

## **SAVELLI MIXERS Type SGMT**

For the Sand Return Recovery

## SAND RETURN RECOVERY WITH SAVELLI MIXERS type SGMT



SAVELLI SGMT mixer



Internal view of SAVELLI SGMT mixer

### **SAND PREPARATION PROCESS OVERVIEW**

The return sand after the shake-out, besides being degenerated with the loss of its features suitable for molding, it is overheated and contains extraneous items, such as cores residues, metal drops and splash iron, metal and ceramic inserts as well as exothermic sleeves residues.

In order to make the return sand suitable for a re-use in the molding process, several recovery operations are necessary, such as: iron removal with magnetic separators, screening, dedusting, cooling, pre-moisturizing and maturation, regeneration of the molding characteristics.

Until a few decades ago, these operations were carried out in a single system in which the main machine was the mixer. The mixers used at that time were simple mixers, generally wheeled, derived from the mills, which had a rather limited yield in volume and quality. Those "old fashion" mixers are still being produced for foundries with basic needs.

In the modern foundry, the need to deal with larger and continuous volumes of sand motivated SAVELLI to develop a more articulated system. In this system, the operations once performed by a mixer are divided between different machines, specialized in the treatment of some specific phases (i.e. polygonal screen/sand cooler/maturation silos and finally mixer) in order to obtain an optimal and repetitive regeneration of the sand.

The operation of "regeneration of the molding sand" is made with the SAVELLI sand mixer. The screened return sand, dedusted and cooled, is inserted into the mixer, according to the following phases:

- Collection of the return sand in a mixer charging hopper

- Weighing of the sand in the mixer charging hopper
- Measurement of humidity and temperature of the sand inside the hopper (**SAVELLI Aquatest**)
- Insertion into the mixer of the pre-washing water
- Loading of the sand from the hopper into the mixer
- Insertion of new sand, bentonite, black mineral
- Insertion of the moisturizing water
- Mixing – homogenization
- Measurement/control of the sand compactability and compressive strength (**SAVELLI Sandcontrol**)
- Unloading on the hopper/conveyor belt
- Sending to the molding machine

Decisive conditions of the molding sand are its uniformity of composition and of the physical characteristics, which both affect the quality of castings and the overall efficiency of the foundry. The best condition of uniformity is achieved with a good processing of the sand in the mixer, preceded by the cooling and pre-moisturizing operation and maturation in the collecting silos before the mixer.

### **The SAVELLI SGMT sand mixer**

The **SAVELLI** mixers type **SGMT** are designed and built to obtain a sand with characteristics suited to ensure an optimal and efficient molding, especially with high pressure automatic molding machines. They are equipped with specific systems to control weight, humidity and temperature of the incoming sand, calculation and insertion of moisturizing water, as well as working cycle times.

The general construction features can be summarized as follows:

