

RKR Performance Data Sheet

Rotary Piston Blower

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Customer TMV Projektwissen und Handel GmbH Rather Straße 78 40476 Dusseldorf	Date 2023-07-18 RKR Ref. No. 23A018427 Pos. 2 Appendix 1																																																																																																																																														
Project No. P-666A Project POWDER TRANSFER BLOWER Item No. 40-BL-401A/B Remark Option B																																																																																																																																															
Rotary Piston Blower K90R6 Bare Shaft Blower BS90																																																																																																																																															
Suction Connection (Machine) NW DN 250 Discharge Connection (Machine) NW DN 250																																																																																																																																															
Drive V-Belt Drive Type of Drive Constant Speed Operation Pressure																																																																																																																																															
Medium Gas / Gas mixture (93,1% N ₂ , 6,9% C ₆ H ₁₄) Standard Density of Medium ρN kg/Nm ³ 1,4294 Specific Heat Capacity of Medium cp kJ/kg K 1,1438																																																																																																																																															
Altitude above Sea Level H m aSL 0,0 Ambient Pressure pU mbar abs. 1013,0 Ambient Temperature tU °C 20,0 Ambient Relative Humidity rFU % n.a.																																																																																																																																															
Operating point <table style="width: 100%; text-align: center; border-collapse: collapse;"> <thead> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> </tr> <tr> <th></th> <th>Max.</th> <th>RATED</th> <th>Nor.</th> </tr> <tr> <th></th> <th colspan="3">Pressure</th> </tr> </thead> <tbody> <tr> <td>Relative Humidity (Calculation of operating point)</td> <td>rF %</td> <td>40,00</td> <td>40,00</td> <td>40,00</td> </tr> <tr> <td>Density at suction condition</td> <td>ρ₁ kg/m³</td> <td>1,2153</td> <td>1,2153</td> <td>1,2153</td> </tr> <tr> <td>Inlet pressure</td> <td>p₁ mbar abs.</td> <td>1020,0</td> <td>1020,0</td> <td>1020,0</td> </tr> <tr> <td>Pressure difference p₂ - p₁</td> <td>Δp mbar</td> <td>900,0</td> <td>850,0</td> <td>640,0</td> </tr> <tr> <td>Discharge pressure</td> <td>p₂ mbar abs.</td> <td>1920,0</td> <td>1870,0</td> <td>1660,0</td> </tr> <tr> <td>Inlet temperature</td> <td>t₁ °C</td> <td>45,0</td> <td>45,0</td> <td>45,0</td> </tr> <tr> <td>Suction flow</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> at working condition</td> <td>V₁ m³/h</td> <td>4237,02</td> <td>4256,90</td> <td>4347,59</td> </tr> <tr> <td> at working condition</td> <td>V₁ m³/min</td> <td>70,62</td> <td>70,95</td> <td>72,46</td> </tr> <tr> <td> at standard condition ¹⁾</td> <td>VN Nm³/h</td> <td>3525,13</td> <td>3541,67</td> <td>3617,13</td> </tr> <tr> <td> at standard condition ¹⁾</td> <td>VN Nm³/min</td> <td>58,75</td> <td>59,03</td> <td>60,29</td> </tr> <tr> <td>Mass flow</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> at working condition</td> <td>m₁ kg/h</td> <td>5149,30</td> <td>5173,46</td> <td>5283,68</td> </tr> <tr> <td>Tolerance of