

**AMMANN**

AMMtec

**Revolutionizing Road Infra with Modern Equipment,  
Technologies, Sustainable Materials and Policy Guidelines**

**RACHIT KAUSHAL**

AMMANN INDIA

**29.02.2024**

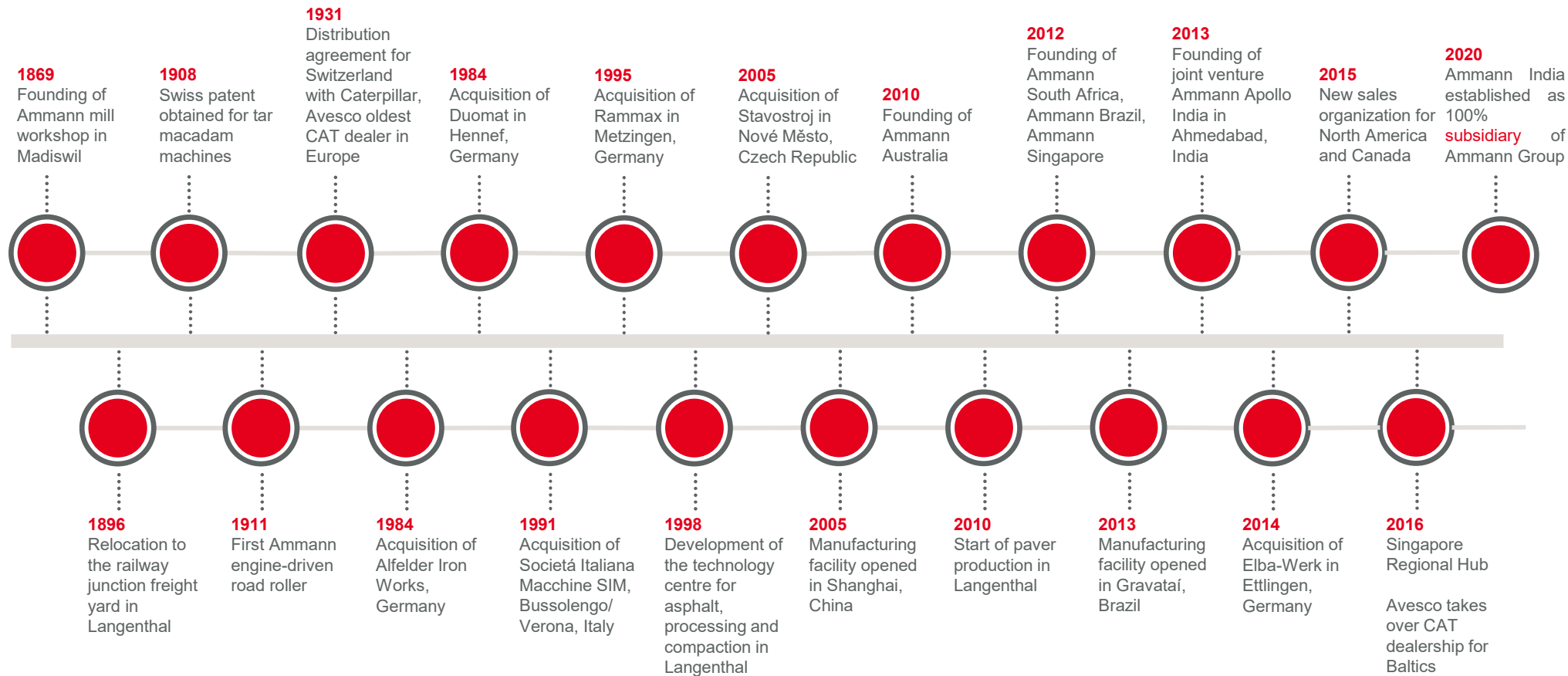
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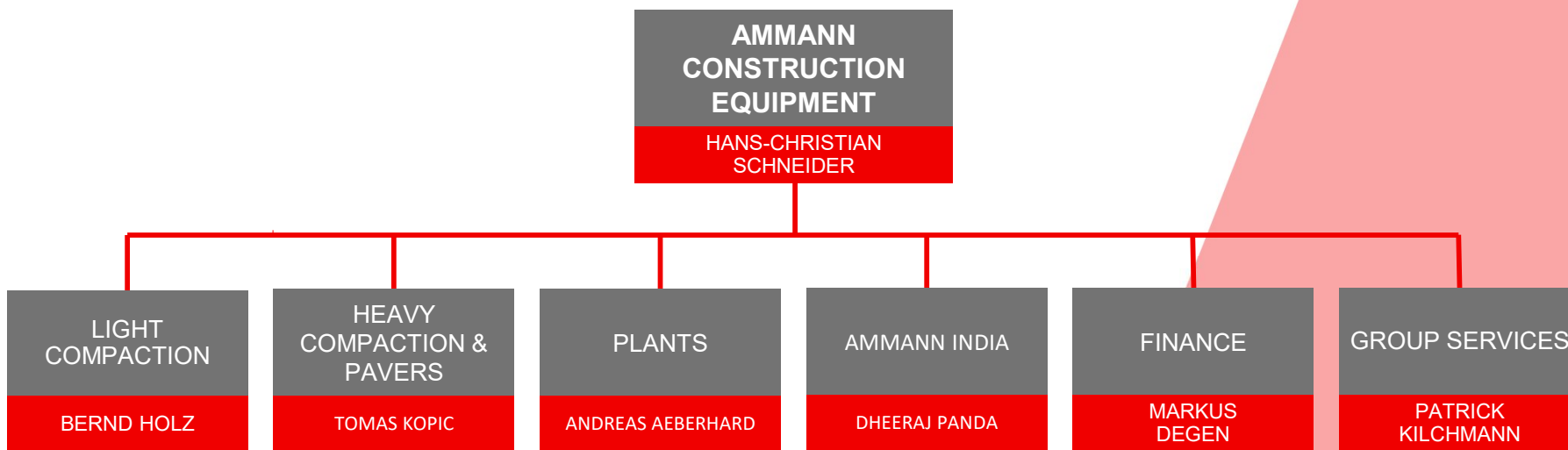
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## COMPANY

# MILESTONES

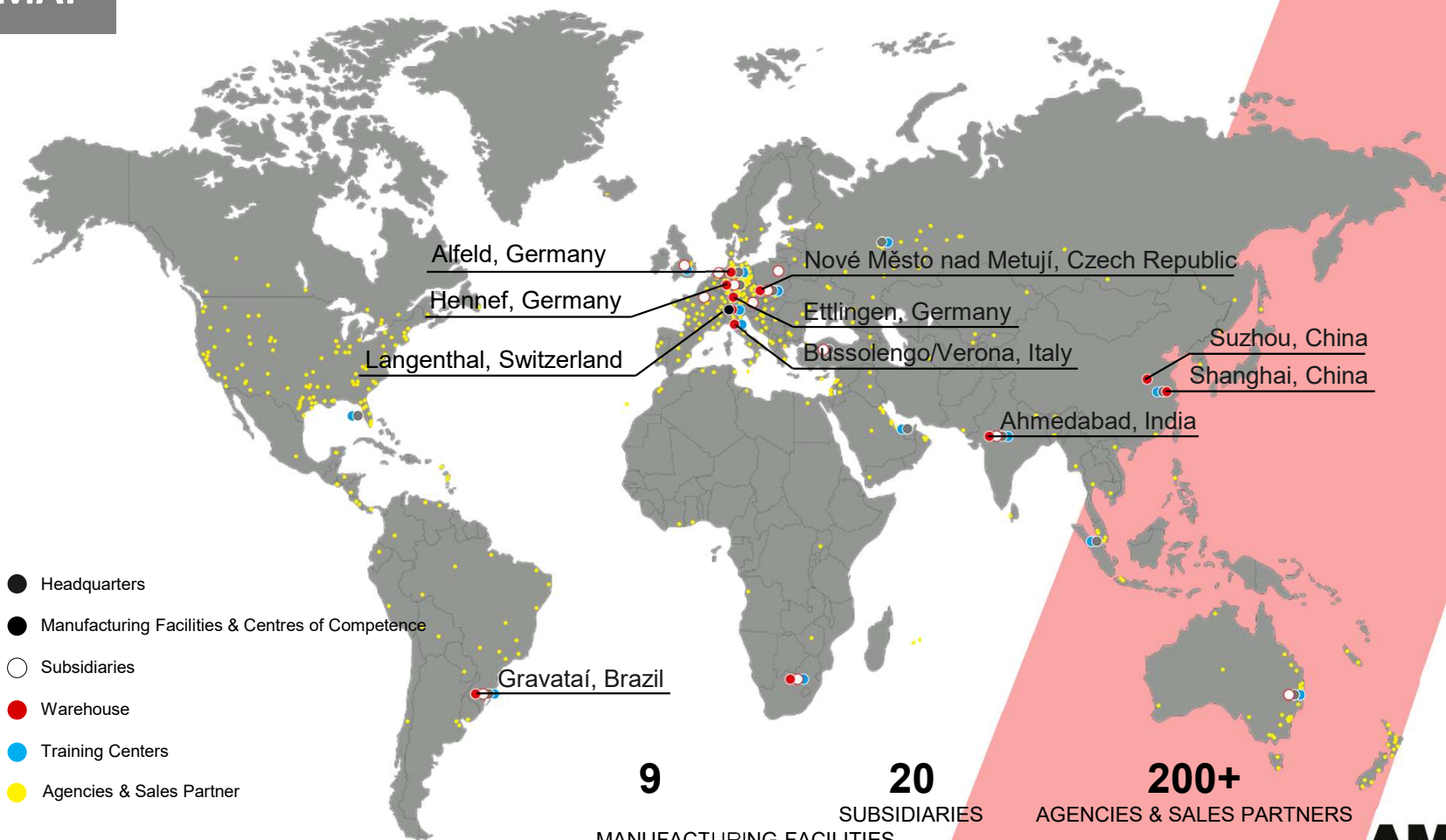
## COMPLETE TIMELINE





OVERVIEW

WORLD MAP



- Headquarters
- Manufacturing Facilities & Centres of Competence
- Subsidiaries
- Warehouse
- Training Centers
- Agencies & Sales Partner

**9**  
MANUFACTURING FACILITIES  
& CENTRES OF COMPETENCE

**20**  
SUBSIDIARIES

**200+**  
AGENCIES & SALES PARTNERS

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# MANUFACTURING FACILITIES & CENTRES OF COMPETENCE



OVERVIEW

PRODUCT PORTFOLIO AMMANN

LIGHT COMPACTION

RAMMER



VIBRATORY PLATES



ADD-ON COMPACTORS



WALK BEHIND



TRENCH ROLLERS



HEAVY COMPACTION

TANDEM ROLLERS (LIGHT)



PNEUMATIC ROLLERS



TANDEM ROLLERS



SINGLE DRUM ROLLERS (SMOOTH DRUM)



SINGLE DRUM ROLLERS (PADFOOT DRUM)



