DRY MIX MORTAR PLANT EQUIPMENT DETAILS

PNEUMATIC FILLING FOR BINDING MATERIALS

7051 [A ]
2 x Screw compressor, Tamrotor ESN 200-7.5
- for pneumatic filling
- pressure air output 36,1 m³/min 7 bar
- working pressure 7.5 bar
- motor power 200 kW
- control and monitoring automatics
- automatic starter
- operation switchs
- usage time indicator
- network pressure gauge
- compressor thermometer
- failure indicators

7052 [A ]
1 x Air dryer, cooling type Hiross Polestar PGN 770
- for compressed air
- nominal air flow 77 m³/min 7 bar
- operation switch and software
- air micro filters
- oil extraction filter
- pressure dew point + 3 oC

7053 [A ]
1 x Reservoir air tank Tamrotor TR 500G10
- for cutting the consumption peaks of compressed air
- volume approx. 5 m³
- design pressure 10 bar
- hot galvanized interior/exterior

7054 [A ]
1 x Piping for Pressure air
- for distributing pneumatic air to pneumatically operated devices
- galvanized steel pipe
- pipeline armatures

1711 [A ]
6 x Equipment for filling pipe
- 1 x limit switch at the inlet to start dedusting for each pipe
- 1 x valve for each filling pipe; pneumatic operation with magn. valves

1721 [A ]
3 x Filling pipe DN 150
- for pneumatic filling of sand & silica sand silos (3101, 3102 & 3201), sand & silica sand supplied by vehicles with compressor.
  - steel pipe structure with deflector elbow in first curve
  - diameter of the pipe DN 150 (168.3 x 4.5 mm), total approx. 110 m
  - 3 pes discharge spout on silo deck equipped with replaceable wear liners
  - pipe joints with Connex-pipe connectors
  - connection joint for vehicles filling hose DN 6"

**ADDITIVES INTAKE**

1741 [ A ] 1 x Discharge chute
- for discharging Big-bags
- chute of steel sheet construction
- dust extraction connection
- volume approx. 800 l

1742 [ A ] 1 x Discharge chute
- for discharging small-bags
- chute of steel sheet construction
- dust extraction connection

1781 [ A ] 1 x service hoist
- for lifting the big-bags up to the filling level (additives silos)
- capacity 1600 kg
- hoist area approx. 4.3m x 7.5m
- lifting height approx. 25m

**SILO EQUIPMENTS**

3050 [ A ] 6 x Overpressure / Underpressure valve
- for the pneumatically filled silo

[ A ] 6 x Silo level switch HH LP (safety limit)
- for the pneumatically filled silo
- indication at the max. level
- length approx. 1m
- flange joint for mounting on silo top or side
- connected to the control system, shutting off filling pipe valve

[ A ] 6 x Silo level switch LT (VEGAFLUX 62)
- for the pneumatically filled silo

Confidential
- continuous level measurement sensor and fittings
- for filler and binding material silos
- connected to the control system

[A] 6 x limit switch for silo manholes
- for pneumatically filled silos
- prevents silo filling when manhole cover is open

DOISING AND WEIGHING OF SAND MATERIALS 1

4111 [A] 2 x Fluid element group
- to ensure the material flow while dosing
- elements in one group
- mounted on the silo cone bottom
- pneumatic operation with accessories
- automatic operation

4121 [A] 2 x Dosing valve DN 200
- for dosing of sand
- service gate
- fluid cone
- butterfly flap valve
- two phase dosing principle
- pneumatic actuator, magn. valves and limit switches
- sealing and accessories
- flexible joint connection to the scale inlet
- automatic operation

[A] 2 x silo cone
- discharge pipes

4151 [A] 1 x Hopper scale
- for sand materials
- hopper scale
- hopper gross volume 2850 l
- weighing capacity 2500 kg
- resolution 1 kg
- conical part provided with the pneumatic hammer
- checking hatches
- joints for the dedusting
- supported on three load cells, which are connected to the weighing instrument in the control system cabinet
- discharge valve, pneumatic actuator, magn. valve and limit switch (closed)
- flexible connections
- steel frame for the scale hopper
- cut-off valve, for emptying into the mixer with a pneumatic actuator and a magn. valve, limit switches (open/closed)
- automatic operation
- inlet and outlet flange joints
- inlet joint is flexible
- discharge pipe to the mixer

DOSING AND WEIGHING OF SAND MATERIALS

4211 [A] 4 x Fluid element group
- to ensure the material flow while dosing
- elements in one group
- mounted on the silo cone bottom
- pneumatical operation with accessories
- automatic operation

