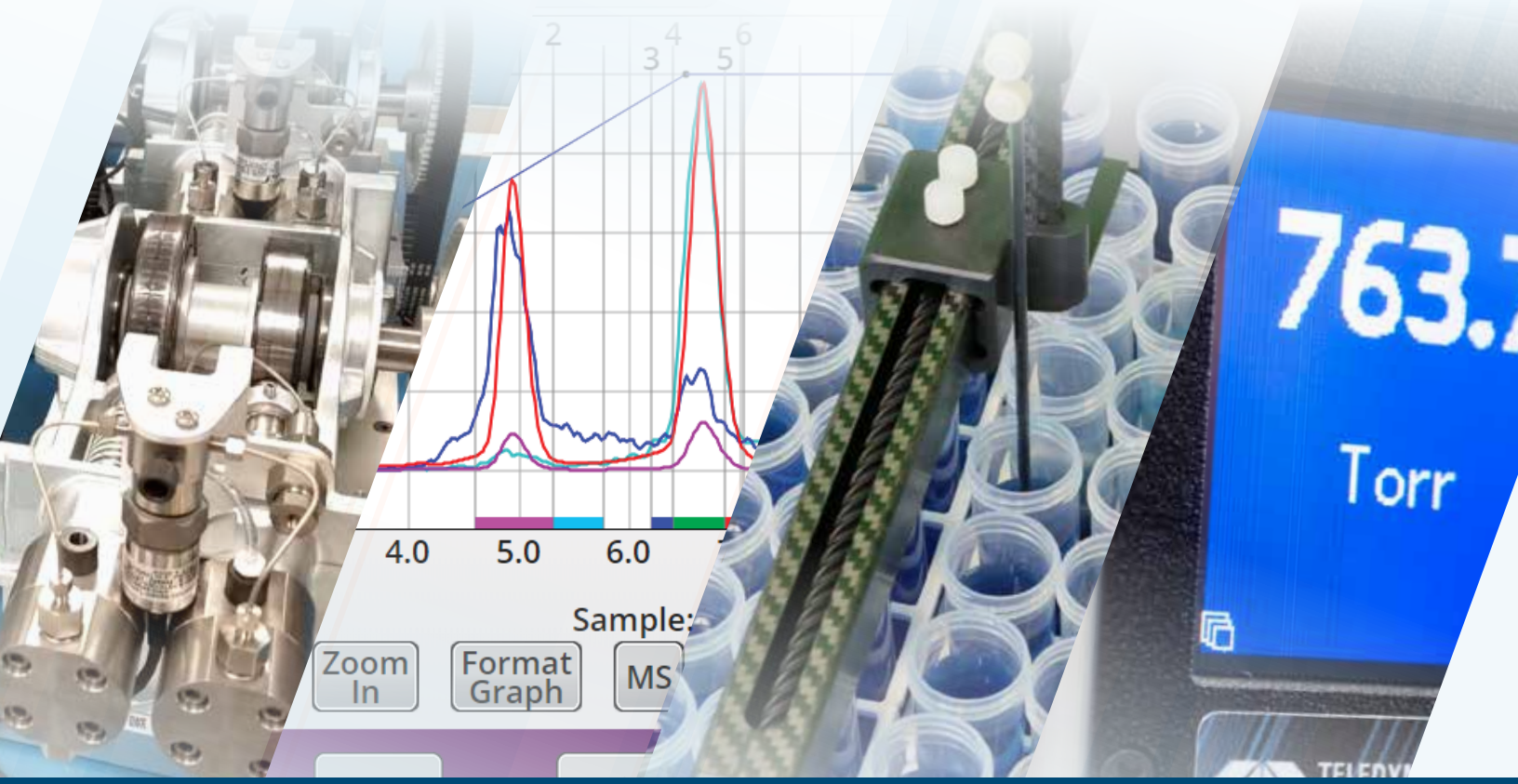
TELEDYNE OEM SOLUTIONS
Everywhereyoulook™



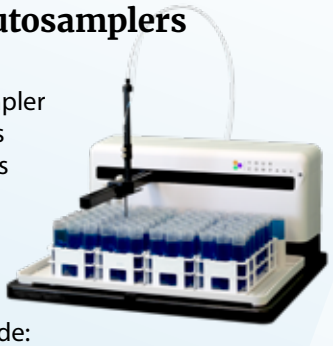
OEM Product Offerings

www.teledyneoemsolutions.com
OEM.Solutions@Teledyne.com

Automation

CETAC Automation produced its first autosampler in 1993, responding to a market need for a robust, reliable autosampler with ICP-OES instruments. Now, with > 50,000 autosamplers in multiple markets, Teledyne OEM Solutions offers a wide selection of automation platforms and accessory technologies.

