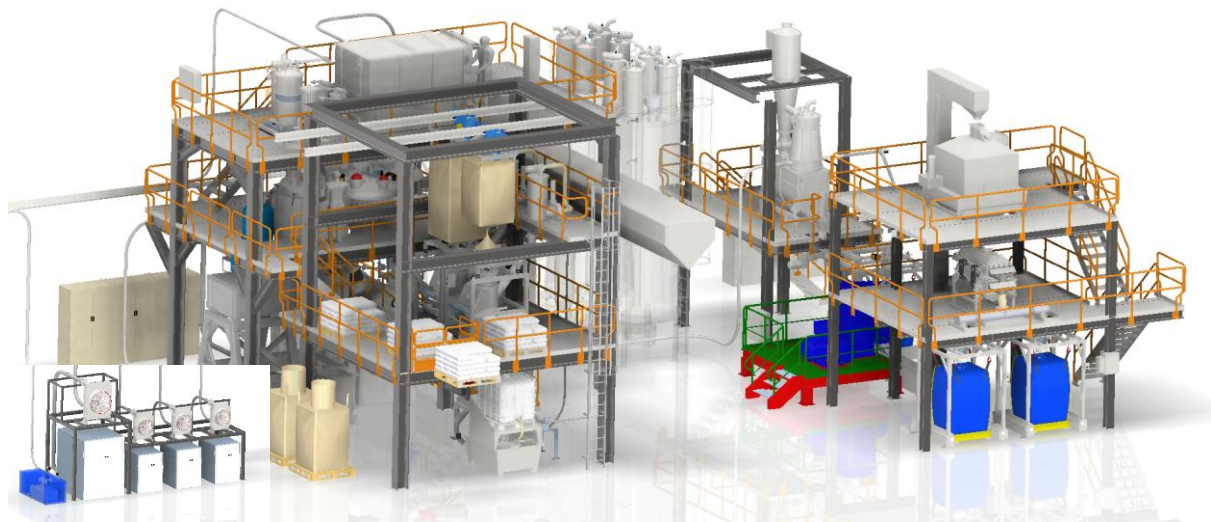


Process line hot&cold-mix, additive station , pelletizer

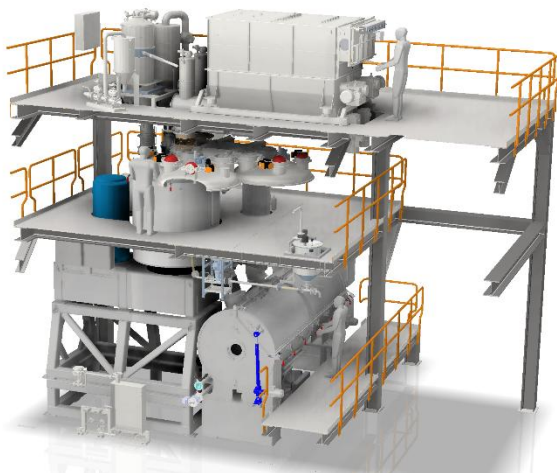
Abstracts

This is a high-quality system that mixes and homogenizes up to three additives in a hot mixer. The control system is included in the scope of delivery. First, the material is transported from the production line to a storage silo. From this first silo, the material is conveyed to the hot mixer, then to the cool mixer and finally to a second silo for temporary storage. Afterward, you have the option to fill the powder directly into a BigBag filling scale or to press it into pellets using a pellet press and then fill them. The steel structure is included in the scope of delivery. The system is designed to meet ATEX standards where necessary.



Hot and Cold mixer

Component Manufacturers: MIXACO
 Dr. Herfeld GmbH & Co. KG
 Niederheide 2
 58809 Neuenrade, Deutschland



The photo on the right was taken during FAT.

