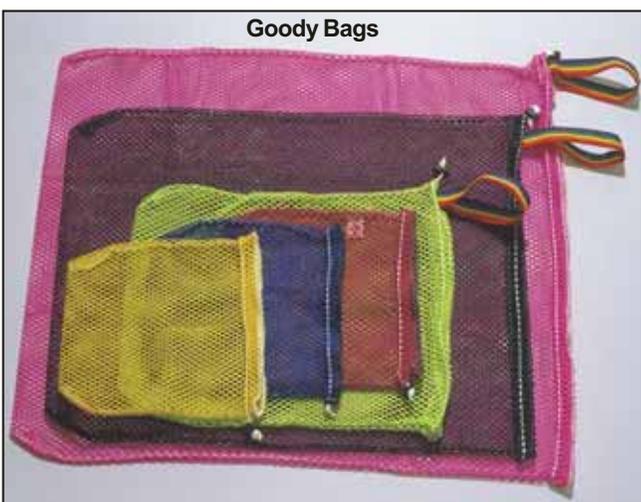
Snorkeler's Shoulder Bag

Snorkelers perfect gear bag. It is constructed of super-strong Dura-Mesh affording full visibility and drainage while sporting a sturdy 10" x 17" zippered, water-repellent nylon front pocket for accessories. The bag has a heavy duty shoulder strap, draw-string closure, and solid nylon bottom pane.

70270... Black
70271... Blue
70272... Red
70273... Yellow
70278... N Green
70279... Pink



Snorkel Shoulder Bag



Goody Bags

Goody Bags Nylon mesh bags are available in 6 colors and 4 sizes. The 3 largest sizes come with a wrist strap to prevent accidental loss. All bags come with a draw string closure.

Small - 9" x 13"

70280... Black
70281... Blue
70282... Red
70283... Yellow
70288... N Green
70289... Pink

Medium - 14" x 22"

70290... Black
70291... Blue
70292... Red
70293... Yellow
70298... N Green
70299... Pink

Large - 18" x 30"

70300... Black
70301... Blue
70302... Red
70303... Yellow
70308... N Green
70309... Pink

X-Large - 24" x 36"

70310... Black
70311... Blue
70312... Red
70313... Yellow
70318... N Green
70319... Pink

DIVE SUPPORT ACCESSORIES - BAGS

All GMC Hoop Bags are constructed with a heavy galvanized steel hinged hoop and metal closure clip. Double handles provide for easy grasping and carrying. Bags are handy for rinsing, draining and aerating gear.

Hoop Bags

Both size hoop bags constructed with strong Dura-Mesh in assorted colors.

Medium - 12" diameter x 30"

70340... Black

70341... Blue

70342... Red

70343... Yellow

70348... Neon Green

Large - 18" diameter x 36"

70350... Black

70351... Blue

70352... Red

70353... Yellow

70358... Neon Green



Hoop Bags



Super Hoop Bags

Super Hoop Bags

Both size Super Hoop Bags are made with stout black Dura-Mesh on the bottom topped with strong upper panels of nylon fabric. On each panel is a convenient, zippered utility equipment pocket.

Medium - 12" diameter X 30"

70320... Black / Black

70321... Blue / Black

70323... Yellow / Black

70328... Neon Green / Black

Large - 18" diameter x 36"

70330... Black / Black

70331... Blue / Black

70333... Yellow / Black

70338... Neon Green / Black

Giant Hoop Bag and Giant Deluxe Hoop Bag

A huge model, similar to our popular super hoop "catch" bags, described above, hinges open onto a 24" metal rim. All-mesh or mesh-plus-fabric.

Giant Hoop Mesh Bag

70390... Black Mesh

70391... Blue Mesh

70398... Neon Green Mesh

Giant Deluxe Fabric/Mesh Hoop Bag

70360... Black Fabric / Black Mesh

70361... Blue Fabric / Black Mesh

70368... Neon Green Fabric / Black Mesh



Giant Hoop Bag

Giant Deluxe Hoop Bag



Dry Suit Hoop Bag

Dry Suit Hoop Bag

The bag's metal rim folds open a full 24", so the diver literally stands inside the opened bag on the clean fabric bottom, peels off the suit right into the bag itself, and then hinges it shut. The bag has a bottom vent to drain excess water and a handy side pocket for storage.

70100... Black

70101... Blue



Underwater Utility Bag

Underwater Utility Bag

This heavy duty, Cordura nylon bag hinges open to a 18" diameter. This bag is shaped like a half-moon, measuring 24" across x 15" high with a 8" x 10" outside pocket. Eight grommet-drains quickly empty the bag of trapped water. Duralon D-rings on the bag will secure it to the diver or can be used as lift-points for a surface line.

70372... Red

70378... Neon Green



Tek Dive Bag

Tek Dive Bag

This 12" X 18" bag is fabricated of tough Cordura nylon. It opens to a 9" diameter which is gusseted for extra expansion if needed; 2 velcro strips hold it flat for normal use. An outer 8" x 10" pocket is handy for storage. 2 split rings, one within this pocket and the other on the front provides an anchor point for safety lanyards. An adjustable D-ring and strap (removable) on the backside of the bag holds it close to the diver's body. Multiple grommet-vents rapidly drain the bag.

70382... Red

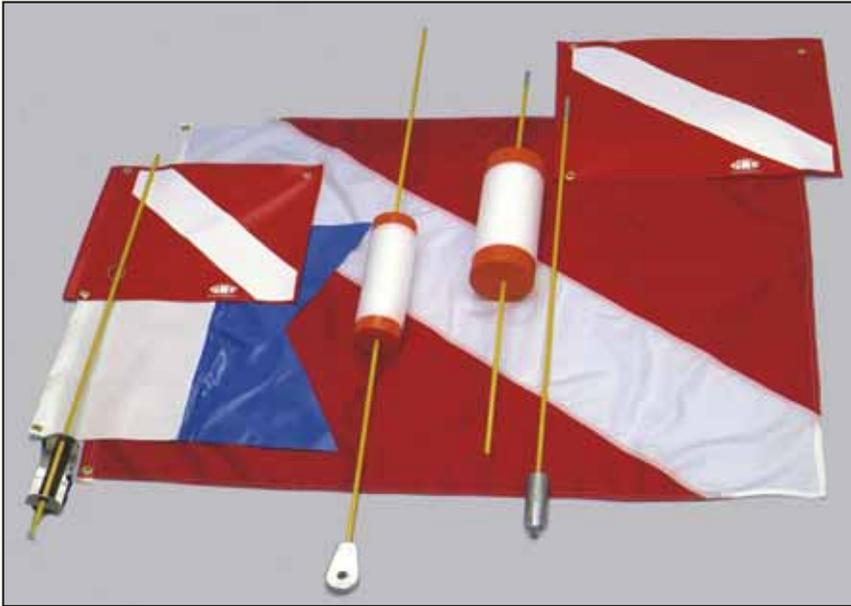
70388... Neon Green



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DIVE SUPPORT ACCESSORIES - FLAGS & FLOATS



IMPORTANT NOTE:
FLAGS MUST BE ORDERED SEPARATELY FOR BUOYS AND FLOATS.

Dive Flags - Nylon

Nylon models up to 20" x 24" have a sewn edge for shaft mounting; larger sizes DO NOT, and mount by grommets instead. Those flags WITHOUT a stiffener wire do have a sewn edge channel, whereas those with a wire DO NOT (grommet mounting). Custom screening is **NOT** available on nylon flags.

59160... 14" x 16"	59120... 36" x 45"
59161... 14" x 16" w/ stiff	59130... 30" x 36"
59150... 16" x 20"	59121... 48" x 60"
59151... 16" x 20" w/ stiff	59116... 72" x 90"
59140... 20" x 24"	
59141... 20" x 24" w/ stiff	

Dive Flags - Nylon - International Alpha

59115... 1 Meter	59126... 6' x 6'
------------------	------------------

59125... 1/2 Meter

Dive Flags - Vinyl

Available with your store name or logo. All vinyl models have an integrated metal wire to stiffen the flag and a sewn channel to slip over a shaft.

59080... 14" x 16"

59090... 16" x 20"

59092... 20" x 24"

59095... 24" x 24"

Dive Flags - Vinyl International Alpha

59170... 1 Meter

59175... 1/2 Meter



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Divers Buoy Units - Order Flags Separately!

Styrofloat with counter-weighted flag staff and retainers.

59040... 4' one piece unit for 14" x 16"

59050... 4' one piece unit for 16" x 20"

59060... 4' two piece unit for 14" x 16"

59070... 6' two piece unit for 16" x 20"

59075... 6' two piece unit for 24" x 24"

Innertube Flag Assembly - Order Flags Separately!

Includes staff, metal holder, and strap for innertube

59000... Assembly for 14" x 16" flags

59010... Assembly for 16" x 20" flags

59015... Assembly for 24" x 24" flags

Innertubes

(not pictured)

59190... 15" innertube for flag assemblies or float covers.

59195... Truck innertube for #59240 / #59241 floats.

FLOATS AND BUOYS



Diver Down and Dive Class Float

4 carrying / cling handles
 40" nylon float cover
 Bottom D-ring anchor attachment
 Removable plastic storage box
 16" x 20" dive flag & staff
 Truck innertube (included)
 Float line holders are NOT included but can be ordered separately below.

59240... Dive Class Float

59241... Diver Down Float

59245... Float line holder w / 100' line

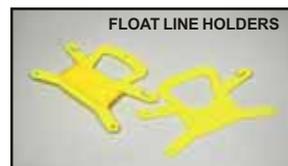
59246... Float line holder w / OUT line

59248... Float line holder w / 50' line



Dive Flag Float Cover

4 carrying / cling handles
 No pocket
 Red nylon pack cloth with a diagonal white stripe
 15" innertube (not included).
 59212... Dive Flag Float Cover



FLOAT LINE HOLDERS



Deluxe Float Covers

4 carrying / cling handles
 Zippered pocket
 15" innertube (not included)
 59201... Blue
 59202... Red
 59203... Yellow
 59204... Orange
 59207... N. Green



Quick Drain Float Cover

4 sewn-in handles
 D-ring anchor on bottom
 Top-open (no pockets)
 Bottom-strong PVC mesh
 15" innertube (not included).

59220... Black

59221... Blue

59222... Red

59223... Yellow

59224... Orange

59228... Neon Green



Inflatable Buoys



59198



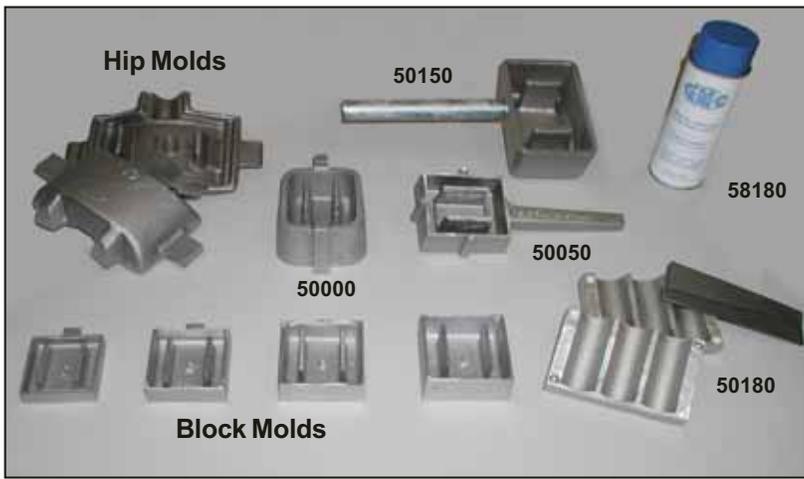
59200

Inflatable Buoys

59198... Yellow, 9" diameter

59200... Red, 12" diameter

DIVE SUPPORT ACCESSORIES - WEIGHT SYSTEMS



50000... Universal Weight Mold

This extra strong mold is ideal for shops and dive clubs. Makes 1 to 5 lb. weights. (No handle)

50050... Universal Weight Mold with Handle

This cast aluminum mold has a 6" handle and bosses for easy removal of finished weights. Makes 1-5 lb. weights.

Block Molds

50010... 1 lb 50020... 2 lb 50030... 3 lb 50040... 4 lb

50150... Hip Mold With Handle

A mold capable of making weights from 6 to 15 lbs.

Hip Weight Molds - A series of durable aluminum 2-piece molds for making contoured hip weights from 6 to 11 lbs. Finished weights are easily removed.

50060... 6 lb. 50070... 7 lb. 50080... 8 lb.

50090... 9 lb. 50100... 10 lb 50110... 11 lb.

50180... Cylindrical Molds - 32 oz. (2 lb.) - A two piece mold with a steel insert to create a belt slot.

58180... Silicone Lubricant and Mold Release Agent - Heavy silicone spray to coat mold for fast release of finished weight.

WEIGHT BELT AND COMPONENTS

Mix and Match Weight Belt Components - Weight belts are purchased as **INDIVIDUAL** components: buckles, keepers, and standard 54" webbing lengths - select any combination of buckle and webbing colors.

Buckles (plastic unless noted)

52110... S/S w/ pin	52250... S/S w/pin-10pk
52130... Black	52260... Black-10 pack
52131... Blue	52261... Blue-10 pack
52132... Red	52262... Red-10 pack
52133... Yellow	52263... Yellow-10 pack
52138... Green	52268... Green-10 pack
52139... Pink	52269... Pink-10 pack

Keepers (plastic)

52160... S/S-4 pack
54230... Black
54231... Blue
54232... Red
54233... Yellow
54238... Green
54239... Pink

Webbing - 54" Nylon Belt.

52240... Black	52270... Black-10 pack
52241... Blue	52271... Blue-10 pack
52242... Red	52272... Red-10 pack
52243... Yellow	52273... Yellow-10 pack
52248... Green	52278... Green-10 pack
52249... Pink	52279... Pink-10 pack

Webbing-150 ft. rolls

55100... Black
55101... Blue
55102... Red
55103... Yellow
55108... Green
55109... Pink

Webbing - Sold by foot. Rolls of webbing may not be continuous.

Custom cut lengths available - see price list.

55000... Black	55001... Blue	55002... Red
55003... Yellow	55008... Green	55009... Pink

Weight Belt Suspenders

54007... Black (Custom colors available)

Deluxe Pocket Weight Belt

Small 24"-32" waist, 25 lbs. **Medium** 34"-40" waist, 30 lbs.
Large 40"-48" waist, 40 lbs. **X-Large** 48" & up waist, 45 lbs.

BLACK

52170... Small
 52180... Medium
 52185... Large
 52190... X-Large

BLUE

52171... Small
 52181... Med
 52186... Large
 52191... X-Large

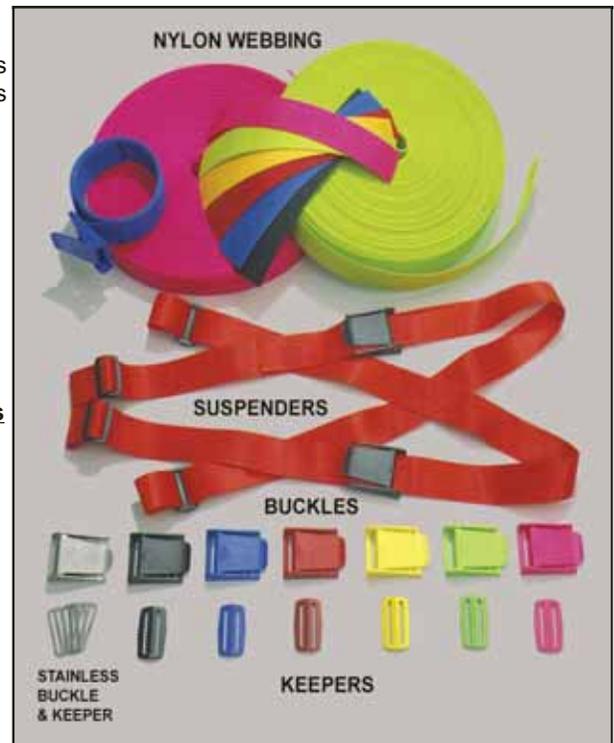
Nylon Soft Pouch

A 2 compartment pouch made of heavy nylon. Pouch locks closed with velcro and holds up to 7 pounds of lead shot. Pouches may be used in BC weight pockets. **Lead shot #51400 must be ordered separately.**

52080... Black 52081... Blue 52082... Red

Sealed Lead Shot Pouches

53092... 2 lbs. 53093... 3 lbs. 53094... 4 lbs. 53095... 5lbs. 53096... 6 lbs.



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DIVE SUPPORT ACCESSORIES - CLIPS & SPEARFISHING

(Descriptions continued from page 8)

Billyrings and D Rings A robust 2" stainless steel belt slide with a 2" stainless D-ring welded to it at either a 45° or 90° angle. Used to anchor side-mount tanks and other equipment to the TEK-diver.

54050... 90° Billyring 54055... 45° Billyring 54184... 1" plastic D-ring (not pictured) 54185... 2" plastic D-ring
54200... 2" stainless D-ring

Detachable Belt Clip w/ S/S Ring Snaps over any 2" web strap; plastic teeth prevent clip from shifting.

54190... Black 54191... Blue 54193... Yellow

Lanyards Useful lanyards for wrist and neck.

54010... Wrist: Poly w/ slide adjuster, brass trigger snap, 8"

54020... Neck: Poly w/slide adjuster, brass trigger snap, 12"

54030... Wrist: Poly w/ barreloc adjuster

54031... Wrist: Elastic cord w/ barreloc adjuster

Miscellaneous Connectors / Clips

53000... Buckle, Fastex 1", side release

53010... Buckle, Fastex 1-1/2", side release

53020... Buckle, Fastex 2", side release

53060... Barreloc cord closure device

54120... Split ring, stainless, small, 1-1/8"

54130... Split ring, stainless, large, 1-1/2"

54240... Plastic Bar Slide, 2"



Basic Unclip

Two S/S split rings joined by the clip.

54270... Black

54271... Blue

54274... Orange

54278... Green



Hose Unclip

The two clips mate the S/S anchoring to a console hose retainer featuring a non-slip, velcro wrapper.

54280... Black

54281... Blue

54284... Orange 54288... Green



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SPEARFISHING ACCESSORIES

Pole Spear Sling (custom sizes available)

Black or Amber tubing in light or heavy weight. "Light" is 1/4" OD x 3/32 wall; "Heavy" is 1/4" OD x 1/8" wall. (Specify overall length of tube.)

Gun Power Slings (custom sizes available)

Black, Amber or Coated Blue Tubing; 7/16", 1/2", 9/16" and 5/8" OD available in any length. Active sling length is measured from lock ring to lock ring. (See pricelist series 67000 for sizes.)

Bulk Tubing for General Use

Black, amber, or blue coated tubing is size by outer diameter (OD) and wall thickness that determines the weight and stretch of the tube. 7/16", 1/2", 9/16" and 5/8" OD available in selected wall thicknesses. (See price list 67390 - 67460).

TEK Tubing

67380... TEK Tubing

This 1/4" OD tube has a thick wall, but it is very strong, stretchy, and easy to knot. Great for various TEK applications.

Spearpoints

GMC offers a selection of useful plated-steel tips for spearguns and poles. Those designated 6-7mm come with an adapter for either 6 or 7mm shafts.

66250... Single Barb, plated, 6mm

66270... Double Barb, plated, 6mm

66300... Delta Trident, plated, 6mm

66320... 3 Prong Fork, plated, 6-7mm

66325... 4 Prong Fork, plated, 6-7mm

66360... 3 Prong Paralyzer, anodized, 6mm

Spearpoint Adapters Not shown (Other types available; see price list).

67271... 6 mm ID to 7 mm OD, plated steel.

Fiberglass Spearpoles - Built of fiberglass and stainless components, these popular hand spears are offered in two styles. The Travel Spear dismantles into a convenient size for transport and comes in a fabric case. 6mm connections.

67040... 3' - 1/2" fiberglass

67045... 3' - 5/8" fiberglass

67050... 5' - 1/2" fiberglass

67055... 5' - 5/8" fiberglass

67060... 7' - 1/2" fiberglass

67065... 7' - 5/8" fiberglass

67080... Travel spearpole, 6', 1/2" 2 section w/case

67090... Travel spearpole, 6', 1/2" 3 section w/case

67098... Spearpole Case Only (NOTE: Color of Travel Cases varies with material stock. Requests for specific colors are accepted but not always available.)



Stainless Fish Holder

67810... 13" stainless steel

67820... 18" stainless steel

67830... Cable Stringer - stainless steel

Nylon Cord

67350... 120 lb. test / ft.

Shock Absorber

67720... 8"



DIVE AIDS & MAINTENANCE SUPPLIES



Hose Protector Sleeves - Our PVC plastic sleeves have internal ribs for quick drainage and a flare end to fit snugly over the hose boss.

- 57340... Black
- 57341... Blue
- 57342... Red
- 57343... Yellow
- 57348... Green
- 57349... Pink

Valve Protectors - A durable and contoured vinyl protector/cover with an attachment string.

- 56180... Black
- 56181... Blue
- 56182... Red
- 56183... Yellow
- 56188... Green
- 56189... Pink

Regulator / Valve Protector Caps - Protective plastic devices with a retainer string to plug or cover valve or regulator inlets.

56190... **DIN Valve Plug** - A simple, push-in vinyl plug to seal a DIN valve aperture.

57040... **Standard Regulator Dust Cap** - A hard plastic cap to protect the inlet on common yoke-mode regulators.

57335... **DIN Regulator Cap** - A vinyl, push on cap which covers the outer threads and inlet on DIN regulators. Just squeeze and pull the bulb end of the cap and it pops off!



BC Hose Accessories - Three handy tools that connect to the BC hose coupler on many dive regulators. BC hose adapter included.

Tire / Innertube Inflator

- 57050... Standard BC model
- 57051... Aqualung / Apeks / Zeagle
- 57052... Scubapro / Mares

Rubber Kink Blowgun

- 57060... Standard BC Model
- 57061... Aqualung / Apeks / Zeagle
- 57062... Scubapro / Mares

Metal Blowgun

- 57240... Standard BC Model
- 57241... Aqualung / Apeks / Zeagle
- 57243... Scubapro / Mares

Adapters ONLY for BC Hoses

- 57300... Std. BC hose x 1/4" NPTM
- 57301... Std BC hose x 1/8" NPTM
- 57302... Aqualung / Apeks / Zeagle hose x 1/4" NPTM
- 57303... Scubapro / Mares hose x 1/4" NPTM



Wet Suit Cement

- 58080... Black, 4 oz. can
- 58090... Clear, 4 oz. can
- 58140... Cement Thinner, 4 oz. can (quantity pricing available)

Lubricants

58200... **EverSlick Silicone Spray Lube**
Ozone - friendly aerosol that won't harm plastic components components. Food grade silicone.

58210... **Dow 111 Silicone Lube - 1/4 oz.**
A thick grease for zippers, O-rings, and valves.

58220... **Ever Slide Grease Pencil**
A special wax-grease for all dive suit zippers.

53220... **Ever See Defog**
A concentrated mask defog, 1 oz. bottle

53230... **Aurocaine 2**
A safe, alcohol-based ear wash to prevent post dive infections (Swimmers Ear).



Octopus Holder and Covers

These vinyl devices can double as retainers and covers for most regulator mouthpieces. Each comes with a stainless split ring for anchoring purposes. Two popular shapes are offered.

- 57323... Round, Yellow
- 57324... Round, Orange
- 57328... Round, Green
- 57332... Form-fitting, Poseidon, lg, Yellow
- 57333... Form-fitting, Yellow
- 57334... Form-fitting, Orange



Mouthpieces

Neoprene has been the standard material for fabricating regulator mouthpieces; in recent years, clear silicone (crystal) has become the top-of-line rubber for that purpose. Similarly, the synthetic Kraton has also proved to be soft, durable and rot-resistant.



- 53240... Neoprene, black
- 53242... Silicone, crystal
- 53261... Kraton, black, standard
- 53266... Kraton, clear, standard

DIVE AIDS & MAINTENANCE SUPPLIES

Plastic Scuba Tank Boots

A variety of hard and vinyl plastic boots with and without octagonal rims are offered. Most models have ribbed interiors to promote rapid drainage. Black color.

- 90040... 7.25" diameter, flat-bottom, hard plastic, rimmed
- 90070... 7.25" diameter, flat-bottom, hard plastic, no rim
- 90060... 6.9" diam, vinyl for older steel tanks, round bottoms
- 90090... 8.0" diameter, flat-bottom, hard plastic, rimmed

SCBA Tank Boots Many fire / safety SCBA tanks are round-bottom and about 8.0" in diameter. Plastic, vinyl boot.

- 90150... Black
- 90151... Blue
- 90152... Red

Vinyl Tank Shields - For 7.25" Aluminum Tanks

- 56090... Black
- 56091... Blue
- 56092... Red
- 56093... Yellow
- 56098... Green
- 56099... Pink



56020... Tank Holder Bracket A contoured, rubber-lined, aluminum bracket with a strap to secure 7.25" diameter dive tanks in an upright position. Anchored by four corner screws.



GMC Lift Bags

Before you dive to seek your special underwater treasure, check out a handy GMC Lift Bag. These strong, rugged bags can be inflated by carefully purging one's regulator or using an accessory tank. Constructed from tough, PVC-coated fabric, these bags can be folded into a compact size and easily carried by a diver until needed. The Standard Bag will lift 50 - 75 lbs and the Deluxe Model will lift 75-100 lbs. Our Deluxe Model has a purge valve useful for controlling rapid-air expansion and ascent rate. NOTE: Color of lift bags varies with material stock. Requests for specific colors are accepted, but not always available for immediate shipment.

- 59300... Standard GMC Lift Bag
- 59305... Strap for Lift Bag - Wrap around or snap on to raise objects.
- 59310... Deluxe GMC Lift with Purge Valve.
- 57030... Purge Valve for Lift Bags



Tethered Diving Harness

This harness is ideal for most specialty diving or rescue applications. Fabricated from sturdy and pliable 2" nylon webbing, it has quick on / off adjustment features, and a step-in design. It also has 2" steel D-rings for line attachments, including one between-the-shoulders to serve as a lift point.

- 54290... Black
- 54291... Blue

Scuba Queen Hood A complete system for surrounding the outer ear with air at ambient breathing pressure from the regulator. Its main applications are polluted water diving and prevention of ear infections. It does NOT eliminate ear pressurization problems. Available by custom production only. Allow one month.

- 63010... X-large, 7-1/2"+
- 63011... Large, 7-1/4" - 7-1/2"
- 63012... Medium 6-7/8" - 7-1/8"
- 63013... Small, 6-1/2" - 6-3/4"
- 63015... Scuba Queen Kit - Without Hood



63050... Underwater Tow Sled

Constructed of sturdy plastic. The slots are for installation of gauges or a compass. A simple device to SLOWLY TOW a diver underwater with a small MOTOR BOAT. Great for subaquatic searches and bottom reconnaissance.

Custom VIP / VTI Stickers

See catalog pg. 29 for details.

Bumper/Reflective Scotchlite

See pricelist 61000 series.

Tank Stickers

See catalog pg. 45 for details.

STICKERS

VIP / VTI stickers can be custom printed with your shop name, address, phone, email or web address. See 81000 series in pricelist for quantities and pricing or call our office at 800-558-1811.



TEST EQUIPMENT - WORKSTATIONS

Workstations and Flowbenches are special machines for testing all the important functions of scuba regulators and tank valves. They essentially embody the necessary compressed air source, hand tools, and instrumentation into a single apparatus designed specifically to repair / evaluate dive equipment. Testing done on a Workstation yields results at sea level equivalent, whereas a Flowbench can simulate actual dives, providing information on regulator performance at depth! Besides elevating the efficiency and professionalism of any dive shop department, these devices are very practical for both classroom and sales demonstrations.



48400... Standard Regulator / Valve Workstation - Workstations are machines which provide controlled air pressure to a test stand where the functions of dive regulators can be checked at sea level conditions. Model #48400 is housed in a 22" high x 22" wide x 14" deep (56 x 56 x 36 cm) solid oak cabinet, instrumentation is set in a 20" x 15" ABS plastic panel, and the air pressure controls are mounted on a 6" x 7" x 21" stepped, stainless steel platform.

Air (up to 5,000 psi) enters the right side of the case into the master regulator which can deliver controlled pressure (up to 4,500 psi) to the test stand, a 2" diameter aluminum cylinder which holds a scuba valve. The Test Stand Valve is a convertible type; removing an insert in the valve's face changes it from YOKE to DIN mode. Thus regulators of either yoke or DIN mode can be readily accommodated. Here regulators can be tested at any desired pressure. The entire valve can also be removed and replaced with malfunctioning or repaired valves that require checking. Whenever reduced pressures are required, the master regulator will automatically vent the excess gas as its control knob is turned outward.

Regulators to be examined are yoked to the test stand valve; interstage pressure is transmitted to the instrumentation via an adapter coupled to the BC hose. Three adapters to accommodate the variety of BC hoses on today's market are provided. The following can then be evaluated: First stage intermediate pressure, lockup repeatability and stability, and systemic air tightness. A simple probe is then attached to the 2nd stage outlet and, while manual breathing is performed, the initial inhalation / exhalation effort (cracking resistance) can be read with high precision on a Magnehelic gauge. A unique "reading lock" device momentarily freezes the breathing effort readings on the gauge, so that values accurate to 0.1" of water column can be obtained!

