JT.001.10.05.EN

DRYING- AND COOLING PLANT FOR SYNTHETIC-RUBBER TYPE SBR

APPLICATION AND OPERATION:

Production of synthetic rubber requires drying and cooling of the product to a certain final moisture content and product outlet temperature before pressed to bales, packaged and stored.
Following the dewatering screen and the hammer mill the rubber crumbs will be fed via a pneumatical conveying system to the product inlet cyclone of the Feeding Conveyor. The Feeding Conveyor has to ensure an equal distribution of the product fed into the following Fluidised-Bed Dryer.
While being transported over the three drying zones of the Fluidised-Bed Dryer the product is dried to the final moisture content by being fluidised with heated process air. Steam-operated heat exchangers are installed in order to heat the process air of each drying zone.
Operated in recirculated-air mode the exhaust air of zone 2 and zone 3 is purged each time in a separate cyclone from fine product particles, re-heated and conducted into the Fluidised-Bed Dryer as process air again.
Due to the fluidisation of the product in counterflow operation the exhaust air with the highest moisture content of the first drying zone is purged from fine particles in a last cyclone and conducted to an exhaust air pipework system designed by the customer. Insulation of all hot air contacted parts ensures a reduction of almost all possible heat losses.

For further processing in the baling presses the product is cooled down to the required final temperature in a Fluidised-Bed Cooler which is installed following the Fluidised-Bed Dryer. Another pneumatic conveying system transports the product from the Fluidised-Bed Cooler to the belt-weighing system of the baling presses.
Controlling and regulation is possible via PLC. The PLC regulates temperature and real moisture of the product leaving the unit by taking into consideration the type of product, the temperature, the amount of process air and the time the product remains within the unit. Every parameter influencing the process may be adjusted while the unit is in operation.

YOUR BENEFIT:

- Turn-Key project from one source
- Process design by our own specialists
- Flexible machine design ready to be installed into an existing plant
- Consideration of testing results determined at site for selection of machine type and process parameters
- Design of the control- and regulation structure in-house
- Program generation and testing in-house
- Assembly and commissioning by our own staff

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TECHNICAL DATA:

Feeding Conveyor

Type of machine:	FUF 1200 x 2500
Width:	1.200 mm
Length:	2.500 mm
Weight:	ca. 2,3 t
Drives:	2 x JV 248-1800 (2 x 3,6 kW)

Fluidised-Bed Dryer

Type of machine:	DWFT 1400 x 10200
Width:	1.400 mm
Length:	10.200 mm
Weight:	ca. 9,5 t
Drives:	4 WE 1500-500 (2 x 18,5 kW)

Fluidised-Bed Cooler

Type of machine:	DWFK 1300 x 3600
Width:	1.300 mm
Length:	3.600 mm
Weight:	ca. 3,0 t
Drives:	2 x JV 158-410 (2 x 0,95 kW)

Further Components

Process Air Fans
Heat Exchanger
Cyclones

PROCESS DATA:

Product:	Synthetic-Rubber type SBR
Feeding capacity:	4.000 kg/h
Product inlet temperature:	20 °C approx.
Initial moisture content:	10 % approx.
Product outlet temperature:	< 50 °C
Final moisture content:	< 0,5 %
Process air mass flow:	25.000 kg/h (recirculated-air mode operation)
Process air temperature:	110 °C