Square shaded-pole motors (Q-motors)

Square shaded-pole motors

Standard design

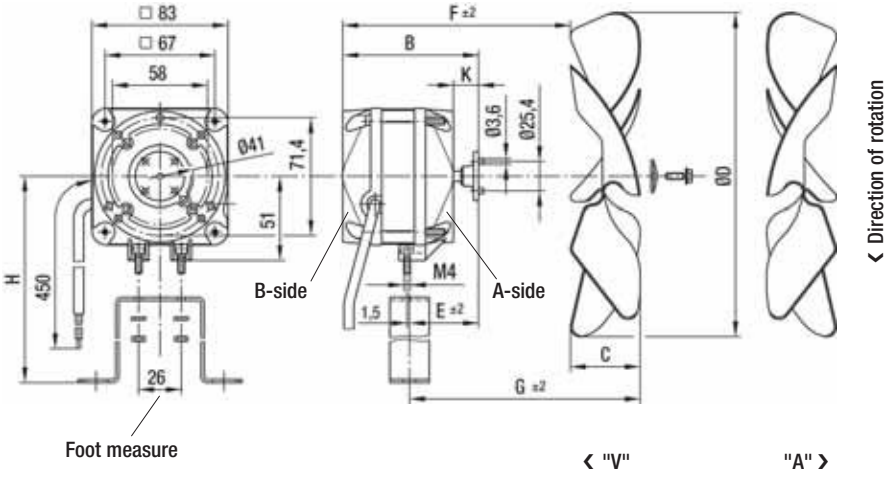
- **Direction of rotation:** counter-clockwise, seen on shaft
- **Type of protection:** IP 42
- **Insulation class:** "B"
- **Approvals:** VDE, CE
- **Characteristics:** see p. 196 ff.

ebm-papst · Mulfingen

Nominal data	Combination: motor and axial impeller	Characteristic	Nominal voltage	Frequency	Speed/rpm	Power output	Power input	Current draw	Perm. amb. temp.	Mass	Dimensions		
Type			VAC	Hz	min^{-1}	W	W	A	°C	kg	B	E	K
M4Q045-BD01 -01	A	①	230	50	1300	5	29	0,19	-30..+40	0,9	76	42	15
		②	230	60	1550	5	26	0,17	-30..+40				
M4Q045-CA01 -01	B	③	230	50	1300	7	31	0,20	-30..+40	1,1	82	42	15
		④	230	60	1550	8	30	0,20	-30..+40				
M4Q045-CA03 -51	C	⑤	230	50	1300	10	36	0,25	-30..+40	1,2	82	42	15
		⑥	230	60	1550	9	34	0,22	-30..+40				
M4Q045-CF01 -01	D	⑦	230	50	1300	16	60	0,42	-30..+40	1,3	87	42	15
		⑧	230	60	1550	16	58	0,36	-30..+40				
M4Q045-DA01 -01[1]	E	⑨	230	50	1300	18	70	0,48	-30..+40	1,6	93	54	15
		⑩	230	60	1550	18	62	0,42	-30..+40				
M4Q045-DA05 -01[1]	F	⑪	230	50	1300	23	86	0,62	-30..+40	1,6	93	54	15
		⑫	230	60	1550	25	80	0,55	-30..+40				
M4Q045-EA01 -01[1]	G	⑬	230	50	1300	25	90	0,62	-30..+40	2,0	103	59	16
		⑭	230	60	1550	26	80	0,55	-30..+40				
M4Q045-EF01 -01[1]	H	⑮	230	50	1300	34	110	0,75	-30..+40	2,2	125	79	33
		⑯	230	60	1550	34	100	0,65	-30..+40				

subject to alterations

[1] mounting on both A- and B-side possible via mounting brackets



Axial impeller p. 252 | Guard grille p. 253 | Basket guard grille p. 253 | Wall ring p. 254 | Mounting bracket p. 255

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Standard for all designs:

- **Mounting:** The threaded bolt ends protruding on the A side can be used to mount guard grille and wall ring. The Q-motor may also be screwed into place via the mounting flanges (integrated in the end shields).
- **Mounting of axial impeller:** The impeller is locked onto the motor shaft via a plastic bracket with integrated carrier bolt and an M4 screw (M5 as of M4Q045-DA).
- **Performance data:** At 60 Hz, the pitch of the axial impeller blades has to be reduced by 6° each.
- **Direction of air flow:** There are suitable axial impellers available for both directions of air flow.
- **Bearings:** Self-aligning calotte sleeve bearings with a medium life time of of 30,000 operating hours with horizontal mounting position (preferred mounting position)

Axial impellers			Pitch 22° ± 1°30´				Pitch 28° ± 1°30´				Pitch 34° ± 1°30´			
Ø D	H	Dir. of air flow	F	G	C	m³/h[2]	F	G	C	m³/h[2]	F	G	C	m³/h[2]
154	90	"V" / "A"	61	56	27,5	60	56	59	32,0	100	54	62	37,0	140
172	103	"V" / "A"	58	57	31,0	120	55	59	36,0	180	53	63	42,0	230
200	123	"V" / "A"	58	58	32,0	190	55	60	37,5	300	---	---	---	---
200	123	"V" / "A"	65	58	32,0	190	62	60	37,5	300	59	64	45,0	400
230	123	"V" / "A"	64	62	35,0	500	---	---	---	---	---	---	---	---
230	123	"V" / "A"	64	62	35,0	500	60	65	43,0	630	52	68	50,0	820
254	135	"V" / "A"	64	62	37,0	580	---	---	---	---	---	---	---	---
254	135	"V" / "A"	70	62	37,0	580	65	66	45,0	840	---	---	---	---
254	135	"V" / "A"	76	74	37,0	580	72	78	45,0	840	67	80	52,0	1070
300	160	"V" / "A"	75	79	43,0	1000	---	---	---	---	---	---	---	---
300	160	"V" / "A"	75	79	43,0	1000	67	81	53,5	1400	---	---	---	---
300	160	"V" / "A"	86	84	43,0	1000	77	86	53,5	1400	---	---	---	---
300	160	"V" / "A"	108	104	43,0	1000	104	106	53,5	1400	95	112	61,0	1700

