Totally Focused. Totally Independent.

Technical Guide

RP^ : B ; P

C-TYPE

DDS
Dynamic Data Support

The world's largest
independent producer of
alternators 1 – 5,000kVA

c w 58

Standards

Alternators are designed and produced within an ISO 9001 environment. The entire series is manufactured according to, and complies with, the most common specifications such as CEI 2-3, IEC 34-1, EN 60034-1, VDE 0530, BS 4999-5000, NF 51.111, NEMA MG 1-2011, ISO 8528-3. They also comply with other specific standards such as UL1446, UL 1004/4 and /B and CAN/CSA-C22.2 No14-95-No100-95.

Windings and Performances

All windings are 2/3rds pitch to eliminate triplen harmonics within the voltage waveform and to avoid excessive neutral currents in certain parallel operating conditions. A fully interconnected aluminium or copper damper cage is supplied on the rotor of all models (excluding the ECP3 series).

- 12 wire reconnectable:
  50Hz – 380V to 440V and 220/110V to 240/120V (de-rates may apply at certain voltages)
  60Hz – 380V to 480V and 220/110V to 240/120V (de-rates may apply at certain voltages)

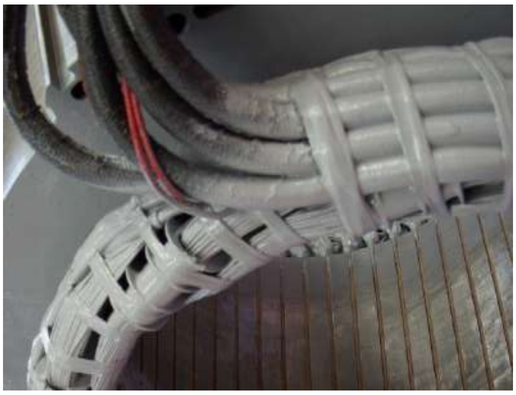
- 6 wire reconnectable:
  50Hz – 380V to 440V and 220V to 240V (de-rates may apply at certain voltages)
  60Hz – 380V to 480V and 220V to 240V (de-rates may apply at certain voltages)

Winding Configurations	Standard		Special (dedicated)			
	12 wire Reconnectable	6 wire Reconnectable	380V and 600V 60Hz	690V 50/60Hz	220-240V 1ph 50Hz	220-240V 1ph 60Hz
ECP3 to ECO38	Std	Option	Option	Option	Option	Option
ECO40	Std	Option	Option	Option	Option (to ECO40)	Option (to ECO40)
Insulation materials	Class H	Class H	Class H	Class H	Class H	Class H
High efficiency	Std	Std	Std	Std	Std	Std
High motor starting	>300%	>300%	>300%	>300%	>300%	>300%
THD (Total Harmonic Distortion)	Typically <3.5% full load L-L	Typically <3.0% full load L-L	Typically <3.5% full load L-L	Typically <3.5% full load L-L	Typically <4.5% full load L-N	Typically <4.5% full load L-N
Interference suppression	VDE 0875 G/N/K, EN61000-6-3, EN61000-6-2, others available on request					

Winding Protection

There are various degrees of protection for the windings following the standard impregnation process, as can be seen here. The TOTAL+ epoxy black coating is recommended for arduous applications.

Winding Protection:	STANDARD	STANDARD+	GREY	GREY+	TOTAL+
ECP3	Std	Option	Option	Option	Option
ECP28 and ECP32	-	Std	Option	Option	Option
NPE32, ECP34 to ECO40	-	-	Std	Option	Option



Grey treatment (marinization) on the left, TOTAL+ treatment shown on the right. The EG43 grey varnish, is an high temperature insulating enamel that forms a tough and flexible film, with excellent moisture and chemical protection. It is water and oil proof, and also protects windings from abrasion. It is applied spraying an over coating layer over the impregnated winding, or dipping the stator in a varnish barrel for superior treatments

The TOTAL+ is a protection system that makes Mecc Alte special. It is the ultimate winding treatment that offers truly superior performances when the environment is really harsh, or the application very demanding. The TOTAL+ is also extremely resistant to the particle abrasion as it adsorbs the impacts.

Protection for Environment

In addition to protection on the windings themselves, the alternators can have increased degree of protection. Standard level is IP23 but the following solutions are also available: IP23 DP with inlet filters, IP23 with only terminal box in IP45, IP43 and IP45. Derates may be applied.

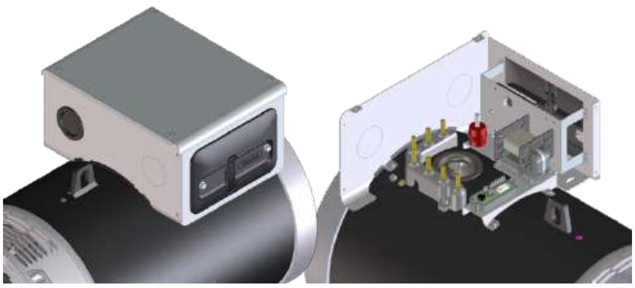
Info: https://www.meccalte.com/downloads/MA0605_Bulletin_IP.pdf

Construction

The robust mechanical structure withstands up to 5G in any direction and 9G vertically and its design permits easy access to the connections and components during routine maintenance check-ups. The mechanical design has used the most advanced FEM techniques. The materials used are: FEP12 steel for the frame, C45 steel for the shaft and cast iron or aluminum pressure die cast for the end-brackets: fans are aluminum die casted either nylon fiber glass loaded, UL compliant materials. Rotors are dynamically balanced according grades 6.3 (up to series 32) or 2.5 (from series 34 onwards) of ISO 1940-1.

Terminals and Terminal Box

Easy access to regulators is possible due to a new AVR panel. Terminal boards have been redesigned into a special L configuration, specifically to ease customer connections; with this kind of terminal board it is posible to place a second terminal board in order to get 12 available terminals. Current transformers are available as an option on series ECO38 with single or dual output.



Excitation and Regulation Systems

All ECP/ECO series have MAUX auxiliary winding to power the digital regulator. Both DSR and the DER1 are available to connect to PC through the DxR2 USB interface and DxR TERMINAL software to interrogate/download alarms & settings for analysis or for cloning other regulators. DER2 has got an integrated USB connection and can be connected to the PC without any optional connection boards. More settings such as LAMS, digital RAM based synchronous external control and soft start are obtainable through the DxR connection. Simple analogue potentiometers are available for the more usual adjustments.

Excitation Systems	DSR	DER1	DER2
ECP3 to ECO38	Std	Option	Option
ECO40	-	Std	Option
Parallel Operation	√	√	√
Mains Parallel	√	√	√
3 Phase Sensing (rms)	-	√	√
Accuracy	+/-1%	+/-0.5%	+/-0.5%
Remote Voltage Control	√	√	√
Alarm Log	√	√	√
Analogue and Digital Configurable	√	√	√
LAMS (Load Acceptance V/f)	√	√	√
APO (Active Protection Output)	√	√	√
Soft Start	√	√	√
High dynamic response	-	-	√
USB connection without external boards	-	-	√

For a given motor start duty a smaller machine may be selected – also enhanced by low sub-transient reactance values for non-linear loads. The whole range is capable of >300% sustained short circuit current for up to 20 seconds.

Optional PMG

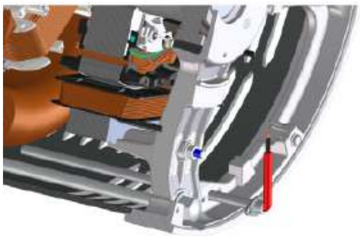
The Mecc Alte PMG is available on ECP28, ECP32, ECP34 and ECO38 as factory-fitted option; alternatively, only the predisposition for the retrofit, for subsequent assembly, is available on option. On series ECO40 is available as a factory-fitted or retro-fitted options.

The complete AVR range is fully compatible with both MAUX and PMG systems; this minimises spare parts management and flexibility of stock as one AVR suits all applications.

The PMG is delivering the same amount of kVA available with the MAUX.

Dew Heater

Our whole range can be fitted with anti-condensation heaters of adequate power sized to alternator kVA. Voltage for heaters must be specified when ordering. New cylindrical cartridge style heaters are available on request and it can be retrofitted.



