Parker Heatless Adsorption Dryers

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Parker

Overview of K-MT Heatless Adsorption Dryers

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Parker Heatless Adsorption Dryers
Dryer overview

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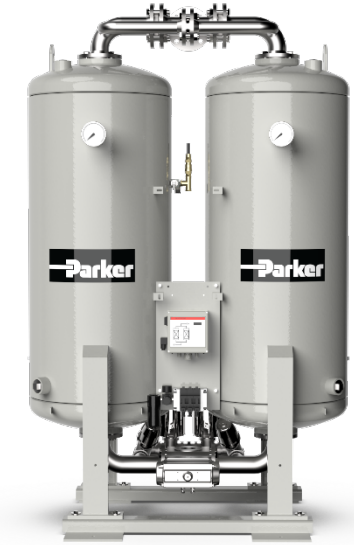
Parker Small / Medium / Large Flow Heatless Adsorption Dryers

- Parker Brands
  - Parker Zander
- Range Names
  - K-MT 1-8 / KA-MT 1-8
  - KE-MT10-95 / KA-MT10-95
  - KE-MT120-600 & A120-600

Parker Small / Medium / Large Flow Heatless Adsorption Dryers

- Heatless dryers are offered in aluminium (small flow) & fabricated carbon steel construction (middle and large flow)
- The operation of all heatless dryers is the same
- The dewpoint provided by a heatless dryer is typically in accordance with ISO8573-1 Class 1, 2 or 3
- The desiccant used is the same for all models
- All units are PDP controlled (option)



Parker Heatless Adsorption Dryers
Modular Construction – Small Flow

- Range Name
  - K-MT 1-8
- Number of Models In Range
  - 7
- Flow
  - 8 – 86 m^3/hr

- Range Name
  - KA-MT 1-8
- Number of Models In Range
  - 7
- Flow
  - 8 - 86 m^3/hr

Parker Heatless Adsorption Dryers
Modular Construction – Middle Flow

- Range Name
  - KE-MT 10-95
- Number of Models In Range
  - 9
- Flow
  - 105 – 940 m^3/hr

- Range Name
  - KA-MT 10-95
- Number of Models In Range
  - 9
- Flow
  - 105 - 940 m^3/hr

Parker Heatless Adsorption Dryers
Twin Tower Construction – Large Flow

- Range Name
  - KE-MT 120 – 600
- Number of Models In Range
  - 8
- Flow
  - 1200 – 6100 m^3/hr

Technical Specifications

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Parker Complete Purification systems

- The Parker philosophy is to supply a complete purification system
- Required filtration is either packaged with the dryer or supplied separately
- Complete purification systems simplify contaminant reduction and help guarantee compressed air quality