Custom Entry-Level Autosamplers (OEM-500 Series)



The OEM-500 Series XYZ autosampler has proven its worth in thousands of user laboratories with countless hours of reliable operation. The common message from customers: "It just works!"

OEM-500 Series advantages include:

- Simple OEM integration
- Custom OEM designs for specific applications
- Affordable pricing

Custom Advanced Automation Platform (OEM-7000 Series)

Create a truly custom OEM autosampler for more demanding applications. The OEM-7000 Series autosampler meets requirements for robust, high-precision automation, capable of difficult operations such as septum piercing and pick and place.

OEM-7000 Series advantages include:

- Multiple sizes to optimize sample capacity while conserving benchtop space
- Accurate operation with 384 micro-titer plates
- Custom accessories such as sample mixing and temperature control

Automated Fraction Collectors

Teledyne LABS, ISCO and CETAC brands unite to provide OEM solutions for small scale to high throughput fraction collection applications. A wide selection of models and capabilities fulfills a variety of applications.

2-Axis Autosamplers Collector (OEM-6000 Platform)*

The OEM-6000 Platform fraction collector can gather up to eight fractions from a dissolution station or other source; liquid wasteis minimized by returning unused material to the source.

**Contact OEM Solutions for additional details.*

Advanced Carousel Autosamplers (OEM-100 Series)*

A carousel platform that conserves space, making it an easy fit into an OEM instrument or as a standalone unit. The slide/rotate sample tray provides space-saving random access, unlike traditional carousel autosamplers

- Operate with 96-position well plate
- Integrated cover for sample integrity

**Contact OEM Solutions for additional details.*

Technology That Fits

Pick-N-Place
Precisely deliver racks and/or sample vials to user-defined locations.

Septum Piercing
Perform this demanding application for multiple samples.

Temperature Control
Cooling/heating options sample temperatures from 1 °C to 70 °C.

Sample Mixing
A range of mixing techniques for variable liquid types and liquid viscosities: mechanical (ex. paddle style), vortex, in-line, and dispense mixing.

Fraction Collection & Autosampling
Combine the techniques into a single platform, reducing required bench space.

Pumps
Liquid movement technology consisting of: diaphragm, high-pressure piston (Teledyne SSI), peristaltic, syringe, and vacuum types.

Sample Probes
Glass-lined stainless steel, FEP-encapsulated carbon fiber, filter-end stainless steel and the list goes on.

Sample Rack Options
Custom and off the shelf.

Your Technology
Is your technology key to the application? Our experts will integrate your hardware into the design of the instrument for a truly custom solution.

OEM-500 Platform

Customize to your needs.

Size That Fits

The OEM-500 platform is offered in 3 sizes. Platform design allows the height. Depth and try requirements to easily be modified to fit your application.

Robust

Corrosion Resistant: A sealed electronics chassis, conformal-coated electronic boards and a coated main-driver screw protect against harsh chemical environments.

Superior Material Construction: Inert, metal-free PTFE liquid flow path decreases sample contamination risk and prolongs the life of theinstrument.

