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High-Pressure Dryer

ecodry HDK-MT multitronic



Adsorption dryer

ecodry HDK-MT multitronic

The compact system ...

... for reliable treatment of compressed air in the high-pressure range from 100 bar - 350 bar is called ecodry HDK-MT. It is the result of 30 years of experience in manufacturing adsorption dryers updated with future-oriented top-class technology:

- High-quality piston valves, from series production, combined in one block, individually exchangeable, with separate functions for:
 - adsorption
 - regeneration
 - pressure build-up
- Connection of the valve combinations with the adsorbers to a compact unit.

- The closures on the vessel can be undone on both sides.
- Self-cleaning drainage system in the lower inlet region of the adsorber.



- The high-quality desiccant is fixed in the adsorber by means of an efficient pretensioning system.

These factors guarantee an extremely good operating reliability with high availability.

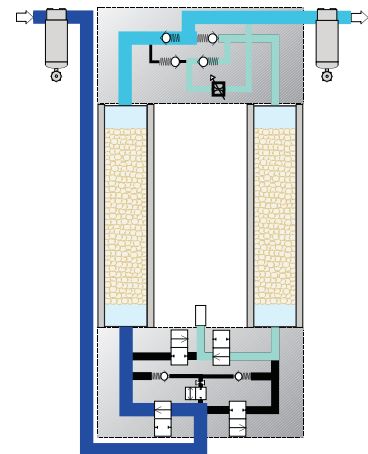
The adsorption dryer series HDK-MT is equipped with the proven microprocessor controller multitronic.

The combination of dryer series HDK-MT plus a series XP pre-filter and a series ZP after-filter with advanced technology fulfils the highest requirements for the conditioning of compressed air.

... reliable operation

Compressed air is loaded with dust particles, condensate and oil droplets. The high-pressure adsorption dryer HDK-MT with pre-filters and after-filters reliably reduces these impurities to a minimum. High-pressure pre-filter series XP, which is suitable for all pressure ratings, reduces the quantity of oil droplets in the compressed air to a residual value of 0.01 mg/m^3 . Subsequently, moisture is reliably removed from the compressed air by the adsorption dryer to a pressure dew-point of -50°C (other pressure dew-point on request). The high-pressure after-filter series ZP connected to the outlet of the dryer traps any remaining solid particles up to $1 \mu\text{m}$ with a filtration efficiency of 99.9999%. This high-quality compressed air

is then fed into the network for use. Duration of the adsorption phase: 15 minutes. Continuous operation of the adsorption dryer requires two vessels, each filled with a high-quality desiccant. Compressed air is dried in the first vessel. At the same time and parallel to this, the desiccant is regenerated in the second vessel. Part of the flow of already dried compressed air (depending on the working pressure approx. 3 – 5%) is branched off at the outlet of the adsorption dryer and is expanded to atmospheric pressure before it is fed in counter-flow through the bed of desiccant to be regenerated thus removing the moisture. Duration of the regeneration phase: 12 minutes. The switch-over from regenera-



tion to adsorption is carried out after pressure has been built up. The change from regeneration to adsorption without an accompanying pressure surge is only possible if both vessels have the same working pressure. Duration of pressure build-up: 3 minutes.

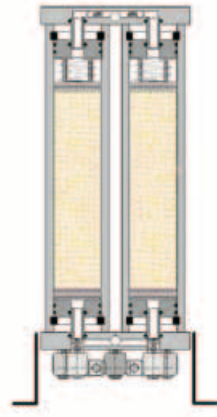
Adsorption dryer

ecodry HDK-MT multitronic

... with brilliant details

The high-pressure adsorption dryers of the series HDK-MT are characterised by innovative construction features:

- **Solid valve block**
mounting plate: aluminium.
Generously dimensioned channels within the plate connect the main and exhaust valves as well as the pressure build-up valve to form one unit. All valves are easily and individually accessible from outside.
- **Corrosion-free adsorber**
made of stainless steel.
The adsorber is very effectively protected against moisture. This greatly increases the service life of the adsorber.
- **Detachable adapter piston**
suitable to connect variable and self-cleaning separator systems and allows simple handling.



- **Effective drainage system**
the separation zone facilitates separation of the moisture during adsorption and regeneration.
- **High-quality desiccant**
a spring preload in the adsorber fixes the desiccant in position and fulfils all requirements for adsorption drying, such as low abrasion and high operating reliability.

