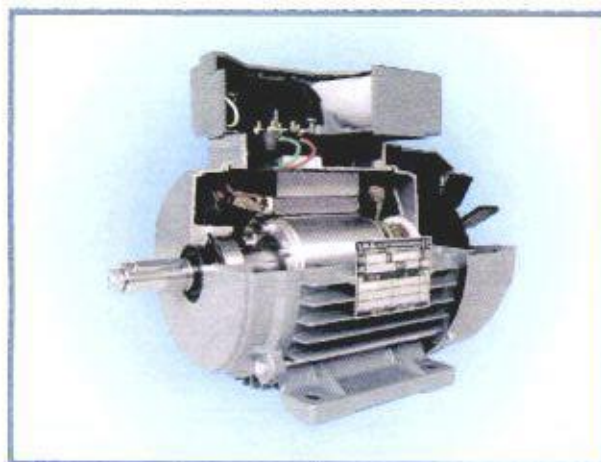


E.M.G.

ELETTROMECCANICA S.R.L.



MOTORI ASINCRONI SINGLE PHASE - MONOFASE

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12 AUG 2014

E.M.G. Series EMBP-Low Starting Torque Single-Phase Motors 230Volt (Permanent Capacitor)



E.M.G. single speed asynchronous single-phase motors of standard construction have a lower starting torque and are suitable for many applications including fan drives and centrifugal pumps. E.M.G. single speed asynchronous single-phase motors of standard design have high reliability and strength the frame and end shields are constructed of Aluminium. The motors are manufactured according to EN 60072-1, standardised powers from 0.06kW (0.08HP) 56 MEC size to 3kW (4HP) 100 MEC size are available.

Reference table for technical specifications of the motors.

Symbol	Meaning	Symbol	Meaning
P_n	Rated power (kW) and (HP)	C_u/C_s	Torque ratio
n_n	Rated speed of rotation (rpm)	$\cos\phi$	Rated power factor
I_n	Rated current (A)	η	Full load efficiency
I_s	Starting current (A)	CP	Permanent capacitor (μF)
I_n/I_s	Current ratio	J_2	Moment of inertia of the system shaft + rotor (kgcm ²)
C_n	Nominal torque (Nm)	G	Weight of the motor B3 (kg)
C_s	Starting torque (Nm)		

Series EMBP - 2 Pole Permanent Capacitor Single Phase Motors 230 volts														Terminal Box Type
Type	P_n kW HP		n (rpm)	η (%)	I_n (230V) (A)	$\cos\phi$	C_n (Nm)	C_u/C_s	I_s/I_n	CA (μF)	J_2 (kgcm ²)	G (kg)		
EMBP 56-2A	0.09	0.12	2730	40.0	1.40	0.70	0.32	2.06	1.81	6.3	0.72	3		Small
EMBP 56-2B	0.12	0.17	2700	47.0	1.42	0.78	0.43	1.53	1.79	8.3	0.72	3		
EMBP 63-2A	0.18	0.25	2870	50.0	1.68	0.96	0.60	1.20	3.49	12.5	1.67	4.5		Small
EMBP 63-2B	0.25	0.33	2830	58.0	1.90	0.97	0.84	0.86	3.00	12.5	1.67	4.5		
EMBP 71-2A	0.37	0.5	2830	72.0	2.30	0.97	1.25	0.70	3.85	14	3.43	6		Small
EMBP 71-2B	0.55	0.75	2800	70.0	3.20	0.97	1.87	0.49	3.47	14	4.80	7		
EMBP 80-2A	0.75	1	2810	69.0	5.10	0.93	2.55	0.90	3.50	25	6.72	9.8		Small
EMBP 80-2B	1.1	1.5	2780	75.0	6.80	0.94	3.73	0.84	3.62	30	8.69	10.9		
EMBP 90L-2A	1.5	2	2800	74.0	9.40	0.93	5.07	0.75	3.80	40	12.23	15		Large
EMBP 90L-2B	2.2	3	2800	75.0	14.00	0.93				40		16		
EMBP 100L-2A	2.2	3	2790	75.0	13.80	0.92	7.49	0.70	3.22	40+20	18.54	18.6		Large
EMBP 100L-2B	3	4	2770	78.0	18.70	0.92				40+20		20		

Series EMBP - 4 Pole Permanent Capacitor Single Phase Motors 230 volts														Terminal Box Type
Type	P_n kW HP		n (rpm)	η (%)	I_n (230V) (A)	$\cos\phi$	C_n (Nm)	C_u/C_s	I_s/I_n	CA (μF)	J_2 (kgcm ²)	G (kg)		
EMBP 56-4A	0.06	0.08	1350	36.0	0.75	0.96	0.42	1.86	1.69	6.3	1.17	3		Small
EMBP 56-4B	0.09	0.12	1300	44.0	0.84	0.98	0.82	1.29	1.51	8.3	1.17	3		
EMBP 63-4A	0.12	0.17	1400	44.0	1.40	0.85	0.37	1.49	1.88	8	2.60	4		Small
EMBP 63-4B	0.18	0.25	1380	56.0	1.50	0.93	1.25	1.10	2.57	10	2.90	4		
EMBP 71-4A	0.25	0.33	1350	57.0	2.10	0.90	1.77	0.93	2.36	14	5.76	6		Small
EMBP 71-4B	0.37	0.5	1350	62.0	2.90	0.89	2.60	0.57	2.44	16	7.82	6		
EMBP 80-4A	0.55	0.75	1360	66.0	4.10	0.86	3.84	0.46	2.61	16	14.23	8.5		Small
EMBP 80-4B	0.75	1	1380	67.0	5.70	0.86	5.14	0.57	2.74	20	18.45	9.4		
EMBP 90S-4	1.1	1.5	1370	70.0	7.60	0.88	7.53	0.55	3.00	25	19.65	12.3		Small
EMBP 90L-4A	1.5	2	1370	75.0	9.60	0.91	10.24	0.53	3.20	30	23.40	14.7		Large
EMBP 90L-4B	1.8	2.5	1340	68.0	12.50	0.90	12.90	0.50	2.30	36	25.53	15.5		Large
EMBP 100L-4A	2.2	3	1360	73.0	12.70	0.95	15.1	0.53	3.26	60	41.54	17.5		Large

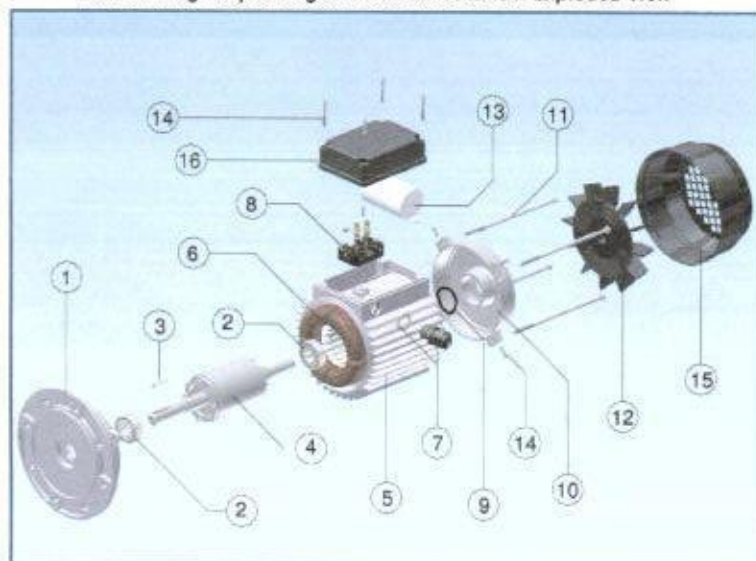
Series EMBP - 6 Pole Permanent Capacitor Single Phase Motors 230 volts														Terminal Box Type
Type	P_n kW HP		n (rpm)	η (%)	I_n (230V) (A)	$\cos\phi$	C_n (Nm)	C_u/C_s	I_s/I_n	CA (μF)	J_2 (kgcm ²)	G (kg)		
EMBP 71-6A	0.15	0.20	960		1.7				2.60	10		7		Small
EMBP 80-6A	0.25	0.33			1.9				2.68	14		8.5		Small
EMBP 80-6B	0.37	0.5	930		2.9	0.90			2.10	16		9		
EMBP 90S-6A	0.55	0.75	850		4.0				2.30	18		12.5		Small
EMBP 90S-6B	0.75	1	940		5.4				2.70	20		15		
EMBP 100L-6A	1.1	1.5			7.7				2.30	25		19.5		Large
EMBP 100L-6B	1.5	2	900		10.0	0.91			2.90	30				

E.M.G. Series EMBP-Low Starting Torque Single-Phase Motors 110Volt (Permanent Capacitor)

Type	P _n kW	HP	n (rpm)	η (%)	I _n (110V) (A)	cosφ	C _p (μF)	C _p /C _s	I _s /I _n	CA (μF)	J ₂ (kgcm ²)	G (kg)	Terminal Box Type
EMBP 71-2A EMBP 71-2B	0.37 0.55	0.5 0.75										6 7	Small
EMBP 80-2A EMBP 80-2B	0.75 1.1	1 1.5										9.8 10.9	Small
EMBP 90L-2A EMBP 90L-2B	1.5 2.2	2 3										15 16	Large
EMBP 100L-2A EMBP 100L-2B	2.2 3	3 4										18.8 20	Large

Type	P _n kW	HP	n (rpm)	η (%)	I _n (110V) (A)	cosφ	C _p (μF)	C _p /C _s	I _s /I _n	CA (μF)	J ₂ (kgcm ²)	G (kg)	Terminal Box Type
EMBP 71-4A EMBP 71-4B	0.25 0.37	0.33 0.5										8 8	Small
EMBP 80-4A EMBP 80-4B	0.55 0.75	0.75 1										8.5 9.4	Small
EMBP 90L-4A EMBP 90L-4B	1.1 1.5	1.5 2										12.3 14.7	Small Large
EMBP 100L-4A	2.2	3										15.5 17.5	Large

Low starting torque Single-Phase series EMBP Exploded View



1. B5 Flange	7. Cable gland	13. Capacitor
2. Bearings	8. Terminal box and	14. Terminal box screws
3. Key	9. Bearing loading washer	15. Fan Cover
4. Shaft + Rotor	10. Shield	16. Terminal box with gasket
5. B5 Frame	11. Tie Rods	
6. Wound stator	12. Fan	

E.M.G. Series EMB-High Starting Torque Single-Phase Motors 230Volt with Centrifugal Switch (Capacitor Start Capacitor Run)



Standard asynchronous single-phase motors have a low starting torque and therefore can be difficult to start with loads or voltages lower than the nominal one. The use of a centrifugal switch is a good solution to solve this problem. The aim of this switch is the connection of a starting capacitor to the asynchronous single-phase motor in order to get a higher starting torque and to disconnect it in the running condition. E.M.G. has single speed asynchronous single-phase motors with centrifugal switch with high reliability and strength. According to EN 60072-1, standardised powers from 0.25kW (0.33HP) 71 MEC size to 3kW (4HP) 100 MEC size are available.