Accessories

Additional optionals can be fit on our alternator series, such as PTC thermistors or PT100 both on windings and bearings, dew heaters, high and low profile of terminal boxes (on most series), parallel devices (standard from ECO38), current and voltage transformers, air filters, IP43 and IP45 protections and many others.
For more info visit: https://www.meccalte.com/en/products/alternators/accessories/c-type-accessories

Deration coefficients

	Ambient temperature (Celsius)					
Altitude (meters)	25	40	45	50	55	60
≤ 1000	1.07	1	0.96	0.93	0.91	0.89
> 1000 ≤ 1500	1.01	0.96	0.92	0.89	0.87	0.84
> 1500 ≤ 2000	0.96	0.91	0.87	0.84	0.83	0.79
> 2000 ≤ 3000	0.9	0.85	0.81	0.78	0.76	0.73

Notes on short circuit curves

The indicated coefficients have to be used to correct the three phase short circuit curves values as a function of the rated voltage.

50 Hz		*60 Hz*	
Voltage	*Factor*	*Voltage*	*Factor*
380	0.93X	415	0.85X
400	1X	440	0.90X
415	1.04X	460	0.95X
440	1.10X	480	1X

The indicated coefficient have to be used to correct the three phase short circuit curves values as a function of the type of short circuit voltage.

	3 phase	*2 phase L-L*	*1 phase L-N*
Istantaneous	1X	0.87X	1.30X
Minimum	1X	1.80X	3.20X
Sustained	1X	1.50X	2.50X
Max Duration	20 sec.	10 sec.	4 sec.

All the curves are shown for series or parallel star connection at 400V 50 Hz or 480V 60 Hz. If the unit is reconnected from series to parallel star, the additional coefficient is 2X. From series star to series delta, it is 1.72X. From series star to parallel delta, it is 3.44X.

S

a w tw	;	V s ° us	U
azs w tw	:	a wu ° us	Va9:
] tw x °w	89	] QR Ows ° y w	@ 8; 59c d
R wu °	O z w	QR Ows ° y w	@ 8859c d
c wy s w	Qdc	[s ° ^ w www	99=7
h ° v° y °uz	96:	N ° vw	748777
P vw syw wwww uw	e7; 7=d:	Os s u° y	Vd^ 8C; 748

RHt

gN6 h Mew 5c ° w6N t°w P475B aS																				
	deN] QOk48@ 69A				deN] QOk48=76; 7				U489=6; 7				S487 =6; 7				O4B76; 7			
dw°w d s k	: B7g	; 77g	; 8=g	; ; 7g	: B7g	; 77g	; 8=g	; ; 7g	: B7g	; 77g	; 8=g	; ; 7g	: B7g	; 77g	; 8=g	; ; 7g	: B7g	; 77g	; 8=g	; ; 7g
as s w d s kk	8C7g	977g	97Bg	997g	8C7g	977g	97Bg	997g	8C7g	977g	97Bg	997g	8C7g	977g	97Bg	997g	8C7g	977g	97Bg	997g
dw°w Qw s Δ	997g	9: 7g	9; 7g	9=; g	997g	9: 7g	9; 7g	9=; g	997g	9: 7g	9; 7g	9=; g	997g	9: 7g	9; 7g	9=; g	997g	9: 7g	9; 7g	9=; g
as s w Qw s ΔΔ	887g	88=g	897g	89Ag	887g	88=g	897g	89Ag	887g	88=g	897g	89Ag	887g	88=g	897g	89Ag	887g	88=g	897g	89Ag
W S k	196	**196**	196	180	188	**188**	188	173	180	**180**	180	165	170	**170**	170	155	144	**144**	144	132
	157	**157**	157	144	150	**150**	150	138	144	**144**	144	132	136	**136**	136	124	115	**115**	115	106
W V k	220	**220**	220	209	211	**211**	211	200	200	**200**	200	190	185	**185**	185	175	160	**160**	160	152
	176	**176**	176	167	169	**169**	169	160	160	**160**	160	152	148	**148**	148	140	128	**128**	128	122
W S k	250	**250**	250	234	237	**237**	237	221	225	**225**	225	210	207	**207**	207	190	180	**180**	180	168
	200	**200**	200	187	190	**190**	190	177	180	**180**	180	168	166	**166**	166	152	144	**144**	144	134
W V k	275	**275**	275	253	264	**264**	264	243	250	**250**	250	230	230	**230**	230	215	200	**200**	200	184
	220	**220**	220	202	211	**211**	211	194	200	**200**	200	184	184	**184**	184	172	160	**160**	160	147
W S k	330	**330**	330	319	315	**315**	315	305	300	**300**	300	290	275	**275**	275	265	240	**240**	240	232
	264	**264**	264	255	252	**252**	252	244	240	**240**	240	232	220	**220**	220	212	192	**192**	192	186
W V k	370	**370**	370	360	360	**360**	360	350	350	**350**	350	340	320	**320**	320	310	280	**280**	280	272
	296	**296**	296	288	288	**288**	288	280	280	**280**	280	272	256	**256**	256	248	224	**224**	224	218
W k	380	**400**	400	370	370	**380**	380	360	360	**370**	370	350	329	**338**	338	319	288	**296**	296	280
	304	**320**	320	296	296	**304**	304	288	288	**296**	296	280	263	**270**	270	255	230	**237**	237	224

SHt

gN6 h Mew 5c ° w6N t°w P475B aS																				
	deN] QOk48@ 69A				deN] QOk48=76; 7				U489=6; 7				S487 =6; 7				O4B76; 7			
dw°w d s k	; 8=g	; ; 7g	; @7g	; B7g	; 8=g	; ; 7g	; @7g	; B7g	; 8=g	; ; 7g	; @7g	; B7g	; 8=g	; ; 7g	; @7g	; B7g	; 8=g	; ; 7g	; @7g	; B7g
as s w d s kk	97Bg	997g	9: 7g	9; 7g	97Bg	997g	9: 7g	9; 7g	97Bg	997g	9: 7g	9; 7g	97Bg	997g	9: 7g	9; 7g	97Bg	997g	9: 7g	9; 7g
dw°w Qw s Δ	9; 7g	9=; g	9@=g	9AAg	9; 7g	9=; g	9@=g	9AAg	9; 7g	9=; g	9@=g	9AAg	9; 7g	9=; g	9@=g	9AAg	9; 7g	9=; g	9@=g	9AAg
as s w Qw s ΔΔ	897g	89Ag	8 : g	8 Bg	897g	89Ag	8 : g	8 Bg	897g	89Ag	8 : g	8 Bg	897g	89Ag	8 : g	8 Bg	897g	89Ag	8 : g	8 Bg
W S k	225	236	236	**236**	220	230	230	**230**	210	220	220	**220**	195	205	205	**205**	168	176	176	**176**
	180	189	189	**189**	176	184	184	**184**	168	176	176	**176**	156	164	164	**164**	134	141	141	**141**
W V k	253	264	264	**264**	242	253	253	**253**	230	240	240	**240**	210	220	220	**220**	184	192	192	**192**
	202	211	211	**211**	194	202	202	**202**	184	192	192	**192**	168	176	176	**176**	147	154	154	**154**
W S k	289	300	300	**300**	274	284	284	**284**	260	270	270	**270**	240	250	250	**250**	208	216	216	**216**
	231	240	240	**240**	219	227	227	**227**	208	216	216	**216**	192	200	200	**200**	166	173	173	**173**
W V k	319	330	330	**330**	305	316	316	**316**	290	300	300	**300**	270	280	280	**280**	232	240	240	**240**
	255	264	264	**264**	244	253	253	**253**	232	240	240	**240**	216	224	224	**224**	186	192	192	**192**
W S k	358	374	396	**396**	341	357	378	**378**	325	340	360	**360**	300	310	330	**330**	260	272	288	**288**
	286	299	317	**317**	273	286	302	**302**	260	272	288	**288**	240	248	264	**264**	208	218	230	**230**
W V k	402	444	444	**444**	391	438	438	**438**	380	420	420	**420**	350	385	385	**385**	304	336	336	**336**
	322	355	355	**355**	313	350	350	**350**	304	336	336	**336**	280	308	308	**308**	243	269	269	**269**
W k	413	455	455	**465**	401	442	442	**453**	390	430	430	**440**	359	394	394	**403**	312	344	344	**352**
	330	364	364	**372**	321	354	354	**362**	312	344	344	**352**	287	315	315	**322**	250	275	275	**282**

