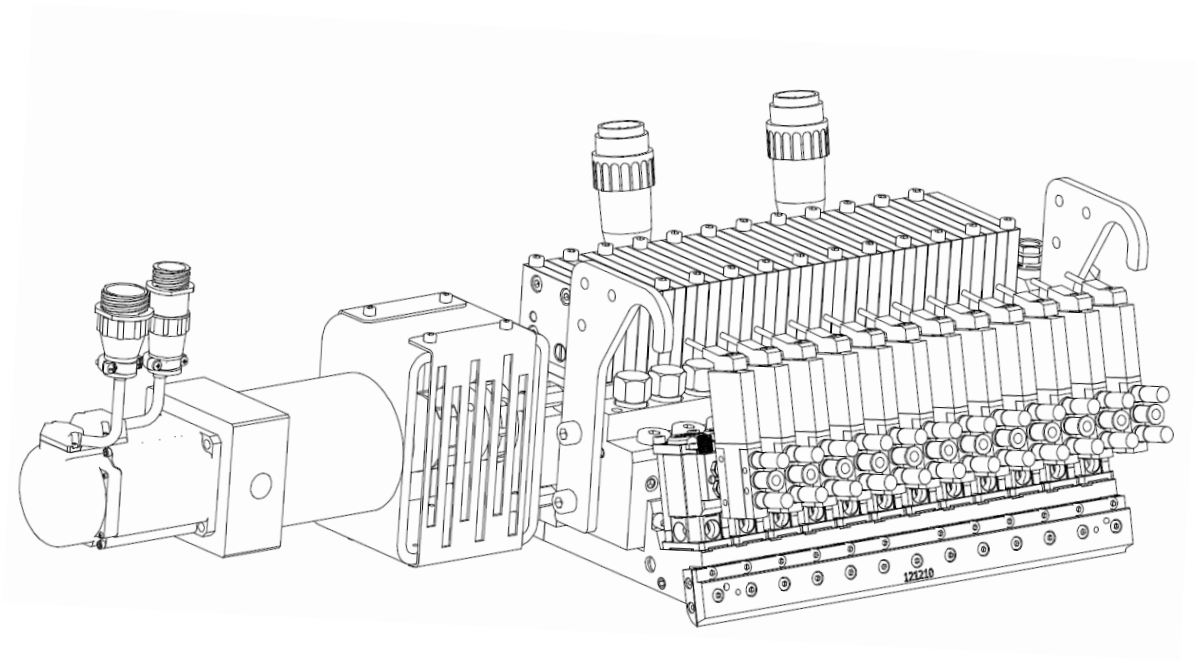
ITW Dynatec®

Adhesive Application Solutions | ISO 9001 certified

VELOCITY

APPLICATOR PLATFORM

Technical Documentation No.40-70, Rev.2.19



ITW Dynatec
An Illinois Tool Works Company
www.itwdynatec.com

Information about this manual

Read all instructions before operating this equipment!

It is the customer's responsibility to have all operators and service personnel read and understand this information. Contact your ITW Dynatec customer service representative for additional copies.

NOTICE:
Please be sure to include the serial number of your application system each time you order replacement parts and/or supplies. This will enable us to send you the correct items that you need.

Note: Most common screws, nuts and washers called out in the manual are not for sale and they can be obtained locally at your hardware Store. Specialty fasteners are available by contacting ITW Dynatec's Customer Service.

ITW Dynatec Service Parts and Technical Service:

AMERICAS	EUROPE, MIDDLE EAST & AFRICA	ASIA PACIFIC	
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Index

Chapter 1
Declaration of Incorporation / Conformity

EC declaration of conformity

according to the EU Machinery Directive 2006/42/EC, Annex II 1. A

Manufacturer

ITW Dynatec

31 Volunteer Dr

37075 Hendersonville, Tennessee USA

Person established in the Community authorised to compile the technical file

Andreas Pahl

ITW Dynatec GmbH

DE -

Representative

ITW Dynatec GmbH

Industriestraße 28

40822 Mettmann

Description and identification of the machinery

Product / Article	Velocity
Type	Metering Applicator
Serial number	N/A_____
Machine number	N/A_____
Project number	PRJ-2017-09-19-0001
Commercial name	Velocity
Function	A metered applicator to apply Hot Melt adhesive to a variety of substrates

It is expressly declared that the machinery fulfils all relevant provisions of the following EU Directives.

2006/42/EC	Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) (1)

Reference to the harmonised standards used, as referred to in Article 7 (2)

EN ISO 14121-1:2007	Safety of machinery - Risk assessment - Part 1: Principles (ISO 14121-1:2007)
EN 60204-1:2006-06	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
EN 349:1993+A1	Safety of machinery - Minimum gaps to avoid crushing of parts of the human body

Hendersonville, Tennessee USA,
11/1/2017

Place, Date

S.Shirgaonkar

Signature
Shishir Shirgaonkar
Engineering Director

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Chapter 2
Safety Instructions

General Considerations

- **All operators and service personnel must read and understand this manual before operating or servicing equipment.**
- **All maintenance and service on this equipment must be performed by trained technicians.**

Read and adhere to the manual!

1. Read and follow these instructions.
   Failure to do this could result in severe personal injury or death.
2. Keep the binding rules for accident prevention valid for your country and the place of installation. Also keep the approved qualified technical rules for safety-conscious and professional work.
3. Additional safety instructions and/ or symbols are located throughout this manual. They serve to warn maintenance personnel and operators about potentially hazardous situations.
4. Inspect the machine for unsafe conditions daily and replace all worn or defective parts.
5. Keep work area uncluttered and well lit. Remove all material or things not needed for the production from the workspace of the equipment!
6. All covers and guards must be in place before operating this equipment.
7. Subject to technical modifications without notice!
8. To ensure proper operation of the equipment, use specified electrical and/ or air supply sources.
9. Do not attempt to alter the design of the equipment unless written approval is received from ITW Dynatec.
10. Keep all manuals readily accessible at all times and refer to it often for the best performance from your equipment.

Warning Labels

1. Read and obey all of the warning labels, signs and caution statements on the equipment.
2. Do not remove or deface any of the warning labels, signs and caution statements on the equipment.
3. Replace any warning labels, signs and caution statements which have been removed or defaced. Replacements are available from ITW Dynatec.

Safety Symbols in this Manual

1. WARNINGS and CAUTIONS are found throughout this manual.
   WARNINGS mean that failure to observe the specific instructions may cause injury to personnel.
2. CAUTIONS mean that failure to observe the specific instructions may damage the equipment.

Safe Installation and Operation

Read and adhere to the manual!

1. Read this manual before applying electrical power to the equipment. Equipment may be damaged by incorrect electrical connections.
2. To avoid possible failure of hoses, make sure all hoses are routed to avoid kinking, tight radius turns (8” or less) and abrasive contact. Hot-melt hoses should not have prolonged contact with heat-absorbing surfaces such as cold floors or metal troughs. These heat-absorbing surfaces can alter adhesive flow and cause incorrect calibration. Hoses should never be covered with materials that prevent heat dissipation, such as insulation or sheathing. Hoses should be spaced apart from each other, not making direct contact.
3. Do not use adhesive that is dirty or that may be chemically contaminated. Doing so can cause system clogging and pump damage.
4. When adhesive hand-held applicators or other movable applicators are used, never point them at yourself or at any other person. Never leave a hand-held applicator's trigger unlocked when not actually in use.
5. Do not operate the hopper or other system components without adhesive for more than 15 minutes if the temperature is 150 degrees C (300 degrees F) or more. To do so will cause charring of the residual adhesive.
6. Never activate the heads, hand-held applicators and/ or other application devices until the adhesive's temperature is within the operating range. Severe damage could result to internal parts and seals.
7. Never attempt to lift or move the unit when there is molten adhesive in the system.
8. In case of an emergency or exceptional incident, press the emergency stop button in order to stop the unit quickly.
9. Use the unit only as it is intended to.
10. Never let the unit run unattended.
11. Operate the unit only in a faultless and fully functional condition. Check and make sure that all safety devices work in proper form!

Explosion/ Fire Hazard

1. Never operate this unit in an explosive environment.
2. Use cleaning compounds recommended by ITW Dynatec or your adhesive supplier only.
3. Flash points of cleaning compounds vary according to their composition, so consult with your supplier to determine the maximum heating temperatures and safety precautions.

Use of PUR (Polyurethane) Adhesives

1. PUR adhesives emit fumes (MDI and TDI) that can be dangerous to anyone exposed to them. These fumes cannot be detected by the sense of smell. ITW Dynatec strongly recommends that a power-vented exhaust hood or system be installed over any PUR system.
2. Consult with your adhesive manufacturer for specifics about required ventilation.

CAUTION

Because of the nature of PUR adhesives to strongly bond in the presence of moisture, care must be taken to prevent them from curing inside ITW Dynatec equipment.

If PUR adhesive solidifies in a unit, the unit must be replaced. Always purge old PUR adhesive from the system per your adhesive manufacturer's instructions and time table.

ALLOWING PUR ADHESIVE TO CURE IN A UNIT OR ITS COMPONENTS VOIDS ITW DYNATEC'S WARRANTY.

Eye Protection & Protective Clothing

WARNING
EYE PROTECTION & PROTECTIVE CLOTHING REQUIRED

1. It is very important that you PROTECT YOUR EYES when working around hot melt adhesive equipment!
2. Wear a face shield conforming to ANSI Z87.1 or safety glasses with side shields which conform to ANSI Z87.1 or EN166.
3. Failure to wear a face shield or safety glasses could result in severe eye injury.
4. It is important to protect yourself from potential burns when working around hot melt adhesive equipment.
5. Wear heat-resistant protective gloves and long-sleeved, protective clothing to prevent burns that could result from contact with hot material or hot components.
6. Always wear steel-reinforced safety shoes.

Electrical

DANGER HIGH VOLTAGE

1. Dangerous voltages exist at several points in this equipment. To avoid personal injury, do not touch exposed connections and components while input power is on.
2. Disconnect, lockout and tag external electrical power before removing protective panels.
3. A secure connection to a reliable earth ground is essential for safe operation.
4. An electrical disconnect switch with lockout capability must be provided in the line ahead of the unit. Wiring used to supply electrical power should be installed by a qualified electrician.
5. Notify the maintenance personnel immediately, if cables are damaged. Provide for exchanging the defective components immediately.

Lockout/ Tagout

Switch the unit voltage-free before working!
Main switch OFF!

1. Follow OSHA 1910.147 (Lockout/ Tagout Regulation) for equipment's lockout procedures and other important lockout/tagout guidelines.
2. Be familiar with all lockout sources on the equipment.
3. Even after the equipment has been locked out, there may be stored energy in the application system, particularly in the capacitors within the panel box. To ensure that all stored energy is relieved, wait at least one minute after removing power before servicing electrical capacitors.

High Temperatures

WARNING HOT SURFACE

1. Severe burns can occur if unprotected skin comes in contact with molten adhesive or hot application system parts.
2. Face shields (preferred) or safety glasses (for minimum protection), heat-resistant protective gloves and long-sleeved clothing must be worn whenever working with or around adhesive application systems.

High Pressure

WARNING HIGH PRESSURE PRESENT

1. To avoid personal injury, do not operate the equipment without all covers, panels and safety guards properly installed.
2. To prevent serious injury from molten adhesive under pressure when servicing the equipment, disengage the pumps and relieve the adhesive system's hydraulic pressure (i.e. trigger the heads, hand-held applicators, and/or other application devices into a waste container) before opening any hydraulic fittings or connections.
3. IMPORTANT NOTE: Even when a system's pressure gauge reads “0” psi, residual pressure and trapped air can remain within it causing hot adhesive and pressure to escape without warning when a filter cap or a hose or hydraulic connection is loosened or removed. For this reason, always wear eye protection and protective clothing.
4. Either of the two High Pressure symbols shown may be used on ITW Dynatec equipment.
5. Keep the given operating pressure.
6. Notify the maintenance personnel immediately, if hoses or components are damaged. Provide for exchanging the defective components immediately.

Protective Covers

WARNING
DO NOT OPERATE WITHOUT GUARDS IN PLACE

1. Keep all guards in place!
2. To avoid personal injury, do not operate the application system without all covers, panels and safety guards properly installed.
3. Never get your extremities and/or objects into the danger area of the unit. Keep your hands away from running parts of the unit (pumps, motors, rolls or others).

Servicing, maintenance

1. Only trained and qualified personnel are to operate and service this equipment.
2. Before any service work disconnect the external power supply and the pressure air supply!
3. Never service or clean equipment while it is in motion. Shut off the equipment and lock out all input power at the source before attempting any maintenance.
4. Follow the maintenance and service instructions in the manual.
5. Keep the maintenance rates given in this documentation!
6. Any defects in the equipment that impact safe operation have to be repaired immediately.
7. Check screws that have been loosened during the repair or maintenance, if they are tight again.
8. Replace the air hoses in preventive maintenance regularly, even if they have got no viewable damages! Adhere to the manufacturers` instructions!
9. Never clean control cabinets or other houses of electrical equipment with a jet of water!
10. Adhere to the current safety data sheet of the manufacturer when using hazardous materials (cleaning agents, etc.)!

Secure transport

1. Examine the entire unit immediately after receipt, if it has been delivered in perfect condition.
2. Let damages in transit certify by the carrier and announce them immediately to the ITW Dynatec.
3. Use only lifting devices that are suitable for the weight and the dimensions of the equipment (see drawing of the equipment).
4. The unit has to be transported upright and horizontally!
5. The unit has to cool down to room temperature before packaged and transported.

Treatment for Burns from Hot Melt Adhesives

Measures after being burned:

1. Burns caused by hot melt adhesive must be treated at a burn center. Provide the burn center's staff a copy of the adhesive's M.S.D.S. to expedite treatment.

2. Cool burnt parts immediately!

3. Do not remove adhesive forcibly from the skin!

4. Care should be used when working with hot melt adhesives in the molten state. Because they rapidly solidify, they present a unique hazard. Even when first solidified, they are still hot and can cause severe burns.

5. When working near a hot melt application system, always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body.

6. Always have first-aid information and supplies available.

7. Call a physician and/or an emergency medical technician immediately. Let the burns medicate by a medic immediately.

Measures in case of fire

1. Please heed that not covered hot parts of the engine and molten hot melt may cause heavy burns. Risk of burns!

2. Work very carefully with molten hot melt. Keep in mind, that already jelled hot melt can be very hot, too.

3. When working near a hot melt application system, always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body!

Measures in case of fire:

Wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body.

Firefighting - burning hot melt:

Please keep attention to the safety data sheet given by the adhesive manufacturer.

EXTINGUISH FIRE

Appropriate extinguishing agents:
Foam extinguisher, Dry powder, Spray, Carbon dioxide (CO2), Dry sand.

For safety reasons not appropriate extinguishing agents: None.

Firefighting - burning electrical equipment:

Appropriate extinguishing agents:
Carbon dioxide (CO2), Dry powder.

Keep attention to environmental protection standards

1. When working on or with the unit, the legal obligations for waste avoidance and the duly recycling / disposals have to be fulfilled.

2. Keep attention, that during installations, repairs or maintenance matters hazardous to water, like adhesive / adhesive scrap, lubricating grease or oil, hydraulic oil, coolant and cleaner containing solvent not pollute the ground or get into the canalization!

3. These matters have to be caught, kept, transported and disposed in appropriate reservoirs!

4. Dispose these matters according to the international, national and regional regulations.

Chapter 3
Description and Technical Specs

3.1 Applicable Safety Regulations

Intended Use

The Velocity Applicator may be used only to apply suitable materials, e.g. adhesives; it coats intermittent or continuous adhesive films, ribbons, and strands. When in doubt, seek permission from ITW Dynatec.

If the unit is not used in accordance with this regulation, a safe operation cannot be guaranteed.

The operator - and not ITW Dynatec - is liable for all personal injury or property damages resulting from unintended use!

Intended use includes, that you
- read this documentation,
- heed all given warnings and safety instructions, and
- do all maintenance within the given maintenance rates.

Any other use is considered to be unintended.

Unintended Use, Examples

The Velocity Applicator may not be used under the following conditions:
- In defective condition.
- In a potentially explosive atmosphere.
- With unsuitable operating/processing materials.
- When the values stated under Specifications are not complied with.

The Velocity Slot Applicator may not be used to process the following materials:
- Toxic, explosive and easily flammable materials.
- Erosive and corrosive materials.
- Food products.

Residual Risks

In the design of the Velocity Applicator, every measure was taken to protect personnel from potential danger. However, some residual risks cannot be avoided.

Personnel should be aware of the following:

- Risk of burns from hot material.
- Risk of burns from hot Applicator components.
- Risk of burns when conducting maintenance and repair work for which the system must be heated up.

- Risk of burns when attaching and removing heated hoses.
- Material fumes can be hazardous. Avoid inhalation. If necessary, exhaust material vapors and/or provide sufficient ventilation of the location of the system.
- Risk of pinching parts of the body at running parts of the unit (pumps, motors, rolls or others).
- The safety valves may malfunction due to hardened or charred material.

Technical changes

Any kind of technical changes having impact to the security or the operational liability of the system should only be done by written agreement of ITW Dynatec. Suchlike changes made without given a corresponding written agreement will lead to immediate exclusion of liability granted by ITW Dynatec for all direct and indirect subsequent damages.

Using foreign components

ITW Dynatec takes no responsibility for consequential damages caused by using foreign components or controllers that have not been provided or installed by ITW Dynatec.

ITW Dynatec does not guarantee that foreign components or controllers used by the operating company are compatible to the ITW Dynatec-system.

Start-up operation

We recommend asking for an ITW Dynatec-service technician for the start-up operation, to ensure a functioning system. Let yourself and the people working with or working on the system be introduced to the system on this occasion.
ITW Dynatec takes no responsibility for damages or faults caused by any untrained personal.

3.2 Velocity Applicator Platform

Smart Number Code

VEL S XX X X X X - X X X X X X X X X X X X

Velocity
S = Standard

Applicator size:
05 = 2-port, 50mm PN 825412
10 = 4-port, 100mm PN 825413
15 = 6-port, 150mm PN 825414
20 = 8-port, 200mm PN 825415
25 = 10-port, 250mm PN 825416
30 = 12-port, 300mm PN 825417

Solenoid:
A = FESTO 6mm PN 115055
B = MAC 6mm PN 120116

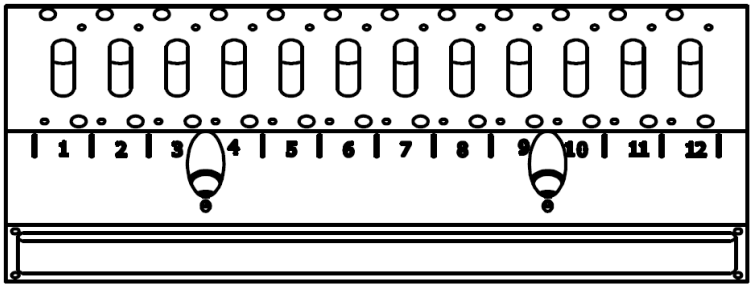
Cable Harness:
D = DynaControl PN 103467
N = Nordson PN 104528
H = Harting PN 823005
P = Meltex PN 802578

Pump configuration * :
A = 0.15cc, PN 814346
B = 0.4cc, PN 808809
C = 0.5cc, PN 810430
D = 0.6cc, PN 808807
E = 0.7cc, PN 808808
F = 0.8cc, PN 810431
G = 0.9cc, PN 810432
H = 1.0cc, PN 810433
J = 1.7cc, PN 807917
K = 3.34cc, PN 813248
X = Block off, PN 812356

Drive assembly:
A = Allen Bradley PN 825359
S = Siemens PN 825672
N = No drive

Drive orientation:
L = Left hand
R = Right hand

* The pump configuration assigns pump placement from left to right when looking at the back side of the applicator:



Technical Specifications Velocity

System	2-port	4-port	6-port	8-port	10-port	12-port
Number of Modules / Pumps	2	4	6	8	10	12
Application Width	50 mm (1.97 in)	100 mm (3.94 in)	150 mm (5.91 in)	200 mm (7.87 in)	250 mm (9.84 in)	300 mm (11.81 in)
Height	144 mm (5.7 in)					
Depth	207 mm (8.2 in)					
Wattage Velocity service block (pump base)	800 W	1200 W	1600 W	2000 W	2400 W	2800 W
Wattage Ultra adapter (module manifold assembly)	450 W	800 W	1200 W	1600 W	2000 W	2400 W
Weight	13,3 kg (29,3 lbs)	15,8 kg (34,9 lbs)	18,4 kg (40,6 lbs)	20,8 kg (45,9 lbs)	23,0 kg (50,7 lbs)	25,4 kg (56,1 lbs)
Supply voltage setup	200 - 240 V, 1 Phase, 50 - 60 Hz					
Operating temperature range	25° to 200°C (77° to 392°F)					
Warm-Up time	15 minutes for cold start, or 5 minutes for module change					
Pneumatic pressure range to solenoid	4.5 – 6 bar (65 - 88 psi)					
Air consumption	28 liters/ module/ minute @ 100 cycles/ minute (.01 SCFM per module @ 100 cycles/ minute)					
Adhesive pressure maximum at the inlet	20 bar (300 psi)					
Pump sizes	0.15cc to 3.34cc available					
Orientation of Velocity pump base	right hand or left hand					
Noise emission	70 dB(A)					
Storage/ shipping temperature	-40° to 70°C (-40° to 158°F)					
Ambient service temperature	-7° to 50°C (20° to 122°F)					

Velocity Applicator Platform Overview

ITW Dynatec's Velocity Applicator Platform (hereafter referred to as "Applicator") meters adhesive to deliver precise amounts and coats intermittent or continuous adhesive films or spray patterns to a customer's substrate. The Applicator consists of a number of flexible, modular components like pump base, gear pumps, drive and UltraLink adapter.

Pump Base:
It is an adhesive pumping station (base manifold) that measures and distributes adhesive by means of gear pumps to the applicator (UltraLink adapter). Each gear pump will feed one module. A basket filter is integrated which prevent particulate matter from obstructing flow through the heads.

UltraLink Adapter:
It is connected on the Pump Base and it applies adhesive to the substrate. The same UltraLink adapter can be used for all required application patterns like slot, spray and strand coating with appropriate nozzles. It is available with multi-module configuration for flexible application width setup. The Ultra-module, as a key component, has a universal design that allows using the same module for all required application patterns and nozzles. Each module is opened and closed by an air operated solenoid valve.

The nozzles compatible with UltraLink adapter are (see also following pages):
- Ultra SCS strand coating system, Ultra Stitch (with air support) & Ultra Touch (without air support)
- Ultra HS Elite high-speed spray nozzle & HS Elite Surge spray nozzle
- Ultra HS UFD high-speed nozzle (Omega & Random pattern)
- Ultra HSI high-speed intermittent spray nozzle
- Ultra Slot nozzle

The Velocity applicator is heated by replaceable cartridge heating elements, which are controlled by an integrated sensor and electronic control.

Six standard Velocity applicator models supporting up to 12 modules (12-ports) are available, ranging in width from 50mm up to 300mm, in 50mm increments.

The heated adhesive supply hose will be connected at the right or left side of the applicator. The adhesive flows from the hose into the service block (pump base), through the filter and then to the module. The air pressure (solenoid valve) opens the module (adhesive valve), allowing adhesive to flow through the module's nozzle.

The adhesive pressure in the system is influenced by the following parameters:
- Temperature and viscosity of the adhesive
- Size and speed of the Adhesive Application Unit's (ASU's) pump and of the Applicator's gear pumps
- Cross-section and length of the adhesive hoses
- Pressure relief valve should always be adjusted above operating pressure.
- Nozzle type and orifice size.

The adhesive pressure can manually be relieved by using the pressure purge valve mounted at the side (on the filter block) of the Applicator.

The Applicator is supplied with molten adhesive by a Melter. For this purpose, a supply hose is connected to the inlet of the Applicator.

See illustration typical parts of Velocity Applicator on next page.

Note: *The following illustration is a right hand configuration shown for reference only throughout manual.*

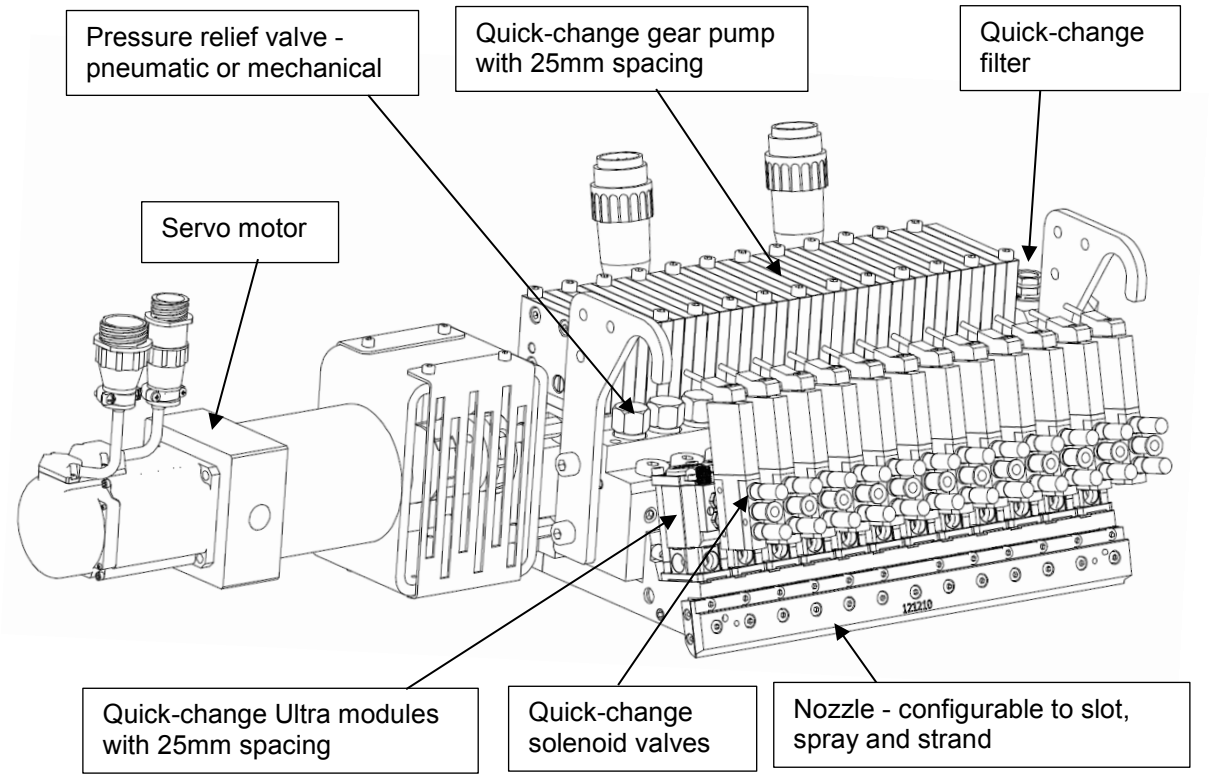
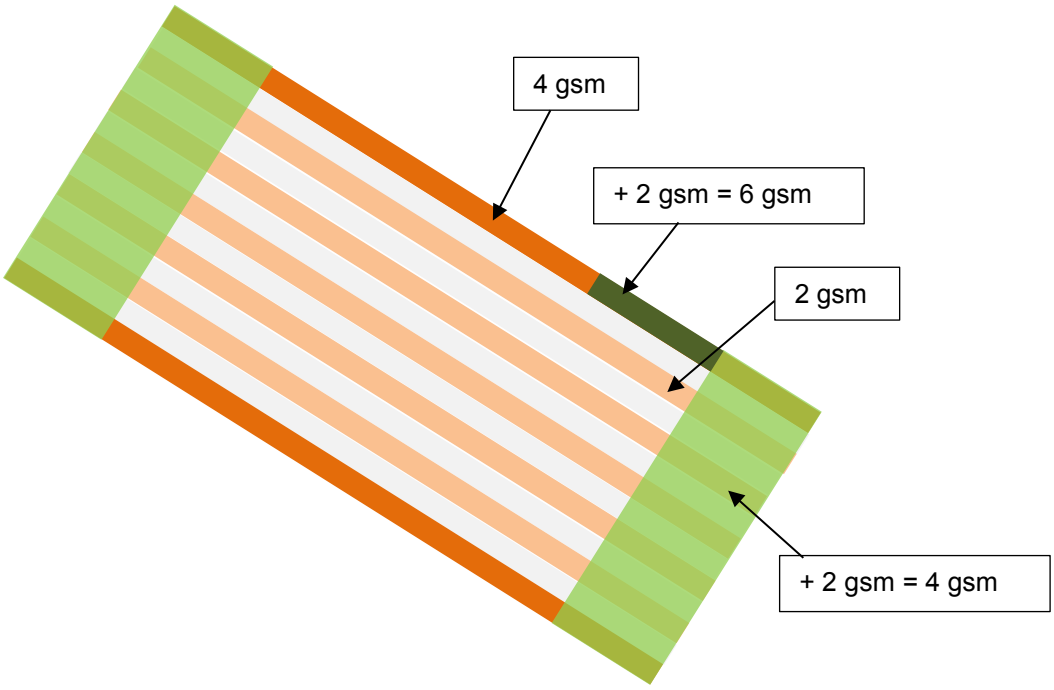


Illustration: Typical parts of Velocity Applicator

Velocity can apply very different adhesive pattern due to the features that each module can be opened and closed by own solenoid valve and it will be fed with adhesive by own gear pump size, so that adhesive amount and switching on/off can be controlled and regulated precisely.

Example of a possible application pattern with Velocity:



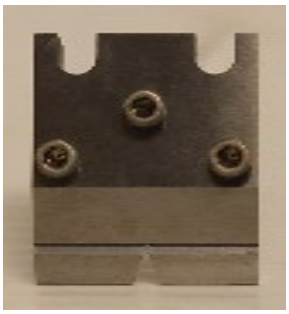
Gsm (g/m²) = Gram per square meter.

Nozzles compatible with Ultra adapter

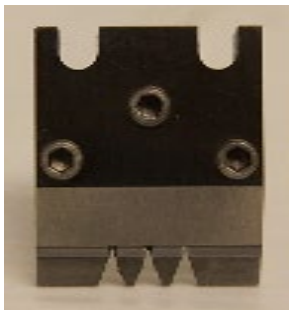
1. Ultra SCS (Strand Coating System).

The Ultra SCS nozzles feature accurate and high efficiency adhesive coating on elastic strands and enable to apply less glue, providing best creep performance, improved contraction forces and softness.

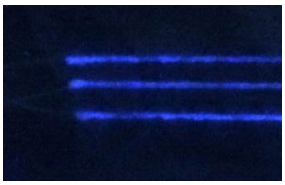
Two different technologies are available to meet multiple application requirements:
ULTRA-Stitch is air supported.
ULTRA-Touch is for applications when process air needs to be avoided.



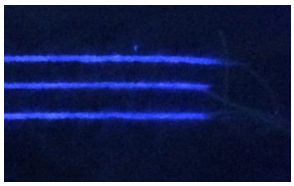
SCS 1 strand



SCS 3 strands



Pattern Start



Pattern Stop

Technical Specifications for Ultra SCS:

Strands per nozzle	up to 8 for 25 mm nozzles. Other options available.
Nozzle orifice sizes	0.012 to 0.040 in (0.31 to 1 mm)
Typical adhesive flow	15 to 100 mg/lm/s
Min. Off cycle time	3ms
Min. On cycle time	3ms
Adhesive viscosity range	up to 20,000 mPas (cps)
Operating air pressure range Ultra stitch nozzle	0.3 - 1.7 bar (5-25 psi)*

*Depending on adhesive type and application parameter.

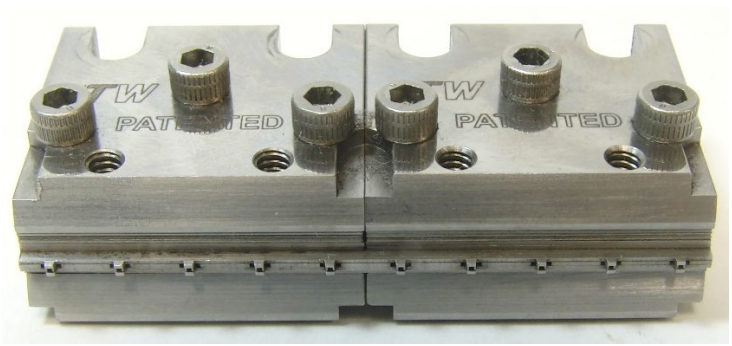
See also point "Advices for Best Creep Values and Performance with a SCS-Nozzle" in chapter "5.2 Start-up operation".

2. Ultra HS Elite high speed spray nozzle & HS Elite Surge spray nozzle

The Ultra HS Elite (25mm) and HS Elite Surge (50mm) nozzles offer an improved sprayability of higher viscosity adhesives, less plugging and excellent pattern consistency. With orifices increased in size up to 50% and fewer, thicker plates, flow paths are significantly improved for more even adhesive distribution across the nozzle.

The special feature of the HS Elite Surge nozzle is the possibility to “surge” or to increase/vary the adhesive amount immediately in the needed position. The surge nozzle width is 50mm and will be fed by two pumps respectively by two modules (with 25mm spacing). The two modules are switched separately by own solenoids. If required from application pattern, one module can be deactivated, in order to apply less glue through the 50mm surge nozzle and activated again to “surge” or to increase/vary the adhesive amount.

Ultra HS Elite nozzle



Ultra HS Elite Surge nozzle

Spray Pattern

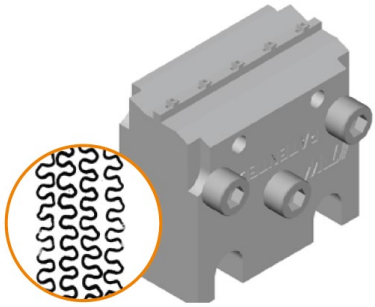
Technical Specifications for Ultra HS Elite and Ultra HS Elite Surge:

	Ultra HS Elite	Ultra HS Elite Surge
Active Fluid Streams	1 to 6	1 to 12
Fluid Orifice Size	0.012 to 0.024 in (0.31 to 0.61 mm)	0.012 to 0.024 in (0.31 to 0.61 mm)
Center-to-Center Spacing	3mm, 4mm, 4.2mm, 5mm and others	3mm, 4mm, 4.2mm, 5mm and others
Adhesive Viscosity Range	up to 6.000 mPas (cps)	up to 6.000 mPas (cps)
Operating Air Pressure	0.15 to 1.4 bar (2 to 20 psi)*	0.15 to 1.4 bar (2 to 20 psi)*
Recommended distance to substrate	10 - 25 mm	10 - 25 mm
Side edge definition	Within 1 mm	Within 1 mm
Adhesive Application Width per Nozzle	3 - 25 mm	3 - 50 mm
Typical Adhesive Flow	0.5 - 20 g/min per orifice	0.5 - 20 g/min per orifice
Production speed capability	up to 700 m/min	up to 700 m/min

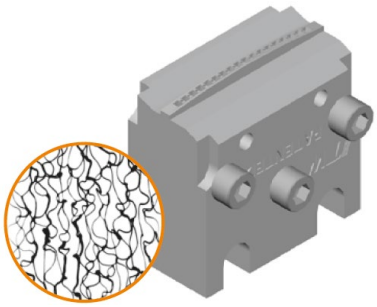
*Depending on adhesive type and application parameter.

3. Ultra HS UFD nozzle (Omega & Random pattern)

Two different high-speed UFD nozzles (Omega and Random) are available to fiberize the adhesive streams and to maintain or improve bond strength. The nozzles feature vast range of coat-weight capabilities and the patterns are not line-speed limited.



Ultra HS UFD Omega nozzle & Spray Pattern



Ultra HS UFD Random nozzle & Spray Pattern

Technical Specifications for Ultra HS UFD:

	Ultra HS UFD Omega	Ultra HS UFD Random
Adhesive Application Width per Nozzle	3 - 25 mm	10 – 30 mm
Recommended distance to substrate	10 - 25 mm	15 – 35 mm
Fluid Orifice Size	0.012 to 0.024 in (0.31 to 0.61 mm)	0.012 to 0.024 in (0.31 to 0.61 mm)
Typical Adhesive Flow	0.5 - 20 g/min per orifice	0.1 - 40 g/min per orifice
Adhesive Viscosity Range	1,000 – 6,000 mPas (cps)	1,000 – 6,000 mPas (cps)
Operating Air Pressure	0.15 to 1.4 bar (2 to 20 psi)*	0.7 to 2.4 bar (10 to 35 psi)*

*Depending on adhesive type and application parameter.

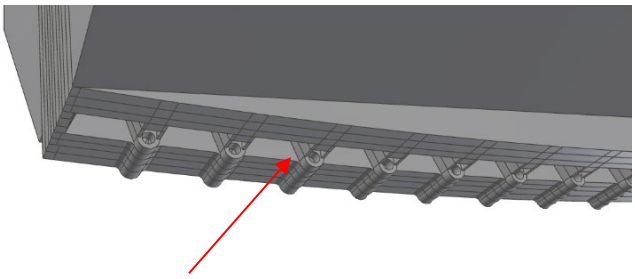
4. Ultra HSI high-speed intermittent spray nozzle

The Ultra HSI nozzle perfectly fits for high-speed intermittent spray applications and provides precise start/stop and side edge definition.

Typically, the HSI nozzle is used for e.g. “positioning glue” and “waistband” applications. Its barrier orifice design features an air knife function for more precise cut-off performance. Requiring a reduced amount of adhesive per product, due to the Ultra™ HSI nozzle’s ability to run shorter intermittent patterns, results in greater line efficiency and improved end product quality.

Ultras HSI nozzle

Spray Pattern



Barrier orifice design with air knife function
for perfect cut-off performance.

Technical Specifications for Ultra HS Elite:

Adhesive Viscosity Range	up to 6.000 mPas (cps)
Air pressure range	1 - 3 bar*
Recommended distance to substrate	5 - 7 mm
Side edge definition	Within 1 mm
Start and Stop area Within	3 to 6 mm**
Coating Width per Nozzle	10 -25 mm
Nozzle Orifice Size	0.010“ (0.25 mm)

*Depending on adhesive type and application parameter.
**Depending on line speed and application parameter.

5. Ultra Slot nozzle

The Ultra Slot nozzle is the ideal solution for high-speed intermittent slot applications or applications requiring both continuous & intermittent adhesive patterns, capable of running at higher line speeds up to 700m/min. The slot nozzle features precise adhesive cut-off at highest line speed with optimal cross-web accuracy of ±10%. A slotted plate (shim) will be inserted into the slot nozzle according to the required pattern/ max. coating width.

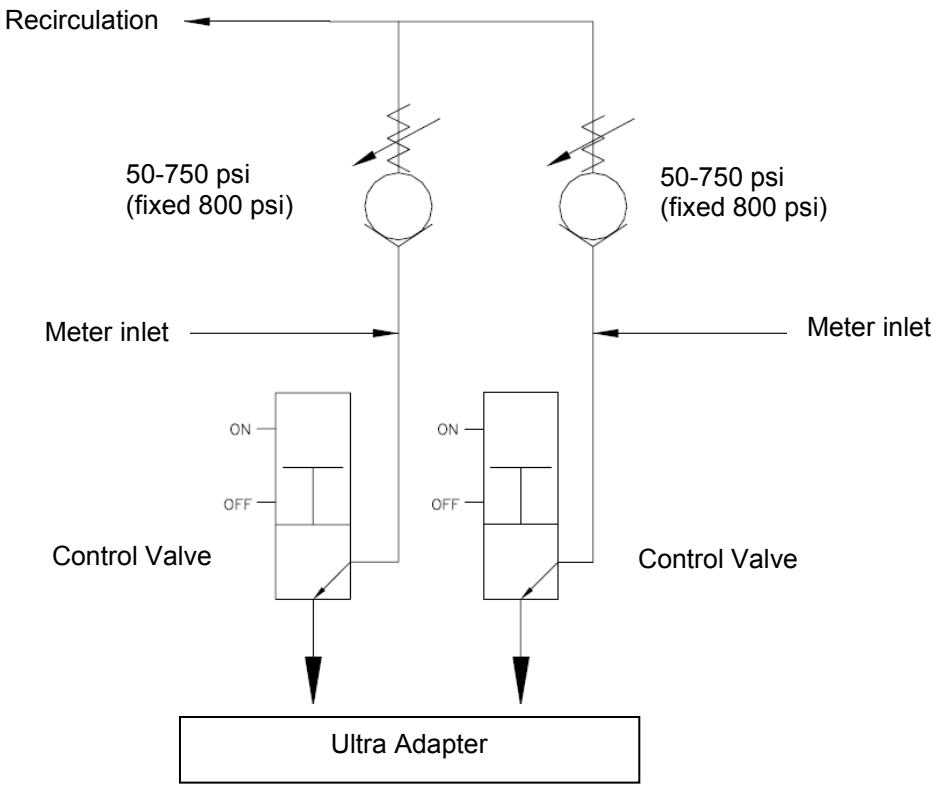
Ultra Slot Nozzle with Pattern Shim (sample)

Technical Specifications for Ultra Slot nozzle:

Minimum off cycle time	3 ms
Minimum on cycle time	3 ms
Coat weight minimum	5 gsm
Cross-web distribution	+/- 10%
Coating Width Range	25 - 300 mm
Adhesive viscosity range	up to 20,000 mPas (cps)

Adhesive Flow Path & Pneumatic Schematic

- The Ultra adapter is a mechanical device and it is hydraulic in nature. Standard hydraulic calculations can be used to determine pressures and losses associated with a fluid under pressure. Some configurations will require pneumatics as well.
- The Ultra Adapter is a sub-assembly and it cannot create any pressure or flow. It relies upon the Velocity Pump Base for its supply.
- Pressure relief valves on each of the segments limit the maximum pressure. A fixed pressure relief valve, preset to 800 PSI (55 bar), is provided as standard (an adjustable relief valve can be provided if requested).
- When the maximum pressure limit is reached, the adhesive is returned to the manifold.



- In the schematic above, the adhesive enters the Ultra Adapter from the Velocity Pump Base.
- In the illustration there are two metered outlets. Regardless of size, the schematic representation will be the same.
- The flow passes through the block with little or no restriction to two control valves. If the pressure exceeds the set point of the 800 PSI (55 bar) pressure relief valves, the adhesive is returned to the Velocity Pump Base through a recirculation passageway.

Right- or Left-Hand Versatility

The Velocity Pump Base has been designed to be built in both a left-hand and right-hand version. The parts are identical and may be re-assembled in either version.

The Pump Base uses one pump per 25mm of pattern width.

The only part that is not reversed when changing versions is the pump block (see Fig. 1). As a result, the pump identification numbers do not switch sides. When looking at the numbered side of the pump block, the pumps are numbered sequentially from left to right.

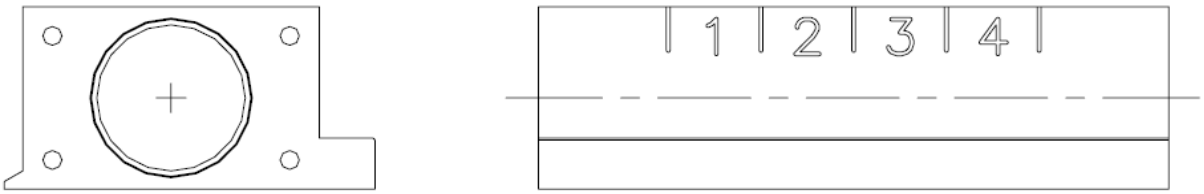


Fig.1

Pressure Ports

When purchased as a complete system (i.e. Adhesive Supply Unit and Velocity Applicator), a pressure transducer is required and will be included as part of the system.

The pressure ports are on the filter block.

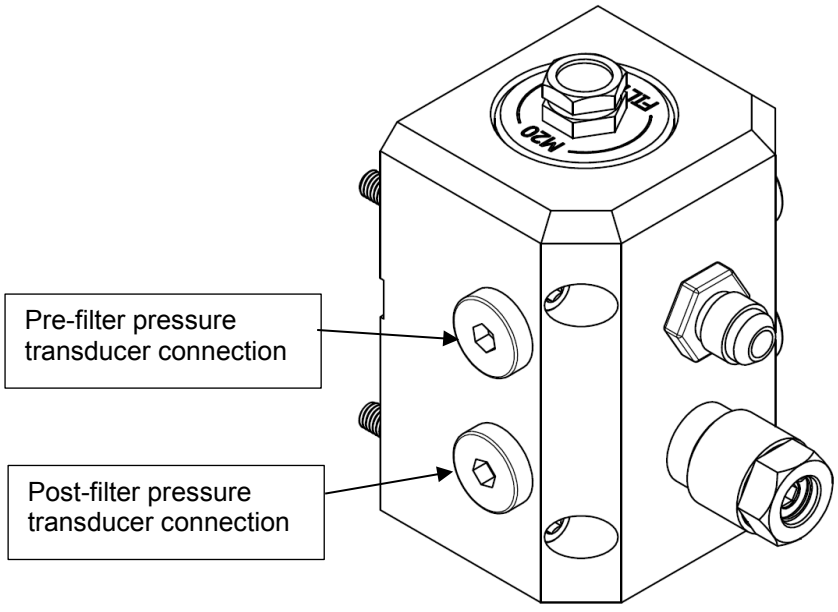


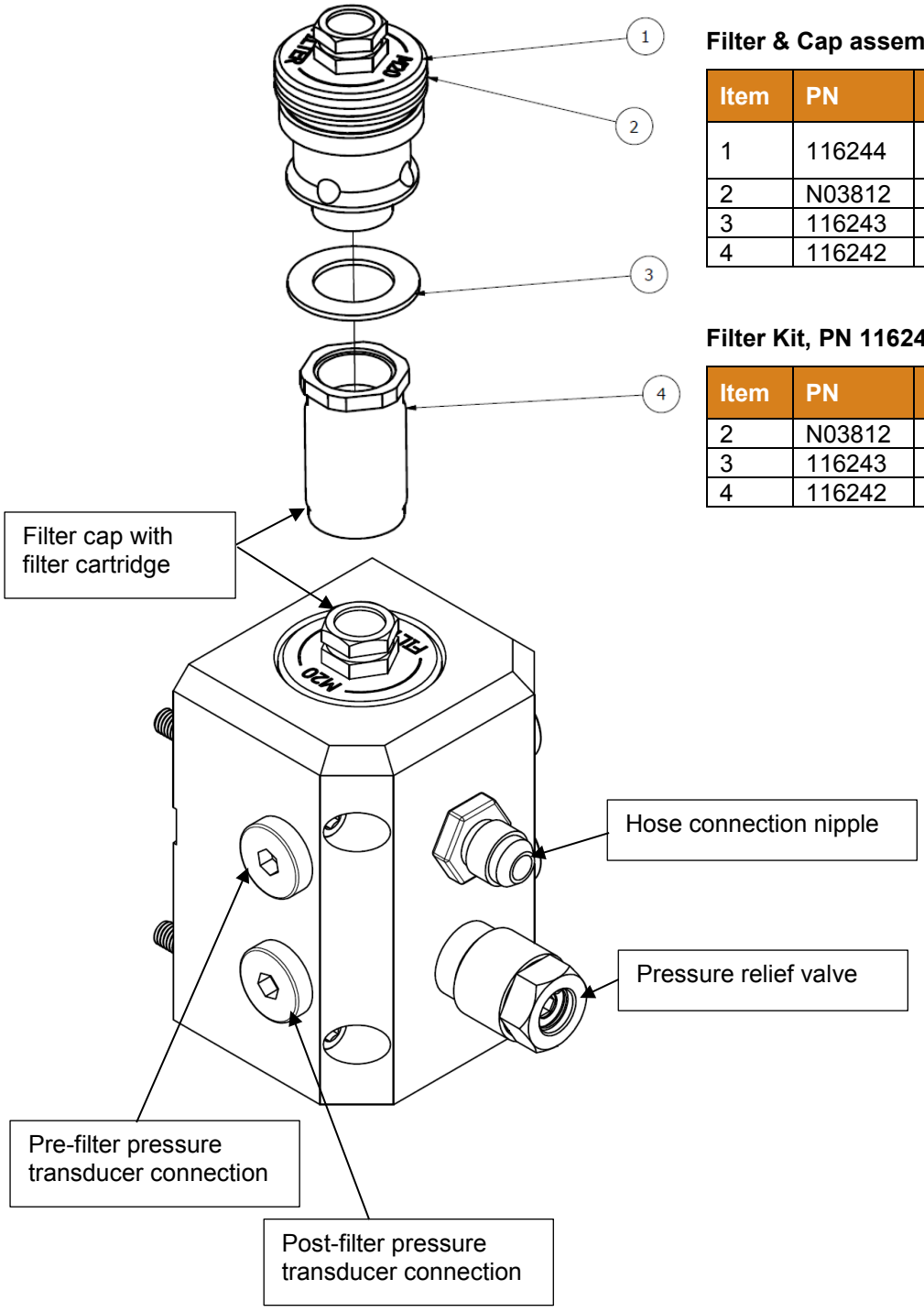
Illustration: Filter block

Filter Block Assembly

The filter block is mounted on the pump base and it provides a connection to heated hoses.

