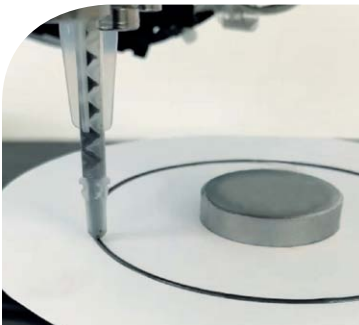


APPLICATION EXAMPLES



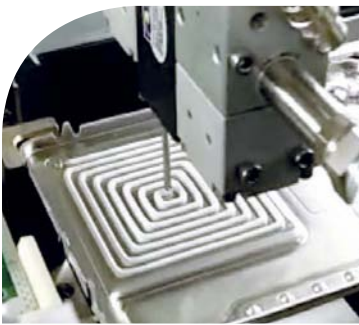
Grease microdosing application on the electric part of the washing machine program selector. Diameter 45mm, two concentric crowns of microdots for a total of 0,1cc of grease. Semi-automatic station on a manual assembly process. VVPP5 volumetric doser with a custom frontal microdot dispensing terminal.



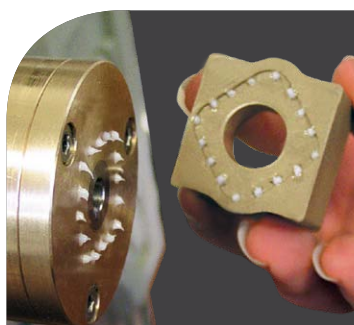
Two-component epoxy resin microstringing, mixing ratio 1:3, with total amount of 0,1g distributed along a Ø70mm circumference in a 5s cycle. Application made with a DVL2 dosing group and feeding from two PE25 extrusion pumps.



Paste microdosing on crank screws. Molybdenum disulfide and graphite-based paste to be distributed on thread and under the head of automotive and racing engine crank screws. Dose 0,3cc overall. Manual station. N.3 VVPP5 volumetric dosers with analogue flow sensors for dose detection and process certification, with a custom-made two-zone radial dispensing terminal, self-adapting for screws of different lengths.



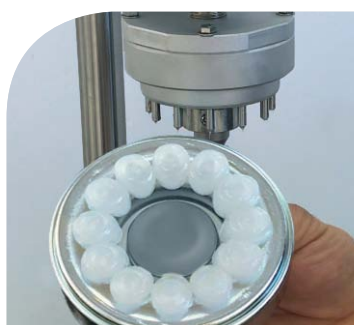
Thermal grease continuous string. Thermally conductive paste with high abrasive charge distribution on aluminum heat-sink. Dose volume 6cc (about 15g) distribute on a square spiral on a 15s cycle time. Application made with a special DVL dosing group for abrasive fluids, with a M-ONO type machine with a special extrusion pump for abrasive fluids.



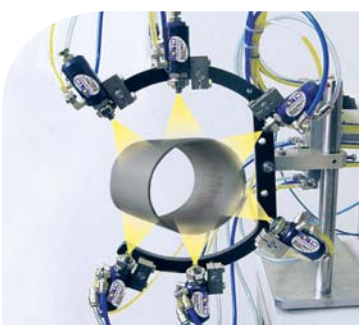
Fluorinated grease microdosing application along a 1mm wide perimeter ditch. Microdots have the function to hold a gasket in place during the assembly process. Total dose 0,02cc. Manual station. VVPP3 volumetric doser with custom-made frontal microdot dispensing terminal.



Microspray battery application of VMJETC dosing valves and volumetric dosers for a microlubrication on automotive engines.



High consistency silicone-based grease application. Dose of 20cc dispensed in a single cycle using a VVAP30 volumetric doser and a custom-made multichannel frontal dispensing terminal.



Application of VMJETE battery to microspray a protective anti-rust fluid on steel pipes.



Grease microdosing application in a Ø12mm ditch. Dose of 0,8cc deposited in the seating using a special custom-made multichannel frontal dispensing terminal. Hand-held volumetric doser with vertical handle and pneumatic trigger. VSF flow sensor for process certification and dose detection integrated inside the handle.



