



Compressed Air Treatment

Twin Tower Desiccant Dryers
TW, TWP & TWB Series



ENGINEERING YOUR SUCCESS.

Parker Twin Tower Desiccant Dryers

For over 50 years, Parker Hannifin's Industrial Gas Filtration and Generation Division has established itself as an industry leader in the design, development and manufacture of a wide range of filtration and separation products. Designed to meet the needs of global customers through a dedicated focus on key market sectors, Parker's products deliver a unique combination of innovation and excellence in the most demanding applications, helping our valued customers to maximize the productivity and profitability of their manufacturing and process operations. Parker's engineering expertise and broad range of core technologies uniquely positions the company to help solve the world's greatest engineering challenges, while delivering real and lasting value to every customer.



TW Series

Parker TW Series Heatless Desiccant Air Dryers remove water vapor from compressed air through a process known as Pressure Swing Adsorption. A standard pressure dewpoint of -40°F (-40°C) is attained by directing the flow of saturated compressed air over a bed of desiccant. The desiccant bed is regenerated by using dry purge air from the system.



TWP Series

Parker TWP Series Externally Heated Desiccant Air Dryers operate similarly to the TW series to achieve a pressure dewpoint of -40°F , but the design includes a heat source to assist the purge air during regeneration. This is called Thermal Swing Adsorption and helps reduce the energy required to regenerate the desiccant bed.



TWB Series

Parker TWB Series Blower Purge Desiccant Air Dryers achieve a pressure dewpoint of -40°F by using Blower Regeneration technology. In this design, the dryer uses a heat source and a blower to push large volumes of ambient air across the desiccant bed during regeneration, instead of using dry purge air from the system. As a result, the TWB design is the most energy efficient of the Twin Tower dryers in Parker's offering.

Equipment

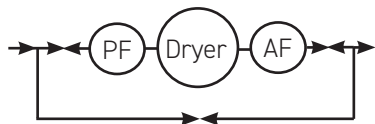
	Feature	TW	TWB	TWP
Standard	Allen-Bradley® PLC	x	x	x
	Tower Insulation		x	x
	High Performance Switching Valves	x	x	x
	PowerLoc® Energy Demand Control	TW1001 & Larger	x	x
	LED Din Connectors	x	x	x
	ASME/CRN vessels	TW101 & Larger	x	x
	ETL listed (UL/CSA standards)	x	x	x
	NEMA 4X	x		
	NEMA 1		x	x
	Exhaust mufflers with safety relief	x	x	x
	Energy savings temperature monitoring system		x	x
		Factory Installed Filtration	x	x
Optional	PowerLoc® Energy Demand Control	TW41 - TW801		
	Custom filter packaging	x	x	x
	NEMA 4		x	x
	NEMA 7	x		
	Control air tubing - stainless steel	x	x	x
	Low ambient package (-20°F to +40°F air temperature)	x	x	x
	Instrumentation - Locally mounted pressure and temperature gauges at inlet and outlet	x	x	x
	ASME B31.3 piping	x	x	x
	Pneumatic controls - Includes Class 1, Division 2, Groups C & D	x	x	x
	High pressure applications: 200 psig & 250 psig design adders available	x	x	x

Filter Package Schematic

Package B

(Standard on models 801 & smaller)
(Optional for models 1001 & larger)

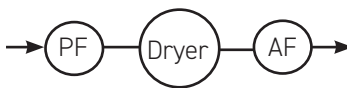
Includes dryer with factory installed pre-filter and after-filter with system bypass.



Package F

(Standard on models 1001 & larger)

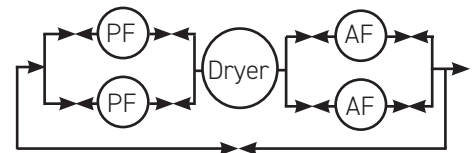
Includes dryer with factory installed pre-filter and after-filter.



