



T2X S80 and S250 – Stationary mounted doser

The T2X dosing system is used for highly accurate application of every kind of adhesive and sealant. The T2X doser is a high performance, cost-effective, dynamic, reliable, maintenance friendly and very accurate tool.

The stationary mounted dosers are available in two sizes: S80 and S250 (80 and 250cc). The basics are the same for both models, while length, volume and working pressure differ. Both dosers are available in three versions: non-heated, warm (20°C-80°C) and hot (20°C-140°C).

Absolute precision dosing

The stationary mounted T2X doser is fitted to a stand. The robot guides the parts under the dosers' nozzle during application, which then acts as a room-fixed-TCP. Dosing is carried out using an electric servo-drive plunger to apply the exact amount of material. The electric servo-drive is fully synchronized with the robot's movements. No matter how complicated the geometry is or how movements of the parts are, the T2X doser will always deliver the same perfect adhesive bead, year after year.

Design that ensures maximum performance

The excellent mechanical design of the T2X doser allows the application of material with even greater precision than before. The doser can handle all materials due to its short, straight material channels and a large flow area which minimizes the shear stress of material. Along with the fast-acting outlet gun large quantities can be applied with a high level of dynamics. Fast acting quantity changes are easily controlled without compromising accuracy.

Parts that work excellently together

Each component of the doser has been carefully chosen to ensure the highest level of quality and the best possible overall result. Components, cables and hoses are assembled inside the doser as protection against outside disturbance. This clean design, which is characteristic for the T2X, simplifies simulation and robot programming.



Increased life expectancy of the doser

As in all high pressure applications a small amount of material will penetrate any kind of seal. T2X's unique lubrication and cleaning system removes any adhesive or sealant particles that have penetrated the seals, giving the doser increased life and maintenance interval. The sturdy handles of the doser acts as protection during manual handling like service and transport. The connection cables are specially secured to the doser to withstand wear and tear. An optional collision guard can also be easily fitted to the doser. The lubrication system, high level of quality and durable construction keep maintenance costs to a minimum.

Rapid exchange shortens production stops

Exchange can be completed in just two minutes, whether changing a nozzle, gun or doser. Nozzles are exchanged in a TCP-secured way by three screws only. The gun has a media flange with auto couplings for material, oil, air, power and signal, enabling quick changes. By loosening only four screws the complete gun is exchanged. The T2X manual tool changer enables rapid exchange of a complete doser, entirely without tools.

Furthermore all the electricity, air and oil use quick connections. TCP durability is achieved through the manual tool changer's integrated calibration ability in X, Y and Z.

Easy maintenance keeps costs down

The construction is designed for quick and easy maintenance. Individual components are simple to change due to extensive modularisation. The electrical system is designed to allow single component exchange, minimizing cost and repair time. The overall result is increased availability with minimized cost of ownership.

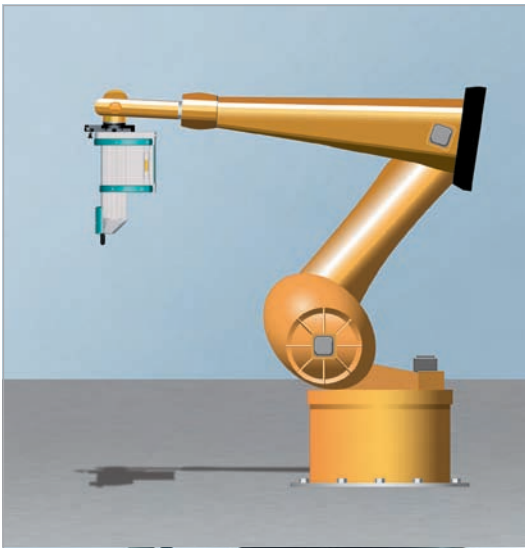
Technical specification:

Doser type	S80	S250	
Volume	80	250	ccm
Pressure max ¹⁾	250	250	Bar
Working pressure	100	200	Bar
Flow max ²⁾	20	20	ccm/s
Robot speed Ø5 ³⁾	1000	1000	mm/s
Filling time ⁴⁾	4-8	8-16	s
Servo	400	750	W
Temperature range	20-140	20-140	°C
Lubricated sealings	Yes	Yes	
Nozzle length	58/108/158	58/108/158	mm
Nozzle pipe diameter	12, 16, 20	12, 16, 20	mm
Nozzle diameter	0,1 - 3,5	0,1 - 3,5	mm
Weight ⁵⁾	23	25	kg
Length	550	722	mm
Width	210	210	mm
Depth	275	275	mm
TCP: ⁶⁾			
X	52	52	mm
Y	0	0	mm
Z	543	715	mm



- 1) Depending of material properties and nozzle size.
- 2) Depending of material properties. Doser is empty.
- 3) The resulting robot speed when applying a diameter 5 mm bead with full flow.
- 4) Depending on material used.
- 5) Weight exclusive manual tool changer (+8 kg)
- 6) With a straight L=58 mm nozzle

[Specification may change]



T2X R80 and R250 – Robot mounted dosers

The T2X dosing system is used for highly accurate application of every kind of adhesive and sealant. The T2X doser is a high performance, cost-effective, dynamic, reliable, maintenance friendly and a very accurate robot tool.

The robot mounted dosers are available in two sizes: R80 and R250 (80 and 250 cc). The basics are the same, while length, volume and working pressure differ. Both dosers are available in three versions: non heated, warm (20°C-80°C) and hot (20°C-140°C).

Hoseless application

The robot mounted T2X doser together with its docking station provides hose-less application. This means that expensive, unpredictable hose solutions prone to wear and tear are completely eliminated from the robot arm. The doser is filled through the docking station in a matter of seconds. The hose-less doser can be fitted with an automatic tool changer, enabling the robot to handle several other tools.

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- 6) With a straight L=58 mm nozzle

[Specification may change]



T2X – Docking station

The T2X docking station is used together with any of the robot mounted T2X dosers. By using the robot mounted doser with a docking station one avoids an unpredictable and expensive hose solution that quickly wears out, while the robot is made available for other tasks.

Hoseless material transfer

The T2X docking station is designed with material transfer without hoses along the robot arm. The robot puts the doser in the docking station during material filling. The doser is firmly locked to the docking station to achieve an effective flow between barrel, pump, docking station and doser. The locking function is completely covered to eliminate any risk of personal injury or damage. If the robot leaves the doser in the docking station using an automatic tool exchanger then the robot is then free to carry out other tasks.

When designing the unique T2X docking station we made it very simple for the robot programmer to dock the doser in and out of the docking station by its clear access open surfaces.

