



aerospace
climate control
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Adsorption Dryer

Concept WVModular



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The new generation ...

... of vacuum heat regenerated adsorption dryers is the result of continuous research and development based on years of experience in user installations worldwide.

The name Parker Zander is synonymous with the best in compressed air treatment. The new CONCEPT WVModular range adds to the reputation with optimum efficiency, reliability and constant high quality. This level of quality is reflected in the pressure dew point, which can be both measured and tested.

The designated pressure dew point of a CONCEPT WVModular dryers remains continuously constant, so important in today's systems. The constant dew point is achieved by using two layers of desiccant and regeneration under vacuum.

The vacuum regeneration with Active Heating and Intensive Cooling defines the new standard for heat regenerated dryers.

Adsorption

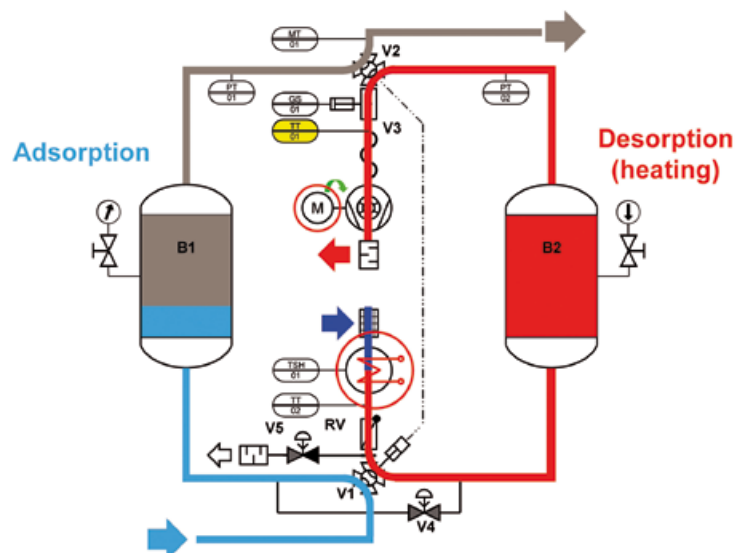
Desiccant attracts and stores the moisture from the saturated compressed air. Parker Zander's experience in designing and building heat regenerated dryers over many years has resulted in

the use of high capacity and long service life desiccant. The most economical form of desiccant bed is to combine the correct proportions of water resistant with high efficiency desiccant.

The filling of desiccant in the new dryers means low energy costs, a longer service life and a stable dew-point.

Regeneration

Using the vacuum technology with low regeneration temperatures and the economical ratio of desiccant results in optimum efficiency and a stable long term dew point.



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Active heating

The Parker Zander vacuum system reduces the regeneration pressure. Only heating under vacuum guarantees the greatest desiccant activation. Regenera-

tion under vacuum also means a lower steam vapour temperature. Active heating results in less energy requirement and the benefit of less cooling.



Intensive Cooling

Cooling air flows in the same direction as the dried compressed air. This prevents moisture loading at the outlet of the dryer. The advantages of this system are lower temperatures, shorter

cooling times, lower energy requirements, a lower preloading with water, a short cooling time and no purge air consumption for cooling.



System Control

The user friendly system control installed on the CONCEPT WVModular dryers ensures a reliable operation of the unit. The units have a perfect set of system relevant signals. These signals define and control the active heating and active cooling phases in the regeneration cycle within very exact tolerances. The result of these fine tolerances is that the dryer adapts exactly to

the working pattern in the plant, thus the new dryer only uses the energy required for its working conditions. With the new LCD touch panel the user has an excellent overview through the implemented flow diagram, with all data at a glance.

The clear menu structure and the touch surface ensure a very easy operation.



Parker Zander Dryer Memory Control

Irrespective of what is to be achieved: an increase in productivity, the highest level of operational safety or a reduction in costs. With the new programmable logic controller ZDMC (Parker Zander Dryer Memory Control), the conditions are created to achieve these demanding objectives. Parker Zander is the

first manufacturer to introduce this controller as standard in its heat regenerating dryers (type WVM).