Technical Description of the hot-cold Mixer

Heating Mixer HM3000:

Total volume:	3500 liter
Useful volume:	2550 liter
Material:	Duplex W1.4462 – surface polished 0,4 µm Ra, 12/5 mm
Isolation:	ceramic fibre 60 mm
Temp. sensor:	2 pcs PT 100
Discharge valve:	DN 400
Feed valves:	2xDN400, 2xDN300, 1xDN65
Mixing tools:	6 stages, AISI304, coating HVOF, 63-625 RPM, 5-50 m/sec
Dive:	400 kW with 10 V-ribbed belts
Shaft sealing:	PTFE, glas fibre
Option:	the jacket of the Mixer is prepared for external heating by oil

Cooling Mixer KM9000:

Total volume:	9000 liter
Useful volume:	7650 liter
Material:	Duplex W1.4541 – surface polished 0,4 µm Ra, 8/8 mm
Temp. sensor:	1 pcs PT 100
Discharge valve:	square 450x450 mm
Mixing tools:	5/10 arms/paddle, 45-90 RPM, 3,5-7 m/sec
Dive:	90 kW, SEW
cooling:	double jacket

Vakuum unit:

Brand/Type:	Arpuma/Speck, water ring, stainless steel AISI304
Dive:	11 kW,
Vakuum:	145 m³/h, 33 mbar (best), working 100-150 mbar abs.
Cooling capacity:	70 kW/h

Control Cabinet:

Brand:	Rittal, Siemens, Vacon, Phoenix, Woehner
AC:	ventilation

Footprint:

Hot mix tower:	Hight (highest point machines): 8690 mm
	Recommended Hight incl. head Hight: 9100 mm
	Width: 5400 mm plus extension for cooler 2000 mm
	Length: 10.100 mm

Process description:

The setup was designed for a very light material with a density of 150–250 kg/m³. The receiver tank located above the hot mixer can hold approximately 4,500 liters of material with very poor flow properties. Thanks to the two agitators in the tank, the material remains free-flowing at all times. The two screw conveyors are designed to fill the hot mixer at a rate

of 300 m³/h—a filling time of approximately 30 seconds. To ensure these high filling speeds, the tank volume is evacuated through a filter during the filling process.

The vacuum can be activated and deactivated as desired—and the addition of additives, whether in solid or liquid form, is also freely programmable.

After successful mixing, the mixture is transferred to the cooler and cooled to ambient temperature. The mixer is equipped with a dust filter for the suction system.

The necessary conveying equipment for additives and the product is included in the scope of delivery.

From a technical standpoint, a second hot mixer can be added to the cooling mixer.

Machine Documentation:



Left: Hot Mixer insitu – connected with the special feeder for bad flowing material.

Mid: Installation of the knife valves, filter for the aspiration of the cooling mixer.

Right: frame from the hot mixer – included.



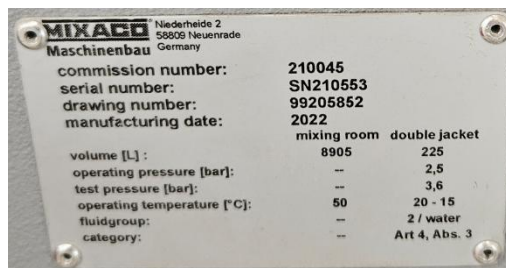
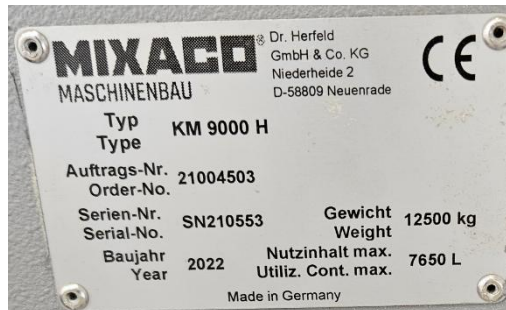
Left: top view inside hot mixer while - at FAT

Mid: special outlet valve and mixer shaft - at FAT

Right: special valve for liquid additive – at FAT



Left: Cooling Mixer – special discharge valve from hot mixer, right side the aspiration.
Right: special discharge valve



Left: drive of the mixer and cold water – cooling water - installation
Right: Type plate cooling mixer