WORKSTATION SPECIFICATIONS - Model #48400

Pressure Ratings: Up to 5,000 psi inlet; Regulated output test pressure - 100 to 4,500 psi to test stand.

Air Supply: From air storage bank, industrial cylinder, or scuba tank; 5-ft. hose with scuba tank yoke included.

Pressure Gauges: Inlet / Output - 5,000 psi, 2.5" face, 2% accuracy; Regulator Intermediate Pressure - 300 psi, 4.5" face, 1% accuracy.

Breathing Effort Gauges: Dual scale (+ & -) 0 - 2 inches water column across a 4" face, manual model.

Shop Air: Supplied at about 100 psi by a special integrated regulator to an outlet coupler; 4-ft hose and blowgun included.

Accessories: Instruction manual covers the installation, maintenance, and use; complete description of testing procedures and parameters included. All required adapters provided. **Shipping Weight: 50 lbs.**



48370... Regulator Flow Test Module This unique add-on apparatus allows a repair technician to test the flow capacity of most common dive regulators with a minimum of special or additional equipment. Flow analysis is the ultimate regulator test because it is the only one which can be correlated to the regulator's actual performance underwater. In affect, you are measuring at depth the regulator's air output while monitoring the amount of respiratory work the diver must expend to achieve that flow!

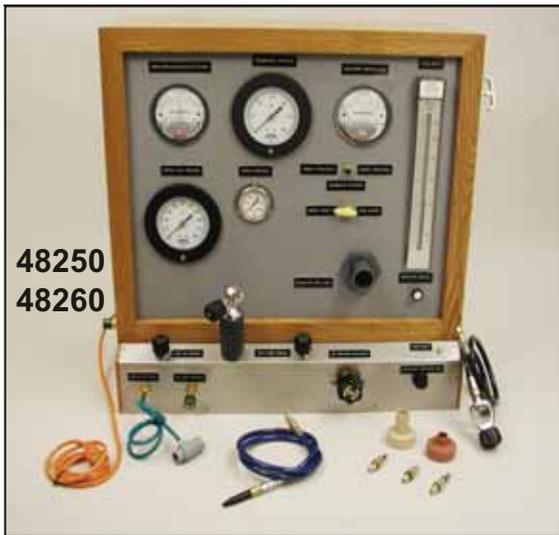
Addition of this module to the GMC Workstation (#48400) essentially converts it into a flowbench. The unit can also be used in unison with a #48110 (Regulator Function Test Module) and a #48105 (Regulated Test Stand Module). In the simplest scenario, it will also function in combination with a Portable Regulator Tester (#48100) or with hand instruments such as any



Intermediate Pressure Tester and Magnehelic Gauge. In these latter cases, a dive tank can serve as the regulator's air source. The versatility of this product allows any repair department to conduct flow tests with this new apparatus by utilizing tools / instruments that they already own.

Like most GMC test equipment, the Module is housed in a solid oak cabinet and measures 22" long x 16.5" high and 11" deep. This case is sized to fit precisely atop GMC's #48400 Workstation with just a slight front-to-back overhang. Combining the workstation with a Flow Module essentially upgrades the former into a Flowbench.

TEST EQUIPMENT - FLOWBENCHES



48250
48260

Compact Deluxe Flowbench

Our top-of-the-line analyzer which is capable of testing all functional parameters of modern scuba regulators including air flow rate. The unit is housed in a solid oak cabinet measuring 30" high x 30" wide x 15" deep (76 x 76 x 38 cm) with the instruments set in a 20" x 28" ABS plastic panel and the air controls mounted on a contoured, 5" x 29" stainless steel lower faceplate.

Compressed air enters the left side of the housing into the master regulator which can deliver any selected pressure to the test stand, thereby effectively simulating any desired scuba tank pressure. Whenever reduced pressure is required, the master regulator automatically vents the excess air upon adjustment. The test stand cylinder, where regulators are attached for checking, holds a scuba valve which can be easily converted between yoke and DIN-modes; this valve can also be removed at any time and replaced with malfunctioning or repaired scuba valves which need checking.

This user-friendly machine can quickly evaluate the following regulator functions: Air flow rates (up to 30 cu. ft./min.), inhalation / exhalation breathing efforts at both initiation and during air flow, first stage intermediate pressure, lockup repeatability and stability, and systemic air tightness. Air flow rates through tank valves or gas manifolds can also be determined. To aid in the fine tuning of today's sensitive regulators, breathing effort readings can be examined on an expanded scale at the flip of a switch; values to 0.1" of water column can be achieved. No dismantling of regulators is required prior to testing: Air from the second stage is injected directly into the machine through a simple, rubber cup adapter which replaces the mouthpiece; first stage intermediate pressure is sampled through the BC hose.



48251

Air flows are generated from the regulator by a electronically controlled vacuum-drive system activated by a simple rotary switch. As the vacuum drive is increased, the regulator progressively outputs greater air flows. The breathing effort that a diver would have to exert to achieve these flows is simultaneously displayed on a magnehelic gauge or liquid manometer. Relating regulator air flows to a diver's underwater breathing requirements is then simple to do.

Flowbench Models #48250, 48251, and 48260 all contain a unique manual probe system which allow the technician to test-breathe any regulator while measuring the respiratory efforts involved. Thus the breathing performance of regulators can be tested by both mechanical simulation and human evaluation. Such double testing catches irritating problems like stiff mouthpieces, sluggish diaphragms or hesitation in air delivery that are often difficult to detect by machinery alone! A savvy repair person can often spot these non-hazardous, but annoying, functional quirks and eliminate them.

The importance of flow testing regulators for modern diving, especially TEK diving, cannot be over-emphasized. In an era where dives beyond 250 feet are common, one must know that all breathing equipment can function at operational depth. Excessively hard or restricted air delivery can be deadly. Several TEK dive accidents have already occurred from malfunctioning or jury-rigged equipment which could not produce needed air demands at depth. Periodic flowbench testing prior to deep dives allows one to know that air requirements from all system components can be met! **WITHOUT SUCH TESTING, NO DOCUMENTABLE STATEMENT CAN BE MADE ABOUT THE UNDERWATER PERFORMANCE OF DIVE REGULATORS OR OTHER SYSTEM COMPONENTS!**

48250... Compact Deluxe Flowbench / Double Magnehelic

Our original standard unit, this bench has all the features listed in the "Specifications Section" which follows. It differs from #48251, our most popular model, in that it utilizes two Magnehelic dual-scale gauges to measure breathing efforts. Both gauges determine any single breathing effort, serving to double-check this critical physiological value, as well as double-check the proper function of each instrument itself. However, the second gauge has an expanded scale that yields a more accurate measurement.

48251... Compact Deluxe Flowbench / Manometer

This unit is identical to #48250 in all aspects except that the expanded scale Magnehelic gauge has been replaced with a 0 - 3" inclined red oil manometer. The slow movement of the bright red fluid in the curved tube greatly enhances taking accurate breathing effort measurements. Technicians who are novices to flowbench operations find this instrument exceedingly easy to use with a minimum of practice. See general description of a "Flowbench Specifications" section for more data on the operational and physical properties of this apparatus.

48260... Compact Deluxe Flowbench / European Model - This unit is identical to #48250, except that the gauges are scaled in both kilopascals (kPa) and pounds per square inch (psi). kPa is convenient scientific unit equal to bars x 100. The vacuum drive is 220 / 240 VAC / 50 cycles for operation on European current. See general description of a "Flowbench Specifications" section for more data on the operational and physical properties of this apparatus.

FLOWBENCH SPECIFICATIONS - Models 48250, 48251, 48260

Pressure Ratings: Up to 5,000 psi (34,475 kPa) inlet; Regulated output test pressures: 100 - 4,500 psi to Test Stand.

Air Supply: From air storage bank, industrial bottle, or scuba tank; 5-ft hose and yoke assembly provided.

Pressure Gauges: Inlet - 5,000 psi (34,475kPa) 2.5" face, 2% accuracy; Output - 5,000 psi, 4.5" face; 1% accuracy; Regulator Intermediate Pressure - 300 psi (2,068 kPa) 4.5" face, 1% accuracy.

Flowmeter: Floating ball type - 0 - 30 SCFM (Standard cu. ft. / min. or 840 liters / min.)

Breathing Effort Gauges: High effort mode - Dual scale (+ & -) 0 - 5 inches water column across 4" face; Expanded mode - 0 - 3 inches water column across 4" face or 0 - 3" red oil inclined manometer (#48251 only).

European model #48260 - 1.5 kPa dual scale and 500 Pa expanded scale gauges respectively.

Shop Air: Supplied at 50 - 100 psi by a special integrated regulator to an outlet coupler; 4-ft hose and blowgun included.

Electrical: 110 VAC / 60 cycles or 220 / 240 VAC / 50 cycles (#48260)

Accessories: Instruction manual covers the installation, maintenance, and use; complete description of testing procedures And parameters included. All required adapters provided. **Shipping Weight: 90 lbs.**



TEST EQUIPMENT - TEST MODULES

Regulator Function Test Module 48110

Each unit is sold separately, but can be combined for integrated operation.



**Regulated Test
Stand Module
48105
Sold separately**

For those dive shops who are not yet ready for a Flowbench or Workstation, GMC has a number of portable and desktop test instruments for scuba regulator and valve service. Certain apparatus such as #48105 and #48110 were designed as modules to work alone or in tandem. When used in unison, the modules create a mini-Workstation.

48110... Regulator Function Test Module

This compact test apparatus allows several very important regulator functions to be examined with highly accurate instrumentation. This tester can check the intermediate pressure, lockup, staging integrity, and initial inhalation / exhalation of any dive regulator without any major disassembly. First stage operation can be examined by merely attaching the BC hose to the tester. To connect the various types of BC hoses in existence to the coupler, three special adapters are provided. Instrumentation features a 4.0" diameter breathing effort gauge (2" scale) and a 4.5" intermediate pressure gauge (300 psi) protected by a over-pressure valve. Unit has unique features such as a "data lock system" to freeze critical breathing effort measurements on the gauge dial for easy-reading. Tester is housed in a handsome, hard-wood case with flange which can be wall-mounted or secured to any benchtop. An economical, yet professional-looking package for the dive shop repair center. Measures 18" x 12" x 5".

48110



48105... Regulated Test Stand Module

This small, modular workstation allows high pressure air from any storage source to be regulated and delivered to a scuba valve test stand where dive regulators can be repaired / tested. The adjustable regulator can handle 5,000 psi input, while outputting up to 4,500 psi; thus the repairperson can "dial in" whatever pressure is desired for the regulator test (up to the level of the available source supply pressure). This amounts to on-demand simulation of any dive tank pressure desired for regulator testing. Gauges mounted in the module's stainless faceplate monitor both input and output pressures. Whenever desired, the stand valve can easily be removed and replaced with repaired scuba valves that require pressure testing. The entire module is housed in the same flanged, hardwood oak case (18" x 12" x 5") used for the GMC #48110.

48105



48100... Portable Regulator Tester

This unique device can be used to test SCUBA regulators for inhalation / exhalation effort plus first stage intermediate pressure and lockup stability. All tests can be done without dismantling the regulator. To check intermediate staging pressure, merely attach the BC hose to the tester's inlet fitting, pressurize the regulator, and read the gauge. A push button vent allows rapid cycling of the first stage for repeated testing or depressurization after completion of testing. For measuring second stage breathing efforts, simply insert a special adapter into the mouth-piece and breathe

on the unit. Inhalation / exhalation resistances in inches of water can be read directly from the 4.0", dual-scale (2.0"), Magnehelic gauge. Housed in a tackle-box like carrying case, the tester has a lift-out tray where parts and tools can be carried. This compact and portable device is ideal for field repairs, charter boat operations, classroom demonstrations, or small repair centers which do not require more elaborate equipment.



48100

**Portable Regulator
Tester**

Items 43300 and 43302 are pictured on page 15.

43300... Magnehelic Gauge / 5 inch Scale

Considered the standard instrument for measuring the breathing effort of dive regulators, this Magnehelic Gauge has dual, 5-inch scales to sense both positive (exhalation) and negative (inhalation) pressures. Breathing resistance is measured in inches of water column, equivocally the respiratory effort required to draw water one inch up a straw! Used with #48101 probe (not included), this is an essential addition to the dive shop repair department.

43302... Magnehelic Gauge / 2-inch Scale - Same as #43300, except this gauge has a 2-inch dual scale. Used for more precise resistance measurements.



TEST EQUIPMENT - DESKTOPS & GAUGES

43265... 2nd-Stage In-Line Adjuster w / Gauge

Latest in the GMC line of regulator testers, this unit combines a 300 psi intermediate pressure (IP) gauge with an in-line 2nd stage adjusting tool (spade model like #43230). The tool is used between the hose and the 2nd stage case, so that the intermediate pressure can be checked while the 2nd stage orifice is calibrated for proper cracking resistance. In addition to an IP test, the gauge aids in obtaining the best 2nd stage activation. The 300 psi, stainless-cased gauge (2" diameter) is liquid filled to protect against environment hazards and unpredictable shocks.

43390... Universal Regulator Intermediate Pressure Tester

An improved version of our #43270 Deluxe Regulator Tester, this device will attach to virtually ALL common BC (and alternate regulator / inflator) hoses, allowing the technician to sample the regulator's staging (intermediate) pressure (IP).

A quick coupler on the bottom of the unit provides interchangeability for three adapters, each of which unites with a different type of BC hose. Simply select the matching adapter for the particular BC hose, snap it onto the Tester, attach the BC hose, and check the IP. A fourth adapter allows the regulator's second stage hose to be attached directly to the Tester to ferret out those elusive first stage leaks, pressure creeps, or erratic lockup behavior without the presence of the second stage or other potential interference. The Tester features a 300 psi liquid-filled gauge with a 4" stainless case for general durability and resistance to shock from rough-handling and rapid pressure-cycling. A 200 psi over-pressure valve protects the gauge from sudden, unexpected pressure surges. A pushbutton bleeder allows rapid cycling of the staging action for conducting quick, multiple IP tests and then final depressurization.

43275... Regulator Intermediate Pressure Quick-Tester

This 2.5" gauge attaches directly to the buoyancy compensator hose for fast checking the intermediate pressure of any regulator first stage without dismantling the unit. A manual bleeder vent allows easy cycling of the first stage to test the consistency of lockup. The regulator's second stage (or octopus) acts as an overpressure valve in case of serious staging failures. Great for field service, charter boats, and class demos.

48155... Benchtop Breathing Effort Tester

A simple, easy-to-use device for quickly testing the initial inhalation and exhalation effort of any regulator's second stage. Merely attach a special probe, perform a breathing cycle, and read a gauge! The probe will fit virtually all existing regulators; in many cases, removing the mouthpiece is not even necessary! Breathing efforts are read directly in inches of water resistance on a dual-scale, 4.5" Magnehelic gauge. When employed in tandem with a #48160 Benchtop Intermediate Pressure Tester, highly accurate regulator function parameters can be ascertained. Housed in a handsome, custom plexiglas housing. A must for every fledgling scuba repair department.

Special Note on Using #48155 & #48160 in unison: Initial Cracking Effort is perhaps the most critical physiologic parameter a dive technician must measure. This, of course, is the amount of respiratory work that a diver must exert each and every time he breathes to initiate air flow from the regulator. Some people measure this effort with a Magnehelic Gauge alone; others do it empirically by the sound or feel of the air flow. These methods are far less precise than using a Magnehelic Gauge (#48155) in conjunction with a Intermediate Pressure (IP) Tester (#48160). With the instruments side-by-side for easy viewing, put the probe from the Magnehelic into the regulator's mouthpiece. Inhale softly and slowly through the probe, watching the Intermediate Pressure Gauge (#48160) which has been attached to regulator's BC hose. The instant the IP gauge needle twitches or dips down, quickly read the Magnehelic Gauge. This procedure yields the most accurate measurements possible!

48160... Benchtop Intermediate Pressure Tester

This new instrument is mounted in the same handsome Plexiglas housing with a canted front as is our #48155 Benchtop Breathing Effort Tester. Mounted in the case is a 4.0" pressure gauge (300 psi, 1% accuracy) as well as a common quick-coupler device for attaching a regulator's BC hose. In this manner, the scuba regulator's Intermediate Pressure can be examined for reliability, repeatability, and lockup. A simple pushbutton allows rapid cycling of the first stage for fast, multiple tests, while an overpressure relief valve protects the gauge from unexpected first stage failures or pressure surges. A series of coupler adapters permits the attachment of different brands of BC hoses. When used in tandem with a #48155 Breathing Effort Tester, the two instruments can check most of the critical functions of a dive regulator.

48101... Regulator Probe A 33" plastic tube and special rubber probe to use with Magnehelic Gauges for testing the initial breathing effort of dive regulators. The probe has two different sized ends: The small end will insert directly into many mouthpieces. If this fails, remove the mouthpiece and slip the large end over the bare flange.



TEST EQUIPMENT - CHAMBERS

This apparatus, offered in four distinct versions, is the current industry standard for testing the water-tight integrity, accuracy, and overall function of depth gauges, watches, dive computers, and certain underwater photographic gear. It's also useful for classroom demonstrations related to diving physics and physiology. Each unit is fitted with an internal plastic bucket so that equipment is actually tested underwater. In fact, many modern instruments may be harmed if tested dry because pressurized air can be forced behind seals and diaphragms! As modern TEK diving becomes widespread, it's essential that related life-support instrumentation be tested on a regular basis.

All versions use a recently improved body style designated 300C: Its diameter is 10" inside with 11" of usable height; outside dimensions are 10.8" in diameter, 15" high, with a weight of 100 pounds. The steel alloy pipe body, with a 0.45" thick wall, has been plated inside and out with an industrial, electroless nickel finish. A steel ring that engages into the body by means of a cog and slot system contains a 1.0" thick, O-ring sealed, Plexiglas viewport reinforced by a narrow, transverse metal bar. This massive design is dictated by current test requirements for certain dive gear designed for greater depths and durations. Overtime, such testing places considerable stress and fatigue on the pressure vessel.

Pressure vessel 300C has enhanced strength and safety features over its predecessors: The number of cog and slots were increased from four to six. The viewport ring has been widened for greater lens support and the lens itself has been reinforced by a narrow, transverse metal bar. Although hydrotesting is not required, each unit undergoes multiple inspections and pressure tests to 350 psi (ca. 800 feet). All chambers possess two overpressure relief valves: one set at each model's working pressure and a second set at the factory test pressure.

Chambers can be pressurized from a scuba tank using the first stage of any dive regulator equipped with a standard BC hose (not supplied). [Various air supply regulators (#48322 / 48323) are available from GMC.] The BC hose mates to a fitting and inlet valve mounted on the stainless steel instrument / control panel that also holds a pushbutton bleeder and the Master Gauge. A manual drain and one relief valve are plumbed directly into the vessel body.

A unique feature of all GMC chambers is the Bulkhead Air Shunt, a fitting which penetrates the vessel wall and connects to a swivel inside the cavity. The threaded port of this swivel will accept the hose of any fully integrated dive computer which then can be submerged in the bucket and tested as follows: The outer end of the Bulkhead Air Shunt is connected by means of a special hose (GMC #48301) to any scuba tank; thus air can pass directly to the computer while this delivered pressure is monitored on an external gauge. After the computer is activated at full tank pressure, any lesser pressure can be obtained by turning off the tank and using a bleeder to vent down to the desired level. The chamber itself must be pressurized with a separate air tank as previously described. In this manner, integrated computers can be tested at virtually any combination of simulated depth and diver air supply! Another special adapter (GMC #48302) allows the testing of hoseless computers. **The DC-300C pressure vessel is available with two distinct instrumentation packages with different depth ranges and accuracies.**



**48300
Depth
Test
Chamber**



**48321
Depth Gauge**

**48310
Instrument Test Chamber**



**48301
Chamber Bulkhead
Air Supply**

48302

48300... Depth Test Chamber - Our simplest model. The Depth Test Chamber is primarily intended for evaluating equipment for water-tightness and pressure resistance. It can also be used for testing conventional analog instrumentation, but its master gauge is NOT accurate enough to match that of the newest generation of electronic dive gauges and decometers. The 4.5" Master Gauge goes to 230 ft. of water depth with an accuracy of 1% (2.3 ft). The Bulkhead Air Shunt is present in the body, but its inner port is plugged. The internal swivel can be added if desired.

48305... Extended Range Depth Test Chamber - Identical to Model #48300, except its Master Gauge goes to 370 feet of fresh water with an accuracy of 3 - 4 feet.

48310... Instrument Test Chamber - It is specifically designed to test today's highly sophisticated dive instruments. It features a 4.5" Test Gauge with 1/4 of 1% accuracy to 300 feet of salt water (that's 0.75 ft!) The gauge is calibrated in both feet (300) and meters (90) of depth and has an anti-parallax mirror for obtaining highly accurate readings. Each unit is equipped with Bulkhead Air Shunt and Swivel as already described.

48320... Extended range Instrument Test Chamber - Identical to Model #48310, except its Master Gauge (GMC #48321) goes to 450 feet / 140 meters of salt water with an accuracy of about one foot (0.25%).

TEST EQUIPMENT - TANK CHECKERS AND EQUALIZERS

The products shown below are used to check the pressure within scuba tanks. Models for both DIN and yoke tanks valves are offered. Most utilize a sealed, oil-filled, stainless-cased, 5000 psi pressure gauge for a maximum environmental and shock resistance. All models have a standard screw-type bleeder. **NOTE: THESE PRODUCTS ARE NOT INTENDED FOR PURE OXYGEN / NITROX SERVICE: SPECIAL MODELS ARE AVAILABLE (see page 45).**

TANK PRESSURE CHECKERS



45188... DIN / Yoke Converter

This hand-tite, screw on adapter converts a male 300-Bar DIN connection to a standard filler yoke. Used with a DIN cross-over, tank checker or filler attachment, it facilitates connection to a standard tank valve. Service to 3,200 psi.

57220... Converto Tank Checker

Used to check the pressure in tanks with either DIN or standard-yoke mode valves. Quickly switches between modes with the included #45188 converter. Service up to 4,500 psi in DIN mode; 3,200 psi in yoke mode. Oil-filled gauge. (57225OX... Converto Tank Checker, O2 Model, page 45)

57230... Standard Economy Tank Checker

Used to check the pressure in tanks with standard / yoke type valves. Uses vinyl covered, plastic-cased gauge and is intended largely for moderate indoor-outdoor applications. Service to 3,200 psi.

57231... Deluxe Heavy-Duty Tank Checker

Used to check pressure in tanks with standard / yoke type valves. Has sealed, oil-filled gauge for constant, rugged usage such as in dive shops or on charter boats. Service to 3,200 psi.

57232... Deluxe Heavy-Duty DIN Tank Checker - Same as #57231, but with a 300-bar DIN connection.

57233... Wall-Mount Tank Checker

Wall mounted gauge & block apparatus with a 6-foot hose equipped with a standard line valve, bleeder block & yoke. Rapidly check pressure in a group of scuba tanks without using a clumsy hand-held gauge. 5,000 psi gauge.

57235... Standard Economy DIN Tank Checker

Used to check the pressure in tanks with DIN-mode valves. Uses vinyl covered, plastic-cased gauge and is intended for non-harsh conditions. Service to 4,500 psi.

57245... Pneumatic Tank Checker

Used to hasten pressure checking operations on tanks with standard / yoke-mode valves. Pneumatic yoke automatically clamps the tester on the valve and then quickly detaches when depressurized. Just press the checker onto the valve face O-ring, turn on the tank, and read the pressure! Oil-filled gauge for service to 3,200 psi.



TANK EQUALIZERS

These air transfer devices, also called cross-overs, are used to equalize pressure between two dive cylinders. Each unit has a 2-foot, 5,000 psi service hose and a bleeder vent on one end. Both DIN and standard / yoke-mode types are offered. **CAUTION: THESE PRODUCTS ARE NOT INTENDED FOR PURE OXYGEN / NITROX SERVICE! SPECIAL MODELS ARE OFFERED FOR THAT PURPOSE.**

45188... DIN / Yoke Converter - This hand-tite, screw on adapter converts a male 300-Bar DIN connection to a standard filler yoke. Useful on any DIN cross-over when equalization between DIN and YOKE valved tanks must be carried out.



56140... DIN Equalizers (300 Bar)

Used to equalize pressure between two scuba tanks with DIN-type valves. Service to 4,500 psi.

56145... Deluxe DIN Equalizers (300 Bar)

Identical to Model #56140, except that a 5,000 psi gauge allows pressure monitoring. Service to 4,500 psi.

56150... Standard Yoke-Mode Equalizers

Used to equalize pressure between two scuba tanks with conventional yoke-mode valves. Service to 3,200 psi.

56155... Deluxe Standard Yoke-Mode Equalizers

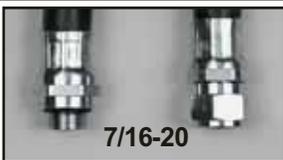
Identical to Model #56150, except that a 5,000 psi gauge allows pressure monitoring. Service to 3,200 psi.

56160... Air Inflator Device

Consists of an air chuck on a hose equipped with a scuba yoke. Used to inflate tires or inner tubes from a dive tanks. Designed for medium pressures, air flow must be controlled by cautiously opening the tank valve.

REGULATOR HOSES - STOCK & CUSTOM

An extensive array of stock hoses are available for repairing, revamping, or updating regulator systems. High pressure (HP gauges / consoles) and low pressure (LP breathing or BC supply) hoses are offered in various lengths and colors. Inset photos will help you identify the different end fittings used on modern hoses. (See price list for complete hose listings).



Stock Low Pressure Breathing Hoses

NOTE: Common 1st stage connector is 3/8-24; over-size breathing ports are 1/2-20.

Description	3/8 - 24 thread	1/2 - 20 thread
6" black	57113	57114
26" black	57116	57117
30" black	57090	57091
33" black	57100	57101
36" black	57088	57089
36" yellow	57115	57118
40" black	57110	57112
48" black	57102	57103
60" black	57105	57106
72" (6') black	57111	57109
84" (7') yellow	57094	57104
84" (7') black	57108	57107
120" (10') black	57092	57093
180" (15') black	57095	57096
300" (25') black	57097	57098
600" (50') black	57099	57119

Nitrox & Pure Oxygen Medical Grade Green Regulator Hose

Supplied oxy-clean w/ Viton Oring

	3/8" M	1/2" M
30"	57080	57082
36"	57081	57083
300" (25 Ft)	57084	-----

Poseidon ODIN / XSTREAM Hoses Black

Supplied w/ relief end cap

32"	57000
36"	57001
60"	57002
84"	57003

Stock High Pressure Hoses - Black

- 57136... Display / TEK hose, 6"
- 57120... Gauge / Console, 30"
- 57130... Gauge / Console, 36"
- 57135... Gauge / Console, 40"
- 57137... Gauge / Console, 42"
- 57139... Gauge / Console, 48"

NOTE: Custom length LP / HP hoses are available but have delayed shipping of 2-3 weeks. Custom colors: black, yellow, green (O₂ hose). See price list for custom pricing chart / formulas.

57165OX... Gas Switching Block

TEK diving often requires fast switching between breathing gases. This stainless, oxy-compatible valve (1 x 3") permits selection between two media by rotating a large control knob to any of 3 positions (2 gases, with center "off"). One 3/8-24 male outlet and two 9/16-18 (2nd stage hose) inlets. Can be mounted on any 2" strap or on a "chest plate."



Stock BC and Specialty Application Hoses (3/8 male end unless noted)

Standard 28" BC hose, 3/8-24 thread

- 57070... Black
- 57071... Blue
- 57072... Red
- 57073... Yellow

57075... **Dry Suit Hose** - 30" with large flange coupler for easy use with gloved hands (blue color).

57076... **Aqualung BC Hose** - 30" x 3/8M with Aqualung/Apeks/Zeagle coupler (black).

57077... **Scubapro BC Hose** - 30" x 3/8M with Scubapro / Mares coupler (black).

57078... **AGA Mask Hose** - 30" x 3/8M with a metric end to attach to AGA / OTS masks.

57079... **Pipe Thread Hose** - 30" with normal 2nd stage end, but 1/4" NPTM on the other for TEK or custom applications.

57010... Hose Service Kit

Contains most items needed to repair hose leaks or to make common adaptations: Has 10 each of the various O-rings used on scuba hoses and air gauges, five each of the three types of air spools used in gauge / consoles, two #57205 hose unions, and one each of #57260, #57270, #57280, and #57290 regulator port adapters. An applications guide is included. (See price list to reorder individual parts).



Gauge / Console Air Spools

- 57011... **Standard Air Spool**
- 57012... **Shouldered Air Spool**
- 57013... **Bulletnose Air Spool**

Only "OX part numbers" are oxygen-compatible.

REGULATOR HOSE AND PORT ADAPTERS

GMC offers the industry's largest variety of regulator port adapters and hose converters for instrumentation installation and TEK diving applications. Reminder: The actual configuration of an adapter is a "mirror image" of its use. A 3/8" FEMALE port requires a 3/8" MALE adapter etc. In TEK diving operations where many fittings may get co-mingled, be sure that all adapter combinations can accommodate the intended flows and pressures.



