



## SERIES "FMT & FMA"

GRAVITY FILLING

WITH OUTPUTS OVER 3000 B/H

### FM FILLING VALVE

The filler valves (patented) close off both the passage of the wine and the return of the gas, so the filler tank is only in contact with the atmosphere created in the bottle, bringing benefits in terms of both oxidation and sterility. The filler valves can operate by either gravity or light vacuum. The advantages of the light vacuum are:

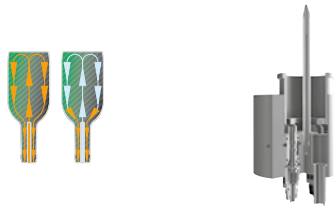
- better triggering of the filling
  - no dripping, even if the bottom seal is not in perfect condition.
- With our valves there are no contra-indications to using light vacuum, and as no air is introduced into the tank there will be no oxidation, contamination or reduction in aromas. The filling levels vary between 30 and 90 mm from the rim, with  $\pm 1$  mm fill height precision.

GAI has been designing and building quality wine bottling machinery since 1946. The A and T series represent the synthesis of more than 70 years of experience in the sector. A policy of research and heavy investment means that today we are able to offer a series of machines designed and produced entirely in company. This allows us to supply a product of high quality at a competitive price, and to guarantee the long-term availability of spare parts.

The machines presented in this brochure are an example of what we can deliver; we are interested in and ready to design and build custom-made machinery built to your specific requirements.

### FUNCTIONS:

#### RINSING AND BLOWING

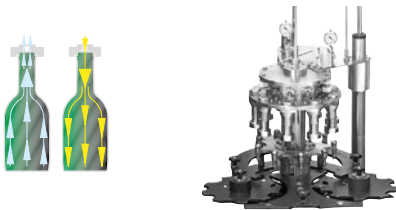


#### BOTTLE-RINSING AND BLOWING.

The bottles are gripped around the neck by a clamp and rapidly turned upside-down by means of a rack and pinion system. The speed of this system enables longer cycles, dependant of the number of clamps. The nozzle penetrates the bottle-neck by 75 mm; this depth assures the absence of turbulence inside the bottle neck and therefore improves the blowing efficiency. The nozzle will only open when there is a bottle present, with no contact being made between the mouth of the bottle and the injector. The injection of microfilter-sterilized water is followed by a series of blasts of air which has also been sterilized by micro-filtration. The water and air circuits are completely separate. Forced draining alternated with draining by gravity, allows for a better water discharge thereby minimizing the residue of water in the bottle and the air consumption. The rinsing liquid is recovered in a closed circuit, which keeps the machine dry during the normal work conditions. It is also possible to flush the bottles with product, i.e. wine, recirculating the appropriate product.

It allows, essentially, to completely sterilize the rinser with an appropriate liquid which could recirculate through the dummy bottles supplied with the machine.

#### DEAERATION AND FILLING WITH INERT GAS

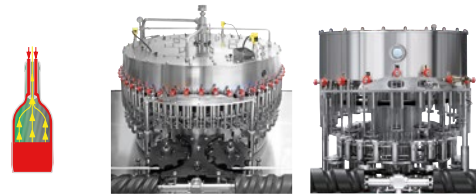


#### BOTTLE DEAERATION AND FILLING WITH INERT GAS

A high vacuum pump removes approximately 90% of the air from the bottle, after which the bottle is filled with an inert gas. Normally nitrogen is used, but CO<sub>2</sub> or a mixture of nitrogen and CO<sub>2</sub> can also be used.

Dual deaeration is possible to achieve even better results, although a greater quantity of gas would be consumed. Thanks to our special (patented) filling valves the same atmosphere is created in the filler bowl as in the bottle. Deaeration reduces the oxygen absorption on filling from an average of 0,70 to 0,08/ mg. per liter. The deaerating station is supplied with dummy bottles to facilitate closed circuit sterilization. These dummy bottles are always present on the machine and they can be easily moved to washing position.

#### T & A SERIES FILLERS



T & A-series fillers are extremely robust, complete and easy to clean. The wine is fed centrally from below to ensure no oxidation, and above all the tank is completely emptied. The tank itself is completely machine-tool worked with a mirror-finished interior and conical bottom to facilitate cleaning and emptying. The tank is annular for each model. The cover is also machine-tool worked with a mirror-polished interior; mechanical fastening of the cover guarantees a perfect seal.

Analog probes regulate the level in the tank and control both the in-feed solenoid valve and a feed pump with inverter if necessary. The height of the filler is adjusted electrically by PLC.

The centralized level adjustment and the introduction of dummy bottles are performed electrically.

The upward movement of highly robust bottle-raising pistons is provided by a spring and the downward movement is controlled by a cam.

