

MASTERFLEX® APPLICATIONS

Masterflex® tubing pump systems are perfect in the laboratory, manufacturing plant or field—for the end-user or OEM use. The convenient modular design of the systems (**Pump Head + Tubing + Drive**) allows you to use one pump drive for many applications, making Masterflex extremely versatile and cost-effective. The easy-loading pump head designs, coupled with a variety of specialty and general-use tubing formulations, make Masterflex the best choice for all your fluid handling needs.

This Applications Section describes a small sample of Masterflex applications. The products being applied in these applications can help you determine the ideal Masterflex system for your needs. As always, you can call our Application Specialists to determine the best pump for your application.



PHARMACEUTICAL & BIOTECH

Masterflex pumps are designed to be non-contaminating and noninvasive, making them the pumps of choice in the pharmaceutical industry. Easy-Load® pump heads and a wide range of drives fit many applications, from pumping nutrients or pH adjusters for fermentation, to dispensing cosmetics into small containers. Tubing is available that is compliant with USP Class VI, FDA, EP, and can be easily sterilized.



RESEARCH & DEVELOPMENT

Masterflex tubing pump systems are ideal for research and development. The pumps are very easy to load and extremely versatile for use in the laboratory or process scale-up areas. Repeatability is excellent for low-volume dispensing and metering applications, and, under most conditions, the valveless design eliminates clogging and siphoning of fluid. These modular systems allow you to use one pump drive for many applications.



INDUSTRIAL & MANUFACTURING

For everyday transferring and metering applications in the laboratory or plant, Masterflex pumps are the answer. They offer predictable service in continuous-duty areas, while solving many tough pumping applications. Use these pumps to handle wastewater, suspended solids, harsh chemicals and more; up to 42 LPM (11.1 GPM). The pumps are easy to use and maintain, and the drives are designed to handle the rugged environment of any plant.



FOOD & BEVERAGE

Masterflex can handle a wide range of fluids, from hot water and vitamin solutions to thick molasses. The pump heads are designed for easy tubing exchange, and a wide selection of the drives have "wash-down" capabilities. Most importantly for food applications, Masterflex tubing is available that meets USP Class VI, FDA, NSF, EP, and 3A requirements.



ENVIRONMENTAL & SPECIAL

Portability and convenience are built into every Masterflex environmental sampling pump. Choices of DC or AC systems facilitate simple, accurate sample collection. The suction lift and noninvasive/noncontaminating designs of our pump heads and tubing enable sample collection in accordance with EPA and other standard protocols.

$$\boxed{\text{PUMP HEAD}} + \boxed{\text{TUBING}} + \boxed{\text{DRIVE}} =$$



MASTERFLEX®
PUMP SYSTEM



PHARMACEUTICAL & BIOTECH



APPLICATION EXAMPLES

- ▶ Harvesting cell media
- ▶ Fermentation control
- ▶ Manufacturing IV bag dispensing
- ▶ Dissolution testers
- ▶ Spiral ultrafiltration
- ▶ Cosmetic dispensing

FEATURES	BENEFITS
Wide range of tubing materials	Compatible with many laboratory chemicals.
Noncontaminating	Fluid media only contacts inside of tubing.
Easy cleanup	Just change the tubing to clean the pump
Multichannel capability	Use up to 32 channels simultaneously on one drive.
Sanitary connections on tubing	Quick tubing connections within sanitary systems.
Handles viscous materials	Dispense agars and suspensions.
Runs dry	Use as a low-flow aspirator or air/vacuum pump.
Modular design	Mix and match pump heads, tubing, and drives.
OEM packages	Design into your lab dispensers or analytical equipment.

