RMI RATERMANN MANUFACTURING, INC.

FasTest Gas Connector Products Group

Cylinder Filling Connectors for the Gas Industry

Providing . . .

• Efficiency • Productivity • Ergonomics • Safety

"Ultimate in Filling Technology"

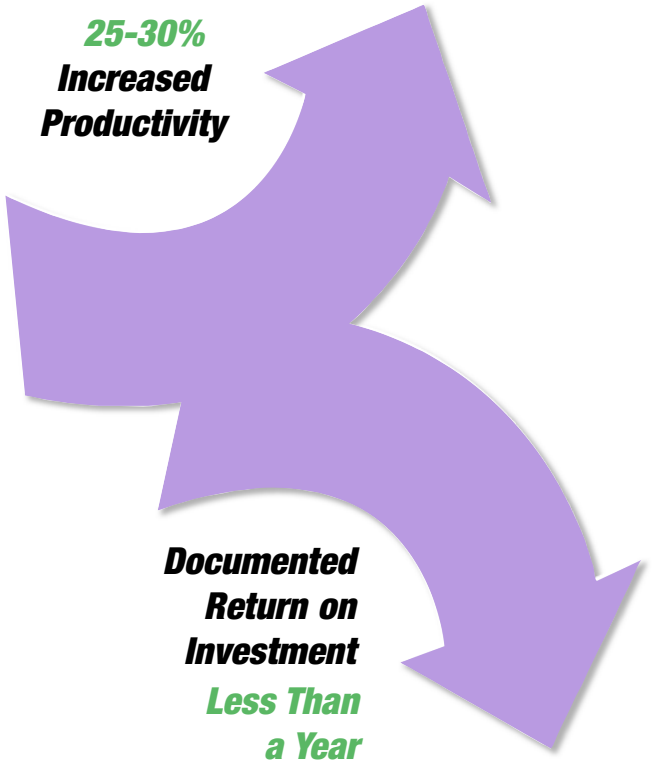
COMPRESSED GAS PRODUCTS GROUP

Gain the Edge with FasTest Gas Connectors

FasTest's high-pressure, gas filling connectors have a proven track record with over a decade of service in the field.

FasTest gas connectors offer a "No Twist, No Turn" approach to cylinder filling. Under pressure, a secure, leak-tight seal is established with our patented safety locking mechanism. The advantages of this design give our customers the edge through ergonomic efficiency and increased productivity, resulting in greater profitability. Our connectors will improve your cylinder filling performance, whether it is one cylinder at a time, inverted rack filling, or palletized cylinder filling.

Gas is a commodity! Studies, performed by several compressed gas companies, show increases of 25-30% in productivity in less than a year. It's a proven fact that FasTest gas connectors can cut 20 to 30 seconds off the hook-up and disconnect time cycles of each cylinder. No more "twisting or turning," common with conventional wheelnut connections. No more repetitive stress syndrome.



