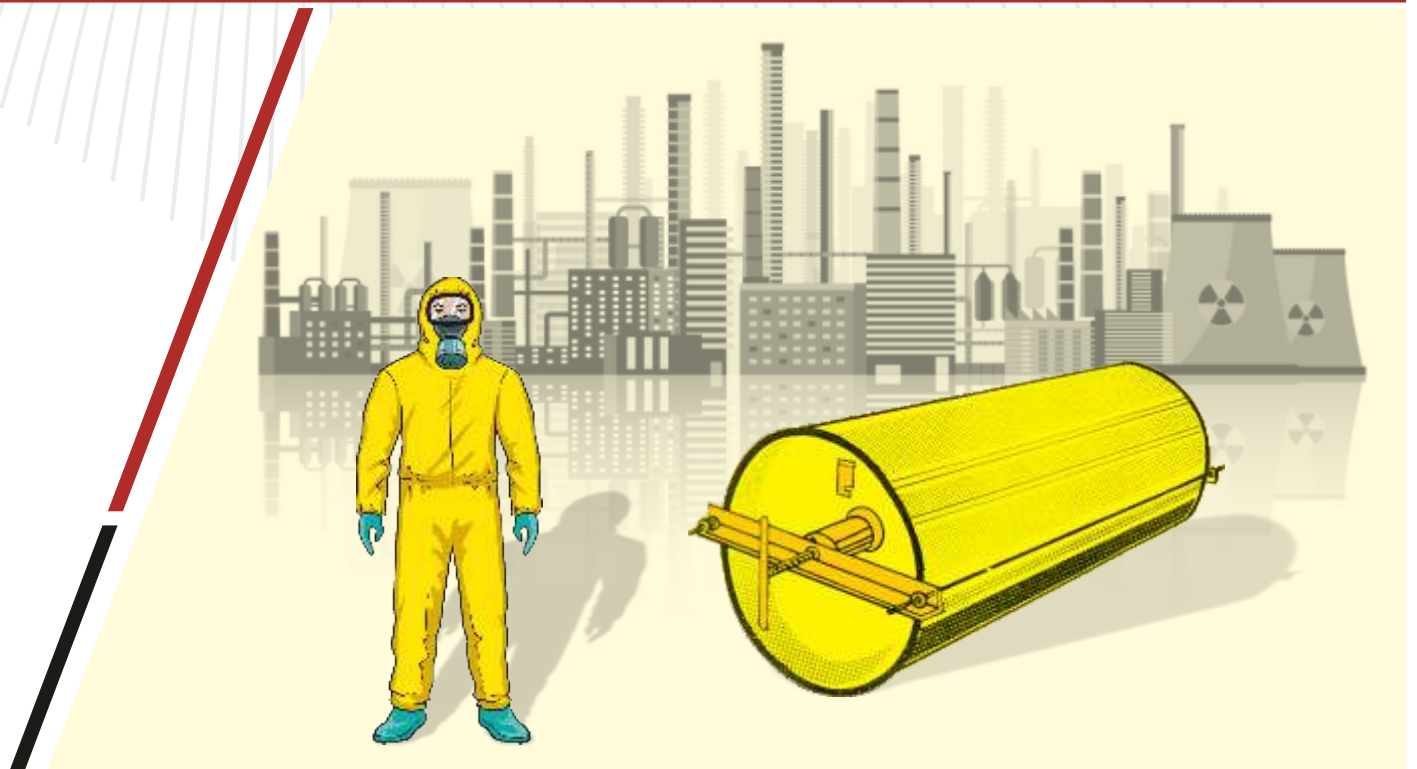


EMERGENCY KIT

TO STOP LEAKAGE FROM
CYLINDER & TONNER



For Hazardous Gases
Chlorine (**Cl₂**), Ammonia (**NH₃**) &
Sulphur Dioxide (**SO₂**)

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EMERGENCY KIT FOR CHLORINE CONTAINERS (TONNER / CYLINDER) USEFUL GUIDELINE FOR HANDLING OF EMERGENCY KIT

- The kit you, contains various type of devices to stop leakages at different places on tonners / cylinders.
- Before the kit is put to use a full study of this instruction manual is essential which will make you familiar with different parts contained in this kit to meet various emergencies.
- Once studied properly, it will be found that the kit contains tools which are very easy to handle and you will have confidence to handle any kind of emergency provided you carry out regular drills.
- Once studied properly, it will be found that the kit contains tools which are very easy to handle and you will have confidence to handle any kind of emergency provided you carry out regular drills.
- Minimum two trained person should attend the leak.
- Trained personnel must wear safety appliances like Breathing Apparatus, gas mask Cartridge or airline respirator before attending the leakages. Instructions for using gas mask are given in this manual. Identification of leakage is very important.
- To detect the leak, use ammonia torch, hold it near suspected area, white cloud will be formed near the leakage.
- Always stand in the opposite direction of the wind for attending the leakage.
- Process personnel handling chlorine tonners / cylinders should be familiar with spanners and other tools, so that in emergency, time is not wasted in finding correct spanners and tools.
- Always keep the emergency kit at a fixed place.
- After every use make sure that parts are placed again in the emergency box after cleaning.
- Check periodically the tools kept in the kit from the list attached and a responsible person must sign the same. Missing tools must be replaced immediately.
- All chlorine consumers, irrespective of quantity consumed, should have emergency kit handy and in proper working condition at all times.
- Last but not the least; chlorine is a good friend if handle properly but worst enemy if handle badly.



