

# DURA-CYL LIQUID CYLINDERS

## 焊接绝热气瓶

美国查特实业公司是全球最大的设计及制造各种深冷液体真空绝热贮存及运输设备的专业公司，产品覆盖整个低温液体的供应链。其下属的MVE品牌焊接绝热气瓶(简称绝热气瓶)具有超过40年生产历史, 并是世界同行业中销量最大最负盛名的品牌。位于美国乔治亚州坎顿市的MVE绝热气瓶制造中心拥有多项专利, 其产品以其质量高、损耗低、寿命长的性能, 已在全球得到广泛的应用。

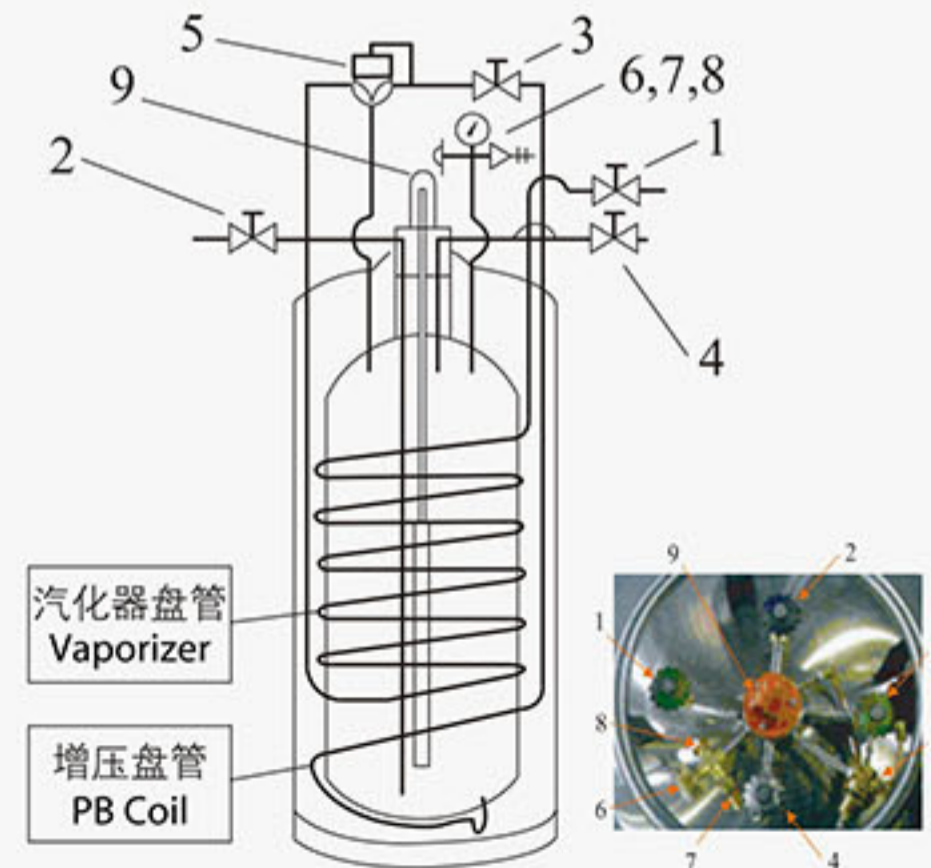
位于常州的查特分公司, 采用查特MVE全部的关键技术和设备, 并直接从美国进口各种原材料和配件, 其产品质量已完全达到美国查特公司要求, 并符合国际和我国的技术标准。目前主要生产160-200升中压、高压及超高压绝热气瓶、230升低压以及390升和450升中高压移动气瓶。