- **Multifunctional distribution plate**
mounting plate: aluminium.
Generously dimensioned non-return valves separate the wet and dry sides.
- **Optimised routing of compressed air**
only four connections between inlet and outlet, i.e. the dryers are technically leakage-free.
- **Torsionally-rigid design**
the solid valve block and the multifunctional distribution plate are connected with the adsorbers to form a stable, compact unit.
- **System-compliant modules**
pre-filters and after-filters, dew-point meter etc. supplement the system.

... and perfect control

The multitronic controller is perfectly matched to the high-pressure dryers of the HDK-MT series. It allows the highly efficient adjustment of the adsorption dryer even to extremely difficult operating conditions. From a continuously displayed status to synchronisation with the compressor. (Option: pressure dew-point controller.) The multitronic system, accommodated in a clearly designed, readily accessible housing, offers:

- A comfortable microprocessor controller for all Parker Zander high-pressure dryer systems.
- Permits flexible adjustment of the cycle times.
- LEDs on the front panel for individual functions such as
 - operation
 - adsorption
 - desorption
- Selector switch I-0-2 for fixed cycles or variable cycles as synchronisation control with the compressor.



Possible options:

- Direct pressure dew-point measurement including digital display.
- Potential-free output to the limiting value of the pressure dew-point, option:
output 4-20mA.
- The possibility to set the desired dew-point in the range from -25°C to -50°C.

Adsorptions dryer

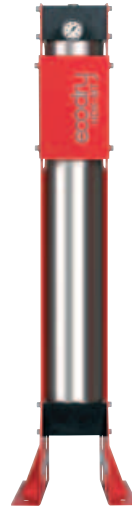
ecodry HDK-MT multitronic

Adsorption dryer HDK-MT



- compact design, including:
- separately activated main valve
 - separately activated exhaust valve
 - stainless steel vessel
 - initial filling of adsorbent (molecular sieve)
 - non-return valve block with pressure reduction
 - multitronic controller 230V 50Hz

Cleaner HDA



- compact design to match the dryer:
- HDA cleaner initial filling of adsorbent activated carbon
 - suitable for direct combination with the dryer HDK / HDK-MT
- for the highest quality requirements of the compressed air in the high-pressure range.
- Residual oil content up to 0.003 mg/m³

Pre-filter Series XP (included)



for complete separation of oil and condensate droplets down to 0.01 mg/m³ as well as solids from the compressed air included a manual condensate drain valve

for the pre and after-filter



differential pressure gauge HZD80/350
Indicated range 0 – 1.6 bar
alternatively HZDE 80/350
with an electrical signal for the limiting value

after-filter series ZP (included)



to trap solids of up to 1 micron from the compressed air with an efficiency of 99.9999 %, included manual condensate drain valve

for the pre and after-filter



electr. condensate drain trap 2/250 - max. working pressure 250 bar
trap 2/400 - max. working pressure 400 bar
after-filter: manual drain valve

Option for the dryer

Monitoring of the pressure dew point



pressure dew-point sensor type ZHM 100
measuring range -100°C to +20°C

Option:
signal output 4-20mA
with module MBS 420

Start-up device



pressure control valve type ZAFV 350 installation:
downstream of dryer/filter
prevents overloading during the start-up phase if the working pressure is low

Adsorption dryer

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Quality

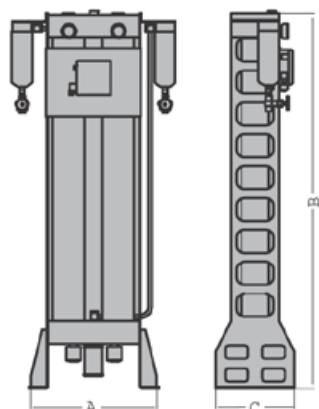
Parker Zander has decisively contributed to the market trend for adsorption dryers. The new generation of adsorption dryers redefines the cost/benefit ratio: **highest quality and safety with reasonable operating costs.**

