



**TWIN SHAFT MIXER**

# MAAO



CERTIFIED COMPANY  
UNI EN ISO 9001



SINCE 1947



**SICOMA**

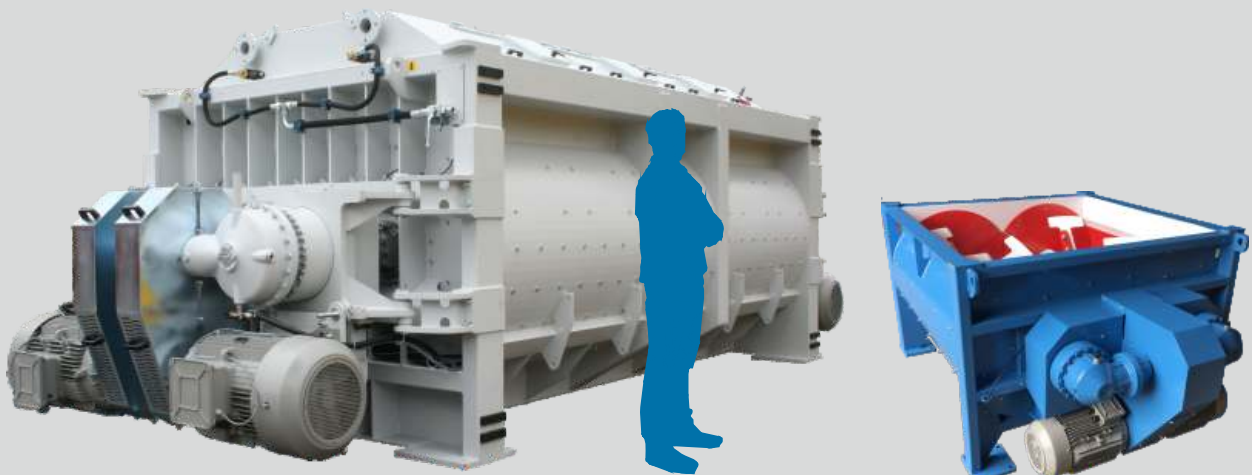




## WIDE RANGE OF MIXERS & CUSTOMIZED SOLUTIONS

The size of SICOMA Twin Shaft Mixers ranges from 0.5 to 9 m<sup>3</sup> of vibrated concrete output, covering every need of our customers in terms of production capacity. The excellent performance is recognized in several applications: production of Readymix Concrete, production of prestressed / precast elements, RCC concrete for dams, soil stabilization, but also in different

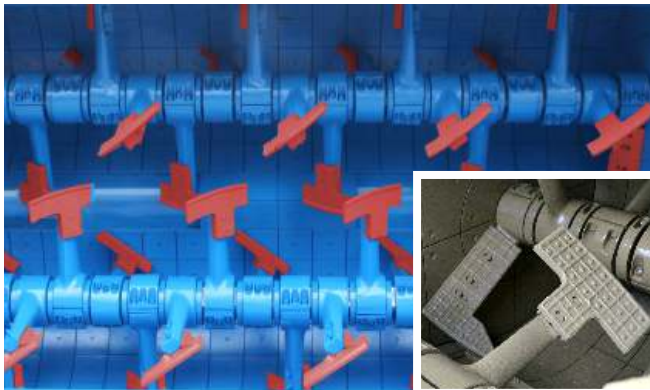
sectors such as the inertization, waste treatment and chemical products. Depending on the type of application, the mixers can be equipped with several accessories and options to optimize their productivity, mixing quality and life expectancy. Whenever necessary, we work with our customers to develop new solutions that best suit their requirements.





