

Everything you Need for Liquid Handling in Diagnostic Applications

For the widest
range of liquid
flow solutions and
technologies in
the market.



THOMAS
OEM Pumps

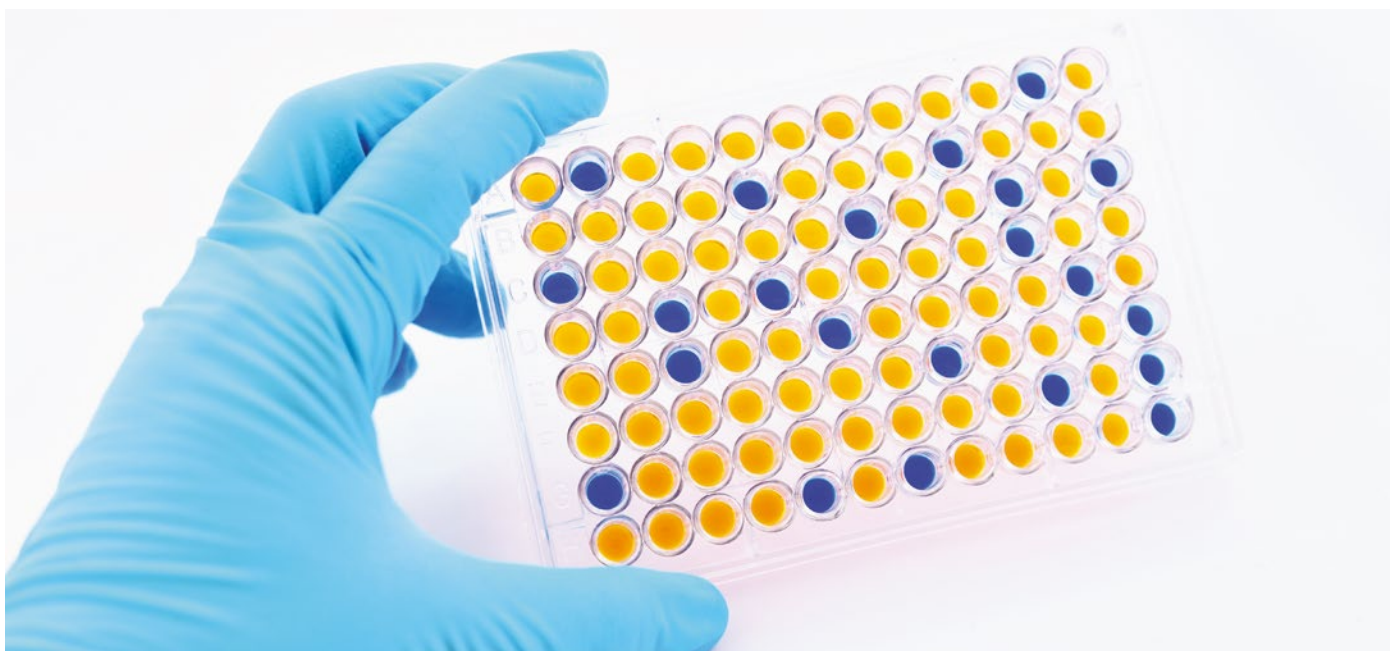
TRICONTINENT
Syringe Pumps

**ZINSSER
ANALYTIC**
Lab Automation

ILS
Syringes

Perfection in every drop

A variety of pumps are required in clinical chemistry, haemostasis analysis, immunology and microbiology to dose reagents, dispense bodily fluids, clean needles, and remove residues. Whatever type of pump you need for in-vitro diagnostics, there is only one supplier that offers them all: Gardner Denver.

