SHERWOOD

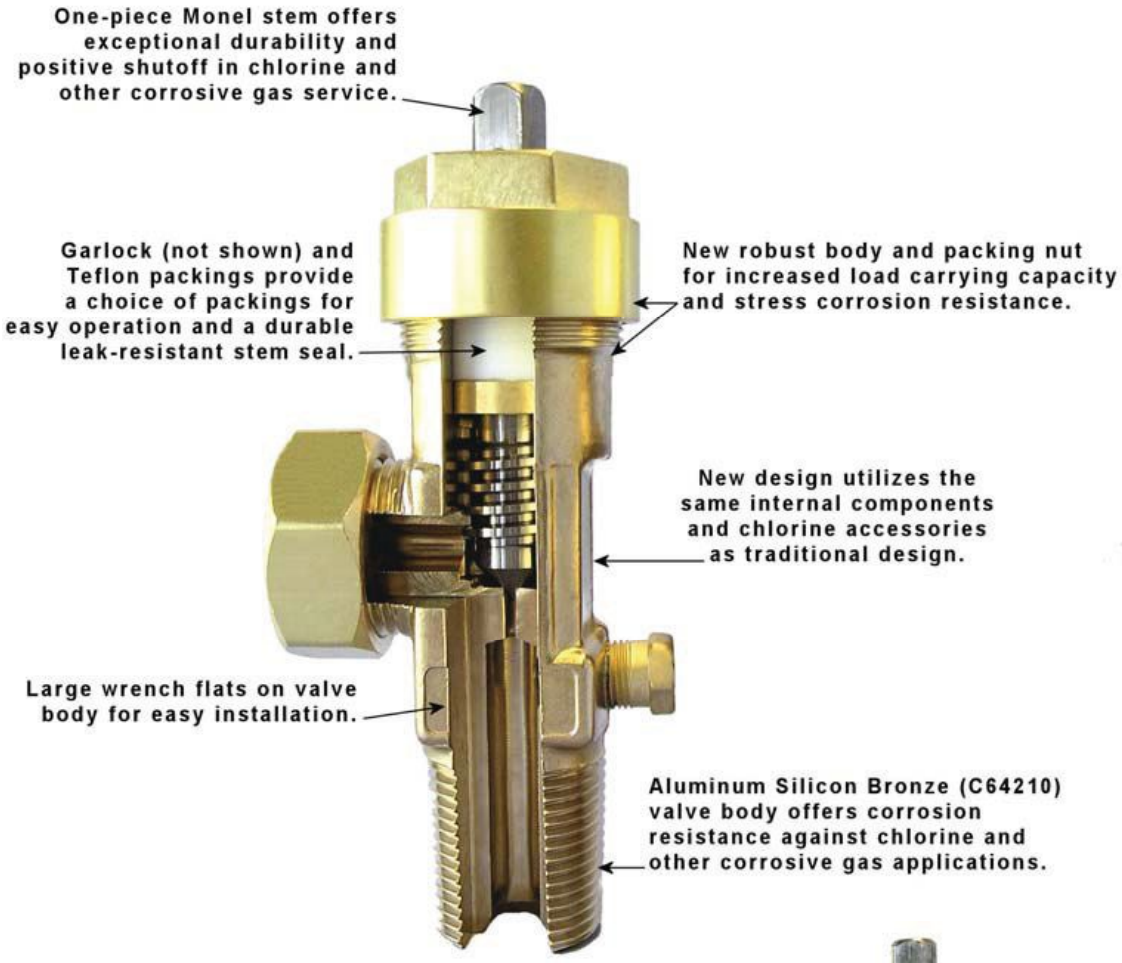
Chlorine Valves and Accessories



Chlorine Cylinder & Ton Container Valves

Standard Chlorine Institute Design & Alternate Design

ALTERNATE VALVE DESIGN vs. STANDARD CHLORINE INSTITUTE VALVE DESIGN FOR CHLORINE CYLINDER AND TON CONTAINER VALVES



Standard Chlorine Institute Valve →



SPECIFICATIONS FOR BOTH STANDARD CHLORINE INSTITUTE VALVE AND ALTERNATE VALVE DESIGN

STANDARDS CONFORMANCE

CGA V-9	Standard for Gas Cylinder Valves
CGA S-1.1	Standard for Pressure Relief Devices
CGA V-1	Compressed Gas Cylinder Valve Outlet and Inlet Connections
Chlorine Institute Pamphlet 17	Cylinder and Ton Container Procedure for Chlorine Packaging and Valve Design Criteria
ISO 10297	International Standard for Cylinder Valves Design Specification
TPED	Transportable Pressure Equipment Directive Modules B & D