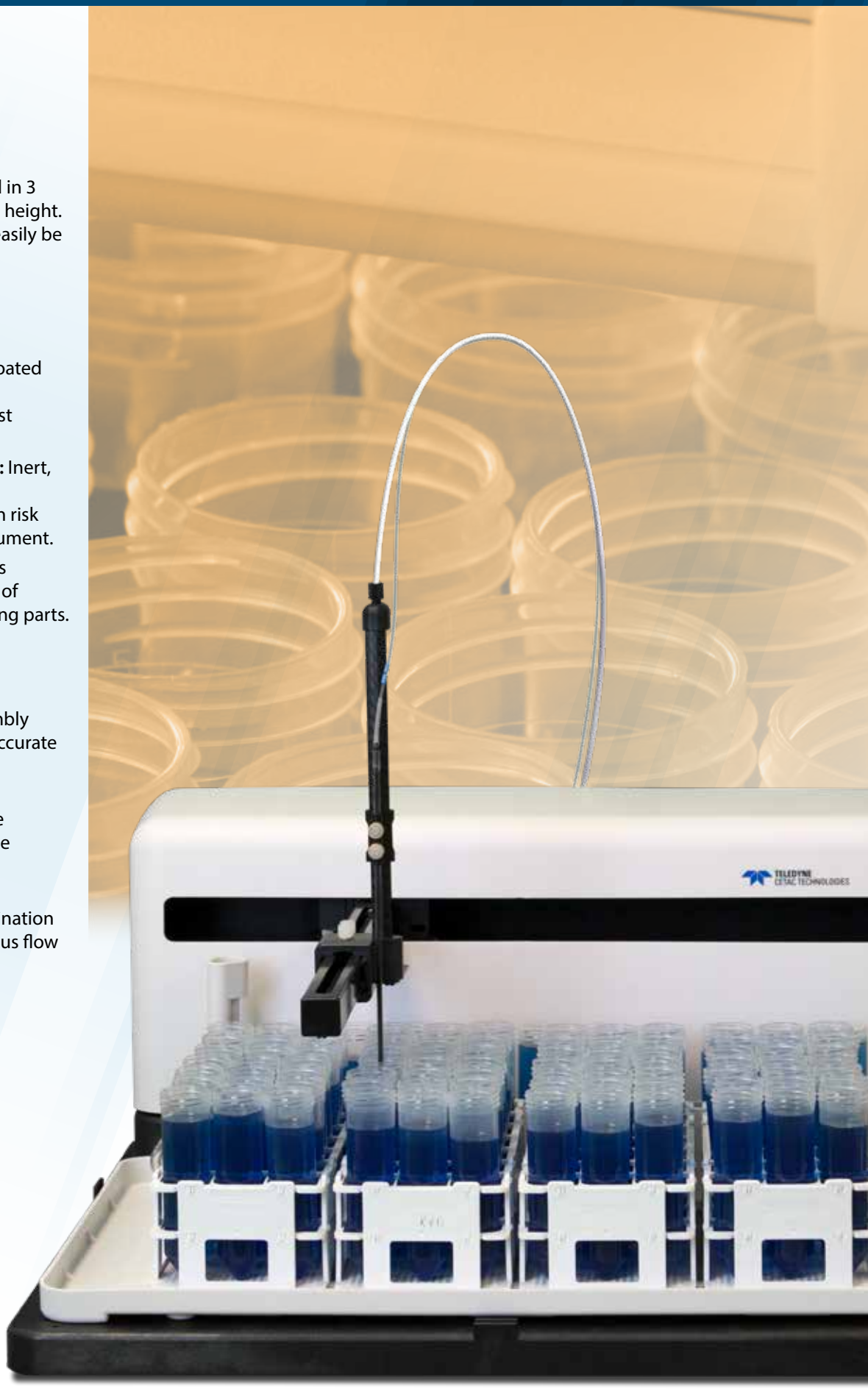
Motor Torque: Powerful XYZ axis assembly overcomes the effects of environmental buildup on moving parts.

Accurate

Never Misses a Vial: Precision engineered sample probe assembly and secured vial racks ensures accurate sampling.

Auto-Zero Feature: Intelligent sample probe re-homing feature provides accurate and repeatable probe positioning.

Integrated Rinse Station: Minimize sample probe contamination and carryover with the continuous flow rinse station.



Technical Specifications

ASX-280 Compact 2-Rack Autosampler

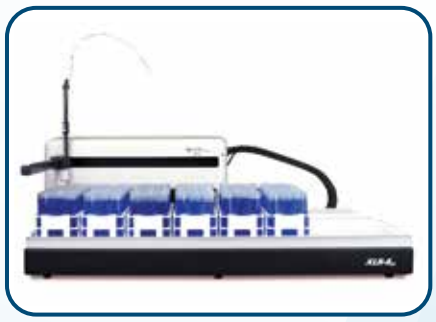
Height	62 cm (24")
Width	36 cm (14")
Depth	56 cm (22")
Weight	8.1 kg (17.8 lbs)
X-Axis	22.2 cm (8.74")
Y-Axis	30.0 cm (11.81")

