Products

- Additive dosing skid (for MS & HSD)*
- Blue dye dosing skid (For SKO)
- Marker dosing skid, Odoriser injection skid (for LPG)
- Friction Buster & Dye injection skid (for MS)
- Lubricity additive & Cetane Improver skid (For HSD)
- Additive injection panel.
- Gas, LPG metering Skid.
- Liquid Filtration skid.
- Basket strainer.
- Basket strainer cum air eliminator.
- Bulk air eliminator.
- Prover tank.
- Gas separator.
- Pig launcher and Receivers.
- Turbine flow Straightener.
- Sr. Orifice and USM meter run as per AGA standard.
- Air receiver.
- Condensing Pot.
- Air Header.
- Relaxation Chamber.

Support

whether you are an OEM or responsible for optimizing the daily maintenance, repair, and operation of your facility, you can contact us for support with technical details, product selection, and equipment design.

Contact Cryogenic Liquide for details

Visit our website at www.cryogenicliquide.com

E-mail: support@cryogenicliquide.com

Works:
187, POR, G.I.D.C, Ramangamdi industrial estate, Baroda 391243, Gujarat, India.

Phone: + 91 265 2831501 | + 91 265 2831289
Fax: + 91 265 2831501
E-mail: nilesh.patel@cryogenicliquide.com | cryogenicliquide@gmail.com | cryogenicliquide@icloud.com
Website: www.cryogenicliquide.com

The contents of this publication are for information only it is not to be considered as warranties or guarantees.
Cryogenic Liquide reserves the right to modify or change specification of any products at any time without notice.

Cryogenic Liquide
Private Limited

Solution for Metering, Dosing Blending & Terminal Automation
Solution for Metering, Dosing, Blending for Terminal Automation:

Cryogenic Liquide Pvt Ltd, a self-made engineering company established in 2003 & ISO 9000: 2008 company, manufactures a wide range of products for different sectors of the market like Energy, Oil and Gas, Power, Chemical, Automobile industry.

Cryogenic Liquide Pvt Ltd is located at POR GIDC, 20 Kms from Baroda Towards Mumbai on National Highway no. 8 in the State of Gujarat.

We develop and manufacture equipments that are consistent in quality and designed as per customers’ specifications/requirements. The company has manufactured equipments for all leading terminal automation contractors in India for various oil marketing companies.

We are highly experienced, qualified, reliable and resourceful team of engineers working in this field for the last seven years. We have credit & track record of giving quality work within stipulated time frame as specified by customer.

List of Customers:

- Indian Oil Corporation Limited
- Bharat Petroleum Corporation Limited
- Hindustan Petroleum Corporation Limited
- Daniel Measurement & Controls India Pvt Ltd
- Reliance Industries Limited
- Larson and Toubro Ltd. Elg
- Larsen and Toubro Ltd MHI Division
- Chemtrols Industries Limited
- G E Oil and Gas Measurement and Control
- Thermax Ltd
- Endress + Hauser India Pvt Ltd
- Adani Ports and Special Economic Zone Ltd
- Areva T & D
- Jindal Saw Ltd

We have worked with third party inspection agencies like EIL, MECON, PDIL, JACOB H & G, DNV, BVIS, SGS, IRS, LLOYDS, PABSTA, TUV, TATA PROJECTS. ETC.

- F. Harley And Co.
- Gulbrandsen Chemicals USA
- Asta Inc USA
- T D Williamson
- Liquid Controls India Pvt Ltd. Idex Corp.
- Welspun Gujarat Ltd.
- Banco Products Ltd.
- Tyco Valves And Controls India Ltd Pent Air
- Cairn Energy India Ltd
- Emerson Process Management
- Alstom India Ltd
- ABB India Limited
- Voith Hydro Pvt Ltd
- Cardolite
Basket Strainer:

Cryogenic offers Basket type strainers for variety of installations and conditions and designed for straining and filtering of wide variety of fluids. As unfiltered liquid enters the strainer it will directly passes through basket in which almost all impurities trapped into the basket and only clean liquid will pass through the outlet of strainer. Advanced dynamic flow and large filtering area elements ensure low pressure drops and reduce maintenance period. Also it is designed such that it will not allow any bypassing of the liquid without filteraon as basket is prevented by “O” Ring seal between basket flange and strainer internal flange. As well as retain position of basket even in case of reverse flow. Basket strainers are normally installed before the filteraon as basket is prevented by “O” Ring seal between basket flange and strainer internal flange. As well as maintain period. Also it is designed such that it will not allow any bypassing of the liquid without filteraon. Advanced dynamic flow and large filteraon area elements ensure low pressure drops and reduce.