Special application of VMJETC microspraying valve with a VVPP volumetric doser for a precision oil microsprayed deposit on an automated assembly line. Specifications: to guarantee an accurate overall dose (0,03ml) uniformly distributed along the inner circumference of an assembled O-ring inside a pressure regulator for gas. The part was set in rotation while a sequence of microdoses was sprayed and thoroughly checked through VSF analogue flow sensors for absolute process control. Pneumatic volumetric doser with sequenced activation series and each dose is checked. Cycle time 3s.

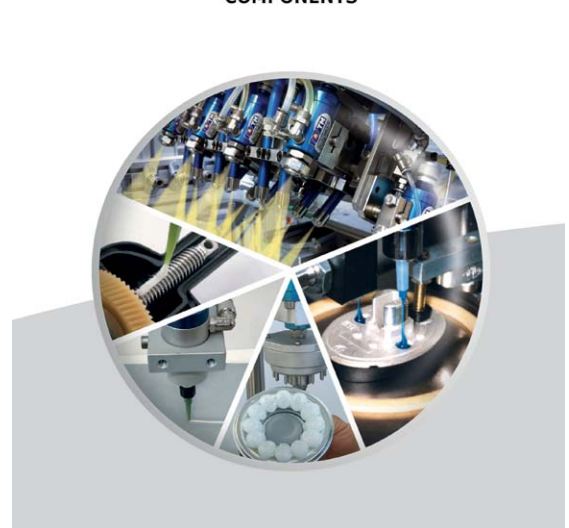


Examples of liquid sealing applications with volumetric continuous strings of one-component silicone. Applications done using DVC volumetric dosing groups fed via PE25, PE200 or SBE cartridge extruders.



Precision filling of a condenser with oil. Application done with a VVAP100 volumetric doser.

FLUID DOSING COMPONENTS



FLUID DOSING SYSTEMS AND INTEGRATED SOLUTIONS



MACHINES FOR FLUID DOSING AND TREATMENT



TM si riserva il diritto di apportare modifiche e/o migliorie a dati tecnici, immagini e descrizioni del presente catalogo senza preavviso.



FLUID DOSING COMPONENTS



TM designs, manufactures and sells dosing components, systems and machines for liquids and viscous fluids. TM is a dynamic industrial reality, a close-knit team that integrates the experience from historical minds and the energy of the youth, all coordinated by a great professionalism. TM was born on 2000 with the aim to become an excellence center for fluid dosing applications, and today it has gathered a unique know-how, covering all possible aspects and complexities of this trade. This has been made possible also because TM lives and operates within the most important district of automation for industry, that of Bologna (Italy), worldwide known for productive skills and design creativity. TM has several international patents, and several more are presently pending, which represent an intellectual property and tradition that gathers innovative machines and technologies, studied to offer a concrete and exclusive solution to its customers. TM is in fact structured to provide quick responses to a continually growing and expanding market, always looking for novelties and performance, efficiency and control, and today TM is to its customers more a partner than a plain supplier. TM team with professionalism follows each customer all along their project, from early phases with laboratory work to project phases where the drawings are laid down, to prototyping and until the final testing of the chosen solutions and after sale service. TM's work method in all processes guarantees the highest quality standards, together with the possibility to completely customize products and solutions, because the world of today -and of tomorrow- wants custom. What remains a constant standard is, instead, our attention to details. Always.

Lubricants, adhesives and resins have seen, in recent years, an incredible technological development, which had as principal motors aerospace and military areas, and have found a massive application in industrial fields like automotive, electronics, houseware appliances and furniture accessories design. Therefore the need has grown exponentially from industries to access and use more and more evolved, accurate and controllable systems for the dosing application of such fluids, which become themselves more and more sophisticated and advanced. TM designs and manufactures components and systems for precision dosing, microdosing, filling and process control of low to high viscosity industrial fluids, such as oils, greases and lubricant pastes, glues, adhesives (anaerobe or cyanoacrylate), one- and two-component resins and sealants, thermally and electrically conductive resins, greases and pastes, water, emulsions, solvents, inks, paints, primers, etc. The present catalogue shows the main products made by TM, which for over 20 years has developed, and keeps on developing, technologies to cover efficiently the huge world of industrial dosing applications, and today, strong with its know-how, is a reference point in its field.



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REV.01

TWIN COLUMN ELEVATOR EXTRUSION PUMPS FROM 1 TO 200 LT

Extrusion pumps featuring twin-column pneumatic elevator. Suitable to feed dosing systems with greases, pastes, medium-to-high viscosity silicones and resins. Dashboard includes full frontal controls and indicators. Size fit for 1-3 liter canisters, 5 to 50 liter pails and 200 liter drums/barrels. Custom made extrusion disc/plate sized upon packaging. Optional: minimum level pump stopping device. 2-hand safety controls.