Left: vacuum pump
Right: vaccum pump tank



Left: HMI for cooling mixer
Mid: main electric cabinet
Right: VFD Vacon



Left: HMI hot mixer
Right: main page hot mixer (from main plant with two Hot mixer)

Process Engineering:

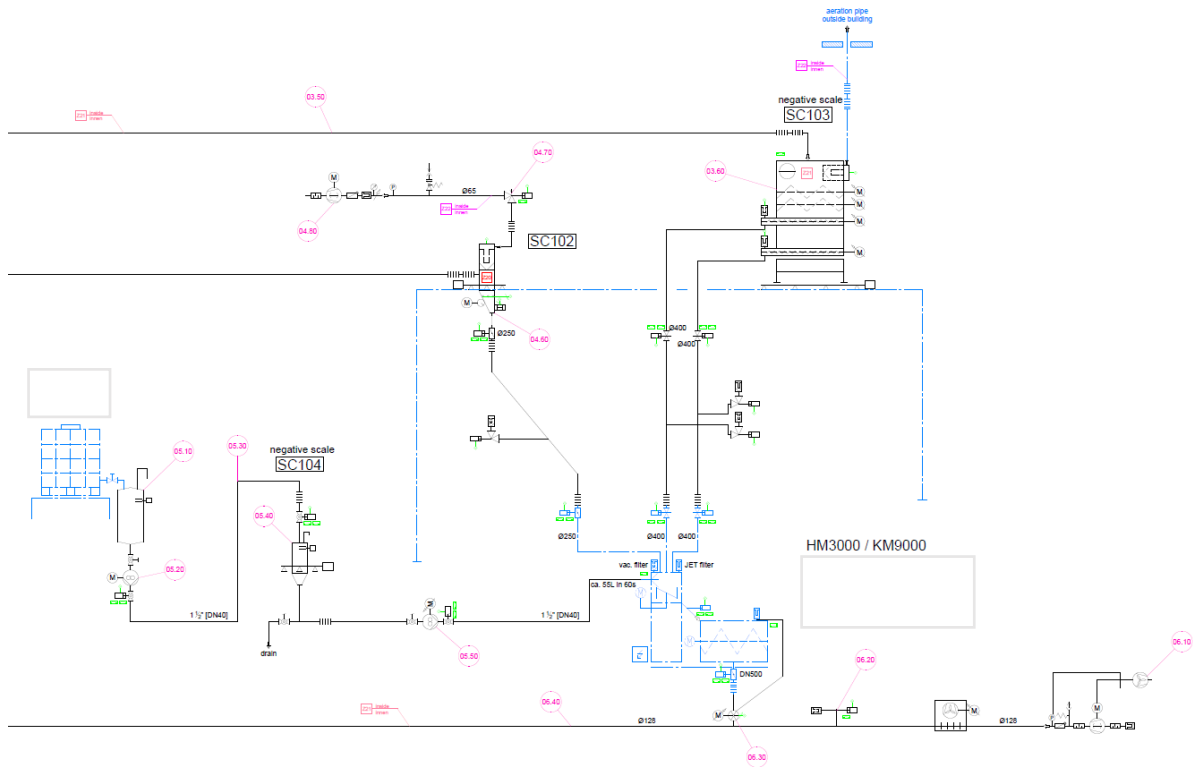


Illustration of the supply of additives and product to the hot mixer.

