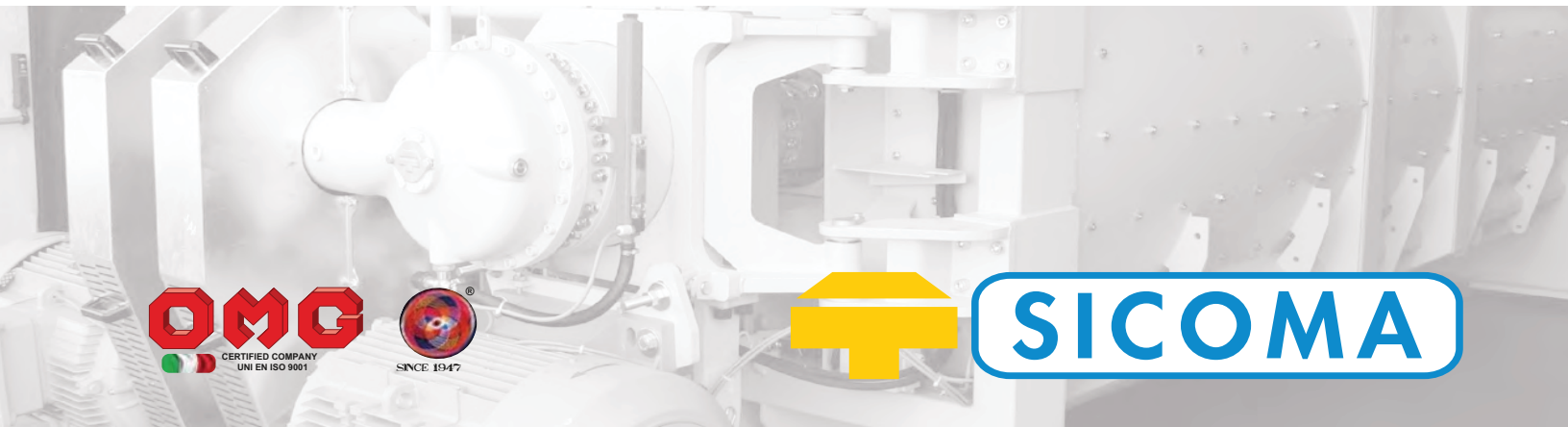
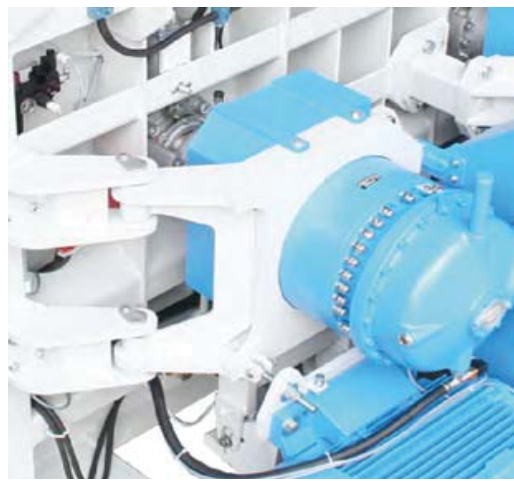
