**Solid grinder up to 60 m³/h**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-solid grinder

Horizontally positioned, robust double shaft grinder for chopping solid and fibrous materials in primary sludge, which is not sensitive against dry-running. A sufficiently dimensioned electrical geared motor is used as drive. The double-shaft grinder and drive are fitted on a common twist-free baseframe made from galvanized steel. The drive has to be mounted on a steplessly adjustable gear motor plate. Elastic coupling, coupling guard as well as the oil filling for initial commissioning should be included in the scope of delivery.

**Fluidic data:**

Fluid: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Solid content: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ % TS

Operating temperature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ °C

Specific weight: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ kg/m³

Capacity: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ m3/h

Inlet pressure: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bar

Pipe connections: suction side: DN \_\_\_\_\_\_\_\_\_ PN 10/16

 pressure side: DN \_\_\_\_\_\_\_\_\_ PN 10/16

Reversible, for any operating direction

**Solid grinder data:**

Make: BÖRGER Multicrusher

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 info@boerger.de, [www.boerger.com](http://www.boerger.com)

Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Make selected: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Type selected: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Speed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rpm

Required power: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ kW

Selected power: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ kW

**Design and Materials:**

Casing: one-piece block casing made from EN-GJL-250 (GG25)

Axial casing protection: Casing protection plates made from Hardox XAR 400 and 1.7225

Cutting wheels: Knife plates and counter blades, each 8 mm wide, made from hardened steel 1.7218, easily replaceable through the quick-release cover, without dismantling the drive or the pipe connections.

Bearings: one side double bearings, oil bath in block casing with lateral drain plug

Shafts: not wetted by pumped fluid, but oil lubricated

Shaft sealing: maintenance free mechanical seal with highly dimensioned oil quench

 Material pairing: Duronit V / Duronit V

 The mechanical seal can be replaced through the pump chamber without dismantling the Multicrusher.

Seal monitoring: oil-filled intermediate chamber, integrated in the casing, with lateral drain plug as quench, serves for seal monitoring and for lubricating the shaft-rotor-connection.

 Content: 0,8 liter

 There is no need of an external fluid reservoir or pressurization.

Corrosion protection: Grinder: 2-component-PUR-coat, single layer, **RAL 5021 water blue**

 Drive: manufacturer’s standard, RAL 7031

 Flange and baseframe: galvanized steel

Maintenance: MIP® = Maintenance in Place

 Through quick release cover opening with 4 rings nuts and O-ring-seal, all medium-wetted parts can be maintained and replaced without dismantling the grinder or pipes.

**Selected materials / execution:**

Casing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Axial casing protection : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Cutting wheels: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Shaft sealing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Quench volume: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Pipe connections: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Cutting wheels can be

dismantled without

dismantling the drive

or the pipe connections \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Yes/No)

**Drive:**

Helical geared motor

Make: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Selected power: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ kW

Speed (shaft): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1/min

Speed (drive): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1/min

ISO-class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Protection category: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Voltage: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ V

Frequency: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hz

Winding protection: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Service factor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (min. 2,0)

Aggregate-weight: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ kg

Dimensions (L x W x H): \_\_\_\_\_\_\_\_\_\_\_ x \_\_\_\_\_\_\_\_\_\_\_ x \_\_\_\_\_\_\_\_\_\_\_ mm

**Deliver solid grinder as described before:**

**Quantity: \_\_\_\_\_\_\_\_\_\_\_\_\_**

**Unit price: \_\_\_\_\_\_\_\_\_\_\_\_\_ €**

**Total price: \_\_\_\_\_\_\_\_\_\_\_\_\_ €**

***Options:***

**Control technique – alternative 1:**

A controller with display as well as preinstalled control software is the control technique for the solid grinder. It is ready installed in a steel sheet control cabinet IP 54.

Functions: - load-depending reverse in case of overload to avoid blockages

 - temporary change of direction of rotation with every restart

 - malfunction message when reaching a predefined number of

 load-depending changes of direction of rotation

 - all operating parameters can be set by the operator

 - control of the corresponding pump

 (start/stop/change direction of rotation)

 - Interpretation of PTC resistor in motor winding

 - all operating and malfunction messages should be put isolated

 onto a separate connecting terminal plate

Steel sheet control cabinet: - protection category: IP 54

 - pre-mounted ready for installation including all necessary

 guards, relays and switches

 - main switch

 - emergency / stop switch

 - changeover switch hand-0-automatic

 - luminous indicator for operation and malfunction

 - luminous press button for clockwise and counter clockwise

 rotation

 - PTC resistor trigger box

 - overload relay

 - Siemens SPS

 - supplier voltage: 230 VAC

**Quantity: \_\_\_\_\_\_\_\_\_\_\_\_\_**

**Unit price: \_\_\_\_\_\_\_\_\_\_\_\_\_ €**

**Total price: \_\_\_\_\_\_\_\_\_\_\_\_\_ €**

**Control technique – alternative 2**

Controller with a display and a pre-installed control software are the control techniques for the solid grinder. It is pre-assembled on a carrier rail for the installation in the control panel by the customer.

Function: - load-depending reverse in case of overload to avoid blockages

 - temporary change of direction of rotation with every restart

 - malfunction message when reaching a predefined number of

 load-depending changes of direction of rotation

 - all operating parameters can be set by the operator

 - control of the corresponding pump

 (start/stop/change direction of rotation)

 - Interpretation of PTC resistor in motor winding

Scope of delivery: - protection category: IP 20

 - overload relay

 - Siemens SPS

 - supplier voltage: 230 VAC

**Quantity: \_\_\_\_\_\_\_\_\_\_\_\_\_**

**Unit price: \_\_\_\_\_\_\_\_\_\_\_\_\_ €**

**Total price: \_\_\_\_\_\_\_\_\_\_\_\_\_ €**