Emergency Kit Parts (General)

Sr. No.	Products Code	Parts Name	Unit	Qty.
01	EKP 01	Hood with Vent Valve	Each	1 no.
02	EKP 02	Big Rubber Gasket	Set	3 pcs.
03	EKP 03	Tie Rod with Nut	Set	2 pcs.
04	EKP 04	Tie Rod Washer Set	Set	8 pcs.
05	EKP 05	Tie Rod Pipe Pieces	Set	6 pcs.
06	EKP 06	Complete Angle Set	Set	2 pcs.
07	EKP 07	Stud with Handle (5/8")	Each	1 no.
08	EKP 08	Small Hood	Each	1 no.
09	EKP 09	Complete Yoke	Each	1 no.
	EKP 09	Stud	Each	1 no.
	EKP 09	Cap Nut	Each	2 no.
10	EKP 11	Small Rubber Gasket	Set	3 pcs.
11	EKP 12	Blind Fiber Gasket	Set	3 pcs.
12	EKP 13	Fiber Gasket (Big)	Set	3 pcs.
13	EKP 15	Steel Patch Plate	Each	1 no.
14	EKP 16	Square Rubber Gasket	Set	2 pcs.
15	EKP 17	Round Yoke Plate	Each	1 no.
	EKP 17	Cap Screw (Big & Small)	Each	1 no.
16	EKP 19	Chain 8 ft	Set	2 pcs.
17	EKP 20	Drift Pin (Big & Small)	Each	2 pcs.
18	EKP 21	Hammer	Each	1 no.
19	EKP 23	Complete Yoke Clamp	Each	1 no.
	EKP 23	Valve Cap	Each	1 no.
20	EKP 24	Copper Tube with Nozzle	Each	1 no.
21	EKP 25	Plain Nozzle	Each	1 no.
22	EKP 26	Teflon Tape	Each	1 no.
23	EKP 31	Ammonia Torch	Each	1 no.
24	EKP 32	Ammonia Solution Bottle	Each	1 no.
25	EKP 33	Valve Spindle 10mm Key	Each	1 no.
26	EKP 34	Spanner 30 x 32	Each	1 no.
27	EKP 35	Spanner 11/16 x 3/8	Each	1 no.
28	EKP 36	Kit Manual Book	Each	1 no.
29	EKP 37	Steel Box	Each	1 no.
30	EKP 38	Fiber Gasket (Small)	Set	3 pcs.
31	EKP 40	Complete Base Plate	Set	2 pcs.

Emergency Kit Parts (Tonner)

Sr. No.	Products Code	Parts Name	Unit	Qty.
01	EKP 01	Hood with Vent Valve	Each	1 no.
02	EKP 02	Big Rubber Gasket	Set	3 pcs.
03	EKP 03	Tie Rod with Nut	Set	2 pcs.
04	EKP 04	Tie Rod Washer Set	Set	8 pcs.
05	EKP 05	Tie Rod Pipe Pieces	Set	6 pcs.
06	EKP 06	Complete Angle Set	Set	2 pcs.
07	EKP 07	Stud with Handle (5/8")	Each	1 no.
08	EKP 08	Small Hood	Each	1 no.
09	EKP 09	Complete Yoke	Each	1 no.
	EKP 09	Stud	Each	1 no.
	EKP 09	Cap Nut	Each	2 no.
10	EKP 11	Small Rubber Gasket	Set	3 pcs.
11	EKP 12	Blind Fiber Gasket	Set	3 pcs.
12	EKP 13	Fiber Gasket (Big)	Set	3 pcs.
13	EKP 15	Steel Patch Plate	Each	1 no.
14	EKP 16	Square Rubber Gasket	Set	2 pcs.
15	EKP 17	Round Yoke Plate	Each	1 no.
	EKP 17	Cap Screw (Big & Small)	Each	1 no.
16	EKP 19	Chain 8 ft	Set	2 pcs.
17	EKP 20	Drift Pin (Big & Small)	Each	2 pcs.
18	EKP 21	Hammer	Each	1 no.
19	EKP 23	Complete Yoke Clamp	Each	1 no.
	EKP 23	Valve Cap	Each	1 no.
20	EKP 24	Copper Tube with Nozzle	Each	1 no.
21	EKP 25	Plain Nozzle	Each	1 no.
22	EKP 26	Teflon Tape	Each	1 no.
23	EKP 31	Ammonia Torch	Each	1 no.
24	EKP 32	Ammonia Solution Bottle	Each	1 no.
25	EKP 33	Valve Spindle 10mm Key	Each	1 no.
26	EKP 34	Spanner 30 x 32	Each	1 no.
27	EKP 35	Spanner 11/16 x 3/8	Each	1 no.
28	EKP 36	Kit Manual Book	Each	1 no.
29	EKP 37	Steel Box	Each	1 no.
30	EKP 38	Fiber Gasket (Small)	Set	3 pcs.

Emergency Kit Parts (Cylinder)

Sr. No.	Products Code	Parts Name	Unit	Qty.
01	EKP 01	Hood with Vent Valve	Each	1 no.
02	EKP 02	Big Rubber Gasket	Set	3 pcs.
03	EKP 12	Blind Fiber Gasket	Set	3 pcs.
04	EKP 13	Fiber Gasket (Big)	Set	3 pcs.
05	EKP 15	Steel Patch Plate	Each	1 no.
06	EKP 16	Square Rubber Gasket	Set	2 pcs.
07	EKP 17	Round Yoke Plate	Each	1 no.
08	EKP 17	Cap Screw (Big & Small)	Each	1 no.
09	EKP 19	Chain 8 ft	Set	2 pcs.
10	EKP 20	Drift Pin (Big & Small)	Each	2 pcs.
11	EKP 21	Hammer	Each	1 no.
12	EKP 23	Complete Yoke Clamp	Each	1 no.
13	EKP 23	Valve Cap	Each	1 no.
14	EKP 24	Copper Tube with Nozzle	Each	1 no.
15	EKP 25	Plain Nozzle	Each	1 no.
16	EKP 26	Teflon Tape	Each	1 no.
17	EKP 31	Ammonia Torch	Each	1 no.
18	EKP 32	Ammonia Solution Bottle	Each	1 no.
19	EKP 33	Valve Spindle 10mm Key	Each	1 no.
20	EKP 34	Spanner 30 x 32	Each	1 no.
21	EKP 35	Spanner 11/16 x 3/8	Each	1 no.
22	EKP 36	Kit Manual Book	Each	1 no.
23	EKP 37	Steel Box	Each	1 no.
24	EKP 38	Fiber Gasket (Small)	Set	3 pcs.
25	EKP 40	Complete Base Plate	Set	2 pcs.

**See Emergency Kit Parts with product code*

Emergency Kit Parts



Hood with
Vent Valve
1 no.

EKP 01



Big Rubber
Gasket
3 pcs.

EKP 02



Tie Rod
2 pcs.

EKP 03



Tie Rod
Washer Set
8 pcs.

EKP 04



Tie Rod Pipe
Pieces Set
6 pcs.

EKP 05



Angle Set
2 pcs.

EKP 06



Stud with
Handle
1 no.

EKP 07



Small Hood
1 no.

