Dehumidifying Dryers
DP 604 - DP 615 Series

English

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PIOVAN

Customers. The core of our innovation

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DP 615

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Six models (DP 604, DP 605, DP 609, DP 610, DP 613, DP 615) modular and compact, capable of operating up to 200°C in the HT version (High Temperature) and able to ensure a constant drying process with effective airflow from 50 to 150 m^3/h and Dew Point values lower than –45°C.

The DP 604 - DP 609 and DP 613 Dryers are equipped with one single lateral channel blower to provide air for both the process and the regeneration circuits.
The DP 605, DP 610 and DP 615 are equipped with two lateral channel blowers, one for the process circuit and one for the regeneration circuit.
The DP 605, DP 610 and DP 615 are especially suited for drying engineering materials such as PET, Polycarbonate etc.

DP 609

DP 604 internal view

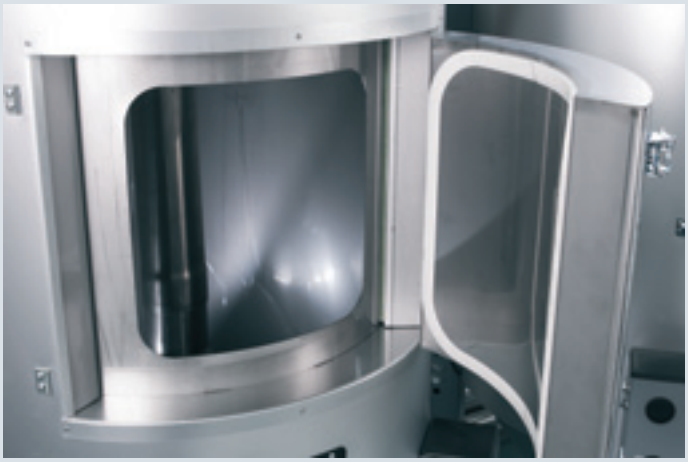
Flexible configuration

The DP 604 - DP 615 Dryers can be combined with one or more drying hoppers with a capacity ranging from 30 to 400 dm^3 and are suitable for individual or multiple hopper assemblies for dedicated or centralised drying solutions.

DP 605 model with T30 drying hoppers

Drying hoppers

All Piovan drying hoppers are made out of stainless steel and, thanks to a special diffusing cone, ensure uniform airflow, homogenous heating of the entire mass of granules and no material stagnation.
The integral insulation having thickness of 60 mm, both of the cylindrical and the conical sections, avoids thermal dispersions and energy wastage.



Hopper hinged door

Multi-hopper Drying Systems: PTU

Extreme modularity is the main characteristic for the Piovan solutions.
The operator can simply and easily increase the number of hoppers at any time, by means of quick adaptors/connects, without the need to carry out any modification to the already-existing system.
The multi-hopper drying trolley can be equipped with integrated resin loading system.

Precision and accuracy

One dedicated electronic control equips each of the hoppers being part of a multi-hopper drying system, and allows the management of the following parameters:

> process temperature
> automatic set-up of the safety temperature
> individual **cooling-stop** for each hopper
> **airflow control** that allows the automatic adjustment of the airflow in the hopper (optional)
> **material consumption** that allows the automatic reduction of the temperature set point based on the material consumption (activation from loader signal)
> standard RS 485 serial interface
> display of the type of material contained in the hopper

The drying hopper's control

IES

Intelligent Energy Supervisor

In accordance with the effective requirements of the processing machine, the IES system optimises and adjusts the energy utilisation of the DP 604 - DP 615 Dryer Series, featuring the following functions:

IES Standard

> **Temperature-control based regeneration cycle:** the molecular sieves are heated and cooled only as much as necessary, resulting in energy savings of up to 50%

> **Regeneration programming:** the bed in process is used for a time that varies according to the material to be dried, thus reducing the number of regenerations

IES Plus (optional)

> **Dew Point Control**: bed exchange controlled by the Dew point measuring instrument, with a process cycle duration based on the material effective grade of humidity. (DP 605, DP 610, DP 615)

> **Water Flow Control**: the process air cooling is activated only when necessary

IMD

Intelligent Material Drying

Material thermal degradation or over-drying is prevented by the IMD system, that in the DP 604 – DP 615 Dryer Series optimises the drying process managing the following functions:

IMD Standard

> **Automatic reduction of the process temperature**: it prevents the material from overheating in the case of prolonged stops (activation from processing machine)

> **Material consumption management**: it allows the automatic adjustment of the temperature set-point based on the material consumption (activation from loader signal)

> **Cooling stop**: it allows the dryer to stop automatically after a period of time set by the operator. The material in the hopper is cooled so to avoid thermal degradation.

