Temperature stability

Comparison of motor performance at high ambient temp

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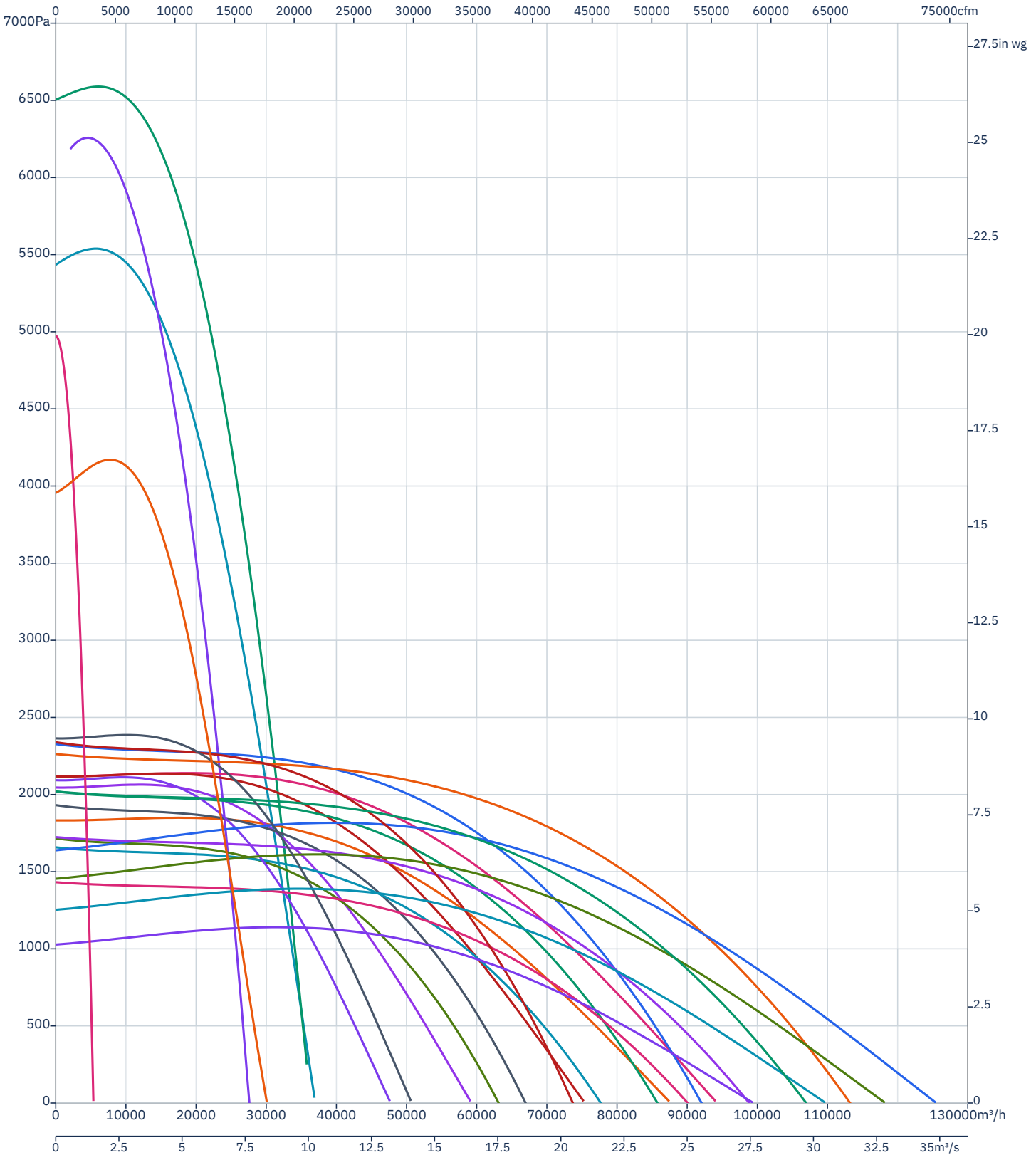

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Created: 2025-10-01 21:39:46
Generated: 2026-08-16 11:09:20

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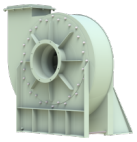
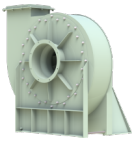
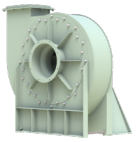
Comparison table

		 **LX-4006** Suitable for ventilation and industrial processes	 **LX-5006H** Suitable for ventilation and industrial processes	 **LX-4006H** Suitable for ventilation and industrial processes	 **B70-1400/50HP** Industrial belt-driven fan, high pressure	 **B70-1400/40HP** Industrial belt-driven fan, high pressure
Operating point						
Frequency f	Hz	60	60	60	60	60
Total pressure differential Δp_{out-in}	Pa	4016.5	**4725**	3283.5	2135.5	1846.2
Airflow q_v	m³/h	21966	**23604**	20275	16029	14903
Mass flow q_m	kg/s	7.346	**7.894**	6.781	5.361	4.984
Static pressure p_{static}	Pa	4014.3	**4635.5**	3420.1	2137.6	1848
Total pressure p_{total}	Pa	4208	**5048.7**	3778.8	2143.4	1853.1
Dynamic pressure $p_{dynamic}$	Pa	193.7	413.2	358.7	5.8	5.1
Rotational speed n	rpm	1765	1780	1775	855	795
Linear velocity v	m/s	17.83	23.19	**28.68**	3.63	3.37
Power consumption P	W	31778	**41079**	29416	19388	15586
Shaft power P_{shaft}	W	29681	**38425**	27552	18383	14733
Aerodynamic power P_{air}	W	24507	**30980**	18492	9508	7643
Static efficiency η_{static}	%	**77.08**	73.99	65.48	49.09	49.09
Total efficiency η_{total}	%	**80.8**	80.58	72.35	49.22	49.22
Motor efficiency η_{motor}	%	93.4	93.539	93.662	94.813	94.53
Rotor efficiency η_{imp}	%	**82.57**	80.62	67.12	51.72	51.88
Specific Fan Power SFP	W/m³/s	5208	**6265**	5223	4355	3765
Fan Energy Index FEI		1.373	1.305	1.174	0.894	0.908
Medium density ρ_{air}	kg/m³	1.204	1.204	1.204	1.204	1.204
Motor load ratio M_{load}	%	105.93	**111.03**	98.05	52.4	51.95
Shaft Torque T_{shaft}	Nm	160.61	206.144	148.207	205.393	176.869
Angular Velocity ω	rad/s	184.8	186.4	185.9	89.5	83.3
Flow						
Maximum airflow $q_{v, max}$	m³/h	36886	35784	27600	94043	87443
Maximum static pressure $p_{static, max}$	Pa	5528	**6605**	6275	2139	1849
Nominal rotational speed n_{rated}	rpm	1775	1780	1775	855	795
Electrical						
Number of electrical phases φ		3	3	3	3	3
Rated voltage U_{rated}	V	220/380	220/380	220/380	220/380	220/380
Rated power P_{rated}	W	30000	37000	30000	37000	30000
Rated Frequency f_{rated}	Hz	60	60	60	60	60
Rated Current I_{rated}	A	56.7	56.7	56.7	120/69.2	97.9/56.7