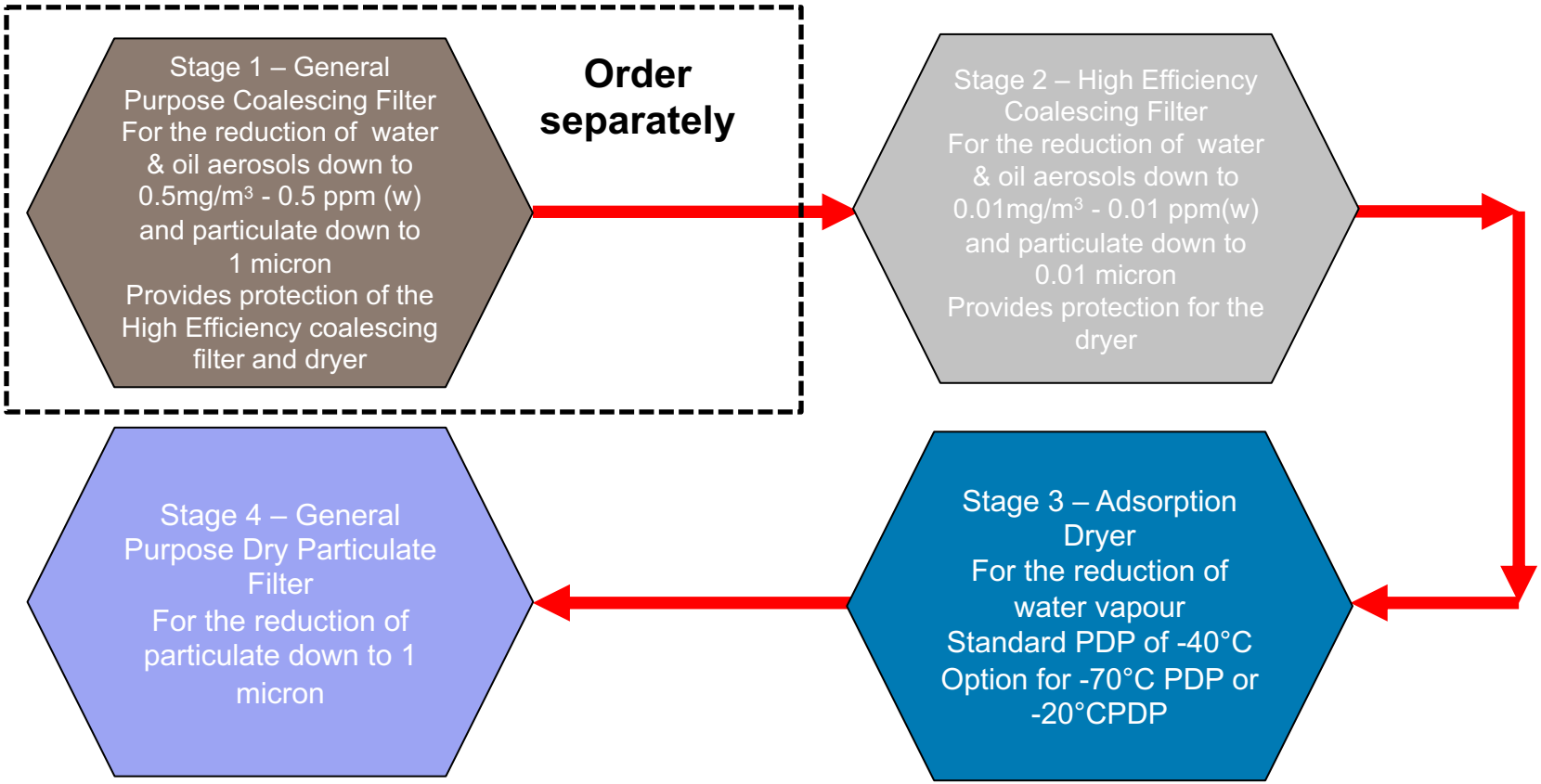
Purification Technologies	Contaminants							
	Atmospheric Particles	Rust & Pipescale	Liquid Water	Water Aerosols	Water Vapour	Liquid Oil	Oil Aerosols	Oil Vapour
Optional Water Separator			●			●		
KE-MT	●	●		●	●		●	
KA-MT	●	●		●	●		●	●

K-MT

- 4 Stages of purification
- Delivered Air Quality:
  - ISO8573-1 Class 2.2.2 (Standard)
  - ISO8573-1 Class 2.3.2 (Option)
  - ISO8573-1 Class 2.1.2 (Option)
- K-MT dryers includes High Efficiency Coalescing filter & General Purpose Dry Particulate Filter
- Depending on the application an additional General Purpose Coalescing filter is required to meet the above specifications