Flat surfaces and exact measurements

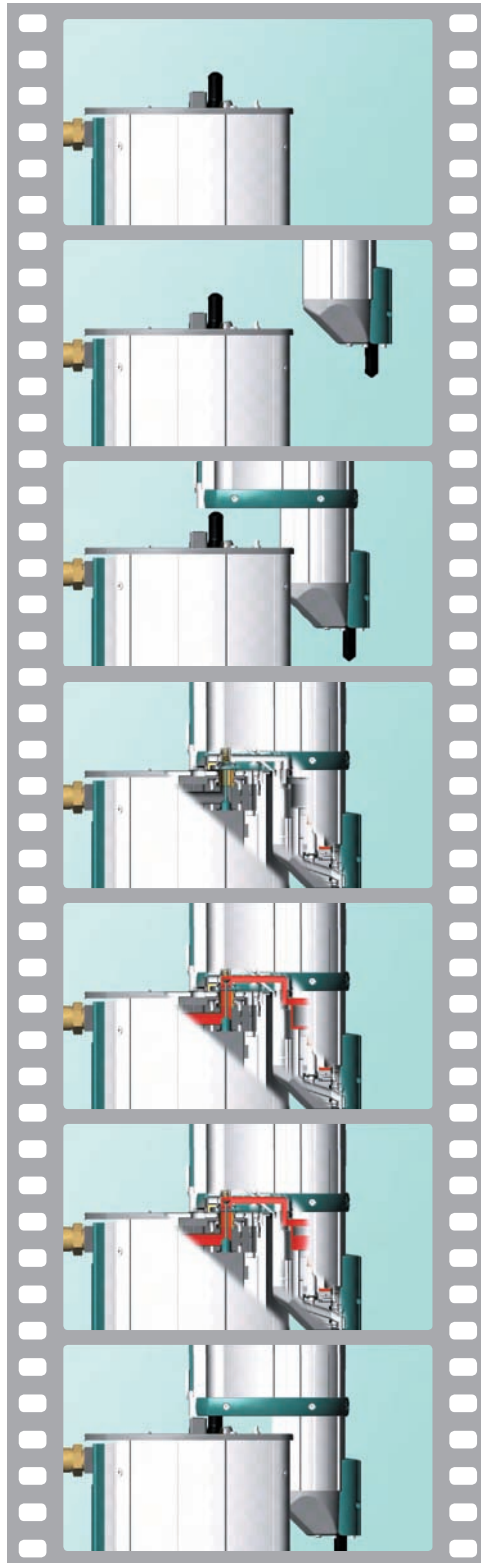
The characteristic T2X standalone and complete design of the docking station enables all components, cables and hoses to be assembled inside the docking station. Surfaces are completely flat and free from unnecessary parts sticking out, making it very easy to keep clean. The front side is adapted to fit a purge barrel placed in front of the docking station.

When installing the docking station to a perfectly upright position we have made it easy by three adjustable screws along with an integrated spirit level on the docking stand.

Safety and quality throughout the entire process

All of the docking station's components have been carefully chosen to ensure the highest quality. This means the docking station is very reliable and rarely needs maintenance. Extensive modularisation makes it easier to change individual components if necessary. Like the dosers, the docking station is available in three versions: non-heated, warm (20°C-80°C) and hot (20°C-140°C). The docking station works very well in conjunction with an automatic tool exchanger. The design and size is the same irrespective if you choose the R80 or R250 doser. All equipment is CE marked and quality assured.

Docking sequence



Technical specification:

Temperature range	20-140 °C
Air supply	7 Bar
Connections	Air, Lubrication x 2, Electrical wires, Media hose.
Connection media	90 or 135 degrees - 3/4"
Lubricated sealings	Yes
Max media pressure	400 Bar
Filling time ¹⁾	8-16 s
Movement top plate	
in X,Y & Z	±3 mm
Weight	60 kg
Height	1040 mm
Width	310 mm
Depth ²⁾	320 mm



¹⁾ Time from robot enters the locating pins until the robot leaves the same pins with a filled doser. Doser are empty then the robot arrives. Filling time may vary depending of material.

²⁾ Plus media inlet.

[Specification may change]



T2X FC - Flow Control system

The T2X FC is a user-friendly advanced control system for the entire T2X doser and docking station programme. The T2X FC consists of servo-control, PC-control and the necessary electrical components assembled in a small cabinet. The control system is based on full graphics with integrated real-time control. T2X FC is available in several configurations where number of dosers, docking stations, pumps and process data determine how the T2X FC is equipped. It is simple to integrate the control system with other production systems while getting a tailored expert system featuring both control and monitoring capabilities.

Industrial field buses provide effective communication

To ensure maximum performance the T2X FC is built with field bus and distributed I/O, the internal field bus is Interbus. Communication with external controllers such as robots and PLC's is performed via a very fast gateway that provides communication with all kinds of industrial field buses.

