Dry air dryer for plastic material

EKO-N

DRYING QUALITY AT THE HIGHEST LEVEL

The pros of the existing drying concepts CKT & EKO together in one drying unit: The dry air dryer EKO-N. The heat exchanger concept in the pipe system adopted from the EKO dryer has been further improved in the EKO-N series and is used here even more efficiently. The thermal energy return reduces the energy consumption by 50%, depending on the drying temperature of the material. This reduces the average energy consumption while maintaining the same quality.

The EKO-N dryer includes frequency-controlled drying fans and the energy-saving dew point control as standard (both from EKO-N 300F). All EKO-N dryer come both with S7 control unit and a 10,4" Touch-Screen Display. The user can adjust all necessary operating functions such as: Drying time, drying temperature, dwell time. The drying process is continuously monitored by sensors. Both processes operate in closed-loop systems to ensure a consistent degree of drying. Because of this energy-efficient drying process, the EKO-N operates at a dew point of between -30° and -60°C.

The EKO-N 200F with two drying containers (300 liters each) on a moveable frame including two conveying separator A8 with intermediate hopper Z5

MODULAR SYSTEM
According to the KOCH modular system, different drying containers from 40 liters to 1.200 liters can be integrated into the EKO-N. Bigger drying container will keep being built in the proven CKT-Design.

Another advantage: Due to the modular structure of the drying system, Expansion of drying containers can be carried out without any problems.

❶
Nine different dryer sizes from EKO-N 110 to 2000 (m^3 / h) are available - here the EKO-N 1100F with 16 drying containers

❷
The EKO-N drying container are placed directly onto the drying platform and have the KOCH-ÖKO energy saving control units ant with heat exchanger concept on the backside. The filling of the drying container is done by a conveying separator A8 and an intermediate hopper Z5

❸
The EKO-N 1100F with 12 drying containers mounted ona frame. The central conveying system fills six 60L, two 100L, three 200L and one 600L drying container automatically

PROS AND FEATRUES WITH A NEW DESIGN: EKO-N

• Nine different dryer sizes from EKO-N 110 - 2000 m^3/h
- 110(F) / 150(F) / 200(F) / 300F / 500F / 800F / 1100F / 1700F / 2000F

• Up to 50% energy savings and a consistent drying quality in combination with
- Thermal energy return via heat exchanger (Air - Air)
- Frequency controlled dry air dryer *
- Dew point controlled drying, when dew point of -30°C is reached *
- ÖKO energy saving patented KOCH control for material care drying
- Energy-saving countercurrent regeneration for a quick dehumidification

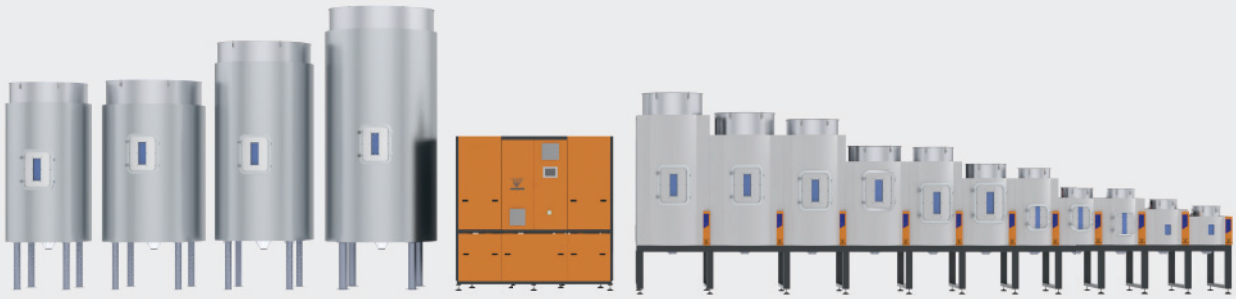
• EKO-N drying containers from 40 - 1.200 liters (from 1.500 liter in CKT-Design)
- Drying container availabe on frame (stationary or mobile) or integrated in a dryer platform
- Container heatings up to 120°C or 170°C, which are directly integrated without a loss of heat
- As per standard with viewing window and hinged lid
- Container with cleaning door expandable

• EKO-N concept with modular built up for easy expansion of the dry air dryer
• Control unit (S7) incl. 10,4“ Touch-Panel & material database with 240 recipes
• Fully integrated KOCH visualization software
• „Smart-Factory“: Industry 4.0-compatibel through OPC-UA communication standard

* (also optional aavailable for EKO-N 110, 150 & 200)