K(E)-MT
Purification Stages

Stages of Purification: 4



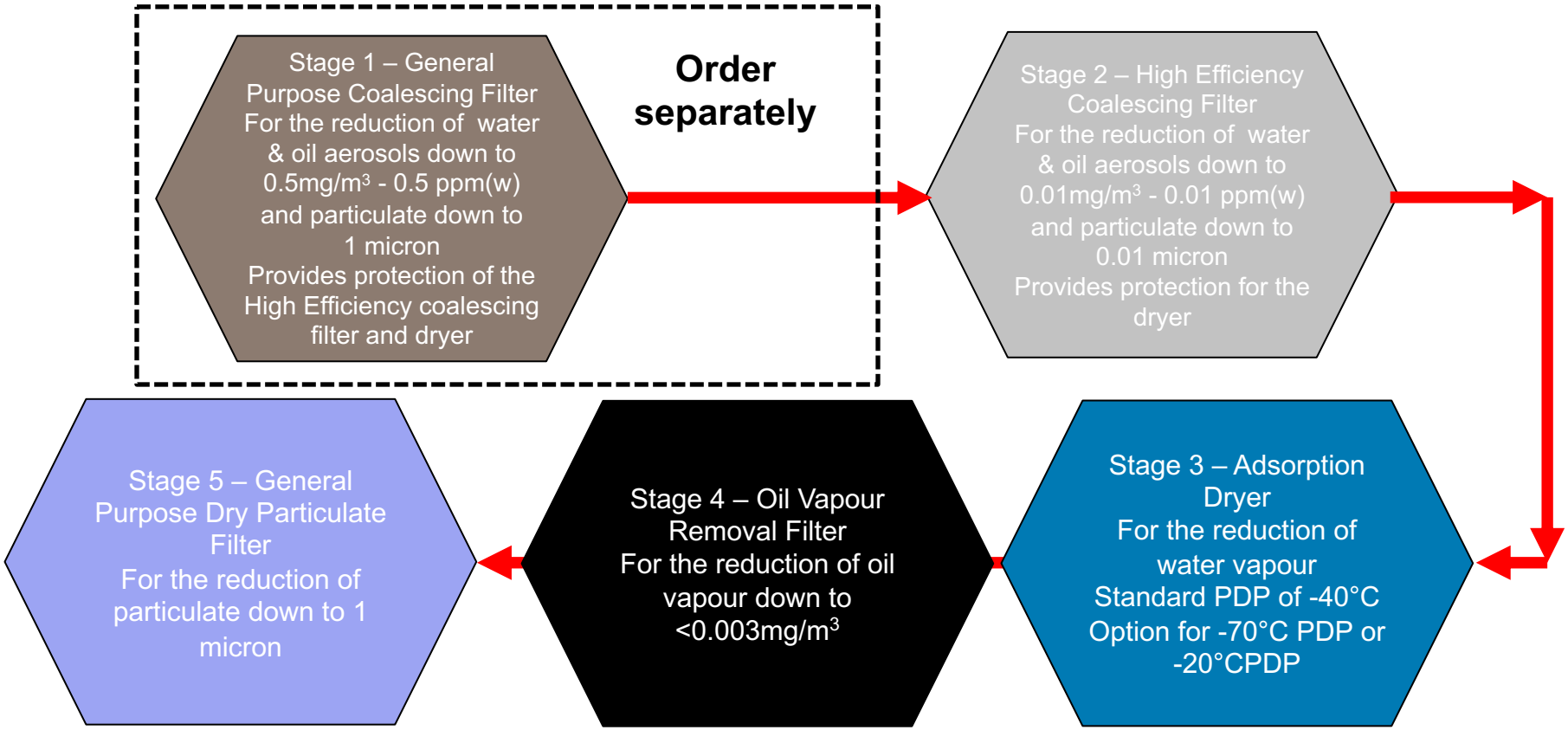
* Optional Water Separator only needed if liquid oil or water is present at inlet to purification system (Not a requirement for all compressed air systems)

KA-MT

- 5 Stages of purification
- Delivered Air Quality:
  - ISO8573-1 Class 2.2.2 (Standard)
  - ISO8573-1 Class 2.3.2 (Option)
  - ISO8573-1 Class 2.1.2 (Option)
- KA-MT dryers includes High Efficiency Coalescing filter & General Purpose Dry Particulate Filters
- An additional General Purpose Coalescing filter is required to meet the customer specifications

