KRUGER

eKDD Series

Double Inlet Direct Driven

Low Pressure FC Centrifugal Fan with **EC Motor**

High EC Motor Efficiency

Fan Speed Control

Energy Saving

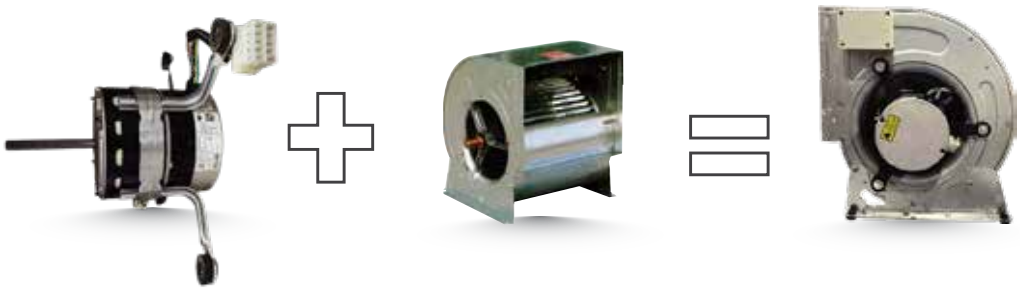
www.krugerfan.com

Why KRUGER ?

KRUGER has been a leading innovator and manufacturer of residential, commercial and industrial fan application solutions across Asia since 1985. Today with a direct presence in over 18 regions throughout Asia; world class R&D and manufacturing facilities; KRUGER are able to offer their customers unparalleled service and support at a local level. Our customers place their trust in KRUGER.

eKDD

EC (Electronically Commutated) motors integrate advanced electronics directly into the motor, enabling precise speed control, superior efficiency, and intelligent operation. The eKDD Series combines this proven & affordable EC motor technology with KRUGER's highly efficient double-inlet centrifugal design.



Why use KRUGER eKDD?

High EC Motor Efficiency + Fan Speed Control = Energy Saving

- High-efficiency EC motor delivers superior performance at both full & part load conditions, achieving motor efficiency up to **84%.**
- Lower input power with up to **20%** more energy savings compared to conventional AC fans.
- Stepless speed regulation allows for added energy savings when operating at partial load conditions.

Quiet EC Motor + Low RPM Forward Curve Fan = Low Noise Operation

Performance + Longer Life

- Good efficiency EC motor & smooth speed ramp-up eliminates start-up spikes

Compact + Reliable Design

- The EC KDD Series retains the high air volume, compact footprint and ease of installation of the popular AC models.

KRUGER

General Fan Specifications

Fan Diameter : 7-7, 8-8, 9-7, 9-9, 10-8, 10-10, 12-9, 12-10, 12-12
Airflow Range : Up to 5000CMH
Static Pressure Range : Up to 750Pa
Fan Type : DIDW direct driven centrifugal with forward curved blades.
Impeller Material : Housing and wheel are manufactured in galvanized plated steel with the housing constructed by "electric spot welding
Operating Temp : Recommended operating temperature between -20° C to +55° C.
Wheel Balancing : Statistically & dynamically balanced according to ISO 1940 & AMCA 204 Standard 2.5G

Fan Technical Table

Motor Specification			Fan Specification							
Motor Technology	EC	eKDD Model	7-7	8-8	9-7	9-9	10-8	10-10	12-9	12-12
Electrical Characteristics	1 Phase / 220-240V	Max Nominal RPM	NA	NA	1160	1160	1025	1050	970	935
Frequency	50 / 60 Hz	Max Input kW	NA	NA	0.53	0.76	0.78	1.08	1.05	1.05
IP	20	Max Output kW	NA	NA	0.375	0.55	0.55	0.75	0.75	0.75
Insulation Class	B	Max Input Current (A)	NA	NA	3.10	4.48	3.97	5.40	5.80	3.79
Speed Control	Modbus RTU	Weight (±1 kg)	NA	NA	9	10	11	12	19	20
	0-10 V (VSP)	Motor Code	NA	NA	MU220	MU230		MU260		
Permissible Amb Temp	-20° C to +50° C									

All dimension in mm.