**allow additional space for power cord and communication cable.*

ASX-560 Rugged 4-Rack Autosampler

Height	62 cm (24")
Width	58 cm (22.8")
Depth	56 cm (22")
Weight	11.7 kg (26 lbs)
X-Axis	42.0 cm (16.54")
Y-Axis	30.0 cm (11.81")

**allow additional space for power cord and communication cable.*



XLR-8_{60} Extended 8-Rack Autosampler

Height	66.7 cm (26.3")
Width	112 cm (44")
Depth	59.5 cm (23.5")
Weight	20.4 kg (45 lbs)
X-Axis	2 × 42.0 cm (16.54")
Y-Axis	30.0 cm (11.81")

**allow additional space for power cord and communication cable.*

Speed

Axis	Min	Max
X	70 mm/sec	370 mm/sec
Y	70 mm/sec	340 mm/sec
Z	70 mm/sec	430 mm/sec

Autosampler Control Utility

Configuration tool for speed control of XYZ probe assembly and rinse station pump including IQ/OQ checks during product setup.

Communication Interface

2 Serial (RS-232) ports;

USB (virtual COM port);

5 auxillary inputs/outputs

Power Requirements

100-240 VAC, 47-63 Hz, 1.9A

Options

ENC-DC Series Environmental Enclosures

SDX-HPLD Online AutoDilutor

SimPrep Offline AutoDilutor

*ASX*PRESS PLUS Rapid Sample Introduction System

OEM-7000 Platform

Flexible OEM Autosampler

The OEM-7000 Platform allows our partners to find the solution they need. Supports a wide range of available technologies that can be combined for a truly custom solution to your unique project. The OEM-7000 Platform includes multiple sizes, technologies, and accessories to serve a variety of applications.

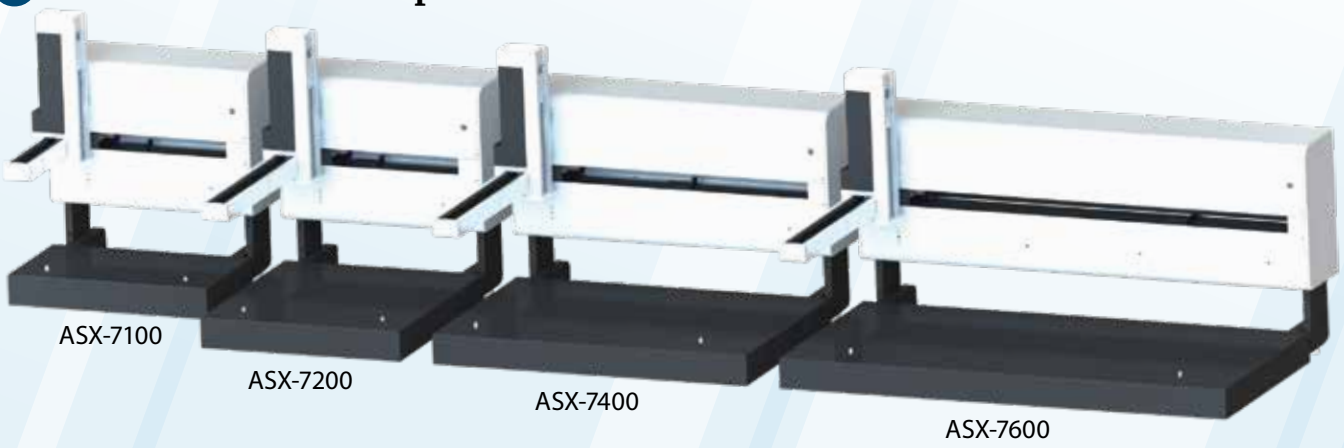
Accessories include sample rack cooling, sample mixing, septum piercing, and pick and place.

