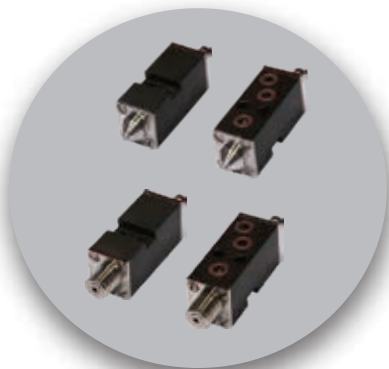


MK-F SERIES

Safe, Compact and Efficient Hot Melt Applicators

Valco Melton's new MK-F Series is a specially insulated hot melt applicator, specifically designed to guarantee easy and safe handling while maintaining a compact and efficient design. Its simple, modular configuration provides optimal flexibility and easily adapts to customer needs.

- These high speed, premium style applicators are ideally suited for cartoning, labeling and graphic industries.
- Reduce power and electrical consumption with the MK-F's insulated version.
- Produce a clean application with outstanding cut-off.



Modules

AOAC bead mini modules ensure a perfect pattern on high speed cycle applications. Zero cavity mini modules guarantee a sharp cut-off, preventing adhesive stringing.

Insulated cover

Guarantees safe applicator handling and reduces energy consumption.



Filter

Integrated filter retains contaminants and maintains adhesive quality.





The MK-F Gun Series offers two module options: *bead* or *zero cavity*. *Bead* mini modules work with standard straight, 90° and spherical nozzles. *Zero cavity* mini modules provide extremely fast and accurate pattern placement with any adhesive type.

Valco Melton's MK-F compact dispensing guns are ideal for packaging applications with restricted space. Its flexible, simple and universal modular design allows for easy configuration to cover various application needs and is supplied with 100% compatible connection and equipment parts.

Technical Specifications

MK-F Series Characteristics	
Maximum Hydraulic Pressure	100 bar
Maximum Temperature	230° C / 446° F
Temperature Sensor	Ni 120
Pneumatic Pressure	4 -6 bar
Opening System	AOAC
Maximum Cycle Rate	4,000 cycles/min
Integrated Filter	Compatible