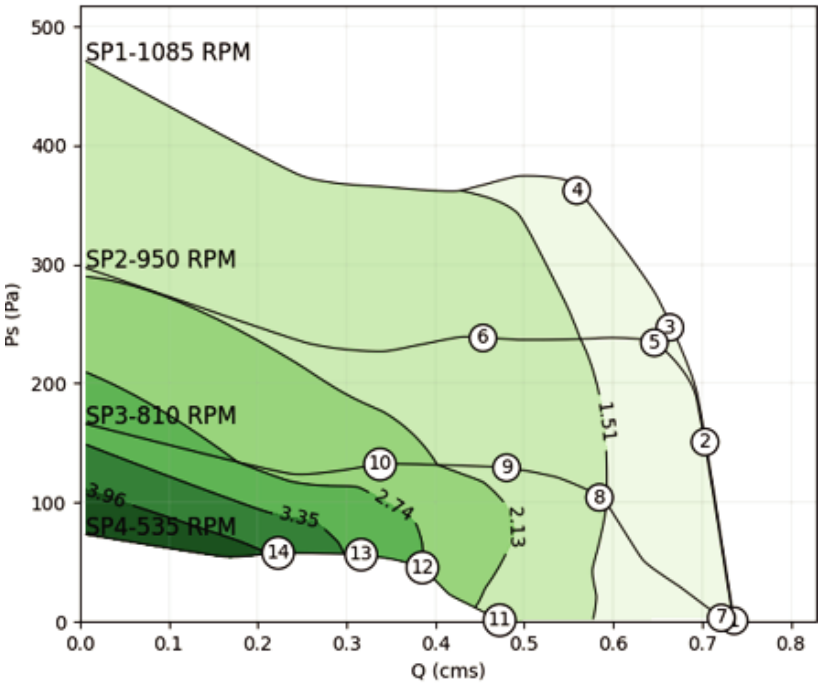
Fan Nomanclature

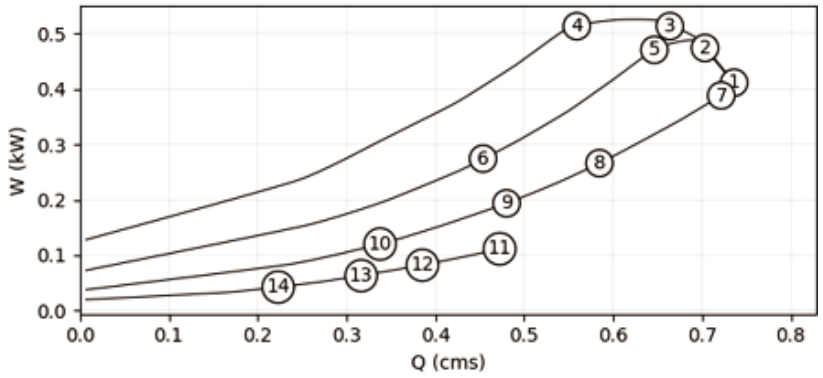
Digit	1	2	3		4	5	6	7	8	9
	e	KDD	9	-	9	1	A	B	S	I

- I — Not used
- S — Motor kW; S=std, X=special
- B — Flange: 0=no; 1=yes
- A — Mounting Feet; 0=no; 1=yes
- 1 — Fan orientation; 1=CCW90; 2=CCW270; 3=CCW360
- 9 — Impeller Width (in)
- 9 — Impeller Diameter (in)
- KDD — KDD Series
- e — e = Ecowatt fan

Characteristic Curve – eKDD 9-7

Performance data
Air density ρ = 1.2kg/m³
Installation type "B": free inlet, ducted outlet
Sound power levels inlet side in dB(A)