BIOPROCESS PUMP

- ▶ Accurately pump nutrient media from a bulk source into bio-bag sterile containers
- ▶ Silicone tubing for easy flow monitoring and biocompatibility; can be sterilized by gamma irradiation
- ▶ Flow rates: 0.28 to 1700 mL/min with L/S® 24 tubing
- ▶ Monitor flow rate, volume, batch count, cumulative volume, copy number, and rpm
- ▶ Easy calibration—store one value per tubing size
- ▶ Easy-Load® II pump head for fast tubing changes
- ▶ Drive is IP66 and NEMA 4X rated—easily cleaned or washed down after use

Pump products shown

HL-77200-62 L/S® Easy-Load® II Pump Head (pages 44–45)

HL-96410-24 L/S 24 Platinum-Cured Silicone Tubing (pages 70–71)

HL-07575-10 L/S Digital Process Drive (pages 92–93)



FERMENTATION PUMP

- ▶ Pump media into or out of fermenters
- ▶ Meter additives, antifoam agents, and acid/base for pH control
- ▶ Noncontaminating; easy sterilization and cleanup
- ▶ Remote control of speed, direction, and start/stop
- ▶ Quick, easy tubing changes between samples
- ▶ Platinum-cured silicone tubing ensures excellent biocompatibility

Pump products shown

HL-77200-52 L/S Easy-Load II Pump Head (pages 44–45)

HL-96410-16 L/S 16 Platinum-Cured Silicone tubing (pages 68–69)

HL-07522-20 L/S Digital Standard Drive (pages 88–89)



PROCESS FILTRATION PUMP

- ▶ Pump media and other fluids through sanitary process filters
- ▶ Noncontaminating; facilitates application of single-use tubing and assemblies
- ▶ Remote control of speed, direction, and start/stop
- ▶ Quick, easy tubing changes between process applications
- ▶ I/P 88 pump tubing offers flow up to 17 LPM and pressure up to 2.5 bar (35 psi)
- ▶ Sanitary tube set with premolded ends simplifies connections
- ▶ Drive is IP66 and NEMA 4X rated—easily cleaned or washed down after use

Pump products shown

HL-77600-62 I/P® High-Performance Pump Head (pages 124–125)

HL-96112-88 I/P 88 PharMed® BPT Sanitary Tubing Assembly (page 129)

HL-77420-10 I/P Digital Process Drive (pages 140–141)



BULK MEDIA TRANSFER PUMP

- ▶ Modular format for convenient component placement; controller can be wall mounted
- ▶ IP56 rated controller and drive are protected from water spray in washdown environments
- ▶ Program dispense volume for repetitive filling protocols
- ▶ Flow rates up to 17.7 LPM with B/T 87 PerfectPosition™ PumpTubing
- ▶ Rapid-Load® pump head makes tubing changes quick and easy
- ▶ PharmaPure® tubing offers excellent pump life and meets EP, FDA, and USP classifications

Pump products shown

HL-06435-87 B/T® 87 PharmaPure® Pump Tubing (page 153)

HL-77111-40 B/T Digital Modular Pump (pages 156–157)

RESEARCH & DEVELOPMENT



APPLICATION EXAMPLES

- ▶ Acid/base dispensing
- ▶ Aspiration of tissue culture media
- ▶ Circulation of cell suspension in fermentation
- ▶ Chromatography
- ▶ Coolant circulation in low temp baths
- ▶ Desiccator air circulation
- ▶ Distilled water transfer
- ▶ Dispensing agar into petri dishes
- ▶ Electrophoresis
- ▶ Elutriation
- ▶ Filtration pumps
- ▶ Flow injection analysis
- ▶ Gas sampling system
- ▶ Gel column pump
- ▶ Injection metering pump
- ▶ Liquid-phase chemiluminescence
- ▶ Magnetic particle separation
- ▶ Nutrient supply for cultures
- ▶ pH acid/base metering
- ▶ Spectrophotometer pump
- ▶ Sterilized media dispensing
- ▶ Transfer pump-circulating baths
- ▶ Toxicology assays (salt solutions)

