

# Flow Improvement Injection Equipment

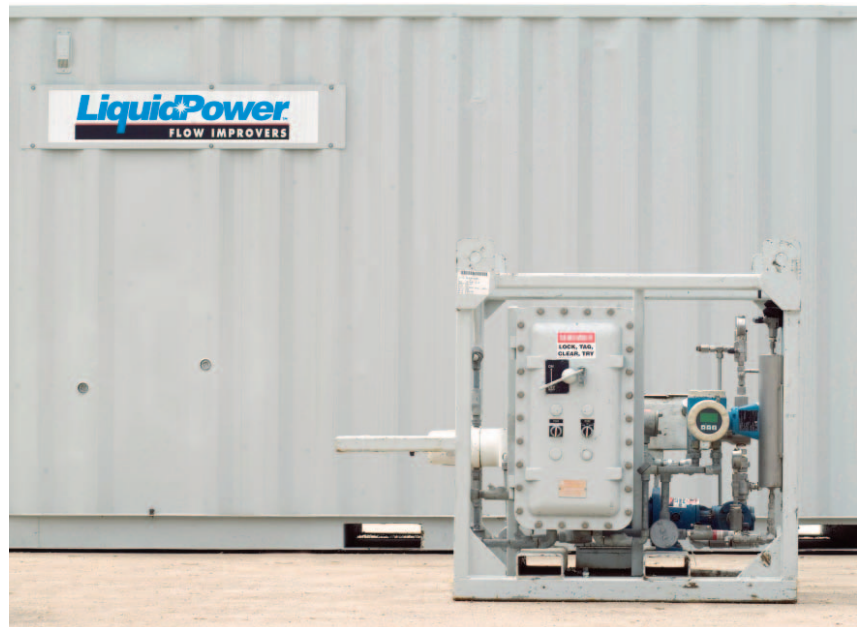


At ConocoPhillips Specialty Products Inc. (CSPI), we offer customized injection equipment to suit both LiquidPower™ and ExtremePower™ Flow Improvers. CSPI offers continued service and engineering support throughout your contract term to ensure that your flow improver injection is running smoothly and that your performance is reaching its full potential.

### *Which injection equipment is right for you?*

CSPI engineers can help you determine which package of injection equipment is right for your application. Several factors are considered:

- Performance needs.
- Operational requirements.
- Safety.
- Site limitations.
- Weather and environmental considerations.
- Electrical and mechanical specifications.



ISO 9001  
BUREAU VERITAS  
Certification



## Equipment Options

The standard CSPI injection equipment package includes three key components: product storage tanks, pumps and flow measuring instrumentation. Reliability and portability are our key criteria when designing our injection equipment. All packages can be modified to provide automation features, such as remote start and stop capabilities, automated injection rate adjustment, and SCADA System Integration or interface. Every CSPI injection skid is built to withstand a variety of climate conditions.

### 20 Foot Containerized Injection Skid



The 20 foot containerized injection skid houses all of the associated electrical and mechanical components in common freight containers. The storage tank of flow improver product also is included inside the container. Each skid includes air conditioning units for optimum product stability.\*

### 40 Foot Containerized Injection Skid

The 40 foot containerized injection skid allows for greater product inventory volumes.



*\*Skids for use in the European Union are supplied without air conditioning units.*

### Stand-alone Injection Skid

Stand-alone injection skid units typically are used in offshore applications and in field tests. These packages consist of an injection pump unit and separate tank, selected to fit the requirements of the application. Tank designs vary from smaller volume intermediate bulk containers to large volume ISO containers.



### Transport Tanks

CSPI maintains an inventory of ISO containers used for transportation and storage of LiquidPower™ and ExtremePower™ Flow Improver products. The tanks vary in type and specification. Rate capacities range from 350 to 6,300 U.S. gallons (1,298 to 24,000 liters).

Most tanks are constructed of stainless steel. Bottom outlets consist of ball or butterfly valves terminating in flanged or threaded couplings. For special applications, tanks can be provided with customized fittings or frames.