High Pressure Adapters (3,000 psi service)

- 57140... For the right-angle installation of older consoles / gauges with 3/8-24 threads
- 57190... Same as #57140, for current consoles with 7/16-20 threads. Allows 90° installation of console.
- 57195... A 90° swivel with 3/8" inlet and 7/16" outlet; for putting current consoles on older model regulators.
- 57215... A 90° swivel with two 7/16-20 outlets for multiple consoles, gauges, or computer devices.
- 57260... Simple bushing adapter: Converts 7/16-port to female 3/8.
- 57265... High pressure port (7/16") extender: Shims hoseless computer transducer out from regulator body.
- 57270... Simple bushing adapter: Converts 3/8-port to female 7/16".

BC Hose Adapters These adapters convert any regulator 2nd stage hose to a BC hose, thereby eliminating the need to stock replacement BC / drysuit hoses.

- 57350... BC Hose Adapter: Standard
- 57351... BC Hose Adapter: Mares / Scubapro
- 57352... BC Hose Adapter: USD / Apex / Zeagle

Low Pressure Breathing Adapters (pictured above)

- 57150... Omniswivel, allows full 360° articulation of the regulator 2nd stage without restricting air flow.
- 57151... Omniswivel like #57150, but for AGA full-face masks.
- 57152... Omniswivel like #57150, but for Poseidon(Odin, X-Stream) regulators. Combines swivel with Poseidon 2nd stage safety valve.
- 57155... A 90° swivel for right-angle installation of LP hoses with 1/2" male end fittings.
- 57170... Hose Y-Adapter – Splits a single regulator hose (3/8-24 female inlet) into two 3/8-24 female outlet. A single hose can feed multiple hoses for various tasks (dry suit + BC / octopus + BC etc). Has screw port for mounting.
- 57175... 2nd Stage Shutoff Valve – A simple, in-line slide valve that shuts off any regulator 2nd stage to quench / prevent freeflows or seepage. Use of a first stage safety valve (#57295) with this device is recommended.
- 57200... Same as #57155, but for LP hoses with 3/8" male end fittings.
- 57205... Regulator hose union: Allows 2 hoses (3/8") to be mated.
- 57210... 3-port swivel tee: Converts one 3/8" LP port to triple 3/8" LP outlet ports.
- 57250... TEK Adapter: Converts 3/8" LP port to 1/4" female NPT.
- 57255... TEK Adapter: Converts 3/8" male end hose to 1/4" male NPT.
- 57275... HP Hose Adapter – Converts thread on a pressure gauge / console hose to male 1/4" NPT, allowing the device to be used in ancillary applications.
- 57280... Simple Bushing Adapter: Converts 3/8" port to female 1/2".
- 57290... Simple Bushing Adapter: Converts 1/2" port to female 3/8"
- 57295... **Regulator Overpressure Safety Valve** - Certain TEK-diving situations (argon in dry suits) demand using a regulator first stage in a closed system where a seat failure could result in a ruptured dry suit valve or supply hose. This valve, set at 250 psi, relieves excess pressure and is superior to miniature models because of its large orifice and crisp depth compensation.
- 57300... BC coupler male stud to male 1/4" NPT: For putting air guns, tire inflators etc. onto BC hoses.
- 57301... Same as #57300, but with 1/8" NPTM.
- 57305... TEK Adapter: Converts swivel end of hose to 1/4" male NPT.
- 57315... TEK Adapter: Converts 3/8" body port to 1/4" male NPT.



Only "OX part numbers" are oxygen-compatible.

SERVICE & MAINTENANCE - REGULATOR TOOLS

43110... Metal Parts Brush - With toothbrush-like structure, this tool has a heavy plastic body with stainless steel bristles for cleaning small parts.

43120... Fiber Parts Brush - Like #43110, but with nylon bristles.

43125... Regulator Hose Brush - A special, small-diameter brush with a 30" handle for scrubbing the interior of regulator 2nd stage hoses.

43130... Probe #3 - A stainless steel pick with one large semi-loop end and one 45° curved end for probing / removing O-rings.

43140... Probe #5 - A stainless steel pick with two slightly spiral, angular ends. Great for extracting O-rings set in deep or recessed grooves.

43141... Probe #6 - A stainless steel pick with one large semi-loop end and one short, right angle hook for probing or removing O-rings.

43150... Probe #7 - A stainless steel pick with two, short right-angle hooks. Excellent for removing O-rings from deep channels or difficult insets.

43155... O-Ring Insertion Tool - A special stainless tool with two bulbous, offset ends with one side ground flat. Handy for pushing / pulling O-rings into recessed grooves like those inside regulator bodies.

43160... Hemostat Pliers - A small, locking, long-nose pliers of stainless steel. This surgical tool is THE thing for replacing regulator exhaling valves without removing the exhaust tube; great for manipulating small parts like 2nd stage levers.

43165... O-Ring Tool Kit - Set of 5 stainless micro-probes for removing or pushing gaskets and O-rings. Each tool has a different shaped end such as a loop or hook.

43170... Retaining Ring Multi-Tool - A special pliers that will remove or install both internal & external retaining rings used on various dive gear.

43175... Macro-probe Set - Set of 4 robust probes with screw-driver style plastic handles. Each probe has a unique shaped tip useful for probing / removing large O-rings, gaskets, or valve seats.

43180... Hose Protector Sleeve Tool - No more battling hose sleeves! This tool makes installation easy just slide the protector sleeve on the tool, screw the tool to the hose, and slide the protector into place. For super ease, preheat the sleeves by placing them into hot water from an automatic coffee brewer or microwave. Our standard 3/8" thread tool COMES WITH screw-on adapters for the larger fitting on 7/16" and 1/2" bossed hoses.

43181... Adapter, Hose Sleeve Tool 7/16" - This adapter fits other hose sleeve tools on the market and will allow them to handle pressure gauge hoses with 7/16" end threads.

43182... Adapter Hose Sleeve Tool 1/2" - Like #43181, but converts tools to take the larger regulator hoses with 1/2"-20 end threads.

43185... Poseidon 2nd Stage Tool - A unique pliers which can reach into the mouthpiece tube of the Poseidon 2nd stage and turn the adjusting cam which sets the activation effort. The tool grips the cam snugly and allows slow, stepped rotation of the knurled roller.



SERVICE & MAINTENANCE - REGULATOR TOOLS

43225... In-Line 2nd Stage Adjusting Tool / Hex Tip - This popular tool is used to calibrate those regulator 2nd stages which have an adjustable air inlet orifice. This device attaches in-line between the 2nd stage case and the hose; an internal probe allows the orifice to be turned to the proper position just short of leakage. The stainless steel adjusting tip is replaceable (#43226) and is hexagonal-shaped for those regulators with an allen-head slot orifice (Mares and others).

43230... In-Line 2nd Stage Adjusting Tool/Spade Tip - Identical to #43225, except this model has a screwdriver-like adjusting tip which fits the more common slotted regulator orifices. Tip is stainless and replaceable #43231.

43240... Spanner Face Wrench - A "V" shaped wrench with hardened tips in each arm for engaging the detent holes in regulator high-pressure seat retainers, body end caps, or screw-out second stage cover plates.

43245... Heavy Duty Face Spanner - A robust model of #43240 with articulated arms and screw-in, replaceable tips. Tips are case-hardened for handling tough jobs like extracting hi-pressure seat retainers which have been frozen by salt-water encrustation. For replacement tip: Order #43246.



43250... 1/8" Cap Spanner Wrench - A wrench with an articulated, semi-circular arm containing an 1/8" pin for engaging / removing the piston caps on many regulators. Will handle caps from 3/4" to 2" in diameter.

43260... 3/16" Cap Spanner Wrench - Same as #43250, except that the detent pin is 3/16" which works best on caps with larger flood ports or detents.

43290... Regulator Piston Bullet - When piston regulators are repaired, the sharp-edged piston often accidentally cuts the hi-pressure chamber seal during reassembly. This plastic "bullet" is placed in the piston barrel where it serves to expand and protect the O-ring seal during the insertion process. Works on numerous regulators with flow-thru pistons.



43315... BC Tool Set - At least 4 different versions of plastic hardware have been used by various manufacturers on their BC's. Until now, no single tool would work on most of these special fittings. This set has two, double-sided tools: A polygonal wrench and an insert tool which work in unison to hold and turn the mated fittings on BC air way and over-pressure valves. The double-sided tools allow a variety of plastic fittings to be manipulated.

43325... BC Hose Valve Tool - A special, screwdriver-like tool for tightening / removing the recessed core valve within buoyancy compensator air supply hoses.

43330... Regulator Air Barrel Reamer - A stainless steel brush used in an electric drill to clean / polish the inside of the second-stage air inlet barrels employed in such popular regulators as Dacor and Scubapro. Produces an excellent finish in this hard-to-reach place! A plastic tip on the end of the reamer prevents damage to the blind end of the barrel!

43340... Regulator Service Multi-Wrench - This unique tool will perform the tightening / loosening / removal operations on the following regulator parts: first stage piston caps, first stage yoke-retaining nuts or air-inlet bodies, detented hi-pressure seat retainers, detented body ports, detented second stage poppet chamber ports.



43370... Regulator 2nd Stage Multi-Tool - This device speeds repairs on the 2nd stages of 3 popular brands of regulators: 1) it holds / locks the poppet on most Sherwood units while the sealed retaining screw is removed, 2) it holds / rotates the poppet on U.S. Divers units for quick assembly and calibration, 3) it holds / depresses Dacor poppets to the correct position for insertion of the snap-in-lever. Works on many models made since the early 1970's.

43380... Regulator Tool Kit - A starter kit containing tools for general repair of many regulators made within the past 20 years: Allen wrenches (5/32", 3/16", 1/4", 5/16"); O-ring probe needle; #43275 regulator first stage pressure tester / gauge for BC hose; #43250 cap spanner for removing piston covers; #43230 in-line second stage adjustment tool; and #43240 face spanner for removing high pressure seat retainers. Comes in handy pouch.

SERVICE & MAINTENANCE - O-RINGS

48500... O-Ring Starter Kit

A kit consisting of 12 each of 18 different O-rings, that are commonly used for servicing scuba equipment. Kit comes as a compartmental plastic box with a guide which defines important uses for each seal. A great product for shops opening a service department, but unsure of just which O-rings to stock. Popular O-rings can be individually reordered as required.

49000OX... Viton O-Ring Kit

A starter kit of popular, color-coded, oxy-compatible O-rings in a plastic compartment box. All GMC Viton O-rings are brown to prevent accidental mix-ups with the usual black, Buna N O-rings so plentiful in scuba repair departments. Kit has six each of 10 commonly used O-rings with an applications guide.

O-Rings in Bulk Pack Jars

GMC now offers eight of the most popular "dive shop" O-rings in bulk-pack jars of 50 units each. The clear, screw top, plastic jars are reusable for general parts storage or O-ring refills.



- 48312... Bulk Jar (50) O-ring #48612
- 48314... Bulk Jar (50) O-ring #48714
- 48316... Bulk Jar (50) O-ring #48616
- 48403... Bulk Jar (50) O-ring #48503

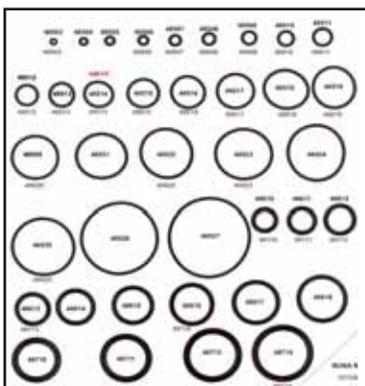
- 48410... Bulk Jar (50) O ring #48510
- 48411... Bulk Jar (50) O-ring #48511
- 48412... Bulk Jar (50) O-ring #48512
- 48414... Bulk Jar (50) O-ring #48814

Application Guide to Common Scuba O-rings Note: Buna O-rings (black #48500 series) are used for normal air applications, whereas Vitons (brown #49000 series) are for oxygen, Nitrox, or specialty gas situations.

- 48503/49003OX... Air spool O-ring for dive consoles or submersible pressure gauges - internal swivel seal
- 48506/49006OX... Common seal in regulator first stage balancing mechanisms
- 48507/49007OX... Common hi-pressure seal on many regulator pistons
- 48508/49008OX... Hi-pressure seal on certain oversized pistons; various regulator & valve uses
- 48510/49010OX... Regulator hose swivel internal O-ring; valve stem seals; piston barrel seal; power inflator seal
- 48511/49011OX... Regulator hose, male end; regulator LP port plugs; various hose adapters; internal seal on many BC hoses
- 48512/ 49012OX... Console/pressure gauge hose; HP port plugs & adapters; DIN fitting internal seal; regulator filter seal
- 48515/49015OX... First stage seat seal; valve bonnet seals
- 48517- 48522 / 49017OX- 49022OX... Large piston O-ring on various regulators
- 48523- 48525 / 49023OX- 49025OX... Piston / swivel cap seal on various regulators
- 49110OX... Seal in quick couplers (GMC #45510 & 45515)
- 48611/49111OX... Mates regulator to valve in Australian valves; seal on helium gas nipples (GMC#45265)
- 48612/49112OX... Regulator to tank seal for older tanks (1970's & earlier); DIN fitting to tank seal
- 48616/49116OX... Tank to valve seals for hi-pressure tanks (3,500 psi +)
- 48714/49214OX... Common tank to valve seal (3/4-14 NPS neck thread)
- 48814/49014OX... Mates regulator to most tank valves

O-RING CONTROVERSY?? EDPM VERSUS VITON

GMC does not sell EDPM O-rings for oxygen applications. We consider EDPM (Ethylene-propylene-diene-methylene) a distinctly inferior polymer to Viton for hi-pressure oxygen applications. Several dive companies are using it in Nitrox equipment because it is inexpensive, has excellent resistance to salt water and abrasion, and yields no toxic byproducts if burned. However, the oxygen compatibility of EDPM is poor: its auto-ignition temperature is about 350° F (Viton is 800°) and its oxygen index is only 25%, whereas at least 50% is recommended for most O₂ applications. Lastly, the heat of combustion of EDPM is threefold greater than that of Viton, meaning an EDPM fire is much more likely to set other components on fire, creating a "kindling chain" reaction. Bottom Line: EDPM is an improvement over other nitrile seals for premixed Nitrox operations, but not for those involving hi-pressure pure oxygen such as partial pressure mixing or oxy-rich decompression media.



ORDERING O-RINGS

SEE OUR PRICE LIST FOR AN EXACT SIZING REFERENCE CHART AND PRICES. THIS CHART CAN BE USED TO DIRECTLY MATCH THE SIZE OF O-RINGS.

GMC stocks most popular sizes of commonly used O-rings in both Buna N (black nitrile rubber) and Viton (oxy-compatible fluorocarbon rubber). They can be ordered singly in any quantity, in handy bulk jars of 50 each, or in kits. Technicians should be aware that certain scuba repairs might require O-rings of special hardness or composition, and substituting non-compliance types may lead to serious malfunctions. Always consult manufacturer's specifications / repair manuals in this regard. GMC's TechSupport can often advise you on O-ring selections and applications.

Only "OX part numbers" are oxygen-compatible.

SERVICE & MAINTENANCE - SUPPLIES

42145OX... Oxygen-Compatible Paste Sealant Various components of common scuba equipment such as DIN-fittings and regulator second stage inlets require thread sealants, but Locktites ARE NOT O₂ compatible. Instead, LOX-8 paste can be substituted to mildly freeze such threaded components. This greenish-colored fluorocarbon is fully O₂ compatible. 10 gm. jar.

42165OX... Oxy-Safe Regulator Lubricant This synthetic lube is a perfluoropolyether, one of the most inert materials known. The brand is Christolube MCG111, NOT to be confused with Dow 111 silicone grease which is NOT O₂ compatible. Unlike other synthetic O₂ lubes, this one does NOT get viscous at low temperatures and works well in regulators used in cold waters. Use this grease in regulators or diving gear exposed to gas mixtures containing O₂ levels of 23% or more. Navy approved, 2 oz. tube.



43210... Dow 111 Silicone Grease - A thick formulation with high wash-out resistance suitable for environmentalizing piston type regulators or lubricating other static (non-moving) parts. Dow 111 is also recommended by cylinder manufacturers to coat tank valve threads at each VIP to prevent electrolytic corrosion. Not recommended for moving parts due to its high viscosity. NOTE: NO silicone lubricant is suitable for Nitrox or pure oxygen applications.

43220... Dow 7 Silicone Grease - A grease with thin consistency for use on moving regulator / valve parts such as piston O-rings. NOTE: NO silicone lubricant is suitable for Nitrox or pure oxygen applications.

Regulator Cleaner Solvent - A biodegradable, acidic detergent which removes oxides, tarnish, rust, scale, oil, and salt-water encrustments from brass, iron, stainless and plastic parts. This solvent meets FDA, USDA, and various mil-spec requirements. The acid can be diluted to about 25% strength; at that concentration, most scuba parts will be cleaned by a 3-15 minute submersion, depending upon the degree of contamination. For heavy encrusted items, the cleaner can be applied full strength directly with a brush or swab. Rinse the finished parts with cold, then warm water and dry thoroughly. A metallic luster can be produced on many clean parts by wiping them with a towel. NOTE: This solvent is primarily a food grade acid, but protective gloves and glasses should be worn during its use, especially when applying it by hand in undiluted form. DO NOT USE IN ULTRASONIC CLEANING MACHINES; it can corrode / etch the tank or damage the circuitry. Ships HAZMAT at additional cost.

43190... Regulator Cleaner Solvent - Quart

43191... Regulator Cleaner Solvent - Gallon

43192... MSDS - Regulator Cleaner

43195... Tie Wrap Gun - A handy tool for gear service which tightens and cleanly cuts the plastic tie wraps commonly used on regulators, BC's and other underwater devices.

Mouthpiece Ties - Plastic retainer strap for mouthpieces. Has a stainless steel tooth clamp which meets mil-specs for dive gear. Use to clamp mouthpieces, buoyancy device hoses, and accessory devices. 100 / bundle.

43200... Black **43201... White**

43205... Tie Wrap Cutters - A mini-pliers with a very sharp cutting edge; cuts plastic tie wraps so cleanly that no sharp edges remain to scratch or nick a diver's face! Also handy for removing old straps.

48500... O-Ring Starter Kit - A kit consisting of 12 each of 18 different O-rings which are commonly used for servicing scuba equipment. Kit comes in a compartmental plastic box with a guide which identifies important uses for each seal. A handy product for shops just opening a service department. All O-rings can be reordered individually as demand dictates (See pg. 22).

49000OX.. Viton O-Ring Kit - A "starter kit" of popular, color-coded (brown), oxygen-compatible O-rings in a compartment box. Kit contains six each of 10 commonly used, SCUBA O-rings complete with an application guide. All O-rings can be reordered individually as demand dictates (See page 22).

Only "OX part numbers" are oxygen-compatible.

SERVICE & MAINTENANCE - ULTRASONICS

Perhaps the most effective way to clean small parts including those from scuba regulators / valves is by ultrasonics. This requires a special machine which generates high-frequency vibrations (beyond the range of human hearing) within certain liquid solvents. Forceful bubble impulsions bombard virtually every surface of any material submerged in the liquid; this cavitation literally blasts the contaminants off the parts, producing a state of microscopic cleanliness! It silently removes grime, rust, oil, dyes and grease from metals, ceramics, glass, plastics, rubber and synthetic fibers. However, ultrasonics can be harmful to some composite materials and a few elastomers, so manufacturers' manuals should always be consulted with regard to compatibility. Because this process cleans so thoroughly, it's an approved method for oxygen cleaning.

Another virtue of ultrasonic cleaning is that the vibrations can be passed at undiminished strength from one liquid to another. Thus, if water is placed in the tank of the machine, the cleaning activity will be transmitted to any solvent contained in an auxiliary pan or vessel placed into the water. If one has extra pans of selected solvents, a single machine can utilize a variety of cleaning agents by merely exchanging pans! All GMC cleaners can employ this reciprocating pan system and we recommend it when acidic solvents must be used. (Each machine includes detailed instructions on ultrasonic cleaning).



43050... Deluxe Ultrasonic Cleaner Model 2014 - This top of the line 110v, powerful (320 / watts) machine measures 12.5" x 8.2" x 9" overall with a blue / white vinyl-clad finish and a 9.4" x 5.4" x 4" stainless tank of 3.4 qt. capacity. Controls include automatic cavitation tuning, cycle timer, and a pilot light. The transducers of model 2014 are especially tuned to produce waves that penetrate into the small cavities and recesses of machine parts. The tank has a convenient drain plug, a stainless cover, and can hold several dismantled regulators or valves at one time. **(43052... Ultrasonic Cleaner Model 2014, 220 Volt, special order only!)**

43051... Stainless Steel Basket for 2014 - This metal mesh basket holds parts during ultrasonic cleaning and rinsing.

43055... Stainless Steel Pan for 2014 - This pan can hold the desired solvent in the interchangeable pan / solvent systems previously explained.

43070... Ultrasonic Cleaner Q-90 - This handsome 110v, rectangular shaped unit is 6.9" x 6.4" x 9" overall with a two qt. tank measuring 5.9" x 5.4" x 4". The tank of the Q-90 will easily hold large valve or regulator bodies. It develops 160 watts of cleaning power and has an automatic timer and pilot light. **(43072... Ultrasonic Cleaner Q-90, 220 Volt, special order only!)**

43071... Stainless Steel Basket for Q-90 - Like #43051, but smaller for the Q-90 unit.

43075... Stainless Steel Pan for Q-90 - Like #43055, but smaller to fit the Q-90 machine.

43090... Bur Tray - A small, cup-shaped tray with a handle for cleaning small parts.

GMC Hydrosonic Solvent - Most commercially available (and expensive) solvents for sonic cleaners were developed for use on jewelry, dental materials, or greasy bearings; they work poorly on salty scuba gear! GMC's solvent, based on a food-grade organic acid, was especially designed to remove the deposits which contaminate dive gear. It's formulated to proper strength, so no diluting or mixing is required. Will not harm cleaner pans. Ships HAZMAT at additional cost.

43101... Hydrosonic Solvent - Gallon

43103... Hydrosonic Solvent Case - 4 Gallon Pack

ULTRASONIC OXY-CLEANING

Ultrasonics may be the simplest and most effective technique for oxygen-cleaning. It's easy: Use alkaline degreasers like GMC Special Cleaner diluted 1 to 25 (6 oz per gallon of water) in the ultrasonic machine. Add the "dirty" parts and energize for 15 minutes. Rinse with oil-free water, conduct shake / pH test, dry appropriately, and inspect with ultraviolet light or other approved methods. Extremely dirty materials may require pre-treatments prior to sonic cleaning.

SERVICE & MAINTENANCE - TANK TUMBLING

42000... Tank Tumbler

This machine consists of two heavy gauge, dichrome-plated steel end plates that support three parallel rubber rollers, the center one of which is rotated by a 60 rpm, 1/4-hp gearmotor. This apparatus allows two dive cylinders to be simultaneously tumbled at about 25 rpm. The semi-soft rollers will not deface or mark tanks, but still have excellent traction. The spacing between each roller axis is adjustable so tanks of different diameters can be accommodated. The parallel side rollers are offset in height from the central drive roller which also promotes handling tanks of varying size. The tumbler is easily assembled and can be anchored to a bench, floor, or fabricated frame. An exploded parts diagram / instructions are included or available at our website www.gmcscuba.com. Electrical connections are **not** included. 110v model only. (See Bulletins #42130 and #42125OX for information on tumbling operations. These bulletins can be ordered through our Customer Service Department at 800-558-1811 or are available at www.gmcscuba.com).



42030... Tank Dryer System

This apparatus can hold two dive tanks in an inverted position so that they can be dried after tumbling by forced hot air. Includes two tank stands, an air delivery pipe with two outlet ports, and an industrial-grade heat gun. The latter is 115-volt, 10-amp unit with an adjustable 750° F heat element suitable for drying all scuba tanks. One outlet vent on the air manifold is interchangeable into a smaller diameter pipe for drying older steel cylinders with 1/2"-NGT openings. **NOTE:** Care must be exercised NOT to over-heat aluminum tanks during drying. Our dryer's design makes overheating unlikely, but 325° F or more can impair a tank's tensile strength. See dryer manual, tank manufacturer's specifications or GMC Bulletin #42130.



42035... Dryer Gun Element - Replacement 750° F element for our tank dryer heat gun.

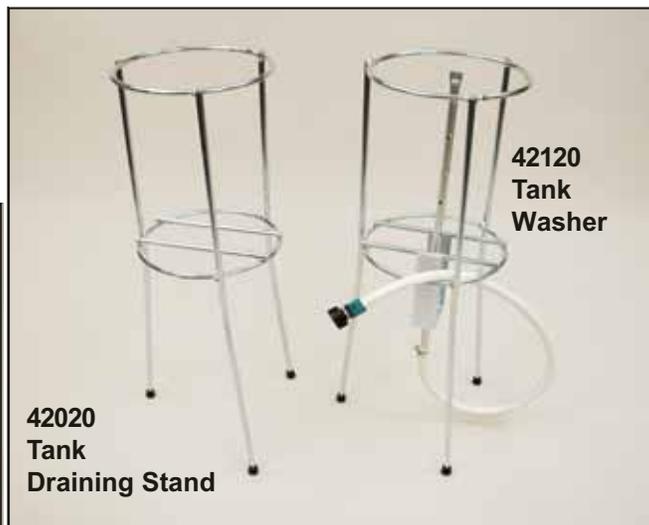
42020... Tank Draining Stand

A sturdy 3-legged steel frame holds all common size SCUBA cylinders in an inverted position so that after tumbling, media and cleaner can be drained from them into a receptacle. The stand will hold tanks up to 8.25 in diameter.

42025... Tank Draining Pan - A 24 x 16 x 12" robust plastic pan that will hold 80 lbs. of tumbling media. GMC tank draining stands or washers will fit inside this container to catch media expelled from tumbled cylinders. Perforated bottom allows fast washing, draining, and drying of media.

42120... Internal Tank Washer

This device allows thorough internal washing of tumbled / dirty dive tanks with a minimum of handling. Consists of a modified tank stand (8.25" ID) with an adjustable, perforated metal tube which slips into any inverted tank placed in the stand; the tube can be connected to a water faucet by means of a short hose. Just set this entire assembly over a drain, attach the hose, turn on the water, and the internal sprinkler will flush the tank clean in a few minutes.



SERVICE & MAINTENANCE - TANKS & VALVES



42040... Aluminum Oxide - Chips are small, hard, randomly-shaped abrasive particles which will loosen scale and rust from tank walls, thereby augmenting the action of solvent chemicals to remove / suspend internal contamination. This material can be used in steel or aluminum tanks with various adjunct solvents EXCEPT TANK ACID which will attack the chips and produce excessive gassing. Aluminum oxide has been successfully used for tank tumbling for 40 years. Use 25 - 35 lbs. per tank.

42045... Glass Beads - Beads are 4-5 mm clear glass balls which are employed whenever minimal cutting activity is required such as during oxy-cleaning for Nitrox usage or for removal of persistent internal tank odors. Will not remove heavy, gross contaminants. About 10 pounds are generally required per tank.

42050... Ceramic Media - Chips are cylindrical, cast resin pellets with a computer-designed shape for specific cutting activity. Each pellet (1/8" ID x 5/16" long) contains an abrasive agent which gives a very precise, predictable cleaning action. More tolerant of acid than aluminum oxide, ceramics are very useful for tumbling aluminum tanks or for oxygen-cleaning operations. Use 25 - 35 lbs. per tank.

42055... Tumbling Expeditor - A fine, sand-like abrasive grit which speeds the cleaning activity of normal media in STEEL tanks and usually shortens the tumbling process by several hours. Also enhances the cleaning of very dirty cylinders with pitted or concreted walls. Requires only 2-3 teaspoons of grit per tumble. Sold by the pound.

42070... Acidic Tank Cleaner

A blend of phosphoric acid and certain suspending agents, this acidic cleaner will expedite the removal of scale, oxides, concretions, and other stubborn contaminants from inside STEEL dive tanks. It's biodegradable and can be flushed down drain systems without harm. It has FDS, USDA, CDA, CDF approval and also meets many mil-spec requirements. The acid concentrate, when diluted to 5 - 10% strength for use, will speed the process so that only 1-3 hours will be required for completion. NOTE: Use this cleaner on STEEL TANKS ONLY; acids will attack aluminum models! See Bulletin #42130 for additional information - available at www.gmcscuba.com. Ships HAZMAT at additional cost.

42100OX... GMC Special Cleaner - This powerful BLUE-COLORED cleaner replaces GMC's older, GREEN liquid that was sufficiently caustic to be classified as hazardous for shipping, whereas this new one is **not hazardous**. Like the former solvent, this alkaline degreaser is biodegradable, nontoxic, nonvolatile and possesses high rinsibility, a highly desirable property for oxygen cleaning. It's compatible with steel, stainless, brass, chrome, ceramics, galvanized metals as well as most rubber and plastic polymers. (In concentrated form, it can etch aluminum). Use this degreaser diluted with water as an adjunct in tank tumbling, for swabbing compressor oil spills, or for oxygen cleaning. Because of its high rinsibility and negligible flash point, this solvent is very effective for oxygen cleaning by soaking, scrubbing, or ultrasonic methods.