FEATURES	BENEFITS
Modular design	Mix/match pump heads, tubing, and drives for many applications.
Noncontaminating	Fluid media only contacts inside of tubing.
Adjustable occlusion	Over-occlude for priming and pressure; reduce for longer tubing life.
Reversible	Operate in both directions without disconnecting tubing.
Wide range of tubing materials	Compatible with numerous laboratory chemicals.
Multichannel capability	Use up to 32 channels simultaneously on one drive.
Easy cleanup	Simply change the tubing to clean the pump.
Runs dry	Use as a low-flow aspirator or air/vacuum pump.
Easily sterilized	Sterilize tubing via ethylene oxide, gamma radiation, or autoclave.
High-accuracy dispenser	Calibrate digital drives for accuracies up to $\pm 0.5\%$.
Low cell disruption	Circulate cell tissue with minimal damage (low shear).
Remote control	Interface with PC or other analytical instruments.
Self-priming	Generates vacuum up to 660 mm Hg (26" Hg).
Handles viscous materials	Dispense agars and suspensions.
OEM packages	Design into your lab dispensers or analytical equipment.



ELECTROPHORESIS CIRCULATION/COOLING PUMP

- ▶ Modular format permits convenient placement of components; drive can be placed in a hood or safety cabinet with controller outside
- ▶ Simple drive controls with separate speed control and on/off/reverse switch; turn pump on or off while maintaining speed settings
- ▶ Reversible motor for pumping in either direction
- ▶ Dual-channel head lets you pump two channels simultaneously
- ▶ Silicone tubing lets you make low-pressure connections in seconds
- ▶ Drive and L/S 16 tubing deliver a flow range of 4.8 to 480 mL/min

Pump products shown

- HL-77202-50 L/S® Easy-Load® II Dual-Channel Pump Head (pages 44–45)
- HL-96400-16 L/S 16 Peroxide-Cured Silicone Pump Tubing (pages 68–69)
- HL-07557-00 L/S Precision Modular Drive (pages 86–87)



ANALYZER FEED PUMP

- ▶ Perfect for low-flow analytical applications
- ▶ Connects easily to flow cells in spectrophotometers, refractometers, and other instruments
- ▶ Highly accurate—multiple rollers, continuous circulation, and reduced pulsation
- ▶ Compact size permits flexible placement on benchtop
- ▶ Silicone tubing offers clarity for visually monitoring fluid flow and excellent biocompatibility.

Pump products shown

- HL-95590-42 2.06 mm ID Platinum-cured silicone Microbore Pump tubing (page 34)
- HL-77122-14 C/L® Single-Channel Pump (pages 34–35)

GRADIENT PUMP

- ▶ Remote programming and control via PC work station
- ▶ Control functions include dispensing onto or off of a balance for gravimetric measurements
- ▶ Highly accurate; easy to program and calibrate
- ▶ Independently program up to 25 pump/mixers to develop gradients
- ▶ Program each pump or mixer for up to 50 steps
- ▶ Tygon® E-LFL tubing is clear for visually monitoring fluid flow



Pump products shown

- HL-07015-21 L/S Standard Pump Head (pages 40–41)
- HL-06440-15 L/S 15 Tygon® E-LFL Pump Tubing (pages 70–71)
- HL-07551-00 L/S Computer-Compatible Digital Drive (pages 94–95)
- See pages 96–97 for ServoDyne™ and Stir-Pak® mixer systems



CHROMATOGRAPHY PUMP

- ▶ Low-pressure, low-volume flow for gravity-feed columns
- ▶ Dual-channel pump feeds two columns simultaneously
- ▶ Clarity of Tygon® tubing permits visual monitoring of flow
- ▶ Start/stop pump remotely
- ▶ Variable-speed pump accepts multiple tubing sizes for wide flow range
- ▶ Multi-roller pump is nonsiphoning; eliminating risk of backflow

Pump products shown

HL-06460-34 1.42 mm ID Tygon® E-Lab Microbore Pump tubing (page 36)

HL-77120-42 C/L Dual-Channel Pump (pages 36–37)



AGAR DISPENSING PUMP

- ▶ Dispenses samples of agar from 0.05 to 8000 mL
- ▶ Highly accurate: $\pm 0.5\%$
- ▶ No valves to clog
- ▶ Modular format lets you place drive module in a hood or safety cabinet with controller outside
- ▶ Easy-Load® II pump heads ensure low pulsation and accurate performance
- ▶ Silicone tubing is recommended for purity and is easily sterilized

