FOXY DRYER / FD-SERIES

The FD-series of qip-GmbH represent the next generation of compressed air resin dryers based on the many years approved two-circuit-system. Beside the major advantages that no desiccant is required to generate dry air for the drying process and the very low compressed air consumption due to the two-circuit-technology, the FD-series offer an total round drying hopper made of high-quality stainless-steel without any air inlet pipe. This minimizes the cleaning effort in case of material changes and releases further possibilities for material processing. The heated air is lead into the drying hopper along the outer perimeter and causes an efficient and consistent heat-up process. This allows a further reduction of compressed air and turns the FD-series into one of the most energy-efficient resin dryers in the market.

Benefits:

- **Compressed air savings up to 85%**
- **3-years full warranty on parts and workmanship**
- **Maintenance-free**
- **Constant drying performance for life time**
- **Automatic energy control, optimized to actual material throughput**
- **Low operating costs due to low compressed air consumption**
- **Space-saving and optimized design for mounting directly on extruder**
- **Drying hopper and sheet metal parts made of high-quality stainless-steel**
- **Intuitive and self-explanatory operation through colored touch screen**
- **Simple to install**
- **Easy to clean**

TECHNICAL DATA		FD44	FD77	FD120	FD170	FD220
Drying hopper	[liter]	44	77	120	170	220
Power supply	[V / Hz]	1N~230 / 50..60				3N~400 / 50..60
Installed power	[W]	2000	3600	3600	3600	3600
Compressed air consumption	[Nm³/h]	3.0 to 4.0*	3.0 to 5.5*	3.0 to 9.0*	3.0 to 12.0*	3.0 to 16.0*
Compressed air supply	[bar]	6 to 10				
Compressed air quality		dew point: 3 to 5°C at 7bars / residual oil content: max. 0.1ppm				
Drying temperature	[°C]	20 to 180				
Permitted ambient temperature / humidity		+20 to +60°C / 80% relative humidity (no condensation)				
Height	[mm]	905	1095	1270	1420	1560
Width	[mm]	445	510	560	610	670
Depth	[mm]	590	620	700	750	800
Weight	[kg]	42	52	76	94	125

** The compressed air consumption rises during Boost-Mode and momentarily at drying start by 0.5 to 4 Nm³/h (depending on the dryer type).*

DRYING DATA

	Time [h]	Temp. [°C]	Material throughput [kg/h] bulk density 0.65kg/liter; for PET 0.8kg/liter				
			FD44	FD77	FD120	FD170	FD220
ABS	2	80	14.3	25.0	39.0	55.2	71.5
ASA	3	80	9.5	16.7	26.0	36.8	47.7
CAB	2	75	14.3	25.0	39.0	55.2	71.5
CP	4	75	7.2	12.5	19.5	27.6	35.8
EVA	2	80	14.3	25.0	39.0	55.2	71.5
EVOH	5	120	5.7	10.0	15.6	22.1	28.6
LCP	4	150	7.2	12.5	19.5	27.6	35.8
PA	4	80	7.2	12.5	19.5	27.6	35.8
PBTP	3	140	9.5	16.7	26.0	36.8	47.7
PC	2	120	14.3	25.0	39.0	55.2	71.5
PE	2	85	14.3	25.0	39.0	55.2	71.5
PEEK	3	150	9.5	16.7	26.0	36.8	47.7
PET	4	180	8.8	15.4	24.0	34.0	44.0
PET G	6	75	4.8	8.3	13.0	18.4	23.8
PI	3	120	9.5	16.7	26.0	36.8	47.7
PMMA	3	80	9.5	16.7	26.0	36.8	47.7
POM	3	100	9.5	16.7	26.0	36.8	47.7
PP	3	90	9.5	16.7	26.0	36.8	47.7
PPS	2	150	14.3	25.0	39.0	55.2	71.5
PS	2	80	14.3	25.0	39.0	55.2	71.5
PUR/TPU	3	90	9.5	16.7	26.0	36.8	47.7
SAN	2	80	14.3	25.0	39.0	55.2	71.5
TPE	3	100	9.5	16.7	26.0	36.8	47.7