Features and Benefits:

- Strainers are bidireconal. It can be installed for flow direction Left to Right as well Right to Left.
- Baskets are easily removable.
- Large Filtering Area.
- Carbon Steel or Stainless Steel Housing.
- Normally design for free flow area through screen, 2-3 times pipe flow area, higher can be designed.
- Fasteners will be ASTM A 193 Gr B7/ASTM A 194 Gr.2H

Basket Strainer Dimension For 150#. For Other Class Please Consult our Factory:

<table>
<thead>
<tr>
<th>SIZE</th>
<th>INCHES</th>
<th>MM</th>
<th>A END TO END NOZZLE</th>
<th>B TOP FLANGE TO NOZZLE</th>
<th>C NOZZLE CENTRE TO DRAIN</th>
<th>D TOP COVER TO BOTTOM DRAIN</th>
<th>E OVERALL</th>
<th>WEIGHT IN KGS</th>
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Duplex Basket Strainer:

Duplex basket strainers are used mainly where continuous operation without shutdown is required. In this type of design flow will bypass and re-enter to main product line. This allows one side for service when other stream is into operation. Normally Duplex filters are equipped with two way ball valve with equalizing tee, between two basket filter body.

We have credit of supplying a more than 3200 units by 2014.

Ordering Information:

1) Type of strainer
   - T1 Simplex.
   - T2 Duplex.
   - T3 Jacketed.

2) Nominal Size mm
   - 00-1*(25 mm)
   - 01-11/2*(40 mm)
   - 02-2*(50 mm)
   - 03-3*(80 mm)
   - 04-4*(100 mm)
   - 05-6*(150 mm)
   - 06-8*(200 mm)
   - 07-10*(250 mm)
   - 08-12*(300 mm)
   - A123

3) Flange rating
   - F1 – ANSI B 16.5 150#
   - F2 – ANSI B 16.5 300#
   - F3 – ANSI B 16.5 600#
   - F4 – ANSI B 16.5 900#
   - F5 – ANSI B 16.5 1500#

4) Material of construction
   - A. ASTM A 106 Gr.B (BODY) & ASTM A 105 (FLANGES)
   - B. IS 2062 GR.B (BODY) & ASTM A 105 (FLANGES)
   - C. ASTM A 312 TP 304 (BODY) & ASTM A 182 F304 (FLANGES)
   - D. ASTM A 312 TP 316 (BODY) & ASTM A 182 F316 (FLANGES)
   - E. ASTM A 516 GR 70 (BODY) & ASTM A 105 (FLANGES)
   - F. ASTM A 333 GR 6 (BODY) & ASTM A 350 LF2 (FLANGES)

5) Basket and Mesh size
   - B1 Basket with SS 316 - 100 mesh
   - B2 Basket with SS 316 - 80 mesh
   - B3 Basket with SS 316 - 60 mesh
   - B4 Basket with SS 316 - 40 mesh
   - B5 Basket with SS 316 - 20 mesh
   - B6 Customized basket with wire mesh size.

6) Flow range – capacity operating
   - C1 0 to 500 LPM
   - C2 0 to 1000 LPM
   - C3 0 to 1500 LPM
   - C4 0 to 2000 LPM
   - C5 0 to 3200 LPM

7) Operating pressure
   - P1 0 to 6 Kg/cm2
   - P2 0 to 10 Kg/cm2
   - P3 0 to 25 Kg/cm2
   - P4 0 to 50 Kg/cm2
   - P5 0 to 75 Kg/cm2
   - P6 0 to 100 Kg/cm2

8) Accessories
   - A1 Ball valve for drain and vent.
   - A2 Differential pressure gauge with manifold & tubing.
   - A3 Companion flange with fasteners and gasket.
   - A4 Differential pressure gauge with reed switch, manifold & tubing.