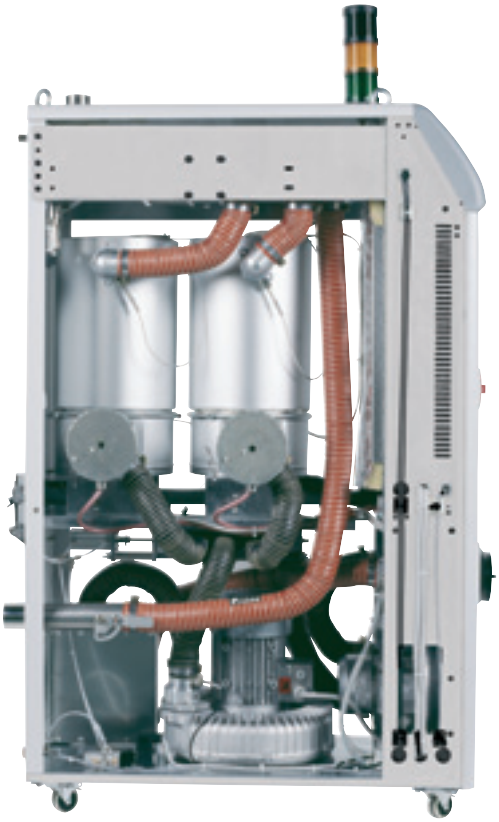
IMD Plus (optional)

> **Process airflow management:** it allows the automatic reduction of the airflow in the hopper, avoiding thermal degradation of the granules and at the same time significantly reducing the energy required to maintain the process air temperature.

Standard features

All models are equipped with:

> Two desiccant beds
> Stainless steel desiccant beds
> High pressure lateral channel blowers
> Blowers and molecular sieves filtration system
> Microprocessor control
> Temperature-controlled regeneration
> Electronic control of the process temperature with self-tuning PID algorithm that ensures high precision
> Solid state relays (SSR) for the process heaters control
> Completely independent process air temperature safety control (temperature probe, power control and contactor)
> Automatic set-up of the process air safety temperature
> Warnings for the operation of the coolers (it avoids the necessity of having the cooling water constantly switched on)
> Simple and complete operator interface



DP 615 internal view

Optional features

> MODBUS RS 485 serial interface
> PROFIBUS serial interface
> Visual/acoustic alarm
> Timer (daily/weekly/annual switch on and off)
> Dew Point indicator with alarm
> Bed exchange Dew Point control (DP 605, DP 610, DP 615)
> Cooling control
> Filter clog pressure switch
> Closed-loop regeneration circuit with on/off water control valve (DP 605, DP 610, DP 615)
> Multi-hopper drying trolley with integrated resin loading system

Easy-to-use operator interface

The DP Series Dryers have a complete operator interface that provides alpha-numerical messages for all the requested information.
The microprocessor control ensures simple and immediate operation.
The large display is available in the operator's language. It shows the functioning status of the machine as well as any possible alarm or warning message.

On the main screen the following parameters of the dryer can be monitored:

> Drying temperature
> Set-point
> Dew Point value

The access to the configuration parameters sub-menus is obtained by entering a specific password.

The drying unit's control

Serial interface

All DP models can be equipped with two types of serial interface:
> MODBUS RS 485 that allows the dryer to be managed via supervisory software
> PROFIBUS that, emulating a PLC, allows the dryer to be managed by a SIEMENS supervisor

Technical Data

Dryers		DP604	DP605	DP609	DP610	DP613	DP615
Process airflow (@50Hz)	m^3/h	50	75	70	110	100	150
Process air blower (@50Hz)	kW	0.25	0.25	0.7	0.7	1.3	1.3
Process heating power	kW	2.5/3.5*	2.5/3.5*	3.5/5*	3.5/5*	5/7*	5/7*
Regeneration air blower	kW		0.2		0.2		0.2
Regeneration heating power	kW	2.5					
Total load	kW	5.7/6.7*	5.9/6.9*	7.1/8.6*	7.3/8.8*	9.2/11.2*	9.4/11.4*
Average consumption at 80°C	kWh	2.3	2.5	2.8	3.2	3.5	3.7
Max process temperature	°C	150/200*	150/200*	150/200*	150/200*	150/200*	150/200*
Dew Point	°C	-40	-50	-40	-50	-40	-50
Standard power supply	V/-/Hz	400/3/50 - 380/3/60 - 460/3/60					
Dimensions (LxWxH)	mm	815x400x1354					
Weight	kg	250					

*HT version

Single hopper configuration

Model	T50	T75	T100	T150	T200	T300	T400
DP 604							
DP 605							
DP 609							
DP 610							
DP 613							
DP 615							

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