

# Precision Syringe Pumps

## Options & Accessories for Teledyne Isco D-Series Syringe Pumps

**Models 65D 100DM 100DX 260D 500D 1000D**

February 2009

- **Precision Fluid Metering**
- **Precision Pressure Control**
- **Reactant Feed**
- **Core Flooding**
- **Supercritical Fluids**
- **HPLC and Ultra-HPLC**



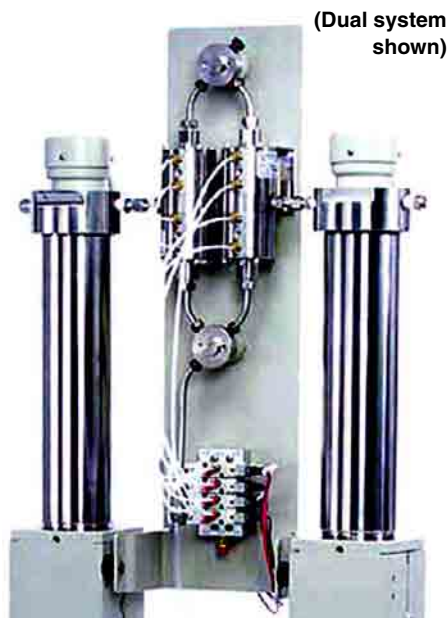
# Options and Accessories for Series D Pumps

**Most options are available to be retrofitted on-site, or installed in the factory, if your needs change. Contact the factory for assistance with selection and ordering.**

## Air Valves for Single & Dual Pump Systems

Actively controlled pneumatic valves work reliably with almost any fluid. Provides constant volume during switch over; no fluid movement during the opening and closing of valves.

- Requires pressurized air source @ 80-115 psi (5.6-8.4 kg/cm<sup>2</sup>).
- Temperature rated @ 149°C (300°F).
- Wetted materials: Hastelloy, SST tubing, PEEK, and Chemraz.
- Other materials and temperature ratings available upon request.



### Single pump air valve

- 500D Single pump air valve (1/8" tubing)..... 68-1247-089
- 260D Single pump air valve (1/8" tubing)..... 68-1247-088
- 100DM/DX Single pump air valve (1/8" tubing)..... 68-1247-090
- 65D Single pump air valve (1/4" tubing)..... 68-1247-131

### Dual pump air valves

- 1000D Dual pump air valves (1/4" tubing)..... 68-1247-104
- 500D Dual pump air valves (1/8" tubing)..... 68-1247-061
- 260D Dual pump air valves (1/8" tubing)..... 68-1247-058
- 100DM/DX Dual pump air valves (1/8" tubing)..... 68-1247-058
- 65D Dual pump air valves (1/4" tubing)..... 68-1249-129

## Electric Valves for Single & Dual Pump Systems

Actively controlled electric valves are reliable for a wide range of corrosive fluids, liquefied gasses, and volatile fluids. Valves are stem-and-ball, and feature a unique one-way flow path design, for added protection against back flow. Requires interface board internally mounted in the pump controller to operate the valves.

- No pressurized air source required. Temperature rated @ 150°C.
- Wetted materials: Hastelloy, Inconel, and silicon Nitride.



### Single pump electric valve

- 1000D Single pump electric valve..... Call
- 500D Single pump electric valve (1/8" tubing)..... 68-1247-112
- 260D Single pump electric valve (1/8" tubing)..... 68-1247-110
- 100DM/DX Single pump electric valve (1/8" tubing)..... 68-1247-090

### Dual pump electric valves

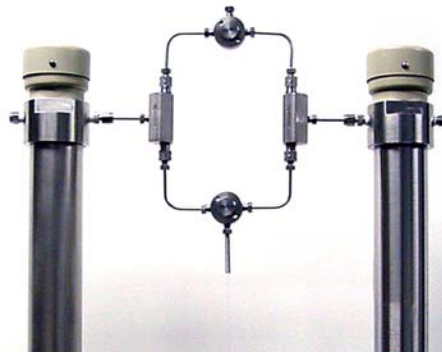
- 1000D Dual pump electric valves..... Call
- 500D Dual pump electric valves (1/8" tubing)..... 68-1247-091
- 260D Dual pump electric valves (1/8" tubing)..... 68-1247-090
- 100DM/DX Dual pump electric valves (1/8" tubing)..... 68-1247-090

**Check Valves for Single & Dual Pump Systems**

The passive check valve package requires low viscosity, clean fluids, and downstream pressure 200 psi greater than pump refill pressure.

- No pressurized air source required.
- Temperature rated @ 0 - 40°C.
- Wetted materials: SS316, sapphire, ruby, PEEK, and Teflon.