- 1 Adsorber**
material: stainless steel, PED minimum load cycle 250,000 at nominal pressure > **10 years of continuous operation**
- 2 Valve block**
reduces leakages and is the basis of the pipe-free design > **high operating reliability**
- 3 Connections**
only 4 connections and no internal piping: simple access to all components > **technically leakage-free with highest reliability**
- 4 Wet region**
corrosion-free collecting chamber within the humid zone protects the desiccant from high moisture > **for greater process reliability**
- 5 Desiccant**
highly active molecular sieve guarantees stable pressure dew points from -25°C to -50°C > **for greater process reliability**
- 6 Regeneration unit**
passive presetting of the purge air > **adaption via multitronic controller**
- 7 multitronic**
microprocessor control system in aesthetic, easily accessible enclosure. **Adjustable pressure dew-point option.**
- 8 Functional display**
with LEDs on the covering for:
 - power
 - adsorption
 - regeneration
 - economy cycle> **continuous status display**
- 9 System-compliant modules**
the pre-filters and after-filters in the XP and ZP series are standard accessories. The high-pressure dryer can be individually customised with modular options such as: activated carbon cleaner HDA, pressure control valve > **variable use**

Technical data

Type	Order-Number	Capacity* m ³ /h	Dimension mm			Con- nection	max. Pressure bar	Weight kg	Pre- and Afterfilter
			A	B	C				
HDK-MT 4-100	H4/100D1-G230M	40	716	1015	340	G ¾	100	83	G3/100
HDK-MT 6-100	H6/100D1-G230M	65	716	1025	340	G ¾	100	85	G3/100
HDK-MT 10-100	H10/100D1-G230M	90	716	1035	340	G ¾	100	87	G3/100
HDK-MT 15-100	H15/100D1-G230M	120	716	1045	340	G ¾	100	90	G5/100
HDK-MT 20-100	H20/100D1-G230M	180	716	1245	340	G ¾	100	105	G5/100
HDK-MT 25-100	H25/100D1-G230M	240	716	1445	340	G ¾	100	120	G7/100
HDK-MT 30-100	H30/100D1-G230M	300	716	1645	340	G ¾	100	130	G7/100
HDK-MT 40-100	H40/100D1-G230M	400	780	1645	340	G ¾	100	155	G9/100
HDK-MT 50-100	H50/100D1-G230M	520	780	1845	340	G ¾	100	170	G9/100
HDK-MT 60-100	H60/100D1-G230M	590	780	2020	340	G ¾	100	190	G11/100
HDK-MT 70-100	H70/100D1-G230M	650	780	2145	340	G ¾	100	210	G11/100
HDK-MT 4-250	H4/250D1-G230M	60	716	1015	340	G ¾	250	115	G3/250
HDK-MT 6-250	H6/250D1-G230M	85	716	1025	340	G ¾	250	120	G3/250
HDK-MT 10-250	H10/250D1-G230M	120	716	1035	340	G ¾	250	125	G3/250
HDK-MT 15-250	H15/250D1-G230M	150	716	1045	340	G ¾	250	130	G5/250
HDK-MT 20-250	H20/250D1-G230M	230	716	1245	340	G ¾	250	160	G7/250
HDK-MT 25-250	H25/250D1-G230M	300	716	1445	340	G ¾	250	195	G7/250
HDK-MT 30-250	H30/250D1-G230M	430	716	1645	340	G ¾	250	220	G7/250
HDK-MT 40-250	H40/250D1-G230M	530	780	1645	340	G ¾	250	270	G9/250
HDK-MT 50-250	H50/250D1-G230M	600	780	1845	340	G ¾	250	295	G9/250
HDK-MT 60-250	H60/250D1-G230M	720	780	2020	340	G ¾	250	335	G9/250
HDK-MT 70-250	H70/250D1-G230M	910	780	2145	340	G ¾	250	360	G11/250
HDK-MT 4-350	H4/350D1-G230M	70	716	1015	340	G ¾	350	125	G3/350
HDK-MT 6-350	H6/350D1-G230M	95	716	1025	340	G ¾	350	130	G3/350
HDK-MT 10-350	H10/350D1-G230M	145	716	1035	340	G ¾	350	135	G3/350
HDK-MT 15-350	H15/350D1-G230M	200	716	1045	340	G ¾	350	140	G5/350
HDK-MT 20-350	H20/350D1-G230M	300	716	1245	340	G ¾	350	170	G5/350
HDK-MT 25-350	H25/350D1-G230M	400	716	1445	340	G ¾	350	205	G7/350
HDK-MT 30-350	H30/350D1-G230M	500	716	1645	340	G ¾	350	230	G7/350
HDK-MT 40-350	H40/350D1-G230M	780	780	1645	340	G ¾	350	280	G9/350
HDK-MT 50-350	H50/350D1-G230M	940	780	1845	340	G ¾	350	310	G9/350
HDK-MT 60-350	H60/350D1-G230M	1080	780	2020	340	G ¾	350	350	G9/350
HDK-MT 70-350	H70/350D1-G230M	1180	780	2145	340	G ¾	350	380	G11/350

*calculated to 1 bar (abs) and 20°C each for max. operating pressure and inlet temperature 35°C. Electrical power supply: 230 VAC, 115 VAC or 24 VDC.