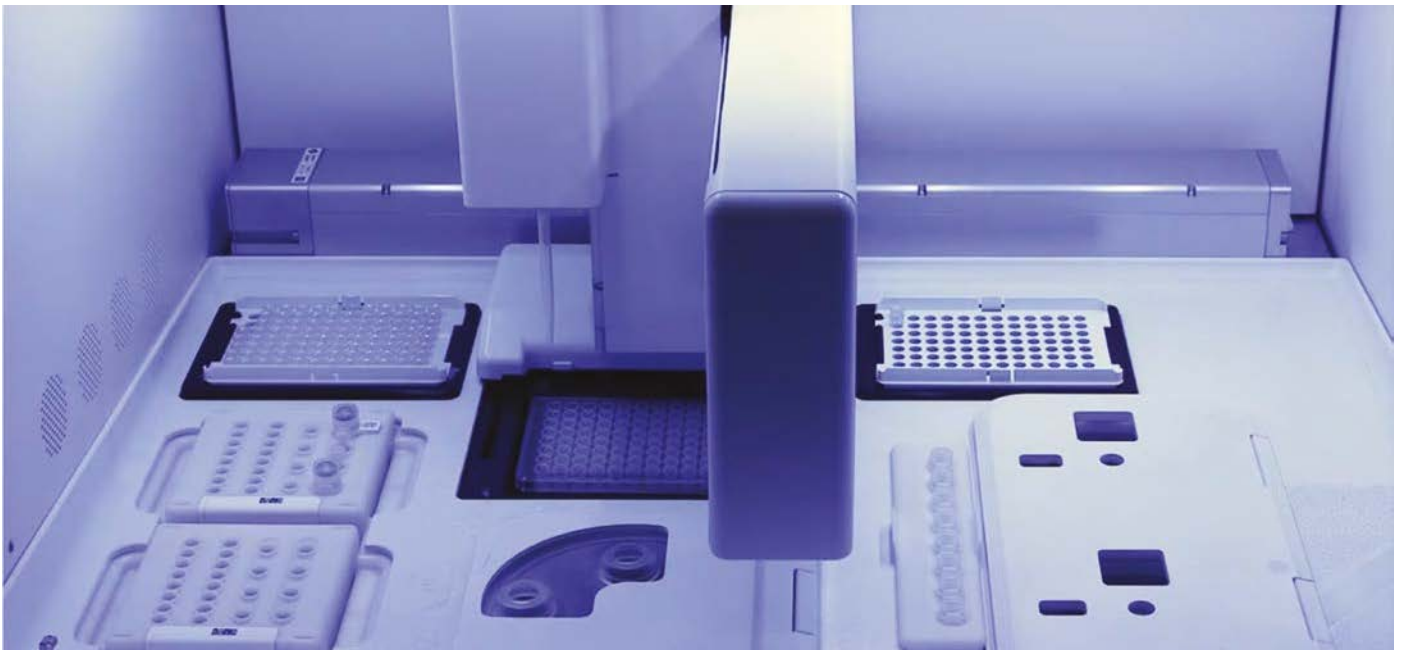


LOWER COSTS, GREATER ACCURACY

In-vitro analysis typically involves expensive reagents. Thanks to their high-precision dosing, our pumps make sure that only the necessary amount of reagent is used. This not only saves costs but also prevents process errors. For accurate dispensing of bodily fluids, there's no better choice than Tricontinent syringe pumps.

EASY TO USE, BUILT TO LAST





Our pumps' fast, thorough aspiration capabilities help you easily to transfer analyzed liquids from the analysis chamber or cuvette to the waste container - without leaving any residues or wasting any time. And, thanks to their proven durability, they support reliable analysis for an exceptionally long time. For quick repairs, we also offer convenient service kits for replacement of critical components in diaphragm or peristaltic pumps.










Select the optimal pump for your application

Gardner Denver offers a complete range of pumps for all in-vitro diagnostics applications. Since reliability is vital in this field, our pumps are designed to ensure high-precision dosing. The exact volume of reagent is used for each application, thus minimizing errors and costs.

Products of Thomas by Gardner Denver

	GDT 1210 Liquid diaphragm pump: waste removal
	GDT 6311 Liquid diaphragm pump: needle cleaning
	GDT 6410 / 6420 Liquid diaphragm pump: waste removal
	GDT LMF Liquid linear diaphragm pump: reagent dosing
	GDT 1610 / 1620 Gas diaphragm pump: waste removal
	GDT SR 10 / 30 Peristaltic pump: reagent dosing
	GDT SR 25 Peristaltic pump: reagent dosing