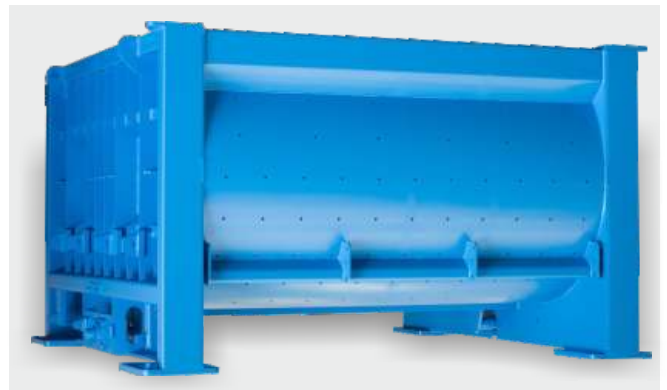
## GEARBOXES

The gearboxes of the mixing group are epicyclical type. The first reduction is carried out by a pulley transmission equipped with a constant-velocity universal joint to keep the shafts synchronised. The low input speed to the gearboxes allows the lubrication oil to work at low thermal load. The connection between the gearbox and the tank is made with the exclusive connection sleeve, developed over the years to make any possible maintenance to the shaft supports easier and faster. This sleeve can be disassembled easily giving access to shaft support and in case of maintenance, the downtime for the plant is minimized.



## MIXING ELEMENTS

The mixer tank is lined with Ni-Hard Cast Iron of 530HB minimum hardness. The mixing arms, with a low profile to avoid material build up, are made in Spheroidal Cast Iron. The mixing blades are made in Ni-Hard Cast Iron of 530HB minimum hardness. The large number of blades, their position and their orientation guarantee the right combination between the effects of rolling and circulation of the material during the mixing action.



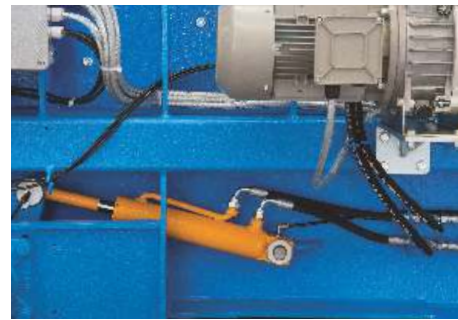
## EXTRA-RIGID TANK

The stiffened frame of the tank eliminates the risk of deformation during the transport (also in container) as well as during the full load operation and guarantees the correct planarity of the shafts' seals. The metal frame for aggregates hopper and the scales can be laid right on the mixer without additional supports.



### HYDRAULIC POWER PACK

The closing of the door is guaranteed by the pressure sensor included in the hydraulic circuit. In case of failure or blackout, a manual pump can be operated for the emergency discharge and closure.



### DISCHARGE DOOR

The discharge door has a rubber seal that runs along its full perimeter. The eccentric rotation of the door sector guarantees that the rubber seal is always reached and compressed despite its wear and tear.



### SHAFT SUPPORTS AND SEALS

The modular support patented by SICOMA is made with two separate housings. The bearing is lubricated in long lasting oil bath. The seal, based on the exclusive system of the counter-rotating disks, is lubricated with liquid grease under controlled pressure.



### AUTOMATIC LUBRICATION

The grease needed by the seal to keep the counter-rotating disks lubricated, is provided by temporized pump to the progressive dispenser which uniformly distributes the necessary quantity of grease (6 g/h) to each seal.

A high efficiency filter removes possible impurities when the grease tank is refilled through its proper connector.



### ALARM BOX

The mixer is equipped with several sensors: thermal sensors for the motors and for the gearboxes, level gauges for the oil of the gearboxes and for the hydraulic power pack, level and pressure sensors for the automatic lubrication system. Upon request, Sicoma can supply the Black Box, an electronic system that records type, number and duration of possible anomalies and alarms during the operation of the mixer. The same device can be programmed for the preventive maintenance.



### TOP COVER & INSPECTION PLATFORM

The high top cover (500mm) is equipped with two hinged hatches and does not have any post. It allows an easy access to the mixer for an accurate cleaning at the end of the shift or for both preventive and unscheduled maintenance resulting in a shorter shutdown of the plant.

The inspection platform with stairs, included in the supply, is absolutely necessary for the safe inspection and maintenance of the mixer. Its effective modular design allows the installation to be extremely easy without the need of any crane or winch.

# ACCESSORIES

## STANDARD ACCESSORIES

All MAO mixers are supplied with the following standard accessories: Liner Plates and Mixing Blades made of Ni-Hard Cast Iron. Mixing Arms made of spheroidal Cast Iron, bolted to the shafts. High Top Cover with inspection hatches and ports. Inspection platform with stairs. Wiring of all auxiliary devices to a IP55 Junction Box and alarm Box with related sensors and probes. Automatic grease lubrication system with electric pump and progressive dispenser. Safety key transfer lock for accident prevention compliant with CE standards.