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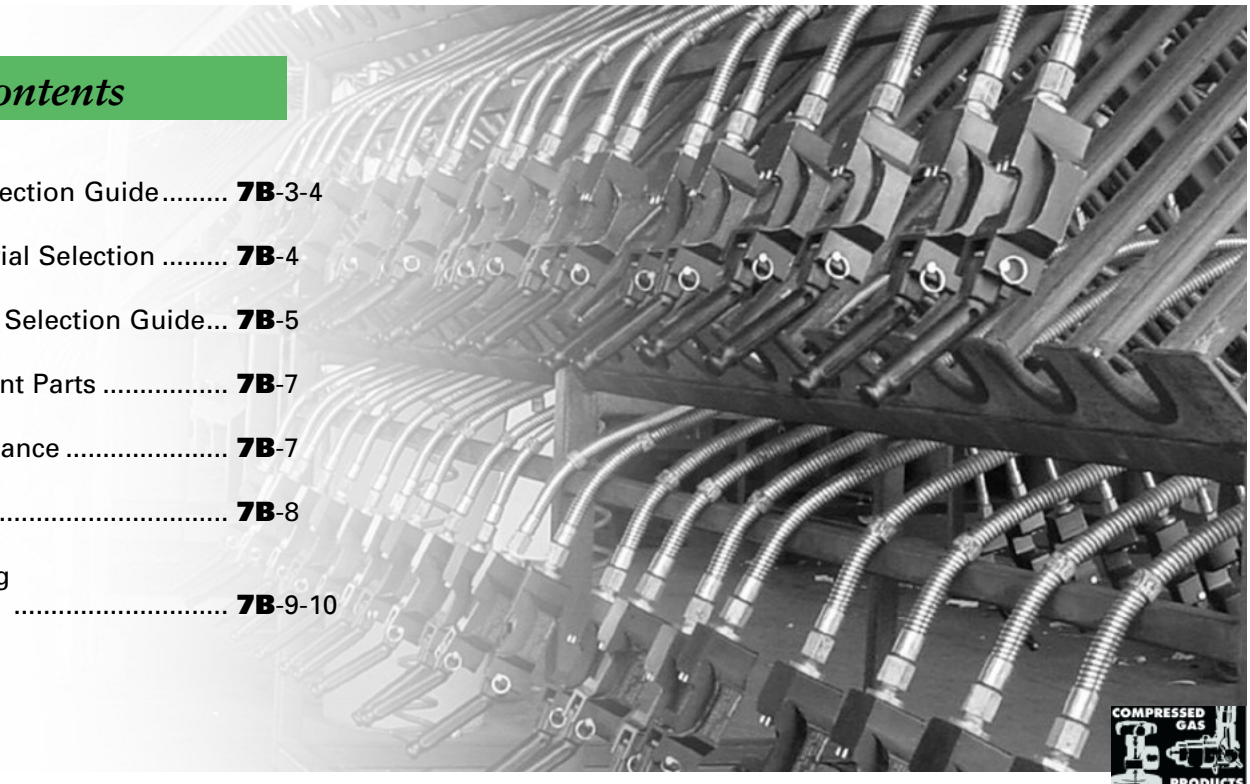


CGA STANDARD
PRODUCT LINE SELECTION GUIDE

Additional CGA Standards Available. Quoted Upon Request.

FasTest Gas Connector	CGA Standard Model	Ratermann Part Number	Application	Pressure Rating	Product Description
	870 Yoke	**QF-870**	Medical Oxygen	3600 PSI	• Black anodized aluminum body • Delrin actuator lever • Stainless steel actuator piston • Viton elastomer seals • Brass grade 360 wetted components • Cleaned for 02 service • Weight 15.5 oz.
	540 Medical Oxygen Female	**QF-MED540F** *Female Termination Supply Side*	Medical Oxygen	3600 PSI	• Conventional or RPV Applications • Stainless steel and brass body components • Sleeve Activation • Safety Locking Mechanism • Viton or EPDM Elastomer Seals • **FEMALE:** 90° Right Angle 1/4" NPT Termination Port • **MALE:** Straight 1/4" NPT Termination Port • Specifically designed for new self contained 540 medical cylinder product and inverted rack filling applications • Weight 22 oz.
	540 Medical Oxygen Female	**QF-MED540M** *Male Termination Supply Side*	Medical Oxygen	3600 PSI	
	580 Male	**QF-H580**	Inert Gases	3600 PSI	• Stainless steel and brass body components • Stainless steel bail-style actuator handle • EPDM elastomer seals • Brass and stainless steel wetted components • Standard actuator handle #1 (additional sizes available) • BAM and TÜV Certified • Weight 36 oz.
	540 Female	**QF-H540**	Industrial Oxygen	3600 PSI	• Stainless steel and brass body components • Stainless steel bail-style actuator handle • Viton elastomer seals • Brass and stainless steel wetted components • Standard actuator handle #1 (additional sizes available) • BAM and TÜV Certified • Weight 36 oz.
	580 RPV Male	**QF-RPV-H580**	Inert Gases	3500 PSI	• Designed for residual pressure valve filling • Stainless steel and brass body components • Stainless steel bail-style actuator handle • EPDM elastomer seals • Brass and stainless steel wetted components • Stainless steel actuator pin for RPV • Standard actuator handle #2 (additional sizes available) • BAM and TÜV certified • Weight 36 oz.
	346 Female	**QF-H346**	Breathable Air	3500 PSI	• Stainless steel and brass body components • Stainless steel bail-style actuator handle • Viton elastomer seals • Brass and stainless steel wetted components • Standard actuator handle #1 (additional sizes available) • Cleaned for 02 service • Weight 36 oz.