EKP 08



Yoke
1 no.

EKP 09



Stud
1 no.

EKP 09



Emergency Kit Parts



Small Rubber
Gasket
3 pcs.

EKP 11



Blind Fiber
Gasket 1"
3 pcs.

EKP 12



Fiber Gasket
(Big)
3 pcs.

EKP 13



Cap Nut
1 no.

EKP 14



Steel Patch
Plate
1 no.

EKP 15



Square Rubber
Gasket
2 pcs.

EKP 16



Round Yoke
Plate
1 no.

EKP 17



Cap Screw
(Big & Small)
1 no.

EKP 18



Chain 8"
2 pcs.

EKP 19



Drift Pin
(Big & Small)
2 pcs.

EKP 20



Emergency Kit Parts



Hammer
1 no.

EKP 21



Valve Cap
1 no.

EKP 22



Yoke Clamp
1 no.

EKP 23



Copper Tube
1 no.

EKP 24



Plain Nozzle
1 no.

EKP 25



Teflon Tape
1 no.

EKP 26



Ammonia
Torch
1 no.

EKP 31



Ammonia
Solution
Bottle
1 no.

EKP 32



Valve Spindle
10mm Key
1 no.

EKP 33



Spanner
30 x 32
1 no.

EKP 34



Emergency Kit Parts



Spanner
11/16 x 3/8
1 no.

EKP 35



Kit Manual
Book
1 no.

EKP 36



Steel Box
1 no.

EKP 37



Fiber Gasket
(Small)
3 pcs.

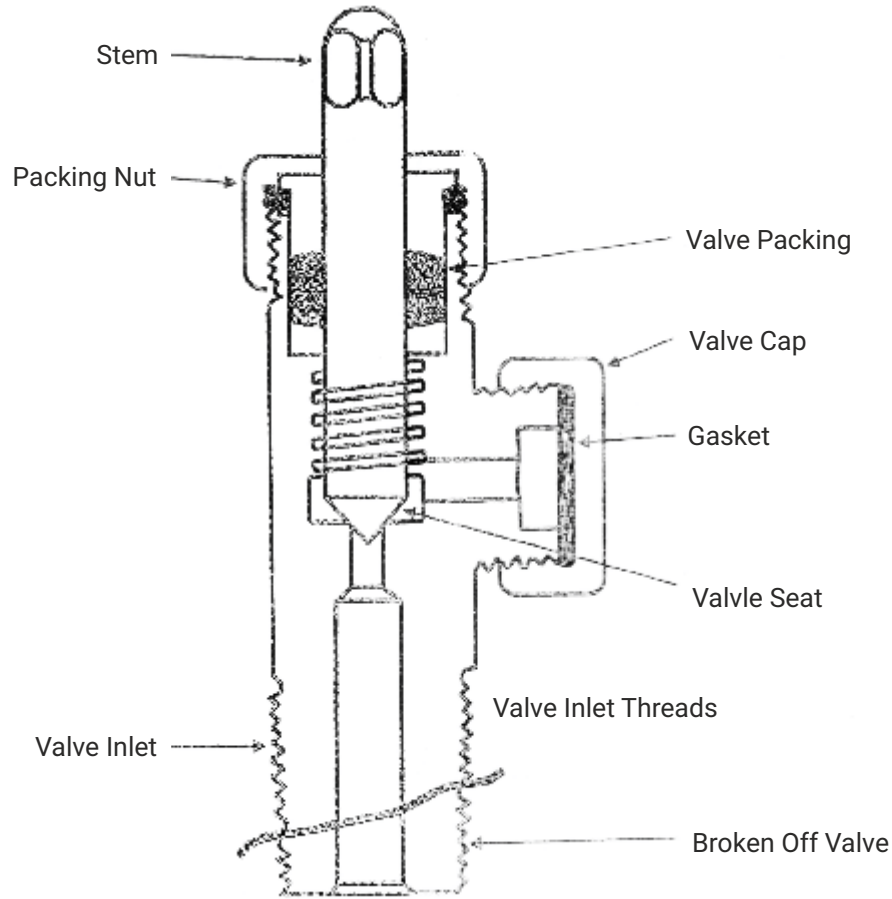
EKP 38



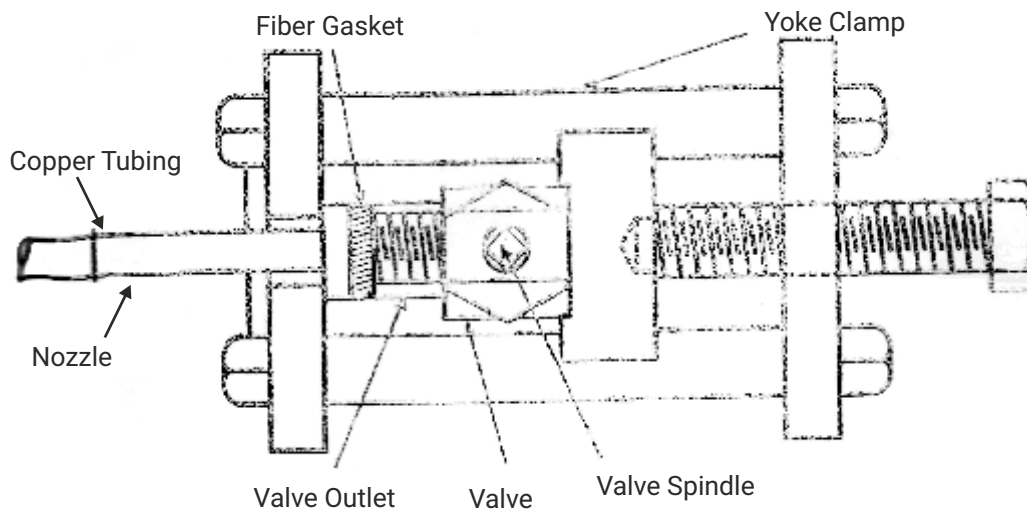
PPS with
Plastic Filter
1 no.