Applicator's Body Width	
With Insulation	32,5 mm
Without Insulation	19 mm



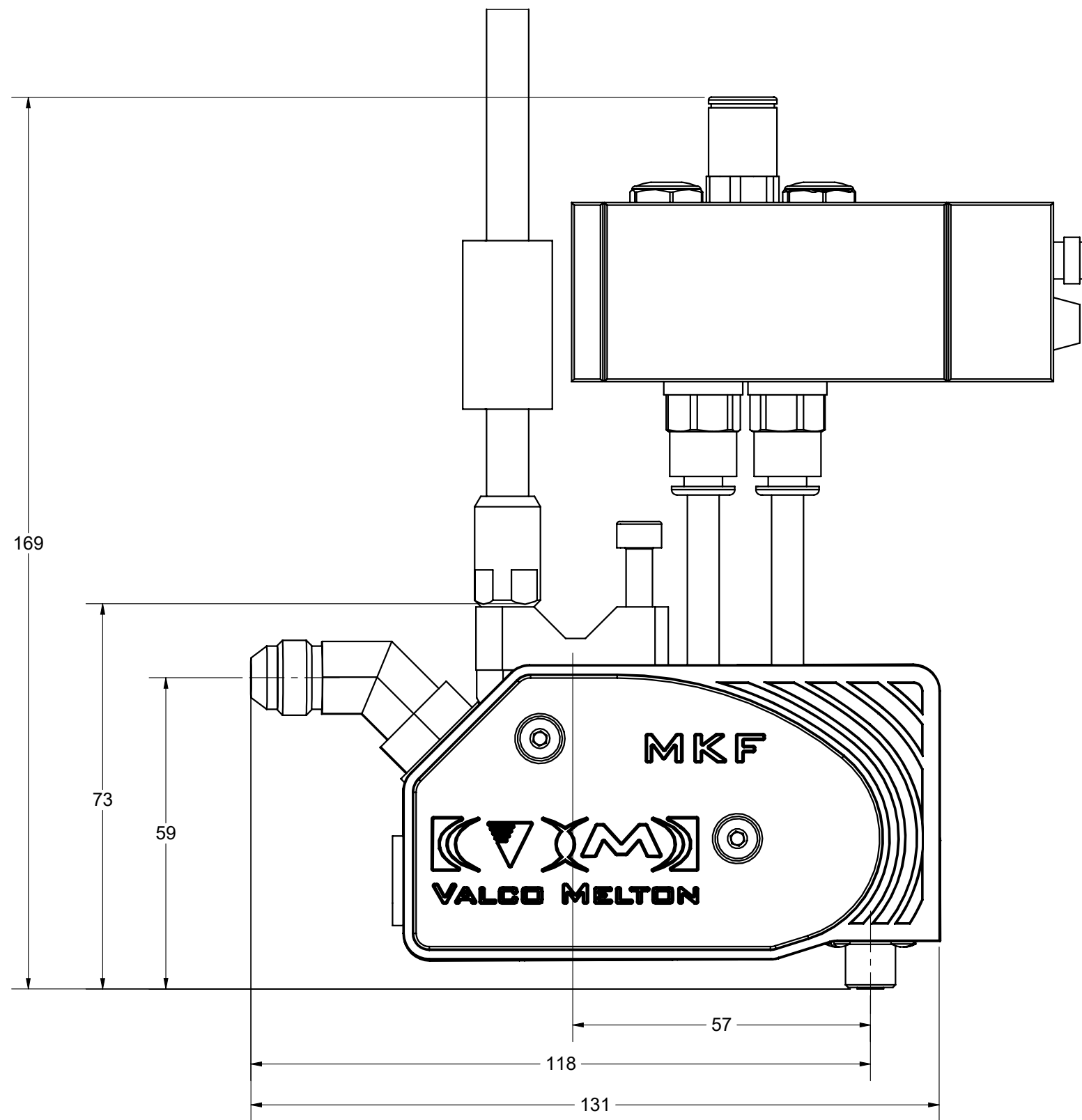
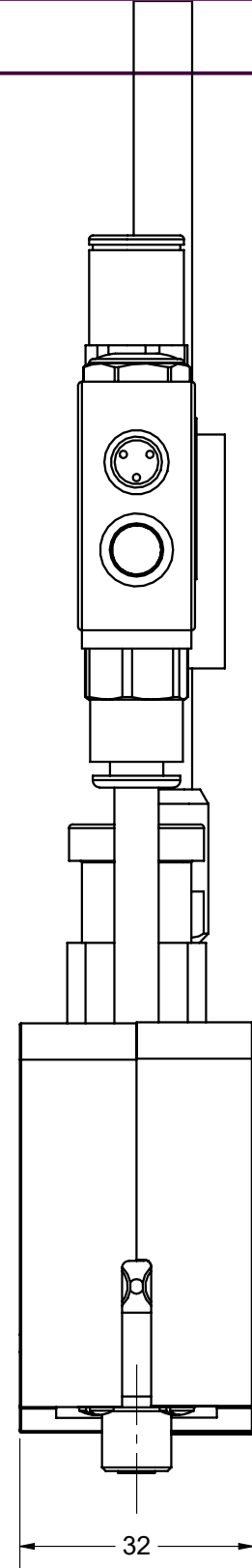
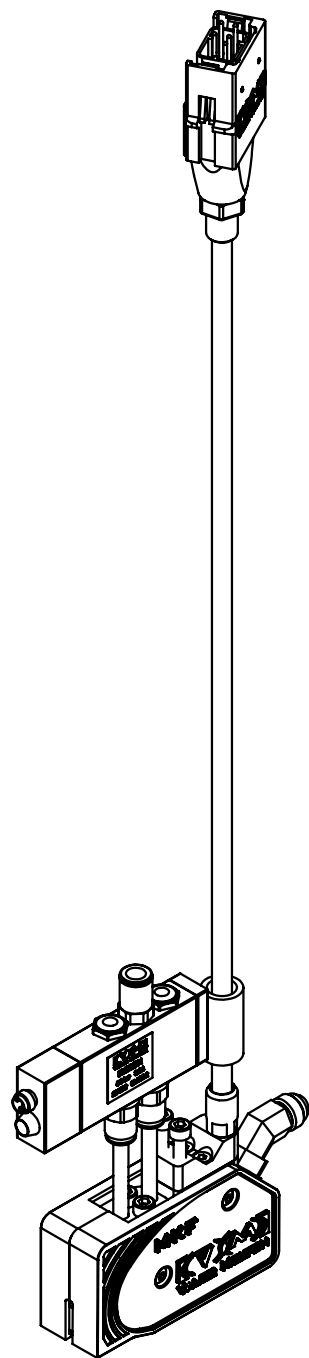
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USED ON:				 VALCO MELTON	PROPERTY CONTAINING PROPRIETARY INFORMATION WHICH MUST NOT BE REPRODUCED OR DISCLOSED WITHOUT WRITTEN PERMISSION AND MUST BE RETURNED UPON DEMAND.		 			
MTL:										
FINISH:				TOLERANCES-EXCEPT AS NOTED	TITLE Conjunto Pistola MKF1 con Carcasa					
REV:										
B Cambio S/PM19697 10/03/2020 VGM				ALL DIMENSIONS IN MILLIMETERS						
C PM19855 18/08/2020 GMN										
D PM21289 03/11/2022 JCC				MACHINED SURFACES N8 	GENERAL TOLERANCES ACCORDING TO DIN 7168 MEDIUM					
E PM21496 07/09/2023 JCC										
BREAK ALL SHARP EDGES & CORNERS (DEBURR) UNLESS OTHERWISE SPECIFIED (0,4 mm MAX)				DATE 10/05/19				DRAWING NUMBER 968XX533		A3
DRAWN BY VGM										
CHECKED JCC				SCALE 1:1						
APPROVED JCC										
				SHEET 1 OF 1				SUPERSEDES		



