DENAIR®

PM VSD

Rotary Screw Air Compressors

Installed motor power 5.5 - 400 kW/7.5 - 550 hp
Free air delivery from 0.38 to 86.26 m³/min, Pressure 7.0 - 12.5 bar

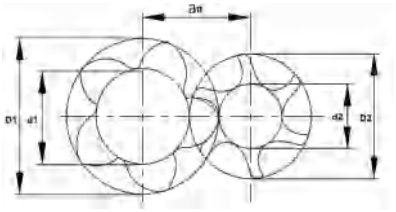
CONTENTS

LLOYD'S REGISTER QUALITY ASSURANCE ISO9001 UKAS MANAGEMENT SYSTEMS 001 CE

PM VSD Screw Air Compressor (5.5-400 kW)

Features and advantages

01 Air End Design Analysis



· Profile design patent: ZL201720301123.8
· Design pressure: 5-13 bar
· Volume efficiency: ≥95%
· Transmission ratio: 1:1
· Noise level: lower
· Sweden SKF bearing
· Power consumption: ultra-low
· Rotor diameter and center distance: large
· Max. operating temperature: 110℃ continuous running
· Profile design: the third generation α model asymmetrical 5:6 tooth. Best energy efficiency

02 Control Module

· RS485 communication mode transmission control signal
· Intelligent PID flow adjustment mode
· Closed-loop control, with ideal dynamic characteristics and control accuracy
· Accurately control the torque
· Fast response speed
· Constant pressure control to avoid excess energy loss

03 High Efficiency Permanent Magnetic Motor

· Cooling method: oil cooling/air coolling
· No bearing design, 100% transmission efficiency
· UH series magnets, can withstand temperature up to 180 °C
· Up to 5 years durability test, 40,000 hours of durable operation without failure
· Appearance design patent: ZL 201330085626.3
· IP65, F class insulation, B grade temperature rise
· PM motor cooling structure design patent :ZL201320216379.0
· Perfectly linear output torque, low speed still retains high torque output

04 Inverter

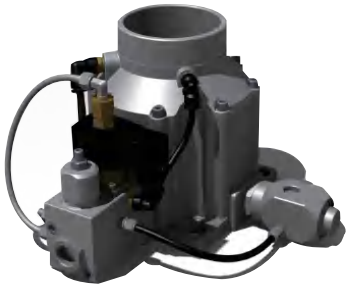
· High utilization rate, removable panel, switch using, memory function
· Protection: can realize phase loss, phase-to-phase short circuit, short-circuit to ground, over-current, over-voltage, under-voltage, overload, over-heat, motor thermal protection circuit board, reinforced coating, dust and corrosion protection
· Independent cooling design, suspended installation, dust proof, corrosion proof, small heat, powerful overload and unique current limiting technology
· Proprietary and efficient control procedures
· Ultra-wide frequency design, wider control range

05 Cooling Fan

· Low noise
· Big capacity
· Maintenance free

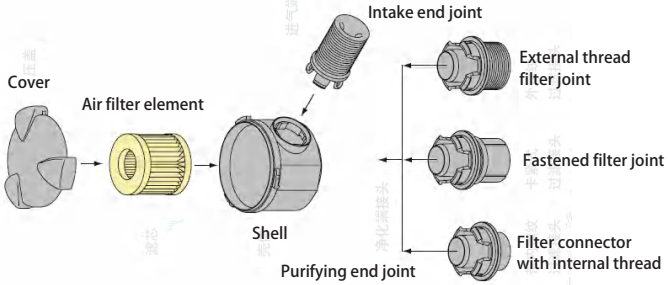
06 Air Inlet Valve

· Petent design: ZL201720513212.9
· High vacuum degree: 700mmHg
· Large suction area
· Low load energy consumption in unloaded operation
· Fast check: prevent unloading and shutdown oil injection
· The solenoid valve adopts the Italy ODE brand
· Valve seal adopts fluoro rubber
· Integrated design, failure and low maintenance rate
· Cast aluminum to avoid rust and temperature change



07 Moulded Air Filter

· Patent: ZL201720513111.1
· Picolino module system
· Less pressure drop
· Multi-stage seal design
· High-tech, good flexibility, good resilience (polyurethane foam)
· Performance well along with the temperature changes
· Precision fit of filter element size and air filter assembly



