

Item Absorber FGD 1

KKS-No. 12 HTD 10 AM 001 - 008

AGITATOR SPECIFICATION

Spec. No.: 3120.12443.00

Serial No. 66558 / 0010 - 0080

Drawing No. 125-20097498-00

Type HWL 2100 - N with WINGJET O₂

The design is based on the following data.

MIXING TASK: Suspension and dispersion

PROCESS DATA:

Medium:	limestone-/ gypsum slurry	
Design temperature:	< 71	° C
Operating pressure (abs.):	1	bar
Solids:	15 max. 20	gew-%
Density:	1,077 – 1,108	kg/m ³
Viscosity	< 5	mPas
Chloride	< 20,000	ppm
pH-value	4 - 8	
Oxidation airs per absorber	45,000	Nm ³ /h

VESSEL DATA:

Diameter :	18,500	mm
Filling height :	16,750	mm
Filling volume :	4,500	m ³

The agitator is designed to operate at any liquid level and can therefore be operated during filling and emptying of the vessel (for shaft seal ESD 42L100R31 please refer to "Shaft Seal").

ELECTRIC MOTOR

P = 55.0 kW, n = 1,480 min⁻¹, power supply 3 x 400 V, 50 Hz, D.O.L. starting. Protection class IP 55, insulation class F, temperature rise B, VIK-design, construction form B3, installed at an angle of 75 °. To be located in building. Ambient temperature -21 ...+40 °C.
Sense of rotation seen from drive to impellers: Clockwise.

V-BELT DRIVE

V-belt drive between motor and gearbox. Lateral mounting of motor with belt adjuster and belt protection guard. V-belt electrically conductive.

HELICAL FLAT GEARBOX (manufacturer: FLENDER)

With a solid output shaft including flange coupling, oil dip lubrication, with oil filling, without additional cooling, with oil level gauge. $i = 13.053$, output speed $n_2 = 113 \text{ min}^{-1}$

BEARING LIFETIME of agitator $L_{h10} \Rightarrow 100,000 \text{ h}$

AGITATOR BEARING

Of rigid, distorsion-free design.

AGITATOR MOUNTING

Mounting flange, connecting dimensions acc. to DIN 2501 für DN 600, PN 10, with holding-down bolts and gaskets. Design with raised face. Possibility for grounding cable.

Material: carbon steel, product side clad with stainless steel DIN matl. no. 1.4529

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SHAFT SEAL

Non-flushing, single acting EKATO mechanical seal type ESD 42L100R31
Mechanical seal with shut-down device. Seal rings made of SiC, O-rings made of Viton.
Product wetted parts of stainless steel 1.4529.

The mechanical seal unit is installed and ready for operation, additional connections for cooling media and seal liquid are not required. Avoid dry-running of the seals, e.g. a flushing by the product must be guaranteed.

This seal has been especially developed for agitator operation with the following features:
low-maintenance, low leakage, long service life and high operational safety.

AGITATOR SHAFT

Solid, length (to propeller) = 1,200 mm, W = 105 mm diameter.

Top connection in gear reducer via slotted coupling. Stepped bottom end with keyway, key and locked nut.

Material: stainless steel DIN matl. no. 1.4529

Safe agitator operation is guaranteed by sufficient distance between the operational speed and the natural frequency of the shaft.

IMPELLER "EKATO-WINGJET O₂"

1 EKATO propeller, 3-bladed, $d_2 = 1,600$ mm. Pumping away from drive.

Mounting: exchangeable and mounted to the shaft end.

Material: Duplex – high grade cast iron for highly chlorinated and acidic products.

1 EKATO rotating sparger, 3-bladed, $d_2 = 1,200$ mm.

Mounting: exchangeable and mounted to the shaft.

Material: stainless steel DIN matl. no. 1.4529.

OXIDATION AIR LANCE

Supply and Installation by others.

SURFACE TREATMENT

Outer components treated according to customer specifications.

AGITATOR ARRANGEMENT

8 side entry agitators.

VESSEL INTERNALS

Not required.

TEST

Before shipment the agitator undergoes a test run in our works.

The test run takes place vertically.

QUALITY ASSURANCE (QA)

The design, manufacture, assembly and inspection of the agitator follow the QA instructions based on the EKATO quality management according to DIN ISO 9001

REMARKS

Modifications of the mechanical design of the agitator as well as the above defined operating conditions have to be confirmed by EKATO in writing, otherwise the guarantee expires.

We give no guarantee for damages that are caused by parts which EKATO has not supplied.

OBSERVE

Apart from a correctly dimensioned gassing system the following conditions must be fulfilled to guarantee a trouble-free operation of the oxidation stage:

1. Sufficient concentration of transition metal ions to serve as a catalyst in the oxidation of SO_3 . The ions are normally leached out from the fly-ash particles and are present in sufficient quantities after start-up.
2. There are no components present which would inhibit the oxidation or the catalytic action of the above referenced ions:
 - thiosulphate or elementary sulfur
 - complex forming agents
 - anti-foaming agents
3. To influence the coalescence behavior positively of the gas-liquid system; a sufficiently high aggregate of ionic strength of all dissolved ions, i.e. a sufficient concentration of ions in general such as Mg^{2+} , Cl^- , SO_4^{2-} , must be present. This state develops after a sufficient time of operation

To evaluate the situation a complete analysis of all dissolved components is requested.