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Dehumidification
Product Group

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Quality Meets Engineering

We offer humidity, temperature, and clean air solutions with energy efficiency in mind to enhance the comfort of indoor air that all living beings breathe.

We ensure quality and efficiency in production and storage areas with our climate control solutions.

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What is **Humidity?**

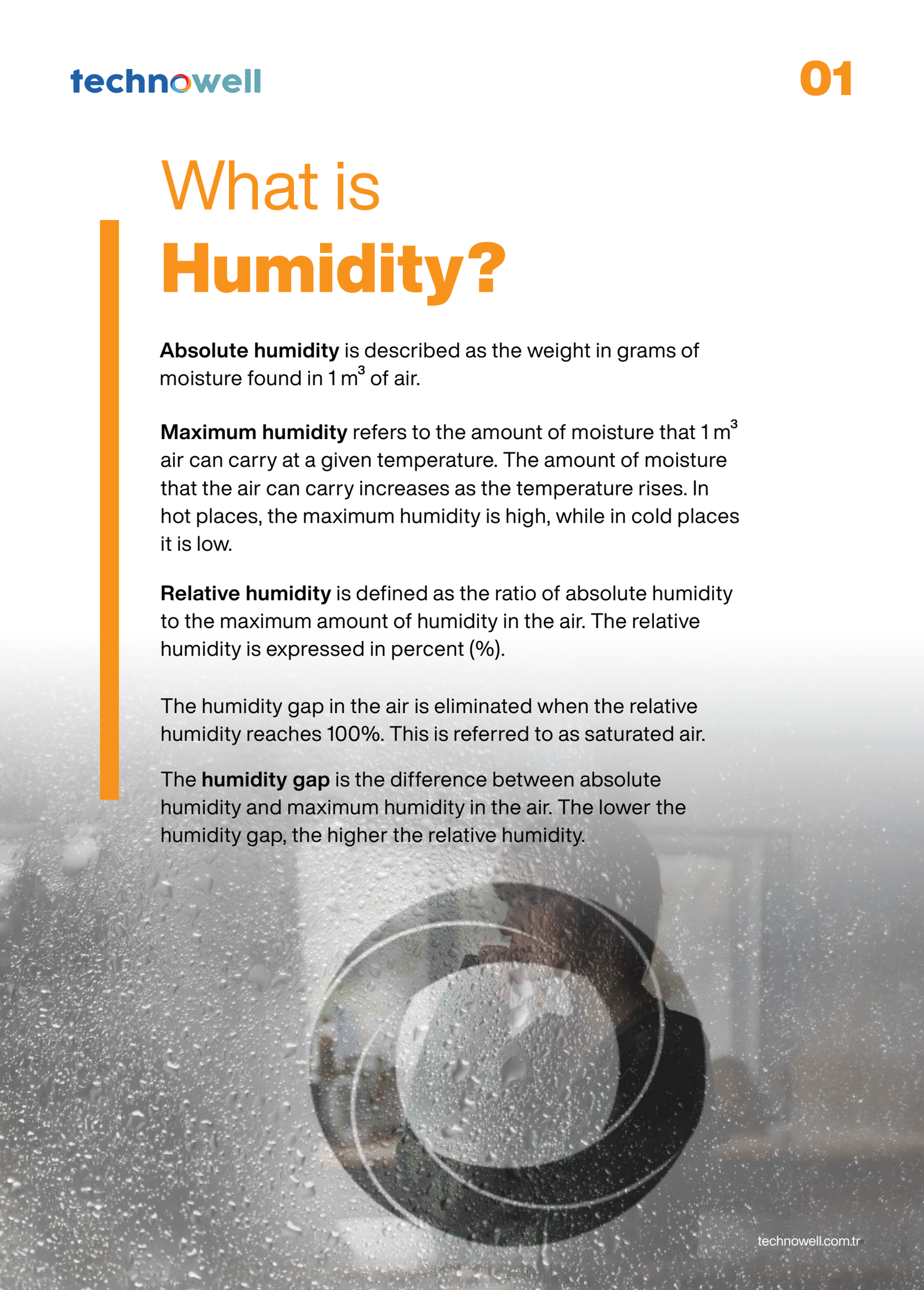
Absolute humidity is described as the weight in grams of moisture found in 1 m^3 of air.

Maximum humidity refers to the amount of moisture that 1 m^3 air can carry at a given temperature. The amount of moisture that the air can carry increases as the temperature rises. In hot places, the maximum humidity is high, while in cold places it is low.

Relative humidity is defined as the ratio of absolute humidity to the maximum amount of humidity in the air. The relative humidity is expressed in percent (%).

The humidity gap in the air is eliminated when the relative humidity reaches 100%. This is referred to as saturated air.

The **humidity gap** is the difference between absolute humidity and maximum humidity in the air. The lower the humidity gap, the higher the relative humidity.



Why Do We Need **Dehumidification?**

Floods, water-damaged houses, construction projects, manufacturing processes, swimming pools, damp areas, valuable goods storage, medicine and food factories, and maintaining human comfort all require dehumidification processes. In addition to the amount of humidity in the air in the environment, moisture from people in the environment, water vapour from the kitchen or bathroom, manufacturing processes, or stored goods raises it even more. As a result, the need for dehumidification rises evermore.

The following are some examples of conditions that necessitate dehumidification.

- **Fungus and mold growth**
- **Increase of microorganism and bacterial activities**
- **Electronic devices stop working**
- **Corrosion**
- **Destruction in buildings**
- **Moisture damage to goods or objects**
- **Discomfort and annoyance as a result of the humid indoor environment**

Corrosion occurs in metals at high humidity levels. As a result, dehumidification systems protect valuable old tools, objects, or weapons. In damp bathrooms or living areas, mold and fungus may develop. In a humid climate, some medical and food products deteriorate quickly. These systems can easily eliminate flood damage. Fungus and mold-related odours may be removed. New buildings can be made available more quickly.

inspection, implementation, after-sales services

With our engineering approach, we provide the right climate control products and solutions aimed at efficiency, continuity, and sustainability across various industries such as textiles, automotive, chemicals, pharmaceuticals, electronics and semiconductors, and food storage.

Compression Type Dehumidifiers

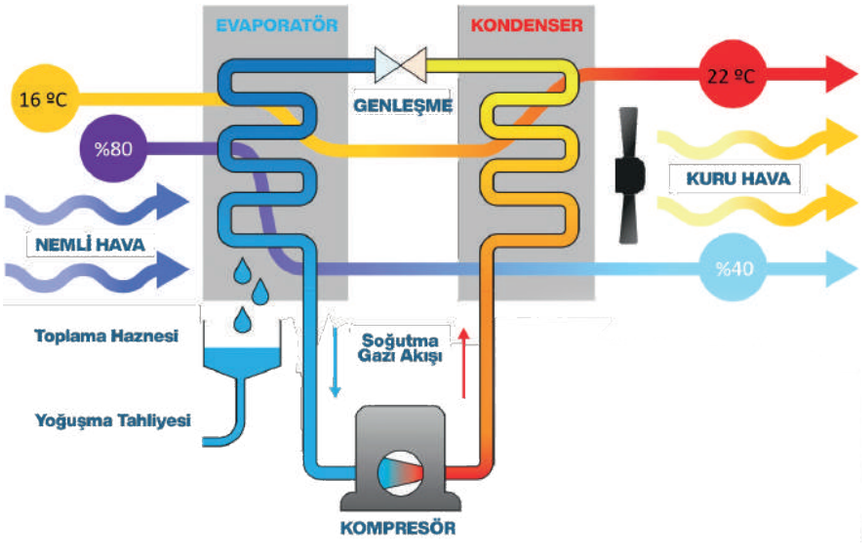
Technowell Compression Type Dehumidifiers offer ideal solutions to prevent the problems that high relative humidity can cause in commercial and industrial areas. Powerful commercial dehumidifiers are most effective at temperatures above 15 °C to reduce air humidity in large areas.

Compression type dehumidifiers provide reliable and clean dehumidification. They guard against moisture, mold, rust, and harmful bacteria. They play an important role in protecting machinery from corrosion, storing strategic products that need to be stored in a specific humidity range, protecting structures from moisture, and ensuring properly conditioned air for people.

How Does a **Compression Type Dehumidifier** Work?