Krytox GPL-203 Grease

For use on medical o-ring seals such as the QF-H870 fill connectors or the QF-540 connectors. Can also be used on medical fill racks for general lubrication.

Part # KRY-GPL2032OZ
Part # KRY-GPL2038OZ

Larger sizes available upon request.

CGA STANDARD PRODUCT LINE SELECTION GUIDE

FasTest Gas Connector	CGA Standard Model	Ratermann Part Number	Application	Pressure Rating	Product Description
	320 Female	**QF-CO2320F**	CO2	3500 PSI	• Stainless steel and brass body components • Sleeve actuation (designed for ease of operator use) • Safety locking mechanism (prevents accidental disconnect under pressure) • Lightweight, compact design • EPDM elastomer seals • **1/4" NPT male termination port** • Weight 21 oz.
	320 Female With Venting Valve	**QF-CO2320RVV**	CO2	2100 PSI	• Combination CGA 320 connector and venting valve • Venting valve actuator handle opens and shuts flow of CO2 supply source by movement of handle forward and back • Venting valve allows exhausting and reclaim of CO2 • Connector and venting valve supplied only in combination EPDM Seals • Connector has safety locking mechanism • **1/4" NPT female termination port mates to 1/4" male connection on venting valve** • Weight 32 oz

Additional CGA Standards Available. Quoted Upon Request.

Termination Ports

FasTest gas connectors are supplied with either a straight-flow or right-angle termination port, depending on the specific CGA standard. See chart below for options.

CGA Standard	Standard Termination Port	Optional
870	S	
540	R	S
580	R	S
580 RPV	R	S
346	R	S
510	S/R	
320	S	
540 Medical Oxygen	S/R	
910	S	

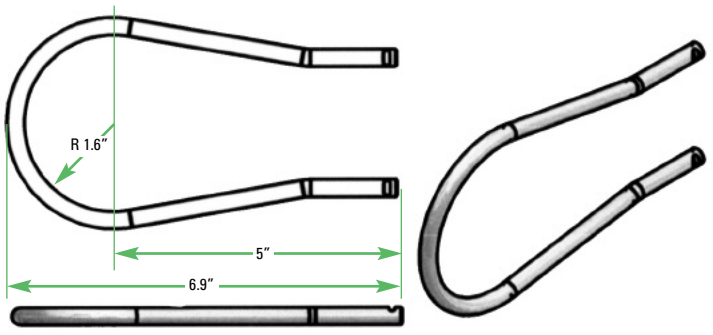
(R) Right angle 90˚ termination port (S) Straight 180˚ termination port

Elastomer Material Selection

Internal seals and sealing O-ring materials are specific to each CGA standard connector. The elastomer compound used for a given connector is based upon industry approval, or upon performance characteristics (i.e., which compound is best suited for a specific application). FasTest offers other elastomer compounds upon request. However, all changes are subject to FasTest approval. Please refer to the CGA Standard Product Line Selection Guide for clarification of which elastomer compound is provided with each CGA standard.

CGA 580 connector filling inert gas.