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Maximum power consumption $P_{max, abs}$	W	32978	43274	29612	35635	28647
Protection rating of the terminal box IP_{box}		IP55	IP55	IP55	IP55	IP55
Motor						
Motor power supply type $Tp_{motor, supply}$		AC	AC	AC	AC	AC
Motor rated power in kW $P_{motor, rated, kW}$	kW	30	37	30	37	30
Motor rated power in HP $P_{motor, rated, HP}$	hp	40	50	40	50	40
Number of motor poles p_{motor}		4	4	4	4	4
Motor energy efficiency class $\eta_{motor, class}$		IE3	IE3	IE3	IE3	IE3
Maximum motor efficiency $\eta_{motor, max}$	%	94.1	95	94.1	95	94.1
Motor power reserve $rs_{motor, power}$	%	15	15	15	15	15
Rated motor speed $n_{motor, rated}$	rpm	1775	**1780**	1775	1780	1775
Motor protection class IP IP_{motor}		IP55	IP55	IP55	IP55	IP55
Motor insulation class $Ins_{motor, class}$		F	F	F	F	F
Shaft diameter D_{shaft}		55	60	55	60	55
Motor frame size Fr_{motor}		180L	200L	180L	200L	180L
Rated motor current $I_{motor, rated}$	A	97.9/56.7	120/69.2	97.9/56.7	120/69.2	97.9/56.7
Winding connection W_{motor}		Δ/Y	Δ/Y	Δ/Y	Δ/Y	Δ/Y
Motor torque τ_{motor}	Nm	161.4	198.5	161.4	198.5	161.4
Motor starting method $S_{motor, start}$		VFD	VFD	VFD	VFD	VFD
Motor protection type Prot		-	-	-	-	-
Regulation						
Control type T_{reg}		Inverter	Inverter	Inverter	Inverter	Inverter
Maximum Allowable Frequency $f_{max, allow}$	Hz	60	60	60	60	60
Minimum allowable frequency $f_{min, allow}$	Hz	30	30	30	30	30
Temperature						
Minimum operating temperature $t_{op, min}$	°C	**-15**	-15	-15	-15	-15
Maximum operating temperature $t_{op, max}$	°C	40	40	40	40	40
Maximum ambient temperature $t_{amb, max}$	°C	40	40	40		
Maximum medium temperature $t_{med, max}$	°C	**60**	60	60	**150**	150
Acoustic						
Sound power level L_{wa}	dB(A)	**102.4**	101.2	101	99.2	97.2
Size						
Diameter D	mm	660	600	500	**1250**	1250
Inlet diameter D_{in}	mm	660	600	500	**1250**	1250
Outlet diameter D_{out}	mm	658	564	**542**	**1349**	1349
Equivalent diameter D_{calc}	mm	658	565	**542**	**1349**	1349
Inlet profile AxB_{in}	mmxmm					
Outlet profile AxB_{out}	mmxmm	420x810	385x650	355x650	880x1305	880x1305
Weight m	kg	775	1020		**2170**	2030
Energy efficiency						
Maximum total efficiency $\eta_{total, max}$	%	83.6	**85.07**	81.85	76.46	76.45
Maximum static efficiency $\eta_{static, max}$	%	82.02	**82.29**	79.42	73.86	73.85
Maximum motor efficiency $\eta_{motor, max}$	%	94.533	94.827	94.533	94.827	94.533
Maximum impeller efficiency $\eta_{imp, max}$	%	87.28	**87.94**	83.53	77.58	77.79

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Fan Energy Grade (FEG) FEG		**90**	90	85	80	80
Impeller						
Impeller type Tp_{imp}		Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor
Impeller design C_{imp}		Welded blades rotor	Welded blades rotor	Welded blades rotor	Welded blades rotor	Welded blades rotor
Rotor Surface S_{imp}		Coated	Coated	Coated	Coated	Coated
Impeller diameter D_{imp}	mm	930	975	975	**1349**	1349
Blade profile $Tp_{imp, blade}$		Backward curved blades	Backward curved blades	Backward curved blades	Backward curved blades	Backward curved blades
Impeller width w_{imp}	mm	**146**	135	**110**		
Impeller material Mt_{imp}		Stainless steel	Stainless steel	Stainless steel	Carbon steel	Carbon steel
Minimum impeller speed $n_{imp, min}$	rpm	900	900	900		
Maximum impeller speed $n_{imp, max}$	rpm	1800	1800	1800		
Number of impeller blades N_{blade}	x				10	10
Blade material Mt_{blade}		Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
Inner diameter of the impeller $D_{imp, inlet}$	mm	480	387	387		
Drive						
Drive type Tp_{drive}		Direct drive	Direct drive	Direct drive	Belt drive	Belt drive
Types of belt drive Tp_{belt}		??	??	??	??undefined	??undefined
Belt material Mt_{belt}		??	??	??	??undefined	??undefined
Housing						
Casing type Tp_{cas}		??undefined	??undefined	??undefined	??undefined	??undefined
Casing construction C_{cas}		??undefined	??undefined	??undefined	??undefined	??undefined
Casing material Mt_{cas}		??undefined	??undefined	??undefined	??Carbon steel	??Carbon steel
Surface finish type S_{cas}		??undefined	??undefined	??undefined	??undefined	??undefined
Mounting type Mnt_{cas}		??undefined	??undefined	??undefined	Base mount	Base mount
Connection type $Conn_{cas}$		??undefined	??undefined	??undefined	??undefined	??undefined
Corrosion resistance class $Corr_{class}$						
ErP Directive						
ErP verification type ErP_{type}		Fan	Fan	Fan	Fan	Fan
ErP exemption reason ErP_{exempt}		No exemption	No exemption	No exemption	No exemption	No exemption
Measurement category $ErP_{msrm, cat}$		B	B	B	B	B
VSD type ErP_{vsd}		Without control	Without control	Without control	Without control	Without control
Fan efficiency n_{act}	%	83.13184	**84.50003099999999**	81.36708499999999	76.46	76.45
Efficiency coefficient N_{act}		82.1	**83.2**	80.4	75.2	75.4
Airflow q_v	m^3/h	16230	17176	14076	53605	49843
Pressure increase Δp	Pa	5043.6	**6120.2**	5395	1793	1550.1
Power consumption P_e	W	27198	34327	25771	34920	28072
Specific speed σ_{BEP}		1.59	1.36	1.39	3.93	4.07
Rotational speed n	rpm	1764	1780	1774	855	795
Characteristic coefficient C_c		1.05	1.06	1.053	1	1
Compliance with ErP2026 regulation (2024/1834) ErP_{2026}		true	true	true	true	true