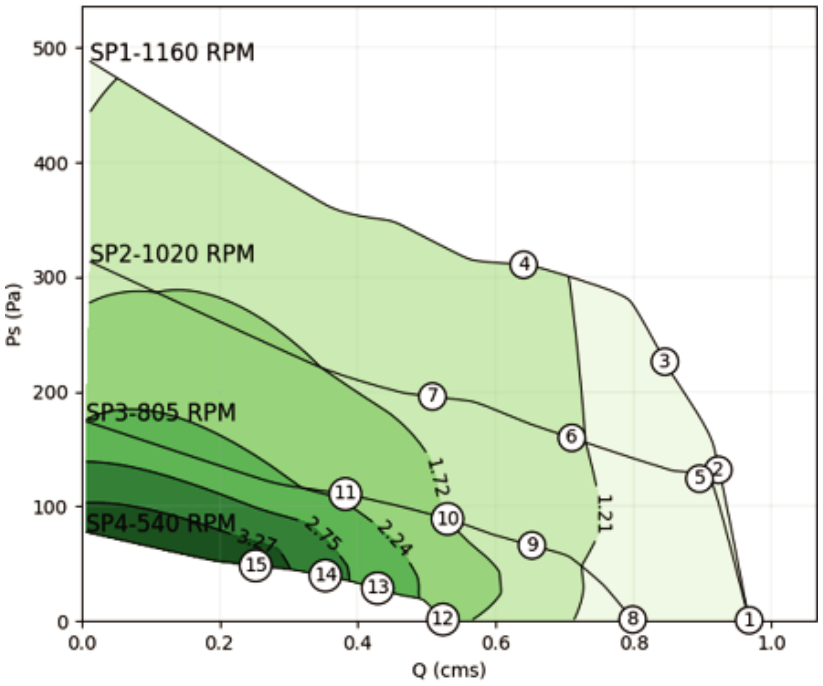


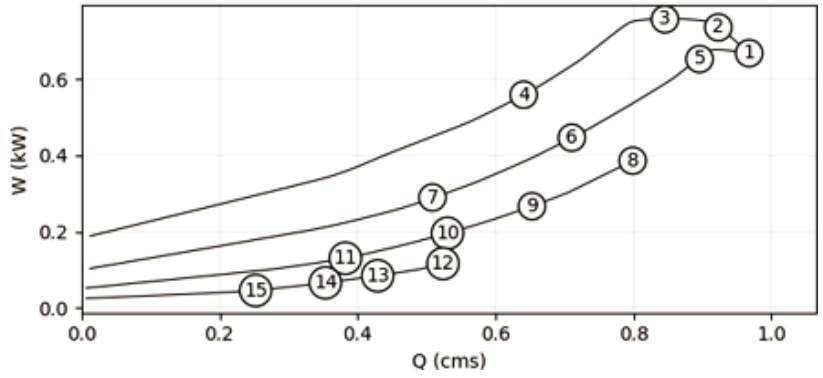


Point	Freq (Hz)	Voltage (V)	Speed (RPM)	Ps (Pa)	Q (cms)	W (kW)	ηT (%)	I (A)	LwA (dB)
Maximum Performance Curve 1085RPM (10V)									
1	50/60	240	820	1	0.74	0.412	16	2.42	77
2	50/60	240	972	151	0.7	0.474	34	2.78	76
3	50/60	240	1108	247	0.66	0.514	41	3.02	76
4	50/60	240	1327	362	0.56	0.514	45	3.01	74
Performance at 950rpm									
5	50/60	240	1081	234	0.65	0.471	41	2.79	75
6	50/60	240	1081	238	0.45	0.274	45	1.66	70
Performance at 810rpm									
7	50/60	240	809	3	0.72	0.388	16	2.43	77
8	50/60	240	809	104	0.58	0.266	35	1.74	72
9	50/60	240	809	129	0.48	0.194	41	1.31	68
10	50/60	240	808	132	0.34	0.12	42	0.86	63
Performance at 535rpm									
11	50/60	240	536	1	0.47	0.112	16	0.79	66
12	50/60	240	536	45	0.39	0.082	33	0.61	62
13	50/60	240	536	56	0.32	0.063	36	0.48	58
14	50/60	240	536	58	0.22	0.042	35	0.32	53

Characteristic Curve – eKDD 9-9

Performance data
Air density ρ = 1.2kg/m³
Installation type "B": free inlet, ducted outlet
Sound power levels inlet side in dB(A)