DESIGN SPECIFICATIONS

Maximum Working Pressure	500 PSIG @ 70°F 34 BAR @ 21°C
Burst Pressure	7,200 PSIG 496 BAR
Operating Temperature	Min -50°F -45°C Max 149°F 65°C
Storage Temperature	Min –60°F -51°C Max 149°F 65°C
Leak Rate Internal/External	1 X 10^{-6} atm cc/s
Minimum Cycle Life	2,000 cycles
Cv Flow Factor	1210A .733 1214A 1.88

MATERIALS OF CONSTRUCTION FOR CHLORINE CYLINDER AND TON CONTAINER VALVES

Body	Aluminum Silicon Bronze C64210
Stem	Monel® ASTM B164-84 Type UNS NO4400 or NO4405
Packing Nut	UNS Alloy CDA C36000
Packing Collar	Naval Brass C48500
Packing Gland	Brass C36000
Packing	Teflon® or Garlock 6130®
Outlet Cap	Brass C36000
Outlet Cap Gasket	Teflon®
Fusible Plug PRD	Naval Brass C48500 (with 165ºF fusible metal)

TORQUE VALUES FOR CHLORINE CYLINDER AND TON CONTAINER VALVES

5 - 6 Ft. Lbs.	Operating Torque (new or reconditioned valve)
25 - 35 Ft. Lbs.	Packing Nut Installation Torque
10 - 12 Ft. Lbs.	Stem Installation Torque (new or reconditioned valve with refaced seat)
12 - 15 Ft. Lbs.	Fusible Plug Installation Torque

STANDARD CHLORINE INSTITUTE VALVE DESIGN
CHLORINE CYLINDER WRENCH OPERATED PACKED VALVES

INLET THREAD SIZE	CGA OUTLET*	PRESSURE RELIEF DEVICE	SHERWOOD P/N TEFLON® PACKING	SHERWOOD P/N GARLOCK® PACKING
¾ - 14NGT (CL)-1	660 / 820	CG-2 165°F Fuse-Metal	1210X1-B1	1210-B1
¾ - 14NGT (CL)-2	660 / 820	CG-2 165°F Fuse-Metal	1210X1-B2	1210-B2
¾ - 14NGT (CL)-3	660 / 820	CG-2 165°F Fuse-Metal	1210X1-B3	1210-B3
¾ - 14NGT (CL)-4	660 / 820	CG-2 165°F Fuse-Metal	1210X1-B4	1210-B4

STANDARD CHLORINE INSTITUTE VALVE DESIGN
CHLORINE TON CONTAINER WRENCH OPERATED PACKED VALVES

INLET THREAD SIZE	CGA OUTLET*	PRESSURE RELIEF DEVICE	SHERWOOD P/N TEFLON® PACKING	SHERWOOD P/N GARLOCK® PACKING
¾ - 14NGT (CL)-1	660 / 820	None	1214X1-B1	1214A-CL1
¾ - 14NGT (CL)-2	660 / 820	None	1214X1-B2	1214-B2
¾ - 14NGT (CL)-3	660 / 820	None	1214X1-B3	1214-B3
¾ - 14NGT (CL)-4	660 / 820	None	1214X1-B4	1214-B4

(CL)-1= 1ST THREAD STANDARD
(CL)-2= 1ST THREAD 4 THREADS OVERSIZED
(CL)-3= 1ST THREAD 8½ THREADS OVERSIZED
(CL)-4= 1ST THREAD 14 THREADS OVERSIZED

***The same chlorine valve can be used with a CGA 660 connector nut connection or with a CGA 820 yoke connection.**

OPTIONS

Cap and Chain: To order, add -C to the end of the part number.
e.g. 1210X2-B1 becomes 1210X2-B1-C

NOTE: Not all valves available with all options. Contact factory for availability.
Orders may be subject to minimum quantities.