[2] determined at 20 Pa

Square shaded-pole motors

Multi-function design

- **Mounting bosses:** different centre-lines are possible: 26 mm (51 mm high) or 18 mm (48 mm high)
- **End shields:** captive M4 screws in the end shields are mounted on opposite sides in the flanges; knurled hex nuts are not included and will have to be ordered separately; end shields available for A and B side, threaded holes 3 x M4, bolt circle diameter 71.4 mm; mounting of guard grille and wall ring on A-side end shield
- **Connection leads:** jacketed cable 3 x 0.5 mm² with brass lead tips
- **Direction of rotation:** counter-clockwise, seen on shaft
- **Type of protection:** IP 42
- **Insulation class:** "B"
- **Approvals:** VDE, CE
- **Characteristics:** see p. 196 ff.

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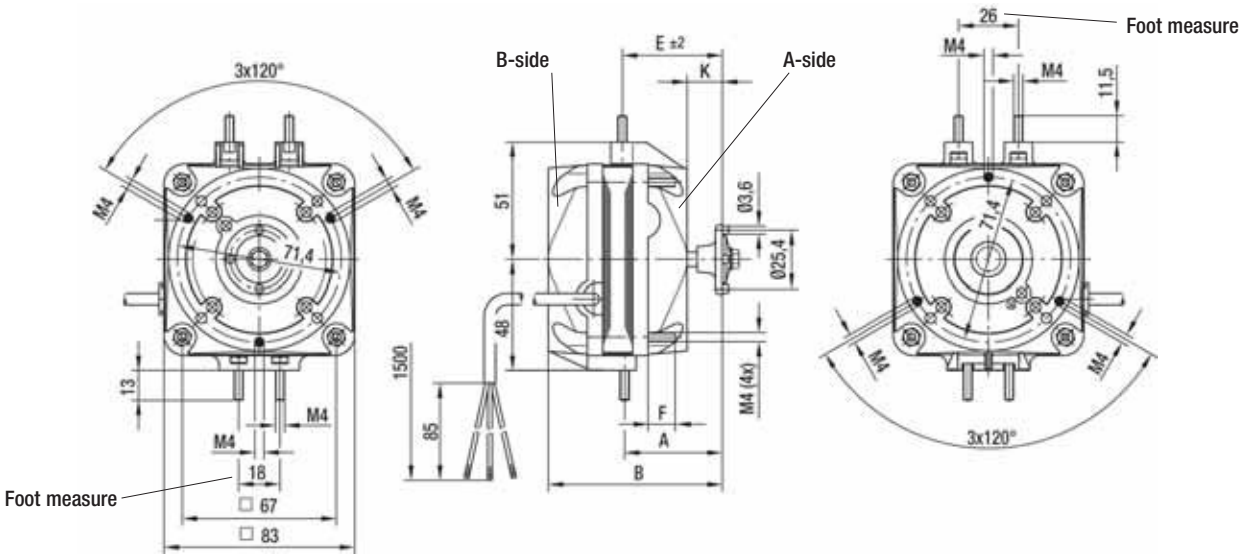
Nominal data	Combination: motor and axial impeller	Characteristic	Nominal voltage	Frequency	Speed/rpm	Power output	Power input	Current draw	Perm. amb. temp.	Mass	Dimensions				
Type	p. 190		**VAC**	**Hz**	**min⁻¹**	**W**	**W**	**A**	**°C**	**kg**	**A**	**B**	**E**	**F**	**K**
M4Q045-BD01 -75	**A**	①	230	50	1300	5	29	0,19	-30..+40	0,9	43	76	43,5	12	15,0
		②	230	60	1550	5	26	0,17	-30..+40						
M4Q045-CA01 -75	**B**	③	230	50	1300	7	31	0,20	-30..+40	1,1	49	82	43,5	10	15,0
		④	230	60	1550	8	30	0,20	-30..+40						
M4Q045-CA03 -75	**C**	⑤	230	50	1300	10	36	0,25	-30..+40	1,2	49	82	43,5	10	15,0
		⑥	230	60	1550	9	34	0,22	-30..+40						
M4Q045-CF01 -75	**D**	⑦	230	50	1300	16	60	0,42	-30..+40	1,3	54	87	43,5	10	15,0
		⑧	230	60	1550	16	58	0,36	-30..+40						
M4Q045-DA01 -75	**E**	⑨	230	50	1300	18	70	0,48	-30..+40	1,6	59	93	43,5	10	15,0
		⑩	230	60	1550	18	62	0,42	-30..+40						
M4Q045-DA05 -75	**F**	⑪	230	50	1300	23	86	0,62	-30..+40	1,6	59	93	43,5	10	15,0
		⑫	230	60	1550	25	80	0,55	-30..+40						
M4Q045-EA01 -75	**G**	⑬	230	50	1300	25	90	0,62	-30..+40	2,0	69	103	44,0	10	15,5
		⑭	230	60	1550	26	80	0,55	-30..+40						
M4Q045-EF01 -75	**H**	⑮	230	50	1300	34	110	0,75	-30..+40	2,2	92	125	61,0	10	33,0
		⑯	230	60	1550	34	100	0,65	-30..+40						

subject to alterations



Axial impeller p. 252 | Guard grille p. 253 | Basket guard grille p. 253 | Wall ring p. 254 | Mounting bracket p. 255