VALCO MELTON

Adhesive Dispensing & Quality Assurance Systems

MKF GUNS

INSTRUCTION MANUAL



MANUAL D'INSTRUCTIONS

PISTOLETS MKF



MANUAL DE INSTRUCCIONES

PISTOLAS MKF

MKF GUNS INSTRUCTION MANUAL

SAFETY INSTRUCTIONS



Make sure that you read this handbook and the main machine's operating manual before using the gun.



The gun should only be manipulated by qualified personnel skilled in its use and aware of the risks involved and the pertinent safety measures. Otherwise there is a risk of damage to equipment or people.



Risk of burns.

When in operation, the gun reaches temperatures of up to 230 °C. Before handling, make sure that it is switched off and always wear protective gloves compliant with EN 407 X3XXXX.



Risk of electric discharge.

Switch the power off before manipulating the gun. Do not use it if it is damaged or has been modified.

Risk of splashing glue at high temperatures and speed.

The gun applies glue at high temperatures and pressures, and it may splash at high speed to a distance of up to 1 m.



Use gloves and protective clothing compliant with ISO 11612 - F1 and face shield compliant with EN 166 3 F.

Make sure that the system is depressurised before releasing any hydraulic connection.

DECLARATION OF CONFORMITY

The range of Melton MKF Guns described in the attached documentation is compliant with Directive 2006/42/CE, Directive 2014/35/UE, Directive 2014/30/UE, Directive 93/68/EEC amending Directive 73/23/EEC and Directive 89/336/EEC, as part of a set of machines which, to obtain a result, are arranged and connected to perform together, with a B1 risk level. It cannot be operated until the set of machines has been declared in conformity with the applicable Directives by the person responsible for the final assembly.

Orcoyen. 26 January 2006

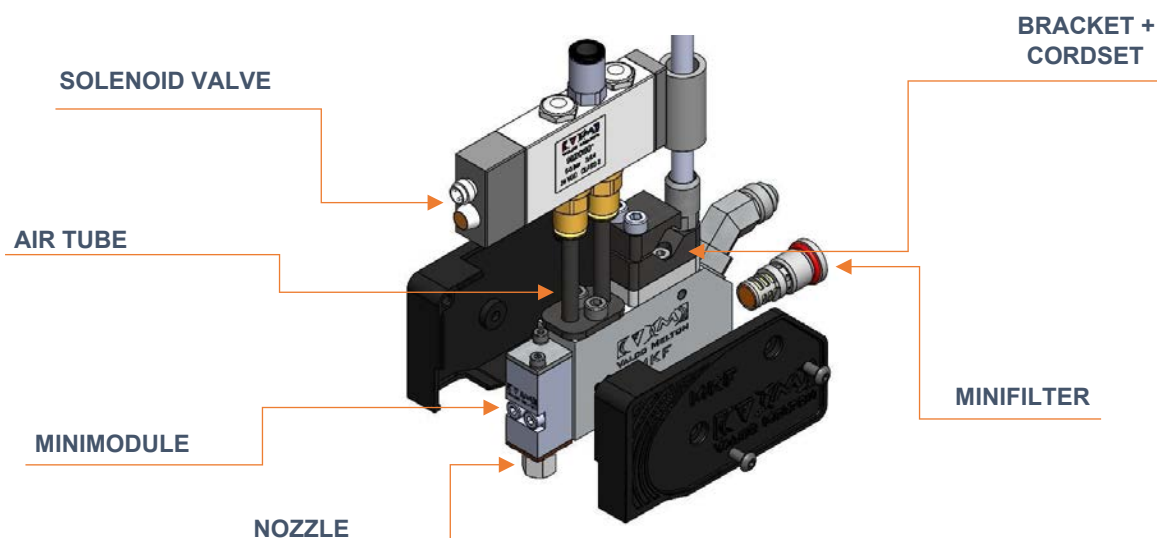
Signed: 
Gonzalo Marco, Managing Director.

