

MAGNUM MAX

ASPHALT PLANTS



MAGNUM MAX Series Differentials

SUPER MOBILITY AND EASY ASSEMBLING

MAGNUM MAX asphalt plants have super mobile design that ensures easy and economical logistics between sites, and is a strategic solution for the reduction of civil works and labor.



EFFICIENT AGGREGATE DOSAGE

Individual dosing of the aggregates with individual centralized load cell weighing system for each silo, drive by gearmotor, speed control by frequency inverter with guarantee of the correct ratio between aggregates.

RECYCLING SOLUTION

The use of recycled material (RAP) is increasingly consolidated as a sustainable and economically advantageous application, being required for some specific projects.

The MAGNUM MAX line of asphalt plants already has the pre-disposition of the RAP ring as standard, and can process up to 30% of recycled material.

EXTERNAL DRUM MIXER

The MAGNUM MAX series uses modern techniques to perform all types of asphalt mixtures, from the use of conventional asphalt binder to blends with polymers or rubber asphalt.



ECONOMICS AND EASE OF MAINTENANCE

MAGNUM MAX asphalt plants have been developed with high technology, but without losing sight of the ease and low cost of maintenance.

Super mobility and ease of assembly

The super mobile design of the MAGNUM MAX plants guarantees easy and economical transport between works and is a strategic solution for the reduction of civil works and labor. To operate, the plant only needs a small area for installation on a compacted base, without the need for cranes.

MAGNUM MAX asphalt plants have a great savings in assembly time, promoting more practicality and agility in the field. With a few steps, the plant is ready to work.



1° Machine arrives to the job site ...



2° Anchoring of support and leveling feet ...



3° Drag mixer positioning ...



4° Assembly of the cabin in working position ...



5° Chimney assembly ...



6° Plant ready to operation.

Double Chassis Option - More Flexibility, short chassis for restricted spaces.



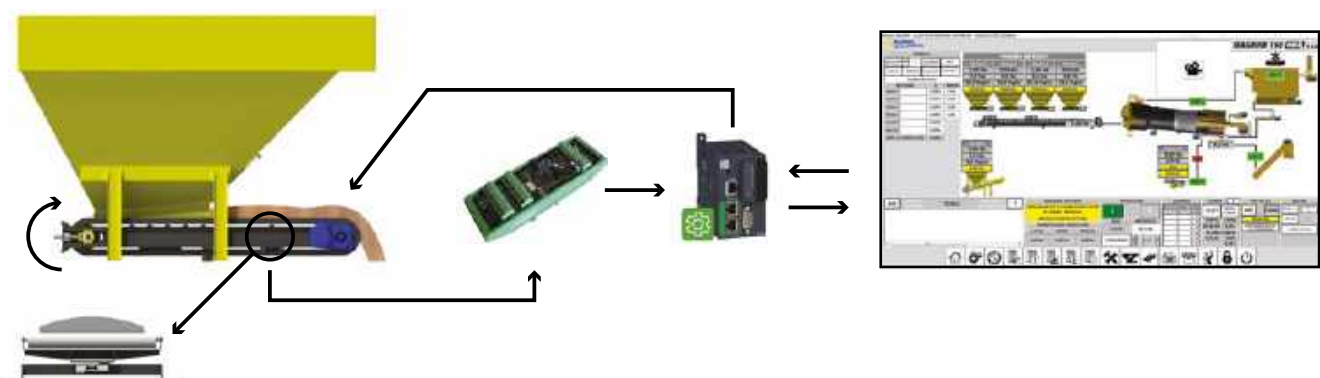
Efficient aggregate dosing



Individual dosing of the aggregates through centralized load cells, driven by geared motors, speed control by frequency inverter with guarantee of the correct ratio between aggregates.

- ◆ Depending on the configuration, the plant can have up to 4 silos with individual volumes of 5.5 m³ up to 10 m³ *;
- ◆ CANopen network communication;
- ◆ Mechanical handle with adjustment for the weighing of the aggregates;
- ◆ High efficiency in dynamic weighing;
- ◆ Individual centralized load cell for each weighing silo;
- ◆ Design that facilitates the supply of aggregates with ideal angle for the flow of material;
- ◆ Wide opening for the feeding of aggregates;
- ◆ Gearmotor installed on the front roller, with variable speed through the frequency converter;
- ◆ Automatic vibrator in silo 01 (standard) and optional in other silos; Flat dosing belts with vulcanized sides;
- ◆ Optional vibrating screen;
- ◆ Robust and high precision system.