Pump products shown

HL-77200-62 L/S Easy-Load II Pump Head (two included with Digi-Staltic system)

HL-96410-35 L/S 35 Platinum-Cured Silicone Pump Tubing (page 70–71)

HL-77310-00 L/S Digi-Staltic® Dispensing Pump System (pages 98–99)



ULTRAFILTRATION PUMP

- ▶ Transfers fluid through a filtration system at flow rates up to 13 LPM
- ▶ Maintains purity of raw materials/chemical solutions and sanitary integrity applications
- ▶ Allows for end product separations/harvesting
- ▶ Used in the QC/QA analysis labs for buffer and nutrient media filtration
- ▶ Ultra-low spallation PharmaPure® tubing ensures minimum particle entrapment; excellent biocompatibility and long life

Pump products shown

HL-77601-60 I/P® Easy-Load Pump Head (pages 122–123)

HL-06435-73 I/P 73 PharmaPure® Pump Tubing (pages 126–127)

HL-77410-10 I/P Brushless Process Drive (pages 134–137)



LAB/FILLING STATION PUMP

- ▶ Simple controls for routine transfer applications
- ▶ Reversible motor lets you prime or purge tubing
- ▶ Transfer chemicals at flow rates up to 2300 mL/min (36 GPH)
- ▶ Easy-Load® II pump head for quick changes between processes
- ▶ Substitute tubing based on compatibility with various chemicals (see pages 30–31)

Pump products shown

HL-77200-60 L/S Easy-Load II Pump Head (pages 44–45)

HL-06509-18 L/S 18 Tygon® E-Lab Pump Tubing (pages 68–69)

HL-07528-10 L/S Precision Variable-Speed Drive (pages 84–85)

HL-07528-80 Handheld Remote Controller (page 85)

INDUSTRIAL & MANUFACTURING



APPLICATION EXAMPLES

- ▶ Adhesives for cement
- ▶ Carpet sanitizers/cleaners
- ▶ Caustic detergents
- ▶ Chemicals for car washers
- ▶ Dyes in fabric manufacturing
- ▶ Etching chemicals for plate processors
- ▶ Chlorine analyzers
- ▶ Dispensing glue emulsions
- ▶ Laundry chemicals
- ▶ pH control of effluent
- ▶ Smoke-generating machines
- ▶ Plating chemicals
- ▶ Pulp quality monitoring
- ▶ Microfilm developing machine
- ▶ Oil skimmer
- ▶ Silicone wafer rinse
- ▶ Crankcase oil analyzer
- ▶ Inks for lithographs
- ▶ Lubricator for ball bearings
- ▶ Coating for coils
- ▶ Tank transfer pumps
- ▶ Polishing slurry pump
- ▶ Web printing inks

FEATURES	BENEFITS
Wide range of tubing materials	Compatible with many industrial chemicals.
Noncontaminating	Fluid media only contacts inside of tubing.
Self-priming	Suction lifts up to 8.8 m (29 ft).
Runs dry	Handles liquids and gas easily without damaging the pump.
Easy cleanup	Simply change the tubing to clean the pump.
Reversible	Operate in both directions without disconnecting tubing.
Handles viscous materials	Transfer and dispense oils or fluids in suspension.
Modular design	Mix and match pump heads, tubing, and drives for many applications.
OEM packages	Design into your own industrial metering and transfer equipment.



RAPID-DRY ADHESIVE TRANSFER

- ▶ Dosing various volumes of viscous (1200 cps), rapid-drying adhesive
- ▶ Eliminates problem of sticking valves, regular pump maintenance, and periodic pump failure
- ▶ High-performance precision tubing has a thicker wall and higher suction for handling viscous fluids
- ▶ Compatibility of silicone tubing allows it to be used more than once; oversizing the tubing allows pumping at speeds below 200 rpm
- ▶ Drive control features deliver desired accuracy and flexibility

Pump products shown

HL-77250-62 L/S® High-Performance Pump Head
(pages 48–49)