1. DESCRIPTION AND FUNCTION

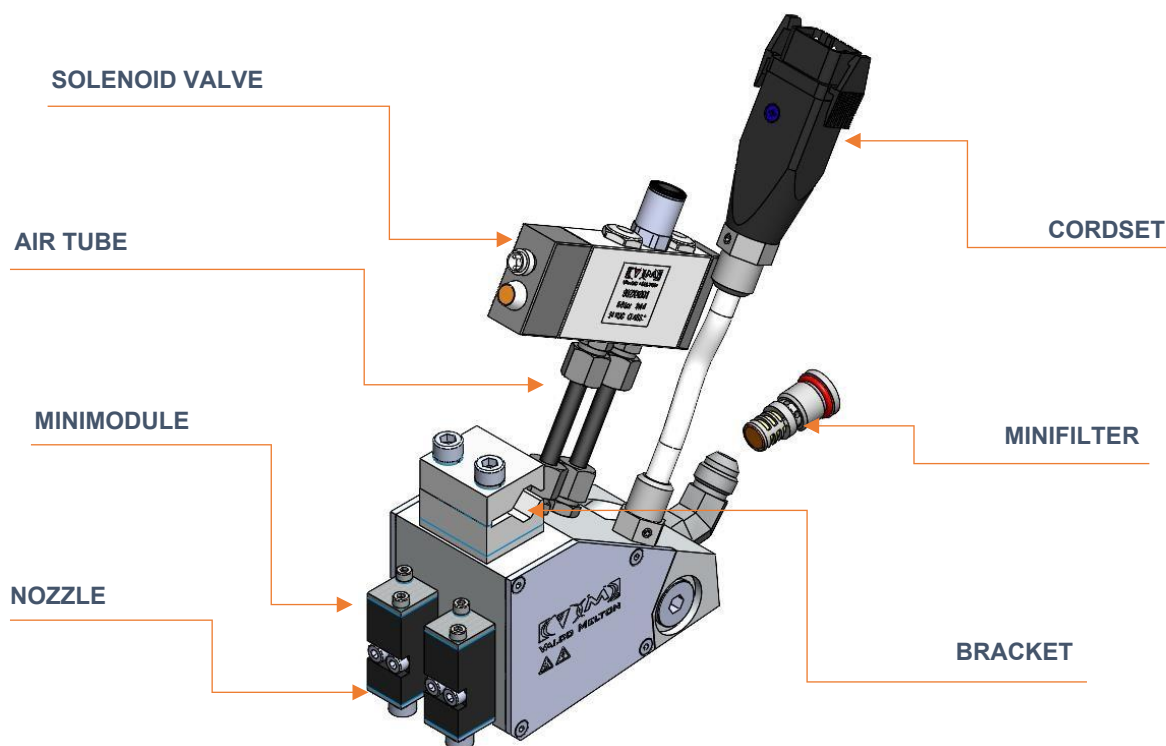
The gun is the component that applies the hot-melt adhesive to the substrate. It consists of a heated body which receives the glue, and a series of injection modules, with air-controlled opening. The type of application depends on the output nozzles mounted on the modules.

MKF series stands out for its compact design and fast cycle speed.

If your MKF gun is single module you will be able to identify the following parts:



If your MKF series gun is multimodular or waterproof version you will be able to identify the following parts:



THE GUN BODY:

The gun body distributes the adhesive coming from the hose to the injector modules. It also has an air circuit which opens the modules.

It is heated by heating elements, with temperatures controlled using an RTD connected to the main unit. The gun is fitted with a rapid release electric connector.

MINIFILTER:

MKF gun includes an integrated minifilter with a 100 mesh (900XX483) to eliminate possible debris present in the adhesive. We also offer minifilter of 200 mesh (913XX595).

INJECTION MINIMODULES:

The minimodules apply the adhesive to the substrate. The gun has several minimodules in order to control the quantity and distribution of the adhesive through the nozzle to the substrate. They have an open/close system consisting of a needle and a seating. The pressure to maintain the needle on the seat depends on a spring already pre-set. It opens by means of a pneumatic piston pulling the needle.

MKF series can also use our range of Zero Cavity minimodules.

NOZZLES:

The nozzles apply the adhesive to the substrate. The application depends on the diameter, orientation and shape of the nozzle.

FITTING:

MKF gun comes with a 45 degree fitting to connect to hose. We also offer straight (943XX004) and 90 degree fittings (943XX003) as well as insulations for fitting to keep temperature and avoid accidental burns.

SOLENOID VALVE:

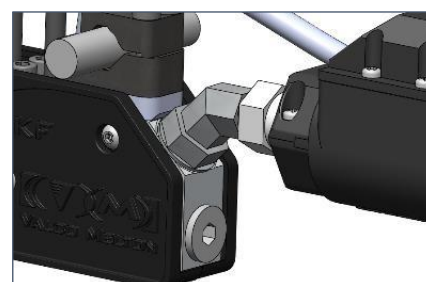
The MKF range have two types of solenoid valves 902XX001 and 904XX502. Depending on the controller you have you Will use one or the other.