Pick Your Autosampler

Four easy steps guide you through the process: ❶ ⇨ ❹

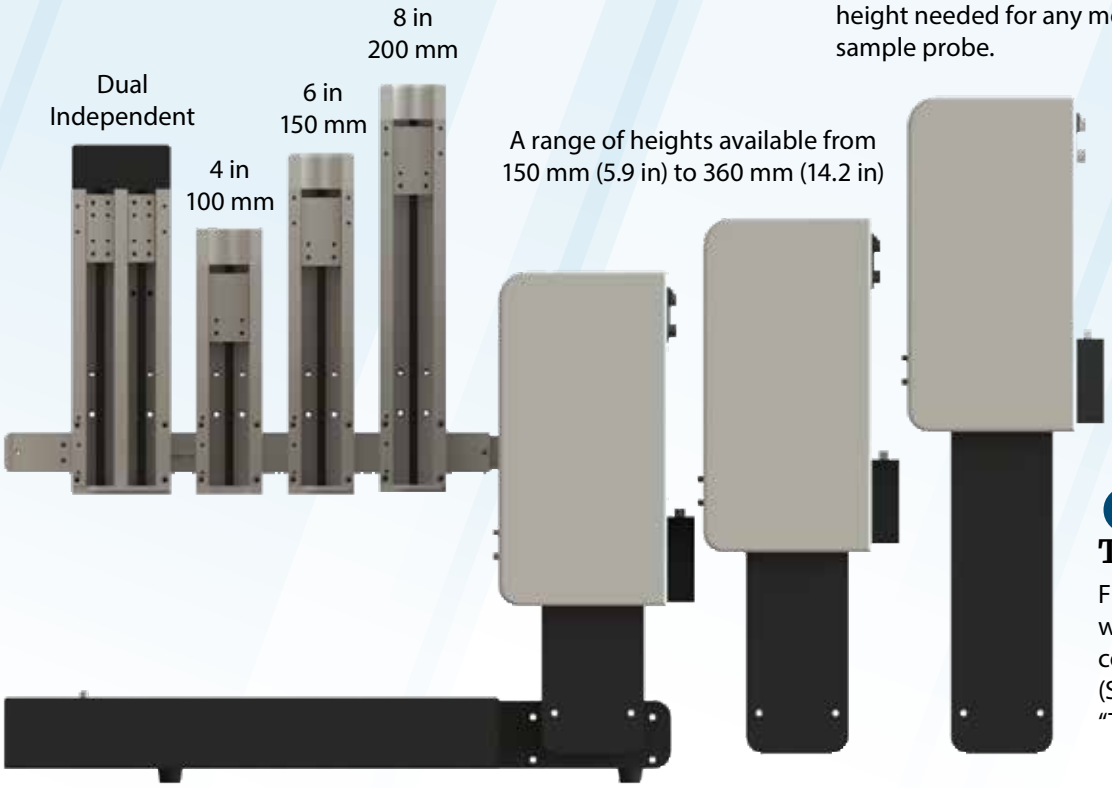
One size fits all? At Teledyne OEM Solutions, we don't think so. That is why we offer 4 platform bases.

❶ Select Your Autosampler Size



❷ Select Your Z-Axis Type

Single or dual independent type with a wide range of movement distances for required sampling/dispensing depth.



❸ Select Your Autosampler Height

If the application requires short or tall vials/bottles or if there will be accessory equipment mounted on the autosampler platform deck, select the clearance height needed for any moving assembly such as the sample probe.

A range of heights available from 150 mm (5.9 in) to 360 mm (14.2 in)

❹ Select Your Technology

Fit your OEM-7000 platform with unique technologies to complement your application. (See previous section: "Technology That Fits")

OEM Pump Overview - Single Piston

Teledyne SSI is a global leader in designing and manufacturing positive displacement piston pumps for analytical, clinical, preparative, and fluid metering applications. Our focus is providing OEM solutions to meet demanding applications with quality products and responsive service. We offer a wide spectrum of customizable pump platforms that can be configured to meet your requirements at the best value.

Single-Piston Pumps

Teledyne SSI **Single-Piston** pumps are an economical option for metering, dispensing, and limited chromatography applications.

M1 Series

MX Series

M1 SERIES

The compact **M1 Series** single-piston pump delivers high-performance and precision at an affordable price. The M1 Series small footprint allows for easy integration into any workspace.

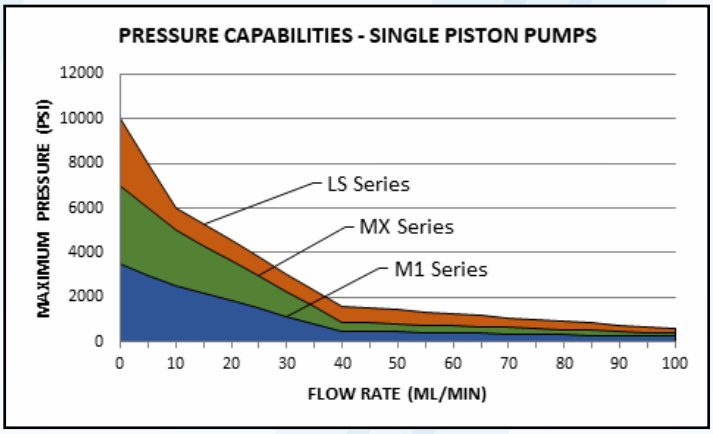
MX SERIES

The **MX Series** single-piston pump is built on a direct-drive platform like the M1 Series but provides higher pressure capabilities. Additional features include pressure monitoring and automatic pressure compensation.