PE

PNEUMATIC PUMPS FOR PAILS AND CANISTERS

Pneumatic pumps without elevator for medium-to-low viscosity fluid extraction. Suitable to feed dosing systems with greases and pastes from 1-3 liter canisters, 5-50 liter pails, 200 liter drums/barrels, 1000 liter bulks or cistern, and to transfer fluids from drums or cisterns. Custom made pressing plates sized upon packaging for fluids.



PAP

CARTRIDGE EXTRACTORS

Pneumatic cartridge extractor tank. Suitable to feed dosing systems with silicones, resins, adhesives, pastes or lubricants in cartridge packaging. Cartridge safety locking system made by TM.



SBE

HIGH PRESSURE VOLUMETRIC/METERING DOSERS

Pneumatic volumetric dosers for precision impulsive doses. Suitable to dose greases, oils, pastes and silicone-based fluids low-to-high viscosities. Inlet fluid pressure max 150bar. Dosing range from 0,03 to 100cc according to selected model. Mechanical suck-back effect at the end of the dosing cycle to help detaching the tip in presence of gluey fluids. Dose manually adjustable through graduated knob. Materials: aluminum, brass.



VVAP

HIGH PRESSURE VOLUMETRIC/METERING DOSERS WITH DIVORCED TECHNOLOGY

Pneumatic volumetric dosers for precision impulsive doses. Suitable to dose greases, oils, pastes and silicone-based fluids low-to-high viscosities. Inlet fluid pressure max 150bar. Dosing range from 0,03 to 10cc according to selected model. Mechanical suck-back effect at the end of the dosing cycle to help detaching the tip in presence of gluey fluids. Dose manually adjustable through graduated knob. Divorced technology for longer durability in presence of heavy duty applications or extremely high viscosities. Materials: aluminum, brass.



VVAPDV

DISPENSING VALVES FOR MEDIUM-HIGH VISCOSITY FLUIDS

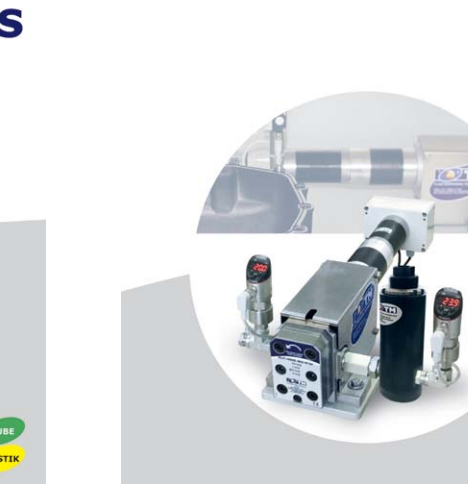
Pneumatic dispensing valves, on-off, non volumetric, for continuous or impulsive doses. Suitable for dosing or dispensing of greases, oils, pastes, silicones or resins. Possible dosing range from microdoses up to continuous dispensing as in filling or liquid seal applications. Suitable for direct feeding from tank or pump or integrated with volumetric dosers for precision filling or precision liquid sealing. Manual output flow adjustment through knob. Aluminum body.



VPPS

REVOLVING VOLUMETRIC/METERING CONTINUOUS DOSERS

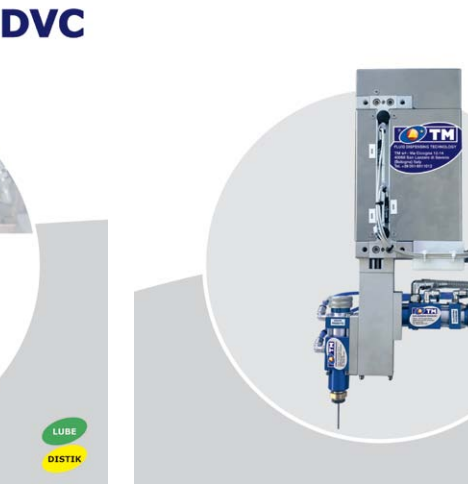
Electric volumetric continuous dosers based on gear-dosing technology. Suitable to dose greases and silicones, low to high viscosities. Volumetric dispensing of microdoses, continuous strings/doses or precision filling. Brushless motor integrated. Requires dedicated TM electronic drive and/or control unit/panel.



