DISA SAM Mixer

Just the right mix

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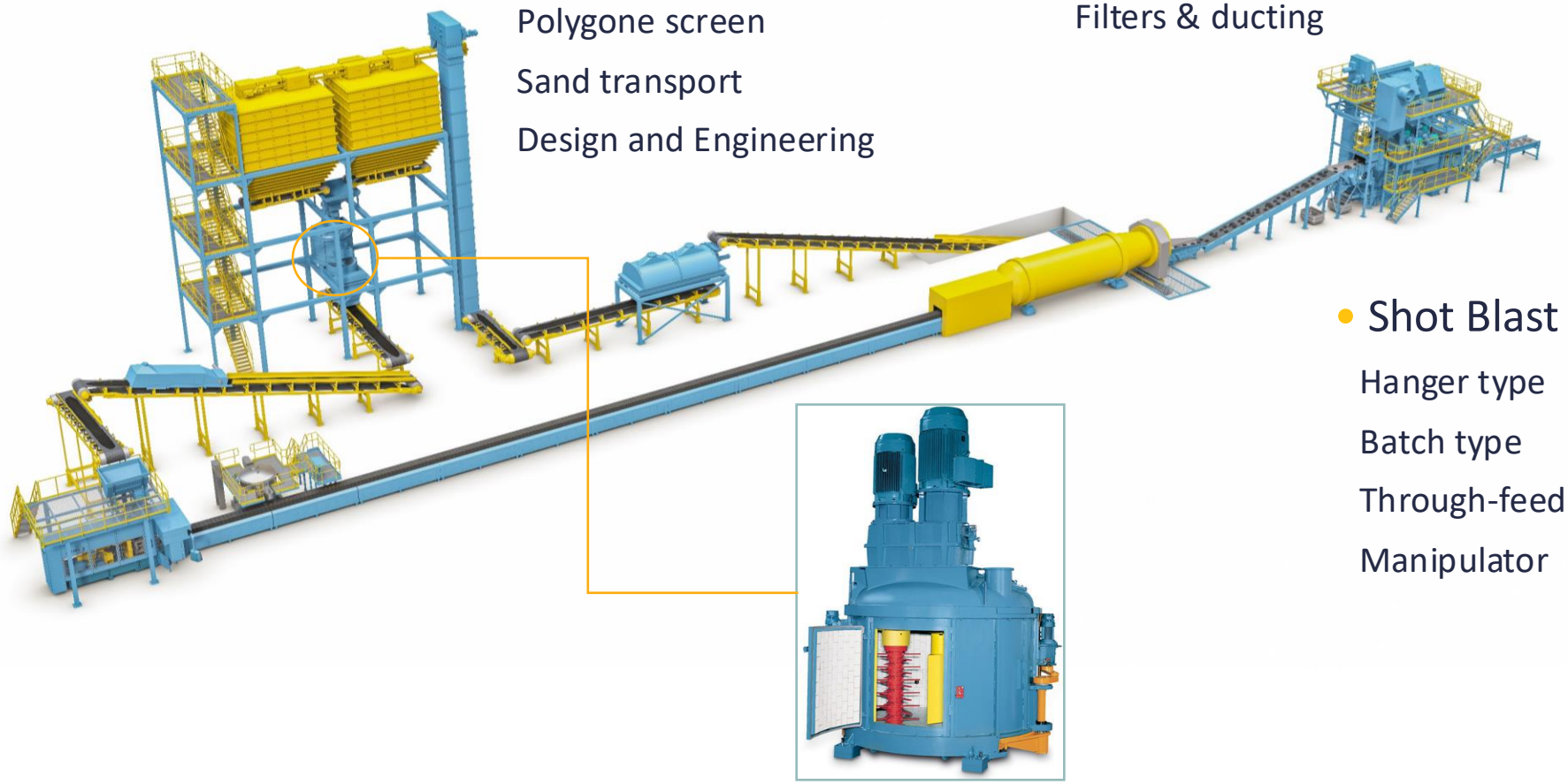
0242405

DISA Complete Foundry Solutions

- Sand & casting cooling
  - Cooling drum
  - Sand & casting coolers
  - Shuttle systems

- Sand plants
  - Mixers
  - SMC
  - Polygone screen
  - Sand transport
  - Design and Engineering