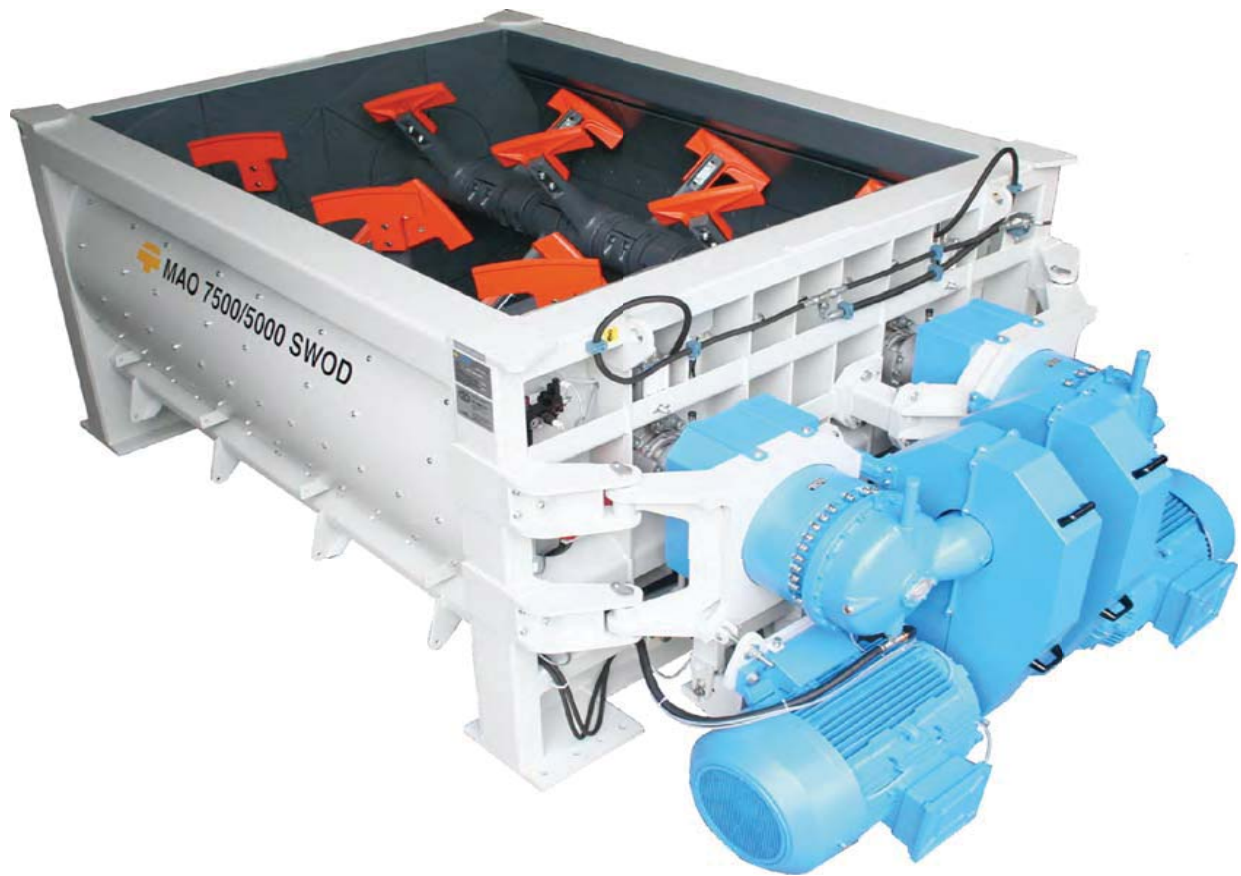