It is accepted that the environment is indoor, according to the basic concept of dehumidification systems. Very small amounts of air can be allowed to enter the room. Thus, the ambient air is continuously passed through the dehumidifier and the condensed water is collected in a water tank. The dehumidifier is a device that works with a cooling cycle. When air comes into contact with a cooled surface, it leaves excess water on the surface due to its thermodynamic and physical properties.

In general, the fan absorbs high-relative-humidity ambient air, and some water is condensed by passing it through an evaporator with a cold surface. Because of the cooling, the absolute humidity of the air that releases moisture inside decreases, but the relative humidity remains high. The temperature of the air flowing over the condenser rises later, the relative humidity rate drops, and the air is released into the environment.



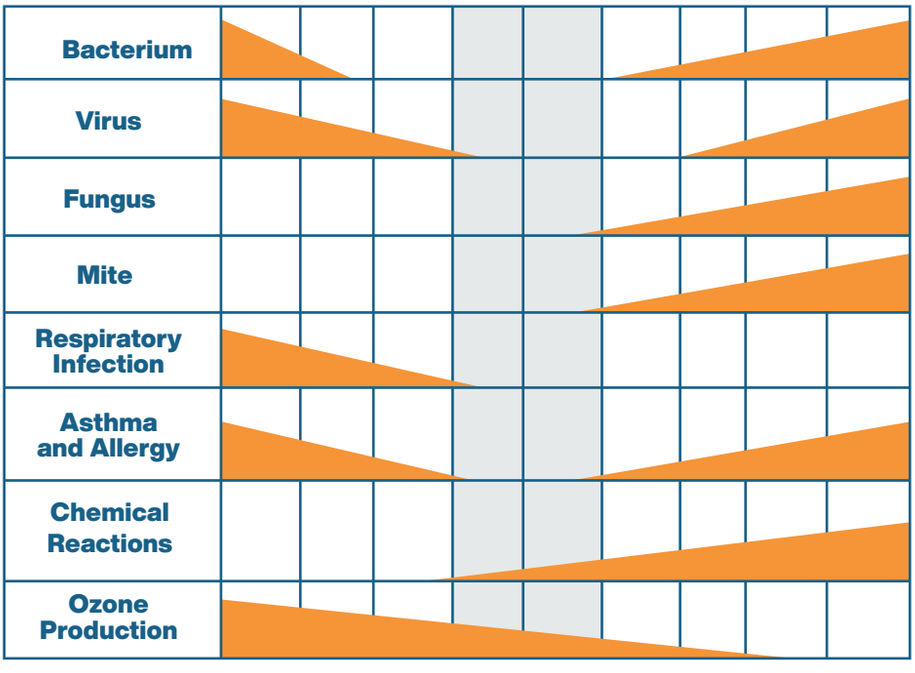
How Is Condensed Water Drained?

Water is usually thrown out of compression type dehumidifiers through a water tank or a drain hose. To prevent the water tank from overflowing, all appliances have an automatic shut-off and warning system.

Necessary Humidity Values **for Ideal Comfort**

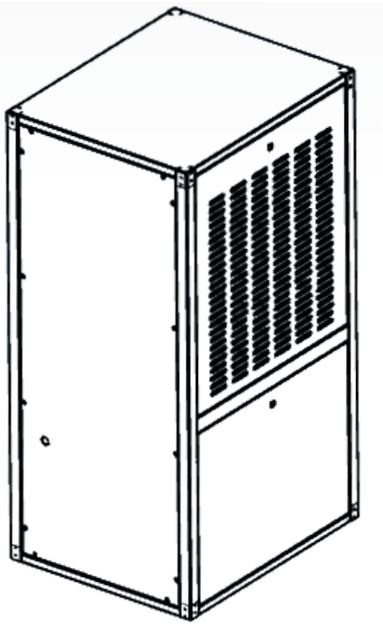
Some values, such as metabolic activity and airspeed, are taken into account when determining the optimum humidity values for ideal comfort and indoor air quality for people. Patients with asthma and heart disease, in particular, are affected far more quickly than healthy people from environments with poor-quality temperature and humidity. Furthermore, the optimal humidity and temperature levels required for most bacteria, viruses, and other microorganisms to multiply and reproduce have a negative impact on human life.

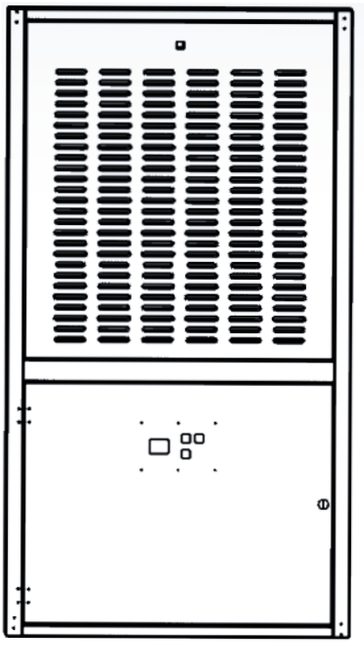
Optimum Humidity Value for Ideal Comfort and Indoor Air