Table for an easy reference of the technical specifications of the motors.

Symbol	Meaning
P _n	Rated power (kW) and (HP)
n _n	Rated speed of rotation (rpm)
I _n	Rated current (A)
I _s	Starting current (A)
I _s /I _n	Current ratio
C _n	Nominal torque (Nm)
C _s	Starting torque (Nm)
C _s /C _n	Torque ratio
cosφ	Rated power factor
η	Full load efficiency
CP	Permanent capacitor (μF)
CA	Starting capacitor (μF)
J ₂	Polar moment of inertia of the system shaft + rotor (kgcm ²)
G	Weight of the motor B3 (kg)

Type	P _n kW	HP	n (rpm)	η (%)	I _n (230V) (A)	cosφ	C _p (μF)	C _s /C _p	I _s /I _n	CP (μF)	CA (μF)	J ₂ (kgcm ²)	G (kg)	Terminal Box Type
EMB 71-2A EMB 71-2B	0.37 0.55	0.5 0.75	2830 2800	72.0 70.0	2.30 3.20	0.97 0.97	1.25 1.57	3.00 2.69	5.48 4.75	14 14	71±10% 71±10%	3.7 4.85	6 7	Small
EMB 80-2A EMB 80-2B	0.75 1.1	1 1.5	2870 2850	75.0 76.0	4.70 6.90	0.93 0.96	2.47 3.89	3.38 2.88	6.11 5.19	25 31.5	98±10% 120±10%	6.77 7.95	9.8 10.9	Large
EMB 90L-2A EMB 90L-2B	1.5 2.2	2 3	2920 2880	78.0 79.5	8.80 12.90	0.95 0.93	4.89 7.20	2.96 1.99	7.32 5.35	36 40	140±10% 160±10%	12.43 15.5	15 15.8	Large
EMB 100L-2A EMB 100L-2B	2.2 3	3 4	2910 2900	78.5 81.0	12.70 15.30	0.96 0.99	7.20 10.9	1.99 1.35	5.35 3.73	40+20 40+40	160±10% 160±10%	16.75 18.8	18.8 20	Large

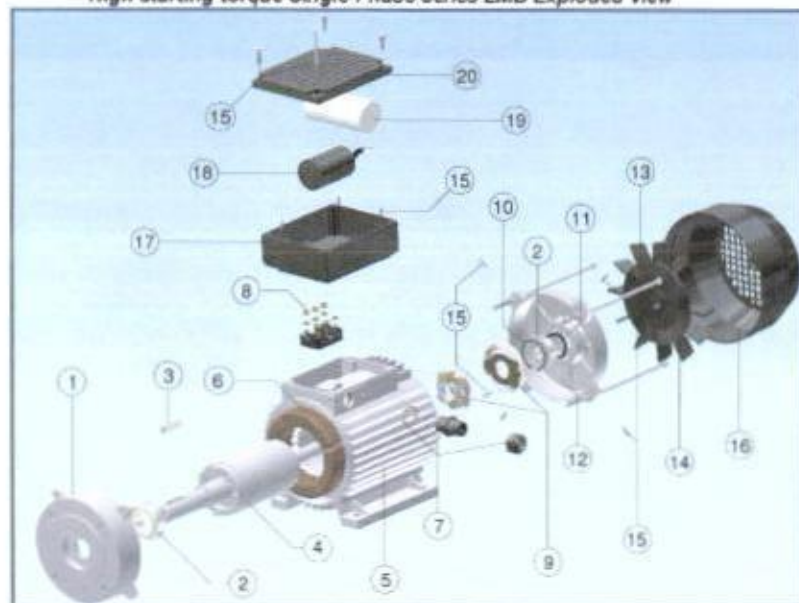
Type	P _n kW	HP	n (rpm)	η (%)	I _n (230V) (A)	cosφ	C _p (μF)	C _s /C _p	I _s /I _n	CP (μF)	CA (μF)	J ₂ (kgcm ²)	G (kg)	Terminal Box Type
EMB 71-4A EMB 71-4B	0.25 0.37	0.33 0.5	1440 1410	82.0 87.0	1.90 2.50	0.93 0.96	1.66 2.48	3.21 2.13	6.39 4.86	14 14	71±10% 71±10%	6.88 6.88	6 6	Small
EMB 80-4A EMB 80-4B	0.55 0.75	0.75 1	1430 1430	72.0 70.0	3.70 5.30	0.91 0.88	3.65 4.96	2.25 2.07	4.82 4.83	16 20	71±10% 98±10%	14.38 16.68	9.5 9.4	Large
EMB 90L-4A EMB 90L-4B	1.1 1.5	1.5 2	1430 1420	73.5 73.0	6.80 9.50	0.95 0.93	7.29 10.00	1.91 1.37	4.94 4.12	25 31.5	120±10% 120±10%	16.20 22.15	12.3 14.7	Large
EMB 100L-4A	2.2	3	1440	80.0	13.40	0.90	14.54	1.35	3.73	40	140±10%	33.64	17.5	Large

E.M.G. Series EMB-High Starting Torque Single-Phase Motors 110Volt with Centrifugal Switch (Capacitor Start Capacitor Run)

Series EMB - 2 Pole Capacitor Start Capacitor Run Single Phase Motors 110 volts														Terminal Box Type
Type	P _{in} kW	P _{in} HP	n (rpm)	n (110V)	I _e (A)	Cos φ	C _u (Watt)	C _u /C ₀	I ₀ /I _e	CP (μF)	CA (μF)	Δ (kg/m ²)	G (kg)	
EMB 71-2A	0.37	0.5	2830								71±10%		8	Small
EMB 71-2B	0.55	0.75	2800								71±10%		7	
EMB 90-2A	0.75	1	2870								90±10%		9.8	Large
EMB 90-2B	1.1	1.5	2830	77	14.9	0.92			3.8	31.8	120±10%		10.9	
EMB 90L-2A	1.5	2	2870								140±10%		15	Large
EMB 90L-2B	2.2	3	2970	78	23.0	0.91			5.2	40	160±10%		15.6	

Series EMB - 4 Pole Capacitor Start Capacitor Run Single Phase Motors 110 volts														Terminal Box Type
Type	P _{in} kW	P _{in} HP	n (rpm)	n (110V)	I _e (A)	Cos φ	C _u (Watt)	C _u /C ₀	I ₀ /I _e	CP (μF)	CA (μF)	Δ (kg/m ²)	G (kg)	
EMB 71-4A	0.25	0.33	1440								71±10%		8	Small
EMB 71-4B	0.37	0.5	1430	82	9.2	0.90			3.2	20	71±10%		7	
EMB 90-4A	0.55	0.75	1430								90±10%		8.5	Large
EMB 90-4B	0.75	1	1420	99	10.4	0.90			4.7	20	90±10%		8.4	
EMB 90L-4	1.1	1.5	1430								110±10%		12.3	Large
EMB 90L-4A	1.5	2	1420						5.2	30	120±10%		14.7	
EMB 100L-4A	2.2	3	1410						5.3	40	160±10%		17.5	Large

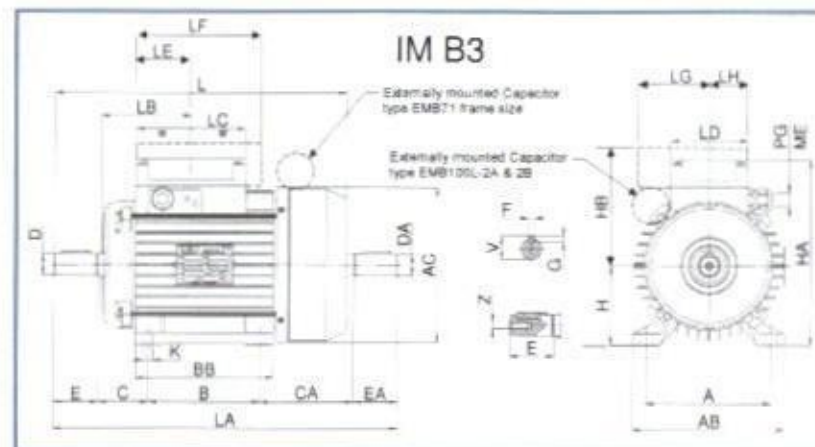
High starting torque Single-Phase series EMB Exploded View



1. B14 Flange	8. Terminal box and components	15. Mounting screws
2. Bearings	9. Centrifugal switch	16. Fan Cover
3. Key	10. Snap Ring	17. Terminal box with gasket
4. Shaft + Rotor	11. Bearing loading washer	18. Electrolytic Capacitor
5. B3 Frame	12. Shield	19. Capacitor
6. Wound stator	13. Tie Rods	20. Terminal Box Cover
7. Cable gland	14. Fan	

E.M.G. Series EMBP- Permanent Capacitor Series EMB- Capacitor start Capacitor Run Single Phase Motor Single and Double Shaft IM B3 Dimensions

(Applies to mounting types B6, B7, B8, V5 and V6 also)