A variety of hoses sizes can be accommodated by changing the hose fitting to the appropriate JIC designation.

There is one standard filter cartridge with 150 mesh to provide adequate filtration.



Filter & Cap assembly, PN 116246:

Item	PN	Description
1	116244	Filter cap M36 x welded M20
2	N03812	O-ring 125
3	116243	Seal M20 filter
4	116242	Filter 150 mesh

Filter Kit, PN 116245:

Item	PN	Description
2	N03812	O-ring 125
3	116243	Seal M20 filter
4	116242	Filter 150 mesh

Illustration: Filter block

Vector Pump

The Velocity Pump Base is available in 2, 4, 6, 8, 10 and 12-pump versions.

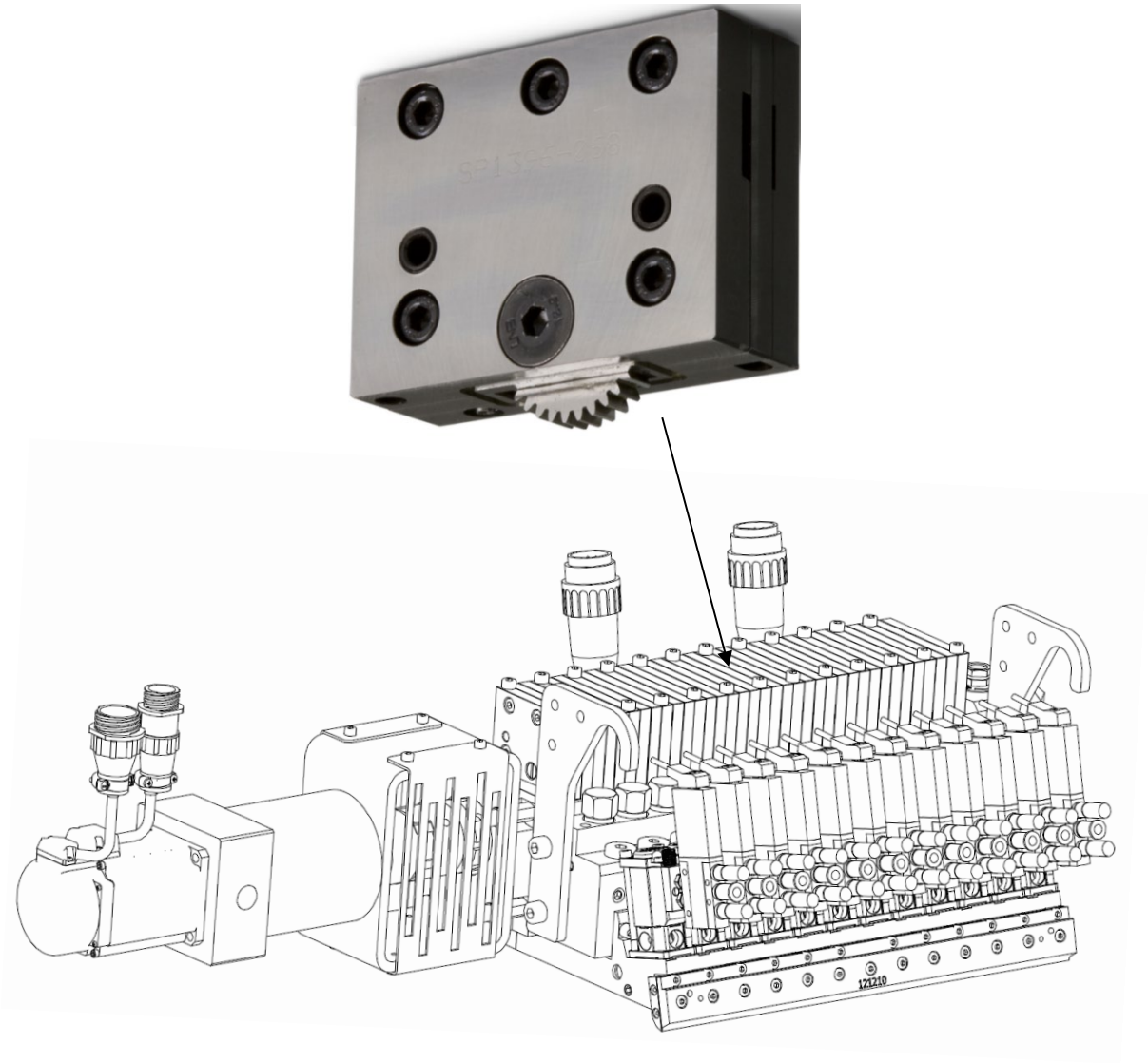
The adhesive pressure will be built through feeding of the pump.

Each pump location on the Pump Base must have a pump or a block off installed prior to pressurization. Each pump is selected based upon volume of its output as required by the application (see point Vector Pump Selection).

There are no dynamic seals within the Vector pump. Two static O-ring seals exist on the mounting face of the pump. One of the seals encompasses the cavity surrounding the intermediate gear. This cavity provides a path between the adhesive and the two pump gears. The pump gears carry the adhesive around their perimeters to an outlet port. An O-ring seals this port at its outlet from the pump. The adhesive is delivered to the manifold via the pump block.

A variety of pump sizes are available and custom sizes are available upon request.

See point “Vector Pump Options for Velocity” in Chapter 9 ”Options & Accessories” for pump availability.



Example: Pumps installed on Pump Base

Vector Pump Selection

The Velocity Applicator Platform requires some understanding to make pump selections:

- The Velocity Pump Base uses one pump per 25mm of pattern width.
- All Vector pumps are driven by a common shaft.
- Because there is a single motor drive, each 25mm segment is a ratio of one pump set to another.
- Different sized pumps will displace different volumes of adhesive with every revolution.
- The maximum shaft RPM is 45.

Helpful hints about specific gravity:

- One cubic centimeter of water has a specific gravity of 1.0 g/cm³. Other materials are compared to this standard, expressed in a decimal percentage. For example, if an adhesive has a specific gravity of 0.84 g/cm³, it means that a 1.0 cm³/rev pump will deliver it at 0.84 g/rev.
- To adjust an application to compensate for the specific gravity, divide 1 by the specific gravity, in order to obtain the revolution that achieves 1g adhesive. This is much easier than changing the value of each pump. All the relationships will stay the same.

Calculations:

- **Calculation of volume per minute:**
  Formula: Pump feed volume cm³/rev x Shaft revolutions in rev/min = Volume per minute.
  Example: 1.0 cm³/rev x 20 rev/min = 20 cm³/min.

- **Calculation of revolution to compensate for the specific gravity, in order to obtain the revolution that achieves 1g adhesive:**
  Formula: 1 ÷ Specific gravity = revolution for 1 gram adhesive.
  Example 1: 1 ÷ 0.84 g/cm³ = 1.19 revolutions (for 1 gram).
  Example 2: 1 ÷ 1.10 g/cm³ = 0.91 revolution (for 1 gram).

- **Calculation of weight**
  Formula: Volume/min x specific gravity of the adhesive = weight of adhesive per minute.
  Example: 20 cm³/min x 0.84 g/cm³ = 16.8 g/min.

- **Calculation of total weight per minute:**
  Formula: Coating width in m x Line speed in m/min x Coating weight in g/m²
  Example: 0.05 m x 300 m/min x 16.8 g/m² = 252 g/min.

See examples on next page to make pump selections.

Examples to make pump selections:

- **Example 1:** Consider a pattern with the following requirements using the setup of one pump per application:

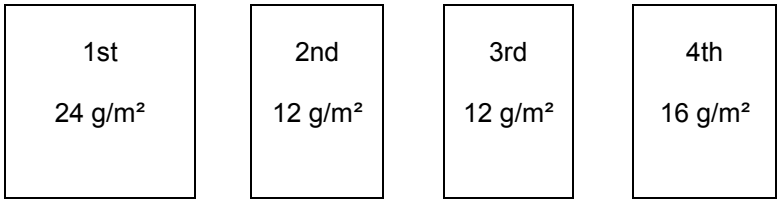


Fig. 8

  - The application with 24 g/m² is the largest one and can be used as a starting point.
  - All the other applications are ratios and are relative to the first, requiring less adhesive and smaller pumps.
  - The first pump selection will determine the RPM for all subsequent pumps. For this pump, select a 1.0 cm³/rev pump, this will set the shaft RPM to 24 (24 ÷ 1.0 = 24 RPM).

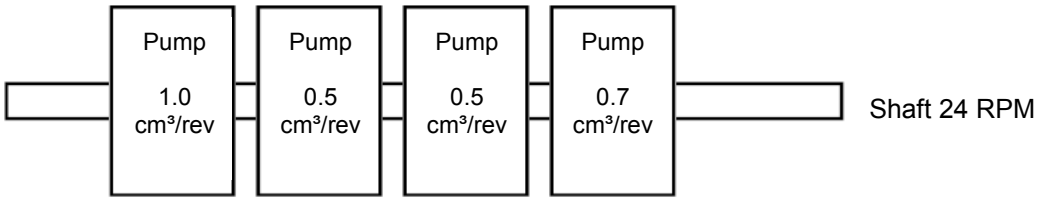


Fig. 9

  - The 2nd application (12 g/m²) needs to be calculated in relationship to the first one and can be represented by the calculation 12 ÷ 24 = 0.5 or 50% (see Fig. 8).
  - 50% of the 1.0 cm³/rev pump is 0.5 cm³/rev.
    The two center applications are the same (12 g/m²), i.e. both center pumps are the same 0.5 cm³/rev. (see Fig. 9).
  - The 4th application (16 g/m²) needs to be calculated in relationship to the first one and can be represented by the calculation 16 ÷ 24 = 0.67 or 67%.
  - 67% of the 1.0 cm³/rev pump is 0.67 cm³/rev.
    Select the closest pump from available pumps; it is the pump 0.7 cm³/rev. (see point "Vector Pump Options for Velocity" and Fig. 9). This is a worst case scenario of 3% variation from target.

- **Example 2:** Consider the same pattern as above using the setup of two pumps per application:
  - The application with 24 g/m² is the largest one and can be used as a starting point.
  - Using two 0.7 cm³/rev pumps (2 x 0.7 = 1.4), establish an RPM of 17.14 (24 ÷ 1.4 = 17.14 RPM). (See Fig. 10).
  - Since the 2nd and 3rd applications (12 g/m²) are exactly half of the first, select one 0.7 cm³/rev pump and block off the other pump location (see Fig. 10).
  - The 4th application (16 g/m²) needs to be calculated in relationship to the first one and can be represented by the calculation 16 ÷ 24 = 0.67 or 67%.
  - 67% of the 1.4 cm³/rev pump is 0.94 cm³/rev. The closest pump size available is 0.8 with a 0.15 cm³/rev (0.8 + 0.15=0.95 cm³/rev), (see point "Vector Pump Options for Velocity" and Fig. 10). The accuracy has been improved from 3% to 1% of target volume in comparison to example 1 above.

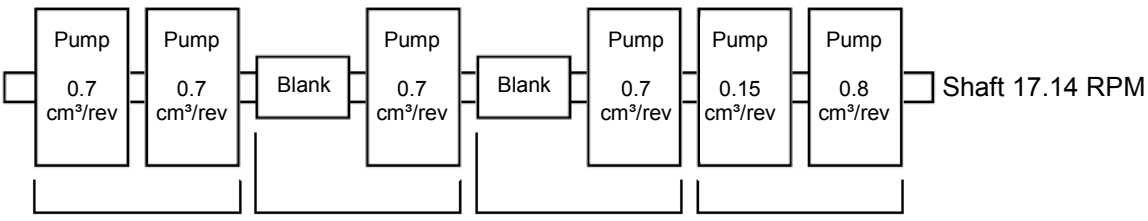


Fig. 10

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Chapter 4
Installation

CAUTION

- Before start-up, please read this documentation carefully.
- Pay attention to all the installation and connecting advices.
- Heed all safety instructions mentioned in chapter 2.

4.1 Conditions for set-up and mounting

Place requirement

Install the Velocity Applicator in the machine so that the operator is able to work on it from all sides, for e.g. for adjusting, preparing, maintaining, repairing, cleaning, etc. See drawing of the equipment for dimensions.

Mounting and alignment

- The complete unit has to be set up on solid, stable and flat ground.
- The alignment in height of the complete system has to be considered.
- The alignment of the machine has to be considered.

Electrical connection

- Necessary electrical connection has to be provided. See electrical schematics.
- Never connect or disconnect plug-and-socket connections under load!

Pneumatic connection

- In any case the air has to be clean and dry! See advice in chapter 4.3 “Quality of compressed air”.
- Please heed that units with high air demand may not be used at the same time with the same air supply.

Advices:

- Check all screw connections at the unit and retighten if necessary.
- Lay the cables and heated hoses so that no risk or least possible risk of stumbling occurs.

4.2 Installation

CAUTION

- All work on or with this unit is only permitted for skilled personnel!
- Pay attention to the electrical schematics!
- Clean and dry air and air pressure of 6 bar to the applicator solenoids is required.
- All motors have to be attached according to the data sheet of the manufacturer.
- All heating elements have to be mounted and operated secured and according to the valid regulations.

WARNING

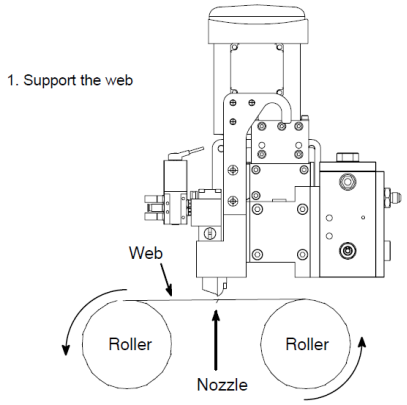
- While installing the Applicator, use an appropriate protection device to avoid unintended contact with heated parts and with spilling out Hotmelt. The protection device has to prevent also the operator against not reaching into the adhesive application and against injuring.
- Risk of burns and risk of injury!

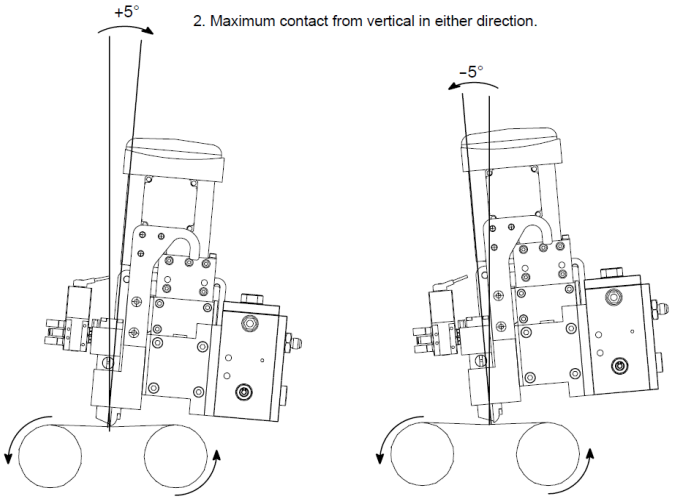
Typical installation for a Velocity Applicator:

1. Install the Applicator on the machine at the foreseen place.
   Refer to the appropriate applicator drawing in chapter 8 for mounting dimensions, hose and electrical connections, etc.

2. Support the web (as the two rollers are supporting it in the #1 illustration below) within a few inches of each side of the slot die.

3. Contact (for applications with slot nozzle) must be made no more than ±5° from the vertical (see two lower illustrations, #2).





4. Connect the compressed-air supply to the main compressed air connection on the Melter respectively Applicator. Connect all solenoids with air hoses as required.

   The process air tubing must be rated for continuous service at 200°C (392°F).

6 bar air pressure are required.
Reason:
- Lower air pressure causes uneven adhesive application.
- The modules do not switch or switch with delay, resp. open and close again, if the air supply is uneven.
- Only permanent pressure and sufficient volume flow leads to reproducible application accuracy regarding position and amount.

5. Interconnect the Melter and the Applicator with the required heated hoses for supply and if required for return.

Heed the following for the installation of the heated hoses:
- Heated hoses may be damaged by overheating, if they are laid faulty.
- The heated hoses may not be stacked one on the other!
- The heated hoses may not be pressed together and / or bound.
- Put the hoses separated next to each other!
- The connections for supply resp. return hoses may not be mixed up.
- It is essential that the hoses will be laid without twisting!
- Heated hoses may not be fastened with binders or similar.
- Heated hoses may not be laid on a sharp edge.
- When using a balancer, a hose support with a radius of 400mm has to be mounted. **Reason:** The sensor cables and heating cables within the hoses can be damaged. As they cannot be repaired the hose would have to be changed completely.

6. Connect all cables of the equipment components according to the electrical schematics (e.g. Melter, Control Cabinet, Controller, Pump Base, Applicator, etc.).

7. Interconnect the components with the foreseen Profibus (or EtherNet, etc.) interface cables (if applicable).

4.3 Quality of compressed Air

CAUTION

- **In any case, the air has to be clean and dry!**
- **The min. requirement for compressed air supply to solenoids to control automatic Applicators is ISO 8573-1:2010 class 2:4:3.**
  We recommend installing the ITW Dynatec's Air Control Kit PN 100055 (see Appendix).

Compressed air quality classes according to ISO 8573-1:2010 class 2:4:3:

ISO 8573-1: 2010	Solid particles				Water		Oil
Class	Maximum number of particles per m³			Mass concentration	Vapor pressure dew point	Liquid	Total oil content (liquid, aerosol and mist)
	0.1-0.5 µm	0.5-1 µm	1-5 µm	mg/m³	°C	g/m³	mg/m³
0	As stipulated by the equipment user, stricter requirements than class 1.						
1	≤ 20,000	≤ 400	≤ 10	-	≤ -70	-	0.01
2	**≤ 400,000**	**≤ 6,000**	**≤ 100**	**-**	≤ -40	-	0.1
3	-	≤ 90,000	≤ 1,000	-	≤ -20	-	**1**
4	-	-	≤ 10,000	-	**≤ +3**	-	5
5	-	-	≤ 100,000	-	≤ +7	-	-
6	-	-	-	≤ 5	≤ +10	-	-
7	-	-	-	5-10	-	≤ 0.5	-
8	-	-	-	-	-	0.5 - 5	-
9	-	-	-	-	-	5 - 10	-
X	-	-	-	> 10	-	> 10	> 10

Chapter 5
Start-up Operation, Daily Operation

5.1 Advices for the start-up operation

WARNING

Start with set-up operation not until
- the functioning of the unit is known, and
- the unit installation for start-up operation has been done according to the details given in the previous chapter. That means all unit components are operable.

Read the documentation thoroughly to avoid breakdowns caused by faulty handling.

We recommend asking for an ITW Dynatec-service technician for the start-up operation, to ensure a functioning unit. Let yourself and the people working with or working on the unit be introduced to the unit on this occasion.

ITW Dynatec takes no responsibility for damages or faults caused by any untrained personal.

Heed all safety instructions mentioned in chapter 2.

Allow only skilled expert staff to do the start-up operation!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing when working on or with the unit. Risk of burns and risk of injury!

Risk of electric shocks! Risk of injury, Mortal danger!

The unit components are getting very hot during operation! Risk of burns!

The adhesive is very hot and pressurized! Risk of burns and risk of injury! At working temperature, molten adhesive could cause heavy burns. Let spilled out adhesive cool down first, before removing it!

CAUTION

During operating the unit, heed the following:
- Heed all safety instructions mentioned in chapter 2.
- Install an appropriate protection device to avoid unintended contact with heated parts and with spilling out Hotmelt. The protection device has to prevent also the operator against not reaching into the adhesive application and against injuring.
- Set the working temperatures strictly within the temperature range given by the adhesive manufacturer. Do not exceed this temperature range.

- Switch the unit off during longer production breaks.
- Switch the unit to standby during shorter production breaks.
- Avoid voltage fluctuation.
- The air supply has to be clean and dry.
- In case of an emergency or exceptional incident, press the emergency stop button in order to stop the unit quickly.

CAUTION

The unit is ready for operation, when
- all temperatures are within the tolerances,
- all motors are switched on.

Risk of stumbling on cables and heated hoses!

Keep your hands away from running parts of the unit (pumps, motors, rolls or others).

5.2 Start-up operation, in general

This is a generic start-up and purging process. All customers have a different way starting up the applicator for production, purging for maintenance, etc.

1. Check the complete unit and the traverse paths for safety. Fix visible damages immediately.
2. Before switching the unit on, make sure that the starting unit could hurt no one!
3. Remove all material or other things not needed for the production from the workspace of the unit!
4. Check and make sure that all safety devices are working in proper form!
5. To turn the main power on, turn all main switches of the components to "ON".
6. Set the temperatures in the controller.

Heed following advices:

- The maximum operating temperature is 25° to 200°C (77° to 392°F).
- Use only adhesives recommended by the adhesive manufacturer! Before changing from one type of adhesive to another (even within the same product line of one manufacturer), the unit has to be cleaned respectively purged to avoid possible chemical reactions.
- Set the temperatures of the particular heating zones in the controller according to the adhesive that is in use. Always keep the temperature range given by the adhesive manufacturer. Wrong temperature settings could cause the burning of the adhesive within the system and unsatisfactory adhesion.
- Keep the adhesive tank always closed, so that through the open tank cap no dirt particles at all (foil residues, dust, etc.) could get into the adhesive system.
  The consequences of dirt would be:
  - breakdowns
  - higher contamination of the adhesive filter,
  - the adhesive film formation will be disabled,
  - the adhesive film contains those dirt particles,
  - the adhesive film tends to tear open.
- Before starting the production, keep the required heat-up phase of the adhesive respectively of the Melter, so that sufficient adhesive can be molten and supplied to the Velocity Applicator.

CAUTION

The unit is ready for operation, when

- all temperatures are within the tolerances, and
- the adhesive in the tank of Melter is molten completely.

Switch on the motors/pumps only if the adhesive is completely molten!
Untimely start of the motors could cause the following risks:

- The pumps are not sufficiently supplied with adhesive and they intake air. The air causes foam formation within the adhesive system and reactions with PUR adhesives.
- The pumps run dry and may block.
- Solid adhesive could block the intake port. The pumps and motors may overheat and even be destroyed.

7. Adjust the adhesive pressure by the pressure regulator, automatic pressure loop (PID on ASU), if existent.

CAUTION! RISK OF BURNS AND INJURY!

- The unit operates with very high temperatures and high adhesive pressure.
- Hot adhesive comes out of the Applicator!
- Always wear heat-resistant protective gloves and safety goggles! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

8. Put a heat-resistant adhesive container (e.g. paperboard) under the nozzle to catch the adhesive.

Following instructions will depend on the customer production line control configuration with a PLC, utilizing an operator control station near the Applicator. These are base instructions on a stand-alone system, not interfaced in the production line.

9. Start the motors/pumps of the Melter.

10. Start the motor/pumps on the Velocity Applicator.

CAUTION

The motor/pumps on the Velocity Applicator may only be started when the motor/pump of the Melter is already running. Otherwise the pumps on the Velocity Applicator could be undersupplied with adhesive.

11. Switch on the controller to manual mode.

12. Switch on (activate) the module solenoids to purge adhesive through the nozzle.

13. Inspect the adhesive pattern for even distribution across the nozzle.

14. Switch off (deactivate) the module solenoids.

15. Clean the nozzle from adhesive residuals.

16. Remove the heat resistant container.

17. Switch the controller to automatic mode.

18. Set the unit parameters respectively check if they are set correct.

19. Thread the material webs.

WARNING

Make sure, that the rolls are free from adhesive residuals or other contaminations before threading the material web!

Avoid collision!
In case of a collision with the rolls several parts of the coating station and of the Velocity Applicator can be destroyed!

Make sure unconditionally, that there is no mechanical contact possible between the Velocity Applicator and the rolls.

The basic requirement for proper coating is a tight guidance of the material web.

Varying material tension may cause wrinkles within the material web.

Keep your hands, head, etc. away from running rolls! Limbs may be drawn in. Risk of crushing!

20. Start the unit (web material). Make sure that the material web runs even.
21. Activate the module solenoids for the adhesive application. Adhesive will be applied; the adhesive film will be formed!
22. Production is running.

Daily operation

Purge the Velocity Applicator before every start of production respectively of a shift by allowing the adhesive flows out until the adhesive film is clean and without tears.

Then switch off the adhesive and clean the nozzle lip from adhesive.

Bring the Velocity Applicator in work position and continue production.

5.3 Switching the unit off

CAUTION! RISK OF BURNS AND INJURY!

- Parts of the unit can be hot long after switching off.
- Always wear heat-resistant protective gloves and safety goggles! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

Do not switch off the controller and the main switch, if the unit has to be operated by weekly timer.

Effect following steps for switching the unit off:

1. Switch all pumps respectively motors off.
2. Switch the main switch off!

Removing dirt:

Remove dirt from all unit components immediately.

Wooden scrapers, lint-free cloth with thinner or cleaner may only be used for cleaning.

Metallic scrapers or other tools made from steel, like knife or blades, may not be used under any circumstances.

Chapter 6
Maintenance and Repair Notes

6.1 Security advices for maintenance and repair

Heed all security advices given in chapter 2.

Use only original parts from ITW Dynatec, otherwise ITW Dynatec's warranty is void!

Maintenance and repair work is only permitted for skilled personnel!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or heavy burns!

High Voltage! Risk of injury and mortal danger!

- All electrical connections must be made by qualified electrical personnel.
- Care must be taken to assure proper grounding prior to any disassembly.
- Lockout and tag the electrical sources as required.
- Make sure there is no electrical power on the leads you will be connecting.
- When covers are removed, high voltage sources create an electrocution hazard.
- Wear appropriate safety equipment when working with high voltage sources.

Parts and surfaces of the unit get very hot. High temperatures! Risk of heavy burns!

High adhesive temperature and adhesive pressure! Risk of injury or heavy burns!
Always assume that the system is under pressure, proceed with caution.

Keep a cool-pack, or bucket of clean water near the work area.

Place a heat-resistant catchment container/underlay under the components. Hot adhesive may come out.

CAUTION: At working temperature, molten adhesive could cause heavy burns. Let spilled out adhesive cool down first, before removing it!

CAUTION: Use only lint-free cleaning cloth and suitable cleaner for cleaning! Do not damage surfaces! Do not scratch above them with sharp-edged tools, otherwise the components will get leaky and inoperable!

All maintenance and repair work has to be done at working temperature, except as noted otherwise. Else there is a risk of damaging the unit components!

Before any service work disconnect the external power supply and switch the unit voltage-free:

1. Switch off the main switch and the controller.
2. Disconnect the power supply respectively remove the plug / cable.
3. Guard the unit against unauthorized restarting!

Before any service work the adhesive pressure must be relieved throughout the system. Switch the unit pressureless:

1. Disconnect the pressure air supply.
2. Turn the pressure regulator to zero bar, if necessary. Wait approximately 1 minute until the pressure is relieved.

Equipment Preparation for Maintenance & Repair

- Adhesive processing equipment must be worked on while hot enough to soften any material residue within the assembly. This depends on the type of adhesive used with the equipment. This may require the system to be up to operating temperature before disassembled, to prevent damage to fasteners and components.
- Once disassembled, the individual parts may be cleaned by immersion in approved solvent. Surface deposits may be removed by lightly scrapped with a brass device or scrapper. Care must be taken not to damage sealing surfaces with sharp objects or sand paper.
- Components such as O-rings, fasteners and relief valves should be discarded and replaced by certified ITW Dynatec replacement parts.

This is referring to a rebuilding area in the customer plant, having the means to heat up the applicator to disassemble with a temperature controller device.

If access to an ITW Dynatec control source is not available, or in order to maintain the equipment at a remote location, it is helpful to have a temperature control source.
An appropriate ITW cable assembly can be provided to interface a temperature control source to any ITW Dynatec equipment. Consult with your ITW Dynatec representative.

Re-Assembly Procedures and General Cautions

Unless noted, head re-assembly is simply the reverse sequence of the disassembly procedures. However, the following “cautions” should be followed (whenever they apply) for proper re-assembly:

CAUTION

In general, all O-RINGS AND SEALS must be replaced whenever hot-melt equipment is re-assembled. All new O-rings must be lubricated with O-ring lube (PN N07588).

TAPERED PIPE THREADS are found on air pipe fittings used with the pump air supply and on the outlet filter manifold. Apply thread sealant (PN N02892) whenever tapered pipe threaded parts are re-assembled.

SOME FITTINGS used for adhesive on hot melt equipment have straight threads and O-ring seals. Use of thread sealant is not necessary with these parts, but the O-ring seals should be clean and lubricated. Tighten straight-threaded parts and fittings until their shoulders are firmly seated. Excessive torque may damage straight-threaded parts and the use of power wrenches is not recommended.

HOT-MELT RESIDUE must be cleaned from parts before they are re-assembled, particularly from threaded parts. As a precaution against adhesive residue preventing proper re-assembly, threaded parts must always be re-tightened at operating temperature.

6.2 Maintenance plan

CAUTION

Heed all security advices given in chapter 6.1.

Use only original parts from ITW Dynatec, otherwise ITW Dynatec's warranty is void!

Please use only the indicated lubricants and keep the prescribed maintenance intervals. Consider in addition the enclosed regulations of manufactures.

Punctual and conscientious maintenance of the unit secures not only a trouble free function, but prevents also for expensive repair costs.

Remove all materials and tools used during the repair or maintenance from the workspace of the unit.

Place a heat-resistant catchment container/underlay under the components. Hot adhesive may come out.

Use only lint-free cleaning cloth and suitable cleaner for cleaning! Do not damage surfaces! Do not scratch above them with sharp-edged tools, otherwise the components will get leaky and inoperable!

Maintenance plan:

Operating time/ frequency	Inspection point / maintenance notes
Continuous	• Remove dropped out adhesive and scrap adhesive and search for the cause of that, eliminate the cause. • Listen for abnormal sounds of the unit, e. g. from the motors, pumps, etc.
Once a day	• Clean the Velocity Applicator and components from dirt.
Once a week	• Check pumps and their seals for wearing and leaks and replace if necessary. • Check filters for clogging and replace if necessary. • Check modules on applicator if leaky and replace if necessary. • Check nozzles for wearing or clogging and clean or replace if necessary. • Check pressure relief valves for function and replace if necessary. • Check air supply connections for leaks and tighten if loose or replace if necessary. • Check the solenoid valves for proper function and replace it if necessary.
Every 3 months	• Check pump mounting screws for tightness and tighten if necessary. • Check all hose fittings for tightness and tighten if necessary. • Due to temperature differences a loosening of threads (threaded connections) is possible. Check all parts with threads, all screw fittings and fasteners for tightness and tighten them if necessary.
Once a year	• Clean the Velocity Applicator. • Complete check-up for wearing.
Every two years	• Complete maintenance.

6.3 Relieving Adhesive Pressure

WARNING

Heed all security advices given in chapter 6.1.

Maintenance and repair work is only permitted for skilled personnel!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns!

Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

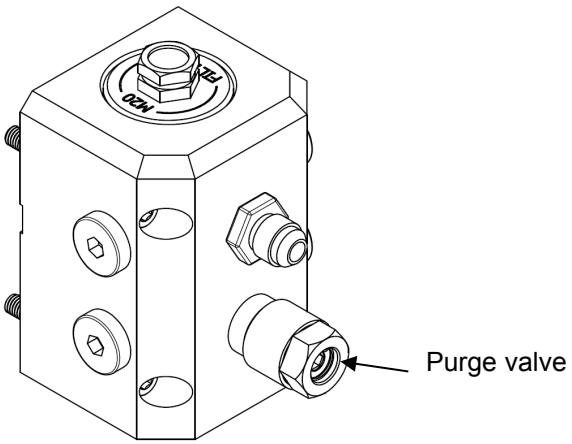
During the purging procedure, hot adhesive can come out of the Applicator under high pressure. Wear safety glasses, gloves and protective clothing.

Many maintenance and troubleshooting procedures potentially expose the maintenance technician to dangerous hot adhesive, which is under pressure. Follow this procedure to release the adhesive pressure in the Applicator before performing such maintenance.

1. The Applicator should be at operating temperature.
2. Turn the ASU's pump/ motor OFF.
3. Place a heat-resistant catchment container/underlay under the Applicator.
4. Slowly loosen (do not remove) the purge screw of the pressure purge valve manually with a 5mm hex key until the pressure is relieved. Then, tighten the purge screw. Be sure to stand clear since hot adhesive under pressure will flow out of the Applicator.

   Or, open the solenoid by pushing the purge button.

   Or, turn the pressure regulator to zero bar, if necessary. Wait approximately 1 minute until the pressure is relieved.



Filter block

6.4 Replacing the fixed Pressure Relief Valve, PN 813231

During a rebuild cycle or periodic maintenance it may be necessary to replace the pressure relief valves.

WARNING

Heed all security advices given in chapter 6.1.

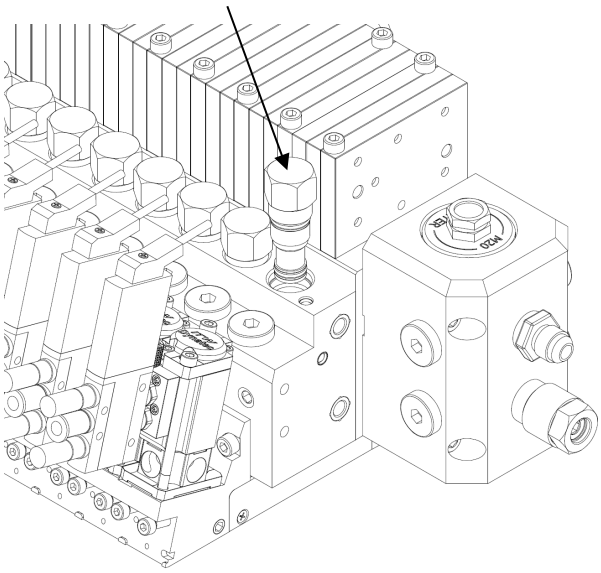
Maintenance and repair work is only permitted for skilled personnel!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns!

Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

1. Stop all motors.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the valve. Hot adhesive may come out!
5. Using a 19mm [3/4] box-end wrench, carefully remove the relief valve by turning it counterclockwise until it clears the manifold.
6. Examine the threads of the removed pressure relief valve. Any thread defect could indicate a problem with the threads within the manifold.
7. If the threads are damaged, replace the manifold. A M16 x 1.5 tap may be used to repair the threads. Note: If tapping the threads is necessary, make certain all metallic shavings are removed from the manifold, to avoid damage to one or more components.
8. Apply a conservative amount of O-ring lubricant to the seals of the new pressure relief valve.
9. Using a 19mm [3/4] box-end wrench, tighten the relief valve until firmly seated in the manifold.

Fixed Pressure Relief Valve



After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.
- Continue production.

6.5 Replacement of the Solenoid Valve

WARNING

Heed all security advices given in chapter 6.1.

Maintenance and repair work is only permitted for skilled personnel!

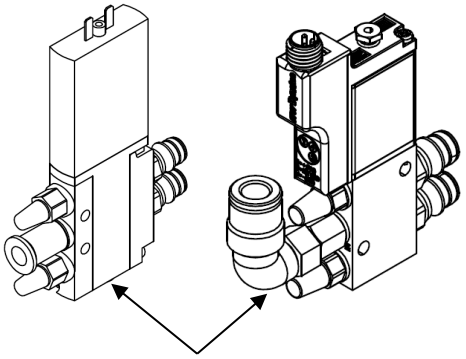
Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns!

Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

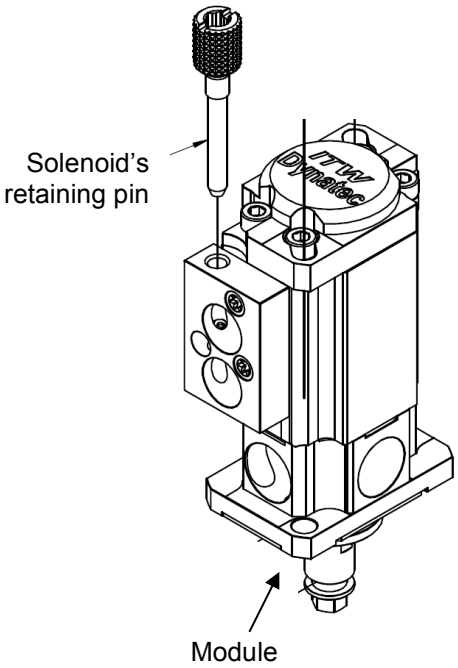
During the purging procedure, hot adhesive can come out of the Applicator under high pressure. Wear safety glasses, gloves and protective clothing.

Refer to the drawing in Chapter 8 for more information.

1. Stop all motors.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Depressurize the air supply to solenoid valve to 0 bar!
5. Remove the electrical connector and the pneumatic hose from the solenoid valve.
6. Loosen the solenoid's retaining pin, pull out the solenoid valve and replace it.
7. Mount the new solenoid valve in reverse order and attach it to the module.



Different solenoid valves



After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.
- Continue production.

6.6 Replacement of the Module

WARNING

Heed all security advices given in chapter 6.1.

Maintenance and repair work is only permitted for skilled personnel!

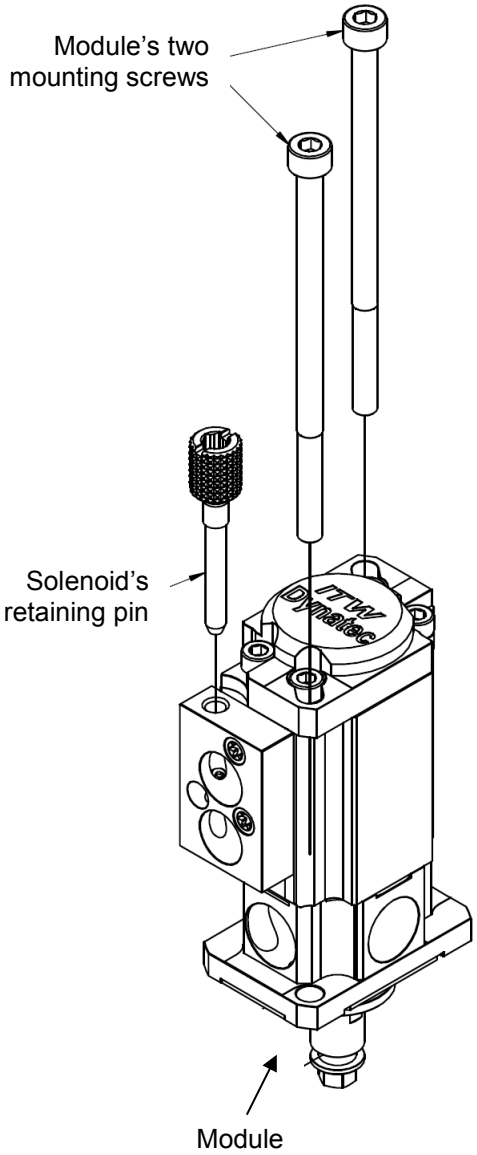
Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns!

Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

During the purging procedure, hot adhesive can come out of the Applicator under high pressure. Wear safety glasses, gloves and protective clothing.

Refer to the drawing in Chapter 8 for more information.

1. Stop all motors.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out!
5. Relieve the adhesive pressure by following the instructions under Chapter 6.3 “Relieving Adhesive Pressure”.
6. Remove the electrical connector and the pneumatic hose from the solenoid valve.
7. Loosen the solenoid’s retaining pin and pull out the solenoid valve. See Chapter 6.5 Replacement of the Solenoid Valve.
8. Loosen the two mounting screws from the module and remove the module from the manifold.
9. Mount the new module in reverse order and attach it to the manifold with a torque of 20-25 in./lbs (2.3-2.8 Nm).



After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.
- Continue production.

6.7 Replacement of the SCS Nozzle or Spray Nozzle

WARNING

Heed all security advices given in chapter 6.1.

Maintenance and repair work is only permitted for skilled personnel!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns!

Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

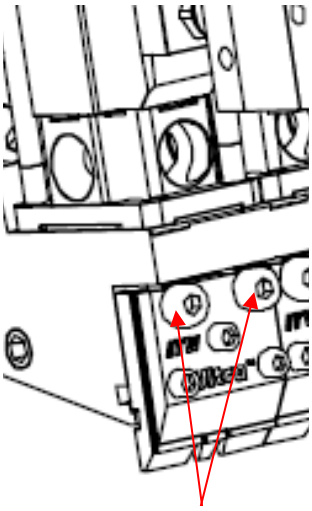
During the purging procedure, hot adhesive can come out of the Applicator under high pressure. Wear safety glasses, gloves and protective clothing.

Refer to the drawing in Chapter 8 for more information.

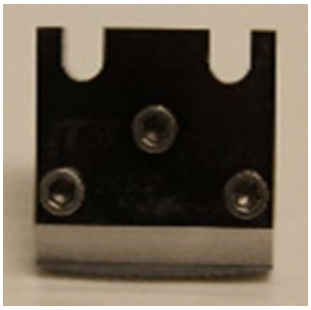
Occasionally nozzles can become clogged with char, residue or other foreign material. This can result in the decrease or even stoppage of glue flow. Use following procedure to change nozzles:

The nozzle must be at operating temperature when cleaned.

1. Stop all motors.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out!
5. Relieve the adhesive pressure by following the instructions under Chapter 6.3 “Relieving Adhesive Pressure”.
6. Remove the nozzle from the module by loosening its two mounting screws.
7. Mount the new nozzle in reverse order (check that new O-rings are in place) and attach it to the module with a torque of 20-25 in./lbs (2.3-2.8 Nm).



Nozzle’s two mounting screws



After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.
- Continue production.

6.8 Cleaning the Spray Nozzle Inside

WARNING

Heed all security advices given in chapter 6.1.

Maintenance and repair work is only permitted for skilled personnel!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns!

Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

During the purging procedure, hot adhesive can come out of the Applicator under high pressure. Wear safety glasses, gloves and protective clothing.

Refer to the drawing in Chapter 8 for more information.

Occasionally nozzles can become clogged with char, residue or other foreign material. This can result in the decrease or even stoppage of glue flow. Use one of the following two methods to clean nozzles.

Cleaning by High Temperature Oven

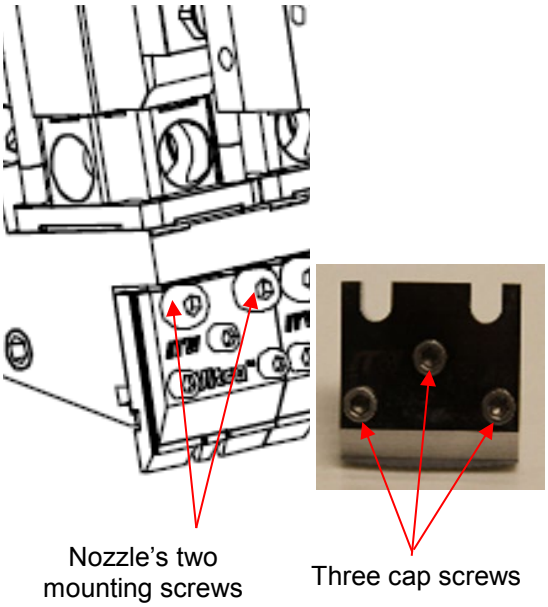
For routine nozzle cleaning, a high temperature oven should be utilized. We recommend heating (or cooking) the nozzle at 425°C (800°F) for 8 hours in an oven. An optional Nozzle Cleaning Oven (PN 107307 or 107306) is available from ITW Dynatec.

After several cleanings in an oven, nozzles must be disassembled and soaked in solvent in order to remove all contaminants. Perform the following procedure as needed:

Cleaning by Nozzle Disassembly

The nozzle must be at operating temperature when cleaned.

1. Stop all motors.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out!
5. Relieve the adhesive pressure by following the instructions under Chapter 6.3 “Relieving Adhesive Pressure”.
6. Remove the nozzle from the module by loosening its two mounting screws.
7. Remove the mounting screws and the three cap screws from the nozzle.



Nozzle’s two mounting screws

Three cap screws

8. Separate the nozzle from its front and rear mounting plates.

9. Soak the nozzle plates in solvent. If necessary, use a non-metallic brush to remove any foreign material, being careful not to damage any of the nozzle's orifices. Be sure to remove all residue before re-assembling.

10. Mount the nozzle in reverse order and attach it to the module.

After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.
- Continue production.

6.9 Replacement of the Slot Nozzle

WARNING

Heed all security advices given in chapter 6.1.

Maintenance and repair work is only permitted for skilled personnel!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns!

Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

During the purging procedure, hot adhesive can come out of the Applicator under high pressure. Wear safety glasses, gloves and protective clothing.

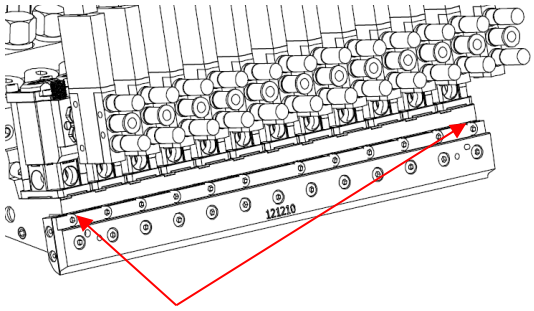
Refer to the drawing in Chapter 8 for more information.

Occasionally nozzles can become clogged with char, residue or other foreign material. This can result in the decrease or even stoppage of glue flow.
Use following general procedure to change a nozzle:

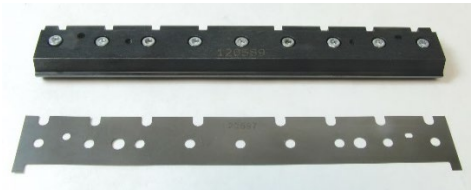
The nozzle must be at operating temperature when replaced or cleaned.

1. Stop all motors.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out!
5. Relieve the adhesive pressure by following the instructions under Chapter 6.3 “Relieving Adhesive Pressure”.
6. Remove the nozzle from the module by loosening its mounting screws.

   ADVICE:
   When disengaging the last screw secure the slot nozzle against falling down.
   During dismounting/mounting, take care that the slot nozzle or outlet lip does not get damaged at all; otherwise it will not be possible to produce proper coating!



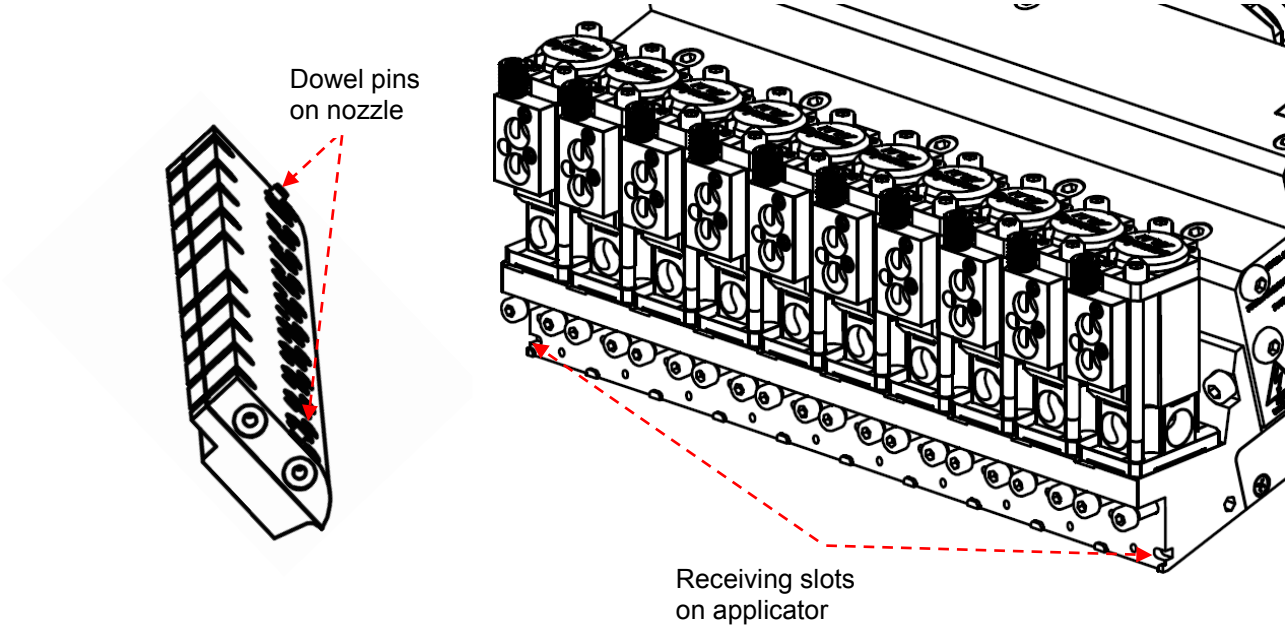
Nozzle’s mounting screws



Nozzle with shim

7. Mount a new slot nozzle on the Applicator:

   - Make sure that the two dowel pins on the nozzle engage the receiving slots on the applicator. If the pins are not engaged properly, the O-rings will not seal, and the nozzle will leak.