*Kindly specify if different MOC is required.
**Strainer Cum Air (vapour) Eliminator:**

Cryogenic offers strainer cum Air Eliminator for variety of installations and conditions and designed for straining and filtering and elimination of air / vapour from variety of fluids. As unfiltered liquid enters the strainer cum air eliminator will directly passes through basket in which almost all impurities trapped into the basket and air and vapour travel on the top of the equipment and only clean liquid without air or vapour content will pass through the outlet of strainer cum air eliminator. Advanced dynamic flow and large filtration area elements ensure low pressure drops and reduce maintenance period. Also it is designed such that it will not allow any bypassing of the liquid without filtration as basket is prevented by “O” Ring seal between basket flange and strainer internal flange. As well as retain position of basket even in case of reverse flow. This is combination of filtration and elimination space will be reduced which is most common considerable factor for design of Tank Truck Gantry and Tank Wagon Gantry. Strainer Cum Air Eliminators are normally installed before the measuring devices like Positive displacement meter or turbine meter or Mass Flow Meter which increases accuracy of the measuring devices. It is used when major part of air is eliminated by header Air Eliminator near storage tank/pump house and very few amount of air / vapour is to be released during tank/wagon loading.

We offer Strainer Cum Air Eliminators from 1” to 24” size with flow range upto 1800 m3/hr (30000 LPM) for pressure range upto 100 bar & design as per ASME Section VIII div I latest edition. we also offer duplex and jacketed type Strainer cum Air Eliminators.

We have credit of supplying a more than 1000 units by 2014.

**Ordering Information:**

CRL – STAE – T1 03 F1 A B1 C1 P2 A123

1) Type of Strainer:
   - T1 Simplex
   - T2 Duplex
   - T3 Jacketed

2) Nominal Size mm
   - 00-1” (25 mm)
   - 01-1-1/2” (40 mm)
   - 02-2” (50 mm)
   - 03-3” (80 mm)

3) Flange rating
   - F1 – ANSI B 16.5 150#
   - F2 – ANSI B 16.5 300#
   - F3 – ANSI B 16.5 600#
   - F4 – ANSI B 16.5 900#
   - F5 – ANSI B 16.5 1500#

4) Material of construction
   - A. ASTM A 106 Gr.B (BODY) & ASTM A 105 (FLANGES)
   - B. IS 2062 GR.B (BODY) & ASTM A 105 (FLANGES)
   - C. ASTM A 312 TP 304 (BODY) & ASTM A 182 F 304 (FLANGES)
   - D. ASTM A 312 TP 316 (BODY) & ASTM A 182 F 316 (FLANGES)
   - E. ASTM A 516 GR 70 (BODY) & ASTM A 105 (FLANGES)
   - F. ASTM A 333 GR 6 (BODY) & ASTM A 350 LF2 (FLANGES)

5) Basket and Mesh size
   - B1 Basket with SS 316 - 100 mesh
   - B2 Basket with SS 316 - 80 mesh
   - B3 Basket with SS 316 - 60 mesh
   - B4 Basket with SS 316 - 40 mesh
   - B5 Basket with SS 316 - 20 mesh
   - B6 Customized basket with wire mesh size.

6) Flow range – capacity operating
   - C1 0 to 500 LPM
   - C2 0 to 1000 LPM
   - C3 0 to 1500 LPM
   - C4 0 to 2000 LPM
   - C5 0 to 3200 LPM

7) Operating Pressure
   - P1 0 to 6 KG/CMA
   - P2 0 to 10 KG/CMA
   - P3 0 to 25 KG/CMA
   - P4 0 to 50 KG/CMA
   - P5 0 to 75 KG/CMA
   - P6 0 to 100 KG/CMA

8) Accessories
   - A1 Ball valve for drain and vent
   - A2 Differential pressure gauge with manifold & tubing
   - A3 Companion flange with fasteners and gasket
   - A4 Differential pressure gauge with reed switch, manifold & tubing

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**Strainer Cum Air Eliminator Dimension For 150#.
For Other Class Please Consult Our Factory:**

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A END TO NOZZLE</th>
<th>B TOP FLANGE TO NOZZLE</th>
<th>C NOZZLE CENTRE TO DRAIN</th>
<th>D TOP COVER TO BOTTOM DRAIN</th>
<th>E OVERALL</th>
<th>WEIGHT IN KGS</th>
</tr>
</thead>
<tbody>
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<td>1.5</td>
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<td>250</td>
<td>370</td>
<td>1150</td>
<td>1550</td>
<td>315</td>
</tr>
</tbody>
</table>

*Kindly specify if different MOC is required.
Air Eliminator:

Cryogenic offers Air Eliminators for variety of installations and conditions and designed for separation, Elimination of air from the liquid. without allowing the contained liquid to escape.