4 Dn t GQHH

f s s w / w5R] @7:; 4; 0			RP^:B8d; P	RP^:B9d; P	RP^:B8[; P	RP^:B9[; P	RP^:B8Z; P	RP^:B9Z; P	RP^:BgZ; P
Xd	Q°wu4s° uz wsus uw	%	203,9	207	198,7	214,2	215,3	222,5	226,3
X'd	Q°wu4s° s °w wsus uw	%	10	11,4	12,7	14,5	15,8	17,8	19,2
X''d	Q°wu4s° t s °w wsus uw	%	5,69	6,11	6,72	7,45	8,38	9,73	10,8
Xq	b svs w4s° uz wsus uw	%	100,3	113,8	109,7	121,1	124,2	130,4	135,6
X'q	b svs w4s° s °w wsus uw	%	100,3	113,8	109,7	121,1	124,2	130,4	135,6
X''q	b svs w4s° t s °w wsus uw	%	20,4	22,2	23	22,8	21,5	20,8	20,1
X_2	] wys°w4w w uw wsus uw	%	13,2	14,8	15,9	16,6	16,7	16,2	15,6
X_0	l w w w uw wsus uw	%	2,79	2,59	2,69	2,48	2,38	2,28	2,18
ds s w									
Xd	Q°wu4s° uz wsus uw	%	169,2	171,8	164,9	177,8	178,7	184,7	187,8
X'd	Q°wu4s° s °w wsus uw	%	8,33	9,45	10,5	12	13,1	14,8	15,9
X''d	Q°wu4s° t s °w wsus uw	%	4,72	5,07	5,58	6,19	6,96	8,08	8,96
Xq	b svs w4s° uz wsus uw	%	83,2	94,5	91	100,5	103,1	108,2	112,5
X'q	b svs w4s° s °w wsus uw	%	83,2	94,5	91	100,5	103,1	108,2	112,5
X''q	b svs w4s° t s °w wsus uw	%	16,9	18,5	19,1	18,9	17,9	17,3	16,7
X_2	] wys°w4w w uw wsus uw	%	11	12,3	13,2	13,7	13,8	13,5	12,9
X_0	l w w w uw wsus uw	%	2,79	2,59	2,69	2,48	2,38	2,28	2,18

Kcc	dz u°u° s°		0,44	0,46	0,45	0,44	0,43	0,42	0,53
T'd	es °w ° wu s	sec	0,073	0,078	0,083	0,085	0,091	0,099	0,102
T''d	dt s °w ° wu s	sec	0,011	0,012	0,013	0,013	0,012	0,013	0,012
T'do	^ w u°u° ° wu s	sec	0,7	0,9	1,1	1,3	1,4	1,5	1,6
Tα	N s w° wu s	sec	0,015	0,016	0,018	0,017	0,016	0,013	0,015

l Dn t GQHH

Io	Ru°s° u w s sv	A	0,8	0,7	0,67	0,71	0,78	0,72	0,6
Ic	Ru°s° u w s x sv	A	3,2	3,0	3,0	2,8	3,9	3,9	3,1
^ w sv						4			
^ w sv w 97 wu5		,				300			
Uws v° °s°		W	11844	12600	13548	14133	16137	19465	20239
eww z wUs °uSsu 4eUS		%	<2	<2	<2	<2	<2	<2	<2
hs wx Q° 5/eUQ0x sv ZZ6Z]		%	3,1 / 3	3 / 2,9	2,8 / 2,9	2,9 / 3,1	3 / 2,9	3,1 / 2,9	3,2 / 3
hs wx Q° 5/eUQ0 sv ZZ6Z]		%	2,8 / 2,7	2,7 / 2,6	2,6 / 2,8	2 / 2,1	2,6 / 2,8	2,7 / 2,7	2,8 / 2,6

4 Dn t GQVH

f s s ww / wx5R] @7:;4;0			RP^:B8d; P	RP^:B9d; P	RP^:B8[; P	RP^:B9[; P	RP^:B8Z; P	RP^:B9Z; P	RP^:BgZ; P
Xd	Q° wu 4s ° uz wsu s uw	%	207,7	207	198,7	214,2	215,3	222,5	224,3
X'd	Q° wu 4s ° s °w wsu s uw	%	10,2	11,4	12,7	14,5	15,8	17,8	19
X''d	Q° wu 4s ° t s °w wsu s uw	%	5,8	6,11	6,72	7,45	8,38	9,73	10,7
Xq	b sv s w4s ° uz wsu s uw	%	102,1	113,8	109,7	121,1	124,2	130,4	134,4
X'q	b sv s w4s ° s °w wsu s uw	%	102,1	113,8	109,7	121,1	124,2	130,4	134,4
X''q	b sv s w4s ° t s °w wsu s uw	%	20,8	22,2	23	22,8	21,5	20,8	19,9
X_2	] wys ° w4 w w uw wsu s uw	%	13,5	14,8	15,9	16,6	16,7	16,2	15,5
X_0	I w w w uw wsu s uw	%	2,85	2,59	2,69	2,48	2,38	2,28	2,16
ds s w									
Xd	Q° wu 4s ° uz wsu s uw	%	172,4	171,8	164,9	177,8	178,7	184,7	186,2
X'd	Q° wu 4s ° s °w wsu s uw	%	8,49	9,45	10,5	12	13,1	14,8	15,8
X''d	Q° wu 4s ° t s °w wsu s uw	%	4,81	5,07	5,58	6,19	6,96	8,08	8,88
Xq	b sv s w4s ° uz wsu s uw	%	84,8	94,5	91	100,5	103,1	108,2	111,6
X'q	b sv s w4s ° s °w wsu s uw	%	84,8	94,5	91	100,5	103,1	108,2	111,6
X''q	b sv s w4s ° t s °w wsu s uw	%	17,2	18,5	19,1	18,9	17,9	17,3	16,5
X_2	] wys ° w4 w w uw wsu s uw	%	11,2	12,3	13,2	13,7	13,8	13,5	12,9
X_0	I w w w uw wsu s uw	%	2,85	2,59	2,69	2,48	2,38	2,28	2,16

Kcc	dz u°u ° s °		0,44	0,46	0,45	0,44	0,43	0,42	0,54
T'd	e s °w ° wu s	sec	0,073	0,078	0,083	0,085	0,091	0,099	0,102
T''d	d t s °w ° wu s	sec	0,011	0,012	0,013	0,013	0,012	0,013	0,012
T'do	^ w u°u ° ° wu s	sec	0,7	0,9	1,1	1,3	1,4	1,5	1,6
Tα	N s w ° wu s	sec	0,015	0,016	0,018	0,017	0,016	0,013	0,015

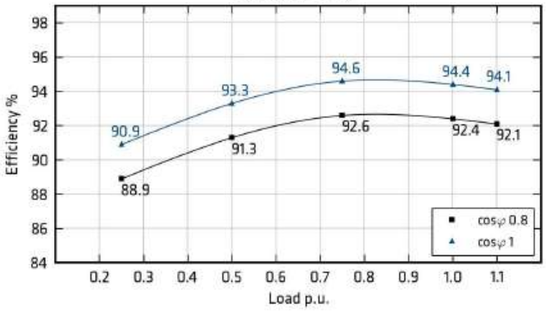
I Dn t GQVH

Io	R u°s ° u w s sv	A	0,8	0,65	0,65	0,7	0,7	0,7	0,6
Ic	R u°s ° u w s x sv	A	3,2	2,9	2,9	2,8	3,8	3,9	3,1
^ w sv						4			
^ w sv w 97 wu5		,				300			
Uws v° ° s °		W	12437	12691	13299	13968	16118	20310	20881
eww z wV wxws uwSsu 4e\5			<40	<40	<40	<40	<40	<40	<40
h s wx Q° 5/eUQ0x sv ZZ6Z]		%	3,1 / 3	3 / 2,9	2,8 / 2,9	2,9 / 3,1	3 / 2,9	3,1 / 2,9	3,2 / 3
h s wx Q° 5/eUQ0 sv ZZ6Z]		%	2,8 / 2,7	2,7 / 2,6	2,6 / 2,8	2 / 2,1	2,6 / 2,8	2,7 / 2,7	2,8 / 2,6