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Atex

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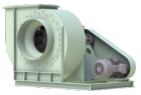
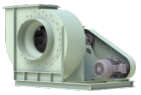
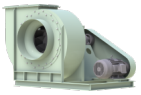
Comparison table

		 B74-1120 / 50HP Industrial belt-driven fan, high pressure	 B70-1120/30HP Industrial belt-driven fan, high pressure	 B74-1000 / 25HP Industrial belt-driven fan, high pressure	 B70-1250/40HP Industrial belt-driven fan, high pressure	 B74-1000 / 30HP Industrial belt-driven fan, high pressure
Operating point						
Frequency f	Hz	60	60	60	60	60
Total pressure differential Δp_{out-in}	Pa	2278.5	2050.9	1674.1	2132.4	1884.3
Airflow q_v	m³/h	16553	15719	14192	16021	15056
Mass flow q_m	kg/s	5.536	5.257	4.746	5.358	5.035
Static pressure p_{static}	Pa	2279.7	2055.8	1675.6	2135.6	1885.9
Total pressure p_{total}	Pa	2291.6	2069.5	1689.3	2144.7	1901.4
Dynamic pressure $p_{dynamic}$	Pa	11.9	13.7	13.7	9.1	15.5
Rotational speed n	rpm	1025	1050	985	955	1045
Linear velocity v	m/s	4.67	5.56	5.02	4.52	5.32
Power consumption P	W	19723	14827	11299	17346	13491
Shaft power P_{shaft}	W	18699	13910	10565	16392	12668
Aerodynamic power P_{air}	W	10477	8955	6599	9490	7881
Static efficiency η_{static}	%	53.15	60.54	58.46	54.79	58.46
Total efficiency η_{total}	%	53.42	60.95	58.94	55.02	58.94
Motor efficiency η_{motor}	%	94.808	93.821	93.509	94.499	93.896
Rotor efficiency η_{imp}	%	56.03	64.38	62.46	57.89	62.21
Specific Fan Power SFP	W/m³/s	4289	3396	2866	3898	3226
Fan Energy Index FEI		0.965	1.123	1.104	1.004	1.09
Medium density ρ_{air}	kg/m³	1.204	1.204	1.204	1.204	1.204
Motor load ratio M_{load}	%	53.31	67.39	61.07	57.82	61.32
Shaft Torque T_{shaft}	Nm	174.267	126.458	102.476	163.918	115.793
Angular Velocity ω	rad/s	107.3	110	103.1	100	109.4
Flow						
Maximum airflow $q_{v, max}$	m³/h	92164	59099	63206	75240	67056
Maximum static pressure $p_{static, max}$	Pa	2332	2064	1720	2136	1936
Nominal rotational speed n_{rated}	rpm	1025	1050	985	955	1045
Electrical						
Number of electrical phases φ		3	3	3	3	3
Rated voltage U_{rated}	V	220/380	220/380	220/380	220/380	220/380
Rated power P_{rated}	W	37000	22000	18500	30000	22000
Rated Frequency f_{rated}	Hz	60	60	60	60	60

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Rated Current I_{rated}	A	120/69.2	73.4/42.5	62.5/36.2	97.9/56.7	73.4/42.5
Maximum power consumption $P_{max, abs}$	W	41869	21607	21175	28475	25285
Protection rating of the terminal box IP_{box}		IP55	IP55	IP55	IP55	IP55
Motor						
Motor power supply type $Tp_{motor, supply}$		AC	AC	AC	AC	AC
Motor rated power in kW $P_{motor, rated, kW}$	kW	37	22	18.5	30	22
Motor rated power in HP $P_{motor, rated, HP}$	hp	50	30	25	40	30
Number of motor poles p_{motor}		4	4	4	4	4
Motor energy efficiency class $\eta_{motor, class}$		IE3	IE3	IE3	IE3	IE3
Maximum motor efficiency $\eta_{motor, max}$	%	95	93.6	93.6	94.1	93.6
Motor power reserve $rs_{motor, power}$	%	15	15	15	15	15
Rated motor speed $n_{motor, rated}$	rpm	1780	1775	1775	1775	1775
Motor protection class IP IP_{motor}		IP55	IP55	IP55	IP55	IP55
Motor insulation class $Ins_{motor, class}$		F	F	F	F	F
Shaft diameter D_{shaft}		60	48	48	55	48
Motor frame size Fr_{motor}		200L	180M	180M	180L	180M
Rated motor current $I_{motor, rated}$	A	120/69.2	73.4/42.5	62.5/36.2	97.9/56.7	73.4/42.5
Winding connection W_{motor}		Δ/Y	Δ/Y	Δ/Y	Δ/Y	Δ/Y
Motor torque τ_{motor}	Nm	198.5	118.3	99.5	161.4	118.3
Motor starting method $S_{motor, start}$		VFD	VFD	VFD	VFD	VFD
Motor protection type Prot		-	-	-	-	-
Regulation						
Control type T_{reg}		Inverter	Inverter	Inverter	Inverter	Inverter
Maximum Allowable Frequency $f_{max, allow}$	Hz	60	60	60	60	60
Minimum allowable frequency $f_{min, allow}$	Hz	30	30	30	30	30
Temperature						
Minimum operating temperature $t_{op, min}$	°C	-15	-15	-15	-15	-15
Maximum operating temperature $t_{op, max}$	°C	40	40	40	40	40
Maximum ambient temperature $t_{amb, max}$	°C	40		40		40
Maximum medium temperature $t_{med, max}$	°C	150	150	150	150	150
Acoustic						
Sound power level L_{wa}	dB(A)	100.1	97.9	95.8	98.8	97.3
Size						
Diameter D	mm	1120	1000	1000	1120	1000
Inlet diameter D_{in}	mm	1120	1000	1000	1120	1000
Outlet diameter D_{out}	mm	1147	1079	1025	1207	1025
Equivalent diameter D_{calc}	mm	1147	1079	1025	1207	1025
Inlet profile AxB_{in}	mmxmm					
Outlet profile AxB_{out}	mmxmm	750x1415	685x1180	670x1230	720x1300	670x1230
Weight m	kg	1460	1253	1209	1760	1209
Energy efficiency						
Maximum total efficiency $\eta_{total, max}$	%	77.44	76.45	77.45	76.47	77.44
Maximum static efficiency $\eta_{static, max}$	%	72.77	73.86	72.78	73.87	72.77
Maximum motor efficiency $\eta_{motor, max}$	%	94.827	93.945	93.55	94.533	93.944

