

# Angaben nach EU Ökodesign-Verordnung 2019/1781 Information according EU Eco-Design Directive 2019/1781

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**Ergänzung zur Betriebsanleitung**

**Addition to Instruction manual**

**Vor Beginn aller Arbeiten Betriebsanleitung lesen!**

**Read the Instruction handbook before starting any work!**

<b>DE</b>	5.21024.01
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# ANGABEN NACH EU ÖKODESIGN-VERORDNUNG 2019/1781

## INFORMATION ACCORDING EU Eco-DESIGN DIRECTIVE 2019/1781

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference	BM1111-01-00-01		
Variant Model			
$P_{rM}$ (Rated power of Motor) (Stated in manual)	0.2		KW
$S_{r,equ}$ (Rated apparent power)	0.60		KVA
RCDM relative power loss % (Table 18)	22.73		%
$p_{L,CDM(90;100)} / p_{L,RCDM(90;100)}$	11.35		%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)	IE2		
Frequency (%)	Torque (%)	Power loss (W)	$p_{L,CDM}$ (%)
90	100	15.74	2.58
50	100	14.91	2.45
0	100	13.98	2.29
90	50	13.63	2.24
50	50	13.20	2.17
0	50	12.69	2.08
50	25	12.89	2.11
0	25	12.56	2.06
Supplementary information:			

# Directive 2019/1781

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1211-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		0.2	KW
S <sub>r, equ</sub> (Rated apparent power)		0.60	KVA
RCDM relative power loss % (Table 18)		16.84	%
p <sub>L, CDM(90;100)</sub> / p <sub>L, RCDM(90;100)</sub>		17.76	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L, CDM</sub> (%)
90	100	18.24	2.99
50	100	17.13	2.81
0	100	16.08	2.64
90	50	15.83	2.60
50	50	15.31	2.51
0	50	14.76	2.42
50	25	14.97	2.45
0	25	14.63	2.40
Supplementary information:			

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference	BM1311-01-00-01		
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)	0.2		KW
S <sub>r,equ</sub> (Rated apparent power)	0.60		KVA
RCDM relative power loss % (Table 18)	16.84		%
P <sub>L,CDM(90;100)</sub> / P <sub>L,RCDM(90;100)</sub>	17.33		%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)	IE2		
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L,CDM</sub> (%)
90	100	17.80	2.92
50	100	16.96	2.78
0	100	16.03	2.63
90	50	15.67	2.57
50	50	15.24	2.50
0	50	14.73	2.42
50	25	14.92	2.45
0	25	14.60	2.39
Supplementary information:			

# Directive 2019/1781

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1112-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		0.4	KW
S <sub>r,equ</sub> (Rated apparent power)		1.00	KVA
RCDM relative power loss % (Table 18)		17.83	%
p <sub>L,CDM(90;100)</sub> / p <sub>L,RCDM(90;100)</sub>		12.50	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L,CDM</sub> (%)
90	100	21.21	2.23
50	100	19.75	2.07
0	100	18.19	1.91
90	50	17.45	1.83
50	50	16.72	1.75
0	50	15.89	1.67
50	25	16.18	1.70
0	25	15.66	1.64
Supplementary information:			

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1212-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		0.4	KW
S <sub>r,equ</sub> (Rated apparent power)		1.00	KVA
RCDM relative power loss % (Table 18)		13.21	%
p <sub>L,CDM(90;100)</sub> / p <sub>L,RCDM(90;100)</sub>		19.31	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L,CDM</sub> (%)
90	100	24.30	2.55
50	100	22.25	2.34
0	100	20.44	2.15
90	50	19.88	2.09
50	50	18.96	1.99
0	50	18.05	1.90
50	25	18.37	1.93
0	25	17.81	1.87
Supplementary information:			

# Directive 2019/1781

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1312-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		0.4	KW
S <sub>r,equ</sub> (Rated apparent power)		1.00	KVA
RCDM relative power loss % (Table 18)		13.21	%
p <sub>L,CDM(90;100)</sub> / p <sub>L,RCDM(90;100)</sub>		18.55	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L,CDM</sub> (%)
90	100	23.35	2.45
50	100	21.88	2.30
0	100	20.33	2.13
90	50	19.54	2.05
50	50	18.81	1.97
0	50	17.98	1.89
50	25	18.27	1.92
0	25	17.74	1.86
Supplementary information:			



ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference	BM1412-01-00-01		
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)	0.4		KW
S <sub>r,equ</sub> (Rated apparent power)	1.2		KVA
RCDM relative power loss % (Table 18)	11.02		%
P <sub>L,CDM(90;100)</sub> / P <sub>L,RCDM(90;100)</sub>	27.01		%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)	IE2		
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L,CDM</sub> (%)
90	100	34.02	2.98
50	100	33.09	2.89
0	100	32.00	2.80
90	50	31.19	2.73
50	50	30.69	2.68
0	50	30.09	2.63
50	25	30.28	2.65
0	25	29.89	2.62
Supplementary information:			

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ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1213-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		0.7	KW
S <sub>r, equ</sub> (Rated apparent power)		1.60	KVA
RCDM relative power loss % (Table 18)		9.51	%
p <sub>L, CDM(90;100)</sub> / p <sub>L, RCDM(90;100)</sub>		24.04	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L, CDM</sub> (%)
90	100	36.58	2.29
50	100	32.30	2.02
0	100	28.87	1.80
90	50	28.12	1.76
50	50	26.30	1.64
0	50	24.65	1.54
50	25	25.22	1.58
0	25	24.23	1.51
Supplementary information:			

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1313-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		0.7	KW
S <sub>r,equ</sub> (Rated apparent power)		1.60	KVA
RCDM relative power loss % (Table 18)		9.51	%
p <sub>L,CDM(90;100)</sub> / p <sub>L,RCDM(90;100)</sub>		22.51	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L,CDM</sub> (%)
90	100	34.26	2.14
50	100	31.40	1.96
0	100	28.62	1.79
90	50	27.29	1.71
50	50	25.93	1.62
0	50	24.48	1.53
50	25	24.97	1.56
0	25	24.07	1.50
Supplementary information:			

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1413-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		0.7	KW
S <sub>r, equ</sub> (Rated apparent power)		2.00	KVA
RCDM relative power loss % (Table 18)		8.21	%
p <sub>L, CDM(90;100)</sub> / p <sub>L, RCDM(90;100)</sub>		27.34	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L, CDM</sub> (%)
90	100	42.77	2.25
50	100	41.04	2.15
0	100	39.10	2.05
90	50	37.58	1.97
50	50	36.69	1.93
0	50	35.64	1.87
50	25	35.95	1.89
0	25	35.29	1.85
Supplementary information:			

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference	BM1314-01-00-01		
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)	1.5		KW
S <sub>r,equ</sub> (Rated apparent power)	2.90		KVA
RCDM relative power loss % (Table 18)	7.20		%
P <sub>L,CDM(90;100)</sub> / P <sub>L,RCDM(90;100)</sub>	28.55		%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)	IE2		
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L,CDM</sub> (%)
90	100	58.75	2.06
50	100	51.63	1.81
0	100	45.66	1.60
90	50	40.29	1.41
50	50	37.41	1.31
0	50	34.67	1.21
50	25	31.45	1.10
0	25	30.17	1.06
Supplementary information:			

# Directive 2019/1781

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1414-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		1.5	KW
S <sub>r, equ</sub> (Rated apparent power)		3.30	KVA
RCDM relative power loss % (Table 18)		7.20	%
p <sub>L, CDM(90;100)</sub> / p <sub>L, RCDM(90;100)</sub>		26.48	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L, CDM</sub> (%)
90	100	61.03	1.91
50	100	57.31	1.79
0	100	53.39	1.67
90	50	47.08	1.47
50	50	45.37	1.42
0	50	43.45	1.36
50	25	40.25	1.26
0	25	39.31	1.23
Supplementary information:			

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1123-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		0.7	KW
S <sub>r,equ</sub> (Rated apparent power)		1.60	KVA
RCDM relative power loss % (Table 18)		12.84	%
P <sub>L,CDM(90;100)</sub> / P <sub>L,RCDM(90;100)</sub>		21.15	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L,CDM</sub> (%)
90	100	43.46	2.72
50	100	34.80	2.17
0	100	27.10	1.69
90	50	31.28	1.95
50	50	27.41	1.71
0	50	23.58	1.47
50	25	25.58	1.60
0	25	23.22	1.45
Supplementary information:			

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1224-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		1.5	KW
S <sub>r, equ</sub> (Rated apparent power)		2.90	KVA
RCDM relative power loss % (Table 18)		7.2	%
p <sub>L, CDM(90;100)</sub> / p <sub>L, RCDM(90;100)</sub>		29.09	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L, CDM</sub> (%)
90	100	59.85	2.09
50	100	52.95	1.85
0	100	46.89	1.64
90	50	41.99	1.47
50	50	39.12	1.37
0	50	36.28	1.27
50	25	33.26	1.16
0	25	31.91	1.12
Supplementary information:			



ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference	BM1225-01-00-01		
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)	2.2		KW
S <sub>r,equ</sub> (Rated apparent power)	4.20		KVA
RCDM relative power loss % (Table 18)	6.72		%
p <sub>L,CDM(90;100)</sub> / p <sub>L,RCDM(90;100)</sub>	30.21		%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)	IE2		
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L,CDM</sub> (%)
90	100	85.09	2.03
50	100	72.78	1.74
0	100	62.94	1.50
90	50	56.87	1.36
50	50	52.03	1.24
0	50	47.58	1.14
50	25	43.32	1.03
0	25	41.27	0.98
Supplementary information:			

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1325-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		2.2	KW
S <sub>r,equ</sub> (Rated apparent power)		4.20	KVA
RCDM relative power loss % (Table 18)		6.72	%
p <sub>L,CDM(90;100)</sub> / p <sub>L,RCDM(90;100)</sub>		28.84	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L,CDM</sub> (%)
90	100	81.23	1.94
50	100	71.89	1.72
0	100	63.38	1.51
90	50	55.84	1.33
50	50	51.86	1.24
0	50	47.80	1.14
50	25	43.36	1.03
0	25	41.41	0.99
Supplementary information:			

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference	BM1425-01-00-01		
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)	2.2		KW
S <sub>r,equ</sub> (Rated apparent power)	4.40		KVA
RCDM relative power loss % (Table 18)	6.72		%
P <sub>L,CDM(90;100)</sub> / P <sub>L,RCDM(90;100)</sub>	29.70		%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)	IE2		
Frequency (%)	Torque (%)	Power loss (W)	pL,CDM (%)
90	100	83.65	2.00
50	100	78.88	1.88
0	100	73.64	1.76
90	50	63.88	1.52
50	50	61.65	1.47
0	50	59.08	1.41
50	25	54.35	1.30
0	25	53.09	1.27
Supplementary information:			

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1326-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		3.7	KW
S <sub>r, equ</sub> (Rated apparent power)		6.50	KVA
RCDM relative power loss % (Table 18)		6.01	%
p <sub>L, CDM(90;100)</sub> / p <sub>L, RCDM(90;100)</sub>		29.70	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L, CDM</sub> (%)
90	100	115.63	1.79
50	100	98.07	1.51
0	100	83.64	1.29
90	50	74.53	1.15
50	50	67.49	1.04
0	50	60.87	0.94
50	25	54.60	0.84
0	25	51.51	0.80
Supplementary information:			

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference	BM1426-01-00-01		
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)	3.7		KW
S <sub>r,equ</sub> (Rated apparent power)	6.80		KVA
RCDM relative power loss % (Table 18)	6.01		%
p <sub>L,CDM(90;100)</sub> / p <sub>L,RCDM(90;100)</sub>	29.25		%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)	IE2		
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L,CDM</sub> (%)
90	100	113.86	1.76
50	100	106.61	1.65
0	100	99.27	1.53
90	50	83.64	1.29
50	50	80.31	1.24
0	50	76.65	1.18
50	25	69.35	1.07
0	25	67.54	1.04
Supplementary information:			

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1337-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		5.5	KW
S <sub>r,equ</sub> (Rated apparent power)		9.50	KVA
RCDM relative power loss % (Table 18)		5.84	%
p <sub>L,CDM(90;100)</sub> / p <sub>L,RCDM(90;100)</sub>		40.17	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L,CDM</sub> (%)
90	100	223.49	2.35
50	100	196.96	2.07
0	100	171.74	1.80
90	50	124.21	1.30
50	50	113.85	1.20
0	50	102.89	1.08
50	25	86.21	0.91
0	25	80.93	0.85
Supplementary information:			