   - Because the slot nozzle is cooled down when cleaning, the length of the slot nozzle has changed slightly.

   - When installing, take care that the middle screws of the fastening screws are attached first and tightened lightly. After waiting of approx. 10min. (heating-up time of the slot nozzle and corresponding expansion) attach the remaining screws and tighten lightly.

   - Only when the slot nozzle is thoroughly tempered, tighten the screws from inside outward with a tightening torque of 20-25 in./lbs (2.3-2.8 Nm).

After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.
- Continue production.

6.10 Cleaning the Slot Nozzle Inside and Change the Shim

WARNING

Heed all security advices given in chapter 6.1.

Maintenance and repair work is only permitted for skilled personnel!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns!

Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

During the purging procedure, hot adhesive can come out of the Applicator under high pressure. Wear safety glasses, gloves and protective clothing.

MAINTENANCE: Clean the slot nozzle inside as required; e.g. once a week.

Refer to the drawing in Chapter 8 for more information.

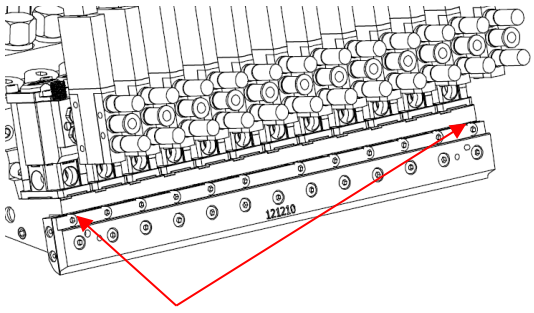
Occasionally nozzles can become clogged with char, residue or other foreign material. This can result in the decrease or even stoppage of glue flow.

Use following general procedure to clean a nozzle or to replace a pattern shim:

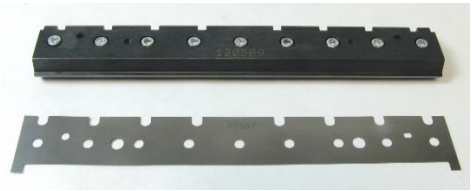
The nozzle must be at operating temperature when replaced or cleaned.

1. Stop all motors.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the Applicator. Hot adhesive may come out!
5. Relieve the adhesive pressure by following the instructions under Chapter 6.3 “Relieving Adhesive Pressure”.
6. Remove the nozzle from the module by loosening its mounting screws.

   ADVICE:
   When disengaging the last screw secure the slot nozzle against falling down.
   During dismounting/mounting, take care that the slot nozzle or outlet lip get not be damaged at all; otherwise it will be no more possible to produce a coating film!



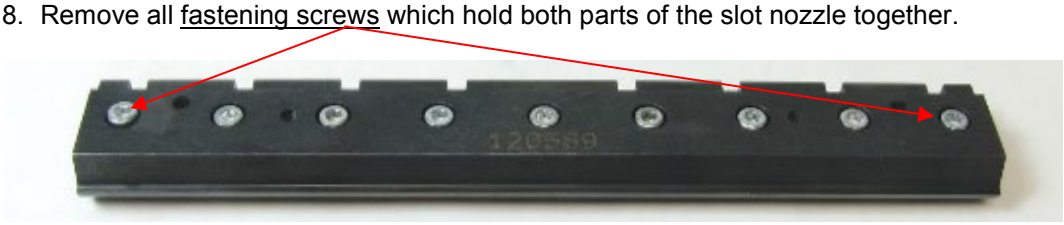
Nozzle’s mounting screws



Nozzle with shim

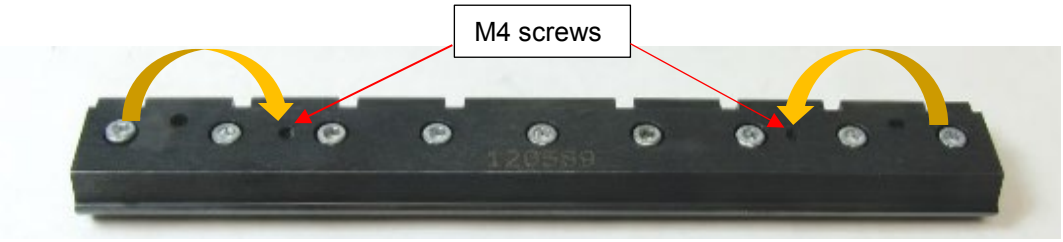
7. Take out the slot nozzle completely and lay it on a wooden table.

8. Remove all fastening screws which hold both parts of the slot nozzle together.



9. The slot nozzle consists of two parts, which should be taken apart.

   Separate the 2-parts of slot nozzle:
   Two of the fastening screws can be used to help disassemble the nozzles. The front plate has two M4 holes (see below). Two fastening screws can be threaded into these holes to separate the front and rear die plates. After separating both parts, remove both screws.



10. Remove and clean the pattern shim; this lies loosely in the slot nozzle.

    NOTE:
    Note the mounting direction of the shim, as it must be assembled in the same mounting direction.

11. Clean the slot nozzle inside and outside.

    Clean only with a wooden scraper or cloth with thinner or cleaner.

    CAUTION: Do not damage the slot nozzle with sharp-edged or metallic objects or tools. Otherwise it will be no more possible to produce a coating film!

12. Put both parts of the slot nozzle with longitudinal sides (not on the outlet lips) on a flat surface. This assures that the shim is flush with the outlet lips.

13. Place the cleaned or new shim between both parts of the slot nozzle.

    NOTE: When inserting the shim pay attention to the mounting direction.

14. Tighten both parts of the slot nozzle with fastening screws.

    Pay attention that the shim is flush with the outlet lips.

15. Install the slot nozzle on the Applicator:

    Because the slot nozzle is cooled down when cleaning, the length of the slot nozzle has changed slightly.

    When installing, take care that the middle screws of the fastening screws are attached first and tightened lightly. After waiting of approx. 10min. (heating-up time of

the slot nozzle and corresponding expansion) attach the remaining screws and tighten lightly.

Only when the slot nozzle is thoroughly tempered, tighten the screws from inside outward with a tightening torque of 20-25 in./lbs (2.3-2.8 Nm).

After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.
- Continue production.

6.11 Pump Replacement

WARNING

Heed all security advices given in chapter 6.1.

Maintenance and repair work is only permitted for skilled personnel!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns!

Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

1. Stop all motors.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the pump. Hot adhesive may come out!
5. Remove both screws (1) that hold the pump in place (see Fig. 1).
6. Lift the defect pump away from the pump group.
7. Wipe away any excess adhesive. CAUTION: Use only lint-free cleaning cloth and suitable cleaner for cleaning! Do not damage the pump and Base Plate surfaces! They are smoothed sealing surfaces! Do not scratch above them with sharp-edged tools, otherwise the pump will get leaky and inoperable!
8. Check all the O-rings for damage or degradation and replace if necessary. Two static O-ring seals exist on the mounting face of the pump.
9. Install the new pump:
   - The pump has to be screwed hot, that means Pump Base has to be at working temperature!
   - With both O-rings in place, slide in the pump perpendicular to the shaft to allow the gear inside the pump block and the intermediate gear of the pump (see Fig. 2) are engaged correctly.

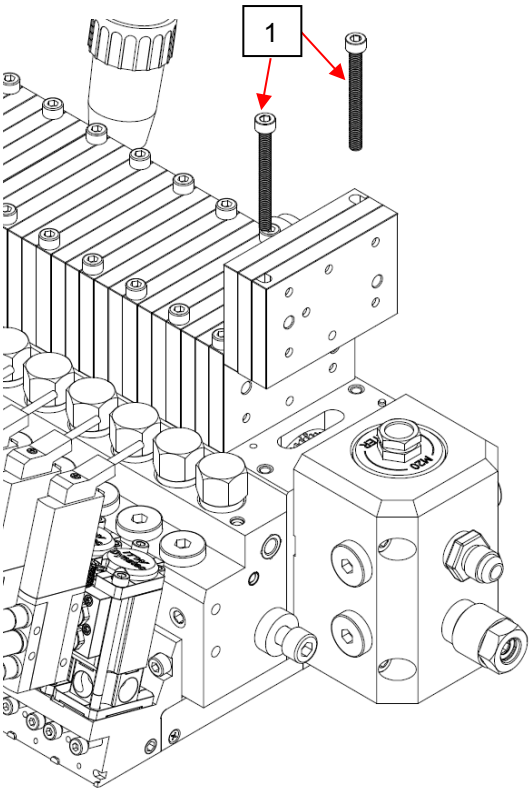


Fig. 1

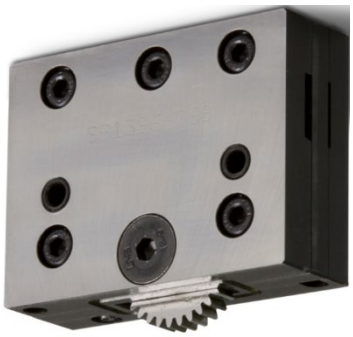


Fig. 2

- Once the pump body is centered on the pump block, install the screws and washers (see Fig. 1).

10. If required, return the pump to ITW Dynatec for repair or replacement.

After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.
- Continue production.

6.12 Seal Cartridge Assembly Removal and Service

WARNING

Heed all security advices given in chapter 6.1.

Maintenance and repair work is only permitted for skilled personnel!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns!

Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

The seal cartridge is the only dynamic seal within the Pump Base. The seal cartridge can be replaced as a complete assembly or as individual parts.

1. Stop all motors.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the pump group. Hot adhesive may come out!
5. Remove the motor and gearbox from the drive bracket.
6. Using a 45mm spanner wrench (Fig. 2), supplied in the tool kit (refer to the spare part list of the tool kit PN 813497 in Ch.9), loosen the cartridge housing by turning it counterclockwise.
7. Slide the cartridge from the end of the shaft.
8. Wipe away any excess adhesive.
   CAUTION: Use only lint-free cleaning cloth and suitable cleaner for cleaning! Do not damage the shaft! Do not scratch above them with sharp-edged tools, otherwise the shaft will get leaky and inoperable.
9. Replace with a new cartridge or refurbish the existing cartridge and replace in reverse order.
10. Tighten the seal cartridge by using the spanner wrench.
    Refer to the exploded view drawings in Chapter 8 for further information.
    Refer to Fig. 1 for components required for refurbishment.

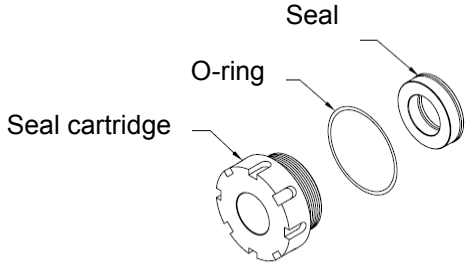


Fig. 1

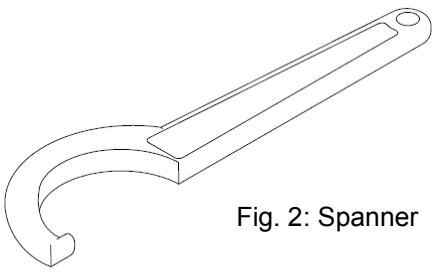


Fig. 2: Spanner

After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.
- Continue production.

6.13 Filter Cartridge Replacement Procedure

WARNING

Heed all security advices given in chapter 6.1.

Maintenance and repair work is only permitted for skilled personnel!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or severe burns!

Components and adhesive are hot. Take every precaution to prevent the material and hot surfaces from contacting the skin.

Refer to the drawings in Chapter 8 for more information.

1. Stop all motors.
2. Switch the unit voltage-free and pressureless.
3. Guard the unit against unauthorized restarting.
4. Place a heat-resistant catchment container/underlay under the filter block. Hot adhesive may come out!
5. Using a 5mm wrench, open the pressure drain (purge) valve (3) located on the fitting side of the filter block assembly.
6. After pressure has drained from the filter assembly, remove the filter nut (1) (with filter (2) attached) from the filter block.
7. Unscrew the filter (right hand thread) from filter nut and remove old seal.
8. Inspect the filter nut and O-rings for defects or degradation and replace if necessary. Attach new filter (2) with seal to the nut (1).
9. Reinstall the filter nut with filter attached into the filter block. Tighten to 10 lbs/ft (1.1 Nm). The top of the nut should be flush with the top of the filter block when correctly installed.
10. Close the pressure bleed (purge) valve, return the equipment to service and check for leaks.

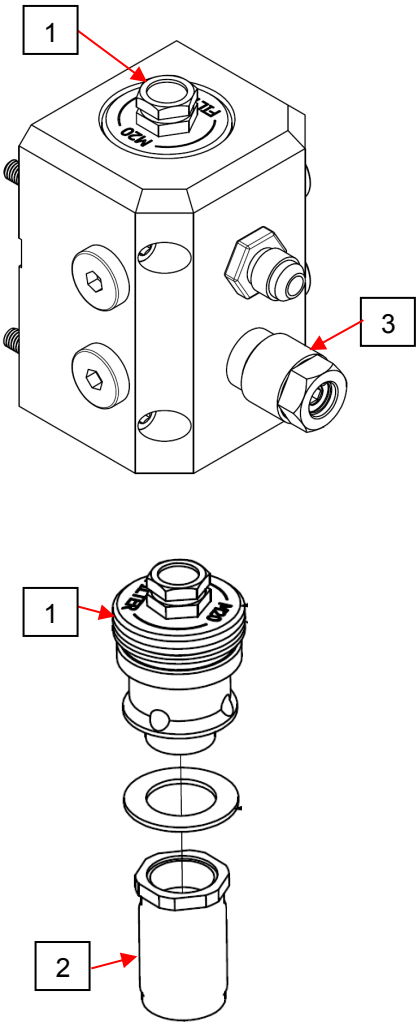


Illustration: Replacing filter cartridge, example

11. If leaking, it might be necessary to replace the filter nut O-rings.

After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.
- Continue production.

Chapter 7
Troubleshooting

Troubleshooting In General

ADVICES:
Please re-read all security advices given in chapter 2 before troubleshooting.
All troubleshooting or repair procedures must be performed by qualified, trained technicians.

The temperatures measured on the outer surface may deviate significantly from the temperatures set and displayed. This can lead to a false conclusion (e.g. defective heating). Such a difference is normal and depends also largely on the materials used.

In general: If failure occurs, check first:

- Check all the electrical and pneumatic connections.
- Verify that the main power switch of the unit is ON.
- Verify that the pump is functioning and the application heads have the required air pressure.
- Verify that the temperature controller is in operation and that the setpoints are correct for the Melter, Heated Hoses, Applicator and all other components connected to the unit.
- Check to see if all components are heating properly.

Testing Resistance of the RTD Temperature Sensor

WARNING

Heed all security advices given in Chapter 6.1.
Maintenance and repair work is only permitted for skilled personnel!

1. Stop all motors.

2. Turn the ASU OFF or disable the Applicator and preheater zones at the control panel. Disconnect all electrical cables from the Applicator.

3. Relieve the adhesive pressure.

4. Unplug the electrical cable from the adhesive supply hose or extension cable to expose the pins in the cable.
   Note: The resistance value (Ohms) of the temperature sensor depends on the temperature of the sensor at the time it is being tested. All values listed in the table below are given at 25°C (77°F). To correct for ambient temperatures other than 25°C (77°F), see next section “Resistance Tables, Temperature sensors” for complete resistance-temperature tables for the RTD sensors.

5. Using the schematics as a reference, measure the resistance of the sensor and compare to the values in the table below. A tolerance of ± 5% is allowed for ambient temperature differences. A sensor that tests outside of this range must be replaced.

Resistance Tables, Temperature sensors

Temperature sensor PT 100 Ohms
Control option: DCL

Temperature °F	Temperature °C	Resistance in Ohms
32	0	100
50	10	104
68	20	108
86	30	112
104	40	116
122	50	119
140	60	123
158	70	127
176	80	131
194	90	135
212	100	139
230	110	142
248	120	146
268	130	150
284	140	154
302	150	157
320	160	161
338	170	164
356	180	168
374	190	172
392	200	176
410	210	180
428	220	183

Temperature sensor Ni 120 Ohms
Control option: NOR

Temperature °F	Temperature °C	Resistance in Ohms
32	0	120
50	10	127
68	20	135
86	30	142
104	40	150
122	50	158
140	60	166
158	70	174
176	80	183
194	90	192
212	100	201
230	110	210
248	120	219
268	130	229
284	140	239
302	150	249
320	160	259
338	170	270
356	180	284
374	190	292
392	200	303
410	210	315
428	220	328

Troubleshooting Guide Velocity Applicator

Note: This troubleshooting table is only a guideline. The possibility of having more than one problem occurring at one time can obscure the problem and its resulting symptoms.

Problem	Possible Cause	Solution
No adhesive flow from metered outlet.	1. Motor rotation is not correct. 2. Pumps are installed wrong for desired outlet. 3. Assembly or adhesive is not up to temperature. 4. Pump outlet ports blockage. 5. Hose or hose fitting is not up to temperature. 6. Coupling does not operate correct. 7. Mechanical failure of drive shaft.	1. Check for correct motor rotation. 2. Make certain pumps are installed for desired outlet. 3. Wait until assembly or adhesive heats up to temperature. 4. Check for blockage of pump outlet ports and clean them. 5. Wait until hose or hose fitting heats up to temperature. 6. Examine coupling for correct operation. 7. Check for mechanical failure of drive shaft.
Volume is less than the calculated pump displacement at specific revolutions per minute (RPM) using external recirculation.	1. Pump displacement incorrect. 2. Drive shaft revolutions per minute incorrect. 3. Pump rotation incorrect. 4. Pressure relief valve defective. 5. Adhesive leakage between Pump Base and Adapter. 6. Pump Base inlet pressure is too low.	1. Verify pump displacement. 2. Verify drive shaft revolutions per minute. 3. Remove and inspect pumps for rotation. 4. Replace pressure relief valve. 5. Check for leakage between Pump Base and Adapter. 6. Check and adjust Pump Base inlet pressure.
Volume is more than the calculated pump displacement at specific revolutions per minute (RPM) using internal recirculation.	1. Pump displacement incorrect. 2. Drive shaft revolutions per minute incorrect. 3. Pressure relief valve defective.	1. Verify pump displacement. 2. Verify drive shaft revolutions per minute. 3. Replace pressure relief valve.
Adhesive leakage between Pump Base and Adapter.	1. Tightening torque of screws incorrect. 2. O-rings defective. 3. Mating surfaces defect or contaminated.	1. Check M6 x 1 attachment screws for correct torque. 2. Remove Hose Adapter and replace all O-rings. 3. Check mating surfaces for defects or contamination and clean them.
Adhesive leakage around hose fitting.	1. Fitting is not tight. 2. O-rings defective. 3. Mating surfaces defect or contaminated.	1. Check fitting for tightness. 2. Remove fitting and replace the O-rings. 3. Check mating surfaces for defects or contamination and clean them.
Adhesive leakage around pressure relief valve.	1. Pressure relief valve is not tight. 2. Pressure relief valve defective.	1. Check pressure relief valve for tightness. 2. Replace pressure relief valve.

Troubleshooting Guide ULTRA Adapter and Module

Problem	Possible Cause	Solution
Module does not open.	1. Temperature adjustment of head is too low. 2. Solenoid defective. 3. Low or no air pressure to solenoid valve.	1. Check temperature adjustment. 2. Push the solenoid's manual button. If it opens, the problem is electrical. Check and/or replace the solenoid. 3. Correct problem and reapply air pressure to solenoid valve.
No adhesive flowing out of module.	1. Nozzle is clogged. 2. Filter element is dirty. 3. Module seals (O-rings) are defective. 4. ASU's hopper is empty. 5. Adhesive is too cold. 6. Solenoid valve is not opening.	1. Clean or replace nozzle. 2. Replace filter. 3. Check module O-rings. 4. Re-fill hopper. 5. Adjust temperature, see ASU manual. 6. Check solenoid valve.
Hot melt is coming out of the module's "weep" holes.	1. Module seals are damaged.	1. Replace module.
Applicator does not reach operating temperature	1. Applicator temperature set point is too low. 2. Heater cartridge defective. 3. Temperature sensor defective.	1. Change setpoint, see ASU manual. 2. Check/ replace heater cartridge. 3. Check/ replace sensor.
Applicator is too hot	1. Applicator temperature setpoint is too high. 2. Temperature sensor defective.	1. Change setpoint, see ASU manual. 2. Check/ replace sensor.
Air escapes from module	1. Piston O-ring defective. 2. O-rings located on solenoid valve connected to module are defective.	1. Replace O-ring. 2. Remove solenoid from module and replace O-rings.
Application pattern is erratic	1. Adhesive pressure is too low. 2. Adjust pattern controller.	1. a. *For units without speed control:* increase adhesive pressure at ASU. b. *For units with speed control (tach follower):* adjust pump speed control. 2. See pattern controller manual for proper adjustment.

Chapter 8
Drawings and Bill of Materials

WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect equipment's operation and can result in personal injury.

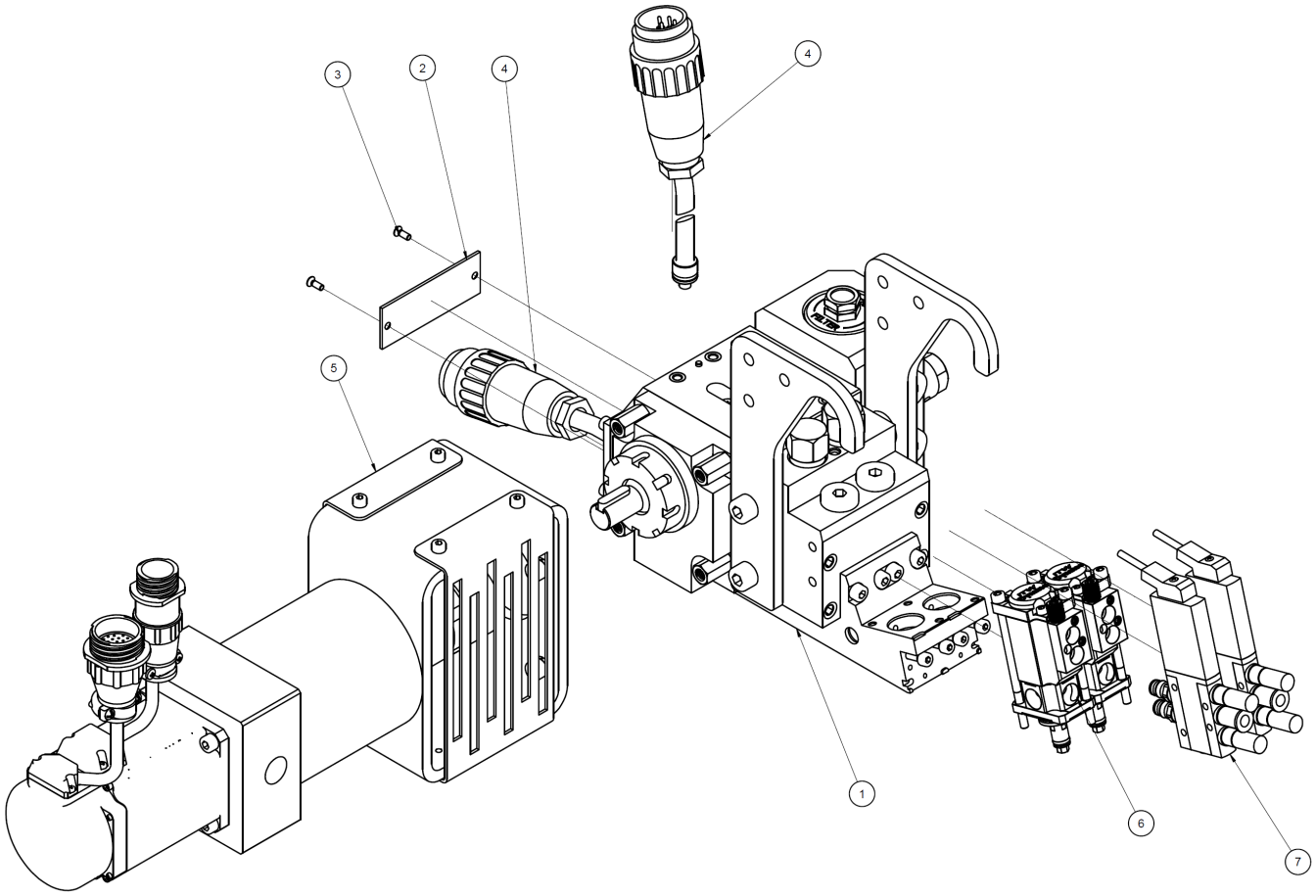
This chapter contains the component illustrations (exploded-view drawings) for each assembly of the Vector Slot Applicator. These drawings are useful for finding part numbers as well as for use when maintaining or repairing the equipment.

Note: Most common screws, nuts and washers called out in the manual are not for sale and they can be obtained locally at your hardware Store. Specialty fasteners are available by contacting ITW Dynatec's Customer Service.

8.1 Velocity Applicator 50 mm, PN 825694

Item No.	Part Number	Description	Quantity
1	825412 *	Velocity Ultra asy 50mm	1
2	110224	Data plate	1
3	105163	Screw M3x8mm, Phillips	2
4	103467 **	Cable harness, DynaControl (Temperature sensor PT100 PN N07958 is included)	2
	104528 **	Cable harness, Nordson (Temperature sensor Ni120 PN N07864 is included)	-
	823005 **	Cable harness, Harting (Temperature sensor PT100 PN N07958 is included)	-
	802578 **	Cable harness, Meltex (Temperature sensor PT100 PN N07958 is included)	-
5	825359	Drive asy, Allen Bradley	1
	825672	Drive asy, Siemens	-
6	119990 *	Ultra Module asy (use if pump is called out)	2
	120108 *	Blank Module (use if block-off is called out)	-
7	115055	Solenoid 24V, Festo 6mm	2
	120116	Solenoid 24V, MAC 6mm	-

* See separate list/drawing.
** Refer to the smart number of your applicator and to the Smart Number Code under Ch.3.2.



Velocity Ultra Assembly 50mm, PN 825412

Item No.	Part Number	Description	Quantity
1	825298 *	Service block asy 50mm	1
2	825306	Pressure block	1
3	119983 *	Module manifold asy	1
4	101625	Fitting, socket plug, G1-4	2
5	106243	Screw M5x50mm	4
6	107345	Screw, M8-1.25x25	4
7	813231	Pressure relief valve, 800psi (55 bar)	2
8	814147	Mounting bracket	2
9	L00006	Insulating spacer .25	4
10	N00178	O-ring 011	3
11	001U002	Lube, silicone, DOW112	1

* see separate list/drawing.

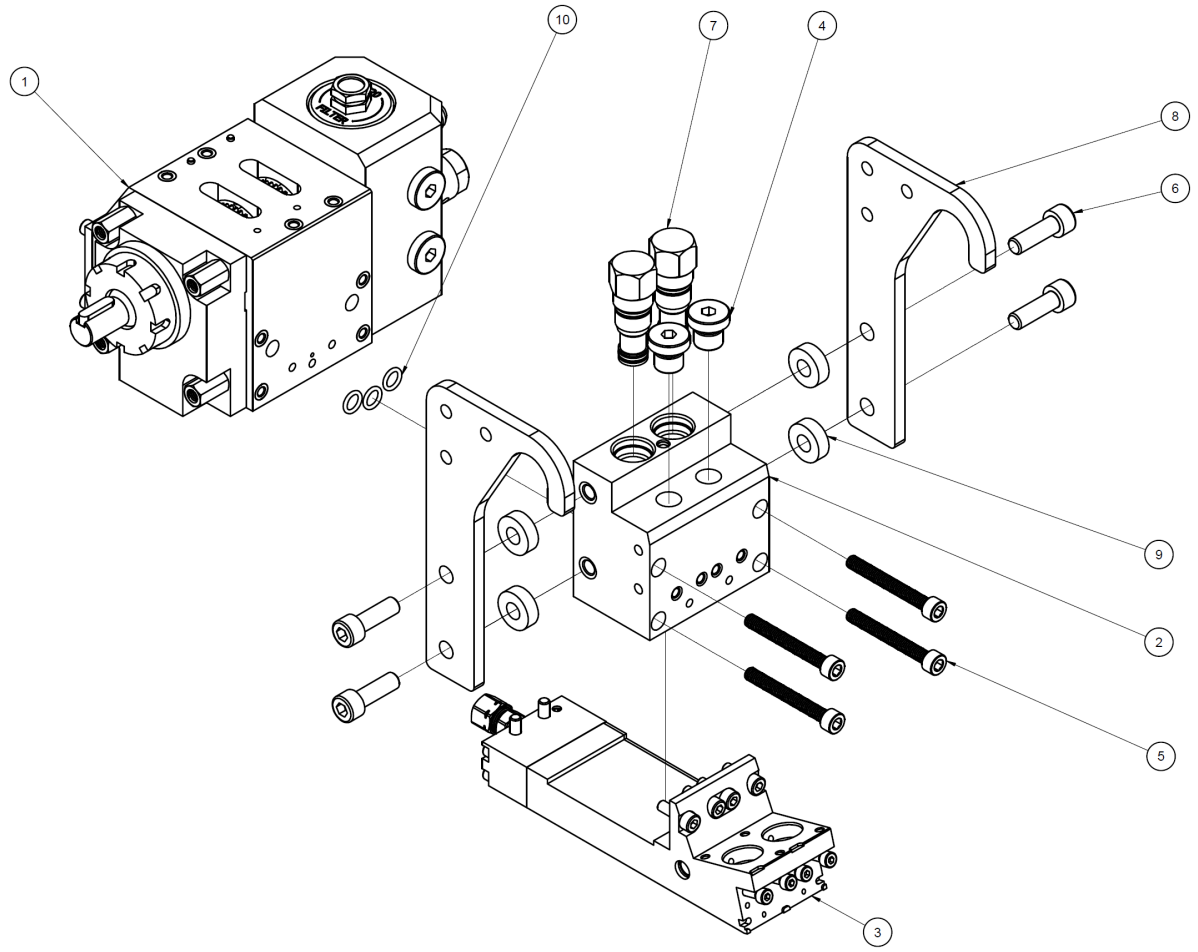


Illustration: Velocity Ultra Assembly 50mm, PN 825412

Service Block Assembly 50 mm, PN 825298

Item No.	Part Number	Description	Quantity
1	825296	Service block	1
2	825303 *	Shaft asy	1
3	825297	Cover	1
4	101624	Hose fitting 1/4 BSPP	1
5	101625	Fitting, socket plug,G1-4	4
6	107820	Purge valve asy,1/4 BSPP	1
7	107881	Terminal block,2 pos, ceramic	1
8	115440	Screw M3x0.5x3mm	1
9	116244	Filter plug, EZ spin, M20	1
10	116245	Filter kit 150 mesh, ez spin	1
11	808278	Screw M4-0.70x10mm	4
12	813344	Shaft seal	1
13	813345	Seal cartridge	1
14	814051	Heater cartridge 10x60mm, 400W, 240V	2
15	816225	Screw M6x1x50mm	4
16	822684	Filter block, single	1
17	822690	Seal block	1
18	824893	Nut M6	4
19	825645	Set screw M6X1.0,30mm	4
20	A69X134	O-ring 128	2
21	N00184	O-ring 017	2
22	N06160	O-ring 029	1
23	107324	Compound, antiseize, CHSTN710	1
24	001U002	Lube, silicone, DOW 112	1

* see separate list/drawing.

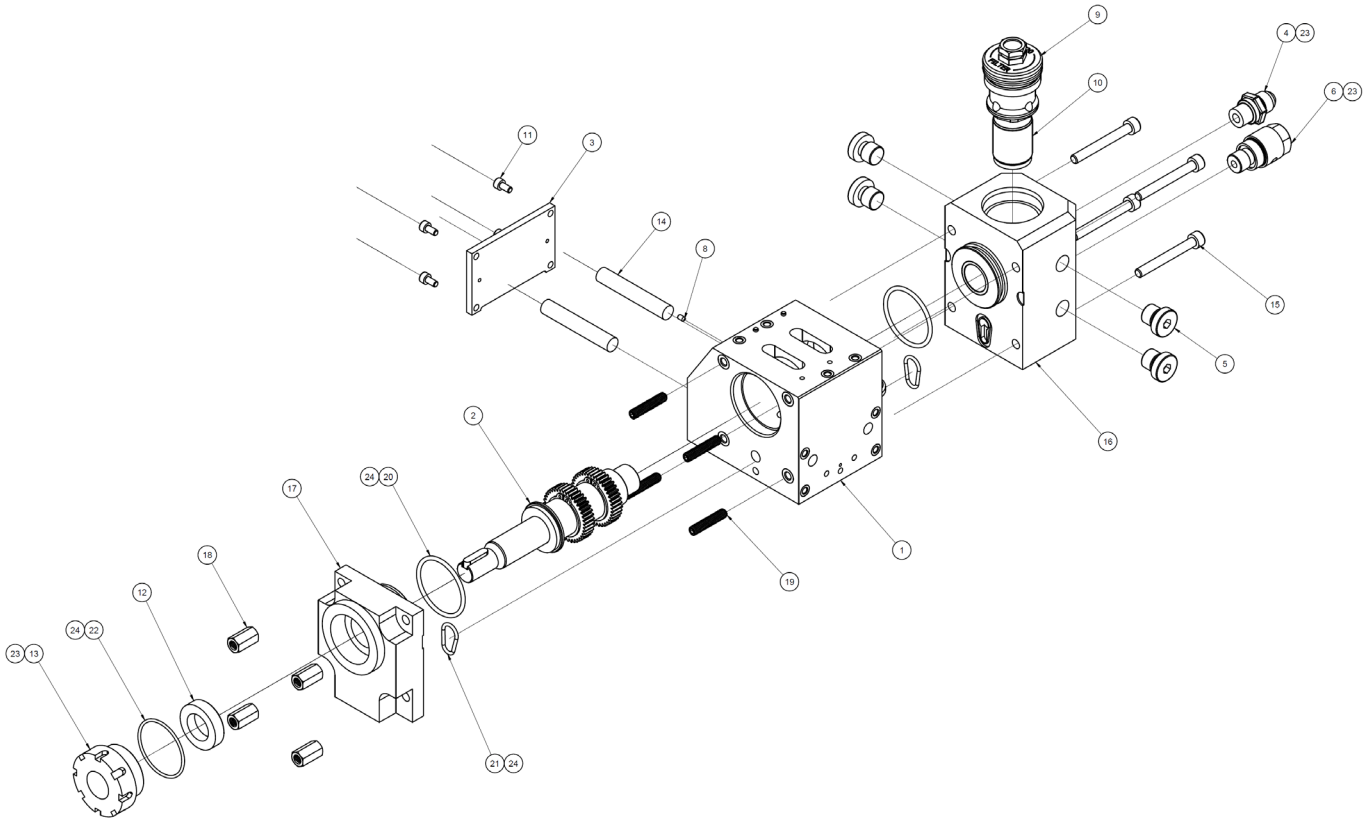


Illustration: Service Block Assembly, 50 mm, PN 825298

Shaft Assembly, Velocity 50 mm, PN 825303

Item No.	Part Number	Description	Quantity
1	825302C1	Shaft	1
2	814965	Retaining ring 25mm	4
3	822439	Dowel pin 12mm	2
5	822419	Drive gear	2
6	824891	Thrust washer	1
7	826024	Key 6x16mm	1

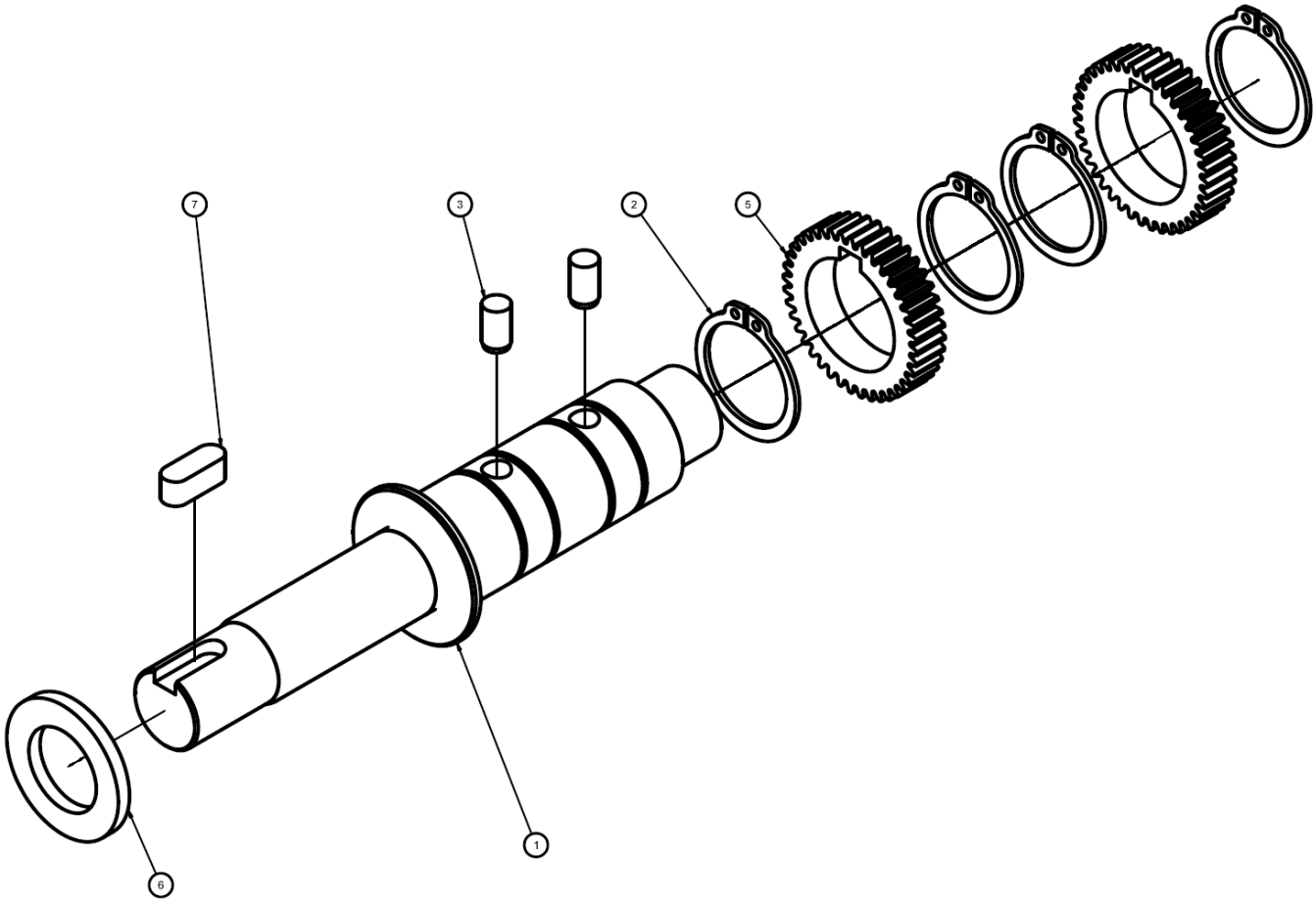


Illustration: Shaft Assembly, Velocity 50 mm, PN 825303

Module-Manifold Assembly, 2-Port, 50mm, PN 119983

Item No.	Part Number	Description	Quantity
1	119977	Module manifold 2-port	1
2	N01124	Fitting, plug 1/16-27 NPT	2
3	119988	Spiral tube 85mm	2
4	N00181	O-ring 017	2
5	119989	Heater cartridge 10x80mm, 150W, 240V	2
6	N00174	O-ring 007	1
7	078C088	Lock washer	2
8	048G016	Terminal, ring, #6	1
9	101627	Screw M3x6mm	2
10	120104	Wire cover, rear	1
11	*	Cable assembly	1
12	112716	Screw M5x6mm	1
13	106444	Heater cartridge 10x40mm, 150W, 240V	1
14	N07430	Terminal, ring, #6	1
15	101692	Screw M4x35mm	3
16	120406	Wire cover, side	1
17	106239	Screw M3x5mm	2
18	120109	Fitting, connector, 5/16 tube x 1/8 NPT	1
19	N00178	O-ring -011	2
20	100908	Screw M4x25mm	4
21	119015	Screw M5x16mm	4
22	109252	Screw M5x25mm	2

* The cable is part of Velocity Applicator 50 mm, PN 825694.

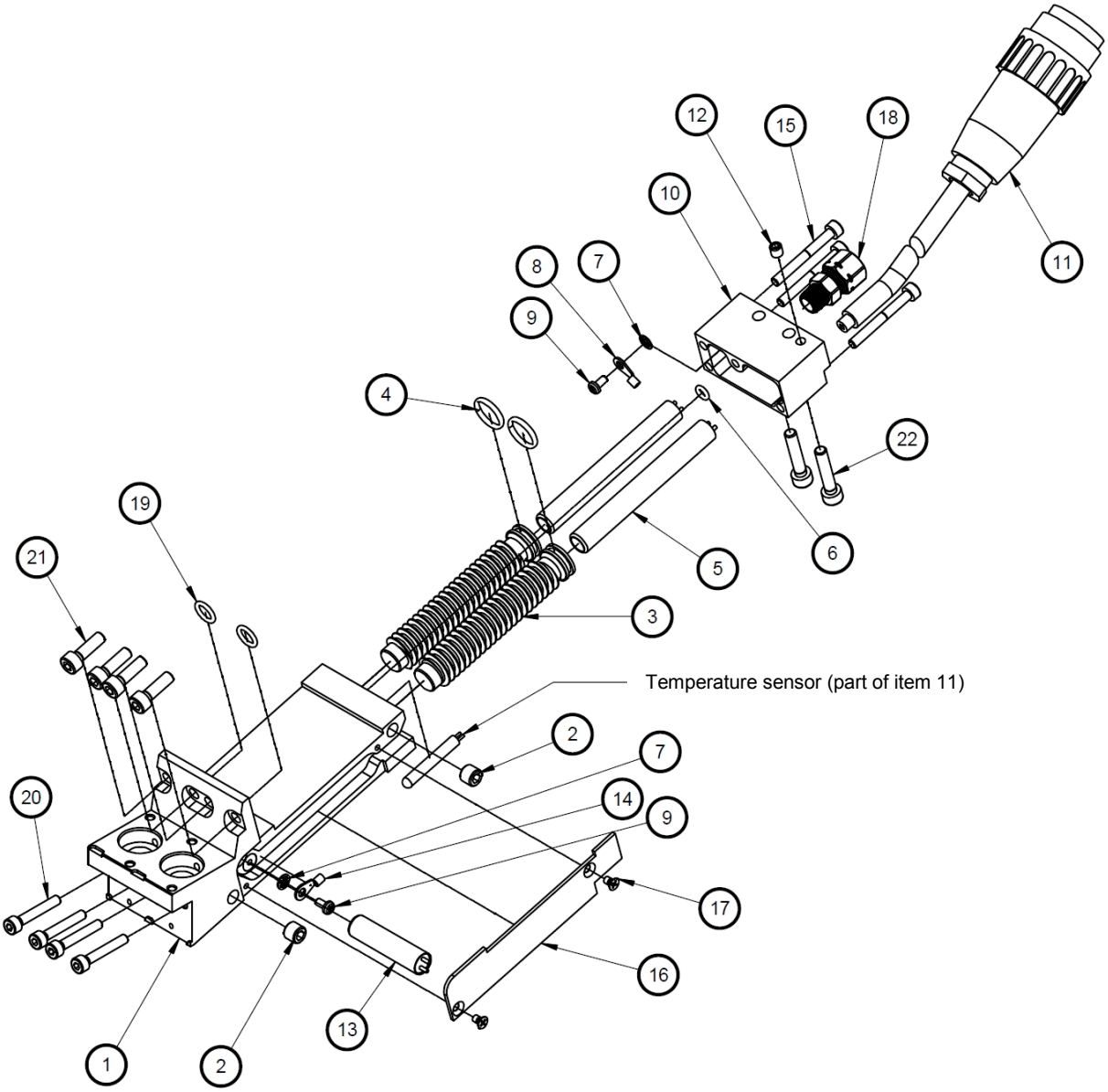
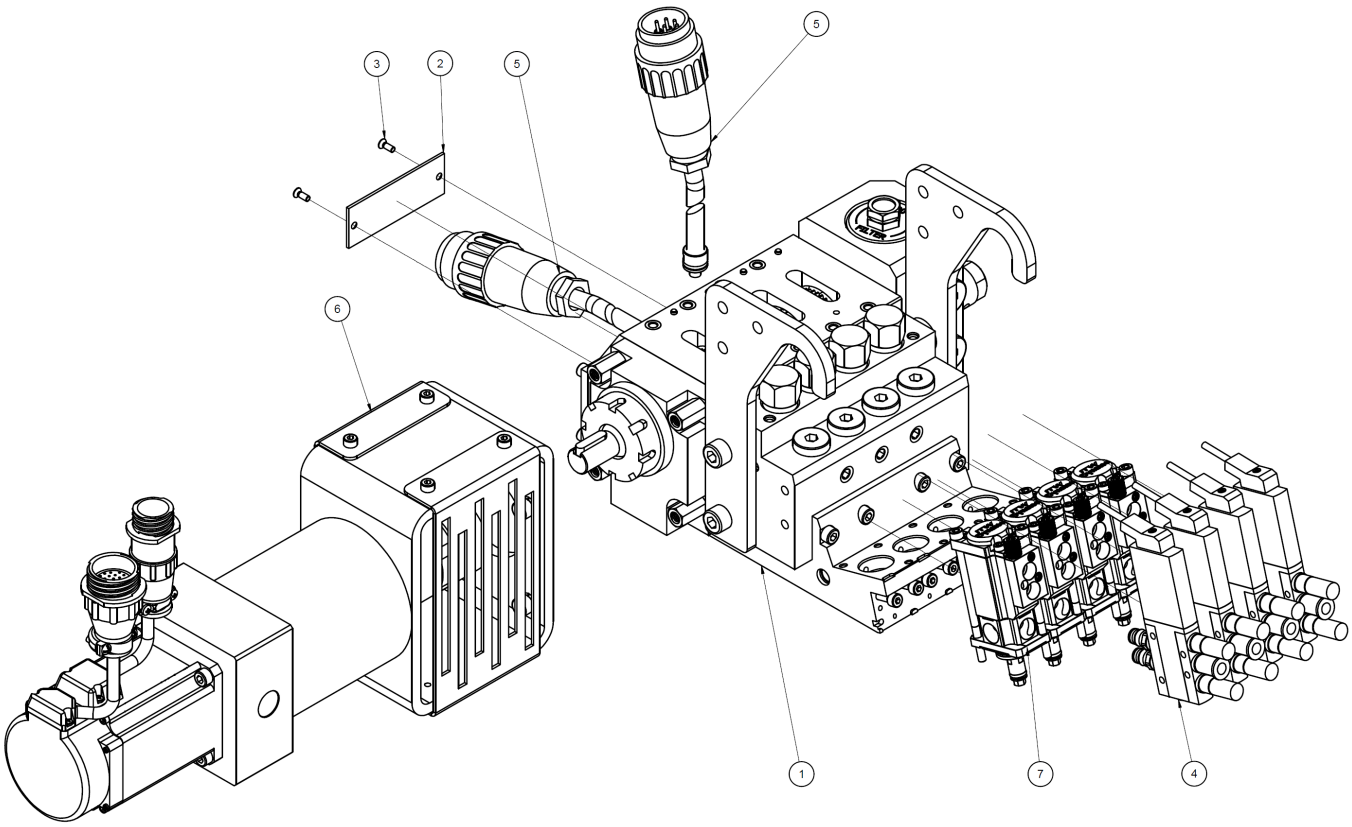


Illustration: Module-Manifold Assembly, 2-Port, 50mm, PN 119983

8.2 Velocity Applicator 100 mm, PN 825695

Item No.	Part Number	Description	Quantity
1	825413 *	Velocity Ultra asy 100mm	1
2	110224	Data plate	1
3	105163	Screw M3x8mm, Phillips	2
4	119990 *	Ultra Module asy (use if pump is called out)	4
	120108 *	Blank Module (use if block-off is called out)	-
5	103467 **	Cable harness, DynaControl (Temperature sensor PT100 PN N07958 is included)	2
	104528 **	Cable harness, Nordson (Temperature sensor Ni120 PN N07864 is included)	-
	823005 **	Cable harness, Harting (Temperature sensor PT100 PN N07958 is included)	-
	802578 **	Cable harness, Meltex (Temperature sensor PT100 PN N07958 is included)	-
6	825359	Drive asy, Allen Bradley	1
	825672	Drive asy, Siemens	-
7	115055	Solenoid 24V, Festo 6mm	4
	120116	Solenoid 24V, MAC 6mm	-

* See separate list/drawing.
** Refer to the smart number of your applicator and to the Smart Number Code under Ch.3.2.