08 Oil Filter

· Patent: ZL201520816110.5
· Seal material: PTFE
· Working pressure up to 20 bar
· Element material: German resin wood fiber
· Working temperature can withstand 120 °C
· Separation efficiency: 50% impurity separation at 10 μm and 99% impurity separation at 30 μm

09 Oil Gas Separator

· Patent: ZL201720512855.1
· Maximum working pressure can reach 20 bar
· Service life: 4,000Hr
· Maximum withstand pressure drop: 1.2 bar
· Efficient separation, oil content less than 3ppm
· External oil separator design, maintenance time is only take 2min

10 Stainless Steel Pipe

· Maintenance free
· 100 years service life
· Excellent corrosion resistance
· Excellent mechanical properties, superior wear resistance
· Wide range of use, long service life and low overall cost
· Can work safely for a long time at a temperature of -270°C-400°C. The material properties are quite stable.
· 304 stainless steel has a tensile strength of more than 530 N/mm, which is twice stronger of galvanized pipe, 3-4 times stronger of copper pipe, 8-10 times stronger of PPR pipe, and it has good ductility and toughness

11 Oil Gas Tank

· Air line and oil line are separated.
· Excellent separation effect, less than 3ppm of oil content.

Technical Parameters

Model	Working Pressure		Capacity FAD*		Power		IP Grade	Noise Level**	Dimensions (mm)			Weight (kg)	Air Outlet Pipe Diameter	Driving Mode& Cooling Method	EEI
	(barg)	(psig)	(m^3/min)	(cfm)	(kW)	(hp)			(L)	(W)	(H)				
DAV-5	7.0	102	0.45-1.00	16-35	5.5	7.5	IP65	75	900	600	860	165	R1/2	Direct Driven Air Cooling W-Water Cooling	EEI1
	8.0	116	0.44-0.95	16-34											
	10.0	145	0.38-0.76	13-27											
DAV-7	7.0	102	0.43-1.40	15-49	7.5	10	IP65	75	900	600	860	180	R1/2		
	8.0	116	0.41-1.39	14-49											
	10.0	145	0.29-1.00	10-35											
DAV-11	7.0	102	0.60-2.16	21-76	11	15	IP65	75	1050	650	900	205	R3/4		
	8.0	116	0.89-1.94	31-69											
	10.0	145	0.81-1.67	29-59											
	12.5	181	0.43-1.13	15-40											
DAV-15	7.0	102	0.80-2.73	28-96	15	20	IP65	75	1100	650	920	315	R3/4		
	8.0	116	0.74-2.48	26-88											
	10.0	145	1.05-2.24	37-79											
	12.5	181	0.55-1.80	19-64											
DAV-18	7.0	102	1.01-3.38	36-119	18.5	25	IP65	75	1300	800	1050	375	R1		
	8.0	116	0.98-3.27	35-115											
	10.0	145	0.88-2.95	31-104											
	12.5	181	0.74-2.57	26-91											
DAV-22	7.0	102	1.82-3.95	64-139	22	30	IP65	75	1300	800	1050	420	R1		
	8.0	116	1.81-3.84	64-136											
	10.0	145	1.67-3.39	59-120											
	12.5	181	0.88-3.00	31-106											
DAV-30	7.0	102	2.63-5.51	93-195	30	40	IP65	82	1400	900	1200	500	R1-1/2		
	8.0	116	1.56-5.40	55-191											
	10.0	145	1.36-5.30	48-187											
	12.5	181	2.09-3.51	74-124											
DAV-37	7.0	102	2.07-6.74	73-238	37	50	IP65	82	1400	900	1200	550	R1-1/2		
	8.0	116	3.43-6.45	121-228											
	10.0	145	2.95-5.88	104-208											
	12.5	181	1.42-4.78	50-169											
DAV-45	7.0	102	2.51-8.16	89-288	45	60	IP65	82	1500	960	1200	580	R1-1/2		
	8.0	116	2.38-8.00	84-282											
	10.0	145	3.63-6.38	128-225											
	12.5	181	1.62-5.33	57-188											
DAV-55	7.0	102	4.44-10.81	157-382	55	75	IP55	85	1800	1200	1400	1045	Rp2		
	8.0	116	5.10-10.30	180-364											
	10.0	145	4.83-9.44	171-333											
	12.5	181	3.94-7.67	139-271											
DAV-75	7.0	102	5.32-13.25	188-468	75	100	IP55	85	1800	1200	1400	1325	Rp2		
	8.0	116	6.44-13.14	227-464											
	10.0	145	5.71-11.59	202-409											
	12.5	181	3.69-9.44	130-333											
DAV-90(W)	7.0	102	6.30-18.13	223-640	90	120	IP55	85	2435	1795	1715	2100	DN80		
	8.0	116	6.90-17.80	244-628											
	10.0	145	5.23-13.44	185-475											
	12.5	181	5.19-13.32	183-470											