- Filter systems
  - Filters & ducting



- Shot Blast
  - Hanger type
  - Batch type
  - Through-feed
  - Manipulator

- Moulding machines
  - Vertical lines
  - Flask lines
  - Match Plates

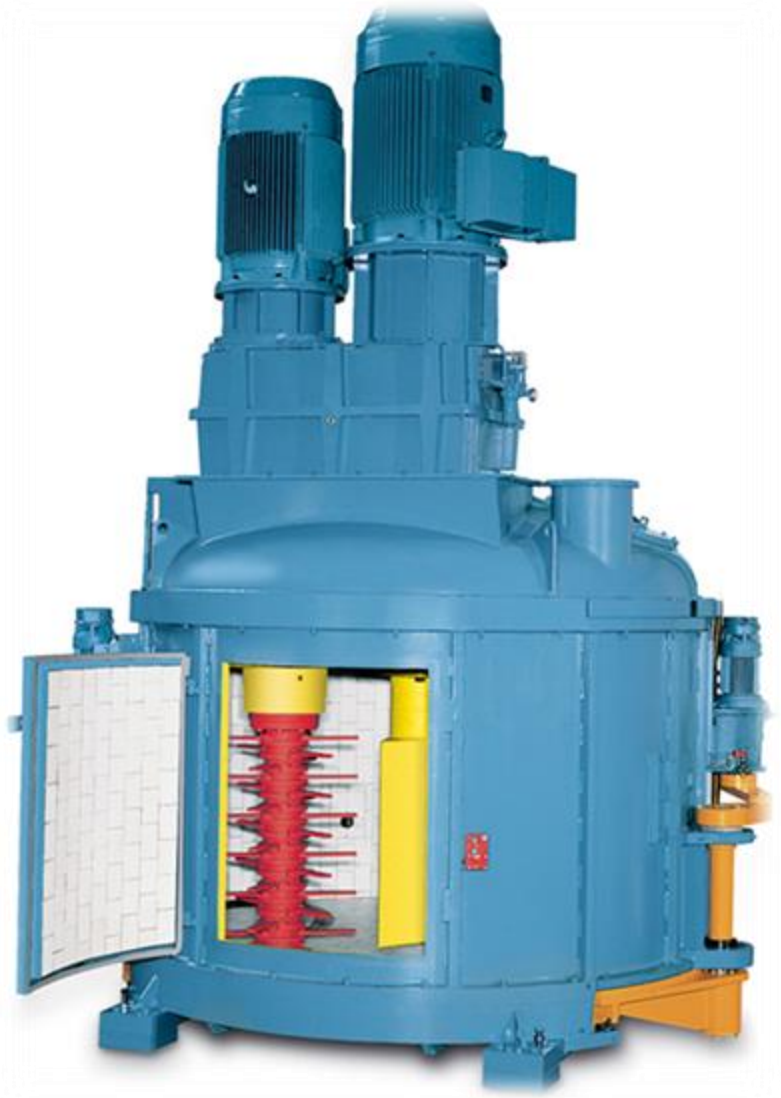
DISA SAM Mixer

Based on 40 years of worldwide experience of +200 delivered SAM Mixers

The SAM mixer is the best value high-end mixer.

DISA people are moulding specialists:

- Moulding specialists know how to make foundry sand.
- DISA mixers are developed for and dedicated to foundry sand.