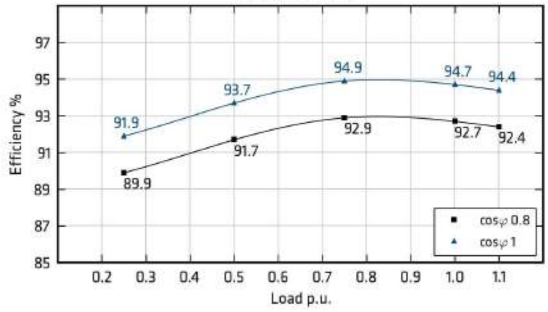
p i RHt

[vw		: B7g =7U					; 77g =7U					; 8=g =7U					; ; 7g =7U				
		759=	75=	75A=	8	888	759=	75=	75A=	8	888	759=	75=	75A=	8	888	759=	75=	75A=	8	888
RP^ : B 8d; P	%	89,1	91,2	92,3	92,3	92,1	88,9	91,3	92,6	92,4	92,1	88,7	91,3	92,5	92,1	91,8	88,5	91,1	92,2	91,9	91,5
RP^ : B 9d; P	%	90,1	91,6	92,6	92,6	92,4	89,9	91,7	92,9	92,7	92,4	89,7	91,7	92,8	92,4	92,1	89,5	91,5	92,5	92,2	91,8
RP^ : B 8[; P	%	89,6	91,9	93,0	92,9	92,7	89,4	92,0	93,3	93,0	92,7	89,2	92,0	93,2	92,7	92,4	89,0	91,8	92,9	92,5	92,1
RP^ : B 9[; P	%	90,1	92,3	93,4	93,3	93,1	89,9	92,4	93,7	93,4	93,1	89,7	92,4	93,6	93,1	92,8	89,5	92,2	93,3	92,9	92,5
RP^ : B 8Z; P	%	90,2	92,7	93,8	93,5	93,3	89,9	92,7	94,0	93,7	93,4	89,7	92,7	93,9	93,4	93,1	89,5	92,5	93,6	93,2	92,8
RP^ : B 9Z; P	%	90,1	92,5	93,4	93,4	93,2	89,9	92,6	93,7	93,5	93,2	89,7	92,6	93,6	93,2	92,9	89,5	92,4	93,3	93,0	92,6
RP^ : B gZ; P	%	90,3	92,4	93,5	93,5	93,3	90,1	92,5	93,8	93,6	93,3	89,9	92,5	93,7	93,3	93,0	89,7	92,3	93,4	93,1	92,8

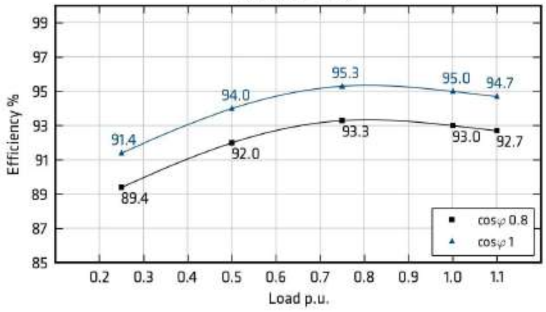
W S k
400/230 50Hz



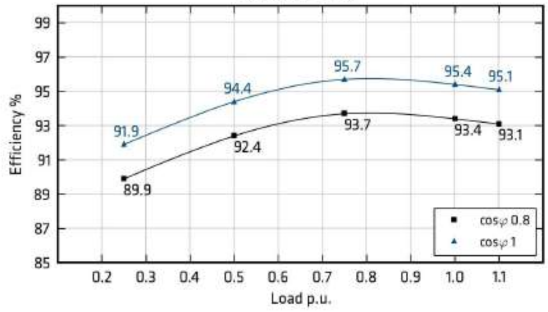
W V k
400/230 50Hz



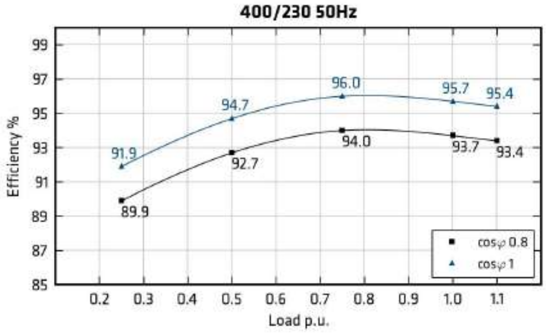
W S k
400/230 50Hz



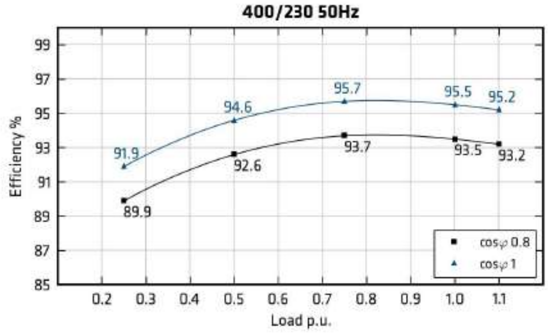
W V k
400/230 50Hz



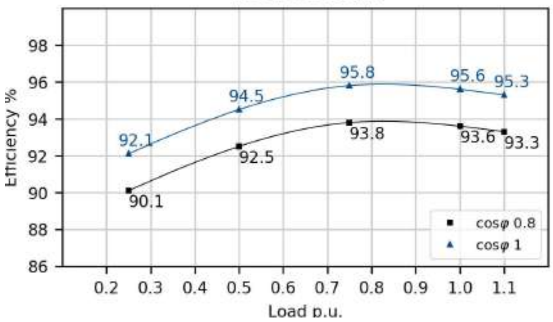
W S k
400/230 50Hz



W V k
400/230 50Hz



W k
400/230 50Hz

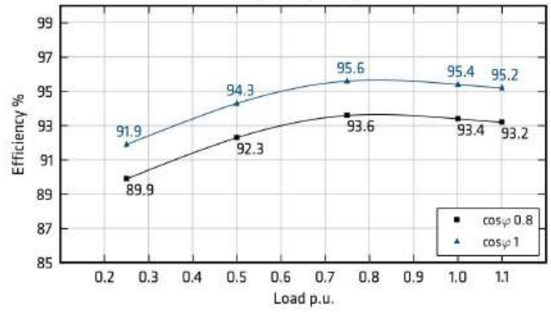


pn PV Q n

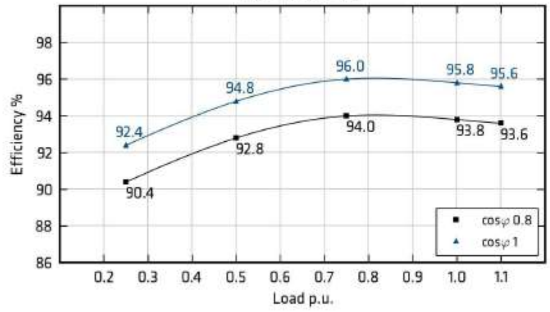
p i SHt

[vw		; 8=g @7U					; ; 7g @7U					; @7g @7U					; B7g @7U				
		7 5B=	7 5=	7 5A=	8	8B8	7 5B=	7 5=	7 5A=	8	8B8	7 5B=	7 5=	7 5A=	8	8B8	7 5B=	7 5=	7 5A=	8	8B8
RP^ : B 8d; P	%	90,1	92,0	93,0	92,7	92,4	90,1	92,1	93,2	93,2	93,0	90,1	92,2	93,4	93,3	93,2	89,9	92,3	93,6	93,4	93,2
RP^ : B 9d; P	%	90,6	92,5	93,4	93,1	92,8	90,6	92,6	93,6	93,6	93,4	90,6	92,7	93,8	93,7	93,6	90,4	92,8	94,0	93,8	93,6
RP^ : B 8[; P	%	90,6	93,1	93,9	93,5	93,2	90,6	93,2	94,1	94,0	93,8	90,6	93,3	94,3	94,1	94,0	90,4	93,4	94,5	94,2	94,0
RP^ : B 9[; P	%	90,6	93,4	94,3	93,8	93,5	90,6	93,5	94,5	94,3	94,1	90,6	93,6	94,7	94,4	94,2	90,4	93,7	94,9	94,5	94,1
RP^ : B 8Z; P	%	90,6	93,6	94,5	94,0	93,7	90,6	93,7	94,7	94,5	94,3	90,6	93,8	94,9	94,6	94,4	90,4	93,9	95,1	94,7	94,3
RP^ : B 9Z; P	%	90,6	93,0	93,9	93,6	93,3	90,6	93,1	94,1	94,1	93,9	90,6	93,2	94,3	94,2	94,0	90,4	93,3	94,5	94,3	93,9
RP^ : B gZ; P	%	90,8	92,9	94,0	93,7	93,4	90,8	93,0	94,2	94,2	94,0	90,8	93,1	94,4	94,3	94,1	90,6	93,2	94,6	94,4	94,2