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Square shaded-pole motors

Frigo design

- **Description:** specially developed for the spare part business
- **Mounting bosses:** centre-line 18 mm (48 mm high)
- **End shields:** B-side, threaded holes 3 x M4, bolt circle diameter 71.4 mm; mounting of guard grille and wall ring on A-side end shield; knurled hex nuts M4 (2 pcs.) are loosely added
- **Connection leads:** jacketed cable 3 x 0.5 mm² with brass lead tips
- **Direction of rotation:** counter-clockwise, seen on shaft
- **Type of protection:** IP 42
- **Insulation class:** "B"
- **Approvals:** VDE, CE
- **Characteristics:** see p. 196 ff.

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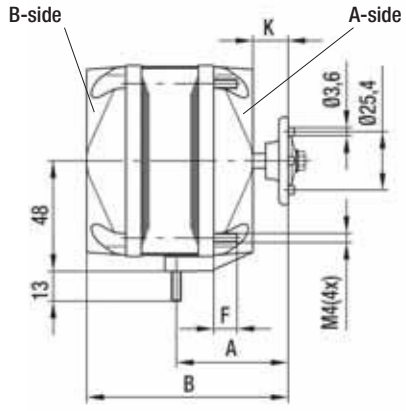
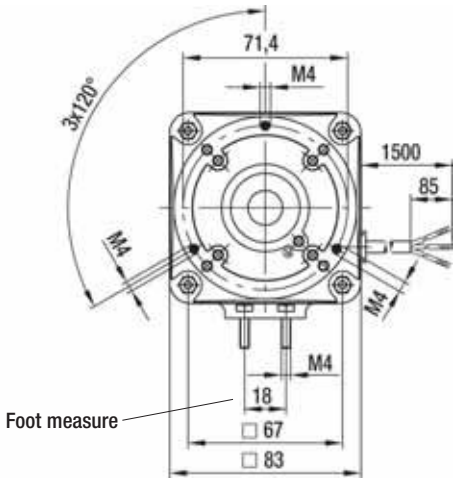
Nominal data	Combination: motor and axial impeller	Characteristic	Nominal voltage	Frequency	Speed/rpm	Power output	Power input	Current draw	Perm. amb. temp.	Mass	Dimensions			
Type	p. 190		**VAC**	**Hz**	**min⁻¹**	**W**	**W**	**A**	**°C**	**kg**	**A**	**B**	**F**	**K**
M4Q045-BD01 -A4	**A**	①	230	50	1300	5	29	0,19	-30..+40	0,9	48,5	76	12	15
		②	230	60	1550	5	26	0,17	-30..+40					
M4Q045-CA01 -N4	**B**	③	230	50	1300	7	31	0,20	-30..+40	1,1	48,5	82	10	15
		④	230	60	1550	8	30	0,20	-30..+40					
M4Q045-CA03 -A4	**C**	⑤	230	50	1300	10	36	0,25	-30..+40	1,2	48,5	82	10	15
		⑥	230	60	1550	9	34	0,22	-30..+40					
M4Q045-CF01 -A4	**D**	⑦	230	50	1300	16	60	0,42	-30..+40	1,3	48,5	87	10	15
		⑧	230	60	1550	16	58	0,36	-30..+40					
M4Q045-DA01 -A4	**E**	⑨	230	50	1300	18	70	0,48	-30..+40	1,6	48,5	93	10	15
		⑩	230	60	1550	18	62	0,42	-30..+40					
M4Q045-DA05 -A4	**F**	⑪	230	50	1300	23	86	0,62	-30..+40	1,6	48,5	93	10	15
		⑫	230	60	1550	25	80	0,55	-30..+40					
M4Q045-EA01 -A4	**G**	⑬	230	50	1300	25	90	0,62	-30..+40	2,0	49,0	103	10	16
		⑭	230	60	1550	26	80	0,55	-30..+40					
M4Q045-EF01 -A4	**H**	⑮	230	50	1300	34	110	0,75	-30..+40	2,2	66,0	125	10	33
		⑯	230	60	1550	34	100	0,65	-30..+40					

subject to alterations





Square shaded-pole motors

Plug connection design

- **Connection leads:** plug connector grid 5.6 mm, flat pin 2.8 x 0.5 mm; (protruding on the end shield of the non-drive or B-side); connection lead available in cable length 420 mm up to 4970 mm
- **NB:** To be operated only with ebm-papst plug as per VDE requirements!
- **Direction of rotation:** counter-clockwise, seen on shaft
- **Type of protection:** IP 42
- **Insulation class:** "B"
- **Approvals:** VDE, CE
- **Characteristics:** see p. 196 ff.