Real-time control – securing guaranteed response time

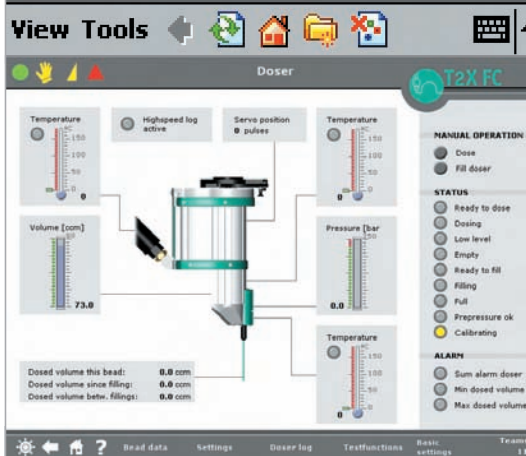
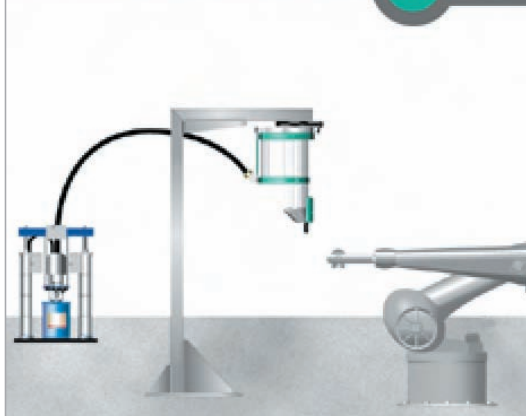
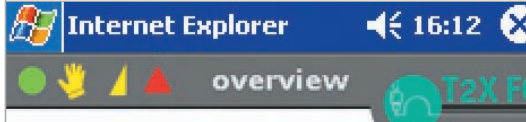
By choosing the Venturecom RTX real-time system, where the CPU is shared with Windows XP, the T2X FC can expand according to requirements. The real-time system has both high levels of performance and technical availability which effectively means that the real-time system in the T2X FC will just continue to run the production even if Windows XP crashes and stops the graphical interface.

Data logging and data analysis facilitates follow-ups and control

The T2X FC is equipped with log functions for all system events, including user interactions and process data. Log examples include alarm, bead, doser, operator, maintenance and temperature logs. Special attention has been paid to information being accessible both internally at the T2X FC and externally from other systems. Specially developed software for analysing process data makes information easily understandable and it can be customised to meet the users' own requirements.

Fully integrated networking with existing systems

T2X FC has been developed to be fully integrated into our customers' data networks with the help of OPC, etc. Every function for data exchange, control and monitoring of the control system is done via Ethernet. OPC or the T2X protocol is available as support for the control system and you will always have access to actual process data irrespective of the location of the units.



Immediate, remote service and maintenance

Wherever our customers are located we are always ready to provide secure remote control solutions, remote monitoring and web cameras that providing constant, immediate support on expert level. Security and integrity are always our highest priority for any remote control application. All modern technologies such as mobile phones, pocket PCs, industry-adapted PDA's or laptops could be used to control the T2X FC. We have all the solutions making this possible.

All documentation available online

All T2X documentation is available on each individual T2X FC. Mechanical and electrical drawings with appropriate item lists, maintenance manuals and repair instructions are integrated parts of the control system documentation. In the event of an alarm, the T2X FC finds the correct page in the document so that more in-depth information about faults and their causes will be immediately shown to the operator.

SE46 – No virus protection needed

With SE46 CIS (Computer Integrity System) the issue with viruses is addressed by verifying every single file before it is allowed to execute on the system. The system is built on the concept of Digital Certificates, commonly used for authenticating people using Public Key Infrastructure (PKI) solutions. Without reinventing the wheel, SE46 has adopted the standards used by PKI to create something called an "Application Certificate", or appCert for short. The appCerts are used to create system/department/organisation -specific policy certificates that states exactly what programs it or they are permitted to run. This altogether means that no virus protection or Microsoft patches are needed to get secure control system.

