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LD-550

Suitable for ventilation and air conditioning systems

Specially designed for general HVAC industry and industrial applications, suitable for clean air environments equipped with primary filtration systems. Features a high-efficiency centrifugal impeller combined with an optimized fan housing design, directly driven by a 4P motor, providing strong airflow and high static pressure performance. Ideal for use with variable frequency drive systems, maintaining high efficiency across a wide operating range.

Operating point parameters

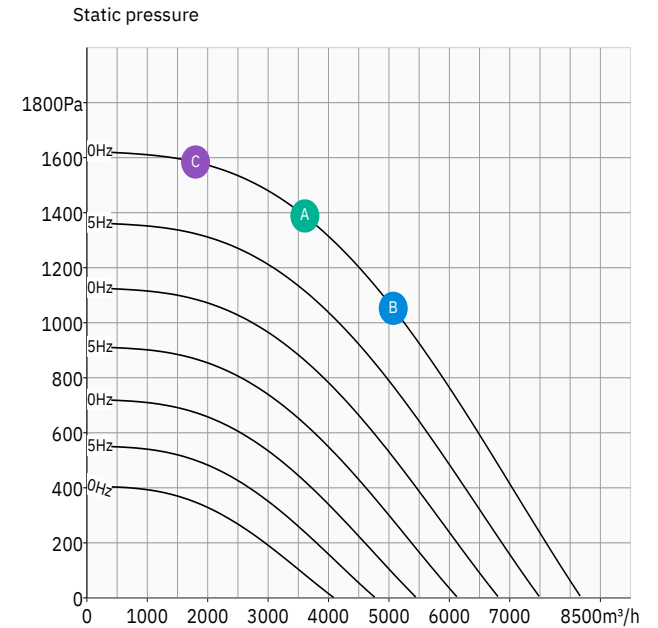
Required operating point		A	B	C	
Airflow	q_v	3270	4430	1450	m ³ /h
Required pressure	p_{req}	1140	803	1030	Pa
Medium density	ρ_{air}	1.204	1.204	1.204	kg/m ³
Calculated operating point					
Airflow	q_v	3609	5071	1798	m ³ /h
Mass flow	q_m	1.207	1.696	0.601	kg/s
Static pressure	p_{static}	1388	1052	1584	Pa
Total pressure	p_{total}	1467	1208	1604	Pa
Total pressure differential	Δp_{out-in}	1421	1116	1592	Pa
Dynamic pressure	$p_{dynamic}$	79	156	19.6	Pa
Medium density	ρ_{air}	1.204	1.204	1.204	kg/m ³
Frequency	f	60	60	60	Hz
Control signal 0~10V	$U_{EC, control}$	0	0	0	V
Rotational speed	n	1745	1745	1745	rpm
Linear velocity	v	8.79	12.36	4.38	m/s
Power consumption	P	1847	2129	1175	W
Shaft power	P_{shaft}	1601	1846	1009	W
Aerodynamic power	P_{air}	1424	1573	795	W
Motor load ratio	M_{load}	83.9	96.8	53.4	%
Shaft Torque	T_{shaft}	8.761	10.103	5.52	Nm
Static efficiency	η_{static}	75.36	69.64	67.32	%
Total efficiency	η_{total}	79.64	79.96	68.15	%
Motor efficiency	η_{motor}	86.67	86.71	85.8	%
Rotor efficiency	η_{imp}	88.98	85.2	78.86	%
Specific Fan Power	SFP	1842	1511	2353	W/m ³ /s
Fan Energy Index	FEI	1.74	1.6	1.71	
Sound pressure level	L_{pa}	0	0	0	dB(A)
Sound power level	L_{wa}	84.8	84.9	91.7	dB(A)

Energy cost calculator

Daily operating hours	hr_d	6	6	6	hr/day
Working days per year	d_{yr}	365	365	365	d/yr
Total number of working hours in a year	hr_{yr}	2190	2190	2190	hr/yr
Energy cost	C_{kWh}	1	1	1	TWD/kWh
Annual energy consumption	E_{yr}	4044.4	4662.1	2574.2	kWh/yr
Annual energy costs	C_{yr}	4044.4	4662.1	2574.2	TWD/yr