Size	Overall (mm)						Feet (mm)						Shaft (mm)					Small Terminal Box (mm)				
	H	HA	L	LA	C	AC	CA	AB	BB	A	B	K	D/DA	F/FA	V	Z	LB	LC	LD	ME	PG	
56	56	144	188	208	35	112	81	107	90	90	71	8	9	20	10.2	M4	70	90	79	M18	B	
63	63	158	207	230	38	127	85	120	100	100	80	7	11	23	12.5	M4	78	101	79	M18	-	
71	71	178	243	273	45	145	78	135	109	112	80	7	14	30	16	M5	90	111	79	M18	-	
80	80	195	260	326	51	159	85	152	125	125	100	8	19	40	21.5	M6	101	123	88	M20	-	
90S	90	210	305	360	56	177	105	170	131	140	100	10	24	50	27	M6	102	123	88	M20	-	
90L	90	210	330	386	56	177	105	170	155	140	125	10	24	50	27	M6	104	123	88	M20	-	
100L	100	234	363	432	61	193	111	192	171	160	140	12	28	60	31	M10	92	90	90	M25	16	

	Large Terminal Box (mm)				
	HB	LE	LF	LG	LH
71 ¹⁷	73	80	111	44	44
80	140	80	140	66	44
90S	145	80	140	66	44
90L	145	80	140	66	44
100L ¹⁸	160	80	140	66	44

¹⁷ Note - 71 frame size EMB series Capacitor start Capacitor run motor has small type terminal box and external capacitor diameter Ø 42mm x 90mm long mounted to top of fan cowl

¹⁸ Note - 100L-2A & 2B EMB series Capacitor start Capacitor run motor has an external capacitor Ø 48mm x 100mm mounted at the side of the large type terminal box.

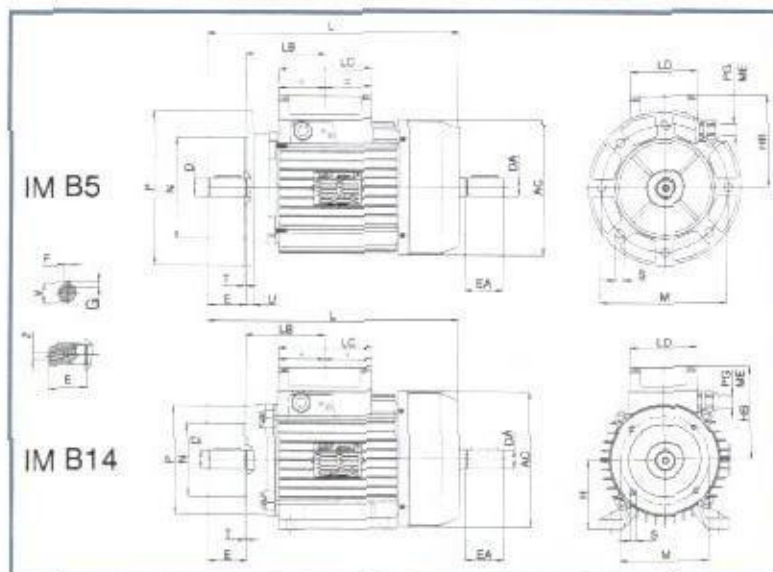
Shaft Tolerances	
DA Ø11 - Ø25mm	J6
38mm	H5



Series EMBP- Permanent Capacitor Single Phase Motors and Series EMB Capacitor start Capacitor run Single Phase Motors
For Large and small terminal box details see B3 drawing all other dimensions as below

Single and Double Shaft IM B5 and B14 Dimensions

Applies to mounting types V1 and V3 types for B5 flange. B5 Reduced flanges are also available B5R
Applies to mounting types V18 and V19 types for B14 flange.



MEC	Overall (mm)		Shaft (mm)					Small Terminal Box (mm)				Large Terminal Box
	HS	L	D/DA	E/EA	V	Z	LB	LC	LD	ME	PG	
66	88	188	9	20	10.2	M4	70	90	79	M12	9	See B3 drawing for dimensions of large type terminal box
63	95	207	11	23	12.5	M4	78	101	79	M16	-	
71	104	243	14	30	16	M5	90	111	79	M16	-	
80	115	290	19	40	21.5	M6	101	123	88	M20	-	
90S	120	305	24	50	27	M8	102	123	88	M20	-	
90L	120	330	24	50	27	M8	104	123	88	M20	-	
100L	134	363	28	60	31	M10	92	90	90	M25	18	

MEC	B5 Standard flange (mm)						B5 Reduced flange B5R (mm)						B14 Flange (mm)			
	M	N	P	S	T	U	M	N	P	S	T	U	M	N	P	T
66	100	80	118	7	3	7.5	-	-	-	-	-	-	65	50	80	M5 2.5
63	115	95	140	9.5	3	9	-	-	-	-	-	-	75	60	90	M5 2.5
71	130	110	160	9.5	3.5	8	115	95	140	9	3.5	8	85	70	105	M6 2.5
80	165	130	200	12	3.5	8	130	110	160	9.5	3.5	8	100	80	120	M6 3
90S	165	130	200	13	3.5	10	130	110	160	9.5	3.5	9	115	95	140	M8 3
90L	165	130	200	13	3.5	10	130	110	160	9.5	3.5	9	115	95	140	M8 3
100L	215	180	250	14	4	10	165	130	200	12	3.5	10	130	110	160	M8 3.5



UK Distributors for PTD, E.M.G., Swallowtail & Merlin Varmul Electric Motors

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Web site: www.kenworthproducts.co.uk

e-mail: enquiries@kenworthproducts.co.uk

CYLINDRICAL CASED AXIAL FLOW FANS COMPACT TCBB / TCBT Series - ALUMINIUM IMPELLERS



ErP
OK

Range of cylindrical cased axial flow fans fitted with aluminium impellers and manufactured from high grade rolled galvanneal steel and protected against corrosion by cataphoresis primer and black polyester paint finish.
All models are supplied with pre-wired wiring junction box located on the outside of the fan casing for easy wiring access.
Available, depending upon the model, with single or three phase motors in 2, 4 or 6 poles.

Motors

Single phase motor (TCBB) or three phase motor (TCBT).
Models 250, 315, 355 and 400: External rotor motor, IP44, Class F, thermal protection, working temperature from -40°C to +40°C.
Models 450, 500, 560, 630 and 6710: IP65, Class F, thermal protection, working temperature from -40°C to +70°C.
Models 710 and 800: IP55, Class F, working temperature from -40°C to +40°C.

IP65
PROTECTION

All motors are speed controllable by autotransformer except models /4-560H, /4-630, 710 and T/800.

Three phase motors are speed controllable by inverter.

Electrical supplies:
Single phase 230V-50Hz.
(Capacitor located inside the wiring terminal box).
Three phase 230/400V-50Hz or 400V-50Hz.
(See characteristic chart).

Additional information

Standard air direction: form (B) configuration impeller over motor.

On request

Air direction: form (A) configuration (motor over impeller).
From Ø450 to Ø800, three phase motors 2 speed, 4/8 poles.

ATEX versions

On request, explosion proof version in accordance with ATEX Directive for three phase models.
Increased safety: 100% TCEP epoxy resin.
TCBB 250-400, TCBT 250-400, TCBT 450-500 and 560-630 H4000 ATEX version.
TCBT 450-500 model only with motor.
TCBB 450-500 H4000 is available in increased safety.
Flame protection for models 450 and 500.
ATEX II 2G Ex d IIB T4, Ex t II T4 and Ex t II T5.
ATEX II 2G Ex d IIB T4 and Ex t II T5.
ATEX II 2G Ex d IIB T4 and Ex t II T5.

Working temperature from ATEX versions

From -20°C to 50°C: models 4, 5, 6 to 630.
Models 4, 5, 6 to 710.
From -20°C to 40°C: models 4, 710 and 800.
Models 4, 710 and 800.
From -20°C to 40°C: models 4, 710 and 800.

The explosion data (ATEX II 2G Ex d IIB T4 and Ex t II T5) is only valid from the explosion test results characteristics chart.



Corrosion resistance
Rolled steel casings and motor support protected by cataphoresis primer and black polyester paint finish.
Stainless steel screws.



Terminal box
Wiring terminal box with cable gland PG-11 (except ATEX models).



Impeller dynamically balanced
Impellers are dynamically balanced, according to ISO 1940 standard, giving vibration free operation.



Configuration for models /4-710 and 800.



Constructive configuration models 250, 315, 355 and 400 (excepted 4-355 and 4-400).

Specific applications



CYLINDRICAL CASED AXIAL FLOW FANS COMPACT TCBB / TCBT Series - ALUMINIUM IMPELLERS



REFERENCE

TCBT / 4 - 400 / 4 - 6 400 V 50 Hz 11

- 1 - T: Cylindrical cased axial flow fan
- 2 - C: Series designation
- 3 - Impeller type:
B: Ø 250 - Ø 400 Fixed blade impeller manufactured from aluminium sheet.
Ø 450 - Ø 800 Adjustable blade aluminium impeller
- 4 - Supply type:
B: Single phase
T: Three phase
- 5 - Number of poles:
2: (approx. 2800 rpm - 50 Hz)
4: (approx. 1400 rpm - 50 Hz)
6: (approx. 930 rpm - 50 Hz)
- 6 - Nominal diameter of fan in mm
- 7 - Pitch angle
- 8 - Direction of air:
A: Motor over impeller
B: Impeller over Motor
- 9 - Voltage:
230 V (single phase)
230/400 V (three phase)
400 V (three phase)
- 10 - Frequency of service: 50 Hz
60 Hz
- 11 - Special versions:
2 V: Two speed motors.
4/8 poles of motor for models.

Ø 450 up to Ø 800 mm.
6/12 poles of motor for models from Ø 710 up to Ø 800 mm.
C: Condensation drain holes on motor.
EX: Explosion proof and flame proof versions.