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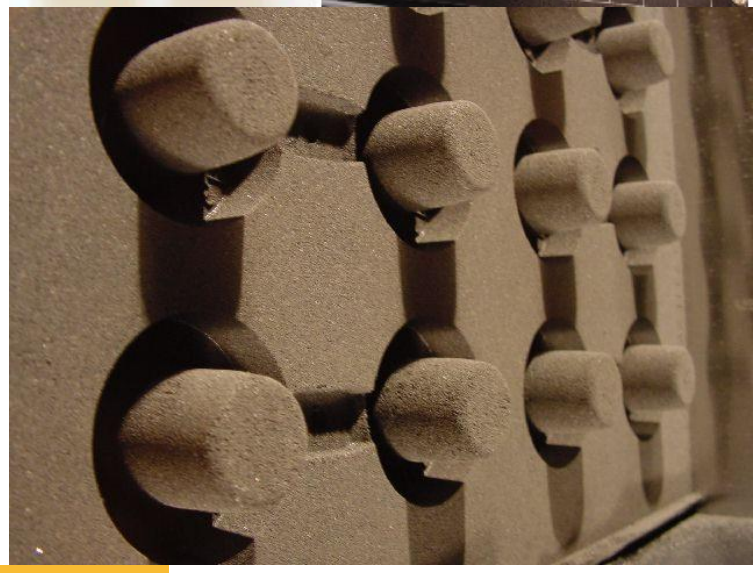
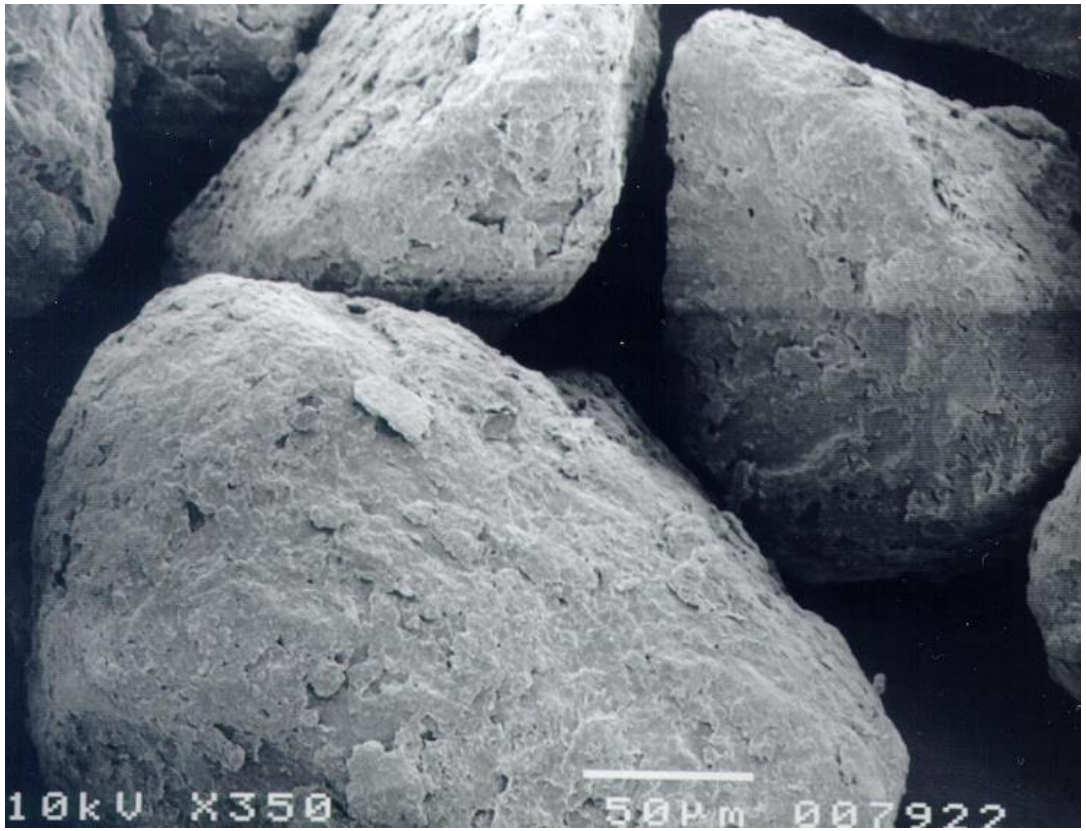
DISA SAM Mixer provides

- Constant properties
- Correct grain size and distribution
- Correct binder and carbon content
- Constant moisture
- Good distribution of binder and water
- Perfect grain coating



Sand prepared in DISA SAM Mixer



DISA SAM mixer: very efficient and uniform grain coating

Sand prepared in wheel-type mixer

Wheel-type mixer: Sand kneading process results in insufficient grain coating compared with the SAM turbine mixer

Benefits of good sand quality

Good sand quality means:

- Close dimensional tolerances of the castings
- Better pattern draw
- Consistent high density moulds
- High moulding plant efficiency
- Higher yield
- Reduced moulding material costs
- Reduced rejections
- Reduced fettling costs

Benefits of DISA SAM Mixer

Fast and efficient

- Intensive mixing process
- Efficient grain coating
- Efficient vertical charging and discharging
- Short cycle time

Automatic control

- Automatic moisture level control and controlled material feed

Robust and rugged design

- Unusually robust and rugged design
- Optional ceramic lining

Benefits of DISA SAM Mixer

DISA Sand Plant specialist team

- Project planning
- Installation
- start-up and run-in

Low maintenance

- Few long lasting wear parts
- Ceramic lining (optional)