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Maximum impeller efficiency $\eta_{imp,\ max}$	%	77.17	78.36	78.31	77.82	77.97
Fan Energy Grade (FEG) FEG		80	80	80	80	80
Impeller						
Impeller type Tp_{imp}		Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor
Impeller design C_{imp}		Welded blades rotor	Welded blades rotor	Welded blades rotor	Welded blades rotor	Welded blades rotor
Rotor Surface S_{imp}		Coated	Coated	Coated	Coated	Coated
Impeller diameter D_{imp}	mm	1147	1079	1025	1207	1025
Blade profile $Tp_{imp,\ blade}$		Backward curved blades	Backward curved blades	Backward curved blades	Backward curved blades	Backward curved blades
Impeller width w_{imp}	mm					
Impeller material Mt_{imp}		Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
Minimum impeller speed $n_{imp,\ min}$	rpm					
Maximum impeller speed $n_{imp,\ max}$	rpm					
Number of impeller blades N_{blade}	x	11	10	11	10	11
Blade material Mt_{blade}		Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
Inner diameter of the impeller $D_{imp,\ inlet}$	mm					
Drive						
Drive type Tp_{drive}		Belt drive	Belt drive	Belt drive	Belt drive	Belt drive
Types of belt drive Tp_{belt}		??	??undefined	??	??undefined	??
Belt material Mt_{belt}		??	??undefined	??	??undefined	??
Housing						
Casing type Tp_{cas}		Scroll housing	??undefined	Scroll housing	??undefined	Scroll housing
Casing construction C_{cas}		Welded	??undefined	Welded	??undefined	Welded
Casing material Mt_{cas}		Carbon steel	??Carbon steel	Carbon steel	??Carbon steel	Carbon steel
Surface finish type S_{cas}		Painted	??undefined	Painted	??undefined	Painted
Mounting type Mnt_{cas}		Base mount	Base mount	Base mount	Base mount	Base mount
Connection type $Conn_{cas}$		Flanged	??undefined	Flanged	??undefined	Flanged
Corrosion resistance class $Corr_{class}$		C2		C2		C2
ErP Directive						
ErP verification type ErP_{type}		Fan	Fan	Fan	Fan	Fan
ErP exemption reason ErP_{exempt}		No exemption	No exemption	No exemption	No exemption	No exemption
Measurement category $ErP_{msrm,\ cat}$		B	B	B	B	B
VSD type ErP_{vsd}		Without control	Without control	Without control	Without control	Without control
Fan efficiency n_{act}	%	77.269632	76.45	77.45	76.47	77.44
Efficiency coefficient N_{act}		75.8	75.7	76.7	75.4	76.5
Airflow q_v	m^3/h	56220	33686	39188	42887	40904
Pressure increase Δp	Pa	2000.1	1729.8	1460	1791.2	1660.2
Power consumption P_e	W	40335	21173	20520	27904	24359
Specific speed σ_{BEP}		4.32	3.96	4.75	3.93	4.53
Rotational speed n	rpm	1024	1049	985	955	1045
Characteristic coefficient C_c		1.02	1	1	1	1
Compliance with ErP2026 regulation (2024/1834) ErP_{2026}		true	true	true	true	true
Atex						

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Comparison table

		 **B74-1120 / 30HP** Industrial belt-driven fan, high pressure	 **B74-1120 / 40HP** Industrial belt-driven fan, high pressure	 **B70-1000/25HP** Industrial belt-driven fan, high pressure	 **B74-1250 / 30HP** Industrial belt-driven fan, high pressure	 **B74-1250/60HP** Industrial belt-driven fan, high pressure
Operating point						
Frequency f	Hz	60	60	60	60	60
Total pressure differential Δp_{out-in}	Pa	1622.7	1977.5	2066.9	1405.9	2221.6
Airflow q_v	m³/h	13969	15421	15788	13002	16343
Mass flow q_m	kg/s	4.672	5.158	5.28	4.348	5.466
Static pressure p_{static}	Pa	1623.5	1978.6	2073.7	1406.4	2222.3
Total pressure p_{total}	Pa	1632	1988.9	2095.5	1411.1	2229.8
Dynamic pressure $p_{dynamic}$	Pa	8.5	10.3	21.8	4.7	7.5
Rotational speed n	rpm	865	955	1190	**720**	905
Linear velocity v	m/s	3.94	4.35	6.89	**2.94**	3.7
Power consumption P	W	11853	15950	13768	10646	21142
Shaft power P_{shaft}	W	11135	15077	12847	10001	20107
Aerodynamic power P_{air}	W	6297	8471	9064	5077	10086
Static efficiency η_{static}	%	53.15	53.14	66.05	47.71	47.72
Total efficiency η_{total}	%	53.43	53.41	66.75	47.87	47.88
Motor efficiency η_{motor}	%	93.942	94.527	93.313	93.938	**95.104**
Rotor efficiency η_{imp}	%	56.55	56.18	70.56	50.77	50.16
Specific Fan Power SFP	W/m³/s	3055	3723	3139	2948	4657
Fan Energy Index FEI		1.001	0.978	1.231	0.908	0.863
Medium density ρ_{air}	kg/m³	1.204	1.204	1.204	1.204	1.204
Motor load ratio M_{load}	%	53.88	53.17	74.42	48.39	46.98
Shaft Torque T_{shaft}	Nm	122.901	150.773	103.106	132.634	**212.099**
Angular Velocity ω	rad/s	90.6	100	124.6	**75.4**	94.8
Flow						
Maximum airflow $q_{v, max}$	m³/h	77778	85870	47615	90184	113356
Maximum static pressure $p_{static, max}$	Pa	1661	2024	2112	1435	2268
Nominal rotational speed n_{rated}	rpm	865	955	1190	**720**	905
Electrical						
Number of electrical phases φ		3	3	3	3	3
Rated voltage U_{rated}	V	220/380	220/380	220/380	220/380	220/380
Rated power P_{rated}	W	22000	30000	18500	22000	**45000**
Rated Frequency f_{rated}	Hz	60	60	60	60	60