2. INSTALLATION

The gun is completely assembled when supplied.

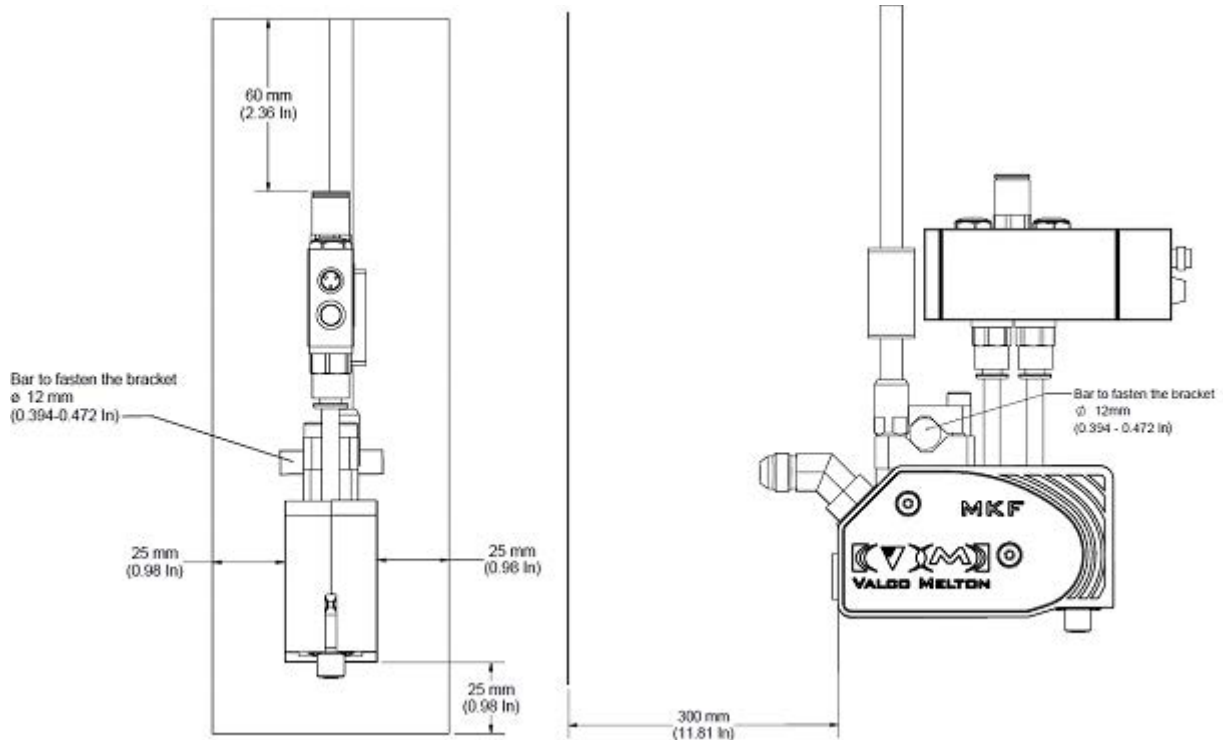
Connecting the adhesive hose to the applicator using one of our available high temperature fittings. Lock the hose and fitting with a minimum torque of 30Nm.

Connecting the electric connector to the hose and lock it.



IMPORTANT: Mount the gun on your machine with the help of its bracket. We have alternative brackets available.

Under no circumstances place the gun on any surface and do not cover the gun by any kind of material. Respect all the distances.



Mount your high temperature solenoid valve on the air tube of your gun and connect it to your machine PLC or to the pattern controller as indicated in the following diagram, depending on the model of your solenoid valve:

	Solenoid Valve 902XX001			Solenoid Valve 904XX502		
	①	+24 VDC	BROWN	①	+24 VDC	BROWN
	④	NOT USED	BLACK	④	GND / 0 VDC	BLACK
	③	GND / 0 VDC	BLUE	③	NOT USED	BLUE

Solenoid valve to be attached shall be connected to class 2 low voltage circuit.

The air inlet of your solenoid valve should be connected to your machine air line with a maximum pressure of 6 bar.

Mount the nozzle that you are going to use with a 5-8 Nm torque.

Before mounting it, drain 100 gr of adhesive through each module to clean the system of any strange material.

3. ACCESORIES

You can find a complete set of nozzles that will adapt to your application needs.