Positive Displacement meter, is a volumetric measuring device can not differentiate between liquid, air and vapour. So when liquid enters with air or vapour into this measuring devices it will contribute the measurable error. Large amount of free air or vapour entrapped in the piping system, not only compromising meter accuracy but also lead to over speeding of meter and also creating excessive wear or unit failure.

To ensure accurate liquid Measurement, it is necessary to remove all air from the system before entering into the measuring devices.

Hence Air Eliminator is installed before the meter for accuracy of the measurement devices. We also offers Split type Air Eliminators for fuels like Aviation Turbine Fuel where frequent cleaning is required.

We offer Air Eliminators from 25 ltrs to 6000 ltrs with size of 1.5” to 24” with 150# to 600# with design as per ASME Section VIII div I

We have credit of supplying a more than 2100 units by 2014.

Principle of Operation:

Air Eliminator consists of top nozzle housing with float assembly which is made up of float and guide rod. Now when product is entered into air eliminator which consists of air / vapor through inlet nozzle it enters into large open vessel area which decrease the velocity of the fluid and try to bring liquid to the stable state and as flow strike to the baffle plate which separates liquid and air / vapor which again travel to the top of the vessel and release through the float assembly. Now when air is released and further liquid level is rise up to float assembly will push this assembly up and close the orifice area.

Now when more air is coming into the system or vapor is generated it will again travel to the top and accumulate in the top housing and at a certain stage when collected air /vapor forces liquid level down, buoyant force acting on the float reduces, this will reduce float buoyancy and float drops down which allows air / vapor to escape through the seat orifice. Now as fluid replaces air, Float buoyancy again increases and allowing float to rise and close to orifice seat.

Benefits:

- Air Eliminators are bidirectional. It can be installed for flow direction Left to Right as well Right to Left.
- Vertical design which reduces installation space.
- Simple interface with PD Meter, Mass Flow Meter, Turbine Meter
- If Used with Thermal Relief Valve protects all system components.
- Accurate Measurement.
- No complicated design for maintenance.
- Zero drain facility.
- Stainless Steel internals.
- Higher air eliminator retention time can be customized.

<table>
<thead>
<tr>
<th>Ordering Information</th>
<th>CRL – AE –</th>
<th>02</th>
<th>A</th>
<th>F1</th>
<th>F2</th>
<th>P1</th>
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<td>P12</td>
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<td>08-14”</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 2) Flange rating     |            |    |    |    |    |    |     |
| F1                   |            |    |    |    |    |    |     |
| F2                   |            |    |    |    |    |    |     |
| F3                   |            |    |    |    |    |    |     |

| 3) Material of construction |            |    |    |    |    |    |     |
| A                        |            |    |    |    |    |    |     |
| B. IS 2082 GR.B (BODY) & ASTM A 105 (FLANGES) |            |    |    |    |    |    |     |
| C. ASTM A 240 TP 304 (BODY) & ASTM A 182 F 304 (FLANGES) |            |    |    |    |    |    |     |
| D. ASTM A 240 TP 316 (BODY) & ASTM A 182 F 316 (FLANGLES) |            |    |    |    |    |    |     |
| E. ASTM A 106 GR 6 (BODY) & ASTM A 105 (FLANGES) |            |    |    |    |    |    |     |
| F. ASTM A 333 GR 6 (BODY) & ASTM A 350 LF2 (FLANGES) |            |    |    |    |    |    |     |

| 4) Flow range         |            |    |    |    |    |    |     |
| F0 0 to 1000 LPM      |            |    |    |    |    |    |     |
| F1 0 to 1500 LPM      |            |    |    |    |    |    |     |
| F2 0 to 2500 LPM      |            |    |    |    |    |    |     |
| F3 0 to 4000 LPM      |            |    |    |    |    |    |     |
| F4 0 to 5000 LPM      |            |    |    |    |    |    |     |

