



Entwicklung der Gieß- und Spritztechnik from Torcrete up too Shotcrete mixes gunned and cast



Erste Generation Zwangsmischer zum Mischen von ULC-Castable





Quirl for Mortars and Castable 1990



Torcrete Maschine Allentown 1965



Erste Velco Rotor Trocken Spritzmaschine 1971 (Test mit Theo Aschenbroisch und Martin Buhr) System Micopicola

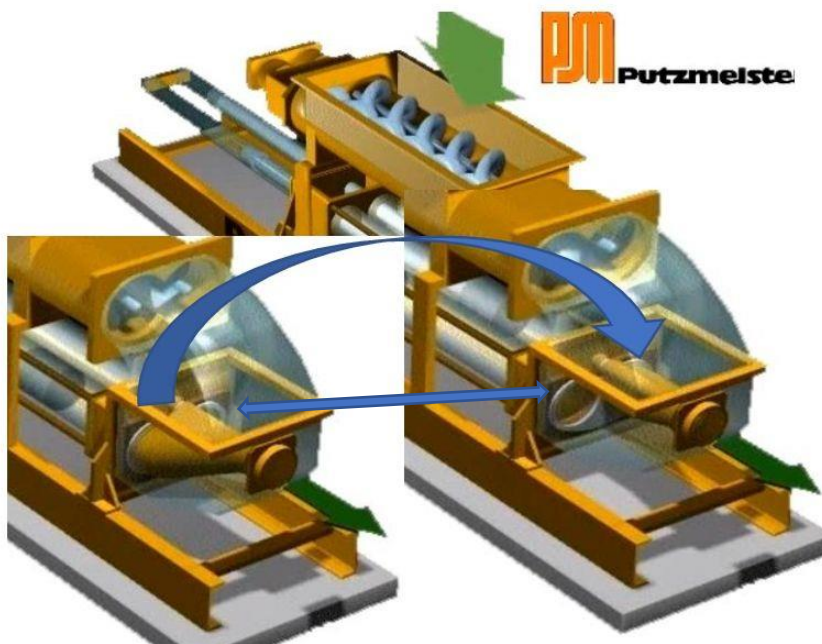


Big bag 600-800 kg ULC Mixes, Einkammer Schlämmdruckpumpe, zu gefährlich stoßweise Förderung



Einsatz Frankreich/Deutschland

Sirma/Promoref 1992 with 5 ton mixer and first Putzmeister 2 cylinder Pump for ULC mix with SiC



“ 2 cylinder, one outlet and movement of cone with material hose “





Allentown 2012 mit geregelter Zugabe von Gehl- oder Kalkmilch Härter





One Pump=one Mixer

2 mixer for one Pump to get maximum shotcrete



Traditional gunning with prewetted gunning Mix for Allentown machine



Left three Machine for prewetted gunning

right side



2-Kolben Schlämmdruck Pumpen Allentown mit Schalterschrank





Gießen von Decken mit 2 Kolbenpumpe und vorgeschaltetem Zwangsmischer







Schlammgespritzten von Isolier- und Verschleißmasse auf 2 Etagen





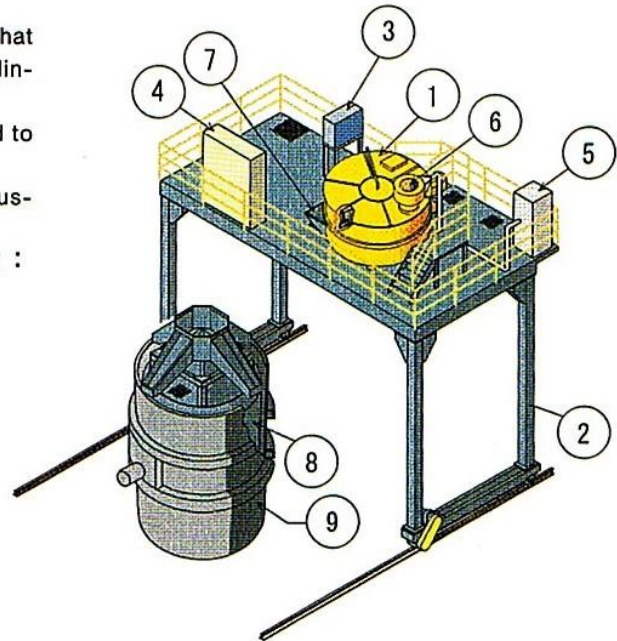
## **N-CAST MACHINE**

### **■ Casting Machine for Ladle Lining**

1. Various automated devices are incorporated so that a minimum of three workers can accomplish the lining work.
2. Necessary devices have been carefully selected to achieve the best casting quality.
3. Optimum devices can be provided to suit the customer's plant layout.
4. The following additional facilities can be arranged :
  - 1) Metal skull and slag remover
  - 2) Drying device
  - 3) Dust collector