## 焊接绝热气瓶配置释义 Dura-Cylinder

1. 气相阀—输出气体用
  2. 充装/液体阀—充装或输出液体
  3. 压力控制阀—控制(接通/断开)压力控制调节器
  4. 放空阀—释放压力
  5. 组合式压力控制调节器—自动控制
  6. 压力表
  - 7-8. 压力表、安全阀、爆破片
  9. 液位表—焊接绝热气瓶中液体存量
1. Gas-use Valve — For gas withdrawal
  2. Fill/Liquid Valve — For filling or liquid withdrawal operations
  3. Pressure Control Valve — To isolate the pressure control regulator (on/off)
  4. Vent Valve — To vent pressure
  5. Combination Pressure Control Regulator — Automatically controls operating pressure
  6. Pressure Gauge — Indicates cylinder pressure
  - 7-8. & 8. Relief Valve, Rupture Disk
  9. Liquid Level Gauge — To display the liquid contents of the cylinder

Chart Industries, is the leading supplier in the worldwide cryogenic storage and transportation equipment industry. Its wide range of products covers the whole supply chain of the cryogenic liquid industry. Chart's MVE liquid cylinder product line has over 40 years' experience and enjoy the largest sales volume all over the world. Chart's manufacturing center in Canton, Georgia, USA, has many patents in design and manufacturing. MVE liquid cylinders are widely used all over the world for their high quality, low loss and long life.

Chart Changzhou, which is wholly owned by Chart Ind., adopts all the technologies and equipment from Chart and imports all kinds of raw material of liquid cylinders directly from the USA. Chart Changzhou's products meet all of Chart's quality standard, as well as international and Chinese codes. Now Changzhou has the available models:160~200MP/HP, 200VHP, 230LP and 390~450MP/HP.



Features

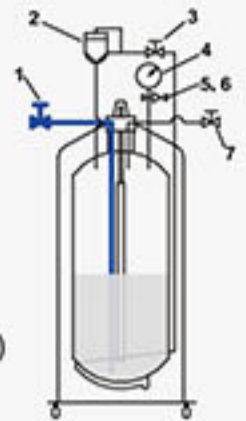


### 最新推出 / New Product:

低压杜瓦瓶DC230LP / Low pressure model: DC230LP

- 高真空绝热保温 / High-performance super insulation
- 超低汽化损失 / Minimum product vapor loss
- 便捷的移动及搬运 / Conveniently move and transport
- 低压液体输送 / Low pressure liquid supply
- 适合实验室、生物容器运用 / Suitable for Lab and Bio-freezer application

1. 液相阀 / Liquid valve
2. 调压阀 / Regulator(18PSI)
3. 增压阀 / PB valve
4. 压力表 / PG(0~100PSI)
5. 安全阀 / RV(22PSI)
6. 爆破片 / Rupture Disc(200PSI)
7. 放空阀 / Vent valve



### 产品优势 / Advantages:

- 行业领先查特独有的真空技术 / Industry-leading proprietary chemical gettering for long-life vacuum integrity
- 可重复使用的真空抽口便于维护 / Reusable pump-out port for vacuum maintenance
- 100%氧清洗—不是所有制造商能做到 / 100% oxygen clean components and procedures
- 稳定持续的供气供液能力 / Full-length, automatically soldered vaporization coils provide constant gasflow rates unmatched by competitors