*)FAD in accordance with ISO 1217:2009, Annex C: Absolute intake pressure 1 bar (a), cooling and air intake temperature 20℃

**) Noise level as per ISO 2151 and the basic standard ISO 9614-2, operation at maximum operating pressure and maximum speed; tolerance: ±3 dB(A)

Specifications are subject to change without notice.

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Technical Parameters

Model	Working Pressure		Capacity FAD*		Power		IP Grade	Noise Level**	Dimensions (mm)			Weight (kg)	Air Outlet Pipe Diameter	Driving Mode& Cooling Method	EEI
	(barg)	(psig)	(m^3/min)	(cfm)	(kW)	(hp)			(L)	(W)	(H)				
DAV-110(W)	7.0	102	8.26-21.00	292-742	110	150	IP55	85	2435	1795	1715	2310	DN80	Direct Driven Air Cooling W-Water Cooling	EEI1
	8.0	116	8.08-20.24	286-715											
	10.0	145	6.83-17.15	241-606											
	12.5	181	5.45-14.82	193-523											
DAV-132(W)	7.0	102	8.63-24.65	305-870	132	175	IP55	85	2435	1795	1715	2415	DN80		
	8.0	116	8.61-24.60	304-869											
	10.0	145	7.54-21.54	266-761											
	12.5	181	6.10-17.44	216-616											
DAV-160(W)	7.0	102	10.75-30.70	380-1084	160	215	IP55	85	3110	1890	2150	4095	DN80		
	8.0	116	10.47-29.91	370-1056											
	10.0	145	8.30-23.72	293-838											
	12.5	181	7.18-20.53	254-725											
DAV-185(W)	7.0	102	12.36-35.31	436-1247	185	250	IP55	85	3110	1890	2150	4200	DN80		
	8.0	116	12.18-34.80	430-1229											
	10.0	145	10.37-29.62	366-1046											
	12.5	181	8.46-24.16	299-853											
DAV-200(W)	7.0	102	13.78-39.37	487-1390	200	270	IP55	88	3310	2090	2400	4515	DN100		
	8.0	116	13.22-37.76	467-1333											
	10.0	145	10.73-30.66	379-1083											
	12.5	181	9.93-28.36	351-1001											
DAV-220(W)	7.0	102	17.47-44.99	617-1589	220	300	IP55	88	3310	2090	2400	4725	DN100		
	8.0	116	16.04-42.75	566-1510											
	10.0	145	13.42-34.56	474-1220											
	12.5	181	11.87-29.99	419-1059											
DAV-250(W)	7.0	102	18.48-47.60	653-1681	250	350	IP55	88	3310	2090	2400	4935	DN100		
	8.0	116	18.44-47.49	651-1677											
	10.0	145	16.79-43.24	593-1527											
	12.5	181	12.35-31.80	436-1123											
DAV-280(W)	7.0	102	18.94-54.12	669-1911	280	375	IP55	88	3730	2380	2550	6825	DN125		
	8.0	116	18.49-52.82	653-1865											
	10.0	145	16.45-47.01	581-1660											
	12.5	181	12.20-34.86	431-1231											
DAV-315(W)	7.0	102	20.34-58.12	718-2052	315	425	IP55	90	3730	2380	2550	7140	DN125		
	8.0	116	19.86-56.73	701-2003											
	10.0	145	17.77-50.78	604-1793											
	12.5	181	15.81-45.18	558-1595											
DAV-355W	7.0	102	22.52-64.35	795-2272	355	475	IP55	90	3730	2380	2550	8400	DN125	Direct Driven W-Water Cooling	
	8.0	116	22.26-63.59	790-2245											
	10.0	145	19.34-55.26	683-1951											
	12.5	181	17.03-47.97	601-1694											
DAV-400W	7.0	102	26.15-74.71	923-2638	400	550	IP55	92	4500	2500	2750	9240	DN125		
	8.0	116	24.68-70.52	871-2490											
	10.0	145	22.00-62.85	777-2219											
	12.5	181	17.73-50.65	626-1788											

*)FAD in accordance with ISO 1217:2009, Annex C: Absolute intake pressure 1 bar (a), cooling and air intake temperature 20℃

**) Noise level as per ISO 2151 and the basic standard ISO 9614-2, operation at maximum operating pressure and maximum speed; tolerance: ±3 dB(A)

Specifications are subject to change without notice.