(Dual pump system check valve shown)



**Single pump check valve**

- 1000D Single pump check valve (1/4" tubing)..... 68-1247-123
- 500D Single pump check valve (1/8" tubing)..... 68-1247-062
- 260D Single pump check valve (1/8" tubing)..... 68-1247-062
- 100DM/DX Single pump check valve (1/8" tubing)..... 68-1247-062

**Dual pump check valves**

- 1000D Dual pump check valves (1/4" tubing)..... 68-1247-128
- 500D Dual pump check valves (1/8" tubing)..... 68-1247-059
- 260D Dual pump check valves (1/8" tubing)..... 68-1247-059
- 100DM/DX Dual pump check valves (1/8" tubing)..... 68-1247-059

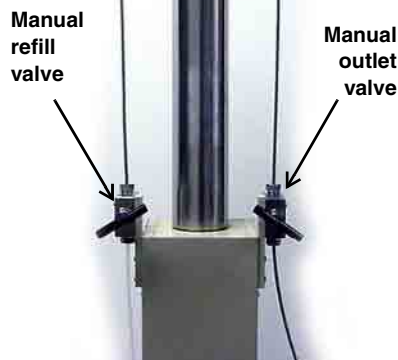
**Manual Valves**

The refill valve allows manual control of inlet port.

The outlet valve allows manual control of the outlet port.

Each package consists of the valve, fittings, and tubing to connect valve to the cylinder cap ports.

- Temperature rated @ 200°C.
- Wetted materials: 316 SST.



**Manual valves**

- 1000D Manual refill valve kit ..... 68-1247-117
- 1000D Manual outlet valve kit ..... 68-1247-118
- 500D Manual refill valve kit ..... 68-1247-083
- 500D Manual outlet valve kit ..... 68-1247-082
- 260D Manual refill valve kit ..... 68-1247-077
- 260D Manual outlet valve kit ..... 68-1247-078
- 100DM/DX Manual refill valve kit ..... 68-1247-077
- 100DM/DX Manual outlet valve kit ..... 68-1247-078
- 65D Manual refill valve kit ..... 68-1247-127
- 65D Manual outlet valve kit ..... 68-1247-126

<p><b>Corrosion Resistant Materials</b></p> <p>For applications requiring delivery of highly corrosive fluids. This package consists of:</p> <ul style="list-style-type: none"> <li>• Cylinder cap</li> <li>• Piston</li> <li>• Cylinder</li> </ul> <p>Alloys available:</p> <ul style="list-style-type: none"> <li>• Hastelloy</li> <li>• Titanium</li> <li>• Others available upon request</li> </ul>		<p><b>Hastelloy Conversion Package</b></p> <p>1000D Package ..... 68-1247-116  500D Package ..... 60-1247-138  260D Package ..... 60-1247-099  100DM/DX Package .... 60-1247-137</p> <p>NOTE: 500D, 260D, and 100DM/DX packages include a titanium pressure transducer. Contact the factory if a hastelloy pressure transducer is required.</p> <p>Standard 1000D pressure transducers are hastelloy.</p>
<p><b>External 0.1% Accuracy Transducers</b></p> <p>Externally mounted transducer replaces standard transducer. Accuracy:</p> <ul style="list-style-type: none"> <li>• 0.1% of full scale</li> </ul> <p>Consists of:</p> <ul style="list-style-type: none"> <li>• Externally mounted transducer</li> <li>• Cylinder cap</li> </ul>		<p><b>High Accuracy Transducers</b></p> <p>1000D Transducer ..... 68-1247-114  500D Transducer ..... 68-1247-097  260D Transducer ..... 68-1247-093  100DM/DX Transducer 68-1247-092</p>
<p><b>High Temperature Packages</b></p> <p>For operating at temperatures above 100°C. Rated at 200°C. These packages include:</p> <ul style="list-style-type: none"> <li>• Externally mounted Sensotec TJE high-temperature transducer</li> <li>• New cap assembly</li> <li>• Special high-temperature seals</li> </ul> <p>NOTE: Cylinder heating device is not included.</p>		<p><b>High Temperature Packages</b></p> <p>1000D Package ..... 68-1247-113  500D Package ..... 68-1247-097  260D Package ..... 68-1247-096  100DM/DX Package .... 68-1247-095</p>

### Temperature Control Jacket

Cylinder cooling allows fast, complete filling with a liquefied gas and is recommended when a continuous flow system is used for rapid delivery of such fluids.

- Can be controlled by circulating heated or cooled fluid through jacket.
- Cylinder temperature (-30°C to 100°C)
- Factory installed Temperature Control Jackets available
- Consult your Teledyne Isco Product Specialist for part numbers.
- Jackets listed here will not be factory installed.