LS Series

LS SERIES

The **LS Series** single-piston pump incorporates advanced cam design and rapid-refill function providing very low pulsation. Constant-pressure control option is available for column packing or reactor vessel applications.



Typical configurations shown, please contact Teledyne SSI for custom pumps best suited to meet your needs.

SINGLE PISTON	MATERIAL	FLOW RATE (mL/min)	PRESSURE LIMIT (psi)	CONSTANT FLOW/PRESSURE	PRESSURE MONITORING	SERIAL COMM	ANALOG INPUT
M1 SERIES	Stainless Steel PEEK	0.01-10.00 0.1-40.0 0.1-100.0	2,500 500 250	Flow	No	RS232 micro-USB	Run/Stop TTL
MX SERIES	Stainless Steel PEEK	0.01-10.00 0.1-40.0 0.1-100.0	5,000 900 400	Flow	Yes	RS232 micro-USB LAN	Run/Stop TTL Voltage Control
LS SERIES	Stainless Steel PEEK Titanium	0.001-5.000 0.01-10.00 0.1-40.0 0.1-100.0	8,000 6,000 1,600 600	Flow/Pressure	Yes	RS232 micro-USB LAN	Run/Stop TTL Voltage Control

OEM Pump Overview - Dual Piston

Dual-Piston Pumps

Teledyne SSI **Dual-Piston** pumps have two pistons operating in parallel, fully out-of-phase with each other, to produce naturally smooth fluid flow. Belt-drive construction minimizes vibration and efficiently allows for higher system pressures.

LD Series

LD SERIES

The versatile **LD Series** dual-piston pump delivers unmatched performance for analytical, flash, and small-scale preparative chromatography applications. Precision shaped cams and belt-drive mechanism provides extremely low pulsation.

PR Series

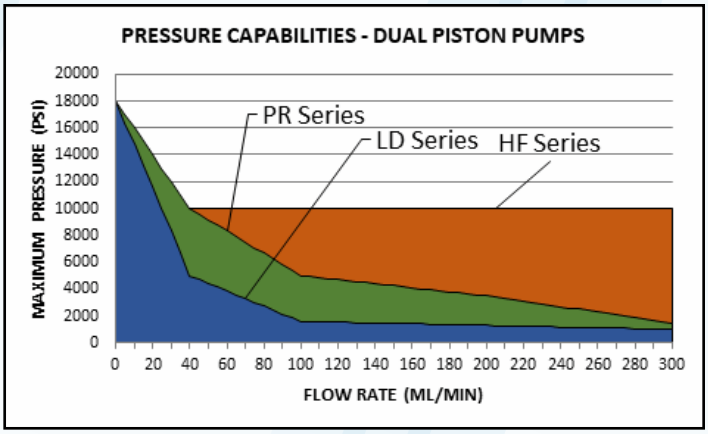
PR SERIES

The rugged **PR Series** dual-piston pumps provide high, accurate flows and excellent pressure capability for Preparative and Semi-Prep Chromatography, as well as many industrial processes. Available features include jacketed heads for temperature control of pumping fluid.

HF Series

HF SERIES

The **HF Series** dual-piston pump is specifically designed to meet demanding requirements of Preparative LC and high-pressure process applications and can deliver precise flow rates up to 300 mL/min at 10,000 psi system pressure.



Typical configurations shown, please contact Teledyne SSI for custom pumps best suited to meet your needs.