STANDARD CHLORINE INSITUTE VALVE DESIGN
CHLORINE CYLINDER WRENCH OPERATED PACKED VALVES

INLET THREAD SIZE	CGA OUTLET*	PRESSURE RELIEF DEVICE	SHERWOOD P/N TEFLON® PACKING	SHERWOOD P/N GARLOCK® PACKING
1-11 1/2 NGT (CL)-1	660 / 820	CG-2 158°F Fuse-Metal	1211X1-B1	1211-B1
1-11 1/2 NGT (CL)-2	660 / 820	CG-2 158°F Fuse-Metal	1211X1-B2	1211-B2
1-11 1/2 NGT (CL)-3	660 / 820	CG-2 158°F Fuse-Metal	1211X1-B3	1211-B3
1-11 1/2 NGT (CL)-4	660 / 820	CG-2 158°F Fuse-Metal	1211X1-B4	1211-B4

STANDARD CHLORINE INSITUTE VALVE DESIGN
CHLORINE TON CONTAINER WRENCH OPERATED PACKED VALVES

INLET THREAD SIZE	CGA OUTLET*	PRESSURE RELIEF DEVICE	SHERWOOD P/N TEFLON® PACKING	SHERWOOD P/N GARLOCK® PACKING
1-11 1/2 NGT (CL)-1	660 / 820	None	1209X1-B1	1209-B1
1-11 1/2 NGT (CL)-2	660 / 820	None	1209X1-B2	1209-B2
1-11 1/2 NGT (CL)-3	660 / 820	None	1209X1-B3	1209-B3
1-11 1/2 NGT (CL)-4	660 / 820	None	1209X1-B4	1209-B4

(CL)-1= 1ST THREAD STANDARD
(CL)-2= 1ST THREAD 4 THREADS OVERSIZED
(CL)-3= 1ST THREAD 8½ THREADS OVERSIZED
(CL)-4= 1ST THREAD 14 THREADS OVERSIZED

***The same chlorine valve can be used with a CGA 660 connector nut connection or with a CGA 820 yoke connection.**

OPTIONS

Cap and Chain: To order, add -C to the end of the part number.
e.g. 1210X2-B1 becomes 1210X2-B1-C

NOTE: Not all valves available with all options. Contact factory for availability.
Orders may be subject to minimum quantities.

ALTERNATE VALVE DESIGN
CHLORINE CYLINDER WRENCH OPERATED PACKED VALVES

INLET THREAD SIZE	CGA OUTLET*	PRESSURE RELIEF DEVICE	SHERWOOD P/N TEFLON® PACKING	SHERWOOD P/N GARLOCK® PACKING
¾ - 14NGT (CL)-1	660 / 820	CG-2 165°F Fuse-Metal	1210AX1-CL1	1210A-CL1
¾ - 14NGT (CL)-2	660 / 820	CG-2 165°F Fuse-Metal	1210AX1-CL2	1210A-CL2
¾ - 14NGT (CL)-3	660 / 820	CG-2 165°F Fuse-Metal	1210AX1-CL3	1210A-CL3
¾ - 14NGT (CL)-4	660 / 820	CG-2 165°F Fuse-Metal	1210AX1-CL4	1210A-CL4

ALTERNATE VALVE DESIGN
CHLORINE TON CONTAINER WRENCH OPERATED PACKED VALVES

INLET THREAD SIZE	CGA OUTLET*	PRESSURE RELIEF DEVICE	SHERWOOD P/N TEFLON® PACKING	SHERWOOD P/N GARLOCK® PACKING
¾ - 14NGT (CL)-1	660 / 820	None	1214AX1-CL1	1214A-CL1
¾ - 14NGT (CL)-2	660 / 820	None	1214AX1-CL2	1214A-CL2
¾ - 14NGT (CL)-3	660 / 820	None	1214AX1-CL3	1214A-CL3
¾ - 14NGT (CL)-4	660 / 820	None	1214AX1-CL4	1214A-CL4