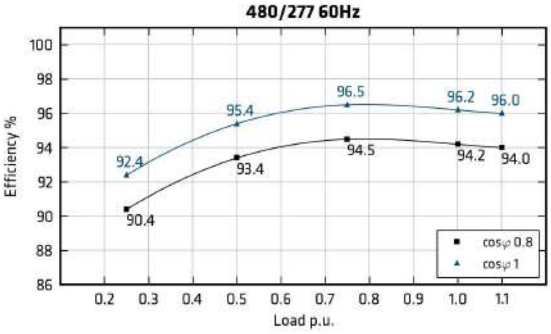
W S k
480/277 60Hz



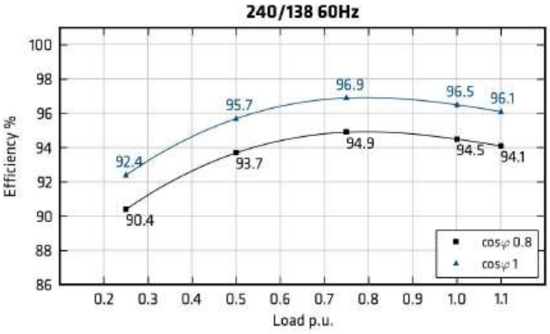
W V k
480/277 60Hz



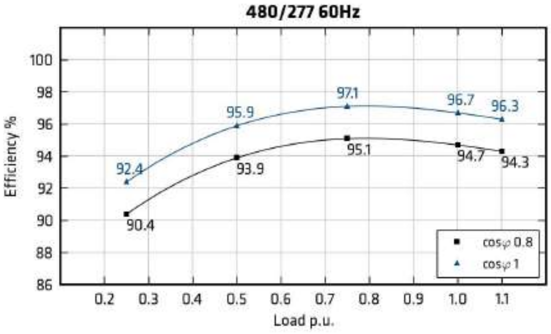
W S k
480/277 60Hz



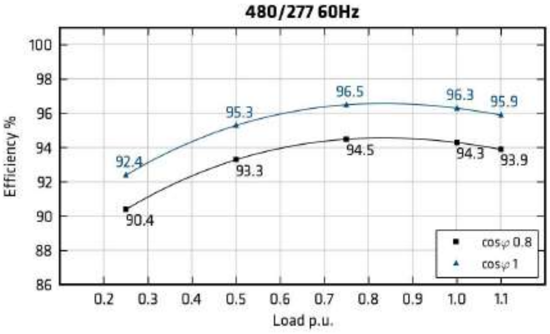
W V k
240/138 60Hz



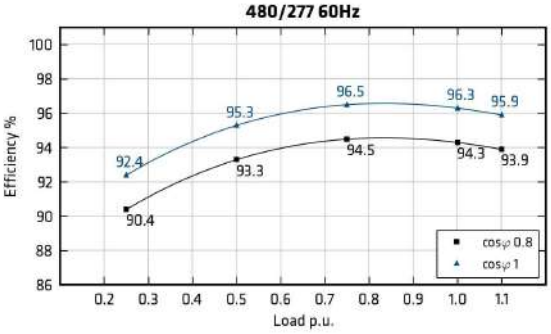
W S k
480/277 60Hz



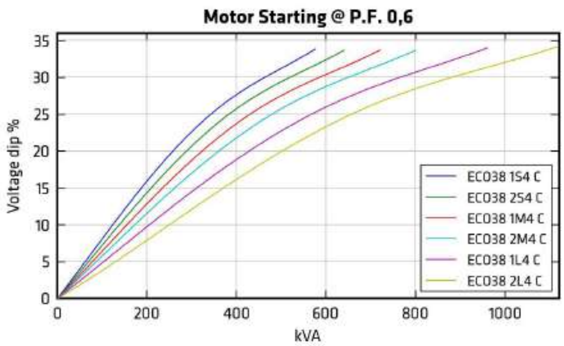
W V k
480/277 60Hz



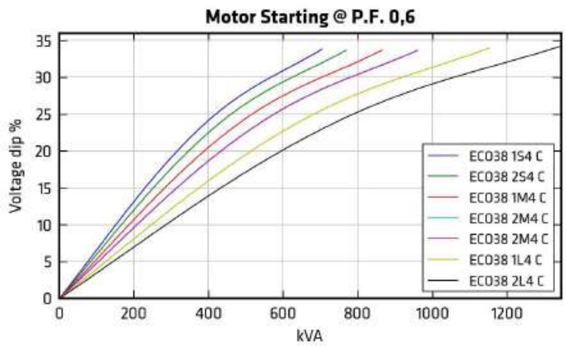
W k
480/277 60Hz

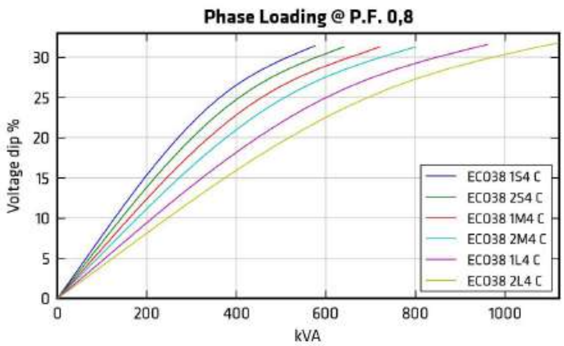


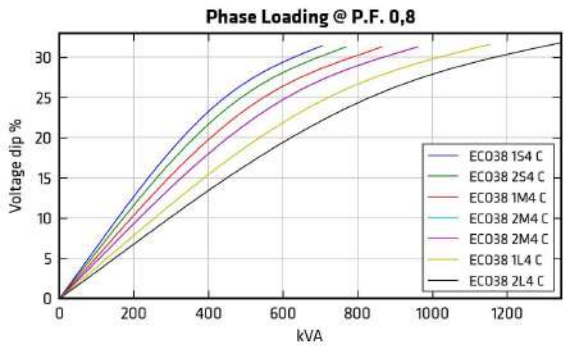
k00 Hz0

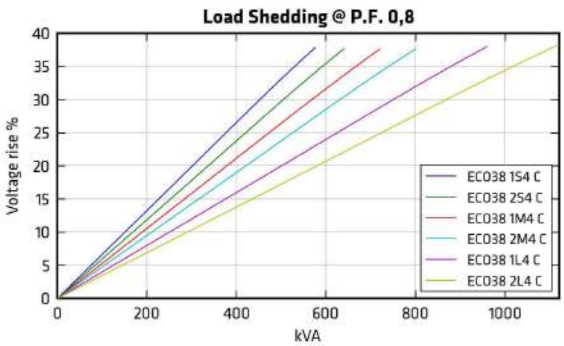


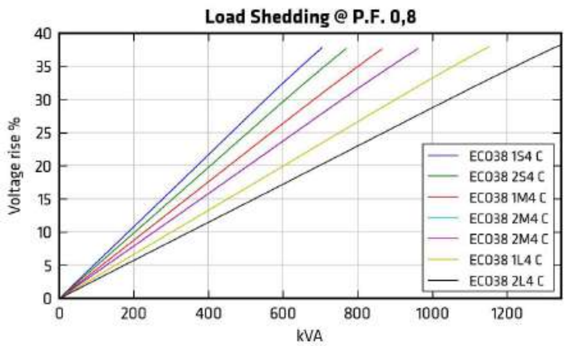
k 0 H 0











V vw us w s w u w s s x u° xs w xsu syw x ° v us w 3 ws w uwwv s x D

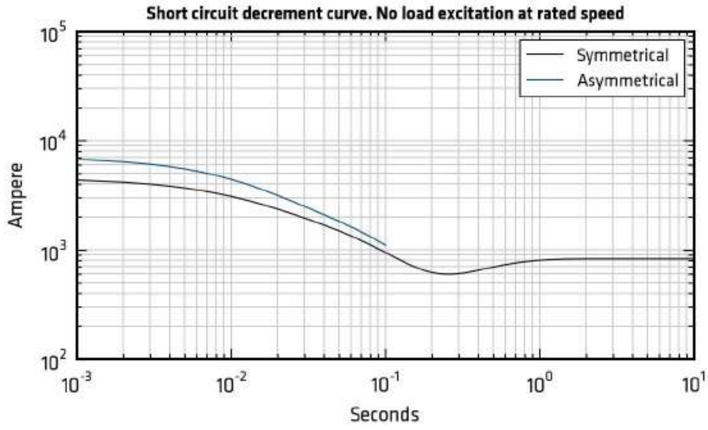
a w Ssu u wxx u w u wu /aSPP0 tw w w xsu 75@u w D
aSPPH ° /Nc Pu /aS w 00675B
R s w5ezwaSPP s w xsu 75 ° 888C9 maSPPH ° /Nc Pu /75 00675B c5ez° ws zs zw sywxs s sy° w w s x75 ° w ° s w zw
w zs us tw wsv zw x75@u w x zw sv° u vww 888C9 ° w t yyw /8C, z yzw s w505
V z° w s w3s 877 gN sv° w ° s x75 ° w ° s w ° sywxs s 88C gN sv° w ° s x75@5

g sywu wxx u w u wu /gPP00
gPPH/; 776g w 0B x =7 U EgPPH/; B76g w 0B x @7 U
R s w5gPP s ; 8=g @7 U ° 85 : B mgPPH/; B76; 8=0p9c5ez° ws zs zw sywxs s sy° w w s ; 8=g ° w ° s w zw w zs us tw wsv
zw w xsu 75@u w x zw sv° u vww 85 : B ° w t yyw /: : , z yzw s w505
V z° w s w3s 877 gN sv° w ° s ; 8=g ° w ° s w ° sywxs s 8 : gN sv° w ° s ; B7g5