## OPTIONAL ACCESSORIES

The mixers MAO can be equipped with the following accessories upon request:

Discharge Chute; Dust Collector Bag (Airbag); Double speed for the skip ascent and descent; Pre-assembled Feeding system with aggregates holding hopper, cement scale, water scale, complete with the holding frame laying on the four sides of the mixer tank; Special customization for dams and large RCC projects.

## OPTIONS AVAILABLE



### SWING OUT DRIVES (SWOD Option)

This unique option for SICOMA Twin Shaft Mixers was developed over the last years to make any maintenance to the shaft supports easier and faster. The full drive assembly (Motor, Pulleys and Gearbox) is hinged to the side of the mixer tank and it can be swung out easily without the need of cranes or any lifting device.

In case of unplanned maintenance, the downtime for the plant is minimized, resulting in an extremely low maintenance cost.



### SKIP HOIST

The loading skip for the aggregates is available for the MAO mixers up to the size 6000/4000. The hoist has two grooved drums on the same shaft. The skip cable has an anti free-fall block in case of cable failure while two limit switches constantly check its tension.

Upon request, the double speed for ascent and descent is available, as well as an inverter based controller to customize speed at its best.



### BATCH FEEDING SYSTEM

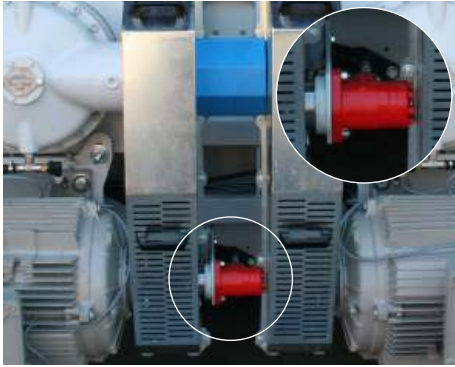
Due to the particular reinforced structure, SICOMA Twin Shaft Mixers can be equipped with a Batch Feeding System stacked on the tank using the top fixing plates on the tank frame. This system is composed by Aggregates Holding Hopper, Cement Scale, Water Scale and Air Bag. Being everything preassembled at the factory before the shipment, the installation time at the jobsite is extremely short.



### HIGH PRESSURE WASHOUT

Two high pressure water pipes are placed above the shafts with as many nozzles as the number of arms. These spray bars are operated by a gearmotor and rotate so that the jets reach every spot for an effective cleaning. The washout has to be carried out at the end of each mixing cycle and the waste water is used for the next mixing.

# OPTIONS AVAILABLE



## SLOW MOTION DRIVE

This option is based on an auxiliary motor which can rotate the shafts at low speed (1 RPM). By using a button switch, the shafts can run safely also with the inspection doors open. The cleaning as well as the regular maintenance (such as periodic blade adjustment) are simplified and faster. We recommend to choose the Manual Control Panel including all devices to operate the Slow Motion Drive.



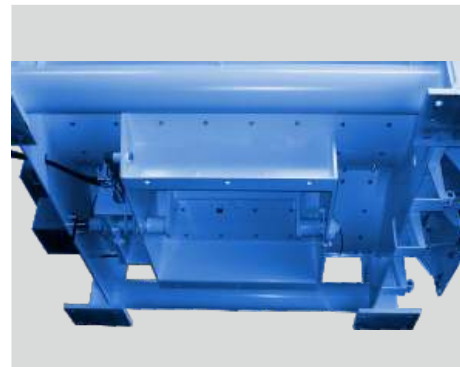
## HIGH PRESSURE WATER UNIT

With a reservoir of minimum 200 liters, the High Pressure Water Unit supplies the spraybars installed in the mixers using a piston pump driven by a motor with minimum power of 15 kW. The pressure and flowrate are selected depending on the mixer size (min 60 Bar).