Package D

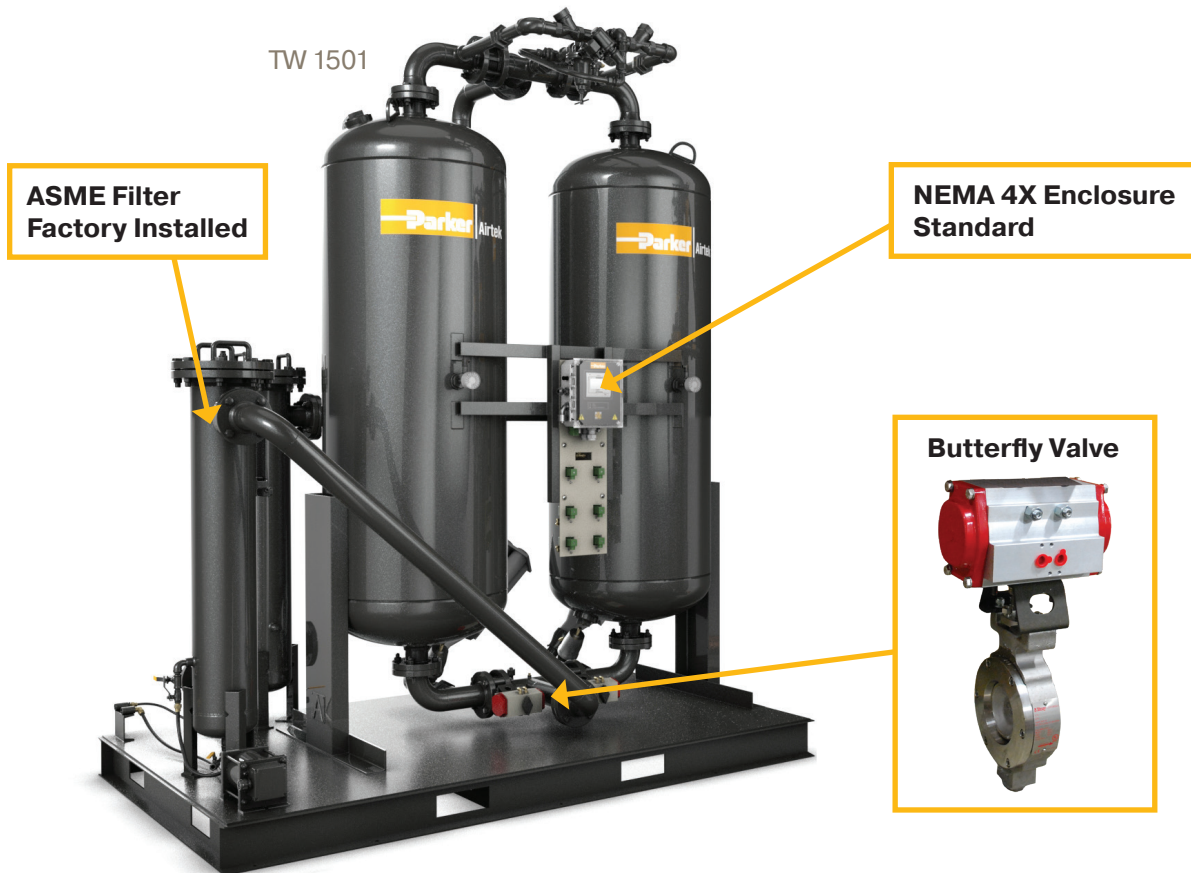
(Optional for all models)

Includes dryer with factory installed dual selectable pre and after-filters with system bypass.



Key Components

Components	TW	TWB	TWP
Butterfly Valve	TW1001 & Larger	TWB/TWP1001 & Larger	
Poppet Valve	TW76-TW801	-	-
Angle Seat Valve	-	TWB/TWP801 & Smaller	
LED Din Connectors	X	X	X