#### INJECTION OF INERT GAS PRIOR TO CORKING



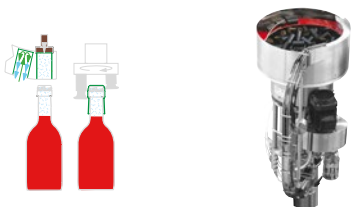
Four prismatic guide stainless steel studs close the cork to a diameter of 16 mm. Extreme care is taken over the construction of the corking head: the roughness of the surfaces in contact with the cork is less than 0.1 micron. The closure of the cork is slow (105°), while its insertion is fast (32°). Vacuum corking is standard on our corkers (37°). The advantages of this system are: a) no pressure is created in the bottle when the cork is introduced; b) the oxygen imprisoned between the cork and the wine is reduced from 0.25 to 0.08 mg/l. The special features of our multi-head corker are as follows: 1) a cam system for secure dispensing of the cork into the corking head; 2) electrical adjustment of punches for cork depth into the bottle; 3) greatly facilitated disassembly of the corking head for accurate cleaning; 4) greatly facilitated disassembly of the bottle centering cone; 5) facilitated disassembly of the bottle vacuum-forming sector; 6) oil-bath bottle raising pistons; 7) generalized use of highly resistant stainless steel; 8) very generous sizing of all the mechanical parts for a long machine life with highly simplified maintenance.

#### CORKING UNDER VACUUM



Four prismatic guide stainless steel studs close the cork to a diameter of 16 mm. Extreme care is taken over the construction of the corking head: the roughness of the surfaces in contact with the cork is less than 0.1 micron. The closure of the cork is slow (105°), while its insertion is fast (32°). Vacuum corking is standard on our corkers (37°). The advantages of this system are: a) no pressure is created in the bottle when the cork is introduced; b) the oxygen imprisoned between the cork and the wine is reduced from 0.25 to 0.08 mg/l. The special features of our multi-head corker are as follows: 1) a cam system for secure dispensing of the cork into the corking head; 2) electrical adjustment of punches for cork depth into the bottle; 3) greatly facilitated disassembly of the corking head for accurate cleaning; 4) greatly facilitated disassembly of the bottle vacuum-forming sector; 5) facilitated disassembly of the bottle vacuum-forming sector; 6) oil-bath bottle raising pistons; 7) generalized use of highly resistant stainless steel; 8) very generous sizing of all the mechanical parts for a long machine life with highly simplified maintenance.

#### SCREW CAPPING



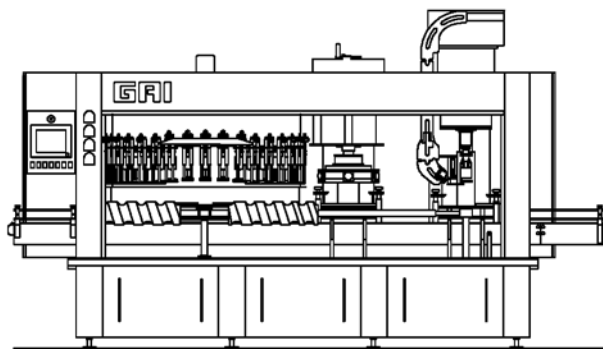
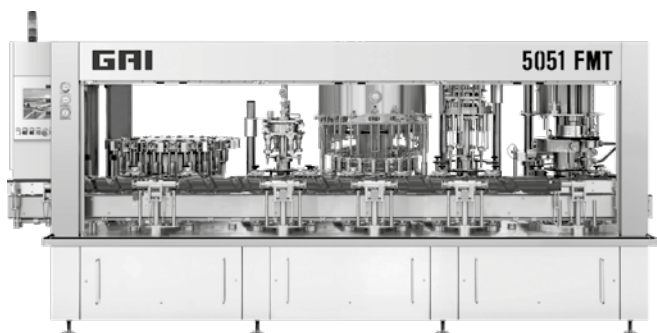
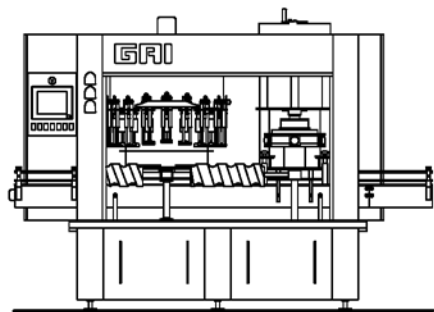
The caps are fed by vibrating base or a mechanical honeycombed feeder. The feeder is normally positioned above the capping turret.

In the event of height limitations, the vibrating base can be positioned behind the capping turret.

The system must be integrated with a large feeder located low down to make it easy to fill.