Thanks to the new ZDMC controllers, the vacuum adsorption dryers are currently the most powerful and most efficient in their category in the global market.



The advantages at a glance:

Excellent overview!

On a colour LCD screen with illustrated flow diagram.

Easy operation!

Personnel are able to operate the controls easily, even without a manual, via a menu and touch screen.

High operational safety

With permanent monitoring of all measurements, available by Ethernet, RS232 (Optional Profibus or Modbus), voltage free contacts and analog output signals.

Optimised operation

By using the 4 week trend recording of all measured values it is possible to optimise the dryer and identify aged desiccant.

That saves energy costs!

That saves money!



ZDMC
Zander Dryer Memory Control

- Run
- Batt.
- Err.

17.03.09
10:49:37

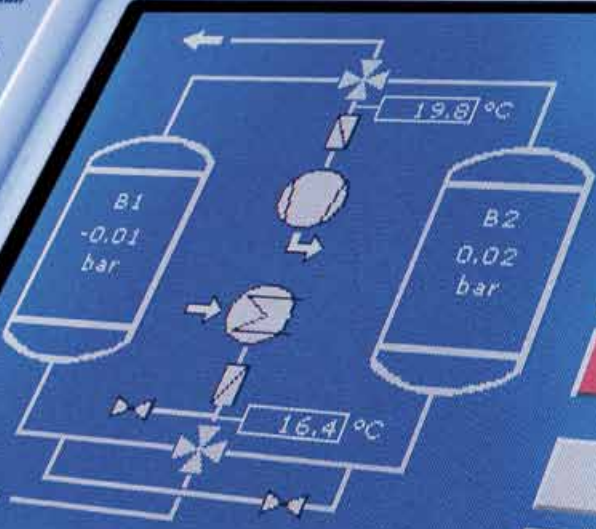
Taupunkt
20 °C

START

STOP

Menü

Betrieb



High security and monitoring

Programming language STEP7
(= Siemens S7) Simple editing and examination by SIEMENS-SIMATIC-S7-Manager.

Software Updates readily available

Software and operating updates by SD card, without use of a service technician.

2 volt free contacts

operating signal & common alarm.

2 selectable analogue output signals (4-20 mA)

2 parameters can be selected for retransmission.

Ethernet connection

allows operating parameters transmission to a control room or PC, or a data transfer to Parker Zander. (Connection and communication software is not supplied).

Trend recording and storage on SD card.

With the SD card facility, data can be downloaded to a PC stored, and submitted to Parker Zander.

Further interfaces

RS 232 (Modbus connection (RS485) optional, if special version was ordered.)



Optional Profibus connection (additional circuit board required).



- 2 MB internal storage and 1 GB SD card for archiving of last 4 weeks recordings.



Excellent operational overview on a colour LCD screen. Permanent clear indication of all data at a glance:

- vessel pressures
- heating temperature
- regeneration temperature
- pressure dew-point
- 3 x Spare fields (2 x PT100 and 1x 4-20 mA)



Easy operation via touch screen. Clearly function illustration from coloured flow diagram.



Simple to operate using menu navigation.

Multiple language selection by touch of the globe symbol.

Technical data

Technical data

Power supply 24 VDC.
Protection class IP65.

Operating temperature 0 to +50°C.

Storage temperature -20 to +70°C.

LCD Touch screen (320 x 240 pixels)
Size (W x H x D): 177 x 134 x 60 mm.

2 MB internal memory and 1 GB
SD card for storage of last
4 weeks recordings.

Back up battery life time 10 years.

Ethernet connector RJ45 und traffic-
LEDs for data transfer and remote
control (RFC1006, send, receive,
fetch, write).

Optional Profibus communication
module (DP-Master or Slave).