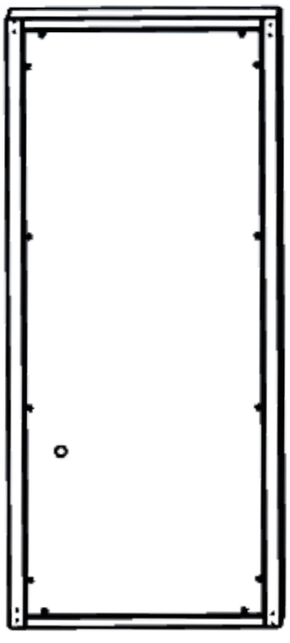


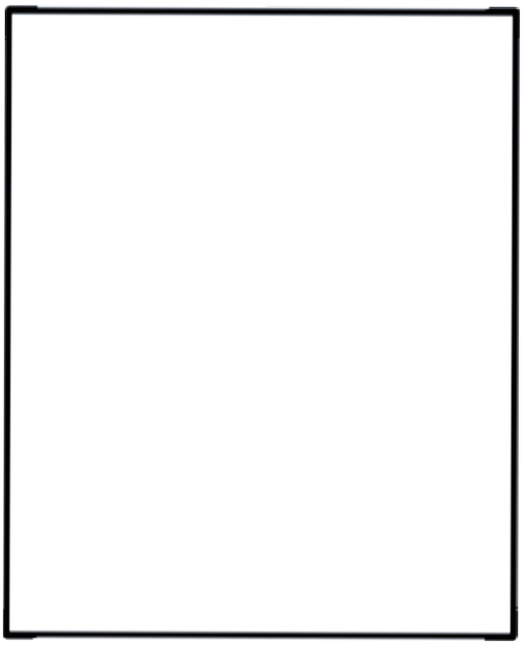
Optimum Relative Humidity %45 - %55

TECHNICAL FEATURES





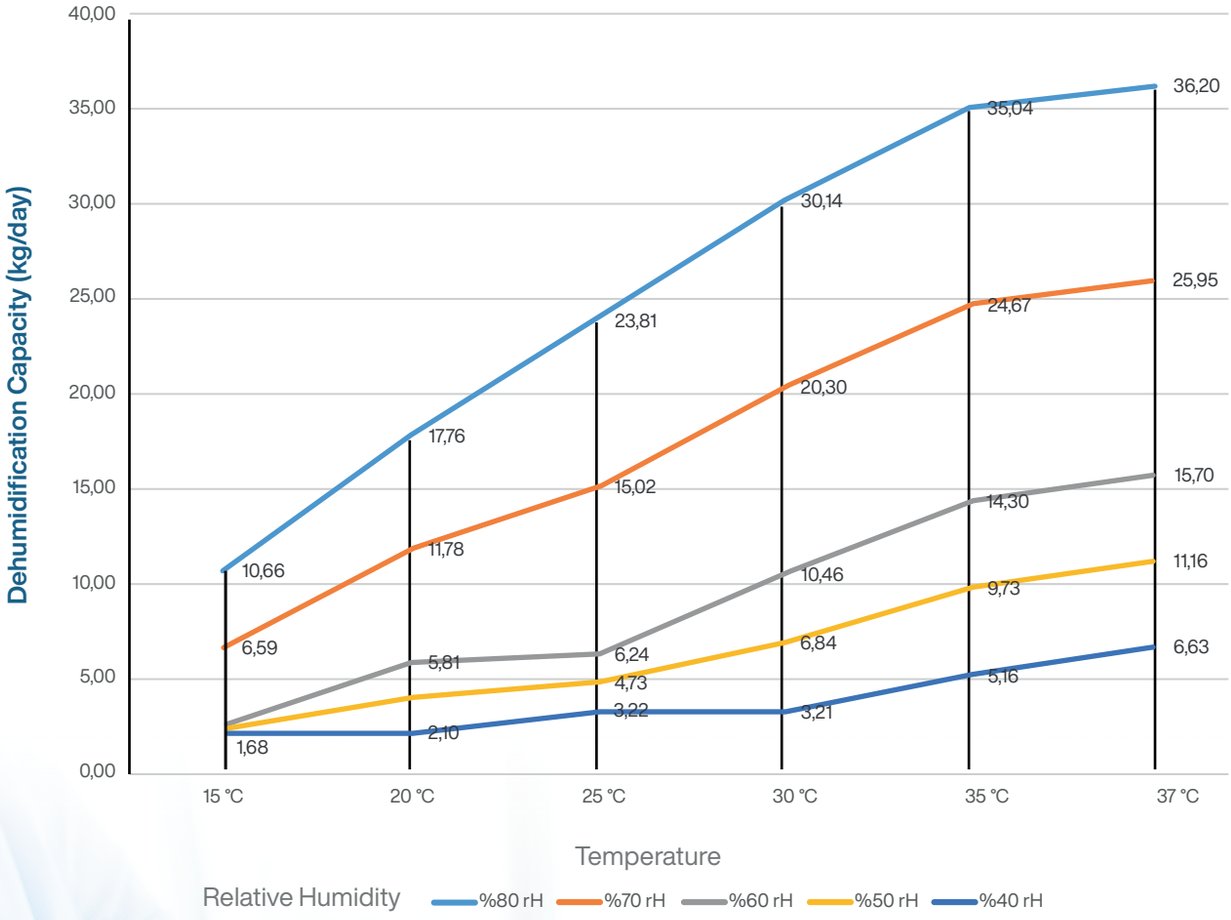




MODEL	TCD-30	TCD-50	TCD-75	TCD-125	TCD-165
DEHUMIDIFICATION CAPACITY (30°C DB- RH 80%)	30 kg/day	50 kg/day	75 kg/day	125 kg/day	165 kg/day
DEHUMIDIFICATION CAPACITY (20°C DB- RH 60%)	6 kg/day	14 kg/day	27 kg/day	43 kg/day	77 kg/day
RECOMMENDED ROOM AREA	40 m^2	70 m^2	100 m^2	150 m^2	250 m^2
HUMIDITY CONTROL RANGE	%30 - %80	%30 - %80	%30 - %80	%30 - %80	%30 - %80
RATED POWER	1,5 kW	2,2 kW	1,2 kW	2,04 kW	3,3 kW
OPERATION CURRENT	7,7 A	11,1 A	5,9 A	10,3 A	16 A
POWER SUPPLY	220 V - 50 Hz	220 V - 50 Hz	220 V - 50 Hz	220 V - 50 Hz	220 V - 50 Hz
REFRIGERANT	R134A	R134A	R410A	R410A	R410A
AMOUNT OF REFRIGERANT	1000 gr	1100 gr	950 gr	1600 gr	1800 gr
OPERATING TEMPERATURE RANGE	15 °C – 37 °C	15 °C – 37 °C	15 °C – 37 °C	15 °C – 37 °C	15 °C – 32 °C
SOUND LEVEL	≤54 dB(A)	≤47 dB(A)	≤47 dB(A)	≤49 dB(A)	≤49 dB(A)
AIR FLOW	350 m^3/h	650 m^3/h	650 m^3/h	1100 m^3/h	1100 m^3/h
WATER TANK VOLUME	6 lt	Continuous drain	Continuous drain	Continuous drain	Continuous drain
DIMENSIONS AXBXC (mm)	442 x 812 x 524	487x802x412	542x1002x487	640x1173x520	640x1173x520