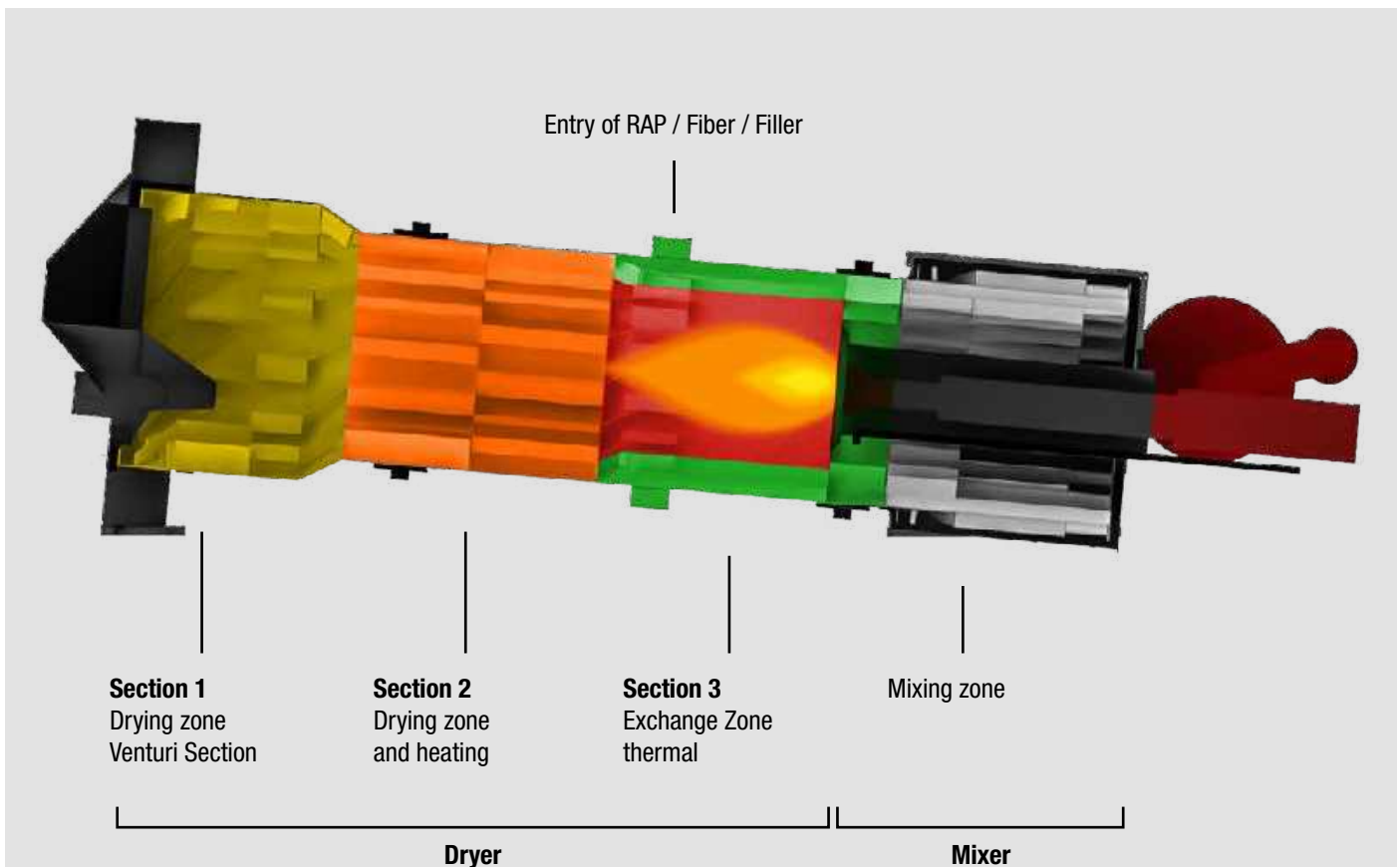
* Using extensions



Counterflow Dryer

The drying system of the MAGNUM MAX plant is designed to provide excellence in the drying of all types of aggregates, while ensuring the interrelation between the flue gases and the temperature of the virgin aggregates for subsequent mixing with the asphalt binder in the desired temperature.