SUPPLY VOLTAGES AND FREQUENCIES



Main supply voltage	Motor type	Connection	Speed
SINGLE PHASE 230V-50Hz, 240V-50Hz	230V 50Hz	See wiring diagram	High
THREE PHASE 230V-50Hz 240V-50Hz	230/400V 50Hz	△	High
		Y	Low*
THREE PHASE 380V-50Hz 415V-50Hz	230/400V 50Hz	△	High
	400V 50Hz	△	High
		Y	Low*

* For models allowed to speed variation 10%

ACOUSTIC CHARACTERISTICS

The sound levels shown in the technical characteristics chart and performance curves, correspond to the value of sound pressure (dB(A)) measured in free field conditions at a distance equivalent to three times the diameter of the impeller with a minimum of 1.5 meters.

Sound power level spectrum in dB(A) at the corresponding frequency band in Hz and the point of maximum flow.

Model	43	125	250	500	1000	2000	4000	8000	L _{WA}	Model	43	125	250	500	1000	2000	4000	8000	L _{WA}
T-250H	31	44	59	65	74	77	84	86	79	T-355H	31	42	49	58	67	68	71	73	67
/4-250H	24	37	41	47	52	52	47	41	37	/4-355H	30	44	51	57	59	58	53	45	44
/4-315H	40	51	45	53	59	59	51	45	40	/4-400H	40	51	58	63	64	62	56	48	47
/4-355H	24	42	45	53	58	58	49	42	42	/4-450H	43	53	61	66	66	64	58	50	51
/4-400H	46	53	59	66	69	69	66	58	74	/4-500H	44	57	64	69	70	67	61	53	74
/4-450H	48	56	60	71	73	71	67	59	77	/4-560H	44	56	64	69	69	67	61	53	74
/4-500H	50	62	69	76	76	76	70	62	81	/4-630H	47	57	66	71	72	70	64	56	77
/4-560H	52	64	71	77	78	77	72	64	83	/4-6710H	51	61	68	73	74	72	66	58	79
/4-630H	53	65	72	78	79	78	73	65	84	/4-710H	52	62	69	75	75	73	67	59	80
/4-6710H	54	67	75	80	80	81	74	66	87	/4-800H	51	64	70	75	75	74	69	61	84
/4-800H	56	67	75	80	82	81	74	66	87	/4-800H	51	64	70	75	75	74	69	61	84
/4-710H	53	67	75	80	80	84	78	70	81	/4-800H	51	64	70	75	75	74	69	61	84
/4-710H	60	72	79	85	86	85	80	72	91	/4-800H	51	64	70	75	75	74	69	61	84
/4-800H	57	73	80	85	85	88	82	74	95	/4-800H	51	64	70	75	75	74	69	61	84
/4-800H	63	75	82	88	90	88	84	76	94	/4-800H	51	64	70	75	75	74	69	61	84
/4-800H	64	76	83	89	90	89	84	76	95	/4-800H	51	64	70	75	75	74	69	61	84
/4-800H	64	77	84	90	92	91	86	78	96										

CYLINDRICAL CASED AXIAL FLOW FANS COMPACT TCBB / TCBT Series - ALUMINIUM IMPELLERS



TECHNICAL CHARACTERISTICS

Before installation check that the product electrical characteristics listed on the data plate label (voltage, power, frequency, etc.) match those of the intended electrical supply.

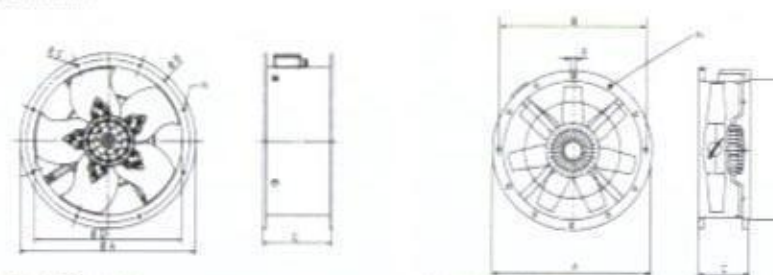
Model	Speed (rpm)	Maximum absorbed power (W)	Maximum current (A)		Sound pressure level* (dB(A))	Maximum airflow (m³/h)	Weight (kg)	Speed controller		Variable frequency inverter	
			230 V	400 V				REB	RMB/T	VFTM	VFRB
SINGLE PHASE 2 POLE											
TCBB/2-250/H	2880	122	0.5	-	62	1 680	8	-	-	-	-
SINGLE PHASE 4 POLE											
TCBB/4-250/H	1420	44	0.2	-	62	900	8	REB-1	RMB-1.5	-	-
TCBB/4-315/H	1425	105	0.6	-	52	1 990	11	REB-1	RMB-1.5	-	-
TCBB/4-355/H	1420	130	0.8	-	52	2 440	13.2	REB-2.5	RMB-1.5	-	-
TCBB/4-400/H	1420	160	1.0	-	60	3 190	15.5	REB-2.5	RMB-2.5	-	-
TCBB/4-450/H	1410	594	2.8	-	60	4 810	21	REB-5	RMB-3.5	-	-
TCBB/4-500/H	1410	636	2.8	-	64	1 500	20	REB-5	RMB-2.5	-	-
TCBB/4-560/L	1405	1289	6	-	66	11 970	32	REB-10	RMB-8	-	-
TCBB/4-560/H	1390	1461	8.8	-	69	12 560	34.7	-	-	-	-
TCBB/4-630/L	1380	1707	7.5	-	70	15 730	40	-	-	-	-
SINGLE PHASE 6 POLE											
TCBB/6-355/H	880	92	0.4	-	44	2 160	12.2	REB-1	RMB-1.5	-	-
TCBB/6-400/H	870	118	0.5	-	48	2 820	15.5	REB-1	RMB-1.5	-	-
TCBB/6-500/H	920	226	1	-	57	5 220	24.8	REB-2.5	RMB-1.5	-	-
TCBB/6-560/L	960	453	2.5	-	60	8 170	33.5	REB-5	RMB-2.5	-	-
TCBB/6-630/L	900	652	3.2	-	60	11 060	38.5	REB-5	RMB-8	-	-
TCBB/6-110/L	900	1167	6.7	-	62	16 440	44	-	-	-	-
THREE PHASE 1 POLE											
TCBT/2-250/H	2775	114	0.3	0.2	62	1 730	8	-	-	TRI-0.37	VFRB-45
THREE PHASE 4 POLE											
TCBT/4-250/H	1470	42	0.3	0.2	42	900	8	-	RMT-1.5	TRI-0.37	VFRB-45
TCBT/4-315/H	1445	99	0.5	0.3	51	1 950	11	-	RMT-1.5	TRI-0.37	VFRB-45
TCBT/4-355/H	1415	117	0.5	0.3	52	2 470	13.2	-	RMT-1.5	TRI-0.37	VFRB-45
TCBT/4-400/H	1410	141	1.2	0.7	60	3 140	15.5	-	RMT-1.5	TRI-0.37	VFRB-45
TCBT/4-450/H	1405	526	1.9	1.1	63	4 850	21	-	RMT-2.5	TRI-0.37	VFRB-45
TCBT/4-500/H	1420	641	2.8	1.5	66	7 990	25	-	RMT-2.5	TRI-0.37	VFRB-45
TCBT/4-560/L	1415	1184	3.8	2.2	68	12 090	35	-	RMT-2.5	TRI-0.75	VFRB-45
TCBT/4-560/H	1390	1368	4.2	2.4	69	13 370	34.7	-	-	TRI-1.1	VFRB-45
TCBT/4-630/L	1410	1770	6.9	3.4	70	16 560	39	-	-	TRI-1.5	VFRB-45
TCBT/4-630/H	1400	1940	6.2	3.4	70	17 030	40	-	-	TRI-1.5	VFRB-45
TCBT/4-710/L	1435	2175	8.4	3.7	73	20 290	44	-	-	TRI-1.5	VFRB-45
TCBT/4-710/H	1460	3441	10.6	6.1	73	24 420	54	-	-	TRI-3	VFRB-48
TCBT/4-800/L	1448	3750	11.3	6.3	74	28 950	65	-	-	TRI-3	VFRB-48
TCBT/4-800/H	1440	5177	-	8.8	74	34 950	68	-	-	TRI-4	-
TCBT/4-800/S	1470	4144	-	11.1	77	38 500	81	-	-	TRI-5.5	-
TCBT/4-800/H	1475	7688	-	13	78	42 490	89	-	-	TRI-5.5	-
THREE PHASE 6 POLE											
TCBT/6-355/H	890	97	0.7	0.4	47	2 250	13.2	-	RMT-1.5	TRI-0.37	VFRB-45
TCBT/6-400/H	860	116	0.7	0.4	49	2 970	15.5	-	RMT-1.5	TRI-0.37	VFRB-45
TCBT/6-450/H	940	141	0.7	0.4	54	4 020	20.7	-	RMT-1.5	TRI-0.37	VFRB-45
TCBT/6-500/H	915	290	1.2	0.7	57	6 115	24.8	-	RMT-1.5	TRI-0.37	VFRB-45
TCBT/6-560/H	925	525	2.9	1.7	60	9 020	33.5	-	RMT-2.5	TRI-0.55	VFRB-45
TCBT/6-630/L	915	595	2.3	1.3	60	10 940	38	-	RMT-2.5	TRI-0.55	VFRB-45
TCBT/6-630/H	960	887	4.8	2.8	62	12 620	38.5	-	RMT-5	TRI-1.1	VFRB-45
TCBT/6-710/L	920	957	4.5	2.6	62	14 290	44	-	-	TRI-1.1	VFRB-45
TCBT/6-710/H	910	1217	5.5	2.9	63	18 950	44	-	-	TRI-1.1	VFRB-45
TCBT/6-800/L	940	1278	4.7	2.7	64	20 770	57	-	-	TRI-1.1	VFRB-45
TCBT/6-800/K	970	1592	5.7	3.3	66	24 890	64	-	-	TRI-1.5	VFRB-45
TCBT/6-800/S	970	1968	8.5	4.6	67	26 310	68	-	-	TRI-2.2	VFRB-45
TCBT/6-800/H	970	2345	8.7	5	68	27 910	80	-	-	TRI-2.2	VFRB-48

* Sound pressure level measured in free field conditions at a distance equivalent to three times the diameter of the impeller with a minimum of 1.5 meters.
For more information see Acoustic characteristics.