PATENTED

ENERGY EFFICIENT



Drying containers in CKT-Design from 1.500 - 6.000 l

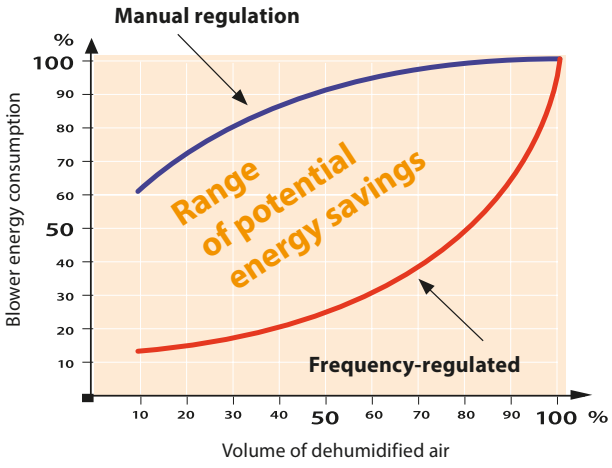
EKO-N 2000F

EKO-N drying containers from 40 - 1.200 l

THE KOCH ECO CONTROL SYSTEM

Our patented control system for gentle, energy-saving drying that does not damage material. Our optional ECO control system guarantees that hygroscopic materials such as PA, PC, LCP, POM etc. do not become overly dry in the drying containers. When little or no material is removed from a drying container, there is a risk of material damage occurring due to the constant flow of hot air. The ECO control system stops this happening. When a certain temperature is reached at the top of the drying container, the drying system automatically switches to idle. The machine only begins to operate again if material is removed or the holding time is too long.

The advantage is that you save up to 50 % on energy and can access pre-dried material at any time. At the same time, you can be certain that no damage has been done to the material. The quality of the end product is thereby ensured.



FREQUENCY-REGULATED BLOWER

Frequency-regulated drying blowers offer further energy savings in the drying process. Optional frequency converters enable the speed of the motor and therefore also of the dehumidified air to be adjusted to the load. This adjustment means that only a quarter of the energy that would otherwise be required is used at half-output, enabling the energy costs for operating the drying blower alone can be reduced by 25% to 75%.

THE DEW POINT CONTROL SYSTEM

There are two drying systems, which differ in terms of energy consumption: On the one hand there is the energy-intensive system which switches in cycles, irrespective of the moisture in the drying container. This does not take into account whether dry or moist air is being used for the drying process. On the other hand there is the energy saving system; its operation depends on the dew point. The KOCH dry air dryers take the dew point into consideration as they operate.

They do not switch to the new desiccant container until the dew point has reached -30°C. The dryer always adjusts to the actual circumstances. For wet plastic material, the cycles are shorter; for dry materials, the cycle is accordingly longer. The benefit is obvious: A lot of energy is saved in the regeneration and the quality of the end product remains consistent.

ECONOMIC

CONTROL

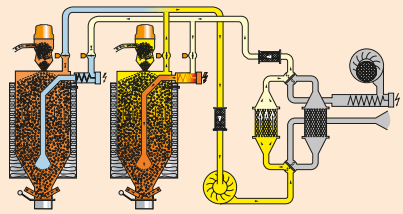
OPERATING THE DRYER VIA TOUCH-PANEL

- With Siemens S7 tecnology
- User-friendly 10.4" touch display with process control and integrated service functions as well as trend graphs
- For the operation of 4 drying containers; expandable for up to 24 drying containers
- Material database with 240 recipes
- Temperature reduction function to prevent drying the material for too long
- Record of the curve of the dew point of the last 500 days
- Complete control of all the respective temperature settings of the container heatings and Öko energy saving flaps
- Switching between 14 languages, password protection and timer
- Includes Bus connection for the Koch-visualization and ERPs
- The modular design enables smooth future expansions
- The touch panel can be extended with an integrated central conveying system for up to 24 hopper loaders, one central filter and vacuum generator as well as with the function throughput management, which gives alarm once the throughput is too high

Parameters of the integrated conveyor system

On request, we can provide remote monitoring of the parameters via a tablet computer, which has proved especially useful for dryers on platforms

APPLICATION OF EKO-N



Dry air flow KKT 100S

❶
The hinged lid of the drying container enables a quick and fast cleansing.

❷
Starting at 60L volume, all drying containers can be equipped with a cleaning door, which includes an inspection window. The cleaning doors are adapted to the shape of the drying containers and can be opened easily thanks to two quick-release fasteners.

❸
The suction boxes can have up to three suction nozzles to connect to the material lines. Thanks to its design there are no cold areas in the suction box. The shut-off valve serve to obtain material samples or to quickly empty the drying container. Suction box with integrated line cleaning function (see picture) for central conveying systems.

❹
Throughput management with indication of the drying progress in % in connection with the extension integrated central conveying system or via conveyors with alarm once the throughput is too high.

EXPAND YOUR CAPABILITIES

MIXING AND DOSING

We are specialists in dosing, mixing and coloring of plastic materials! We provide you with precise, reliable technology - for injection moulding machines and extruders.

FEEDING

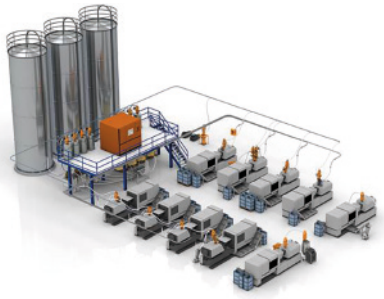
We offer peripheral equipment to supply your plastics processing machine with material. Our hopper loader transfer material save and clean to injection moulding machines and extruders.

DRYING

Our dryers for plastic materials are characterised by a high efficiency and cost effectiveness.

CENTRAL FEEDING SYSTEMS

We design, manufacture and install your centralised material feeding system. Specifically to your requirements and customised to your plastics processing needs.



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