ASPHALT PAVERS

WHEELED PAVERS



TRACKED PAVERS



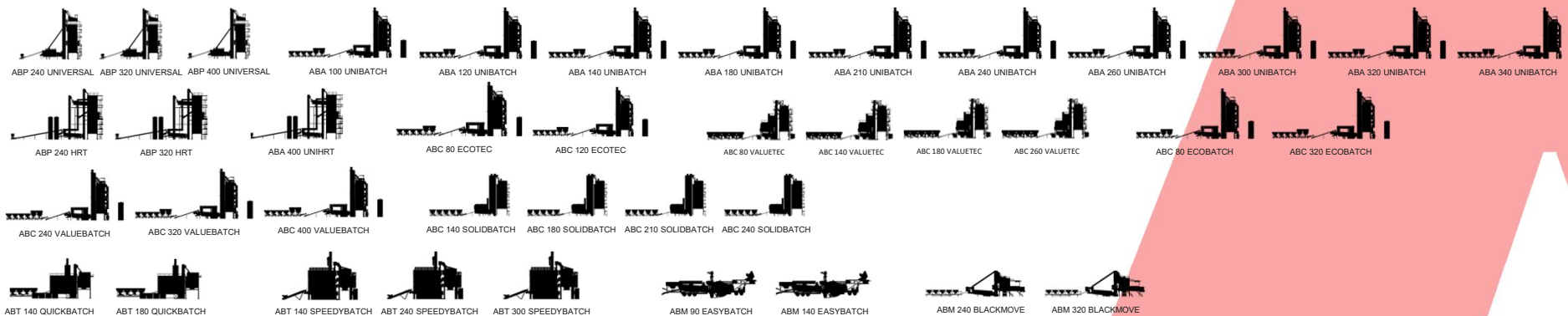
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OVERVIEW

PRODUCT PORTFOLIO AMMANN

ASPHALT MIXING PLANTS

BATCH PROCESS



CONTINUOUS PROCESS



CONCRETE MIXING PLANTS

STATIONARY



TRANSPORT-OPTIMIZED



LINEAR STORAGE BINS



MIXER



MODULES



COMPLEMENTARY PRODUCTS



ASPHALT RECYCLING



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# PRODUCT PORTFOLIO APOLLO

## ASPHALT PAVERS

### WHEELED PAVERS



### TRACKED PAVERS



### CURB PAVERS



## COMPLEMENTARY PRODUCTS

### BITUMEN SPRAYERS



## ASPHALT MIXING PLANTS

### CONTINUOUS PROCESS





## GOVERNMENT FOCUS : CONVERSION OF KNOWLEDGE INTO WEALTH

**Press Information Bureau  
Government of India  
Ministry of Road Transport & Highways**

12 JUL 2022 5:23PM by PIB Delhi

### **Shri Nitin Gadkari calls for an organisation for Indian construction equipment manufacturing industry for research and giving appropriate technology for the future**

The Minister emphasized on research and development of equipments. He said innovation entrepreneurship science technology research skill and successful practice we name as knowledge and the conversion of knowledge into wealth is the future. He said without economic viability technology is not useful and asked manufacturers to concentrate on the fuel efficiency. Shri Gadkari stressed on the importance of bio LNG ,Bio CNG and Hydrogen as alternate fuels for cost saving and reduction in pollution. Talking about innovation and Electric vehicles he said its time to change and manufacturing of

The Minister also emphasized on skilled manpower, appropriate training and road safety for long term planning. He said this industry is giving strength to Indian economy and in making atmanirbhar bharat .

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**At. Ditasan, Mehsana**

Certified by :



TRAINING

# AMMANN ACADEMY



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# AMMANN TRAINING ACADEMY

## OPERATORS | TECHNICIANS | SUPERVISORS

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
JANUARY								PAVER   BASIC											BATCH-MIX PLANT   BASIC										COMPACTOR   BASIC		
FEBRUARY			PAVER   BASIC							COMPACTOR   BASIC																BATCH-MIX PLANT   BASIC					
MARCH			PAVER   BASIC													COMPACTOR   BASIC															
APRIL																															
MAY																															
JUNE																															
JULY																															
AUGUST																															
SEPTEMBER																															
OCTOBER																															
NOVEMBER																															
DECEMBER																															

COMPACTOR   BASIC	11
BATCH-MIX PLANT   BASIC	12
PAVER   BASIC	11
<b>TOTAL</b>	<b>34</b>

Training Schedule for 2023



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CONVERSION OF KNOWLEDGE INTO WEALTH - IS THE FUTURE

## AMMANN'S STAND ON GOVERNMENT FOCUS



**AMMANN ACADEMY**

**FREE**  
**SKILL**  
**ENHANCEMENT**  
**SESSION**

**FOR HOT MIX PLANT OPERATOR**  
16th to 19th Oct, 2023

AT. DITASAN, MEHSANA  
CONTACT : 63572 92482

- Duration of the program is 4 Days with IESC / NSDC Certification.
- Participants must have at least 2 years of relevant experience to qualify for certification.
- Above program will be conducted at Ammann Academy, Mehsana, Gujarat.
- Accommodation will be arranged by Ammann India. However, transportation & Food expenses to be borne by participants.
- Training will be free of cost to our customers and chargeable to any external participation.

Certified by:



We have successfully completed 8 Batches of Operator's Training with total of **136 certified operators** in the faculty of **Asphalt plants / Pavers & Concrete plants.** YTD September'2023.

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**AMMANN IS KNOWN FOR ASPHALT BATCH MIX PLANT WORLDWIDE**

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# IMPROVEMENT IN ASPHALT TECHNOLOGY

**Speed of Change**



1. Efficiency of Production
2. Environmental Friendliness
3. Quality of Asphalt
4. Low Temperature Asphalt
5. Reduction in Carbon Footprint
6. Recycling

1950

2000

2015

2025



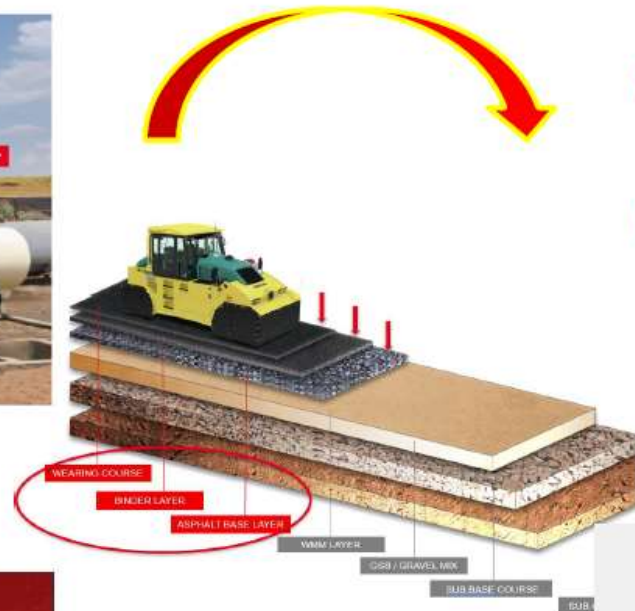
# PARALLEL FLOW TO COUNTER FLOW DRUM MIX PLANT – LATEST TECHNOLOGY

## PARALLEL FLOW DRUM MIX PLANTS

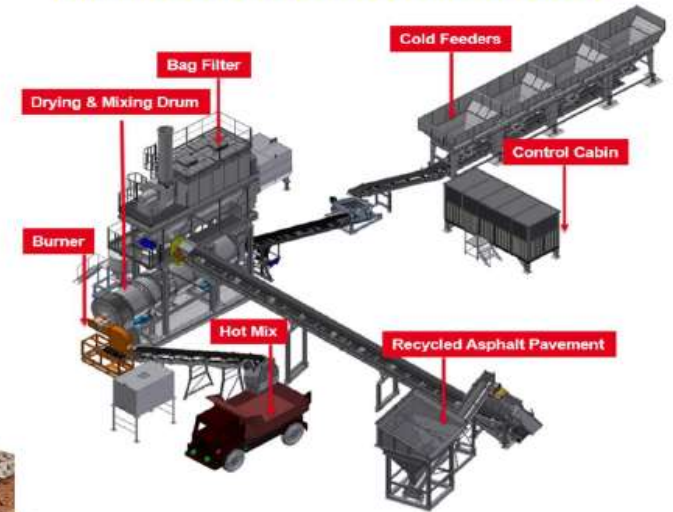


### LIMITATIONS

- High on energy consumption due to parallel flow of heat exchange
- Use of Wet Scrubber to control the dust pollution
- Limitation in use of RAP, SMA, Waste Plastic etc.



## COUNTER FLOW DRUM MIX PLANTS



## POLLUTION FREE PLANTS

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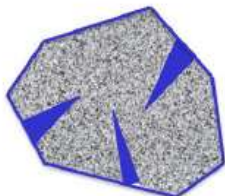
# ADVANCE DRYING AND AGGREGATE HEATING SYSTEM