CYLINDRICAL CASED AXIAL FLOW FANS COMPACT TCBB / TCBT Series - ALUMINIUM IMPELLERS



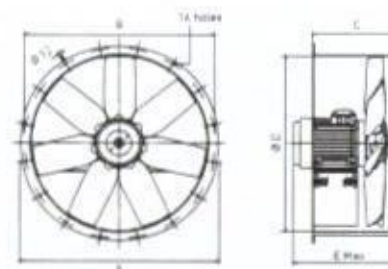
DIMENSIONS [mm]



Models 250, 315, 355 and 400

Models 450, 500, 560, 630 and 710

Model	Ø A	Ø B	C	Ø D	Ø E	Number of holes N
250	327	292	170	254	10	4
315	386	355	170	315	10	8
355	426	395	170	355	10	8
400 (4 poles)	487	450	170	400	12	8
400 (6 poles)	487	450	210	400	12	8
450	537	500	180	450	12	8
500	595	560	180	500	12	12
560	635	620	240	560	12	12
630	725	670	240	630	12	12
710 (4 poles)	806	770	240	710	12	16

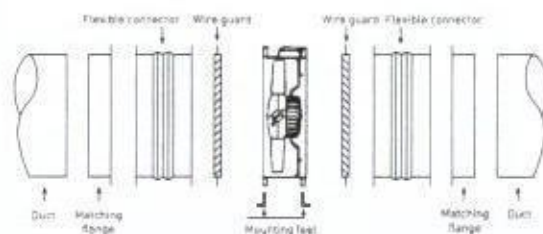


Model	Ø A	B	C	Ø D	4 poles	6 poles	8 poles
710/L (4 poles)	806	770	380	710	415	-	-
710/H (4 poles)	806	770	380	710	444	-	-
800/L	876	840	380	800	437	430	383
800/H	876	840	380	800	448	437	406
800/S	876	840	380	800	447 (5.5kW)	515 (7.5kW)	437
800/H	876	840	380	800	515	477	437

CYLINDRICAL CASED AXIAL FLOW FANS COMPACT TCBB / TCBT Series - ALUMINIUM IMPELLERS



MOUNTING ACCESSORIES



Model	Wire guard		Matching flange	Mounting feet	Bellmouth protection guard	Flexible connector	Flexible connector explosion proof (ATEX)
	Inlet (impeller side)	Outlet (motor side)					
TCBB / TCBT 250	DEF-250 T	DEF-250 T	ARO BRIDA COMPACT-250	PE-250	EMB-035 T	ACOP BRIDA-250	ACOPEL EX 250/140 N
TCBB / TCBT 315	DEF-315 T	DEF-315 T	ARO BRIDA COMPACT-315	PE-315	EMB-035 T	ACOP BRIDA-315	ACOPEL EX 315/140 N
TCBB / TCBT 355	DEF-355 T	DEF-355 T	ARO BRIDA COMPACT-355	PE-355	EMB-035 T	ACOP BRIDA-355	ACOPEL EX 355/140 N
TCBB / TCBT 400	DEF-400 T	DEF-400 T	ARO BRIDA COMPACT-400	PE-400	EMB-400 T	ACOP BRIDA-400	ACOPEL EX 400/140 N
TCBB / TCBT 450	DEF-450 T	DEF-450 T	ARO BRIDA COMPACT-450	PE-450	EMB-450 T	ACOP BRIDA-450	ACOPEL EX 450/140 N
TCBB / TCBT 500	DEF-500 T	DEF-500 T	ARO BRIDA COMPACT-500	PE-500	EMB-500 T	ACOP BRIDA-500	ACOPEL EX 500/140 N
TCBB / TCBT 560	DEF-560 T	DEF-560 T	ARO BRIDA COMPACT-560	PE-560	EMB-560 T	ACOP BRIDA-560	ACOPEL EX 560/140 N
TCBB / TCBT 630	DEF-630 T	DEF-630 T	ARO BRIDA COMPACT-630	PE-630	EMB-630 T	ACOP BRIDA-630	ACOPEL EX 630/140 N
TCBT 4-710 N	DEF-710 T	DEF-710A-1 DISCARDA	ARO BRIDA COMPACT-710	PE-710	EMB-710 T	ACOP BRIDA-710	ACOPEL EX 710/140 N
TCBT 4-710 L	DEF-710 T	DEF-710B-1 DISCARDA	ARO BRIDA COMPACT-710	PE-710	EMB-710 T	ACOP BRIDA-710	ACOPEL EX 710/140 N
TCBB / TCBT 4-710	DEF-710 T	DEF-710 T	ARO BRIDA COMPACT-710	PE-710	EMB-710 T	ACOP BRIDA-710	ACOPEL EX 710/140 N
TCBT 800	DEF-800 T	DEF-DES-101/710T-800*	ARO BRIDA COMPACT-800	PE-800	EMB-800 T	ACOP BRIDA-800	ACOPEL EX 800/140 N

* For more information see Mounting access accessories

ELECTRICAL ACCESSORIES



REB-1N / REB-2,5N
Single phase electronic speed controllers.



REB-5 / REB-10
Single phase electronic speed controllers.



RMB/RMT
Single and three phase auto transformer speed controllers.



VFTM TR1 IP54
Adjustable frequency drive for three phase motors from 0.37 to 15 kW, 230V or 400V



VFKB IP65
Adjustable frequency drives for three phase motors from 0.37 to 4 kW 230V or 400V



COM 0/5
To connect three phase fans with 400 V motor. For three phase models

CYLINDRICAL CASED AXIAL FLOW FANS COMPACT TCBB / TCBT Series - ALUMINIUM IMPELLERS

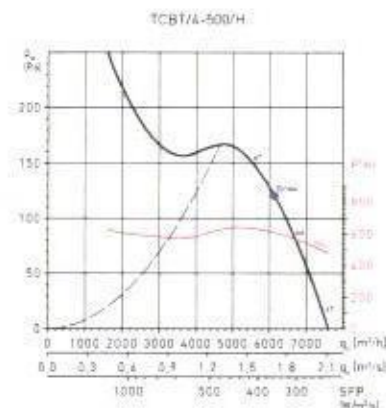


PERFORMANCE CURVES

- q: Airflow in m³/h and m³/s
- p_{st}: Static pressure in Pa
- SFP: Specific fan power in W/(m³/s)
- P: Input power in W
- Measurement category: D
- Efficiency category: total
- Fan efficiency without speed control
- Airflow rate in accordance with ISO 5801
- Sound pressure level dB(A), measured in a free field distance equal to 3 times the diameter, with a minimum of 1.5 m

Select the airflow performance in the area of the graph right of the dashed line.

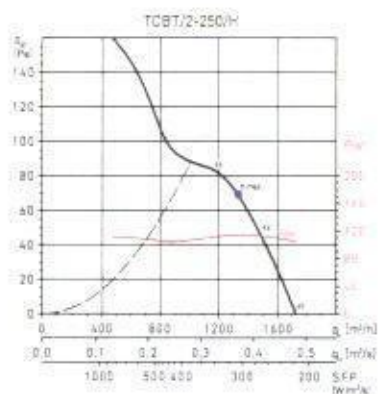
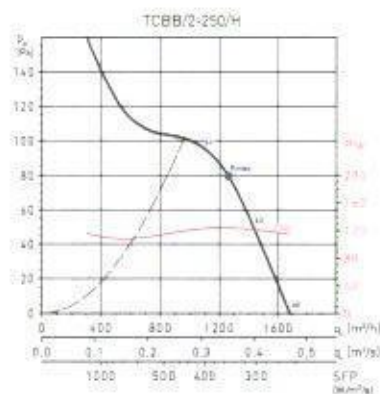
EXAMPLE CURVE



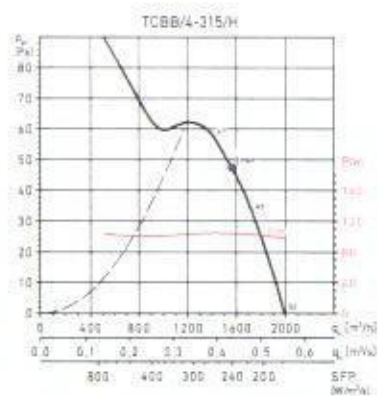
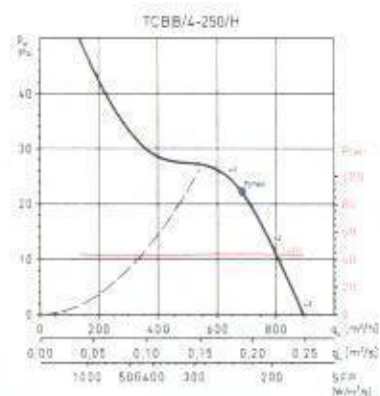
- MC**: Measurement category
- EC**: Efficiency category
- VS0**: Speed control: supplied with the fan
- SR**: Specific ratio
- η [%]**: Efficiency
- N**: Efficiency grade
- [kW]**: Absorbed power
- [m³/h]**: Airflow
- [Pa]**: Static pressure
- [RPM]**: Speed

MC*	EC*	VS0*	SR*	η [%]*	N*	[kW]	[m ³ /h]	[Pa]	[RPM]
D	Total	No	1	44.7	34.0	0.60V	6.147	166	1389