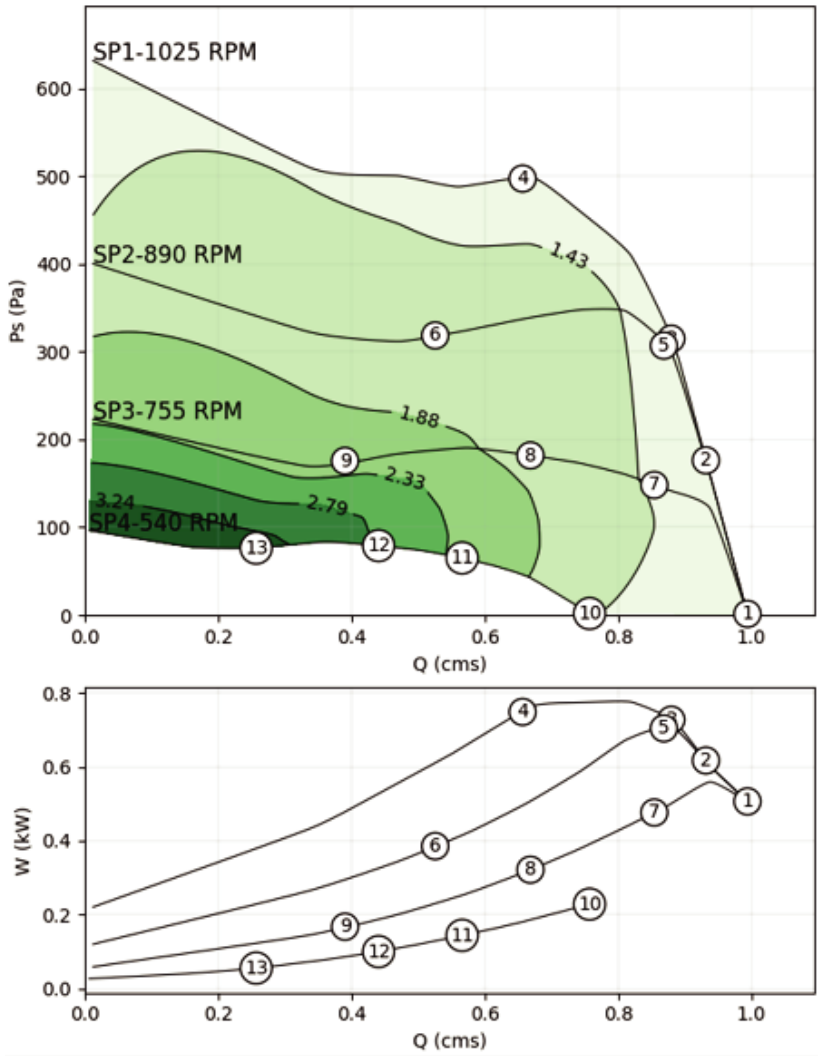




Point	Freq (Hz)	Voltage (V)	Speed (RPM)	Ps (Pa)	Q (cms)	W (kW)	ηT (%)	I (A)	LwA (dB)
Maximum Performance Curve 1160RPM (10V)									
1	50/60	240	965	1	0.97	0.668	13	3.81	81
2	50/60	240	1124	132	0.92	0.735	27	4.33	80
3	50/60	240	1276	226	0.85	0.756	33	4.47	79
4	50/60	240	1351	311	0.64	0.559	40	3.32	76
Performance at 1020rpm									
5	50/60	240	1078	124	0.9	0.652	27.81	3.79	79
6			1078	160	0.71	0.446	33.31	2.64	76
7	50/60	240	1078	196	0.51	0.289	38.88	1.75	73
Performance at 805rpm									
8	50/60	240	807	1	0.8	0.386	13.17	2.34	77
9	50/60	240	807	66	0.65	0.267	26.35	1.73	72
10	50/60	240	807	89	0.53	0.196	31.54	1.28	68
11	50/60	240	807	111	0.38	0.130	36.63	0.91	64
Performance at 540rpm									
12	50/60	240	541	1	0.52	0.116	12.68	0.8	68
13	50/60	240	540	28	0.43	0.084	23.63	0.59	62
14	50/60	240	540	40	0.35	0.066	27.72	0.49	60
15	50/60	240	540	48	0.25	0.046	29.89	0.35	55

Characteristic Curve – eKDD 10-8

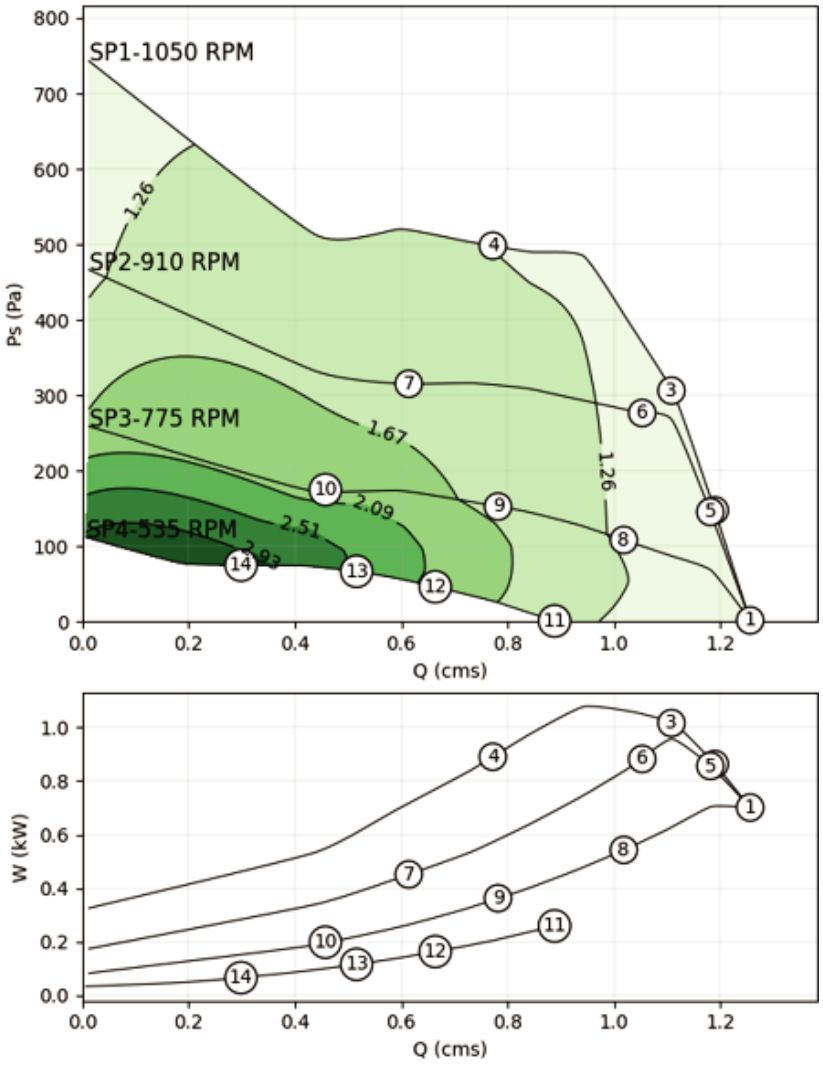
Performance data
Air density ρ = 1.2kg/m³
Installation type "B": free inlet, ducted outlet
Sound power levels inlet side in dB(A)



Point	Freq (Hz)	Voltage (V)	Speed (RPM)	Ps (Pa)	Q (cms)	W (kW)	ηT (%)	I (A)	LwA (dB)
Maximum Performance Curve 1025RPM (10V)									
1	50/60	240	698	1	0.99	0.506	20	2.69	77
2	50/60	240	872	176	0.93	0.617	40	3.27	77
3	50/60	240	1051	315	0.88	0.727	48	3.74	77
4	50/60	240	1345	497	0.66	0.748	47	3.84	78
Performance at 890rpm									
5	50/60	240	1037	307	0.87	0.704	47.32	3.64	77
6			1082	319	0.53	0.385	47.31	2.1	70
Performance at 755rpm									
7	50/60	240	809	148	0.85	0.476	39.87	2.55	76
8	50/60	240	810	182	0.67	0.322	47.22	1.77	71
9	50/60	240	810	176	0.39	0.168	44.65	0.97	58
Performance at 540rpm									
10	50/60	240	538	2	0.76	0.228	19.92	1.3	71
11	50/60	240	537	65	0.57	0.144	38.35	0.85	65
12	50/60	240	537	79	0.44	0.100	43.45	0.61	60
13	50/60	240	538	76	0.26	0.056	38.41	0.36	48