KA-MT

Stages of Purification: 5



* Optional Water Separator only needed if liquid oil or water is present at inlet to purification system (Not a requirement for all compressed air systems)

Technical Specifications

	Pressure		Temperature		Flow		Dewpoint Options		
	bar g		°C		m^3/hr				
	Min	Max	Min	Max	Min	Max	-20°C	-40°C	-70°C
K-MT 1-8	4	16	5	50	8	86	●	●	●
KA-MT 1-8	4	16	5	50	8	86	●	●	●
K-MT10-95	4	16	5	50	105	940	●	●	●
KA-MT10-95	4	16	5	50	105	940	●	●	●
KE-MT120-600	4	10	5	50	1200	6100	●	●	●

Installation in frost free and safe area only
Recommended min. ambient temperature at place of installation: 5°C

Inlet temperature until +60°C for K10-95 and K120-600 on request

Technical Specifications

	electrical connections available (standard)			Fully Pneumatic
	230V 1PH / 50Hz	115V 1PH / 60Hz	24VDC	
K-MT 1-8	●	●	●	-
KA-MT 1-8	●	●	●	-
K-MT10-95	●	●	●	●
KA-MT10-95	●	●	●	●
KE-MT120-600	●	●	●	●

Technical Specifications

	Desiccant Fill		
	Dewpoint		
	-20°C / -25°C	-40°C	-70°C
K-MT 1-8	100% Molecular Sieve	100% Molecular Sieve	100% Molecular Sieve
KA-MT 1-8	100% Molecular Sieve 100% Activated Carbon	100% Molecular Sieve 100% Activated Carbon	100% Molecular Sieve 100% Activated Carbon
K-MT10-95	100% Molecular Sieve	100% Molecular Sieve	100% Molecular Sieve
KA-MT10-95	100% Molecular Sieve 100% Activated Carbon	100% Molecular Sieve 100% Activated Carbon	100% Molecular Sieve 100% Activated Carbon
KE-MT120-600	100% Molecular Sieve	100% Molecular Sieve	100% Molecular Sieve

K(A)-MT
Operation

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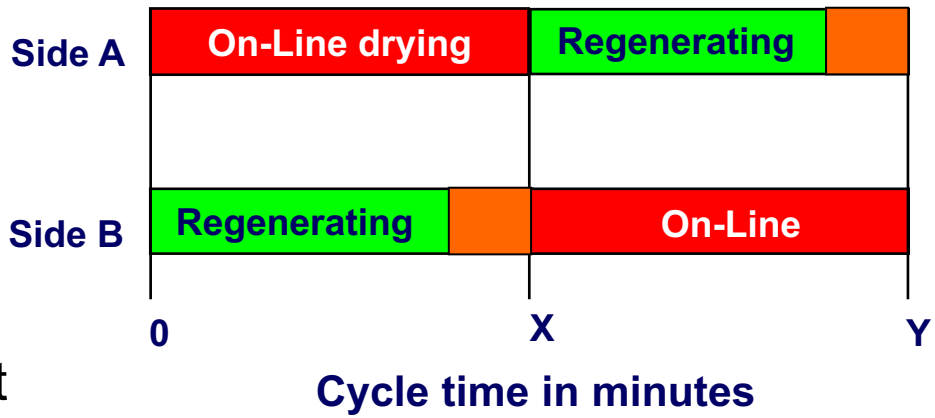
Heatless Dryer
Operation – Cycle Times

- One chamber or side, is always on-line drying the process air
- The other side is off-line, regenerating the desiccant material
- Before changeover, the exhaust valve closes to re-pressurise the off-line column



Heatless Dryer

Operation – Cycle Times (fixed cycle)

Dryer Model	Regen Method	On-line Drying	Off-line Regen	Off-line Repress.
K-MT 1-8	PSA	5 min's	4 min's	1 min
KA-MT 1-8	PSA	5 min's	4 min's	1 min
K-MT 10-95	PSA	5 min's	4 min's	1 min
KA-MT 10-95	PSA	5 min's	4 min's	1 min
KE-MT 250-600	PSA	5 min's	4 min's	1 min