Products of Tricontinent by Gardner Denver

	C3000 / 24000 Tricontinent Syringe Pump: sample aliquoting and dispensing, diluent / reagent delivery
	Air-Z Premier Tricontinent Air Displacement Pump: sample aliquoting and dispensing, reformatting
	Air-Z Flex Sample aliquoting and dispensing, reformatting
	Air-Z Mini Sample aliquoting and dispensing, reformatting
	Air-Z Legacy Sample aliquoting and dispensing, reformatting
	Base Pump Series Sample aliquoting and dispensing, diluent / reagent delivery
	Automation Syringes Sample aliquoting and dispensing, diluent / reagent delivery

ADVANTAGES OF GARDNER DENVER PUMPS FOR IN-VITRO DIAGNOSTICS

- ✓ High-precision dosing prevents process errors and reduces reagent costs
- ✓ Fast, thorough aspiration performance for easy, residue-free liquid transfer
- ✓ Outstanding durability for reliable, cost-effective analysis
- ✓ Convenient service kits available for quick repairs

Products of Zinsser Analytic by Gardner Denver



Immunophenotyping

In diagnostic several procedures are applied for determination of e.g. phenotypes of leukemia. For staining blood cells immunophenotyping is used often.



Sterile Filling of Cell Culture Media

For certain cell based experiments, traditional and commercially available cell culture media require addition of specific substances such as cytokines. The preparation of this media with additives is performed under sterile conditions to prevent contamination.



Giemsa Staining

Giemsa staining is an important diagnostic tool applied for staining the chromosomes of cells for the determination of leukemia phenotypes and identification of parasites like malaria or toxoplasmosis.