Velocity Ultra Assembly 100 mm, PN 825413

Item No.	Part Number	Description	Quantity
1	822682 *	Service block asy 100mm	1
2	825308	Pressure block	1
3	119985 *	Module manifold asy	1
4	101625	Fitting, socket plug, G1-4	4
5	106243	Screw M5x50mm	5
6	107345	Screw M8-1.25x25mm	4
7	813231	Pressure relief valve, 800 psi (55 bar)	4
8	814147	Mounting bracket	2
9	L00006	Insulating spacer .25	4
10	N00178	O-ring 011	6
11	001U002	Lube, silicone, DOW112	1

* see separate list/drawing.

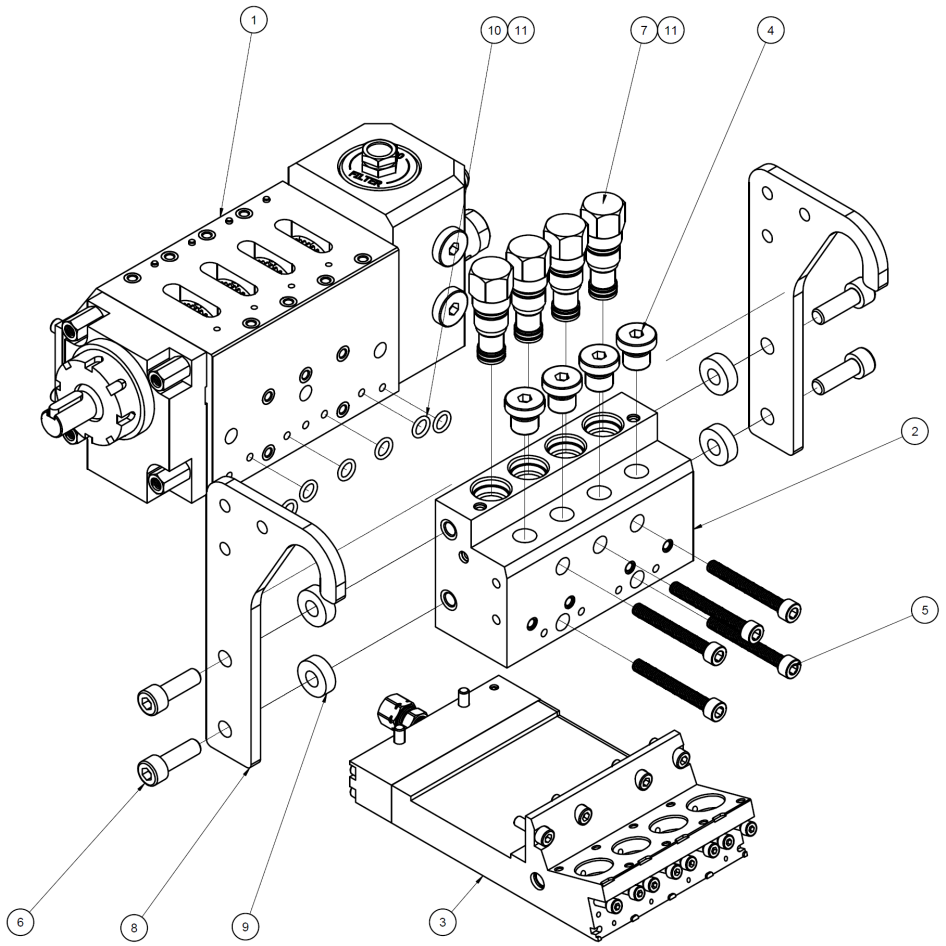


Illustration: Velocity Ultra Assembly 100 mm, PN 825413

Service Block Assembly 100 mm, PN 822682

Item No.	Part Number	Description	Quantity
1	822690	Seal block	1
2	A69X134	O-ring 128	2
3	N00184	O-ring 017	2
4	824893	Nut M6	4
5	814051	Heater cartridge 10x60mm, 400W, 240V	3
6	813345	Seal cartridge	1
7	N06160	O-ring 029	1
8	813344	Shaft seal	1
9	822685	Cover	1
10	107820	Purge valve asy,1/4 BSPP	1
11	101624	Hose fitting 1/4 BSPP	1
12	822684	Filter block, single	1
13	822686	Service block	1
14	822688 *	Shaft asy	1
15	808278	Screw M4-0.70x10mm	4
16	101625	Fitting, socket plug,G1-4	4
17	115440	Screw M3x0.5x3mm	1
18	116245	Filter kit 150 mesh, ez spin	1
19	107324	Compound, antiseize, CHSTN710	1
20	001U002	Lube, silicone, DOW 112	1
21	116244	Filter plug, EZ spin, M20	1
22	825645	Set screw M6X1.0x30mm	4
23	816225	Screw M6x1x50mm	4
24	107881	Terminal block,2 pos, ceramic	1

* see separate list/drawing.

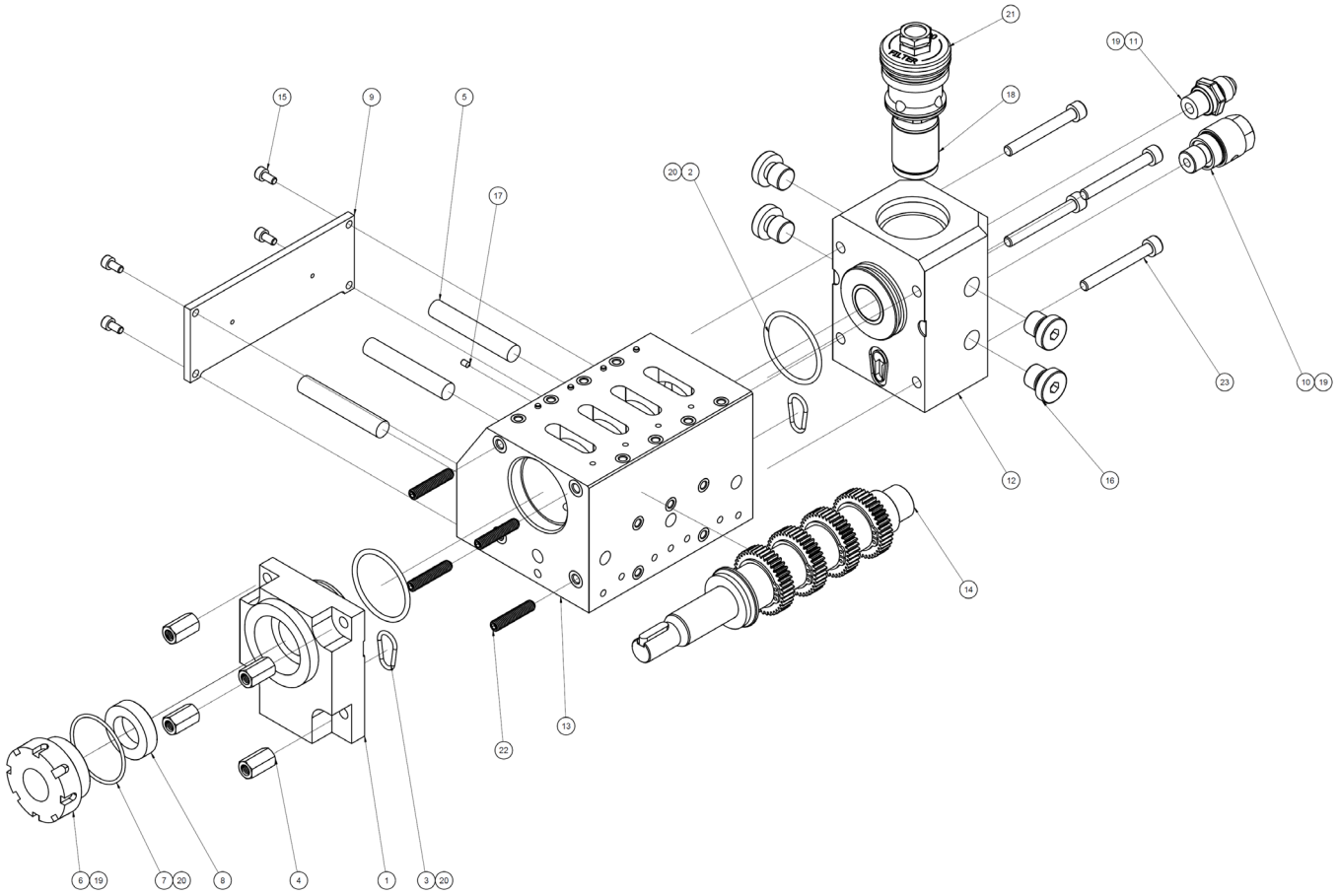


Illustration: Service Block Assembly 100 mm, PN 822682

Shaft Assembly, Velocity 100 mm, PN 822688

Item No.	Part Number	Description	Quantity
1	814965	Retaining ring 25mm	8
2	822419	Drive gear	4
3	822692	Shaft	1
4	822439	Dowel pin 12mm	4
5	824891	Thrust washer	1
6	826024	Key 6x16mm	1

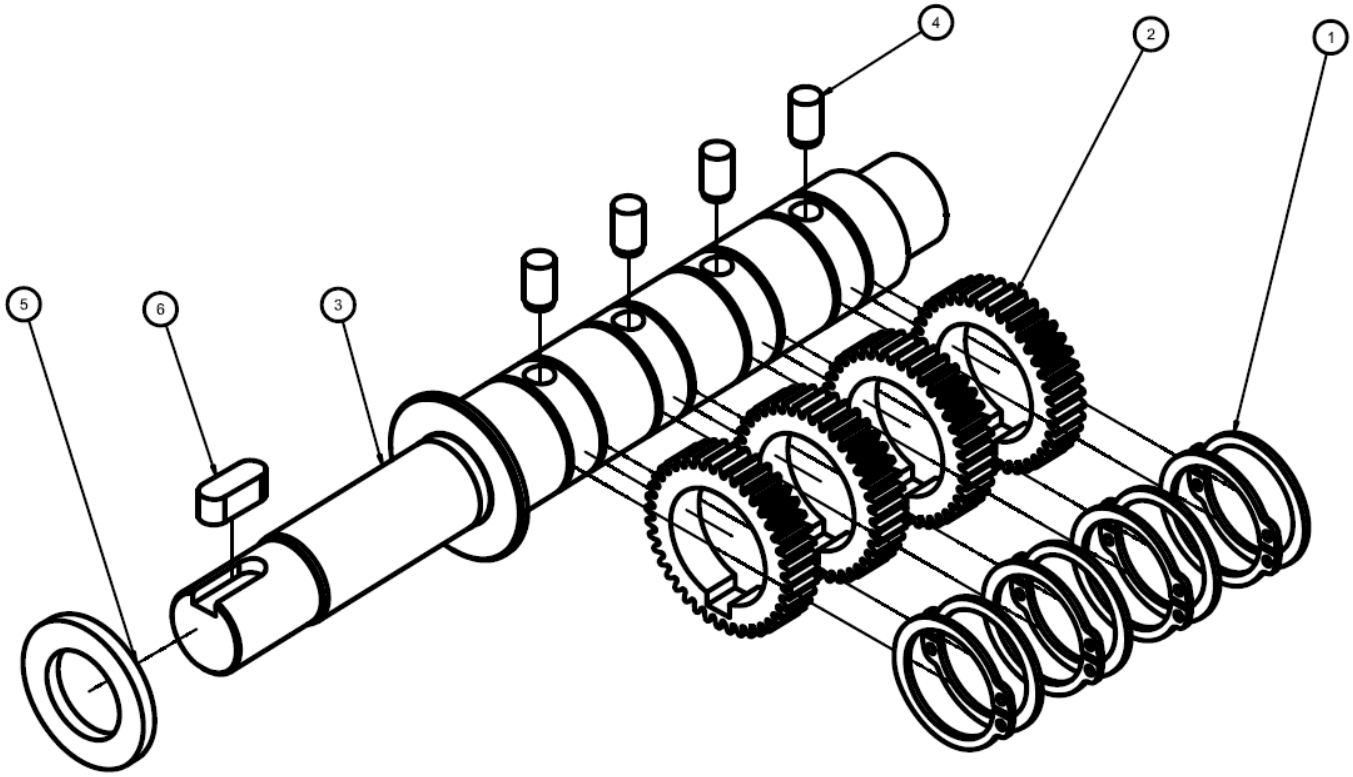


Illustration: Shaft Assembly, Velocity 100 mm, PN 822688

Module-Manifold Assembly, 4-Port, 100mm, PN 119985

Item No.	Part Number	Description	Quantity
1	119979	Module manifold 4-port	1
2	N01124	Fitting, plug 1/16-27 NPT	2
3	119988	Spiral tube 85mm	4
4	N00181	O-ring 017	4
5	119989	Heater cartridge 10x80mm, 150W, 240V	4
6	N00174	O-ring 007	1
7	078C088	Lock washer	2
8	048G016	Terminal, ring, #6	1
9	101627	Screw M3x6mm	2
10	120106	Wire cover, rear	1
11	*	Cable assembly	1
12	112716	Screw M5x6mm	1
13	106325	Heater cartridge 10x90mm, 200W, 240V	1
14	N07430	Terminal, ring, #6	1
15	101692	Screw M4x35mm	3
16	120406	Wire cover, side	1
17	106239	Screw M3x5mm	2
18	120109	Fitting, connector, 5/16 tube x 1/8 NPT	1
19	N00178	O-ring -011	4
20	100908	Screw M4x25mm	8
21	119015	Screw M5x16mm	4
22	109252	Screw M5x25mm	2

* The cable is part of Velocity Applicator 100 mm, PN 825695.

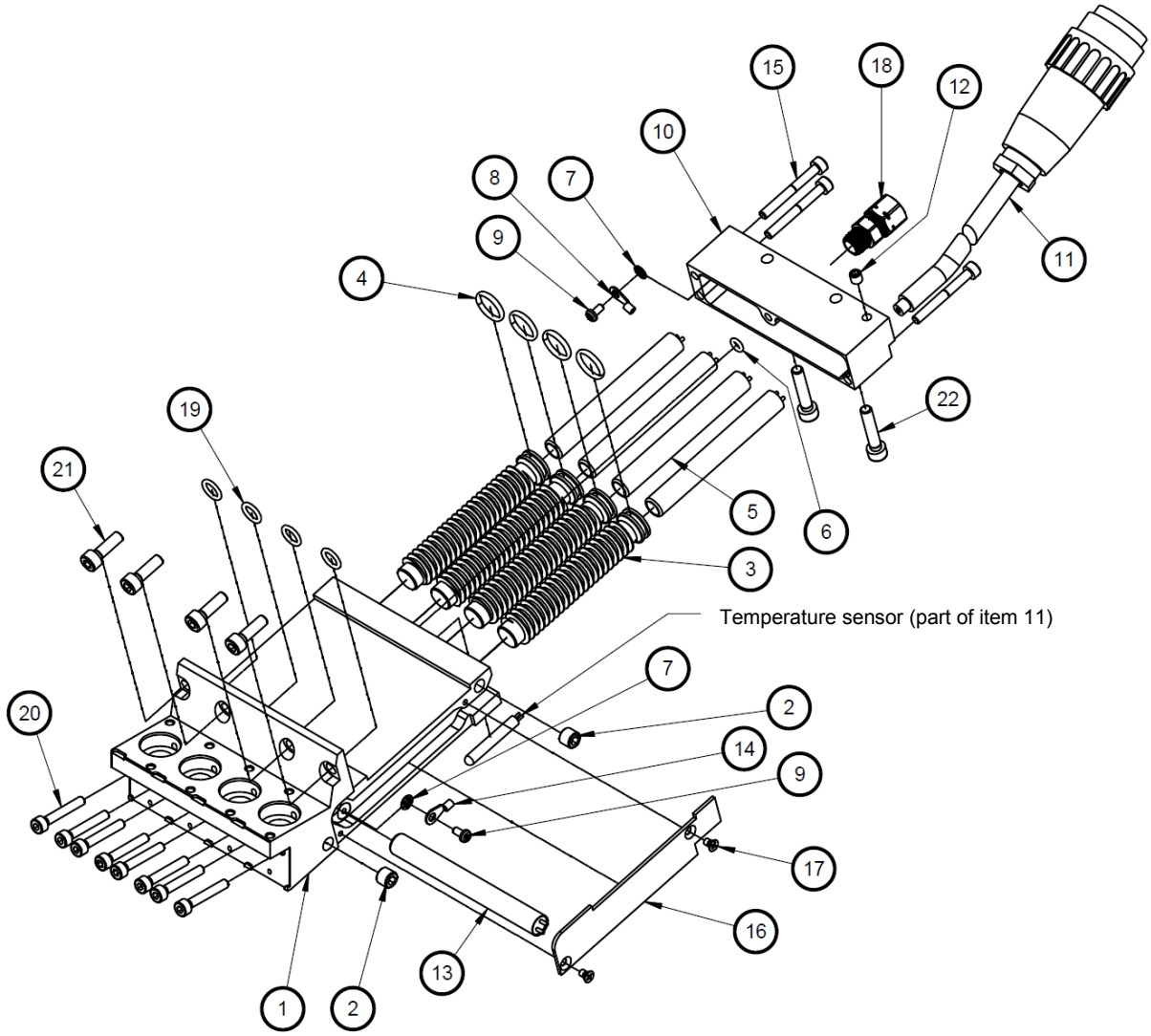
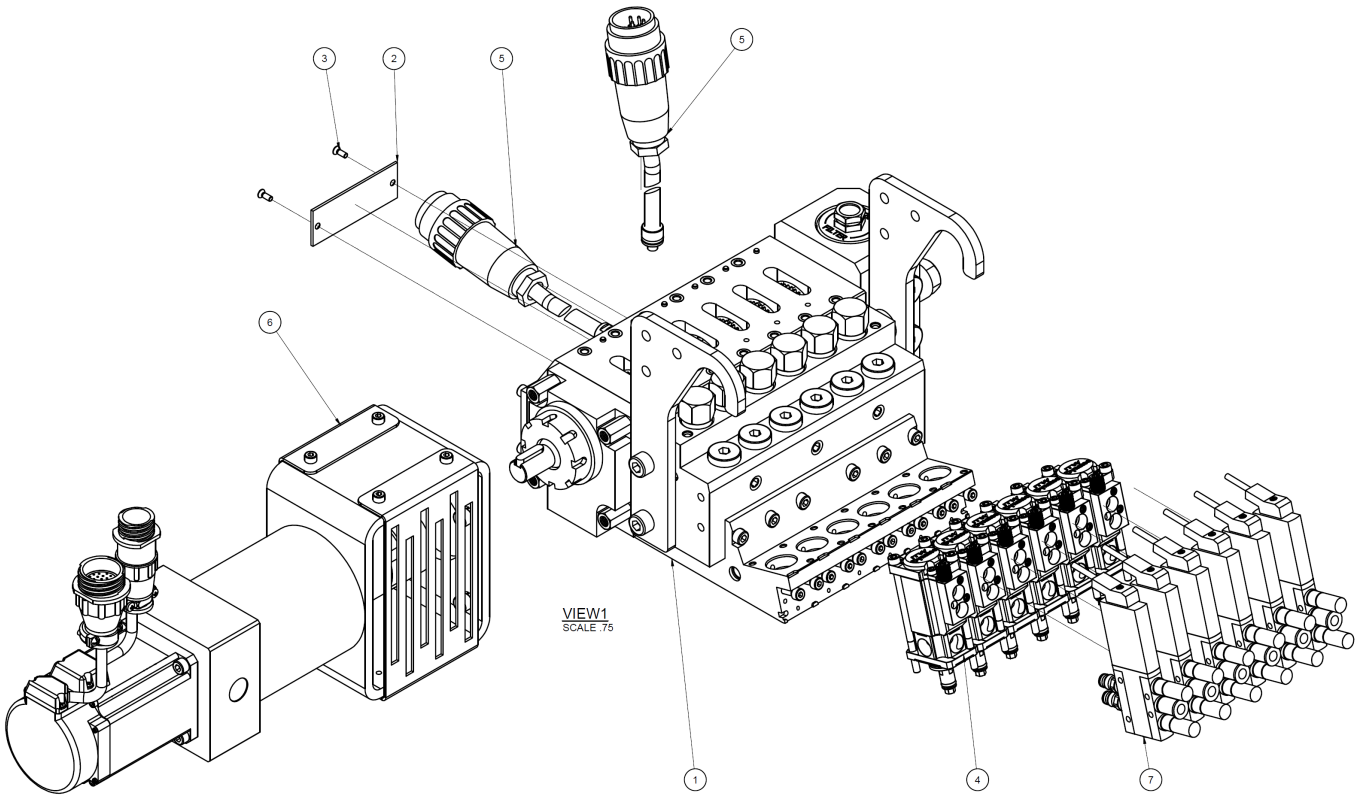


Illustration: Module-Manifold Assembly, 4-Port, 100mm, PN 119985

8.3 Velocity Applicator 150 mm, PN 825696

Item No.	Part Number	Description	Quantity
1	825414 *	Velocity Ultra asy 150mm	1
2	110224	Data plate	1
3	105163	Screw M3x8mm, Phillips	2
4	119990 *	Ultra Module asy (use if pump is called out)	6
	120108 *	Blank Module (use if block-off is called out)	-
5	103467 **	Cable harness, DynaControl (Temperature sensor PT100 PN N07958 is included)	2
	104528 **	Cable harness, Nordson (Temperature sensor Ni120 PN N07864 is included)	-
	823005 **	Cable harness, Harting (Temperature sensor PT100 PN N07958 is included)	-
	802578 **	Cable harness, Meltex (Temperature sensor PT100 PN N07958 is included)	-
6	825359	Drive asy, Allen Bradley	1
	825672	Drive asy, Siemens	-
7	115055	Solenoid 24V, Festo 6mm	6
	120116	Solenoid 24V, MAC 6mm	-

* See separate list/drawing.
** Refer to the smart number of your applicator and to the Smart Number Code under Ch.3.2.



Velocity Ultra Assembly 150 mm, PN 825414

Item No.	Part Number	Description	Quantity
1	825301 *	Service block,asy 150mm	1
2	825309	Pressure block	1
3	119986 *	Module manifold asy	1
4	101625	Fitting, socket plug, G1-4	6
5	106243	Screw M5x50mm	6
6	107345	Screw M8-1.25x25mm	4
7	813231	Pressure relief valve 800 psi (55 bar)	6
8	814147	Mounting bracket	2
9	L00006	Insulating spacer .25	4
10	N00178	O-ring 011	8
11	001U002	Lube, silicone, DOW112	1

* see separate list/drawing.

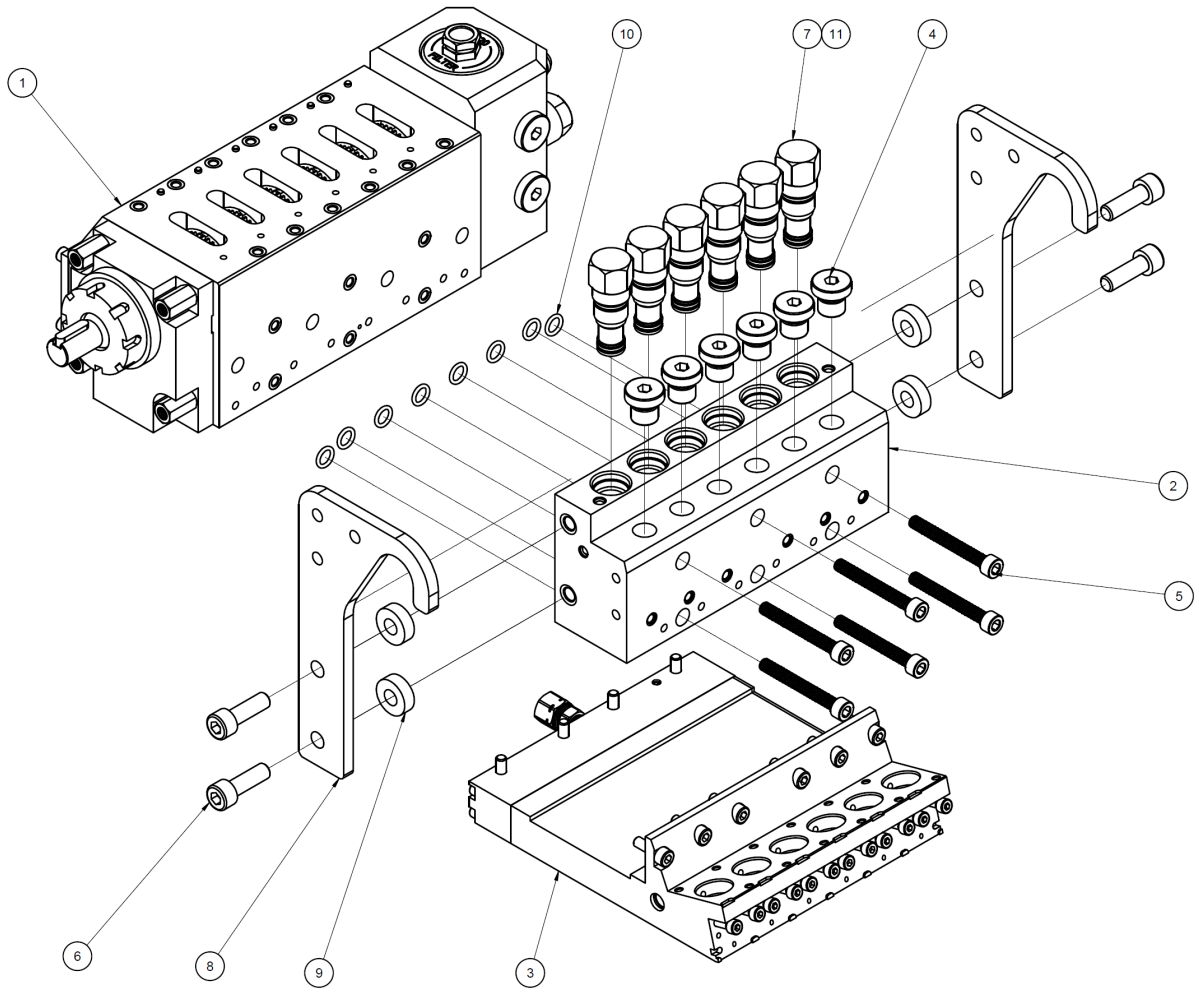


Illustration: Velocity Ultra Assembly 150 mm, PN 825414

Service Block Assembly 150 mm, PN 825301

Item No.	Part Number	Description	Quantity
1	825299	Service block	1
2	825305 *	Shaft asy	1
3	825300	Cover	1
4	101624	Hose fitting 1/4 BSPP	1
5	101625	Fitting, socket plug,G1-4	4
6	107820	Purge valve asy,1/4 BSPP	1
7	107881	Terminal block,2 pos, ceramic	1
8	115440	Screw M3x0.5x3mm	1
9	116244	Filter plug, EZ spin, M20	1
10	116245	Filter kit 150 mesh, ez spin	1
11	808278	Screw M4-0.70x10mm	4
12	813344	Shaft seal	1
13	813345	Seal cartridge	1
14	814051	Heater cartridge 10x60mm, 400W, 240V	4
15	816225	Screw M6x1x50mm	4
16	822684	Filter block, single	1
17	822690	Seal block	1
18	824893	Nut M6	4
19	825645	Set screw M6X1.0,30mm	4
20	A69X134	O-ring 128	2
21	N00184	O-ring 017	2
22	N06160	O-ring 029	1
23	107324	Compound, antiseize, CHSTN710	1
24	001U002	Lube, silicone, DOW 112	1

* see separate list/drawing.

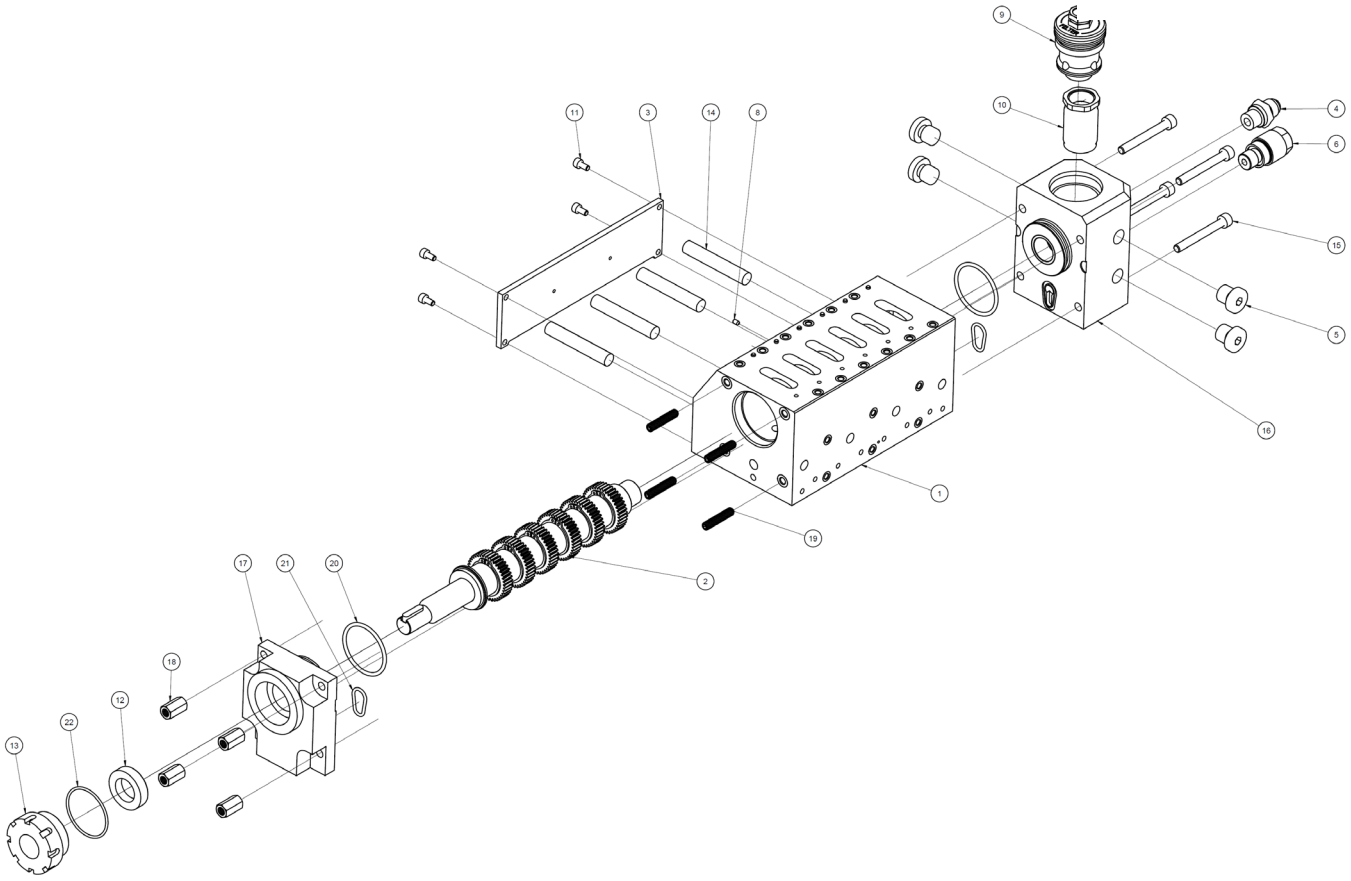


Illustration: Service Block Assembly 150 mm, PN 825301

Shaft Assembly, Velocity 150 mm, PN 825305

Item No.	Part Number	Description	Quantity
1	825304	Shaft	1
2	814965	Retaining ring 25mm	12
3	822439	Dowel pin 12mm	6
4	822419	Drive gear	6
5	824891	Thrust washer	1
6	826024	Key 6x16mm	1

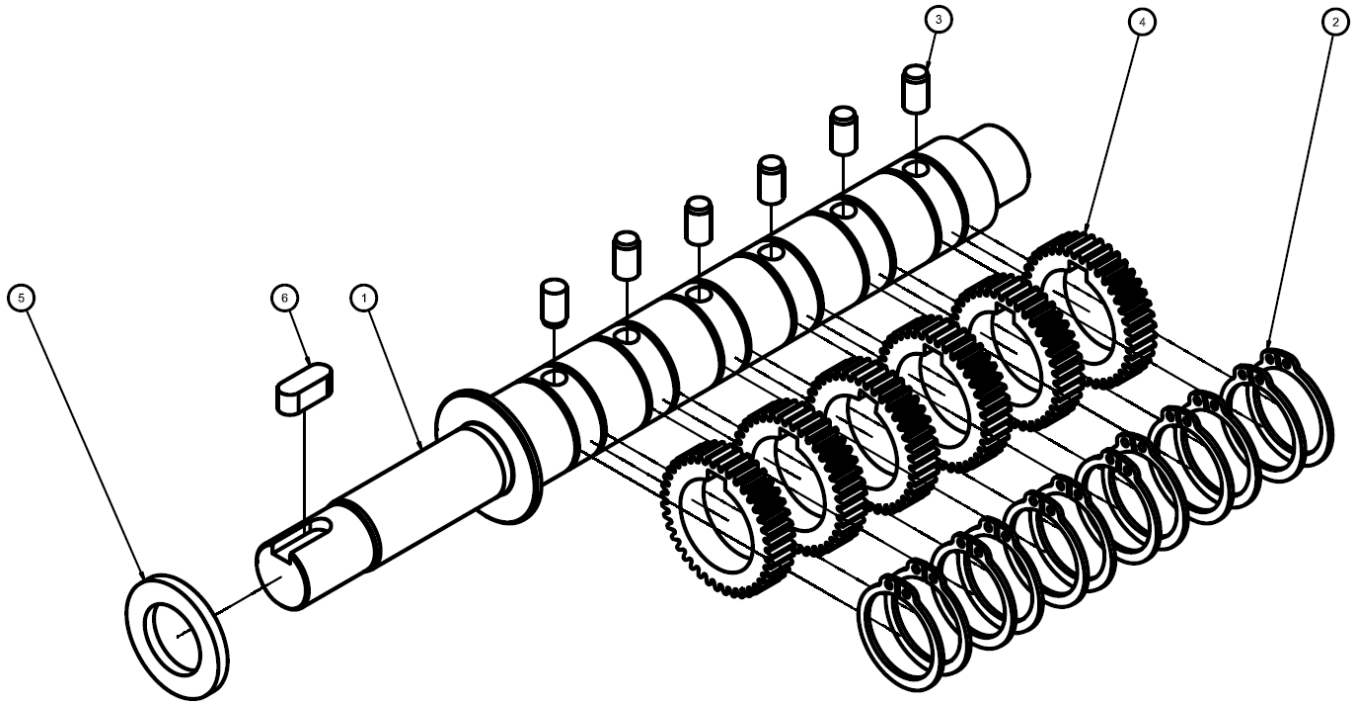


Illustration: Shaft Assembly, Velocity 150 mm, PN 825305

Module-Manifold Assembly, 6-Port, 150mm, PN 119986

Item No.	Part Number	Description	Quantity
1	119980	Module manifold 6-port	1
2	N01124	Fitting, plug 1/16-27 NPT	2
3	119988	Spiral tube 85mm	6
4	N00181	O-ring 017	6
5	119989	Heater cartridge 10x80mm, 150W, 240V	6
6	N00174	O-ring 007	1
7	078C088	Lock washer	2
8	048G016	Terminal, ring, #6	1
9	101627	Screw M3x6mm	2
10	120107	Wire cover, rear	1
11	*	Cable assembly	1
12	112716	Screw M5x6mm	1
13	106715	Heater cartridge 10x140mm, 300W, 240V	1
14	N07430	Terminal, ring, #6	1
15	101692	Screw M4x35mm	3
16	120406	Wire cover, side	1
17	106239	Screw M3x5mm	2
18	120109	Fitting, connector, 5/16 tube x 1/8 NPT	1
19	N00178	O-ring -011	6
20	100908	Screw M4x25mm	12
21	119015	Screw M5x16mm	6
22	109252	Screw M5x25mm	6

* The cable is part of Velocity Applicator 150 mm, PN 825696.

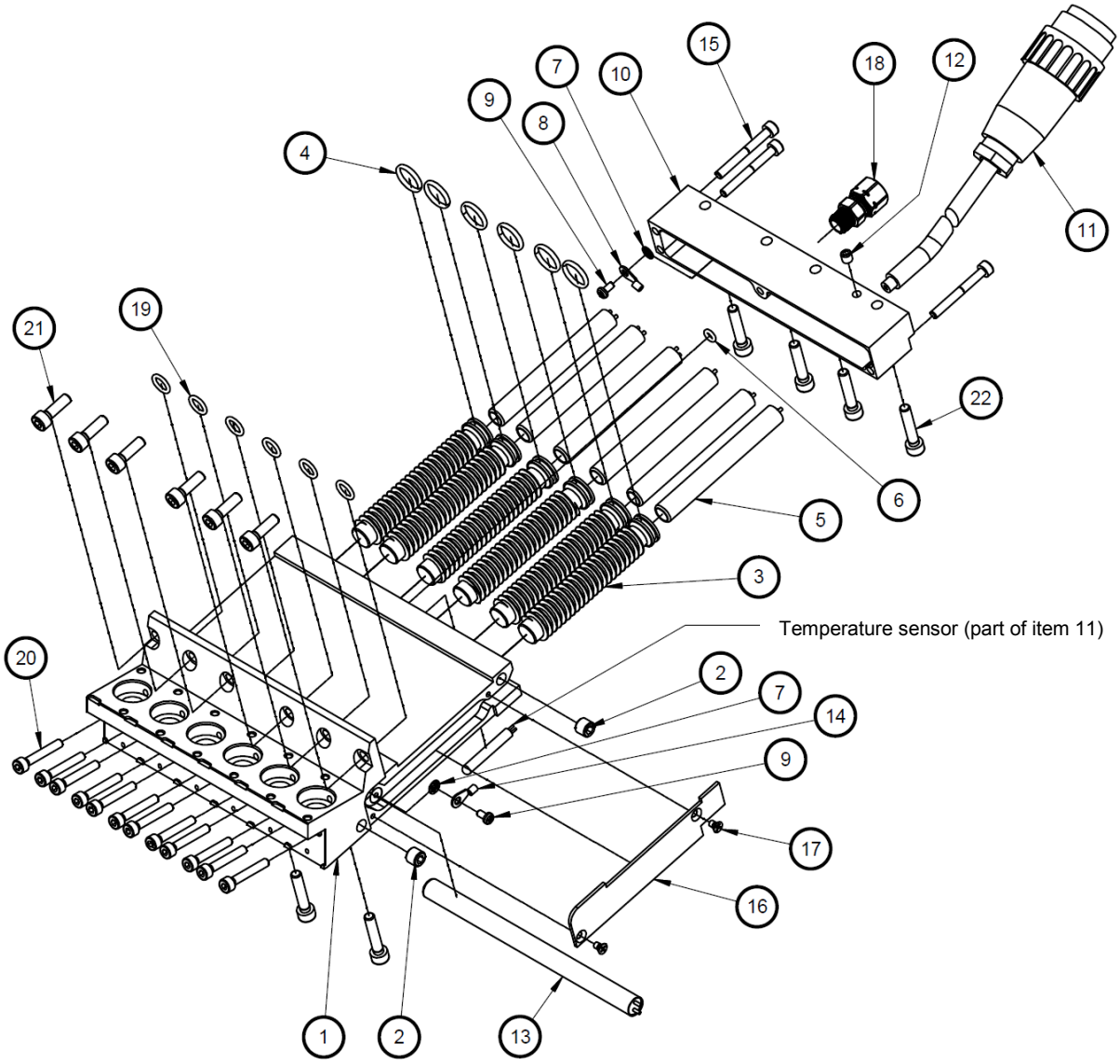
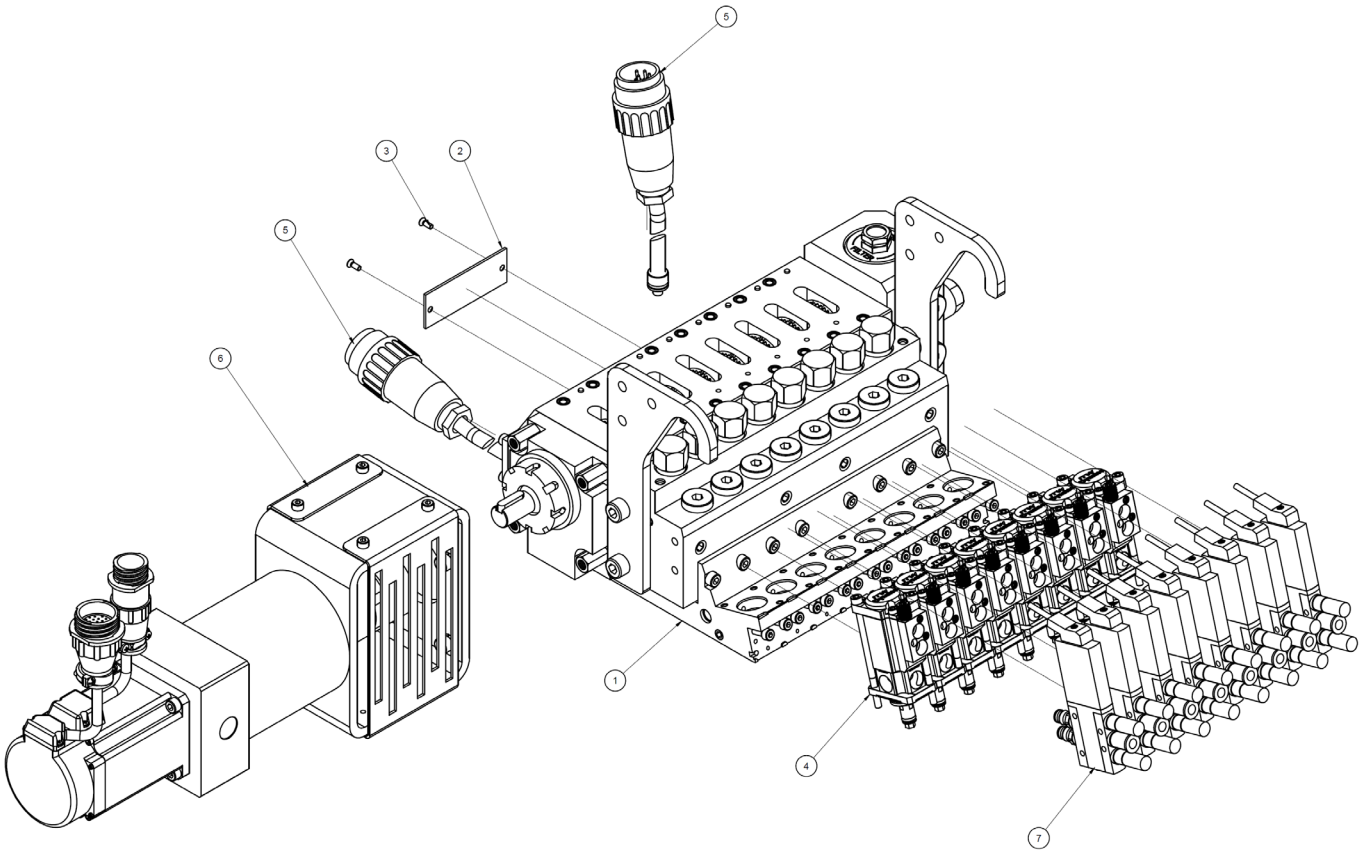


Illustration: Module-Manifold Assembly, 6-Port, 100m, PN 119986

8.4 Velocity Applicator 200 mm, PN 825697

Item No.	Part Number	Description	Quantity
1	825415 *	Velocity Ultra asy 200mm	1
2	110224	Data plate	1
3	105163	Screw M3x8mm, Phillips	2
4	119990 *	Ultra Module asy (use if pump is called out)	8
	120108 *	Blank Module (use if block-off is called out)	-
5	103467 **	Cable harness, DynaControl (Temperature sensor PT100 PN N07958 is included)	2
	104528 **	Cable harness, Nordson (Temperature sensor Ni120 PN N07864 is included)	-
	823005 **	Cable harness, Harting (Temperature sensor PT100 PN N07958 is included)	-
	802578 **	Cable harness, Meltex (Temperature sensor PT100 PN N07958 is included)	-
6	825359	Drive asy, Allen Bradley	1
	825672	Drive asy, Siemens	-
7	115055	Solenoid 24V, Festo 6mm	8
	120116	Solenoid 24V, MAC 6mm	-

* See separate list/drawing.
** Refer to the smart number of your applicator and to the Smart Number Code under Ch.3.2.



Velocity Ultra Assembly 200 mm, PN 825415

Item No.	Part Number	Description	Quantity
1	825323 *	Service block asy 200mm	1
2	121161 *	Module manifold asy	1
3	825317	Pressure block	1
4	814147	Mounting bracket	2
5	L00006	Insulating spacer, .25	4
6	101625	Fitting, socket plug, G1-4	8
7	813231	Pressure relief valve 800psi (55 bar)	8
8	106243	Screw M5x50mm	7
9	N00178	O-ring 011	10
10	107345	Screw M8-1.25x25mm	4
11	001U002	Lube, silicone, DOW112	1

* see separate list/drawing.

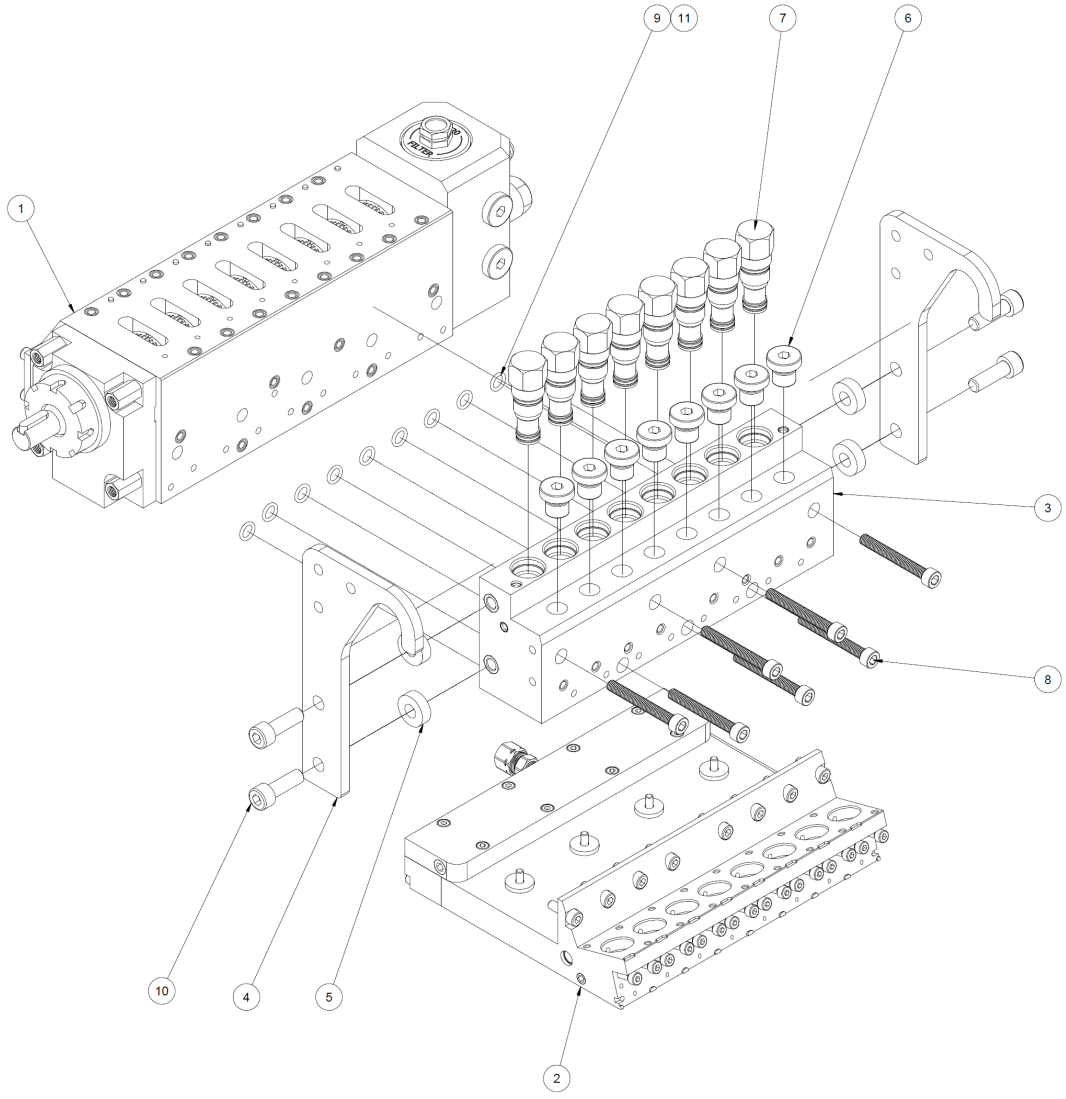


Illustration: Velocity Ultra Assembly 200 mm, PN 825415

Service Block Assembly 200 mm, PN 825323

Item No.	Part Number	Description	Quantity
1	825322	Service block	1
2	825320 *	Shaft asy	1
3	825321	Cover	1
4	101624	Hose fitting 1/4 BSPP	1
5	101625	Fitting, socket plug,G1-4	4
6	107820	Purge valve asy,1/4 BSPP	1
7	107881	Terminal block,2 pos, ceramic	2
8	115440	Screw M3x0.5x3mm	1
9	116244	Filter plug, EZ spin, M20	1
10	116245	Filter kit 150 mesh, ez spin	1
11	808278	Screw M4-0.70x10mm	4
12	813344	Shaft seal	1
13	813345	Seal cartridge	1
14	814051	Heater cartridge 10x60mm, 400W, 240V	5
15	816225	Screw M6x1x50mm	4
16	822684	Filter block, single	1
17	822690	Seal block	1
18	824893	Nut M6	4
19	825645	Set screw M6X1.0,30mm	4
20	A69X134	O-ring 128	2
21	N00184	O-ring 017	2
22	N06160	O-ring 029	1
23	107324	Compound, antiseize, CHSTN710	1
24	001U002	Lube, silicone, DOW 112	1

* see separate list/drawing.