Easy maintenance

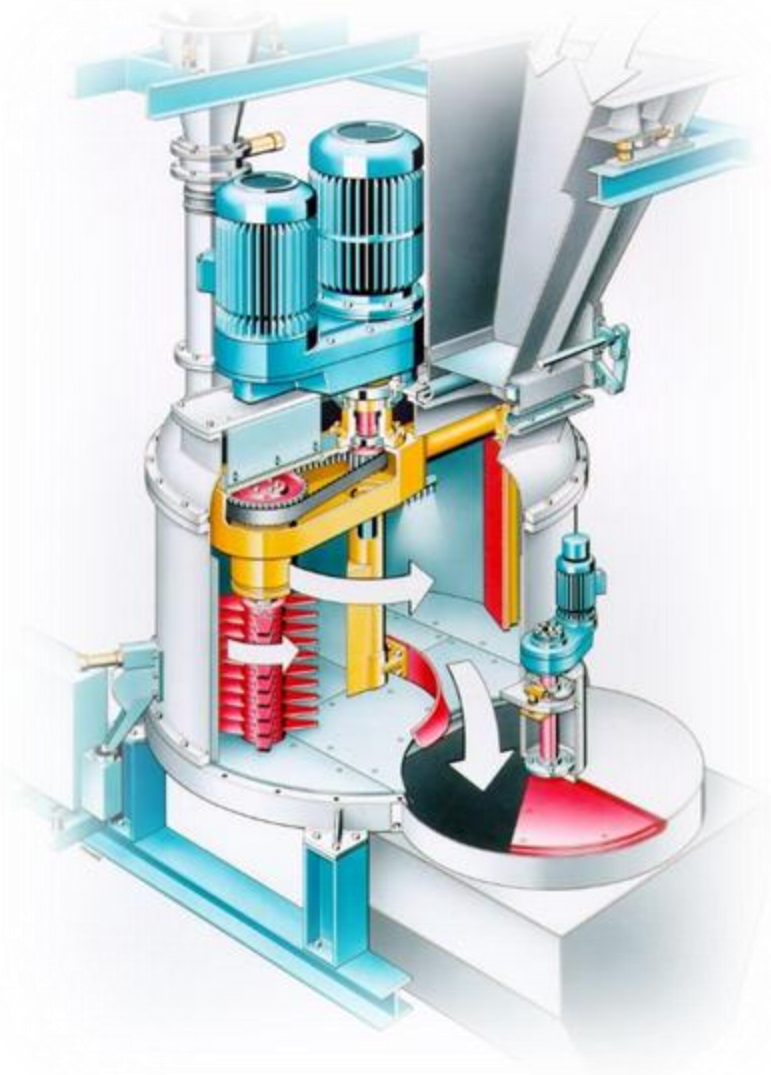
- Top mounted drives
- Walk-in service door

High up-time and low running cost

World wide service

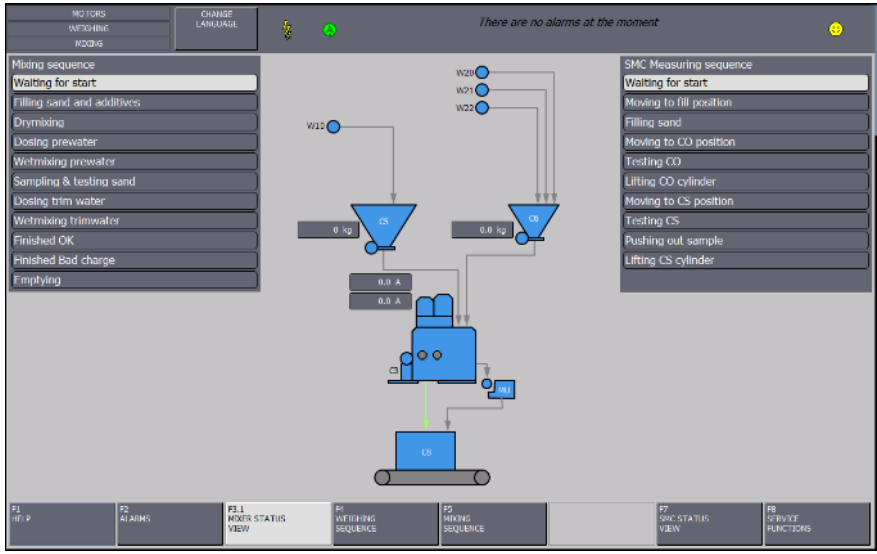
DISA SAM Mixer – The mixing system

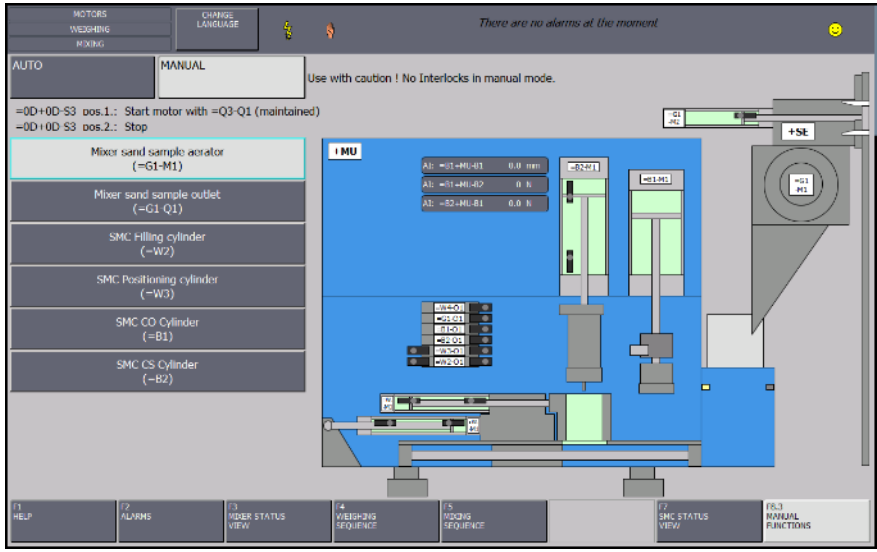
- High-efficient blending due to circulating turbine deeply submerged in the sand
- Homogeneous and fluffy moulding sand of consistently high quality
- Optimal sand characteristics due to automatic moisture control and controlled material feed
- Uniform covering of sand grains, thereby reducing cost for excess bentonite and additives
- Fast unloading through a large discharge opening in the mixer bottom
- Short cycle times result in high output rates and moderate temperature increase