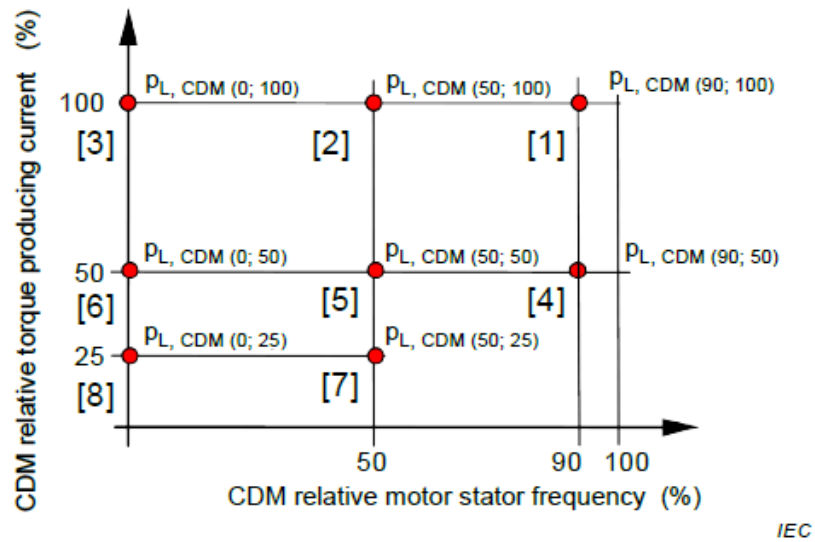
ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1437-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		5.5	KW
S <sub>r,equ</sub> (Rated apparent power)		9.90	KVA
RCDM relative power loss % (Table 18)		5.84	%
P <sub>L,CDM(90;100)</sub> / P <sub>L,RCDM(90;100)</sub>		34.29	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	pL,CDM (%)
90	100	198.39	2.00
50	100	180.04	1.82
0	100	162.23	1.64
90	50	126.99	1.28
50	50	119.79	1.21
0	50	112.08	1.13
50	25	99.00	1.00
0	25	95.29	0.96
Supplementary information:			

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1338-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		7.5	KW
S <sub>r, equ</sub> (Rated apparent power)		12.50	KVA
RCDM relative power loss % (Table 18)		5.43	%
p <sub>L, CDM(90;100)</sub> / p <sub>L, RCDM(90;100)</sub>		44.21	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L, CDM</sub> (%)
90	100	301.86	2.40
50	100	262.89	2.09
0	100	228.01	1.81
90	50	163.15	1.30
50	50	148.57	1.18
0	50	133.81	1.06
50	25	110.45	0.88
0	25	103.45	0.82
Supplementary information:			



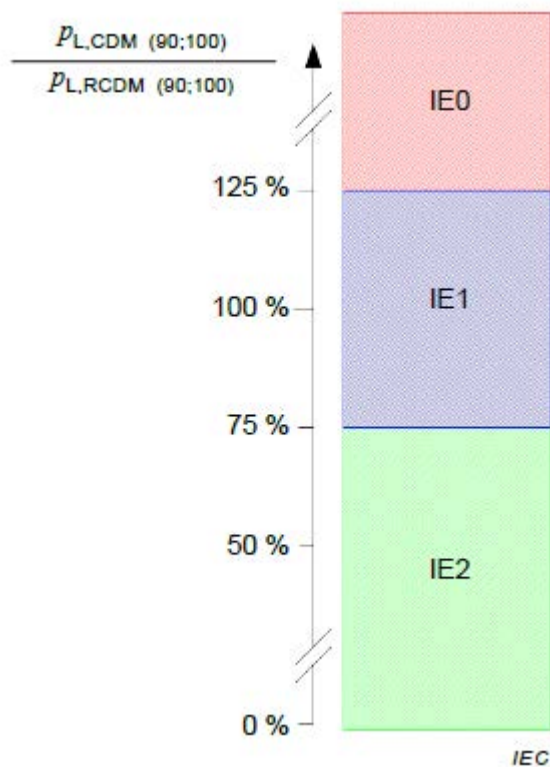
ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1438-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		7.5	KW
S <sub>r,equ</sub> (Rated apparent power)		13.70	KVA
RCDM relative power loss % (Table 18)		5.43	%
p <sub>L,CDM(90;100)</sub> / p <sub>L,RCDM(90;100)</sub>		36.47	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L,CDM</sub> (%)
90	100	271.68	1.98
50	100	233.7	1.70
0	100	199.83	1.46
90	50	159.16	1.16
50	50	145.00	1.06
0	50	130.72	0.95
50	25	114.45	0.83
0	25	107.68	0.78
Supplementary information:			

ENERGY EFFICIENCY CERTIFICATE : COMMISSION REGULATION (EU) 2019/178			
Drive efficiency according to IEC 61800-9-2 :Ecodesign for power drive systems, motor starters, power electronics & their driven applications – Part 2: Energy efficiency indicators for power drive systems and motor starters			
Model and/or type reference		BM1439-01-00-01	
Variant Model			
P <sub>rm</sub> (Rated power of Motor) (Stated in manual)		1.1	KW
S <sub>r, equ</sub> (Rated apparent power)		18.30	KVA
RCDM relative power loss % (Table 18)		5.18	%
p <sub>L, CDM(90;100)</sub> / p <sub>L, RCDM(90;100)</sub>		36.66	%
IE class (Figure 16) (IE0: higher 125%; IE1: 125%~75%; IE2: below 75%)		IE2	
Frequency (%)	Torque (%)	Power loss (W)	p <sub>L, CDM</sub> (%)
90	100	347.34	1.90
50	100	308.32	1.69
0	100	272.36	1.49
90	50	203.21	1.11
50	50	188.37	1.03
0	50	173.03	0.95
50	25	147.17	0.80
0	25	139.86	0.76
Supplementary information:			