## **Skid Manufacture**

CSPI employs a staff of experienced engineers to design and deploy skids. CSPI has qualified multiple skid fabricators to ensure high-quality and a quick turnaround. Skids are manufactured with advanced components, each scrutinized to ensure



high performance in the field. European injection skids are manufactured in Europe to ensure all standards unique to the region are met.

## **Reliability and Quality**

CSPI's injection skid reliability is unmatched in the industry due to rigorous programs in place to make sure reliability is maintained. Every customer is kept up-to-date on service downtime through continuous communication from the field. The superior quality of both the product and the injection equipment offer our customers the benefit of a maximum performing flow improver program.

## **Maintenance**

In the U.S., field service representatives (FSRs) are strategically located to offer around-the-clock response to customers. Through our Eastern Hemisphere offices in Brussels, Belgium, and Moscow, Russia, and our vast contacts of distributors and agents, our team of customer support personnel is able to consult with customers around the world to maintain optimum performance and ensure reliable flow improver injection. CSPI developed an extensive maintenance program for field personnel to employ. Every customer is fully trained on the program upon field application.

## **Optimum Performance**

Our equipment is designed to suit LiquidPower™ and ExtremePower™ Flow Improver products in a way that optimizes performance. Product stability and injection consistency are managed through the unique coupling of CSPI's injection equipment and flow improver products. Product performance is guaranteed in our equipment, and we provide field service, preventative maintenance, training and support throughout the contract term.



# EQUIPMENT SPECIFICATION SHEETS



For more information on LiquidPower™ or ExtremePower™ Flow Improver injection equipment, please visit us on the Web at: [www.LiquidPower.com](http://www.LiquidPower.com) and [www.ExtremePowerFlowImprovers.com](http://www.ExtremePowerFlowImprovers.com), or contact your local sales representative:

# Stand-alone Injection Skid

## Pumps

Injection Pump  
Feed Pump

Positive Displacement – Plunger Type  
Progressive Cavity Pump

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## Power Requirements<sup>(1)</sup>

Incoming Voltage Requirements: 3-Phase, 60Hz, 208V, 240V, 480V or 3-Phase, 50Hz, 380V  
FLA: 30 Amp Main Breaker<sup>(1)</sup>

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## Automation/Controls

Manual or Automated via Variable Frequency Drive and/or Stroke Control

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## Flow Meter

Coriolis Principle Flow Meter

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## Safety Features

Pressure Relief Valves  
Pressure Switch  
Float Switches  
Built to Class I, Division II Classifications<sup>(2)</sup> or ATEX Equipment Group II, Category 3, Gas

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## Storage Tank

Utilize External Storage Tanks

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## Capabilities<sup>(3)</sup>

Injection Rate	“B” size pump 10-325 gpd <sup>(4)</sup>
Pressure Rating	1,450-2,250 psi <sup>(3)</sup>
Injection Rate	“C” size pump 100-2,200 gpd <sup>(4)</sup>
Pressure Rating	max. 3,000 psi

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(1) FLA depends on equipment requirements. Contact your local CSPI sales representative for specific details.

(2) For specific electrical class, please contact your local CSPI sales representative.

(3) All weights and dimensions are approximated and vary with product and equipment.

(4) Double this capacity for duplex pumps.

# 20 Ft. Containerized Injection Skid

## Pumps

Injection Pump  
Feed Pump

Positive Displacement – Plunger Type  
Progressive Cavity Pump

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## Power Requirements<sup>(1)</sup>

Incoming Voltage Requirements: 3-Phase, 60Hz, 208V, 240V; 480V, or 3-Phase, 50Hz, 380V  
FLA: 60 Amp Main Breaker<sup>(1)</sup>

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## Automation/Controls

Manual or Automated via Variable Frequency Drive and/or Stroke Control

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## Flow Meter

Coriolis Principle Flow Meter

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## Safety Features

Pressure Relief Valves  
Pressure Switch  
Spill Pans with Float Switches  
Built to Class I, Division II Classifications<sup>(2)</sup> or ATEX Equipment Group II, Category 3, Gas