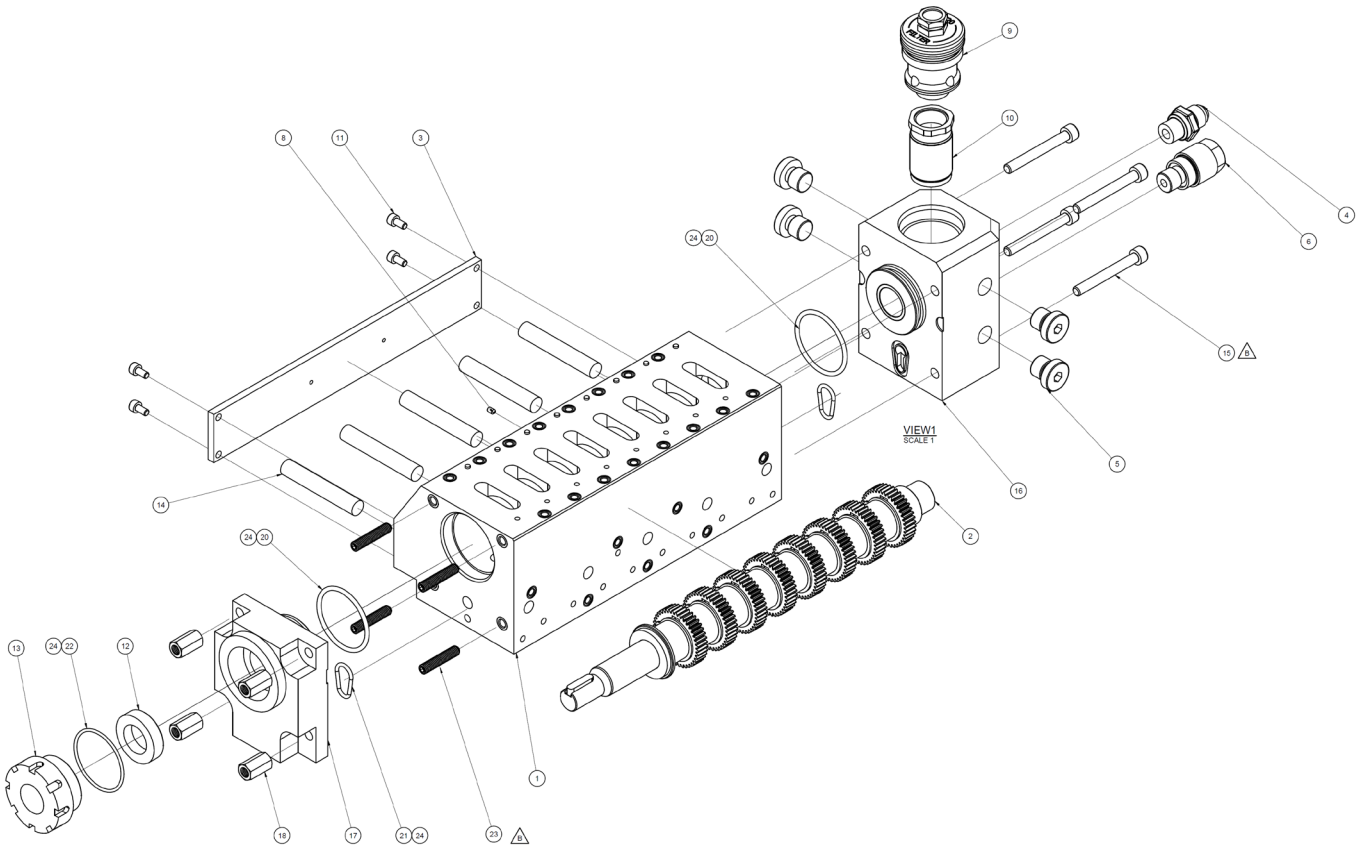


Illustration: Service Block Assembly 200 mm, PN 825323

Shaft Assembly, Velocity 200 mm, PN 825320

Item No.	Part Number	Description	Quantity
1	825319	Shaft	1
2	814965	Retaining ring 25mm	16
3	822439	Dowel pin 12mm	8
4	822419	Drive gear	8
6	824891	Thrust washer	1
7	826024	Key 6x16mm	1

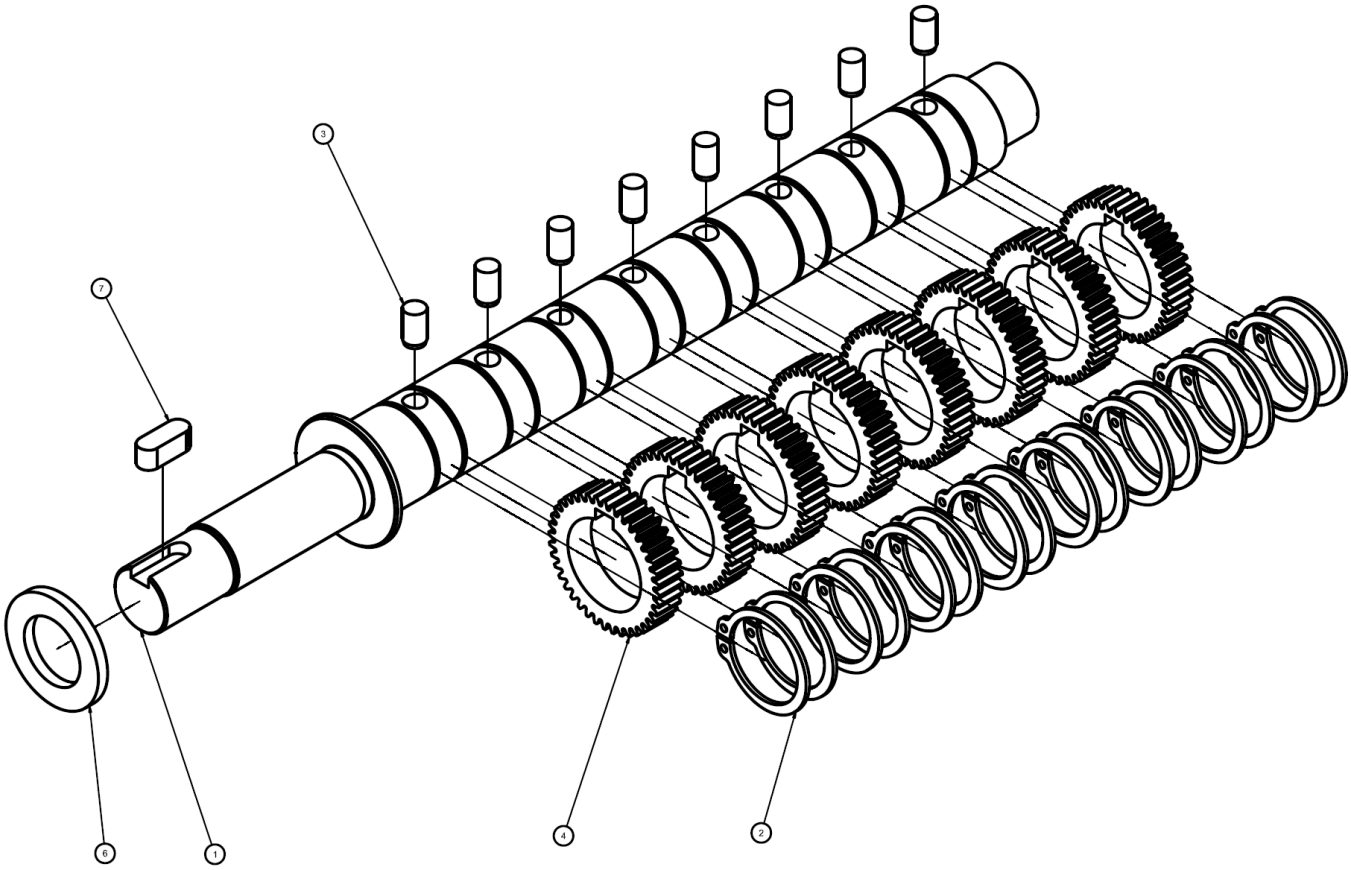


Illustration: Shaft Assembly, Velocity 200 mm, PN 825320

Module-Manifold Assembly, 8-Port, 200mm, PN 121161

Item No.	Part Number	Description	Quantity
1	121144	Module manifold 8-port	1
2	N01124	Fitting, plug 1/16-27 NPT	2
3	119988	Spiral tube 85mm	8
4	N00181	O-ring 017	8
5	119989	Heater cartridge 10x80mm, 150W, 240V	8
6	078C088	Lock washer	2
7	N07430	Terminal ring #6	1
8	101627	Screw M3x6mm	2
9	120751	Wire cover, rear	1
10	103470	Screw M3x5mm	1
11	119664	Heater cartridge, 10x190mm, 400W, 240V	1
12	048G016	Terminal ring #6	1
13	101692	Screw M4x35mm	5
14	121122	Wire cover, side	1
15	106239	Screw M3x5mm	2
16	120754	Air manifold	1
17	N00175	O-ring -008	8
18	106328	Screw M4x16mm	8
19	N00753	Plug, flush-pipe, 1/8NPT	2
20	120109	Fitting, connector, 5/16 tube x 1/8 NPT	1
21	N00178	O-ring -011	8
22	803579	Spacer	4
23	100908	Screw M4x25mm	20
24	119015	Screw M5x16mm	8
25	*	Cable assembly	1

* The cable is part of Velocity Applicator 200 mm, PN 825697.

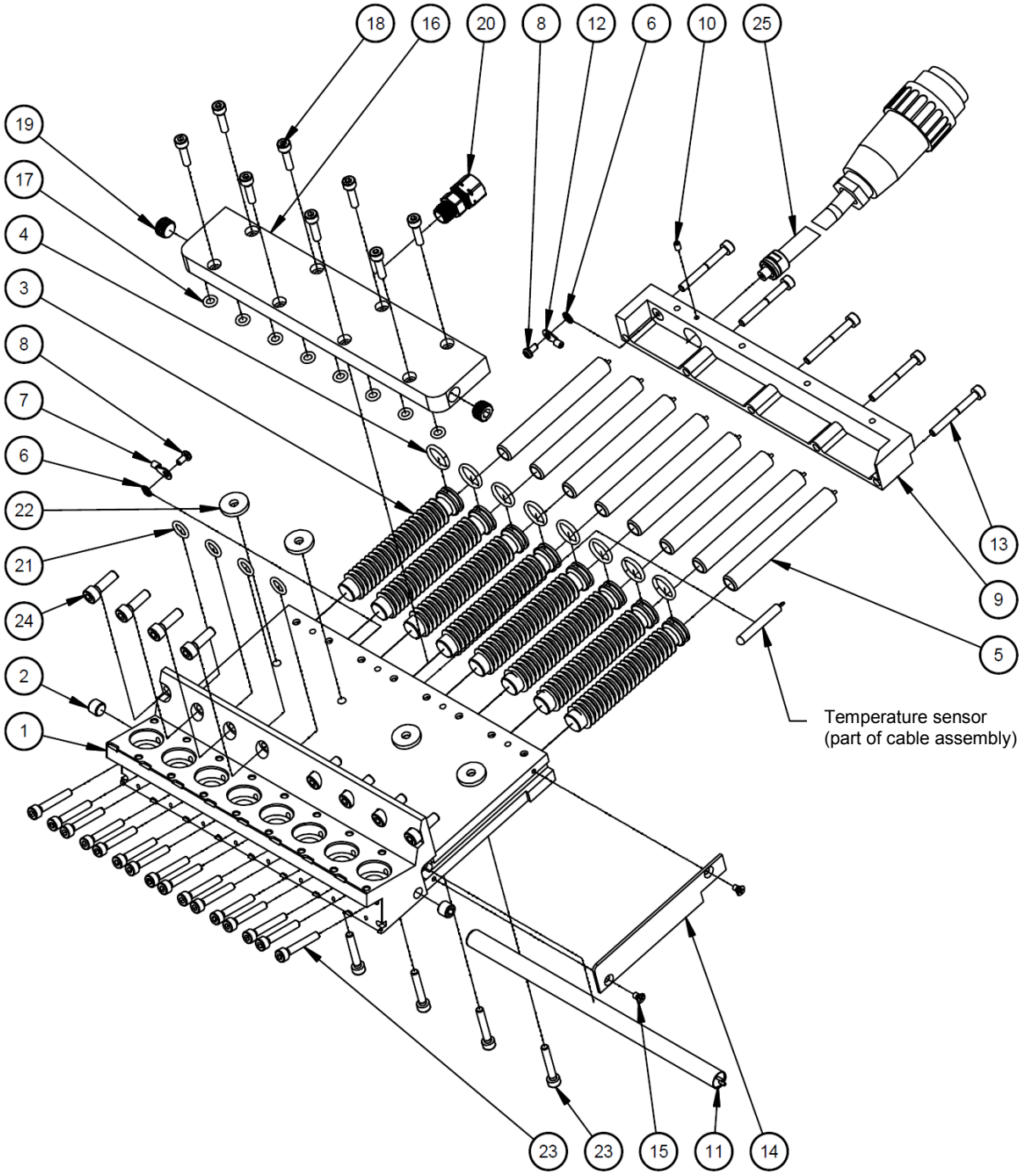
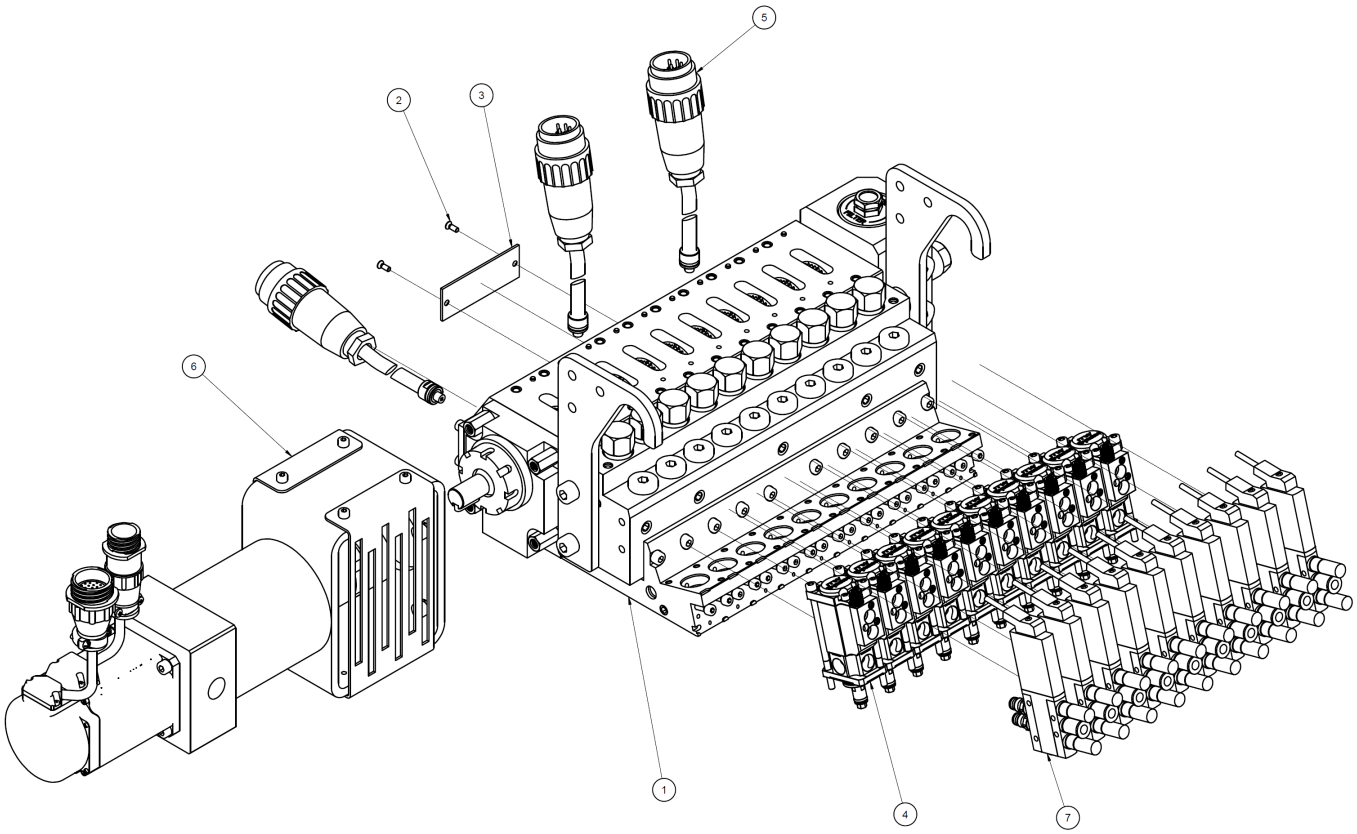


Illustration: Module-Manifold Assembly, 8-Port, 200mm, PN 121161

8.5 Velocity Applicator 250 mm, PN 825698

Item No.	Part Number	Description	Quantity
1	825416 *	Velocity Ultra asy 250mm	1
2	105163	Screw M3x8mm, Phillips	2
3	110224	Data plate	1
4	119990 *	Ultra Module asy (use if pump is called out)	10
	120108 *	Blank Module (use if block-off is called out)	-
5	103467 **	Cable harness, DynaControl (Temperature sensor PT100 PN N07958 is included)	3
	104528 **	Cable harness, Nordson (Temperature sensor Ni120 PN N07864 is included)	-
	823005 **	Cable harness, Harting (Temperature sensor PT100 PN N07958 is included)	-
	802578 **	Cable harness, Meltex (Temperature sensor PT100 PN N07958 is included)	-
6	825359	Drive asy, Allen Bradley	1
	825672	Drive asy, Siemens	-
7	115055	Solenoid 24V, Festo 6mm	10
	120116	Solenoid 24V, MAC 6mm	-

* See separate list/drawing.
** Refer to the smart number of your applicator and to the Smart Number Code under Ch.3.2.



Velocity Ultra Assembly 250 mm, PN 825416

Item No.	Part Number	Description	Quantity
1	825324 *	Service block asy 250mm	1
2	824892	Pressure block	1
3	121162 *	Module manifold asy	1
4	101625	Fitting, socket plug, G1-4	10
5	106243	Screw M5x50mm	9
6	107345	Screw M8-1.25x25mm	4
7	813231	Pressure relief valve, 800psi (55 bar)	10
8	814147	Mounting bracket	2
9	L00006	Insulating spacer, .25	4
10	N00178	O-ring 011	12
11	001U002	Lube, silicone, DOW112	1

* see separate list/drawing.

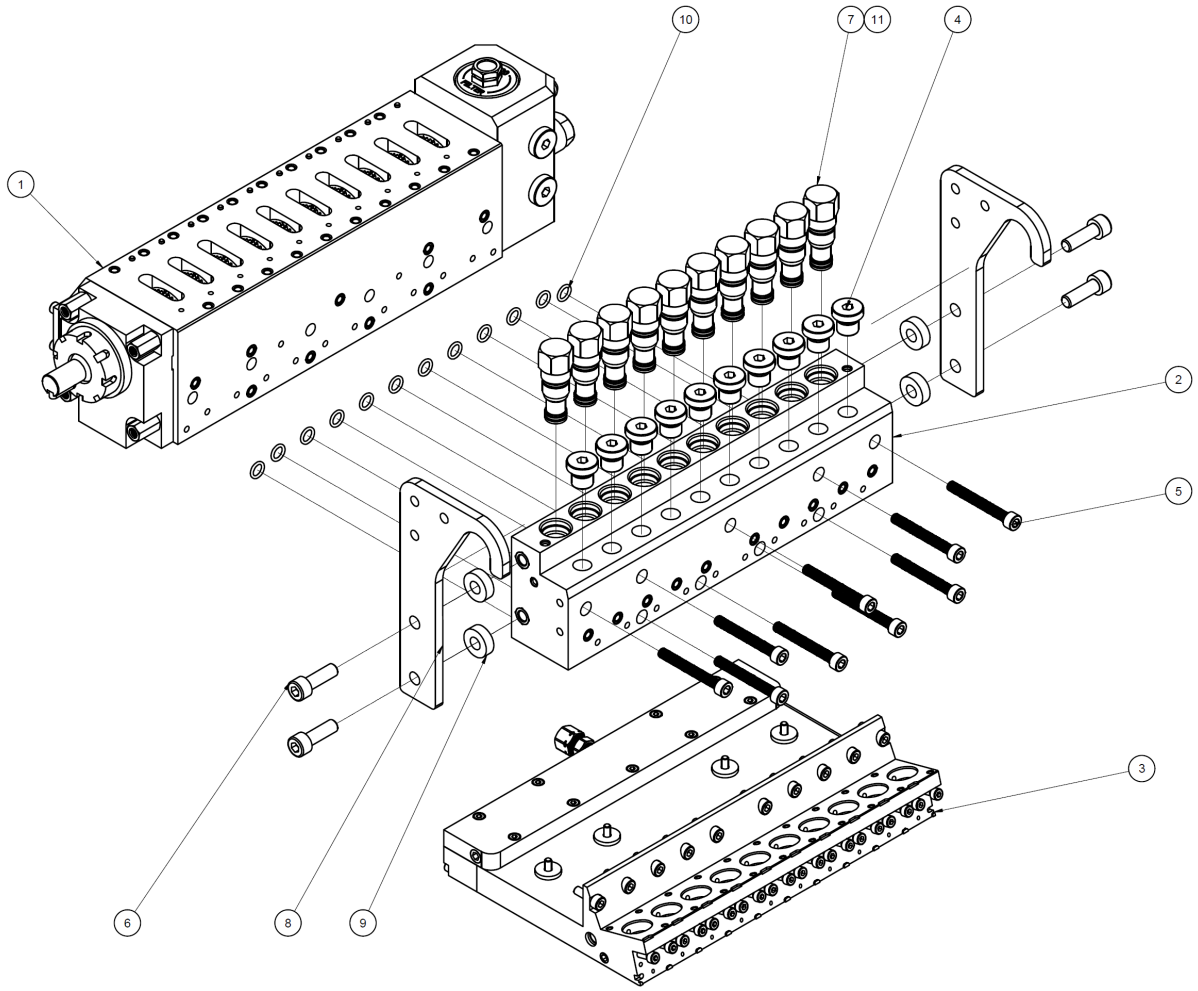


Illustration: Velocity Ultra Assembly 250 mm, PN 825416

Service Block Assembly 250 mm, PN 825324

Item No.	Part Number	Description	Quantity
1	824867	Service block	1
2	824890 *	Shaft asy	1
3	824905	Cover	1
4	101624	Hose fitting 1/4 BSPP	1
5	101625	Fitting, socket plug, G1-4	4
6	107820	Purge valve asy	1
7	107881	Terminal block, 2 pos, ceramic	1
8	115440	Screw M3x0.5x3mm	2
9	116244	Filter plug, ez spin, M20	1
10	116245	Filter kit 150 mesh, ez spin	1
11	808278	Screw M4-0.70x10mm	4
12	813344	Shaft seal	1
13	813345	Seal cartridge	1
14	814051	Heater cartridge, 10x60mm, 400W, 240V	6
15	816225	Screw M6x1x50mm	4
16	822684	Filter block, single	1
17	822690	Seal block	1
18	824893	Nut M6	4
19	825645	Set screw M6 1X30	4
20	A69X134	O-ring 128	2
21	N00184	O-ring 017	2
22	N06160	O-ring 029	1
23	107324	Compound, antiseize, CHSTN710	1
24	001U002	Lube, silicone, DOW112	1

* see separate list/drawing.

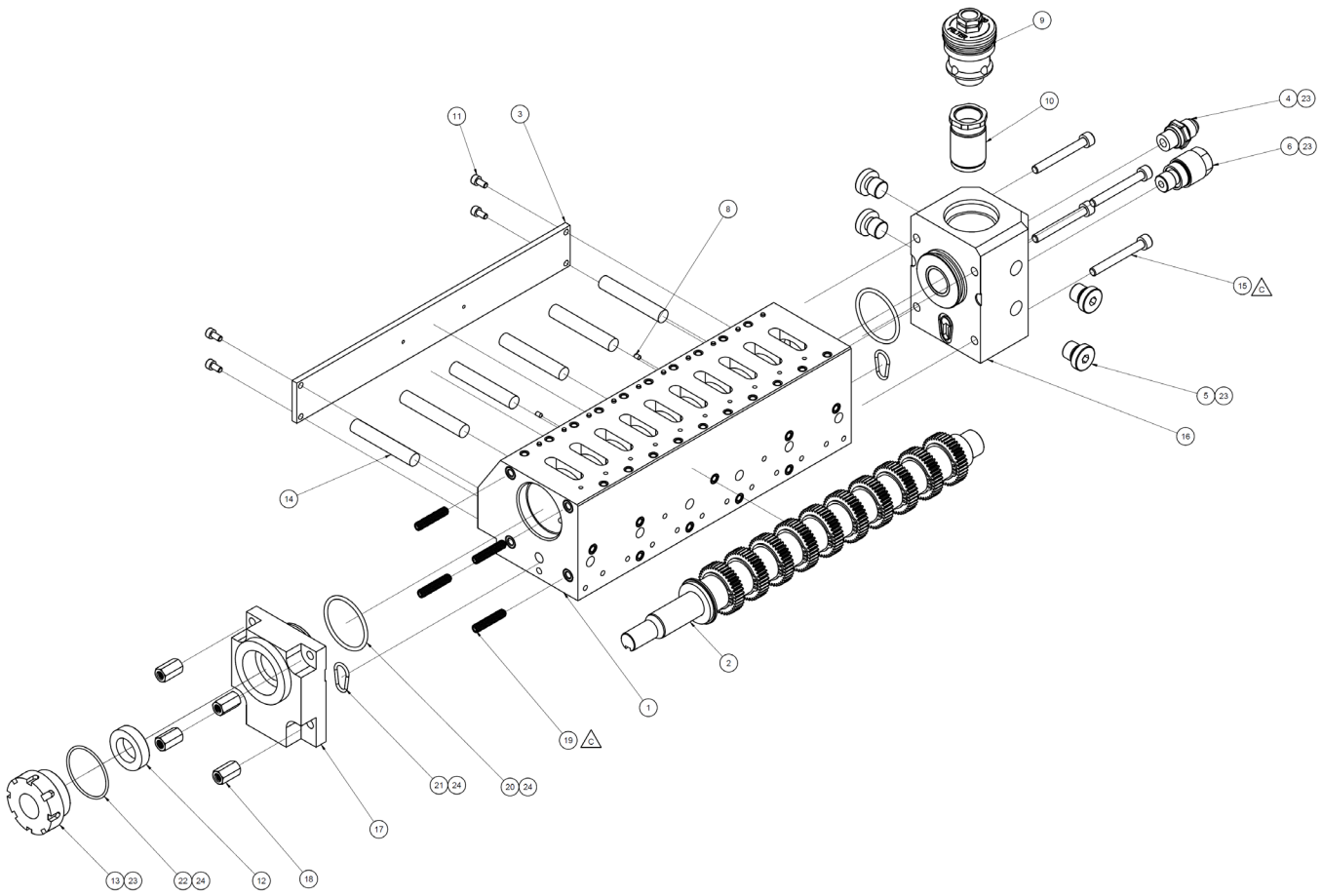


Illustration: Service Block Assembly 250 mm, PN 825324

Shaft Assembly, Velocity 250 mm, PN 824890

Item No.	Part Number	Description	Quantity
1	824889	Shaft	1
2	822439	Dowel pin 12mm	10
3	822419	Drive gear	10
4	824891	Thrust washer	1
5	814965	Retaining ring 25mm	20
6	826024	Key 6x16mm	1

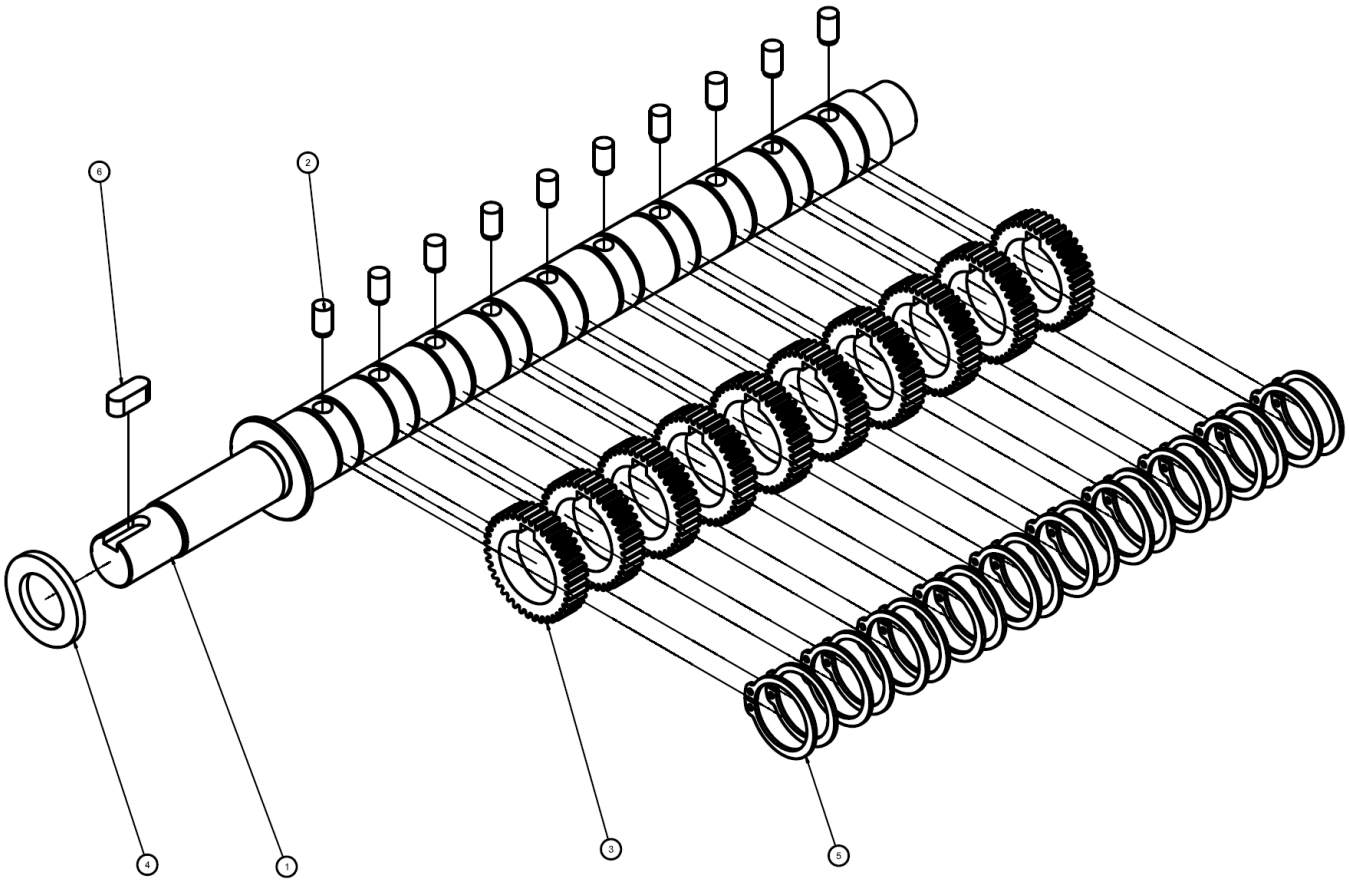


Illustration: Shaft Assembly, Velocity 250 mm, PN 824890

Module-Manifold Assembly, 10-Port, 250mm, PN 121162

Item No.	Part Number	Description	Quantity
1	121134	Module manifold 10-port	1
2	N01124	Fitting, plug 1/16-27 NPT	2
3	119988	Spiral tube 85mm	10
4	N00181	O-ring 017	10
5	119989	Heater cartridge 10x80mm, 150W, 240V	10
6	078C088	Lock washer	2
7	N07430	Terminal ring #6	1
8	101627	Screw M3x6mm	2
9	120752	Wire cover, rear	1
10	103470	Screw M3x5mm	1
11	120820	Heater cartridge, 10x235mm, 500W, 240V	1
12	048G016	Terminal ring #6	1
13	101692	Screw M4x35mm	6
14	121122	Wire cover, side	1
15	106239	Screw M3x5mm	2
16	120755	Air manifold	1
17	N00175	O-ring -008	10
18	106328	Screw M4x16mm	9
19	N00753	Plug, flush-pipe, 1/8NPT	2
20	120109	Fitting, connector, 5/16 tube x 1/8 NPT	1
21	N00178	O-ring -011	10
22	803579	Spacer	4
23	100908	Screw M4x25mm	24
24	119015	Screw M5x16mm	10
25	*	Cable assembly	1

* The cable is part of Velocity Applicator 250 mm, PN 825698.

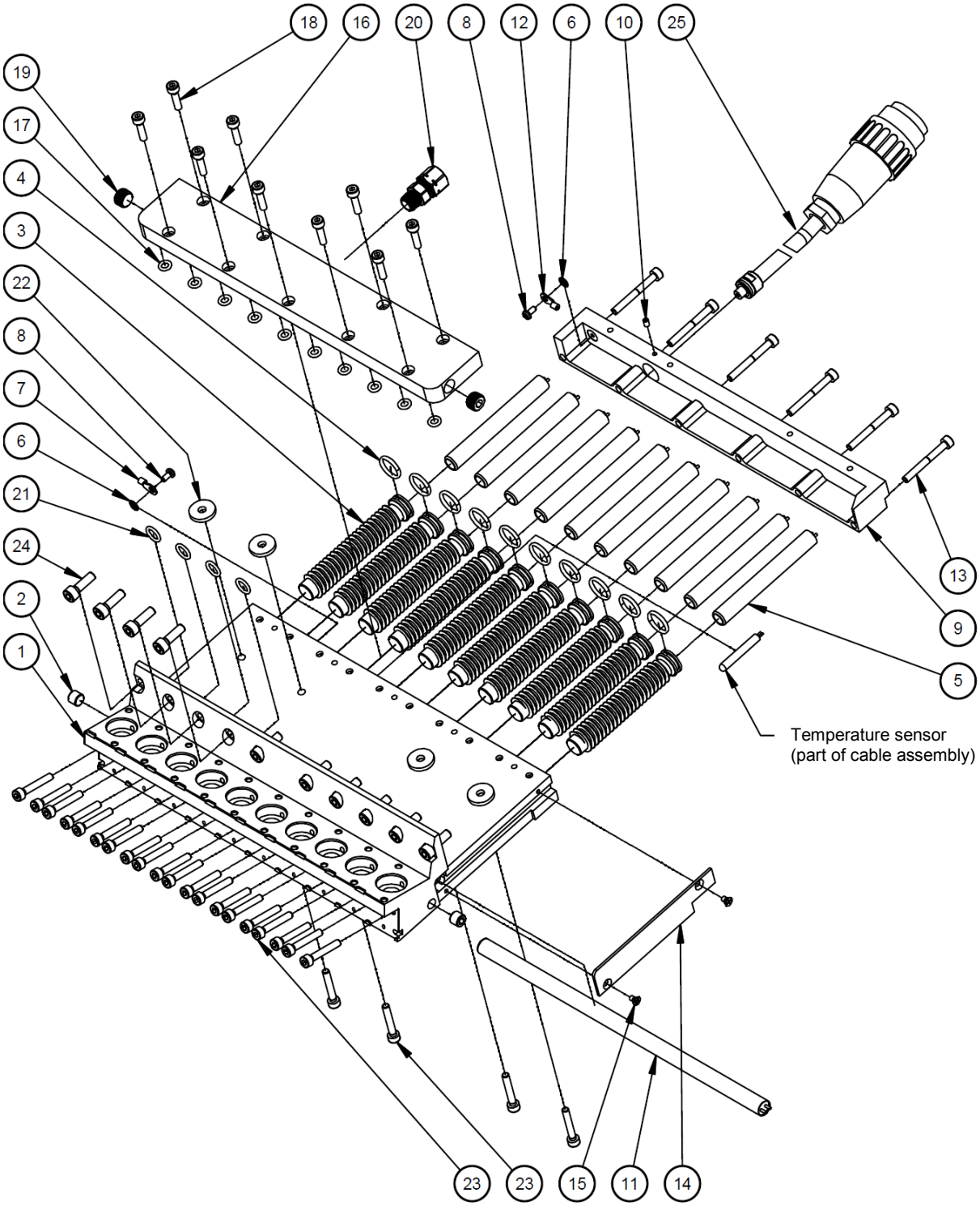
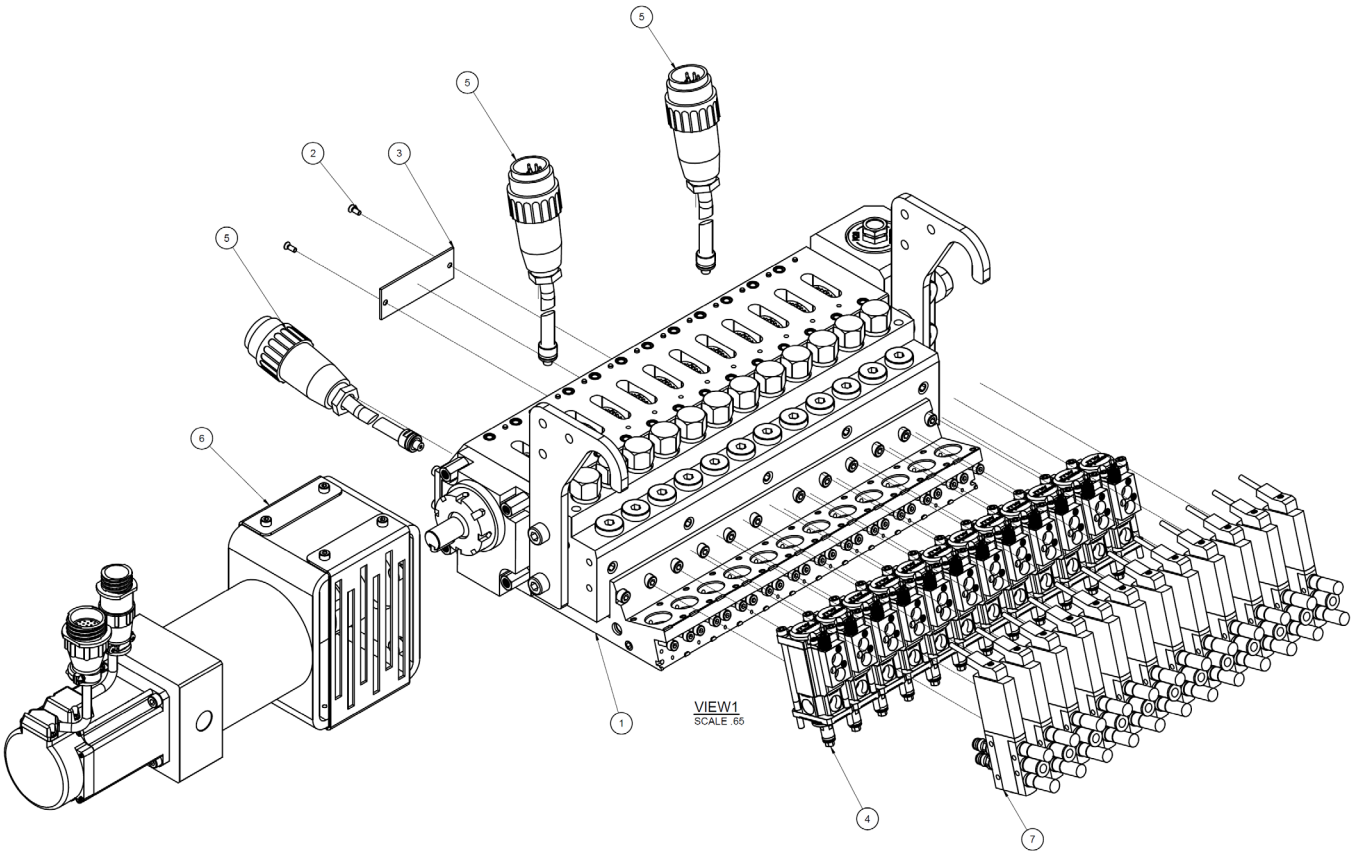


Illustration: Module-Manifold Assembly, 10-Port, 250mm, PN 121162

8.6 Velocity Applicator 300 mm, PN 825699

Item No.	Part Number	Description	Quantity
1	825417 *	Velocity Ultra asy 300mm	1
2	105163	Screw M3x8mm, Phillips	2
3	110224	Data plate	1
4	119990 *	Ultra Module asy (use if pump is called out)	12
	120108 *	Blank Module (use if block-off is called out)	-
5	103467 **	Cable harness, DynaControl (Temperature sensor PT100 PN N07958 is included)	3
	104528 **	Cable harness, Nordson (Temperature sensor Ni120 PN N07864 is included)	-
	823005 **	Cable harness, Harting (Temperature sensor PT100 PN N07958 is included)	-
	802578 **	Cable harness, Meltex (Temperature sensor PT100 PN N07958 is included)	-
6	825359	Drive asy, Allen Bradley	1
	825672	Drive asy, Siemens	-
7	115055	Solenoid 24V, Festo 6mm	10
	120116	Solenoid 24V, MAC 6mm	-

* See separate list/drawing.
** Refer to the smart number of your applicator and to the Smart Number Code under Ch.3.2.



Velocity Ultra Assembly 300 mm, PN 825417

Item No.	Part Number	Description	Quantity
1	825325 *	Service block asy	1
2	825318	Pressure block	1
3	121163 *	Module manifold asy	1
4	101625	Fitting, socket plug, G1-4	12
5	106243	Screw M5x50mm	10
6	107345	Screw M8-1.25x25mm	4
7	813231	Pressure relief valve, 800psi (55 bar)	12
8	814147	Mounting bracket	2
9	L00006	Insulating spacer, .25	4
10	N00178	O-ring 011	14
11	001U002	Lube, silicone, DOW112	1

* see separate list/drawing.

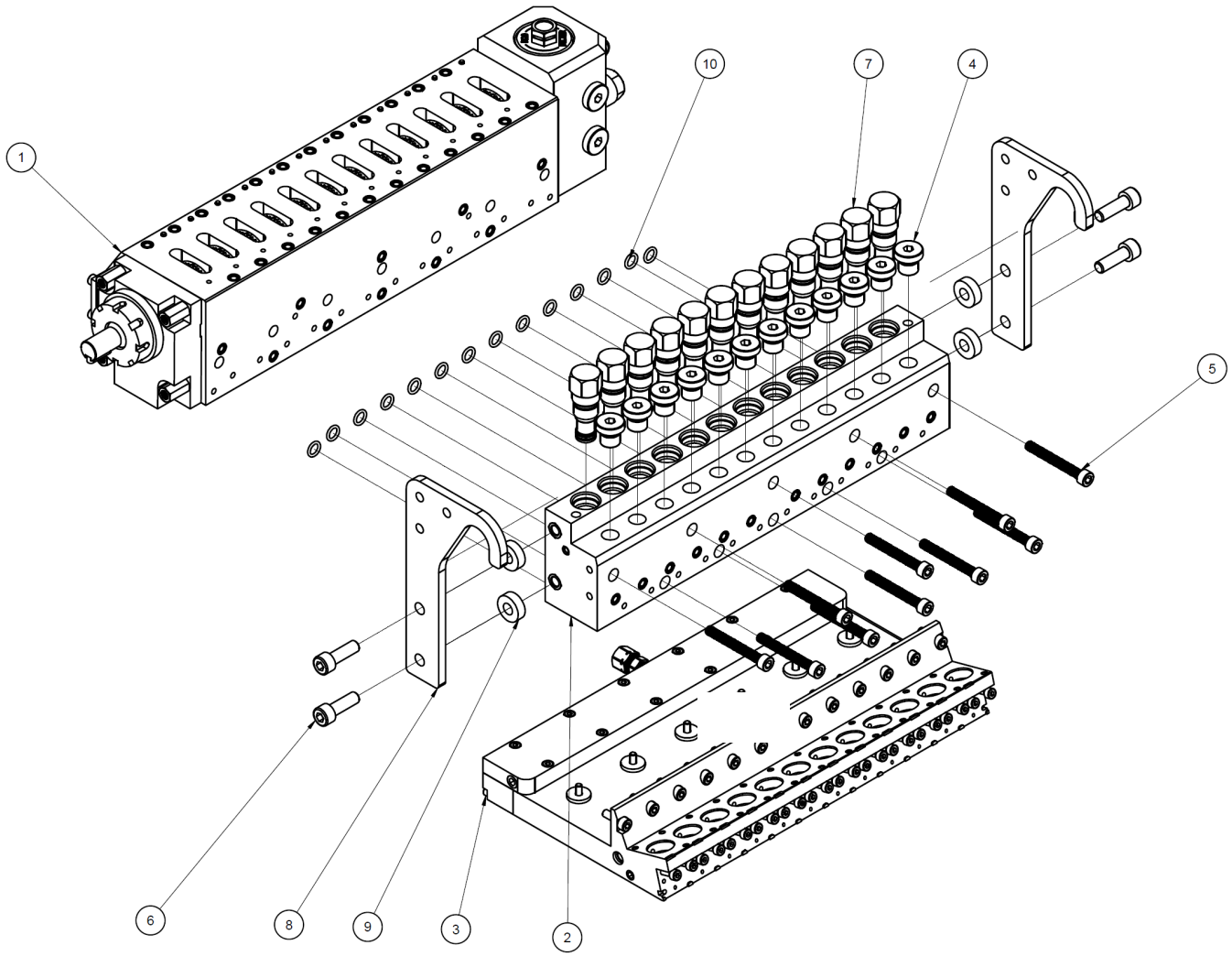


Illustration: Velocity Ultra Assembly 300 mm, PN 825417

Service Block Assembly 300 mm, PN 825325

Item No.	Part Number	Description	Quantity
1	824592	Service block	1
2	825326 *	Shaft asy	1
3	825360	Cover	1
4	101624	Hose fitting 1/4 BSPP	1
5	101625	Fitting, socket plug,G1-4	4
6	107820	Purge valve asy,1/4 BSPP	1
7	107881	Terminal block,2 pos, ceramic	2
8	115440	Screw M3x0.5x3mm	2
9	116244	Filter plug, ez spin, M20	1
10	116245	Filter kit 150 mesh, ez spin	1
11	808278	Screw M4-0.70x10mm	4
12	813344	Shaft seal	1
13	813345	Seal cartridge	1
14	814051	Heater cartridge 10x60mm, 400W, 240V	7
15	816225	Screw M6x1x50mm	4
16	822684	Filter block, single	1
17	822690	Seal block	1
18	824893	Nut M6	4
19	825645	Set screw M6X1.0,30mm	4
20	A69X134	O-ring 128	2
21	N00184	O-ring 017	2
22	N06160	O-ring 029	1
23	107324	Compound, antiseize, CHSTN710	1
24	001U002	Lube, silicone, DOW 112	1

* see separate list/drawing.