Heatless Dryer Controls

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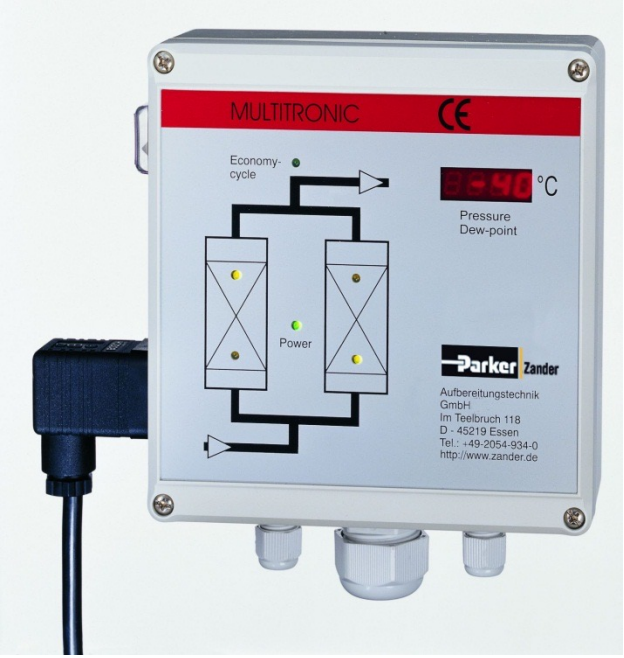
K(A)-MT 1-8 / K(A)-MT10-95 / KE-MT120-600
Controls

- Standard for all fabricated twin tower heatless dryers
- Protection class IP65
- Compressor syncronisation signal („stop / start contact“)
- Optional dew point sensor (ZHM100)
- Optional signal splitter MBS420 (4-20mA)
- Optional enclosure made of carbon steel or stainless steel
- Power supply voltages (Standard)
  - 230 V / 1ph / 50-60 Hz
  - 115 V / 1ph / 60 Hz
  - 24 V DC



Adsorption Dryer Energy Management Systems
Purge Economy / Compressor Synchronisation

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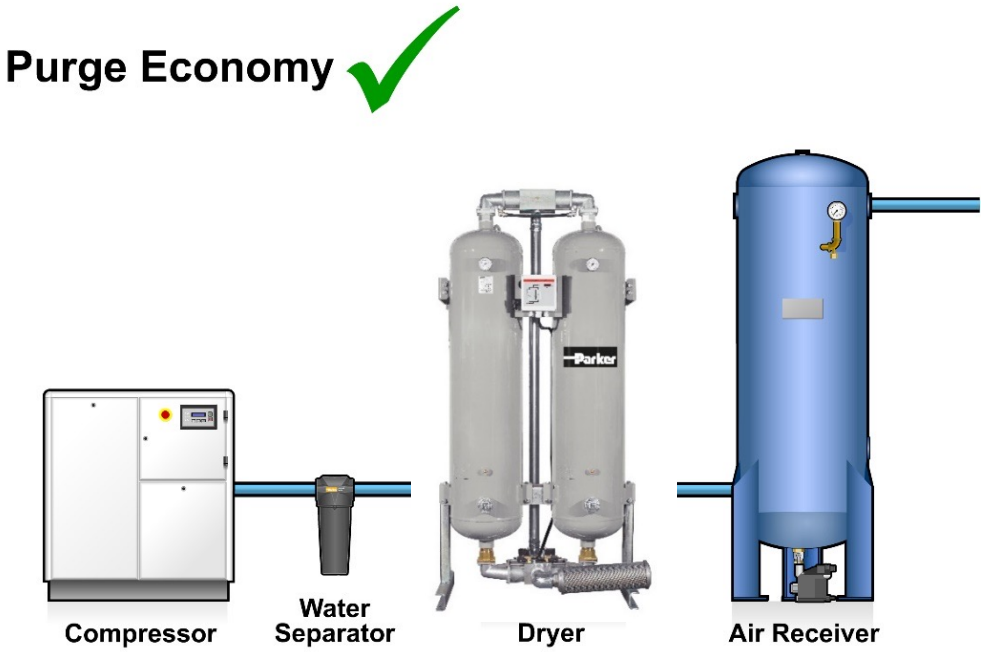
Adsorption Dryer Energy Management Systems
Compressor Synchronisation