(CL)-1= 1ST THREAD STANDARD **(CL)-2=** 1ST THREAD 4 THREADS OVERSIZED

(CL)-3= 1ST THREAD 8½ THREADS OVERSIZED **(CL)-4=** 1ST THREAD 14 THREADS OVERSIZED

***The same chlorine valve can be used with a CGA 660 connector nut connection or with a CGA 820 yoke connection.**

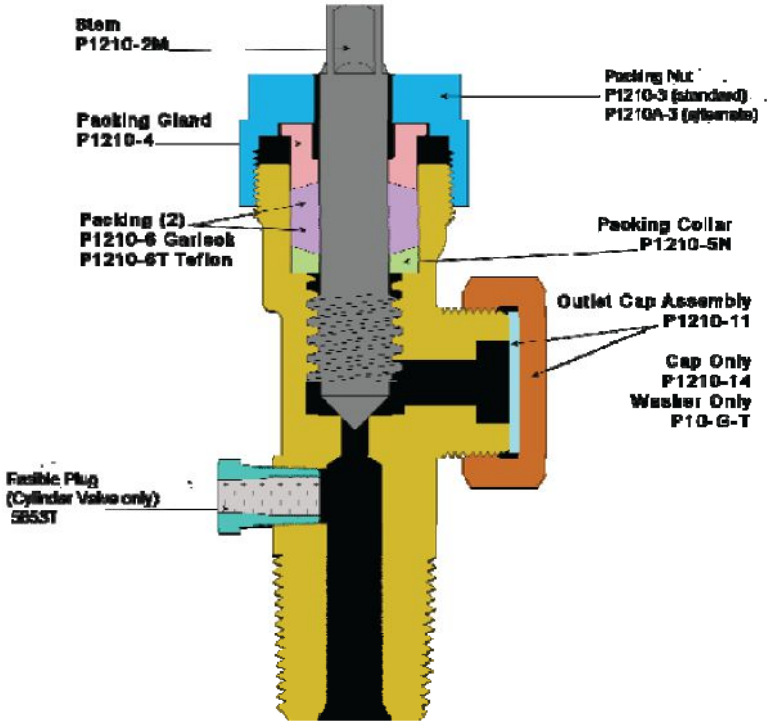
OPTIONS

⅜ - 18 NPT Tapped Inlet: To order, change part number from X1 to X2.
e.g. 1210AX1-CL1 becomes 1210AX2-CL1 (High Flow, Cv 1.88)

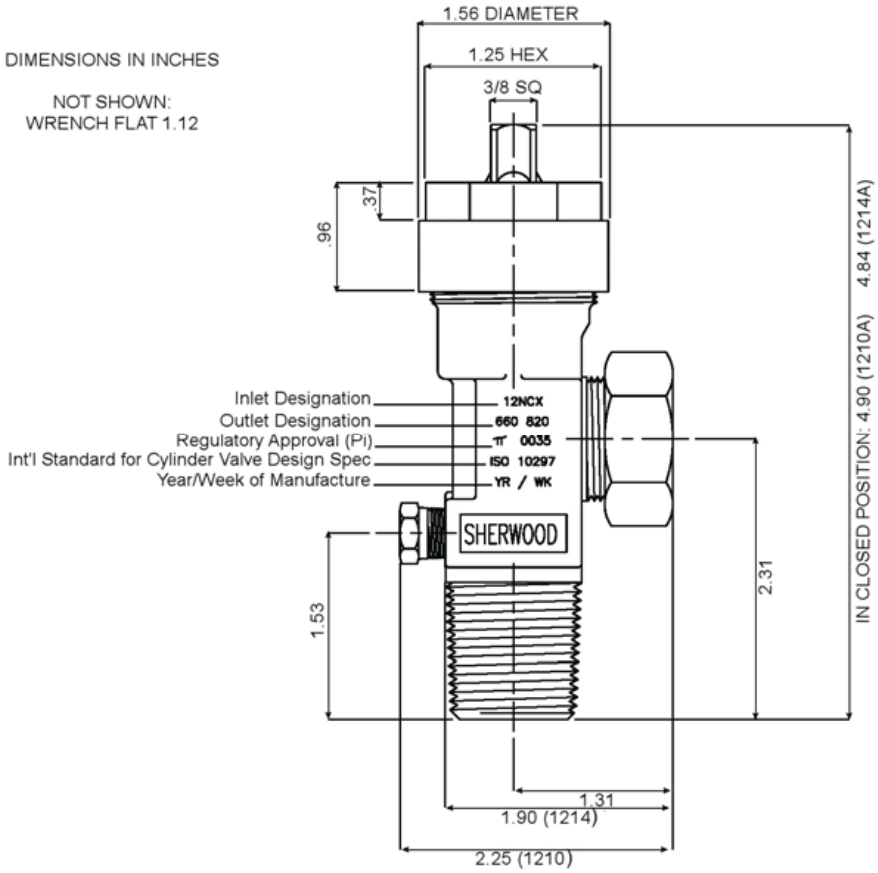
¼ - 18 NPT Tapped Inlet: To order, change part number from X1 to X3.
e.g. 1214AX1-CL1 becomes 1214AX3-CL1