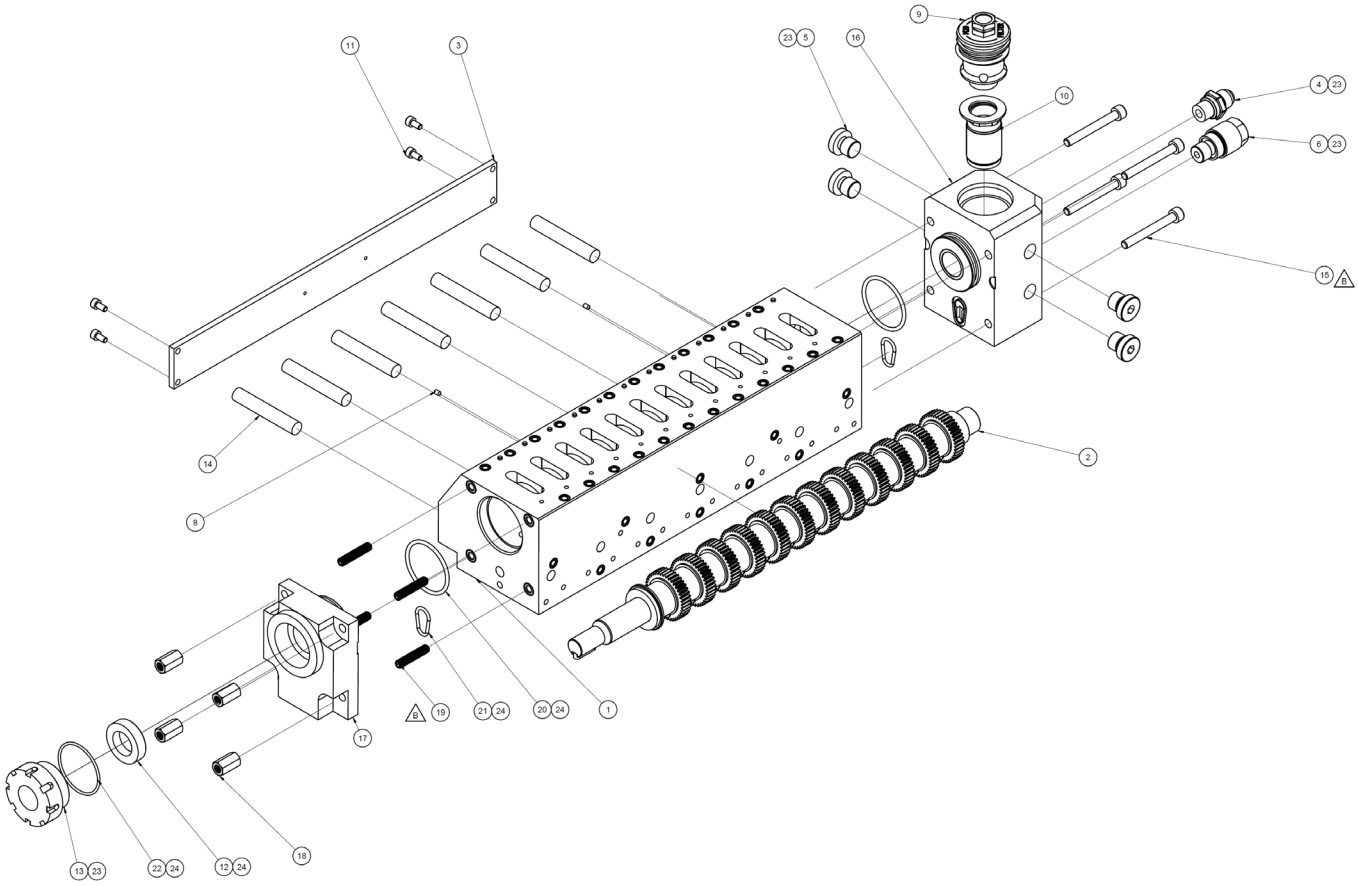


Illustration: Service Block Assembly 300 mm, PN 825325

Shaft Assembly, Velocity 300 mm, PN 825326

Item No.	Part Number	Description	Quantity
1	824591	Shaft	1
2	822419	Drive gear	12
3	822439	Dowel pin 12mm	12
4	824891	Thrust washer	1
5	814965	Retaining ring 25mm	24
6	826024	Key 6x16mm	1

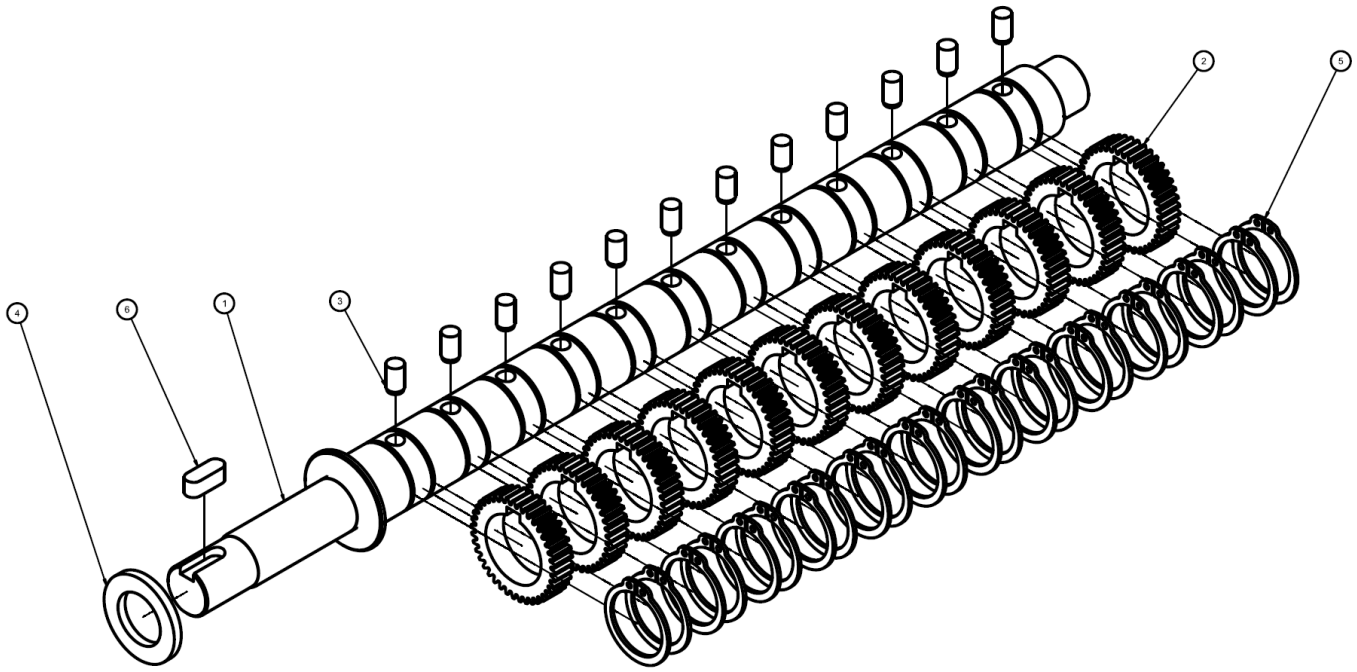


Illustration: Shaft Assembly, Velocity 300 mm, PN 825326

Module-Manifold Assembly, 12-Port, 300mm, PN 121163

Item No.	Part Number	Description	Quantity
1	121121	Module manifold 12-port	1
2	N01124	Fitting, plug 1/16-27 NPT	2
3	119988	Spiral tube 85mm	12
4	N00181	O-ring 017	12
5	119989	Heater cartridge 10x80mm, 150W, 240V	12
6	078C088	Lock washer	2
7	N07430	Terminal ring #6	1
8	101627	Screw M3x6mm	2
9	120753	Wire cover, rear	1
10	103470	Screw M3x5mm	1
11	120775	Heater cartridge, 10x285mm, 600W, 240V	1
12	048G016	Terminal ring #6	1
13	101692	Screw M4x35mm	7
14	121122	Wire cover, side	1
15	106239	Screw M3x5mm	2
16	120756	Air manifold	1
17	N00175	O-ring -008	12
18	106328	Screw M4x16mm	12
19	N00753	Plug, flush-pipe, 1/8NPT	2
20	120109	Fitting, connector, 5/16 tube x 1/8 NPT	1
21	N00178	O-ring -011	12
22	803579	Spacer	6
23	100908	Screw M4x25mm	30
24	119015	Screw M5x16mm	12
25	*	Cable assembly	1

* The cable is part of Velocity Applicator 300 mm, PN 825699.

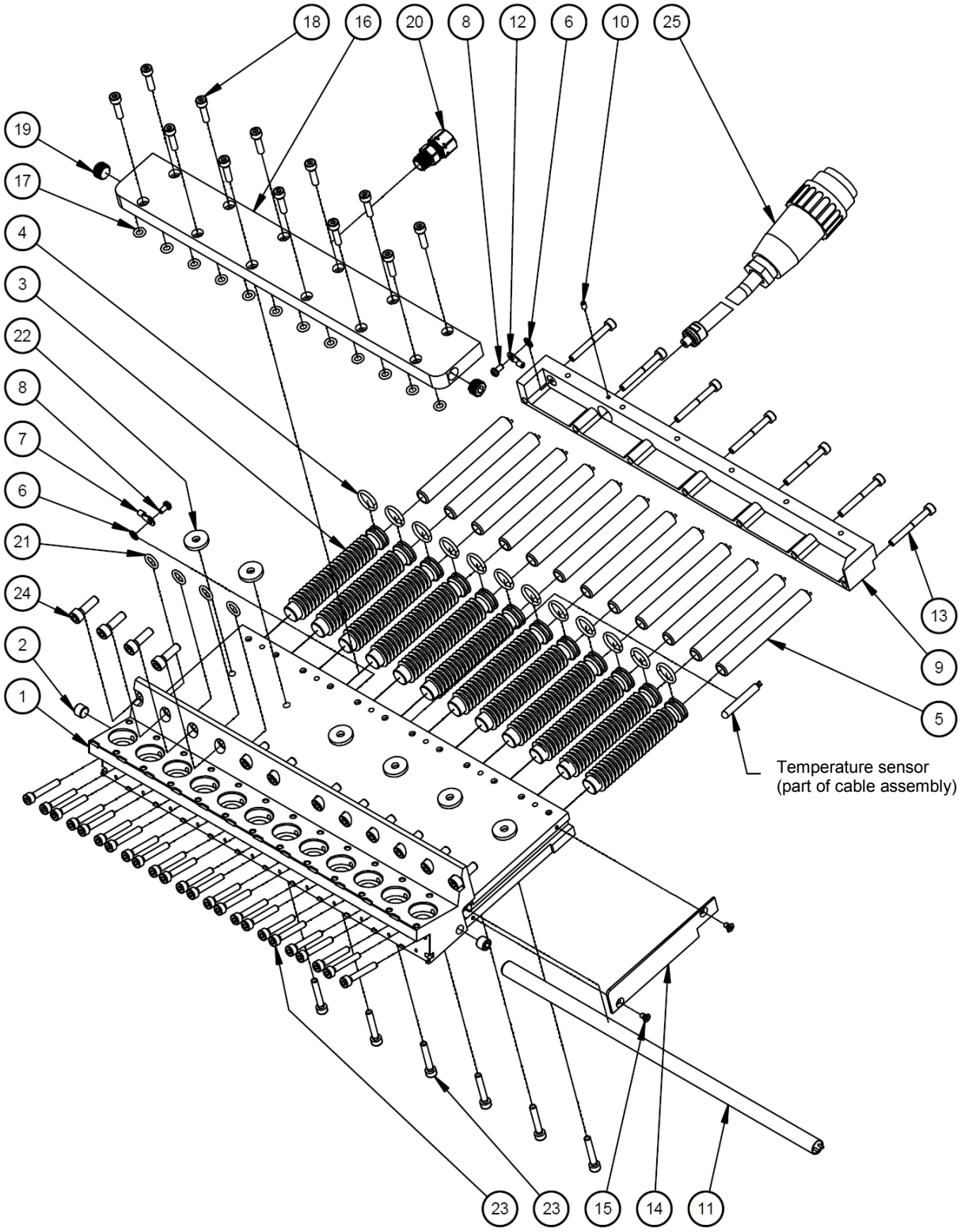
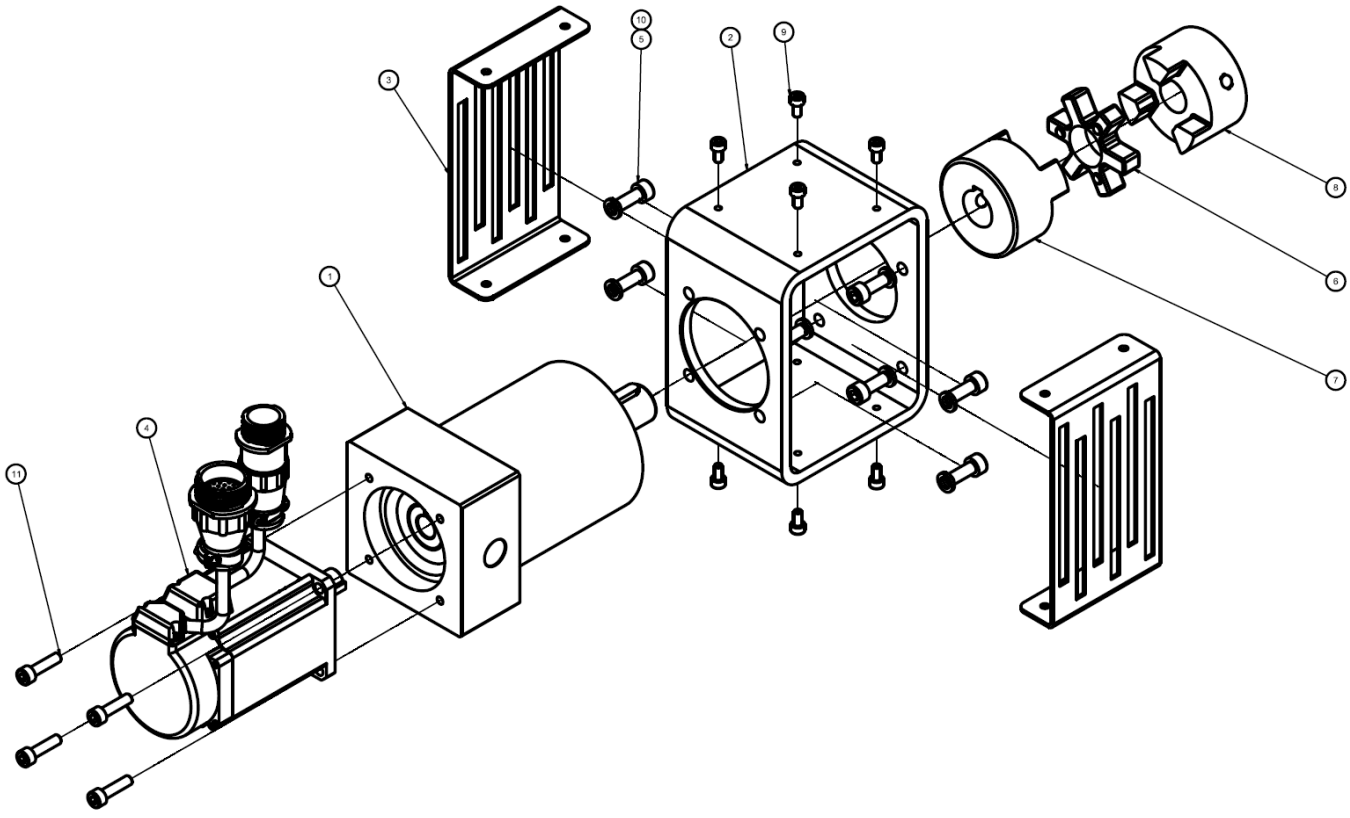


Illustration: Module-Manifold Assembly, 12-Port, 300mm, PN 121163

8.7 Drive Assemblies

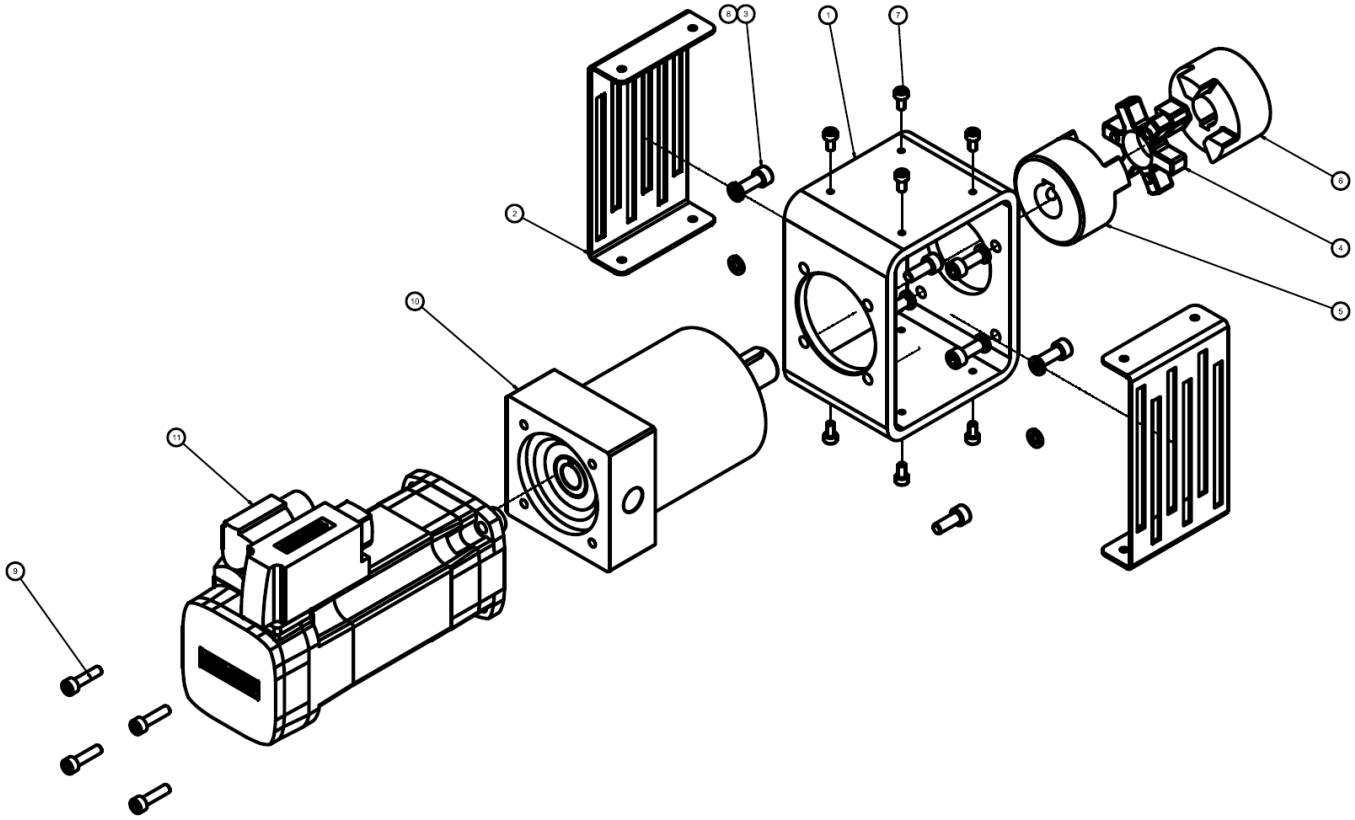
Drive Assembly, In-Line, Allen Bradley, PN 825359

Item No.	Part Number	Description	Quantity
1	825358	Gear box, inline, 50:1 (Allen Bradley)	1
2	825356	Drive cage	1
3	825357	Cover	2
4	822771	Servo Motor (Allen Bradley), 11.5LBS/IN	1
5	814397	Screw M6-1,00x16mm	8
6	815231	Coupling, Lovejoy, L095, INS	1
7	826221	Coupling, Lovejoy, L095, 20mm	1
8	826025	Coupling, Lovejoy, L095, 18mm	1
9	808348	Screw M4-0.70x6mm	8
10	117042	Lock washer M6	8
11	808349	Screw M6-1,00x20mm	4



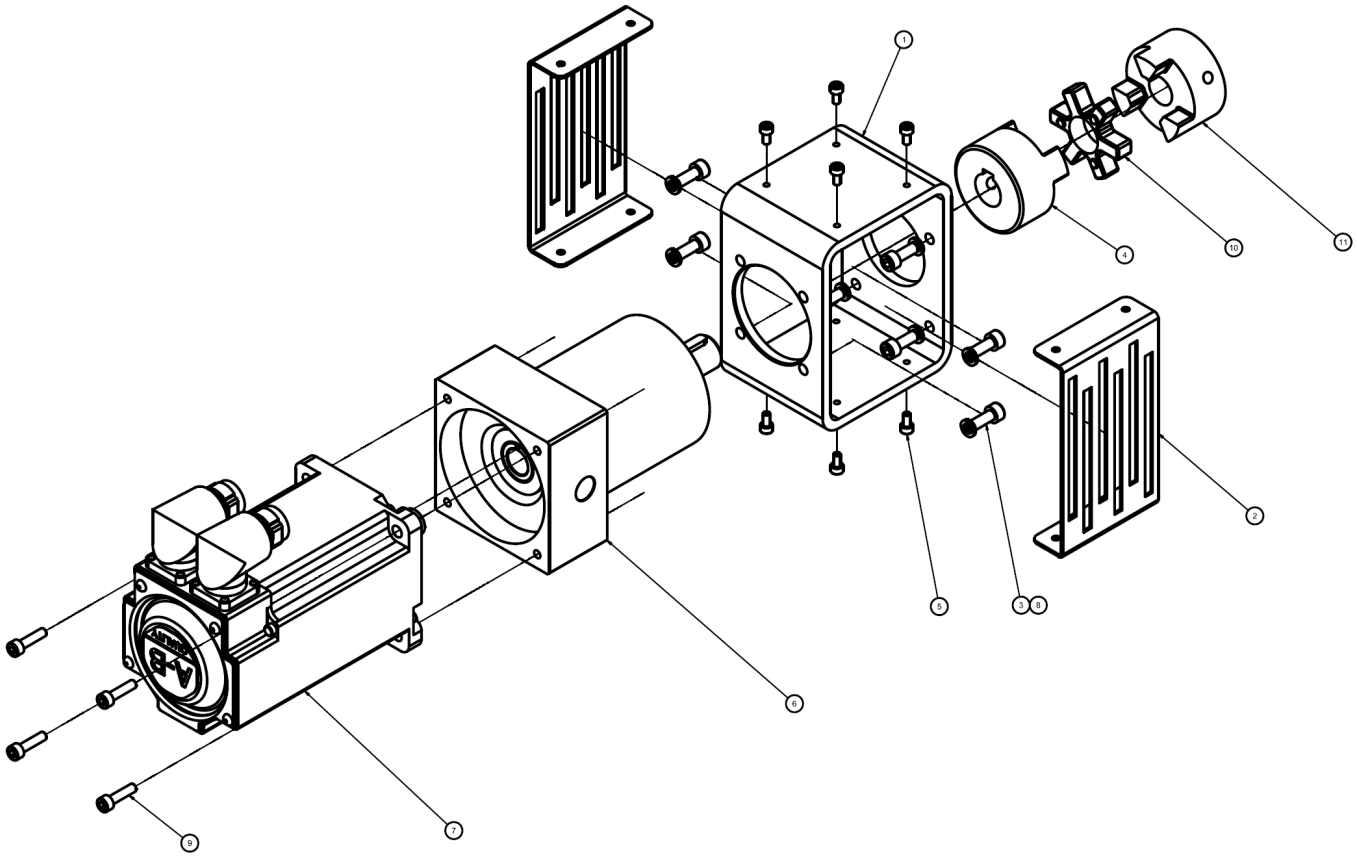
Drive Assembly, Siemens, PN 825672

Item No.	Part Number	Description	Quantity
1	825356	Drive cage	1
2	825357	Cover	2
3	814397	Screw M6-1,00x16mm	8
4	815231	Coupling, Lovejoy, L095, INS	1
5	826221	Coupling, Lovejoy, L095, 20mm	1
6	826025	Coupling, Lovejoy, L095, 18mm	1
7	808348	Screw M4-0.70x6mm	8
8	117042	Lock washer M6	8
9	808349	Screw M6-1,00x20mm	4
10	825558	Gear box, 50:1 (Siemens)	1
11	825556	Servo Motor (Siemens), 240	1



Drive Assembly, AB MPL, PN 825487

Item No.	Part Number	Description	Quantity
1	825356	Drive cage	1
2	825357	Cover	2
3	814397	Screw M6-1,00x16mm	8
4	826221	Coupling, Lovejoy, L095, 20mm	1
5	808348	Screw M4-0.70x6mm	8
6	825486	Gear box, 50:1 (AB MPL)	1
7	825485	Motor, AB MPL, 480V	1
8	117042	Lock washer M6	8
9	808349	Screw M6-1,00x20mm	4
10	815231	Coupling, Lovejoy, L095, INS	1
11	826025	Coupling, Lovejoy, L095, 18mm	1

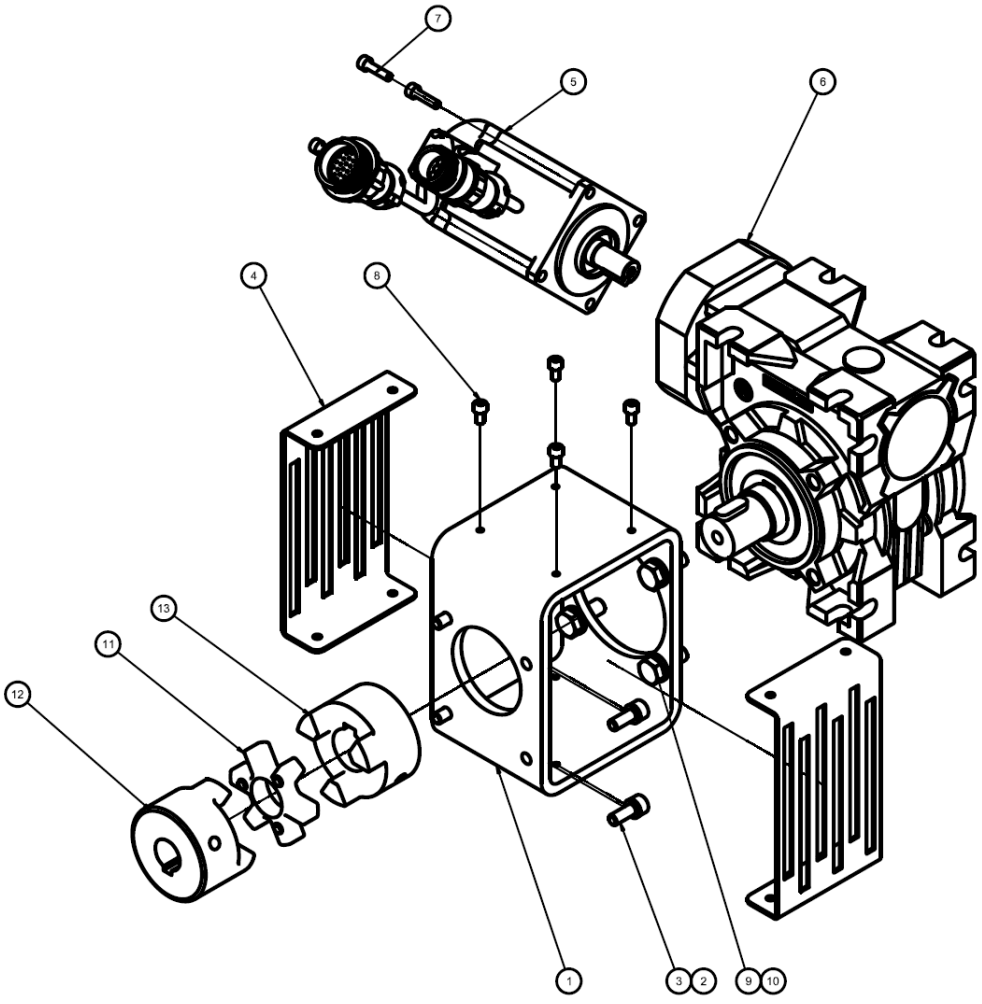


Drive Assemblies 49:1, 90° left- & right-hand, horizontal & vertical directions

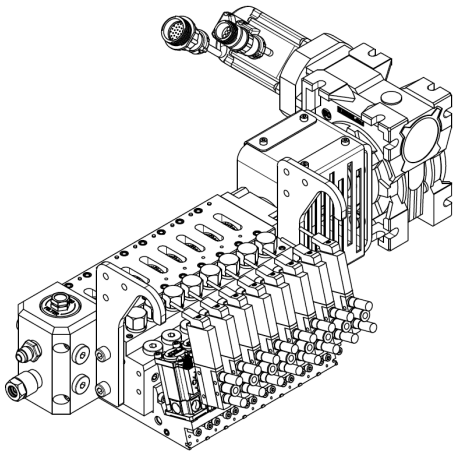
These 90° drive assemblies consist of all the same part; they just have a left hand and right hand as well as a vertical and horizontal direction. See also illustrations on next page.

- Drive assembly 49:1, 90° left-hand, horizontal, PN 826035
- Drive assembly 49:1, 90° right-hand, horizontal, PN 826036
- Drive assembly 49:1, 90° left-hand, vertical, PN 826037
- Drive assembly 49:1, 90° right-hand, vertical, PN 826038

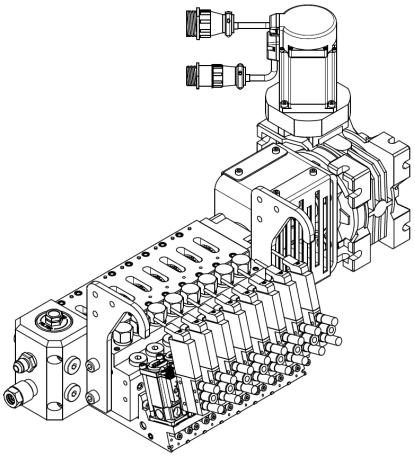
Item No.	Part Number	Description	Quantity
1	826039	Drive cage	1
2	117042	Lock washer M6	4
3	814397	Screw M6-1,00x16mm	4
4	825357	Cover	2
5	822771	Servo Motor (Allen Bradley), 11.5LBS/IN	1
6	826033	Gear box, 90°, 49:1 (Allen Bradley)	1
7	805044	Screw M4-0.70x16mm	4
8	808348	Screw M4-0.70x6mm	8
9	103516	Screw M8-1.25x20mm	4
10	114032	Washer M8	4
11	815231	Coupling, Lovejoy, L095, INS	1
12	826025	Coupling, Lovejoy, L095, 18mm	1
13	826034	Coupling, Lovejoy, L095, 24mm	1



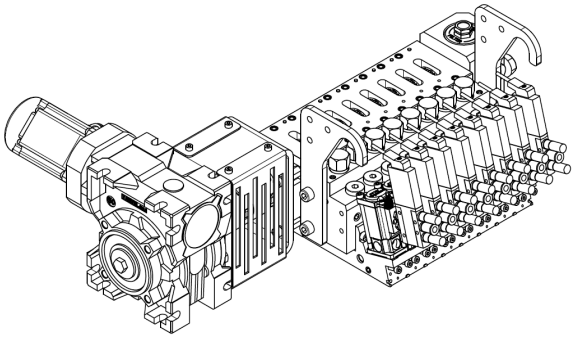
Illustrations of Velocity Applicator with 4 different 90° drive assemblies



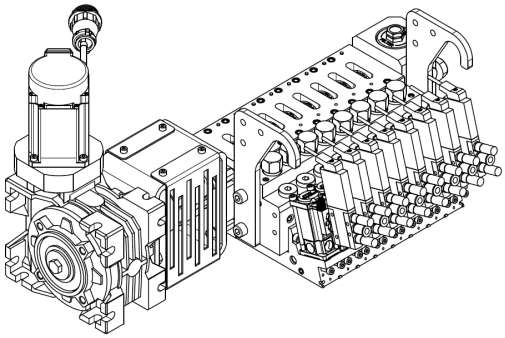
Velocity with a left-hand & horizontal 90° drive asy



Velocity with a left-hand & vertical 90° drive asy



Velocity with a right-hand & horizontal 90° drive asy



Velocity with a right-hand & vertical 90° drive asy

8.8 Standard Slot Nozzles

Slot Nozzle 2-port, 50 mm pattern, PN 121042

Item No.	Part Number	Description	Quantity
1	-	Nozzle, entry plate, 50mm, 2-port, no segments	1
2	121056	Shim, 50mm, 2-port, 50mm pattern	1
3	-	Nozzle, exit plate, 50mm, 2-port	1
4	102446	Screw M4x10mm	3
5	N00174	O-ring 007	2

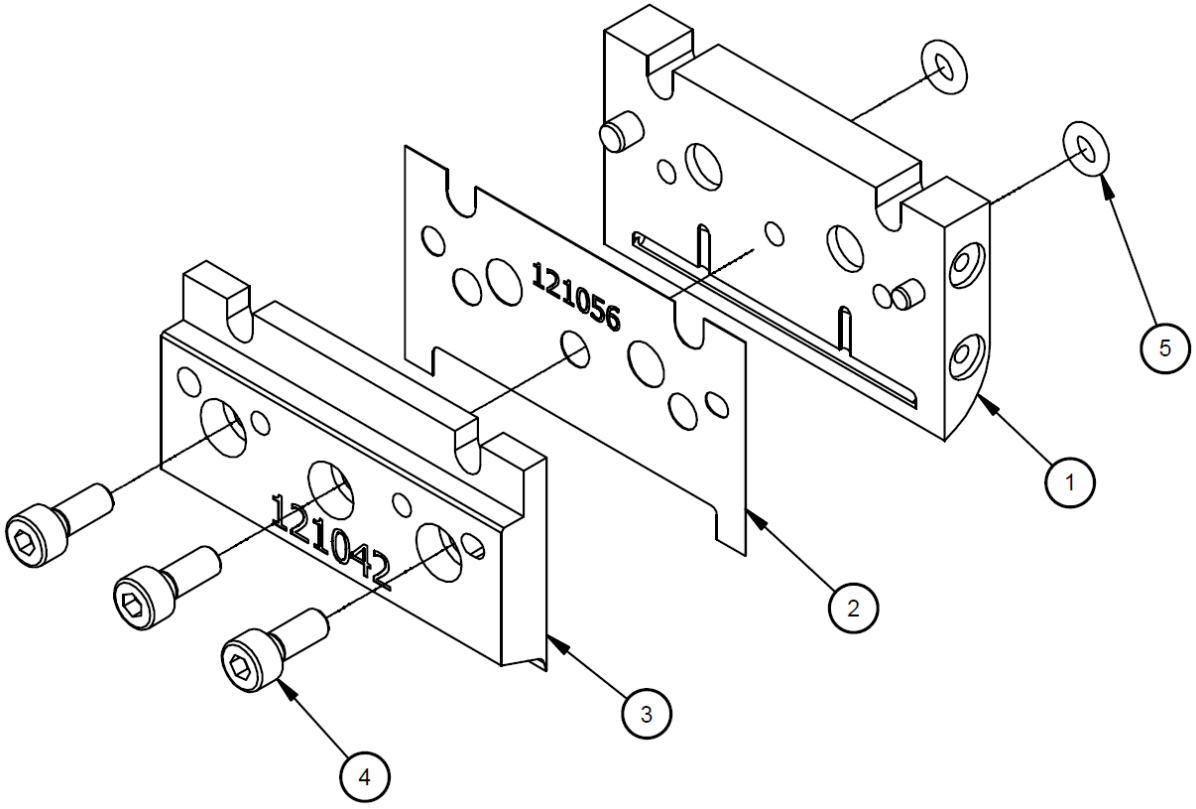


Illustration: Slot Nozzle 2-port, 50 mm pattern, PN 121042

Slot Nozzle 2-port, 2x25 mm pattern, PN 121045

Item No.	Part Number	Description	Quantity
1	-	Nozzle, entry plate, 50mm, 2-port, 2x25mm segments	1
2	121057	Shim, 50mm, 2-port, 2x25mm pattern	1
3	-	Nozzle, exit plate, 50mm, 2-port	1
4	102446	Screw M4x10mm	3
5	N00174	O-ring 007	2

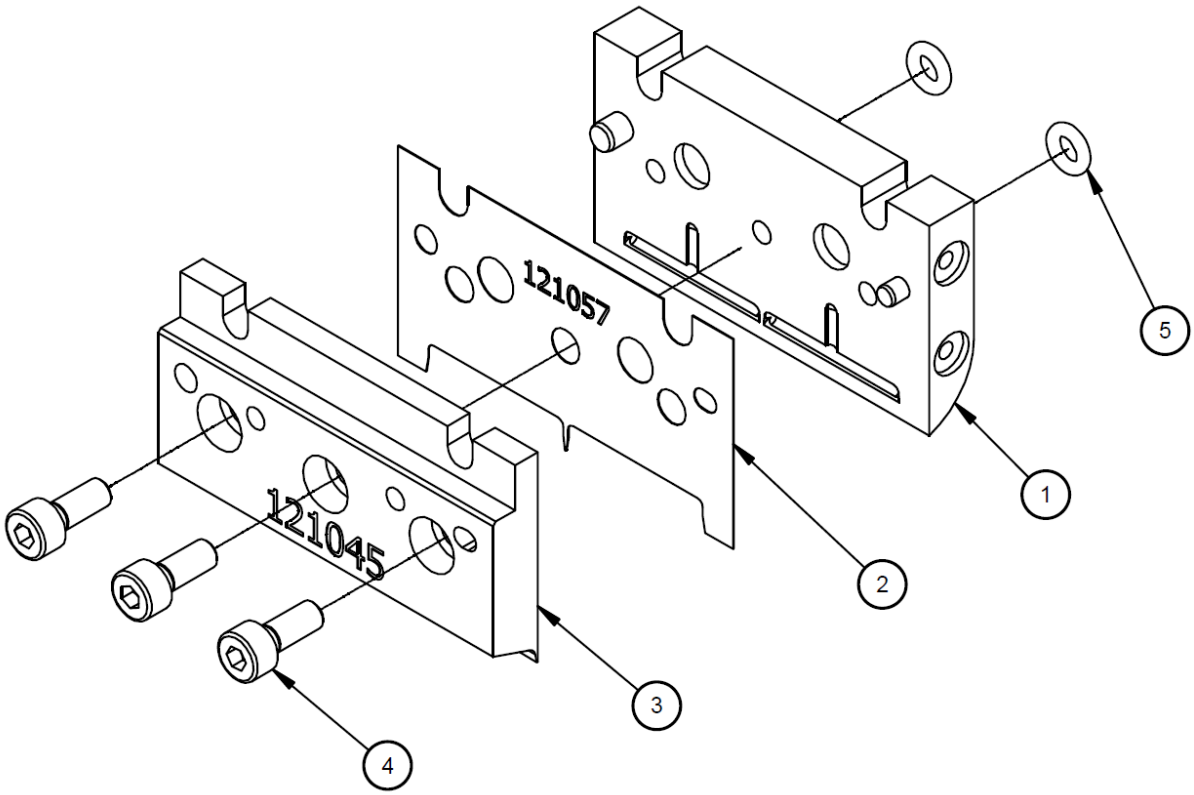


Illustration: Slot Nozzle 2-port, 2x25 mm pattern, PN 121045

Slot Nozzle 4-port, 100 mm, 100 mm pattern, PN 121177

Item No.	Part Number	Description	Quantity
1	-	Nozzle, entry plate, 100mm, 4-port, 100mm pattern	1
2	121061	Shim, 100mm, 4-port, 100mm pattern	1
3	-	Nozzle, exit plate, 100mm, 4-port	1
4	102446	Screw M4x10mm	5
5	N00174	O-ring 007	4

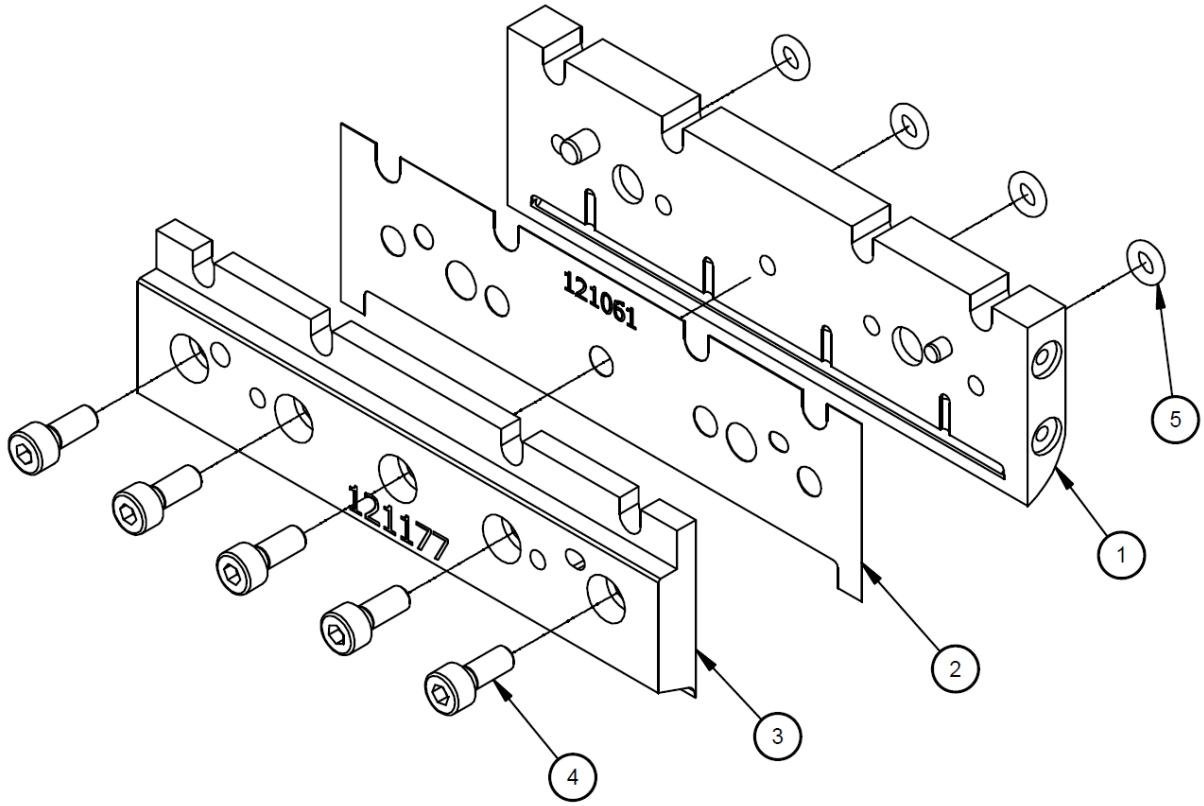


Illustration: Slot Nozzle 4-port, 100 mm, 100 mm pattern, PN 121177

Slot Nozzle 4-port, 100 mm, 4x25 mm pattern, PN 121179

Item No.	Part Number	Description	Quantity
1	-	Nozzle, entry plate, 100mm, 4-port, 4x25mm segments	1
2	121062	Shim, 100mm, 4-port, 4x25mm pattern	1
3	-	Nozzle, exit plate, 100mm, 4-port	1
4	102446	Screw M4x10mm	5
5	N00174	O-ring 007	4

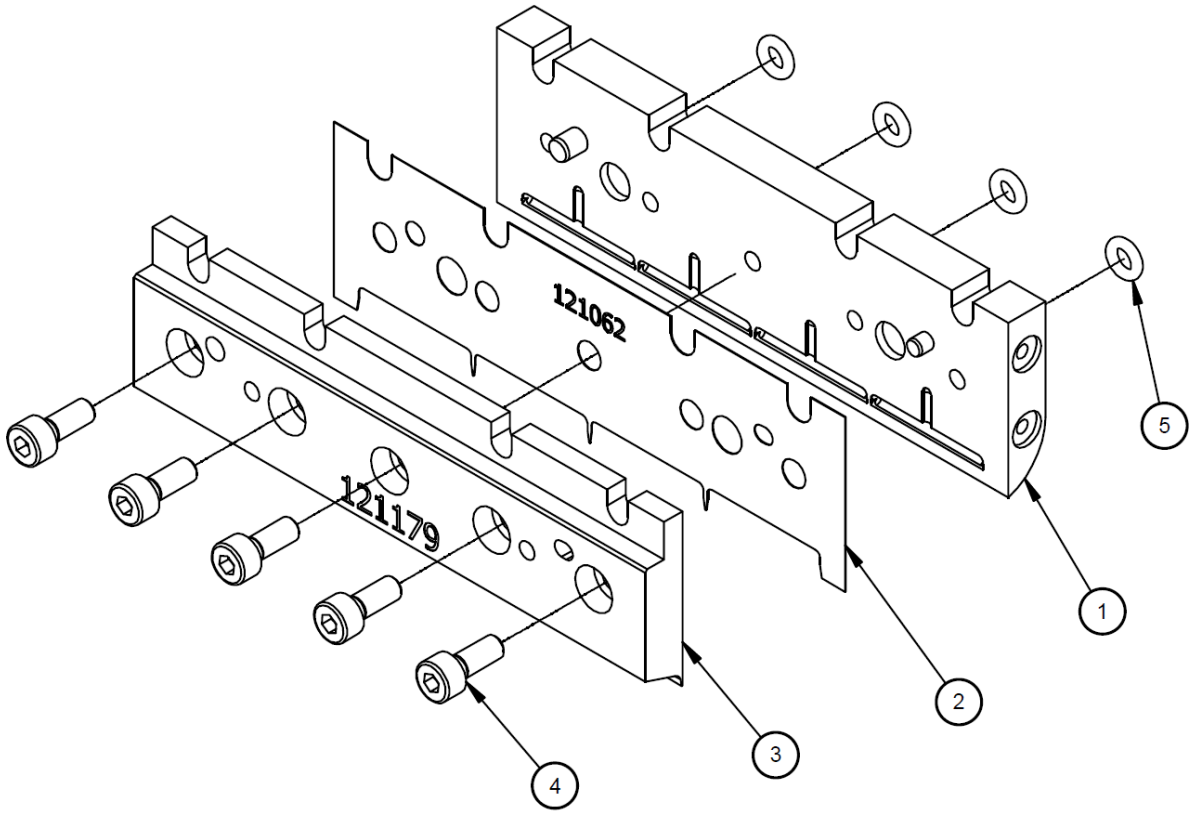


Illustration: Slot Nozzle 4-port, 100 mm, 4x25 mm pattern, PN 121179

Slot Nozzle 6-port, 150 mm pattern, PN 121063

Item No.	Part Number	Description	Quantity
1	-	Nozzle, entry plate, 150mm, 6-port, 150mm pattern	1
2	121059	Shim, 150mm, 6-port, 150mm pattern	1
3	-	Nozzle, exit plate, 150mm, 6-port	1
4	102446	Screw M4x10mm	7
5	N00174	O-ring 007	6

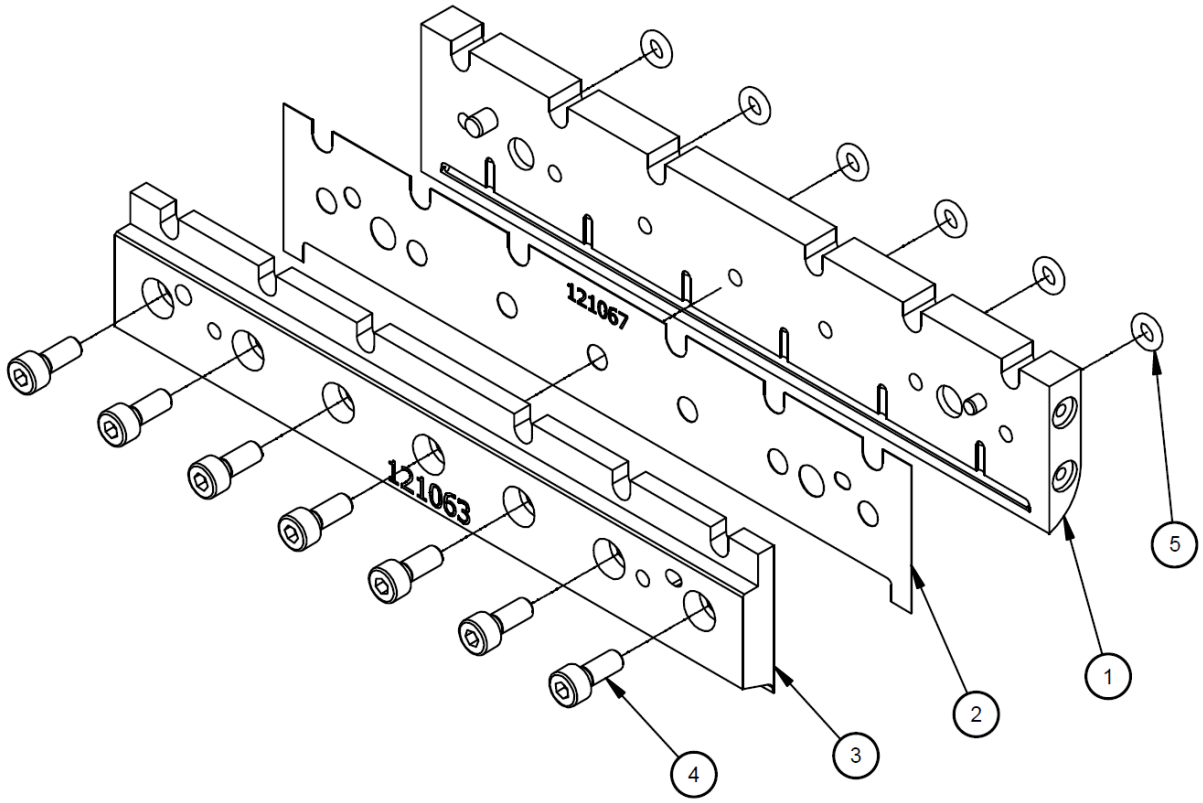


Illustration: Slot Nozzle 6-port, 150 mm pattern, PN 121063

Slot Nozzle 6-port, 150 mm, 6x25mm pattern, PN 121068

Item No.	Part Number	Description	Quantity
1	-	Nozzle, entry plate, 150mm, 6-port, 6x25mm segments	1
2	121070	Shim, 150mm, 6-port, 6x25mm pattern	1
3	-	Nozzle, exit plate, 150mm, 6-port	1
4	102446	Screw M4x10mm	7
5	N00174	O-ring 007	6