ACTUATOR HANDLE SELECTION GUIDE



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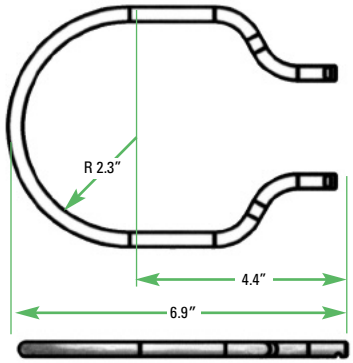

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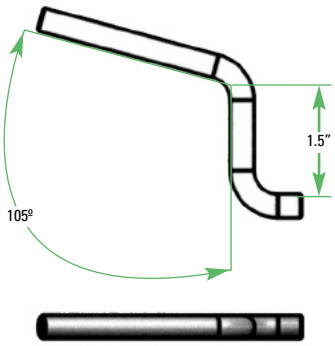
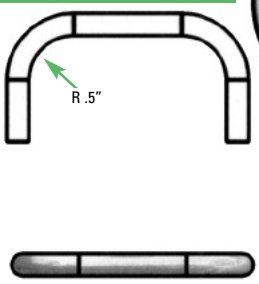
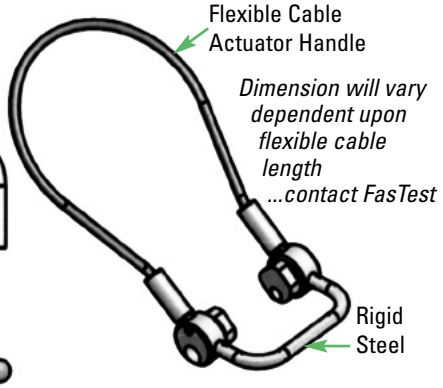
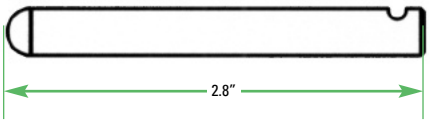


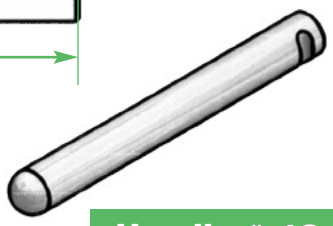
Handle # 5

Handle # 6, 8, 9, 11, 12, 13, 15, 16, 19









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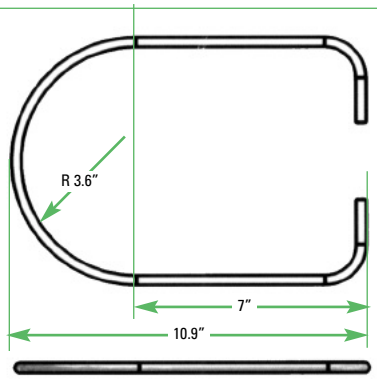
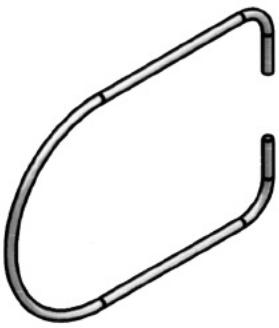




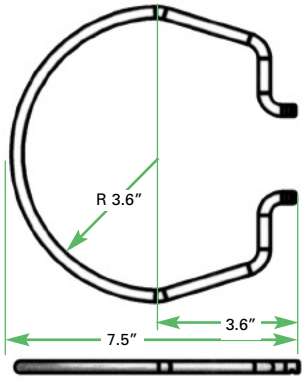
Handle # 21

The actuator handles shown on these pages are available to accompany the following gas connector products:

CGA 540
CGA 580
CGA 580 RPV
CGA 346
CGA 510

The standard handle supplied with a specific CGA product is identified within the product description (gray) section of the CGA Selection Guide on pages **7B-3** and **7B-4**. The actuator handle selected for any given CGA standard is based upon customer and industry demand. Alternative handle choices are available. Contact your FasTest representative for part numbers, pricing and delivery information for optional actuator handle selections.