Characteristic Curve – eKDD 10-10

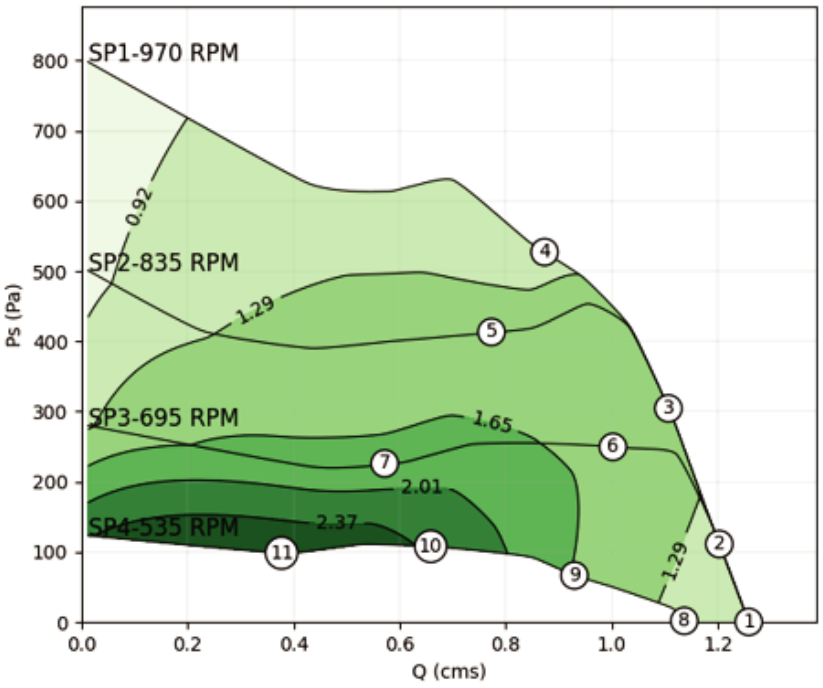
Performance data
Air density ρ = 1.2kg/m³
Installation type "B": free inlet, ducted outlet
Sound power levels inlet side in dB(A)

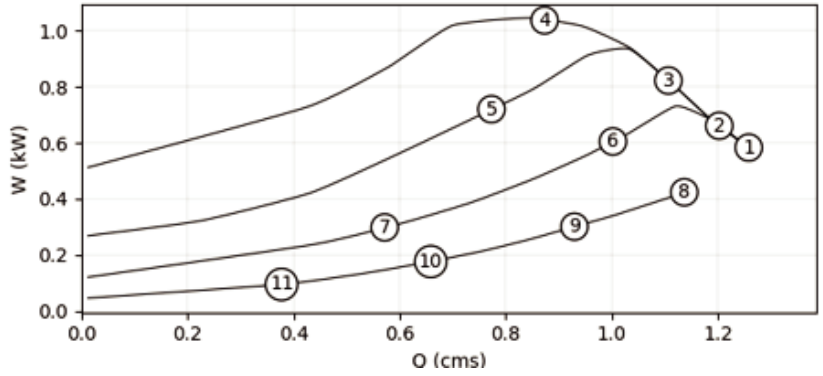


Point	Freq (Hz)	Voltage (V)	Speed (RPM)	Ps (Pa)	Q (cms)	W (kW)	ηT (%)	I (A)	LwA (dB)
Maximum Performance Curve 1050RPM (10V)									
1	50/60	240	741	1	1.26	0.701	19	3.62	80
2	50/60	240	934	147	1.19	0.863	33	4.39	81
3	50/60	240	1129	306	1.11	1.016	42	5.1	82
4	50/60	240	1354	498	0.77	0.890	47	4.52	82
Performance at 910rpm									
5	50/60	240	931	145	1.18	0.856	32.57	4.35	80
6			1082	276	1.05	0.882	41.61	4.47	79
7			1082	315	0.61	0.452	46.19	2.41	76
Performance at 775rpm									
8	50/60	240	810	108	1.02	0.543	32.92	2.86	74
9	50/60	240	810	152	0.78	0.363	41.47	1.97	73
10	50/60	240	809	175	0.46	0.199	43.42	1.13	65
Performance at 535rpm									
11	50/60	240	537	1	0.89	0.259	17.79	1.45	72
12	50/60	240	537	46	0.66	0.164	30.25	0.94	67
13	50/60	240	537	66	0.52	0.116	37.19	0.68	64
14	50/60	240	537	75	0.3	0.066	36.18	0.41	61

Characteristic Curve – eKDD 12-9

Performance data
Air density ρ = 1.2kg/m³
Installation type "B": free inlet, ducted outlet
Sound power levels inlet side in dB(A)