DVC

VOLUMETRIC/METERING LINEAR DOSERS

Electric volumetric linear dosers for high precision dosing applications. Suitable for lubricants, pastes, silicones, one- or two- component resins, gap fillers, thermal greases and fluids from low to high viscosity, also with aggressive chemical or physical properties. Volumetric dispensing of microdoses, continuous strings or precision filling. Brushless or stepper motor integrated. Requires dedicated TM electronic drive and/or control unit/panel. Possibility of custom-made projects for size, capacity and dosed fluids.



DVL

VOLUMETRIC/METERING LINEAR DOSERS FOR TWO-COMPONENT RESINS

Electric volumetric linear dosers for high precision dosing applications of two-component resins. Suitable for two-component fluids such as resins, silicones, gap fillers, low to high viscosity, also with aggressive chemical or physical properties. Volumetric dispensing of microdoses, continuous strings or precision filling. Management by dedicated electronic TM. Materials stainless steel and resin. Possibility of custom-made projects for size, capacity and dosed fluids.



DVLB

SINGLE SCREW VOLUMETRIC DOSERS

Continuous electric volumetric dosers for precision dosing, with single-screw technology. Suitable for dispensing oils, adhesives resins, glues and low to medium viscosity liquids. Volumetric dispensing in micro-doses, doses, continuous strings or precision filling. Management by dedicated electronic TM. Materials stainless steel and resin.



DVM

VOLUMETRIC DOSERS CONTINUOUS SCREW FOR TWO-COMPONENT PRODUCTS

Continuous electric volumetric dosers for precision dosing of two-component resins, with screw technology. Volumetric dispensing in micro-doses, doses, continuous strings or precision fillings. Driven by integrated electric motors, brushless or stepper motors depending on model and application. Controlled via dedicated TM electronics. Materials: anodized aluminum, stainless steel and synthetic materials.



DVM2

SHOOTING VOLUMETRIC DOSERS

Pneumatic volumetric dosers for precision dosing of contactless impulsive type, with shot ejection of doses. Suitable for dosing greases and pastes. Adjustable doses from 0,01 up to 0,1 cc by graduated nonius. Operated in single cycle or frequency sequenced up to 30Hz via dedicated control unit. Materials aluminium and brass.



DVMG

PRESSURE TANKS FOR LIQUIDS

Pneumatic pressure tanks for liquids. Suitable to feed dosing systems with oils, glues, resins and low-to-medium viscosity fluids. Tank capacities from 2 up to 40 liters. Optionally integrated with minimum level sensors or stirring devices. Standard materials painted steel or stainless steel. Fluid outlet from the top or from the bottom according to models.



SP

PRESSURE TANKS FOR BOTTLES

Pneumatic pressure tanks for fluid extraction directly from bottle or canister, without need to pour the fluid. Suitable to feed dosing systems with adhesives, glues, resins or lubricants with low-to-medium viscosities. Maximum nominal capacity 2 liters. Optionally integrated with minimum level sensors, heater base or stirring devices.



SB2

LOW PRESSURE ACCUMULATORS

Pneumatic pressure accumulators for low-medium-high viscosity fluids. Suitable to feed dosing systems with greases, oils or pastes. Capacity 1,5 to 8 liters. Minimum and maximum level sensors integrated. Suitable for refilling directly from the pump or through degassing machines of the VACUUM TOWER series. Different colors available. Aluminum body. Max working pressure 15bar.



SBAUTO

LOW PRESSURE VOLUMETRIC/METERING DOSERS

Pneumatic volumetric dosers for precision impulsive doses. Suitable to dose greases, oils, pastes and silicone-based fluids low-to-high viscosities. Dosing range from 0,003 to 0,75cc according to selected model. Dose manually adjustable through graduated knob. Materials: aluminum, brass. Inlet fluid pressure max 15bar.