Simple user interface equals success

All T2X systems are very reliable and are designed to run with a low need of maintenance. Thereby the user interface is not being used frequently. Therefore it is even more important that it is intuitive and easy to use! When designing the user interface we focused on the different ways people comprehends information. Every symbol is designed to avoid misunderstanding (by people who are coloured blind, for example). Our active screen saver indicates the machine's actual status and is visible from a distance. We have also adapted information to individual user groups with different information requirements, different levels and experience. The T2X FC is designed to be simple and fun to use, the payback is high efficiency and high output.

Technical specification:

OS User interface	WindowsXP
OS Control	Venturcom RTX
Processor	>Pentium Celeron 700
Harddisk	>40Gb
Interface	Ethernet, USB, Ser, Par
Communication protocol	TCP/IP, OPC, NFS, FTP
No of OPC tags	>500 tags
Remote control	By client software and HTTP/Web
Field bus interfaces	Interbus, Profibus, DeviceNet, Can, Ethernet
I/O area to robot	4-10 words
Response time mech ¹⁾	20 ms
Response time field bus	5 ms
Process loops	5 / 100 / 500 / 2000 ms
User levels	12
Number of users	Unlimited
Number of rows in source code	>50 000 rows
Power	380V/16A
Measures	600 x 760 x 380 mm
Weight	50 kg



¹⁾ Time from change to controlsignal to mechanics are affected.

[Specification may change without further notice]



Options to the T2X doser

Spare parts

Delivering systems to customers' means actively taking on long term responsibilities, providing spare parts to customers is one of them.

In the documentation the part lists are divided in wear parts and spare parts. Wear parts are parts that should be on stock for exchange due to normal wear. Spare parts are parts that should be on stock to make fast repair of the equipment. We always keep our own stock ready for both the planned and the un-planned needs of our customers.

Nozzles

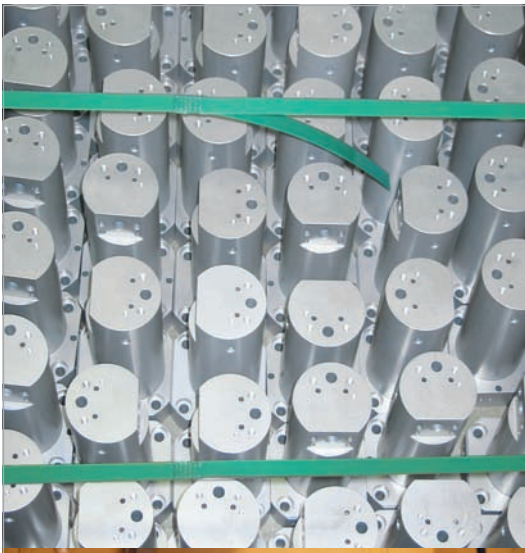
We have standardized our T2X nozzle program to cover all types of application normally being used within the automotive industry today. This means that the T2X have great capabilities in delivering functional beads such as anti-flutter, NVH, seam sealing, cosmetic etc or pure bonding with semi-structural or structural adhesives.

The T2X guns could practically be delivered with anything from short, thick nozzles to long thin angled nozzles via flat bead nozzles. Techniques being used are: extrusion, streaming, swirl and spraying. Even nozzle tips especially designed for collision are available.

Lubrication system

To make the lifetime of the T2X system even longer the service interval can be extended by installing a lubrications system. As in all high pressure applications a small amount of material will penetrate any kind of seal. T2X's unique lubrication system removes any adhesive or sealant particles that have penetrated the seals, giving the doser and the docking station increased life and maintenance interval.

The lubrication system, high level of quality and durable design keep maintenance costs to a minimum. There are two types of the lubrication system the first is the standard type is mounted on our media panel with tank, pump and filter and PTFE-hose connections to and from doser or to and from the docking station depending on type of installation. The second type is for robot carried dosers and is installed at the robot wrist and act as an onboard lubrication system. The later type is used when the time, between cycles, spent in the docking station is less than 15 seconds.