HL-96410-24 L/S 24 Platinum-Cured Silicone tubing (pages 70–71)

HL-07522-20 L/S Standard Digital Drive
(pages 88–89)



BATCH CAUSTIC PUMP

- ▶ For batch/bulk transfer and corrosive fluid dispensing
- ▶ Flow rates up to 42 LPM with B/T® PerfectPosition™ pump tubing
- ▶ Ideal for viscous and shear-sensitive fluids
- ▶ Detachable controller for convenient component placement
- ▶ Rapid-Load® pump head makes changing tubing quick and easy
- ▶ IP56-rated, washdown controller and drive are protected from water spray
- ▶ C-FLEX tubing offers excellent compatibility with common acids and bases

Pump products shown

HL-06424-91 B/T® 91 C-FLEX® PerfectPosition™ Pump Tubing (page 153)

HL-77111-60 B/T Variable-Speed Pump (pages 154–155)

CHEMICAL SAMPLING PUMP

- ▶ Program fluid volume for repeat sampling operations
- ▶ Controller is wall mountable for convenient location at sampling station
- ▶ Controller display shows operating parameters and run status
- ▶ Easy-Load head allows for quick tubing changes between batches or drums
- ▶ Pump head with PPS housing and stainless steel rollers resists corrosion and chemical attack
- ▶ Pump is self-priming and reversible; easily prime or purge tubing
- ▶ Substitute tubing based on compatibility with various chemicals (see pages 24–25)

Pump products shown

HL-77601-60 I/P® Easy-Load® Pump Head (pages 122–123)

HL-06404-73 I/P 73 Norprene® Pump Tubing (pages 126–127)

HL-07594-10 I/P Modular Digital Dispensing Drive (pages 138–139)





WATER TREATMENT PUMP

- ▶ Brushless, maintenance-free motor for continuous duty
- ▶ Accurately meters chemical mixtures
- ▶ Digital display of flow rate, dispense volume, copy number, and motor rpm
- ▶ Quick, complete feedback loop of operations via remote signal
- ▶ Modular design lets you place controller where convenient
- ▶ IP66 rating permits hosedown when needed
- ▶ Easy-Load® II pump head for quick tubing changes and easy cleanup

Pump products shown

HL-77200-62 L/S Easy-Load II Pump Head (pages 44–45)

HL-06404-24 L/S 24 Norprene® Pump Tubing (pages 70–71)

HL-77301-50 L/S Modular Digital Drive (pages 90–91)



MULTICHANNEL FEED PUMP

- ▶ 100 rpm drive lets you stack up to four heads for increased capacity
- ▶ Change tubing quickly without dismounting heads
- ▶ Drive offers repeat dispensing functionality with batch count
- ▶ Heads accept multiple tubing sizes for application flexibility
- ▶ Chem-Durance® Bio pump tubing offers broad chemical compatibility and excellent pumping life
- ▶ Pump head with PPS housing and stainless steel rollers resists corrosion and chemical attack

Pump products shown

HL-07518-62 L/S Easy-Load Pump Heads (pages 46–47)

HL-06442-15 L/S 15 Chem-Durance® Bio Pump Tubing (pages 70–71)

HL-07522-30 L/S Digital Standard Drive (pages 88–89)



DYE/PIGMENT PUMP

- ▶ Brushless drive motor is maintenance free and continuous duty
- ▶ Epoxy powder coat paint resists corrosion and IP55 rating holds up to harsh environments
- ▶ Display of percent speed allows for repeatable rpm and flow settings
- ▶ Control drive speed remotely; pump running signal lets you monitor performance
- ▶ Powerful drive accepts two pump heads with any I/P tubing formulation
- ▶ Pump is self-priming and reversible; easily prime or purge tubing

Pump products shown

HL-77601-10 I/P Easy-Load Pump Heads (pages 122–123)

HL-06404-73 I/P 73 Norprene® Pump Tubing (pages 126–127)

HL-77411-00 I/P Brushless Process Drive (pages 134–137)