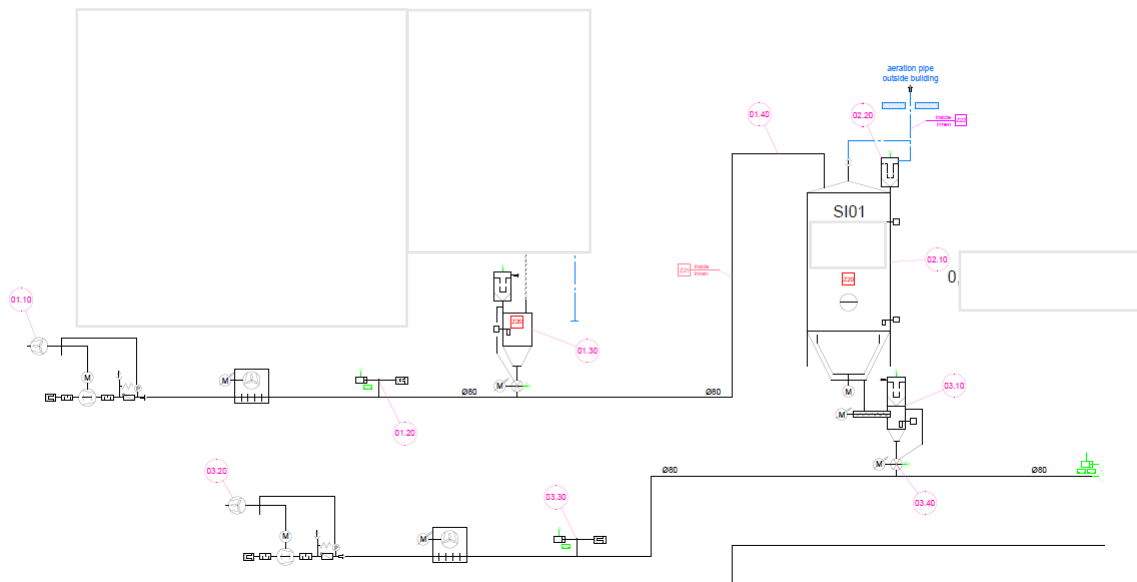


Illustration of the product being fed into the silo and then into the hot mixer

Additive Station

Component Manufacturers:

AZO GmbH + Co. KG,
Rosenberger Str. 28,
74706 Osterburken, Germany

Steel Construction Manufacturer:

About Engineering
Israel

The technical specifications for the additives on which the system was designed are as follows:

- Additive 1: Talkum, powder
Bulk density about 400 kg/m³
Flowability: bridging, not free flowing
Supply unit: Big Bag and bags
Specific process capacity for this type of additive: 50 kg/batch
Depending on the specific material that will be used in the future and the specific batch time of the future use, the capacity of the additive will increase or decrease.
- Additive 1: Zink Stearat, powder
Bulk density about 225 kg/m³
Flowability: bridging, not free flowing
Supply unit: Big Bag and bags
Specific process capacity for this type of additive: 50 kg/batch
Depending on the specific material that will be used in the future and the specific batch time of the future use, the capacity of the additive will increase or decrease.
- Additive 1: oil, liquid with high viscosity
Bulk density about 500 kg/m³
Flowability: free flowing
Supply unit: IBC
Specific process capacity for this type of additive: 50 kg/batch
Depending on the specific material that will be used in the future and the specific batch time of the future use, the capacity of the additive will increase or decrease.



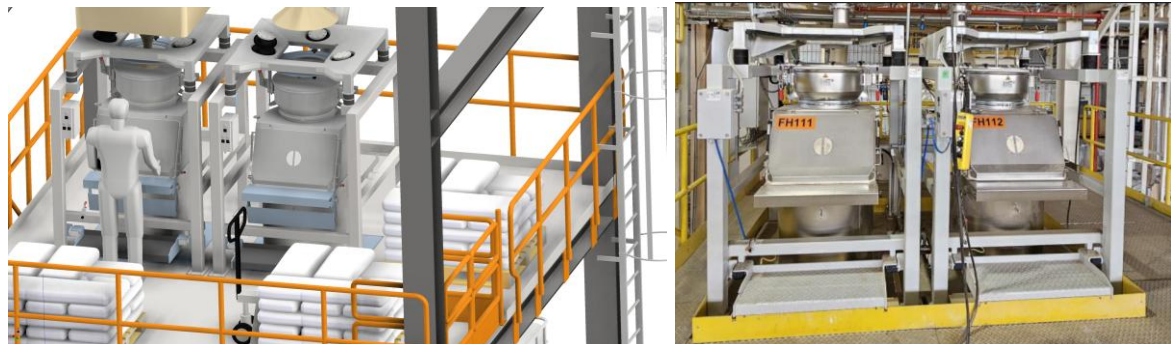
Technical Specifications:

- Height of the steel structure: approx. 8,490 mm
- Floor dimensions of the steel structure: approx. 6,100 x 5,100 mm (floor slab and uprights)
- Level 1 at approx. 2,910 mm
- Level 2 at approx. 5,710 mm

The crane system, with a lifting capacity of 2,000 kg, is located at a height of approximately 7,600 mm. A drive motor for longitudinal travel along the crane runway is provided..



Level 1 features two receiving bins for unloading big bags and sacks. The platform is designed so that pallets of bagged goods can be lifted onto the level using a forklift.



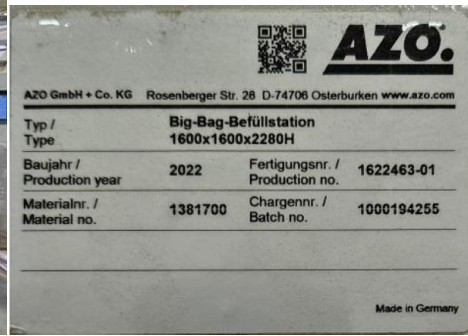
In the background on Level 2 are the dust collection filters for the receiving tanks.



Below Level 0 is the collection tank for the vacuum transport of additives to the bulk material scale. The feed from the unloading stations is handled by two DN100 screw conveyors. The scale is designed as a three-point scale with a load capacity of 300 kg. The transfer to the vacuum transport system takes place via DN 200 rotary valves.



Left: airfilter for quick filling the hot mix
Right: scale for additive above the hot mix.



Left: automatic scale for filling bigbags
Right: type plate

Kompressorstation:

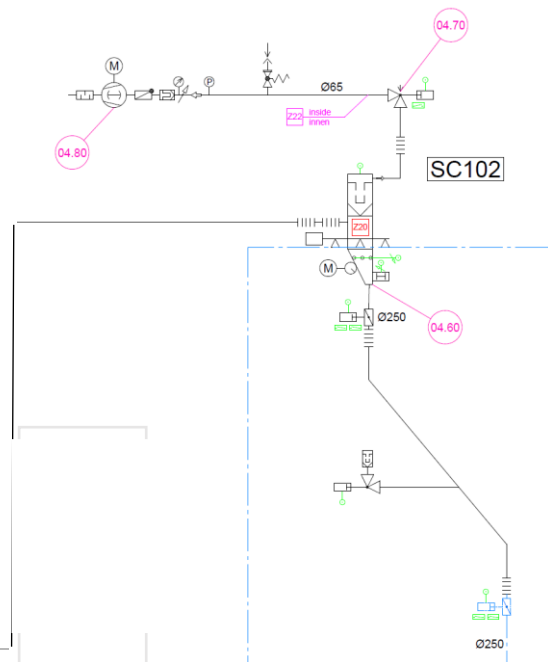
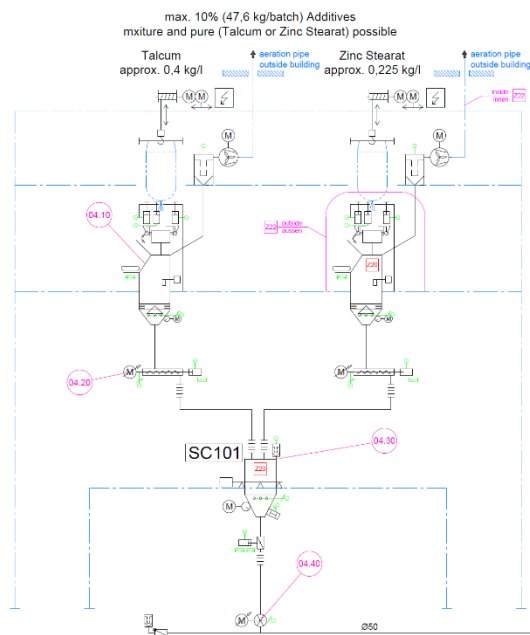