The initial section, projected at a larger diameter than the rest of the dryer body, reproduces the effect of a Venturi (reverse), decelerating the gases and preventing a significant percentage of larger particulate from being drawn into the exhaust system. Consequently, there is a reduction of work load on the bag filter, significantly increasing the life of the filter elements.



Dryer with 3 sections

Section 1: larger diameter providing Venturi effect, with higher volume of drying;

Section 2: maximum heat exchange between aggregates and flame;

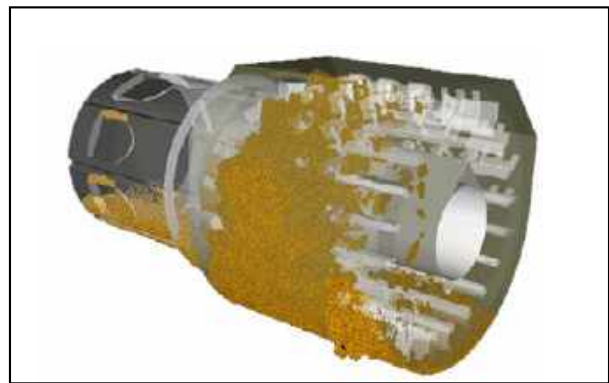
Section 3: Internal convection area that enables heat exchange.

Rotary external mixer



External mixing zone

A mixer capable of working with all types of asphalt mixtures. The MAGNUM MAX rotary external mixer produces both conventional mixtures as well as polymer-modified asphalt or rubber asphalt as well as hot mixtures - Warm Mix Asphalt with high quality final product.



In the case of applications with filler (hydrated lime or cement) or fiber, they can be introduced directly into the mixer through a side window or through the recycling ring.

Some applications require the thermal exchange between the hot aggregates and the fiber (for SMA production), the use of the recycling ring being the most appropriate as a function of the dry mixing time between the elements.

The exclusive mixer MARINI Latin America is characterized by a longer mixing time, resulting in greater homogeneity with the complete coverage of the aggregates by the binder. This mixture is carried out in two stages:

- **First stage:** Binder + large aggregates
- **Second stage:** Injection of fine aggregates

The mixer design, with bolted bottoms and flaps, facilitates maintenance and reduces operating costs. These components are manufactured from high abrasion resistant steel and have a life time four times larger than a traditional Pugmill mixer.

Main advantages:

- ◆ Great mechanical energy for the mixing process;
- ◆ Mixture zone with very low levels of oxygen;
- ◆ Greater mixing time guaranteeing perfect homogeneity of materials;
- ◆ Longer durability of the mixing fins compared to conventional mixers;
- ◆ Exclusive two-stage mixing system;
- ◆ Low maintenance;
- ◆ Energy saving;
- ◆ High added capacity of RAP, fibers, filler and fines.

Recycling solution

Increasingly common in many markets, the use of recycled material, known as RAP (Reclaimed Asphalt Pavement), is consolidating as an ecological, sustainable and economically advantageous application that is already required for some specific projects. The MARINI Latin America asphalt plants already has the pre-disposition of the RAP ring as standard, and can process up to 30% of recycled material.

The MARINI Latin America dryer and mixer design guarantees a dry mixing time for thermal exchange between virgin aggregates and recycled material, which is fundamental for working with high RAP capacity and guaranteeing the quality of the final mixture. The dryer design ensures that the RAP does not come into contact with the flame of the burner because the gases generated in the thermal exchange between the RAP and the hot virgin aggregates are incinerated before proceeding to the bag filter, ensuring longer service life of the sleeves, besides not harming the environment



Higher capacity to use RAP of the market, in compact plants, reaching 30%.

The RAP ring in the dryer is the most recommended for application of special mixtures such as SMA, as it ensures a dry mixing time before the injection of CAP.



Economy and ease of maintenance

The MAGNUM series is renowned for the durability of its components and the low maintenance costs, which guarantees profitability throughout its useful life.