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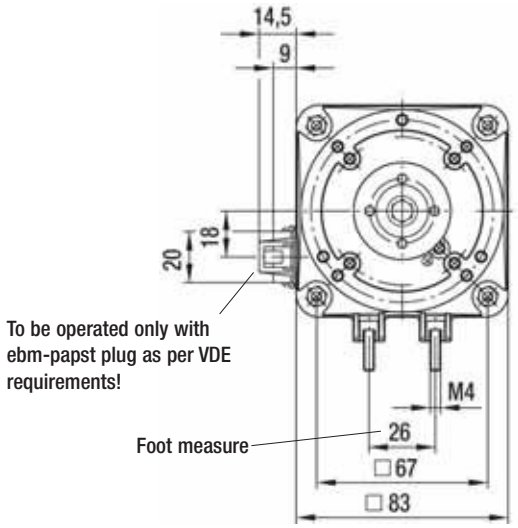
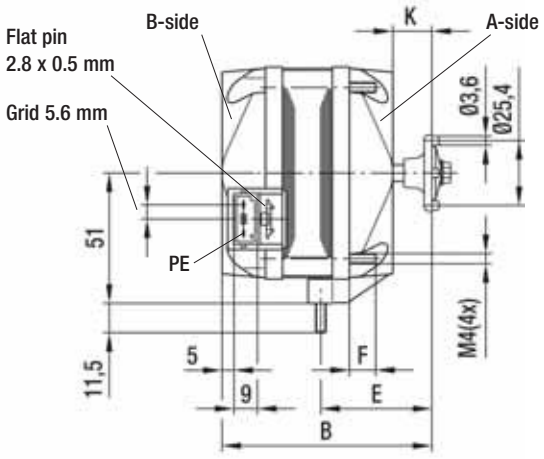
Nominal data	Combination: motor and axial impeller	Characteristic	Nominal voltage	Frequency	Speed/rpm	Power output	Power input	Current draw	Perm. amb. temp.	Mass	Dimensions			
Type	p. 190		**VAC**	**Hz**	**min^{-1}**	**W**	**W**	**A**	**°C**	**kg**	**E**	**B**	**F**	**K**
M4Q045-BD01 -08	**A**	①	230	50	1300	5	29	0,19	-30..+40	0,9	43,5	76	12	15
		②	230	60	1550	5	26	0,17	-30..+40					
M4Q045-CA01 -08	**B**	③	230	50	1300	7	31	0,20	-30..+40	1,1	43,5	82	10	15
		④	230	60	1550	8	30	0,20	-30..+40					
M4Q045-CA03 -08	**C**	⑤	230	50	1300	10	36	0,25	-30..+40	1,2	43,5	82	10	15
		⑥	230	60	1550	9	34	0,22	-30..+40					
M4Q045-CF01 -08	**D**	⑦	230	50	1300	16	60	0,42	-30..+40	1,3	43,5	87	10	15
		⑧	230	60	1550	16	58	0,36	-30..+40					
M4Q045-DA01 -52[1]	**E**	⑨	230	50	1300	18	70	0,48	-30..+40	1,6	43,5	93	10	15
		⑩	230	60	1550	18	62	0,42	-30..+40					
M4Q045-DA05 -52[1]	**F**	⑪	230	50	1300	23	86	0,62	-30..+40	1,6	43,5	93	10	15
		⑫	230	60	1550	25	80	0,55	-30..+40					
M4Q045-EA01 -52[1]	**G**	⑬	230	50	1300	25	90	0,62	-30..+40	2,0	44,0	103	10	16
		⑭	230	60	1550	26	80	0,55	-30..+40					
M4Q045-EF01 -52[1]	**H**	⑮	230	50	1300	34	110	0,75	-30..+40	2,2	61,0	125	10	33
		⑯	230	60	1550	34	100	0,65	-30..+40					

subject to alterations

[1] mounting on both A- and B-side possible via mounting brackets





Connection lead p. 250 | Axial impeller p. 252 | Guard grille p. 253 | Basket guard grille p. 253 | Wall ring p. 254 | Mounting bracket p. 255

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Square shaded-pole motors

UL and CSA design

- **Description:** UL- and CSA-approved types; connection leads, thermal overload protectors and dynamo wires are UL- and CSA-approved components
- **Connection leads:** jacketed cable 3 x AWG20 with brass lead tips
- **Standards:** UL547 and UL1004, as well as CSA standards C22.2 no. 100 and C22.2 no. 77
- **Direction of rotation:** counter-clockwise, seen on shaft
- **Type of protection:** IP 42
- **Insulation class:** "B"
- **Approvals:** UL, CSA, CE
- **Characteristics:** see p. 196 ff.
- **Drawing:** see standard version on page 190