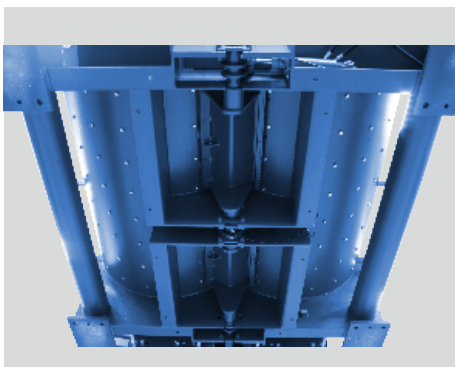
## MANUAL CONTROL PANEL

The mixer can be equipped with the Manual Control Panel which can operate the mixer in Manual Mode with the following buttons: Start/Stop of the mixer motors, Open/Close Discharge Door and Emergency Stop. This Panel can also operate the Slow Motion Drive, if present.



## REDUCED DISCHARGE DOOR

The reduced size of the discharge door allows the use of a small discharge chute. As a consequence, the supporting structure of the mixer can be shorter compared with the standard twin shaft mixers.



## DOUBLE DISCHARGE DOOR

The mixer can be equipped with two independent discharge doors to pour the concrete in two different places. One of the limitations of the twin shaft mixers is then overcome.

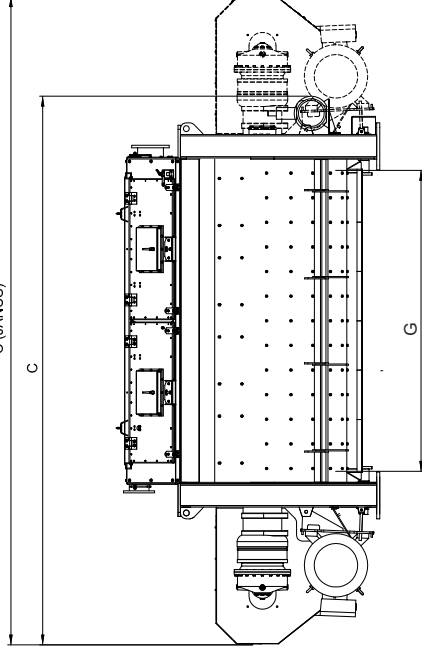


## BOMB BAY DOOR

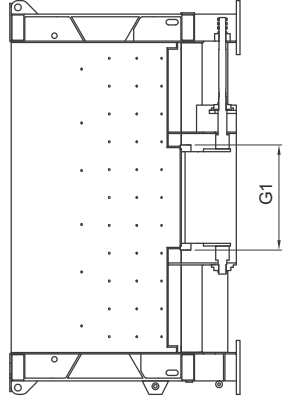
All SICOMA Twin Shaft Mixers can be equipped with the Bomb Bay Door which allows the bottom of the mixer tank to be opened for nearly half of its surface. The discharge is extremely fast also in case of low slump concrete.

This option is particularly important in case of RCC production and loading on dump trucks.

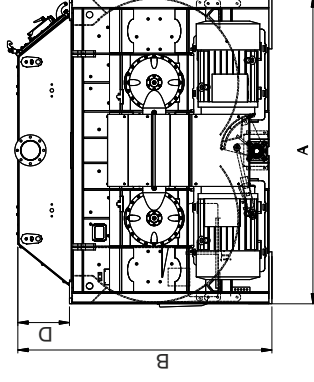
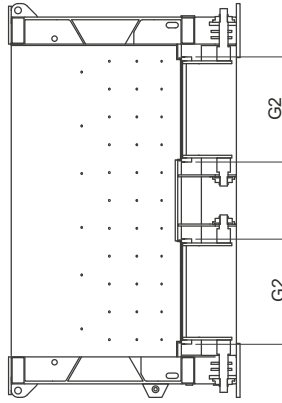
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REDUCED DISCHARGE DOOR