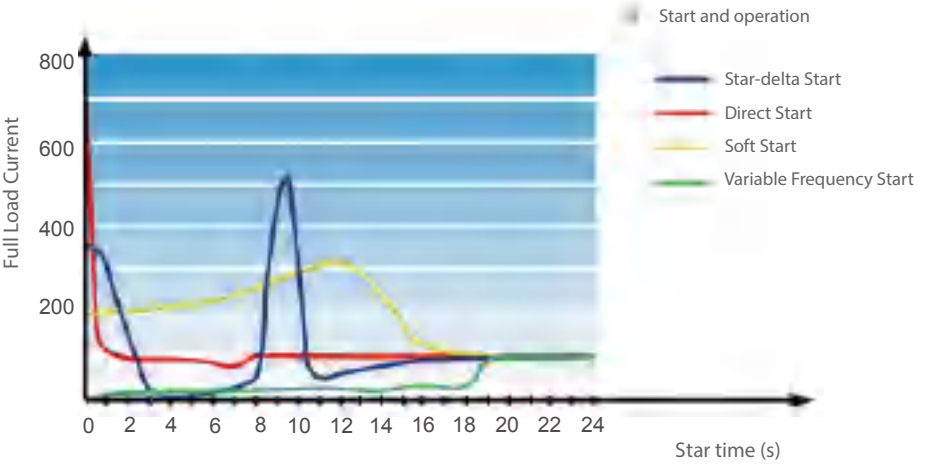
PM VSD Two-stage Screw Air Compressor (30-400 kW)

Features and advantages

01 Features Of Permanent Magnet Variable Frequency Air Compressor

· Ultra-low temperature rise design, which allows the compressor running at ultra-low frequency for a long time.
· Closed-loop vector control system for faster control and more precise speed control.
· The compressor unit can still operate efficiently when the frequency is reduced by more than 50%.
· The pressure is stable and the pressure fluctuation is accurately controlled within 0.1 bar.

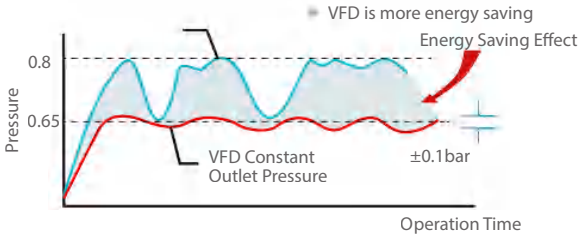
· The figure shows a comparison of several starting methods. It can be seen that the frequency converter is slowly accelerated to start, the starting is more stable, and the current peak is completely avoided.



02 Air End

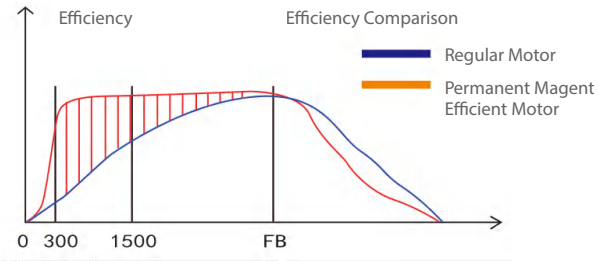
. The rotor adopts the world's leading high-efficiency profile and is made of 1141 special steel, which has good hardness and high wear resistance.
· Two-stage independent compression, low-speed design, lower overall noise.
· The low compression ratio at each stage ensures smaller leakage and higher volumetric efficiency.
· Oil mist spray cooling is used between stages, and the compression process is close to isothermal compression to improve efficiency.
· The rotor and bearings are under little stress, and the long life of screw element is guaranteed to continue running.

· Under the set frequency conversion pressure, the unit will automatically adjust to keep the output pressure within ±0.1 bar, reducing unnecessary waste (the power consumption increases by 7% for every 1 bar of pressure increase)



03 Advantages of Permanent Magnet Motors Compared to General Asynchronous Motors

· High efficiency: Eliminates excitation system losses and improves efficiency.
· It is still efficient under low load conditions: the energy efficiency of a permanent magnet motor is more than 9% higher than that of a conventional asynchronous motor at full load operation, and its energy efficiency remains unchanged as the speed decreases.
· Large overdrive torque: The ratio of the maximum starting torque of the permanent magnet synchronous motor to the rated torque can be more than 3 times, while the general asynchronous motor is only 1.6 times.