| 5) Operating pressure (Normal) |            |    |    |    |    |    |     |
| P1 0 to 6 KG/CMM       |            |    |    |    |    |    |     |
| P2 0 to 10 KG/CMM      |            |    |    |    |    |    |     |
| P3 0 to 15 KG/CMM      |            |    |    |    |    |    |     |
| P4 0 to 25 KG/CMM      |            |    |    |    |    |    |     |
| P5 0 to 35 KG/CMM      |            |    |    |    |    |    |     |
| P6 0 to 60 KG/CMM      |            |    |    |    |    |    |     |

| 6) Accessories         |            |    |    |    |    |    |     |
| A1 Ball valve for drain and vent. |            |    |    |    |    |    |     |
| A2 Thermal safety valve / Pressure Relief Valve. |            |    |    |    |    |    |     |
| A3 Pressure gauge. |            |    |    |    |    |    |     |
| A4 Companion flange with studs and gasket. |            |    |    |    |    |    |     |
| A5 Flame arrester. |            |    |    |    |    |    |     |

*Fasteners will be ASTM 193 Gr B7 / ASTM A 194 Gr 2H.

*All Gaskets are spiral wound with PTFE or Graphite Filler.
Prover Tank:

Cryogenic offers Prover tank of capacity 50 ltrs to 5000 ltrs with different of material of construction and designed as per IS – 2341 code under the certification of weights and measures.

We offer stationary as well as mobile prover tanks for use in checking commercial bulk measures, vehical tanks, bulk meters etc. these are all made with same accuracy and quality as the smaller test measures. This provers are easy to use, reliable, and low cost way to measure the output accuracy of liquid metering equipment.

For oil companies it is necessary to concern fairness and accuracy when liquids are sold, so after necessary time frame it is required to calibrate measuring devices.hence this prover tanks are portable in nature and prove the accuracy of measuring devices on site.

We have credit of supplying a more than 200 units by 2014.

Technical Specification:

- Material of Construction:
  - A. IS 2060 GR.B
  - B. SA 516 GR.70
  - C. ASTM A 240 TP 304
  - D. ASTM A 240 TP 316

- Capacity of Prover Tank:
  - A. 50 litres
  - B. 100 litres
  - C. 200 litres
  - D. 500 litres
  - E. 1000 litres
  - F. 1500 litres
  - G. 2000 litres
  - H. 5000 litres
  - I. ANY CUSTOMIZED CAPACITY

- Inlet / Outlet Connection:
  - A. 1” (25 mm)
  - B. 2” (50 mm)
  - C. 3” (80 mm)
  - D. 4” (100 mm)
  - E. 6” (150 mm)
  - F. 3” (80 mm) Integral /4”(100 mm) Outlet

- Type of Prover Tank:
  - T1 Fixed type with skid base
  - T2 Mobile prover tank with Leveling jack.
  - T3 Mobile prover tank for Rail Wagon.

- Accessories:
  - A1 With decanting pump and motor
  - A2 Flexible hose - 3 mtr length.
  - A3 DOL starter for motor.
  - A4 Temperature Gauge (3 location)
  - A5 Inlet / Outlet Ball Valve

*Kindly specify if different MOC is required.

Ordering Information:

CRL – PVR – A12345

Dimensions Of The Calibrating Measure:

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<tr>
<th>CAPACITY</th>
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Note: Tolerances on dimensions ±5%.

Dimensions Of Large Metric Capacity Calibrating Measures
(Clause 4.1 IS 2341-1963)

All dimensions in millimetres.
Additive and Blue Dye Dosing Skid:

Cryogenic offers Additive dosing system is a very flexible System for the continuous and fully automatic dosing of additives into the main product line.

We offer different dosing skid depending on the number of Loading points for different process parameters. with this in line dosing system mixed products can be produced automatically and economically.

It mainly consists of additive storage tank, metering pump with flameproof motor, strainer, pulsation dampener, pressure gauge, non return valve, ball valve, back pressure valve to maintain the dosing pressure, base skid etc. product loading pump can be supplied along with the additive dosing skid.

The additive system can also be used for fuel colouring like Blue dye and marker dosing system.