ACTUATOR HANDLE SELECTION GUIDE



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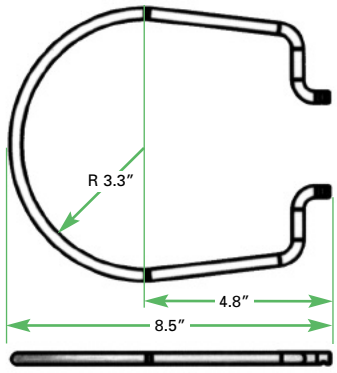

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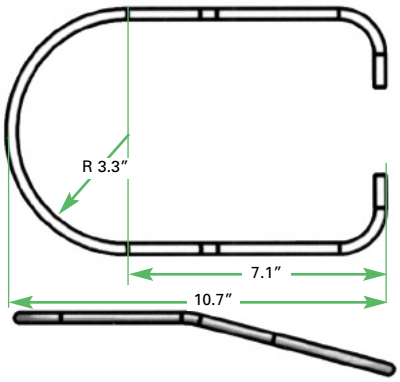

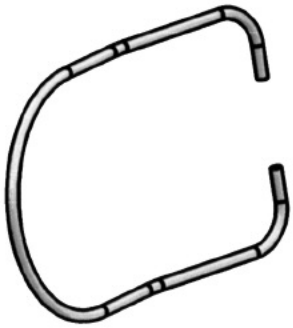

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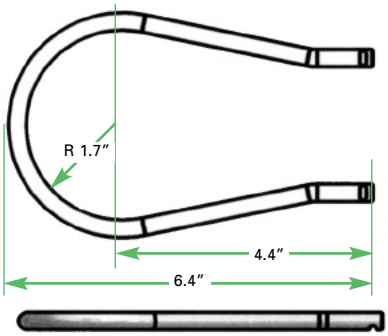

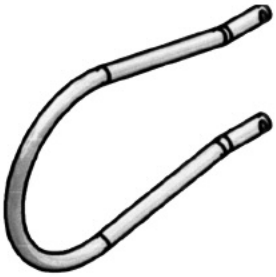

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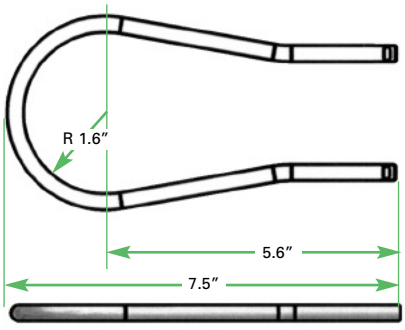

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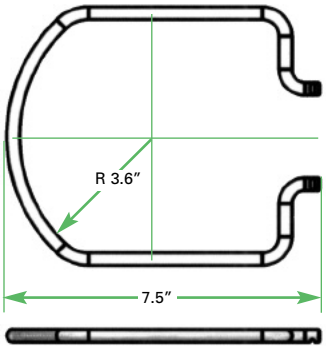
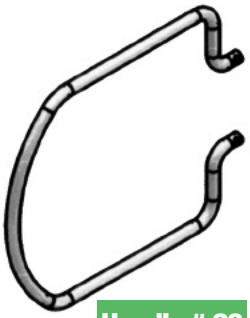




Handle # 23

Rigid Actuator Handles

(Numbers: 1, 2, 3, 4, 5, 10, 14, 18, 21, 22, and 23)

The rigid style handles are made of stainless steel, 5/16" in diameter. Please refer to the drawings above for overall handle dimensions.

Flexible Cable Handles

(Numbers: 6, 8, 9, 11, 12, 13, 15, 16, 19)

The flexible style handles are made of stainless steel aircraft cable, 1/4" in diameter. All flexible cable handles supplied with a rigid steel safety locking mechanism to prevent accidental disconnection under pressure.

Flexible cable handles are required for filling equipment with space restraints. Provide your FasTest representative with a "footprint" of the handle configuration, disclosing the maximum width and length of desired handle. In general, flexible cable handles are available in overall length of 12"- 24".