EKP 40



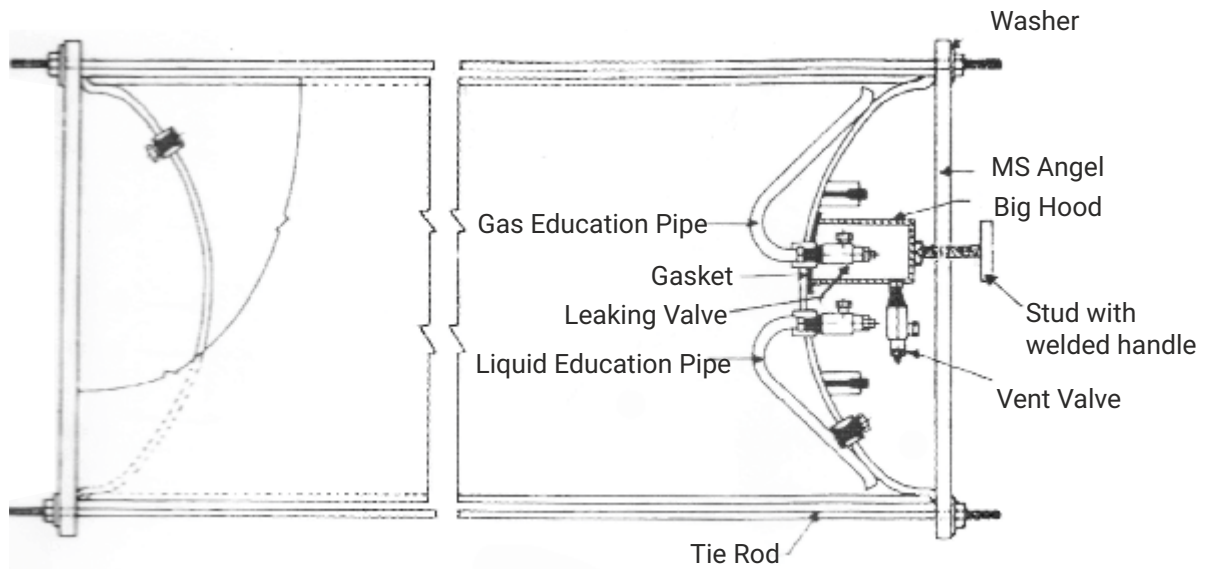


**STANDARD CHLORINE CONTAINER VALVE
(FIGURE-1)**

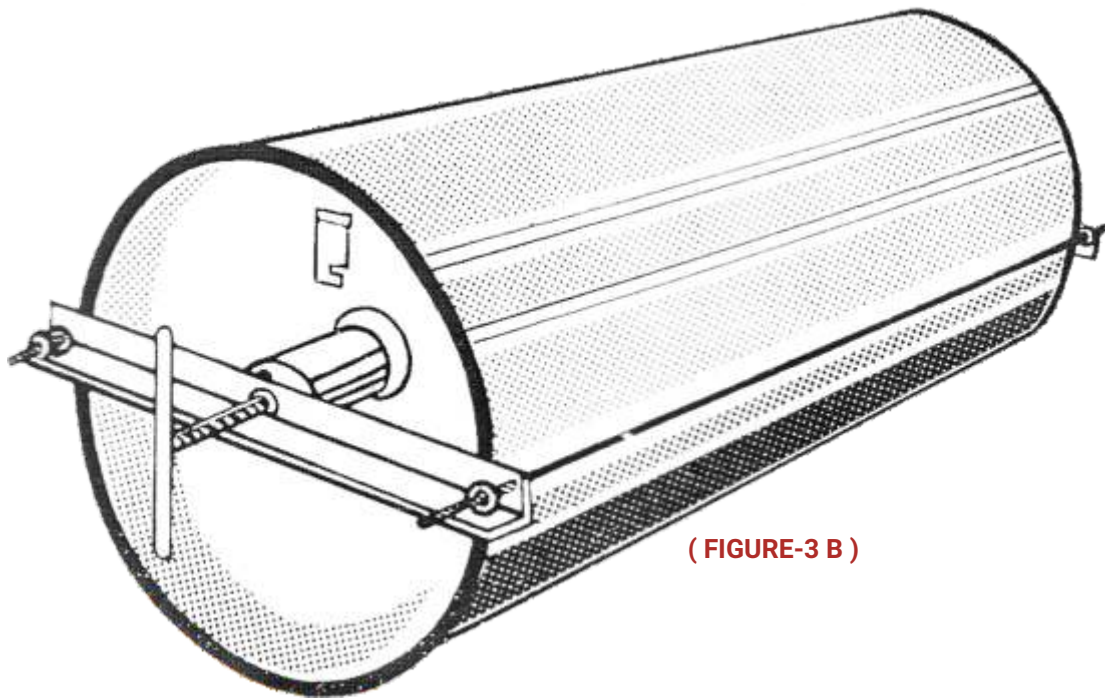


**YOKE CLAMP AND ARRANGEMENT OF CLAMPING
VALVE & NOZZLE TO THE YOKE CLAMP
(FIGURE-2)**





(FIGURE-3 A)

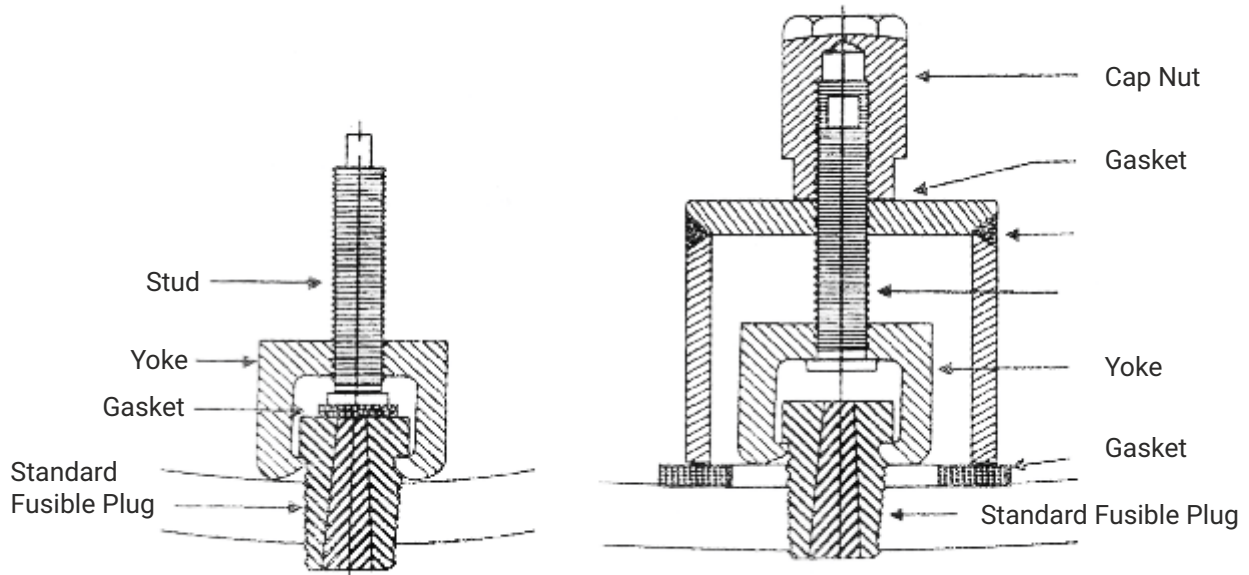


(FIGURE-3 B)