### 型号规格 Specifications

Model/规格		160		180		200		230	
Pressure/压力		MP	HP	MP	HP	MP	HP	VHP	LP
Capacity/容量 (Liters/升)	Gross/几何容积	176		196		209		204	240
	Net/净容积	165		185		196		200	230
Dimensions & Pressure Setting/尺寸和(安全阀)开启压力设定值									
Relief Valve Setting 安全阀设定	Psig/MPa	230/ 1.6	350/ 2.4	230/ 1.6	350/ 2.4	230/ 1.6	350/ 2.4	500/ 3.5	22/ 0.15
Diameter/直径	厘米	50.8							
Height/高度	厘米	151.3		161.3		167.1			160
Empty Weight (kg) /空重(公斤)		113.4	126.9	117.9	136.1	126.9	145.1	170	142
Full Weight (kg) /满重(公斤)	N <sub>2</sub> *	234	241	253	263	271	280	286	324
	O <sub>2</sub> *	285	290	309	318	331	339	349	400
	Ar *	322	325	351	357	375	380	386	460
	CO <sub>2</sub> *		303		331		353		354
	N <sub>2</sub> O *		293		321		343		344
Standard Volume/标准状态下气体 体积(Nm <sup>3</sup> )	N <sub>2</sub> *	97	91	108	102	115	108	93	
	O <sub>2</sub> *	120	114	134	127	143	133	123	
	Ar *	117	111	130	124	139	130	120	
	CO <sub>2</sub> *		89		99		105		93
	N <sub>2</sub> O *		84		94		100		88
Performance/性能									
NER(% per day)/ 日蒸发率(%每天)	N <sub>2</sub>	2.1		2.0		2.0		2.2	1.5
	O <sub>2</sub> Ar	1.4		1.3		1.2		1.4	0.8
	CO <sub>2</sub> N <sub>2</sub> O		0.5		0.5		0.5		0.5
Gas Flow/气流(Nm <sup>3</sup> /hr)	N <sub>2</sub> , O <sub>2</sub> , Ar	9.2		9.2		10.5		9.2	
	CO <sub>2</sub> , N <sub>2</sub> O		2.9		2.9		2.9		2.9

\*At relief valve settings/在安全阀(开启压力)设定值条件下

# MEGA-CYL PALLETIZED CYLINDERS

## 框架式焊接绝热气瓶

查特常州MEGA-CYL系列气瓶是带框架式的高真空低温绝热气瓶，属移动式容器，其容积有390L和450L两种，工作压力有中压(MP)和高压(HP)。框架式结构便于搬运，对气瓶也可起到保护作用。产品容积大，蒸发率低，可长时间保存液体，减少产品损失。

The MEGA-CYL series is Chart's line of palletized cylinders designed for easy transport with capacity 390 liters and 450 liters. Mega Cyl -cylinders are available in all services at 230psig (15.8barg) and 350psig(24barg) and are specifically designed to optimize distribution costs.

### 产品特点 Product Highlights

- 全不锈钢结构，坚固、耐用
- 框架式结构，运输方便
- 高真空绝热保温
- 操作简单、方便
- 差压式液位计，精确、可靠
- Tough, Durable stainless steel construction
- Palletized cylinder for easy transport
- High-performance super insulation
- Easily accessible valves and gauges
- Accurate differential pressure contents gauge

### 配置释义 Nomenclature

- |          |   |
|----------|---|
| 1. 气相阀   | 1. Gas Use Valve                          |
| 2. 充装阀   | 2. Fill / Liquid Valve                    |
| 3. 增压阀   | 3. Pressure Control Valve                 |
| 4. 排放阀   | 4. Vent Valve                             |
| 5. 调压阀   | 5. Combination Pressure Control Regulator |
| 6. 差压液位计 | 6. Differential Liquid Level Gauge        |
| 7. 压力表   | 7. Pressure Gauge                         |
| 8. 安全阀   | 8. Relief Valve                           |
| 9. 爆破片   | 9. Rupture Disk                           |



### 规格特性表 Specifications

型号/Model		MC390MP MCR	MC390HP MCR	MC450MP MCR	MC450HP MCR	
尺寸/Dimensions	单位/Unit					
瓶体直径/Cylinder Diameter	厘米/cm	75	75	75	75	
瓶体高度/Cylinder Height	厘米/cm	141	141	156	156	
框架长度/Frame Length	厘米/cm	86	86	86	86	
框架宽度/Frame Width	厘米/cm	86	86	86	86	
框架高度/Frame Height	厘米/cm	200	200	200	200	
瓶体空重/Empty Weight	公斤/kg	197	242	216	266	
框架重/Frame Weight	公斤/kg	164	164	164	164	
充装液体重量 Liquid Fill Weight (在安全阀设定压力下)	N <sub>2</sub>	公斤/kg	272	256	314	294
	O <sub>2</sub>	公斤/kg	387	366	445	420
	Ar	公斤/kg	470	445	539	511
	CO <sub>2</sub>	公斤/kg	/	392	/	452
	N <sub>2</sub> O	公斤/kg	/	372	/	427