42135OX... Christolube 125 This new aerospace lubricant is GMC's recommended replacement for Formula 8, Lox 8, or other synthetic materials commonly used on Nitrox / oxygen tank valve threads where silicone grease CANNOT be used. This black, oxy-compatible grease, not to be confused with white Christolube 111, contains molybdenum disulfide, a highly effective additive to prevent thread seizures and dissimilar metal electrolysis, while still maintaining a high degree of lubricity. Sold in 2-oz. plastic jar.

42140... Molykote 557 - Following VIP's or other tank service, the valve threads must be coated with a suitable insulating lubricant to prevent metal seizures or electrolytic corrosion. Since the 1970's, Molykote 557 (molybdenum in a silicone / naphtha solvent) has been popular for this purpose because it resists pressure displacement into the tank cavity. Just brush it on the threads, let the solvent evaporate, and reinsert the valve.

42205... Genesis Tank Plug - A metal plug with a 7/8 - 14 thread and O-ring seal. Plug Genesis and other DIN tanks during tumbling.

42210... Standard Tank Plug - A plastic, O-ring sealed plug for sealing common 3/4 - 14 tank threads during tumbling.

42220OX... Oxy-Safe Rust Inhibitor - Also called Compound O, is used following the tumbling of steel tanks to prevent flash rust, a reddish film which often forms on the interior walls during drying of the cleaned cylinder. This chemical replaces Compound B, a popular anti-rust agent which is NOT oxygen compatible. Compound O can be used for both air and O₂ / Nitrox tanks.

43210... Dow 111 Silicone Grease - Another popular dielectric compound for the protective coating of tank valve threads. A thick pasty grease which comes in a 5.3 oz. tube. Recommended by all aluminum tank manufacturers.

Only "OX part numbers" are oxygen-compatible.

SERVICE & MAINTENANCE - TANKS & VALVES

TANK CLEANING WHIPS

An essential device for LIGHT-DUTY cleaning inside scuba tanks when tumbling is not needed, but deposits like flash rust or aluminum Bayerite should be removed. Minor contaminants in large cylinders which will not fit the tumbler machine can also be whipped out. The whip is a flexible "broom" consisting of strands of a space-age plastic, coated with a durable abrasive and crimped onto an aluminum rod. The whip can be spun by any 3/8-electric drill. NOTE: To prevent injury to the operator and/or whip, drill power MUST BE OFF when inserting or removing the whip from a tank! Also, DO NOT store the whip in any manner which folds or kinks the strands; subsequent strand fracture may occur.

42170... Whip for standard scuba tanks

42175... Whip for pony or other small tanks

42171... Whip Extender Rod - A 3-foot aluminum rod which screws onto the tank whip and lengthens it to about 70".

42200... Plastic Whip Guide - A threaded, plastic plug with a centralized hole through which the rod of the whip can pass. The plug's thread matches that of 3/4" NPS tanks and, when screwed into place, controls the angle of the whip to prevent damage to the strands while still achieving proper cleaning.

42225... Tank Purge Air Gun - Just the tool to remove congested media from a dive tank after tumbling. Snap this air gun onto any pressurized BC hose, place the curved tube nozzle into the neck of the tank which is inverted over a catch pan, and inject a stream of air. The internal pressure created will quickly jet a slurry of liquid and media into the pan, emptying the cylinder in seconds.

42230... Tank Vacuum Attachment - Metal shavings, teflon tape, aluminum oxide powder, and metallic dust are difficult to remove from dive tanks because they electrostatically cling to the interior. These contaminants can usually be successfully vacuumed out using our special probe assembly which will mate to the 1-1/4" hose of any small "Shop Vacuum." The 35" long x 5/8" diameter tube will fit into all current dive tanks.



Valve Thread Brushes

Small circular stainless steel wire brushes used to quickly clean the threads of scuba tank valves.

43000... Valve Thread Brush for 3/4"-14 NPS valves

43010... Valve Thread Brush for 1/2" NGT & DIN valves

Tank Neck Thread Brushes

Cylindrical, plastic handled brushes with fine stainless steel wire for cleaning dive tank neck threads without harm to the threading.

43020... for 3/4" - 14 NPS neck threads

43030... for 1/2" NGT & DIN neck threads

43025... Tank Neck Thread Drill Brush - A small, cone-shaped stainless steel brush which can be used in any electric drill to safely and quickly clean tank neck threads and the O-ring groove.

TANK BOTTOM BRUSHES

Special, small stainless brushes for removing those stubborn deposits on the very bottom of dive tanks. Each brush screws onto a 3-foot aluminum rod which fits into any 3/8 electric drill. Each unit comes with the brush, extender rod, and a plastic guide sleeve to augment insertion through tank necks.

43040... Light-Duty Bottom Brush

43041... Light-Duty Brush - without Rod

Fine wire for light rust spots in steel tanks or Bayerite deposits in aluminum models. Will not seriously damage the interior coatings of aluminum tanks.

43045... Heavy-Duty Bottom Brush

43046... Heavy-Duty Brush - without Rod

Heavier, stiffer wire for bottom flash rust or other deposits in STEEL tanks. Not recommended for aluminum models.

TANK CLEANING PUBLICATIONS

GMC currently publishes the only comprehensive manuals on tank cleaning in the entire dive industry. Topics covered are the equipment, techniques, and chemicals for tumbling, washing and drying of contaminated cylinders.

42130... TANK TUMBLING TIPS is presently the definitive manual on cleaning air tanks.

42125OX... CONVERTING DIVE TANKS FOR NITROX / O₂ SERVICE covers the preparation of new and used tanks for specialty gas applications. Both available at www.gmcscuba.com.

SERVICE & MAINTENANCE - TANKS & VALVES

42080... Tank Vise

Constructed of heavy, welded steel plates which have been chrome-plated, this V-shaped vise can be bench-mounted in either vertical or horizontal position. When fitted with adapter #42085, it can be clamped in a standard vise and used whenever needed or stored away when not. Tanks up to 8.5" in diameter are secured in the device with an adjustable chain vise-grip. A plastic tube to cover and pad the chain is also included.



42085... Tank Vise Base Plate

A heavy, T-shaped metal plate which can be bolted to the base of the GMC Tank Vise #42080, thereby making it portable. Whenever / wherever it is needed, the unit can simply be clamped into any large, bench-mounted vise.

43280... Valve Function Tester

An internally threaded, 2" diameter cylinder of hi-tensile, anodized aluminum; the inner threads are 3/4-14 NPS which will accept the standard, O-ring sealed scuba valve. A 3-foot (5,000 psi service) hose attached to the base of the stand has a scuba yoke on its free end for attachment to any tank. To test a valve, screw it into the cylinder, turn on the air, and submerge the cylinder / valve in water. Any leaks will be apparent, and all valve functions can be tested with or without an attached regulator. **NOTE:** Always hold the assembly securely and pressurize it slowly to prevent any hose whiplash. It can also be clamped into any vise.

43281... Genesis DIN Valve Adapter

An O-ring sealed adapter for the test stand used on our #43280 Valve Tester or #46080 Test Stand, it converts the large tank thread to a 7/8 - 14 hydraulic port thread which is used on DIN (Genesis-Type) hi-pressure cylinder valves. Also allows DIN valves to be used / tested in our Valve Tester or Workstations and Flowbenches.

43285... 1/2 NGT Valve Adapter - O-ring sealed adapter used in the #43280 Valve Tester or #46080 Test Stand to convert the thread to the 1/2 - NGT pipe thread used on older steel tanks and many small gas cylinders. Allows 1/2 - NGT valves to be used / tested in our Valve Tester or Workstations and Flowbenches.

43360... Valve Stem Nut Tool

The on / off handle and J-valve arm on virtually all scuba tank valves are retained by a special slotted nut. #43360 is a large, wide-blade screw-driver with a notched tip for removing that nut. Even nuts frozen by salt water can be freed with this tool.

46080... Valve / Regulator Test Stand

Machined from hi-strength aluminum alloy, this 2"-diameter cylinder is drilled and tapped to accept O-ring sealed scuba valves (3/4-14 NPS). The bottom has a 1/4" NPTF air inlet port and two 1/4-20 bolt holes for mounting it to any bench top. Used to test repaired valves or, with an installed valve, makes a great bench top workstation for fixing / testing regulators!

TANK CLEANING PUBLICATIONS

GMC currently publishes the only comprehensive manuals on tank cleaning in the entire dive industry. Topics covered are the equipment, techniques, and chemicals for tumbling, washing and drying of contaminated cylinders.

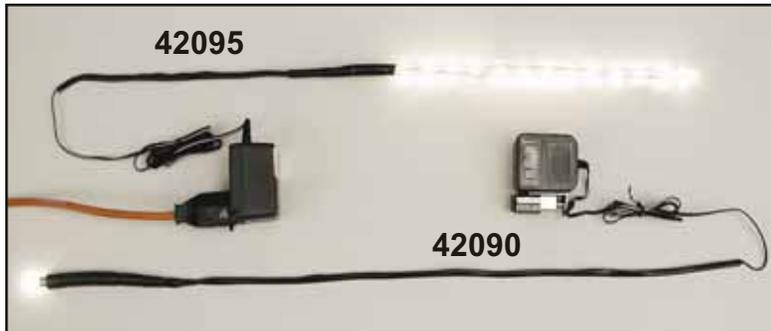
42130... TANK TUMBLING TIPS is presently the definitive manual on cleaning air tanks.

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SERVICE & MAINTENANCE - TANKS & VALVES

42090... Portable Tank Internal Inspection Light

A 14" flexible shaft holding a single, terminal, hi-intensity bulb powered by a 9v battery (portable mode) or 110v transformer (tethered mode). Uses a special military bulb (GMC #42091), but a standard #44 bulb (Radio Shack, automotive stores) makes a suitable temporary replacement if needed.



42095... Deluxe Tank Internal Inspection Light

An array of 12 hi-intensity, miniature bulbs housed within a 14" clear plastic tube which will slip into even narrow-necked tanks. The end of the tube is sleeved to focus the end for illuminating pits or cracks. Powered by a step-down, 110v transformer, the light operates at only 18v to mitigate the chance of electric shock from metal tanks. Life expectancy of the bulbs can be years, but the loss of any single bulb will not short out the entire array.

42105... Pit Gauge - A chrome-plated 1.5" hexagonal aluminum block with 6 machined grooves which can be used to estimate the depth of pits in dive tank walls. Slots ranging from 0.01" to 0.06" deep can be used as a reference after the depth of the pit has been probed.

42110... Tank Inspection Swivel Mirror - A 7/8" diameter magnifying mirror with handle used to inspect the inner neck of aluminum tanks for cracks or imperfections... a procedure which is now a standard part of the yearly VIP. A ball joint between the mirror and handle allows the viewing angle to be adjusted.



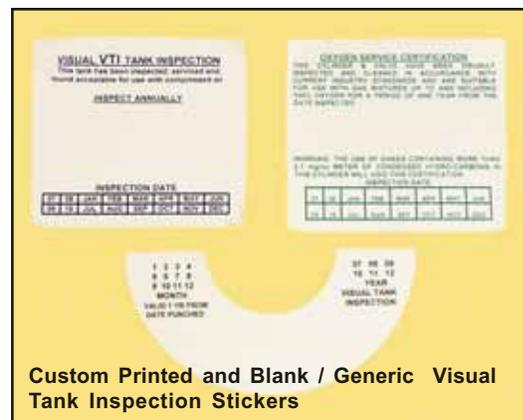
42115... Tank Inspection Lighted Mirror - A 7/8" diameter magnifying mirror attached by a ball joint to a small penlight which illuminates the face of the mirror. Great for inspecting the inner neck area of aluminum tanks for cracks. Light uses 2 #AA batteries.

Blank VIP / VTI Stickers - Preprinted Visual Inspection Stickers to record the month/year of the last tank service. These can be used as temporary replacements if you run out of you custom-printed or instructional agency stickers. Available in regular square format or the curved, neck styles.

81008... Blank VTI Stickers Square

81009... Blank VTI Stickers, Curved Neck Style

81017OX... Blank VTI Oxygen Stickers, Square



Custom Printed VIP / VTI Stickers - These VIP stickers can be custom printed showing your shop name, address, and phone number. Choice of red, blue, black or green colors. Simple shop logos can also be done. Stickers are available in the conventional shapes or in the curved format which conveniently fits around the tank neck where it's not obscured by tank shields, BC jackets, or other gear. Contact the GMC business office at 800-558-1811 or sales@gmcscuba.com for additional information.

81001... Square 250

81005... Curved 250

81014OX... Square Oxygen 250

81002... Square 500

81006... Curved 500

81015OX... Square Oxygen 500

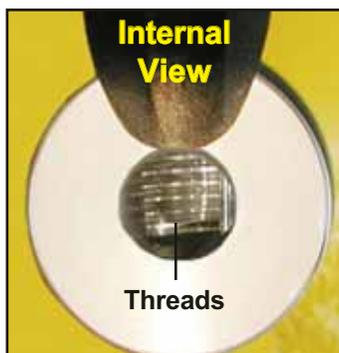
81003... Square 1000

81007... Curved 1000

81016OX... Square Oxygen 1000

42215... Tank Inspection Pipe (TIP)

The latest hi-tech optical device for inspecting dive tank threads for neck cracks and other defects. The TIP's basal block engages the tank aperture and a special plastic rod, illuminated by a small Pelican light, extends into the threaded cavity. This rod serves as an optical magnifier to a eye piece that allows precise inspection of the internal threads and underlying neck structure. Rotation of the rod on its basal mount provides a sharp, enlarged, annular view of the entire neck region - see "Internal View".



Only "OX part numbers" are oxygen-compatible.

AIR PROCESSING - FILTERS & TOWERS

The compressed air utilized for SCUBA diving should meet the rigorous OSHA standards for Grade E*.

Permitted levels of contaminants: Carbon Monoxide - 10 ppm Carbon Dioxide - 1000 ppm Oil Vapor-hydrocarbons - 5 mg / M³

Water Vapor: Not specified, but a dew point of at least -50° F should be maintained for diving air. For very cold water diving, even lower dew points may be needed to prevent regulator freeze-ups.

*Grade E air is NOT acceptable for preparation of Nitrox. To mix with pure oxygen, air containing NO MORE THAN 0.1 mg / M³ hydrocarbons must be used (modified Grade E). See Footnote.

In well maintained compressor systems, the water / oil vapors are largely removed by mechanical separators and any residual contaminants are filtered out chemically in a final step. GMC stocks a variety of specialized hardware and chemicals for successful processing of diving gas. Dive shops occasionally need to replace worn out filters or improve / revamp existing systems. GMC manufactures a line of filter towers which utilize disposable cartridges; also available are after-separator columns, back-pressure regulators, and various other complementary accessories for do-it-yourself repairs. Our towers are constructed from hi-tensile 7075 aluminum for 5,000 psi service. Each has a black, hard-anodized outer finish with easy-to-open, screw off, O-ring sealed end caps. Air enters and leaves the housing via #6 hydraulic ports on each side of the base cap. Each port has a stainless adapter to convert the #6 port to 1/4 NPTF. Any unit can be mounted on a bracket or angle bar via two 3/8-16 bolt holes tapped in its base.



44300... Tall Repackable Stainless Cannister Some diving operations prefer to repack filters whenever possible from economical, bulk-purchased chemicals. Aluminum towers cannot be free-packed with chemicals without serious corrosion occurring inside the housing! Disposable cartridges are factory-sealed and should not be repacked. GMC offers a stainless steel canister which can be repacked indefinitely with chemicals purchased in bulk. The unit fits only GMC #44150 tower and those using the Mako seal system. Includes complete instructions on the repacking process. For replacement pads, plates, and shields for canister, order kit #44301.

44305... Bauer Tower Converter A stainless steel insert that fits into the base of a Bauer Filter Tower and converts its double O-ring mating system into the more common single O-ring type. Converted Bauer towers can use Mako-style cartridges that are less expensive and easier to procure. The GMC Repackable canister (#44300) can also be used.

Disposable Filter Cartridges GMC offers a series of throw-away filter cartridges which will fit a variety of popular air systems as well as our own towers. Most columns have a discrete mating coupling and the corresponding filter cartridge must be compatible with that connection. Filters must also contain the appropriate chemicals to accomplish intended purposes. See the GMC price list for further information, stock numbers, and a cross-reference chart on the filters offered. Our TECH department can assist you on finding the correct filter for your system.



44130... After Separator

Also called a coalescer, this 3.75" x 11" tower fits between the compressor and chemical towers to mechanically dry the air to about 99%. A manual vent on the bottom of the column allows the oil / water sludge to be periodically drained off. Without adequate after separation, the effectiveness of the chemical filters will be impaired and expensive cartridges will be rapidly expended! 6,000 psi service. Drain valve NOT included (see #44135).

simple task. Each tower will process about 12,000 cu. ft. of air per cartridge. Select the cartridge with the desired filtrants from the cross-reference chart in the GMC price list.

44150... Tall Filter Tower - A taller version (33") of our #44140 which will treat about 22,000 cu. ft. of air per 27" cartridge. Select the cartridge with the desired filtrants from the cross-reference chart in the GMC price list.

44160... Purifier Combination Tower - A 3.75" x 24" column containing BOTH a coalescer and a chemical filter. A single filtration device for use on small compressors (10 cfm or less) or to bolster existing systems in certain applications. See price list to select filter cartridges; drain valve NOT included (see #44135).

HYPER-FILTRATION AND NITROX PREPARATION With the widespread popularity of Nitrox diving, numerous dive shops are mixing air with pure oxygen to produce saleable "enriched air" mixtures. For safe blending, compressed air with purity greater than normal Grade E must be used. Known as "Oxygen Compatible Air" or OCA, this gas is permitted to contain no more than 0.1 mg / M³ of hydrocarbon contaminants, whereas Grade E scuba air can have 50 times that amount (5 mg / M³). Some dive shops are able to produce OCA with their regular filtration systems if the compressor, lubricant, moisture separators and filters function absolutely flawlessly. Many other air systems cannot achieve air of this purity under any circumstances. Most shops producing Nitrox obtain OCA (also called Modified Grade E) by a technique called Hyper-Filtration. This involves passing your normal Grade E scuba air through a special, additional chemical filter called a Hyper-Filter. This consists of a special tower(s) containing "circulating cartridges" with high-purity chemicals which can remove even trace hydrocarbons. To assure complete purification, these filters also control the pressure and flow rate at which the air passes through the system. Even those shops able to produce OCA by normal processing often prefer to hyper-filter because these devices provide a safety backup for unseen system failures which could unexpectedly create a non-OCA status. **See page 48 for Hyper-Filters and related products.**

AIR PROCESSING - SUPPLIES & HARDWARE



FILTER RETAINER PADS AND SUPPORT DISKS Most older-models, steel filter towers do not use disposable cartridges, but rather are free-packed with chemicals. To retain and compact these chemicals within the tower, circular felt pads supported by perforated metal disks are used. Synthetic felt pads are preferred for this purpose.

NOTE: ALL DISKS ARE CUSTOM-CUT, SO SPECIFY THE DIAMETER NEEDED WHEN ORDERING.

44320... Filter Pad Retainers - Perforated aluminum disks

44325... Filter End Pads / Synthetic - White polyester

44135... Drain Assembly Kit for #44130 / 44160 or other appliances requiring a sludge drain. Valve with 1/4" NPTM inlet and six feet of plastic tube to run to a collection vessel or other depository.

44155... Tower Port Adapter - Adapts #6 hydraulic, O-ring ports to common 1/4 NPTF. Stainless steel.

Tower Seal Kits - Consists of one O-ring and one Teflon wiper ring. (Choose #44154 for filter towers #44140/44150/44160) (#44133 for #44130 separator)

46150... Priority Back Pressure Valve - Prudent dive shops strive to maintain a low dew point in their scuba air and also achieve maximum life expectancy from expensive filter cartridges. However, air must be 99% dry before entering the chemical filters or neither objective will be met! To accomplish this, an after-separator and a priority valve are required. The latter unit is an adjustable check valve which holds about 1700 psi of back-pressure on the filter system at all times. This raises the density of the air, increases the efficiency of the separator (100% or more), and thereby lengthens the life of the filter chemicals. The process is called pressure-drying. Preset at about 1700 psi. One inlet, 2 outlets - 1/4 NPTF.

46320... Standard Relief Valve - Adjustable "pop-off" valve which can be calibrated from 300 to 5,500 psi. Anodized aluminum for 6,000 psi service. 1/4" NPTM inlet. Used to protect filters, separators, storage vessels or compressor interstages. Comes uncalibrated with instructions.

46340... Floater Relief Valve - A gently-opening pop-off valve producing a slowly increasing flow rate to use as a safety overpressure device where repeated openings occur. Designed for heavy frequent service to 7,000 psi. 1/4" NPTM inlet. Can be calibrated from 400 to 6,500 psi; comes uncalibrated with instructions.

44060... Drierite Granules

Drierite, calcium sulfate impregnated with cobalt chloride, is bright blue in color in dry air; however, at relative humidity of about 40%, the granules turn pink. Therefore, it can be used in free-packed filter systems to monitor the status of the dessicants. Just sprinkle Drierite on the top layer in your dessicant column and inspect it periodically. When the blue color begins to fade, it's time to renew the chemicals. Packaged in a 10 oz bottle. **44065... Bulletin: Using Drierite** A guide describing how to utilize Drierite to monitor air quality and chemical longevity in free-packed filter systems (not pictured).

44070... Colorimetric Air Quality Monitor

This simple device fits into the air train immediately after the dessicant filter where it monitors air quality by means of obvious color changes in parchment sensor disks which can be seen through a plastic viewport. It can also determine the longevity of the filter media. When a color change indicates that the moisture level in the processed air is too high, the dessicant needs changing. If compressor running time to that point has been tracked (manually or by hourmeter), then the normal life expectancy of chemicals in running hours is known. By subtracting a few hours from that value and changing your chemicals a little early, a safety margin can be maintained on your air quality. An additional colored sensor detects unsafe levels of carbon monoxide. Since the longevity of filtrants can be affected by many environmental and mechanical factors, this monitor can catch any unexpected shifts in air quality caused by unpredictable / aberrant conditions. **Specifications:** Flow / pressure rating - 50 cfm to 5,000 psi; Connections - 1/4 NPTF bottom ports; Replaceable Sensors: Blue outer ring changes to pink at relative humidity of 40%. Yellow central disk becomes coal black at 50 ppm carbon monoxide. Seals: Monitor screws open / closed and seals on an O-ring. **Replacement sensors: Kit #44071- One each CO disk and humidity detector ring. 44073... Humidity detector ring only 44077... CO disk only**

44075... Colorimetric Moisture Level Monitor

Similar to #44070, this unit utilizes a 3-phase sensor disk which progressively changes shades of blue as the humidity increases. Humidity levels of 20%, 40%, and 60% are detected; dessicants should be renewed as the 40% segment begins to fade. Since this model does not sense carbon monoxide, use this device where the chance of carbon monoxide in the intake air is low; also use it to maintain very low dew points in air used for cold water diving or deep TEK diving. (Replacement sensor disk: Order #44076).

AIR PROCESSING - CHEMICALS & LUBRICANTS

Air Processing Chemicals

Modern scuba air filtration systems utilize disposable, prepacked chemical cartridges. Some dive shops with older systems still prefer to repack their STEEL filter towers with bulk chemicals or to use repackable stainless liners within ALUMINUM towers. Aluminum housings should NEVER be free-packed because filter chemicals can react corrosively with the metal walls and weaken the tower. Repacking with bulk filtrants can be economical, although it is messy and time consuming when compared to throw-away cartridges. Also, free-packing must be done in a discrete manner and order or the filtration process will fail. GMC offers the bulk chemicals for air filtration and our TECH Department can advise you on the techniques required 414-774-1616 or techsupport@gmcscuba.com



44000... Hopcalite 300 A brownish / black, granular substance which is a manganese dioxide based catalyst that oxidizes carbon monoxide in diving air to the more tolerable carbon dioxide. The latter gas will then be absorbed and removed to some degree by activated carbon. Use Hopcalite whenever: (A) The quality of your intake air is questionable...in metropolitan / industrial areas etc.; or (B) the compressor operating conditions are marginal causing it to run hot or pump for very extended periods.

NOTE: Hopcalite is inactivated by moisture, so it must always be placed after the dessicant in the filtration train, but before the carbon. Packaged in 2-lb bottles.

44010... Activated Alumina Type A Type A porous aluminum oxide is a historically popular dessicant for SCUBA air because it is non-toxic, long lasting, compositionally stable, simple to handle, and has high absorption capacity. Primarily used to remove moisture, it also has limited ability to absorb other gases and liquids. GMC alumina is formulated as 1/8" diameter spheres. Type A has absorbing power which approaches that of molecular sieve. Packaged in a 1 gal, 6.75 lb. bottle.

44040... Steam Activated Carbon A specialized form of charcoal, this final filtering agent removes tastes and odors from the air. It absorbs oil and water vapor, chlorine, nitrous oxide, and small amounts of carbon monoxide and dioxide. **NOTE:** Activated carbon should be the final chemical in the filtration train and must always be preceded by the dessicants. When damp, the effectiveness of charcoal is reduced and it may even release previously absorbed contaminants. Also, wet activated carbon of even high quality may form small amounts of sulfuric acid which in time can do serious internal damage to a filter housing! Packaged in a 1 gallon, 3.75 lb. bottle.

44050... Molecular Sieve 13X Molecular sieves, a group of space age chemicals known as zeolites, have outstanding filtration abilities. Their chemical structure is a narrow, rigid, and uniform crystalline lattice which has such precise pore size that it restricts movement of substances on the basis of molecular size! Small molecules, like water, can enter the lattice, but are trapped therein, thus the name "molecular sieve". Molecular sieves are highly effective filtrants for moisture, nitrogen oxide, oil vapor, and limited amounts of carbon monoxide and dioxide. Variety 13X is the best formulation for processing divers' air because it is designed to trap water vapor. Packaged in 1 gal., 6.5 lb. bottles.

Compressor Lubricants (see pricelist for additional details)

44080... CF-500 Blended Semi-Synthetic Oil As in the automotive industry, blended oils are now impacting the dive industry. A step up from pure petroleum lubes, this product has a high viscosity index and flash point, low carbon formation, and high lubricity. An improved oil for older compressors unsuited to full synthetics. Also a fine break-in oil. Gallon Bottle.



44085... CF-1000 Synthetic Oil Within the class of diester-based lubricants, this broad-spectrum product is a field-proven, equivalent substitute for such oils as the original Anderol 500 & 750, Chemlube 501 & 751, and other popular oils for breathing air compressors. Diester oils are so stable and oxidation-resistant that once-a-year oil changes have become commonplace. Carbon residues from these lubes are minimal and are easily removed. Their high flash point (around 500° F) prevents explosive accidents. Because of its viscosity characteristics, this oil is suitable for use in both new and older machines and is recommended worldwide by various compressor manufacturers. Gallon bottle.

44095... CF-2000 Synthetic Oil A fairly new lubricant in the diving world, this polyalphaolefin-based oil has become very popular for Nitrox production because of its high resistance to oxidative breakdown. Synthesized with food-grade components complying with FDA H-1 specifications, this translucent fluid has very low volatility, high hydrolytic resistance, no toxicity, and a high flash point. It has seen wide spread use in modern compressors, especially for Nitrox continuous blending operations. Like most synthetics, it has an extended shelf life. Gallon bottle.

44100... CF-8000 Synthetic Oil The latest state-of-the-art product, this triester-based oil was developed specifically for the severe, high temperature conditions commonly endured by breathing air compressors. This product incorporates all the great features of diester-based oils, as well as the highest flash point, thermal resistance, and self-cooling characteristics available. Recommended wherever severe operating conditions are encountered. Gallon bottle.

44110... Petroleum-Based Oil A quality SAE 20 weight oil with a high flash point suitable for older compressors not using (or incompatible with) synthetic lubes. Also, a good break-in lubricant to use following overhauls. Gallon bottle.

44115... Chemlube 501 Synthetic Oil A popular diester-based oil equivalent to the old Anderol 500 (now 555), which was the first popular synthetic oil for diving air compressors. Gallon bottle.

COMPRESSED GAS HARDWARE - AIR STATION

Dive shops must interconnect commercial gas cylinders to create storage banks and “scuba air stations.” This requires a variety of specialized CGA (Compressed Gas Association) hardware and fittings with appropriate pressure ratings. GMC offers a wide selection of these items. SEE PRICELIST FOR BURST DISKS ASSEMBLIES FOR INDUSTRIAL VALVES. THESE ITEMS ARE NOT PICTURED OR LISTED IN THE CATALOG.

CGA Manifold Tees and Pigtails To join a series of commercial gas cylinders of the same CGA type, MANIFOLD TEES and PIGTAILS are needed. These are usually made of brass and copper, although stainless steel is sometimes needed at high pressures or in marine environments. TEES attach directly to the CGA tank valve, thereby providing two extra CGA outlets to interconnect two additional cylinders. Interconnections are made with a PIGTAIL, a metal, looped tube (or hose) with CGA nuts on each end. Loop construction permits spacing adjustments between cylinders and also absorbs sonic vibrations during compressing operations. Pigtails can interconnect tees or go directly to a compatible CGA tank valve.

45030OX... Oxygen Pigtail - CGA 540 (brass) 3,000 psi A pigtail with a CGA 540 nut and tail-piece assembly at each end.

45040... Standard Air Pigtail - CGA 346 (brass) 3,000 psi - A pigtail with a CGA 346 nut and tail-piece assembly at each end.

