








M3.s Injectors / Fish



-  ■ High level of hygiene – easy to clean
-  ■ Accurate injection – uniform quality
-  ■ Clear brine – no blocked needles
-  ■ Unique needle bridge system
-  ■ Continuous operation – in-line curing
-  ■ Flexibility and versatility
-  ■ Reliable and user friendly

fomaco
FOOD MACHINERY COMPANY

Created with passion – designed for success

The M3.s injecting technology

Fomaco is the only manufacturer making injectors specifically designed for fish products. We have manufactured and supplied processing equipment to the fish industry for the last 20 years and have achieved a high level of know-how which is reflected in the design of our injectors. The equipment can cure and marinate all types of fish such as smoked and portioned salmon, fully and lightly salted cod, herring, mackerel, halibut, hake, sole, perch, cat fish and tilapia etc.



The unique needle bridge ensures an even and consistent injection level.

The unique needle bridge

The M3.s needle bridge for fish is specifically designed for processing of products with a very fragile structure. The valves are controlled electronically and can be setup to start and stop injecting at any predefined height resulting in precise salt distribution through the entire product. Further achievements are: No under-cure at skin, no over-cured tails, continuous operation and higher yield at your control.



The injectors are specifically designed for processing of fish - preventing damage to the fragile fish meat structure.

Precise and even injection

The injectors for the fish processing industry are characterized by a needle bridge equipped with very fine needles giving a close injection pattern. The fish is injected at a low pump pressure preventing damage to the fragile meat structure and at the same time ensuring that the product is being injected at a precise and even injection level.



The self-cleaning protein filter FM 80 and high performance centrifugal pump.

Clear brine – no blocked needles

The self-cleaning FM 80 protein filter has a unique ability to remove all impurities contained in the brine. This will prevent the fine holes in the needles from being blocked – even after many hours of continuous production – which in turn ensures an even distribution of the brine and improved product quality.

High level of hygiene

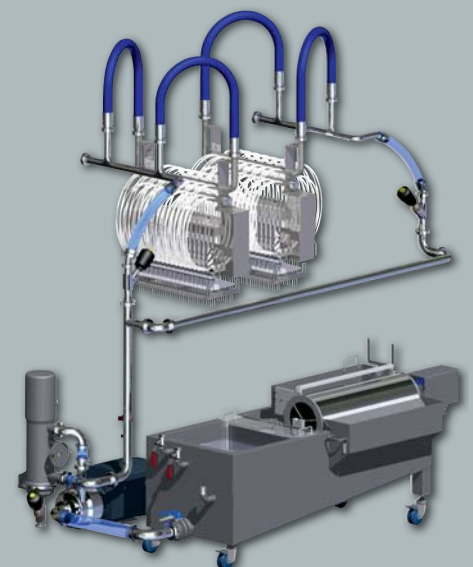
High emphasis is placed on food safety and hygiene. This has inspired Fomaco to develop a machine which is hygienic in production, easy and quick to clean.

Our brine flow system, needle heads and valves are designed to accurately match the liquid flow rate throughout the system, preventing brine residues from settling at the valve entrance, etc.

Our brine tank is available with cooling (optional), enabling accurate brine temperature control. Combined with temperature monitoring from the touch screen display, brines and marinades will have a germ count as low as possible.

Cleaning of the machine can be performed thoroughly and quickly because:

- Everything is manufactured in stainless steel and food approved plastic materials.
- The machine is self-draining by virtue of the pump position.
- All M3.s machines are equipped with an automatic, computerized washing program.
- When cleaning, the needles can be dismantled and fitted without using any tools.
- Since all electrical components are well protected special care is not needed when cleaning the machine.



The pump and the entire brine system can easily be taken apart and cleaned. All joints are mounted with hygienic fittings and are easily accessible outside the inner cabinet of the machine, and thus totally isolated from the electrical installations.

Configuration options for fish injectors

The various sizes of injectors in the M3.s series are built on identical construction principles. The main differences between the models lie in the width of the transport systems (420 mm, 550 mm, 750 mm and 950 mm). The injectors are available with 1, 2 or 3 needle bridges, depending on the level of injection required. Further – the machines are available with 48, 64, 88 or 112 needle heads, mounted with quadro needles.



Single head injectors:

- One pump system and one needle head.



Double head injectors:

- One or two pump systems depending on application.
- Two complete needle heads.



Triple head injectors:

- Two pump systems.
- Three complete needle heads.

Reliable and user friendly

The M3.s machines consist of thoroughly tested quality components, designed to work in a highly demanding and aggressive production environment. Using a M3.s injector will get you a sturdy, durable, high performance production machine which can be trusted, and will require a minimum of maintenance.

If a change of needle pattern is required, this can be done quickly and easily without using any tools.

The colour touch screen is mounted on a swing arm for easy operation from all angles. Training of operators is quick as the user interface can be set to several languages and has been logically and intuitively developed. Many routines are fully automatic, such as:

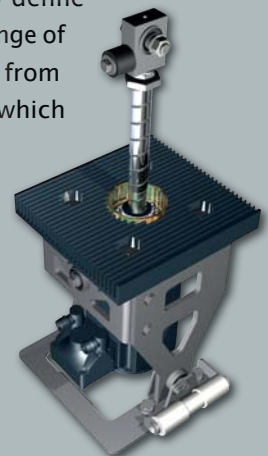


- Automatic machine settings through an unlimited number of pre-programmed production profiles.
- Automatic lubrication.
- Automatic monitoring of brine temperature.
- Automatic control of min. pump pressure.
- Automatic troubleshooting.
- Automatic cleaning program.
- Self-cleaning FM 80 protein filter.