#### < Components >

- 1 : Mixer
- 2 : Travelling car
- 3 : Water tank
- 4 : Control panel
- 5 : Dust collector
- 6 : Material feeding opening
- 7 : Delivery chute
- 8 : Form
- 9 : Ladle



## **VERTICAL GUN**

### **■ Repairing Machine for Vacuum Degasser**

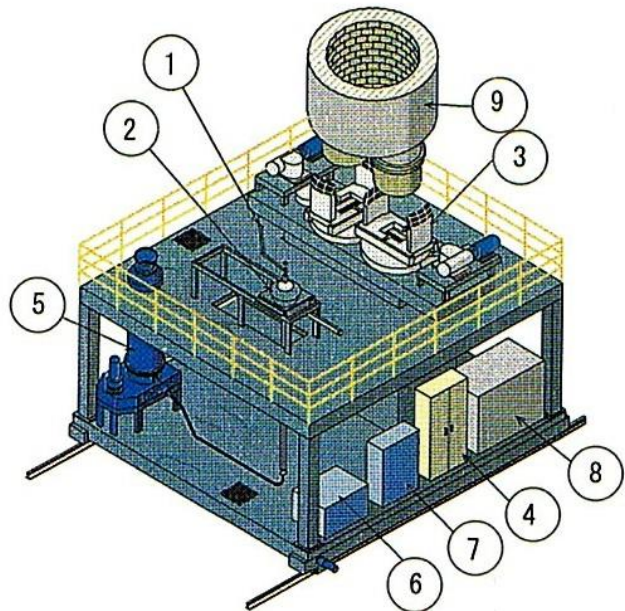
1. All the units required for repairing DH and RH snorkels can be mounted on a car.
2. A system suited to the layout of any steel plant can be designed and supplied.

Units that can be incorporated :

- ① Inside (outside) gunning machine
- ② Adhering-slag remover
- ③ Vessel interior inspector (HOT EYE)
- ④ Pumping and casting machine

#### < Components >

- 1 : Spray nozzle
- 2 : Nozzle manipulator with interchangeable nozzles for inner or outer surface
- 3 : Slag cutter
- 4 : Control panel
- 5 : Material tank
- 6 : Water tank
- 7 : Hydraulic valve station
- 8 : Pneumatic compressor
- 9 : R H degassing vessel





**Machines for the application in the monolithic refractory technology**

**Maschinen für den Einsatz in der monolithischen Feuerfest-Technologie**



**force mixer**  
for big bags  
*Großraum-Zwangsmischer*  
für big bag-Beschickung

capacity up to 1125 liters\*  
*Füllmenge maximal 1125 Liter\**

**mixing and conveying pump**  
*Druckkesselpumpe*

volume up to 350 liters\*  
capacity up to 10 t/h  
pressure up to 6 bar\*  
*Nutzvolumen bis zu 350 Liter\**  
*Förderleistung bis ca. 10 t/h*  
*Arbeitsdruck bis 6 bar\**

**mixing, pumping and gunning unit**  
for spraying tundishes with basic light weight spraying mixes  
*Misch-, Pump- und Spritzanlage*  
für die Anwendung von Schlamm-spritzmassen in Verteilerrinnen

capacity about 2700l/h\*  
pressure 3 bar\*  
*Förderleistung ca. 2700 l/h\**  
*Arbeitsdruck 3 bar\**

**rotor gunning machine**  
for dry materials  
*Rotorspritzmaschine*  
für Trockenmaterial

pressure up to 6 bar\*  
*Arbeitsdruck bis 6 bar\**

**double piston pump**  
*Doppelkolbenpumpe*

pressure up to 210 bar\*  
*Förderdruck bis 210 bar\**

\* depending on product and type of machine  
*abhängig vom Produkt- und Maschinentyp*