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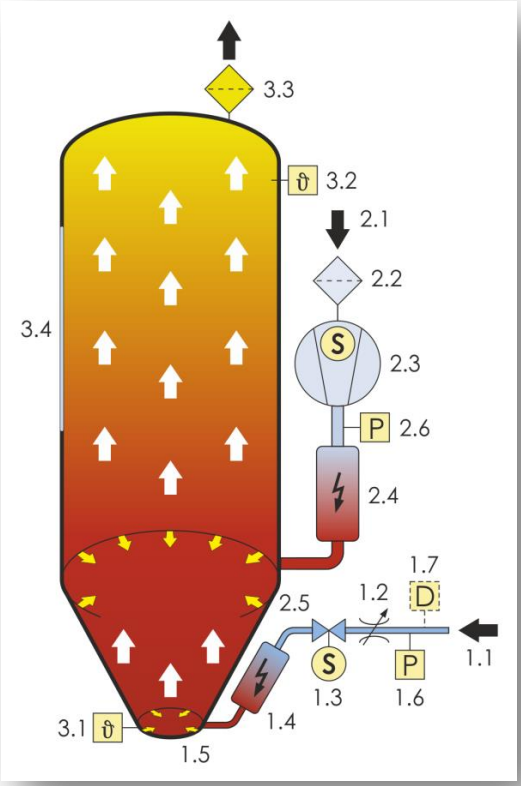
How it works:



Ambient air (2.1) is drawn in by a speed-controlled blower (2.3) through an air filter (2.2), heated up in the heater (2.4) and blown into the drying hopper through the distributer ring for ambient air (2.5).
Pre-dried compressed air (1.1) is supplied by a quick connector. It flows through pressure regulator (1.2) and servo valve (1.3) into the dry air heater where it is heated up to drying temperature. Due to the expansion to atmospheric level, the air becomes very dry. The hot and dry air streams through the distributor ring for dry air (1.5) into the lower part of the hopper. Both, ambient and dry air rise from bottom to top, thereby heating up and drying the resin inside the dryer to finally leave through the air outlet filter (3.3) to the ambient.
Pressure switches (1.6; 2.6) monitor the air supply and immediately shut down the respective heater in case of a fault to protect it against thermal overloads.
A sensor (3.2) verifies the temperature in the upper part of the drying hopper which alters accordingly to the current material throughput. The microprocessor control analyzes that temperature, regulates the air flow in both ambient and dry air circuit and optimizes the energy consumption to the required level.
Another sensor (3.1) measures the temperature of the resin at the material outlet of the drying hopper and initiates the controller to affect the air flow regulation to guarantee a proper drying process.
An optional dew point sensor (1.7) may be used to check the humidity of the compressed air and to alarm the operator in case of a bad value. The material level in the drying hopper may visually be checked through a generously sized sight glass (3.4). A generously sized service door with sight glass is available on bigger hopper sizes as standard and facilitates the cleaning process in case of material changes. A service door on smaller hopper sizes is available optional.
An integrated microprocessor controller with colored display and touch screen regulates the drying process and allows the additional control of vacuum- and Venturi-loaders for one and two components. Multiple interface connections (TTY, RS485, RS232, USB, Ethernet …) may be used to communicate with and get controlled by various production machines, for data and alarm recording, for implementation into PDA-systems (production data acquisition systems) and for access through web-client to monitor and control dryer's operation. An optional alarm signal may be used for simple alarming on external devices or applications.

Available features:

- Microprocessor controller with colored display and touch screen
- Pre-programmed and freely programmable drying data base
- Weekly timer for drying and/or loading processes
- Automatic Standby-Mode to avoid resin degradation
- Integrated control for vacuum- and Venturi-loaders for one and two components
- Additional Power- and Boost-Mode to dry challenging resins
- New control-algorithm for additional reduction of compressed air consumption
- USB-port for data recording as a standard
- TTY-, RS485-, CAN- and Ethernet port to communicate with production machines and PDA-systems (product data acquisition systems)
- ModbusTCP-protocol available as a standard
- Alarm indication through integrated strobe light and optional alarm contact
- No air inlet pipes in drying hopper
- Hinged hopper lid with securing devices
- Inner hopper and sheet metal components made of high-quality stainless steel
- Generously sized sight glass for visual monitoring of material level
- Service door with sight glass available on hopper sizes with 120 liters and more as standard (on smaller hoppers as an option)
- Sturdy steel-handles for manual and crane lifting
- Comprehensive accessories available