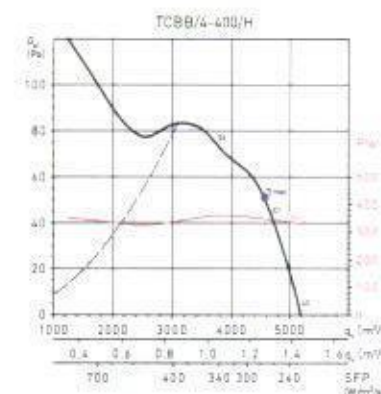
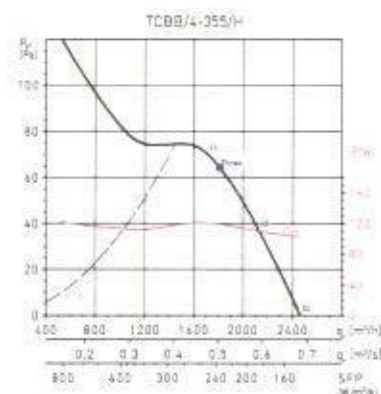
PERFORMANCE CURVES - 2 POLE MOTORS



PERFORMANCE CURVES - 4 POLE MOTORS

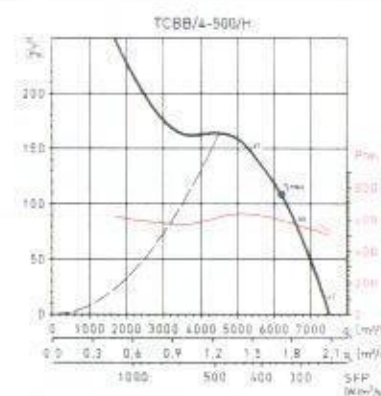
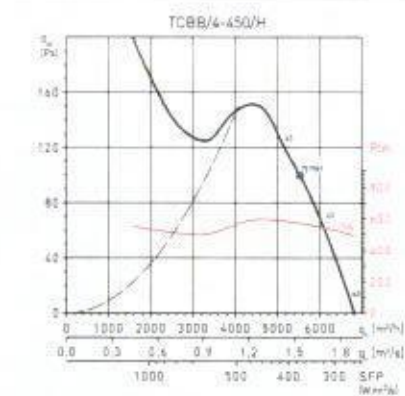


PERFORMANCE CURVES - 4 POLE MOTORS



MO*	EO*	VSD*	SR*	η[%]*	N*	kw	m³/h	Pa	RPM
0	Total	No	1	40.8	50.0	0.347	4556	112	1414

* See example curve



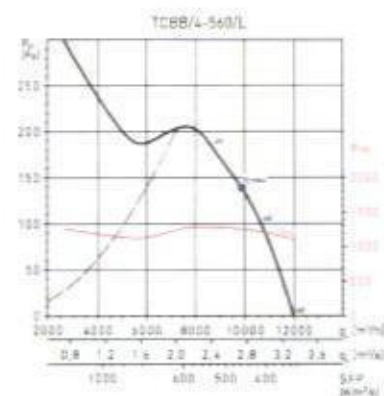
MO*	EO*	VSD*	SR*	η[%]*	N*	kw	m³/h	Pa	RPM
0	Total	No	1	42.2	50.1	0.549	5538	154	1392

* See example curve

MO*	EO*	VSD*	SR*	η[%]*	N*	kw	m³/h	Pa	RPM
0	Total	No	1	45.1	52.8	0.397	4200	155	1399

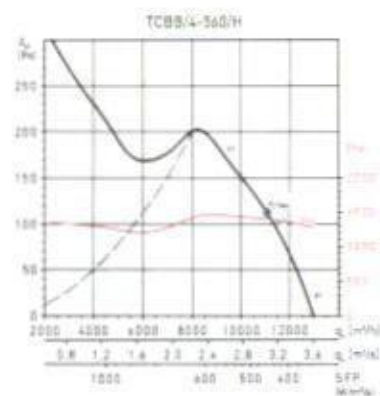
* See example curve

PERFORMANCE CURVES - 4 POLE MOTORS



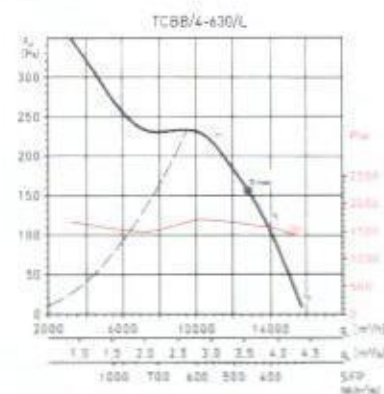
MC*	EC*	VSQ*	SR*	WPM*	N*	Qm	Qv	Pa	DPm
0	Total	No	1	47.0	52.7	1.254	9.88	210	1381

* See example curve



MC*	EC*	VSQ*	SR*	WPM*	N*	Qm	Qv	Pa	DPm
0	Total	No	1	44.8	52.2	1.295	11.11	211	1372

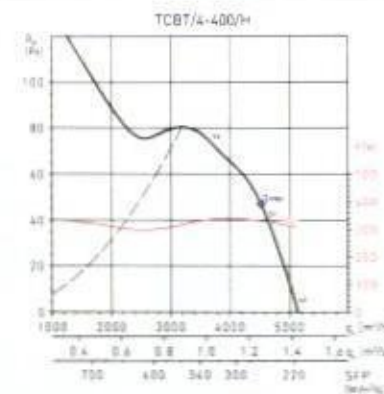
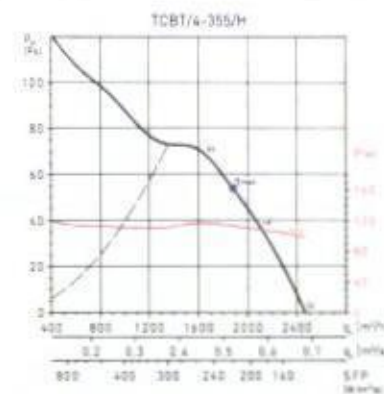
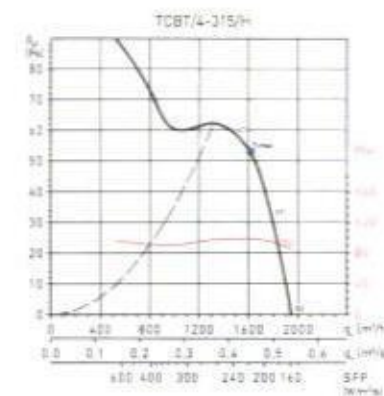
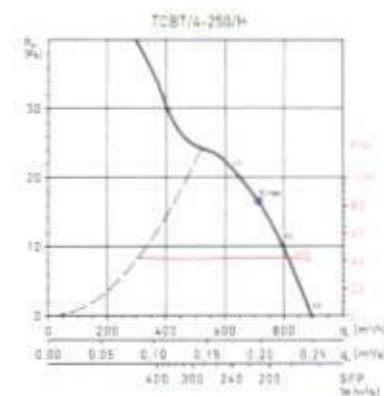
* See example curve



MC*	EC*	VSQ*	SR*	WPM*	N*	Qm	Qv	Pa	DPm
0	Total	No	1	52.4	57.4	1.624	12.815	238	1332

* See example curve

PERFORMANCE CURVES - 4 POLE MOTORS

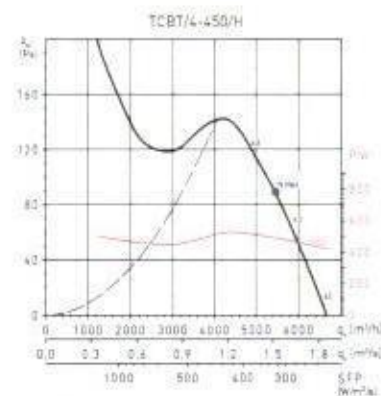


MC*	EC*	VSQ*	SR*	WPM*	N*	Qm	Qv	Pa	DPm
0	Total	No	1	47.1	50.5	0.230	4.575	108	1401

* See example curve

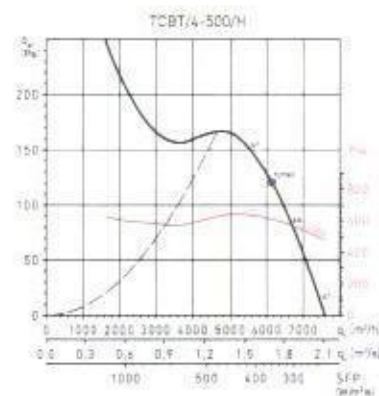


PERFORMANCE CURVES - 4 POLE MOTORS



MC*	EC*	VSD*	SR*	η(N)*	N*	(kW)	(m³/h)	(Pa)	(RPM)
0	Total	No	1	44.7	53.0	0.481	5.470	144	1364

* See example curve

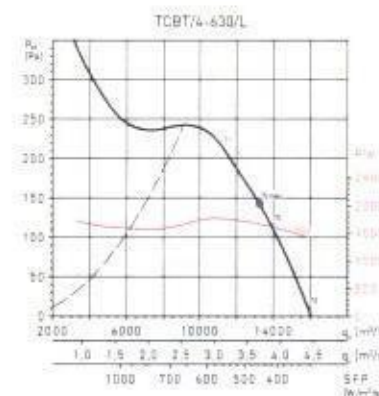


MC*	EC*	VSD*	SR*	η(N)*	N*	(kW)	(m³/h)	(Pa)	(RPM)
0	Total	No	1	44.9	54.4	0.405	6.147	166	1389

* See example curve

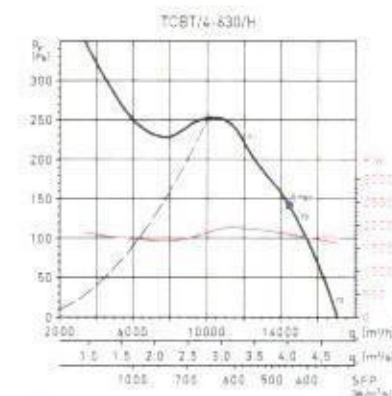


PERFORMANCE CURVES - 4 POLE MOTORS



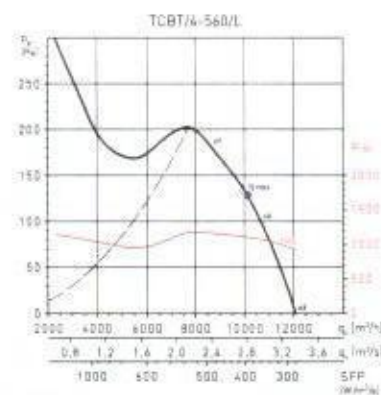
MC*	EC*	VSD*	SR*	η(N)*	N*	(kW)	(m³/h)	(Pa)	(RPM)
0	Total	No	1	50.4	55.3	1.467	13.345	227	1390