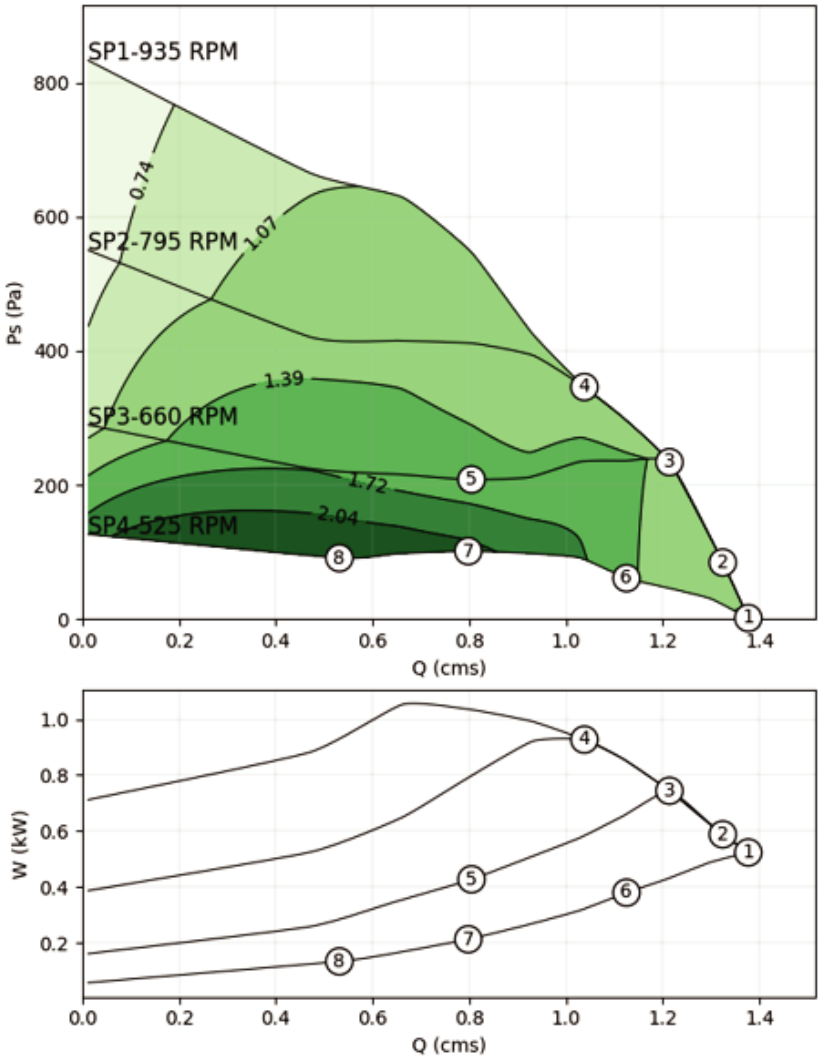




Point	Freq (Hz)	Voltage (V)	Speed (RPM)	Ps (Pa)	Q (cms)	W (kW)	ηT (%)	I (A)	LwA (dB)
Maximum Performance Curve 970RPM (10V)									
1	50/60	240	589	0	1.26	0.583	18	3.3	81
2	50/60	240	685	111	1.2	0.661	34	3.8	81
3	50/60	240	889	304	1.11	0.823	50	4.65	81
4	50/60	240	1210	527	0.87	1.038	48	5.76	83
Performance at 835rpm									
5	50/60	240	1078	413	0.77	0.720	47.84	4.07	80
Performance at 695rpm									
6	50/60	240	807	250	1	0.605	50.25	3.45	75
7	50/60	240	806	226	0.57	0.298	46.72	1.76	68
Performance at 535rpm									
8	50/60	240	534	2	1.14	0.424	19.08	2.46	75
9	50/60	240	534	67	0.93	0.301	34.81	1.78	71
10	50/60	240	534	108	0.66	0.176	49.03	1.08	64
11	50/60	240	534	98	0.38	0.095	42.35	0.61	52