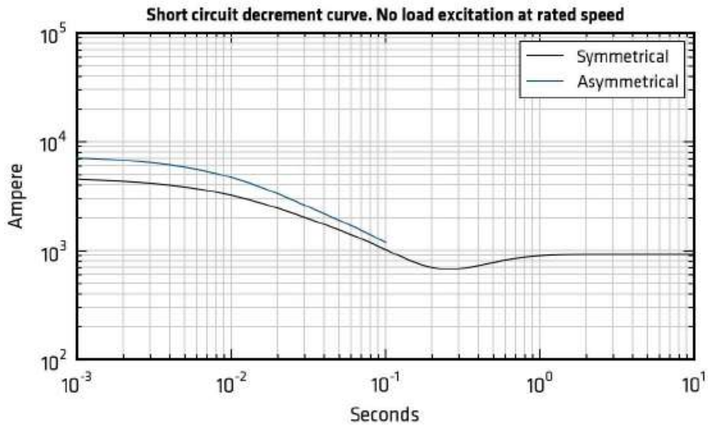
RHt

D

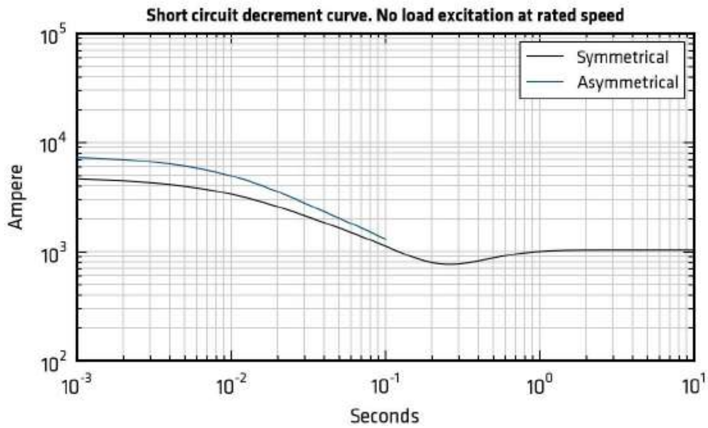
RP^ : B 8d; P



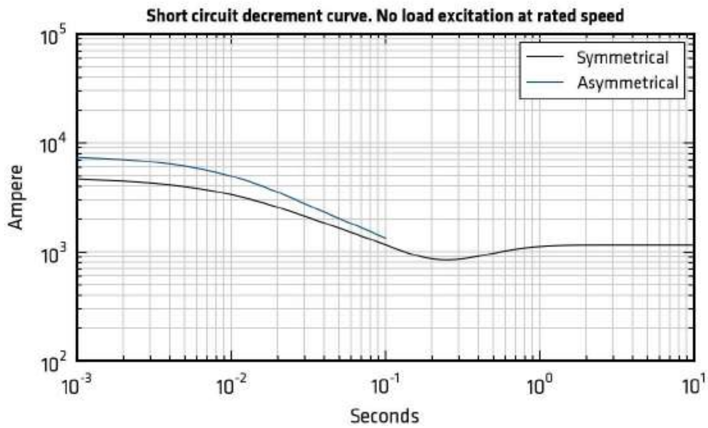
RP^ : B 9d; P



RP^ : B 8[; P



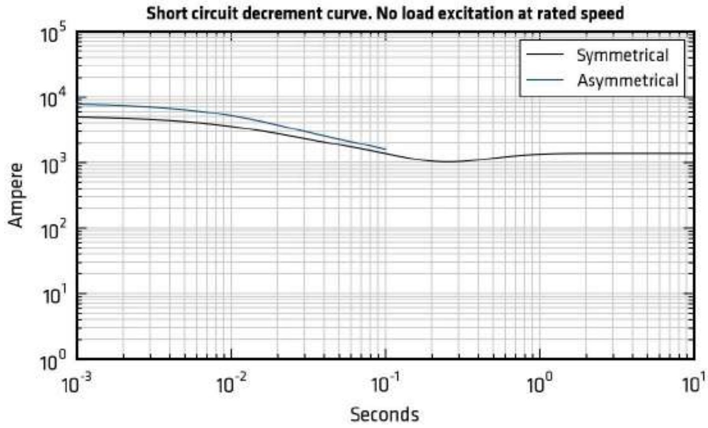
RP^ : B 9[; P



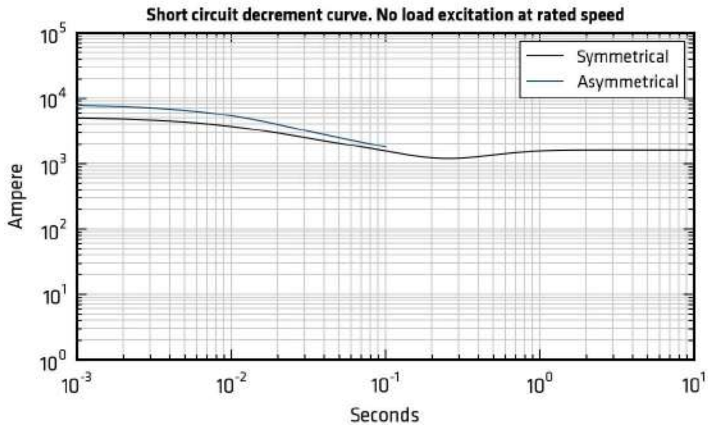
1a ws w wxw st w s syw@

RHt D

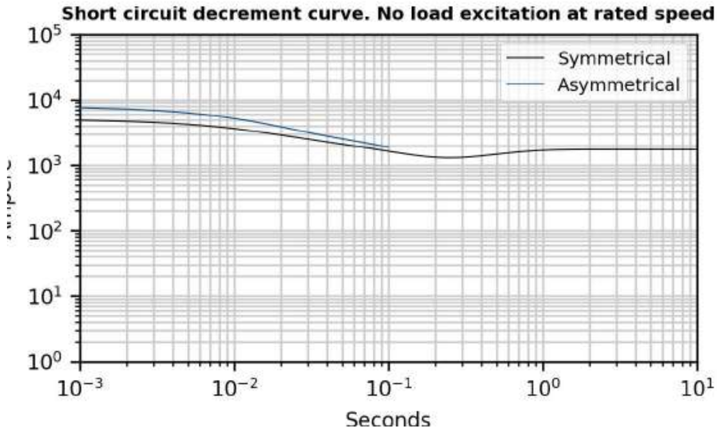
RP^ : B 8Z; P



RP^ : B 9Z; P



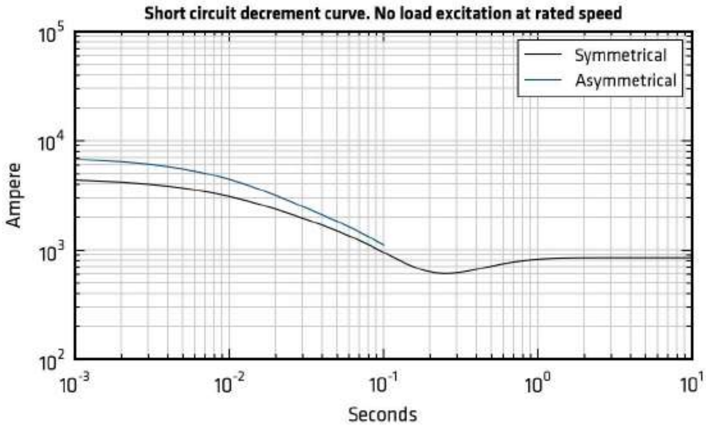
RP^ : B g Z; P



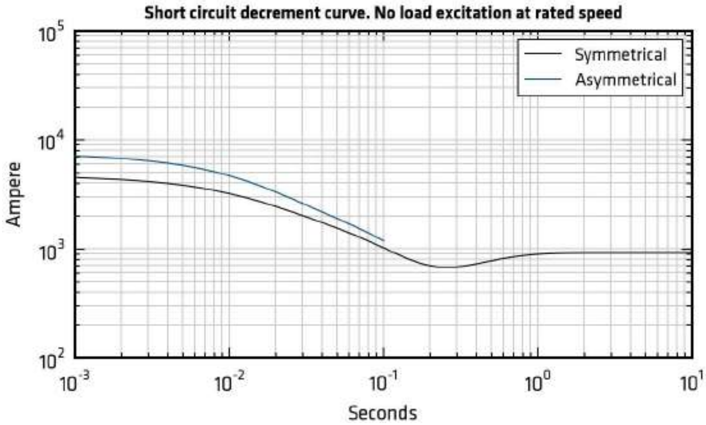
SHt

D

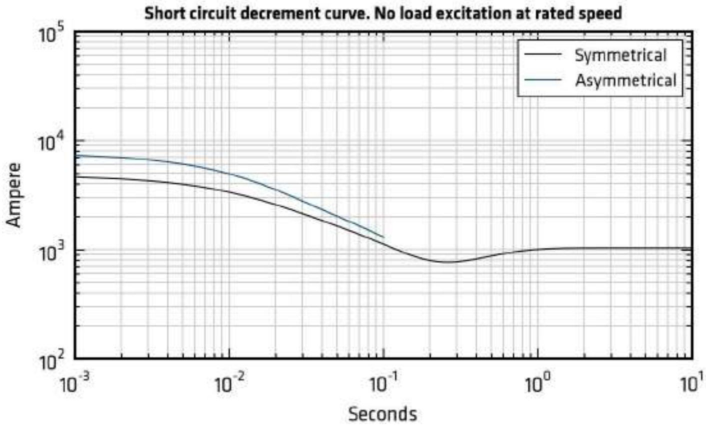
RP^ : B 8d; P



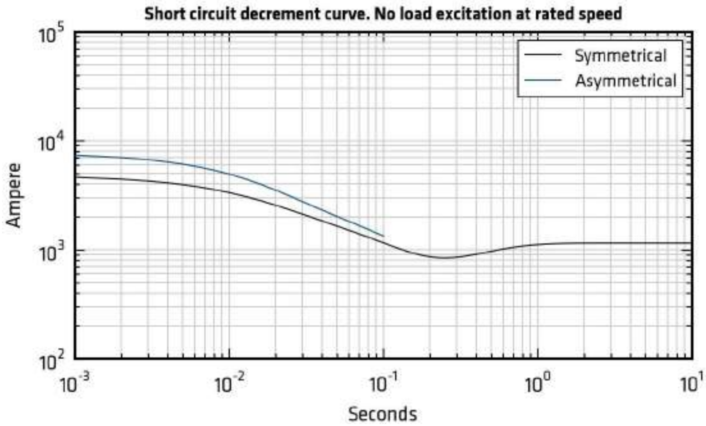
RP^ : B 9d; P



RP^ : B 8[; P



RP^ : B 9[; P

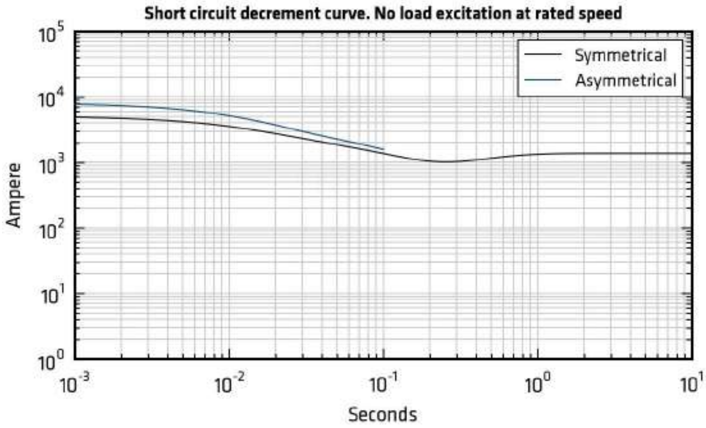


1a ws w wxw st w s syw@

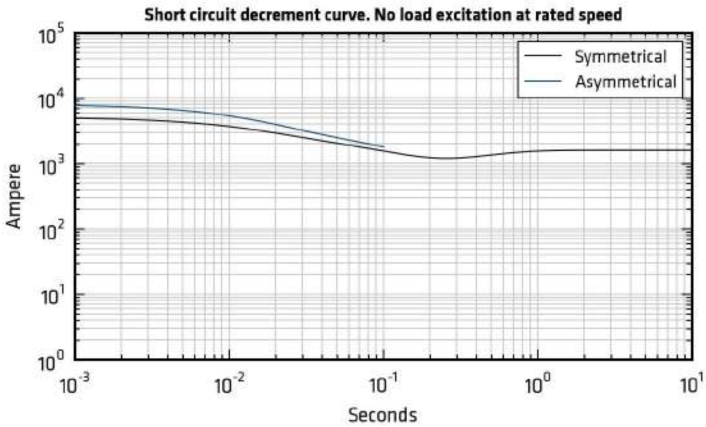
SHt

D

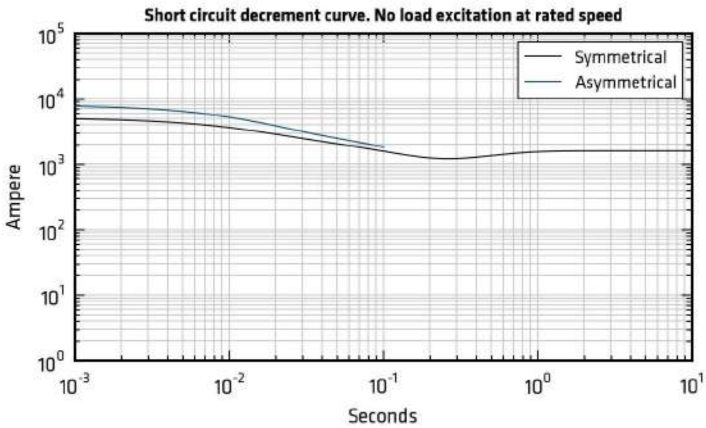
RP^ : B 8Z; P



RP^ : B 9Z; P



RP^ : B g Z; P



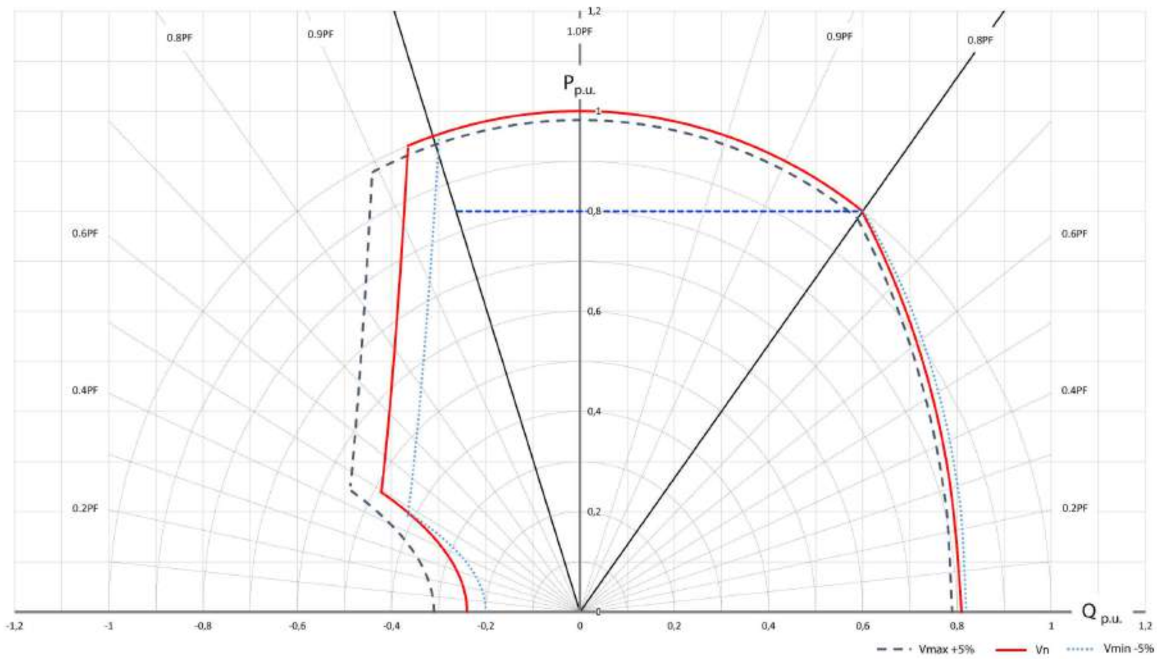