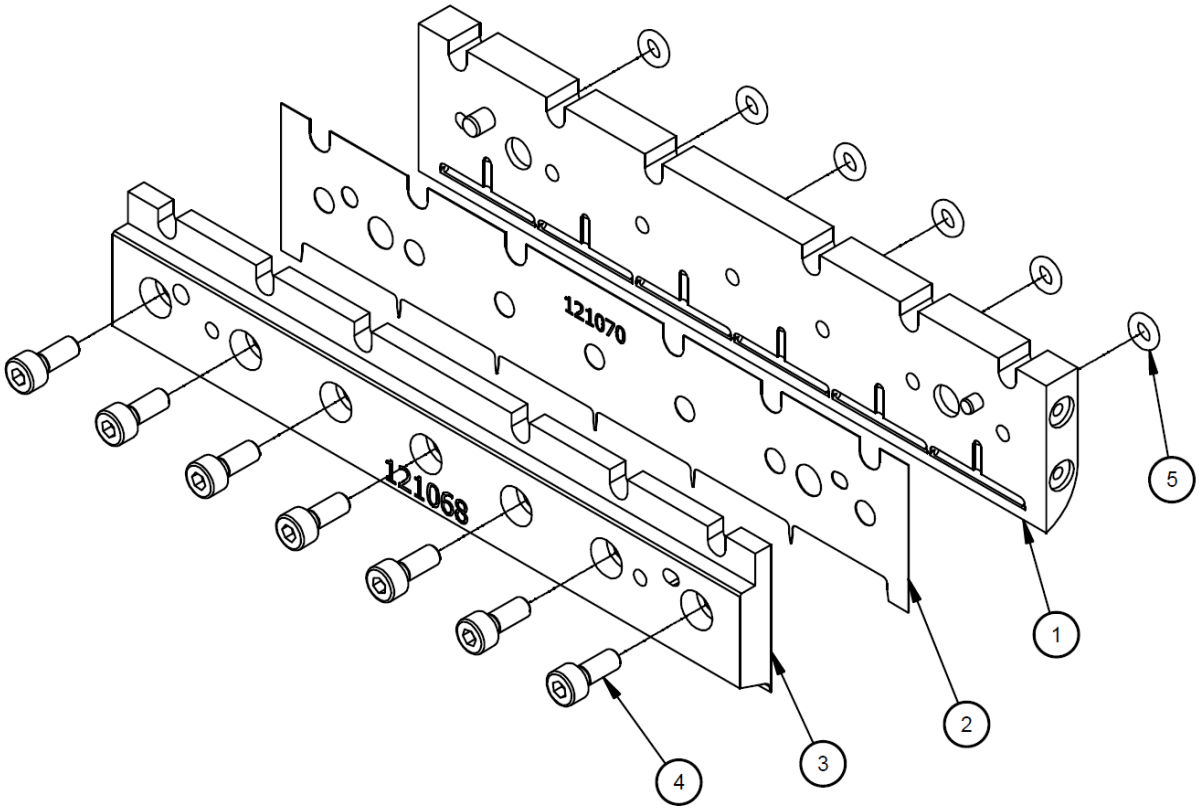


Illustration: Slot Nozzle 6-port, 150 mm, 6x25mm pattern, PN 121068

Slot Nozzle 8-port, 200 mm, 200 mm pattern, PN 121169

Item No.	Part Number	Description	Quantity
1	-	Nozzle, entry plate, 200mm, 8-port, 200mm patterns	1
2	121173	Shim, 200mm, 8-port, 200mm pattern	1
3	-	Nozzle, exit plate, 200mm, 8-port	1
4	102446	Screw M4x10mm	9
5	N00174	O-ring 007	8

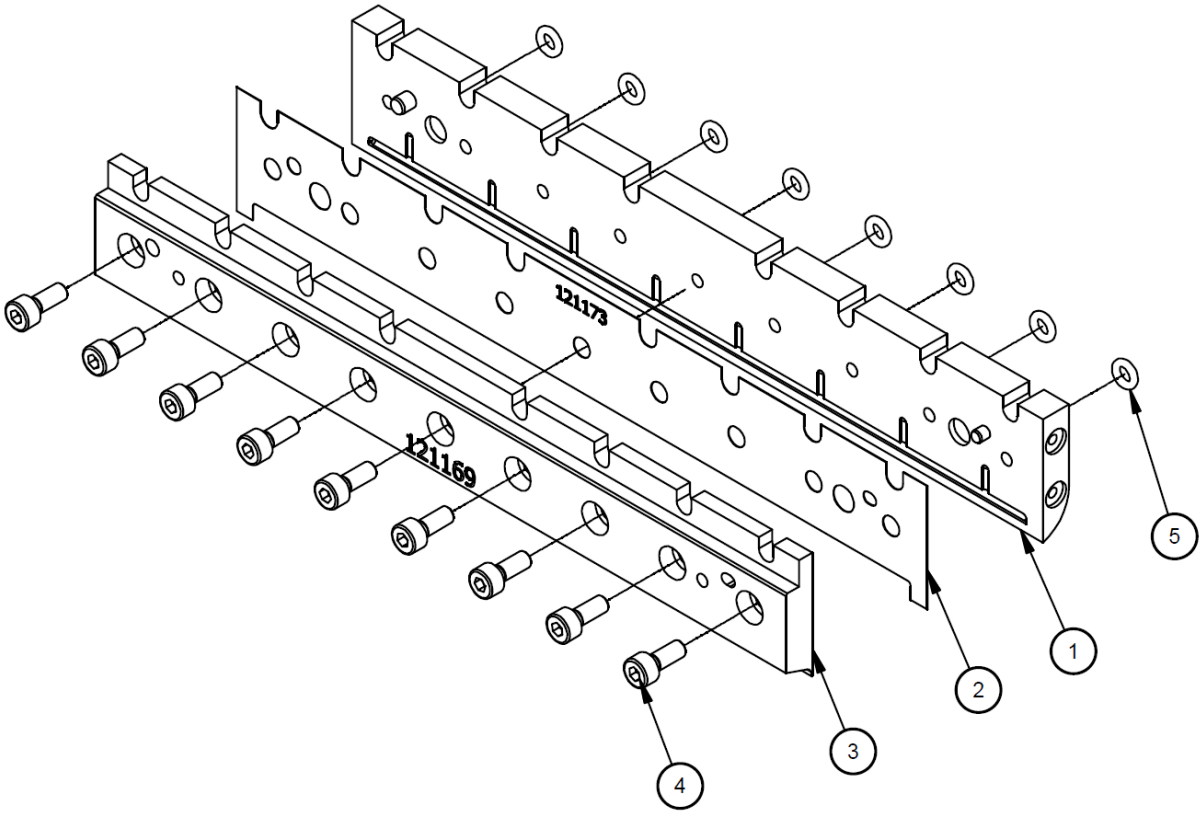


Illustration: Slot Nozzle 8-port, 200 mm, 200 mm pattern, PN 121169

Slot Nozzle 8-port, 200 mm, 8x25 mm pattern, PN 121174

Item No.	Part Number	Description	Quantity
1	-	Nozzle, entry plate, 200mm, 8-port, 8x25mm segments	1
2	121176	Shim, 200mm, 8-port, 8x25mm pattern	1
3	-	Nozzle, exit plate, 200mm, 8-port	1
4	102446	Screw M4x10mm	9
5	N00174	O-ring 007	8

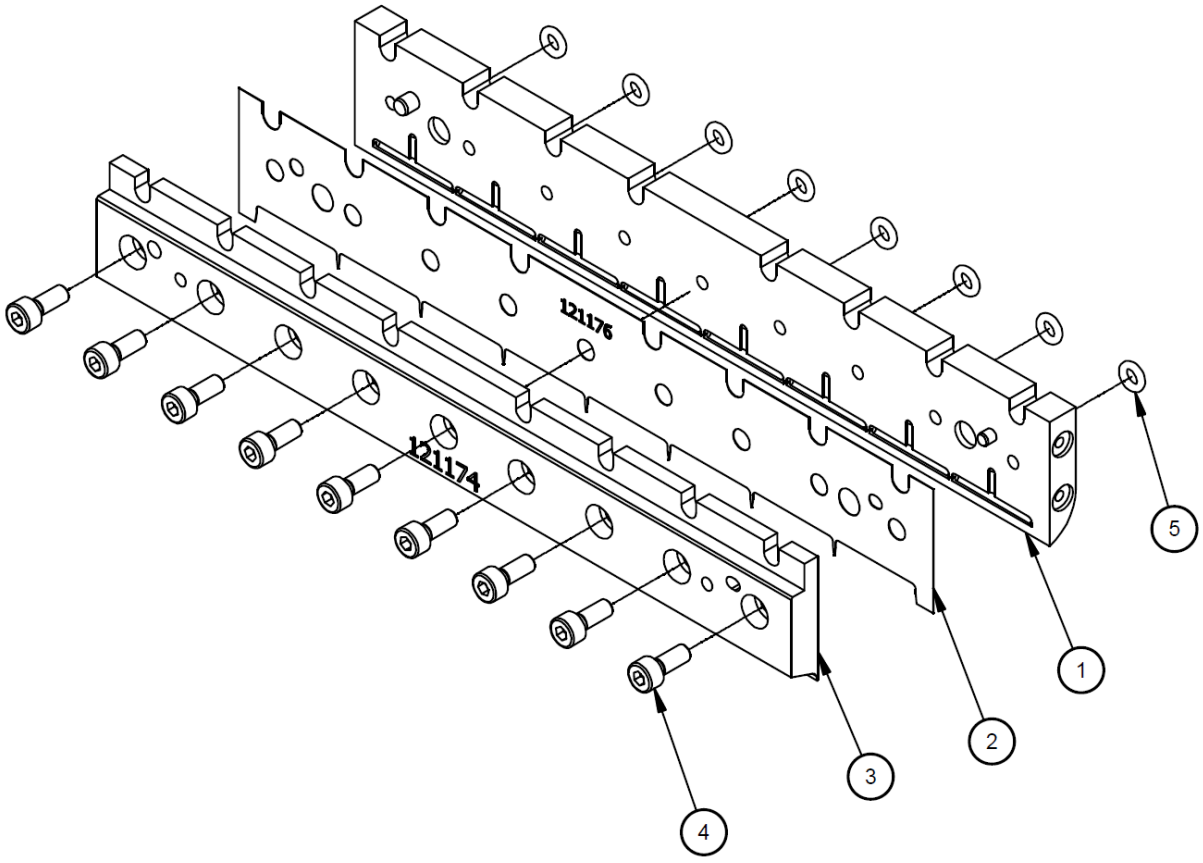


Illustration: Slot Nozzle 8-port, 200 mm, 8x25 mm pattern, PN 121174

Slot Nozzle 10-port, 250 mm, 5x50 mm pattern, PN 121206

Item No.	Part Number	Description	Quantity
1	-	Nozzle, entry plate, 250mm, 10-port, 5x50mm segments	1
2	121204	Shim, 250mm, 10-port, 5x50mm pattern	1
3	-	Nozzle, exit plate, 250mm, 10-port	1
4	102446	Screw M4x10mm	11
5	N00174	O-ring 007	10

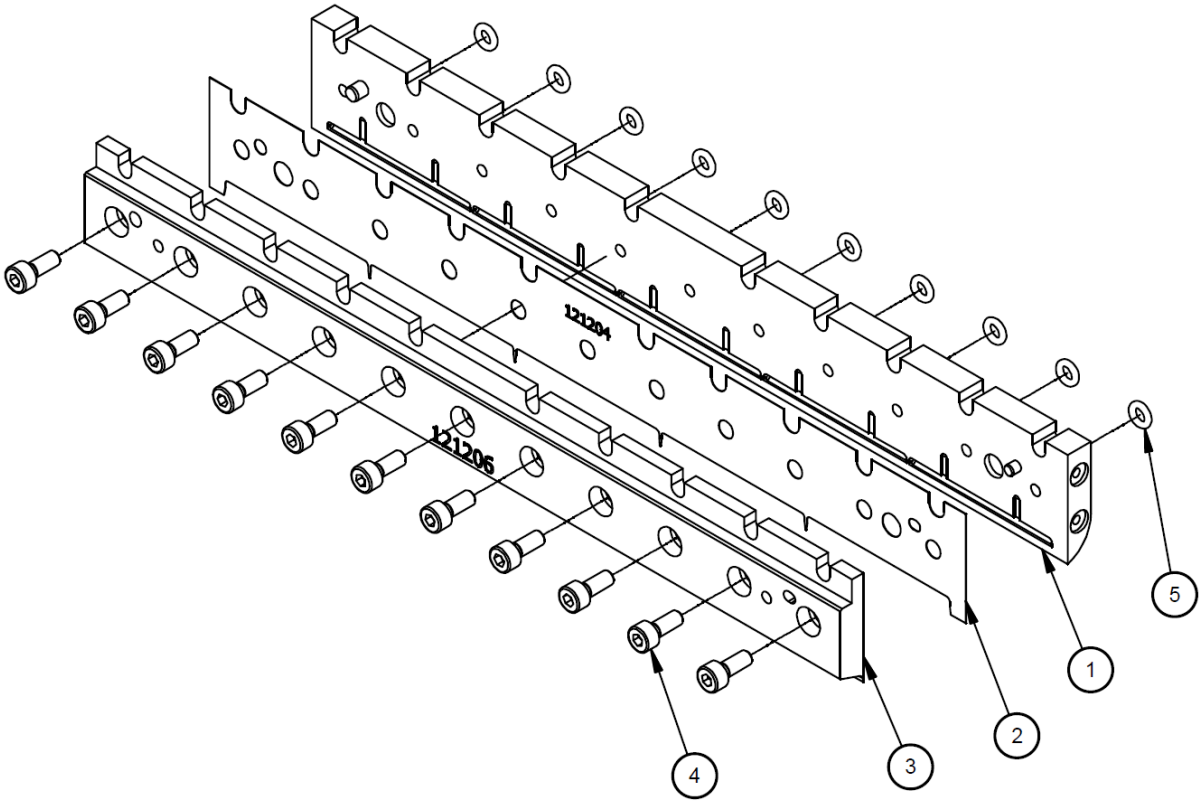


Illustration: Slot Nozzle 10-port, 250 mm, 5x50 mm pattern, PN 121206

Slot Nozzle 12-port, 300 mm, 6x50 mm pattern, PN 121210

Item No.	Part Number	Description	Quantity
1	-	Nozzle, entry plate, 300mm, 12-port, 6x50mm segments	1
2	121205	Shim, 300mm, 12-port, 6x50mm pattern	1
3	-	Nozzle, exit plate, 300mm, 12-port	1
4	102446	Screw M4x10mm	13
5	N00174	O-ring 007	12

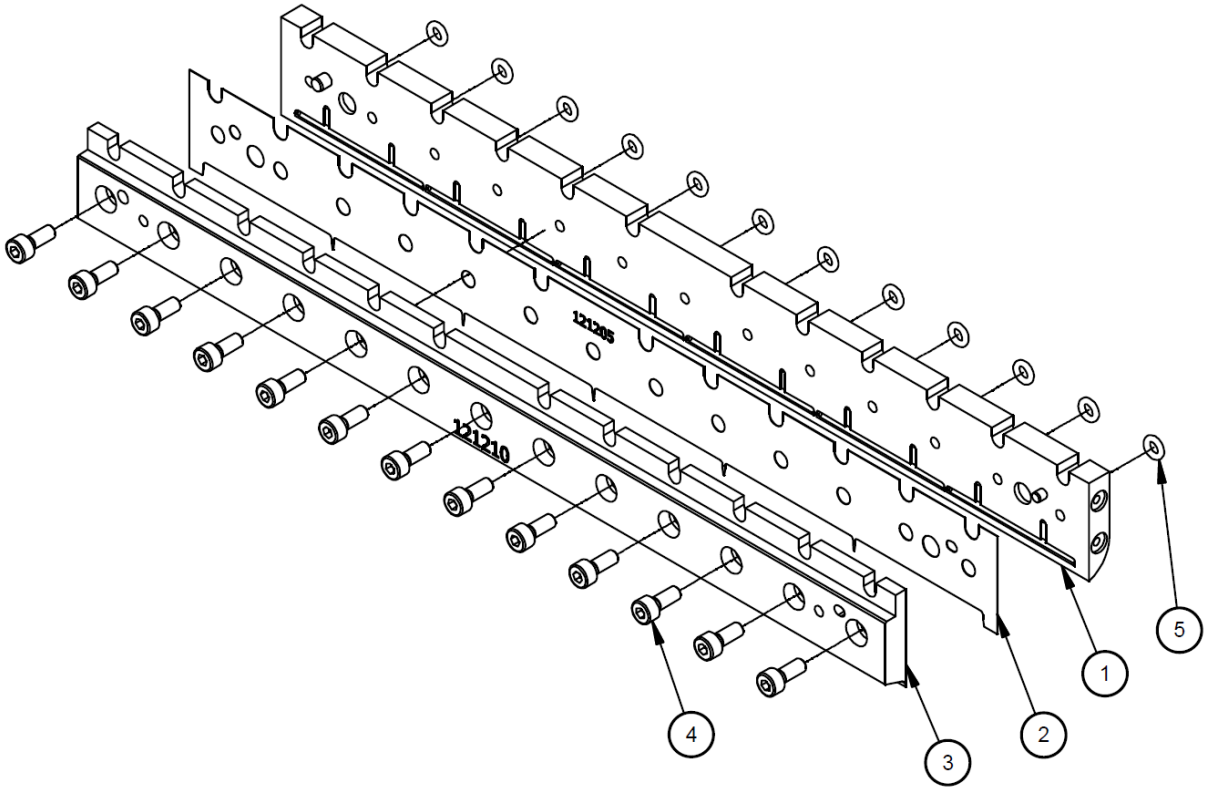


Illustration: Slot Nozzle 12-port, 300 mm, 6x50 mm pattern, PN 121210

8.9 Wing assembly, 25mm, PN 120593 (optional)

Item No.	Part Number	Description	Quantity
1	120594	Wing 25mm	1
2	120595	Spacer M3 ceramic	2
3	810031	Screw M3x30mm	2

Note: Wing is reversible for left or right mounting.

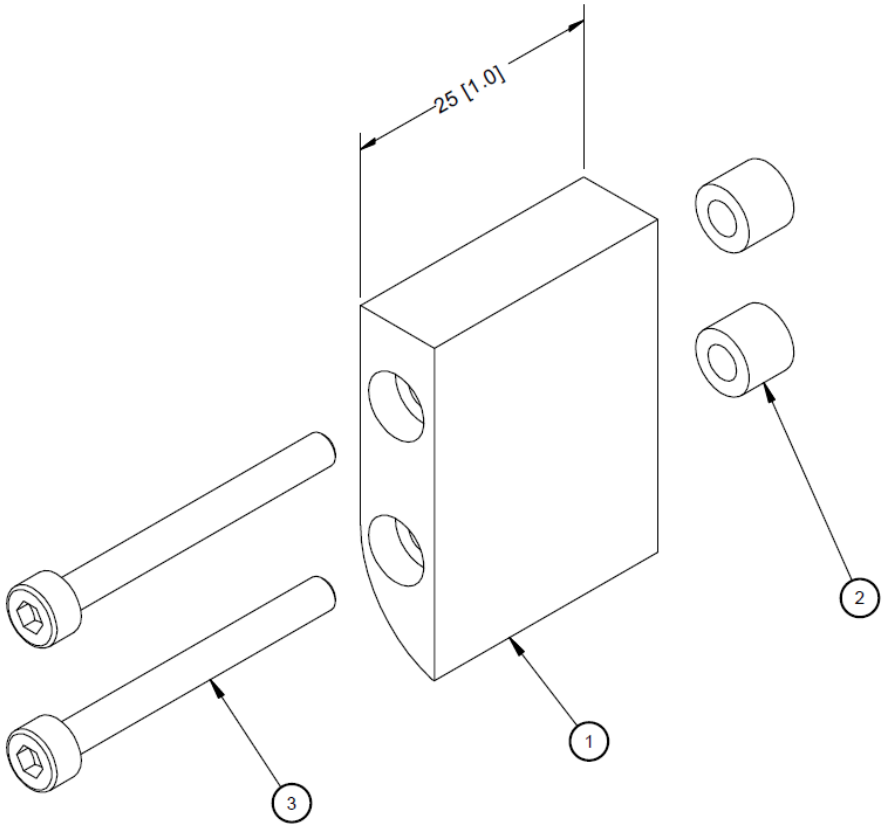
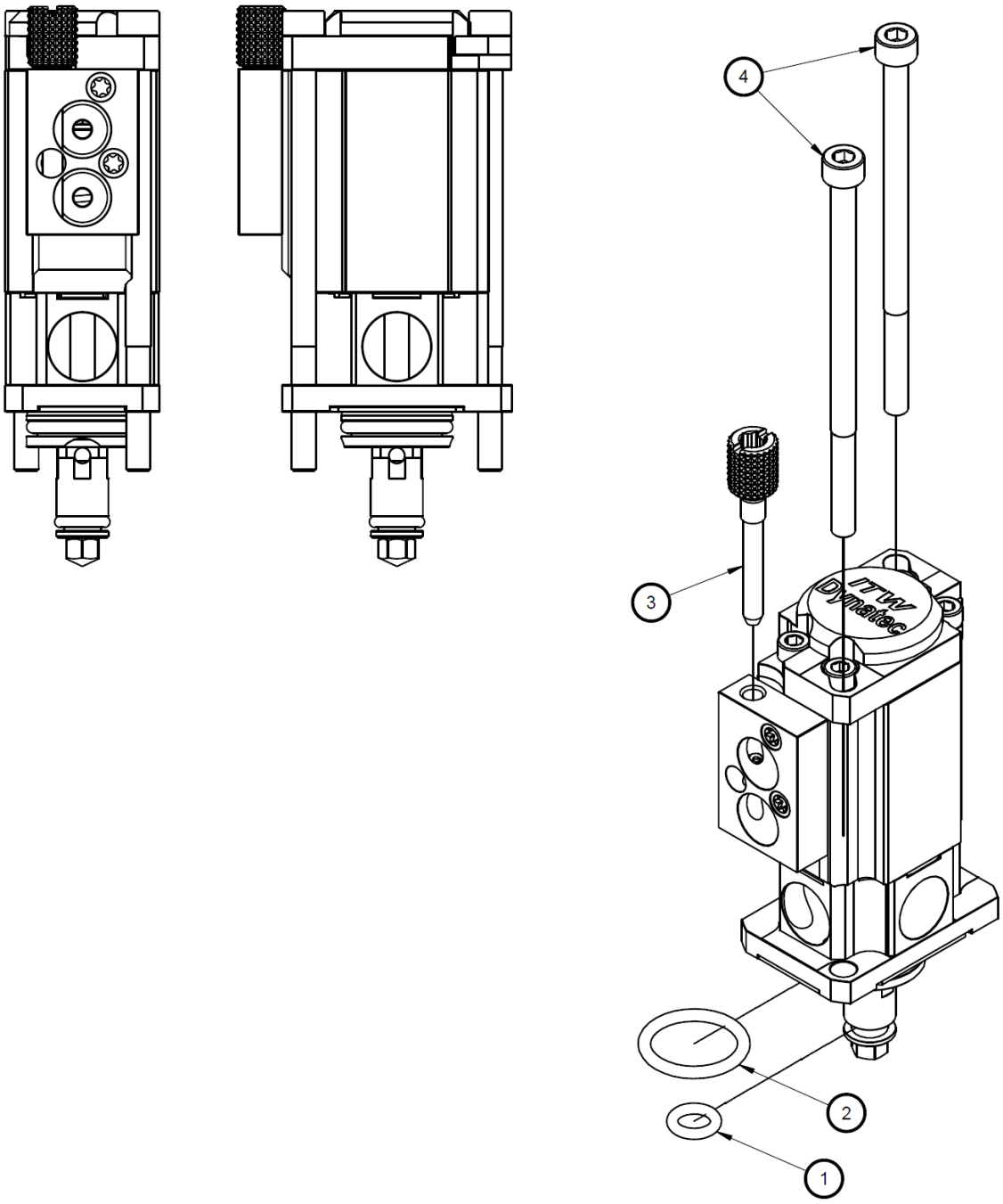


Illustration: Wing assembly, 25mm, PN 120593

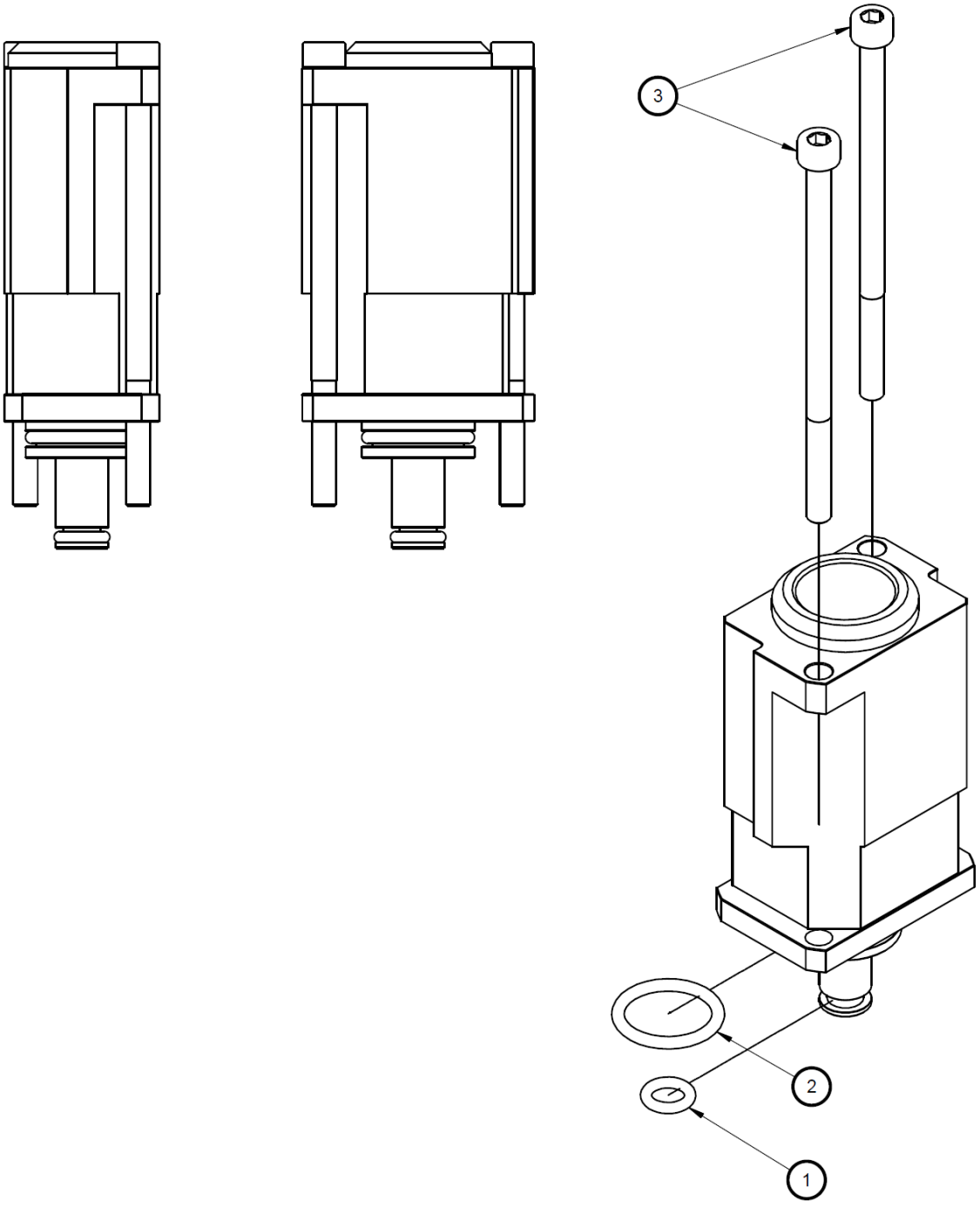
8.10 ULTRA Module, PN 119990



Serviceable Components:

Item No.	Part Number	Description	Quantity
1	N00176	O-ring 2-009 Viton	1
2	808269	O-ring 14x12mm Viton	1
3	113348	Pin, solenoid retaining, M4	1
4	8401	Screw M4x70mm	2

Blank Module, PN 120108

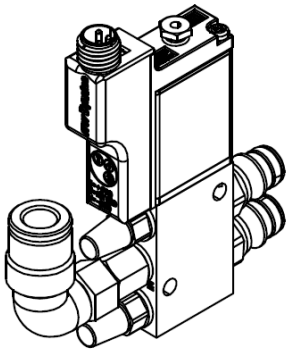


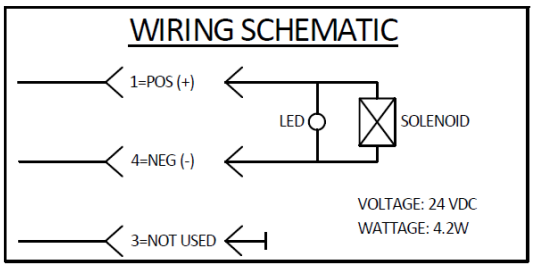
Serviceable Components:

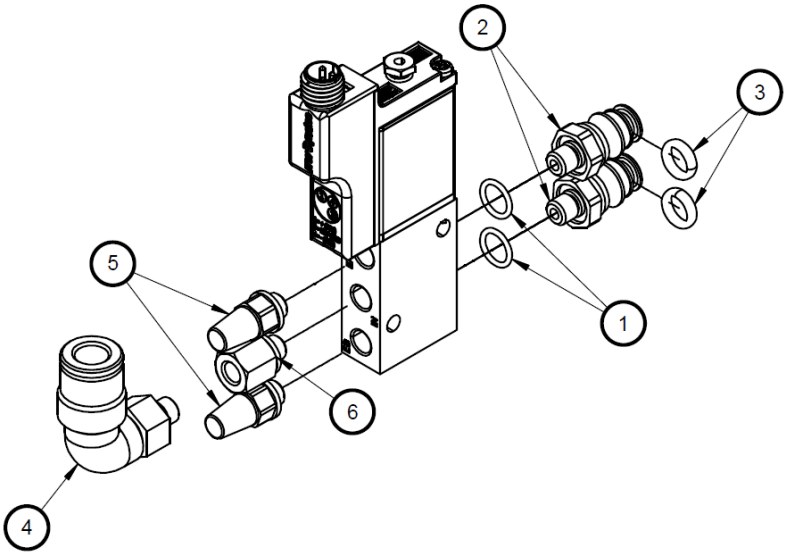
Item No.	Part Number	Description	Quantity
1	N00176	O-ring 2-009 Viton	1
2	808269	O-ring 14x12mm Viton	1
3	8401	Screw M4x70mm	2

8.11 Solenoid valves

Solenoid valve, MAC44 series, QC







Item No.	Part Number	Description	Quantity
1	119270	O-ring 1x6mm ID, Viton	2
2	119268	Fitting, QC SOL, M5x0.8mm	2
3	N00175	O-ring -008 Viton	2
4	See tabulation *	Fitting, swivel elbow	1
5	117077	Muffler M5	2
6	119625	Adapter M5	1

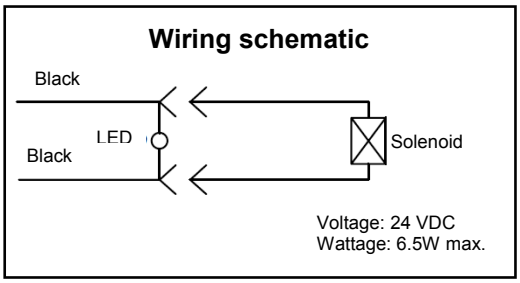
*** Part no. Tabulation:**

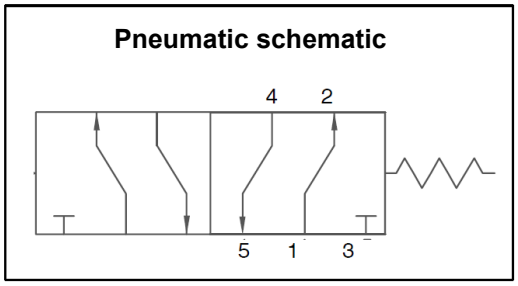
Solenoid Assembly	Item 4	Inlet tubing size (OD)
120116	819975	6mm
119784	115438	1/4”

Available Control Cables:

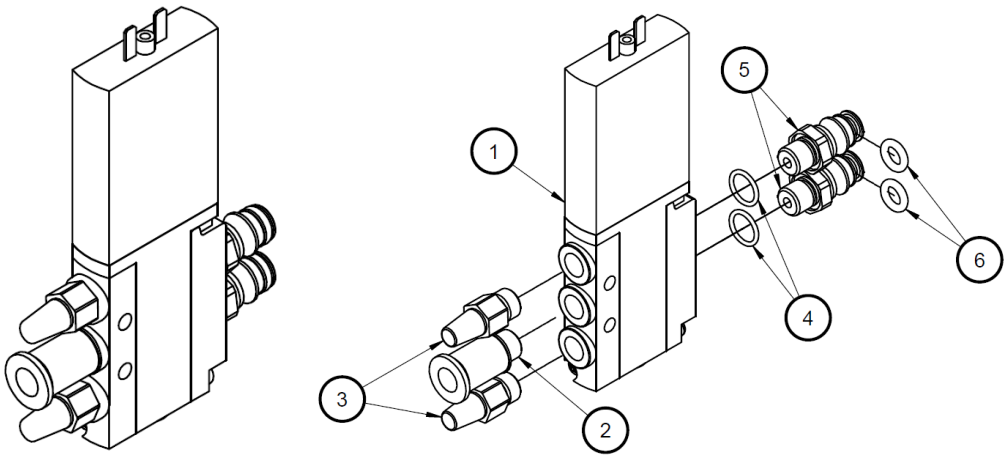
Cable PN	Control Type
117532	Cable, 3m length, with flying leads
118507	Extension Cable, 3m length, connector each end
150110	Cable, 10m length, with flying leads

Solenoid, Festo, QC





Connections:
Port 1 = Inlet
Port 2 = Close side of module
Port 3 = Exhaust
Port 4 = Open side of module
Port 5 = Exhaust



Item No.	Part Number	Description	Quantity
1	113350	Pneumatic solenoid valve 4-way, Festo	1
2	See tabulation *	Push-in Fitting, M7	1
3	118390	Silencer, bronze, M7	2
4	119731	O-ring, 1x7mm ID, Viton	2
5	113351	Fitting, QC SOL, M7x1mm	2
6	N00175	O-ring -008, Viton, 70 Duro	2

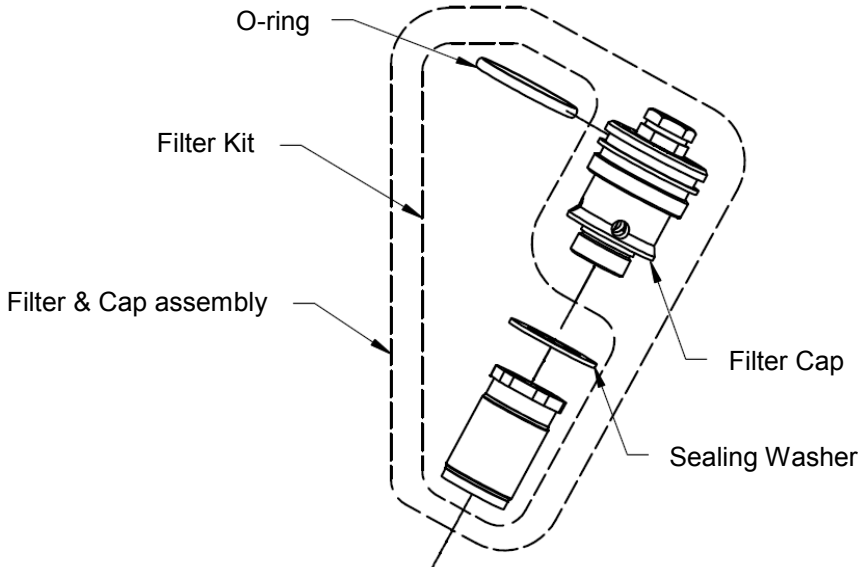
*** Part no. Tabulation:**

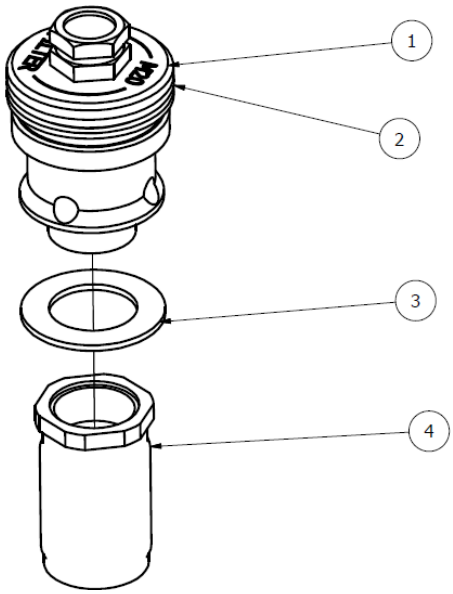
Solenoid Assembly	Item 2	Inlet tubing size (OD)
115055	113362	6mm
115056	113363	1/4”

Available Control Cables:

Cable Part Number	Control Type
114557	Cable 10m

8.12 Filter





Filter & Cap assembly, PN 116246:

Item	PN	Description
1	116244	Filter cap M36 x welded M20
2	N03812	O-ring 125
3	116243	Seal M20 filter
4	116242	Filter 150 mesh

Filter Kit, PN 116245:

Item	PN	Description
2	N03812	O-ring 125
3	116243	Seal M20 filter
4	116242	Filter 150 mesh

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Chapter 9
Options & Accessories

Vector Pump Options for Velocity

Available Pump Sizes:

Part Number	Description
814346	Pump 0.15 ccm, Vect.HS.SP
808809	Pump 0.4 ccm, Vect.HS.SP
810430	Pump 0.5 ccm, Vect.HS.SP
808807	Pump 0.6 ccm, Vect.HS.SP
808808	Pump 0.7 ccm, Vect.HS.SP
810431	Pump 0.8 ccm, Vect.HS.SP
810432	Pump 0.9 ccm, Vect.HS.SP
810433	Pump 1.0 ccm, Vect.HS.SP
807917	Pump 1.7 ccm, Vect.HS.SP
813248	Pump 3.34 ccm Vect.HS.SP

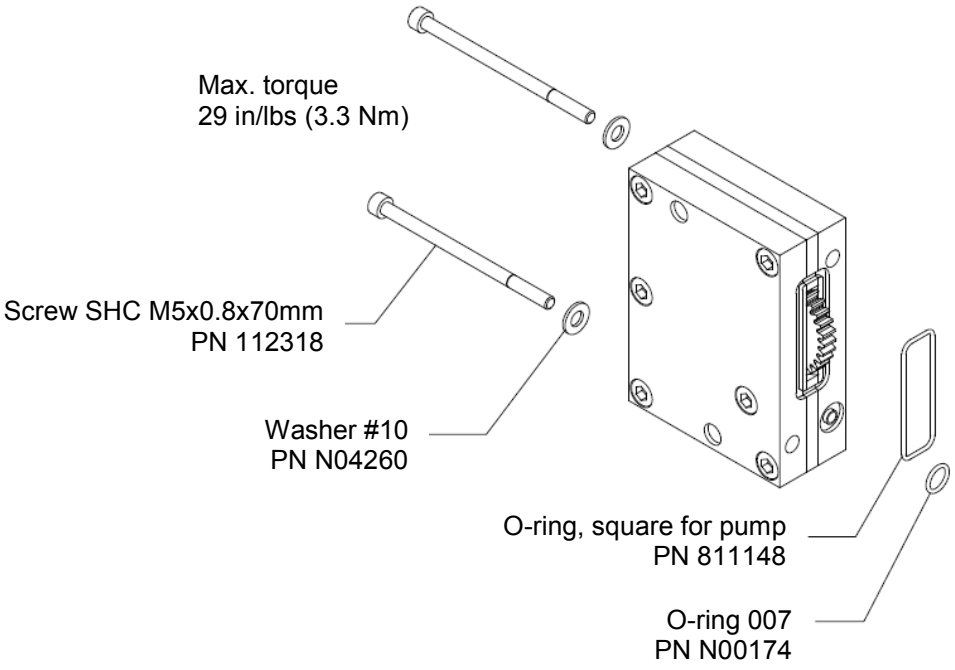
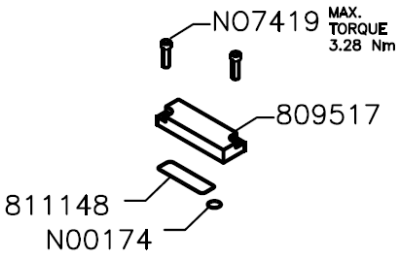


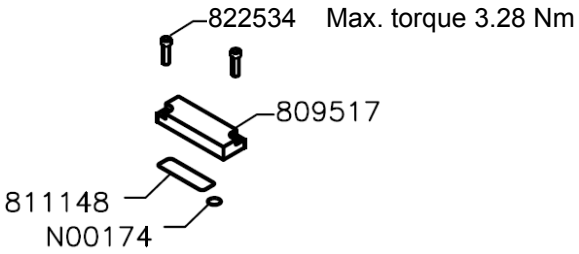
Illustration: Pump example

Pump block off kit, PN 812356



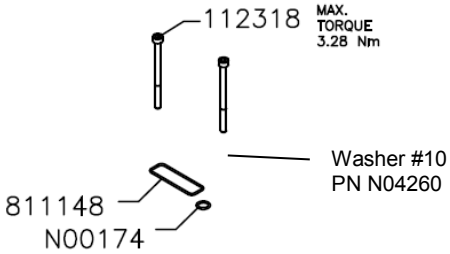
PN	Description
N07419	Screw M5x20mm
809517	Pump block-off plate
811148	O-ring, square
N00174	O-ring 007

Pump block off kit, tamper proof, PN 822547



PN	Description
822534	Screw, tamper proof, M5x20mm
809517	Pump block-off plate
811148	O-ring, square
N00174	O-ring 007

Pump attachment kit, PN 812343



PN	Description
112318	Screw M5x70mm
N04260	Washer #10
811148	O-ring, square
N00174	O-ring 007

Pump installation procedure:

- Apply silicone lube (PN 001U002) to 811148 & N0074 and place in the groove provided. Wipe away any excess grease.
- Apply compound antiseize, CHSTN710 (PN 107324) to 112318 threads.

Tool Kit, PN 813497

A Tool Kit PN 813497 is included with the each Pump Base as standard equipment. The kit contains tools (metric and spanner wrenches) and common O-rings useful in pump seal and pump group change out.

Item No.	Part Number	Description	Quantity
Parent	**813497**	**TOOL,KIT,VMET**	
1	811148	O-RING,VECT,PMP,SQUARE	4
1	813346	SEAL CART ASY,VECT	1
.2	001U002	LUBE,SILICONE,DOW112	0
.2	813344	SHAFT SEAL,BALSEAL,VECT	1
.2	813345	SEAL CARTRIDGE,BALSEAL,VECT	1
.2	825569	SEAL CART ASY,WORK INSTRCTNS VECTOR	1
.2	N06160	O-RING,-029,70 DURO VITO	1
1	813498	ALUM,ANTISIEZE,1OZ,TUBE	1
1	813499	LUB,ORING,DOW,2OZ,TUBE	1
1	813500	KEY,HEX,4MM	1
1	813501	KEY,HEX,5MM	1
1	813502	SPAN,WRENCH,45MM DIA.	1
1	815067	BOX,COMP,VECT TOOL KIT	1
1	N00174	O-RING,-007,VITON,70 DUR	4
1	N00182	O-RING,-015,75DURO,VITON	6

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Chapter 10
Recommended Spare Parts

Note: See item numbers in appropriate illustrations in Chapter 8.

Velocity Applicator 50 mm, PN 825694

Item No.	Part Number	Description	Quantity
4	103467 **	Cable harness, DynaControl (Temperature sensor PT100 PN N07958 is included)	2
	104528 **	Cable harness, Nordson (Temperature sensor Ni120 PN N07864 is included)	-
	823005 **	Cable harness, Harting (Temperature sensor PT100 PN N07958 is included)	-
	802578 **	Cable harness, Meltex (Temperature sensor PT100 PN N07958 is included)	-
6	119990 *	Ultra Module asy (use if pump is called out)	2
	120108 *	Blank Module (use if block-off is called out)	-
7	115055	Solenoid 24V, Festo 6mm	2
	120116	Solenoid 24V, MAC 6mm	-

* See separate list/drawing.
** The temperature sensor is the recommended spare part. Refer to the smart number of your applicator and to the Smart Number Code under Ch.3.2.

Velocity Ultra Assembly 50mm, PN 825412

Item No.	Part Number	Description	Quantity
7	813231	Pressure relief valve, 800psi (55 bar)	2
10	N00178	O-ring 011	3
11	001U002	Lube, silicone, DOW112	1

Service Block Assembly 50 mm, PN 825298

Item No.	Part Number	Description	Quantity
10	116245	Filter kit 150 mesh, ez spin	1
12	813344	Shaft seal	1
13	813345	Seal cartridge	1
14	814051	Heater cartridge 10x60mm, 400W, 240V	2
20	A69X134	O-ring 128	2
21	N00184	O-ring 017	2
22	N06160	O-ring 029	1
23	107324	Compound, antiseize, CHSTN710	1
24	001U002	Lube, silicone, DOW 112	1

Module-Manifold Assembly, 2-Port, 50mm, PN 119983

Item No.	Part Number	Description	Quantity
4	N00181	O-ring 017	2
5	119989	Heater cartridge 10x80mm, 150W, 240V	2
6	N00174	O-ring 007	1
13	106444	Heater cartridge 10x40mm, 150W, 240V	1
19	N00178	O-ring -011	2

Velocity Applicator 100 mm, PN 825695

Item No.	Part Number	Description	Quantity
4	119990 *	Ultra Module asy (use if pump is called out)	4
	120108 *	Blank Module (use if block-off is called out)	-
5	103467 **	Cable harness, DynaControl (Temperature sensor PT100 PN N07958 is included)	2
	104528 **	Cable harness, Nordson (Temperature sensor Ni120 PN N07864 is included)	-
	823005 **	Cable harness, Harting (Temperature sensor PT100 PN N07958 is included)	-
	802578 **	Cable harness, Meltex (Temperature sensor PT100 PN N07958 is included)	-
7	115055	Solenoid 24V, Festo 6mm	4
	120116	Solenoid 24V, MAC 6mm	-

* See separate list/drawing.
** The temperatur sensor is the recommended spare part. Refer to the smart number of your applicator and to the Smart Number Code under Ch.3.2.

Velocity Ultra Assembly 100 mm, PN 825413

Item No.	Part Number	Description	Quantity
7	813231	Pressure relief valve, 800 psi (55 bar)	4
10	N00178	O-ring 011	6
11	001U002	Lube, silicone, DOW112	1

Service Block Assembly 100 mm, PN 822682

Item No.	Part Number	Description	Quantity
2	A69X134	O-ring 128	2
3	N00184	O-ring 017	2
5	814051	Heater cartridge 10x60mm, 400W, 240V	3
6	813345	Seal cartridge	1
7	N06160	O-ring 029	1
8	813344	Shaft seal	1
18	116245	Filter kit 150 mesh, ez spin	1
19	107324	Compound, antiseize, CHSTN710	1
20	001U002	Lube, silicone, DOW 112	1

Module-Manifold Assembly, 4-Port, 100mm, PN 119985

Item No.	Part Number	Description	Quantity
4	N00181	O-ring 017	4
5	119989	Heater cartridge 10x80mm, 150W, 240V	4
6	N00174	O-ring 007	1
13	106325	Heater cartridge 10x90mm, 200W, 240V	1
19	N00178	O-ring -011	4

Velocity Applicator 150 mm, PN 825696

Item No.	Part Number	Description	Quantity
4	119990 *	Ultra Module asy (use if pump is called out)	6
	120108 *	Blank Module (use if block-off is called out)	-
5	103467 **	Cable harness, DynaControl (Temperature sensor PT100 PN N07958 is included)	2
	104528 **	Cable harness, Nordson (Temperature sensor Ni120 PN N07864 is included)	-
	823005 **	Cable harness, Harting (Temperature sensor PT100 PN N07958 is included)	-
	802578 **	Cable harness, Meltex (Temperature sensor PT100 PN N07958 is included)	-
7	115055	Solenoid 24V, Festo 6mm	6
	120116	Solenoid 24V, MAC 6mm	-

* See separate list/drawing.
** The temperatur sensor is the recommended spare part. Refer to the smart number of your applicator and to the Smart Number Code under Ch.3.2.