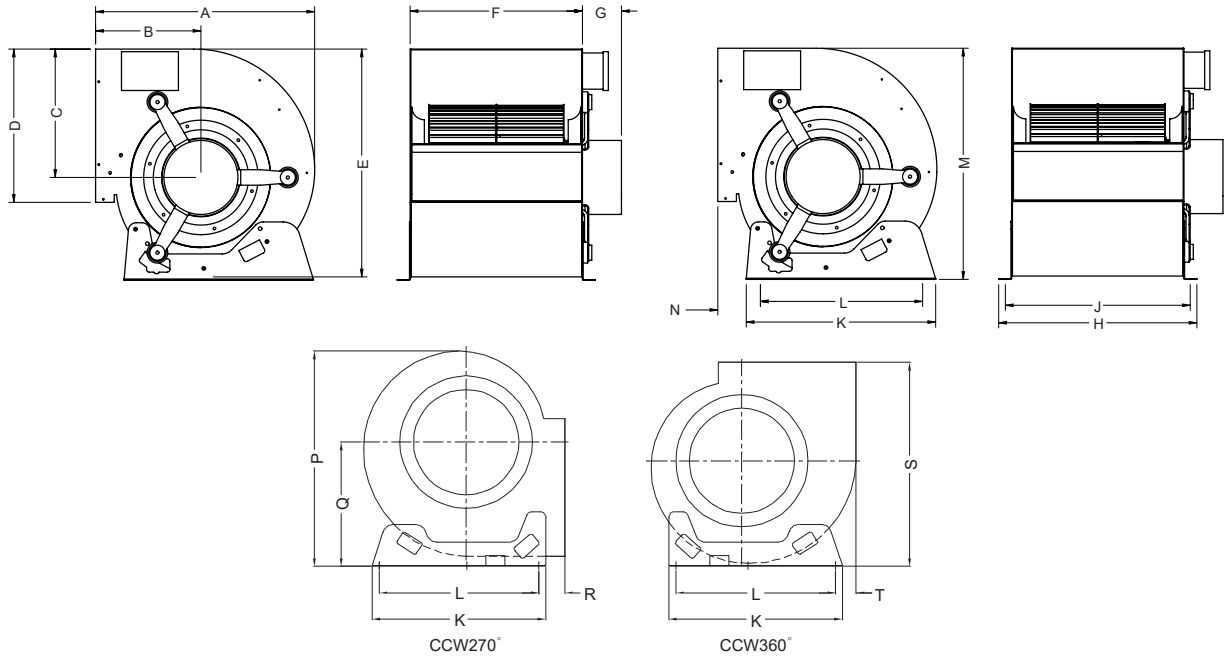
Characteristic Curve – eKDD 12-12

Performance data
Air density ρ = 1.2kg/m³
Installation type "B": free inlet, ducted outlet
Sound power levels inlet side in dB(A)



Point	Freq (Hz)	Voltage (V)	Speed (RPM)	Ps (Pa)	Q (cms)	W (kW)	ηT (%)	I (A)	LwA (dB)
Maximum Performance Curve 935RPM (10V)									
1	50/60	240	514	1	1.38	0.523	17	3	76
2	50/60	240	598	84	1.32	0.588	32	2.85	76
3	50/60	240	812	234	1.21	0.744	46	2.55	76
Performance at 795rpm									
4	50/60	240	1032	346	1.04	0.927	42.69	5.17	79
Performance at 660rpm									
5	50/60	240	810	208	0.8	0.427	43.22	1.35	69
Performance at 525rpm									
6	50/60	240	537	61	1.13	0.379	30.36	4.8	71
7	50/60	240	537	101	0.8	0.212	45.9	5.73	64
8	50/60	240	537	91	0.53	0.133	40.02	4.92	54

Dimension Table

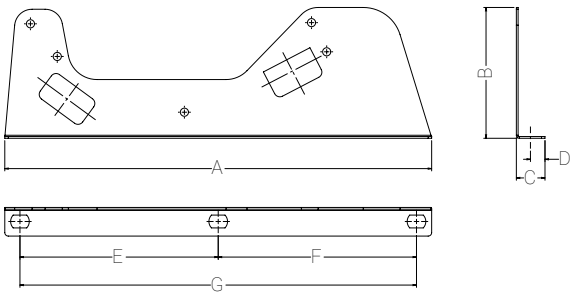


Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	Wt (kg)
eKDD 9-7	380	185	216	262	387	232	67	282	257	326	300	393	62	404	233	49	383	40	10.1
eKDD 9-9	380	185	216	262	387	298	52	348	323	326	300	393	62	404	233	49	383	40	10.8
eKDD 10-8	425	203	249	289	443	265	85	315	290	366	340	448	68	481	287	67	431	41	9.9
eKDD 10-10	425	203	249	289	443	331	76	381	356	366	340	448	68	481	287	67	431	41	14.26
eKDD 12-9	491	230	294	341	521	309	76	359	335	434	408	525	69	557	332	69	496	39	18.75
eKDD 12-12	491	230	294	341	521	309	38	359	335	434	408	525	69	557	332	69	496	39	19.75

Note
1. Actual weight may vary +/- 2% (w/o mounting feet)
2. Actual dimension may vary +/- 5mm

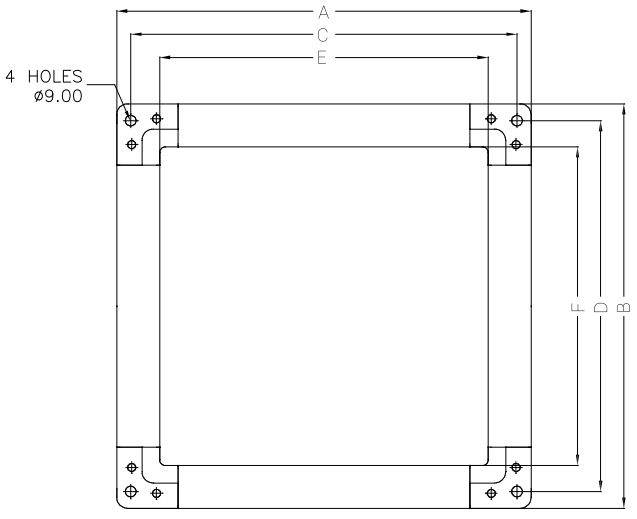
Accessory

Mounting Feet



Model	A	B	C	D	E	F	G
eKDD 9-7	326	102	25	12.5	135	165	300
eKDD 9-9	326	102	25	12.5	135	165	300
eKDD 10-8	366	113	25	12.5	170	170	340
eKDD 10-10	366	113	25	12.5	170	170	340
eKDD 12-9	434	144	25	12.5	189	219	408
eKDD 12-12	434	144	25	12.5	189	219	408

Outlet Flange



Electrical & Controls Wiring Diagram

Power and Control Wiring

This section illustrates the terminal layouts and wiring procedures for the eKDD Ecowatt plug fans.