Small compressor label x 3 units

Big compressor label x 1 unit

Left: compressor station
Mid and right: type plate compressor

Process Documentation:



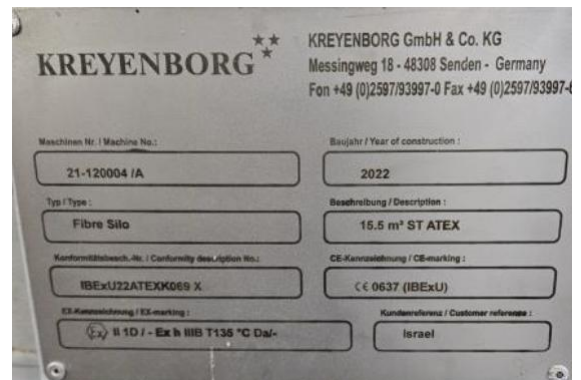
All components shown are included in the package—along with the corresponding controller and power electronics. The system is fully functional. Cables are not included.

Silo

Component Manufacturers: KREYENBORG GmbH & Co. KG
Messingweg 18
D-48308 Senden – Germany

These are two ATEX-certified silos with a volume of 15 m³ designed for difficult-to-handle light bulk materials with a density of up to 300 kg/m³, or for lower fill levels with higher densities. The silos are fully equipped with filters at the top and discharge augers at the outlet, complete with filters and a cell lock.

What makes it special is on the inside—a cutting edge that runs along the bottom and rotates slowly, keeping the material in motion.



Left: CAD
Right: picture insitu
Top: type plate

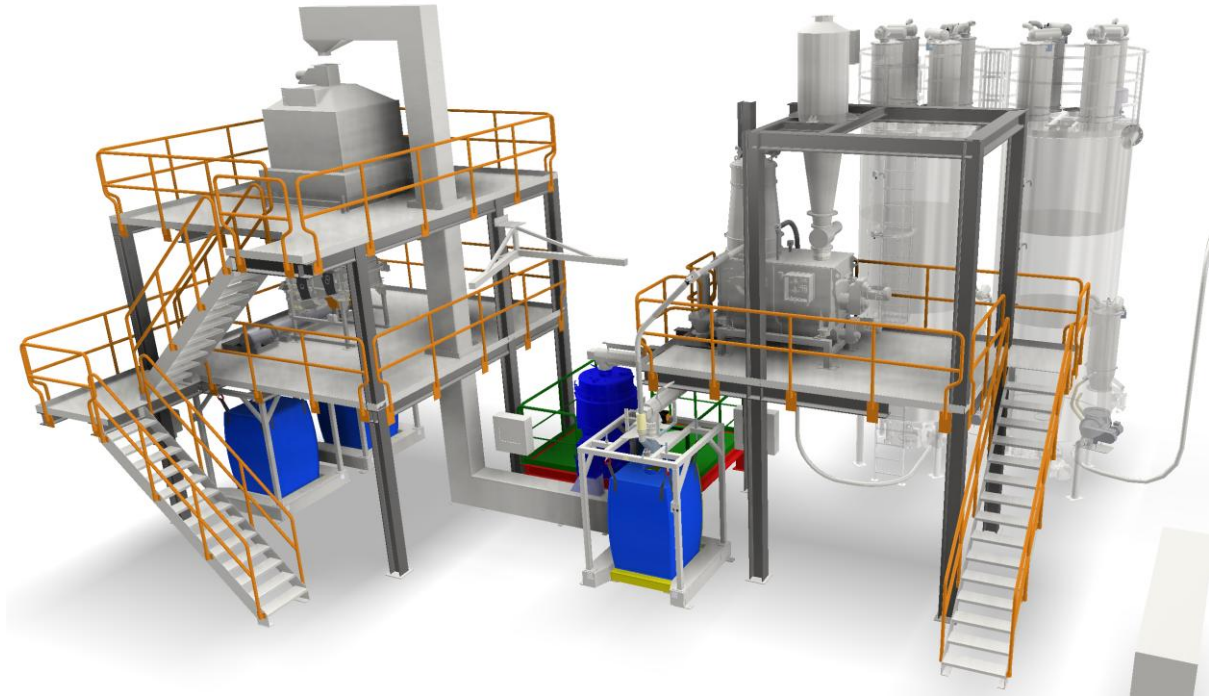
The silo conveying system also includes an N₂ inert gas generation unit. This allows the first silo to be purged with inert gas prior to hot mix. This is an option, not a requirement.