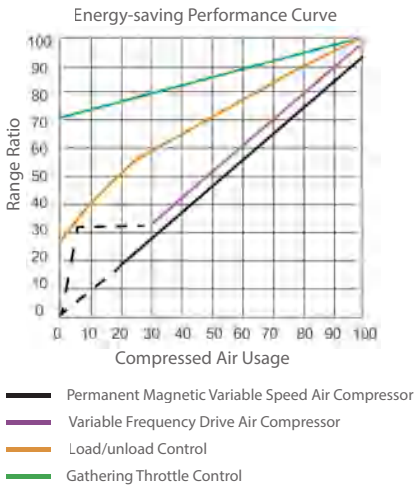
· The control is more stable: the corresponding time of the permanent magnet motor is <50ms, and the gas production can be adjusted in a large range in an instant, so that the gas pressure is truly stable.

04 Stainless Steel Piping Design

· The piping arrangement is simple and beautiful. Stainless steel piping design to effectively prevent rust in the pipeline, and avoid safety accidents caused by leakage of the pipeline.

05 More Advanced Technology. More Powerful Inverter

- The standard equipment is equipped with a high-frequency reactor to reduce the high frequency generated by the inverter.
- The soft start of the inverter reduces the peak current at startup, resulting in a smooth start and greatly reduced power costs.
- Forced cooling of the inverter to prevent high temperature shutdown in Summer.
- Standard equipment dust screen, circuit board surface coating treatment, high efficiency and durability against dirt, dust, moisture.
- The special design of the heat dissipation area of the inverter ensures stable operation of the inverter under high temperature environment.
- No idling occurs under any load conditions to achieve the desired power saving effect.



- Quickly track changes in pressure, control pressure fluctuations within ±0.1 bar, and optimize the use of the power to accurately provide the right amount of air as needed.

06 Oil Filter

- The imported brand is used to reliably filter the dirt particles in the lubricating oil to ensure the smoothness and lubrication of the oil system at 0.1 micron.

07 Air Filter Assemblage

- The imported brand is used to reliably remove dirt from the air. The dust particles in the air are controlled below 0.3 microns and the filtration accuracy is as high as 99.99%.

Technical Parameters

Model	Working Pressure		Capacity FAD*		Power		IP Grade	Noise Level**	Dimensions (mm)			Weight (kg)	Air Outlet Pipe Diameter	Driving Mode& Cooling Method	EEI
	(barg)	(psig)	(m^3/min)	(cfm)	(kW)	(hp)			(L)	(W)	(H)				
DAV-30+	7.0	102	2.55-6.37	90-225	30	40	IP55	82	1650	1050	1300	945	R2	Direct Driven Air Cooling W-Water Cooling	EEI1
	8.0	116	2.54-6.34	90-224											
DAV-37+	7.0	102	3.26-8.14	115-288	37	50	IP55	82	1650	1050	1300	1029	R2		
	8.0	116	3.20-8.00	113-283											
DAV-45+	7.0	102	4.00-10.01	141-354	45	60	IP55	82	1650	1050	1300	1100	R2		
	8.0	116	4.00-10.00	141-353											
DAV-55+	7.0	102	5.16-12.90	182-456	55	75	IP55	85	2350	1500	1600	1995	DN50		
	8.0	116	5.13-12.83	181-453											
	10.0	145	3.88-10.00	137-353											
	12.5	181	3.46-8.64	122-305											
DAV-75+	7.0	102	6.83-17.07	241-603	75	100	IP55	85	2350	1500	1600	2100	DN50		
	8.0	116	6.80-17.00	240-601											
	10.0	145	6.00-15.00	212-530											
	12.5	181	4.89-12.22	173-432											
DAV-90(W)+	7.0	102	8.36-20.90	295-739	90	120	IP55	85	2705	1775	1915	2625	DN80		
	8.0	116	8.02-20.05	283-709											
	10.0	145	6.58-16.44	233-581											
	12.5	181	5.91-14.77	209-522											
DAV-110(W)+	7.0	102	9.92-24.80	351-876	110	150	IP55	85	2705	1775	1915	2730	DN80		
	8.0	116	9.62-24.04	340-850											
	10.0	145	7.65-19.13	270-676											
	12.5	181	6.48-16.19	229-572											
DAV-132(W)+	7.0	102	11.45-28.63	405-1007	132	175	IP55	85	2705	1775	1915	3150	DN80		
	8.0	116	11.40-28.49	403-1006											
	10.0	145	9.20-23.01	325-813											
	12.5	181	8.64-21.59	305-763											
DAV-160(W)+	7.0	102	14.06-35.14	497-1242	160	215	IP55	85	3110	1890	2150	4515	DN100		
	8.0	116	14.00-34.64	495-1224											
	10.0	145	12.72-31.79	450-1123											
	12.5	181	10.53-26.33	372-931											
DAV-185(W)+	7.0	102	16.07-40.17	568-1420	185	250	IP55	85	3110	1890	2150	4725	DN100		
	8.0	116	16.00-40.00	565-1414											
	10.0	145	13.78-34.45	487-1217											
	12.5	181	11.56-29.63	409-1046											
DAV-200(W)+	7.0	102	17.78-44.45	628-1571	200	270	IP55	88	3310	2090	2400	5775	DN100		
	8.0	116	17.61-44.02	622-1556											
	10.0	145	15.53-38.83	549-1372											
	12.5	181	13.32-33.31	471-1177											