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Rated Current I_{rated}	A	73.4/42.5	97.9/56.7	62.5/36.2	73.4/42.5	**145/83.7**
Maximum power consumption $P_{max, abs}$	W	25163	33864	17811	25214	50072
Protection rating of the terminal box IP_{box}		IP55	IP55	IP55	IP55	IP55
Motor						
Motor power supply type $Tp_{motor, supply}$		AC	AC	AC	AC	AC
Motor rated power in kW $P_{motor, rated, kW}$	kW	22	30	18.5	22	**45**
Motor rated power in HP $P_{motor, rated, HP}$	hp	30	40	25	30	**60**
Number of motor poles p_{motor}		4	4	4	4	4
Motor energy efficiency class $\eta_{motor, class}$		IE3	IE3	IE3	IE3	IE3
Maximum motor efficiency $\eta_{motor, max}$	%	93.6	94.1	93.6	93.6	**95.5**
Motor power reserve $rs_{motor, power}$	%	15	15	15	15	15
Rated motor speed $n_{motor, rated}$	rpm	1775	1775	1775	1775	1780
Motor protection class IP IP_{motor}		IP55	IP55	IP55	IP55	IP55
Motor insulation class $Ins_{motor, class}$		F	F	F	F	F
Shaft diameter D_{shaft}		48	55	48	48	60
Motor frame size Fr_{motor}		180M	180L	180M	180M	200L
Rated motor current $I_{motor, rated}$	A	73.4/42.5	97.9/56.7	62.5/36.2	73.4/42.5	**145/83.7**
Winding connection W_{motor}		Δ/Y	Δ/Y	Δ/Y	Δ/Y	Δ/Y
Motor torque τ_{motor}	Nm	118.3	161.4	99.5	118.3	**241.3**
Motor starting method $S_{motor, start}$		VFD	VFD	VFD	VFD	VFD
Motor protection type Prot		-	-	-	-	-
Regulation						
Control type T_{reg}		Inverter	Inverter	Inverter	Inverter	Inverter
Maximum Allowable Frequency $f_{max, allow}$	Hz	60	60	60	60	60
Minimum allowable frequency $f_{min, allow}$	Hz	30	30	30	30	30
Temperature						
Minimum operating temperature $t_{op, min}$	°C	-15	-15	-15	-15	-15
Maximum operating temperature $t_{op, max}$	°C	40	40	40	40	40
Maximum ambient temperature $t_{amb, max}$	°C	40	40		40	40
Maximum medium temperature $t_{med, max}$	°C	150	150	150	150	150
Acoustic						
Sound power level L_{wa}	dB(A)	95.6	98.2	97.7	**94**	100
Size						
Diameter D	mm	1120	1120	900	1250	1250
Inlet diameter D_{in}	mm	1120	1120	900	1250	1250
Outlet diameter D_{out}	mm	1147	1147	963	1281	1281
Equivalent diameter D_{calc}	mm	1147	1147	963	1281	1281
Inlet profile AxB_{in}	mmxmm					
Outlet profile AxB_{out}	mmxmm	750x1415	750x1415	630x930	835x1580	835x1580
Weight m	kg	1290	1320	1224	1730	1900
Energy efficiency						
Maximum total efficiency $\eta_{total, max}$	%	77.43	77.44	76.47	77.42	77.45
Maximum static efficiency $\eta_{static, max}$	%	72.76	72.77	73.87	72.76	72.78
Maximum motor efficiency $\eta_{motor, max}$	%	93.945	94.533	93.55	93.944	**95.104**

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Maximum impeller efficiency $\eta_{imp, max}$	%	77.96	77.42	78.77	77.95	76.88
Fan Energy Grade (FEG) FEG		80	80	80	80	80
Impeller						
Impeller type Tp_{imp}		Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor
Impeller design C_{imp}		Welded blades rotor	Welded blades rotor	Welded blades rotor	Welded blades rotor	Welded blades rotor
Rotor Surface S_{imp}		Coated	Coated	Coated	Coated	Coated
Impeller diameter D_{imp}	mm	1147	1147	963	1281	1281
Blade profile $Tp_{imp, blade}$		Backward curved blades	Backward curved blades	Backward curved blades	Backward curved blades	Backward curved blades
Impeller width w_{imp}	mm					
Impeller material Mt_{imp}		Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
Minimum impeller speed $n_{imp, min}$	rpm					
Maximum impeller speed $n_{imp, max}$	rpm					
Number of impeller blades N_{blade}	x	11	11	10	11	11
Blade material Mt_{blade}		Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
Inner diameter of the impeller $D_{imp, inlet}$	mm					
Drive						
Drive type Tp_{drive}		Belt drive	Belt drive	Belt drive	Belt drive	Belt drive
Types of belt drive Tp_{belt}		??	??	??undefined	??	??
Belt material Mt_{belt}		??	??	??undefined	??	??
Housing						
Casing type Tp_{cas}		Scroll housing	Scroll housing	??undefined	Scroll housing	Scroll housing
Casing construction C_{cas}		Welded	Welded	??undefined	Welded	Welded
Casing material Mt_{cas}		Carbon steel	Carbon steel	??Carbon steel	Carbon steel	Carbon steel
Surface finish type S_{cas}		Painted	Painted	??undefined	Painted	Painted
Mounting type Mnt_{cas}		Base mount	Base mount	Base mount	Base mount	Base mount
Connection type $Conn_{cas}$		Flanged	Flanged	??undefined	Flanged	Flanged
Corrosion resistance class $Corr_{class}$		C2	C2		C2	C2
ErP Directive						
ErP verification type ErP_{type}		Fan	Fan	Fan	Fan	Fan
ErP exemption reason ErP_{exempt}		No exemption	No exemption	No exemption	No exemption	No exemption
Measurement category $ErP_{msrm, cat}$		B	B	B	B	B
VSD type ErP_{vsd}		Without control	Without control	Without control	Without control	Without control
Fan efficiency n_{act}	%	77.43	77.44	76.47	77.42	77.45
Efficiency coefficient N_{act}		76.5	76.2	75.9	76.5	75.8
Airflow q_v	m^3/h	47445	52381	27141	55012	69147
Pressure increase Δp	Pa	1424.2	1736.4	1770.3	1230.7	1945.1
Power consumption P_e	W	24242	32623	17453	24291	48238
Specific speed σ_{BEP}		4.71	4.48	3.94	4.88	4.35
Rotational speed n	rpm	865	955	1189	**720**	905
Characteristic coefficient C_c		1	1	1	1	1
Compliance with ErP2026 regulation (2024/1834) ErP_{2026}		true	true	true	true	true
Atex						