Field Replacement Parts

Only the gas connector parts and seals listed in this section are available for field replacement. Specific tool kits may be required.

Due to the high pressure of compressed gas filling, as well as the oxygen cleaning requirements of specific CGA standards, FasTest requires you to return gas connector products for maintenance and repair. Specific CGA standards require 02 cleaning before being returned to field service. Please contact Ratermann Manufacturing, Inc. for additional information.

Connector	Part #	Description
QF-H870	**QF-H870SPK5**	Replacement Main Seal Set (5 /pkg)
	QF-H870SPK100	Replacement Main Seal Set (100 /pkg)
	QF-H870SPK250	Replacement Main Seal Set (250 /pkg)
	QF-H870REPLACEPIN	Replacement Index Pins
	QF-H870HANDLE	Replacement Actuator Handle
	QF-HDL1FIT	Replacement Handle Screws
QF-H540	**QF-H540SPK5**	Replacement Main Seal Set (5 /pkg)
	QF-H540SPK100	Replacement Main Seal Set (100 /pkg)
	QF-H540SPK250	Replacement Main Seal Set (250 /pkg)
	*	Replacement Actuator Handle
	QF-HDL1FIT	Replacement Handle Screws
QF-H580	**QF-H580SPK5**	Replacement Main Seal Set (5 /pkg)
	QF-H580SPK100	Replacement Main Seal Set (100 /pkg)
	QF-H580SPK250	Replacement Main Seal Set (250 /pkg)
	*	Replacement Actuator Handle
	QF-HDL1FIT	Replacement Handle Screws
QF-RPVH580	**QF-R580P-RPV**	Replacement Actuator Pin RPV (5/pkg)
	QF-R580TK	Tool kit to replace actuator pin for R580P
	*	Replacement Actuator Handle
	QF-HDL1FIT	Replacement Handle Screws

Product Maintenance

To maximize the service life and efficiency of FasTest gas connectors, a preventative maintenance program and schedule should be implemented. Periodic cleaning and inspection of the product components will insure maximum performance and efficiency.