We offer additive dosing skid for MS, HSD, SKO.

Proof of our quality and excellent price is the fact that over 400 units were delivered to our customers by 2014.

The most important users of our additive systems are corporates like Indian Oil Corporation Limited, Bharat Petroleum Corporation Limited, Hindustan Petroleum Corporation Limited.

Ordering Information:

<table>
<thead>
<tr>
<th>Model: Dosing Skid</th>
<th>CRL – DS –</th>
<th>T1</th>
<th>03</th>
<th>A</th>
<th>B</th>
<th>F2</th>
<th>1</th>
<th>P2</th>
<th>A1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Material (TANK, VALVE, PIPING)</td>
<td>A. ASTM A 240 TP 304</td>
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<td>B. ASTM A 240 TP 316</td>
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<td></td>
<td>C. As per customers requirement.</td>
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<tr>
<td>2) Tank capacity</td>
<td>1. 100 ltrs</td>
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<td>2. 200 ltrs</td>
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<td>3. 300 ltrs</td>
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<td>4. 500 ltrs</td>
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<td></td>
<td>5. 1000 ltrs</td>
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<td></td>
<td>Note: for other than above specified capacity kindly consider nearest level tank capacity say for 160 ltrs please consider 2. (200 ltrs)</td>
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<tr>
<td>3) No. of Pump with Motor</td>
<td>A. SINGLE PUMP</td>
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<td></td>
<td>B. DOUBLE PUMP (STAND BY)</td>
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<tr>
<td>4) Type of Pump</td>
<td>A. Plunger type metering pump</td>
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<td></td>
<td>B. Diaphragm type metering pump</td>
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<td>C. Screw pump</td>
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<tr>
<td>5) Capacity of Pump – Flow range</td>
<td>F1 0 to 25 LPH</td>
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<td>F2 0 to 200 LPH</td>
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<td>F3 0 to 400 LPH</td>
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<td>F4 0 to 600 LPH</td>
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<td>F5 0 to 800 LPH</td>
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<td>F6 0 to 1200 LPH</td>
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<td></td>
<td>F7 0 to 1600 LPH</td>
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<td></td>
<td>F8 0 to 2000 LPH</td>
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<td>F9 0 to 2500 LPH</td>
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<td></td>
<td>F10 0 to Specified capacity by client.</td>
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<td>6) Type of additives</td>
<td>1. For HSD, M.S</td>
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<td>2. For SKO (Blue dye and marker)</td>
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<td></td>
<td>3. Other.</td>
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<tr>
<td>7) Minimum required discharge pressure</td>
<td>P1 0 to 4 KG/CM²</td>
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<td>P2 0 to 8 KG/CM²</td>
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<td></td>
<td>P3 0 to 16 KG/CM²</td>
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<td></td>
<td>P4 0 to 20 KG/CM²</td>
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<td></td>
<td>P5 0 to 30 KG/CM²</td>
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<td></td>
<td>P6 0 to 50 KG/CM²</td>
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<td>*Specified capacity by client.</td>
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<tr>
<td>8) Level switch / Level transmitter at additive tank.</td>
<td>A. Not required.</td>
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<td></td>
<td>B. Top mounted.</td>
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<td></td>
<td>C. Side mounted.</td>
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</tbody>
</table>

*Standard Flanges are slip on raised face SORF type if WNRF is required Please Specify.

*Please Specify if barrel pump is required.
Additive Injection Panel (Block):

Cryogenic offers Additive injection panel is widely used for injecting additives into main product line (HSD, MS, SKO). This additive injection panel is installed mainly at distribution facilities.

It is very accurate in nature with low pressure drop.

It mainly consists of additive oval gear meter, solenoid valve, strainer, check valves, needle valves and completely mounted on stainless steel / Aluminum panel.

Proof of our quality and excellent price is the fact that over 250 panels were delivered to our customers by 2014.

The most important users of our additive injection panels are the corporates like Indian Oil Corporation Limited, Bharat Petroleum Corporation Limited, Hindustan Petroleum Corporation Limited.