#### 技术指标/Technical Specifications

安全阀设定压力/Relief Valve Setting	Psig/MPa	230/1.58	350/2.41	230/1.58	350/2.41
日蒸发率(%每天) NER(per day %)	N <sub>2</sub>	1.84%	1.84%	1.80%	1.80%
	O <sub>2</sub> Ar	1.50%	1.50%	1.40%	1.40%
	CO <sub>2</sub>	/	0.60%	/	0.50%
几何容积/Gross capacity	升/Liter	390	390	450	450
净容积/Net Capacity	升/Liter	371	371	428	428

#### 标况下气体体积/Standard Volume

氮/N <sub>2</sub>	Nm <sup>3</sup>	218	391	252	233
氧/O <sub>2</sub>	Nm <sup>3</sup>	262	253	302	292
氩/Ar	Nm <sup>3</sup>	251	246	289	284
二氧化碳/CO <sub>2</sub>	Nm <sup>3</sup>		197		227

#### 气流/Gas Flow

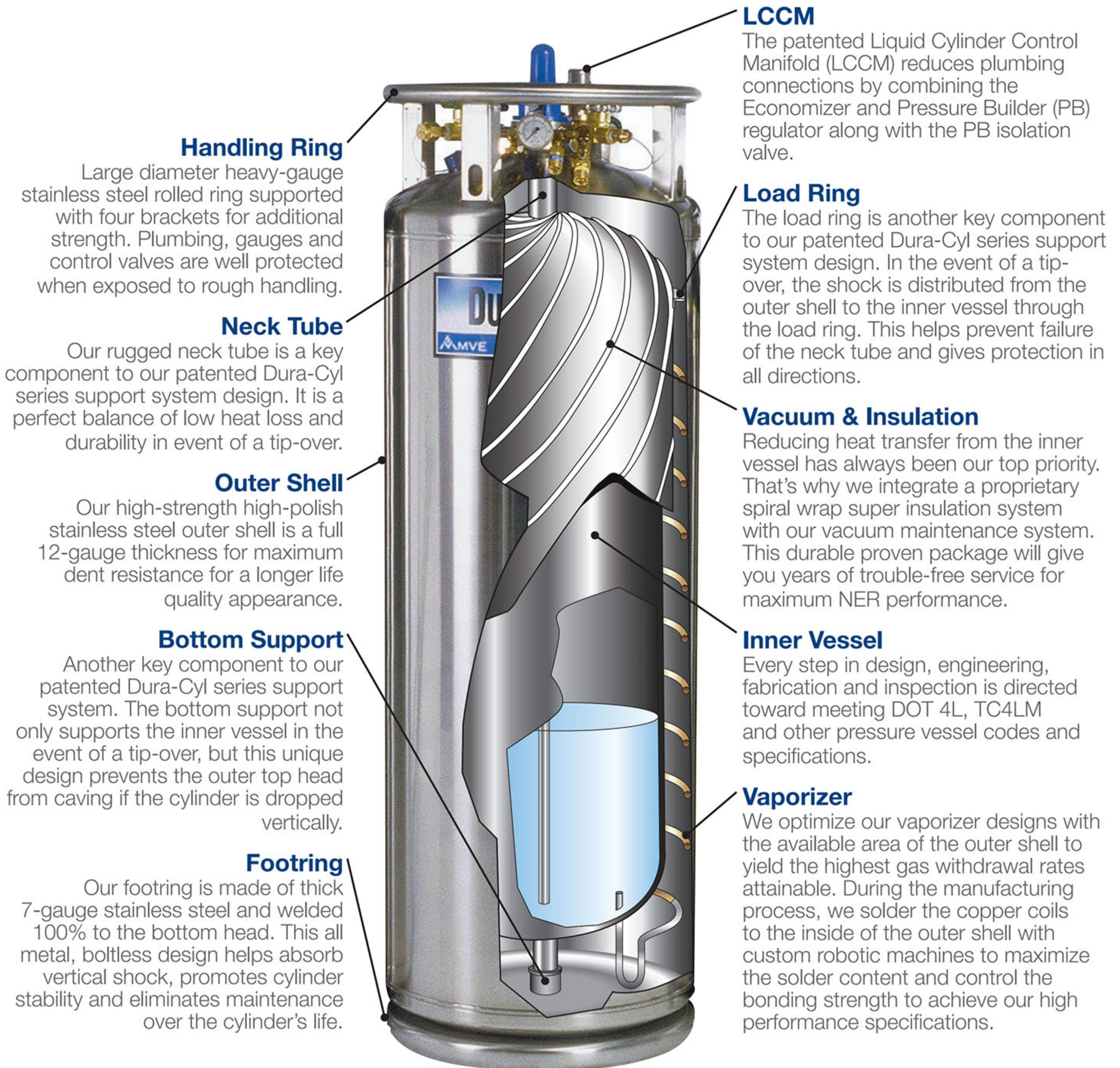
N <sub>2</sub> , O <sub>2</sub> , Ar	Nm <sup>3</sup> /hr	15.1	15.1	15.1	15.1
CO <sub>2</sub>	Nm <sup>3</sup> /hr		5.1		5.1