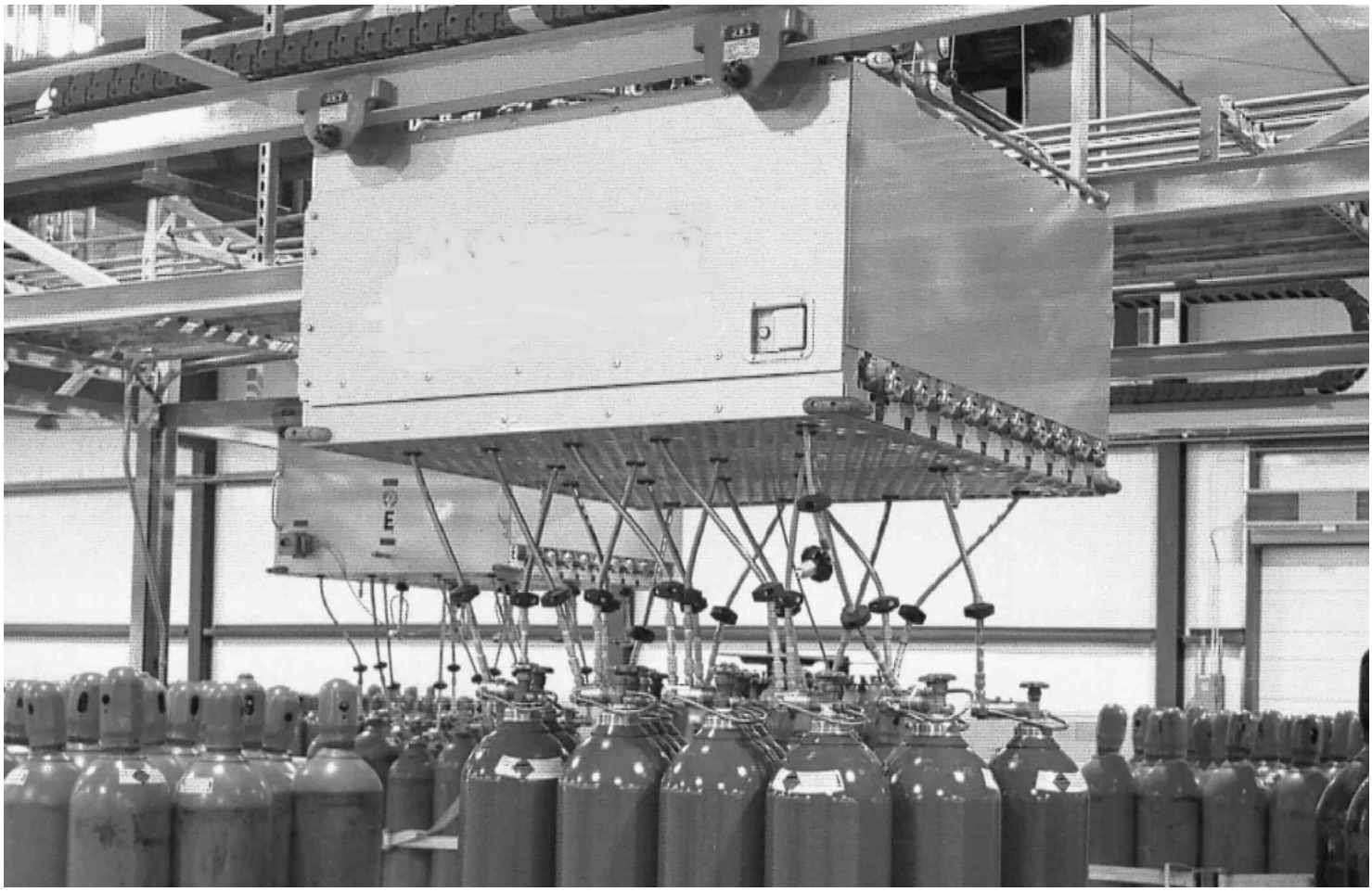
The following maintenance is recommended:

1. A daily visual inspection of the sealing O-ring, located at the tip of the filling nozzle. Inspect for tears or cracks in the surface of the O-ring. Replace O-ring if tears or cracks are verified.
2. Replace sealing O-ring every 1000 fill cycles regardless of daily visual inspection results.
3. Periodic tightening of actuator handle screws on applicable CGA standards. Check index pins on CGA yoke style connectors. Do not remove index pins except for reason of immediate pin replacement.
4. CGA standards utilized for medical oxygen filling may require periodic lubrication. Krytox or approved equivalent only.
5. Return product to FasTest for complete maintenance every 3-year period.
6. Minimize use of “soap solutions” for leak testing during filling cycles.

How to Order

Refer to the CGA Standard Product Line Selection Guide found on pages **7B-3** and **7B-4**. Standard part numbers are provided in the third column to the right. When ordering, the standard part numbers coincide with a standard termination port and actuator handle (if applicable).

See Product Description for connector details. Optional actuator handles and straight in-line termination ports are available for CGA standards 346, 510, 540, 580, and 580 RPV. Plesse call for details.



Palletized cylinder filling with FasTest connectors.