*)FAD in accordance with ISO 1217:2009, Annex C: Absolute intake pressure 1 bar (a), cooling and air intake temperature 20℃

**) Noise level as per ISO 2151 and the basic standard ISO 9614-2, operation at maximum operating pressure and maximum speed; tolerance: ±3 dB(A)

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Technical Parameters

Model	Working Pressure		Capacity FAD*		Power		IP Grade	Noise Level**	Dimensions (mm)			Weight (kg)	Air Outlet Pipe Diameter	Driving Mode& Cooling Method	EEI
	(barg)	(psig)	(m^3/min)	(cfm)	(kW)	(hp)			(L)	(W)	(H)				
DAV-220(W)+	7.0	102	19.56-48.90	691-1728	220	300	IP55	88	3310	2090	2400	5880	DN100	Direct Driven Air Cooling W-Water Cooling	EEI1
	8.0	116	19.51-48.77	689-1724											
	10.0	145	17.35-43.37	613-1533											
	12.5	181	15.23-38.08	538-1346											
DAV-250(W)+	7.0	102	21.98-54.94	777-1942	250	350	IP55	88	3310	2090	2400	5985	DN100		
	8.0	116	21.93-54.83	775-1938											
	10.0	145	19.38-48.45	685-1712											
	12.5	181	17.18-42.95	607-1518											
DAV-280W+	7.0	102	24.10-60.24	852-2129	280	375	IP55	88	3730	2380	2550	7350	DN125	Direct Driven W-Water Cooling	
	8.0	116	24.05-60.13	850-2125											
	10.0	145	21.33-53.32	754-1884											
	12.5	181	19.06-47.65	674-1684											
DAV-315W+	7.0	102	26.43-66.08	934-2335	315	425	IP55	90	3730	2380	2550	7455	DN125		
	8.0	116	26.39-65.97	933-2331											
	10.0	145	23.32-58.29	824-2060											
	12.5	181	20.94-52.34	740-1850											
DAV-355W+	7.0	102	29.90-77.00	1056-2719	355	475	IP55	90	3730	2380	2550	7875	DN125		
	8.0	116	29.25-75.32	1033-2660											
	10.0	145	24.97-64.29	882-2270											
	12.5	181	22.33-57.50	788-2030											
DAV-400W+	7.0	102	35.50-88.85	1255-3137	400	550	IP55	90	4500	2500	2750	9240	DN125		
	8.0	116	35.00-87.05	1237-3074											
	10.0	145	30.00-74.80	1060-2641											
	12.5	181	24.00-66.94	848-2364											

*)FAD in accordance with ISO 1217:2009, Annex C: Absolute intake pressure 1 bar (a), cooling and air intake temperature 20 ℃

**) Noise level as per ISO 2151 and the basic standard ISO 9614-2, operation at maximum operating pressure and maximum speed; tolerance: ±3 dB(A)

Specifications are subject to change without notice.

P-DNR202308-08 Specifications are subject to change without prior notice.
Never use compressed air as breathing air without prior purification in accordance with local legislation and standards.

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