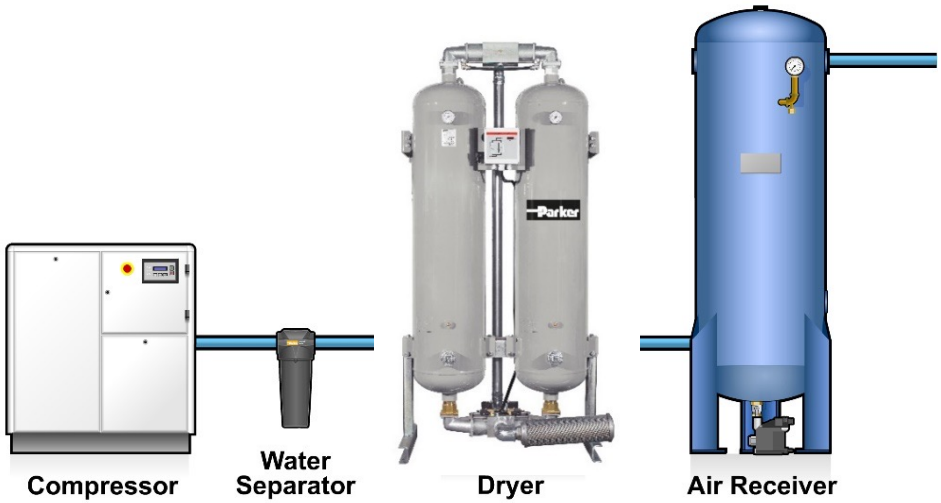
- Compressor Synchronisation is an energy saving device for heatless dryers
- When system pressure is achieved, the compressor goes off load
- If there is no system demand, i.e. evenings and weekends, in theory the compressor should remain off load, using no energy



Adsorption Dryer Energy Management Systems
Compressor Synchronisation

- However, even though the compressor is off load, the dryer will continue to operate, using purge air to regenerate the off-line column
- “Compressor signal” is designed to stop the dryer regeneration cycle when the compressor goes off load
- It uses a signal from the compressor to stop the dryers regeneration cycle and close the exhaust valve
- This prevents unnecessary use of purge air, saving energy & money

Purge Economy ✓



Heatless Dryer
Energy Management Systems (DDS)