NOTE: Temperature control device is not included.



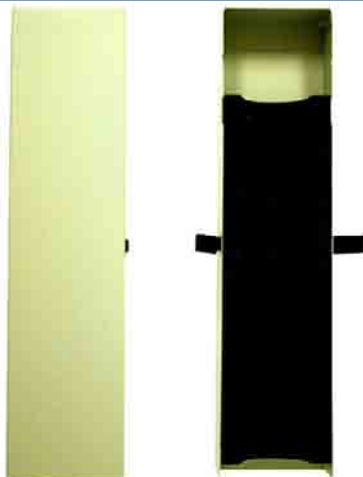
### Temperature Control Jackets

1000D Jacket .....	68-1247-115
500D Jacket .....	68-1247-057
260D Jacket .....	68-1247-047
100DM/DX Jacket .....	68-1247-047
65D Jacket .....	68-1247-047

### Cylinder Insulating Cover

Cover reduces ambient temperature effects for best flow stability at low flow rates (below about 0.05% of the maximum flow on any pump model)

Note: Not compatible with dual pump continuous flow systems, 100D, 1000D, or 65D.



### Cylinder Covers

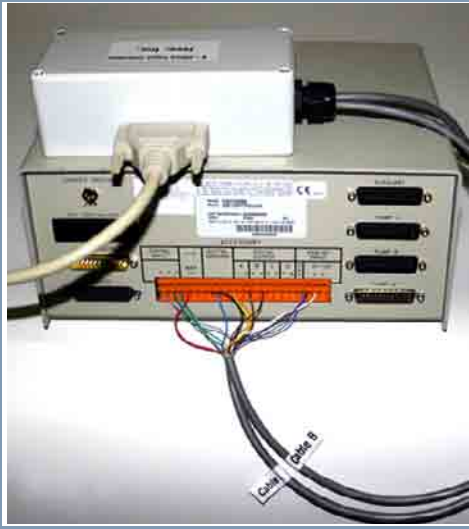
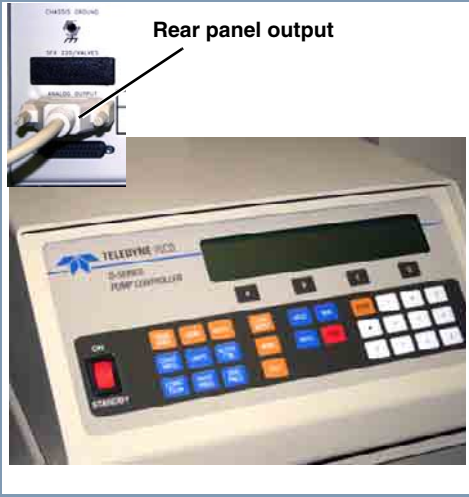
1000D Cover .....	NA
500D Cover .....	68-1247-085
260D Cover .....	68-1247-081
100DM/DX Cover .....	68-1247-081
65D Cover .....	NA

### RS232 Connection Cables

RS232 cable for connecting syringe pump controller to a computer or other device.



RS232 cable - single controller 25 pin Sub-D to 25 pin Sub-D .....	68-1020-207
RS232 cable - dual controllers two 25 pin Sub-D's to 9 pin Sub-D .....	68-1020-198

<p><b>Analog Inputs - Voltage (standard)</b></p> <p>Up to three D Series syringe pumps can be controlled externally with analog voltage for either constant flow or constant pressure.</p> <ul style="list-style-type: none"> <li>• User-selectable ranges of 0 to 5, 0 to 10, and -5 to 5 volts.</li> <li>• Resolution of 5000 increments per volt.</li> <li>• Functions: Run/Stop, flow, or pressure setpoint.</li> <li>• Terminal block connections require one wire for ground and one input wire for each pump.</li> </ul>	<p>Inputs are a built-in standard feature.</p>	
<p><b>Analog Outputs - Voltage (optional)</b></p> <p>Analog outputs can be purchased pre-installed in a controller, or as an upgrade kit.</p> <ul style="list-style-type: none"> <li>• Software -selectable output ranges: 0 to 5V, -5V to +5V, 0 to 10V.</li> <li>• Output functions: flow and volume.</li> <li>• Female 25 pin Sub-D connector.</li> </ul>	<p>Controller (only) with analog outputs ..... 68-1240-046</p> <p>Analog output installation kit..... 68-1247-070</p>	
<p><b>Analog Inputs - 4-20 mA Optional</b></p> <p>This device is mounted externally and is built into its own housing, which can sit on top of the pump controller. It converts 4-20 mA signals to voltage signals, allowing pump control with a 4-20 mA analog interface instead of analog voltage or serial port interfaces.</p> <ul style="list-style-type: none"> <li>• Interfacing for up to three pump modules.</li> <li>• Input functions: Run/Stop, flow, or pressure setpoint.</li> <li>• Terminal block connections for input.</li> </ul>		<p>4-20 mA input module ..... 68-1247-119</p>
<p><b>Analog Outputs - 4-20 mA Optional</b></p> <p>This device is internally mounted and outputs signals for flow rate and pressure for one pump, but can be expanded to up to three pumps with additional output modules</p> <ul style="list-style-type: none"> <li>• Female 25 pin Sub-D connector.</li> </ul>		<p>4-20 mA output for one pump ..... 68-1247-120</p> <p>Additional output modules..... 68-1247-121</p>