Product of ILS by Gardner Denver

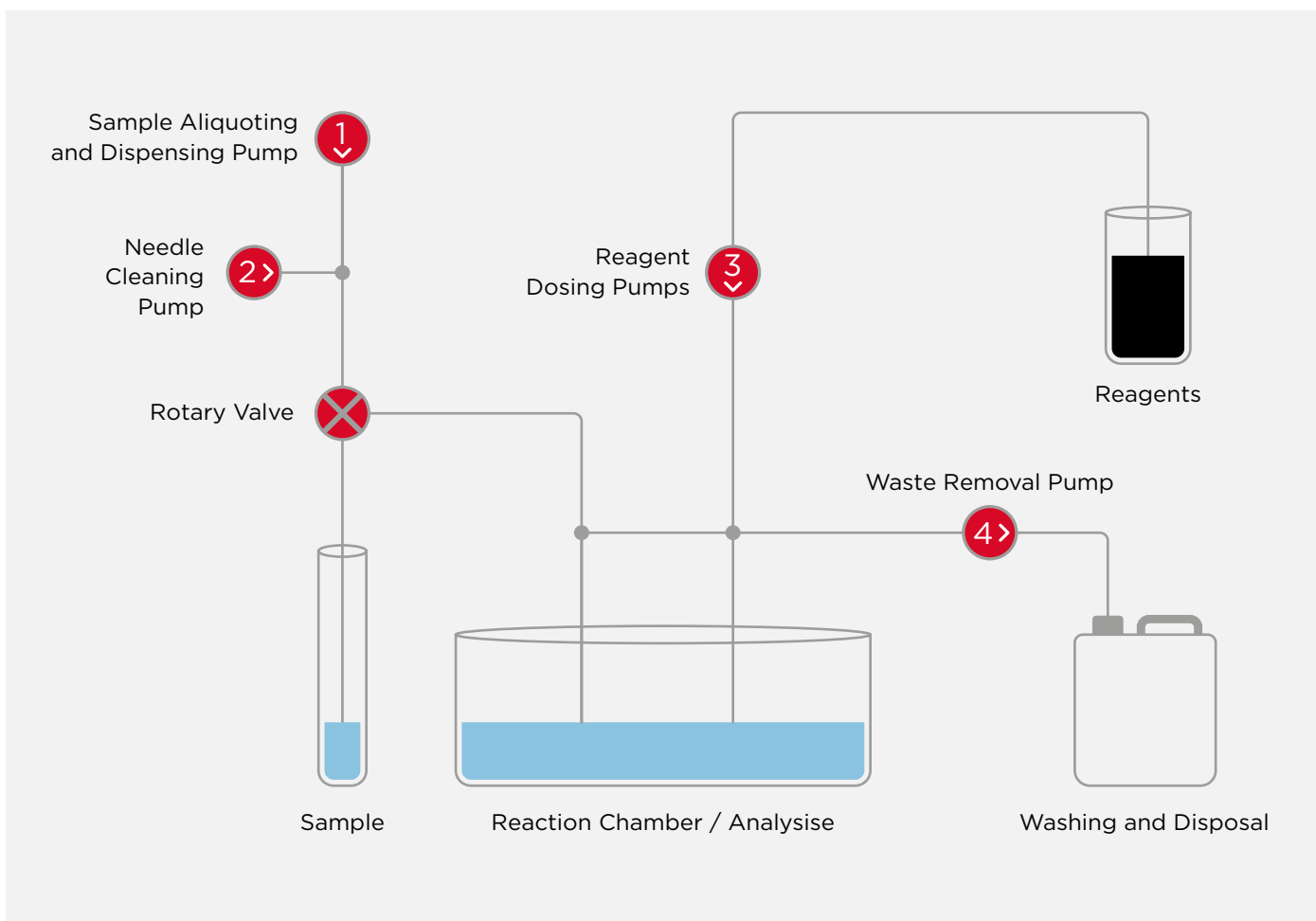


Series T Syringe

Main Usage

- Sample dosage for Gas Chromatography (GC)
- Dosage of small amounts of liquids
- For Thin Layer Chromatography (TLC)

In-Vitro Analysis Fluid Path



LIQUID PUMPS

- 1 **Sample aliquoting and dispensing:** Sample is dispensed into the reaction chamber with extreme precision
- 2 **Needle cleaning:** After contamination with disinfectant, needle is flushed at high pressure to remove all residues
- 3 **Reagent dosing:** Accurate dosing of reagents to the reaction chamber

MIXED MEDIA

- 4 **Waste removal:** Residual liquid from the reaction chamber is removed and transferred to the disposal tank. Pumps are capable of handling gas / liquid mixtures

GDT 1210 Liquid Diaphragm Pump

Recommended applications

4) Waste removal

Description

- Liquid diaphragm pump for smooth, continuous transfer of liquid
- Free flow rate: 180 - 250 mL/min
- Pressure: continuous pressure up to 1 bar
- Suction height: up to 6 mWc

Benefits

- ✓ Smooth, continuous flow with minimized pulses
- ✓ Bubble-free transfer of liquids
- ✓ Full compatibility with corrosive and abrasive media
- ✓ Flexible design for customized solutions



GDT 6311 Liquid Diaphragm Pump

Recommended applications

2) Needle cleaning

Description

- Liquid diaphragm pump for transfer of liquids under pressure
- Free flow rate: 150 mL/min
- Pressure: continuous pressure up to 5 bar
- Suction height: up to 4 mWc

Benefits

- ✓ Linear controllability of flow against pressure
- ✓ High reliability and lifetime even with higher pressures
- ✓ Full compatibility with corrosive and abrasive media
- ✓ Flexible design for customized solutions



GDT 6410 / 6420 Liquid Diaphragm Pump

THOMAS
by Gardner Denver

Recommended applications

4 Waste removal

Description

- Liquid diaphragm pump for smooth, continuous transfer of liquids
- Free flow rate: 600 mL/min (per head)
- Pressure: continuous pressure up to 1 bar
- Suction height: up to 3 mWc

Benefits

- ✓ Smooth, continuous liquid flow with minimized pulses
- ✓ Bubble-free transfer of media
- ✓ Excellent reliability and durability even with corrosive and abrasive media
- ✓ Flexible design for customized solutions
- ✓ Reliable transfer of air / liquid mixtures
- ✓ Spare part kit for self-service available



GDT LMF Liquid Linear Diaphragm Pump

THOMAS
by Gardner Denver

Recommended applications

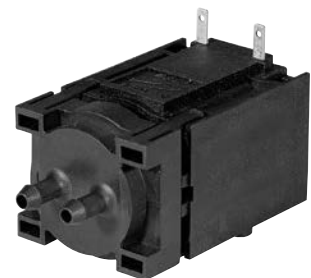
3 Reagent dosing

Description

- Liquid linear diaphragm pump for reliable continuous dosing against low pressures
- Free flow rate: 185 - 300 mL/min
- Pressure: continuous pressure up to 0.5 bar
- Suction height: up to 2 mWc