## CARBON FREE AGGREGATES

Residual moisture

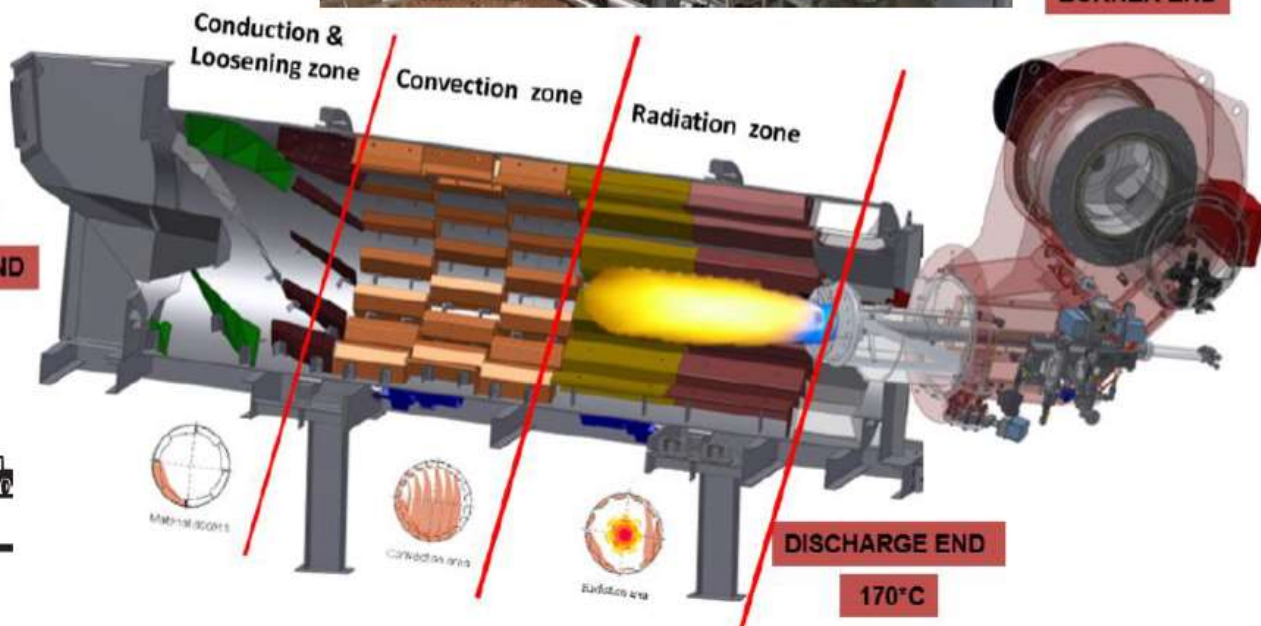
Easy to dry

Difficult to dry



BURNER END

28°C  
FEEDING END



DISCHARGE END

170°C



SAVE ON FUEL



SAVE ON MAINTENANCE

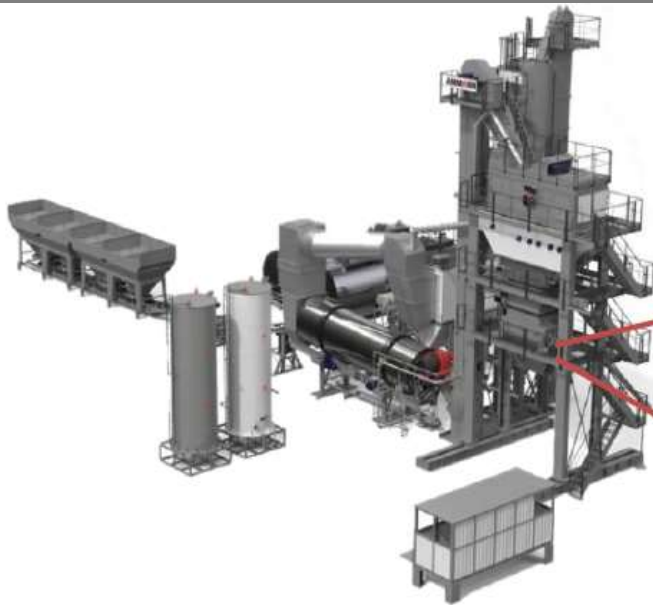


SAVE ON PRODUCTION

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# ADVANCE ASPHALT MIXING TECHNOLOGY PROCESS



MIXING PROCESS WITH THREE COMPONENTS:



Start

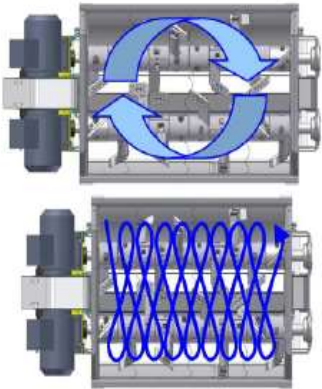
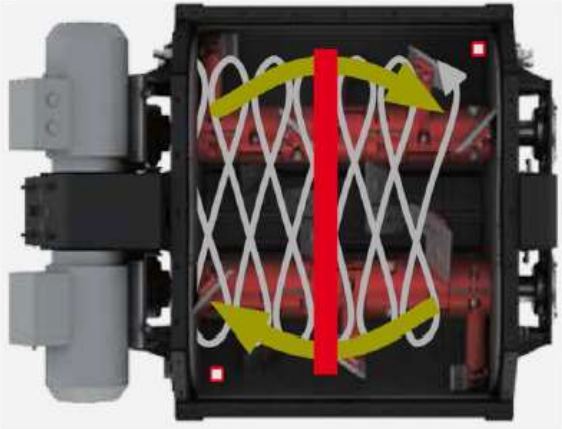


After 6 seconds



After 12 seconds

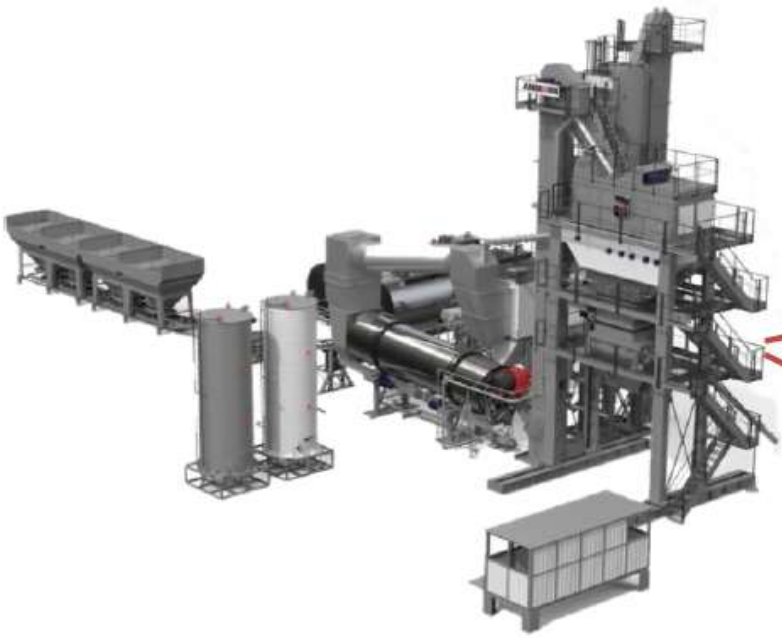
Material movement in the batch mixer



- Legend to material movement in the mixer
- Basic movement due to displacement of the individual shaft
  - Shear movement due to the interaction of the 2 shafts
  - Optimal filling of the mixer
  - When filling avoid: because of slower distribution of the material, i.e. delayed homogeneity



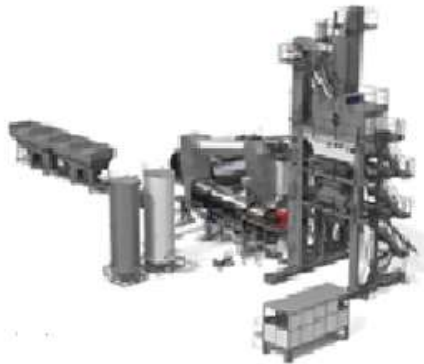
# ADVANCE CLOSE LOOP BITUMEN SYSTEM TO AVOID OXIDATION