# Engineered for Efficiency – Built to Last

At Chart we have always taken pride in developing the best thermal insulation system possible in our liquid cylinder storage tanks. Years of experience have driven us to engineer our multi-layer Composite Super Insulation™ system to achieve the ultimate thermal protection in our liquid cylinder storage equipment. Providing the best insulation system to protect your valuable gases from harsh ambient conditions results in lower pressure rise and lower losses, yielding better gas utilization. Our Super Insulation and Chart Vacuum Technology® is at the core of why Chart storage tanks are recognized around the world as the premier cryogenic storage tank.



## Dura-Cyl®



### **Handling Ring**

Large diameter heavy-gauge stainless steel rolled ring supported with four brackets for additional strength. Plumbing, gauges and control valves are well protected when exposed to rough handling.

### **Neck Tube**

Our rugged neck tube is a key component to our patented Dura-Cyl series support system design. It is a perfect balance of low heat loss and durability in event of a tip-over.

### **Outer Shell**

Our high-strength high-polish stainless steel outer shell is a full 12-gauge thickness for maximum dent resistance for a longer life quality appearance.

### **Bottom Support**

Another key component to our patented Dura-Cyl series support system. The bottom support not only supports the inner vessel in the event of a tip-over, but this unique design prevents the outer top head from caving if the cylinder is dropped vertically.

### **Footring**

Our footring is made of thick 7-gauge stainless steel and welded 100% to the bottom head. This all metal, boltless design helps absorb vertical shock, promotes cylinder stability and eliminates maintenance over the cylinder's life.

### **LCCM**

The patented Liquid Cylinder Control Manifold (LCCM) reduces plumbing connections by combining the Economizer and Pressure Builder (PB) regulator along with the PB isolation valve.

### **Load Ring**

The load ring is another key component to our patented Dura-Cyl series support system design. In the event of a tip-over, the shock is distributed from the outer shell to the inner vessel through the load ring. This helps prevent failure of the neck tube and gives protection in all directions.

### **Vacuum & Insulation**

Reducing heat transfer from the inner vessel has always been our top priority. That's why we integrate a proprietary spiral wrap super insulation system with our vacuum maintenance system. This durable proven package will give you years of trouble-free service for maximum NER performance.

### **Inner Vessel**

Every step in design, engineering, fabrication and inspection is directed toward meeting DOT 4L, TC4LM and other pressure vessel codes and specifications.

### **Vaporizer**

We optimize our vaporizer designs with the available area of the outer shell to yield the highest gas withdrawal rates attainable. During the manufacturing process, we solder the copper coils to the inside of the outer shell with custom robotic machines to maximize the solder content and control the bonding strength to achieve our high performance specifications.