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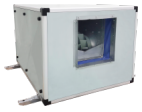
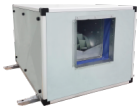
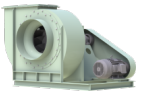
Comparison table

		 BDH-1000/60HP	 B74-1250 / 40HP **Industrial belt-driven fan, high pressure**	 BDH-1000/50HP	 B74-1000 / 40HP **Industrial belt-driven fan, high pressure**	 B70-1000/30HP **Industrial belt-driven fan, high pressure**
Operating point						
Frequency f	Hz	60	60	60	60	60
Total pressure differential Δp_{out-in}	Pa	1718.2	1692.6	1524.7	2281.8	2335.5
Airflow q_v	m³/h	14371	14266	13537	16568	16782
Mass flow q_m	kg/s	4.806	4.771	4.527	5.541	5.613
Static pressure p_{static}	Pa	1718.2	1693.2	1524.7	2283.8	2343.1
Total pressure p_{total}	Pa	1733.8	1698.9	1538.5	2302.5	2367.8
Dynamic pressure $p_{dynamic}$	Pa	15.6	5.7	13.8	18.7	24.7
Rotational speed n	rpm	1025	790	965	1150	1265
Linear velocity v	m/s	5.08	3.23	4.79	5.86	7.33
Power consumption P	W	20974	14063	17534	17980	16538
Shaft power P_{shaft}	W	19947	13294	16627	16988	15493
Aerodynamic power P_{air}	W	6859	6707	5733	10501	10887
Static efficiency η_{static}	%	32.7	47.71	32.7	58.46	66.05
Total efficiency η_{total}	%	33	47.87	33	58.93	66.74
Motor efficiency η_{motor}	%	95.104	94.53	94.827	94.481	93.685
Rotor efficiency η_{imp}	%	34.38	50.45	34.48	61.82	70.27
Specific Fan Power SFP	W/m³/s	5254	3549	4663	3907	3548
Fan Energy Index FEI		0.601	0.888	0.609	1.067	1.216
Medium density ρ_{air}	kg/m³	1.204	1.204	1.204	1.204	1.204
Motor load ratio M_{load}	%	**46.61**	46.88	47.39	59.93	75.17
Shaft Torque T_{shaft}	Nm	185.901	160.748	164.458	141.094	116.931
Angular Velocity ω	rad/s	107.3	82.7	101.1	120.4	132.5
Flow						
Maximum airflow $q_{v, max}$	m³/h	**125452**	98952	118179	73793	50616
Maximum static pressure $p_{static, max}$	Pa	1842	1728	1635	2344	2386
Nominal rotational speed n_{rated}	rpm	1035	790	975	1150	1265
Electrical						
Number of electrical phases φ		3	3	3	3	3
Rated voltage U_{rated}	V	220/380	220/380	220/380	220/380	220/380
Rated power P_{rated}	W	45000	30000	37000	30000	22000
Rated Frequency f_{rated}	Hz	60	60	60	60	60

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Rated Current I_{rated}	A	145/83.7	97.9/56.7	120/69.2	97.9/56.7	73.4/42.5
Maximum power consumption $P_{max, abs}$	W	**55354**	33307	46274	33699	21395
Protection rating of the terminal box IP_{box}		IP55	IP55	IP55	IP55	IP55
Motor						
Motor power supply type $Tp_{motor, supply}$		AC	AC	AC	AC	AC
Motor rated power in kW $P_{motor, rated, kW}$	kW	45	30	37	30	22
Motor rated power in HP $P_{motor, rated, HP}$	hp	60	40	50	40	30
Number of motor poles p_{motor}		4	4	4	4	4
Motor energy efficiency class $\eta_{motor, class}$		IE3	IE3	IE3	IE3	IE3
Maximum motor efficiency $\eta_{motor, max}$	%	95.5	94.1	95	94.1	93.6
Motor power reserve $rs_{motor, power}$	%	15	15	15	15	15
Rated motor speed $n_{motor, rated}$	rpm	**1760**	1775	1760	1775	1775
Motor protection class IP IP_{motor}		IP55	IP55	IP55	IP55	IP55
Motor insulation class $Ins_{motor, class}$		F	F	F	F	F
Shaft diameter D_{shaft}		60	55	60	55	48
Motor frame size Fr_{motor}		200L	180L	200L	180L	180M
Rated motor current $I_{motor, rated}$	A	145/83.7	97.9/56.7	120/69.2	97.9/56.7	73.4/42.5
Winding connection W_{motor}		Δ/Y	Δ/Y	Δ/Y	Δ/Y	Δ/Y
Motor torque τ_{motor}	Nm	241.3	161.4	198.5	161.4	118.3
Motor starting method $S_{motor, start}$		VFD	VFD	VFD	VFD	VFD
Motor protection type Prot		-	-	-	-	-
Regulation						
Control type T_{reg}		Inverter	Inverter	Inverter	Inverter	Inverter
Maximum Allowable Frequency $f_{max, allow}$	Hz	60	60	60	60	60
Minimum allowable frequency $f_{min, allow}$	Hz	30	30	30	30	30
Temperature						
Minimum operating temperature $t_{op, min}$	°C	**5**	-15	5	-15	-15
Maximum operating temperature $t_{op, max}$	°C	40	40	40	40	40
Maximum ambient temperature $t_{amb, max}$	°C		40		40	
Maximum medium temperature $t_{med, max}$	°C	60	150	60	150	150
Acoustic						
Sound power level L_{wa}	dB(A)	100.9	96.5	99.4	99.8	99.3
Size						
Diameter D	mm	1000	1250	1000	1000	900
Inlet diameter D_{in}	mm	1000	1250	1000	1000	900
Outlet diameter D_{out}	mm	1000	1281	1000	1025	963
Equivalent diameter D_{calc}	mm	1000	1281	1000	1025	963
Inlet profile AxB_{in}	mmxmm	1266x1266		1266x1266		
Outlet profile AxB_{out}	mmxmm	1266x1266	835x1580	1266x1266	670x1230	630x930
Weight m	kg	1435	1760	1435	1236	1224
Energy efficiency						
Maximum total efficiency $\eta_{total, max}$	%	82.56	77.43	82.56	77.45	76.46
Maximum static efficiency $\eta_{static, max}$	%	62.81	72.77	**62.8**	72.78	73.86
Maximum motor efficiency $\eta_{motor, max}$	%	95.104	94.534	94.827	94.534	93.945