# BATCH TYPE ASPHALT MIX PLANT – MODELS & CAPACITY



**ANP Series**  
ANP1500 - 120tph  
ANP2000 - 160tph



**ABC Valutec Series**  
VT80/100 - 80/100 tph  
VT140 - 140tph  
VT180 - 180tph  
VT260 - 260tph

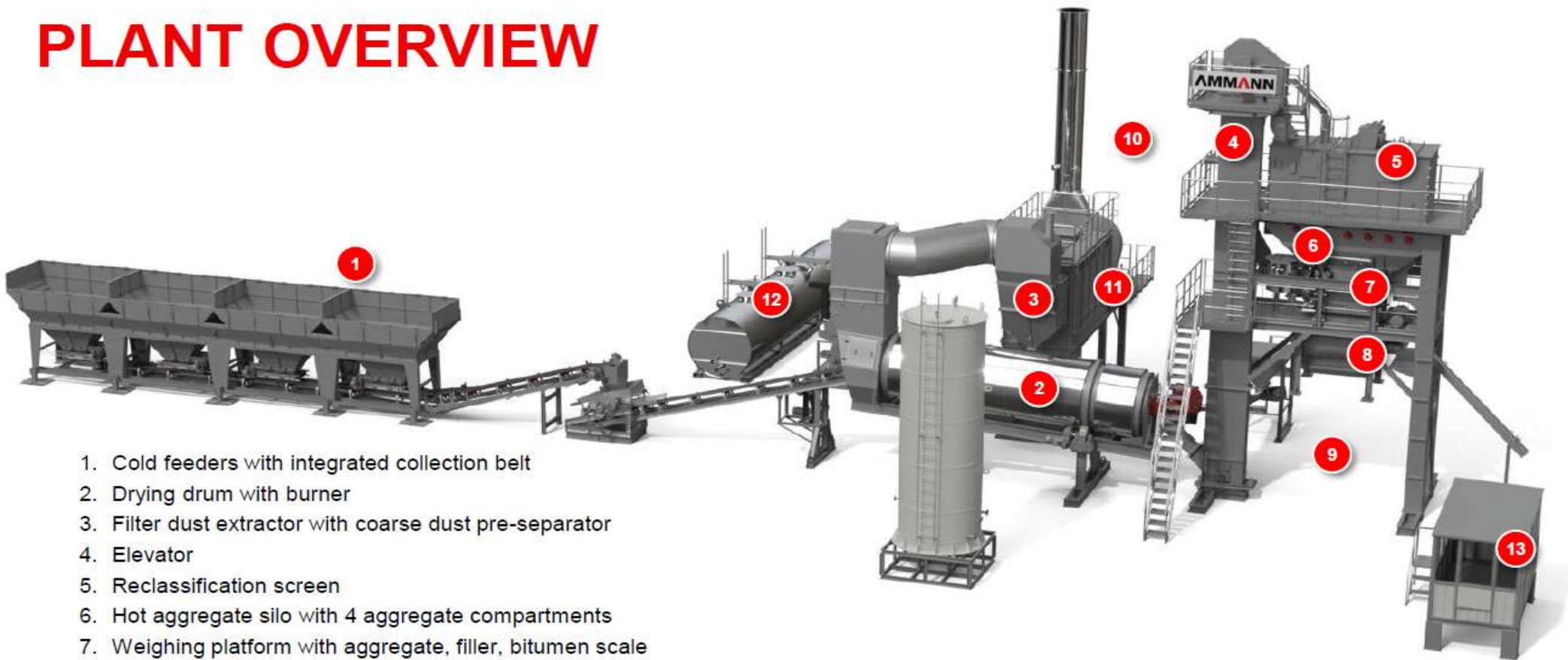


**Ecotec Plant**  
Ecotec120 - 120tph



**Countertermix**  
90 -120 tph

# PLANT OVERVIEW

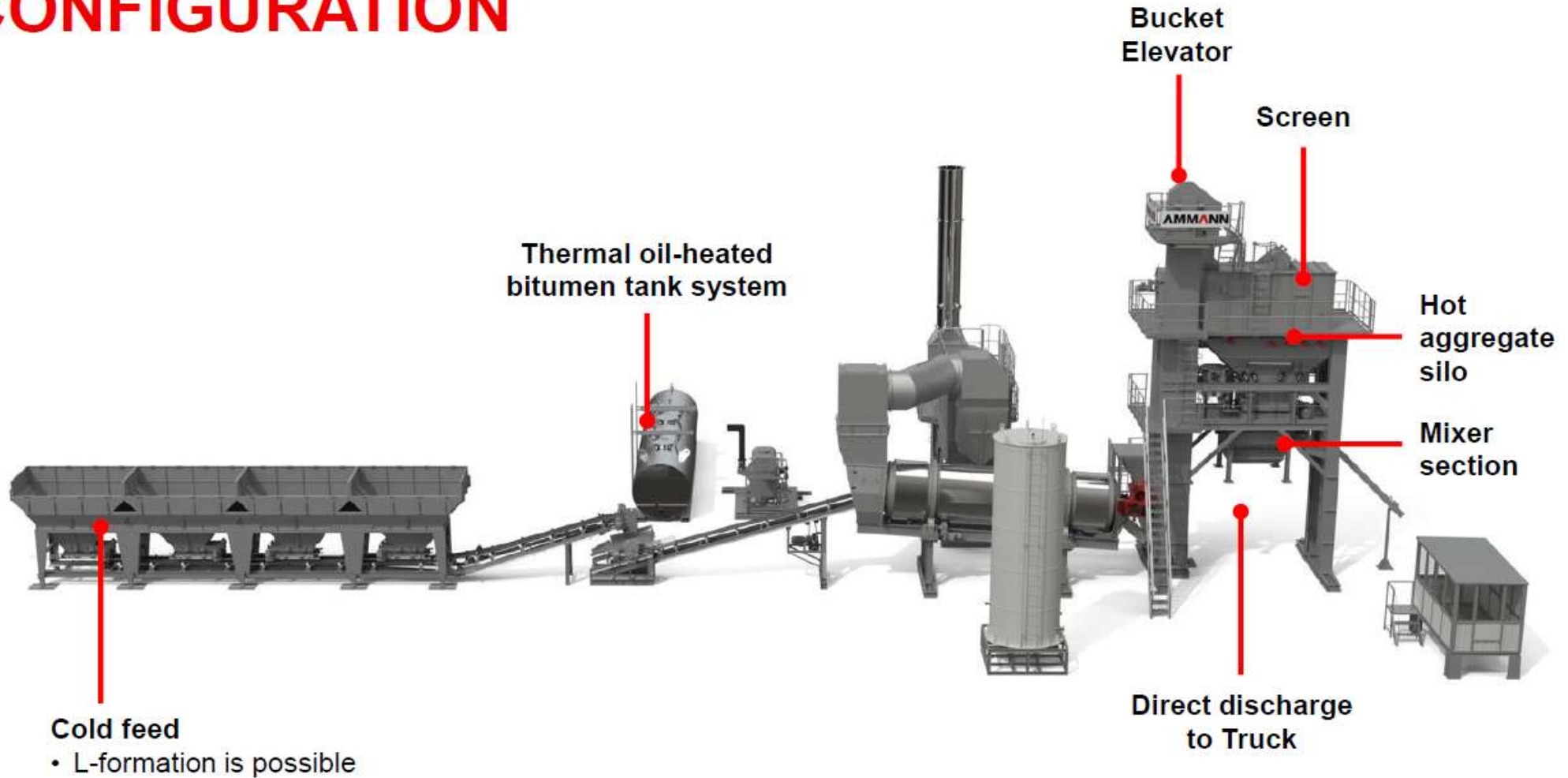


1. Cold feeders with integrated collection belt
2. Drying drum with burner
3. Filter dust extractor with coarse dust pre-separator
4. Elevator
5. Reclassification screen
6. Hot aggregate silo with 4 aggregate compartments
7. Weighing platform with aggregate, filler, bitumen scale
8. Mixing platform with twin-shaft paddle mixer
9. Truck loading direct from mixer.
10. Filler silo tower for reclaimed and imported filler (Optional)
11. Reclaimed filler storage
12. Thermal oil-heated bitumen tank system
13. Control cabin with control system

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# CONFIGURATION



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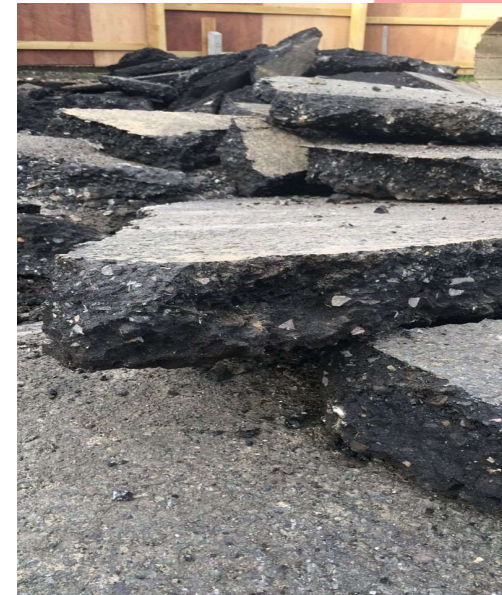


# RECYCLING TECHNOLOGY RAP ADDITION

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## PILES OF RECLAIMED ASPHALT



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# Allowed content of Recycling Asphalt

Country	Wearing Course	Binder Course	Base Course
Belgium	25%	50%	
Denmark	30%		100%
France	40%		
Germany	50%		100%
Hungary	10%	20%	
Ireland	10%	50%	
Poland	20%	30%	
Portugal	10%	50%	
Spain	-	10-50%	
Sweden	20%	30%	
Switzerland	30%*	30%	60%

# Why Recycling Asphalt Pavement?

- Reduce environmental consumption
- Reduced raw materials necessities
- Savings of natural resources
- Reduced areas to stock milled materials that in some countries is considered as waste materials
- Reduced environmental pollution
- Energy saving
- Economically very convenient

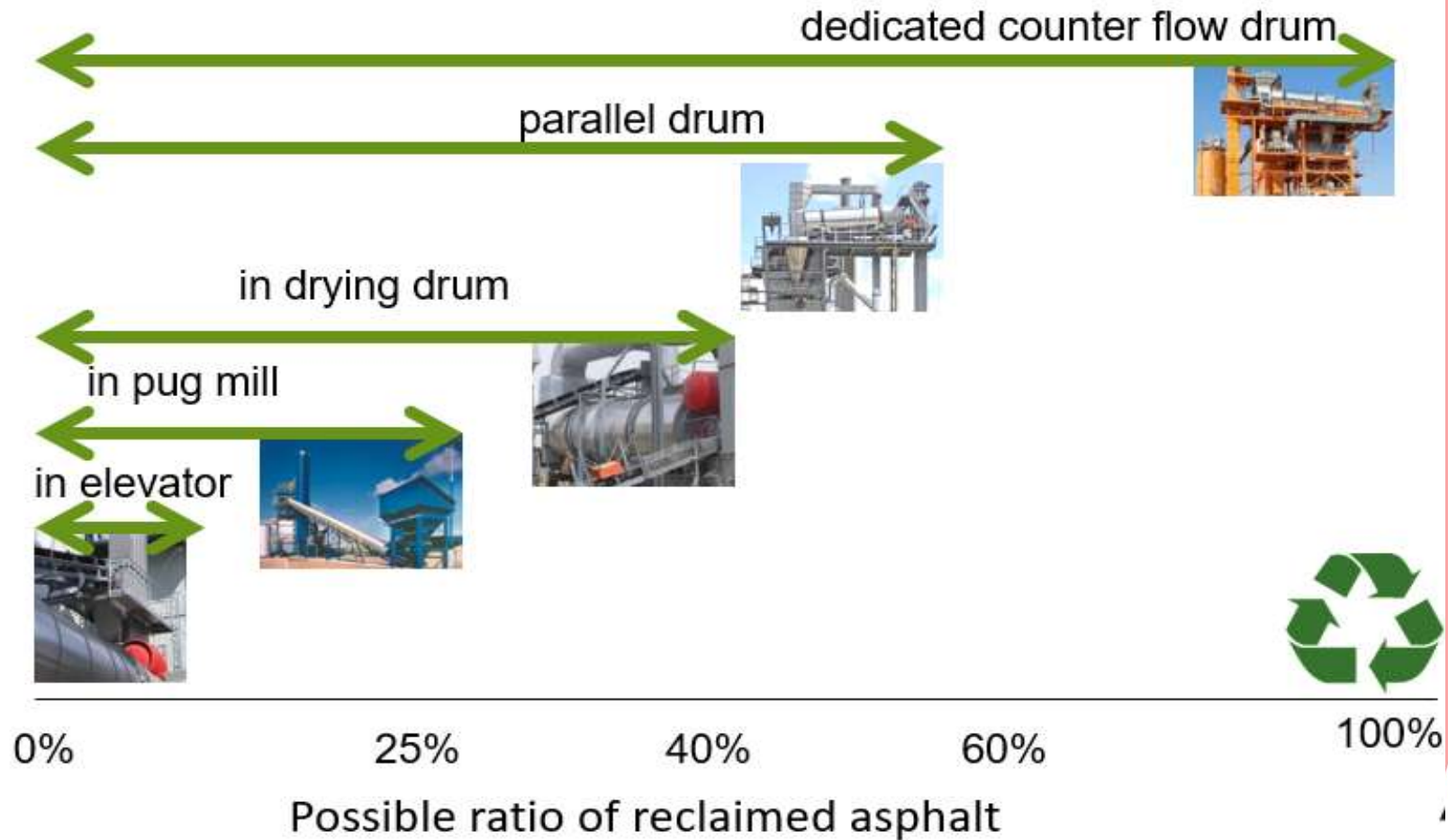
## High Recycling material pre-requisites

- Careful sourcing.
- Effective receiving inspection.
- Separate storage.
- Extensive initial type tests.
- Machine- and process-specific requirements to be met by the mixing plant.

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# Different Techniques to Keep RA on the Road



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# Asphalt Recycling



- Not supplied in India.
- Worldwide > 30 installations

## Cold Recycling Systems

Cold addition via hot elevator

max. 15% RAP

Cold addition direct into mixer

25% RAP \*

\*25% @ 3% RAP Moisture

Addition into aggregate dryer via middle ring

max. 40% RAP

## Warm Recycling Systems

Separate dryer to dry and preheat RAP and then addition into mixer

max. 60% RAP

Separate counter flow dryer to dry and preheat RAP and then addition into mixer

max. 100% RAP



> 94 Installations in India



> 8 Installations in India



- Supplied 1no.
- Under manufacturing 3nos



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## COLD RECYCLING

30% COLD FEED  
INTO THE MIXER

30%



40% COLD FEED  
IN DRYER DRUM RAH50

40%



60% HOT FEED  
IN PARALLELL DRUM

60%



100% HOT FEED  
IN RECYCLING DRUM RAH100

100%



- Integrates expertise gained from countless plant operations around the world.
- Can utilize up to 60% hot recycled material.
- Screens new aggregate/minerals.
- High feed ratio.
- Gentle heating.
- Can work in combination with the cold feed system.