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## Storage Tank (with mixer)

1,550 U.S. Gallon Polyethylene for LP™ Products  
1,184 U.S. Gallon Steel Tank for RP™ Products

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## Other Equipment

Heater  
Air Conditioner  
Exhaust Fan

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**Size & Weight<sup>(3)</sup>**

8' x 8' x 20' at 11,000 lbs. (empty)<sup>(3)</sup>

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**Capabilities<sup>(4)</sup>**

Injection Rate	“B” size pump 10-325 gpd <sup>(5)</sup>
Pressure Rating	1,450-2,250 psi <sup>(4)</sup>
Injection Rate	“C” size pump 100-2,200 gpd <sup>(5)</sup>
Pressure Rating	max. 3,000 psi

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(1) FLA depends on equipment requirements. Contact your local CSPI sales representative for specific details.

(2) For specific electrical class, please contact your local CSPI sales representative.

(3) All weights and dimensions are approximated and vary with product and equipment.

(4) Actual pressure ratings contingent upon equipment utilized. Flow ranges may vary with system conditions and equipment.

(5) Double this capacity for duplex pumps.

# 40 Ft. Containerized Injection Skid

## Pumps

Injection Pump  
Feed Pump

Positive Displacement – Plunger Type  
Progressive Cavity Pump

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## Power Requirements<sup>(1)</sup>

Incoming Voltage Requirements: 3-Phase, 60Hz, 208V, 240V, 480V, or 3-Phase, 50Hz, 380V  
FLA: 100 Amp Main Breaker<sup>(1)</sup>

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## Automation/Controls

Manual or Automated via Variable Frequency Drive and/or Stroke Control

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## Flow Meter

Coriolis Principle Flow Meter

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## Safety Features

Pressure Relief Valves  
Pressure Switch  
Spill Pans with Float Switches  
Built to Class I, Division II Classifications<sup>(2)</sup> or ATEX Equipment Group II, Category 3, Gas

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## Storage Tank (with mixer, Qty. 3)

1,550 U.S. Gallon Polyethylene for LP™ Products  
1,184 U.S. Gallon Steel Tank for RP™ Products

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## Other Equipment

Heater  
Air Conditioner  
Exhaust Fan  
Circulation Fan

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## Size & Weight<sup>(3)</sup>

8' x 8' x 40' at 22,000 lbs. (empty)<sup>(3)</sup>

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## Capabilities<sup>(4)</sup>

Injection Rate	“B” size pump 10-325 gpd <sup>(5)</sup>
Pressure Rating	1,450-2,250 psi <sup>(4)</sup>
Injection Rate	“C” size pump 100-2,200 gpd <sup>(5)</sup>
Pressure Rating	max. 3,000 psi

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(1) FLA depends on equipment requirements. Contact your local CSPI sales representative for specific details.

(2) For specific electrical class, please contact your local CSPI sales representative.

(3) All weights and dimensions are approximated and vary with product and equipment.

(4) Actual pressure ratings contingent upon equipment utilized. Flow ranges may vary with system conditions and equipment.

(5) Double this capacity for duplex pumps.