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Maximum impeller efficiency $\eta_{imp,\ max}$	%	**66.78**	77.35	67.03	77.4	78.45
Fan Energy Grade (FEG) FEG		**67**	80	71	80	80
Impeller						
Impeller type Tp_{imp}		Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor
Impeller design C_{imp}		Welded blades rotor	Welded blades rotor	Welded blades rotor	Welded blades rotor	Welded blades rotor
Rotor Surface S_{imp}		Coated	Coated	Coated	Coated	Coated
Impeller diameter D_{imp}	mm	1000	1281	1000	1025	963
Blade profile $Tp_{imp,\ blade}$		Backward curved blades	Backward curved blades	Backward curved blades	Backward curved blades	Backward curved blades
Impeller width w_{imp}	mm					
Impeller material Mt_{imp}		Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
Minimum impeller speed $n_{imp,\ min}$	rpm					
Maximum impeller speed $n_{imp,\ max}$	rpm					
Number of impeller blades N_{blade}	x	11	11	11	11	10
Blade material Mt_{blade}		Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
Inner diameter of the impeller $D_{imp,\ inlet}$	mm					
Drive						
Drive type Tp_{drive}		Belt drive	Belt drive	Belt drive	Belt drive	Belt drive
Types of belt drive Tp_{belt}		V-belt	??	V-belt	??	??undefined
Belt material Mt_{belt}		Rubber	??	Rubber	??	??undefined
Housing						
Casing type Tp_{cas}		??undefined	Scroll housing	??undefined	Scroll housing	??undefined
Casing construction C_{cas}		??undefined	Welded	??undefined	Welded	??undefined
Casing material Mt_{cas}		Carbon steel	Carbon steel	??Carbon steel	Carbon steel	??Carbon steel
Surface finish type S_{cas}		??undefined	Painted	??undefined	Painted	??undefined
Mounting type Mnt_{cas}		??Ceiling mount	Base mount	??Ceiling mount	Base mount	Base mount
Connection type $Conn_{cas}$		??undefined	Flanged	??undefined	Flanged	??undefined
Corrosion resistance class $Corr_{class}$			C2		C2	
ErP Directive						
ErP verification type ErP_{type}		Fan	Fan	Fan	Fan	Fan
ErP exemption reason ErP_{exempt}		No exemption	No exemption	No exemption	No exemption	No exemption
Measurement category $ErP_{msrm,\ cat}$		B	B	B	B	B
VSD type ErP_{vsd}		Without control	Without control	Without control	Without control	Without control
Fan efficiency n_{act}	%	82.56	77.43	82.56	77.27961	76.291788
Efficiency coefficient N_{act}		80.8	76.2	81	76.1	75.5
Airflow q_v	m^3/h	**99107**	60361	93361	45014	28851
Pressure increase Δp	Pa	1637.1	1481.8	1452.9	2010.8	2000.3
Power consumption P_e	W	**54591**	32087	45637	32465	20966
Specific speed σ_{BEP}		7.06	4.66	7.27	4.32	3.82
Rotational speed n	rpm	1032	789	972	1149	1264
Characteristic coefficient C_c		1	1	1	1.02	1.02
Compliance with ErP2026 regulation (2024/1834) ErP_{2026}		true	true	true	true	true
Atex						

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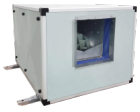
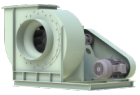
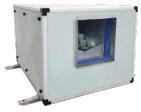
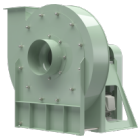
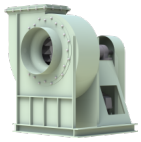
Comparison table

		 BDH-1000/40HP	 B74-1250 / 50HP Industrial belt-driven fan, high pressure	 BDH-1000/30HP	 B31-710/7.5HP Industrial belt-driven fan, high pressure	 B55-800/30HP Industrial belt-driven fan, high pressure
Operating point						
Frequency f	Hz	60	60	60	60	60
Total pressure differential Δp_{out-in}	Pa	1313.7	1982.8	1077.8	-99	2899
Airflow q_v	m³/h	12566	15440	11382	5258	18983
Mass flow q_m	kg/s	4.202	5.164	3.807	1.758	6.349
Static pressure p_{static}	Pa	1313.7	1983.5	1077.8	230	2998
Total pressure p_{total}	Pa	1325.6	1990.2	1087.6	239.7	3071.3
Dynamic pressure $p_{dynamic}$	Pa	11.9	6.7	9.8	9.7	73.3
Rotational speed n	rpm	896	855	812	2329	1880
Linear velocity v	m/s	4.44	3.49	4.03	23.72	16.92
Power consumption P	W	14022	17828	10429	3987	20686
Shaft power P_{shaft}	W	13255	16905	9797	3597	19278
Aerodynamic power P_{air}	W	4585	8504	3408	-145	15286
Static efficiency η_{static}	%	32.7	47.72	32.67	8.42	76.42
Total efficiency η_{total}	%	33	47.88	32.97	8.78	78.29
Motor efficiency η_{motor}	%	94.529	94.826	93.933	90.206	93.196
Rotor efficiency η_{imp}	%	34.59	50.3	34.78	-4.02	79.29
Specific Fan Power SFP	W/m³/s	4017	4157	3299	2730	3923
Fan Energy Index FEI		0.621	0.873	0.638	0.238	1.39
Medium density ρ_{air}	kg/m³	1.204	1.204	1.204	1.204	1.204
Motor load ratio M_{load}	%	46.74	48.18	47.41	72.5	94.03
Shaft Torque T_{shaft}	Nm	141.309	188.885	115.255	14.747	97.91
Angular Velocity ω	rad/s	93.8	89.5	85	243.9	196.9
Flow						
Maximum airflow $q_{v, max}$	m³/h	109694	107093	99391	5363	30078
Maximum static pressure $p_{static, max}$	Pa	1408	2024	1156	4978	4192
Nominal rotational speed n_{rated}	rpm	905	855	820	2329	1880
Electrical						
Number of electrical phases φ		3	3	3	3	3
Rated voltage U_{rated}	V	220/380	220/380	220/380	220/380	220/380
Rated power P_{rated}	W	30000	37000	22000	5500	22000
Rated Frequency f_{rated}	Hz	60	60	60	60	60