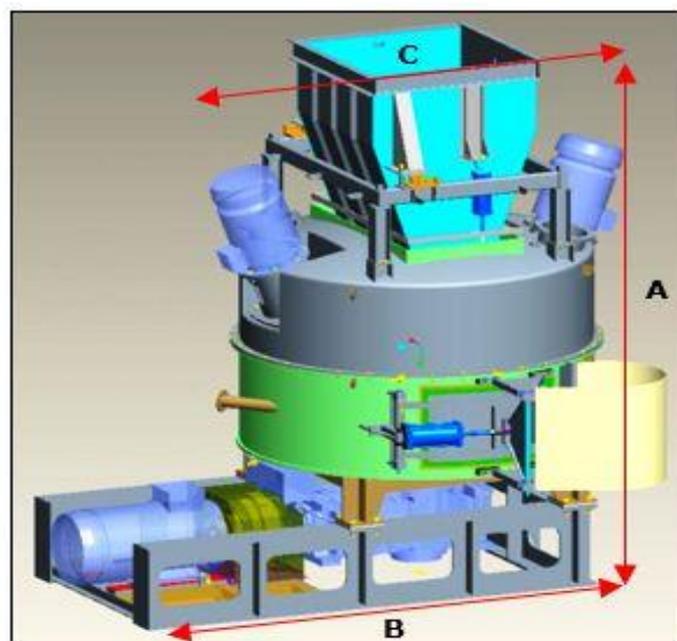
- Machine with a discontinuous production cycle (batch machine)
- Mixing tank with wear-resistant coating with small ceramic tiles (20x20 mm)
- Mixing system with wear-resistant bottom rotating ploughs
- Two independent high-speed turbines (one on the smallest machines) with wear-resistant steel blades, for intensive mixing
- New sand and additives weighing system with direct pneumatic injection into the mixer
- Used sand parameters detection system (weight, humidity and temperature) and calculation of the necessary amount of water in order to obtain the predetermined value of humidity.
- Water insertion system through nozzles which spray water on the surface of the sand in motion, with precision liter-counter
- Data storage of each single mixing cycle (historical storage), with displays showing the cycle phases during the process and the related parameters
- Optional device for the measurement of compactability and of compressive strength for each mixing cycle and possibility to program the appropriate corrections (**SAVELLI Sandcontrol**)
- Use of top brand components for easy maintenance and replacement without having to depend necessarily from SAVELLI

The use of SAVELLI mixers type SGMT guarantees the following advantages:

- Automatic and regular operation of the whole "mixing system"
- Uniform and constant mixing of the sand, thanks to the combined action of the lower and side ploughs as well as of the turbine's whisks
- Possibility to adjust the working cycle times to suit the foundry needs and to obtain the efficiency of the desired mixing
- Constant characteristics of the sand within a predetermined range of variability, defined by the foundry
- Detection and control for each cycle, of the amount of used additives and water, of the energy and process time and thus the control of the consumptions and proper functioning of the machine
- Programming system and production data collection and related storage for each production cycle, displayed and accessible for verification
- Dust-free process thanks to the loading system of sand and additives
- Maintenance-free mixer tank coated with wear-resistant ceramic tiles on the floor and on the walls  
In case of specific accidents, the tiles can be replaced using the specific replacement set
- Easily replaceable whisks, removable from the top
- Easily replaceable main external motor and gearbox
- Easily accessible additives' pneumatic injector and water check and addition system
- Easily accessible mixer tank thru the big doors for regular cleaning, controls and maintenance
- Easily accessible weighing, temperature and moisture detection systems for controls and maintenance
- In the whole, a reliable system in production and time, with limited maintenance requirements

**SIZES and main measures**

Type	Batch	Out-put (Cycle 120 s)	Plo-ugh Pow-er	Tur- bine Pow-er	Tur- bine s	Basin Di- ame- ter	A	B	C	Weight
	Kg	t/hr	KW	KW	Qua- n- ti- ty	mm	mm	mm	mm	Kg
SGMT 1000	1.000	30	110	22	1	1.735	4.300	3.050	2.400	12.500
SGMT 1500	1.500	45	132	22	1	2.000	4.450	3.500	2.700	15.000
SGMT 2000	2.000	60	160	22	2	2.300	4.515	3.746	3.265	18.500
SGMT 2500	2.500	75	200	45	2	2.650	4.857	4.116	3.765	20.500
SGMT 3250	3.250	98	250	45	2	2.800	5.077	4.481	3.845	21.500
SGMT 4000	4.000	120	355	55	2	3.000	5.208	5.134	4.173	28.000
SGMT 5000	5.000	150	400	55	2	3.250	5.408	5.249	4.380	29.000
SGMT 6000	6.000	180	400	75	2	3.320	5.720	5.500	4.418	31.500
SGMT 7000	7.000	210	500	75	2	3.600	6.200	6.000	4.800	35.000





SGMT Mixer in Brembo



Pair of SGMT mixers ready for delivery



Pair of SGMT mixers ready for delivery



Thanking you for the interest, Savelli Technologies staff remains available for any doubt or questions.