Input signals

16 digital inputs
24 V voltage bounded,
time delay
(0->1, 1->0) 0,24 ms
Input voltage for
signal 0 (type) <5 V,
Input voltage for
signal 1 (type) >15 V.

4 analog inputs 4-20 mA
voltage bounded,
resolution 10 bits,
3 wire measurement 24 V.

4 analog inputs PT100
voltage bounded,
resolution 10 Bit, 2 wire
measurement, common
ground.

Temperature range
-5 ...+310°C.

Output signals

12 digital transistor outputs
24 V (max. 0,5 A) voltage bounded,
max. 0,5A/output, external power
supply 24 V. 4 analog inputs 4-20
mA voltage bounded.

Resolution 10 Bit, 3 wire measure-
ment 24 V. 4 analog inputs PT100
voltage bounded, resolution 10
Bit, 3 wire measurement, common
ground.

Temperature range -5 ...+310°C.

18 digital relay outputs
230 V (max. 4 A) 6 x common con-
nected "L" by common fuse (12 A)
(L1N, L1, L2, L3).

2 x voltage free contacts. Operat-
ing and common alarm. 2 analog
outputs
4...20 mA voltage bounded,
resolution 10 bits. Output refered
to common ground.



All measured values over the last 4
weeks are permanently recorded.

Operating and application para-
meters can be analyzed and opti-
mized from this data. These records
supply important information about
the possible cause of dew point
changes.



Very easy adjustment of dew-point
switching. Accessed via main menu
or by touching the dew-point box in
the operating screen. Set by touching
the key pad.

One touch change
of cycle (touch the
green button).



Recording of all operating and fault
signals.

All procedures and malfunctions are
stored in registers.

Adsorption Dryer

Concept WVM modular

Quality

The new CONCEPT WVM modular dryers are an example of modern engineering technology, giving the user a value for money installation. It has the highest quality with built-in reliability at the lowest running costs.

- 1 Low Energy Costs**
savings of 25% are possible compared to conventional systems.
- 2 Two layered desiccant bed**
balanced desiccant between water resistance and high efficiency water retention for optimum dew point stability.
- 3 Active heating under vacuum**
means that the vapourisation temperature is 98 °C.
- 4 Low regeneration temperature**
for the desiccant bed compared to conventional systems.
- 5 Intensive cooling**
using the vacuum without any heat generation from the vacuum pump.
- 6 Regeneration without purge air**
thanks to the high temperature difference even after the cooling phase.
- 7 Pressure build-up on the wet side**
guarantees no purge air even on the pressure build-up phase.
- 8 Reliable dew-point**
as the regeneration air flows through the dryer inlet in the same direction as the air to be dried.
- 9 Changeover without dew- point peak**
the moisture entering the desiccant bed during the regeneration and cooling phase never reaches the drying zone.
- 10 Reliable dew point down to -70 °C**
standard dew-point available at -25 °C and -40 °C.
- 11 New function alarm**
for pressure, inlet temperature, heating, vacuum pump and vessel changeover.
- 12 Alternative energies**
available for regeneration as an optional extra: steam, hot water. Please consult Parker Zander for other heat sources.
- 13 Modular system options**
 - * controlled regeneration air
 - * thyristor controlled heating
 - * variable speed vacuum pump motor.