Model No:

Crl-ATV-01 (Additive Panel With Barrier And Junction Box)
Crl-ATV-02 (Additive Panel Without Barrier With Junction Box)
Crl-ATV-03 (Additive Panel Without Barrier And Without Junction Box)

Standard Additive Panel CRL-ATV Consists of Following Material:

Technical Specifications:

Oval Meter: Oval Wheel – SS 316, body – SS 316,
Bearing – Hard Graphite / SS 316/ Ceramic
Accuracy : +/- 0.5% (In The Range Of 50-250 Lph)
Repeatability – 0.2%
End Connection : ¾”Nptf
Operating Temperature – Upto 100 Degree C.
Operating Pressure – 25 Bar.
Pulse Transmitter – Ag 43
CE Approved.

Solenoid Valve:

Type – Normally Closed.
Working Pressure – 0 To 9 Bar.
Supply – 230v A.c 50hz. (consult For 12V Or 24 Vdc)
Cable Entry – ¾”Nptf
Precess Connection : ¼” Nptf. (consult For 3/8” Or ½”)
Approvals : FLP To Group IIA,IIB
Moc – SS 316

Check Valve:

Stainless Steel S316, 1/4”O.D x ¼” O.D. (consult For 3/8” Or ½”)

Needle Valve:

SS 316 ¾” O.D. X ¾” O.D. (consult For 3/8” Or ½”)

Strainer:

SS 316 Y Type 100 Mesh ¼” O.D. X ¼” O.D.
(consult For 3/8” Or ½” Or For Any Mesh Other Than 100)

Tubing:

¾” O.D. SS 316 (consult For 3/8” Or ½”)

Dimension:

600 mm L X 400 mm W X 3 mm Thk. SS 316/Aluminium

Approximate Weight – 12 Kgs.

Inlet / Outlet Connection of Panel:

¼” O.D X ¼” O.D. (consult For 3/8” Or ½”)

Barrier:

Suitable For P.D. Meter, Atex, CE Approved.

Junction Box – FLP Available On Request.
Liquid and Gas Filtration and Metering Skid:

Cryogenic manufacture complete skid for liquid and gas for measurement, control and filtration. This skids are fabricated with latest codes and international standard. Metering system is manufactured for crude oil and hydrocarbon products such as LPG, Fuel Oil, Motor Spirit, Diesel, Kerosene.

Cryogenic normally manufacture skids as per general arrangement drawings, P & ID provided by contractor who is overall system integrator. We design and detail piping, skid, platform static equipments as per clients datasheet. Major capital items like flow meter, Batch controller, PLC, instruments are free issued by clients or can be purchased and integrate by us with due consultation with client.

We have wide range of approved WPS, PQR AND WPQ as per ASME SEC IX for different grade and class of materials and welding process of SMAW, GTAW, MIG. If required we can qualify WPQRs as per custom clients requirement as and when required.

This skids are mainly consists of:

- Flow meter (PD Meter, Mass Flow Meter, Turbine Meter, Ultrasonic Flow Meter)
- Filters
- Air Eliminators
- Flow Straighteners.
- Digital Control Valves (Diaphragm or Piston Type)
- Valves and Piping.
- Instrumentation (Pressure and Temperature)
- Electrical (cabling and termination)
- Batch Controller Unit.

Application:

- Marketing and Distribution.
- Truck loading facility (TLF)
- Tank Wagon Loading (TWL)
- Transportation and distribution of hydrocarbon.

Manufactured and Supplied more than 200 skids which is installed in domestic as well as globally.

Mobile Type Master Flow Metering Trolley:

Cryogenic offers Mobile type Master flow metering skid consisting of flow meter, Batch controller, strainer, Air eliminator, DCV, manifold with piping valves, 5 meter steel braided hose, fitting etc. This is mainly used for calibration of flow meter already installed in Gantry. This is used as in series with flow meter installed in gantry.

This flow meter can be PD Meter, Mass Flow meter or Turbine Meter with DCV piston type or Diaphragm Type with Strainer and Air Eliminator separate Unit or Combined unit. Main advantage of this unit is mobile in nature and able to calibrate installed PD meter from one end to last gantry end in least time.

Cryogenic also offers skid based flow metering skid with combination as per customer’s requirement.