- ◆ The dryer has screwed blades that facilitate maintenance and allow them to be removed and added to get a great fit in any situation;
- ◆ Mixing chamber with full access for maintenance;
- ◆ Mixer with all blades constructed of special high wear resistance steel with a life of up to 300,000 Tons;
- ◆ High mechanical power of the dryer for the mixing process.

* The abrasiveness of the material can intervene in this data.



Manual and Automatic Control

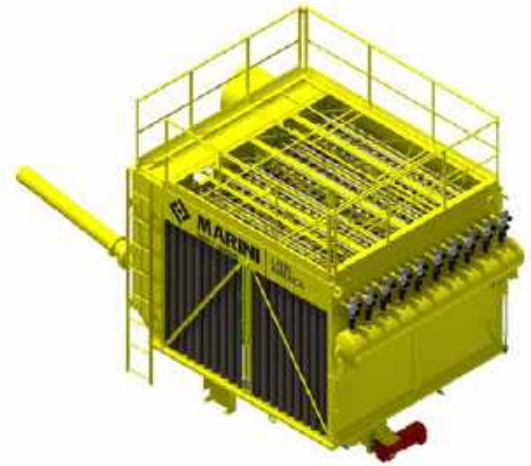
The flexibility to operate with the automatic system, through a friendly and easy-to-use supervision, and to guarantee the possibility of manual operation. Remote factory access for diagnostics and updates.



Safety

Inclusion of protection in all moving parts, according to with the current safety standards, guaranteeing the protection of the people involved in the process of production and maintenance of the equipment.

Technologies that preserve the environment



BAG HOUSE

Filtration system is responsible for the retention of the solid particles from the drying of the aggregates, and incorporates them to the mixture, avoiding their discharge into the atmosphere. The filter element system guarantees an emission of particulates of less than $50 \text{ mg} / \text{Nm}^3$, according to the strictest environmental standards.

The process of filtering through the bag filter takes place in two steps:

- ◆ The first stage of particulate retention occurs in the Venturi drier, where particles larger than # 200 are stored, as a function of the low gas velocity. These particles are re-inserted into the mixing process, directly through the dryer.
- ◆ The second stage of particulate retention occurs at the entering of the bag filter, which has a high mechanical strength plate, which receives the smaller particles. This system provides a reduction in gas velocity. The process of cleaning the sleeves occurs through valves with pulse of compressed air.



Technical specifications

DESCRIPTION	MEASURES	MAG 80 MAX	MAG 120 MAX	MAG 140 MAX	MAG 160 MAX	
Nominal Production	Tons per hour (t/h)	80	120	140	160	
CHASSIS						
Mobility	Type	Single Chassi	Single Chassi	Single Chassi	Single Chassi	Double Chassi
Suspension / Breaks	Type	Double Tandem / ABS	Triple Tandem / ABS	Double Tandem / ABS	Triple Tandem / ABS	Triple Tandem / ABS
Axis / Tires	N°	2/8	3/12	3/12	4/16	3/12
						1/4
DIMENSIONS						
Lenght	m	19,5	21,5	22,3	22,1	18,5 / 20
Height	m	4,4	4,4	4,4	4,4	3,8 / 4,4
Width	m	3,2	3,2	3,2	3,2	3,2
Total weight	Tons	34	37	45,5	46	9,3/37
AGGREGATES DOSAGE						
Silos	N°	3 / 4*	3 / 4*	4	4	4 / 5* / 6*
Silos capacity	m³	2 x 5,5 + 1 x 6,5 [1 x 10*]	2 x 5,5 + 1 x 6,5 [1 x 10*]	2 x 6,0 + 2 x 8	2 x 6,0 + 2 x 8	9,5
Weighing System	Type	Individual weighing by a centralized load cell				
Vibrator	Type	Standard silo 1	Standard silo 1	Standard silo 1	Standard silo 1	
Width of dosage belt	pol / mm	20" / 508				
Transport belt width	pol / mm	24" / 609,6				
DRYER						
Dryer	Type	Counterflow				
Dimensions	m	Ø1,8 (larger section) x Ø1,5 (smaller section) x 6,9 (length)	Ø1,8 (larger section) x Ø1,5 (smaller section) x 8,4 (length)	Ø2,2 (larger section) x Ø1,8 (smaller section) x 7,8 (length)	Ø2,2 (larger section) x Ø1,8 (smaller section) x 7,8 (length)	
BURNER						
Burner	Type	Marini CF 04	Marini CF 04	Marini CF 04	Hauck Starjet 4260	
MIXER						
Mixer	Mixer	External				
		Dry mixing step of 15 seconds / wet mixing of 40 seconds				
BAG HOUSE						
Filter system	Type	Bag				
Quantity	N°	288	360	400	480	
Material	-	Polyester / Nomex*	Polyester / Nomex*	Polyester / Nomex*	Nomex	
Air compressor	Quantity	2 x 80 PCM				1 x 109 PCM
Efficiency	%	73				99
Particle emissions	mg / Nm³	Inferior to 50				
Cleaning	Type	Pulsating jet				
DRAG MIXER						
Drag Mixer	Type	Drag-Mixer				
Mass Silo	m³	1 / 10* / 25* / 50*				
RECYCLING						
Capacity	%	Up until 20%	Up until 20%	Up until 30%	Up until 30%	
OPERATION CABIN						
Cabin	Type	Metallic with control panel				
Air Conditioning	Type	Air Conditioner of 9000 BTUs/h				
Operation	Type	Automatic and manual system				