Manual TCP-Calibration unit

To enable the fastest possible exchange of the T2X dosers and guaranteed short production stops we could recommend our T2X calibration unit to calibrate the TCP of all dosers in order to have a nominal value of all dosers TCP. First all spare dosers should be calibrated, thereafter every doser should be recalibrated when they are being refurbished.

Collision detection

Depending on the design of the production process, the doser can hit other objects in various frequencies. If this happens very often we recommend that one should consider buying a collision detection from Teamster. This will both indicate and alarm in case a collision would occur and take the collision force away from the doser protecting it from damage.

OPC & IT solutions

OPC gives a maximum of flexible communication solutions to any shop floor. T2X FC has been developed to be fully integrated into our customers' data networks with the help of OPC, etc. Every function for data exchange, control and monitoring of the control system is done via Ethernet.

OPC or the T2X protocol is available as support for the control system and you will always have access to actual process data irrespective of the location of the units. Wherever our customers are located we are always ready to provide secure remote control solutions, remote monitoring and web cameras that providing constant, immediate support on expert level.

Security and integrity are always our highest priority for any remote control application. All modern technologies such as mobile phones, pocket PCs, industry-adapted PDA's or laptops could be used to control the T2X FC. Teamster can also make tailor-made IT solutions upon requests for PocketPC, quality assurance systems, remote control etc. We have all the solutions making this possible.

Visionsystems

We at Teamster have long experience of vision systems in various applications. We enable our customers to buy vision systems that are fully integrated with the T2X system providing a 100% quality assurance of the adhesive bonding process.



References within bonding technology

With many years of experience in delivering dosing systems we have worked with many of the major manufacturers within the automotive industry. We are convinced that you too will discover all the great possibilities and vast advantages of the dosing systems and competence from Teamster. Below you will find some of our satisfied customers. Maybe you are already one of them?

VOLVO Torslanda, Body shop

8 Dosing systems T100, hotmelt and anti . utter, manufacturing of 850/S70

VOLVO Torslanda, Body shop

All application systems for the manufacturing of S80/V70/XC70 and XC90

VOLVO Torslanda, Prototype build, Pilot Plant

Multiple dosing system for 1-K and 2-K-adhesives, prototype build - PAG
Dosing system, PUR direct glazing, complete prototype build - PAG

VOLVO Gent , Body shop

All application systems for the manufacturing of S60/V70/XC70 and the new S40/V50

VOLVO Uddevalla, Body shop

All application systems for the manufacturing of the new convertible

VOLVO Uddevalla, Assembly shop

Complete direct glazing cell manufacturing of the new convertible

Volkswagen Wolfsburg, Body shop

Dosing systems for manufacturing of Golf A5 and Touran

BMW Regensburg, Body shop

Dosing systems for manufacturing of the 3-series convertible

Hydro Raufoss Automotive Structures Ltd, Worcester

Dosing system for the manufacturing of aluminium chassis to Lotus Elise, Opel Speedster, Vauxall VX220 and Aston Martin Vanquish

McLAREN Composites Ltd, Portsmouth

Dosing systems for the manufacturing of the Mercedes-McLaren SLR

Daimler Chrysler, Sindelfingen, Body shop

Dosing system for manufacturing of S-Klasse

Ford Saarlouis, Body shop

Dosing system for the manufacturing of Focus

VOLVO Trucks Umeå, Body shop

Dosing systems for the manufacturing of Cabs and Doors

Scania Oskarshamn, Body shop

Dosing systems for manufacturing of cab doors

Land Rover Solihull, Body shop

All application systems for the manufacturing of the Discovery 3/ Range Rover Sport

Ongoing deliveries 2005:

VOLVO Torslanda, Body shop

All new application systems for the manufacturing of the next generation of the P2X-platform

You are most welcome to contact us to know more about the projects we have done and what we can do for You!



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