Technical Data

Concept WVM modular

Type concept	PMC -catalogue no. incl. ZHM 100	Capacity *m³/h	Dimensions mm			Connection DN	Weight Kg	Electr. connect kWh/h
			A	B	C			
WVM 40	W40/10VM3-F400CT	420	1215	1955	992	40	460	3.1
WVM 50	W50/10VM3-F400CT	510	1215	2205	992	40	560	3.8
WVM 65	W65/10VM3-F400CT	640	1305	2250	1085	50	750	5.2
WVM 85	W85/10VM3-F400CT	850	1360	2275	1120	50	800	6.7
WVM 120	W120/10VM3-F400CT	1180	1560	2665	1265	80	1150	10.9
WVM 150	W150/10VM3-F400CT	1500	1610	2680	1265	80	1350	12.8
WVM 200	W200/10VM3-F400CT	1980	1700	2730	1585	80	1720	16.3
WVM 235	W235/10VM3-F400CT	2350	2020	2845	1450	100	1880	18.1
WVM 300	W300/10VM3-F400CT	2930	2080	2870	1580	100	2350	22.5
WVM 335	W355/10VM3-F400CT	3550	2170	2940	1740	100	2850	27.9
WVM 410	W410/10VM3-F400CT	4100	2450	3190	1780	150	4000	32.5
WVM 475	W475/10VM3-F400CT	4740	2550	3210	2110	150	4100	38.9
WVM 525	W525/10VM3-F400CT	5250	2550	3230	1955	150	4200	44.8
WVM 620	W620/10VM3-F400CT	6210	2600	3500	1910	150	4950	52.3
WVM 710	W710/10VM3-F400CT	7100	2650	3520	1940	150	5700	56.3
WVM 800	W800/10VM3-F400CT	8000	3100	3585	2180	200	6400	67.2
WVM 920	W920/10VM3-F400CT	9200	3150	3605	2300	200	7400	75.6
WVM 1080	W1080/10VM3-F400CT	10800	3250	3670	2355	200	8700	85.3
WVM 1230	W1230/10VM3-F400CT	12300	3500	3855	2515	250	11500	98.9
WVM 1450	W1450/10VM3-F400CT	14500	3600	3895	2570	250	13500	111.4

*m³/h calculated at 1 bar according to DIN 7183

Higher flows and dew-point to -70°C on request.

Example of calculation:

a) Compressed air to be treated

Flow: 3000 m³/h
 Pressure: 5 bar (g)
 Maximum inlet temp: +30°C
 Dew-point: -25°C
 Factor from table: 0,80

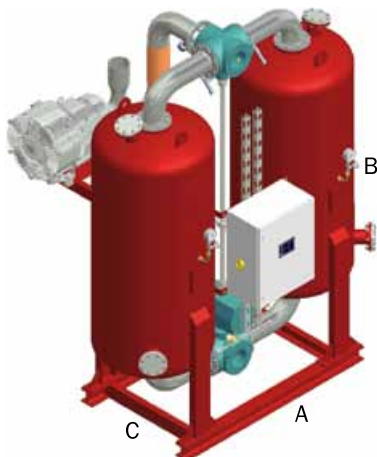
$$\frac{\text{flow}}{\text{conversion factor}} = \frac{3000 \text{ m}^3/\text{h}}{0,80} = 3750 \text{ m}^3/\text{h}$$

b) Calculation of maximum flow.

Flow x conversion factor
 4100 x 0,80 = 3280 m³/h .

c) Reserve available equals
 maximum flow - actual flow
 3280 m³/h - 3000 m³/h = 280 m³/h

Choose: Type concept WVM 410



Factors for calculating size of dryer temperature depending on pressure.

bar(g)/°C	30	35	40
4	0.69	0.44	0.28
5	0.80	0.62	0.42
6	0.90	0.80	0.59
7	1.02	1.00	0.70
8	1.06	1.05	0.79
9	1.17	1.16	0.88
10	1.29	1.28	0.96

Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374.



AEROSPACE

Key Markets

- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



CLIMATE CONTROL

Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

Key Products

- CO² controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



ELECTROMECHANICAL

Key Markets

- Aerospace
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

Key Products

- AC/DC drives & systems
- Electric actuators
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions



FILTRATION

Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



FLUID & GAS HANDLING

Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



HYDRAULICS

Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

Key Products

- Diagnostic equipment
- Hydraulic cylinders
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



PNEUMATICS

Key Markets

- Aerospace
- Conveyor & material handling
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors



PROCESS CONTROL

Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



SEALING & SHIELDING

Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

Key Products

- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management



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