Optional – Tanks

TANKS - Heating and storage systems for asphalt and fuel

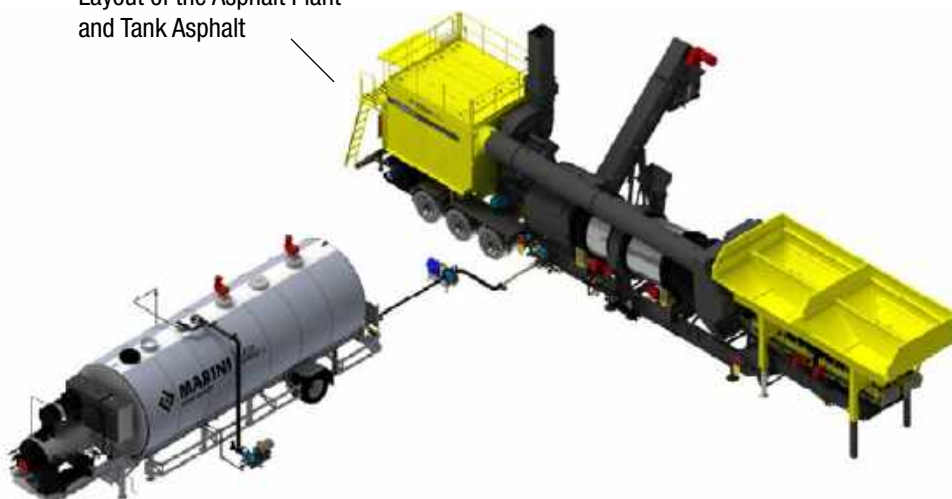
MARINI Latin America has a variety of horizontal mobile asphalt and fuel tanks with a structure built on a chassis and its own axles.



Characteristics of tanks:

- ◆ Capacities of 60,000 L, 80,000 L and 100,000 L;
- ◆ Asphalt and fuel compartment options;
- ◆ Total thermal insulation with external protection;
- ◆ Direct heating by internal coil;
- ◆ Thermal fluid heating system (300,000, 400,000 or 600,000 Kcal / h);
- ◆ Flexible / rigid pipes that interconnect the tanks and the plant;
- ◆ Asphalt loading and circulation system;
- ◆ Fuel charging system;
- ◆ Modified asphalt agitators system, polymers, etc;
- ◆ Safety system with temperature sensors and controllers.