Twin Shaft Mixer MAO





QUALITY SYSTEM:

The Manufacturing Procedures used for all SICOMA Mixers have been compliant with the Quality Requirements of ISO 9001 since 1995 and have been updated and approved by CERMET since 2009 as compliant to ISO 9001:2008.



3-D MODELLING

Since 1999 all Mixers are designed and constantly improved with the use of three-dimensional modeling softwares.



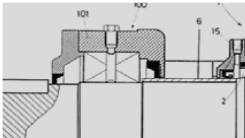
CNC MACHINE CENTER

The steel fabrication of the mixer tank is machined with a CNC boring machine to guarantee the perfect alignment and parallelism of the mixing shafts.



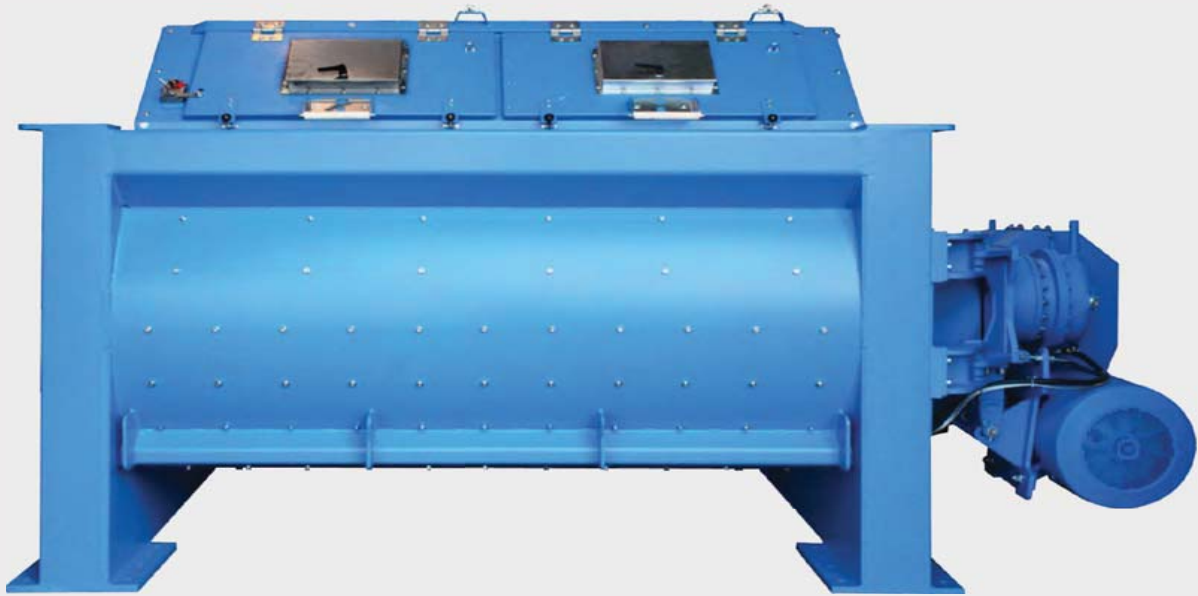
ASSEMBLY LINE

The Mixers are line assembled giving very short lead times due to the high level of standardisation.



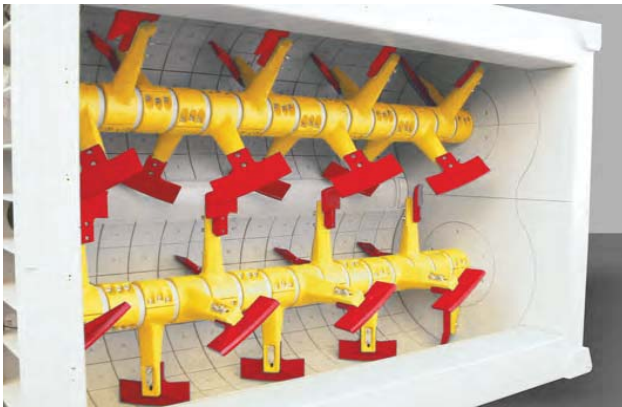
PATENTS

The Shafts' Seals as well as other particular features are protected by International Patents.



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.



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.



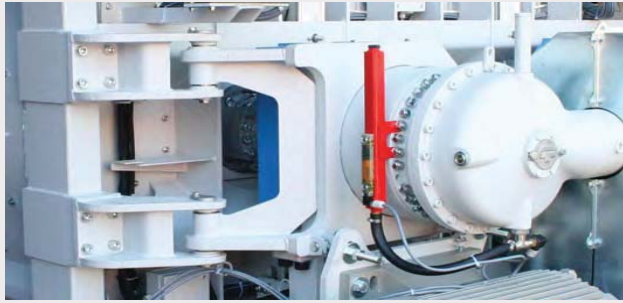
SHAFT SUPPORTS AND SEALS

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.



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.



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 Swing Out Drive, 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 a extremely low maintenance cost.



AUTOMATIC LUBRICATION

The grease needed by the seal to keep the counter-rotating surfaces lubricated is given by four (4) independent automatic pumps that keep a constant pressure into the housing. They uniformly and accurately dispense the necessary quantity of grease and guarantee a low grease consumption (less than 0.03kg/h) together with a low contamination of the mixing.



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

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.



INSPECTION PLATFORM

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.



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.

WIDE RANGE OF MIXERS

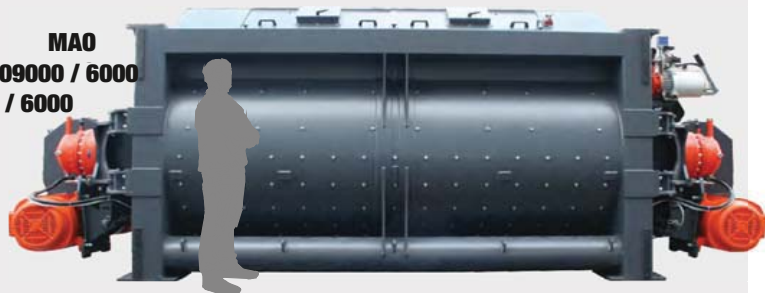
The size of SICOMA Twin Shaft Mixers ranges from 1 to 8 cubic meters of compacted concrete output, covering every need of our customers in terms of production capacity. The excellent performance is recognized in several applications: production of Readymix Concrete, production of prestressed / precast 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 specific needs.