**OIL-X Filters
Factory Installed**

TWP 801



**NEMA 1 Enclosure Standard
NEMA 4 Optional**

TWB 3001



Controllers

Heatless Basic Controller
TW41 - TW801



Heatless Advanced Controller
TW1001 & Larger
Optional on TW41 - 801



Externally Heated & Blower Purge Advanced Controller
All TWB & TWP Models

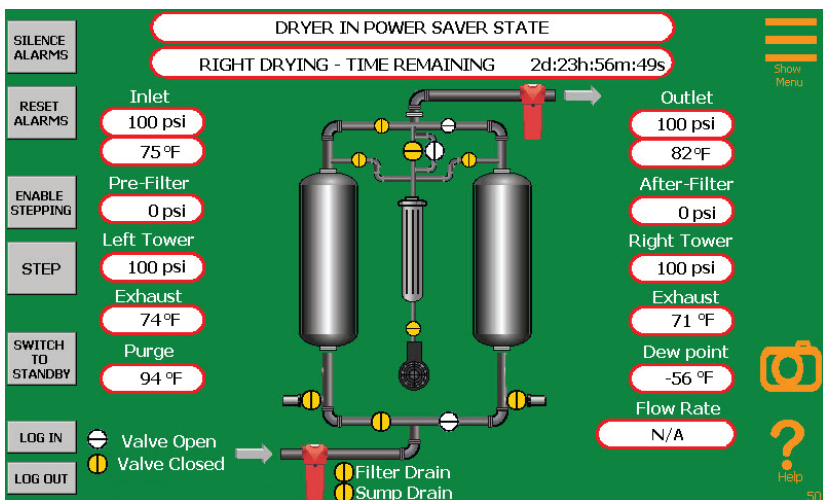


Controller Features	Heatless Basic	Heatless Advanced	Heated & Blower Purge Advanced
Allen-Bradley® PLC	X	X	X
Compressor demand via external dry contact (CycleLoc®)	X	X	
PowerLoc® Energy Management System		X	X
Dewpoint Control		X	X
Inlet pressure and temperature sensors		X	X
MODBUS/TCP communications via standard ethernet port		X	X
MODBUS RTU communications via standard RS232/485 port		Optional	X
SD card slot for accessing historical data and alarm information		X	X
Selectable cycle settings	X	X	
Full color graphics touch panel control for user interface			X
Heatless Backup Operation			X
Manual Stepping		X	X
Supplemental Cooldown			TWB only
Dry contact for common alarm		X	X
Flashes green when in energy savings mode		X	X
Flashes red when an alarm is present		X	X
Optional 4-20 mA output for remotely monitoring dewpoint		X	X

Controller Alarm Features	Heatless Advanced	Heated & Blower Purge Advanced
Common alarm relay	X	X
Tower failed to blowdown	X	X
Failed to switch	X	X
Tower failed to repressurize	X	X
High inlet temperature	X	X
Low inlet pressure	X	X
High dewpoint	X	X
Sensor failure for all sensors	X	X
High and low purge temperatures		X
Left/right clogged muffler		X
Low purge pressure		TWP Only
Clogged inlet filter	X	X

PowerLoc® Energy Management System

Energy savings of up to 80% can be achieved with the proven PowerLoc® energy management system. Regeneration requirements are dependent on flow, pressure and temperature. The PowerLoc® system allows the cost of drying compressed air to be matched exactly to your plant conditions. PowerLoc® controls the drying cycle by continuously reacting to the loading under which the dryer is operating and minimizes the energy input required. As dryers rarely operate at full rated capacity all of the time (eg. during shift work and periods of low demand), this energy management system can provide considerable savings.

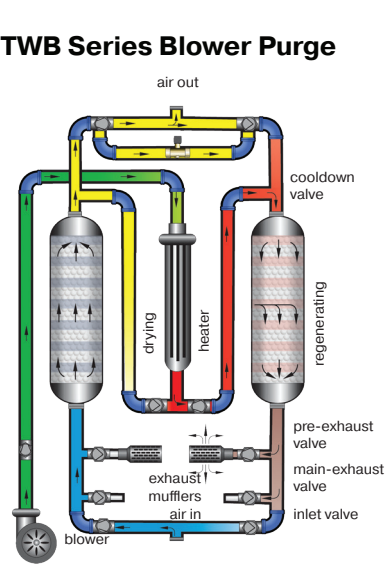
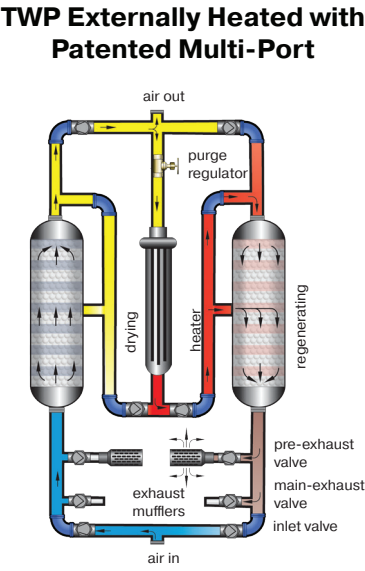
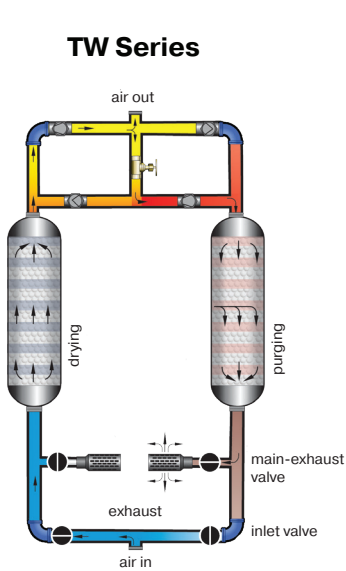