DISA SAM Mixer – The Mixer Control

- An intelligent control system permits full integration into a DISA Sand Plant Control System or any other sand circulation system
- Possibility for remote access for DISA technical support
- High degree of operational safety with Siemens S7-1500 PLC control system
- User-friendly Siemens HMI interface
- Fully SMC integration





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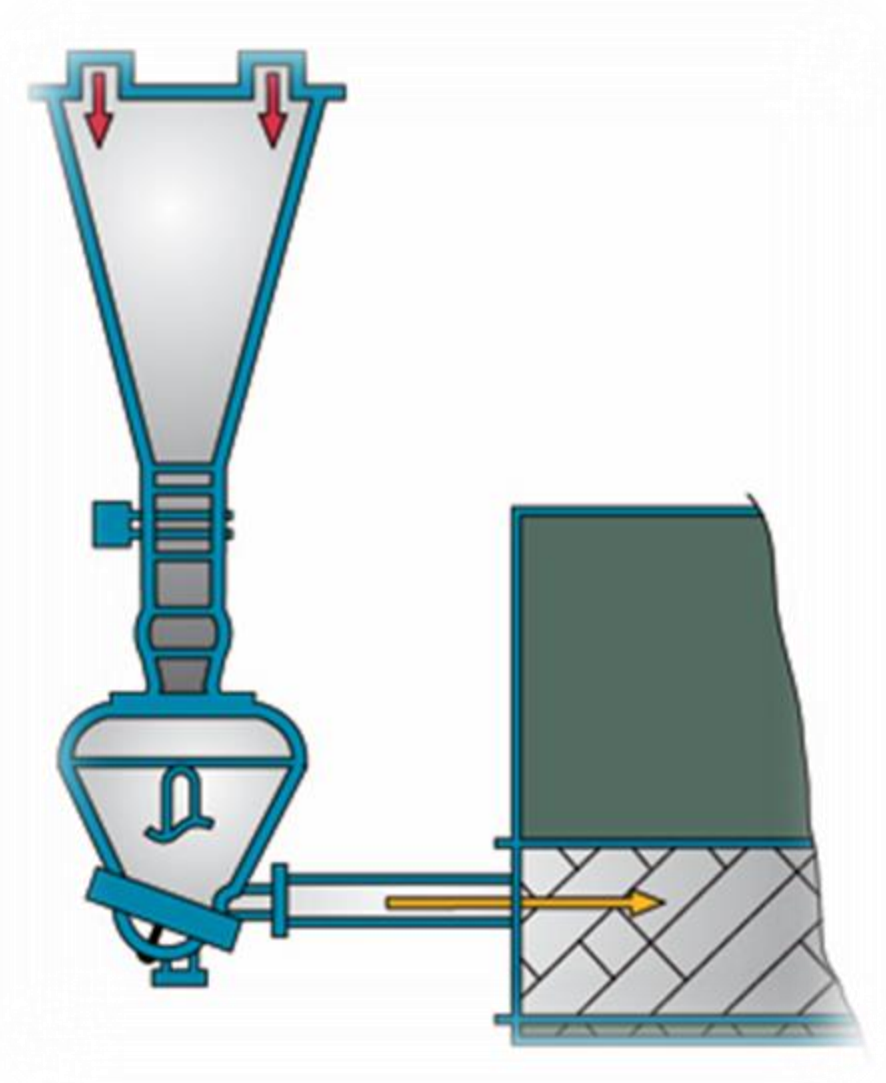
DISA SMC - Sand Multi Controller

- Continuous control of sand quality; consistent properties
- Continuous monitoring and regulation of compressibility and sand strength
- Addition of correct water and bentonite quantities
- Each batch is approved automatically before discharging
- Evaluation of measurement data
- Fault analysis
- Availability of data for quality management

DISA Pneumatic Bond Injection - options

- Flexible solution which is particularly beneficial in the case of mixer installations in confined or complex installations
- Injection directly into the sand improves the mixing efficiency and ensures consistent sand quality from batch to batch with minimal variations
- Reduces the formation of dust and thus the loss of additives into the dust extraction system



DISA SAM Mixer – Technical Data

- The SAM Mixer is manufactured in 4 different families with a total of 7 mixer sizes
- SAM covers a range from 30 to 150 t/h at a cycle time of 120 sec. (with SMC)
- Batch sizes from 1,000 to 5,000 kg