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# RA Cold Addition Into Pugmill – 25% RA

## Advantages

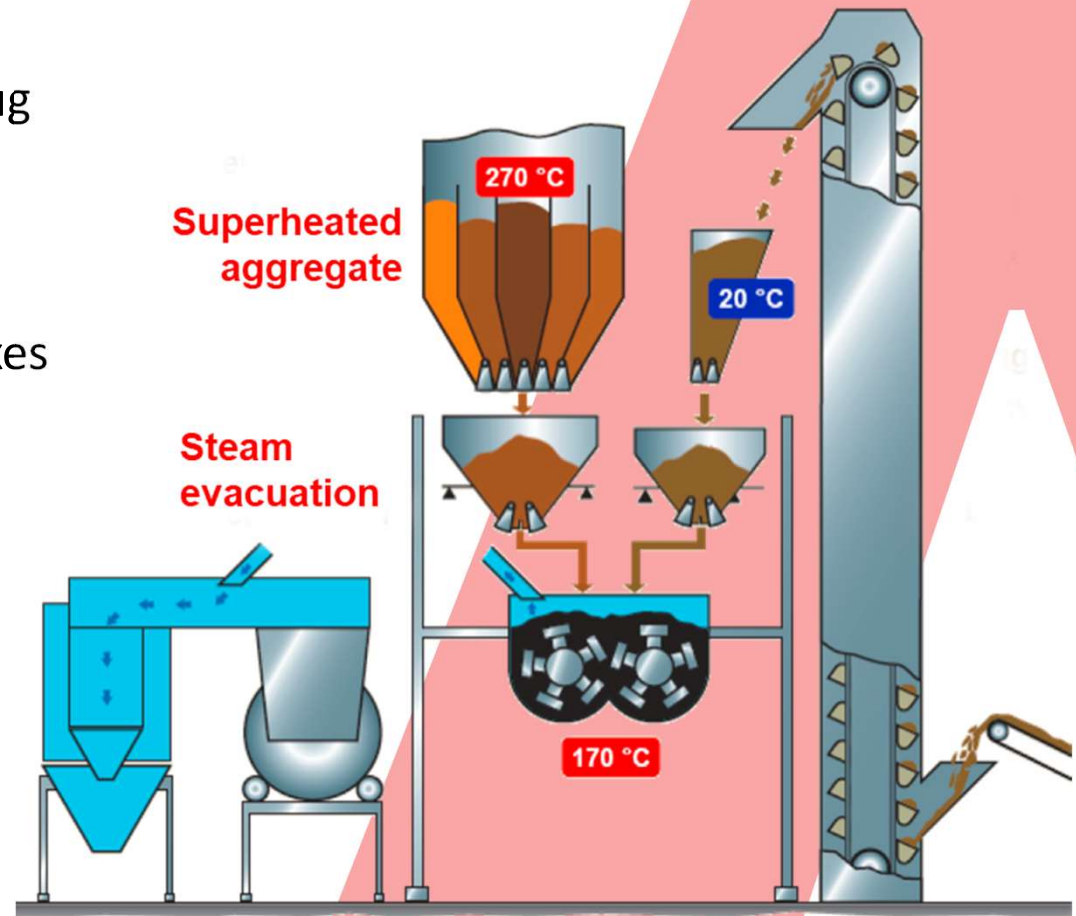
- RA and aggregates dosed separately into pug mill
- use of screen not affected
- Inexpensive, straightforward solution
- good to combine with low temperature mixes

## Limiting factors

- Steam evacuation
- Superheating of aggregates

**900+ installations worldwide**

At 3% Moisture



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# Ammann RAH50 Drum

RA addition into aggregate drum for addition rates of 40–50%

- New design from Ammann, due to great demand in southern Europe markets
- High RA addition rates with low-cost installation
- Suitable for bypass-operation only



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# Actual photos of RAH50 plants



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# RA Warm-Addition with Parallel Drum – Up to 60%

**60% RA**  
**@ 3% H<sub>2</sub>O**

Superheated aggregates

220 - 240 °C

120 - 140 °C

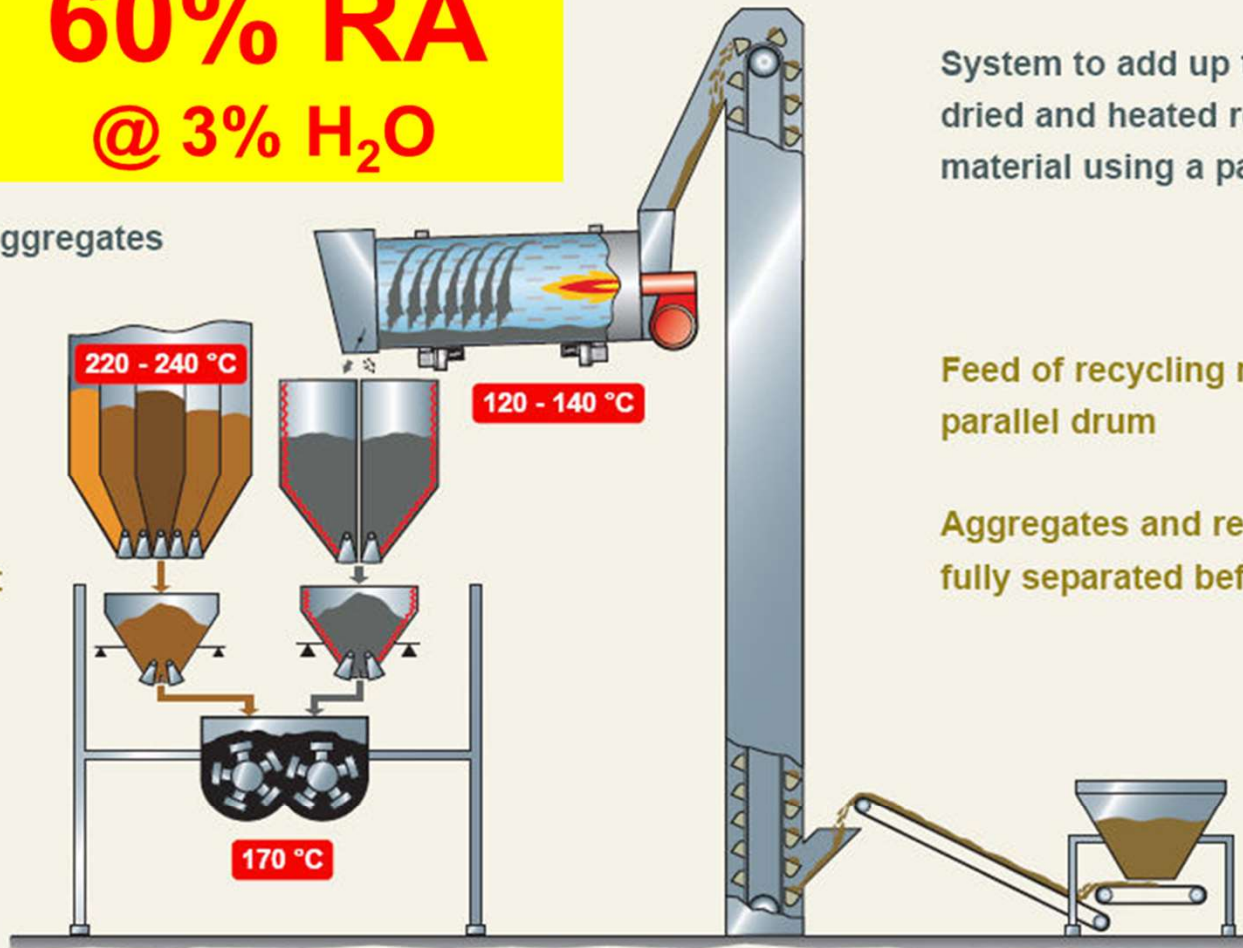
Storage of different material qualities

170 °C

System to add up to 60% of dried and heated recycling material using a parallel drum

Feed of recycling material via parallel drum

Aggregates and recycling remain fully separated before the mixer



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# Asphalt Recycling

Ammann RAH60

**Warm RAP System**

**Cold RAP System**

60% warm addition  
 or  
 30% cold addition  
 or  
Any combination of both  
 for 60%

Method	Economy	Ecology	Quality	Technology
RAH 60	Medium Investment	Low emission	Superheated stone	Recycling in Separate Parallel drum
	High saving of Resources	Up to 60% RAP	VA with Screen	



## Modern RAH60 batch plant

- Low energy consumption
- Low emission level
- Low running costs



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# RAH60 Plant

Made In India



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# RAH60 Plant

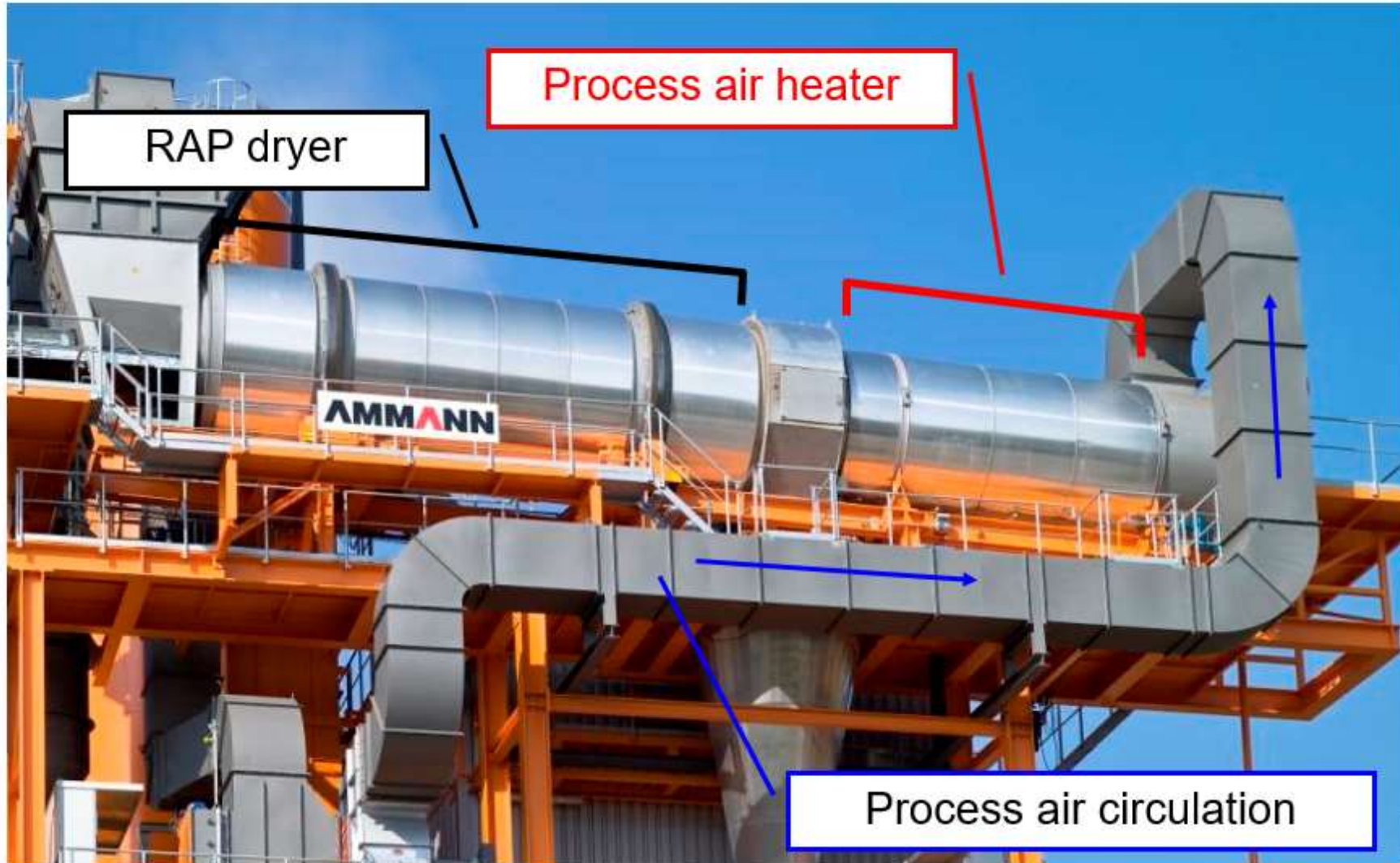
Made In India



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# Counterflow Recycling Device RAH 100



