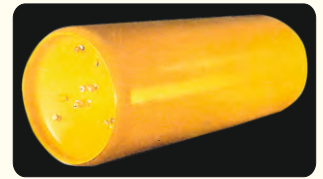




Model - D



Ton Containers

Safety through Design. Safety through Quality.

Isgec has been manufacturing & supplying Ton Containers for Chlorine & other Liquefiable gases and Pressure Vessels for **nearly 50 years**. Till date Isgec has supplied **over 3,00,000 Containers in 60 countries** and is today the **largest manufacturer of Ton Containers in the world**.

Proof of our performance and the numerous repeat orders we have received from customers around the world. We have been granted Patents for such Containers in **USA, Mexico and India**.

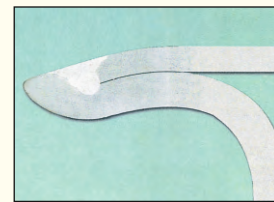
• Safety through Welding Technique:

For Isgec Model 'D' Containers, we use the superior **Fusion Welding** process for all joints (including Head to Shell Joint).



Our **Complete Joint Penetration (CJP) Groove Fusion Welding** both of Longitudinal and Circumferential Seams is far more superior than Forge Welding as well as Fillet Welding techniques

It has an allowable stress which is the same as that of the base metal.



A cut section of Welded Head to Shell Joint of an ISGEC Ton Container, showing complete Fusion even at the root of the Weld.



Forge Welding*

Uncertain dispersion of oxides at interface of work pieces. Does not allow complete inter-atomic bonds to be develop



Fillet Welding#

The root of joint is not fully penetrated
Chances of crack initiation from root of joint
Allowable Stress – only 30% of tensile strength of filler material
• X-ray not possible

* Reference - Welding Metallurgy – Vol 1, Publishers: American Welding Society, Fourth Edition, 1994 (Page 590)

Reference - As per AWS D1.1/D1.1M:2010 (Clause 2 Design of Welded Connections)

• Safety through Prototype Testing:

The design has been further verified by putting prototypes of ISGEC Containers through rigorous tests. These tests have been conducted at our Plant and were **witnessed by a representative of the DOT, USA**.

The tests were also successfully repeated at **Authorised Testing Inc., California**, an independent test house in USA.

On deliberately over-pressurising the Container, it was established that first the **chimed ends open**. On further increase in pressure, the **head reverses**. Both these steps give a clear visual warning of the danger. This process also increases the volume of the Container resulting in reduction of pressure. The prototype test proved that there was no leakage even up to a pressure of 1250 PSIG which is nearly 3.4 times the design pressure of 370 PSIG.



The tests conducted in the presence of DOT representative and repeated in California, confirmed that when over-pressurized, the chimed ends opened and the head reversed, providing additional volume and enhanced safety



(Approved by
Department of Transportation, USA
and Transport Canada, Canada)

DOT approved, Isgec Model 'D' Containers of 2053 lbs (931 kg) Chlorine capacity.
We also manufacture these Containers in 2205 lbs (1000 kg) Chlorine Capacity.

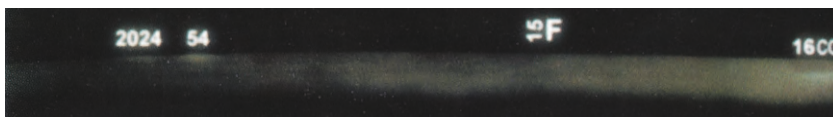
ISO 9001:2008
ISO 14001:2004
OHSAS 18001:2007



Code Stamping For Specialised Equipment Only

• Safety through 100% X-Ray:

The Fusion Welding process for all joints enables us to establish the quality of the welded joints by 100% X-Ray of all main joints, including the Head to Shell Joint.

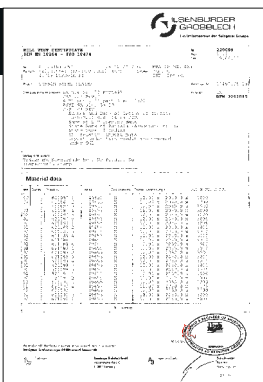


Such X-Rays prove that all welds are sound

• Safety through Better Material:

Isgec Ton Containers are made from ASTM A 516 Gr.70 material which has a **higher strength** and **better resistance to brittle failure** than ASTMA285 Gr.A.

Steel used for manufacture of ISGEC Ton Containers is inspected by Lloyd's Register of Shipping at the steel mills.



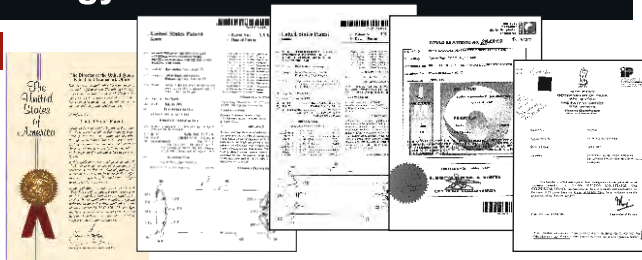
Test Certificate received from Steel Mill

Properties	Material	
	ASTM A 516 Gr. 70	ASTM A 285 Gr. A
Ultimate Tensile Strength	70 - 90 ksi	45 - 65 ksi
Yield Strength	38 ksi (minimum)	24 ksi (minimum)

• Safety through Technology:

Patents: USA • Mexico • India

Isgec has been awarded **2 Patents by the United States Patent & Trademarks office** relating to the design & technique for manufacture of Ton Containers used for transporting hazardous gases.



Memberships:

Clorosur, Sao Paulo



Chlorine Institute, USA



Euro Chlor, Belgium



RUSCHLOR, Russian Association



• Safety through Inspection:

Isgec Ton Containers are inspected at over **20** stages of manufacture.

We offer Containers inspected by **reputed third party inspection agencies** such as Lloyd's.

• Specifications : Model 'D' Container

Design & Manufacture approved by	: • Department of Transportation (DOT), USA • Lloyd's Register
Design Construction Code	: 49 Code of Federal Regulations meeting requirements of 106A - 500W with exemption complying with DOT SP - 12277 CAN/CGSB-43.147-2005 Standard applicable to specification TC 106A500X and Equivalency Certificate SU-8722
Chlorine Capacity	: 2053 lbs (931 Kg)
Head to Shell Joint	: Fusion Welded & 100% X-Rayed
Longitudinal Shell Joint	: Fusion Welded & 100% X-Rayed
External Coating	: Zinc Coating to provide Cathodic Protection Against Corrosion

• Standard Accessories

- Two Valves of size 3/4"-14 NGT CL-1 to ANSI B-57.1 Body - Brass or Aluminium Silicon Bronze Spindle - Stainless Steel or Monel
- Six Fusible Plugs of size 3/4"-14 NGT CL-1 Body - Aluminium Silicon Bronze or Brass
- One Carbon Steel Valve Protection Bonnet

Options

- 2205 lbs (1000 kg) Chlorine capacity
- Eight Fusible Plugs of size 3/4"-14 NGT CL-1 Body - Aluminium Silicon Bronze or Brass
- Finish Painting - to customers' requirement

Shipping

- 18 Nos in 20' Sea Freight Container

Containers for other Gases

- | | | |
|------------------|-------------------|----------|
| • Ammonia | • Methyl Chloride | • R-22 |
| • Chlorine | • Methyl Amine | • R-134a |
| • Dimethylamine | • Sulphur Dioxide | • R-12 |
| • Ethyl Chloride | • Trimethylamine | • R-114 |

Safety Kit



Isgec Ton Containers are compatible with the Chlorine Institute, USA Safety Kit 'B'.



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