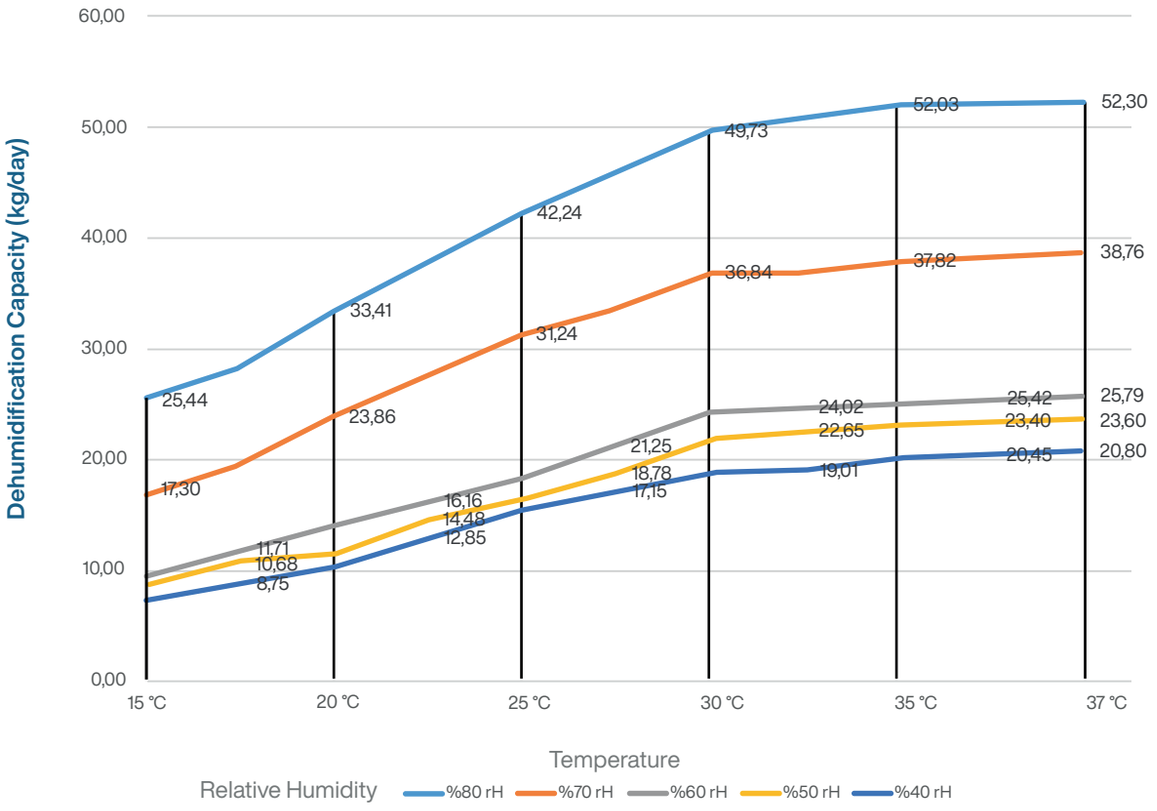
PERFORMANCE CURVES

TCD-30

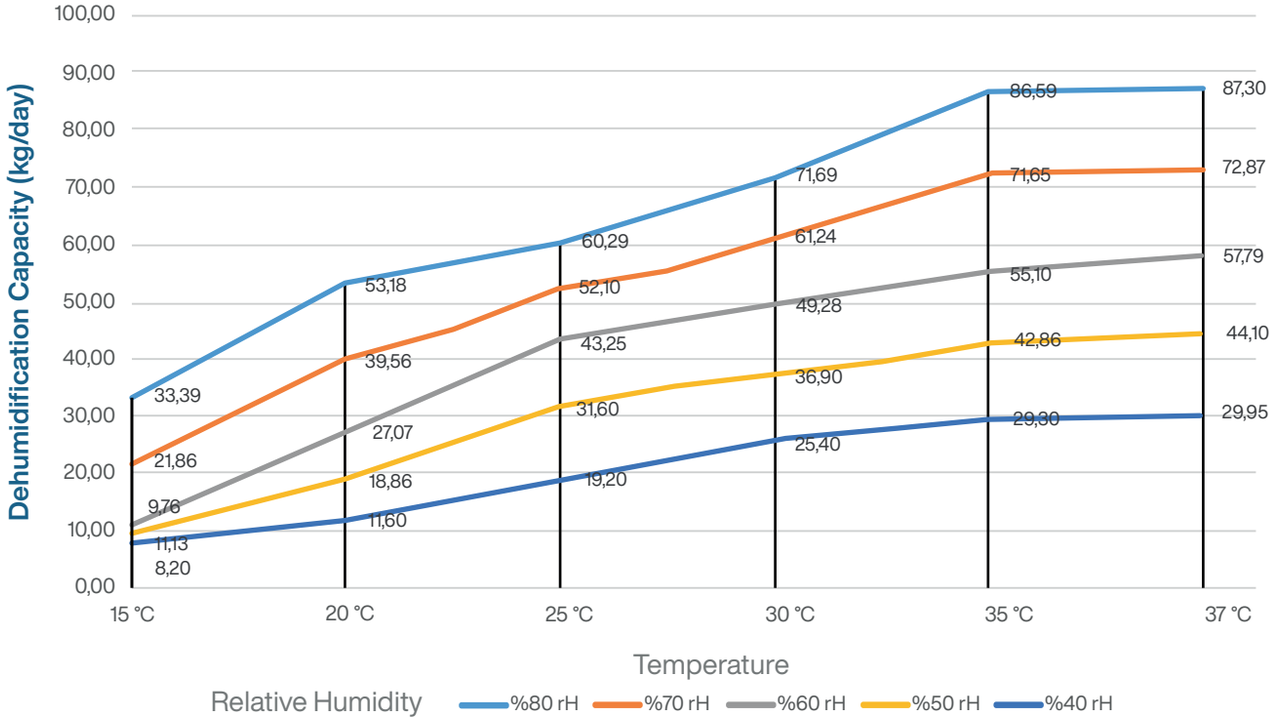


PERFORMANCE CURVES

TCD-50

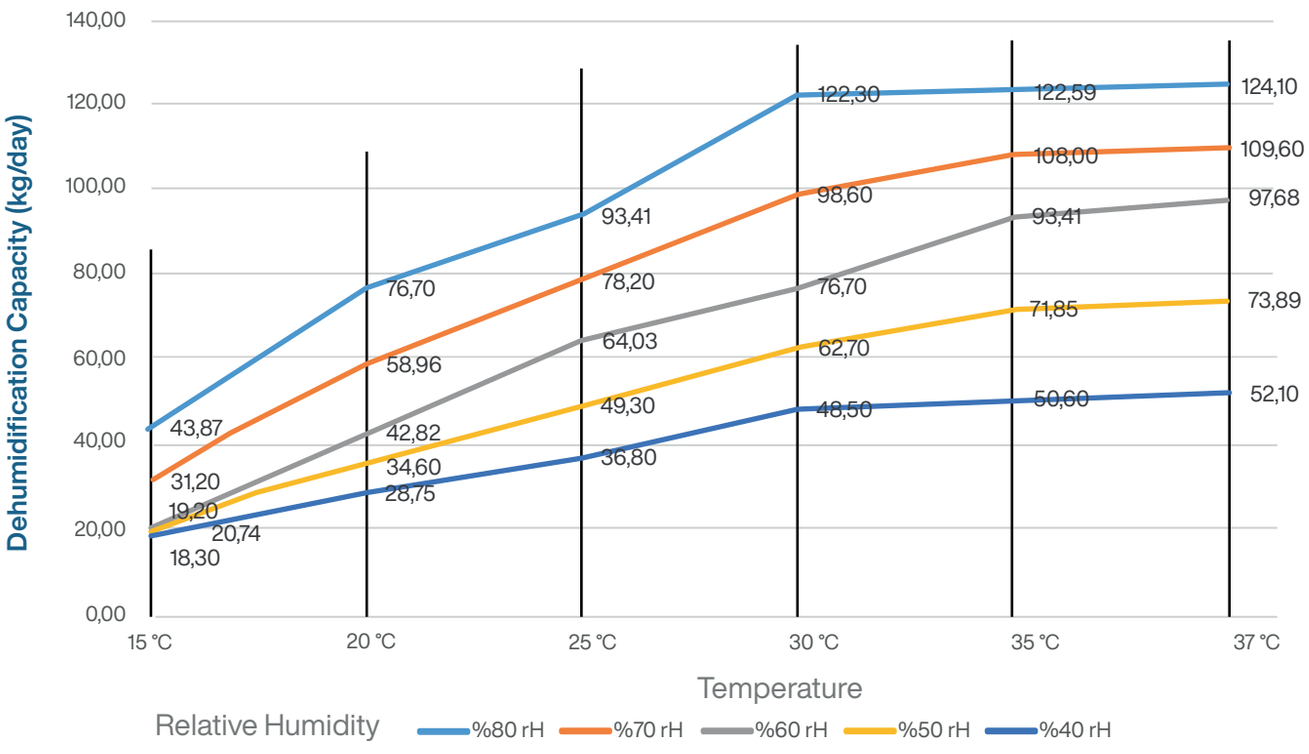


TCD-75

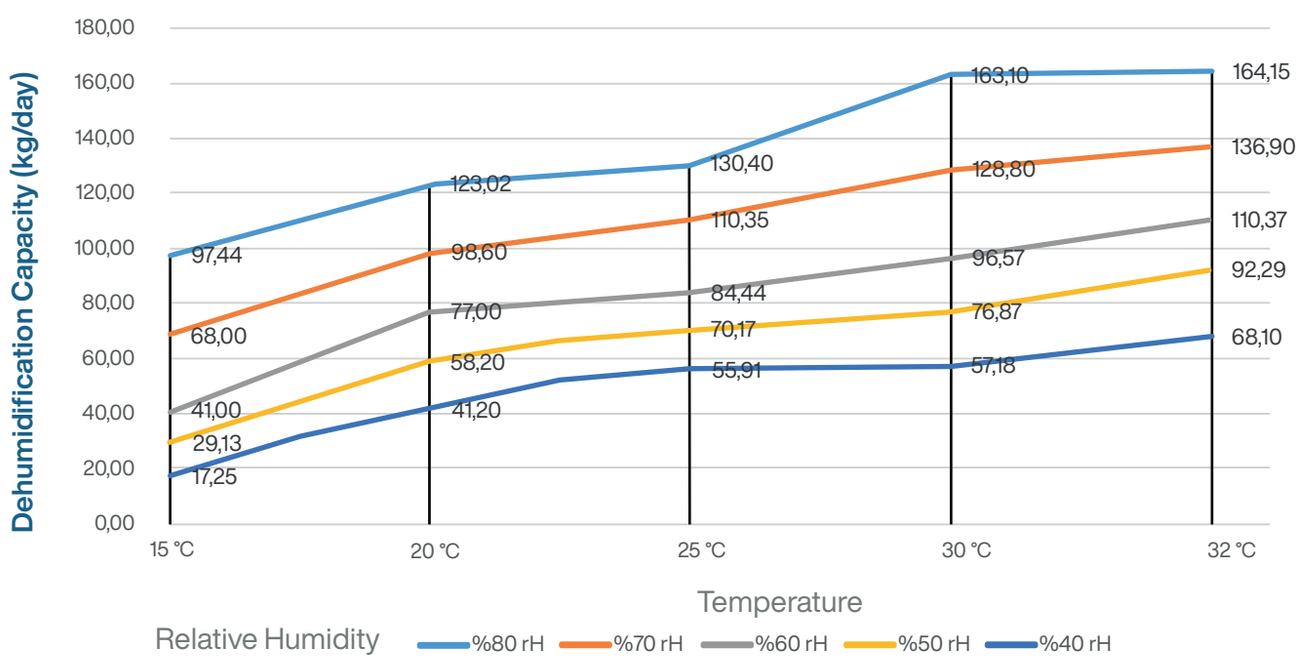


PERFORMANCE CURVES

TCD-125

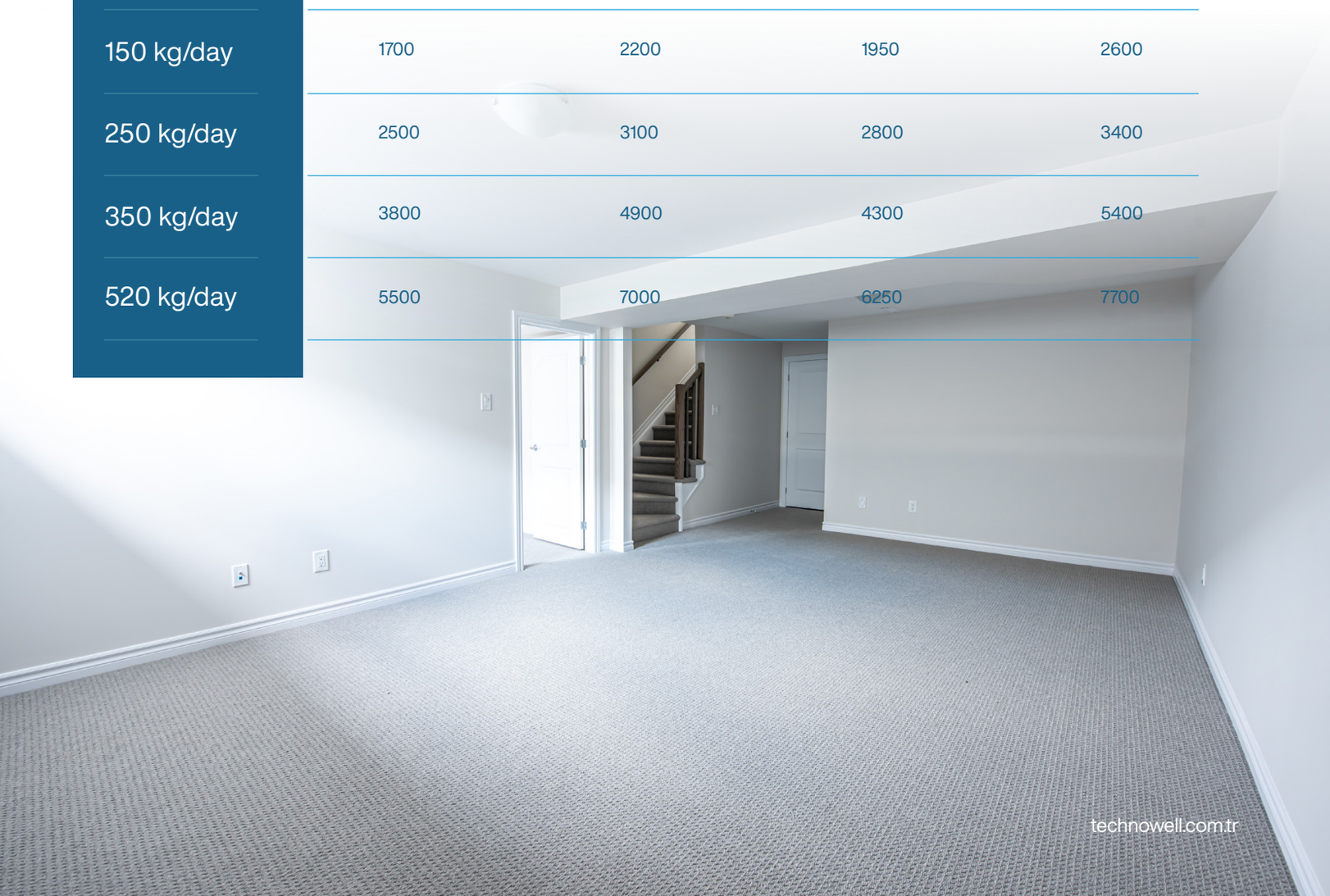


TCD-165



Practical Spreadsheet For Basements

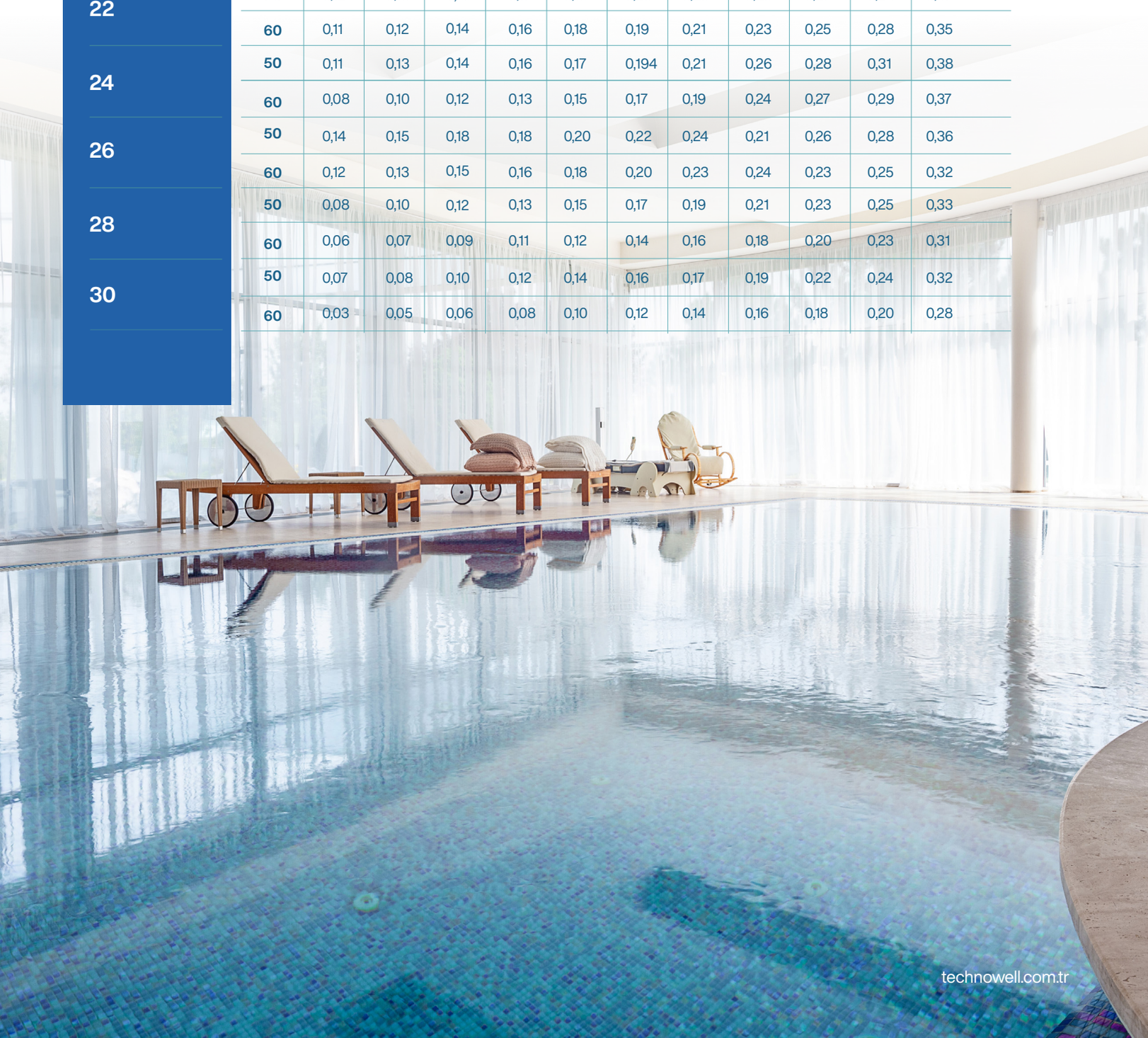
Capacity	Basement		Lower Basement	
	Damp Places (m^3)	Places with Low Damp (m^3)	Damp Places (m^3)	Places with Low Damp (m^3)
20 - 35 kg/day	350	450	400	500
40 - 45 kg/day	500	650	580	700
60 - 65 kg/day	650	850	750	950
90 - 100 kg/day	1000	1300	1150	1450
150 kg/day	1700	2200	1950	2600
250 kg/day	2500	3100	2800	3400
350 kg/day	3800	4900	4300	5400
520 kg/day	5500	7000	6250	7700



Practical Spreadsheet for Indoor Swimming Pools

The amount of water in kg evaporating from the pool surface per unit m^2 per hour