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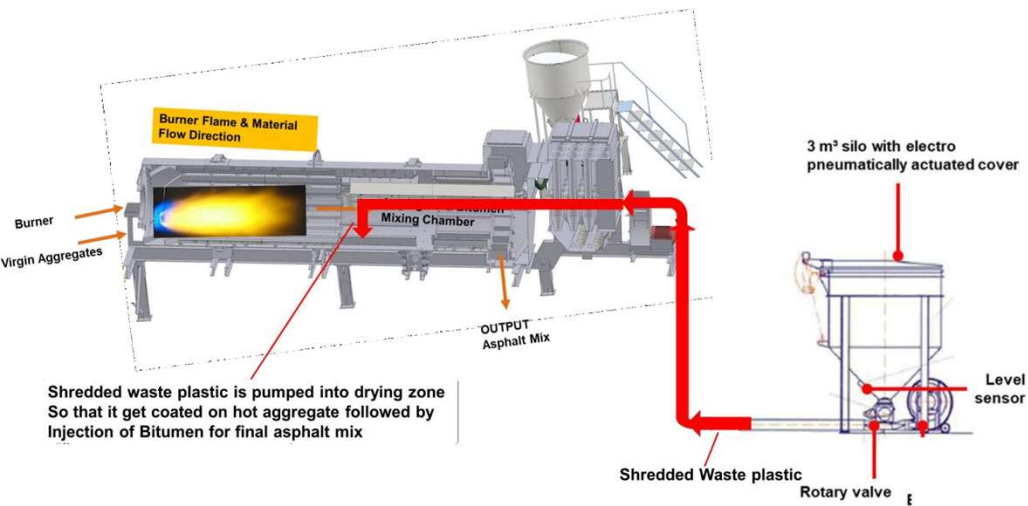
# RAH 100



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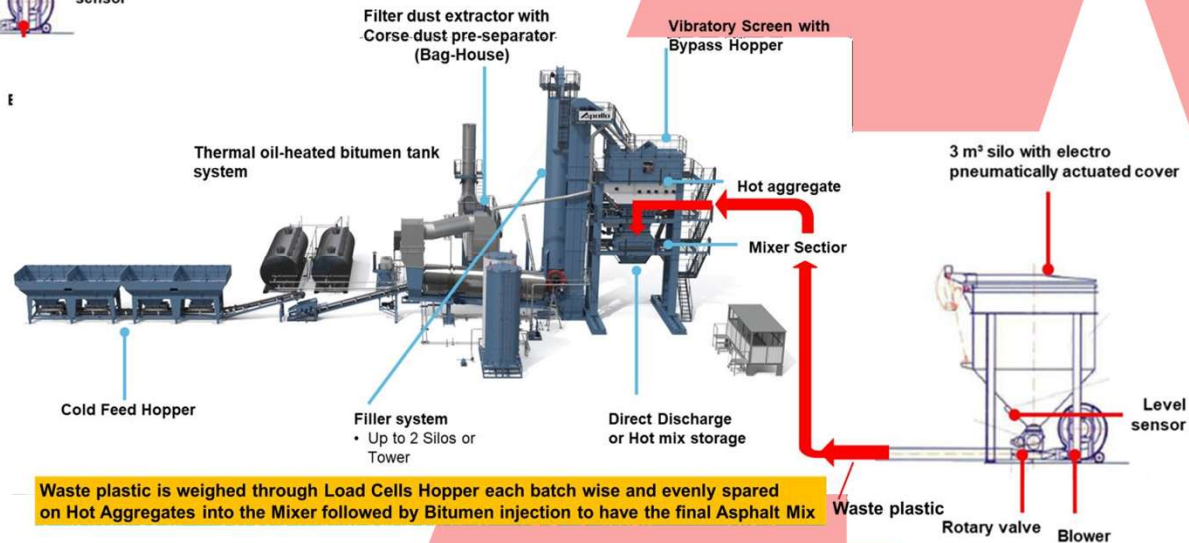
# WASTE PLASTIC ADDITION – DRUM MIX & BATCH MIX PLANT



Dry Sample of waste plastic



Asphalt Mix sample of waste plastic

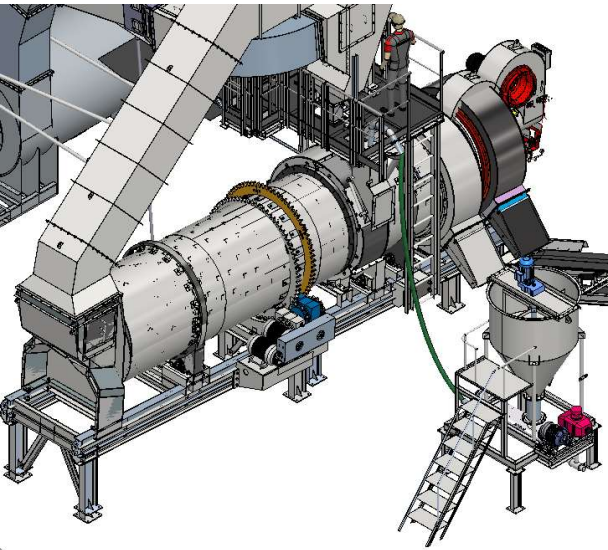


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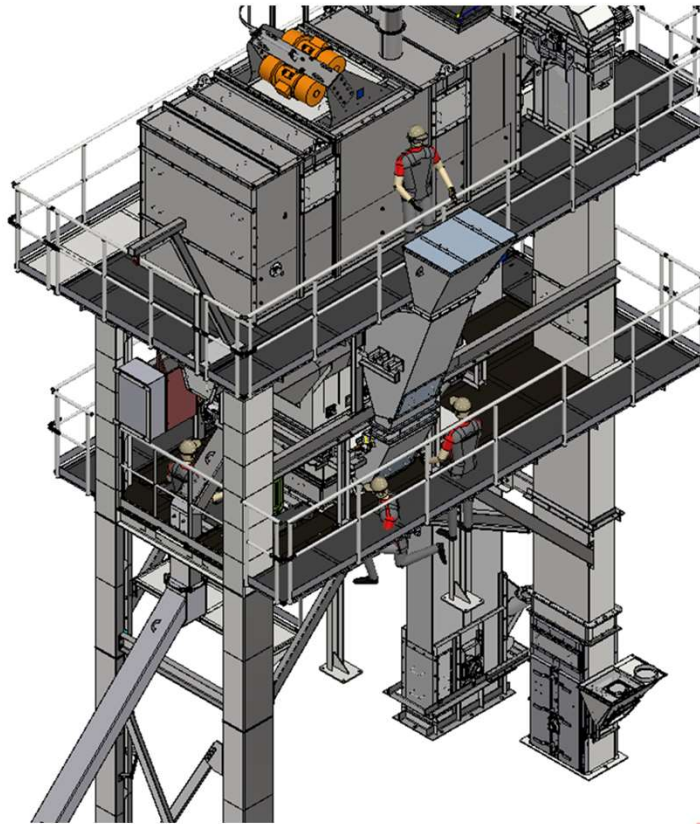
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# WASTE PLASTIC ADDITION

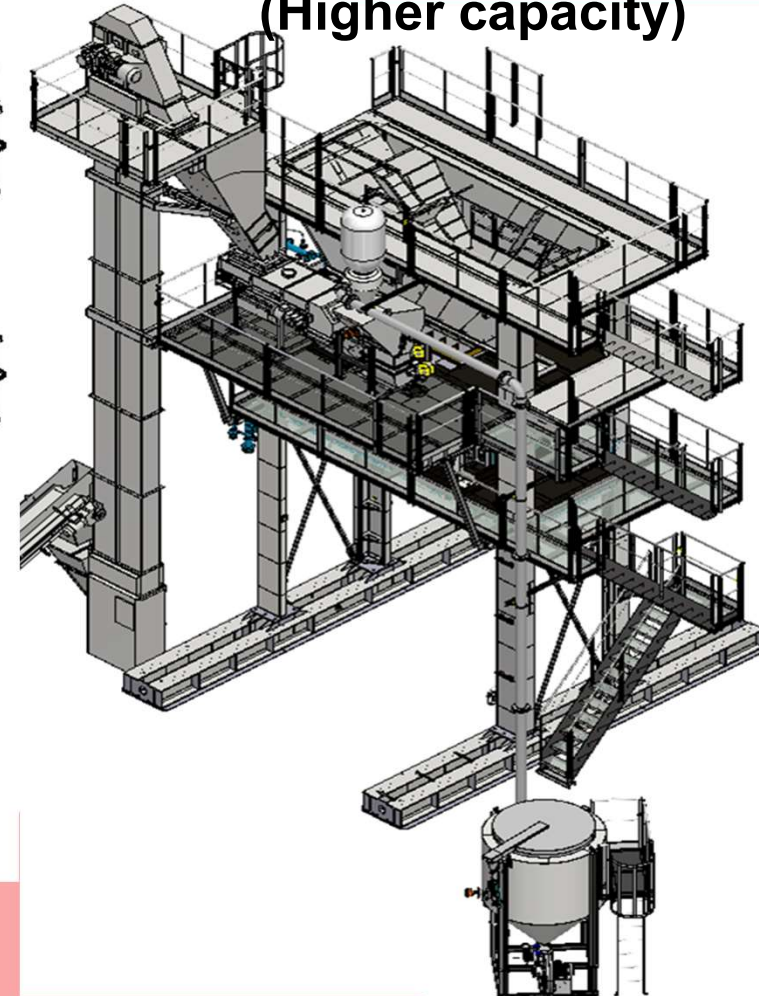
## Continuous plant



## Manual addition up to 120 tph plant



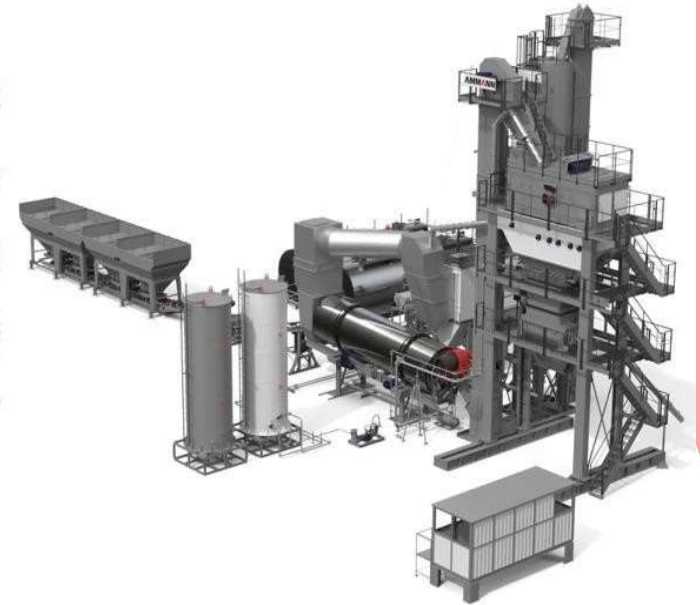
## Pneumatic feeding (Higher capacity)



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# USE OF STONE MATRIX ASPHALT (SMA) IN ROAD CONSTRUCTION VIA ASPHALT PLANTS

- The 13 mm SMA in this specification (IRC:SP:79) is intended for wearing course with nominal layer thickness of 40 to 50 mm.
- The 19 mm SMA is intended for binder (or intermediate) course with nominal layer thickness of 45 to 75 mm.
- Compaction shall commence immediately after laying and shall be completed before the temperature falls below 100 C.
- The dosage rate for cellulose fibres is 0.3% minimum by weight (on loose fibre basis) of the total mix.
- Mineral filler shall consist of finely divided mineral matter such as stone dust and/or hydrated lime.
- Fly ash will not be permitted as a filler in SMA.