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Rated Current I_{rated}	A	97.9/56.7	120/69.2	73.4/42.5	**18.5/10.7**	73.4/42.5
Maximum power consumption $P_{max, abs}$	W	37006	42223	27527	**4588**	21007
Protection rating of the terminal box IP_{box}		IP55	IP55	IP55	IP55	IP55
Motor						
Motor power supply type $Tp_{motor, supply}$		AC	AC	AC	AC	AC
Motor rated power in kW $P_{motor, rated, kW}$	kW	30	37	22	**5.5**	22
Motor rated power in HP $P_{motor, rated, HP}$	hp	40	50	30	**7.5**	30
Number of motor poles p_{motor}		4	4	4	4	4
Motor energy efficiency class $\eta_{motor, class}$		IE3	IE3	IE3	IE3	IE3
Maximum motor efficiency $\eta_{motor, max}$	%	94.1	95	93.6	**91.7**	93.6
Motor power reserve $rs_{motor, power}$	%	15	15	15	15	15
Rated motor speed $n_{motor, rated}$	rpm	1760	1780	1760	1760	1775
Motor protection class IP IP_{motor}		IP55	IP55	IP55	IP55	IP55
Motor insulation class $Ins_{motor, class}$		F	F	F	F	F
Shaft diameter D_{shaft}		55	60	48	38	48
Motor frame size Fr_{motor}		180L	200L	180M	132S	180M
Rated motor current $I_{motor, rated}$	A	97.9/56.7	120/69.2	73.4/42.5	**18.5/10.7**	73.4/42.5
Winding connection W_{motor}		Δ/Y	Δ/Y	Δ/Y	Δ/Y	Δ/Y
Motor torque τ_{motor}	Nm	161.4	198.5	118.3	**29.8**	118.3
Motor starting method $S_{motor, start}$		VFD	VFD	VFD	DOL	VFD
Motor protection type Prot		-	-	-	-	-
Regulation						
Control type T_{reg}		Inverter	Inverter	Inverter	Inverter	Inverter
Maximum Allowable Frequency $f_{max, allow}$	Hz	60	60	60	60	60
Minimum allowable frequency $f_{min, allow}$	Hz	30	30	30	30	30
Temperature						
Minimum operating temperature $t_{op, min}$	°C	5	-15	5	-15	-15
Maximum operating temperature $t_{op, max}$	°C	40	40	40	40	40
Maximum ambient temperature $t_{amb, max}$	°C		40			
Maximum medium temperature $t_{med, max}$	°C	60	150	60	150	150
Acoustic						
Sound power level L_{wa}	dB(A)	97.4	98.5	94.8	102.4	101.8
Size						
Diameter D	mm	1000	1250	1000	**280**	630
Inlet diameter D_{in}	mm	1000	1250	1000	**280**	630
Outlet diameter D_{out}	mm	1000	1281	1000	680	780
Equivalent diameter D_{calc}	mm	1000	1281	1000	680	780
Inlet profile AxB_{in}	mmxmm	1266x1266		1266x1266		
Outlet profile AxB_{out}	mmxmm	1266x1266	835x1580	1266x1266	315x165	405x735
Weight m	kg	1305	1900	1300	**460**	790
Energy efficiency						
Maximum total efficiency $\eta_{total, max}$	%	82.55	77.45	82.55	**69.39**	82.08
Maximum static efficiency $\eta_{static, max}$	%	62.81	72.77	62.8	69.35	81.1
Maximum motor efficiency $\eta_{motor, max}$	%	94.533	94.827	93.945	**90.239**	93.945

CHC Fan and Blower Corp.
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Maximum impeller efficiency $\eta_{imp,\ max}$	%	67.23	77.19	67.71	75.3	85.46
Fan Energy Grade (FEG) FEG		71	80	71	80	90
Impeller						
Impeller type Tp_{imp}		Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor	Centrifugal Rotor
Impeller design C_{imp}		Welded blades rotor	Welded blades rotor	Welded blades rotor	Welded blades rotor	Welded blades rotor
Rotor Surface S_{imp}		Coated	Coated	Coated	Coated	Coated
Impeller diameter D_{imp}	mm	1000	1281	1000	**680**	780
Blade profile $Tp_{imp,\ blade}$		Backward curved blades	Backward curved blades	Backward curved blades	Backward curved blades	Backward curved blades
Impeller width w_{imp}	mm					
Impeller material Mt_{imp}		Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
Minimum impeller speed $n_{imp,\ min}$	rpm					
Maximum impeller speed $n_{imp,\ max}$	rpm					
Number of impeller blades N_{blade}	x	11	11	11	6	11
Blade material Mt_{blade}		Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
Inner diameter of the impeller $D_{imp,\ inlet}$	mm					
Drive						
Drive type Tp_{drive}		Belt drive	Belt drive	Belt drive	Belt drive	Belt drive
Types of belt drive Tp_{belt}		V-belt	??	V-belt	??undefined	??undefined
Belt material Mt_{belt}		Rubber	??	Rubber	??undefined	??undefined
Housing						
Casing type Tp_{cas}		??undefined	Scroll housing	??undefined	??undefined	??undefined
Casing construction C_{cas}		??undefined	Welded	??undefined	??undefined	??undefined
Casing material Mt_{cas}		??Carbon steel	Carbon steel	??Carbon steel	??undefined	??undefined
Surface finish type S_{cas}		??undefined	Painted	??undefined	??undefined	??undefined
Mounting type Mnt_{cas}		??Ceiling mount	Base mount	??Ceiling mount	??undefined	??undefined
Connection type $Conn_{cas}$		??undefined	Flanged	??undefined	??undefined	??undefined
Corrosion resistance class $Corr_{class}$			C2			
ErP Directive						
ErP verification type ErP_{type}		Fan	Fan	Fan	Fan	Fan
ErP exemption reason ErP_{exempt}		No exemption	No exemption	No exemption	No exemption	No exemption
Measurement category $ErP_{msrm,\ cat}$		B	B	B	B	B
VSD type ErP_{vsd}		Without control	Without control	Without control	Without control	Without control
Fan efficiency n_{act}	%	82.55	77.45	82.55	**69.091623**	81.743472
Efficiency coefficient N_{act}		81.2	76	81.5	**73.1**	81.1
Airflow q_v	m^3/h	86658	65327	78519	**2682**	15039
Pressure increase Δp	Pa	1251.6	1736	**1027.5**	3864	3745.4
Power consumption P_e	W	36497	40677	27148	**4148**	19063
Specific speed σ_{BEP}		7.55	4.48	**7.93**	**1.11**	2.19
Rotational speed n	rpm	902	855	817	**2329**	1879
Characteristic coefficient C_c		1	1	1	1.038	1.037
Compliance with ErP2026 regulation (2024/1834) ErP_{2026}		true	true	true	true	true
Atex						