# Transport Tanks

MODEL NAME	24,000 Liter	7,500 Liter "Mini-Tank"	Composite Intermediate Bulk Container (IBC)	Stainless Steel Intermediate Bulk Container (IBC)	
<b>TOTAL CAPACITY</b> US Gallons (Liters)	6,341 (24,000)	1,665 (7,567)	275 (1,040)	350 (1,298)	550 (2,040)
<b>MATERIAL OF CONSTRUCTION</b>	Stainless Steel	Stainless Steel	HDPE	Stainless Steel	Stainless Steel
<b>WALL THICKNESS</b>	0.181/0.177" (4.6/4.5 mm)	0.175/0.210" (4.5/5.4 mm)	0.071" (1.8 mm)	10 Gauge	10 Gauge
<b>WORKING PRESSURE</b> psig (barg)	58 (4)	58 (4)	ATM	ATM	ATM
<b>DIMENSIONS</b>					
Length	20' (6,058 mm)	9'10" (2,991 mm)	48" (1,219 mm)	48" (1,219 mm)	48" (1,219 mm)
Width	8' (2,438 mm)	8' (2,438 mm)	40" (1,016 mm)	42" (1,066 mm)	42" (1,066 mm)
Height	8'6" (2,591 mm)	8' (2,438 mm)	45" (1,143 mm)	51" (1,295 mm)	75" (1,905 mm)
<b>TARE WEIGHT</b> LBS (Kg)	8,256 (3,745)	4,793 (2,175)	138.5 (62.8)	475 (215)	650 (295)
<b>MASS GROSS WEIGHT</b> LBS (Kg)	71,107 (32,255)	30,479 (13,825)	3,630 (1,650)	6,017 (2,735)	9,350 (4,250)
<b>AIR LINE</b>	1 ½" (38.1 mm)	2" (50.8 mm) Fort Vale stainless steel butterfly valve with a 1 ½" (38.1 mm) BSP termination	N/A Fort Vale stainless steel butterfly valve with a 1" (25.4 mm) BSP termination	N/A	N/A
<b>PRESSURE RELIEF SETTING</b> psig (barg)	63.8 (4.4)	63.8 (4.4)	N/A	15 (1)	15 (1)
<b>BOTTOM OUTLET</b>	3" (76.2 mm) 30° stainless steel foot valve, butterfly valve with a 3" BSP termination. Remote closure system with fusible link fitted.	3" (76.2 mm) 45° stainless steel foot valve, butterfly valve with a 3" BSP termination. Remote closure system fitted.	2" (50.8 mm) Butterfly valve: Gasket – Hostaflo, Connection – 2" (50.8 mm) NPT & 2" (50.8 mm) Camlock.	2" (50.8 mm) ball valve with PVC shipping plug & locking handle	2" (50.8 mm) ball valve with PVC shipping plug & locking handle

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MODEL NAME	24,000 Liter	7,500 Liter "Mini-Tank"	Composite Intermediate Bulk Container (IBC)	Stainless Steel Intermediate Bulk Container (IBC)	
<b>BOTTOM OUTLET</b> <i>Continued from front</i>			2" (50.8 mm) Cylindrical ball valve: Gasket – Viton/EPDM, Connection – 2" (50.8 mm) NPT		
<b>APPROVALS</b> (SEE LEGEND <sup>1</sup> )	AAR, ADR, CSC, IMDG, RID, SELO, TIR, UIC, UK DETR, US DOT	ADR, CSC, DNV, IMDG, RID, TIR, UIC, UK DETR, US DOT	UN, US DOT	UN, US DOT	UN, US DOT

**<sup>1</sup>Legend**

*CSPI's transport tanks comply with the following international recommendations, conventions, standards and regulations.*

<i>AAR</i>	<i>Association of American Railroads</i>	<i>SELO</i>	<i>Special Equipment Licensing Office (China)</i>
<i>ADR</i>	<i>Accord Dangereux Routier</i>	<i>TIR</i>	<i>Transport Internationale Routier</i>
<i>CSC</i>	<i>Convention of Safe Containers</i>	<i>UIC</i>	<i>Union Internationale des Chemins de fer</i>
<i>DNV</i>	<i>Det Norske Veritas</i>	<i>UN</i>	<i>United Nations</i>
<i>IMDG</i>	<i>International Maritime Dangerous Good Code</i>	<i>UK DETR</i>	<i>UK Department for the Environment, Transport and the Regions</i>
<i>RID</i>	<i>Reglement International Dangereux</i>	<i>US DOT</i>	<i>United States Department of Transportation</i>

The logo for ConocoPhillips is centered on a blue background with wavy patterns. It consists of the word "ConocoPhillips" in a white, sans-serif font. A small red checkmark is positioned above the letter 'o' in "Phillips".

ConocoPhillips