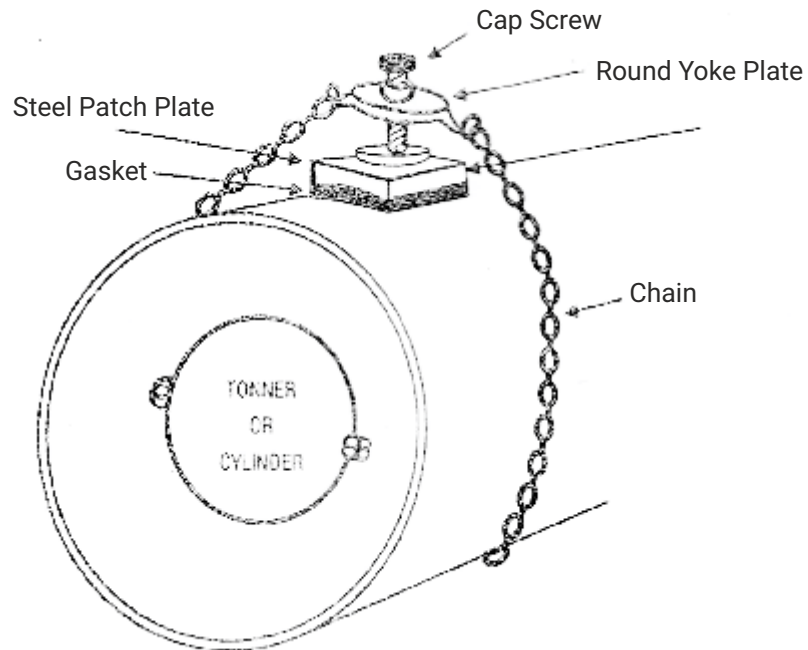
TIE ROD ASSEMBLY FOR TONNER DEVICE NO.1
(FIGURE-3)

Note: Webbing belt provided with tie rod is for the ease of holding the tie rods in position.