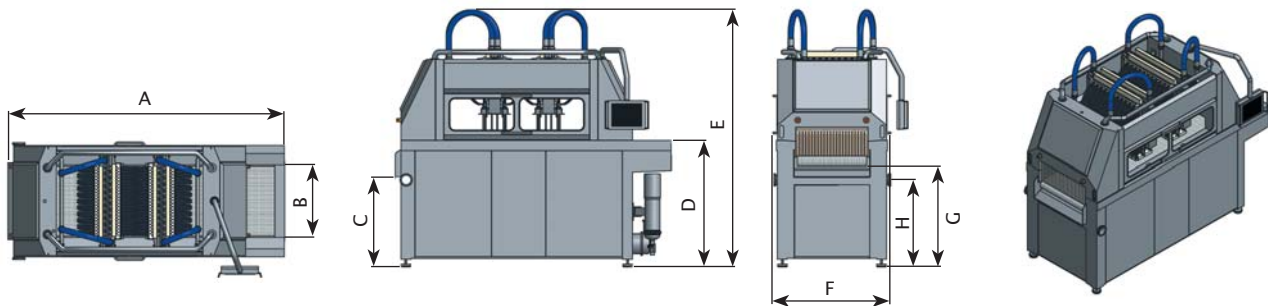
Variable stroke height

Spindle motors enable the M3.s machines to adapt to all product heights (within reason) making the machines even more flexible to fit your current and future production needs.

With this latest development it is even possible to define the movement range of the needle head from top to bottom, which means that the machine only injects between two predefined points.



Specifications	FGM 48F S/D	FGM 64F S/D	FGM 88F S/D/T	FGM 112F S/D/T
Drive unit for needle bridge	1/2 Motor AMK SKT-28-20-T00 / 4 kW 1/2 Gear Umbra ball screw	1/2 Motor AMK SKT-28-20-T00 / 4 kW 1/2 Gear Umbra ball screw	1/2/3 Motor AMK SKT-28-20-T00 / 4 kW 1/2/3 Gear Umbra ball screw	1/2/3 Motor AMK SKT-28-20-T00 / 4 kW 1/2/3 Gear Umbra ball screw
Drive unit for transport system	1,7 kW / 1,7 kW	1,7 kW / 1,7 kW	1,7 kW / 1,7 kW / 1,7 kW	1,7 kW / 1,7 kW / 1,7 kW
Pump motor	5,5 kW / 7,5 kW	7,5 kW / 7,5 kW	7,5 kW / 7,5 kW / 2 x 7,5 kW	7,5 kW / 7,5 kW / 2 x 7,5 kW
Pump	Centrifugal pump	Centrifugal pump	Centrifugal pump	Centrifugal pump
Pump capacity	0,5 bar up to 200 l/min 6 bar up to 650 l/min	0,5 bar up to 200 l/min 6 bar up to 650 l/min	0,5 bar up to 200 l/min 6 bar up to 650 l/min	0,5 bar up to 200 l/min 6 bar up to 650 l/min
Pre-filtration system	FM 80 self-cleaning filter	FM 80 self-cleaning filter	FM 80 self-cleaning filter	FM 80 self-cleaning filter
Air consumption (max)	100 / 150 l/min	100 / 150 l/min	100 / 150 / 200 l/min	100 / 150 / 200 l/min
Number of needles	48 quadro / 2 x 48 quadro	64 quadro / 2 x 64 quadro	88 quadro / 2 x 88 quadro / 3 x 88 quadro	112 quadro / 2 x 112 quadro / 3 x 112 quadro
Needle bridge stroke/min	1-90	1-90	1-90	1-90
Transport system	Intralox conveyor	Intralox conveyor	Intralox conveyor	Intralox conveyor
Transport system width	420 mm	550 mm	750 mm	950 mm
Product movement	60, 45 or 30 mm per stroke of needle head	60, 45 or 30 mm per stroke of needle head	60, 45 or 30 mm per stroke of needle head	60, 45 or 30 mm per stroke of needle head
Max product height	70 mm	70 mm	70 mm	70 mm
Capacity	Up to 1.400 kg/hr. depending on product and injection level	Up to 2.100 kg/hr. depending on product and injection level	Up to 2.800 kg/hr. depending on product and injection level	Up to 3.500 kg/hr. depending on product and injection level
Weight	860 kg / 1040 kg	1015 kg / 1250 kg	1135 kg / 1395 kg / 1690 kg	1275 kg / 1510 kg / 1845 kg



	FGM 48, 64, 88, 112 S	FGM 48, 64, 88, 112 D	FGM 88, 112 T
A	2300	2860	3420
B	420 / 550 / 750 / 950	420 / 550 / 750 / 950	750 / 950
C	930	930	930
D	1310	1310	1310
E	2670	2670	2770
F	880 / 1010 / 1210 / 1410	990 / 1120 / 1320 / 1520	1320 / 1520
G	1150	1150	1150
H	905	905	905

	PFS 7/225 R	PFS 7/330 R
A	1910	1910
B	2185	2185
C	795	1045
D	970	970
E	550	800