**MAO
12000 / 8000**



**MAO
09000 / 6000
/ 6000**



ACCESSORIES

STANDARD ACCESSORIES

All MAO mixers are supplied with the following standard accessories:

- Liner Plates and Mixing Blades in Ni-Hard Cast Iron
- Swing Out Drivers
- Mixing Arms in 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
- Alarm Box with related sensors and probes.
- Automatic Grease Lubrication System with electric pump and sequential distributor
- Wrench kit for the mixer maintenance
- Safety Key Transfer Lock for accident prevention.

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



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.



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.



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.



BATCH FEEDING SYSTEM

Due to the particular reinforced structure of the tank, SICOMA Twin Shaft Mixers can be equipped with a Batch Feeding System stacked on the mixer using the fixing plates on the tank frame without the need of any additional metal structures. This system is composed by a supporting frame, Aggregates Holding Hopper, Cement Scale, Water Scale and Air Bag. Being everything is preassembled at the factory before the shipment, the time for the onsite assembly is extremely short.



BLACK BOX

The standard Alarm Box, usually supplied as a standard, can be replaced by the Black Box to record and process all signals coming from the several sensors and some signals from the control panel. The detection and record of the alarms have to support the operator in the maintenance of the mixer, by giving specific reminders on the regular maintenance set in the factory on the basis of the statistics on the mixers. The data can be downloaded using the two USB ports which allow the connection of memory devices (such as USB memory sticks) and the connection to a personal computer.



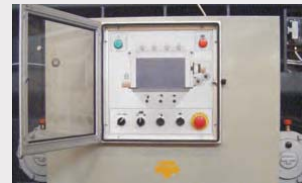
DOUBLE DISCHARGE DOOR

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.



LOW MOTION DRIVE

This option is based on an auxiliary motor which can rotate the shafts at low speed. By using a button switch, the mixer can be driven safely also with the inspection doors open. The cleaning as well as the regular maintenance (such as the periodic adjustment of the blades) are simplified and faster. The Control Panel for the Low Motion Drive is not included. We propose the Manual Control Panel of the Mixer which includes all devices to operate the Low Motion Drive.



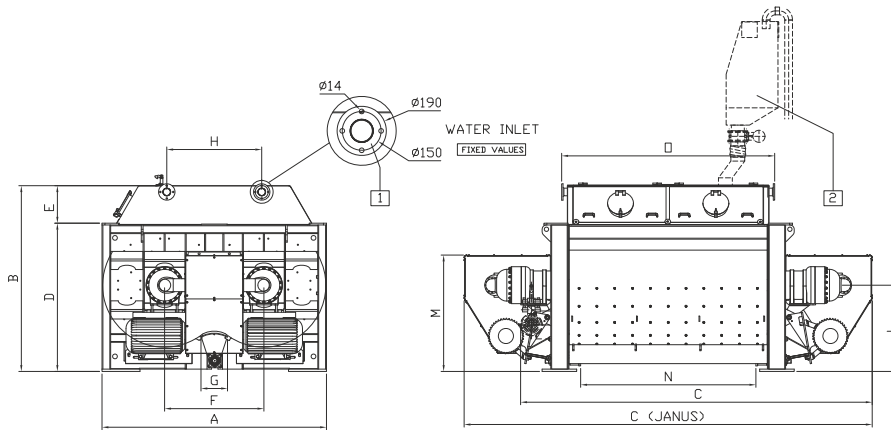
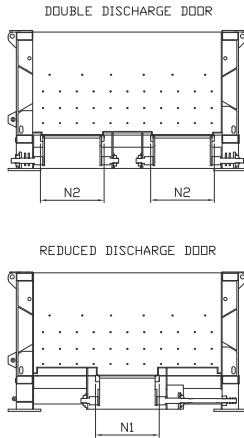
MANUAL CONTROL PANEL

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 Low Motion Drive, if present.



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.