IEC

Figure 21 – Order of CDM measurements from [1] to [8]



IEC

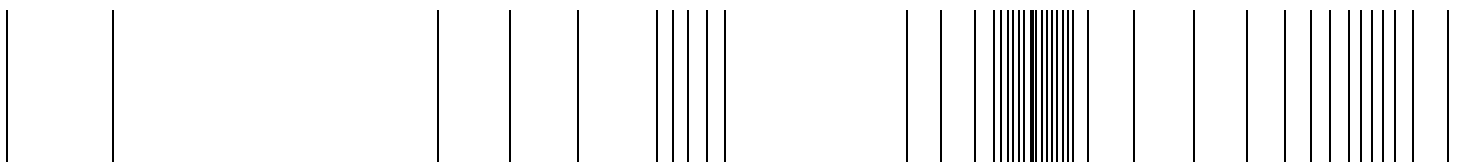
Figure 16 – Illustration of IE classes for a CDM

Table 18 – Reference CDM losses for class IE1 definition

Apparent output power $S_{r, equ}$	Relative losses $P_{L, RCDM (90, 100)}$	Absolute losses $P_{L, RCDM (90, 100)}$	Examples for CDM output current at typical line voltages			
			$I_{r, out} = \frac{S_{r, equ}}{\sqrt{3} \cdot U_{1, r, out}}$			
kVA	%	kW	$U_{1, r, out} = 200V$	$U_{1, r, out} = 400V$	$U_{1, r, out} = 460V$	$U_{1, r, out} = 690V$
			A			
0,278	35,85	0,100	0,803	0,401	0,349	0,233
0,381	27,30	0,104	1,10	0,550	0,478	0,319
0,500	21,80	0,109	1,44	0,722	0,627	0,418
0,697	16,84	0,117	2,01	1,01	0,875	0,583
0,977	13,21	0,129	2,82	1,41	1,23	0,818
1,29	11,02	0,142	3,73	1,86	1,62	1,08
1,71	9,51	0,163	4,94	2,47	2,15	1,43
2,29	8,21	0,188	6,62	3,31	2,88	1,92
3,30	7,20	0,237	9,54	4,77	4,15	2,76
4,44	6,72	0,299	12,8	6,41	5,58	3,72
5,85	6,39	0,374	16,9	8,44	7,34	4,89
7,94	6,01	0,477	22,9	11,5	9,96	6,64
9,95	5,84	0,581	28,7	14,4	12,5	8,32
14,4	5,43	0,781	41,6	20,8	18,1	12,1
19,5	5,18	1,01	56,2	28,1	24,4	16,3
23,9	5,05	1,21	68,9	34,4	30,0	20,0
28,3	4,97	1,41	81,6	40,8	35,5	23,6
38,2	4,87	1,86	110	55,2	48,0	32,0
47,0	4,79	2,25	136	67,8	58,9	39,3
56,9	4,75	2,70	164	82,1	71,4	47,6
68,4	4,74	3,24	197	98,7	85,8	57,2
92,8	4,69	4,35	268	134	116	77,6
111	4,66	5,17	321	160	139	93,0
135	4,11	5,55	391	195	170	113
162	4,10	6,65	468	234	203	136
196	4,09	8,02	566	283	246	164
245	4,07	10,0	706	353	307	205
302	4,10	12,4	872	436	379	253
381	4,09	15,6	1 099	550	478	319
429	4,09	17,5	1 239	619	539	359
483	4,09	19,8	1 396	698	607	405
604	4,08	24,7	1 745	872	758	506
677	4,08	27,6	1 954	977	850	566
761	4,08	31,1	2 198	1 099	956	637
858	4,08	35,0	2 477	1 239	1 077	718
967	4,08	39,4	2 791	1 396	1 214	809
1 088	4,08	44,3	3 140	1 570	1 365	910
1 209	4,08	49,3	3 489	1 745	1 517	1 011

NOTE 1 The change of the switching frequency from 4 kHz at 111 kVA to 2 kHz at 135 kVA causes a discontinuity in the relative RCDM loss values  $P_{L, RCDM}$  between those power ratings.

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