Problem	Recognized By	Probable Cause	Recommended Action
Gas leakage at initiation of filling cycle, leakage decreasing as pressure increases.	Sound of escaping gas.	(a) Improper connection. (b) Side load to filling connector due to rigid supply line.	(a) Terminate filling cycle and repeat connection. (b) Replace supply line with swivel and/or flexible pigtail.
Gas leakage increases as pressure increases.	Sound of escaping gas. Blow off.	Valve threads damaged Seat area of valve scored or damaged.	Terminate filling cycle and replace damaged or worn valve.
Actuator Style Connectors* Safety pin does not activate during filling cycle.	Safety pin at rear of connector not extended outward from connector body. Filling pressure must exceed 250 psi for pin actuation.	(a) Damaged or bent pin. (b) Lack of lubrication and/or dirt contamination.	(a) Field replacement of actuator pin assembly. (b) Remove safety pin assembly, clean and lubricate with approved lubricant.
Actuator Style Connectors* Safety pin does not retract upon completion of filling cycle.	Visual inspection of safety pin at rear of connector body. Activated and not retracted into connector body.	(a) Damaged or bent pin. (b) Lack of lubrication and/or dirt contamination. (c) System under pressure.	(a) Field replacement of actuator pin assembly. (b) Remove safety pin assembly, clean and lubricate with approved lubricant. (c) Vent or exhaust system of gas before attempting disconnection.
Actuator Style Connectors* Actuator handle loose.	Ability to move handle side to side and/or any loose movement when connected to valve.	Loose or missing actuator handle screws.	Replace missing screw(s) or remove existing screws. Apply thread lock to screw threads. Reinsert and tighten to 7 ft. lbs. Do not over tighten screws.
Damage, deformation or distortion to connector body, sleeve, and collet threads. Possible internal leakage.	Visual inspection of connector. Difficult operation of connector.	Improper operation.	Remove connector from filling operation immediately. Return to FasTest to determine probable cause.
Connecting collet(s) missing or difficult to connect to valve. Front outer sleeve loose.	Visual inspection of socket head screw on front of outer sleeve or connector body.	Loose or missing.	Discontinue use of connector until socket head screw is tightened to 7 ft. lbs. or replaced.

* *Gas Connector CGA standards 346, 510, 540, 580 and 580RPV series. Gas connector products should be visibly inspected on a routine basis to ensure efficient product performance. Refer to the Product Maintenance section on page* **7B-7** *for additional information.*

GAS CONNECTOR PRODUCTS GROUP

Problem	Recognized By	Probable Cause	Recommended Action
Gas leakage at connection of connector to valve.	Continual sound of escaping gas.	Damaged or worn connector sealing O-ring or damaged cylinder valve.	Visual inspection of connector O-ring. Replace as required. Recommended O-ring replacement every 1000 filling cycles.
Connector's thread collets not expanding properly during initial hook-up to cylinder valve.	Visual inspection of connection joint.	Short connection of connector to valve.	Visual inspection of valve. Replace if damaged or worn. Disconnect and reconnect connector to valve. Be sure actuator handle sleeve is fully engaged. If problem is unresolved, contact Ratermann.
Loose connection.	Connector is loose despite proper connection.	Worn or damaged threads of cylinder valve.	Replace cylinder valve.
Inability to connect to, or a leakage with, CGA 540 and 580 RPV style connectors and Residual Pressure Valves.	Inability to fully actuate connector actuator handle and/or outer sleeve.	(a) Bent actuator pin. (b) Damaged actuator piston.	(a) Replace actuator pin. (b) Return to FasTest for repair.
Inability to connect or Leakage of RPV version connector to non RPV cylinder valves.	Inability to fully actuate and/or gas leakage at initial filling.	(c) Actuator pin not retracted.	(c) Retract/remove actuator pin according to specific connector operation instructions.
Inability to fully engage actuator handle.	Visually inspect connection with valve to determine if connector threads are exposed.	Short connection to cylinder valve.	Disconnect and reconnect to valve with connector fully seated into valve.
Cylinder connection with MediMate 870 connector loose. Ability to move connector side to side once connection is made.	Disconnect and inspect connector. Check index pins.	Index pins removed.	Replace and/or reinsert index pins properly. **Do Not Remove Index Pins!**
MediMate 870 leakage.	Hissing or popping off under pressure. Main seal blows out.	Internal connector components are contaminated, which does not allow internal piston to move freely.	Disassemble connector, clean component parts, apply approved lubricant and reassemble.