Cap and Chain: To order, add -C to the end of the part number.
e.g. 1210AX2-CL1 becomes 1210AX2-CL1-C

NOTE: Not all valves available with all options. Contact factory for availability.
Orders may be subject to minimum quantities.



DIMENSIONS FOR CHLORINE CYLINDER AND TON CONTAINER VALVES



REPAIR INSTRUCTIONS FOR CHLORINE CYLINDER AND TON CONTAINER VALVES

DISASSEMBLY OF VALVE

A. Place the valve assembly into a vise or similar holding fixture. The holding fixture must securely grip the valve body on the wrench flats so no damage is done to the internal bores, external or internal threads, outlet, or fusible plug PRD.

B. Chamber

1. Using a 1¼ socket or hex box wrench, remove the packing nut by turning it counter clockwise.

2. Using a ⅜ square socket or open end wrench, remove the stem from the valve chamber by turning it counter clockwise. The packing gland, the two packings, and the packing collar will be removed with the stem.

3. Remove the packing gland, the two packings, and the packing collar from the stem.

C. Outlet

1. Remove the outlet cap from the valve assembly by turning it counter clockwise.

D. Fusible Plug Pressure Relief Device (Cylinder Valves)

1. Using a $^{7}/_{16}$ socket or hex box wrench, remove the fusible plug PRD by turning it counter clockwise.

INSPECTION OF VALVE AND COMPONENTS

A. Valve Body

1. Inspect the valve body for cracks. If cracks are suspected, scrap the valve body. Inspect the valve body cham ber bore for dirt, debris and damage. Blow out the valve body chamber using clean, dry compressed air or nitro gen to remove these contaminants.

2. Examine all internal and external threads for damage or deterioration due to wear or corrosion. Special atten tion should be given to the threads closest to the outlet since they are the most vulnerable to corrosive attack.

3. Examine the valve body seat for excessive wear or corrosion build up. Wear creating a ⅛ x 90° or greater bevel should be eliminated with the 1534 reseating tool (1210/1214) or 1534A reseating tool(1210A/1214A). The valve has reached its end of life and should be replaced when the tool can no longer remove this bevel.

4. Clean the internal threads for the fusible plug to remove all thread luting compound.

5. If the valve body is damaged or corroded, do not attempt to repair. Order a new valve assembly.

B. Components

1. Scrap any component that is suspected of being cracked. Also, replace components damaged, worn or cor roded to the point where safe operation, valve performance or leak integrity may be compromised. Special atten tion should be given to wear grooves in the nose of the stem. Stems with grooves $^{1}/_{64}$ or greater in depth should be replaced.

2. Special attention should be given to the fuse plug for signs of leakage an extrusion of the fusible metal greater than $^{1}/_{64}$ which may adversely affect use of the emergency kit tool used to temporarily seal fusible metal leaks.