The Advanced Controller is designed to accommodate Parker's PowerLoc® Energy Management System. Flashes green when in energy saving mode.

Compressed Air Quality to ISO 8573.1:2010

The Industry Standard Method for Specifying Compressed Air Cleanliness (in accordance with ISO 8573-1 2,2,2)

How it Works



The TW Series is the simplest desiccant air dryer in our offering, the dryer uses heatless pressure swing adsorption for drying the compressed air to -40°F PDP. The pressure swings between a left and a right tower typically on a cycle of 5 to 10 minutes. During regeneration, a percentage of the dry compressed air is used for purge, this helps regenerate the fully adsorbed desiccant.

The TWP Series adds a heater to the regeneration process, this is called heated regeneration or thermal swing adsorption. The desiccant dryer is still designed to achieve -40°F PDP, but it includes a heater to reduce the amount of purge air required during regeneration. The regeneration time for the TWP series is extended to 8 hours to complete a full cycle.

The TWB Series is the most advanced design in our desiccant dryer offering, it includes a heater and a blower for regeneration of the desiccant bed. This process is known as blower regeneration and is the most energy efficient option available. Instead of using dry compressed air for the purge cycle, a blower pushes hot ambient air across the desiccant bed during regeneration. In order to cool down the desiccant bed, a small percentage of purge air is used at the end of the cycle before the towers switch.

Types of Regeneration

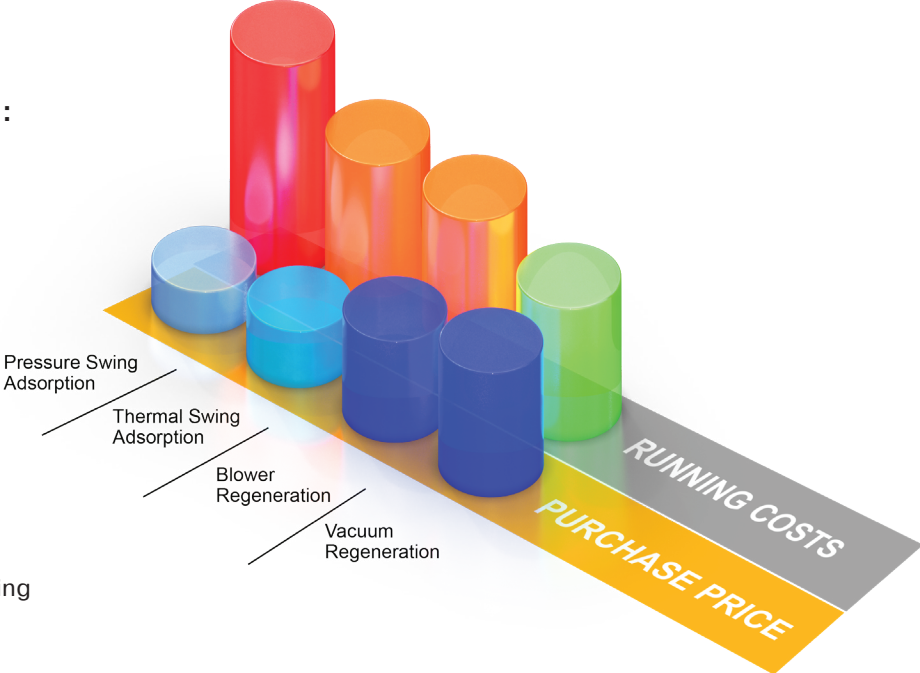
Typically one of four different methods is used for regeneration:

- Pressure Swing Adsorption
- Thermal Swing Adsorption
- Blower Regeneration
- Vacuum Regeneration

The regeneration method used by an adsorption dryer usually has a direct correlation to its purchase price.