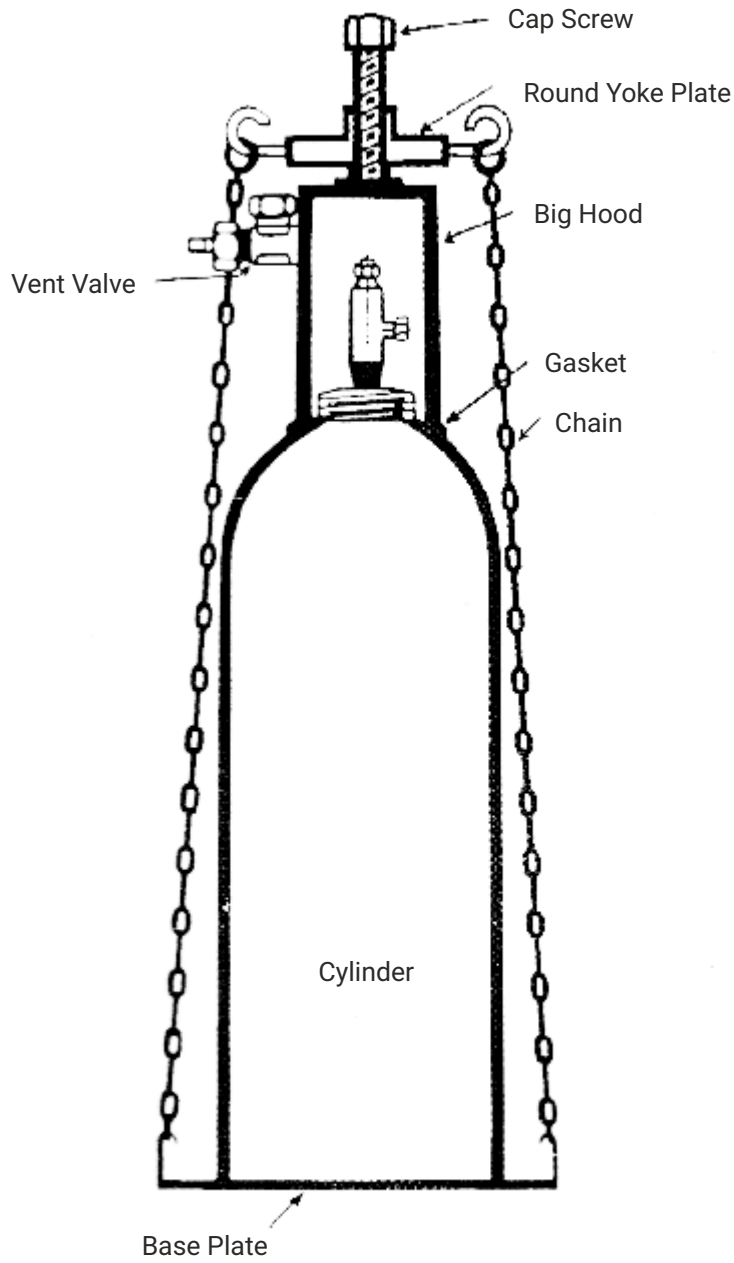


**HOOD AND YOKE ASSEMBLY FOR LAKE THROUGH
THREADS OF FUSIBLE PLUG DEVICE NO-2
(FIGURE-5)**

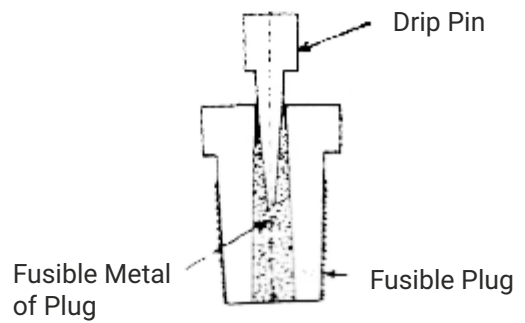


**USE OF CHAIN & ROUND YOKE PLATE FOR
TONNER CYLINDER WALL LEAK
(FIGURE-6) DEVICE NO. 3**





**CYLINDER VALVE HOOD ASSEMBLY
DEVICE NO 4
(FIGURE-7)**



**FUSIBLE PLUG
(FIGURE-4)**



The emergency kit for tonner & cylinder is designed to stop leaks from

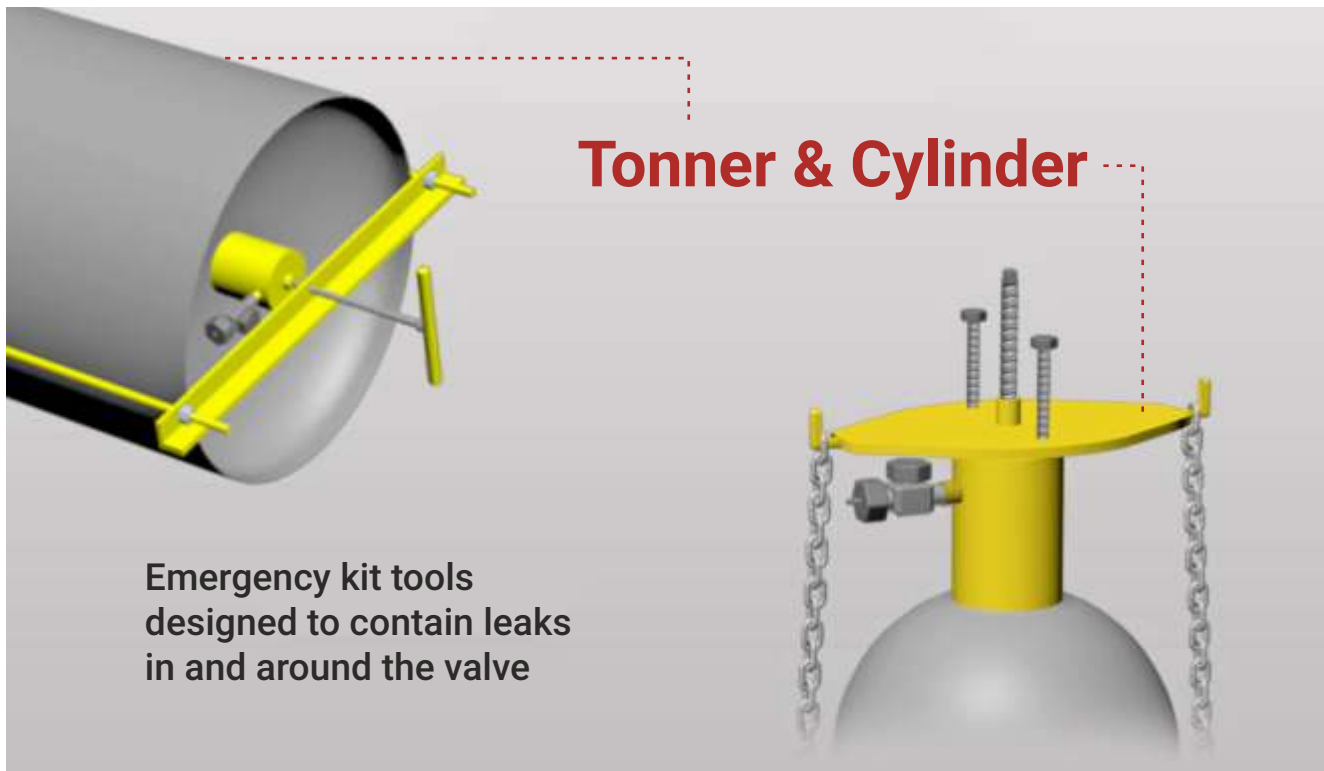


Valve seat / inlet threads / breakage of valve / defects
Fusible Plug
Side walls puncture or cracks