SAM Mixer		SAM-3	SAM-6	SAM-10			SAM-16	
Type:		40	70	85	100	120	160	180S
Mixer capacity:								
Mixing throughput max								
excl. SMC/incl. SMC	tonnes/hr	36/30	63/53	77/64	90/75	108/90	144/120	180/150
Charge	kg	1000	1750	2125	2500	3000	4000	5000
Installed power:								
Turbine	kW	55	110	110	132	160	200	250
Gear bridge	kW	30	55	55	75	90	132	200
Process water requirements:								
Water pressure min	bar	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Water consumption	litres/min	18	32	39	45	54	72	90
Cooling water requirements:								
Water pressure min	bar	0	0	0	0	0	2	2
At 20 C inlet temp.	litres/min	0	0	0	0	0	8	8
Compressed air requirements:								
Air pressure min	bar	6	6	6	6	6	6	6
Compressed air consumption	Nm^3/min	0.2	0.3	0.3	0.4	0.4	0.5	0.5
Mixer dimensions:								
Mixer height without hopper	mm	1650	1850	2225	2225	2225	2580	2580
Sand weight hopper height	mm	1900	2125	2320	2320	2320	2515	2620
Mixer length incl. discharge door	mm	2300	2850	3400	3400	3400	3850	3850
Mixer diameter	mm	1600	2000	2400	2400	2400	2700	2700
Net weight:	tonnes	7.4	11	16	16	16	23	24

DISA SAM Mixer wear parts

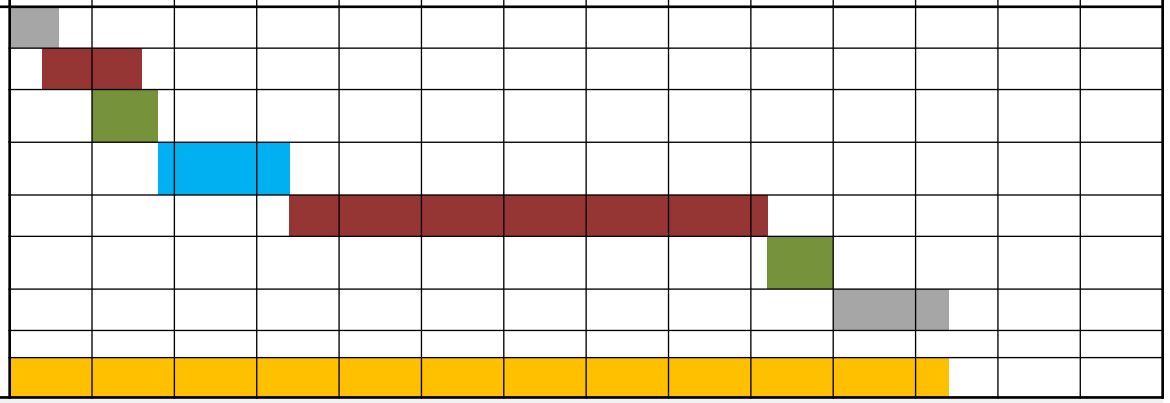
Expected life time of

Component	Expected average life time
Motors	10 +
Gear box	10 +
Bottom plough	2 years
Side scraper	1 year
Turbine blades	1 year
Steel lining	2 – 3 years
Ceramic lining	10 – 20 years

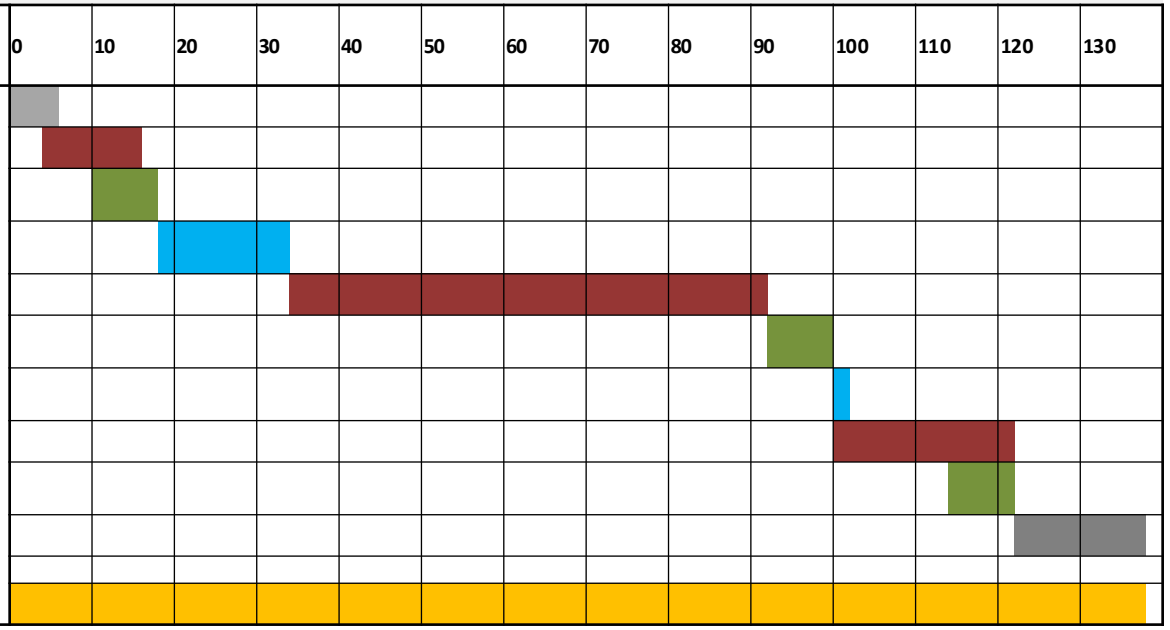
The values stated are average values experienced by SAM customers based on good weekly maintenance in an average plant running 2 shifts / 5 days.