Benefits

- ✓ Cost-efficiency
- ✓ Quiet operation



GDT 1610 / 1620 Gas Diaphragm Pump

Recommended applications

4 Waste removal

Description

- Gas diaphragm pump for high end vacuum and performance stability
- Free flow rate up to 16 L/min
- Intermittent pressure up to 2 bar
- Intermittent vacuum up to 90%

Benefits

- ✓ Low sound and vibration over performance range
- ✓ High evacuation speed
- ✓ Performance reliability over lifetime
- ✓ Configurable design for customized solutions



GDT SR 10 / 30 Peristaltic Pump

Recommended applications

3 Reagent dosing

Description

- Peristaltic pump for accurate dosing of media
- Flow rate: 16 - 55 mL/min

Benefits

- ✓ Simple handling, tubing is easy to exchange
- ✓ Robust and durable design
- ✓ Reliable dosing capabilities
- ✓ Flexible choice of motor and tubing



GDT SR 25 Peristaltic Pump

THOMAS
by Gardner Denver

Recommended applications

③ Reagent dosing

Description

- Peristaltic pump for accurate dosing of media
- Flow rate 0.2 - 746 mL/min

Benefits

- ✓ Simple handling, tubing is easy to exchange
- ✓ Robust and durable design
- ✓ Excellent dosing capabilities
- ✓ Flexible choice of motor and tubing



C3000 / 24000 Tricontinent Syringe Pump

TRICONTINENT
by Gardner Denver

Recommended applications

- ① Sample aliquoting and dispensing
- ③ Diluent / reagent delivery

Description

- High quality stepper motors and lead screws with up to 192,000 steps per full stroke
- Syringe volumes from 50 μ L to 12.5 mL
- Wide variety of rotary shear valves
- State-of-the-art communication capabilities

Benefits

- ✓ Highest precision and accuracy in pipetting volumes and flow rates
- ✓ Very wide dynamic range
- ✓ Longevity design for maintenance free operation
- ✓ Plug and play installation and operation



Air-Z Premier Tricontinent Air Displacement Pump



Recommended applications

- 1 Sample aliquoting and dispensing, reformatting

Description

- High quality stepper motors and lead screws for high resolution
- Total volumes 1000 μL
- Tip volume ranges of 20 μL , 50 μL , 200 μL , 1000 μL
- State-of-the-art communication capabilities
- Pressure sensor and capacity sensor
- Active tip drop

Benefits

- ✓ Very high pipetting performance concerning precision and accuracy
- ✓ Wide dynamic range from few microliters to 1 mL
- ✓ Liquid Level Detection (LLD) by pressure, capacity or both (hybrid)
- ✓ Clogged tip detection
- ✓ Active tip drop allows simple reuse of tips



Air-Z Flex



Recommended applications

- 1 Sample aliquoting and dispensing, reformatting

Description

- 50 μL , 250 μL and 1,000 μL volumes available
- With or without control electronics, including pressure sensor
- Vertical or horizontal orientation available
- Up to 15 units can be addressed individually

Benefits

- ✓ High-resolution encoder for step loss detection
- ✓ Space saving compact size
- ✓ Universal tip adapter for use on multiple volume tips
- ✓ Pressure sensor for clogged tip detection



Air-Z Mini

TRICONTINENT
by Gardner Denver

Recommended applications

- 1 Sample aliquoting and dispensing, reformatting

Description

- 50 μ L volume
- Most economical design for low-duty cycle applications
- Designed for easy installation and replacement
- Imprecision and inaccuracy of < 1% full stroke

Benefits

- ✓ Lightweight for smaller point of care systems
- ✓ Compact design for small applications
- ✓ Can be nested on 18 mm centers for multiple dispenses at one time



Air-Z Legacy

TRICONTINENT
by Gardner Denver

Recommended applications

- 1 Sample aliquoting and dispensing, reformatting

Description

- Pump Volume options of 200 μ L, 1,000 μ L, 2,000 μ L and 5,000 μ L
- Optional proximity switch
- Optional motion control board available