The caps are dispensed "on the fly" onto the capper inlet star. The cap distribution head is fitted with a nozzle with a solenoid valve for the internal purging of the caps with neutral gas prior to their dispensing. There are two types of turret: the 42900 for threadless caps only, and the 43900 for both pre-threaded and threadless caps. The threadless cap closure device has 4 rollers: two for the thread, and two for bottom closure. The closure head is fitted with a "no cap no roll" device.

The pre-threaded cap closure device has a gripper that screws the caps onto the bottles with an adjustable torque, and two rollers which crimp the caps below the rim. Threadless caps can also be used on the 43900 turret by replacing the closure device.



FUNCTION		3622 FMT	4022 FMT	5022 FMT	6022 FMT
Filler	n	18	20	24	28
Cork	n	3	3	4	4
Production	gal/h	845	951	1162	1347
	l/h	3200	3600	4400	5100
Speed	bott/h	1000-4000	1000-4500	1200-6000	1200-6000
	bott/min	16-66	16-75	20-100	20-100

Not binding data.

FUNCTION		3632 FMT	4032 FMT	5032 FMT	6032 FMT
Rinser	n	15	16	20	20
Filler	n	18	20	24	28
Cork	n	3	3	4	4
Capper	n	3	3	4	4
Production	gal/h	845	951	1162	1347
	l/h	3200	3600	4400	5100
Speed	bott/h	1000-4000	1000-4500	1200-6000	1200-6000
	bott/min	16-66	16-75	20-100	20-100

Not binding data.

FUNCTION		3652 FMT	4052 FMT	5052 FMT	6052 FMT
Rinser	n	15	16	20	20
Deareator	n	4	4	4	6
Filler	n	18	20	24	28
Injector	n	4	4	4	6
Cork	n	3	3	4	4
Capper	n	3	3	4	4
Production	gal/h	845	951	1162	1347
	l/h	3200	3600	4400	5100
Speed	bott/h	1000-4000	1000-4500	1200-6000	1200-6000
	bott/min	16-66	16-75	20-100	20-100

Not binding data.

FUNCTION		5022 FMA	6022 FMA	7022 FMA	8022 FMA
Filler	n	24	28	32	36
Cork	n	4	4	5	6
Capper	n	4	4	5	6
Production	gal/h	1162	1347	1532	1717
	l/h	4400	5100	5800	6500
Speed	bott/h	1200-6000	1200-6000	1500-7500	1800-9000
	bott/min	20-100	20-100	25-125	30-150

Not binding data.

FUNCTION		9022 FMA	10022 FMA	11022 FMA	12022 FMA
Filler	n	40	44	48	54
Cork	n	6	8	8	8
Capper	n	6	8	8	8
Production	gal/h	1162	1347	1532	1717
	l/h	4400	5100	5800	6500
Speed	bott/h	1200-6000	1200-6000	1500-7500	1800-9000
	bott/min	20-100	20-100	25-125	30-150

Not binding data.



FUNCTION		5032 FMA	6032 FMA	7032 FMA	8032 FMA
Rinser	n	20	20	24	28
Filler	n	24	28	32	36
Cork	n	4	4	5	6
Capper	n	4	4	5	6
Production	gal/h	1162	1347	1532	1717
	l/h	4400	5100	5800	6500
Speed	bott/h	1200-6000	1200-6000	1500-7500	1800-9000
	bott/min	20-100	20-100	25-125	30-150

Not binding data.

FUNCTION		9032 FMA	10032 FMA	11032 FMA	12032 FMA
Rinser	n	32	36	36	40
Filler	n	40	44	48	54
Cork	n	6	8	8	8
Capper	n	6	8	8	8
Production	gal/h	1902	2086	2271	2641
	l/h	7200	7900	8600	10000
Speed	bott/h	1800-9000	2400-12000	2400-12000	2400-12000
	bott/min	30-150	40-200	40-200	40-200

Not binding data.

FUNCTION		5052 FMA	6052FMA	7052 FMA	8052 FMA
Rinser	n	20	20	24	28
Deareator	n	4	6	6	6
Filler	n	24	28	32	36
Injector	n	4	6	6	6
Cork	n	4	8	8	8
Capper	n	4	8	8	8
Production	gal/h	1162	1347	1532	1717
	l/h	4400	5100	5800	6500
Speed	bott/h	1200-6000	1200-6000	1500-7000	1800-9000
	bott/min	20-100	20-100	25-125	30-150

Not binding data.

FUNCTION		9032 FMA	10032 FMA	11032 FMA	12032 FMA
Rinser	n	32	36	36	40
Deareator	n	8	8	8	8
Filler	n	40	44	48	54
Injector	n	8	8	8	8
Cork	n	6	8	8	8
Capper	n	6	8	8	8
Production	gal/h	1902	2086	2271	2641
	l/h	7200	7900	8600	10000
Speed	bott/h	1800-9000	2400-12000	2400-12000	2400-12000
	bott/min	30-150	40-200	40-200	40-200

Not binding data.



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