45041... Inert Gas Pigtail - CGA 580 (brass) 3,000 psi - A pigtail with a CGA 580 nut and tail-piece assembly at each end. For helium / argon.

45046... Hi-Pressure Air Pigtail - CGA 347 (stainless) 6,000 psi - A pigtail with a CGA 347 nut and tail-piece assembly at each end.

45060... Air Manifold Tee - CGA 346 (brass) 3,000 psi A manifold tee that connects to a CGA 346 storage valve and allows the connection of a CGA 346 pigtail or nut and tailpiece to each side.

45065... Inert Gas Tee - CGA 580 (brass) 3,000 psi - A manifold tee that connects to a CGA 580 storage valve and allows the connection of a CGA 580 pigtail or nut and tailpiece to each side. For inert gas (Helium / Argon).

45070OX... Oxygen Manifold Tee - CGA 540 (brass) 3,000 psi - A manifold tee that connects to a CGA 540 storage valve and allows the connection of a CGA 540 pigtail or nut and tailpiece to each side. For oxygen to 3000 psi.

45075... Hi-Pressure Air Manifold Tee - CGA 347 (brass) 5500 psi - A manifold tee that connects to a CGA 347 storage valve and allows the connection of a CGA 347 pigtail or nut and tailpiece to each side.

Economy Air Manifold Elbows A terminal connector used when manifolding tank valves with JIC tees (45077 / 45079) and hose pigtails (45078) Consists of JIC elbow with respective brass CGA nut & nipple.

45073... CGA 347 **45074... CGA 346**

Economy Air Manifold Tees Steel JIC compression tees with brass CGA brass nut & nipples for connecting air storage tanks. Interconnect tees with 45078 pigtail hose.

45077... CGA 347 (4500 psi) **45079... CGA 346 (3000 psi)**

45078... Pigtail Hose 2-foot hose with #4 female JIC ends to interconnect economy manifold tees & elbows. 5,000 psi service.

Storage Cylinder Valves GMC stocks heavy brass industrial valves for the gas cylinders commonly used by dive shops in storage banks. Each valve has a specific CGA outlet, burst disk assembly, and 3/4" NGT inlet thread. When ordering valves, you must specify the service pressure of the cylinder to get the proper, Federally required, safety disk! See price list for spare industrial safety burst assemblies (disk, washer and cap) or valve rebuild kits. (Sherwood valves only).

46125... Inert Gas (Helium-Argon) Valve - With CGA #580 outlet (3,000 psi service)

46130OX... Oxygen Valve - with CGA 540 outlet - (3,000 psi service)

46140... Standard Air Valve - with CGA 346 outlet - (3,000 psi service)

46145... Hi-Pressure Air Valve - with CGA 347 outlet - (6,000 psi service)



Only “OX part numbers” are oxygen-compatible.

COMPRESSED GAS HARDWARE - ADAPTERS

GMC offers a complete line of fittings for manifolding gas storage cylinders into cascade systems. Industrial / medical gases each have prescribed CGA (Compressed Gas Association) fittings to prevent accidental mixing and maintain commensurate pressure ratings. Each CGA fitting has a specific shape and thread which will MATE only to a matching fitting. Each matched fitting system is designated by a CGA number. GMC stocks manifolding hardware for standard breathing air to 3000 psi (CGA 346), hi-pressure breathing air (3000 - 5500 psi), oxygen (CGA 540), and inert gases like helium and argon (CGA 580). All commercial gas cylinders have specific CGA outlets on their valves, and a corresponding adapter / fitting is needed to mate with it. Direct valve connections require a nut and nipple (also called a tailpiece), to achieve a gas-tight seal. Occasionally, thread adapters are required to convert CGA connections to more practical threading systems. Special converters are also used to interconnect CGA outlets where gases and pressures are compatible. GMC offers a variety of CGA nut / nipple connectors as well as CGA thread adapters and converters.

CGA Nut & Nipples - These two-piece adapters fit respective CGA valve outlets and convert that connection to male 1/4" NPT thread. Wrenchtite models must be tightened with a wrench, whereas handtite versions do not and seal with an O-ring or plastic gasket. Most types are heavy-duty brass, but stainless steel can be used for very high pressure or for severe marine applications. Most tailpieces contain an internal filter to prevent dangerous particles from entering the gas stream.

45005... Air Handtite Nut & Nipple - CGA 346 handtite nut / tailpiece without an internal filter for breathing air to 3,000 psi. (Order #45001 for replacement seal).

45019... Hi-pressure Air Handtite Nut & Nipple - CGA 347 handtite stainless nut / tailpiece (no filter) for breathing air to 5,500 psi. (Order #45016 for replacement seal).

45110OX... Oxygen Handtite Nut & Nipple - CGA 540 handtite nut / brass tailpiece (no filter) for oxygen to 3,000 psi. (Order #45111OX for replacement seal).

45135... Hi-pressure Air Nut & Nipple - Wrenchtite CGA 347 heavy-duty brass nut / tailpiece with internal filter for breathing air from 3,000 -5,500 psi.

45200... Air Nut & Nipple - Wrenchtite CGA 346 brass nut / tailpiece with internal filter for breathing air to 3,000 psi.

45211OX... Oxygen Nut & Nipple - Wrenchtite CGA 540 brass nut / tailpiece with internal filter for pressures to 3,000 psi.

45212OX... Medical Oxygen Handtite Nut & Nipple - CGA 540 handtite nut / chromed brass tailpiece with replaceable internal filter for pressures to 2,700 psi (#49011OX Viton O-ring for replacement seal).

45265OX... Inert Gas Handtite Nut & Nipple - CGA 580 handtite nut / brass tailpiece with internal filter for helium / argon to pressures of 3,000 psi. (Order #49111OX O-ring for replacement seal).

45270OX... Inert Gas Nut & Nipple - CGA 580 wrenchtite brass nut / tailpiece with internal filter for helium / argon to pressures of 3,000 psi.

45275OX... Mixed Gas Nut & Nipple - CGA 590 brass nut / tailpiece with internal filter for premixed dive gases such as heliox.

45525OX... Bullnose Nut & Nipple - British oxygen tanks have an outlet which differs from CGA types and requires a nut & nipple called a Bullnose Adapter to convert that connection to common 1/4" male NPT.

CGA Thread Adapters - Brass fittings with a CGA outlet thread on one end and common 1/4" pipe thread on the other. All adapters have a 3,000 psi service pressure except #45014 which goes to 6,000 psi.

45007... Adapts CGA 580 (helium / argon) to 1/4" male NPT .

45008... Adapts CGA 580 (helium / argon) to 1/4" female NPT.

45009... Adapts CGA 346 (air) to 1/4" female NPT.

45011... Adapts CGA 346 (air) to 1/4" male NPT.

45012OX... Adapts CGA 540 (oxygen) to 1/4" male NPT.

45013OX... Adapts CGA 540 (oxygen) to 1/4" female NPT.

45014... Adapts CGA 347 (hi-pressure air) to 1/4" female NPT.



CGA Converters - Brass adapters to interconnect compatible CGA systems for special uses, such as oxygen control devices on other gases. Rated for 3,000 psi service .

45312OX... Converts CGA 580 (helium / argon) outlet to CGA 540 (O₂). Allow oxygen control devices to handle clean inert gases.

45313OX... Converts CGA 346 (air) to CGA 540 (O₂). Allows oxygen control devices to handle clean breathing air.

45526OX... Converts American CGA 540 outlet to British Bullnose outlet. Allows British apparatus to use CGA 540 oxygen tanks.

45527OX... Converts British Bullnose outlet to CGA 540 (O₂). Allows CGA 540 devices to be used on British O₂ tanks. (Not pictured).

COMPRESSED GAS HARDWARE - VALVES

GMC stocks a variety of valves for gas control applications at various pressure ranges. Control of some gases such as oxygen demand special consideration and certain valves are NEVER O₂ compatible. Engineering questions should be directed only to our TEK department at 414-774-1616 or techsupport@gmcscuba.com.

PRESSURE RELIEF VALVES

These special valves are used to protect pressure-sensitive components or to relieve pressure at some prescribed level in compressed air systems. Standard relief valves are designed for sudden, intermittent, and sporadic service, whereas "floator valves" activate slowly and are employed where frequent and prolonged valve openings may regularly occur.

46320... Standard Relief Valve - Adjustable "pop-off" valve which can be calibrated from 300 to 5,500 psi. Anodized aluminum for 6,000 psi service. 1/4" NPTM inlet. Used to protect filters, separators, storage vessels or compressor interstages. Comes uncalibrated with instructions.

46321... Repair Kit for 46320

46340... Floater Relief Valve - Made of anodized aluminum and stainless for 7,000 psi service. 1/4" NPTM inlet. Can be calibrated from 400 to 6,500 psi. Slow, gentle activation mechanism quickly reduces pressure during frequent, repeated openings. Reseats to an airtight status. Used as an "active" safety valve during compressing or tank filling operations. Comes uncalibrated with instructions.



46330... Line / Filler Valve - The most popular and rugged valve available for controlling directional air flow in compressor lines or scuba filler whips. Used same internal parts as many scuba valves. Chrome brass body for 6,000 psi service. 1/4" NPTM out / F in. For rebuild kit: Order #46332.

46331... Panel Mount Line Valve - Same as #46330, but with threaded neck to install in 1" hole in control panels.

46333OX... O₂ Version Line Valve - #46330 converted for O₂.

46334OX... O₂ Version Panel-Mount Line Valve - #46331 converted for O₂.

46045... Flow Fuse - A small safety device that can arrest the air flow in lines or systems (such as scuba filling whips) if that apparatus should fail (hose rupture, O-ring failure, etc.) The flow is reduced to 10%, so personnel can shut down the system with minimal risk and air loss. 1/4" female NPT inlet, male outlet.

Priority Back-Pressure Valves - Placed after the final filter, priority BP valves are crucial to the production of dry scuba air and increased longevity for your chemical filters. To achieve low dew points, the mechanical separators must remove more than 99% of the water vapor present, a process called "pressure drying". By holding a back-pressure of about 1,700 psi on the system, the air density in the separators is increased which significantly enhances their efficiency. Since more water is now removed mechanically, the life the chemical filters is greatly extended. Maintained pressure on the filters and compressor does not harm either device.

46150... Standard Priority Valve - A small anodized aluminum valve preset at about 1,700 psi for most scuba air operations. Installed in systems at the outlet port of the final filter. One inlet port, two outlets, all 1/4" NPTF. 6,000 psi rating. Rebuild kit: #46151.

BALL VALVES

46170... Stainless Steel Ball Valve - Excellent air control valve (5,000 psi) for compressor lines, scuba fill whips, or air distribution panels. Only 1/4 turn is required to open valve, but precise control can still be maintained. Unlike most valves, air can flow either way through the orifice without harming it. A real time-saver on fill whips. 1/4" NPTF ports. Very easy to rebuild: (Order kit #46171).

46180... Brass Ball Valve - Same as #46170, except brass for 3,000 psi service. (Rebuild kit: Order #46181).

46290... Three Way Ball Valve - A 5,000 psi duty stainless valve with two inlet and one outlet port. Gas from either inlet line can be singly metered into the outlet. 1/4" NPTF ports. Used in air stations or distribution panels. (Rebuild kit: Order #46291).

CHECK VALVES

These special devices create one-way gas flow in compressor lines, filter systems, and gas distribution panels. Brass types are suitable for pressures to 3,000 psi; stainless models for 5,000 psi service. These are NOT suitable for O₂ / Nitrox use (See valves #45280-82).

46190... Brass Check Valve - 1/4" NPTF ports

46200... Brass Check Valve - 1/4" NPTM ports

46205... Stainless Check Valve - 1/4" NPT ports, female inlet, male outlet

46210... Stainless Check Valve - 1/4" NPTF ports

46220... Stainless Check Valve - 1/4" NPTM ports

46225... Reversible Anodized Aluminum Check Valve - Special 1/4" NPT check valve with a reversible internal poppet. Can be set to be M in / F out or M out / F in.

Rebuild Kits for Check Valves (not pictured)

46195... BRASS Check Valves

46215... STAINLESS Check Valves

46226... ALUMINUM Check Valve

Only "OX part numbers" are oxygen-compatible.

COMPRESSED GAS HARDWARE - CONTROLS

The creation of scuba air stations requires a variety of high pressure fittings and components as well as certain specialized control hardware. GMC stocks a good selection of these materials. **CAUTION: THESE COMPONENTS ARE FOR AIR SYSTEMS AND ARE NOT INTENDED FOR USE WITH PURE OXYGEN OR NITROX.**

46090... Compressor Control Switch - This pressure activated switch (6,000 psi) can be used to control the shutoff (or startup) pressure of most compressors. The device can be adjusted to select the desired cutoff point and must be wired into compressor's 110 volt electrical control circuitry.

46100... Low Pressure Line Regulator - This small piston regulator can reduce high pressure (3,000 psi service) to 100 psi for supplying shop air or other handy uses. 1/4" NPTF end ports.

46105... Utility Gas Regulator - A small, compact regulator suitable for use on air, helium, argon, or oxygen. 3,200 psi service, preset 100 psi out. 1/4" NPTF inlet/outlet with 1/8" NPTF HP gauge port.

46110... In-Line Filter - This 5,000 psi filter has a large sintered element for removing tiny particles (20 micron) from any air stream. Since the regulators in Flowbenches and Haskel pumps conduct enormous air flows, their seats can be damaged by even microscopic particles; use this filter to protect such important equipment. Aluminum body with 1/4" NPTF ports. (For rebuild kit: Order **#46111**).

46115... Air Control Regulator - Used to control air to flowbenches / scuba air stations / and air distribution panels. 6,000 psi duty. Adjustable air control from 100 to 5500 psi with high flows. Self-venting when pressure is reduced. 2-inlet and 2 outlet ports, all 1/4" NPTF. (For rebuild kit: Order **#46117**).

46116... Panel Mounting Ring - Heavy aluminum ring with 4 set-screws to panel mount #46115 regulator through 1-7/8" hole.

46120... In-Line Air Supply Regulator - Cylindrical regulator for 6,000 psi air service with adjustable 100 – 300 psi outlet pressure. 1/4" NPTF end ports. Safety relief valve activates if outlet pressure exceeds 300 psi.

46335... In-Line Ported Bleeder - A chromed-brass, in-line bleeder with male and female 1/4" NPT end ports and a female port positioned opposite the bleeder vent. 4,500 psi service.

In-Line Bleeders and Drain Vents - Air stations often require different types of in-line bleeders or vents to drain pressure. GMC offers such bleeders with various combinations of threading and made from both aluminum and stainless steel. Most have pressure ratings of at least 5,000 psi.

45080... Brass Drain Vent - Rated for 2,500 psi, this inexpensive vent has 1/4" male NPT base threads. Non-replaceable, molded seat.

46230... Stainless Female In-Line Bleeder - 6,000 psi rated bleeder with a large control knob and replaceable Teflon seat. Female 1/4" NPT ports.

46231... Stainless M/F In-Line Bleeder - Same as #46230, except with male / female 1/4" NPT ports.

46232... Stainless Male In-Line Bleeder - Same as #46230, except with male 1/4" NPT ports.

46233... Stainless Drain Vent - Compact 6,000 psi bleeder with 1/4" NPTM base thread. Similar to in-line models.

46235... Replaceable Teflon Seat - Small cylindrical seat for all stainless in-line bleeders, drain vents, and petcocks.

46285... Petcock Hi-Pressure Drain - Identical to #46233 vent, but with a spigot tube for attaching a drain line. Use on air purifiers, separator towers, or other moisture or liquid drains.



Only "OX part numbers" are oxygen-compatible.

COMPRESSED GAS HARDWARE - AIR GAUGES

Dive shop air systems usually contain a number of pressure gauges. GMC stocks a selection of instruments with different pressure ranges, dial sizes, and mounting styles. Most of these gauges have an accuracy of 1-2% of full scale. **CAUTION: THESE GAUGES ARE NOT INTENDED FOR USE WITH PURE O₂ / NITROX WITHOUT FURTHER MODIFICATION AND ARE NOT SUITABLE FOR GAS MIXING PROCEDURES. SPECIAL TYPES ARE OFFERED FOR THAT PURPOSE (page 54).**

46000... Panel Pressure Gauge, 5,000 psi - A 2.5" stainless-cased unit for panel-mounting. 1/4" NPTM back connection.

46001... Gauge Snubber - When placed in-line with any gauge, this device prevents surging and oscillation of the needle caused by compressors and booster pumps in some applications. M/F 1/4" NPT connections.

46005... Panel Pressure Gauge, 300 psi - A 2.5" stainless-cased unit for panel-mounting. 1/4" NPTM back connection.

46010... Large Panel Gauge, 300 psi - A 4.5" dial (6.25" overall diameter) unit, with a lift off front cover. For recessed panel mounting by three screws / bolts through edge flange. Lower back 1/4" NPTM inlet. Used for regulator / valve workstations or other low pressure testing.

46025... Miniature Pressure Gauge, 5,000 psi - A 1.5" stainless-cased unit for use on SCBA units or pressure monitoring applications. 1/8" NPTM bottom back mount.

46030... Large Panel Gauge, 5,000 psi - A 4.5" dial unit (6.25" overall diameter) with a lift off front cover. For recessed panel mounting by three screws / bolts through edge flange. Lower back 1/4" NPTM inlet. Used for regulator / valve workstations or air station applications.

46035... 4.5" Gauge with Wall Flange - Similar to panel gauge #46030, but with a tapered, flanged plastic case for wall mounting. 5,000 psi. 1/4" NPTM bottom inlet.

46038... 3.5" Gauge with Wall Flange - A smaller version of #46035 with a stainless flanged case. 5,000 psi. 1/4" NPTM bottom inlet.

46085... Sealed Pressure Gauge, 6,000 psi - Identical to #46055, but for 6,000 psi service.

46086... Sealed Pressure Gauge, 7,500 psi - Identical to #46055 / 46085, but for 7,500 psi service.

46087... Sealed Metric Pressure Gauge, 350 bar - Stainless case unit with a 2.5" dial and 1/4" male NPT bottom stem mount.

46088... Liquid-Filled Metric Pressure Gauge, 350 bar - Same as #46087, but oil-filled for resistance to harsh environments and rough handling.

48315... Salt Water Instrument Test Gauge - The same gauge which is used on the GMC #48310 Instrument Test Chamber, this 4.5" gauge has better than 1-foot accuracy. Calibrated in both feet of sea water (300) and meters (90), this instrument also has an anti-parallax mirror band to enhance precise readings. Used for instrument testing.

48321... Salt Water Instrument Test Gauge - Same gauge used on GMC #48320 Extended Range Instrument Test Chambers. Identical to #48315, except range is 450 feet / 140 meters of sea water. 0.25% accuracy.

46015... Economy Pressure Gauge, 300 psi - A 2.5" plastic-cased unit for general testing applications. Red vinyl rubber cover. 1/4" NPTM bottom stem mount. (Used on GMC Tester #43275).

46020... Sealed Pressure Gauge, 300 psi - A sealed, 2.5" stainless case protects this gauge from harsh environments. 1/4" NPTM bottom stem mount.

46040... Large Sealed Pressure Gauge, 5,000 psi - A sealed, 4.0" stainless case protects this gauge from harsh environments. 1/4" NPTM bottom stem mount.

46055... Sealed Pressure Gauge, 5,000 psi - A sealed, 2.5" stainless case protects this gauge from harsh environments. 1/4" NPTM bottom stem mount.

46060... Economy Pressure Gauge, 5,000 psi - A 2.5" plastic-cased unit for general testing applications. Red vinyl rubber cover. 1/4" NPTM bottom stem mount. (Used on GMC Tank Checker #57230).

46065... Liquid-Filled Gauge, 5,000 psi - A 2.5" sealed, stainless case is filled with oil to protect the mechanism from environmental and physical hazards like salt water, knocks, and vibrations! 1/4" NPTM bottom stem mount.



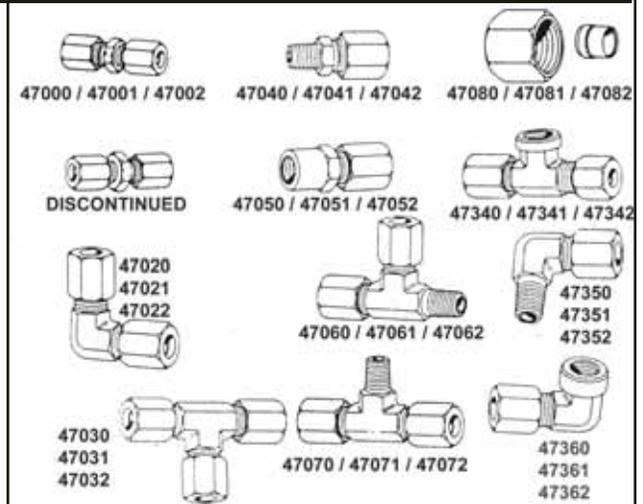
Only "OX part numbers" are oxygen-compatible.

COMPRESSED GAS HARDWARE - HIGH PRESSURE FITTINGS

GMC offers a wide selection of high pressure fittings for modern air and mixed-gas stations. Most fittings are available in plated carbon steel, stainless steel and brass. **Service Pressures:** 5,000 psi for steel / stainless. 3,000 psi for brass. **Uses:** Steel for normal compressed air applications, stainless for harsh marine environments. For oxygen / Nitrox service, use brass or stainless, but NEVER carbon steel (rusts). **Threads:** All fittings are 1/4" NPT or #4 JIC as denoted. **Ordering:** INDIVIDUAL STOCK NUMBERS INDICATE FITTING TYPE AND METAL AS DESCRIBED. **NOTE:** None of the fittings on this page come oxygen cleaned.

Reusable Compression Fittings - Tubes must often be joined together or adapted to other system components. Compression fittings employ a nut and ferrule which crimp onto the tube forming a detachable union that is stronger than the tube itself. Some fittings also adapt the tube to a 1/4" pipe thread (NPT).

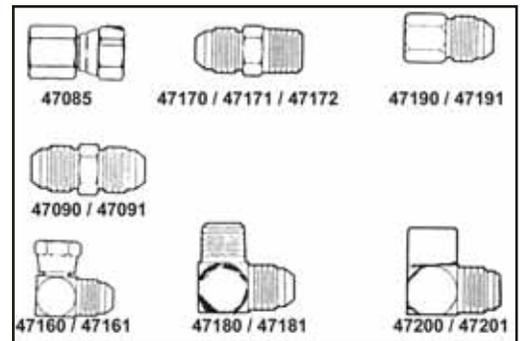
- 47000 series - Tube Union 1/4 ID** - For joining two lengths of 1/4" OD tubing
 47000... Steel 47001... S/S 47002... Brass
- 47020 series - Tube Union Elbow** - Joins two 1/4" OD tubes at right angles.
 47020... Steel 47021... S/S 47022... Brass
- 47030 series - Tube Union Tee 1/4 ID** - For joining three 1/4" OD tubes in a "T".
 47030... Steel 47031... S/S 47032... Brass
- 47040 series - Tube to NPTM Adapter** - Convert 1/4" tube to 1/4" NPTM.
 47040... Steel 47041... S/S 47042... Brass
- 47050 series - Tube to NPTF Adapter** - Converts 1/4" tube to 1/4" NPTF.
 47050... Steel 47051... S/S 47052... Brass
- 47060 series - Tube to NPTM Street Tee** - Joins two 1/4" tubes at right angles with a 1/4" male thread on third leg.
 47060... Steel 47061... S/S 47062... Brass
- 47070 series - Tube to NPTM Branch Tee** - Joins two 1/4" tubes at right angles with a 1/4" male thread on third leg.
 47070... Steel 47071... S/S 47072... Brass
- 47080 series - Nut / Ferrule for Fitting** - Replacement nut and compression sleeve for use with GMC fittings. (Brand specific - do not mix with other brands).
 47080... Steel 47081... S/S 47082... Brass
- 47340 series - Tube to FNPT Branch Tee** - Joins two 1/4" tubes in a straight run with a 1/4" NPTF port on the third leg.
 47340... Steel 47341... S/S 47342... Brass



- 47350 series - Tube to NPTM Elbow** - Converts a 1/4" OD tube at a right angle to 1/4" NPTM.
 47350... Steel 47351... S/S 47352... Brass
- 47360 series - Tube to NPTF Elbow** - Converts a 1/4" OD tube at a right angle to 1/4" NPTF.
 47360... Steel 47361... S/S 47362... Brass

Pressure Hose Adapters - Pneumatic hose systems often use end fittings consisting of a swiveling compression cap (JIC) which mates to a dome-shaped pipe fitting, thereby adapting hose to 1/4" NPT. Swivel caps allow the hose to be properly aligned before the cap is tightened to form an air-tight joint. JIC's can be detached whenever necessary.

- 47085... Adapter 1/4 FJIC to NPTF** - Converts a 1/4" female swivel cap to 1/4" NPTF.
- 47090 series - Hose Union JIC** - Coupling joins two hoses with 1/4" JIC female swivel cap ends.
 47090... Steel 47091... S/S
- 47160... Elbow M to F JIC, Steel** - Joins at right angles a hose with a JIC male to one with a female JIC end.
 Steel Only
- 47170 series - Hose to NPTM Adapter** - Converts a hose with a 1/4" female swivel cap to 1/4" NPTM.
 47170... Steel 47171... S/S 47172... Brass
- 47180 series - Hose to NPTM Elbow** - Converts at right angles a hose with a 1/4" female swivel cap to 1/4" NPTM.
 47180... Steel 47181... S/S
- 47190 series - Hose to NPTF Adapter** - Converts a hose with a 1/4" female swivel cap to 1/4" NPTF.
 47190... Steel 47191... S/S
- 47200 series - Hose to NPTF Elbow** - Converts at right angles a hose with a 1/4" female swivel cap to 1/4" NPTF.
 47200... Steel 47201... S/S



High Pressure Pipe Fittings - National Pipe Thread (NPT) fittings are the most common type found in scuba gas systems. With Teflon tape, these tapered threads seal by metal-to-metal friction. Sizing is determined by inside bore diameter, NOT by outside dimensions.

- 47210 Series - Reducer 1/4" M to 1/8" NPTF**
 47210... Steel 47211... S/S 47212... Brass
- 47220 series - Pipe Plug 1/4" NPT plug w/ hex head**
 47220... Steel 47221... S/S 47222... Brass
- 47230 series - Pipe Hex Nipple, NPTM** - Connector with 1/4" NPTM on both ends separated by a hexagonal wrench-tite-grip face.
 47230... Steel 47231... S/S 47232... Brass
- 47240 series - Street Elbow** - Standard elbow with 1/4" NPTM on one end and NPT on the other.
 47240... Steel 47241... S/S 47242... Brass
- 47250 series - Coupling, NPTF** - Standard connector sleeve with 1/4" NPTF
 47250... Steel 47251... S/S 47252... Brass
- 47260 series - Female Tee** - Three 1/4" NPTF outlets.
 47260... Steel 47261... S/S 47262... Brass
- 47270 series - Female Cross** - Four 1/4" NPTF outlets.
 47270... Steel 47271... S/S 47272... Brass
- 47280 series - Amplifier Bushing 1/8" M-1/4" NPTF**
 47280... Steel 47281... S/S 47282... Brass
- 47290 series - Male Elbow** - Right angle fitting; both ends are 1/4" NPTM
 47290... Steel 47291... S/S 47292... Brass

Reducing Bushing 47210 / 47211 / 47212	Hex Head Plug 47220 / 47221 / 47222	Male Hex Nipple 47230 / 47231 / 47232	Street Elbow 47240 / 47241 / 47242
Female Hex Coupling 47250 / 47251 / 47252	Female Tee 47260 / 47261 / 47262	Female Cross 47270 / 47271 / 47272	Adapter 47280 / 47281 / 47282
Male Elbow 47290 / 47291 / 47292	Female Elbow 47300 / 47301 / 47302	Street Tee 47310 / 47311 / 47312	Male Branch Tee 47320 / 47321 / 47322

- 47300 series - Female Elbow** - Right angle fitting; both ports are 1/4" NPTF
 47300... Steel 47301... S/S 47302... Brass
- 47310 series - Male Street Tee** - Two 1/4" NPTF ports at right angles to a male.
 47310... Steel 47311... S/S 47312... Brass
- 47320 series - Male Branch Tee** - Two in-line 1/4" NPTM ports with a right angle male.
 47320... Steel 47321... S/S 47322... Brass

COMPRESSED GAS HARDWARE - DISTRIBUTION

45045... Air Station Control Manifold

This modular apparatus can control and distribute high pressure scuba air from your compressor to and from storage cylinders as well as into scuba tanks as required. Rated for 5,000 psi service, it consists of a heavy brass manifold bar containing three ball valves to control and direct air flow. Ball valves require no directional flow, thus they can control air-flow into or out of an air storage bank without being damaged. Therefore, this unit can control air from three individual storage tanks or three clusters of tanks! Each valve is equipped with a 5,000 psi gauge that reads the available pressure in that particular storage tank or cluster. Ball valves provide good throttling action and permit easy filling of single or multiple scuba tanks. A 4.0" master gauge on the module monitors line and bank pressure during recharging and tank pressure when filling scuba units. All ports on the manifold bar are 1/4" NPTF, including five outlets, four of which are plugged, but can be reopened as needed to attach whips or other lines. The module comes with a stainless mounting bracket, so one only needs to mount the assembly and attach incoming lines and outgoing filler whips, which are sold separately. (SPECIAL NOTES: CARE MUST BE EXERCISED WHEN OPERATING THIS APPARATUS WITH BANKS / CLUSTERS WITH DISSIMILAR SERVICE PRESSURES, SO THAT CROSS-PRESSURIZATION TO UNSAFE LEVELS DOES NOT OCCUR. ALSO, THIS UNIT IS NOT SUITABLE FOR NITROX ABOVE 40% OR OXYGEN SERVICE).