Ordering Code:

- CRL-MMT-01 (Air Eliminator + Strainer + Pd Meter + Dcv + Batch Controller)
- CRL-MMT-02 (Strainer Cum Air Eliminator + Pd Meter + Dcv + Batch Controller)
- CRL-MMT-03 (Air Eliminator + Strainer + Mass Flow Meter + Dcv + Batch Controller)
- CRL-MMT-04 (Strainer Cum Air Eliminator + Mass Flow Meter + Dcv + Batch Controller)
- CRL-MMT-05 (Customized Metering Assembly).

*All above metering is in 150# if other class is required please consult factory.
Air Receiver:

Air Receiver / Volume Bottle / Pressure Vessel

Air Receiver are tanks used for the compressed air storage and recommended to be in all compressed air system. Using air receiver of unsound or questionable construction can be very dangerous. Therefore, the American Society of Mechanical Engineers (ASME) has developed a code regarding the construction of unfired pressure vessels, which has been incorporated into many federal, state and local laws. This particular code is ASME Code Section VIII Division 1.

We have manufactured more than 40 Nos. till 2014.

We have manufactured Air receiver of capacity 0.1 M3 to 5M3 as per ASME Code Section VIII Division 1.

Air Receivers are equipped with Safety valve, Pressure Gauge, Pressure switch, Hand holes or Manholes and a base for vertical air receiver.

Air Receiver serves Several Important Purpose

1. Decrease wear and tear on the compression module, capacity system and motor by reducing excessive compressor cycling.
2. Eliminate pulsation from the discharge line.
3. Separate some of the moisture, oil and solid particles that might be present from the air as it comes from the compressor.
4. Contribute to reduced energy costs by minimizing electrical demand charges associated with excessive starting of the compressor motor.

<table>
<thead>
<tr>
<th>VOLUME CAPACITY</th>
<th>TOTAL HEIGHT A</th>
<th>OUTSIDE DIAMETER B</th>
<th>INLET NOZZLE ELEVATION FROM SHELL C</th>
<th>INLET NOZZLE ELEVATION FROM SHELL D</th>
<th>END TO END E</th>
<th>HAND HOLE OR MANHOLE ELEVATION FROM SHELL F</th>
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</thead>
<tbody>
<tr>
<td>0.5 M3</td>
<td>2530</td>
<td>610</td>
<td>200</td>
<td>700</td>
<td>1110</td>
<td>500</td>
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<tr>
<td>1.0 M3</td>
<td>2833</td>
<td>766</td>
<td>300</td>
<td>852</td>
<td>1116</td>
<td>700</td>
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<td>3.0 M3</td>
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<td>1284</td>
<td>400</td>
<td>1121</td>
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<td>800</td>
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<tr>
<td>5.0 M3</td>
<td>3418</td>
<td>1632</td>
<td>500</td>
<td>1234</td>
<td>2032</td>
<td>900</td>
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</table>

Turbine Flow Straightener:

Generally in pipelines pumps, piping bends, vibrations, control valves will generate swirl. Any swirl present in the fluid which enters into turbine meter can change the effective angle of engagement and hence deviation in the reading will take place and false reading will be take place. So it is required to install flow straightener before turbine meter to minimize liquid rotation, the swirl effect of the fluid.

After passing through the turbine meter the fluid enters into the downstream of the flow meter which is 5D flow straightener which controls any swirl existence on the rotor.

It is good practice to keep minimum straight run of pipe 10 times diameter of pipeline at upstream of turbine meter and 5 times diameter of pipeline at downstream of turbine meter.

Construction:

As this 10 D upstream flow straightener is 2 to 3 D upstream plenum then 2 to 3 D tube bundle with 7 or 19 nos stainless steel tubes with again 5D downstream plenum.

5D downstream flow straightener consists of simple piping. With optional port for pressure, temperature measurement.

<table>
<thead>
<tr>
<th>SIZE</th>
<th>A UPSTREAM</th>
<th>B TUBE BUNDLE</th>
<th>C 10D UPSTREAM</th>
<th>D INSIDE DIAMETER OF PIPE</th>
<th>E DOWNSTREAM</th>
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<tbody>
<tr>
<td>1.5</td>
<td>40</td>
<td>102</td>
<td>102</td>
<td>410</td>
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<td>5</td>
<td>150</td>
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<td>385</td>
<td>1540</td>
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All Dimensions Are In mm. This Dimensions Are For Schedule 40 Pipe Size For Other Schedule This Will Change Accordingly.