4221 [A] 4 x Dosing valve (2xDN 200, 2xDN125)
- for dosing of sand
- service gate
- fluid cone
- butterfly flap valve
- two phase dosing principle
- pneumatic actuator, magn. valves and limit switches
- sealing and accessories
- flexible joint connection to the scale inlet
- automatic operation

[A]
- silo cones
- discharge pipes

4251 [A] 1 x Hopper scale
- for sand materials
- hopper scale
- hopper gross volume 2850 l
- weighing capacity 1500 kg
- resolution 0.5 kg
- conical part provided with the pneumatic hammer
- checking hatches
- joints for the dedusting
- supported on three load cells, which are connected to the weighing instrument in the control system cabinet
- discharge valve, pneumatic actuator, magn. valve and limit switch (closed)
- flexible connections
- steel frame for the scale hopper
- cut-off valve, for emptying into the mixer with a pneumatic actuator and a magn. valve, limit switches (open/closed)
- automatic operation
- inlet and outlet flange joints
- inlet joint is flexible
- discharge pipe to the mixer
AUTOMATIC DOSING AND WEIGHING OF ADDITIVES

4311 [A] 4 x Fluid element group
- to ensure material flow while dosing
- several elements in one group
- mounted on the silo cone bottom
- pneumatic operation with accessories
- automatic operation
- discharge pipes

4321 [A] 4 x Dosing valve DN 80/30
- for the dosing of the additives
- service gate
- fluid cone
- double flap butterfly valve
- two-phase dosing principle
- pneumatic actuator, magn. valves and limit switches
- sealing and accessories
- automatic operation

4340 [A] 2 x Agitator device
- agitator
- installation into a dosing valve item 4321
- magnetic valve

4351 [A] 1 x Hopper scale
- for the weighing of additives
- flange joints for dedusting
- hopper gross volume approx. 6901
- weighing capacity 150 kg
- resolution 50 g
- conic part provided with a pneumatic vibrator
- discharge valve, pneumatic actuator, magn. valve and limit switch (closed)
- flexible connections
- supported on three load cells, which are connected to the weighing instrument in the control system cabinet
- steel frame for the scale hopper
- cut-off valve, pneum. actuator, magn. valve and limit switches (open/closed)
- discharge pipe to the scale item 4151

4411 [A] 4 x Fluid element group
- to ensure material flow while dosing
- several elements in one group
- mounted on the silo cone bottom
- pneumatic operation with accessories
- automatic operation
- discharge pipes

4421 [A] 4 x Dosing valve DN 80/30
- for the dosing of the additives
- service gate
- fluid cone
- double flap butterfly valve
- two-phase dosing principle
- pneumatic actuator, magn. valves and limit switches
- sealing and accessories
- automatic operation

4440  [ A ]
2 x Agitator device
- agitator
- installation into a dosing valve item 4421
- electric drive
- magnetic valve

4451  [ A ]
1 x Hooper scale
- for the weighing of additives
- flange joints for dusting
- hoppers gross volume approx. 140 l
- weighing capacity 30 kg
- resolution 5 g
- cotic part provided with a pneumatic vibrator
- discharge valve, pneumatic actuator, magn. valve and limit switch (closed)
- flexible connections
- supported on three load cells, which are connected to the weighing instrument in the control system cabinet
- steel frame for the scale hopper
- cut-off valve, pneum. actuator, magn. valve and limit switches (open-closed)
- fluidisation cone
- discharge pipe to the scale item 4251

4531-  [ A ]
4533
3 x Dosing hopper with agitator
- agitator to ensure material flow while dosing

[ A ]
3 x Dosing screw conveyor SFO-06MA
- for the dosing of the additives
- screw conveyor and gear motor drive
- cut-off valve with pneumatic actuator, magn. valve

4551  [ A ]
1 x Hooper scale
- for the weighing of additives
- flange joints for dusting
- hoppers gross volume approx. 30 l
- weighing capacity 5 kg
- resolution 2 g
- supported on three load cell, which are connected to the weighing instrument in the control system cabinet
- steel frame and steel sheet encapsulation for the scale hopper
- discharge pipe to the scale item 4151
- cut-off valve, pneum. actuator, magn. valve and limit switches (open-closed)
MANUAL DOSING OF ADDITIVES