**Accessory Package**

This package consists of:

- Heavy-duty graphite-filled piston seal
- 1/8" short arm socket screw key
- 1/4" ID Vinyl tubing
- Lube kit (also available in individual bottles)

NOTE: This package is provided with every pump as a standard item.



**Accessory package**

- 1000D Package ..... 60-1249-103
- 500D Package ..... 60-1249-016
- 260D Package ..... 60-1249-012
- 100DM/DX Package .... 60-1249-015
- 65D Package ..... 60-1249-024

**Lube Kit Components**

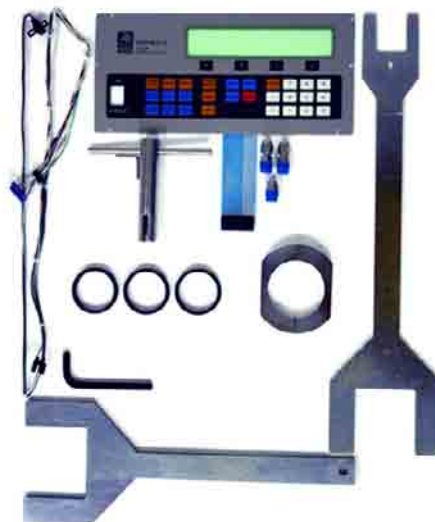
- Gear Lube ..... 60-1244-220
- Never Seez® Lube ..... 60-1244-272

**Service Kit**

This kit consists of most common replacement parts and the tools required to install them.

- Cylinder cap seal
- Shear key
- Shear key installation tool
- Replacement motor brush spring
- Fuses
- Label
- Piston seals
- Male tube connector
- Pipe plug
- Wrench Package:

- Cylinder clamp
- Socket screw key, 1/4 hex
- Open-end wrench, 3 1/4
- Open-end wrench, 3 3/4
- Piston wrench



**Service Kit**

- 1000D Kit ..... 68-1249-104
- 500D Kit ..... 68-1249-102
- 260D Kit ..... 68-1249-101
- 100DM/DX Kit ..... 68-1249-100
- 65D Kit ..... 68-1249-111

**LabVIEW Pump Tool Kit**

These kits consist of the drivers necessary to operate Teledyne Isco Syringe Pumps with LabVIEW™ software for Windows.

The LabVIEW program is not included, and must be purchased separately from National Instruments.



**LabVIEW Tool Kits**

(choice of Internal or External Driver)

- Internal Driver ..... 68-1247-101
- External Driver ..... 68-1247-134

## Piston Seals

Teledyne Isco carries a wide variety of seals to fit almost any application; virgin Teflon for corrosive fluids, heavy-duty reinforced for slurries and viscous fluids, high temperature, and UHMW polyethylene. Your choice of seals can be ordered factory-installed in your pump system.

- General use / CO<sub>2</sub> - Black, Graphite filled PTFE
- High temperature - Black, Graphite fiber PTFE
- Low pressure - Black, Graphite filled PTFE, single point contact
- Aqueous solutions - White, UHMW Polyethylene
- Ammonia (NH<sub>3</sub>) / Nitric Acid - White, Virgin teflon



Pump Model	General Graphite Filled PTFE	High Temp Graphite Fiber PTFE	Low Pressure Graphite Filled PTFE	Aqueous UHMW Polyethylene	NH <sub>3</sub> Virgin PTFE
<b>1000D Primary (upper) seal</b>	202-9990-25	202-9990-28	NA	NA	202-9990-26
<b>1000D Secondary (lower) seal</b>	202-9990-23	202-9990-27	NA	NA	202-9990-24
<b>500D</b>	202-9091-56	202-9093-56	202-9092-56	202-9094-56	202-9091-57
<b>260D</b>	202-9091-06	202-9091-09	202-9092-06	202-9094-06	202-9091-07
<b>100DM/DX</b>	202-9090-75	202-9090-76	202-9092-75	202-9090-77	202-9090-78
<b>65D</b>	202-9096-07	NA	NA	NA	NA



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