VVPP

LOW PRESSURE VOLUMETRIC/METERING DOSERS WITH DIVORCED TECHNOLOGY

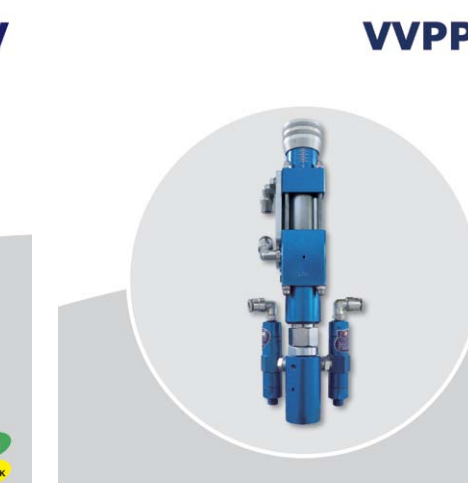
Pneumatic volumetric dosers for precision impulsive doses. Suitable to dose greases, oils, pastes and silicone-based fluids low-to-high viscosities. Dosing range from 0,003 to 0,75cc according to selected model. Dose manually adjustable through graduated knob. Materials : aluminum, brass. Divorced technology for longer durability in presence of heavy duty applications, extremely high viscosities or aggressive/abrasive fluids. Inlet fluid pressure max 15bar.



VVPPDV

VOLUMETRIC/METERING DOSERS WITH ELECTRONIC DOSE VOLUME DETECTION

Pneumatic volumetric dosers for precision impulsive doses, integrated with TM PATENTED innovative dose volume control, which will verify dose conformity before dosing. Complete with automatic purge system in case of KO doses. Suitable to dose greases, oils, pastes and silicone-based fluids low-to-high viscosities. Dosing range from 0,01 to 0,5 cc according to selected model. Dose manually adjustable through graduated knob. Materials: anodized aluminum, brass, steel, synthetic materials. Inlet fluid pressure max 15bar.



VVPPCE

PROCESS CONTROL UNITS

Dosing process control systems. Devices and accessories which can be integrated or added on TM impulse or continuous dosing systems/elements. Suitable for lubricants, resins, silicones, pastes, glues and adhesives. Technologies of flow detection, dispensing detection and volume detection/control for dose and process validation, against possible air bubbles, dosing/feeding/flow anomalies or nozzle clogging.



CP

DOSING UNITS

TM dosing units for dosing/dispensing management and control, complete with TM's own electronics, electric and pneumatic circuit to control dosers and valves. Standalone units which can be interfaced with external PLC, with isle enabling, cycle ready/alarm and external controls. Parameters and interface vary according to model and functions.



CTM

HYDRAULIC ACCESSORIES

Pneumatic and hydraulic accessories to complete dosing systems and dosing groups. Suitable for lubricants, glues, paints, inks, solvents, silicones, resins, pastes, water and generally fluids with low to high viscosities. From pressure regulators/stabilizers to anti-leak remote shutters VBLOC, fluid manifolds, accumulators and filters.



AI

SPRAY GUNS

Pneumatic air spray guns, non volumetric, for continuous or impulsive/spot spray applications. Suitable for low to medium viscosity fluids such as oils, glues, silicones, emulsions, water, paints, inks, solvents, greases, pastes, resins, etc. Anti-leak needle closure on the tip and various spray nozzles available. Flow adjustable mechanically with finely milled ticking knob. Materials: aluminum and stainless steel. Suitable for straight feeding from pressure tank or paired with volumetric/metering impulsive or continuous dosers for precision spraying and microspraying applications.



VMJET

NEEDLE DISPENSING VALVES FOR LOW-MEDIUM VISCOSITY FLUIDS

Pneumatic needle valves, non volumetric, for continuous or impulsive/spot fluid applications. Suitable for low to medium viscosity fluids such as oils, glues, silicones, emulsions, water, paints, inks, solvents, greases, pastes, resins, etc. Suitable for continuous dosing/dispensing or filling applications or timed-dosing/microdosing. Flow adjustable mechanically with finely milled ticking knob. Material: aluminum. Suitable for straight feeding from pressure tank/pump or paired with volumetric/metering continuous dosers as remote dispensing head for precision dosing.



VE

MEMBRANE DISPENSING VALVES

Pneumatic membrane valves, non volumetric, for continuous or impulsive/spot fluid applications. Suitable for low to medium viscosity fluids such as glues, vinyl, anaerobic, solvent-based adhesives, resins and fluids low to medium viscosity. Suitable for continuous dosing/dispensing or filling applications or timed-dosing/microdosing. Flow mechanically adjustable with finely milled ticking knob. Materials: aluminum and special plastic materials.



VEGUE