Pellet

Component Manufacturers: AMANDUS KAHL GmbH & Co. KG

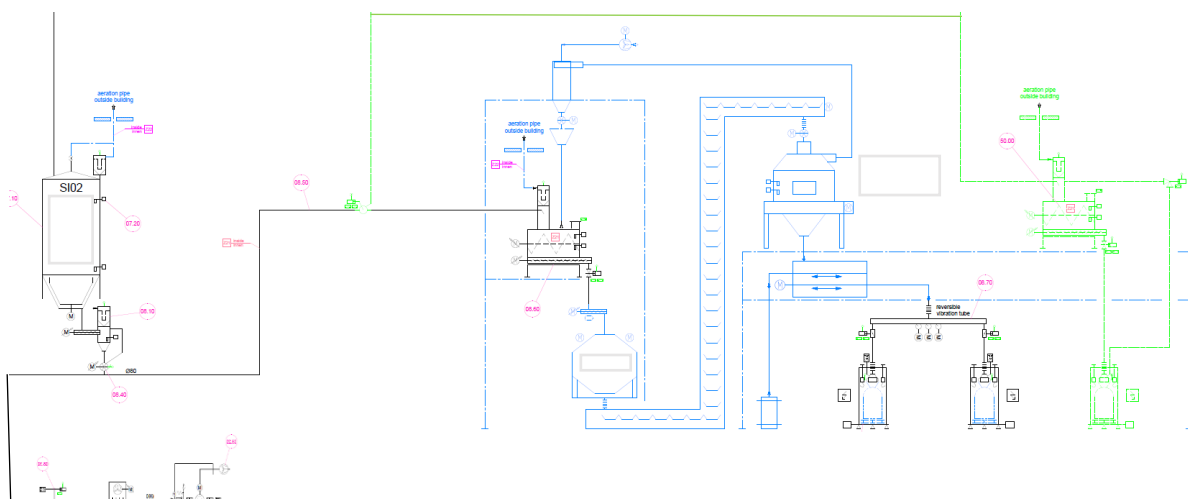
Dieselstraße 5-9

21465 Reinbek – Germany



The final component of this complete system has two functions. First, the powder can be fed directly from Silo 2 to a filling station equipped with a calibrated scale. Here, big bags up to 2 m high can be filled.

Alternatively, the powder or product can be conveyed to a pelletizing system and compressed into pellets. These pellets are then routed through a cooler to two possible calibratable filling scales for big bags.



Technical Description:

Tower 1 for Powder Filling

- Height of the steel structure: approx. 8,490 mm
- Base dimensions of the steel structure: approx. 6,100 x 5,100 mm (base plate, uprights)
- Level 1 at approx. 2,910 mm
- Level 2 at approx. 5,710 mm

Tower 2 for pellet production

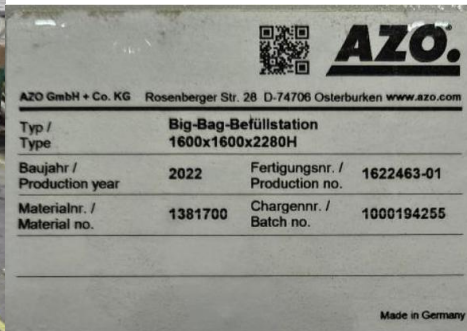
- Height of the steel structure: approx. 9,000 mm (including cyclone exhaust pipe elbow)
- Floor dimensions of the steel structure: approx. 6,300 x 4,300 mm (including platform for filling scale and staircase)
- Level 1 at approx. 3,150 mm



In the first stage of the filling process, the product is conveyed from Silo 2 to a special receiving hopper via compressed air. This hopper is equipped with an agitator and a filter. The agitator is designed to reliably prevent bridging and blockages. The interior of the hopper is ATEX-compliant. The product is transported via the swiveling screw conveyor either to the filling scale or to the pellet line.