Cellulose Fiber to cellulose fiber pellets ⇒



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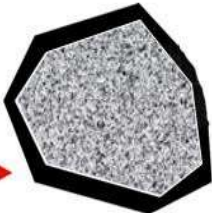
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# SMA IN ASPHALT PLANTS

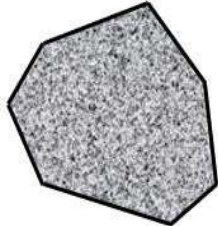
**Stone:** bearing of loads without vertical deformation!



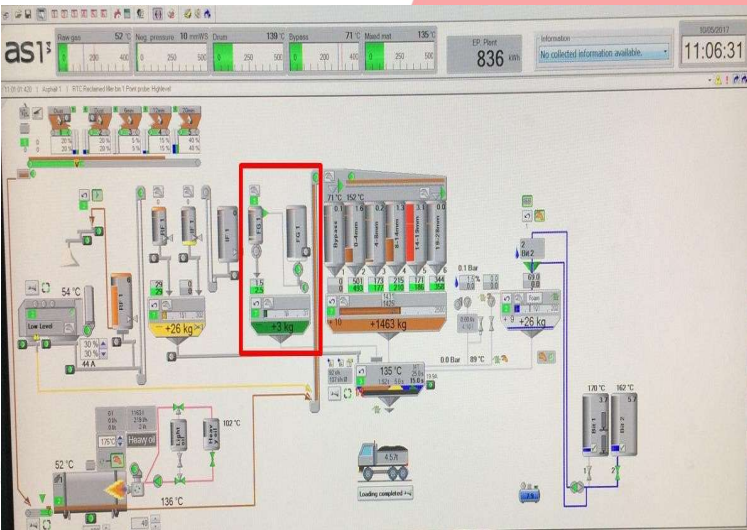
**Mastic:** thermoplastic behaviour  
 > very stiff + very adhesive  
 > no displacement of aggregate structure  
 > thick binder film increases life-time, better ageing properties



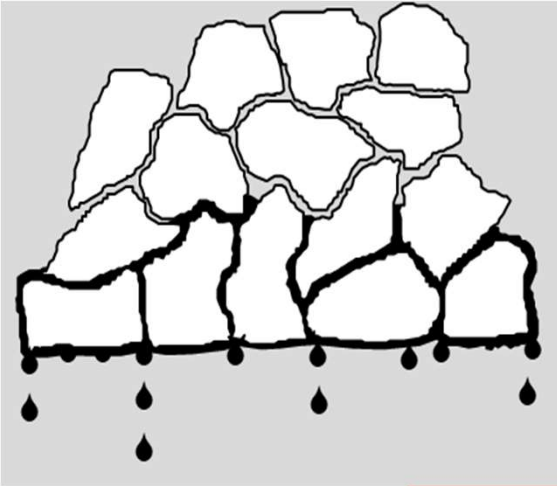
Thick film of modified bitumen Over an aggregate in SMA/GG mix Oxidizes slowly, Great ductility.



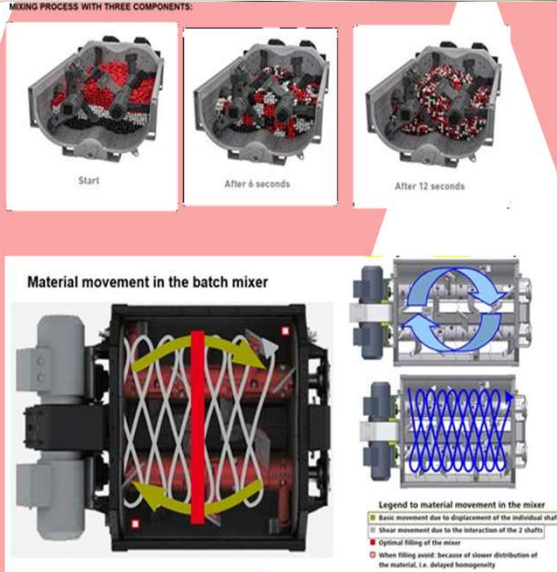
Thin film of aggregate in a Dense Grated mix (6 – 8 micron) Oxidizes Fast, Little ductility.



Dosing line of SMA



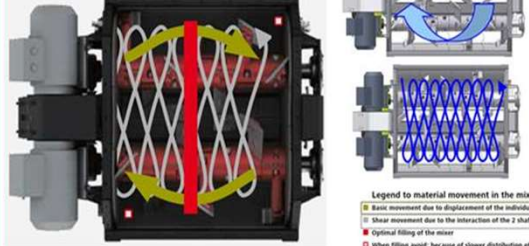
Drain down of bitumen due to inhomogenous Mixing Process



MIXING PROCESS WITH THREE COMPONENTS:

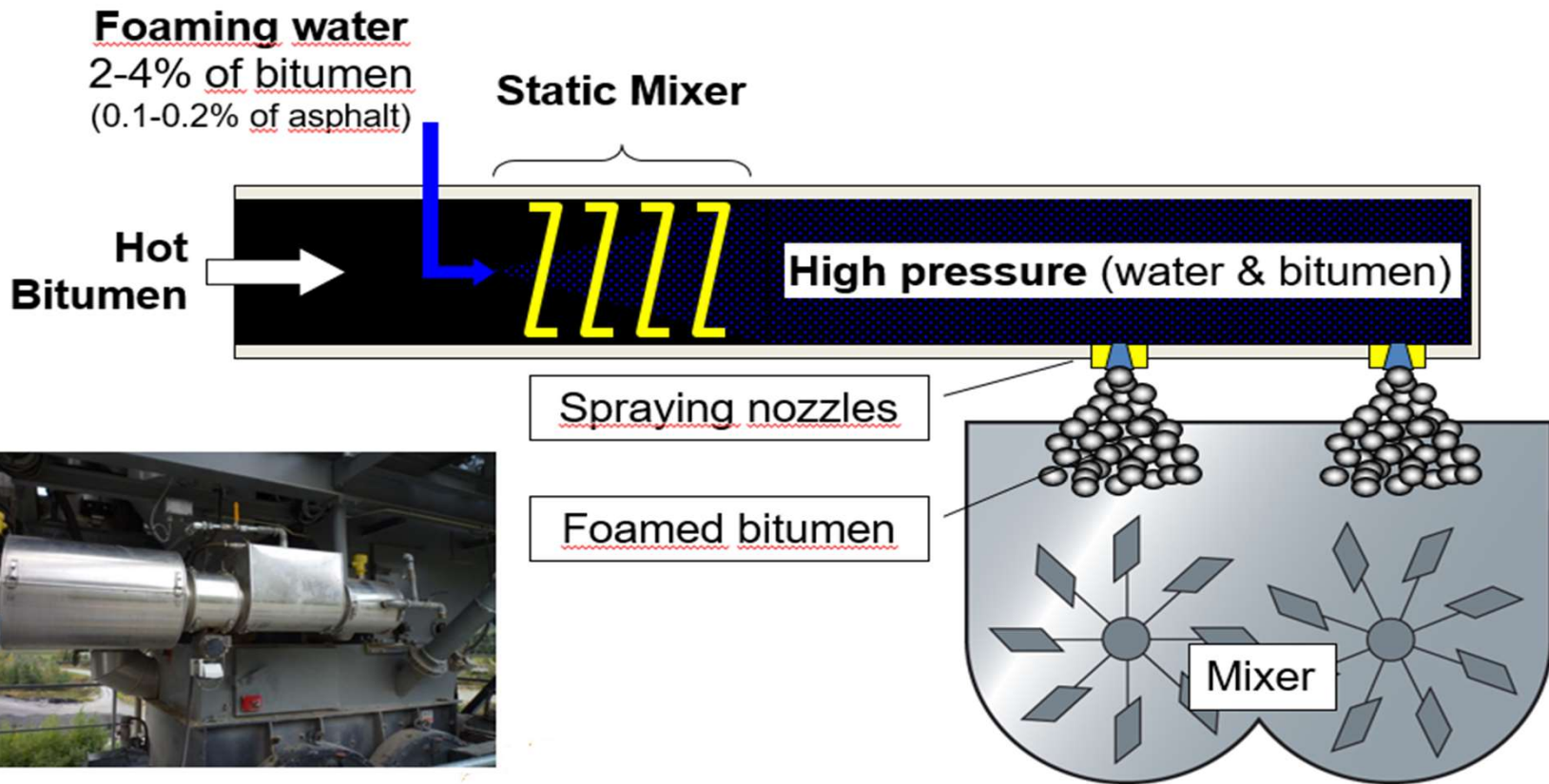


Material movement in the batch mixer

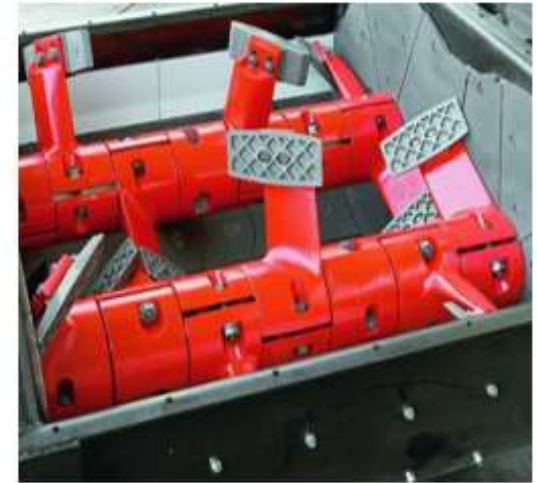
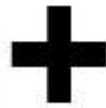


Legend to material movement in the mixer  
 ■ Basic movement due to displacement of the individual shaft  
 ■ Shear movement due to the interaction of the 2 shafts  
 ■ Optimal filling of the mixer  
 ■ When filling avoid: because of slower distribution of the material, i.e. delayed homogeneity

# FOAM BITUMEN



# FOAM BITUMEN



**Asphalt  
Recycling**

**Foam Bitumen:  
Asphalt @115°C**

**Twin-shaft  
Paddle Mixer**

140+ installation worldwide  
Temperature control, high-quality aggregates  
**Twin-shaft paddle mixer** to ensure proper mixing