DUAL PISTON	MATERIAL	FLOW RATE (mL/min)	PRESSURE LIMIT (psi)	CONSTANT FLOW/PRESSURE	PRESSURE MONITORING	SERIAL COMM	ANALOG INPUT
LD SERIES	Stainless Steel PEEK Titanium	0.001-12.000 0.01-36.00 0.1-100.0	10,000 6,000 1,500	Flow/Pressure	Yes	RS232 micro-USB LAN	Run/Stop TTL Voltage Control
PR SERIES	Stainless Steel PEEK Hastelloy	0.1-100.0 0.1-300.0	4,000 1,000	Flow/Pressure	Yes	RS232 micro-USB LAN	Run/Stop TTL Voltage Control
HF SERIES	Stainless Steel Titanium Hastelloy	0.0-300.0	10,000	Flow/Pressure	Yes	RS232 micro-USB	Run/Stop TTL

OEM Pump Overview - Specialty

Specialty Pumps

CP SERIES

CP Series dual-piston pumps are unique configurations of LD Series pumps. They monitor system pressure and use an internal PID feedback loop to modulate fluid delivery to maintain constant pressure. CP Series pumps are widely used for LC column packing or reactor vessel applications.

Typical configurations shown, please contact Teledyne SSI for custom pumps best suited to meet your needs.

CONSTANT PRESSURE	MATERIAL	FLOW RATE (mL/min)	PRESSURE LIMIT (psi)	CONSTANT FLOW/PRESSURE	PRESSURE MONITORING	SERIAL COMM	ANALOG INPUT
CP SERIES	Stainless Steel	0.001-12.000 0.01-24.00 0.1-100.0	18,000 10,000 4,000	Pressure	Yes	RS232 micro-USB LAN	Run/Stop TTL Voltage Control

SC24

The **SC24** dual-piston pump is equipped with internal Peltier cooled heads for reliable pumping of liquid CO_2. Designed for SFC, SFE, and other applications without the need for an external chiller.

Typical configurations shown, please contact Teledyne SSI for custom pumps best suited to meet your needs.

SC24	MATERIAL	FLOW RATE (mL/min)	PRESSURE LIMIT (psi)	CONSTANT FLOW/PRESSURE	PRESSURE MONITORING	SERIAL COMM	ANALOG INPUT
SC24	Stainless Steel	0.01-24.00	10,000	Flow/Pressure	Yes	RS232 micro-USB LAN	Run/Stop TTL

OEM Pump Overview - Specialty

nano-LC UHP Syringe

The **nano-LC UHP Syringe** pump precisely delivers fluids in the pico- and nano-liter/min range at pressures up to 10,000 psi. With 30 pico-liter flow resolution and pulse-free operation, it is an ideal front end component for UHP nano LC-MS and single-cell proteomics instruments.

Typical configurations shown, please contact Teledyne SSI for custom pumps best suited to meet your needs.

Nano-LC	MATERIAL	FLOW RATE (µL/min)	PRESSURE LIMIT (psi)	PRESSURE LIMIT (bar)	CONSTANT FLOW/PRESSURE	PRESSURE MONITORING	SERIAL COMM
Nano-LC	Stainless Steel	0.01-10.00	10,000	689	Flow/Pressure	Yes	RS232 micro-USB

Configured OEM Pump Kits and Components

Wetted Materials

Teledyne SSI pumps are available in a variety of materials – Stainless Steel, PEEK, Titanium, and Hastelloy. Additional wetted materials may include synthetic ruby, synthetic sapphire, fluoropolymers, and UHMWPE.

Temperature Control

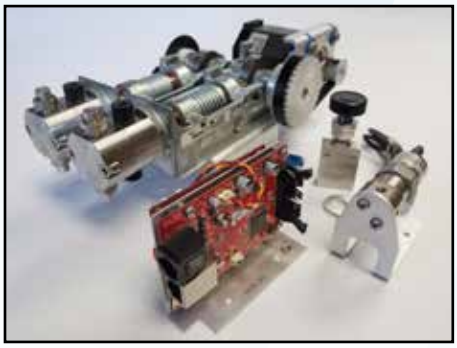
"Jacketed" heads are available in stainless steel, titanium, or Hastelloy allowing an external circulating bath to be used to heat or cool the pump head.

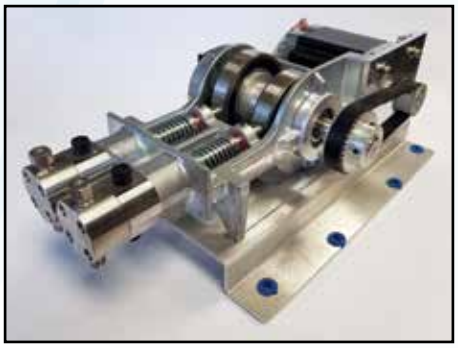
Pump Kits

All Teledyne SSI pumps are available in kit-form to be incorporated into your OEM instrument. In addition to pump mechanisms, we supply Control Electronics, Priming Valves, Filters, Pulse Dampeners, and Gradient Modules.