* See example curve



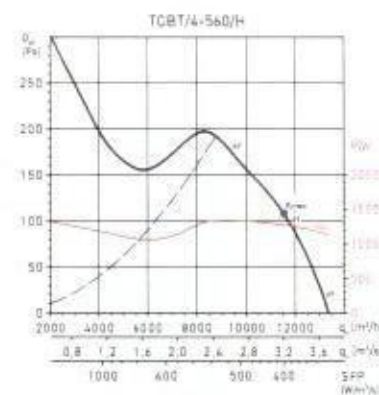
MC*	EC*	VSD*	SR*	η(N)*	N*	(kW)	(m³/h)	(Pa)	(RPM)
0	Total	No	1	54.4	59.1	1.804	14.481	244	1363

* See example curve



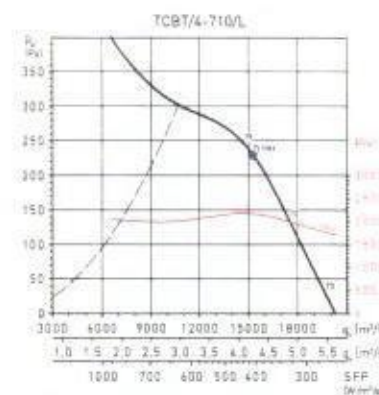
MC*	EC*	VSD*	SR*	η(N)*	N*	(kW)	(m³/h)	(Pa)	(RPM)
0	Total	No	1	53.7	59.3	1.107	10.727	208	1290

* See example curve



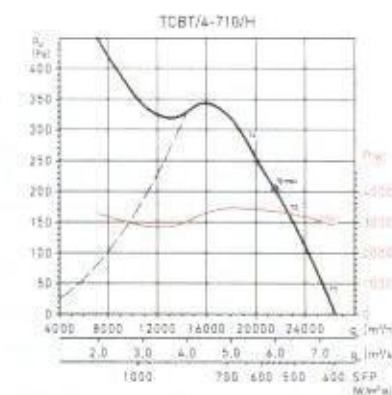
MC*	EC*	VSD*	SR*	η(N)*	N*	(kW)	(m³/h)	(Pa)	(RPM)
0	Total	No	1	53.4	59.1	1.275	11.074	213	1372

* See example curve



MC*	EC*	VSD*	SR*	η(N)*	N*	(kW)	(m³/h)	(Pa)	(RPM)
0	Total	No	1	58.7	62.9	2.566	10.304	299	1474

* See example curve



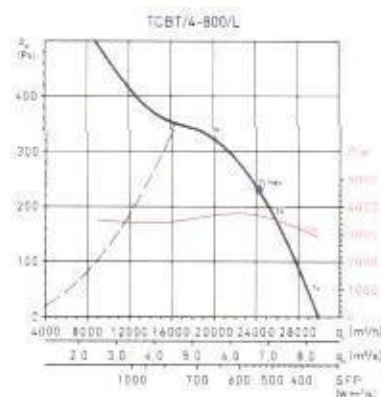
MC*	EC*	VSD*	SR*	η(N)*	N*	(kW)	(m³/h)	(Pa)	(RPM)
0	Total	No	1	61.4	64.4	3.344	21.543	341	1451

* See example curve

CYLINDRICAL CASED AXIAL FLOW FANS
COMPACT TCBB / TCBT Series - ALUMINIUM IMPELLERS

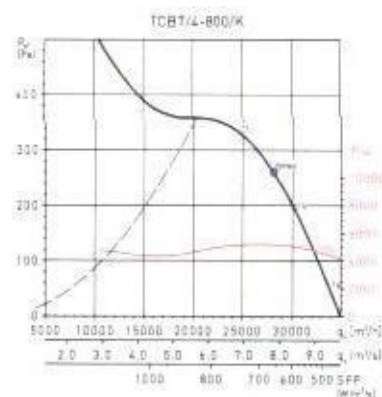


PERFORMANCE CURVES - 4 POLE MOTORS



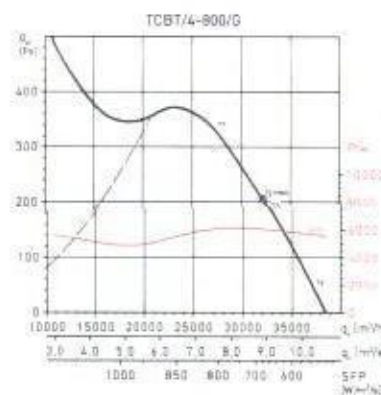
MC*	EC*	VSD*	SR*	n(N)*	N*	DW	Qm³/h	Pa	RPM
D	Total	No	1	62.4	65.2	3.678	24.348	337	1445

* See example curve



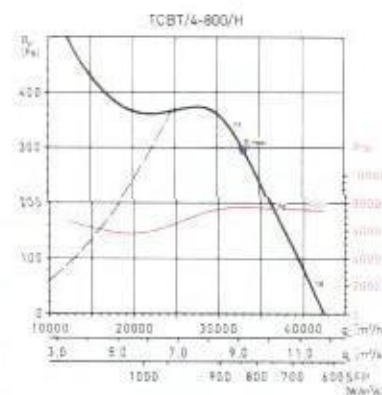
MC*	EC*	VSD*	SR*	n(N)*	N*	DW	Qm³/h	Pa	RPM
D	Total	No	1	61.8	63.4	5.156	28.120	346	1445

* See example curve



MC*	EC*	VSD*	SR*	n(N)*	N*	DW	Qm³/h	Pa	RPM
D	Total	No	1	58.9	60.3	6.028	32.195	377	1445

* See example curve



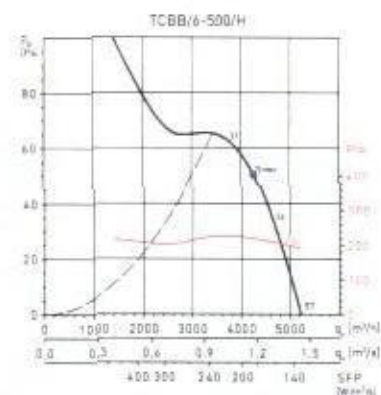
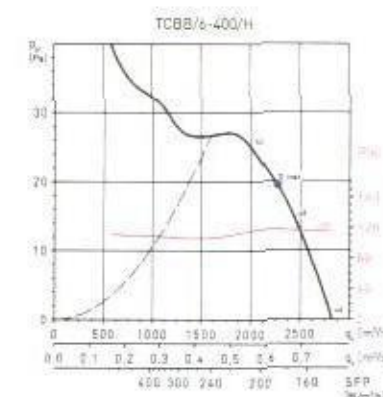
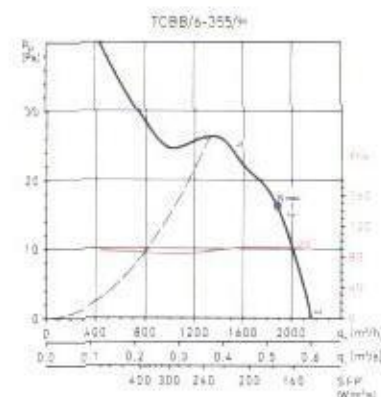
MC*	EC*	VSD*	SR*	n(N)*	N*	DW	Qm³/h	Pa	RPM
D	Total	No	1	59.4	60.3	7.487	33.100	408	1445

* See example curve

CYLINDRICAL CASED AXIAL FLOW FANS
COMPACT TCBB / TCBT Series - ALUMINIUM IMPELLERS

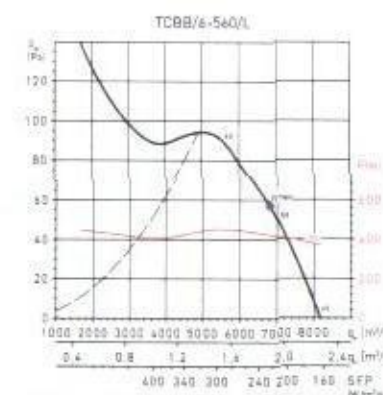


PERFORMANCE CURVES - 6 POLE MOTORS



MC*	EC*	VSD*	SR*	n(N)*	N*	DW	Qm³/h	Pa	RPM
D	Total	No	1	39.5	50.0	0.218	4.270	72	892

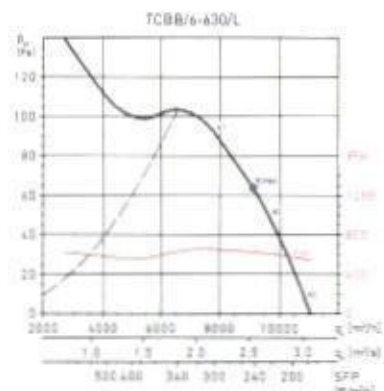
* See example curve



MC*	EC*	VSD*	SR*	n(N)*	N*	DW	Qm³/h	Pa	RPM
D	Total	No	1	41.8	50.3	0.423	8.828	93	946