The eKDD fan supports multiple speed control functions:

1. **Manual Speed Control via Potentiometer:** Analog signal 0–10 VDC.
2. **Automatic Speed Control via DCV or BMS:** Using analog signals (0–10 VDC) or Modbus RTU communication.

For detailed training on the eKDD Modbus RTU interface PC program and configuration methods, please contact Kruger.

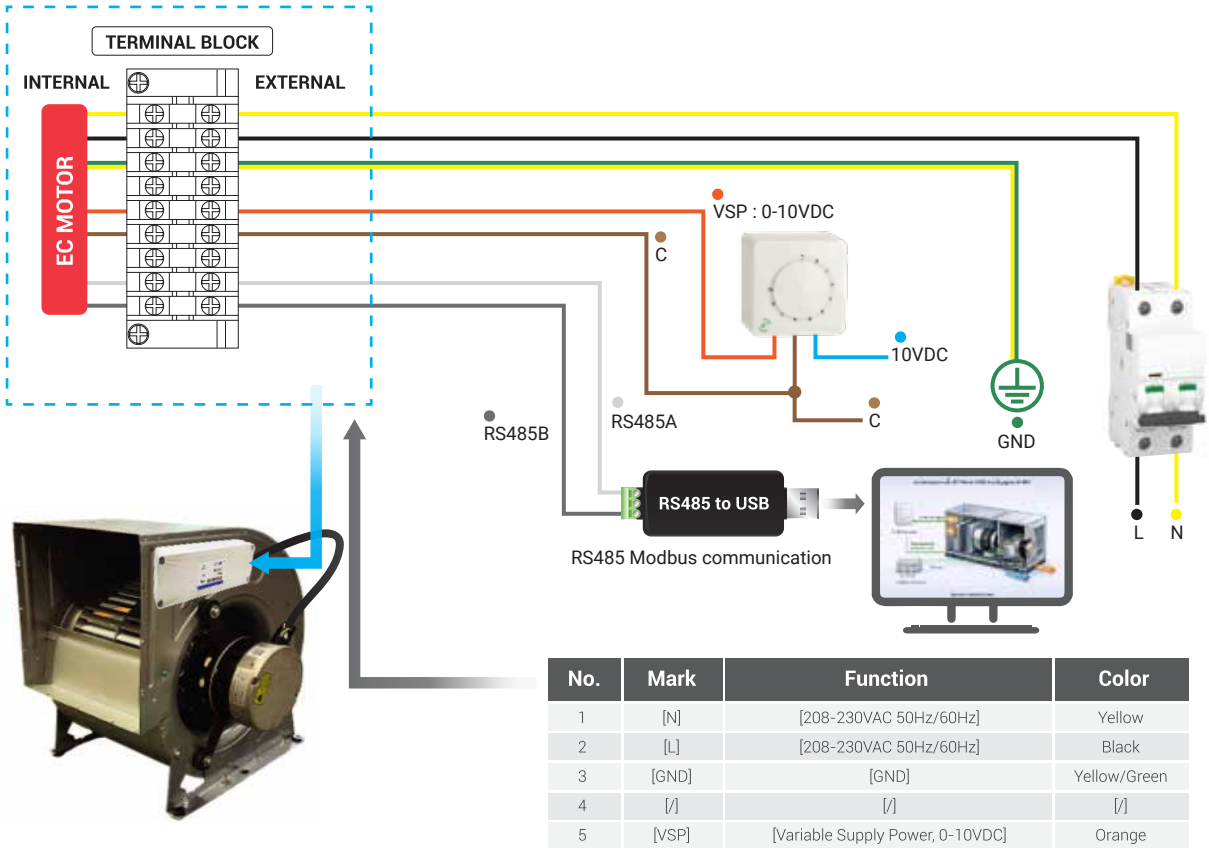
Power Wiring

- Select the cable size according to the motor's input current (A) for each model.
- Shielded cables are not required for power connections.
- When multiple fans are installed in a single AHU, each fan must have an individual circuit breaker.

Control Wiring

- Ensure all control cables (RS485A, RS485B, VSP, and C) for each fan are accessible at an external location, away from single-phase power supply connections.
- When using MODBUS over RS485, appropriate shielded cables must be used.

Wiring Diagram



No.	Mark	Function	Color
1	[N]	[208-230VAC 50Hz/60Hz]	Yellow
2	[L]	[208-230VAC 50Hz/60Hz]	Black
3	[GND]	[GND]	Yellow/Green
4	[/]	[/]	[/]
5	[VSP]	[Variable Supply Power, 0-10VDC]	Orange
6	[C]	[Low Voltage Common]	Brown
7	[/]	[/]	[/]
8	[485A]	[Communication VIA Modbus Protocal]	White
9	[485B]	[Communication VIA Modbus Protocal]	Gray

KRUGER

KRUGER Ventilation Group

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