45386... Brass Manifold Block, 10-Port

A heavy-duty, 12-inch block machined from 1.5" hexagonal brass bar stock. Has 10 interconnected, 1/4" NPT female outlet ports: 3 on top, 3 on the bottom (120° offset), and two at each end. Chrome-plated for an attractive, durable finish. For mounting, each bar has two 1/4-20 bolt holes on the underside to attach to a #45217 Bracket. Use this manifold to control or distribute air to and from your compressor and storage banks. Also useful for tank charging where multiple whips from the air source are required. FOR AIR USE ONLY.

45388OX... Oxygen-Clean Brass Manifold Block, 10-Port

45386 manifold bar cleaned for oxygen / Nitrox service.

45217... Manifold Mounting Bracket

A two-piece, adjustable stainless steel bracket for wall-mounting GMC manifold blocks (#45386 to #45388OX). Engages the two 1/4 - 20 bolt holes so that the assembly can be screwed / bolted to a wall or other retaining structure. Slots allow some to-and-fro adjustment of the bar.

45380... Flat Manifold Block - This anodized aluminum block (1" x 4" x 2") has five 1/4" female NPT ports: 1 on each end, 1 on top, and 2 on the bottom. Four small holes through the body permit easy mounting with bolts / screws. 5,000 psi service. NOT SUITABLE FOR OXYGEN SERVICE.

45384... Compact Manifold Block, Compressed Air Model

45389OX... Compact Manifold Block, Oxygen-Clean Model

A new, compact, chromed-brass device for transmitting gas to multiple lines or hoses for distribution to dive tanks, storage vessels, or mixing apparatus. The block, machined from 2.0" hexagonal brass bar, is 2.0" in height and features seven 1/4" NPTF ports; five ports are set 60 degrees apart on each facet of the hexagon body plus one port each in the top and bottom. An optional, adjustable, stainless standoff bracket (#45218) fastens to the backside of the block, holding it solidly about 2" off any mounting surface. Excellent junction block for connecting multiple tank-filling whips where sturdy, compact hardware is required, such as aboard ship or in any confined quarters. 5,000 psi service. Suitable for oxygen / mixed gas (#45389OX).

45218... Compact Manifold Bracket

This 2-piece, stainless steel, versatile fastener permits the Compact Manifold Block (#45384 / 45389OX) to be mounted in at least three distinctly different modes: (1) vertically (2) horizontally or (3) on end. (See above photo). The two identical pieces comprising the bracket are secured together with two 1/4-20 bolts and is attached to the Compact Manifold Block by two allen-head, 1/4-28 (fine-thread) cap screws. Either end of the bracket can be attached to the block; the position of the pair of boltholes is slightly offset on one leg of the bracket to permit some latitude in spacing. Use heavy screws or lag bolts to secure the assembly to the selected mounting surface. Using this bracket, the Compact Block can be mounted in a vertical position where the top and bottom end ports of the block will be at right angles to the floor. By merely rotating the entire assembly 90 degrees, the block can be mounted horizontally with the top / bottom end ports orientated parallel to the floor. The block can also be mounted with an "on-end" configuration where one end is pointed at the mounting surface (see right). In this case, you probably will use only one half of the 2-piece bracket. The longer leg of that piece must be attached to the block to permit the assembly to stand off the wall sufficiently to clear the plug that will likely be installed in the unused end port.



Only "OX part numbers" are oxygen-compatible.

COMPRESSED GAS HARDWARE - AIR FILLER WHIPS

CAUTION: THESE WHIPS ARE NOT INTENDED FOR USE WITH PURE OXYGEN / NITROX. OTHER PRODUCTS ARE OFFERED FOR THAT PURPOSE. See page 55.



IN-LINE FILLER WHIPS

GMC produces scuba filler whips in two configurations: In-line and right-angle, which refers to the position of the air-entry port relative to the long axis of the filler body. In-line whips, which contain air-entry ports that are parallel to the hose, filler body, and tank attachment fitting have been the industry mainstay for 50 years. Each comes with a 5-foot hose and line valve.

45120... Pneumatic Filler Whip

This filler utilizes the GMC all-stainless steel Pneumatic Filler attachment which features a heavy-duty yoke and air-activated piston. Simply slip the yoke over the tank valve, press the mating flange against the O-ring, and turn on the line valve. The piston instantly locks the filler in place and air transfer can commence. After pressurization, air is vented by a conventional bleeder. 3,200 psi service.

45127... Rebuild Kit For 45120 and 45125.

45145... Standard Yoke Filler Whip

An industry icon, this device has a chromed-brass block, bleeder screw, and yoke tank attachment. 3,200 psi service.

45150... Deluxe Yoke Filler Whip

Identical to #45145, except that a gauge is installed in the filler body opposite the bleeder. For rugged service, a 2.5" stainless-cased, liquid-filled 5,000 psi gauge is used. Popular whip for portable or small marine on-board compressors. 3,200 psi service.

45151... Deluxe DIN Filler Whip

Identical to #45150, except that the bleeder block has a 300-Bar DIN fitting for filling to 4,500 psi.

45175... Hi-Pressure SCBA Filler Whip

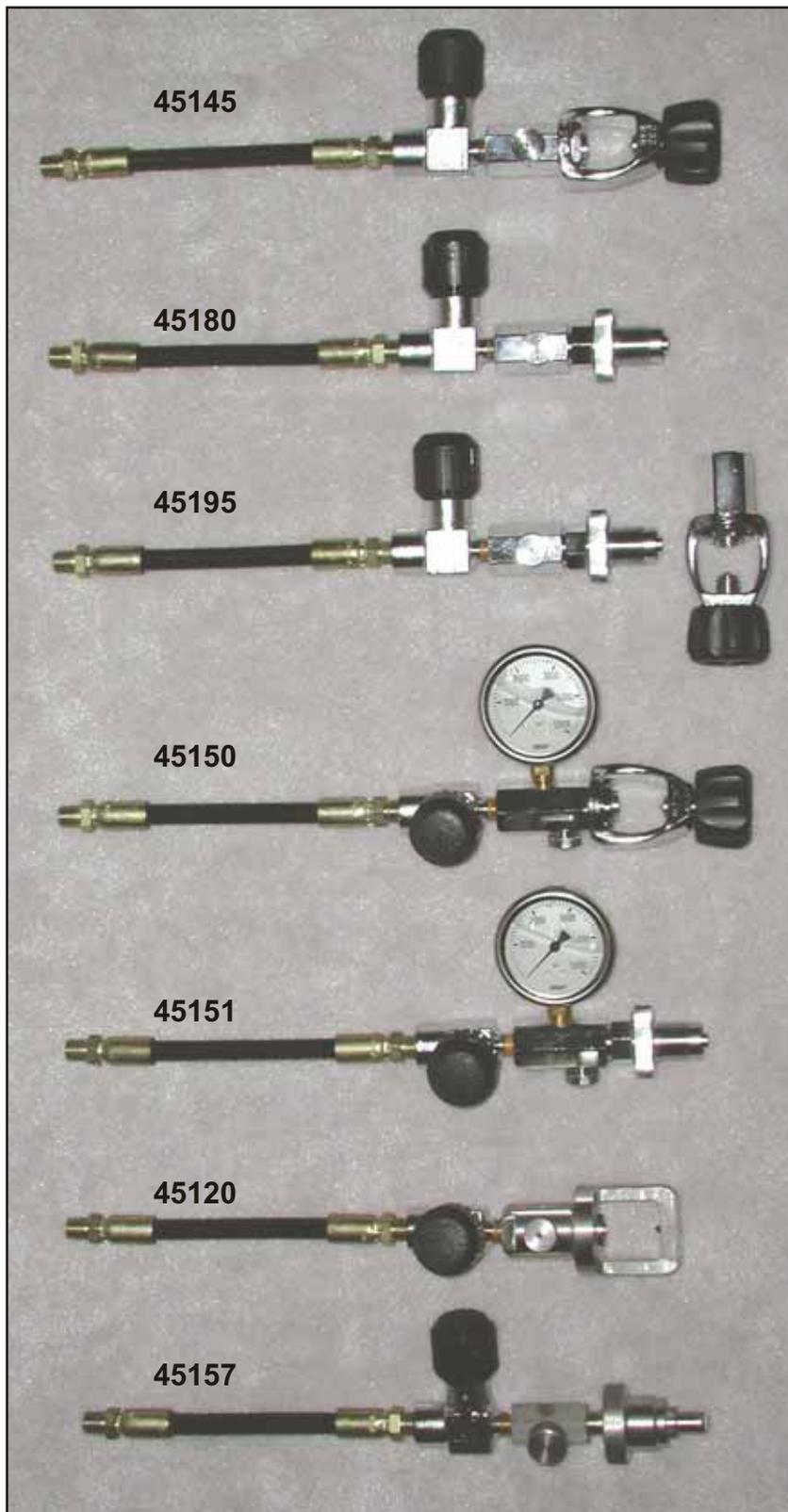
A special whip for filling hi-pressure fire / rescue (SCBA) packs to 4,500 psi. The handtite stainless steel connector will accommodate both CGA 347 and 346 SCBA tanks, whereas CGA 346 whips can charge only 346 units. (Order #45016 for replacement tip seal).

45180... Standard DIN Filler Whip

This filler apparatus has a common 300-Bar DIN fitting on the chromed-brass bleeder block for filling DIN scuba tanks to 4,500 psi.

45195... DIN / Yoke Converto Filler Whip

A whip that can charge tanks with either DIN or yoke mode valves, this unit is identical to #45180, but also includes a #45188 converter. This adapter screws quickly onto the whip's DIN fitting, thus converting it into the yoke mode. Therefore, this whip can be changed from DIN to yoke (or vice versa) in only a few moments. Yoke service to 3,200 psi; 4,500 psi in DIN mode.



Only "OX part numbers" are oxygen-compatible.

COMPRESSED GAS HARDWARE - AIR WHIPS & HOSE

In recent years, whips that have the filler attachment set at right angles to the hose and line valve have become quite popular. This configuration prevents excessive bending or straining of the whip hose and improves the handling of dive tanks which must be submerged in water cooling vessels or filled with BC's / packs in place.



45155... Deluxe Filler Whip

A standard scuba yoke-bleeder block connected at right angles to a stainless steel ball valve and hose. Since a ball valve only requires a 90° turn to open, the ease and speed of charging numerous tanks is greatly enhanced when compared to filling with conventional whips.

45157... Right Angle Yoke Filler Whip

The bleeder block of this filler attachment is installed at 90° to the line valve and hose, creating a right-angle version of our #45145 In-Line Whip.

45158... Right-Angle DIN Filler Whip

Identical to #45157, except that the bleeder block has a 300-Bar DIN fitting for service to 4,500 psi. Essentially a right-angle version of our #45180 DIN In-Line Whip.

45160... Sherwood Unitized Filler Whip

This assembly features the Sherwood unitized filler, a one-piece block containing a scuba yoke, bleeder screw, and line valve attached to a 5-foot hose. 3,200 psi service.

45179... Deluxe Universal Filler Whip

This apparatus will fill virtually any type of air tank brought into the dive shop, including those with yoke or DIN scuba valves as well as SCBA fire / rescue packs. Consists of a #45158 Right-Angle DIN Filler Whip with two special adapters which can be screwed onto the DIN fitting within seconds: A #45188 Converter changes the DIN fitting into yoke mode, whereas a #45187 Converter switches it into a hi-pressure, handtite SCBA filler. This latter mode will fill both CGA 346 and 347 type SCBA packs. In yoke mode the service rating is 3,200 psi, while in DIN or SCBA modes it is 4,500 psi.



CUSTOM SYNIFLEX AIR HOSES - GMC offers 3 types / sizes of thermoplastic hose for compressed

air applications to 5,000 psi with a burst of over 20,000 psi! Select 3/16" ID for fill whips and other uses where good flexibility and moderate flow rates (below 50 CFM) are required. Pick 1/4" ID where severe / outdoor duty, long interconnections, or high flow rates (+50 CFM) are involved. Parker Breathing Air Hose, 6,000 psi duty, is OSHA-approved for human respiration use where certified hose is required.

END FITTINGS - Order hose by the foot and specify any 2 end fittings for that hose: 1/4" male NPT, female #4 JIC (rotatable cap/nut), 1/4" male NPT swivel (only when depressurized).

46070... Syniflex Hose 1/4" ID

46071... End Fitting: 1/4" NPTM

46072... End Fitting: #4 JICF

46073... End Fitting: 1/4" NPTM (swivel)

46075... Syniflex Hose 3/16" ID

46076... End Fitting: 1/4" NPTM

46077... End Fitting: #4 JICF

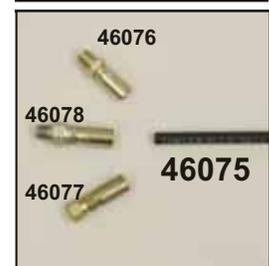
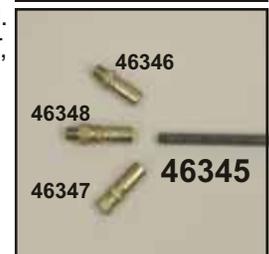
46078... End Fitting: 1/4" NPTM (swivel)

46345... Parker Certified Air Hose 3/16"

46346... End Fitting: 1/4" NPTM

46347... End Fitting: #4 JICF

46348... End Fitting: 1/4" NPTM (swivel)



Stainless Steel Tubing

GMC offers seamless stainless tube suitable for 5,000 psi service applications. Useful for gas delivery lines in scuba air systems and control panels. When OXY-CLEANED, it's also suitable for oxygen / Nitrox use. Sold by the foot and shipped in a large coil, although straight lengths to five feet can be sent. Longest continuous length is 20 ft.

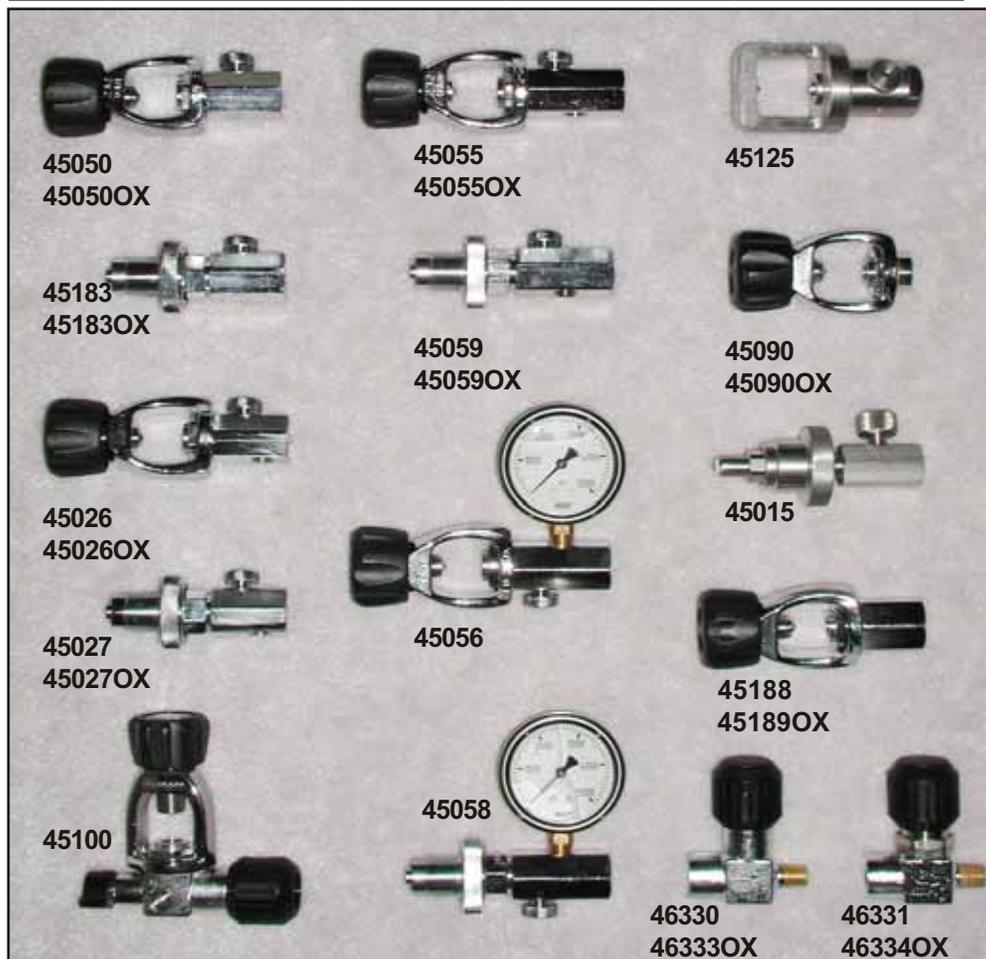
46270... 1/4" OD Stainless tube

46275... 1/8" OD Stainless tube

Only "OX part numbers" are oxygen-compatible.

COMPRESSED GAS HARDWARE - TANK FILLING

GMC manufactures and distributes a large number of filling devices and related hardware for charging tanks with both DIN and YOKE-mode valves. In general, yoke systems are for 3,200 psi service, whereas DIN types rate at 4,500 psi. For more details see the section on "Filler Whips" on pages 41 - 42. **CAUTION: THESE PRODUCTS ARE NOT INTENDED FOR PURE OXYGEN / NITROX APPLICATIONS WITHOUT CERTAIN MODIFICATIONS INDICATED BY OX PART NUMBERS.**



45015... Hi-Pressure SCBA Filler Converter - Direct jump adapters from scuba yokes to 4,500 psi SCBA (CGA 347) breathing air packs are unsafe because the working pressure involved is beyond the point of yoke distortion and O-ring extrusion. Install #45015 (1/4" NPTF inlet) on your filler at the line valve to convert the whip to a 4,500 psi SCBA filler. Stainless handtight wheel with soft-seal nipple. (Order #45016 for replacement tip seal).

45026... Right Angle Filler, Yoke Mode - A chromed-brass yoke block with bleeder in which air enters at a right angle to the long axis of the block. Angular arrangement improves handling of cylinders when they must be placed in water cooling tanks or filled with BC's or packs in place. 1/4" NPTF inlet. 3,200 psi service. **O₂ version: 45026OX.**

45027... Right-Angle Filler, DIN Mode - Identical to #45026, except 300-Bar DIN mode. 4,500 psi service. **O₂ version: 45027OX.**

45050... Standard Yoke Filler - The common chromed-brass yoke block and bleeder used on most scuba filling apparatus. In-line air entry, 1/4" NPTF port. 3,200 psi service. **O₂ version: 45050OX.**

45055... Ported Standard Yoke Filler - Identical to #45050, except with a 1/4" NPTF gauge port in the body opposite the bleeder screw. **O₂ version: 45055OX.**

45056... Ported Standard Yoke Filler w/ Gauge - Identical to #45055, except a stainless-cased, liquid-filled 5,000 psi gauge is installed in the accessory port.

45058... Ported Standard DIN Filler w/ Gauge - Identical to #45056, except a with a 300-Bar DIN fitting.

45059... Ported DIN Filler - Identical to #45055, except with a 300-Bar DIN fitting for 4,500 psi service. **O₂ version: 45059OX.**

45090... Yoke and Flange Assembly - A scuba yoke & screw with a special chromed-brass flange nut that mates to any scuba tank valve. Air outlet port from the nut is 1/4" NPTF. Used for making cross-overs, custom manifolds, and various air takeoff devices. 3,200 psi. **O₂ version: 45090OX.**

45100... Sherwood Filler - A special filler that integrates a yoke block, line valve, and bleeder into a single chromed-brass, angular body. 1/4" NPTF inlet. 3,200 psi service. (See price list for repair parts).

45125... Pneumatic Filler - An all-stainless, compact filler featuring a heavy-duty yoke and air-activated piston. Simply slip the yoke over the tank valve, press the mating flange against the O-ring, and turn on the whip's line valve. The piston instantly locks the filler in place and air transfer can commence. After pressurization, air is vented by a conventional bleeder. 3,200 psi service.

45183... Standard DIN Filler - A conventional chromed-brass bleeder block, with a 300-Bar DIN fitting. In-line air entry with a 1/4" NPTF port. 4,500 psi service. **O₂ version: 45183OX.**

45188... DIN to Yoke Mode Converter - Screw this adapter onto any 300-Bar DIN filler to convert it to yoke mode. 3,200 psi service. **O₂ version: 45188OX.**

46330... Standard Line Valve - This rugged valve has been the industry standard for scuba fillers and compressed air systems for 35 years. A heavy chromed-brass body with a 1/4" NPTF inlet and NPTM outlet. Uses many of the same parts found in scuba valves. 6,000 psi rating. Rebuild kit for air valves: Order #46332. Oxygen model of this valve: Order #46333OX.

46331... Panel Line Valve - Identical to #46330, but with a threaded neck and two jam nuts to panel-mount through a one inch hole. Rebuild kit for air valves: Order #46332. Oxygen model of this valve: Order #46334OX.

Only "OX part numbers" are oxygen-compatible.

COMPRESSED GAS HARDWARE - ADAPTERS

SCUBA FILLER COMPONENTS Scuba tank filling hardware wears out from age and pressure stressing, so it must be occasionally replaced or revamped. A wide selection of repair components for this purpose is offered, including various specialty devices.

45028... Replacement Right-Angle Bleeder Block Only

Chromed-brass block, bleeder screw, and yoke retainer nut. Block attaches at 90° to the line valve and hose via a 1/4" NPTF port. It will also accept the GMC #45181 DIN fitting.

45051... Replacement Bleeder Screw Only - A replacement bleeder screw (3/8-24 thread) with a nylon seat for the standard bleeder blocks used on filler whips, tank pressure checkers, crossovers.

45052... Replacement Bleeder Block Only - Common in-line block, bleeder, and yoke retainer nut used on filler whips and other scuba devices. Also accepts the #45181 DIN fitting, to create a DIN filler.

45057... Replacement Ported Bleeder Block - Same as #45052, but the block also has a 1/4" NPTF port in it.

45091... Flange Nut & Retainer Clip - One side of this adapter has a machined flange which mates to the O-ring groove on any scuba tank valve; the other side is ported 1/4" NPTF. Used with scuba yoke to get air from scuba tanks for accessory applications. 3,200 psi duty.

45093... Yoke Assembly & Retainer Nut - A standard scuba yoke & screw for use on bleeder blocks, scuba regulators, cross-over devices, etc. Whenever practical, replace any old retainer nut with a new one since they warp from pressure stressing. 3,200 psi service.

45181... DIN Fitting Only - A 300-Bar (4,350 psi) fitting with a fine internal thread to mate to most common bleeder blocks. External thread mates to many DIN tank valves. Used on most DIN filler whips to convert to yoke mode. **O₂ version: 45181OX.**

45184... DIN to Male Pipe Thread Adapter - A 300-Bar (4,350 psi) DIN-thread handwheel with a mating DIN-tailpiece that has a 1/4" NPTM on its free end. Converts a DIN valve port to common male NPT. **O₂ version: 45184OX.**

46335... In Line Ported Bleeder - A special chromed-brass body with a 1/4" female NPT side accessory port positioned opposite a standard bleeder screw. End ports are male & female 1/4" NPT. 4,500 psi service. **O₂ version: 46335OX.**



TANK FILLING ADAPTERS

45000... Scuba to SCBA Adapter - A handy jump adapter for filling a SCBA (firefighter, medical emergency unit) with a standard scuba filling whip. Has a handtite wheel and Teflon-seal nipple, so no wrench is needed. CGA 346 / 347 (3,000 psi) for MSA, Scott, Survivair, etc. tanks. (Replacement tip seal: Order #45001).

45010... SCBA to Scuba Adapter - The reverse adapter of #45000. Fire departments equipped with a CGA 346 filler whip can fill scuba tanks (3,200 psi) using this adapter. Consists of scuba yoke, bleeder block, and CGA 346 / 347 adapter.

45020... Converter Block - A rectangular, chromed-plated brass block containing an O-ring sealed regulator port identical to that of any scuba valve. Air inlet port in the base of the block is 1/4" NPTF. Used for various jump adapters and TEK diving applications. 3,200 psi service. **O₂ version: 45021OX.**

45185... Scuba to DIN Adapter - This jump adapter screws into a DIN valve so that the tank can be pressurized with a conventional scuba filling whip. Since the mechanical design limit of scuba yoke systems is 3,200, we suggest 3,000 psi service only on this device! Above that pressure, nothing can prevent occasional O-ring failures.

45186... 300 Bar DIN to 1/4" NPTF Adapter

A special adapter with a female DIN 300-Bar port on one end and 1/4" NPTF female pipe thread port on the other. Used for various tank filling converters and TEK-dive applications. **O₂ version: 45186OX.**

45187... DIN to SCBA CGA 347 Adapter - Since 300-Bar DIN systems and CGA 347 breathing air packs both operate at 4350 psi, direct connections from scuba DIN to SCBA CGA 347 can be made. #45187 allows filling hi-pressure (and regular CGA 346) SCBA units directly from a DIN scuba filler whip.

45188... DIN to Scuba Adapter - A threaded body with a standard, heavy-duty yoke and screw which will thread onto any DIN fitting, thus converting the DIN mode back to the conventional scuba yoking system. Practical in dive shops for temporarily converting DIN-filler whips back to the more popular yoke mode. Conversion only takes seconds. 3,200 psi service. **O₂ version: 45189OX.**

45206... Deluxe SCUBA to DIN Fill Adapter - For filling DIN-valve tanks with a yoke-mode whip, this adapter has an advantage over the # 45185 because the mating head swivels to allow better alignment of the fill hose and yoke. Because a yoke connection is still being used, recommended maximum fill pressure remains at 3,200 psi.



Only "OX part numbers" are oxygen-compatible.

MIXED GAS / O₂ EQUIPMENT - SERVICE SUPPLIES

Tank & Valve Brushes

GMC has three brass brushes for cleaning the tank and valve threads of cylinders used for specialty gases. Brass, a non-sparking metal, is excellent for this job because any metal particles accidentally left by the brush would be benign in nature. Tank Neck Thread Brushes are cylindrical in shape for use in any small electric drill. Valve Thread Brush #43005 is a manual model with a wooden handle.

43005... Valve Thread Brush

43015... Tank Neck Thread Brush, 3/4" NPS

43035... Tank Neck Thread Brush, 1/2" NGT

42135OX... Christolube 125 - This new aerospace lubricant is GMC's recommended replacement for Formula 8, Lox 8, or other synthetic materials commonly used on Nitrox / oxygen tank valve threads where silicone grease CANNOT be used. This black, oxy-compatible grease, not to be confused with white Christolube 111, contains molybdenum disulfide, a highly effective additive to prevent thread seizures and dissimilar metal electrolysis, while still maintaining a high degree of lubricity. Sold in 2-oz. plastic jar.

42145OX... LOX-8 Thread Paste - Dive gear like DIN fittings and regulator components sometimes require locking thread sealants, but normal compounds like Loctites are NOT oxy compatible. For such operations, use LOX-8 paste, a thick greenish fluorocarbon sealant. 10 gm jar.

42150... pH Detection Paper - Today the use of highly alkaline degreasers for oxy-cleaning is commonplace. After cleaning, it's essential to know that all the degreaser with its dissolved hydrocarbons has been removed. A simple method to do this is by testing the pH of the final rinse water. Even a minute amount of degreaser will turn the rinse water alkaline. Simply test a sample of the final rinse water with a strip of this multi-colored paper and compare the resulting color with that of a strip which was immersed in pure water. When the colors exactly match, no degreaser is left in your rinse water. Sold in plastic boxes of 100 strips with comparative color-chart.

42155OX... Teflon Tape / O₂ - Compatible - Not all teflon tape is oxy-compatible, GMC tape meets military specs for the manufacture and composition of oxy-safe material. A special 1/4" wide version for use on the 1/4" NPT fittings so common in scuba air stations.

42165OX... Oxy - Compatible Regulator Lubricant - For Nitrox / O₂ applications, oxy-compatible lubricants must be used inside regulators or valves. One of the best fluorocarbon greases is Christolube which is fully compatible with pure O₂ and retains high lubricity even in ice water environments. Navy-approved. 2 oz. tube.

43305... Ultraviolet Light - A common procedure for checking materials for oxy-clean status is inspection under ultraviolet (UV) light. Many hydrocarbon contaminants glow under "Blacklight" and thus can be readily detected, although certain common pollutants like silicone grease and synthetic compressor oils, are inert under UV and DO NOT GLOW. This unit is a 115v, overhead fluorescent fixture with a 15w bulb which produces Blacklight at 3600 A°. For safer operation, a clear, plastic UV-shield is provided. UV is useful for examining cleaned valve and regulator parts which can become contaminated during normal use, transport and storage.

45375OX... Oxy-Safe Leak Detector Fluid - When hunting gas leaks in Nitrox / O₂ systems with liquid detectors, oxy-compatible chemicals should be used. This preparation of diethanolamine is safe for such procedures. 4 oz bottle.