Room Temperature °C	%RH	Pool Water Temperature °C										
		24	26	27	28	29	30	31	32	33	34	38
20	50	0,14	0,15	0,18	0,18	0,20	0,22	0,24	0,26	0,28	0,31	0,38
	60	0,12	0,13	0,15	0,16	0,18	0,20	0,23	0,24	0,27	0,29	0,37
22	50	0,12	0,13	0,15	0,17	0,19	0,20	0,23	0,25	0,27	0,29	0,37
	60	0,11	0,12	0,14	0,16	0,18	0,19	0,21	0,23	0,25	0,28	0,35
24	50	0,11	0,13	0,14	0,16	0,17	0,194	0,21	0,26	0,28	0,31	0,38
	60	0,08	0,10	0,12	0,13	0,15	0,17	0,19	0,24	0,27	0,29	0,37
26	50	0,14	0,15	0,18	0,18	0,20	0,22	0,24	0,21	0,26	0,28	0,36
	60	0,12	0,13	0,15	0,16	0,18	0,20	0,23	0,24	0,23	0,25	0,32
28	50	0,08	0,10	0,12	0,13	0,15	0,17	0,19	0,21	0,23	0,25	0,33
	60	0,06	0,07	0,09	0,11	0,12	0,14	0,16	0,18	0,20	0,23	0,31
30	50	0,07	0,08	0,10	0,12	0,14	0,16	0,17	0,19	0,22	0,24	0,32
	60	0,03	0,05	0,06	0,08	0,10	0,12	0,14	0,16	0,18	0,20	0,28

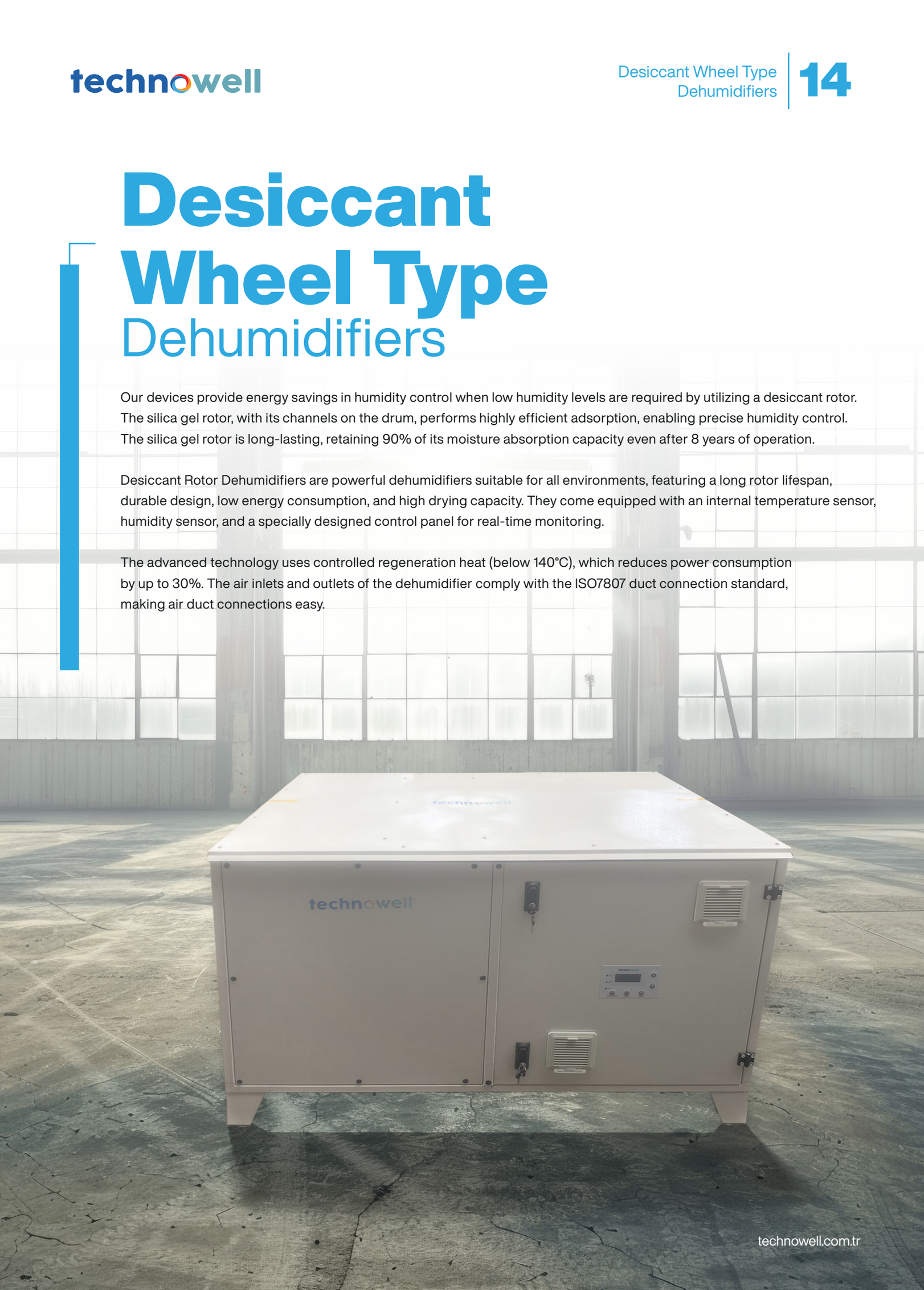


Desiccant Wheel Type
Dehumidifiers

Our devices provide energy savings in humidity control when low humidity levels are required by utilizing a desiccant rotor. The silica gel rotor, with its channels on the drum, performs highly efficient adsorption, enabling precise humidity control. The silica gel rotor is long-lasting, retaining 90% of its moisture absorption capacity even after 8 years of operation.

Desiccant Rotor Dehumidifiers are powerful dehumidifiers suitable for all environments, featuring a long rotor lifespan, durable design, low energy consumption, and high drying capacity. They come equipped with an internal temperature sensor, humidity sensor, and a specially designed control panel for real-time monitoring.

The advanced technology uses controlled regeneration heat (below 140°C), which reduces power consumption by up to 30%. The air inlets and outlets of the dehumidifier comply with the ISO7807 duct connection standard, making air duct connections easy.

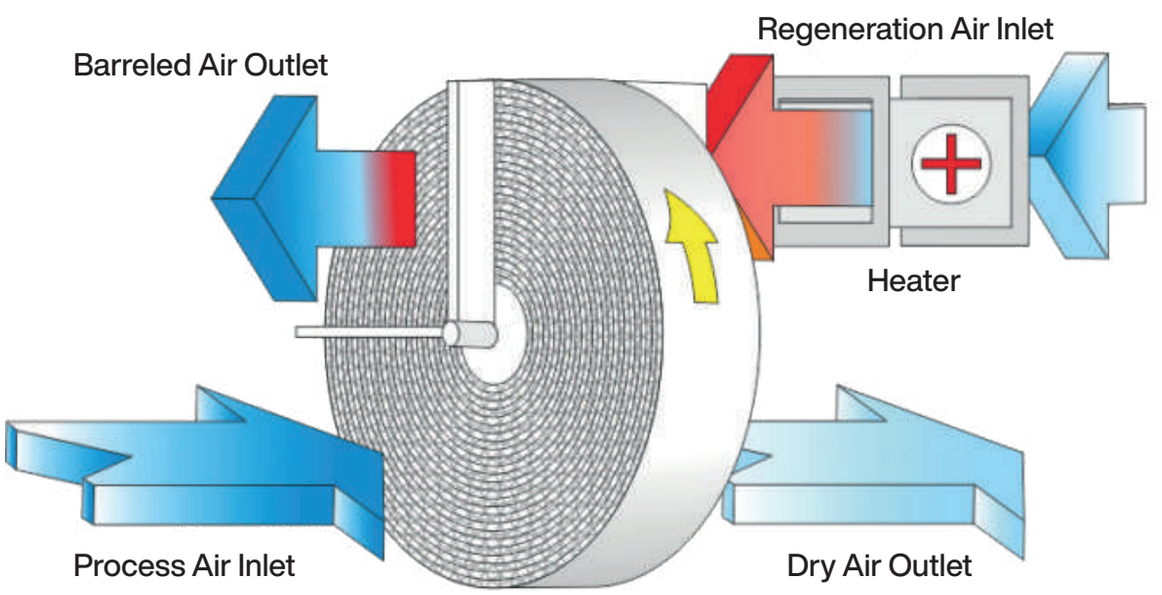


Operating Principle

Desiccant wheel type dehumidifiers work based on the adsorption theory. The desiccant wheel inside the unit absorbs moisture from the process air. While the desiccant adsorbs the moisture, it gradually returns it to the reactivation area.