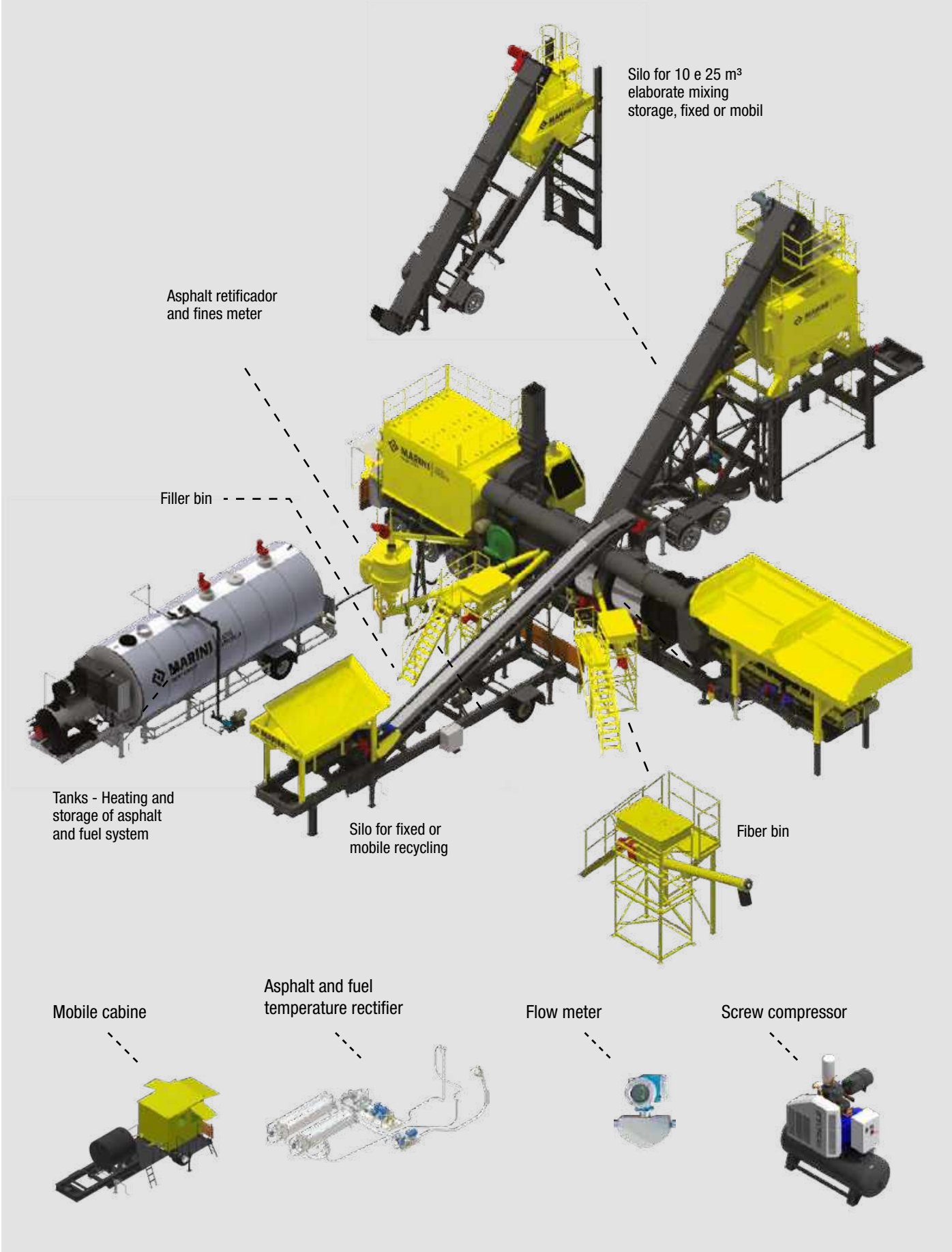
Layout of the Asphalt Plant and Tank Asphalt



Asphalt agitators

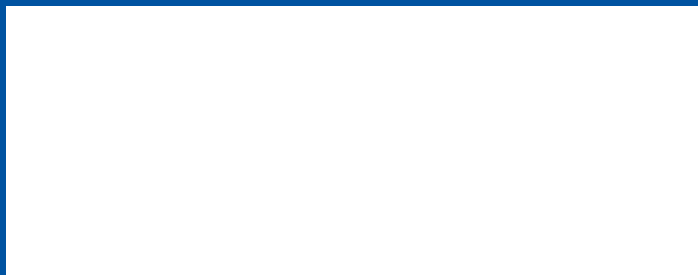


Optionals



All photos, illustrations and specifications are based on information in effect at the date of publication approval.

MARINI Latin America reserves the right to change specifications and drawings and to remove components without prior notice, as well as to adapt the equipment to various operating conditions. The yield data depends on the conditions of the work. Some of the equipment mentioned are optional, even without explicit indication in the text.



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