1a ws w wkw st w s syw@

pn PV Q n

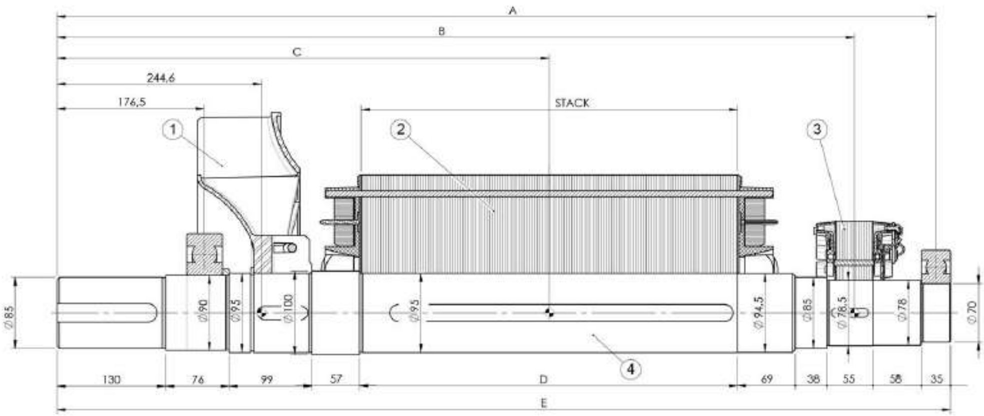
l n

Qs s		RP^ : B 8d; P		RP^ : B 9d; P		RP^ : B 8[; P		RP^ : B 9[; P		RP^ : B 8Z; P		RP^ : B 9Z; P		RP^ : B gZ; P	
		=7U	@7U	=7U	@7U	=7U	@7U	=7U	@7U	=7U	@7U	=7U	@7U	=7U	@7U
Qs w usyw		P w													
d s h ° v° y c w ° s uw/97 P0	Ω	0,013		0,011		0,008		0,007		0,006		0,004		0,004	
c h ° v° y c w ° s uw/97 P0	Ω	3,905		4,133		4,449		4,887		5,604		6,78		7,383	
d s R u° w c w ° s uw/97 P0	Ω	13,47		13,47		13,47		15,28		13,47		13,47		13,47	
c R u° w c w ° s uw/97 P0	Ω	0,719		0,719		0,719		0,719		0,719		0,719		0,719	
h w°yz xu wwyw ws	kg	525,0		550,0		600,0		653,0		771,0		895,0		957,0	
f ts s uw sy w°u	kN/mm	4,4		5,2		5,7		5,1		5,9		6,2		6,5	
N° x	m³/min	32,0	39,0	32,0	39,0	32,0	39,0	32,0	39,0	32,0	39,0	32,0	39,0	32,0	39,0