3. It is recommended that both of the packings be replaced before the valve is reassembled.

REPAIR INSTRUCTIONS FOR CHLORINE CYLINDER AND TON CONTAINER VALVES

ASSEMBLY OF VALVE

NOTE: All parts must be clean, free of oil, chips and other contaminants before beginning assembly.
A properly calibrated torque wrench must be used. Over tightening will damage components and the valve body. Under tightening may result in leaks. Reassembly of a used valve should not begin until all the components of that valve have been examined to determine their combined effects on valve performance and operation.

A. Chamber

1. Insert the stem into the valve chamber and turning it clockwise, engage it one full thread. Engaging the stem more than one full thread may make installation of parts difficult.
2. Place the packing collar, flat side down, onto the stem.
3. Install two packings with the flat sides facing each other, and place them onto the stem.
4. Place the packing gland with the beveled end down onto the stem.
5. Tighten the stem using a ⅜ square socket and a torque wrench to 10-12 ft. lbs. to coin the seat in the body.
6. Press down on the packing gland until the two packings are completely below the top of the body.
7. Install the packing nut over the stem. Making sure the threads are properly engaged, tighten the packing nut to 25-30 ft. lbs. using a 1¼ socket and torque wrench.

B. Outlet

1. Install the outlet cap onto the valve assembly outlet, turning clockwise until hand tight.

C. Fusible Plug PRD (Cylinder Valve)

1. Apply a chlorine compatible thread luting compound onto the bottom threads of the fusible plug PRD.
2. Thread the fusible plug PRD, finger tight, making sure at least one thread is engaged in the body.
3. Using a $^{7}/_{16}$ socket and a proper torque wrench, tighten the fusible plug to 12-15 ft. lbs. or 1½ - 2 turns.

TESTING OF ASSEMBLED VALVE

NOTE: Only leak detection solutions compatible with chlorine should be used. Thus, only commercial or household detergents should be used that DO NOT contain ammonia, phosphates or other chemicals which are harmful to copper alloys and can initiate stress corrosion cracking of these alloys.

A. Test each reassembled valve by installing the valve securely in a suitable test fixture and pressurizing the valve with air, nitrogen or carbon dioxide to 500 psig.

B. With the outlet plugged or capped, open the valve assembly slowly and check for leaks through the valve body, past the stem and all threaded connections using a leak detection solution.

C. Close the valve assembly and remove the outlet cap assembly or plug. Pressurize the valve to 500 psig and check for seat leakage through the outlet.

C. If any leakage is detected, in the open or closed position, make necessary repairs and retest the valve before returning to service.

NOTE: Periodic retightening of the packing nut to 25-30 ft lbs. may be required to maintain a leak tight packing nut and stem seal. However, tightening more than is necessary or applying excessive torques will prematurely wear the packings and may damage the packing nut and the valve body threads.



FUSIBLE METAL PLUGS

- Manufactured in accordance with Chlorine Institute specifications.
- Naval brass and 165°F fusible alloy.

FUSIBLE PLUGS FOR CYLINDER VALVES		
5853T	⅛ - 27 NGT	$^{7}/_{16}$ Hex
5853X1T	1/8-27 NGT (oversized 1st thrd.)	
FUSIBLE PLUGS FOR TON CONTAINERS		
1333-N1 (N2, N3, N4)	¾ - 14 NGT (CL1, CL2, CL3, CL4)	1¼ Hex
1303-N1 (N2, N3, N4)	1 - 11½ NGT (CL1, CL2, CL3, CL4)	1¼ Hex
FUSIBLE 303 STAINLESS STEEL PLUG		
1304-303	¾ - 14 NGT	1¼ Hex



YOKE

- Complies with Chlorine Institute specifications.
- Forged steel with zinc plating.
- New design allows for easy parts replacement.
- Replaces 628A yoke.