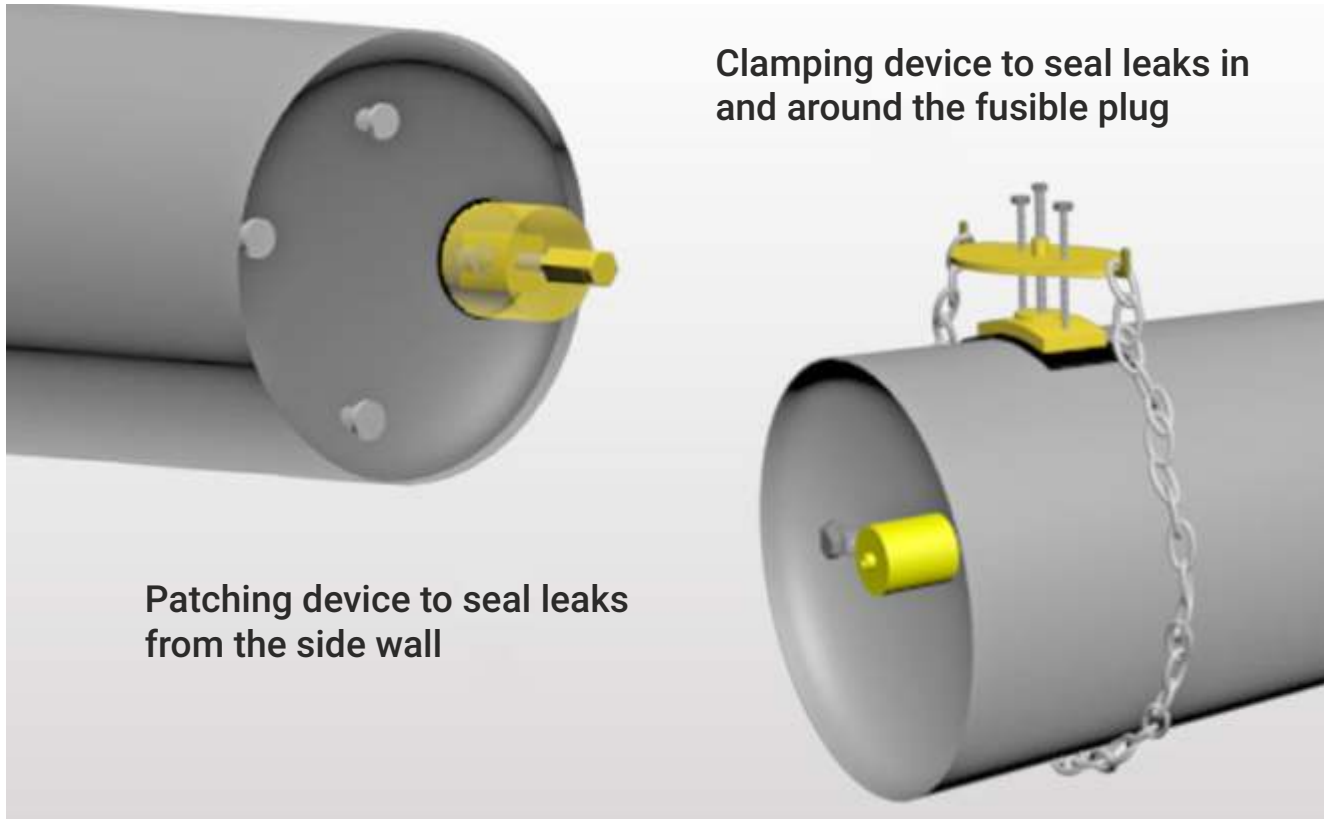


Key Features

- Universal tie rod assembly for all sizes of tonner
- Compact & Ergonomic design
- Anodised powder coating ensures higher durability & corrosion resistance
- Very easy to operate & handle
- Manual explains application of tools/devices in the kit
- Availability in ex-stock thereby faster delivery possible
- Kit components/tools come in metallic sturdy box



Emergency Kit



Emergency Kit Models

KIT CODE	GAS	TYPE	HOOD SIZE
EKP 101 - 01 A	Cl ₂ / SO ₂	Cylinder	7 inch
EKP 101 - 01 C	Cl ₂ / SO ₂	Cylinder	10 inch
EKP 111 - 01 A	Cl ₂ / SO ₂	Tonner	7 inch
EKP 101 - 01 B	Ammonia	Cylinder	7 inch
EKP 101 - 01 D	Ammonia	Cylinder	10 inch
EKP 111 - 01 B	Ammonia	Tonner	7 inch
EKP 121 - 01 A	Chlorine	General Kit	7 inch
EKP 121 - 01 B	Ammonia	General Kit	7 inch

The instruction booklet explaining the application of each device/tool is included in box.



CHLORINE / AMMONIA LEAKAGE

Point of leakage and its remedy in case of Tonner Container

POINT OF LEAKAGE	REMEDY
1. Valve Packing	: Tighten the packing nut spanner 30x32 provide in kit - Fig No.-1
2. Valve Seat	: (a) This may happen due to scale formation at valve seat, it can be stopped by opening and closing the valve using spanner 10x10 mm square provided in the kit, see Fig No. 1 (b) By putting blind fibre gasket provided in kit on valve outlet and fit valve cap by using spanner 5/8" x 3x4" provided in kit see Fig. No.1 (c) by using yoke clamp, blind fibre gasket 1" diameter and nozzle, as shown in Fig. No.2, this arrangement is best and useful even if outlet threads are worn out.
3. Valve Inlet Threads	: (a) Slowly and steadily tighten the valve in to container by using spanner 30x32 mm. (b) Or by using tie rod and big hood assembly As shown in Fig. 3A - 3B - Device No.1. This arrangement will completely cover the valve to stop any kind of valve leakage.
4. Valve Body Broken	: Use device No. 1 Mentioned above to cover the valve.
5. From fusible Metal of Fusible Plug	: (a) Force fit the small drift pin in to the hole in plug (see Fig. No. 4) with hammer. (b) Or use Device No. 2 as shown in Fig. No. 5A 4) with hammer.
6. From Threads of Fusible Plug	: (a) Gently Tighten the plug using spanner 30x32. (b) Or use Device No. 2 as shown in Fig. No. 5 B.
7. From side wall of container	: (a) Force fit the drift pin into the body hole, depending upon the size of hole select the drift pin out of 2 drift pins given. (b) Or use Device No. 3 as shown in Fig. No. 6 and explained separately.



CHLORINE / AMMONIA LEAKAGE

Point of leakage and its remedy in case of **Cylinder Container**

POINT OF LEAKAGE	REMEDY
1. Valve Packing	: Tight the packing nut by using spanner 30x32 provide in kit - see Fig No.-1
2. Valve Seat	: (a) This may happen due to scale formation at valve seat, it can be stopped by opening and closing the valve using spanner 10x10 mm square provided in the kit, see Fig No. 1. (b) By putting blind fibre gasket provided in kit on valve outlet and fit valve cap by using spanner 5/8" x 3x4" see Fig. No.1. (c) by using yoke clamp, blind fibre gasket 1" diameter and nozzle, as shown in Fig. No.2, this arrangement is best and useful even if outlet threads are worn out.
3. Valve Inlet Threads	: (a) Slowly and steadily tighten the valve in to container by using spanner 30x32 mm. (b) Or by using big hood (Device No. 4) as shown in in Fig. 7. This will totally cover the leaking valve. Device is separately explained
4. Valve Body Broken	: Use device No. 4 mentioned above to cover leaking valve securely.
5. From side wall	: (a) Force fit the drift pin into the body hole, of cylinder depending upon the size of hole select the pin out of 2 pins given. (b) Or use Device No. 3 as shown in Fig. No. 6 and explained separately.



PROCEDURE TO USE DIFFERENT DEVICES PROVIDED IN KIT

Out of the parts provided in kit, different devices can be arranged which are explained here below with reference of relevant figures.

DEVICE NO.1 (for Tonner Container) refer Fig No. 3A & 3 B. Bring the leaking valve in top position by rolling the tonner. Set the tie rods and angles as shown in figure, at the same time, put rubber gasket (Part No. 2) around the leaking valve and put the big hood with vent valve open over the gasket (Part No.1). Now tighten the hood with container wall by using stud with welded handle (Part No.7). Tighten the stud till chlorine stops leaking around gasket. Now close the vent valve.