Annual total electricity consumption **11281kWh / 11280.70TWD**

Performance characteristics





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Nominal data

FLOW	
Maximum airflow $q_{v, \max}$	8166 m ³ /h
Maximum static pressure	1631 Pa
$p_{\text{static, max}}$	
Nominal rotational speed	1788 rpm
n_{rated}	
ELECTRICAL	
Number of electrical phases ϕ	3
Rated voltage U_{rated}	220/380 V
Rated power P_{rated}	2200 W
Rated Frequency f_{rated}	60 Hz
Rated Current I_{rated}	7.87/4.55 A
Maximum power consumption $P_{\text{max, abs}}$	2160 W
Protection rating of the terminal box IP_{box}	IP55
MOTOR	
Motor power supply type	AC
$TP_{\text{motor, supply}}$	
Number of motor poles	4
p_{motor}	
Motor protection class IP	IP55
IP_{motor}	
Motor insulation class	F
$Ins_{\text{motor, class}}$	
Motor rated power in kW	2.2 kW
$P_{\text{motor, rated, kW}}$	
Motor energy efficiency class $\eta_{\text{motor, class}}$	IE3
$\eta_{\text{motor, class}}$	
Rated motor speed $n_{\text{motor, rated}}$	1745 rpm
$n_{\text{motor, rated}}$	
Motor rated power in HP	3 hp
$P_{\text{motor, rated, HP}}$	
Maximum motor efficiency	89.5 %
$\eta_{\text{motor, max}}$	
Motor power reserve	15 %
$rS_{\text{motor, power}}$	
Motor protection type Prot	-
Motor frame size Fr_{motor}	100L
Shaft diameter D_{shaft}	28
Rated motor current $I_{\text{motor, rated}}$	7.87/4.55 A

Winding connection W_{motor}	Δ/Y
Motor torque τ_{motor}	12 Nm
Motor starting method	DOL
$S_{\text{motor, start}}$	
REGULATION	
Control type T_{reg}	Inverter
Maximum Allowable Frequency $f_{\text{max, allow}}$	60 Hz
Minimum allowable frequency $f_{\text{min, allow}}$	30 Hz
TEMPERATURE	
Minimum operating temperature $t_{\text{op, min}}$	-15 °C
Maximum operating temperature $t_{\text{op, max}}$	40 °C
Maximum medium temperature $t_{\text{med, max}}$	60 °C
ACOUSTIC	
Sound pressure level measurement distance $L_{\text{pa, dist}}$	1.5 m
SIZE	
Weight m	125 kg
Inlet diameter D_{in}	381 mm
Outlet profile $A \times B_{\text{out}}$	250x350 mmxm m
ENERGY EFFICIENCY	
Maximum static efficiency $\eta_{\text{static, max}}$	75.37 %
Maximum total efficiency $\eta_{\text{total, max}}$	80.72 %
Maximum impeller efficiency $\eta_{\text{imp, max}}$	89.07 %
Fan Energy Grade (FEG) FEG	90
Maximum motor efficiency $\eta_{\text{motor, max}}$	86.714 %
IMPELLER	
Impeller type TP_{imp}	Centrifugal Rotor
Impeller diameter D_{imp}	530 mm
Blade profile $TP_{\text{imp, blade}}$	Backward curved blades

Impeller design C_{imp}	Welded blades rotor
Rotor Surface S_{imp}	Coated
Impeller width w_{imp}	96 mm
Impeller material Mt_{imp}	Carbon steel
Minimum impeller speed $n_{\text{imp, min}}$	900 rpm
Maximum impeller speed $n_{\text{imp, max}}$	1800 rpm
Impeller moment of inertia J_{imp}	0.18 kg·m ²
Blade angle setting α_{blade}	23 °
Number of impeller blades N_{blade}	10 x
Blade material Mt_{blade}	Carbon steel
Inner diameter of the impeller $D_{\text{imp, inlet}}$	313 mm
DRIVE	
Drive type TP_{drive}	Direct drive
ERP DIRECTIVE	
ErP verification type ErP_{type}	Fan
ErP exemption reason ErP_{exempt}	No exemption
Measurement category $ErP_{\text{msm, cat}}$	B
VSD type ErP_{vsd}	Without control
Fan efficiency n_{act}	80.72 %
Efficiency coefficient N_{act}	88
Airflow q_v	4410 m ³ /h
Pressure increase Δp	1342 Pa
Power consumption P_e	2037 W
Specific speed σ_{BEP}	3.07
Rotational speed n	1745 rpm
Characteristic coefficient C_c	1
Compliance with ErP2026 regulation (2024/1834) ErP_{2026}	true

A	836 mm	B	940 mm
C	661 mm	D	381 mm
E	382 mm	F	729 mm
G	202 mm	H	400 mm
I	404 mm	J	302 mm
K	50 mm	L	806 mm
M	250 mm	N	350 mm
O	290 mm	P	25 mm
R	340 mm	d	14 mm
n	4 x	dn	4 x