Fittings available to connect to hose:

P/N	DESCRIPTION
943XX001	STRAIGHT FITTING JIC 6 M / UNF 9/16 M-S
943XX002	45° FITTING JIC 6M / UNF 9/16 M-S
943XX003	90° FITTING JIC 6M / UNF 9/16 M-S

Insulations for fitting to keep temperature and avoid accidental burns:

P/N	DESCRIPTION
900XX469	INSULATING STRAIGHT FITTING
900XX470	45° INSULATING FITTING
900XX471	90° INSULATING FITTING

4. ADJUSTMENT AND USE

WARNING: The applicator works at high temperature and pressure. If the safety instructions are not followed, there is a risk of damage of the equipment or injury to the user and other people.

The adhesive application conditions are regulated from the main unit. Adjust temperature according to your adhesive specifications and pump pressure according to the adhesive flow that you need.

Valve opening is programmed from your main machine.

In case of using a gun with more than one module and bead placement is not balanced at the start of application, use the spring adjustment of your modules to ensure that they all open at the same time. Don't forget to lock the spring adjustment once the modules are working properly.

5. MAINTENANCE

WARNING: Before performing maintenance on and/or cleaning the applicator, wear goggles, gloves and long sleeves to prevent burns from splashes of hot glue.

Recommended preventive maintenance every day:

- Keep the gun free from traces of adhesive.

Recommended preventive maintenance every 500 hours:

- Keep the gun free from traces of adhesive.
- Check if it has any kind of leak of glue or air.
- Check the condition of the electrical connector.

Recommended preventive maintenance every 2000 hours:

- Keep the applicator free from traces of adhesive. If you use a cleaning agent, make sure that it is compatible with the adhesive used and resistant to temperature. Follow the cleaning procedure explained further below.
- Check the condition of the hydraulic fitting and the electric connector. Replace them if you see them damaged or leaking.
- Check the modules. Replace them when you see adhesive coming out of the bleed hole.
- Replace the integrated minifilter.
- Check that nozzles are clean and firing properly. Check that the glue beads have a clean start and end. Replace them if needed.
- Check that the beads of glue are properly placed in your box.

MKF Gun Cleaning Process:



- Preheat gun to 100°C to clean it.
- When gun reaches the temperature remove power supply.
- Take out the protective covers, minimodule and adhesive fitting. Clean with hotmelt solvent.
- Clean the hot melt adhesive on the gun body.
- Install again the removed items onto gun body and heat to working temperature. Tighten the screws.



Problem solving:

Problem	Possible Cause	Solution
1	<i>The main machine is not providing glue.</i>	Check that you have glue melted into Melter unit.
		Check the unit had pressure and pump glue.
	<i>Gun is not warm enough</i>	Check real temperature of gun and correct set up if needed.
	<i>Air pressure to applicator too low.</i>	Make sure Air solenoid provide >4,5bar (>65psi) and Isr circuit into gun is clean. Increase Air pressure or change Solenoid if needed.
	<i>Fault in the minimodule open/close mechanism</i>	Check condition of minimodules, if any leakage replace
	<i>Blocked nozzle</i>	Clean or replace nozzle
2	<i>Fault in the minimodule open/close mechanism</i>	If pressure is not too high, replace minimodule.
	<i>Minimodule seat/needle is blocked</i>	Review seat and needle, replace minimodule if needed.
3	<i>Fault Seal</i>	Replace minimodule seals.
	<i>Minimodule badly secured.</i>	Replace O-rings and secure the minimodule properly

4	Overheated/underheated body	Main machine temperature control fault	Check temperature adjustment and the main machine is in good working order
		Temperature probe fault	Check probe
		Voltage too low	Review power input of Melter and electrical connections.
5	The body is not heated	Main machine temperature control fault	Check temperature adjustment and that the main machine and connectors are in good working order
		Heating element fault	Check heating element.
		Temperature probe fault	Check probe

Filter replacement:

Remove filter cartridge.

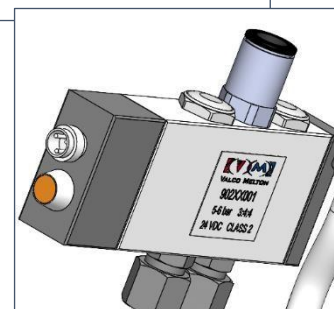
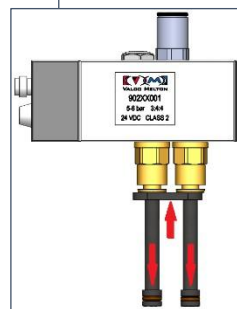
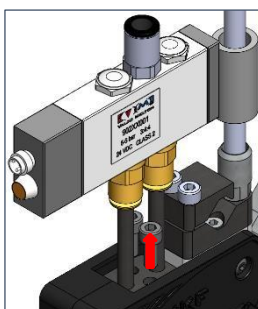
Put new filter. Apply par 26 Nm.



Solenoid valve replacement:

If your MKF gun is a single module model, loosen the screws on the plate at the bottom of the tubes. Remove the solenoid valve with the tubes and the plate. Finally pull the solenoid valve and tubes in opposite directions, using the plate.