Conversion factors temperature and pressure						
Pressure/temperature		30°C	35°C	40°C	45°C	50°C
pmax = 100 bar	50 bar	0.51	0.50	0.39	0.30	0.24
	75 bar	0.76	0.75	0.58	0.45	0.36
	100 bar	1.01	1.00	0.77	0.61	0.48
pmax = 250 bar	100 bar	0.40	0.40	0.31	0.24	0.19
	175 bar	0.71	0.70	0.54	0.42	0.33
	250 bar	1.01	1.00	0.77	0.61	0.48
pmax = 350 bar	250 bar	0.72	0.71	0.55	0.43	0.34
	300 bar	0.87	0.86	0.66	0.52	0.41
	350 bar	1.01	1.00	0.77	0.61	0.48



Parker Worldwide

Europe, Middle East, Africa

AE – United Arab Emirates,
Dubai

Tel: +971 4 8127100
parker.me@parker.com

AT – Austria, Wiener Neustadt

Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe, Wiener
Neustadt

Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AZ – Azerbaijan, Baku

Tel: +994 50 2233 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles

Tel: +32 (0)67 280 900
parker.belgium@parker.com

BY – Belarus, Minsk

Tel: +375 17 209 9399
parker.belarus@parker.com

CH – Switzerland, Etoy

Tel: +41 (0)21 821 87 00
parker.switzerland@parker.com

CZ – Czech Republic, Klecany

Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst

Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup

Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid

Tel: +34 902 330 001
parker.spain@parker.com

FI – Finland, Vantaa

Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve

Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens

Tel: +30 210 933 6450
parker.greece@parker.com

HU – Hungary, Budapest

Tel: +36 1 220 4155
parker.hungary@parker.com

IE – Ireland, Dublin

Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IT – Italy, Corsico (MI)

Tel: +39 02 45 19 21
parker.italy@parker.com

KZ – Kazakhstan, Almaty

Tel: +7 7272 505 800
parker.easteurope@parker.com

NL – The Netherlands, Oldenzaal

Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Asker

Tel: +47 66 75 34 00
parker.norway@parker.com

PL – Poland, Warsaw

Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal, Leca da Palmeira

Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest

Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow

Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga

Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SK – Slovakia, Banská Bystrica

Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto

Tel: +386 7 337 6650
parker.slovenia@parker.com

TR – Turkey, Istanbul

Tel: +90 216 4997081
parker.turkey@parker.com

UA – Ukraine, Kiev

Tel: +380 44 494 2731
parker.ukraine@parker.com

UK – United Kingdom, Warwick

Tel: +44 (0)1926 317 878
parker.uk@parker.com

ZA – South Africa, Kempton Park

Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

North America

CA – Canada, Milton, Ontario

Tel: +1 905 693 3000

US – USA, Cleveland

Tel: +1 216 896 3000

Asia Pacific

AU – Australia, Castle Hill

Tel: +61 (0)2-9634 7777

CN – China, Shanghai

Tel: +86 21 2899 5000

HK – Hong Kong

Tel: +852 2428 8008

IN – India, Mumbai

Tel: +91 22 6513 7081-85

JP – Japan, Tokyo

Tel: +81 (0)3 6408 3901

KR – South Korea, Seoul

Tel: +82 2 559 0400

MY – Malaysia, Shah Alam

Tel: +60 3 7849 0800

NZ – New Zealand, Mt Wellington

Tel: +64 9 574 1744

SG – Singapore

Tel: +65 6887 6300

TH – Thailand, Bangkok

Tel: +662 186 7000-99

TW – Taiwan, Taipei

Tel: +886 2 2298 8987

South America

AR – Argentina, Buenos Aires

Tel: +54 3327 44 4129

BR – Brazil, Sao Jose dos Campos

Tel: +55 800 727 5374

CL – Chile, Santiago

Tel: +56 2 623 1216

MX – Mexico, Apodaca

Tel: +52 81 8156 6000

EMEA Product Information Centre

Free phone: 00 800 27 27 5374

(from AT, BE, CH, CZ, DE, DK, EE, ES, FI, FR, IE, IL,
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US Product Information Centre

Toll-free number: 1-800-27 27 537

www.parker.com