CARBOY TRANSFER PUMP

- ▶ Transfer chemicals at flow rates up to 8.0 LPM (2.1 GPM)
- ▶ Reversible motor lets you prime/purge tubing easily
- ▶ Pump is self-priming and nonsiphoning
- ▶ Easy-Load® pump head for quick changes between processes
- ▶ Tygon® E-Lab tubing is economical for frequent batch/fluid changes
- ▶ Substitute tubing based on compatibility with various chemicals (see pages 24–25)

Pump products shown

HL-77601-10 I/P Easy-Load Pump Head (pages 122–123)

HL-06509-73 I/P 73 Tygon® E-Lab Pump Tubing (pages 126–127)

HL-07591-20 I/P Modular Digital Dispensing Drive (pages 138–139)

FOOD & BEVERAGE



APPLICATION EXAMPLES

- ▶ Pizza sauce dispensing
- ▶ Salad dressing pump
- ▶ Glass washing system
- ▶ Ice cream pump
- ▶ Automatic drain cleaners
- ▶ Popcorn butter dispensing
- ▶ Vitamin A & D injection

FEATURES	BENEFITS
High-purity	Fluid media only contacts tubing—USP, FDA, EP, 3A, NSF compliance.
Easy cleanup	Simply change the tubing to clean the pump.
Wide range of tubing materials	Compatible with many foods and chemicals.
Handles viscous materials	Transfer and dispense yogurts, ice cream, and food particles.
Easily sterilized	Sterilize by ethylene oxide, gamma radiation, or autoclave.
Adjustable occlusion	Over-occlude for priming; reduce for longer tubing life and particulates.
Reversible	Operate in both directions without disconnecting tubing.
Self-priming	Lift fluids up to 8.8 m (29 ft).
Modular design	Mix and match pump heads, tubing, and drives for many applications.
OEM packages	Design into your lab dispensers or analytical equipment.



MULTICHANNEL DISPENSING PUMP

- ▶ Advanced digital drive offers programmable repeat dispensing functionality
- ▶ Cumulative volume totalizer and batch count
- ▶ Heads are stackable for expanded channel capacity
- ▶ Heads accept multiple tubing sizes for application flexibility
- ▶ Excellent between-channel accuracy ($\pm 1.5\%$ or better)
- ▶ BioPharm Plus silicone offers superior dispensing precision and flow stability with no break-in

Pump products shown

HL-07535-04 L/S® Multichannel Pump Head
(pages 54–55)

HL-96116-16 L/S 16 BioPharm Plus Silicone Two-Stop Tubing Sets (page 55)

HL-07522-20 L/S Digital Standard Drive
(pages 88–89)



DAIRY PROCESS PUMP

- ▶ Handles viscous materials
- ▶ Noncontaminating
- ▶ Self-priming (no valves)
- ▶ Easy cleanup, IP55 for washdown
- ▶ Delivers up to 8 LPM (2.1 GPM) with I/P® 73 Noreprene® food pump tubing
- ▶ Easy-Load® pump head facilitates quick tubing changes between samples
- ▶ Vary occlusion to handle purees, syrups, and other viscous fluids in the mixture
- ▶ Variable-speed drive features handles for convenient portability

Pump products shown

HL-77601-60 I/P® Easy-Load® Pump Head
(pages 122–123)

HL-06402-73 I/P 73 Noreprene® Food Pump Tubing
(pages 126–127)

HL-77411-00 I/P Brushless Process Drive
(pages 134–137)



ADDITIVE/CONCENTRATE PUMP

- ▶ Compact—fits easily into OEM applications
- ▶ Pump operates “on demand” to dispense flavor concentrate
- ▶ Flow rate: 0.002 to 37 mL/min
- ▶ Easy to service and clean
- ▶ Tygon® E-LFL food-grade tubing offers USP and FDA compliance and long life

Pump products shown

HL-06449-48 2.79 mm ID Tygon® E-LFL Microbore Pump Tubing (page 36)

HL-77120-42 C/L® Dual-Channel Pump
(pages 36–37)