If your gun is multimodular or waterproof the solenoid valves are removed by unscrewing the nuts of fittings.



Module replacement:

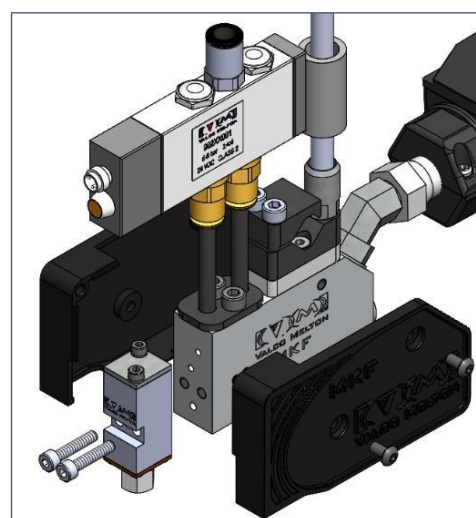
Switch-off power of unit.

Check the glue pressure is removed draining some glue.

Remove the covers and the two screws marked in the image.

Pull out minimodule and clean surface of body.

Making sure glue is not going to air circuit place new minimodule and tight screws.



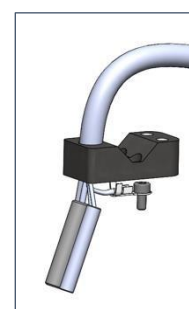
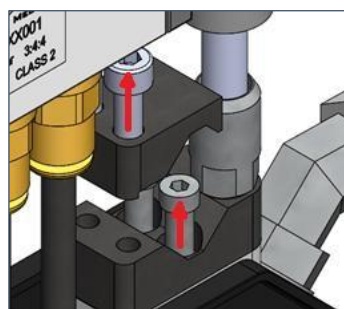
Changing the heating element:

Disconnect the electrical connection between the hose and the applicator before starting the procedure.

If your MKF gun is single module, remove the solenoid valve.

Remove the bracket screws.

Replace the electrical cordset (including RTD sensor and heater).



In case of having a multimodular gun or waterproof you will only be able to replace the heater element. In order to remove the heater follow the instructions:

Release the M4 screws securing the cover to the body of the applicator.

Remove the heater from its housing.

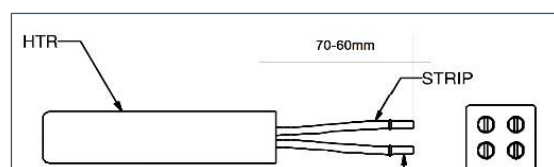
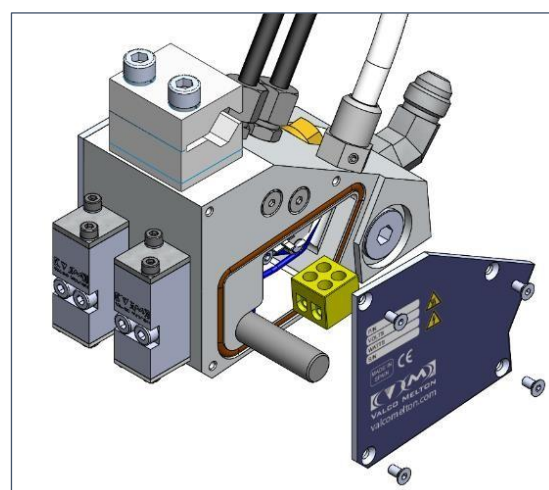
Disconnect the heater cables to be replaced from the terminal block.

Cut the new cables accordingly to the length of those in the heater you are replacing. Strip the tips of the wire 10mm and crimp non insulated terminals on it.

Spread some heat transfer paste around the new heater, insert it in its housing and replace the cover with all its screws.

Reconnect the cables to the terminal with a 0,5 Nm torque.

Reconnect the gun cordset to the hose electrical connector.



Checking the RTD and heater:

Depending on the cordset used in your gun and the gun temperature, you can measure a different resistance between the pins in your gun electrical connector.

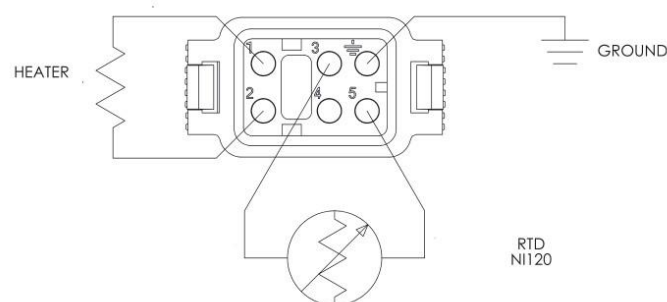
Check the Voltage of your gun and calculate the resistance of your head: $R=52900/P(W)$.