The running costs associated with an adsorption dryer are usually linked to the regeneration method.

The purchasing decision for an adsorption dryer is often based upon the dryer's running costs and the upfront purchase price.



TW Product Selection

-40°F (-40°C) with Activated Alumina Desiccant

Filter Package	Model	Flowrate @ 100 psig (scfm)	Approx Purge (scfm)	Standard Packaged Dimensions ins (mm)			Weight		Dryer Air In/Out	Pre-Filter	After-Filter
				Height (H)	Width (W)	Depth (D)	lbs	kg			
B	TW41	40	6	49 (1245)	21 (533)	25 (635)	190	86	1/2" NPT	AAPX015CNFX	AOPX015CNFX
	TW56	55	8	67 (1701)	22 (559)	34 (864)	230	104	3/4" NPT	AAPX020DNFX	AOPX020DNFX
	TW76	75	11	80 (2083)	34 (864)	29 (660)	384	174	3/4" NPT	AAPX025DNFX	AOPX025DNMX
	TW101	100	15	79 (2007)	36 (914)	30 (686)	468	212	1" NPT	AAPX025ENFX	AOPX025ENMX
	TW131	130	20	79 (2007)	36 (914)	30 (762)	496	225	1" NPT	AAPX025ENFX	AOPX025ENMX
	TW201	200	30	81 (2032)	42 (1143)	34 (889)	692	314	1 1/2" NPT	AAPX030GNFX	AOPX030GNMX
	TW251	250	38	81 (2032)	45 (1143)	36 (889)	776	352	1 1/2" NPT	AAPX035GNFX	AOPX035GNMX
	TW301	300	45	81 (2057)	45 (1092)	36 (864)	796	361	1 1/2" NPT	AAPX035GNFX	AOPX035GNMX
	TW401	400	60	83 (2134)	48 (1321)	41 (940)	1626	728	2" NPT	AAPX040HNFX	AOPX040HNMX
	TW501	500	75	83 (2134)	51 (1448)	43 (940)	1735	787	2" NPT	AAPX045HNFX	AOPX045HNMX
	TW601	600	90	84 (2134)	50 (1473)	44 (813)	1740	789	2" NPT	AAPX045HNFX	AOPX045HNMX
	TW801	800	120	88 (2184)	56 (1499)	45 (1118)	2120	962	2" NPT	AAPX050INFX	AOPX050INMX
F	TW1001	1000	150	94 (2413)	78 (1981)	48 (1651)	3676	1667	3" FLG	AAPX055JNFX	AOPX055JNMX
	TW1201	1200	180	105 (2692)	78 (1981)	60 (1219)	4605	2089	3" FLG	AAPX055JNFX	AOPX055JNMX
	TW1501	1500	225	117 (2972)	96 (2438)	60 (1524)	4985	2261	3" FLG	JZ-C01501NXX	JZ-F02500NXX
	TW2001	2000	300	99 (2540)	114 (2438)	60 (1778)	5206	2361	4" FLG	JZ-C02001OXX	JZ-F02500OXX
	TW2601	2600	390	111 (2870)	144 (3353)	72 (1930)	7600	3447	4" FLG	JZ-C03001OXX	JZ-F03320OXX
	TW3001	3000	450	111 (2870)	144 (3658)	78 (2032)	8300	3765	6" FLG	JZ-C03001PXX	JZ-F03320PXX

Model	Flow Range @ 100 psi g (7 bar g)	Dewpoint	Design Pressure	Pressure Relief Valve Setpoint	Max. Operating Pressure	Min. Operating Pressure	Max. Inlet Temp.	Min. Inlet Temp.	Standard Electrical Supply
TW41 - TW1501	40 – 1500 scfm	-40°F (-40°C) Standard	165 psig (10.3 barg)	165 psig (11.4 barg)	150 psig (10.3 barg)	80 psig (5.5 barg)	120°F (49°C)	50°F (10°C)	120V/1Ph/60Hz - 220V/1Ph/60Hz (Optional)
TW2001 - TW3001	2000 - 3000 scfm	-40°F (-40°C) Standard	150 psig (10.3 barg)	150 psig (10.3 barg)	135 psig (9.3 barg)	80 psig (5.5 barg)	120°F (49°C)	50°F (10°C)	120V/1Ph/60Hz - 220V/1Ph/60Hz (Optional)