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Nominal data	Combination: motor and axial impeller	Characteristic	Nominal voltage	Frequency	Speed/rpm	Power output	Power input	Current draw	Perm. amb. temp.	Mass	Dimensions		
Type	p. 190		**VAC**	**Hz**	**min⁻¹**	**W**	**W**	**A**	**°C**	**kg**	**B**	**E**	**K**
M4Q045-BD03 -04[2]	**A**	①	115	50	1300	5	29	0,38	-30..+40	0,9	76	42	15
		②	115	60	1550	5	26	0,35	-30..+40				
M4Q045-BD01 -04[2]	**A**	①	230	50	1300	5	29	0,19	-30..+40	0,9	76	42	15
		②	230	60	1550	5	26	0,17	-30..+40				
M4Q045-CA17 -04[2]	**B**	③	115	50	1300	7	31	0,40	-30..+40	1,1	82	42	15
		④	115	60	1550	8	30	0,40	-30..+40				
M4Q045-CA01 -04[2]	**B**	③	230	50	1300	7	31	0,20	-30..+40	1,1	82	42	15
		④	230	60	1550	8	30	0,20	-30..+40				
M4Q045-CA27 -04[2]	**C**	⑤	115	50	1300	10	36	0,50	-30..+40	1,2	82	42	15
		⑥	115	60	1550	9	34	0,45	-30..+40				
M4Q045-CA25 -04[2]	**C**	⑤	230	50	1300	10	36	0,25	-30..+40	1,2	82	42	15
		⑥	230	60	1550	9	34	0,22	-30..+40				
M4Q045-CF07 -04[2]	**D**	⑦	115	50	1300	16	60	0,80	-30..+40	1,3	87	42	15
		⑧	115	60	1550	16	58	0,74	-30..+40				
M4Q045-CF01 -04[2]	**D**	⑦	230	50	1300	16	60	0,42	-30..+40	1,3	87	42	15
		⑧	230	60	1550	16	58	0,36	-30..+40				
M4Q045-DA11 -04[1][3]	**E**	⑨	115	50	1300	18	70	0,98	-30..+40	1,6	93	54	15
		⑩	115	60	1550	18	62	0,87	-30..+40				
M4Q045-DA01 -04[1][3]	**E**	⑨	230	50	1300	18	70	0,48	-30..+40	1,6	93	54	15
		⑩	230	60	1550	18	62	0,42	-30..+40				
M4Q045-DA13 -04[1][3]	**F**	⑪	115	50	1300	23	86	1,25	-30..+40	1,6	93	54	15
		⑫	115	60	1550	25	80	1,10	-30..+40				
M4Q045-DA05 -04[1][3]	**F**	⑪	230	50	1300	23	86	0,62	-30..+40	1,6	93	54	15
		⑫	230	60	1550	25	80	0,55	-30..+40				
M4Q045-EA03 -04[1][3]	**G**	⑬	115	50	1300	25	90	1,25	-30..+40	2,0	103	59	16
		⑭	115	60	1550	26	80	1,10	-30..+40				
M4Q045-EA01 -04[1][3]	**G**	⑬	230	50	1300	25	90	0,62	-30..+40	2,0	103	59	16
		⑭	230	60	1550	26	80	0,55	-30..+40				
M4Q045-EF03 -04[1][3]	**H**	⑮	115	50	1300	34	110	1,50	-30..+40	2,2	125	79	33
		⑯	115	60	1550	34	100	1,35	-30..+40				
M4Q045-EF01 -04[1][3]	**H**	⑮	230	50	1300	34	110	0,75	-30..+40	2,2	125	79	33
		⑯	230	60	1550	34	100	0,65	-30..+40				

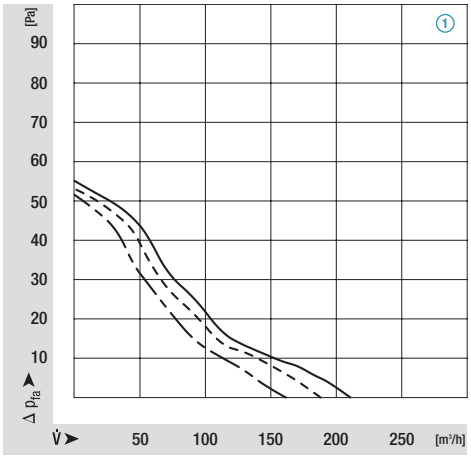
subject to alterations

[1] mounting on both A- and B-side possible via mounting brackets [2] File no. E 171165 [3] File no. E 76226

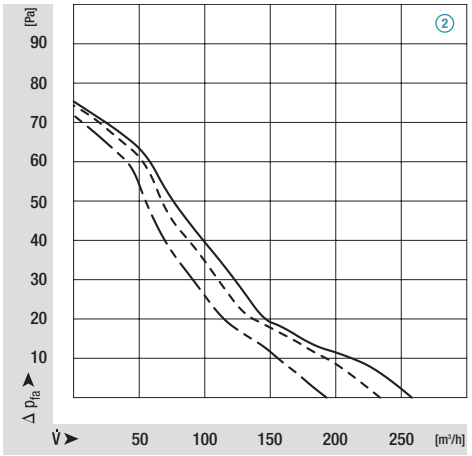
Square shaded-pole motors

Characteristic curves (established with wall rings)