49000OX... Viton O-Ring Kit - A starter kit of popular, color-coded, oxy-compatible O-rings in a plastic compartment box. All GMC Viton O-rings are brown to prevent accidental mix-ups with the usual black O-rings so plentiful in scuba repair departments. Kit has six each of 10 commonly used O-rings with an applications guide. Refill O-rings can be ordered individually.



TUMBLING MEDIA

42045... Glass Beads - When oxy-cleaning tanks by tumbling, removal of hydrocarbons which may form ionic bonds to the tank walls is enhanced by using glass beads with a degreaser solvent. Beads have minimal impact on the walls, leave no sediment, and are easy to clean for reuse. About 10 pounds of these 4-5 mm. beads per tank works nicely.

42050... Ceramic Media - This tumbling material consists of polygonal-shaped cast resins containing an abrasive agent. Due to its chemical stability and precise cutting action, it's the medium of choice for Nitrox cleaning and should be dedicated to that purpose. (See Page 26 for more details).

42075OX... Oxy-Safe Citrate Tank Cleaner - Prior to Nitrox / O₂ usage, visibly dirty or rusty dive tanks require abrasive tumbling prior to any degreasing treatment. Tumbling with ceramic media and citric acid (citrate) cleaner usually gives excellent results. Citrates are widely used in the metal finishing and electronics industries for oxy-cleaning processes; they are completely non-toxic, unregulated substances. GMC cleaner is diluted 1 oz. per gallon of water for actual use. **CLEANERS (descriptions continued on page 45)**



Only "OX part numbers" are oxygen-compatible.

MIXED GAS / O₂ EQUIPMENT - TANK EQUALIZERS

CLEANERS (continued from page 44)

42100OX... GMC Special Cleaner - This new, powerful BLUE-COLORED cleaner replaces GMC's older, GREEN liquid that was sufficiently caustic to be classified as a shipping HAZMAT material, whereas this new one is NOT. Like the former solvent, this alkalinedegreaser is biodegradable, nontoxic, nonvolatile and possesses high rinsibility, a highly desirable property for oxygen cleaning. It's compatible with steel, stainless, brass, chrome, ceramics, galvanized metals as well as most rubber and plastic polymers. (In concentrated form, it can etch aluminum). Use this degreaser diluted with water as an adjunct in tank tumbling, for swabbing compressor oil spills, or for oxygen cleaning. Because of its high rinsibility and negligible flash point, this solvent is very effective for oxygen cleaning by soaking, scrubbing, tumbling, or ultrasonic methods.

Oxy-Safe Rust Inhibitor - Freshly cleaned steel tanks often form flash rust, a reddish deposit on the inside, during the final drying process. To eliminate this pesky contaminant, use this diluted Oxy-Safe Rust Inhibitor (also called Compound O) rinse prior to drying.

NOTE: The rust-preventive called Compound B, popular for AIR tanks, is NOT oxy-compatible.

42220OX... Oxy-Safe Rust Inhibitor - Gallon

42210OX... Oxy-Safe Rust Inhibitor - Quart

MANUALS AND STICKERS

42125OX... Manual: Converting Dive Tanks for Nitrox / O₂ Applications - Describes proper procedures for using GMC chemicals and equipment for cleaning / converting new and used dive tanks for Nitrox use. Provides significant information on oxy-cleaning considerations. Available on www.gmcscuba.com or by ordering from GMC Customer Service Dept.

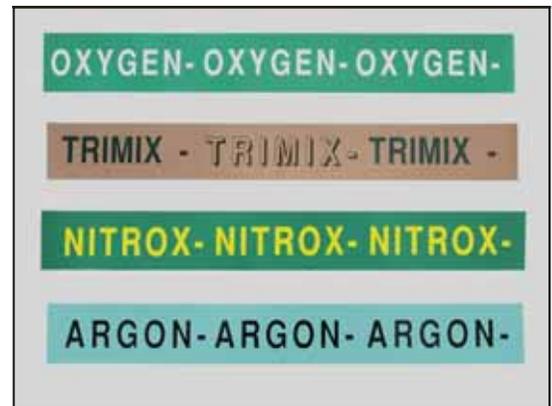
Tank Stickers - Specialty gas cylinders should be clearly labeled to prevent mixup with regular breathing air. Several nasty TEK-diving accidents have already occurred due to confusion over cylinder contents! GMC stickers match the color codes for the respective gases.

61120... Oxygen

61125... Trimix

61130... Nitrox

61135... Argon



NITROX / O₂ TANK EQUALIZERS & PRESSURE CHECKERS

Used to check the pressure within scuba tanks or to equalize the pressure between 2 cylinders containing Nitrox / O₂. Equalizers have 2-foot teflon-lined / stainless steel hoses and bleeder vents. Models for both yoke and DIN tank valves are offered. Delivered oxy-clean. 3,200 psi service.

45189OX... DIN / Yoke Equalizer - This screw-on adapter converts the DIN mode to yoke. When used on a DIN crossover, this device allows either yoke or DIN tanks to be equalized.

45340OX... Nitrox / O₂ Yoke-Mode Equalizer - Used to interconnect two yoke-mode scuba tanks for pressure equalization.

45341OX... Deluxe Nitrox / O₂ Yoke-Mode Equalizer - Identical to #45340OX, except that the bleeder block has a 4,000 psi oxy-clean gauge to monitor pressure transfer.

45345OX... Nitrox / O₂ DIN Equalizer - Used to interconnect two DIN-mode scuba tanks for pressure equalization.

45346OX... Deluxe Nitrox / O₂ Equalizer - Identical to #45345OX, except that the bleeder block contains a 4,000 psi oxy-clean gauge to monitor pressure transfer.

57225OX... Converto Tank Checker - O₂ Model - Convertible tester checks tanks with either DIN or yoke mode valves. Delivered oxy-clean with a 4,000 psi gauge.



Only "OX part numbers" are oxygen-compatible.



MIXED GAS / O₂ EQUIPMENT - GAS ANALYZING



48051OX
Hose not
to length
Illustration
only

45495OX



57165OX

See page 47 for detailed descriptions of items pictured on this page.



45305OX



45520OX



45291OX

45535OX

48052OX

48050OX

45530OX

48051OX

MIXED GAS / O₂ EQUIPMENT - GAS ANALYZING

OXYGEN ANALYSES - All custom gas mixtures must be analyzed for oxygen content. This demands an accurate oxygen analyzer and a metering apparatus to deliver sampled gas to the instrument at proper flow rate and pressure. If common analyzers are back-pressured as little as 3 psi, significantly erroneous results can occur. Most GMC metering devices contain a pressure-reducing regulator and a flow-controlling element. Deluxe models provide gauges to visually monitor both pressure and flow rate. Simpler units that utilize one's dive regulator as a pressure reducer are also offered. All products are delivered oxy-clean.

48050OX... Mini-Ox 1 Oxygen Analyzer - One of the most popular and reliable O₂ analyzers with a long history of successful use in diving. A very compact and portable unit, powered by a 9v battery, it measures only 4-5/8" x 2-1/2" x 1-1/2" and is simple to calibrate and operate. Uses a hi-tech, galvanic fuel sensor for O₂ detection, with the results displayed on an LCD readout with an accuracy of 1%. Comes with a hookup kit for gas delivery.

48051OX... Replacement O₂ Sensor for Mini-Ox - The sensor on all current oxygen testers have a life-expectancy from 1 to 2 years depending on use, storage, and design. When the analyzer will no longer calibrate properly, the sensor must be replaced.

48052OX... Mini-Ox Hookup Kit - A special adapter and gas delivery tube for attaching Mini-Ox units to gas metering devices. The adapter slips over the sensor so that sampled gas can flow over the sensor's surface, while the excess is vented to the atmosphere. Kit provided with each GMC Mini-Ox. Kit includes flared gas-delivery tubing, O₂ sensor adapter, and flow device barbed adapter.

45480OX... Oxygen Analysis Kit - Accurate measurements of the oxygen content in diving mixtures requires careful sampling and precise gas flow to the analyzer. Current sampling apparatus often suffer from imprecise gas flow and lack of visual instrumentation. GMC's kit consists of a Mini-Ox I analyzer combined with an 8 liter / minute flow gauge and metering valve built into a compact Pelican Box. Gas is sampled as follows: Place your dive regulator on the tank of mixed gas; attach its BC hose to the input fitting on the kit; set the proper flow rate on the flowgauge; plug the analyzer into the gas outlet port and conduct the test. None of the components need to be removed from the kit to perform the test; thus damage from dropped or mishandled instruments is eliminated.

45481OX... Gas Metering Kit Only - This is the #45480 kit WITHOUT the oxygen analyzer. Such popular analyzers as the Analox, Scubapro, Ocean Management, Dive Rite, and Maxtec units will also fit this kit. An adapter is included to connect those analyzers that have internal sensors. Just remove some of the diced foam to custom-fit your particular analyzer. (See description of #45480OX for operational details).

45482OX... BC Extension Hose - A 3-foot hose with a standard coupler on one end and a male mating stud on the other. Can be used to lengthen any standard BC hose to reach the analyzer kit from longer distances.

45483OX... BC Hose Converter - A 4" hose with a BC coupler on one end and a male fitting on the other which adapts high flow octopus / BC hoses from Scubapro / Mares directly to the analysis kit or the extension hose.

45484OX... BC Hose Converter - Same as #45483OX, but for Zeagle, Apeks, and Aqualung.

45291OX... Deluxe Hi-Pressure Metering Device A 2-stage regulator on the apparatus can withstand input pressures up to 5,000 psi which is reduced to 50 psi in the flow unit. Gas output to the analyzer can be adjusted from 0.5 to 5 liters per minute and monitored on a flowgauge. This device can be used on either DIN or yoke mode tank valves, and the dive tank pressure can be gauged as the mixture is tested. A bleeder vent allows the unit to be quickly switched from tank to tank when many cylinders must be analyzed and recorded. Hook-up kit not included.

45495OX... In-Line Econo Metering Element - This simple device engages the coupler on any standard BC hose on a Nitrox dive regulator and trickles mixed gas at a preset rate from the dive tank to an oxygen analyzer. It contains an internal, non-adjustable metering element with no readout mechanism. Excellent for consumer divers, but NOT recommended for professional dive shops where protocol for selling life-support gases calls for instrumentation and documentation.

45520OX... Wall-Mounted Adjustable Metering Device - An automatic gas delivery device which mounts to any wall and will measure tank pressure while flowing gas mixtures from that tank to an analyzer. Flowmeter is easy to read from a distance and rates can be adjusted from 0.5 – 8.0 liters/minute. A 6-foot hose allows a group of tanks to be tested without clumsy hand-held equipment. A line bleeder assures that a fresh gas sample is obtained from each tank. Works with any O₂ analyzer. 3,400 psi service. Specify yoke or DIN model.

45530OX... Automatic Metering Regulator, Yoke Model - A compact, economical regulator that is preset to automatically meter mixed gas from the dive tank to the analyzer at a rate of 2 - 4 liters / minute at nearly atmospheric pressure. 3/16" ID outlet barb for delivery tube to analyzer. 3,400 psi service. DIN Model: Order #45531OX.

45535OX... Deluxe Automatic Metering Regulator, Yoke Model – Same as #45530OX, but unit is equipped with gauges to monitor both tank pressures and gas flow rate. 3,400 psi service. DIN Model: Order #45536OX.

45305OX... Dwyer Digital Mixing Gauge A new entry to the gas mixing genre: This 0-ring sealed gauge with a rugged anodized aluminum case features 0.25% accuracy, selectable pressure scale (5,000 PSI or 350 BARS), automatic zeroing, and 2,000 operating hours on two AAA batteries! 1/4" male NPT bottom stem mount. GMC sells a custom-production model that eliminates certain troublesome functions such as unstable zeroing, 2-minute auto shutoff and peak value memory, all of which interfere with conventional blending operations. Delivered oxy-clean.

57165OX... Gas Switching Block – TEK diving often requires fast switching between breathing gases. This stainless, oxy-compatible valve (1 x 3") permits selection between two media by rotating a large control knob to any of 3 positions (2 gases, with center "off"). One 3/8-24 male outlet and two 9/16-18 (2nd stage hose) inlets. Can be mounted on any 2" strap or on a "chest plate."

MIXED GAS / O₂ EQUIPMENT - HYPER-FILTER

HYPER-FILTRATION FOR NITROX PREPARATION

With the widespread popularity of Nitrox diving, numerous dive shops are mixing air with pure oxygen to produce saleable "enriched air" mixtures. For safe blending, compressed air of purity greater than normal Grade E must be used. Known as "Oxygen Compatible Air" or OCA, this gas is permitted to have no more than 0.1 mg / M³ of hydrocarbon contaminants, whereas Grade E scuba air can contain 50 times that amount (5 mg / M³). Some dive shops are able to produce OCA with their regular processing systems if the compressor, lubricant, moisture separators and filters all function absolutely flawlessly. Many other air systems cannot achieve air of this purity under any circumstances. To routinely obtain OCA, most shops reprocess their Grade E air by passing it through an additional special filter known as a Hyper-Filter, which are described below .

HYPER-FILTER SYSTEMS

These special hi-tensile aluminum towers will accept ONLY specific Hyper-Filter cartridges which actually "re-circulate" the gas through high-purity chemicals that remove even trace level hydrocarbons. These super-filtration systems also control the pressure and flow rate at which the gas moves through the chemicals, thereby assuring complete removal of finite contaminants. Each Hyper-Filter System consists of the tower(s) with filter cartridge(s) plus pressure-controlling priority regulator, flow governor, gauge and check valves, all mounted on an aluminum base plate. Double and single tower systems are available. This apparatus not only produces OCA, but also serves as a safety backup in case of an unforeseen compressor / filter failure which releases dangerously high levels of hydrocarbon-contaminated air!



44350... Double Tower Hyper-Filter System - Consists of two tall towers (3.75 x 33"), two cartridges, and associated hardware mounted on a metal plate. A filter block with an inlet valve allows isolation of the system when not in use. Will accommodate air flow rates up to 12 cu. ft. / minute and will process about 40,000 cu. ft. of OCA per cartridge set. Designed for permanent installation in a dive shop. 5,000 psi service.

44351... Hyper-Dry Cartridge for Tower #1 of above system

44352... Hyper-Clean Cartridge for Tower #2 of above system

44355... Single Tower Portable Hyper-Filter System - Composed of a single tower (3.75 x 24"), filter cartridge, and associated hardware mounted on metal plate. Air enters the top of the filter and exits at the filter block / priority valve on the base plate. A carrying handle on the top of the tower allows this filter to be used "in the field" as well as in the dive shop (Weights 25 lbs.). Accommodates air flow rates up to 6-8 cu. ft. / minute and will process up to 7,000 cu. ft. of OCA.

44353... Hyper-Process Cartridge for single tower unit.

45358OX... OCA Connector with Coupler - Consists of a #46333OX oxy-compatible line valve with a 1/4" NPTM inlet nipple to install in the outlet port of any GMC Hyper-Filter. The #45515OX Quick Coupler on the outlet port of this valve allows the attachment of various gas delivery lines or mixing apparatus like GMC #45465OX Economy Mixer.

45402OX... Hyper - Air Supply Connector - A 5-foot, 4,500 psi-duty mixed gas hose with double #4 JIC female ends. 1/4" NPTM adapter is included to convert the outlet port on the filter to JIC. Use this connector to transfer OCA from Hyper-Filters to storage vessels or GMC Gas Mixing Manifolds.

Only "OX part numbers" are oxygen-compatible.

MIXED GAS / O₂ EQUIPMENT - ADAPTERS

Specialty Gas Adapters

These devices allow the interconnection of CGA gas outlet ports for cylinder charging or special diving applications. Each fitting has a CGA male outlet thread (same as a CGA tank valve outlet thread) on one end and NPT on the other. All are brass with a 3,000 psi rating.

45007... Converts CGA 580 outlet (inert gas) to 1/4" NPTM

45008... Converts CGA 580 outlet (inert gas) to 1/4" NPTF

45012OX... Converts CGA 540 outlet (oxygen) to 1/4" NPTM

45013OX... Converts CGA 540 outlet (oxygen) to 1/4" NPTF



45021OX... **Scuba Port Converter, Oxygen-Clean** - A rectangular, chrome-plated brass block with an O-ring sealed regulator port, identical to that on a scuba tank valve. Gas inlet port in the bottom of the block is ported female 1/4" NPT. Used for special adaptations and TEK rigs. 3,200 psi service. Delivered oxy-clean.

45035OX... **Medical Oxygen Port Converter** - Similar to #45021OX, but the gas port is CGA 870 (2-pin medical oxygen), 1/4" NPTF bottom inlet. 2,700 psi service. Delivered oxy-clean.

CGA Nut & Nipple Adapters - These two-piece adapters fit respective CGA valve outlets and convert them to male 1/4" NPT. Wrenchtite models must be tightened with a wrench, whereas handtite versions do not, and seal with an O-ring or plastic gasket. All nipples, also called tailpieces, are heavy brass, rated for 3,000 psi, and contain an internal particle filter, except where noted.

45110OX... **Oxygen Handtite Nut & Nipple** - A large plastic handwheel with a 2.5" tailpiece containing a soft-seal tip, but NO internal filter. (Replacement tip: Order #45111OX).

45211OX... **Oxygen Wrenchtite Nut & Nipple** - Standard brass CGA 540 nut with 3" filter nipple.

45212OX... **Medical Oxygen Handtite Nut & Nipple** - Green CGA 540 handtite nut with a 3" chromed-brass nipple with a replaceable internal filter and O-ring seal tip. 2,700 psi service. (Replacement Viton seal: Order O-ring #49011OX).

45265OX... **Inert Gas Handtite Nut & Nipple** - A large plastic handwheel with a 3" filter tailpiece (CGA 580) containing an O-ring seal tip. (Replacement O-ring: Order #49111OX).

45270OX... **Inert Gas Wrenchtite Nut & Nipple** - Standard helium / argon CGA 580 nut and 3" filter tailpiece.

45314OX... **Oxygen / CGA Nut Wrench** - A special, flat wrench with a non-sparking, Teflon coating, used to tighten CGA nut connections, especially oxygen.

45225OX... **Port Adapter** - This adapter permits the use of an oxygen resuscitator regulator (CGA 870) on industrial-size oxygen cylinders (CGA 540). Handy on TEK dives on charter boats where bulk O₂ is available.

45230OX... **Oxygen to Scuba Regulator Adapter** - Today oxygen breathing is used for topside emergency situations as well as for in-water shallow decompression during certain advanced diving. This adapter fits CGA 540 oxygen valves and provides an O-ring flange port for the attachment of a oxy-clean scuba regulator.

45235OX... **Medical Oxygen To Scuba Regulator Adapter** - Similar to #45230OX, except it adapts a tank with 2-pin medical O₂ valve (CGA 870) for use with an oxygen dive regulator. Also serves as a filling adapter when charging small medical bottles with GMC transfillers from blending stations or commercial cylinders.

45236OX... **Oxygen Yoke** - A CGA 870 medical oxygen, 2-pin yoke with a 1/4" NPTM inlet. For adaptations involving medical oxygen tanks and other specialty equipment. For replacement washer: Order #45237OX.

Booster Pump Tees - Many gas booster outlets are 3/8" JICM which is difficult and expensive (over \$100) to convert to pipe threads with oxy-compatible adapters. Solution: replace the entire tee with this special fitting which has a 1/4" male NPT outlet.

47511OX... **Stainless Tee for 6,000 psi service**

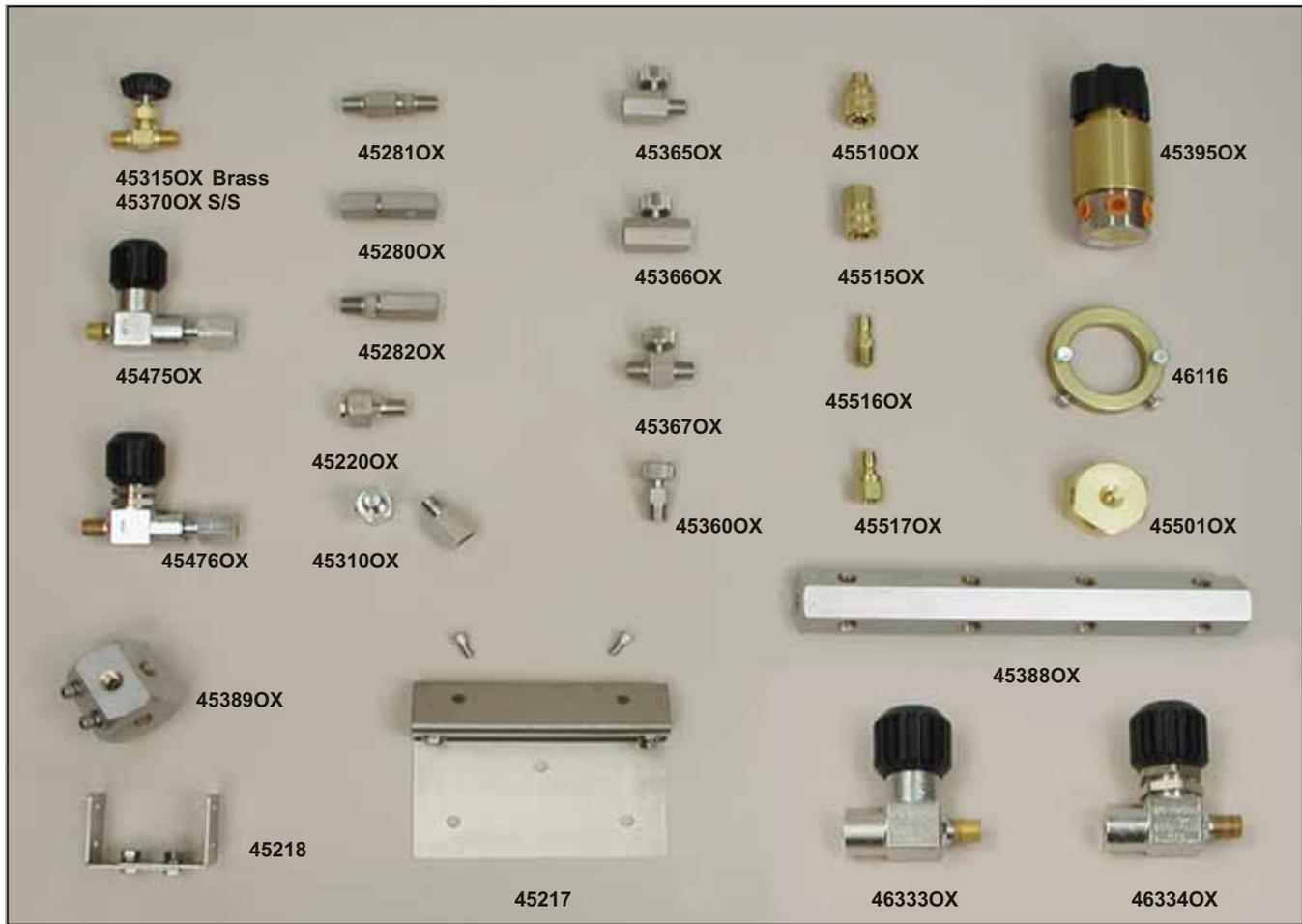
47512OX... **Brass Tee for 3,500 psi service**



Only "OX part numbers" are oxygen-compatible.

MIXED GAS / O₂ EQUIPMENT - CONTROL HARDWARE

Handling, processing, or mixing Nitrox or pure oxygen requires special equipment which is BOTH oxygen-compatible and oxygen-clean. Most such equipment will be made from brass or stainless steel with softgoods of O₂-compatible polymers like Teflon or Kel-F. Many devices suitable for air cannot be used safely in high O₂-environments. GMC offers a good selection of hardware for oxygen-related applications. Each item is delivered oxy-clean.



45220OX... Oxygen Line Filter - Particulate matter in oxygen gas streams can cause unexpected ignitions, so fine filters are used to strain out unwanted debris. A stainless body with a replacement element for 5,000 psi service. 1/4" NPT female inlet / male outlet.

45310OX... Metering Orifice Only - A heavy chromed-brass body with an internal pinhole orifice which can govern gas flow rates. Useful for controlling the flow of a reactive gas like oxygen in long delivery lines or in transfiller devices where compressive heating from "fast fills" can be dangerous. When combined with a suitable valve, this device will permit precise metering of a gas into any pressure vessel. For example, with a supply pressure of 1,500 psi upstream, the orifice delivers about 8 cu. ft. of gas per minute which would fill a 80 cu.ft. tank to 3,000 psi in 10 minutes, a charging rate of 300 psi per minute. Now combine this orifice with a compatible valve for further control, and the standard fill rate for mixing (50 - 60 psi / minute) is easy to achieve. This degree of precision control would be difficult to maintain with either the orifice or valve alone. Male / female 1/4" NPT ports. 4,500 psi service.

Oxygen Check Valves - All stainless construction with Teflon & Viton inner seals and a special lubricant; offered in three different 1/4" NPT threading configurations. 5,000 psi service.

45280OX... Double female ports **45281OX...** Double male ports **45282OX...** Female in, male out

46333OX... Oxygen Line Valve Only - A special oxy-clean version of the common line valve (#46330-pictured on pg. 35 & 42) with an oxygen-tolerant Kel-F seat. Directional flow must be maintained (1/4" NPTF inlet and NPTM outlet) in oxygen valves to prevent hazardous frictional heating caused by reverse flux. 6,000 psi service.

46334OX... Oxygen Line Valve Only, Panel-Mount - Same as #46333OX, but with threaded neck for panel-mounting and two locknuts for panel-mounting through a 1" hole.

Metering Valves and Orifices - Transfer of oxygen for safe mixing requires low charging rates (50 - 70 psi / minute) into dive tanks. This can be difficult to achieve with normal tank or line valves which are really high flow devices. GMC offers two types of special valves that can meter O₂ and other "clean gases": Precision Metering Valves and Gas Flow Controllers. Metering valves have needle-like stems and seats which provide a wide range of flow with precise, but adjustable, metering. However, these valves are sensitive to rough

Only "OX part numbers" are oxygen-compatible.

MIXED GAS / O₂ EQUIPMENT - CONTROL HARDWARE

handling / over-tightening and must be operated like precision instruments. Gas Flow Controllers combine a common scuba filler line valve (O₂-version) with a pin-hole metering orifice which magnifies the valve's control function and gives excellent metering with rugged handling characteristics. However, fixed metering orifices are not adjustable, thus filling rates will decrease significantly as the supply of flow within a predetermined pressure range. (For more data on metering orifices, see page 50).

45315OX... Brass Metering Valve - 1/4" NPTM ports, 3,000 psi service.

45370OX... Stainless Metering Valve - 1/4" NPTM ports, 5,000 psi service.

45475OX... Flow Controller - O₂ line valve with metering an orifice: 1/4" NPT female inlet, male outlet; 5,000 psi service.

45476OX... Flow Controller, Panel-Mount - Same as #45475OX, but with a threaded neck and two locknuts for panel mounting in a 1" hole.

Oxygen Bleeders and Vent-Drains - Like air, oxygen lines must occasionally be drained or purged; oxygen-clean and compatible hardware should be used for this purpose. GMC products have all-stainless bodies, 1/4" NPT ports, and replaceable Teflon seats. (Replacement seat: Order #46235). 5,000 psi service.

45360OX... Stainless Vent Drain - For depressurizing manifolds or other components. Male 1/4" NPT basal thread.

45365OX... Stainless In-Line Bleeder, Male / Female Ports - In-line configuration with 1/4" NPT ports on each end.

45366OX... Stainless In-Line Bleeder, Female Ports - Like #45365OX, but with all female NPT ports.

45367OX... Stainless In-Line Bleeder, Male Ports - Like #45365OX, but with all male NPT ports.

Nitrox / Oxygen Manifold Blocks Creating diving mixtures from raw gases often requires a mixing vessel, or plenum, which can be the tank itself augmented with a manifold to interconnect various system components. Oxy-clean versions of our air manifolds (#45386/45384) work well for this purpose. GMC offers a long block and a compact style with multiple 1/4" NPTF ports and associated mounting brackets.

45388OX... O₂-Clean Hexagonal Manifold - 12" long with 10 ports (see p. 39 for details)

45217... Bracket for #45388OX (see p. 39 for details)

45389OX... O₂-Clean Compact Manifold - 2 x 2" hex block with 7 ports (see p.39 for details)

45218... Bracket for #45389OX (see p. 39 for details)



45395OX... High Pressure Blending Regulator - This special regulator can control intermediate and final "end pressures" during gas mixing operations. Simply dial in the desired set pressure on the regulator and the gas input to your mixing system will be arrested automatically at that point. Unit will self-vent whenever pressure is reduced with the control knob. Can be used with oxygen, OCA air, or helium. Four 1/4" NPTF ports: 2-inlet, 2-outlet, one each for a main line and a gauge. Pressure ratings: 6,000 psi in - 4,000 psi out. Delivered oxy-clean. Can be panel-mounted with the included bracket. **NOTE: Regulators control pressure, but NOT flow. Control valves or metering orifices must still be used for that purpose.** Panel Mounting Ring: Order # 46116.

45501OX... Gas Junction Block - A small, 2.0" hexagonal brass block with 7-ports; one dead center and one on each face of the hex. All ports 1/4" NPTF. 3,000 psi service. Delivered oxy-clean. Used as a compact junction point for gas supply hoses, filler whips, or for TEK diving applications.