In single module MKF guns $R = 529 \Omega$. Bear in mind a 10% tolerance on the readings for manufacturing tolerance and voltage level.

Your RTD should give you a resistance measurement between 100 and 300 ohms. Please contact our service team for more details.

Check on the diagram in 6. ELECTRIC SCHEME the pin distribution of your gun connector and confirm that the readings obtained are within the limits that you have calculated before. If your connector is different to that on the picture, please contact our service team.

6. ELECTRIC DRAWINGS



7.SPARE PARTS

Mounted on your gun cordset you will find a label where you can find its basics spare parts. Module, cordset and heater. For any other part that you may need, please contact our technical service.



Adhesive Dispensing & Quality Assurance Systems



VALCO MELTON

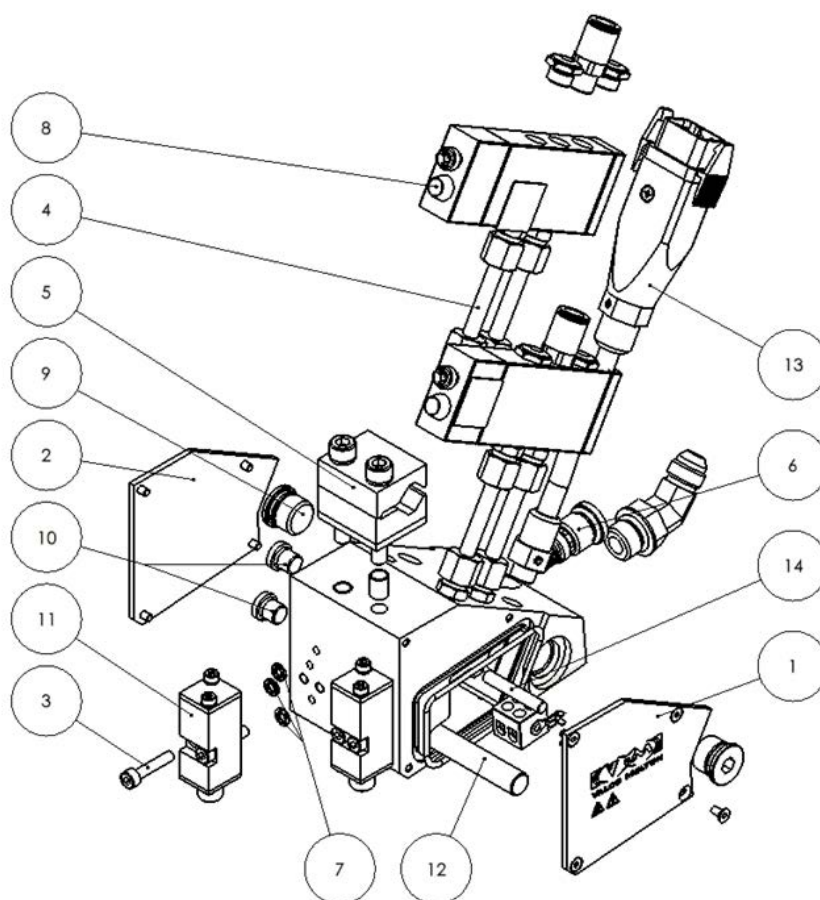
Adhesive Dispensing & Quality Assurance Systems

DESPIECE / PART LISTING

MKF5x5-80(20-20-20-20)-N-R-X

R408003702 - (968XX529)

CONJUNTO PISTOLA / GUN ASSEMBLY



Nº	DESCRIPCIÓN	DESCRIPTION	REF.
1	TAPA LATERAL DERECHA	RIGHT ELECTRIC SHEET	904XX002
2	TAPA LATERAL IZQUIERDA	LEFT ELECTRIC SHEET	904XX003
3	TORNILLO ALLEN M4 x 20 INOX.	SCREW M4 x 20 STAINLESS	914XX304
4	TUBO AIRE	AIR PIPE	900XX226
5	SOPORTE	SUPPORT	916XX515
6	FILTRO	FILTER	900XX483
7	JUNTA TÓRICA VITÓN 3.68X1.78	VITON O-RING 3.68X1.78	912XX632
8	ELECTROVÁLVULA	SOLENOID VALVE	902XX001
9	TAPÓN 9/16	PLUG 9/16	917XX031
10	TAPÓN 5/16	PLUG 5/16	904XX004
11	MÓDULO	MODULE	919XX010
12	RESISTENCIA	HEATER	912XX329
13	MAZO PISTOLA	APPLICATOR CORDSET	916XX508
14	SONDA	TEMPERATURE SENSOR	915XX134



Adhesive Dispensing & Quality Assurance Systems

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