Hot air passes through the desiccant wheel during reactivation, removing the moisture from the wheel. The wheel returns to the process air stream after reactivation to begin re-adsorption. Adsorption and reactivation occur continuously and simultaneously.

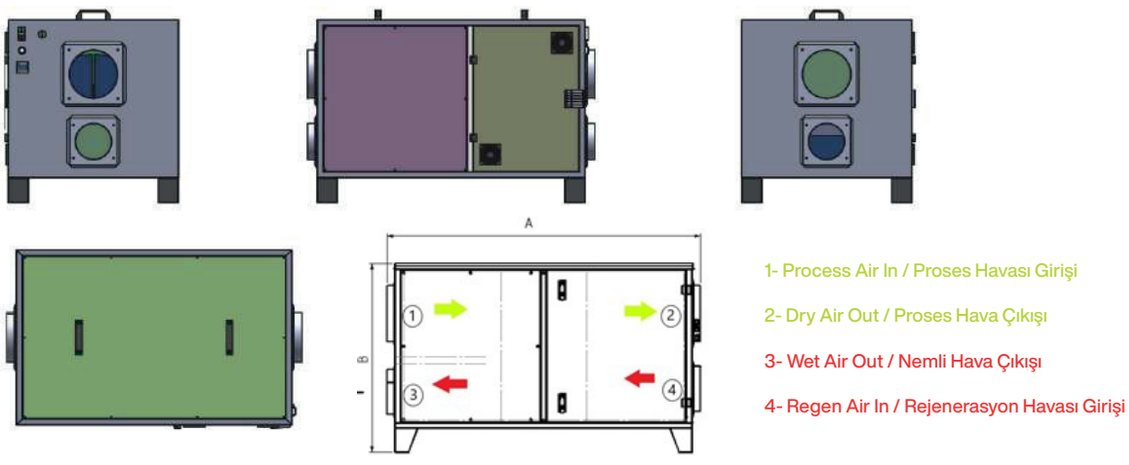
The two air streams are separated by a complete seal, which prevents them from mixing.



Features of **Desiccant Wheel Type Dehumidifier**

- A high-performance desiccant wheel with a large moisture capacity is used to ensure reliable performance and continuous operation. Under normal operating conditions, the desiccant wheel has a working life of 5-8 years. (non-corrosive environment and regeneration temperature below 140 ° C).
- It has an advanced touch control panel with built-in temperature and humidity sensors for real-time monitoring, easy to use and user friendly.
- Our dehumidifier is equipped with EC technology to operate with proportional speed control for the process air fan. Additionally, there is a separate fan for regeneration air.
- Simple and elegant design with a one-of-a-kind frame for improved sealing and insulation to minimize heat loss.
- With a body made of galvanized sheet and a powder coating, it offers greater abrasion resistance.
- It is made of high-quality electrical components from reputable manufacturers.
- Low operating cost and energy saving. Using PTC and SCR-made heating technology with advanced processor-controlled refresh temperature, our desiccant wheel type dehumidifier can save 20-30% on power consumption.
- It has a structure that makes installation and maintenance easy, with a G2 filter that can be replaced and a washable wheel. It is also produced in accordance with Fire Prevention Standards to ensure that the machine operates safely.
- To make air duct connection easier, the machine's inlet and outlet air meet the ISO 7807 duct connection standard.
- Devices and equipment comply with TUV, GS, ROHS and CE standards.

TD-D550K Desiccant Wheel Type Dehumidifier



1- Process Air In / Proses Havası Girişi

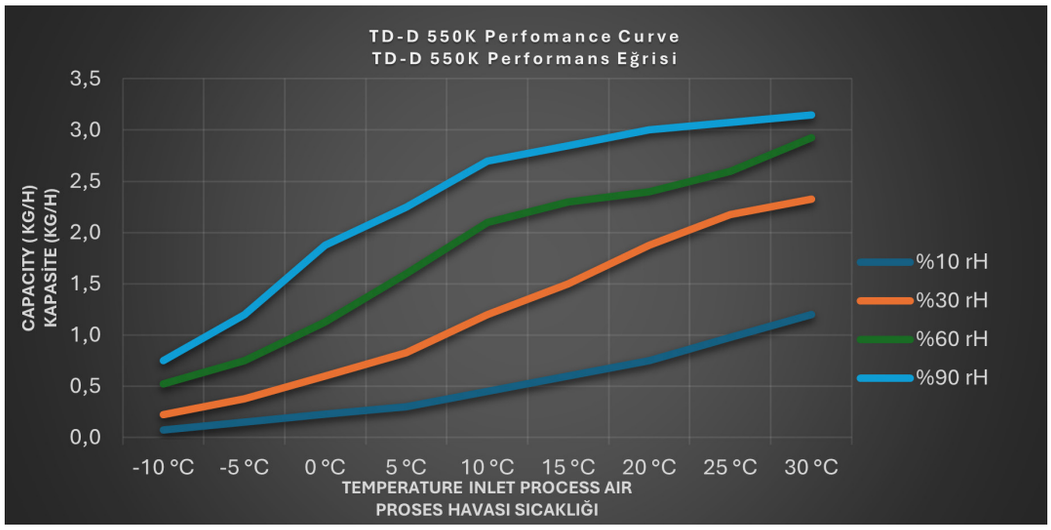
2- Dry Air Out / Proses Hava Çıkışı

3- Wet Air Out / Nemli Hava Çıkışı

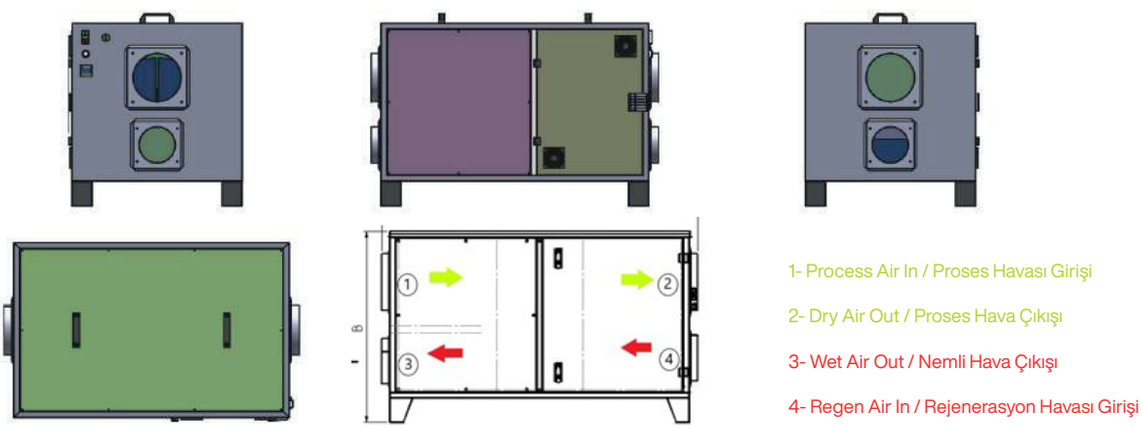
4- Regen Air In / Rejenerasyon Havası Girişi

Capacity (20°C , %60 RH)	2,4 kg/h
Process Air Flow	600 m3/h - 350 Pa
Reactivation Air Flow	200 m3/h -250 Pa
Process Air Inlet & Outlet	200mm
Regeneration Air Inlet & Outlet	160mm
Heater Type	PTC
Heater Drive	Contactor
Maximum Power	5,5 kW

Rated Power	4,5 kW
Operation Current	19,5 A
Process Air In Filter	G2
Regeneration Air In Filter	G2
Controller Type	LCD+Display
Power Supply	230 VAC / 50 Hz
Weight	71 kg
Dimensions (AxBxC) mm	970x525x520 mm



