

## SIMEMUNDERGROUND

# **GROUT PLANT**

### SEALCRETE FOR TUNNELING

Sealcrete is a containerized grout plant featuring the Vortimix high-shear colloidal mixer, Simem SuperWash high-pressure mixer cleaning system, on-board agitation tank, and touchscreen automation package. These self-contained units are purposely designed for easy transport, routine installation, and high-output capacity for various applications. When paired with a Simem configured pumping system, external liquid storage tanks, foam generating unit, and powder silos, the SealCrete capability impresses.

SealCrete plants are versatile. Most popularly used to produce bi-component grouts and hydrated bentonite mixes for the infrastructure and heavy construction tunnelling sector, the plant's ability to produce light-weight cellular concrete (LDCC) and a variety of cement slurry has further advanced SealCrete utilization in the underground mine backfill sector and construction sector worldwide.

#### **AUXILIARY EQUIPPMENT**

SealCrete plants combine a wide range of auxiliary equipment to satisfy a demand for the scalable production of various cemented mixes.

A tailored configuration of standard equipment brings production versatility and convenience to reality. Base unit SealCrete capacity is expandable with bolt-on boost modules which doubles output without expanding plant footprint.





### **SEALCRETE Low-Density Cellular Concrete Mobile Grout Plant**

Lightweight cellular concrete (LDCC) is ideal for projects requiring a robust and non-structural material to fill a continuous void or area by pump or bulk delivery.

LDCC is a lightweight and highly flowable mix of cement, water, and preformed foam. SealCrete for LDCC is equipped with an Automatic Foaming Generator (AFG) and includes digital flow meters for the accurate measurement of liquid and air components.

SealCrete automation with a +99% dosing accuracy supportsreal-time foam ratio adjustment to uphold specification for when pumping long distances, at variable elevations, in confined and/or high-traffic areas is required.





### VORTIMIX

The Vortimix high-shear colloidal mixer is recognized as the most efficient method of mixing bentonite, cement, fly ash, and slag with water. The intense mixing action results in homogeneous and stable mixes. Colloidally mixed cementitious products are found to better resist bleed (separation and settlement of solids) and provide higher compressive strengths in comparison to materials prepared in lower-energy type mixers.

#### **HIGH-SHEAR COLLOIDAL MIXERS**

VortiMix is an advanced high-shear colloidal mixer by Simem. The VortiMix can rapidly mix cementitious grouts as low as 0.45:1 water:cement ratio (by weight). Hydrated bentonite mixes are rapidly prepared in the VortiMix, which

yield improved gel strengths and reduced hydration times for applications where pre-hydrated bentonite is necessary.



### VORTEX

Recirculation "ports" allow mixture to re-enter mixing vessel with velocity, causing turbulent material flow.

An automated pinch-valve network determines GROUT mixture route. Pinch-valve actuation allows mixture to recirculate then discharges GROUT for storage and pumping, which allows a quick removal after completing the job.





### **OTTERCRETE**

A skid mounted series of grout plants featuring the VortiMix high-shear colloidal mixer which can be combined with agitation tanks, pumps, and full automation, making it ideal for a wide range of tunneling and mining applications.

OtterCrete plants are used in a wide range of applications, including bi-component grout and hydrated bentonite production to support tunnel boring machine (TBM) operation and ground stabilization needs. OtterCrete plants produce lightweight cellular concrete, cement based grouts for jet grouting, deep soil mixing, water cut-off injection, slurry wall production, and more.

#### **AUXILIARY EQUIPMENT**

OtterCrete plants can be combined with a full range of auxiliary equipment, including containerized liquid storage and agitation tanks, silos, bulk bag unloaders, foam generators, and skid mounted pumping systems. This complete solution, brings versatility and total cost convenience to projects worldwide.





### PUMPING

Simem Underground pumping systems are comprehensively prepared for a site-ready containerized or skid-mounted installation. Pump system design must consider many factors prior to operation. A matched pumping solution for a specific project application requires extensive knowledge to ensure a system performs as intended.

Simem Underground carefully evaluates the fluid characteristics to be conveyed, considered distance and elevations present, and the automation required for the confident conveyance of the produced fluid to its intended destination.

#### **COMPLETE SYSTEM**

A matched systems integrates the selected power control units, instrumentation, and pipe cleaning assembly. System types incorporate piston, peristaltic, progressive cavity, centrifugal, and air-diaphragm pumps.





#### **TECHNICAL DATA Sealcrete**

CONTAINERIZED		
MODEL	MIXER SIZE	REQUIRED MODULE
SC10	500 I	N/A
SC15	1000 I	N/A
SC25	2000 I	N/A
SC30	2000 I	Water Pump
SC35	2000	Water Weigher
SC40	2000	Betonite Pre-Mixer

PRUDUCTION RANGE *MAX CAPACITY			
Bi-Component Grout (Cement,Bentonite,Water, Admix)	Cementitious Slurry (at 0.5 w/c ratio)	Low Density Cellular (at 0.5 w/c ratio at 0.5 SG Cement,Water,Admix,Foam) AFG (Automatic Foam Generator) required	
10m³/hr (11.0 yd³/hr)	10m³/hr (11.0 yd³/hr)	30m³/hr (39.2 yd³/hr)	
15m³/hr (19.6 yd³/hr)	20m³/hr (26.1 yd³/hr)	60m³/hr (78.4 yd³/hr)	
25m³/hr (32.6 yd³/hr)	30m³/hr (39.2 yd³/hr)	90m³/hr (117.7 yd³/hr)	
30m³/hr (39.2 yd³/hr)	35m³/hr (45.7 yd³/hr)	100m³/hr (130.7 yd³/hr)	
35m³/hr (45.7 yd³/hr)	40m <sup>3</sup> /hr (52.3 yd <sup>3</sup> /hr)	115m³/hr (150.4 yd³/hr)	
40m³/hr (52.3 yd³/hr)	N/A	N/A	

#### **Ottercrete**

SKID-MOUNTED			
MODEL	MIXER SIZE	REQUIRED MODULE	
OC10	500 I	N/A	
SC15	1000 I	N/A	

PRODUCTION RANGE *MAX CAPACITY			
Bi-Component Grout (Cement,Bentonite,Water, Admix)	Cementitious Slurry (at 0.5 w/c ratio)	Low Density Cellular (at 0.5 w/c ratio at 0.5 SG Cement,Water,Admix,Foam) AFG (Automatic Foam Generator) required	
10m³/hr (11.0 yd³/hr)	10m³/hr (11.0 yd³/hr)	30m³/hr (39.2 yd³/hr)	
15m³/hr (19.6 yd³/hr)	20m³/hr (26.1 yd³/hr)	60m³/hr (78.4 yd³/hr)	



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