Left and mid: special receiving bin for powder
Right: type plate



Left: big bag filling unit with one calibrated scale
Right: type plate



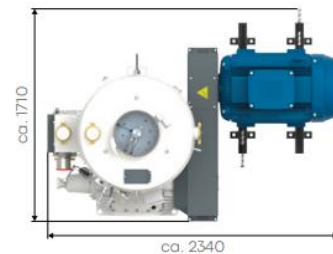
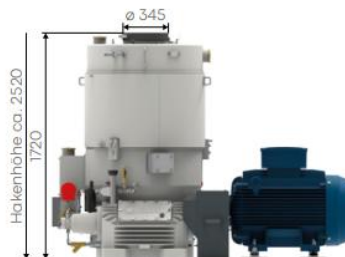
Left: rotatable screw
Right: type plate



left: Pellet machine with bucket conveyor
mid: Pellet machine motor and gearbox
right: pellet machine outlet for pellets to bucket conveyor
side: type plate

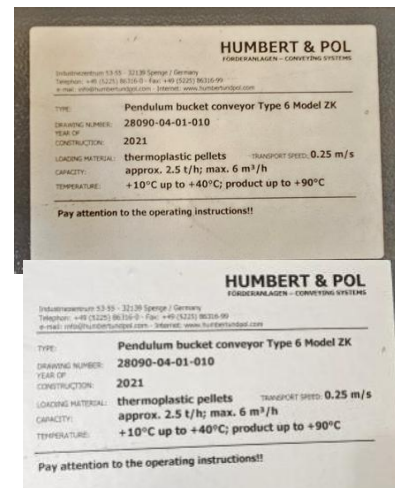
Technical data for the Pellet machine

Type	37-850
Matrizendurchmesser mm	850
Kollerdurchmesser/-breite mm	350/bis 130
Kolleranzahl	3-5
Kollergeschwindigkeit m/s	2,5
Antriebsmotor kW/min-1	132-160/1500



Type: 37-850
Die: 850x450x50 3,0x13, Material KB130
Drive: 132 kW
Extras: central roller lubrication, infrared thermometer at the outlet,

Type of spare parts	Quantity	Type	Picture
DIE (AMANDOS KAHL)	4	DIE for KAHL Type: 37-850	
ROTOR (AMANDOS KAHL)	2	ROTOR for KAHL Type: 37-850	



Top left: entrance bucket conveyor into the box cooler

Top mid: bucket conveyor

Top right: type plate

Low: entrance area of the bucket conveyor with cleaning trays on the bottom for easy maintenance.

Size: at bottom about 3590 mm horizontal, from bottom to highest point about 8220 mm, top horizontal about 2340 mm



K8101-3703

Gegenstromkühler GK 1414 KL; ATEX



KdAuftrag; 79278; Pos. 11300

Kunde: NOVARENA

Left: box cooler with pendulum bottom – volume about 2 m³

Right: type plate



KT-Kroosh Technologies Ltd.

49 Hakidma St. North Ind. Zone Ashdod, Israel

Tel: 972-8-8527597 Fax: 972-8-8527662

www.kroosh.com kroosh@kroosh.com

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Serial Nr

Project

Year

US, EP, Japan & Others Patents Pending

Left: screen for removing dust at about 1,5 mm inclusive vibration tube for transport into the two scales for the Big Bag loading.

Right: type plate



Left: big bag filling unit with calibrated scale

Right: type plate

For any questions feel free to call Uwe Geissler, uwe@ubqmaterials.com, +43 660 280 30 28