Benefits

- ✓ Instrument ready designs
- ✓ Borosilicate glass & PTFE wetted surfaces for long life
- ✓ Compatible with most motion controllers



Base Pump Series

Recommended applications

- ① Sample aliquoting and dispensing
- ③ Diluent / reagent delivery

Description

- Configurations with or without valves
- Syringe sizes from 250 μ L to 10 mL
- Imprecision and inaccuracy < 1% full stroke

Benefits

- ✓ Economical solution without electronics
- ✓ Proven design with Borosilicate glass and PTFE wetted parts
- ✓ Simple two way valve for easy connection



Automation Syringes

Recommended applications

- ① Sample aliquoting and dispensing
- ③ Diluent / reagent delivery

Description

- 3 cm and 6 cm lengths
- PTFE or UHMWPE seal options
- Syringe sizes from 50 μ L to 25 mL

Benefits

- ✓ Compatible with most industry standard pumps
- ✓ Proven designs using high grade seal material and Borosilicate 3.3 glass
- ✓ Custom designs available to meet your needs



Immunophenotyping

**ZINSSER
ANALYTIC**
by Gardner Denver

In diagnostic several procedures are applied for determination of e.g. phenotypes of leukemia. For staining blood cells immunophenotyping is used often. The staining process has been automated by Zinsser Analytic. Stock solution, staining buffer, buffer solution and vials with blood films (or bone marrow or spinal fluid) are positioned on the workbench prior to starting the method.



Sterile Filling of Cell Culture Media

**ZINSSER
ANALYTIC**
by Gardner Denver

For certain cell based experiments, traditional and commercially available cell culture media require addition of specific substances such as cytokines. The preparation of this media with additives is performed under sterile conditions to prevent contamination. Zinsser Analytic designed an automated platform to carry out this time-consuming and tedious task. The specific platform consists of two pipetting tips for the addition of supplements, a gripper mounted on the robotic arm for transport of culture vials, a capping/decapping station with an integrated barcode reader for vials and a dispense station for culture medium. Culture tubes, the required cytokines and the standard culture medium are part of the platform. The entire platform is sited in an enclosure which is supplied with sterile air.



Giemsa Staining

Giemsa staining is an important diagnostic tool applied for staining the chromosomes of cells for the determination of leukemia phenotypes and identification of parasites like malaria or toxoplasmosis. Specialized oncology or hematology laboratories are faced with large amounts of samples that need fast processing. Prior to process the Giemsa stock solution, staining buffer, buffer solution and slides with blood films are placed onto the workbench.



Series T Syringe

ILS



Specification

- 0.5 µL - 25 µL
- Zero Dead Volume
- Positive displacement
- Sample contained in the needle only
- Removable syringe parts
- Removable plunger stop
- Including: 1 needle & 1 calibrated piston wire

Main Usage

- Sample dosage for Gas Chromatography (GC)
- Dosage of small amounts of liquids
- For Thin Layer Chromatography (TLC)

Glass Barrel: Borosilicate 3.3

Removable Needles (RN)

Plunger is able to be pushed all the way to the tip of the needle.

GENERAL CONTACT

EMEA

Gardner Denver Thomas GmbH
Livry-Gargan-Str. 10
82256 Fuerstenfeldbruck
Germany

Tel: +49 8141 2280 0
Fax: +49 8141 8892136
thomas.de@gardnerdenver.com

AMERICAS

Gardner Denver Thomas, Inc.
1419 Illinois Avenue
Sheboygan, WI 53081
USA

Tel: +1 920 457 4891
Fax: +1 920 451 4276
td.usa@gardnerdenver.com

ASIA PACIFIC

**Gardner Denver Thomas
Pneumatic Systems (Wuxi) Co., Ltd.**
No. 1 New Dong An Road
Shuofang Town
Wuxi, Xinwu District
Jiangsu 214142
China

Tel: +86 510 6878 2258
Fax: +86 510 6878 2200
thomas.cn@gardnerdenver.com

Please check out all our brands for your mission-critical flow control technologies:



OEM Pumps
www.gd-thomas.com



Vacuum Pumps & Systems
www.welchvacuum.com



Syringe Pumps
www.tricontinent.com



Lab Automation
www.zinsser-analytic.com



Syringes
www.microsyringes.com