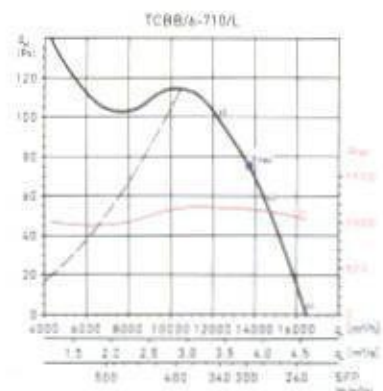
* See example curve

PERFORMANCE CURVES - 6 POLE MOTORS



MC*	SC*	VSD*	SR*	ηEN*	N*	ΔW	ΔW ₁	PA	BRPM
D	Total	No	1	42.4	90.2	0.421	1.19	104	871

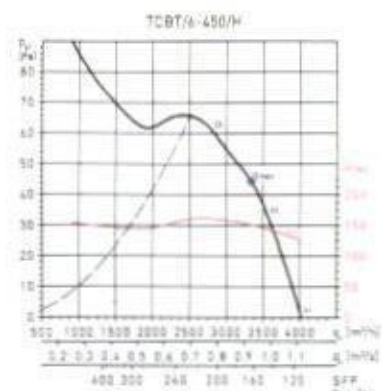
* See example curve



MC*	SC*	VSD*	SR*	ηEN*	N*	ΔW	ΔW ₁	PA	BRPM
D	Total	No	1	44.0	90.0	1.143	12.77	131	889

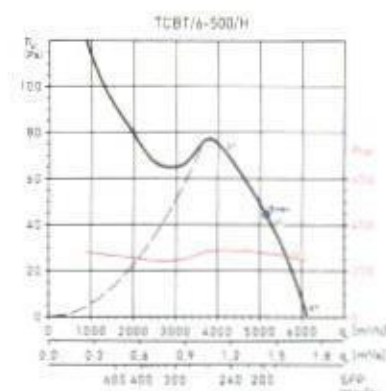
* See example curve

PERFORMANCE CURVES - 6 POLE MOTORS



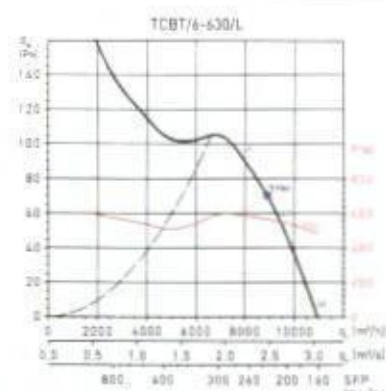
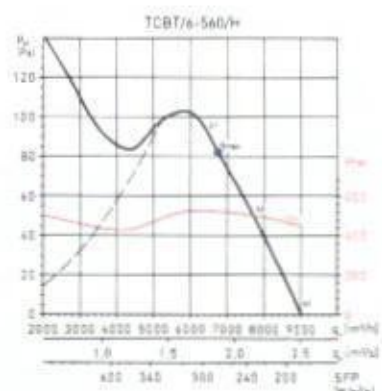
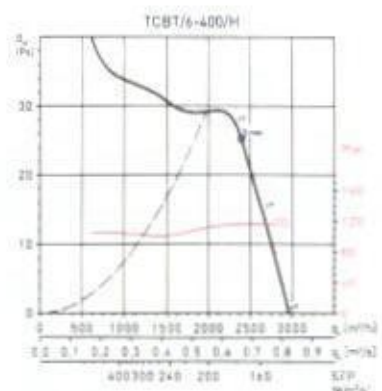
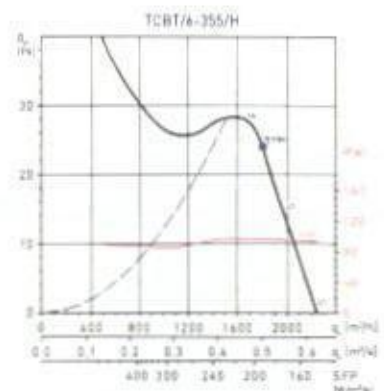
MC*	SC*	VSD*	SR*	ηEN*	N*	ΔW	ΔW ₁	PA	BRPM
D	Total	No	1	40.0	51.3	0.151	3.34	48	919

* See example curve



MC*	SC*	VSD*	SR*	ηEN*	N*	ΔW	ΔW ₁	PA	BRPM
D	Total	No	1	40.1	90.0	0.775	8.13	77	898

* See example curve



MC*	SC*	VSD*	SR*	ηEN*	N*	ΔW	ΔW ₁	PA	BRPM
D	Total	No	1	42.4	90.2	0.421	1.19	104	871

* See example curve

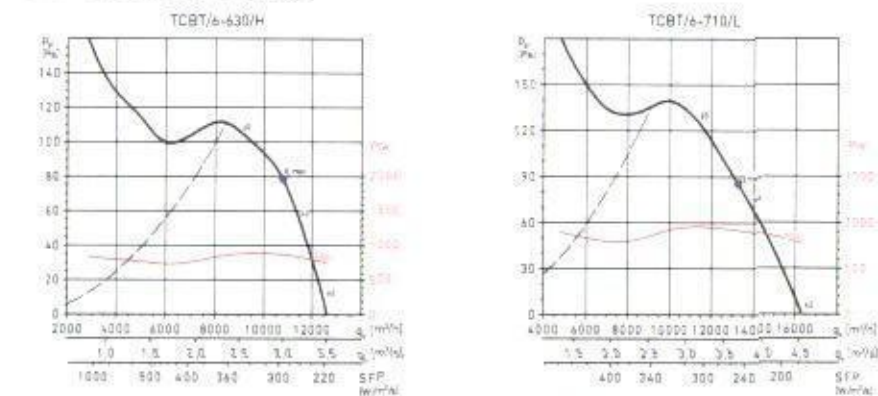
MC*	SC*	VSD*	SR*	ηEN*	N*	ΔW	ΔW ₁	PA	BRPM
D	Total	No	1	42.4	90.2	0.421	1.19	104	871

* See example curve

CYLINDRICAL CASED AXIAL FLOW FANS
COMPACT TCBB / TCBT Series - ALUMINIUM IMPELLERS



PERFORMANCE CURVES - 6 POLE MOTORS



MC*	EC*	VSD*	SR*	η(%)	N*	[kW]	[m³/h]	[Pa]	[RPM]
D	Total	No	1	46.7	53.4	0.866	10.791	134	954

* See example curve

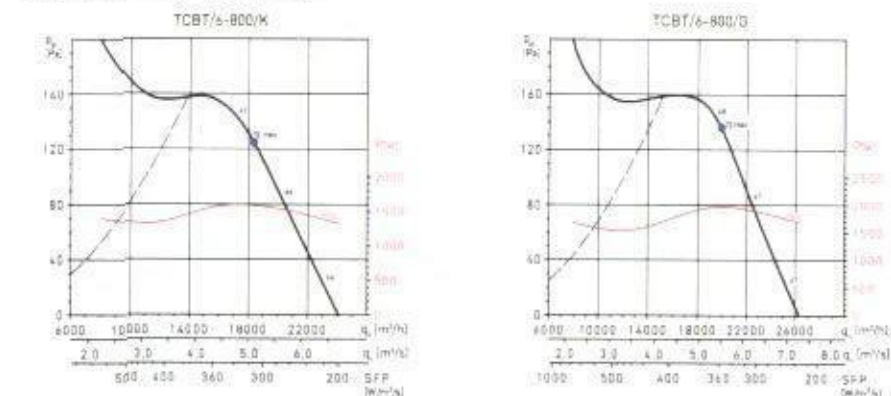
MC*	EC*	VSD*	SR*	η(%)	N*	[kW]	[m³/h]	[Pa]	[RPM]
D	Total	No	1	55.5	62.1	0.914	13.274	138	915

* See example curve

CYLINDRICAL CASED AXIAL FLOW FANS
COMPACT TCBB / TCBT Series - ALUMINIUM IMPELLERS



PERFORMANCE CURVES - 6 POLE MOTORS

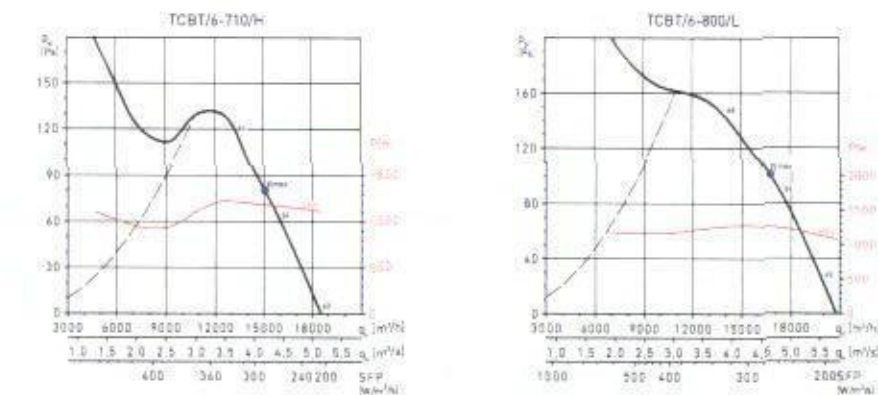


MC*	EC*	VSD*	SR*	η(%)	N*	[kW]	[m³/h]	[Pa]	[RPM]
D	Total	No	1	60.1	65.2	1.364	16.352	167	965

* See example curve

MC*	EC*	VSD*	SR*	η(%)	N*	[kW]	[m³/h]	[Pa]	[RPM]
D	Total	No	1	58.6	63.1	1.168	19.954	209	971

* See example curve

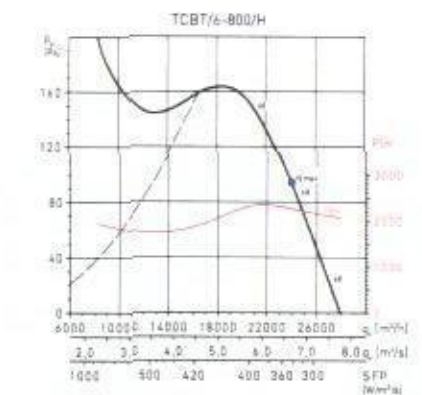


MC*	EC*	VSD*	SR*	η(%)	N*	[kW]	[m³/h]	[Pa]	[RPM]
D	Total	No	1	52.5	58.4	1.180	15.054	148	902

* See example curve

MC*	EC*	VSD*	SR*	η(%)	N*	[kW]	[m³/h]	[Pa]	[RPM]
D	Total	No	1	56.3	61.7	1.260	16.668	157	955

* See example curve



MC*	EC*	VSD*	SR*	η(%)	N*	[kW]	[m³/h]	[Pa]	[RPM]
D	Total	No	1	59.0	63.1	2.257	23.954	200	462

* See example curve