DOUBLE DISCHARGE DOOR

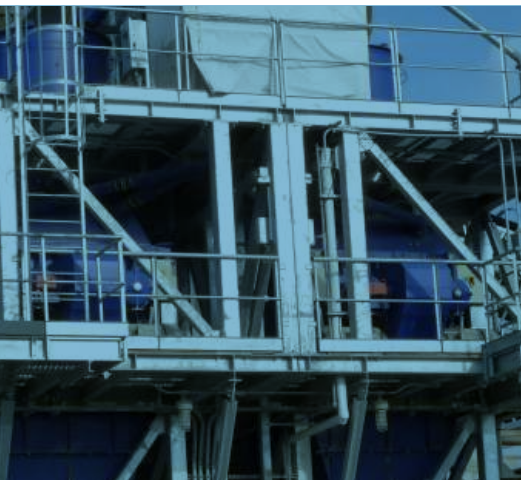


MAO Type	MAO 750/500	MAO 1500/1000	MAO 1875/1250	MAO 2500/1670	MAO 3000/2000	MAO 3750/2500	MAO 4500/3000	MAO 5000/3350	MAO 6000/4000	MAO 7500/5000	MAO 9000/6000	MAO 12000/8000	MAO 13500/9000
DRY FILLING CAPACITY	l	750	1500	1875	2500	3000	3750	4500	5000	6000	7500	9000	12000
VIBRATED CONCRETE OUTPUT PER CYCLE	l	500	1000	1250	1670	2000	2500	3000	3350	4000	5000	6000	8000
CYCLE TIME (LOADING EXCLUDED)	s	90	90	90	90	90	90	90	90	90	90	90	90
HOURLY CAPACITY (VIBRATED CONCRETE)	(m <sup>3</sup> /h)	20	40	50	67	80	100	120	134	160	200	240	320
MIXING MOTOR	kW / HP	15 / 20	37 / 50	45 / 60	55 / 75	2 x 37 / 50	2 x 45 / 60	2 x 55 / 75	2 x 75 / 100	2 x 75 / 100	2 x 90 / 125	4 x 55 / 75	4 x 90 / 125
HYDRAULIC POWER PACK MOTOR	kW / HP	0,75 / 1	1,5 / 2	1,5 / 2	1,5 / 2	1,5 / 2	2,2 / 3	2,2 / 3	2,2 / 3	2,2 / 3	2,2 / 3	2,2 / 3	4 / 5,5
MAX AGGREGATE SIZE	mm	0÷80	0÷150	0÷150	0÷150	0÷180	0÷180	0÷180	0÷180	0÷180	0÷180	0÷180	0÷180
MIXING SHAFTS SPEED	rpm	27	25	25	25	25	25	25	25	25	25	25	25
MIXING BLADES	N.	12+2+2	8+2+2	8+2+2	12+2+2	12+2+2	16+2+2	16+2+2	16+2+2	20+2+2	20+2+2	28+2+2	36+2+2
WEIGHT OF EMPTY MIXER (WITHOUT SKIP)	kg	1900	4900	5000	6000	7500	9000	9470	11900	11900	12200	14750	19600
WEIGHT OF EMPTY MIXER (WITH SKIP)	kg	-	7000	7200	8100	12000	12485	13850	14250	22000	-	-	-
A - MAXIMUM WIDTH	mm	1490	2000	2000	2000	2320	2320	2600	2600	2600	2600	2600	2600
B - MAXIMUM HEIGHT	mm	1246	1940	1940	1940	2135	2135	2155	2155	2155	2155	2415	2415
C - MAXIMUM LENGTH	mm	1946	2825	2825	3124	3509	4047	4076	4076	4480	4674	6330	7094
D - HEIGHT OF TOP COVER	mm	228	458	458	458	458	458	458	458	458	458	458	458
G - STANDARD DISCHARGE DOOR LENGTH	mm	500	740	740	740	1520	2090	2090	2090	2540	2540	2540	2958
G1 - REDUCED DISCHARGE DOOR LENGTH	mm	-	-	-	-	740	740	740	740	1040	1040	1520	2540
G2 - DOUBLE DISCHARGE DOOR LENGTH	mm	-	-	-	-	630	740	740	740	1040	1040	1310	1520

(\*) In order to identify the productivity of the mixer, two parameters must be taken into consideration: 1. Maximum Weight of the Mix, on the basis of the usual Specific weight of concrete (150 lb/ft<sup>3</sup> or 2400 kg/m<sup>3</sup>) 2. Maximum Volume occupied by all batch components charged into the mixer, not exceeding the Dry Filling Capacity. (\*\*) Hydraulic Power Pack Motor size may vary according to the discharge door type. For more information about productivity and accessories, please contact our Sales Department. All technical data are subject to change without notice due to technical improvement. Values indicated are not applicable in all applications and conditions and are subject to variations depending on the use and quantity of the product.



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