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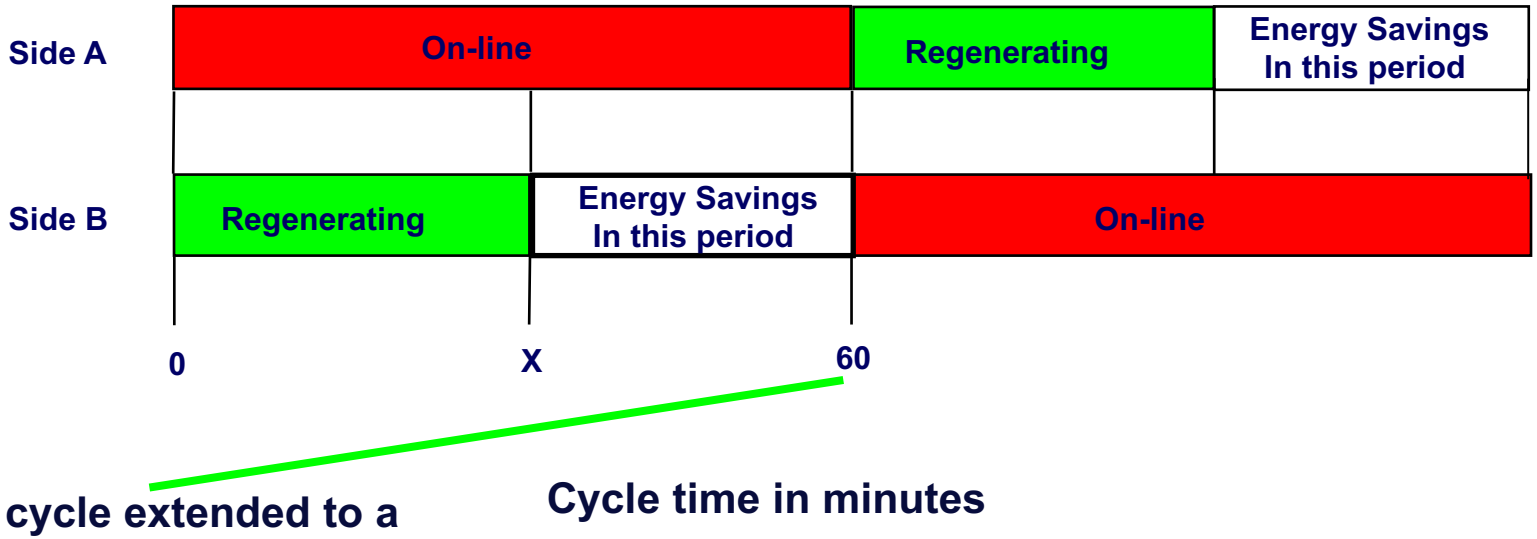
Heatless Adsorption Dryer
DDS – Dewpoint Dependant Switching

- The DDS system will ensure that the switchover is effected in relation to the pressure dew point reached and the charging of the desiccant.



Heatless Adsorption Dryer

DDS – Dew point Dependent System

- In certain geographical locations, a dryer can be operated for extended periods with low amounts of water vapour in the inlet air
- Refrigeration dryer is preinstalled
- Varying quantity of compressed air consumption
- In these instances, the energy management system will save the user air, energy & money

Parker Heatless Adsorption Dryers
Features & Benefits

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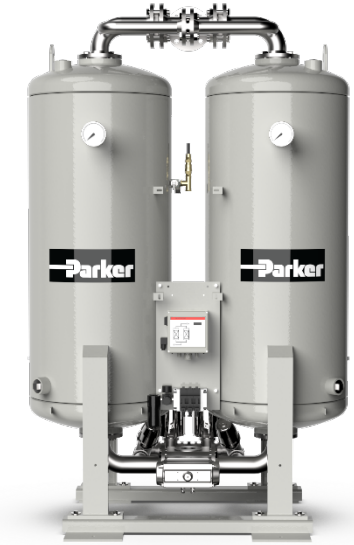
Parker Heatless Adsorption Dryers
Key Selling Points

- Guaranteed dewpoint performance
- Dewpoint performance flexibility
- Energy management systems available as option on all Parker Zander adsorption dryer
- Reduction of compressed air and energy consumption (“10 min cycle”)
- Compressor synchronization
- Simple operation and installation
- Robust design