Once leakage is stopped, use yoke clamp and nozzle arrangement to draw chlorine from vent valve on the big hood either for neutralization or for the process; as shown in Fig. No. 2.

DEVICE NO. 2 (for leakages from fusible plug on tonner container) Refer Fig. No. 5A & 5B

This device is made to stop leakage from fusible metal of fusible plug or from fusible plug threads.

A) In case of leakage from fusible metal of fusible plug use only part of this device as shown in Fig. 5 A. Insert yoke (Part No. 9) over hexagonal head of fusible plug with stud (Part No. 10) passing through it as shown in Fig. 5A. Put blind fibre gasket (Part No.12) over plug and tighten the stud over gasket so that leakage stops, stud can be tighten by using valve spindle spanner (Part No. 33). Before using arrangement ensure that fusible plug top is smooth and flat or use any tool to scrap off the fusible metal from top of fusible plug. This will provide tight grip of gasket over the fusible plug.

B) In case of leakage from fusible plug threads use this device as shown in Fig. No. 5 B. Put the rubber gasket (Part No. 11) over the leaking plug. (One or more gaskets to be used depending on how much plug is coming out in threads in container). Insert yoke (Part No. 09) with stud through it (Part No. 10) put small hood (Part No. 8) over this arrangement with stud passing through the hood. Place fibre gasket (Part No. 13) over the hood through the stud and fit cap nut (Part No. 14). Tighten the cap nut with spanner 30 X 32 (Part No. 34) till the leak stops. This arrangement will cover the leaking plug completely.

DEVICE NO:3 (for leakage from side wall of tonner or cylinder container) Refer Fig No. 6. Use chain (Part No. 19) and round yoke plate (Part No. 17) to make arrangement as shown in Fig. No. 6.

Keep tonner / cylinder on two wooden planks in such a way that leaking point is on top. Keep the round yoke plate with cap screw (Part No. 18) through it on leaking point. Attach one end of chain to hook in round yoke plate and pass the other end of chain under the tonner / cylinder and pull it to the other side.

Position the top cap screw in round yoke plate in the depression of steel patch plate (Part No. 15). Attach the free end of the chain to other side hook of round yoke plate (Part No. 16) centrally on leak and round yoke plate over steel patch plate as shown in Fig. No. 6.

Now tighten the cap screw slowly and steadily which will in turn tighten the chain giving a leak free sealing (If it is found that wall of container is weakening by tightening the screw, do not apply further pressure).



DEVICE NO: 4 (For leakage from valve thread at inlet or broken valve on the cylinder) Refer Fig. No. 7. Slide over the cylinder on base plate (Part No. 40) which are to be placed cross over each other so that cylinder can rest on base plates. Insert the rubber gasket (Part No. 2) over cylinder valve which is leaking. Put big hood with vent valve (Part No. 1) open over the gasket as shown in Fig. No. 7

Mount round yoke plate (Part No. 17) on the hood with cap screw (Part No. 18) through the same. Attach chain to hooks of round yoke plate and base plate on either side of cylinder (keep chain length minimum possible). Now tighten the cap screw over the round yoke plate by using 30 X 32 spanner to such an extent that the gasket on cylinder provides a perfect sealing.

Close the vent valve of hood and check for any leakage of chlorine from this valve and gasket on cylinder.

Make connection to the vent valve of hood by flexible copper tubing provided in kit. It is advisable to use yoke clamp and nozzle arrangement as shown in Fig. No. 2, to draw chlorine either to the process or for neutralization.

Note: In case of a valve on cylinder or both the valve on the tonner are jammed, puncture the same hole at the point in the valve where valve spindle is resting on the seat and use device no. 1 or 4 as explained earlier for tonner or cylinder respectively.

DISPOSAL OF CHLORINE

After stopping the leak, important task is to dispose off the chlorine remaining in the cylinder/tonner. If possible the remaining chlorine should be immediately used in consumer's process. This should be done by using arrangement as shown in Fig. No. 2. Please note that kit is provided with one yoke clamp to stop leak through valve seat but extra clamp can be provided at extra cost.

If consumer's process does not permit more consumption of remaining chlorine, it may be passed in the solution of dilute caustic soda or soda ash. For your ready reference, each **100 Kg** of chlorine to be absorbed require either **125 Kg** of caustic soda dissolved in **360 liters** of water or **300 Kg** of soda ash dissolved in **850 liters** of water. The absorption of chlorine gas depends upon the concentration of the liquid and mass contact. As a guideline the rate of chlorine should be kept in such a way that no unabsorbed chlorine comes out from the neutralization system.



USE OF SAFETY EQUIPMENTS

Kit is provided with some personal safety equipment which should be used in normal course of handling chlorine as well as in emergency.

PVC Apron can protect against splash in case of liquid chlorine and keeps the clothes clean.

PVC Hand gloves protect naked hands.

Gas tight rubber goggles seal the eyes of person in chlorine atmosphere.

Gas Mask with Cartridge:

This is one of the important part of kit. It can within its limit help to attend chlorine atmosphere by providing fresh chlorine free air to attendant. Person attending the leak should wear rubber mask securely on face. Chlorine Cartridge provided to be worn as shown in Fig. No. 8 and the mask should be connected to Cartridge.

When ready with Cartridge and gasmask on face remove the sticker type seal on the bottom of Cartridge. This arrangement will provide fresh air with chlorine absorbed in Cartridge to the attendant.

Please note Cartridge has limitation of time depending upon concentration of chlorine.

Fresh Airline Respirator:

This equipment is very ideal to work for long time in chlorine atmosphere because it provides fresh air to attendant from a remote supply of air.

We once again mention that regular drills of using the kit will help the attendant to stop leakage in very short time which is very essential.



UNIVERSAL RING

Universal Ring for Chlorine Tonner



Universal Ring is used as a safety device at the time of leakages or damages in Chlorine tonner valve. Easy to handle, can avoid major accidents due to leaks and damages in tonner valves.


Universal Ring comes along with Emergency Kit for Chlorine Tonner or it can be ordered separately.





Scan QR code to
download catalogues

MARK SAFETY APPLIANCES

 **Regd. Office, Warehouse & Workshop:**
Plot No. 92, 93, Shah Industrial Park-3 at Kotambi,
Pin Code 391510, Vadodara-Halol Highway,
Dist. Vadodara, Gujarat, India.

 02668 299065  info@marksafety.com

 www.marksafety.com

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