DISA SAM Mixer – description of mixing cycle

Step description Single water dosing	Sec.
Mixer filling	
Dry-mixing	10-12 sec.
SMC measurement (until CO value)	6-7 sec.
Water addition (1.5% ~ 75 liter @ 5 ltr/sec.)	15-17 sec.
Wet-mixing	60 sec.
SMC measurement (until CO value)	6-7 sec.
Emptying	15 sec.
Total cycle time	**115 sec.**



Step description Repeat water dosing	Sec.
Mixer filling	
Dry-mixing	10-12 sec.
SMC measurement (until CO value)	6-7 sec.
Water addition (1.5% ~ 75 liter @ 5 ltr/sec.)	15-17 sec.
Wet-mixing	60 sec.
SMC measurement (until CO value)	6-7 sec.
Water addition (0.2% ~ 10 liter @ 4 ltr/sec.)	3 sec.
Wet-mixing.	20 sec.
SMC measurement (until CO value)	5-6 sec.
Emptying	15 sec.
Total cycle time	**138 sec.**



Mentioned mixing time is guaranteed by DISA, cycle time may even be lower when operate in optimal conditions

DISA SAM Mixer – updates & improvements

The position of the water supply

- Now at 3 side points to improve reliability & mixer efficiency

New wall bottom plough design

- Reducing load on gear bridge

New design for wall scraper support

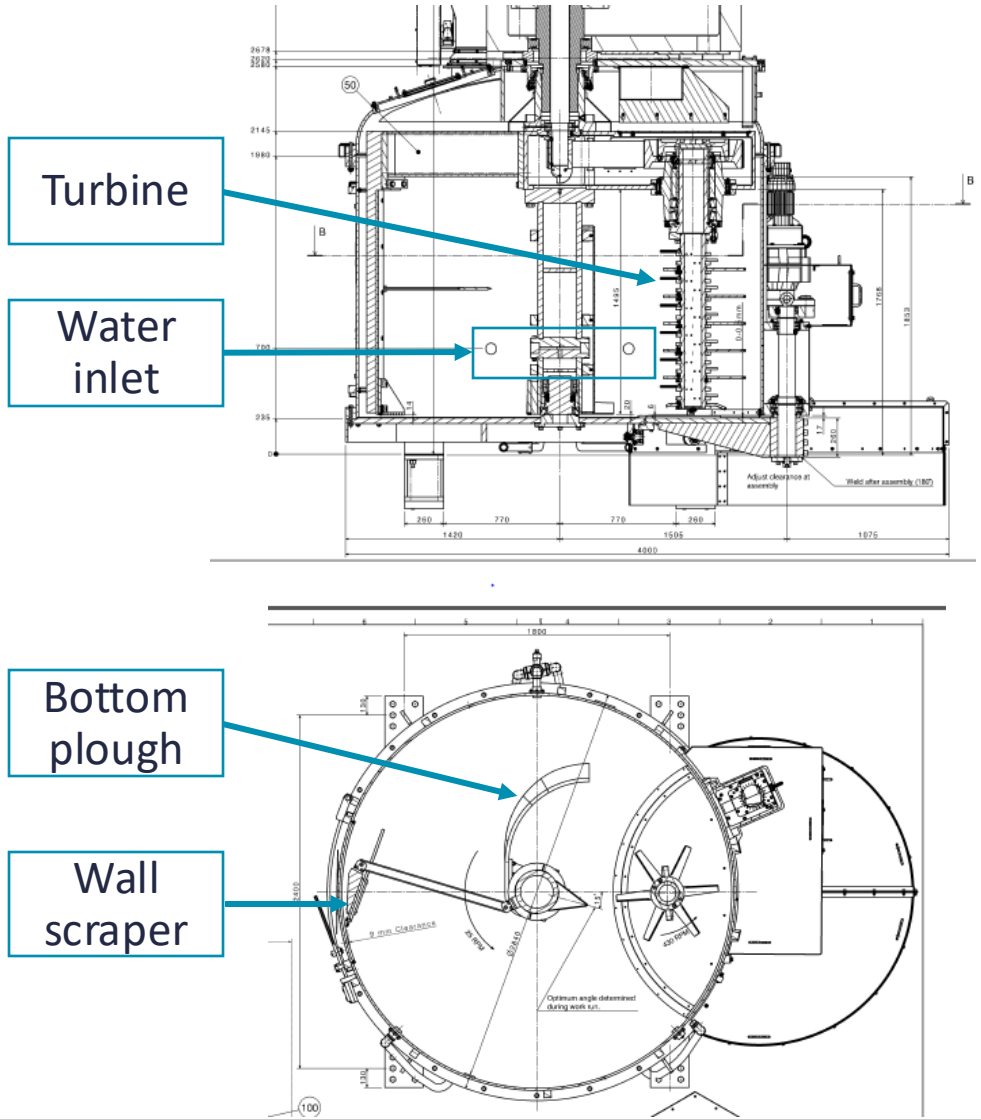
- Improving efficiency

New scraper blade designs

- Lower wear
- Improved efficiency

New turbine blade designs

- Lower wear
- Improved efficiency

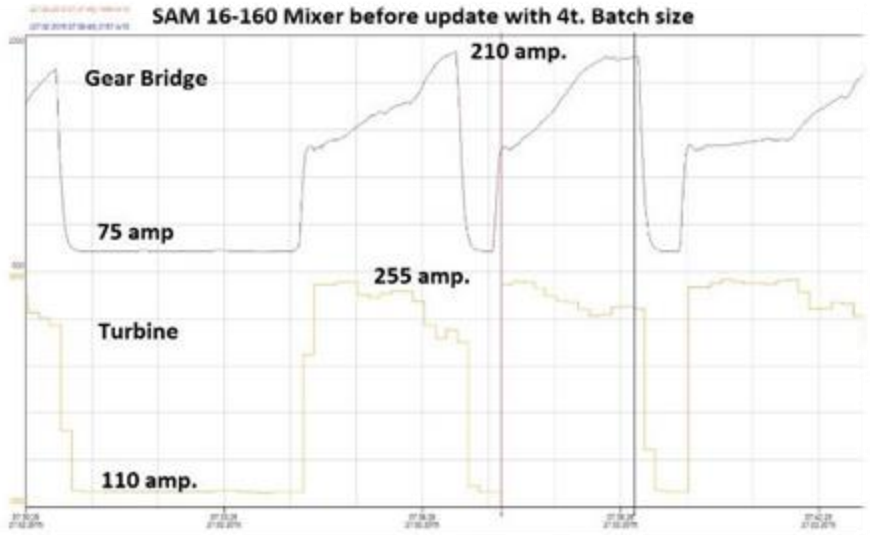


DISA SAM Mixer – updates & improvements

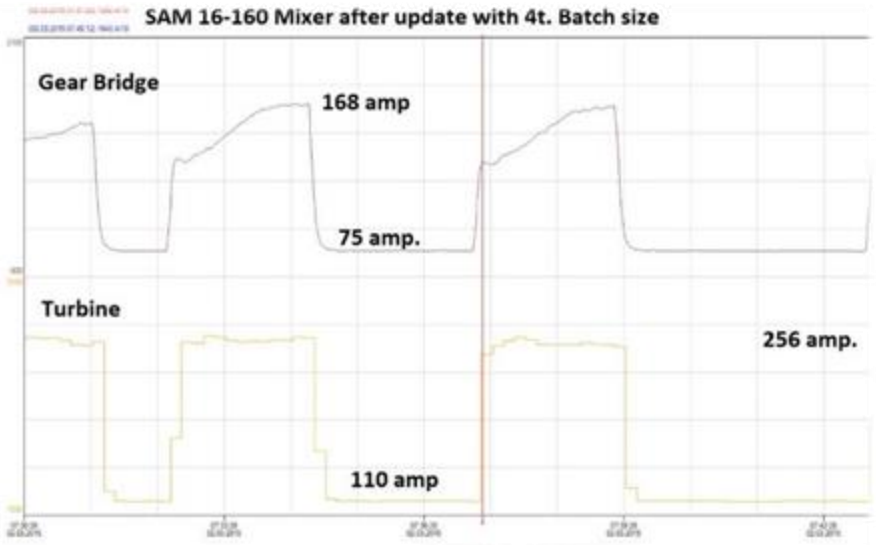
The result of the new designs will reduce the load of the gear bridge and the turbine more

- Higher mixing efficiency
- Faster mixing time
- Reduced bentonite addition
- Energy approx. = 1.7 kWh/tonnes
- Update kit available for exciting mixers base – contact Global Services

Before



After



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