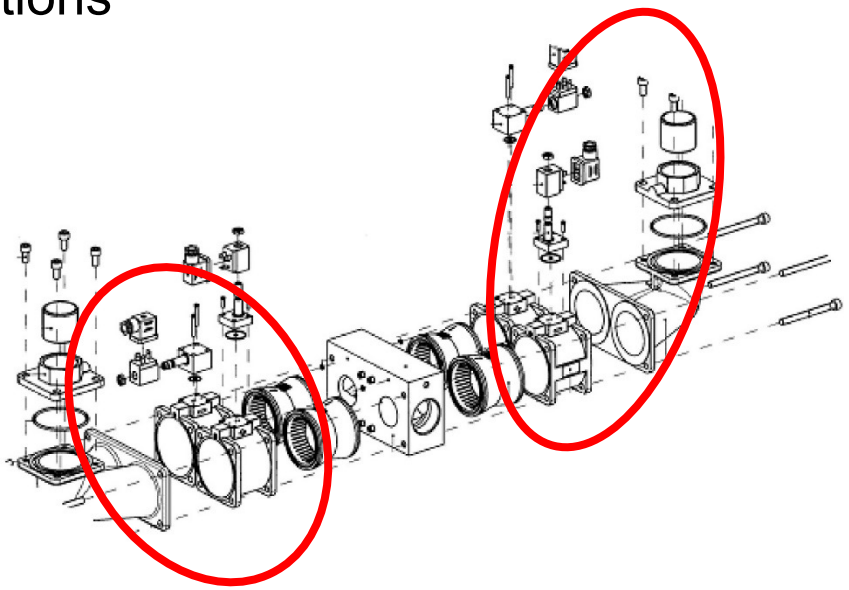
Parker Heatless Adsorption Dryers
Key Selling Points

- Designed for compressor room or point of use applications
- Smaller models ideal machine integrators and can be can be wall or cabinet mounted
- Quiet operation
- Easy to maintain



Parker Heatless Adsorption Dryers
Key Selling Points

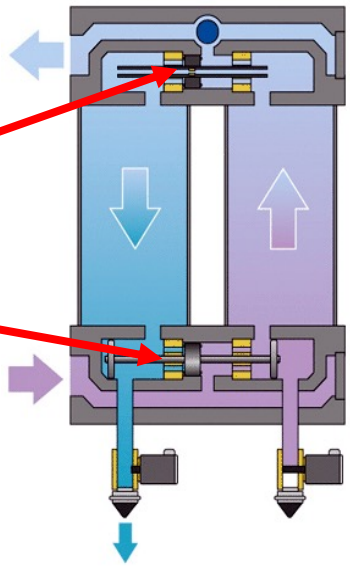
- Leakage minimized unit
- Inlet valve combination with single controlled valves
- outlet valve combination with non return valves
- low number of threaded connections
- low number of sealings



Parker Heatless Adsorption Dryers
Key Selling Points

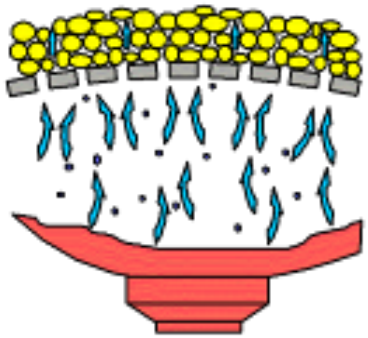
- Separate operated main valves
- at every time clear flow direction through the dryer
- The position of the used shuttle valves is unsafe!

Design used by
several competitors

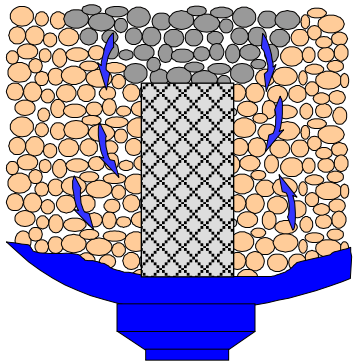


Parker Heatless Adsorption Dryers
Key Selling Points

- High quality desiccant support screen in stainless steel
- Optimised flow distribution to the screen ensures equal use of all the desiccant. Utilizing the full cross sectional area. This also reduces the pressure drop



Parker / Zander



Competition

Parker Heatless Adsorption Dryers
Options

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Parker Heatless Adsorption Dryers
Options

- Pressure vessel design in accordance with ASME, GOST, GL, DNV)
- Design pressure higher than 16 bar(g)
- Corrosion allowance 3 mm
- Larger flows
- Material of pressure vessels – stainless steel
- Marine painting (painting for off shore applications)
- Paint compatible design (“LV design”)
- Special documentation (3.1 certificates, NDT, WPS, PQR, other)
- Other options as per customer specification on request