Water inlet when using a pump

Water inlet when the scale is directly connected to the mixer (discharge by gravity)

MOD. MAO		A	B	C	D	E	F	G	H	L	M	N	N1	N2	O
1500/1000	inch	85	80	113	62	18	36	14	*	35	58	29			68
	mm	2150	2040	2872	1582	458	920	350		902	1483	740			1723
2500/1670	inch	85	80	126	62	18	36	14	*	35	58	41			75
	mm	2150	2040	3188	1582	458	920	350		902	1483	1040			1900
3000/2000	inch	91	84	138	67	18	40	14	*	37	51	60	29	29	97
	mm	2320	2132	3505	1700	460	1025	350		947	1290	1520	740	740	2472
3750/2500	inch	91	84	160	67	18	40	14	*	37	51	82	29	29	75
	mm	2320	2132	4070	1700	460	1025	350		947	1290	2080	740	740	1900
4500/3000	inch	102	85	160	68	17	45	14	*	39	53	82	29	29	97
	mm	2600	2152	4070	1720	435	1150	350		1000	1350	2080	740	740	2472
5000/3350	inch	102	85	160	68	17	45	14	*	39	53	82	29	29	97
	mm	2600	2152	4070	1720	435	1150	350		1000	1350	2080	740	740	2472
6000/4000	inch	102	85	177	68	17	45	14	*	39	57	100	29	29	115
	mm	2600	2152	4500	1720	435	1150	350		1000	1450	2530	740	740	2925
7500/5000	inch	102	85	177	46	17	45	14	*	39	57	100	29	29	115
	mm	2600	2152	4500	1170	435	1150	350		1000	1450	2530	740	740	2925
9000/6000J	inch	102	89	222	78	11	45	14	*	40	57	117	29	29	131
	mm	2600	2260	5650	1990	270	1150	350		1010	1455	2960	740	740	3340
12000/8000J	inch	102	89	263	78	11	45	14	*	40	57	117	60	59	131
	mm	2600	2260	6685	1990	270	1150	350		1010	1455	2960	1520	1500	3340

(*) Single flange inlet

TECHNICAL DATA											
MAO / S TYPE		1500/1000	2500/1670	3000/2000	3750/2500	4500/3000	5000/3350	6000/4000	7500/5000	9000/6000 Janus	12000/8000 Janus
DRY FILLING CAPACITY (*)	cu.yd	2	3.3	4	5	6	6.6	8	10	12	16
	l	1500	2500	3000	3750	4500	5000	6000	7500	9000	12000
CONCRETE OUTPUT PER CYCLE (COMPACTED) (*)	cu.yd	1.33	2.2	2.67	3.3	4	4.4	5.33	6.6	8	10.5
	l	1000	1670	2000	2500	3000	3350	4000	5000	6000	8000
CYCLE TIME (LOADING EXCLUDED)	s	90	90	90	90	90	90	90	90	90	90
HOURLY CAPACITY (COMPACTED CONCRETE)	cu.yd/h	40	88	107	133	160	178	213	267	320	427
	m ³ /h	30	67	80	100	120	134	160	200	240	320
MIXING MOTORS POWER	kW	1 x 37	1 x 45	2 x 37	2 x 45	2 x 55	2 x 75	2 x 75	2 x 90	4 x 55	4 x 75
	HP	1 x 50	1 x 60	2 x 50	2 x 60	2 x 75	2 x 100	2 x 100	2 x 125	4 x 75	4 x 100
HYDRAULIC POWER PACK MOTOR (**)	kW	0.75	1.5	1.5	1.5	2.2	2.2	2.2	2.2	7.5	8.5
	HP	1	2	2	2	3	3	3	3	10	11
MAX. AGGREGATE SIZE	inch	0 ÷ 7	0 ÷ 7	0 ÷ 7	0 ÷ 7	0 ÷ 7	0 ÷ 7	0 ÷ 7	0 ÷ 7	0 ÷ 7	0 ÷ 7
	mm	0 ÷ 180	0 ÷ 180	0 ÷ 180	0 ÷ 180	0 ÷ 180	0 ÷ 180	0 ÷ 180	0 ÷ 180	0 ÷ 180	0 ÷ 180
MIXING SHAFTS SPEED	rpm	25	25	25	25	25	25	25	25	25	25
MIXING BLADES		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 (W/OUT SKIP)	lb	11000	13200	16600	19000	20500	21470	26240	26450	31200	43200
	kg	5000	6000	7530	8628	9300	9750	11900	12000	14200	19600
WEIGHT OF EMPTY MIXER (W/SKIP)	lb	14000	17850	24870	27500	30500	29100	33870			
	kg	6400	8100	11280	12485	13850	14250	16400			

(*) 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/ft³ or 2400 kg/m³)
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.