4701 [ A ]
- 1 x Manual feeding funnel
- for materials to be added manually into the mixer
- gross volume approx. 250 litres
- connection for the dedusting
- discharge pipe to the mixer
- automatically operated emptying
- 1 x Equipments for manual feeding funnel
- discharge valve, pneumatic operation, valve and limit switch (open/close)
- signal lamp and acknowledgment button
- fluidization system and pneumatic vibrator to ensure material discharge

MIXING

5111 [ A ]
- 1 x Mixer Sofraden MIB 110 L
- for the mixing of dosed batches
- useful capacity 2000 litres, tank gross volume 2860 litres
- maximum charge 3000 kg
- operation with filling degree 800 litres ... 2000 litres
- tank diameter 1100 mm, length 2990, thickness 10 mm
- 2 sealed doors with safety key locking
- full length discharge hatches at the bottom, dimensions 675 mm x 2990 mm
- discharge hatch drive with compressed air cylinder
- rotor blades thickness 15 mm, material Creusabro, coated with
  - Nickel-Chrome x carbide, hardness 3000 Vickers, on work sides
- rotor blades clearance to frame adjustable, blades are replaceable
- roller bearings, stuffing box with air blowing and abrasion ring on the shaft
- drive motor (main), 75 kW
- motor + gear unit + frequency conv., speed 110 rpm
- choppers 2 pcs, drive motor 2 x 5.5 kW
- choppers diameter 120 mm, speed 3000 rpm
- wear lining inner glued rubber coating thickness 7 mm
- sample taking device

5301 [ A ]
- 1 x Discharge hopper for the mixer
- silo volume approx. 3.5 m³
- 1 pcs level limit switch LLP
- 2 pcs pneumatic hammer

PRODUCT HANDLING

6115 [ A ]
- 1 x Rotary feeder Seineco 500
- to reduce and control material flow during the mixer emptying sequence
- capacity 60 m³/h
- motor 2.2 kW frequency controlled
- 1 x frequency converter

6121 [ A ] 1 x Bucket conveyor NERAK type WB 640
- capacity approx. 60 m³/h
- drive, gear motor
- safety separator switch for motor
- Dimensions:
  - Bottom horizontal 2.80 m
  - Vertical 9.88 m
  - Top horizontal 1.60 m
- Bucket width 640 mm
- Bucket quality: polyamide, glass-fibre reinforced
- Rubberblockchain: 43/70 Steel reinforced
- supported to the concrete foundation, level +0.00 m

1 x rotation control
1 x overload control
1 x discharge hopper

6125 [ A ] 1 x Product belt conveyor
- for product transfer into packing machine or truck loading device
- delivery limit between discharge chute of product belt conveyor (Rautefor supply) and receiving hopper of packing machine (Cemex supply)
- conveyor length approx. 28.6 m and belt width 650 mm
- capacity 60 m³/h
- service platform
- conveyor support structures and frame
- discharge chutes

6171 [ A ] 1 x Truck loading device
- for product loading into a truck
- capacity 70 t/h
- adjustable length of loading hose, 1500 mm
- free height while hose is in upper position 4 m
- drive motor
- dedusting joint
- high level probe
- steel sheet construction

PNEUMATICS

7021 [ A ] 1 x Compressor Tamrotor ES 55/7.5 RD
- for process pneumatics
- pressure air output 9.4 m³/min
- operation pressure 7.5 bar
- motor power 55 kW
- control and monitoring automatics
- automatic starter
- operation switches
- usage time indicator
- network pressure gauge
- compressor thermometer
- failure indicators

7022 [ A ] 1 x Air dryer, cooling type assembled in the compressor
- for compressed air
- operation switch and software
- air micro filters
- oil extraction filter
- pressure dew point + 3 oC, at 7 bar

7023 [ A ] 1 x Reservoir air tank
- for cutting the consumption peaks of compressed air
- volume approx. 2 m³
- design pressure 10 bar
- hot galvanized interior/ exterior

7024 [ A ] 1 x Piping for Pressure air
- for distributing pneumatic air to pneumatically operated devices
- galvanized steel pipe
- pipeline armatures

7025 [ A ] 1 x Valves and pressure air equipment
- for silo discharge and dosing equipment

PROCESS DUST EXTRACTION

7501 [ A ] 6x Filter unit DCH SILOAIR VS28 W
7506 - for the pneumatically filled silos
- filtration area 28 m²

7522 [ A ] 1 x Filter unit with fan Unicell C-40 RK 11
- with ATEX-equipment
- for dosing additives handling
- filtration area 40 m²
- motor capacity of the fan 7.5 kW
- safety separator switch for motor
- explosion panel, fan ATEX 22 CLASS, grounding according to SFS-EN 13463-1
- diverter for suction pipe according to ATEX
- 1 x Twin flap valve ( pneumatically driven)
- discharging of waste in big bag or container