suction flow and mass flow</td> <td></td> <td colspan="3" style="text-align: center;">± 5%</td> </tr> <tr> <td>Discharge temperature</td> <td>t₂ °C</td> <td>119</td> <td>115</td> <td>96</td> </tr> <tr> <td>Blower speed</td> <td>nG RPM</td> <td>1984</td> <td>1984</td> <td>1984</td> </tr> <tr> <td>Blower shaft power ³⁾</td> <td>PK kW</td> <td>132,99</td> <td>125,89</td> <td>96,04</td> </tr> <tr> <td>Tolerance of blower shaft power</td> <td></td> <td colspan="3" style="text-align: center;">± 5%</td> </tr> <tr> <td>Motor power ⁴⁾</td> <td>PM kW</td> <td>200,0</td> <td>200,00</td> <td>200,00</td> </tr> <tr> <td>Net frequency</td> <td>fNetz Hz</td> <td>50,00</td> <td>50,00</td> <td>50,00</td> </tr> <tr> <td>No. of poles, motor</td> <td>poIM [--]</td> <td>4</td> <td>4</td> <td>4</td> </tr> <tr> <td>Motor speed</td> <td>nM RPM</td> <td>1488</td> <td>1488</td> <td>1488</td> </tr> <tr> <td>Motor frequency at frequency converter</td> <td>fM Hz</td> <td>n.a.</td> <td>n.a.</td> <td>n.a.</td> </tr> <tr> <td>Sound pressure level without sound hood ²⁾</td> <td>Lp(A) dB(A)</td> <td>99</td> <td>98</td> <td>97</td> </tr> <tr> <td>Sound pressure level with sound hood ²⁾</td> <td>Lp(A) dB(A)</td> <td>75</td> <td>74</td> <td>73</td> </tr> <tr> <td>Sound pressure level with sound hood and extra mesures ²⁾</td> <td>Lp(A) dB(A)</td> <td>n.a.</td> <td>n.a.</td> <td>n.a.</td> </tr> </tbody> </table>			1	2	3		Max.	RATED	Nor.		Pressure			Relative Humidity (Calculation of operating point)	rF %	40,00	40,00	40,00	Density at suction condition	ρ ₁ kg/m ³	1,2153	1,2153	1,2153	Inlet pressure	p ₁ mbar abs.	1020,0	1020,0	1020,0	Pressure difference p ₂ - p ₁	Δp mbar	900,0	850,0	640,0	Discharge pressure	p ₂ mbar abs.	1920,0	1870,0	1660,0	Inlet temperature	t ₁ °C	45,0	45,0	45,0	Suction flow					at working condition	V ₁ m ³ /h	4237,02	4256,90	4347,59	at working condition	V ₁ m ³ /min	70,62	70,95	72,46	at standard condition ¹⁾	VN Nm ³ /h	3525,13	3541,67	3617,13	at standard condition ¹⁾	VN Nm ³ /min	58,75	59,03	60,29	Mass flow					at working condition	m ₁ kg/h	5149,30	5173,46	5283,68	Tolerance of suction flow and mass flow		± 5%			Discharge temperature	t ₂ °C	119	115	96	Blower speed	nG RPM	1984	1984	1984	Blower shaft power ³⁾	PK kW	132,99	125,89	96,04	Tolerance of blower shaft power		± 5%			Motor power ⁴⁾	PM kW	200,0	200,00	200,00	Net frequency	fNetz Hz	50,00	50,00	50,00	No. of poles, motor	poIM [--]	4	4	4	Motor speed	nM RPM	1488	1488	1488	Motor frequency at frequency converter	fM Hz	n.a.	n.a.	n.a.	Sound pressure level without sound hood ²⁾	Lp(A) dB(A)	99	98	97	Sound pressure level with sound hood ²⁾	Lp(A) dB(A)	75	74	73	Sound pressure level with sound hood and extra mesures ²⁾	Lp(A) dB(A)	n.a.	n.a.	n.a.
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¹⁾ Suction flow at standard conditions at 1013 mbar abs. and 0 °C or 273 K. ⁴⁾ Other motor ratings after technical clarification. Motor power valid for a coolant temperature of 40 °C maximum and an altitude of 1000 m aSL maximum. ²⁾ Values acc. to DIN EN ISO 2151: 2009-09, free field measurement, tolerance ± 2dB. Conditions deviating from the above, must be considered in individual cases. ³⁾ Incl. power consumption for accessories (silencers, fittings etc.) and V-belt drive (if included). The actual order data may differ from the calculated design data. (20211008)																																																																																																																																															