Velocity Ultra Assembly 150 mm, PN 825414

Item No.	Part Number	Description	Quantity
7	813231	Pressure relief valve 800 psi (55 bar)	6
10	N00178	O-ring 011	8
11	001U002	Lube, silicone, DOW112	1

Service Block Assembly 150 mm, PN 825301

Item No.	Part Number	Description	
10	116245	Filter kit 150 mesh, ez spin	1
12	813344	Shaft seal	1
13	813345	Seal cartridge	1
14	814051	Heater cartridge 10x60mm, 400W, 240V	4
20	A69X134	O-ring 128	2
21	N00184	O-ring 017	2
22	N06160	O-ring 029	1
23	107324	Compound, antiseize, CHSTN710	1
24	001U002	Lube, silicone, DOW 112	1

Module-Manifold Assembly, 6-Port, 150mm, PN 119986

Item No.	Part Number	Description	Quantity
4	N00181	O-ring 017	6
5	119989	Heater cartridge 10x80mm, 150W, 240V	6
6	N00174	O-ring 007	1
13	106715	Heater cartridge 10x140mm, 300W, 240V	1
19	N00178	O-ring -011	6

Velocity Applicator 200 mm, PN 825697

Item No.	Part Number	Description	Quantity
4	119990 *	Ultra Module asy (use if pump is called out)	8
	120108 *	Blank Module (use if block-off is called out)	-
5	103467 **	Cable harness, DynaControl (Temperature sensor PT100 PN N07958 is included)	2
	104528 **	Cable harness, Nordson (Temperature sensor Ni120 PN N07864 is included)	-
	823005 **	Cable harness, Harting (Temperature sensor PT100 PN N07958 is included)	-
	802578 **	Cable harness, Meltex (Temperature sensor PT100 PN N07958 is included)	-
7	115055	Solenoid 24V, Festo 6mm	8
	120116	Solenoid 24V, MAC 6mm	-

* See separate list/drawing.
** The temperatur sensor is the recommended spare part. Refer to the smart number of your applicator and to the Smart Number Code under Ch.3.2.

Velocity Ultra Assembly 200 mm, PN 825415

Item No.	Part Number	Description	Quantity
7	813231	Pressure relief valve 800psi (55 bar)	8
9	N00178	O-ring 011	10
11	001U002	Lube, silicone, DOW112	1

Service Block Assembly 200 mm, PN 825323

Item No.	Part Number	Description	Quantity
10	116245	Filter kit 150 mesh, ez spin	1
12	813344	Shaft seal	1
13	813345	Seal cartridge	1
14	814051	Heater cartridge 10x60mm, 400W, 240V	5
20	A69X134	O-ring 128	2
21	N00184	O-ring 017	2
22	N06160	O-ring 029	1
23	107324	Compound, antiseize, CHSTN710	1
24	001U002	Lube, silicone, DOW 112	1

Module-Manifold Assembly, 8-Port, 200mm, PN 121161

Item No.	Part Number	Description	Quantity
4	N00181	O-ring 017	8
5	119989	Heater cartridge 10x80mm, 150W, 240V	8
11	119664	Heater cartridge, 10x190mm, 400W, 240V	1
17	N00175	O-ring -008	8
21	N00178	O-ring -011	8

Velocity Applicator 250 mm, PN 825698

Item No.	Part Number	Description	Quantity
4	119990 *	Ultra Module asy (use if pump is called out)	10
	120108 *	Blank Module (use if block-off is called out)	-
5	103467 **	Cable harness, DynaControl (Temperature sensor PT100 PN N07958 is included)	3
	104528 **	Cable harness, Nordson (Temperature sensor Ni120 PN N07864 is included)	-
	823005 **	Cable harness, Harting (Temperature sensor PT100 PN N07958 is included)	-
	802578 **	Cable harness, Meltex (Temperature sensor PT100 PN N07958 is included)	-
7	115055	Solenoid 24V, Festo 6mm	10
	120116	Solenoid 24V, MAC 6mm	-

* See separate list/drawing.
** The temperatur sensor is the recommended spare part. Refer to the smart number of your applicator and to the Smart Number Code under Ch.3.2.

Velocity Ultra Assembly 250 mm, PN 825416

Item No.	Part Number	Description	Quantity
7	813231	Pressure relief valve, 800psi (55 bar)	10
10	N00178	O-ring 011	12
11	001U002	Lube, silicone, DOW112	1

Service Block Assembly 250 mm, PN 825324

Item No.	Part Number	Description	Quantity
10	116245	Filter kit 150 mesh, ez spin	1
12	813344	Shaft seal	1
13	813345	Seal cartridge	1
14	814051	Heater cartridge, 10x60mm, 400W, 240V	6
20	A69X134	O-ring 128	2
21	N00184	O-ring 017	2
22	N06160	O-ring 029	1
23	107324	Compound, antiseize, CHSTN710	1
24	001U002	Lube, silicone, DOW112	1

Module-Manifold Assembly, 10-Port, 250mm, PN 121162

Item No.	Part Number	Description	Quantity
4	N00181	O-ring 017	10
5	119989	Heater cartridge 10x80mm, 150W, 240V	10
11	120820	Heater cartridge, 10x235mm, 500W, 240V	1
17	N00175	O-ring -008	10
21	N00178	O-ring -011	10

Velocity Applicator 300 mm, PN 825699

Item No.	Part Number	Description	Quantity
4	119990 *	Ultra Module asy (use if pump is called out)	12
	120108 *	Blank Module (use if block-off is called out)	-
5	103467 **	Cable harness, DynaControl (Temperature sensor PT100 PN N07958 is included)	3
	104528 **	Cable harness, Nordson (Temperature sensor Ni120 PN N07864 is included)	-
	823005 **	Cable harness, Harting (Temperature sensor PT100 PN N07958 is included)	-
	802578 **	Cable harness, Meltex (Temperature sensor PT100 PN N07958 is included)	-
7	115055	Solenoid 24V, Festo 6mm	10
	120116	Solenoid 24V, MAC 6mm	-

* See separate list/drawing.
** The temperatur sensor is the recommended spare part. Refer to the smart number of your applicator and to the Smart Number Code under Ch.3.2.

Velocity Ultra Assembly 300 mm, PN 825417

Item No.	Part Number	Description	Quantity
7	813231	Pressure relief valve, 800psi (55 bar)	12
10	N00178	O-ring 011	14
11	001U002	Lube, silicone, DOW112	1

Service Block Assembly 300 mm, PN 825325

Item No.	Part Number	Description	Quantity
10	116245	Filter kit 150 mesh, ez spin	1
12	813344	Shaft seal	1
13	813345	Seal cartridge	1
14	814051	Heater cartridge 10x60mm, 400W, 240V	7
20	A69X134	O-ring 128	2
21	N00184	O-ring 017	2
22	N06160	O-ring 029	1
23	107324	Compound, antiseize, CHSTN710	1
24	001U002	Lube, silicone, DOW 112	1

Module-Manifold Assembly, 12-Port, 300mm, PN 121163

Item No.	Part Number	Description	Quantity
4	N00181	O-ring 017	12
5	119989	Heater cartridge 10x80mm, 150W, 240V	12
11	120775	Heater cartridge, 10x285mm, 600W, 240V	1
17	N00175	O-ring -008	12
21	N00178	O-ring -011	12

Drive Assemblies

Drive Assembly, In-Line, Allen Bradley, PN 825359

Item No.	Part Number	Description	Quantity
4	822771	Servo Motor (Allen Bradley), 11.5LBS/IN	1

Drive Assembly, Siemens, PN 825672

Item No.	Part Number	Description	Quantity
11	825556	Servo Motor (Siemens), 240	1

Drive Assembly, AB MPL, PN 825487

Item No.	Part Number	Description	Quantity
7	825485	Motor (AB MPL), Step AP214, 480V	1

Drive Assemblies 90° 49:1, left&right-hand, horizontal&vertical directions

- Drive assembly 90° 49:1, left-hand, horizontal, PN 826035
- Drive assembly 90° 49:1, right-hand, horizontal, PN 826036
- Drive assembly 90° 49:1, left-hand, vertical, PN 826037
- Drive assembly 90° 49:1, right-hand, vertical, PN 826038

Item No.	Part Number	Description	Quantity
5	822771	Servo Motor (Allen Bradley), 11.5LBS/IN	1

Standard Slot Nozzles

All **O-rings** and the **shims** are recommended spare parts.
See appropriate drawing under Chapter 8.8 Standard Slot Nozzles.

ULTRA Module, PN 119990

At least 1 module and the best is the module numbers on the applicator are recommended spare parts.

Serviceable O-rings on each module:

Item No.	Part Number	Description	Quantity
1	N00176	O-ring 2-009 Viton	1
2	808269	O-ring 14x12mm Viton	1

Solenoid valves

At least 1 solenoid of each size and the best is the solenoid numbers on the applicator are recommended spare parts.

- MAC44 series QC, inlet tubing size (OD) 6mm, PN 120116
- MAC44 series QC, inlet tubing size (OD) 1/4”, PN 119784
- Festo QC, inlet tubing size (OD) 6mm, PN 115055
- Festo QC, inlet tubing size (OD) 1/4”, PN 115056

Vector Pumps

At least 1 pump of each size and the best is the pump numbers on the applicator are recommended spare parts. See order and/or specific pump configuration.

Part Number	Description
814346	Pump 0.15 ccm, Vect.HS.SP
808809	Pump 0.4 ccm, Vect.HS.SP
810430	Pump 0.5 ccm, Vect.HS.SP
808807	Pump 0.6 ccm, Vect.HS.SP
808808	Pump 0.7 ccm, Vect.HS.SP
810431	Pump 0.8 ccm, Vect.HS.SP
810432	Pump 0.9 ccm, Vect.HS.SP
810433	Pump 1.0 ccm, Vect.HS.SP
807917	Pump 1.7 ccm, Vect.HS.SP
813248	Pump 3.34 ccm Vect.HS.SP

Compound antiseize & Lube

Part Number	Description	Quantity
107324	Compound antiseize, CHSTN710	A/R*
001U002	Lube, silicone, DOW112	A/R*
001V078	Lube, Krytox GPL-206	A/R*

A/R* = As required.

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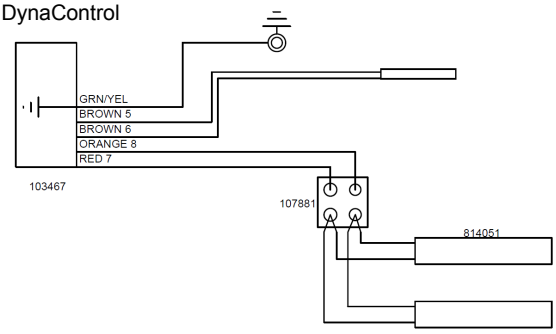
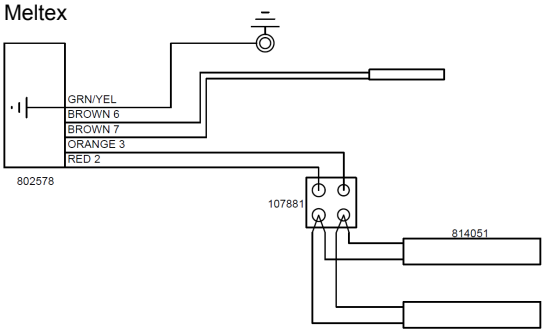
Chapter 11
Appendix

Cable harness diagrams, 2-port, 50 mm

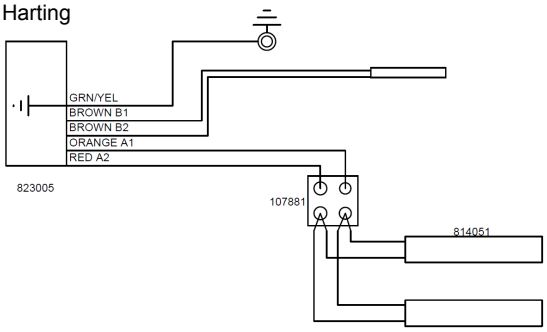
DynaControl



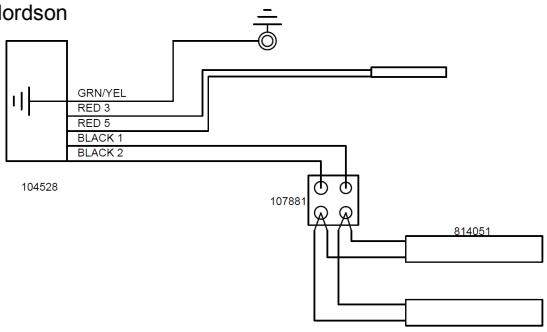
Meltex



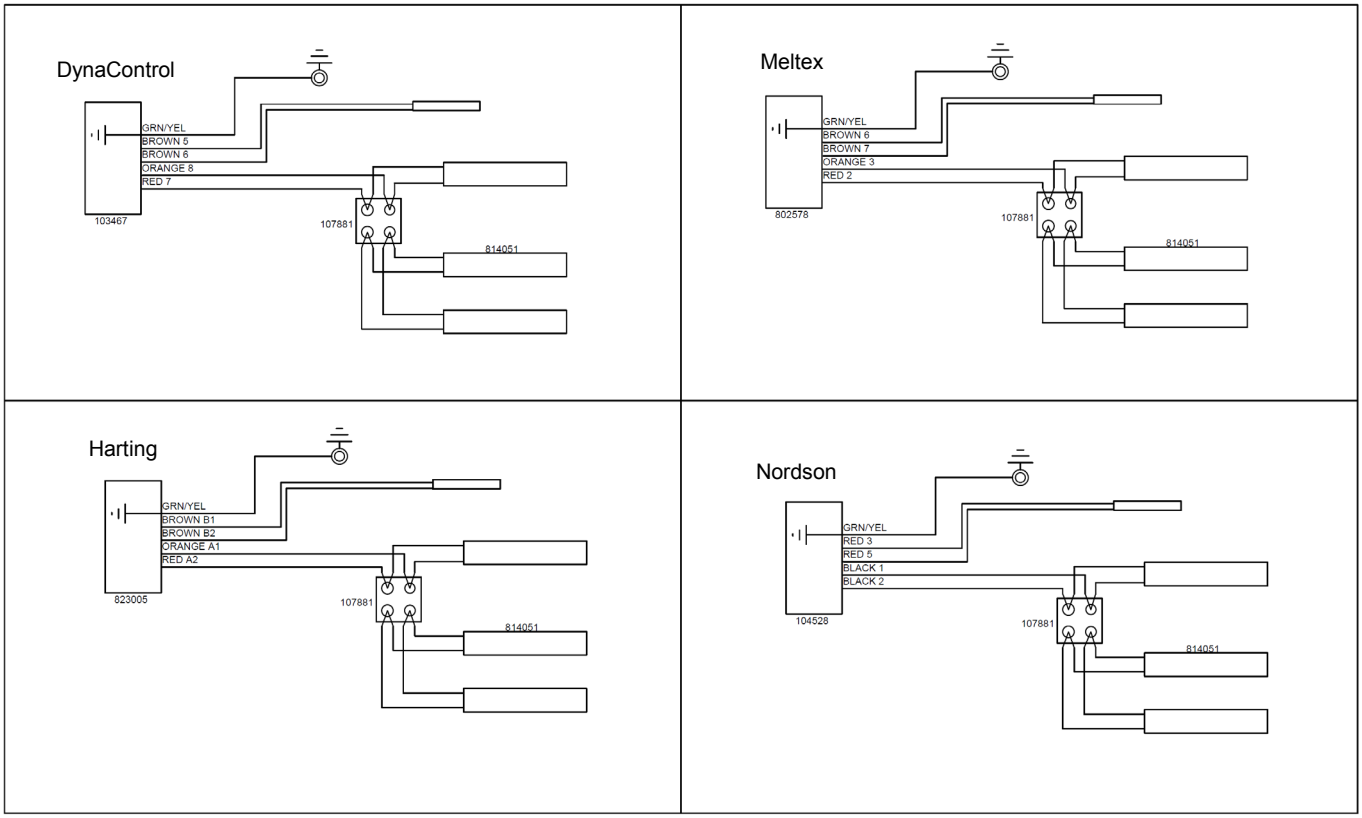
Harting



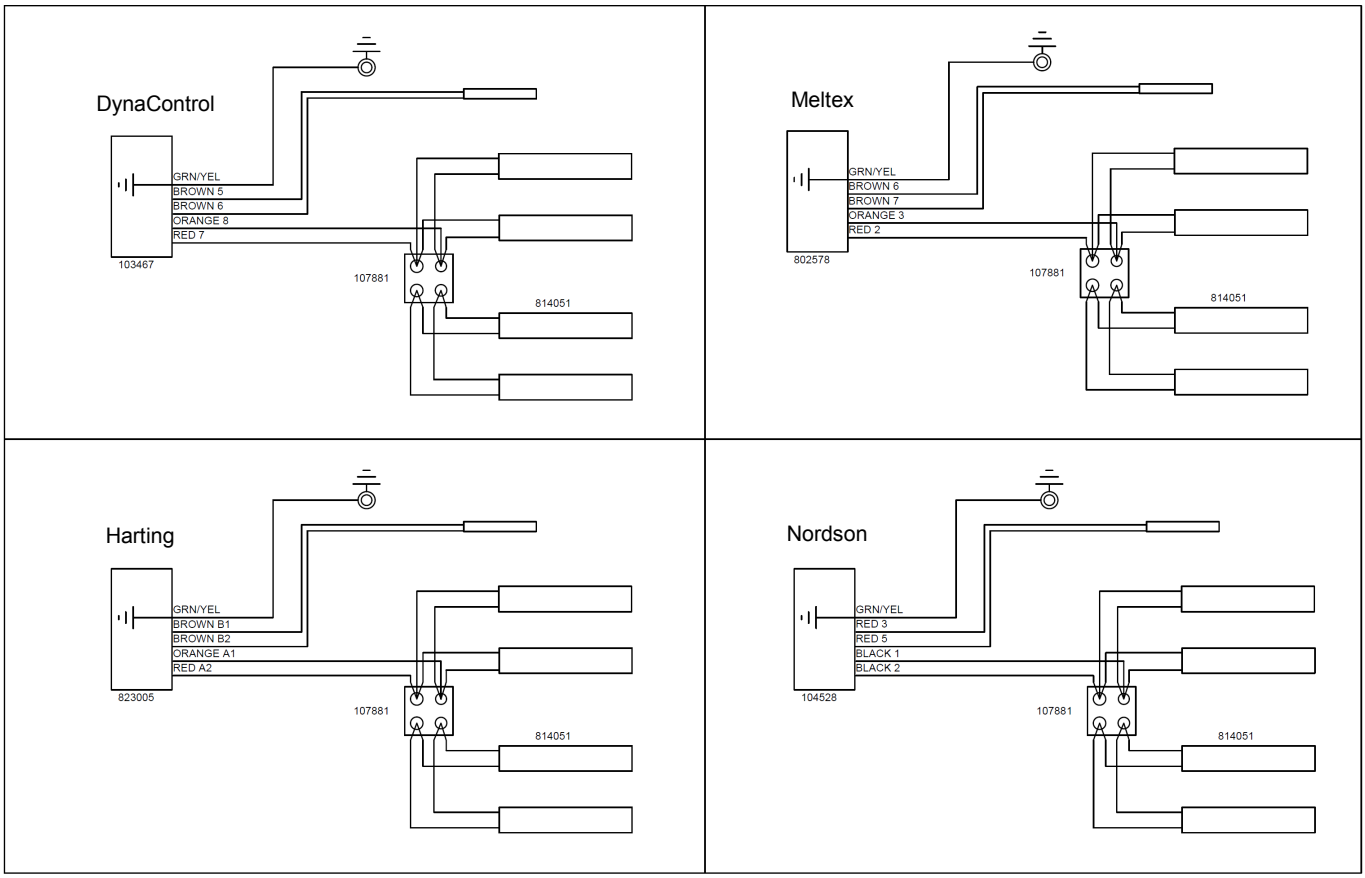
Nordson



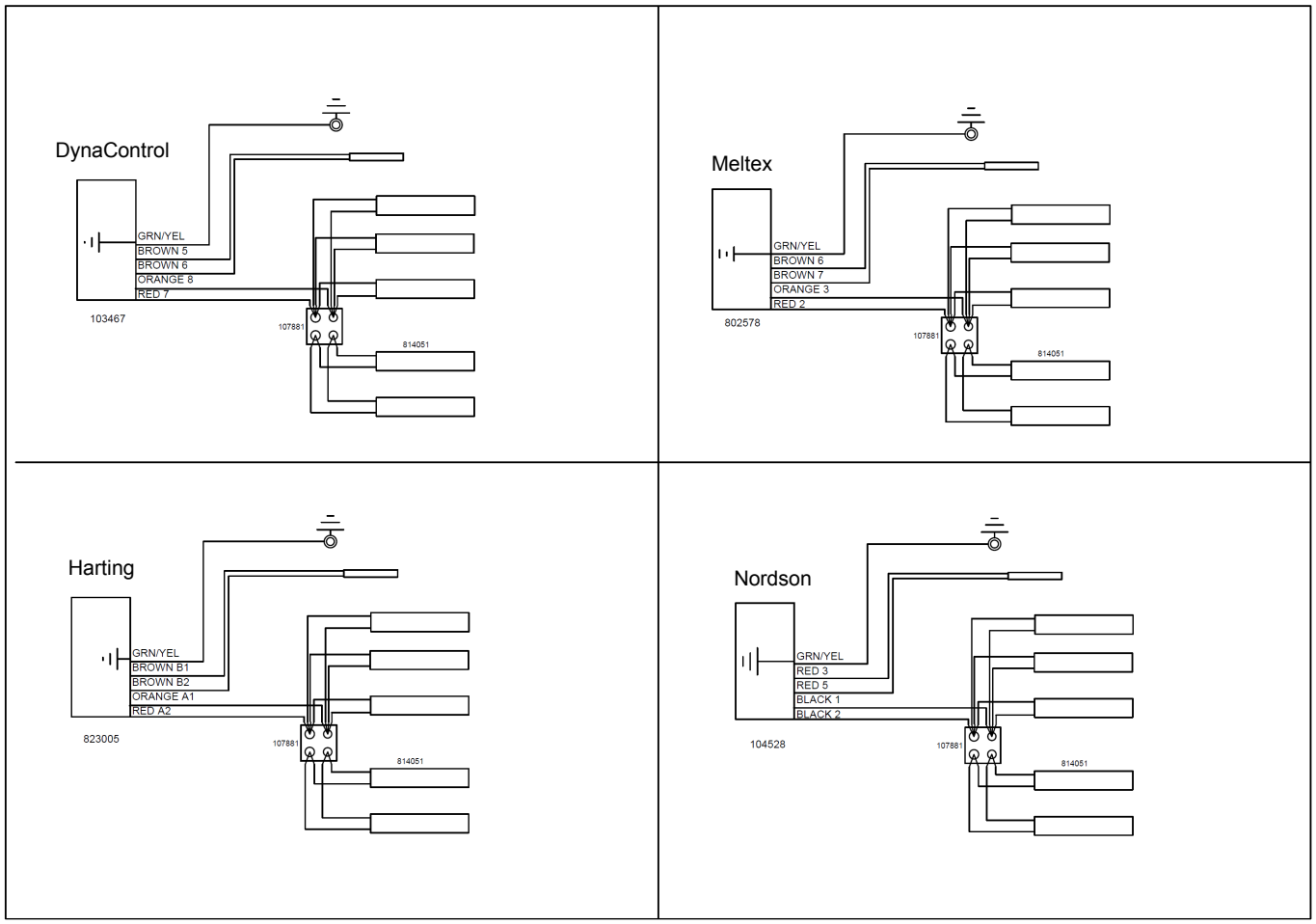
Cable harness diagrams, 4-port, 100 mm



Cable harness diagrams, 6-port, 150 mm

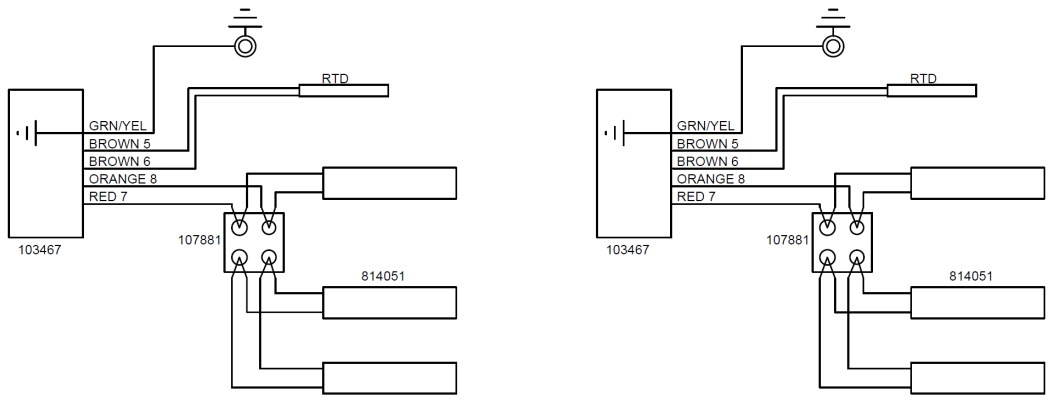


Cable harness diagrams, 8-port, 200 mm

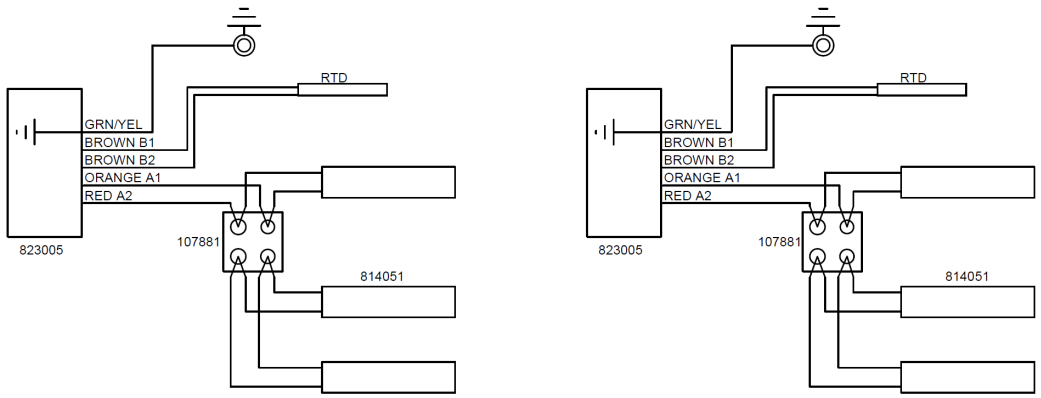


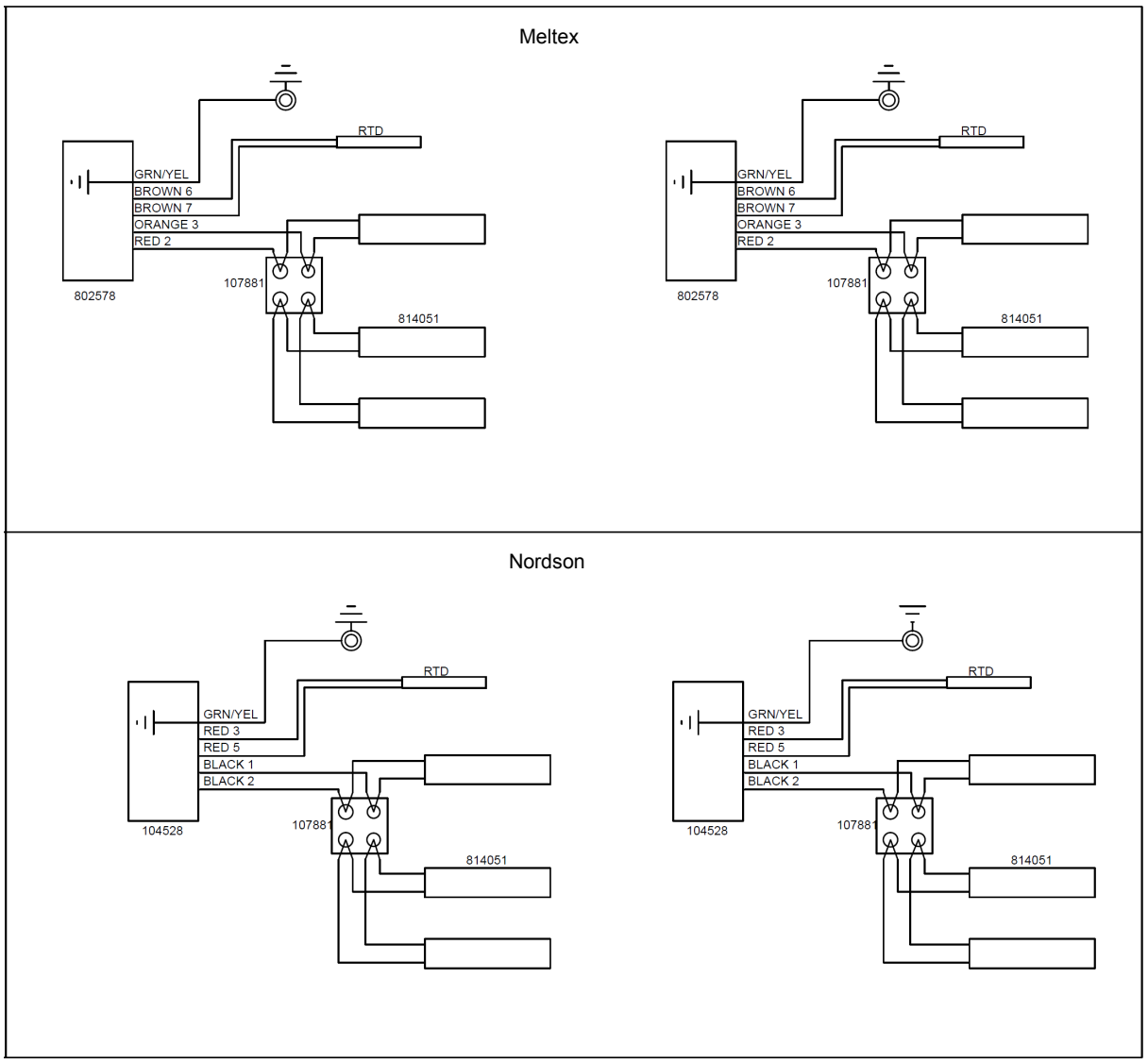
Cable harness diagrams, 10-port, 250 mm

DynaControl



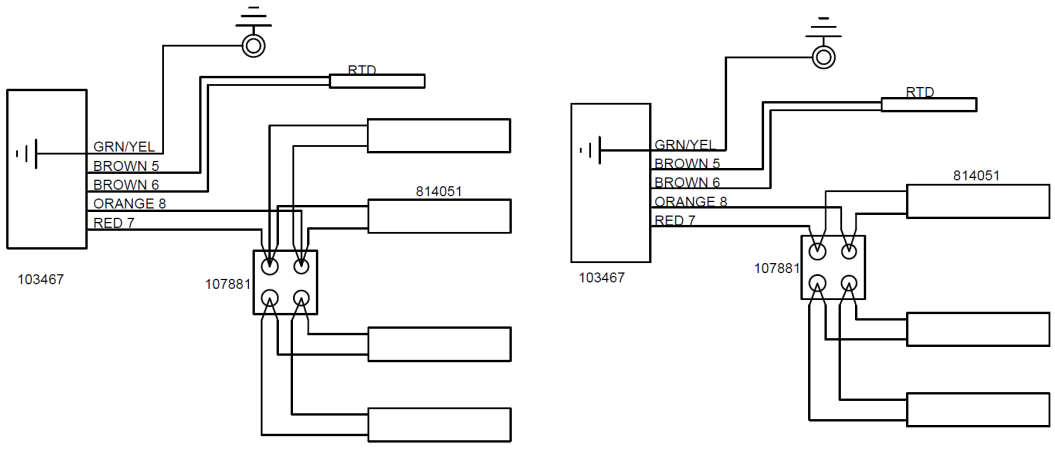
Harting



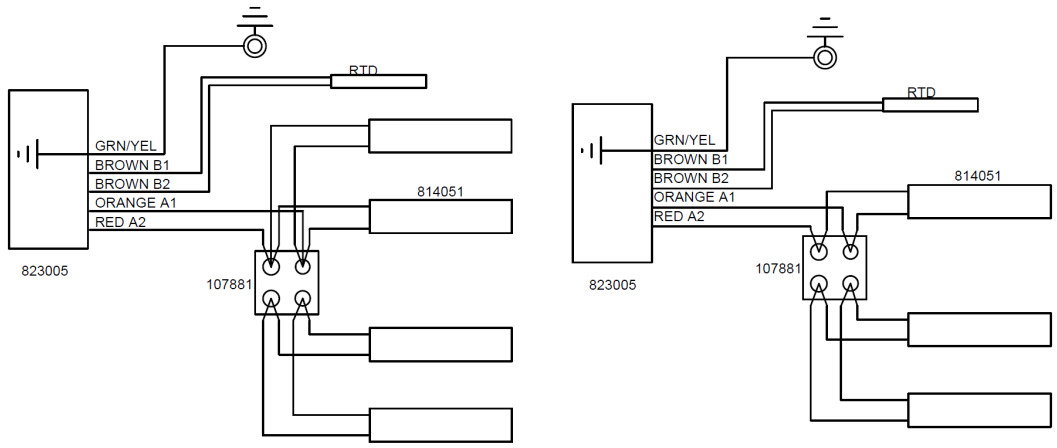

Meltex
RTD
GRN/YEL
BROWN 6
BROWN 7
ORANGE 3
RED 2
802578
107881
814051
RTD
GRN/YEL
BROWN 6
BROWN 7
ORANGE 3
RED 2
802578
107881
814051
Nordson
RTD
GRN/YEL
RED 3
RED 5
BLACK 1
BLACK 2
104528
107881
814051
RTD
GRN/YEL
RED 3
RED 5
BLACK 1
BLACK 2
104528
107881
814051

Cable harness diagrams, 12-port, 300 mm

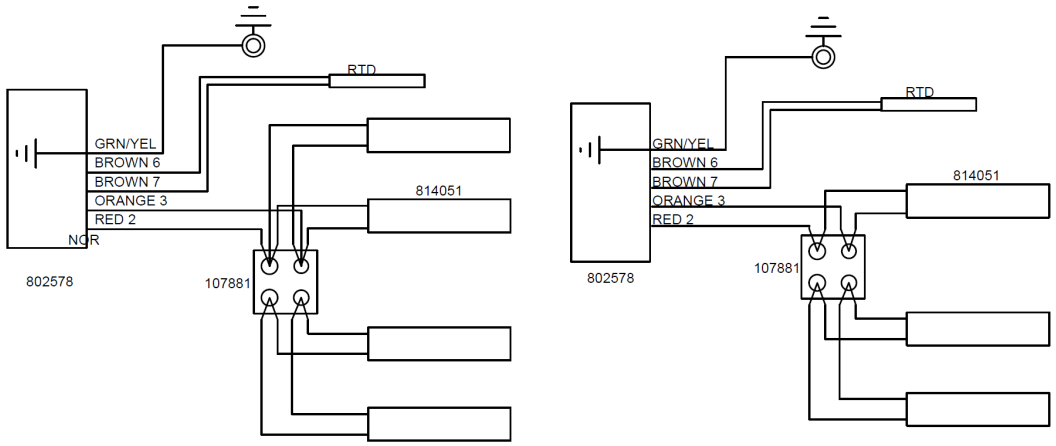
DynaControl



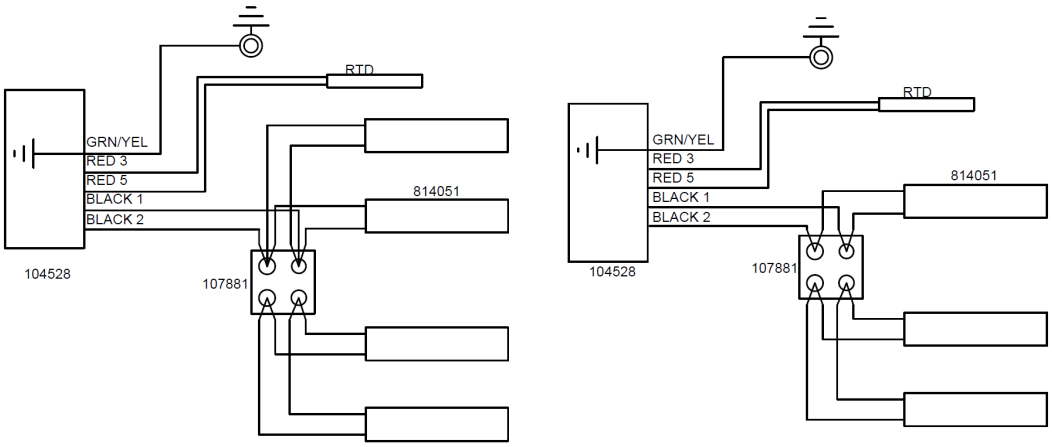
Harting



Meltex



Nordson



Hi-Speed (Festo) Solenoid, 24 VDC, PN 113350

Description

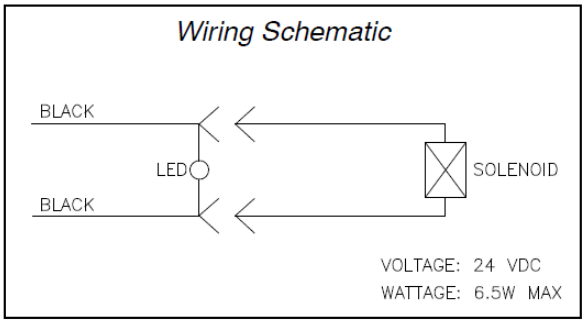
Direct-acting spool valve, 4-way, 24 VDC operation with M7 ports. Solenoid is configured to connect directly to the module. It is not setup for use as an in-line solenoid.

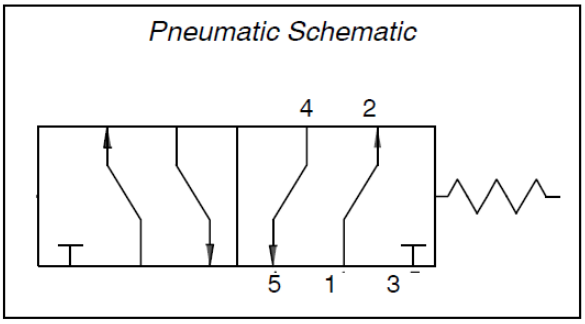
Connections

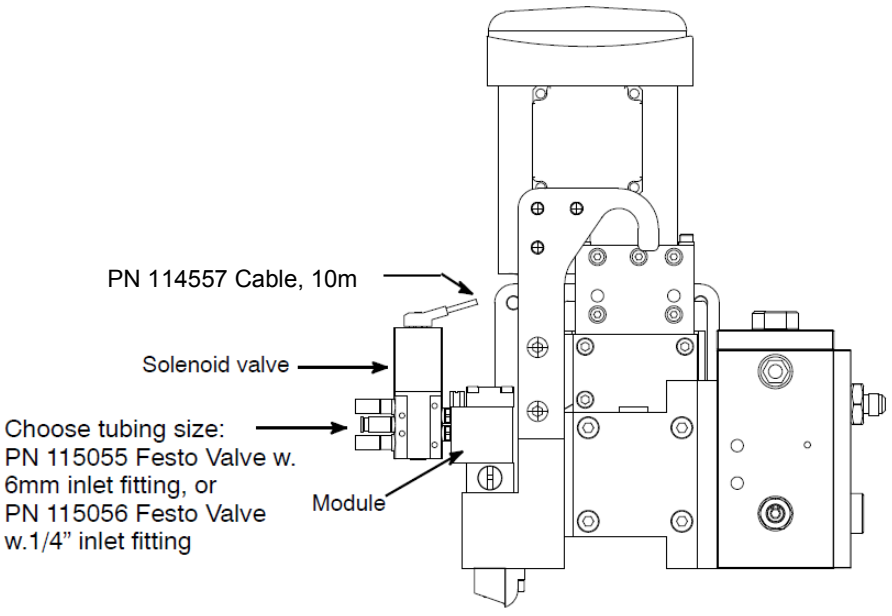
Port 1 - Inlet
Port 2 - Close side of module
Port 3 - Exhaust
Port 4 - Open side of module
Port 5 - Exhaust

Typical Setup

Apply full air pressure (80-90 psi) to Port 1 of solenoid valve.



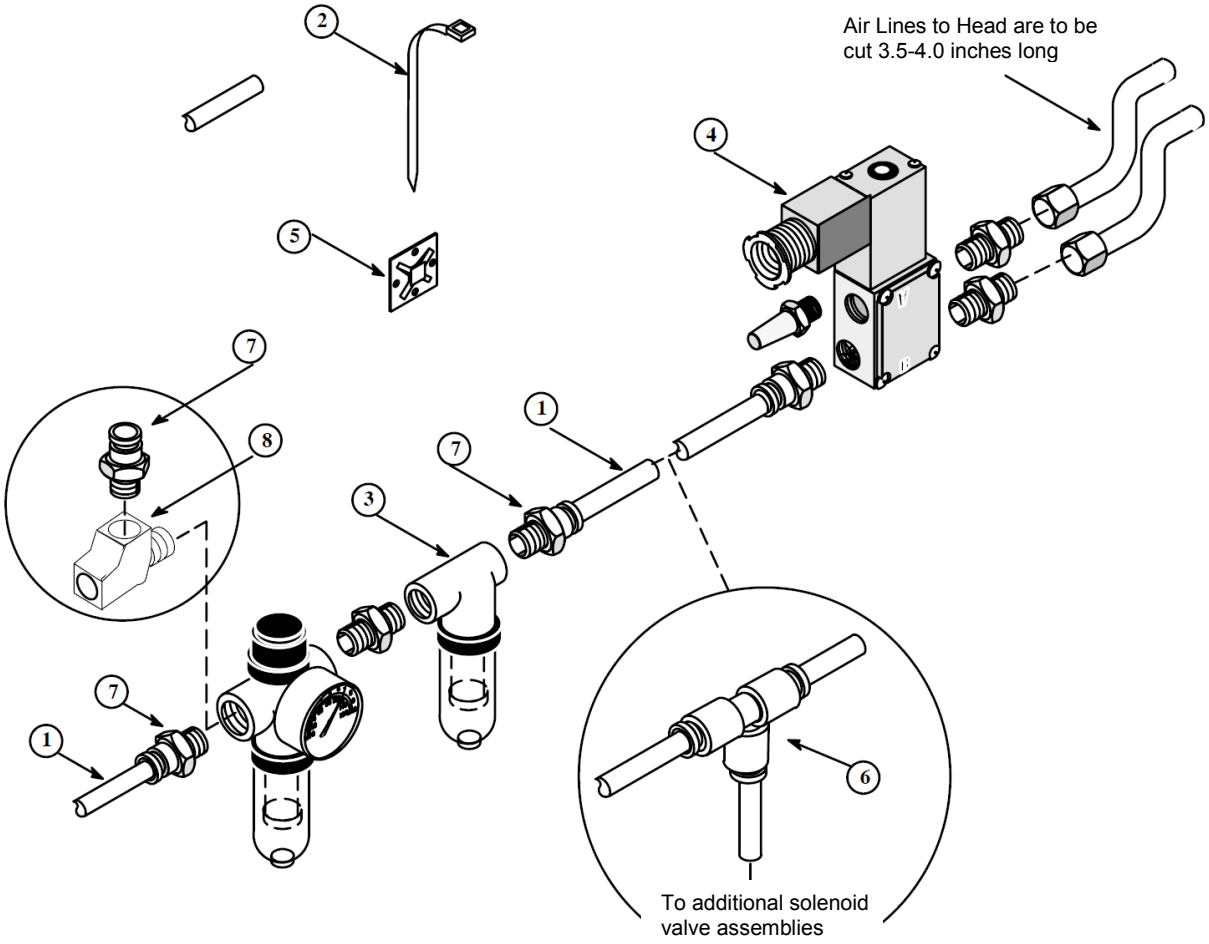




Air Control Kit, PN 100055

Item No.	Part Number	Description	Quantity
1	N06438	Nylon Tubing, .250 Dia.	10’
2	N00318	Cable Tie, .09 x 3.62 Lg	10
3	100380 *	Filter/Regulator Assembly	1
4		Solenoid Valve Assembly	1
5	N04264	Cable Tie Anchor	3
6	N06504	Push-in Union Tee Fitting	1
7	N06430	Male Connect Fitting	3
8	N04531	1/4 Treet T, Brass	1

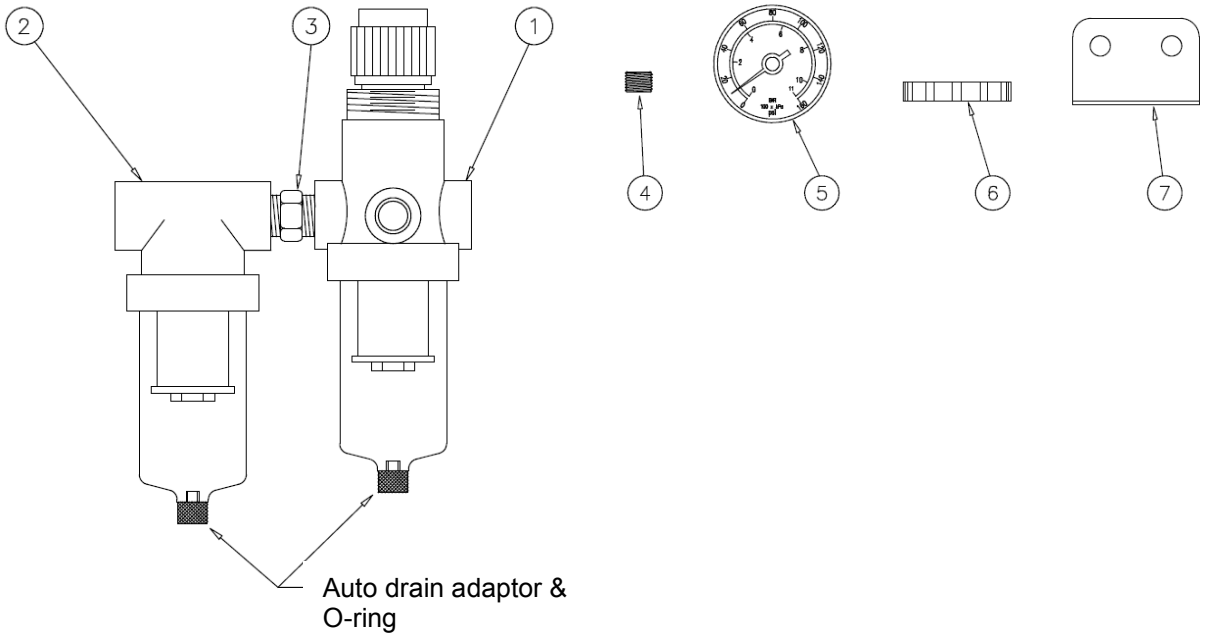
* see next page.



Filter/Regulator Assembly, PN 100380

Item No.	Part Number	Description	Quantity
1	N02774	Filter/ Regulator 1/4 NPT	1
2	100081	Filter coalescing 1/4 NPT	1
3	072X228	Fitting pipe nipple 1/4 NPT	1
4	-	Plug flush 1/8 NPT	1
5	-	Pressure gauge	1
6	-	Mounting nut	1
7	-	Mounting bracket	1

Notes: Items 4-7 are supplied unassembled and bagged with the filter/ regulator assembly.



Pressure Transducer, PN 811475

- Option to connect to post filter port on filter block for controlling inlet pressures.

11.1 Specific Components Drawings

Revisions

Revision	Page/ Chapter	Description
Rev.2.19	Ch.8	New drawings/BOMs of all shaft assemblies 825303, 822688, 825305, 825320, 824890, 825326 and of all drive assemblies 825359, 825672, 825487, 826035, 826036, 826037 and 826038.

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