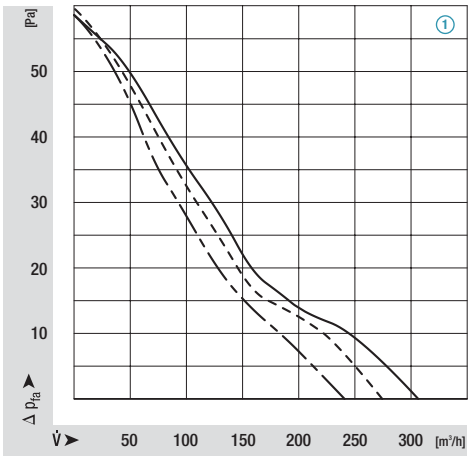
M4Q045-BD01-**, Ø 154, 50 Hz



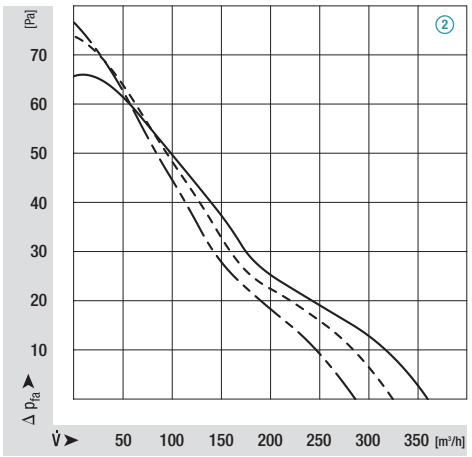
M4Q045-BD01-**, Ø 154, 60 Hz



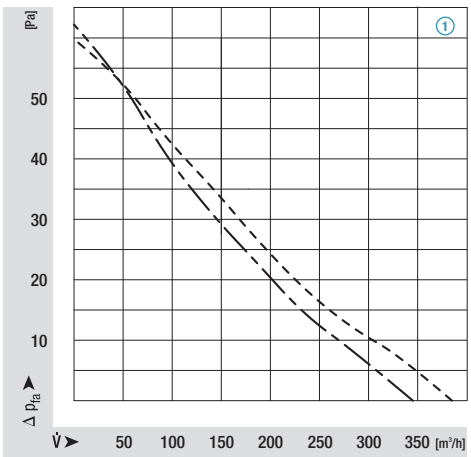
M4Q045-BD01-**, Ø 172, 50 Hz



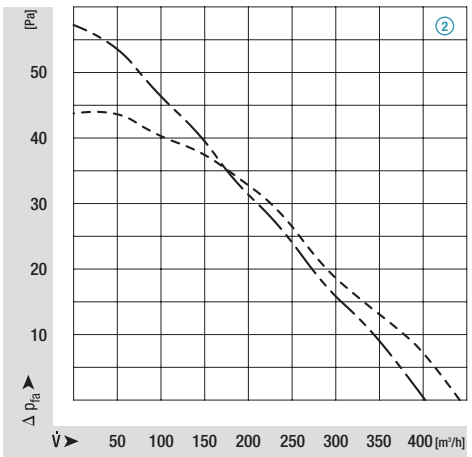
M4Q045-BD01-**, Ø 172, 60 Hz



M4Q045-BD01-**, Ø 200, 50 Hz



M4Q045-BD01-**, Ø 200, 60 Hz



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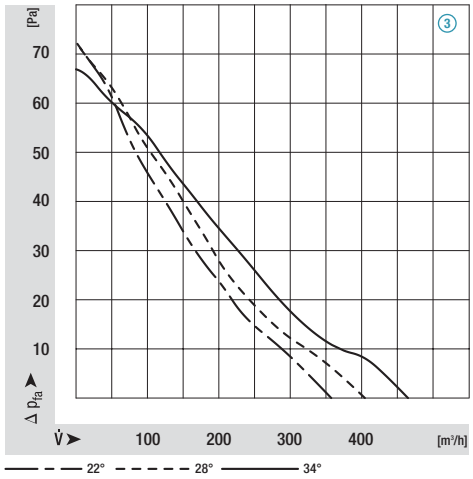
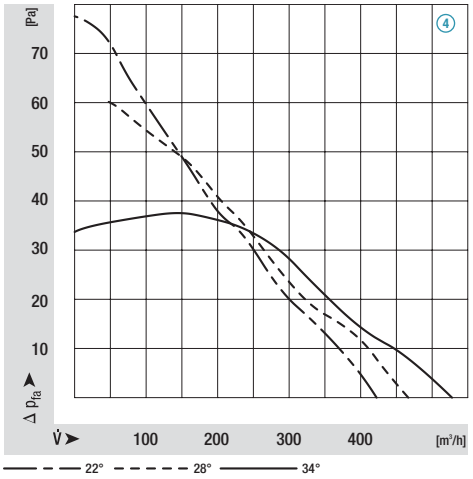
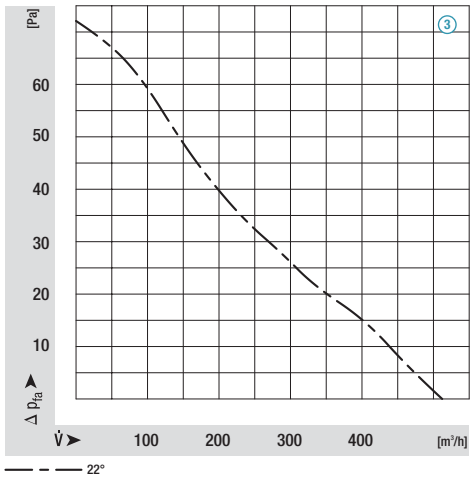
M4Q045-CA01-**, Ø 200, 50 Hz