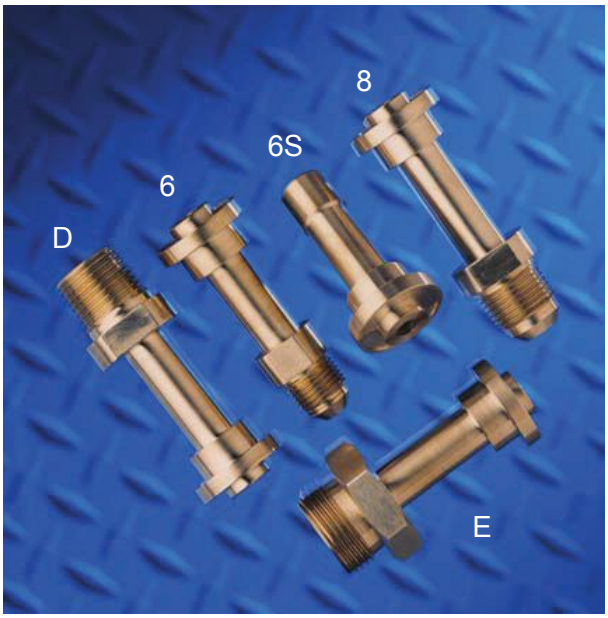
628B	Yoke Assembly
P628A-2	Replacement Stem
P628A-3	Replacement Slotted Follower



FLEX CONNECTORS

- ⅜ OD, Zinc plated copper.
- Working pressure 500 psig.
- Loose CGA 660 connector nuts for non-yoke applications.

6414X11C	CGA 820 X CGA 820; 30 in.
6414X2C	CGA 820 X CGA 820; 4 ft.
6414C	CGA 820 X CGA 820; 6 ft.
6414X1C	CGA 820 X CGA 820; 10 ft.
6414X5C	CGA 820 X CGA 820; 16 ft.
6414X10C	CGA 820 X ⅝ - 18 UNF; 4 ft.
6414X7C	CGA 820 X ⅝ - 18 UNF; 6 ft.
6414X8C	⅝ - 18 UNF X ⅝ - 18 UNF; 4 ft.
6414X9C	⅝ - 18 UNF X ⅝ - 18 UNF; 6 ft.

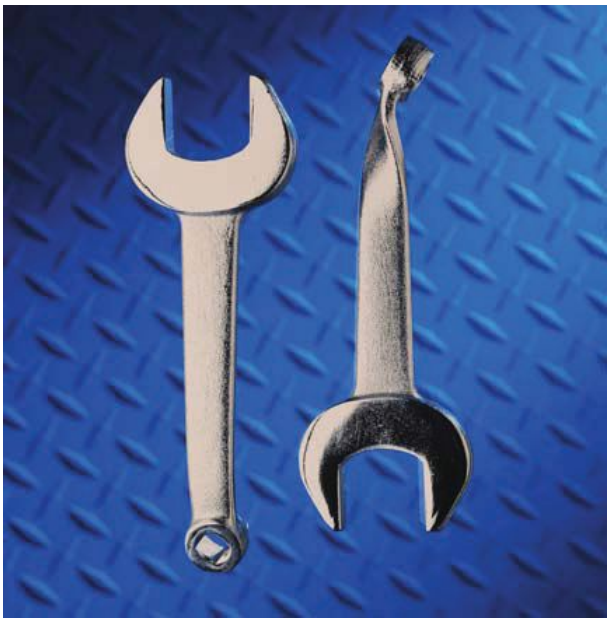


HIGH FLOW YOKE ADAPTERS

5888-6	⅜ SAE Flare
5888-6S	⅜ ODS
5888-8	½ SAE Flare
5888-D	½ - 14 NPT (male)
5888-E	1.030 - 14 NGO (male)

GASKETS FOR YOKE ADAPTERS

P10-CLAL	Lead Outlet Gasket (.937 OD)
P10-CLBL	Lead Outlet Gasket (.531 OD)



WRENCHES

- Designed for use with 1210/1214 and 1210A/1214A chlorine valves and yokes.
- Forged steel construction.
- 1¼ open end; ⅜ stem square.

635	Straight Shaft
635X3	Twisted Shaft



1534 / 1534A RESEATING TOOL

Increase the life of the valve with easy to use, manually operated, reseating tool.

1534 For use with 1210 and 1214.
1534A For use with 1210A and 1214A.



5928 CHARGING VALVE

The **5928** valve is a modification of Sherwood's ton container valve. A chlorine adapter is soldered on the outlet to permit yoke attachment to all standard chlorine cylinder valves. A standard CGA 660 outlet connection has been machined where the cylinder inlet normally is to permit connection to the permanent chlorine charging or discharge line.