SANITARY SAMPLING PUMP

- ▶ Drawing sanitary samples from process lines
- ▶ Stack pump heads to draw samples from multiple lines simultaneously
- ▶ Drive is easily programmed for repetitive sampling; program time delay (pause) between runs
- ▶ Control drive remotely via 0 to 20 mA, 4 to 20 mA, or 0 to 10 V signal; signal is scaleable and invertable
- ▶ Easy-Load II pump head permits fast tubing changes; pumping is contamination free
- ▶ Drive is IP66 and NEMA 4X rated—easily cleaned or washed down after use

Pump products shown

HL-77200-52 L/S Easy-Load II Pump Heads
(pages 44–45)

HL-96410-16 L/S 16 Platinum-Cured Silicone Pump Tubing (pages 68–69)

HL-07575-10 L/S Digital Process Drive
(pages 92–93)



ENVIRONMENTAL & SPECIAL



APPLICATION EXAMPLES

- ▶ Contaminated ground water
- ▶ Chemical drum sampling
- ▶ Enzyme isolation
- ▶ Flow injection analysis
- ▶ Greenhouse watering
- ▶ Fertilizer applications
- ▶ Pesticide delivery systems
- ▶ Sewage/sludge analysis
- ▶ Tree spraying
- ▶ Water salinity analyzers
- ▶ Wastewater sampling

FEATURES	BENEFITS
Noncontaminating	Samples collected only contact inside diameter (ID) of tubing.
Self-priming	Suction lifts up to 8.8 m (29 ft)
Runs dry	Pump is not damaged when left unattended.
Wide range of tubing materials	Compatible with water or waste samples.
Easy cleanup	Simply change the tubing to clean the pump.
Reversible	Purge and collect sample with one pump.
Modular design	Mix and match pump heads, tubing, and DC, AC, or hand-operated drives.
OEM packages	Design into your water sampling or analytical equipment.



HIGH-PURITY METERING PUMP

- ▶ Suitable for aggressive organic solvents
- ▶ Flow rates up to 65 mL/min with PTFE tubing
- ▶ Rigid tubing withstands pressure up to 6.9 bar (100 psi)
- ▶ PTFE-wetted parts allow contamination-free pumping
- ▶ Maintains high fluid purity
- ▶ Limited chemical exposure—fluid contacts only the tubing

Pump product shown

HL-77390-00 L/S® PTFE Tubing Pump Head
(pages 50–51)

HL-77390-60 L/S PTFE Tubing Set (pages 50–51)

HL-07528-20 L/S Precision Variable-Speed Drive
(pages 84–85)

This pump is available as a complete system; see page 116 for details.



COMPOSITE SAMPLER

- ▶ Program operation to meet EPA sampling requirements
- ▶ Dual-line, 24-character, backlit adjustable LCD with glow-in-the-dark keypad
- ▶ Locking latches prevent tampering; sampler floats up to 30 minutes if dropped in water
- ▶ Complete composite sampler system includes Easy-Load® pump head and L/S® tubing
- ▶ Passes through 18" diameter manhole
- ▶ Up to a 90-day standby for a remote signal
- ▶ Operates on an internal rechargeable battery, 12 VDC, or 115/230 VAC

Pump product shown

HL-07518-12 L/S Easy-Load® pump head (included with sampler)

HL-96400-24 L/S 24 Peroxide-Cured Silicone tubing (included with sampler)

HL-07580-00 E/S® Composite Sampler (page 106)



HAZARDOUS DUTY PUMP

- ▶ Ideal for transferring hydrocarbons, petroleum products, and distillates
- ▶ Suitable for gasoline, kerosene, heating oils, cutting fluids, and glycol-based coolants
- ▶ No electric power necessary; connect to existing air supply or compressor
- ▶ Ideal for hazardous-duty locations
- ▶ Intrinsically safe when properly grounded for static electricity
- ▶ Low-maintenance motor

Pump products shown

HL-77601-60 I/P® Easy-Load Pump Head (pages 122–123)

HL-06401-73 I/P 73 Tygon® Fuel & Lube Pump Tubing (pages 126–127)

HL-07589-30 I/P Air-Powered Drive (page 142)