Notes

- Above information should be used as a guideline. Flows are at 100 psig inlet pressure, 100°F (38°C) inlet temperature and 100°F (38°C) ambient temperature. For specific applications, please consult Parker Applications Engineering.
- Weight includes desiccant (shipped loose Models TW2001 and up).
- Pressure relief valve variance +/- 10%.

Correction Factors

To obtain dryer capacity at new conditions, multiply nominal capacity x C1 x C2.

Temperature Correction Factor								Pressure Correction Factor								
Maximum Inlet Temperature (C1)	°F	90	95	100	105	110	115	120	Minimum Inlet Pressure (C2)	psi g	80	90	100	110	120	130
	°C	32	35	38	41	43	46	49		bar g	5.5	6.2	6.9	7.6	8.3	9.0
	CF	1.17	1.15	1.00	.87	.76	.66	.58		CF	.83	.91	1.00	1.09	1.17	1.26

TWP Product Selection

-40°F (-40°C) with Activated Alumina Desiccant

Filter Package	Model	Flowrate @ 100 psig (scfm)	Heater (kW)	Dimensions ins (mm)			Weight		Dryer Air In/Out	Pre-Filter	After-Filter
				Height (H)	Width (W)	Depth (D)	lbs	kg			
B	TWP201	200	3	82 (2083)	45 (1143)	47 (1194)	920	417	1 1/2" NPT	AAPX030GNFX	JC0350-FH
	TWP251	250	3	83 (2108)	46 (1168)	48 (1219)	1180	535	1 1/2" NPT	AAPX035GNFX	JC0350-FH
	TWP301	300	4	85 (2159)	46 (1168)	48 (1219)	1370	621	1 1/2" NPT	AAPX035GNFX	JC0350-FH
	TWP401	400	6	87 (2210)	53 (1346)	51 (1295)	1700	771	2" NPT	AAPX040HNFX	JC0450-FH
	TWP501	500	6	86 (2184)	55 (1397)	51 (1295)	2060	934	2" NPT	AAPX045HNFX	JC0625-FH
	TWP601	600	9	93 (2362)	57 (1448)	51 (1295)	2350	1066	2" NPT	AAPX045HNFX	JC0625-FH
	TWP801	800	9	92 (2337)	68 (1727)	56 (1295)	3035	1377	2" NPT	AAPX050INFX	JC0800-FH
	F	TWP1001	1000	13	103 (2616)	78 (1981)	63 (1422)	4195	1903	3" FLG	AAPX055JNFX
TWP1201		1200	13	115 (2921)	96 (2438)	66 (1600)	5215	2365	3" FLG	AAPX055JNFX	JC1008-FH
TWP1501		1500	18	115 (2921)	114 (2896)	66 (1600)	7765	3522	3" FLG	JZ-C01501NXX	JZ-F02500NXX
TWP2001		2000	25	113 (2870)	120 (3048)	72 (1676)	8565	3885	4" FLG	JZ-C02001OXX	JZ-F02500OXX
TWP2601		2600	25	111 (2819)	144 (3658)	78 (1829)	11562	5244	4" FLG	JZ-C03001OXX	JZ-F03320OXX
TWP3001		3000	30	111 (2819)	144 (3658)	78 (1981)	12002	5444	6" FLG	JZ-C03001PXX	JZ-F03320PXX
TWP4001		4000	50	113 (2870)	168 (4267)	96 (2438)	18260	8283	6" FLG	JZ-C04501PXX	JZ-F04000PXX
TWP5001		5000	50	112 (2845)	180 (4572)	96 (2438)	19760	8963	6" FLG	JZ-C06001PXX	JZ-F07500PXX
TWP6001		6000	60	112 (2845)	186 (4724)	102 (2591)	22260	10097	6" FLG	JZ-C06001PXX	JZ-F07500PXX
TWP7501		7500	85	137 (3480)	204 (5182)	109 (2769)	26860	12183	8" FLG	JZ-C10500QXX	JZ-F07500QXX