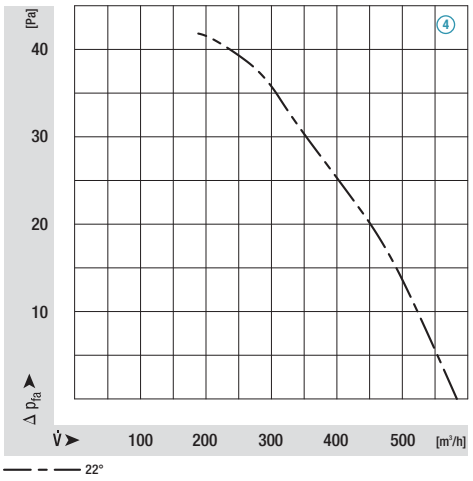
M4Q045-CA01-**, Ø 200, 60 Hz



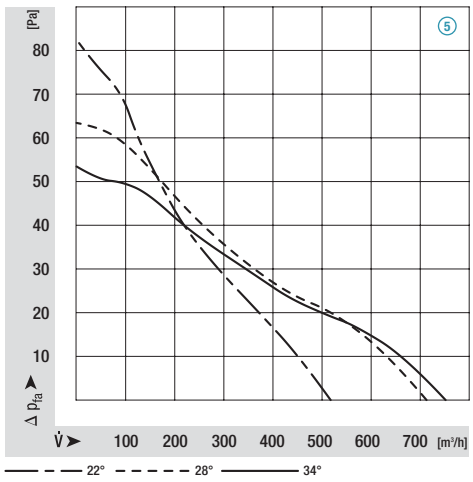
M4Q045-CA01-**, Ø 230, 50 Hz



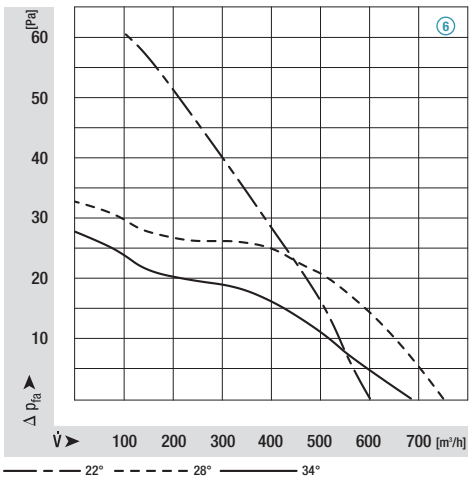
M4Q045-CA01-**, Ø 230, 60 Hz



M4Q045-CA03-**, Ø 230, 50 Hz



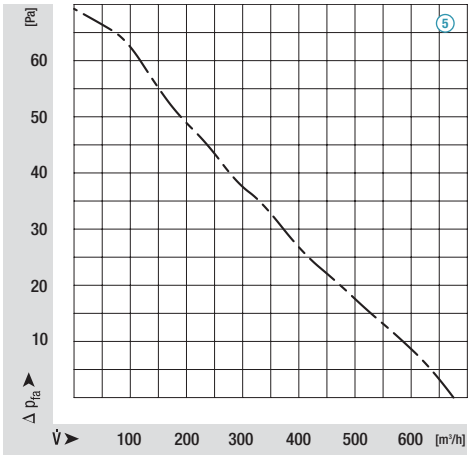
M4Q045-CA03-**, Ø 230, 60 Hz



Square shaded-pole motors

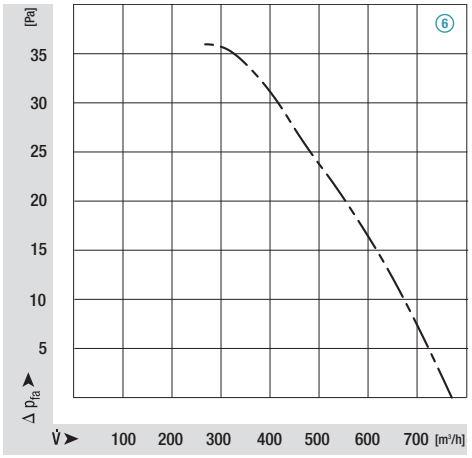
Characteristic curves (established with wall rings)