Engineering Support

Consider our Product Development group as an extension of your own. We can provide design guides, command protocols, and service instructions to assure product success the first time around.





Gas Control

Teledyne OEM Solutions has decades of experience with thermal mass flow meters and mass flow controllers, including for high and low flow ranges, corrosive gases, and very high-temperature environments.

Flow Meters and Controllers

200 Series – General Purpose

- Mass flow meter & controller
- Very high flow capable (15,000 slm)
- Economical
- Accurate
- Elastomer sealed
- Linear output

300 Series – High Performance

- Mass flow meter & controller
- High flow capable (10,000 slm)
- Metal sealed (<25 slm)
- Low pressure drop

Digital 300 Series – Digitally Enhanced

- Mass flow meter & controller
- High flow capable (10,000 slm)
- Metal sealed (<25 slm)
- Linear output
- Digital communications
- Flow totalizing
- Setpoints

Engineered Solutions

Our mass flow controllers/mass flow meters can be configured for your specific requirements. Our 75-plus years of experience in designing and building mass flow meters provides a comprehensive capability to modify existing products to meet custom OEM specifications.

Low Flow
(0-5 sccm to 0-25 slm)

Medium Flow
(0-25 slm to 0-1,000 slm)

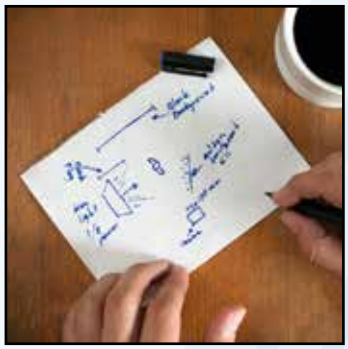
High Flow
(0-1000 slm to 0-15,000 slm)

The Development Process

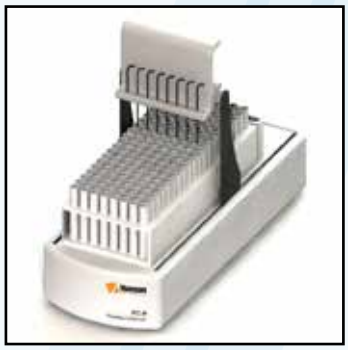
An Approach That Keeps You at the Center

Teledyne OEM Solutions is founded on a **proven development process** that focuses on effective communication with the customer and creating a product that addresses a specific market need or application. Our **decades of experience** and extensive knowledge gained across multiple Teledyne divisions allow us to offer innovative solutions to complex challenges. We have served hundreds of OEM accounts and are committed to ensuring 100% satisfaction with the end result. By working closely with you throughout the process and taking your feedback into account at every stage, from prototype testing to final production, we can help you achieve a **faster time to market** with a customized solution that meets your specific needs.

Idea
First, we work with you to understand your application and collaborate to create a product that meets your needs and expectations. Together, we brainstorm ideas to address key challenges and opportunities.



3D Concept
Our engineers create 3D concepts based on your needs and our expertise. Wherever possible, we incorporate our existing technologies and products. Then we submit it to you for feedback before moving to the next step.



Prototype
After identifying a product concept that meets the end user's needs, we create a physical prototype for testing. Your feedback helps us fine-tune the product and make any necessary adjustments before the final version.

Production
Once the prototype has been thoroughly tested, we begin production of the final version. Our dedicated assemblers and reliable suppliers ensure the process is as efficient as possible. By allowing us to assist you, you can expect a faster time to market.

Three trusted brands come together under one new name: Teledyne OEM Solutions

Teledyne ISCO, SSI and CETAC brands join forces to leverage our liquid handling and automation expertise for a one-source solution that satisfies the needs of global original instrument manufacturers (OEMs).

For over 30 years, we've been dedicated to providing innovative product solutions to OEMs, using advanced technologies across a broad range of analytical techniques (e.g. AA, HPLC, ICP-OES / ICP-MS, NMR, UV-Vis), driven by a true passion to exceed the expectations of our customers.

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