Model	Flow Range @ 100 psi g (7 bar g)	Dewpoint	Design Pressure	Pressure Relief Valve Setpoint	Max. Operating Pressure	Min. Operating Pressure	Max. Inlet Temp.	Min. Inlet Temp.	Standard Electrical Supply
TWP201 - TWP251	200 - 250 scfm	-40°F (-40°C) Standard	165 psig (10.3 barg)	165 psig (11.4 barg)	150 psig (10.3 barg)	80 psig (5.5 barg)	120°F (49°C)	50°F (10°C)	240V/1Ph/60Hz, 480V/3Ph/60Hz (Optional) 575V/3Ph/60Hz (Optional)
TWP301 - TWP1501	300 - 1500 scfm	-40°F (-40°C) Standard	165 psig (10.3 barg)	165 psig (11.4 barg)	150 psig (10.3 barg)	80 psig (5.5 barg)	120°F (49°C)	50°F (10°C)	480V/3Ph/60Hz - 575V/3Ph/60Hz (Optional)
TWP2001 - TWP7501	2000 - 7500 scfm	-40°F (-40°C) Standard	150 psig (10.3 barg)	150 psig (10.3 barg)	135 psig (9.3 barg)	80 psig (5.5 barg)	120°F (49°C)	50°F (10°C)	480V/3Ph/60Hz - 575V/3Ph/60Hz (Optional)

Notes

- Above information should be used as a guideline. Flows are at 100 psig inlet pressure, 100°F (38°C) inlet temperature and 100°F (38°C) ambient temperature. For specific applications, please consult Parker Applications Engineering.
- Weight includes desiccant (shipped loose TWP2001 and up).
- Pressure relief valve variance +/- 10%.

Temperature Correction Factor CFT										
Maximum Inlet Temperature (C1)	°F	80	85	90	95	100	105	110	115	120
	°C	27	29	32	35	38	41	43	46	49
	CF	1.17	1.17	1.17	1.15	1.00	0.87	0.76	0.66	0.58

Correction Factors

To obtain dryer capacity at new conditions, multiply nominal capacity x C1 x C2.

Pressure Correction Factor CFP												
Minimum Inlet Pressure (C2)	psi g	80	85	90	95	100	105	110	115	120	125	130
	bar g	5.51	5.86	6.21	6.55	6.89	7.24	7.58	7.93	8.27	8.62	8.96
	CF	0.83	0.87	0.91	0.96	1.00	1.04	1.09	1.13	1.17	1.22	1.26

TWB Product Selection

-40°F (-40°C) with Activated Alumina Desiccant

Filter Package	Model	Flowrate @ 100 psig (scfm)	Blower (HP)	Heater (kW)	Dimensions ins (mm)			Weight		Dryer Air In/Out	Pre-Filter	After-Filter
					Height (H)	Width (W)	Depth (D)	lbs	kg			
B	TWB201	200	.75	6	82 (2083)	45 (1143)	44 (1118)	1500	680	1 1/2" NPT	AAPX030GNFX	JC0350-FH
	TWB301	300	1.5	6	84 (2134)	46 (1168)	44 (1118)	1900	862	1 1/2" NPT	AAPX035GNFX	JC0350-FH
	TWB401	400	1.5	9	87 (2210)	53 (1346)	56 (1422)	2180	989	2" NPT	AAPX040HNFX	JC0450-FH
	TWB501	500	3	12	85 (2159)	55 (1397)	49 (1245)	2840	1288	2" NPT	AAPX045HNFX	JC0625-FH
	TWB601	600	3	12	89 (2261)	57 (1448)	52 (1321)	3420	1551	2" NPT	AAPX045HNFX	JC0625-FH
	TWB801	800	5	15	96 (2438)	68 (1727)	60 (1524)	4490	2037	2" NPT	AAPX050INFX	JC0800-FH
F	TWB1001	1000	5	18	103 (2616)	78 (1981)	60 (1524)	5700	2585	3" FLG	AAPX055JNFX	JC1008-FH
	TWB1201	1200	4	25	115 (2921)	96 (2438)	66 (1676)	6300	5858	3" FLG	AAPX055JNFX	JC1008-FH
	TWB1501	1500	7.5	30	114 (2896)	114 (2896)	66 (1676)	7165	3250	3" FLG	JZ-C01501NXX	JZ-F02500NXX
	TWB2001	2000	7.5	38	113 (2870)	120 (3048)	72 (1829)	9850	4468	4" FLG	JZ-C02001OXX	JZ-F03300OXX
	TWB2601	2600	10	50	111 (2819)	144 (3658)	84 (2134)	12210	5538	4" FLG	JZ-C03001OXX	JZ-F03320OXX
	TWB3001	3000	10	60	111 (2819)	144 (3658)	84 (2134)	12650	5738	6" FLG	JZ-C03001PXX	JZ-F03320PXX
	TWB4001	4000	15	85	113 (2870)	168 (4267)	96 (2438)	18910	8577	6" FLG	JZ-C04501PXX	JZ-F04000PXX
	TWB5001	5000	20	100	112 (2845)	180 (4572)	102 (2438)	21590	9793	6" FLG	JZ-C06001PXX	JZ-F07500PXX
	TWB6001	6000	20	120	112 (2845)	186 (4724)	102 (2438)	24890	11290	6" FLG	JZ-C06001PXX	JZ-F07500PXX
	TWB7501	7500	25	150	137 (3480)	204 (5182)	106 (2692)	29490	13376	8" FLG	JZ-C10500QXX	JZ-F07500QXX