M4Q045-CA03-**, Ø 254, 50 Hz



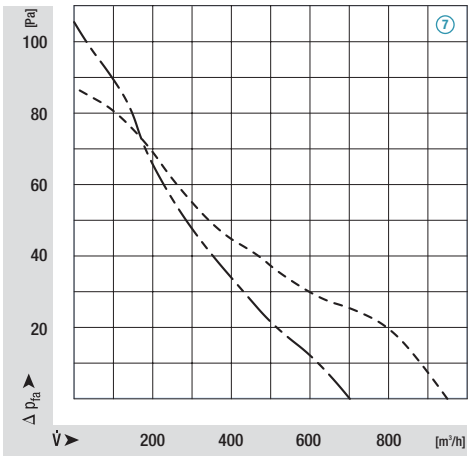
— – — 22°

M4Q045-CA03-**, Ø 254, 60 Hz



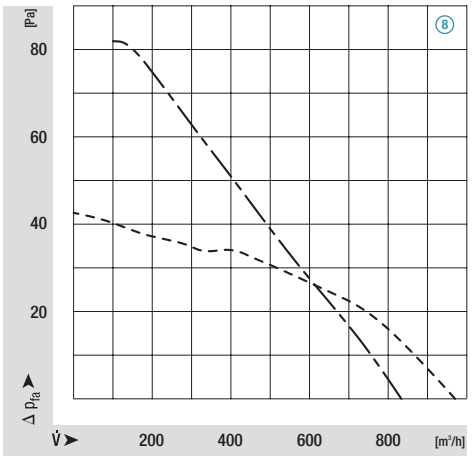
— – — 22°

M4Q045-CF01-**, Ø 254, 50 Hz



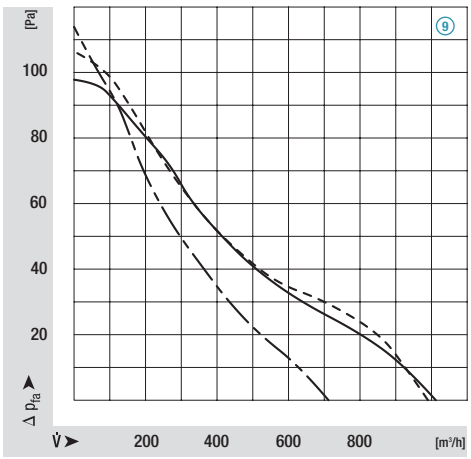
— – — 22° – – – – – 28°

M4Q045-CF01-**, Ø 254, 60 Hz



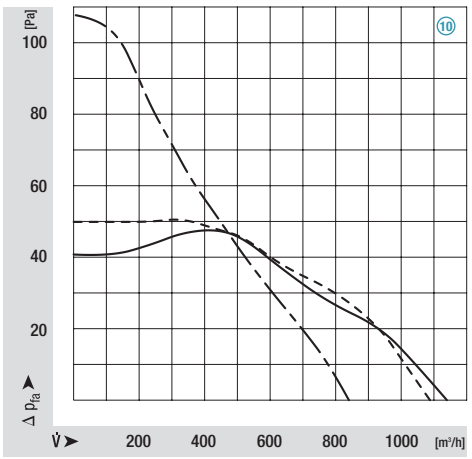
— – — 22° – – – – – 28°

M4Q045-DA01-**, Ø 254, 50 Hz



— – — 22° – – – – – 28° ——— 34°

M4Q045-DA01-**, Ø 254, 60 Hz



— – — 22° – – – – – 28° ——— 34°

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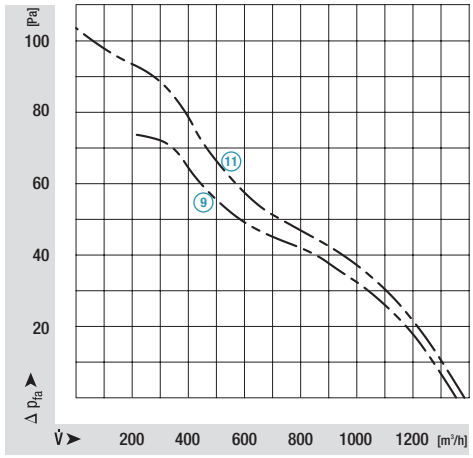
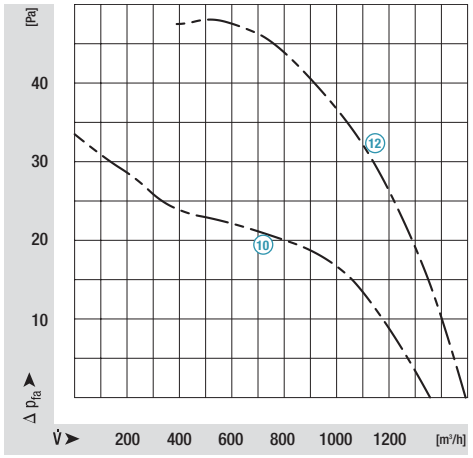
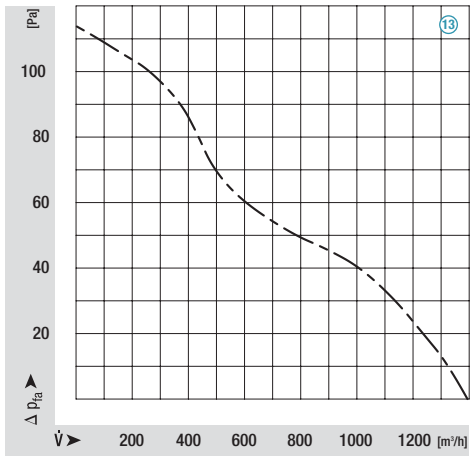
⑨ M4Q045-DA01-** / ⑪ -DA05-**, Ø 300, 50 Hz



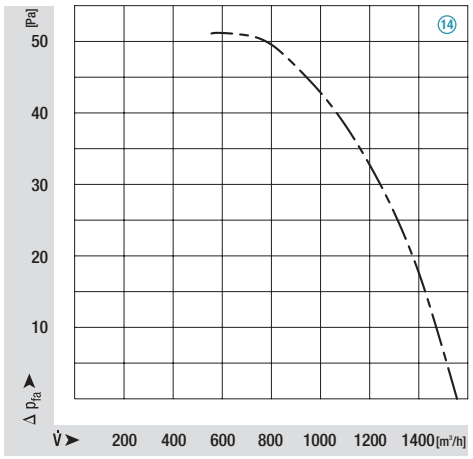
⑩ M4Q045-DA01-** / ⑫ -DA05-**, Ø 300, 60 Hz



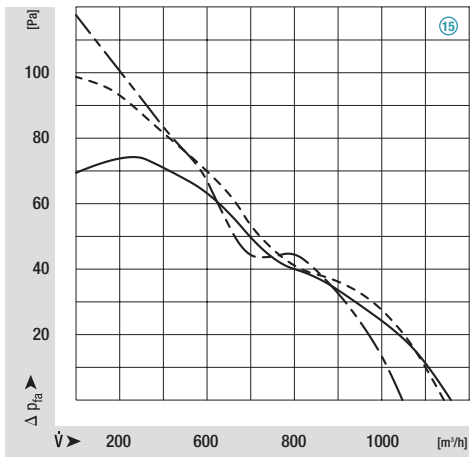
M4Q045-EA01-**, Ø 300, 50 Hz



M4Q045-EA01-**, Ø 300, 60 Hz



M4Q045-EF01-**, Ø 300, 50 Hz



M4Q045-EF01-**, Ø 300, 60 Hz