Breathing Gas Quick-Couplers - Quick disconnects are very popular for rapid switching of supply hoses during gas mixing operations and for various TEK diving applications. GMC offers a special, hi-pressure brass coupler capable of 5,000 psi service. Straight-through (no check valve) configuration with 1/4" NPT ports. Suitable for mixed gas applications, including pure oxygen. Has only one simple Viton, O-ring seal (Replacement: Order #49110OX). All couplers and mating studs are delivered oxy-clean.

45510OX... Quick Coupler, Male NPT - Coupler unit only

45515OX... Quick Coupler, Female NPT - Coupler unit only

45516OX... Coupler Mating Stud, Male NPT - Brass stud only

45517OX... Coupler Mating Stud, Female NPT Port - Brass stud only

57165OX... Gas Switching Block - TEK diving often requires fast switching between breathing gases. This stainless, oxy-compatible valve (1 x 3") permits selection between two media by rotating a large control knob to any of 3 positions (2 gases, with center "off"). One 3/8-24 male outlet and two 9/16-18 (2nd stage hose) inlets. Can be mounted on any 2" strap or on a "chest plate."

Oxygen Pressure Hose - It is UNSAFE to use standard thermoplastic air hoses for pure oxygen / oxy-rich mixtures! Teflon-core hoses with stainless steel braid reinforcement and brass end fittings should be utilized for such gases. Our hoses have a 3,000 psi working pressure with a 12,000 psi burst. End fittings are female 1/4" NPT.

45284OX... 2 ft. **45285OX... 3 ft.** **45286OX... 4 ft.**

45287OX... 5 ft. **45288OX... 6 ft.** **45289OX... 8 ft.**

Oxygen High Pressure Hose - With a thicker Teflon-core and an extra stainless steel overbraid, GMC hi-pressure oxygen / mixed hose is related for 4,500 psi service. Female #4 JIC fittings on each end, except as noted.

45460OX... 5 ft. **45461OX... 18"** **45462OX... 5 ft. w/ 1/4" NPTM x JICF**

45463OX... 5 ft. w/ 1/4" NPTF x JICF(3,000 psi service only)



57165OX



45284OX-45289OX

45460OX-45461OX



45462OX

45463OX

Only "OX part numbers" are oxygen-compatible.

MIXED GAS / O₂ EQUIPMENT - PURE GAS TRANSFER

OXYGEN TRANSFILLERS - These devices are used to transfer pure oxygen from large commercial cylinders into scuba tanks or small medical O₂ bottles. GMC transfillers have a 4-foot hose with stainless steel braid over a Teflon core and a CGA 540 green handwheel nut and nipple on one end. The opposite end has a bleeder block and scuba yoke (or DIN) to attach to dive cylinders or a CGA 870 yoke to connect to medical O₂ bottles. Each O₂ nipple contains a replaceable, internal filter to prevent sparking particles from entering the gas stream and an O-ring seated tip (#49011OX Viton seal). Each transfiller also contains a metering orifice to govern the rate of gas transfer, since speedy oxygen compression is dangerous. 2,700 psi rated service. **CAUTION: Transferring oxygen requires special procedures and preparations!**

45240OX... Oxygen to Scuba Transfiller - A gas transfer device to put pure O₂ from commercial tanks into conventional yoke-mode, oxy-clean scuba tanks.

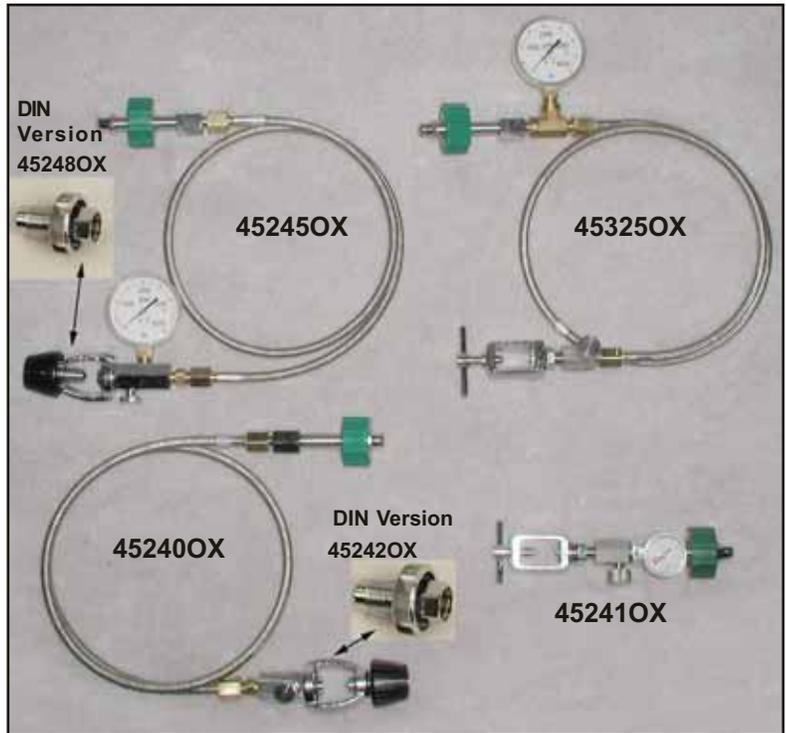
45242OX... DIN model of #45240OX.

45241OX... Compact Medical Oxygen Transfiller - A short, chromed-brass transfiller for charging small oxygen bottles with CGA 870, 2-pin medical valves. Has all the features of our hoses transfillers, including the metering orifice, plus a small 4,000 psi gauge to monitor contents pressure. Heavy-duty construction can easily support the weight of small gas tanks.

45245OX... Deluxe Oxygen to Scuba Transfiller - Identical to #45240OX, except this model contains a 4,000 psi oxygen gauge installed in the bleeder block to monitor transfill pressures. **NOTE: This device is NOT Intended for gas mixing purposes; it has only limited flow control, no check valve to prevent cross-gassing, and its gauge is NOT sufficiently accurate to routinely achieve correct mixtures.**

45248OX... DIN model of #45245OX.

45325OX... Medical Oxygen Transfiller - Identical to our other hoses transfillers, except this model has a 2-pin, O₂ - yoke on one end for charging tanks with CGA 870 medical oxygen valves.



INERT GAS TRANSFILLERS

Modern TEK diving often employs such inert gases as helium or argon. GMC produces a number of transfilling devices for handling these gases. They possess the same Teflon-core hoses with stainless overbraid and filler hardware used on our O₂ units, but the handwheel and mating nipple is CGA 580. No metering orifice is required. 3,000 psi service.

45250... Compact Argon to Scuba Transfiller - A short (10") transfiller to put argon from industrial tanks in to small, pony-sized scuba tanks (yoke mode). Has a 4,000 psi gauge installed in the bleeder block to monitor transfer pressure. Heavy-duty construction can easily support the weight of small gas tanks during filling operations. Be sure to label these tanks properly so they cannot be confused with breathing gas bottles.

45251... DIN model of #45250.

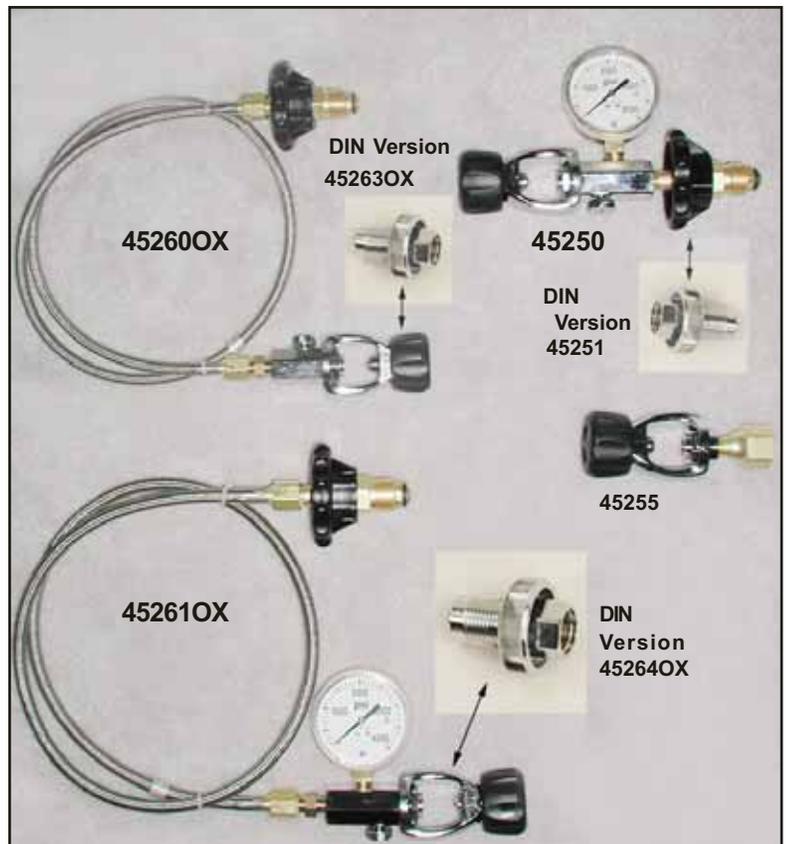
45255... Commercial Argon to Scuba Adapter - This converter (CGA 580 to scuba yoke) allows industrial gas companies to adapt their argon whips to fill scuba tanks. 3,000 psi service.

45260OX... Inert Gas to Scuba Transfiller - A 4-foot teflon-core hose with a scuba (yoke-mode) bleeder block on one end and a CGA 580 handtight nut and filter nipple on the other. Nipple seals on an O-ring seal (Replacement: Order O-ring #49111OX). For filling scuba tanks with helium, argon, or nitrogen from large commercial cylinders.

45263OX... DIN model of #45260OX.

45261OX... Deluxe Inert Gas to Scuba Transfiller - Identical to #45260OX, except that a 4,000 psi gauge is installed in the bleeder block to monitor pressure during transfilling. **NOTE: This device is NOT Intended for gas mixing purposes; it has only limited flow control, no check valve to prevent cross-gassing, and its gauge is NOT sufficiently accurate to routinely achieve correct mixtures.**

45264OX... DIN model of #45261OX.



GAS BLENDING - MIXERS & MANIFOLDS

Partial Pressure Gas Blending Equipment - The chief advantage of partial pressure blending is that virtually every gas mixture known to diving can be prepared by this technology. The techniques are fairly simple and easy to master, as is the essential equipment (see pricelist for a more complete discussion of various blending methodologies). The downside of partial pressure mixing is the time and labor required to mix a single unit, as well as meticulous nature of the process itself. Fortunately, if cylinders are interconnected, multiple tanks of the same mixture can be produced simultaneously. GMC offers a number of different mixing devices, ranging from portable units for small dive teams or shops with only modest demands, to various manifold and semi-automated systems for busy shops where a large numbers of tanks must be prepared. All GMC equipment can make Nitrox, Trimixes, and deco-blends. To insure proper function and oxy-cleanliness, most GMC mixing apparatus is built and tested to order.

45465OX... Economy Mixer - The modular Economy Mixer is the simplest, most compact, economical, portable, and versatile blender in our line. Working downstream from the gas supply bottle, this unit includes: A detachable, green handtite nut & soft-seal filter tailpiece which connects to a commercial oxygen cylinder (CGA 540 valve). The O₂ outlet nipple engages a brass bleeder block by means of a Quick Coupler. This block contains 5,000 psi gauge to monitor the gas supply pressure. Attached to this block is a 5-foot hi-pressure Teflon-core hose (stainless steel overbraid for 4,500 psi service) mated to a #45475OX Flow Controller, consisting of an oxy-version line valve with a pin-hole metering orifice to allow precision flow control.

The downstream side of this Controller has another Quick Coupler

that snaps onto the filling head, which contains a check valve to prevent back-flow of gas from a dive tank and a DIN bleeder block holding a PG-7 Digital Pressure Gauge for determining the actual mixing pressures. Also included are three special adapters: A #45189OX Converter switches the DIN-fitting over to yoke-mode, so that tanks with either DIN or yoke valves can be charged; two air adapters (#45468OX / #45469OX) connect respectively to a yoke or DIN mode whip from a reliable source of oxy-compatible air to supply OCA to the Mixer. Note that the unique design with two bleeders allows switching gas supplies or dive tanks without depressurizing the entire system or suffering costly supply gas loss. Using the Controller, the permissible gas flow rates of 50 -70 psi / minute into the dive cylinder can easily be achieved and maintained manually. The model PG-7 Digital Gauge (5,000 psi) is environmentally resistant, battery-powered, and has 0.25% accuracy. (For more information, see Specialty Gauge Section page 54). Two other optional adapters are handy for using the Mixer with other hydrocarbon-free respiratory gases: #45228OX is a Quick Coupler mated with a CGA 580 handtite nut & nipple so that the Mixer can be attached to a helium source for making Trimix. Adapter #45229OX (CGA 347 handtite nut & nipple) permits the unit to be connected to bottled OCA air and will fit both CGA 346 or 347 type commercial valves. The Mixer is rated for 3,200 psi in yoke mode, 4,500 psi in DIN. Delivered oxy-clean in a padded, nylon carrying bag.



45400OX... Standard Gas Mixing Manifold

This blending bar system consists of several basic components including a 10-port (1/4" NPTF), brass hexagonal bar equipped with two inlet Flow Controllers with check valves. This bar can be mounted on a wall or other suitable retaining structure with the included detachable bracket (#45217). Installed in one upper port of the bar is a PG-7 Digital Pressure Gauge which is the master mixing instrument. Gases (oxygen and OCA air) respectively enter the end ports of the manifold through the Flow Controllers which consist of a conventional line valve (oxygen version) and a metering orifice which work conjunctively to precisely control the incoming gas. With these Controllers, the permissible O₂ charging rates of 50 - 70 psi / minute into the dive cylinder can easily be achieved and maintained manually. The check valves prevent any cross-leakage of the respective gases. The model PG-7 Digital Gauge (5,000 psi) is environmentally resistant, battery-powered, and has 0.25% accuracy. (For more information, see Specialty Gauge Section page 54).



Included with the Mixing Manifold is one 5-foot Mixed Gas Whip (#45350OX) which has a Teflon-core hose (stainless steel overbraid) and an oxy-line valve with a DIN-mode bleeder block. Also Included is a #45189OX Converter to switch the DIN-fitting to yoke-mode, so that tanks with either DIN or yoke-mode valves can be charged. Extra ports in the bar are plugged, but these can be reopened at any time to add extra filler whips or other gas-control / monitoring devices. For example, an extra Flow Controller Module for helium (#45414OX) can be added to a spare port which then allows this system to make Trimixes. Not included are the Gas Supply Connectors to deliver needed gases to the mixing bar. See "Gas Supply Connectors" (page 55) for a selection of these items. #45400OX was designed to fill up to three dive tanks at one time. Because metering orifices are not adjustable, the inflow of gas is affected by decreasing supply pressures.

GAS BLENDING - MANIFOLDS & GAUGES

With more than three tanks and at low supply pressures (about 500 psi), the flow through the orifice becomes intolerably slow for efficient mixing. Service in the yoke mode is 3,200 psi; 4,500 psi for DIN. For mixing large number of tanks, see the Deluxe Gas Mixing Manifolds that follow.

Deluxe Gas Mixing Manifolds -These mixing bars have most of the features possessed by the standard model (#45400OX) described previously (page 53). However, the deluxe units differ in that the metering orifice has been replaced by an adjustable, stainless steel metering valve. Now the oxy-line valve still functions as the actual shutoff device, but the metering valve becomes an adjustable orifice used to set the desired flow to compensate for the number of tanks being filled and the level of the supply gas pressure. The metering valve is seldom or never used as the shutoff since it is a rather delicate instrument. Thus the Deluxe Mixing Manifold can charge one or ten dive tanks...usually limited only by the number of filler whips available. GMC Metering Valves are color coded (medical gas code) for their respective gases: Green for O₂; yellow for OCA air; brown for helium. The top model (#45410OX) of the deluxe units can create Trimixes because it has a Flow Controller inlet for helium. This is installed in an upper port of the bar. For those who do not wish to make Trimix, an all-Nitrox version of the Deluxe Mixing Manifold is available (#45415OX). This Nitrox Mixer can be upgraded for Trimix at any time by merely adding the Helium Controller Module (#45414OX). As with #45400OX, the #45410OX / #45415OX includes one #45350OX filler whip only, but others can be added whenever desired. The system does not include any of the Gas Supply Connectors; for a selection, see "Gas Supply Connectors Section" -page 55.



45410OX... Trimix Deluxe Mixing Manifold

45415OX... Nitrox Deluxe Mixing Manifold (not pictured)



SPECIALTY GAUGES

Preparation of diving gas mixtures requires the use of special gauges which are more precise than normal process gauges. Nitrox / Trimix certification agencies all agree that instruments with 0.25% accuracy (1/4 of 1%) must be used to routinely get correct mixtures. GMC offers several mixing gauges with test-gauge accuracy as well as oxy-clean process gauges (1-3% accuracy) for general applications. **All models delivered oxy-clean.**

45298OX... Analog Mixing Gauge (0.25% accuracy) - Some dive shops still prefer large analog wall gauges for gas mixing stations. #45298 has a 6" diameter face-dial, and a stainless case with a wall-mount flange. Each unit has a knife-edge adjustable pointer for zero mark resetting, as well as a mirror-band which aids taking accurate readings by mitigating parallax. 1/4" NPTM bottom stem inlet. 5,000 psi range.

45304OX... Sealed Digital Mixing Gauge PG-7(0.25% accuracy) - Considered state-of-art for gas mixing, electronic digital gauges are highly accurate, compact, portable, and user-friendly instruments. Their sole fault has been sensitivity to harsh conditions such as salt air or dusty environments. The new 5,000 psi PG-7, which supercedes the popular PG-5,000, has a high-impact Valox plastic case which is O-ring sealed for environmental resistance. It also features a computer-like menu which allows selection of various functions such as automatic zeroing. This gauge eliminates the auto-shutoff mechanism which caused its predecessor to stop in the middle of gas-mixing operations. Large 1/2" LCD readouts. Powered by an internal, easy-to-replace 9v alkaline battery. 1/4" NPTM bottom stem inlet.



45305OX... Dwyer Digital Mixing Gauge A new entry to the gas mixing genre: This 0-ring sealed gauge with a rugged anodized aluminum case features 0.25% accuracy, selectable pressure scale (5,000 PSI or 350 BARS), automatic zeroing, and 2,000 operating hours on two AAA batteries! 1/4" male NPT bottom stem mount. GMC sells a custom-production model that eliminates certain troublesome functions such as unstable zeroing, 2-minute auto shutoff and peak value memory, all of which interfere with conventional blending operations. Available 2008.

45306OX... Standard Sealed Process Gauge, 5,000 psi - A 2.5" dial gauge with a sealed, stainless steel case and a 1/4" NPTM bottom stem mount. 2% accuracy. For general "clean gas" applications.

45307OX... Large Sealed Process Gauge, 5,000 psi - A 4.0" dial gauge with a sealed, stainless steel case and a 1/4" NPTM bottom stem mount. 1% accuracy. For general "clean gas" applications.

45308OX... Panel Mount PG-7 Digital Gauge (0.25% accuracy) - A panel-mount version of #45304OX described above. Unit is held in place by a U-shaped back-clamp. 1/4" NPTM back stem mount.

45335OX... Standard Oxygen Process Gauge, 4,000 psi - A 2.5" dial gauge with a pressed-brass case and a 1/4" NPTM bottom stem mount. 2% accuracy. For general oxygen pressure monitoring.

45436OX... Miniature Oxygen Process Gauge, 4,000 psi - A 1.5" dial gauge with a stainless case and a 1/8" NPTM bottom back mount. For general oxygen pressure monitoring. 2-3% accuracy.

46001OX... Gauge Snubber - see page 37 for description.



Only "OX part numbers" are oxygen-compatible.

GAS BLENDING - SUPPLY CONNECTORS & WHIPS

To deliver gases to or from GMC mixing apparatus, we offer a number of hoses, adapters, and connectors. Also available are several junction devices which are used to distribute or control multiple gas sources. All these products are delivered oxy-clean.

45401OX... Oxygen Supply Handtite Connector

For connecting commercial oxygen tanks (CGA 540 valves) to Gas Mixing Manifolds or other apparatus. Consists of a 5-foot Teflon-core hose (stainless steel overbraid) connected to a chromed-brass bleeder block with a 4,000 psi gauge; a CGA 540 green handtite nut and soft-tip, filter tailpiece attaches to this bleeder block with a brass Quick-Coupler. Bleeder allows depressurization of the hose which has a #4 female JIC nut on its free end. 2,700 psi service.

45411OX... Helium Supply Handtite Connector

For connecting commercial helium tanks (CGA 580 valve) to Gas Mixing Manifolds or other apparatus. Identical to #45401OX described above, except that the detachable handtite nut and soft-tip, filter tailpiece is for helium (CGA 580). 3,000 psi service.

45435OX... Oxygen Distribution Manifold

A modified 7-port brass manifold (#45389OX) serves as a junction and distribution point for multiple gas cylinders or bank clusters in very large supply systems. Three individual banks can be isolated by both a check valve and a oxy-line valve; the current pressure in each bank is monitored by a 4,000 psi, 1.5" O₂ gauge. The manifold can be mounted vertically or horizontally using the #45218 adjustable bracket, which is included. Use this product to interconnect oxygen cylinders or other gas storage systems for supplying / distributing pure gas to Nitrox mixing manifolds or other blending systems. Open the valve on #45435OX slowly and deliberately because it contains NO flow-governing device. 3,500 psi service.

45500OX... Oxygen Junction Block

A 2.0", brass junction block which can be placed on the inlet side of any Mixing Manifold to streamline the interchange of gas supply tanks. Mixed gas hoses with CGA 540 handtite nuts and filter nipples can be attached / detached from this block by means of Quick Couplers. The ported (seven 1/4" NPTF) brass block contains a 4,000 psi, 1.5" gauge in its central port and a stainless bleeder vent in one lower port. The other ports can be plugged or contain up to four mating studs for hose couplers. Supply hose assemblies from 2 to 8 feet in length can be purchased. When attached to the inlet side of a Gas Mixing Manifold, this device allows constant monitoring of the O₂ supply pressure. Fresh O₂ bottles can be promptly activated as needed and empty units can be speedily detached from the system. 2,700 psi service.

Block Connector Hose Assemblies

Oxygen hose assemblies with a CGA 540 handtite nut / filter tailpiece on one end and a Quick Coupler disconnect on the other. For use with the GMC Oxygen Junction Blocks.

45502OX... 2ft. 45503OX... 3ft. 45504OX... 4ft.
45505OX... 5ft. 45506OX... 6ft. 45508OX... 8ft.

45350OX... Mixed Gas Filler Whip

A 5-foot, Teflon-core hose (stainless steel overbraid) for 4,500 psi service, attached to a line valve (oxygen version) and chromed-brass bleeder block with a DIN fitting. Included is a #45189OX Converter which quickly switches the DIN mode to yoke. Rated for 3,200 psi service in yoke mode; 4,500 psi with DIN. JIC free end with #47171OX adapter included.

45358OX... Hyper-Filter Outlet Connector

For attaching the GMC Economy Mixer (#45465OX) to the outlet port of any Hyper-Filter or to adapt those outlets for quick-disconnect operation. Consists of a rugged O₂ line valve (1/4" NPTM adapted inlet) and a Quick-Coupler (#45515OX) outlet. 5,000 psi service.

45402OX... Hyper-Air Supply Connector

For connecting Hyper-Filters to Gas Mixing Manifolds or other apparatus. Consists of a 5-foot, Teflon core hose (stainless steel overbraid) with #4 JIC female ends. Included is an adapter to convert the Hyper-Filter's NPT port to JIC.



Only "OX part numbers" are oxygen-compatible.

GAS BLENDING - SEMI - AUTOMATION



45433OX... Automated Deluxe Gas Mixer (ADGM)

This apparatus is a complete, self-contained partial pressure blending system for preparing specialty gas mixtures. It is designed for those shops that do not presently own a GMC Gas Mixing Manifold or other partial pressure blending system. #45433OX has an integrated digital panel gauge to serve as the Master Mixing Gauge and a hi-grade, adjustable metering valve to control the gas flow. This product can semi-automate the blending of Nitrox, Trimix, or oxygen-rich decom mixtures. The unit features three control modules to input oxygen, hyper-air, and helium or premixed Nitrox. Each input module contains a check valve to prevent cross-gassing and a gauge to monitor the pressure of each supply gas. Input gases are individually channeled into the Master Regulator which will precisely control delivery of that gas into dive tanks, arresting each component gas at preset end pressures. Up to six tanks can be simultaneously blended with the ADGM, although many more cylinders can be accommodated if additional outlet blocks and whips are added (some limiting factors apply). (The ADGM gas comes with one block and one whip.) With the ADGM, multiple tanks of mixed gas can be prepared while allowing the operator to go about other shop business without fear of having a "pressure accident" or getting unsafe / unusable mixtures. #45433OX by custom production only.

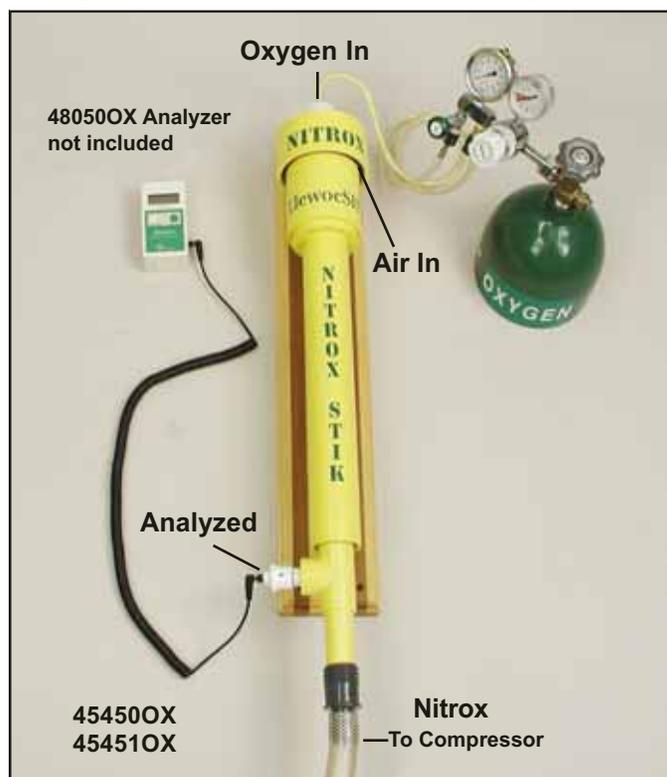
Nitrox STIK Continuous Blender Perhaps the ideal method of preparing Nitrox would be to blend it through one's own, existing compressor system and pump it directly into dive or storage tanks. To date, that could be done only with oil-free compressors because injector/mixer systems for air and pure oxygen often yielded incomplete blending, possibly allowing gas pulses with very high O₂ concentration to enter the machine. In an oil-free compressor, that presents no problem; in a regular machine, it could explode!

Now, based upon longtime blending technology used in scientific laboratories, comes a simple apparatus that so thoroughly homogenizes the input gases that they can be piped directly into normal compressors and pressurized. Nitrox, with up to 40% oxygen content, can be economically prepared with little danger of any mishap. (Nitrox with over 40% O₂ is NOT safely achievable with this system). The device is adaptable for production of various Nitrox mixtures, compressor flow ratings, and other physical variables.

The mixing assembly consists of a tubular Blending Unit which homogenizes incoming air with pure oxygen that is fed into the Stik by a medical O₂ regulator (CGA 540). A preset metering valve on the regulator governs the gas flow and prevents excessive O₂ input. An oxygen sensor port is located near the blender's outlet where an analyzer (not included) can be attached to monitor the O₂ content of the Nitrox being delivered into the compressor. The compact unit is mounted on a varnished, wooden plaque measuring 26" L x 5.5" W x 7.5" D.

As it turns out, the STIK works well in conjunction with partial pressure mixing apparatus. The STIK can easily produce large volumes of Nitrox up to 40% oxygen content which is then banked in storage cylinders. When Nitrox of lesser O₂ content is needed, the bank mixed is simply diluted with air at a dedicated mixing manifold station. This same banked Nitrox can be used to prepare Trimix in many cases. Thus the Stik and Manifold prove to be a very versatile combination.

45450OX... Nitrox STIK Mixing System - 10 - 30 cfm **45451OX... Nitrox STIK Mixing System - 3.5 - 10 cfm**



Only "OX part numbers" are oxygen-compatible.

Sales Information

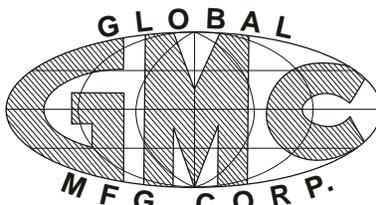
sales@gmcscluba.com

Toll free for USA and Canada:

800-558-1811 (v) or 800-558-2422 (f)

International orders:

414-774-1616 (v) or 414-774-9568 (f)



Online Orders:

www.gmcscluba.com

Technical Support Information

techsupport@gmcscluba.com

414-774-1616 (v) or 414-774-9568 (f)

Mailing Address:

1829 S. 68th St.

West Allis, WI 53214-4950 USA