Model	Flow Range @ 100 psi g (7 bar g)	Dewpoint	Design Pressure	Pressure Relief Valve Setpoint	Max. Operating Pressure	Min. Operating Pressure	Max. Inlet Temp.	Min. Inlet Temp.	Standard Electrical Supply
TWB201 - TWB1501	200 - 1500 scfm	-40°F (-40°C) Standard	150 psig (10.3 barg)	165 psig (11.4 barg)	150 psig (10.3 barg)	80 psig (5.5 barg)	120°F (49°C)	50°F (10°C)	460V/3Ph/60Hz - 575V/3Ph/60Hz (Optional)
TWB2001 - TWB7501	2000 - 7500 scfm	-40°F (-40°C) Standard	150 psig (10.3 barg)	150 psig (10.3 barg)	135 psig (9.3 barg)	80 psig (5.5 barg)	120°F (49°C)	50°F (10°C)	460V/3Ph/60Hz - 575V/3Ph/60Hz (Optional)

Notes

- Above information should be used as a guideline. Flows are at 100 psig inlet pressure, 100°F (38°C) inlet temperature and 100°F (38°C) ambient temperature. For specific applications, please consult Parker Applications Engineering.
- Weight includes desiccant (shipped loose TWB2001 and up).
- Pressure relief valve variance +/- 10%.

Temperature Correction Factor CFT										
Maximum Inlet Temperature (C1)	°F	80	85	90	95	100	105	110	115	120
	°C	27	29	32	35	38	41	43	46	49
	CF	1.17	1.17	1.17	1.15	1.00	0.87	0.76	0.66	0.58

Correction Factors

To obtain dryer capacity at new conditions, multiply nominal capacity x C1 x C2.

Pressure Correction Factor CFP												
Minimum Inlet Pressure (C2)	psi g	80	85	90	95	100	105	110	115	120	125	130
	bar g	5.51	5.86	6.21	6.55	6.89	7.24	7.58	7.93	8.27	8.62	8.96
	CF	0.83	0.87	0.91	0.96	1.00	1.04	1.09	1.13	1.17	1.22	1.26

Parker Filtration Group

Aerospace Filtration Division
Greensboro, North Carolina
336 668 4444

Bioscience & Water Filtration Division
Bioscience Filtration
Oxnard, California
877 784 2234

Water Purification
Carson, California
310 608 5600

Engine Mobile Aftermarket Division
Kearney, Nebraska
308 234 1951

Engine Mobile Original Equipment Division
Modesto, California
209 521 7860

HVAC Filtration Division
Jeffersonville, Indiana
866 247 4827

Hydraulic & Fuel Filtration Division
Metamora, Ohio
419 644 4311

Industrial Gas Filtration & Generation Division
Lancaster, NY
800 343 4048

Industrial Process Filtration Division
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