NOTE!
-In practice there are no explosive materials in use

7622 [ A ] 1 x Ductwork
- for dust extraction from dosing additives handling
- diameter approx. 80 ... 350 mm
- supporting constructions

7523 [ A ]
1 x Filter unit with fan Unicell C 30 RK 10
- for dosing, mixing and truck loading
- filtration area 30 m²
- motor capacity of the fan 5.5 kW

[A] 1 x Twin flap valve (pneumatically driven)
- discharging of waste in big bag or container

7623 [ A ]
1 x Ductwork
- for dust extraction from dosing, mixing and truck loading
- diameter approx. 80 ... 350 mm
- supporting constructions

7711 [ A ]
CENTRAL VACUUM CLEANING SYSTEM

The system can be used as a central vacuum cleaning system for two workers at the same time

1 x Vacuum unit Aerzen Delta Blower GM10S
- Roots type rotary piston blower
- Electrical motor 15 kW
- Max. vacuum 600 mbar
- Silencer hood
- Outlet sound silencer
- Vacuum safety valve
- Non-return valve
- Air flow 500 m³/h at 50 kPa
- Outlet pressure (abs.) 1.0 bar

1 x Central Vacuum filter unit Dalamatic HVF510-D
- Safety filter unit, pressure lever switch
- Adjustable valve with pneumatic actuator
- Cassette Filter unit, 10 m²
- Filter material Duralife
- Automatic pneumatic self cleaning system IPC
- Electrical starter unit for Vacuum Pump
- Cyclone separator

1 x Pipeline
- Stainless steel pipe 76 mm x 1.6 mm
- Wear-proof rubber curves and clamps for rubber curves
- Pipe clamp coupling rubber/steel
- Y-piece, stainless steel
- Suction point, incl. Flap valve, push button
- Vacuum cleaning equipment, 10 pcs

Vacuum cleaning equipment is used for cleaning the areas and sucking conveyed material into central cleaning system.

One set of vacuum cleaning equipment consists of:
- Anti-static suction hose with couplings, length 10 m
- Suction curve, stainless
- Suction pipe, stainless
- Floor nozzle with brushes
- Bulk nozzle, rubber
- Brush nozzle, rubber
- Wall stand for suction hose
- Wall basket for cleaning equipment

MIXING TOWER

SILOS AND STEEL STRUCTURES

3101- [ A ]
3102
1 x Integrated silo group
- Group 1, gross volume 2 x 140 m³
- Diameter of the group approx. 5.7 m
- Steel sheet structure
- Intermediate walls with double plates
- Connection and inspection hatches
- Dust-tight cover, dust extraction connections
- Supporting frame

3201- [ A ]
3204
1 x Integrated silo group
- Group 1, gross volume 4 x 70 m³
- Diameter of the group approx. 5.7 m
- Steel sheet structure
- Intermediate walls with double plates
- Connection and inspection hatches
- Dust-tight cover, dust extraction connections
- Supporting frame

3301- [ A ]
3304
4 x Silo
- For powder additives
- Volume 5 m³
- Steel sheet construction
- Connection joint for the filling funnel
- Conical bottom and connection for the dosing device
- Attachment holes for the fluidization elements

3401- [ A ]
3404
4 x Silo
- For powder additives
- Volume 4 m³
- steel sheet construction
- connection joint for the filling funnel
- conic bottom and connection for the dosing device
- attachment holes for the fluidization elements

3501 [A] 3 x Silo
- for powder additives
- volume 1.5 m³
- steel sheet construction
- connection joint for the filling funnel

3600 [A] 1 x Supporting steel structures
- for the mixing tower
- steel construction
- intermediate frames and diagonal supports
- machine support structures
- stair structures

3610 [A] 1 x Stair shaft
- stair structures 1000 mm

3710 [D] 1 x Control room
- separate room on the level +0.000, client’s supply

3715 [D] 1 x Compressor room
- separate room on the level +0.000, client’s supply

3800 [A] 1 x Cladding of the mixing tower
- corrugated steel sheet

3810 [A] 1 x Thermal insulation
- for the mixing tower roof only (for condensation), thickness 50 mm

0900 [D] 1 x Foundation and infrastructures
- for the plant, civil works
- according to local requirements

[D] Delivery, assembly and electrification of packing line equipment and machinery

CONTROL SYSTEM

According to the Technical Description, Control System DT17406C,