TD-D1050K Desiccant Wheel Type Dehumidifier



1- Process Air In / Proses Havası Girişi

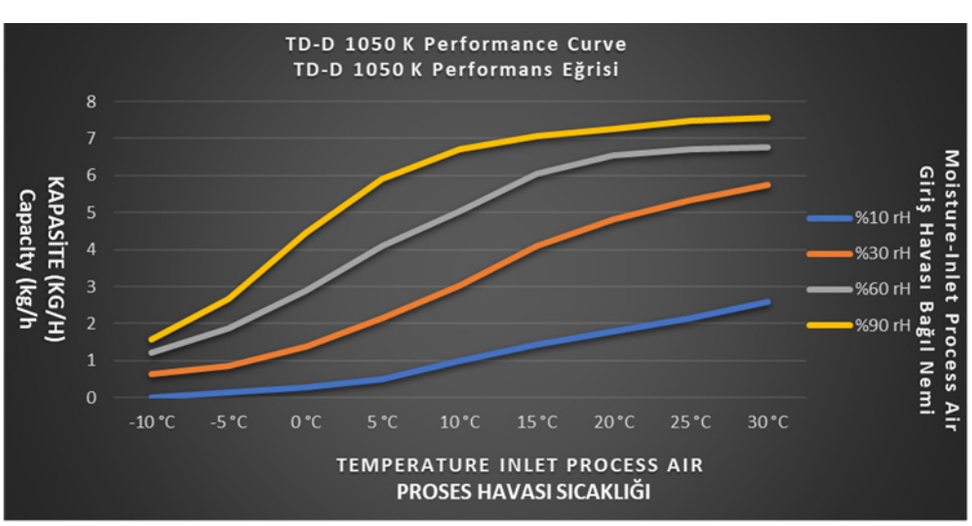
2- Dry Air Out / Proses Hava Çıkışı

3- Wet Air Out / Nemli Hava Çıkışı

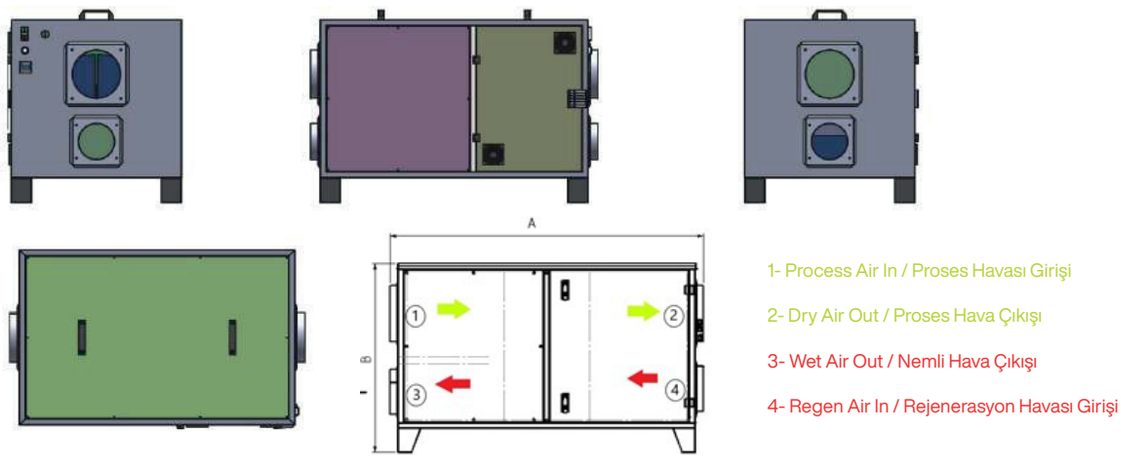
4- Regen Air In / Rejenerasyon Havası Girişi

Capacity (20°C , %60 RH)	6,5 kg/h
Process Air Flow	1200 m3/h - 350 Pa
Reactivation Air Flow	300 m3/h -250 Pa
Process Air Inlet & Outlet	250mm
Regeneration Air Inlet & Outlet	200mm
Heater Type	PTC
Heater Drive	Contactor
Maximum Power	10,5 kW

Rated Power	9 kW
Operation Current	13,8 A
Process Air In Filter	G2
Regeneration Air In Filter	G2
Controller Type	LCD+Display
Power Supply	380 VAC / 50 Hz
Weight	150 kg
Dimensions (AxBxC) mm	1405x741x768 mm



TD-D1700K Desiccant Wheel Type Dehumidifier



1- Process Air In / Proses Havası Girişi

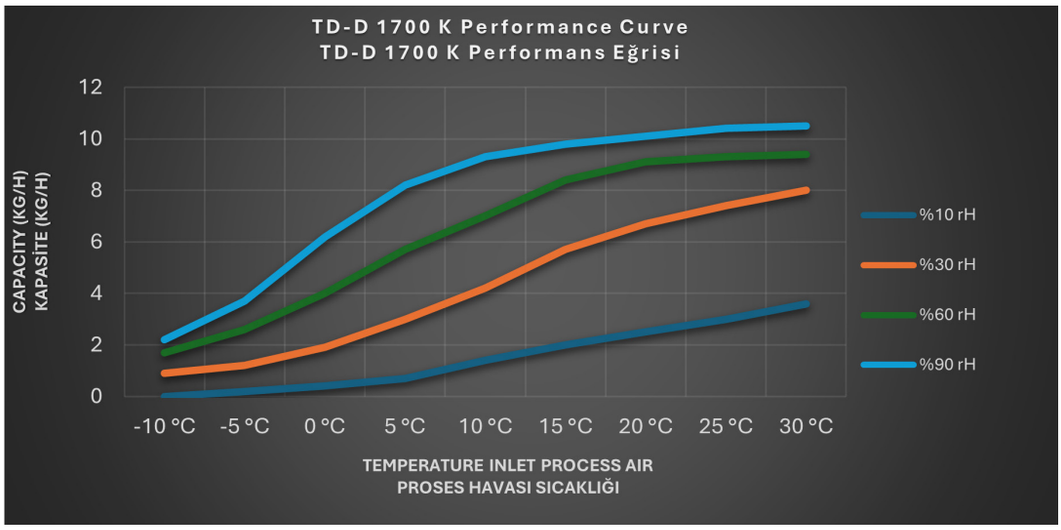
2- Dry Air Out / Proses Hava Çıkışı

3- Wet Air Out / Nemli Hava Çıkışı

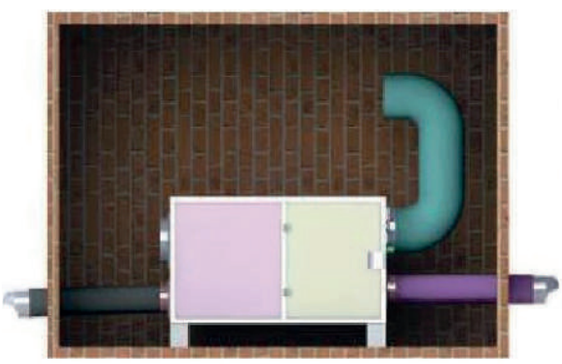
4- Regen Air In / Rejenerasyon Havası Girişi

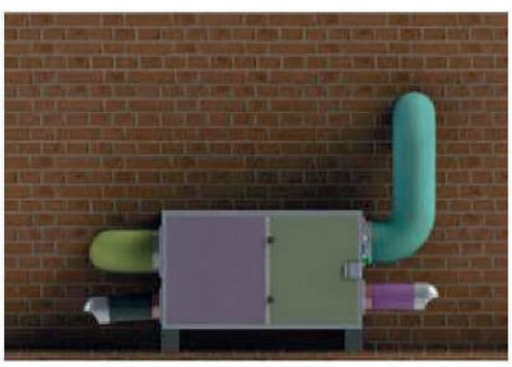
Capacity (20°C , %60 RH)	9,4 kg/h
Process Air Flow	1700 m3/h - 400 Pa
Reactivation Air Flow	450 m3/h -300 Pa
Process Air Inlet & Outlet	250mm
Regeneration Air Inlet & Outlet	200mm
Heater Type	PTC
Heater Drive	Contactor
Maximum Power	20 kW

Rated Power	17 kW
Operation Current	27,2 A
Process Air In Filter	G2
Regeneration Air In Filter	G2
Controller Type	LCD+Display
Power Supply	380 VAC / 50 Hz
Weight	150 kg
Dimensions (AxBxC) mm	1405x741x768 mm



Installation





Indoor
Device Installation

Outdoor
Device Installation

Indoors:

Regeneration air inlet and outlet are guided to the outside.

Factory:

Via inlet and outlet channels, process air is linked to the environment to be dehumidified. Via inlet and outlet channels, regeneration air is linked to the outside environment.

Outdoors:

By ducts, the process air inlet and outlet are connected to the environment to be dehumidified. For regeneration air inlet and outlet, there is no need for ducts.

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