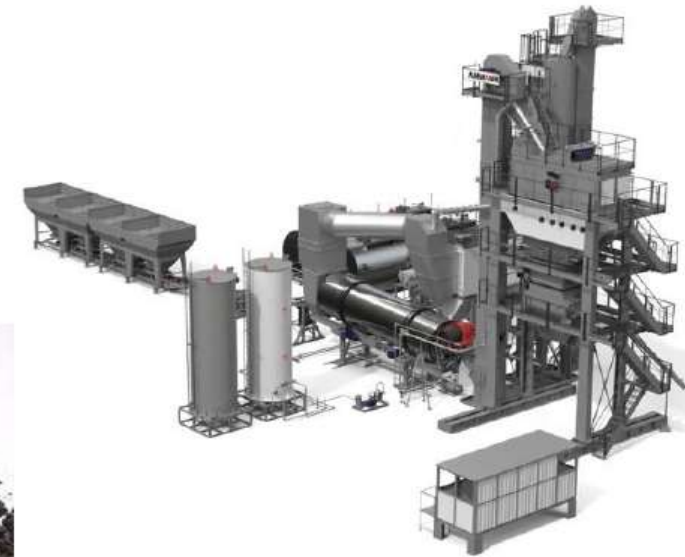
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## Use of Manufactured Aggregates – Steel Slag in Asphalt Plants

### Steel Slag as Aggregate

- The physical property of greatest concern is the high level of porosity compared to that present in naturally derived aggregates, which contributes to high absorption capacities. This is important during construction, as the moisture condition of the aggregate will impact workability and early-age, shrinkage-related cracking, if the aggregate is not kept sufficiently moist prior to batching. It may also have long-term ramifications on in-service durability, depending on the level of saturation those aggregates are subjected to either at the bottom of the slabs or in the vicinity of joints and cracks.





# CONCRETE MIXING PLANTS

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**ELBA**

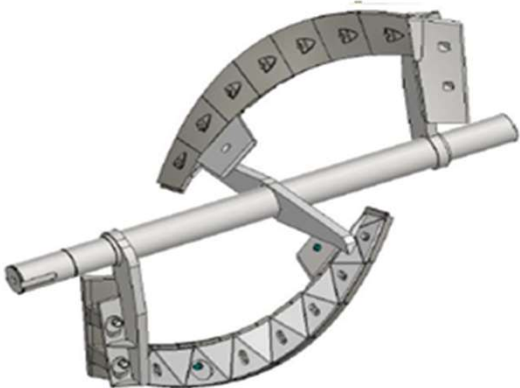
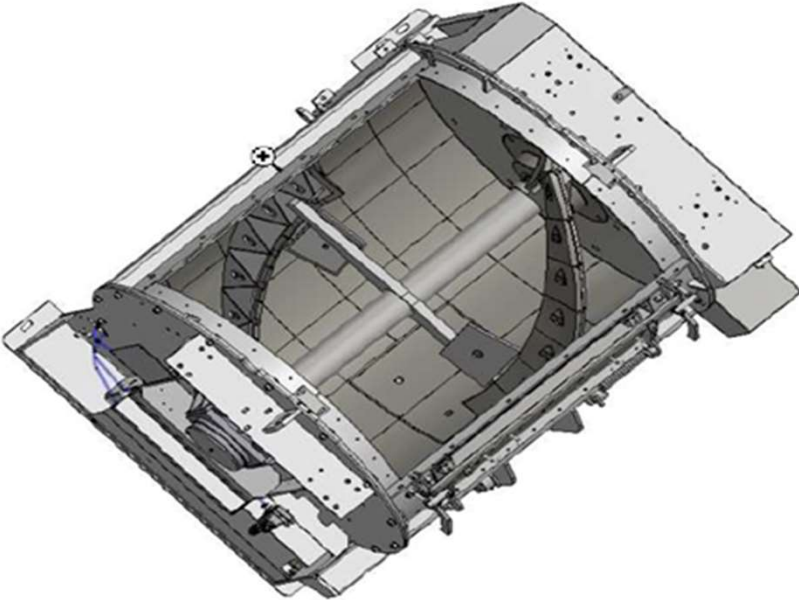


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# ELBA MIXER – CONCRETE PLANT

## MIXER

ELBA technology Spiral blade mixing



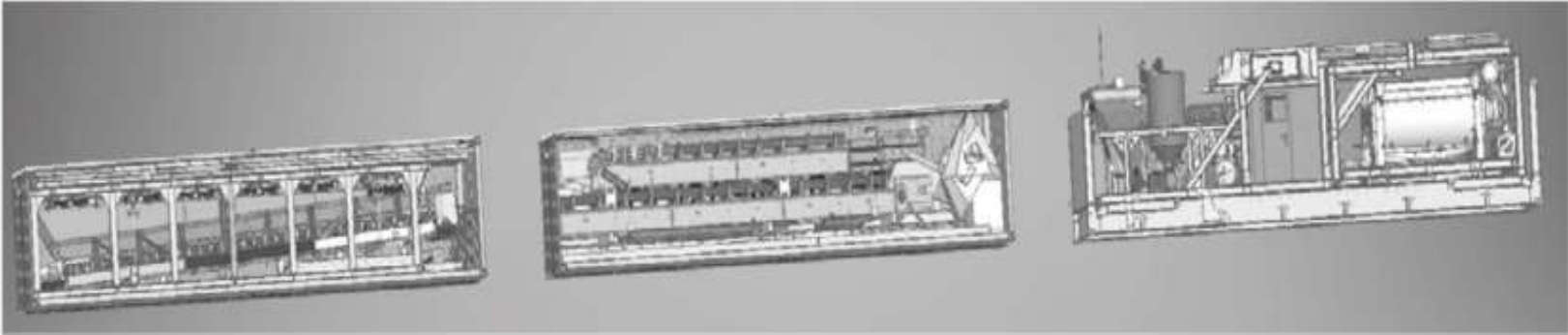
**AMMANN**  
**ELBA**

**AMMANN**

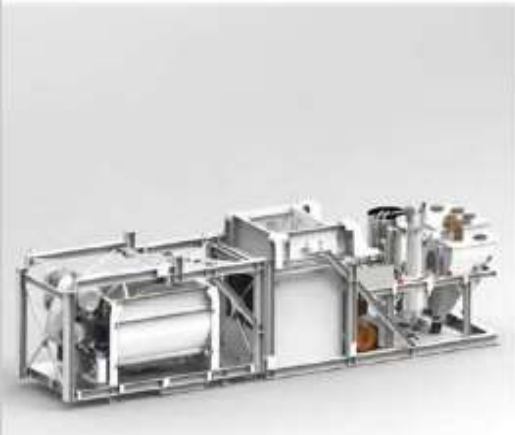
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# OPTIMIZED TRANSPORTATION - CONCRETE PLANT

## Ease of containerised transportation



## Ease of assembly erection



# MOBILE PLANTS



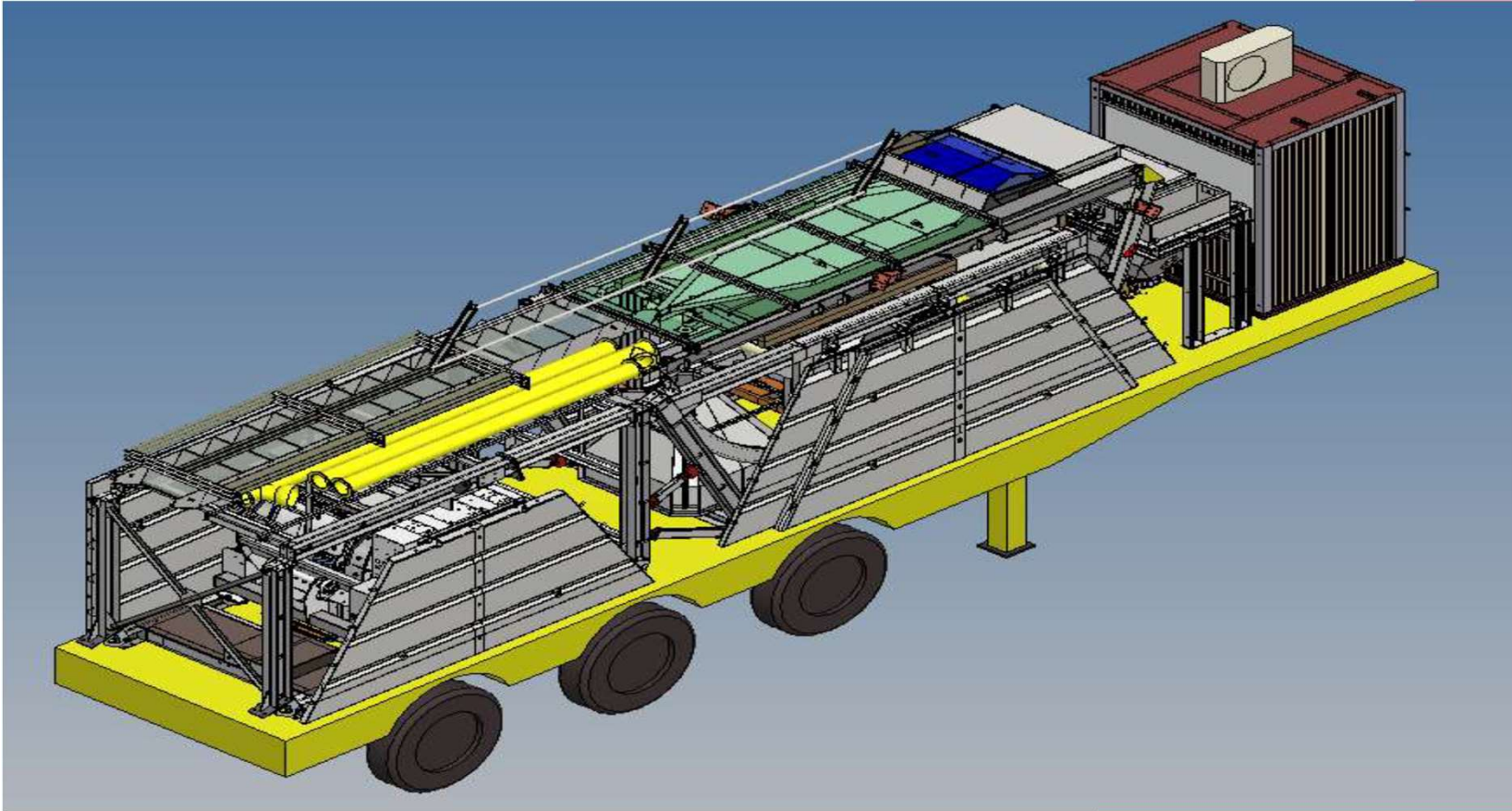
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# OPTIMIZED TRANSPORTATION

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**ELBA**



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## POWERFUL, RELIABLE AND PROVEN WORLDWIDE

The control system is the brain of every plant and the Ammann as1 Control System is as smart as it gets. The proprietary system helps to improve quality while reducing material waste and energy consumption.

- Comprehensive system functionality
- Quick and easy to learn
- Safe to operate
- Professional hotline and support organisations ready for service worldwide



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