] ° w w w s 8 6A	dB(A)	82/69	86/73	82/69	86/73	82/69	86/73	82/69	86/73	82/69	86/73	82/69	86/73	82/69	86/73

O



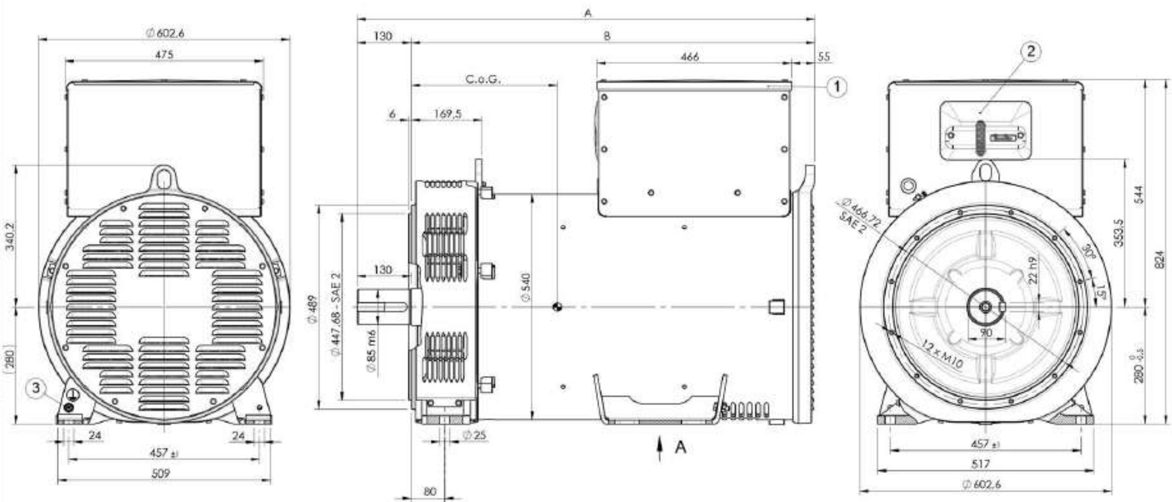
MOMENTS OF INERTIA - DOUBLE BEARING



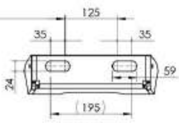
POS.	1		2		3		4		TOTAL	
COMPONENT	FAN		MAIN ROTOR		EXCITER ROTOR		SHAFT *			
	WEIGHT	J	WEIGHT	J	WEIGHT	J	WEIGHT	J	WEIGHT	J
TYPE	[kg]	[kgm²]	[kg]	[kgm²]	[kg]	[kgm²]	[kg]	[kgm²]	[kg]	[kgm²]
ECO38 1S / 4C	6,6	0,1633	106,2	1,4461	11,7	0,0806	40,8	0,0426	165,3	1,7326
ECO38 2S / 4C			115,9	1,5767					175,0	1,8632
ECO38 1M / 4C			130,4	1,7724			44,7	0,0471	193,4	2,0634
ECO38 2M / 4C			150,0	2,0378					213,0	2,3287
ECO38 1L / 4C			184,2	2,5007			54,2	0,058	256,8	2,8026
ECO38 2L / 4C			232,9	3,1584					305,4	3,4602
ECO38 VL / 4C			253,0	3,4336			56,5	0,0605	327,8	3,7380

DIMENSION / TYPE	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
ECO38 1S / 4C	811,5	714,2	479,0	212,0	829,0
ECO38 2S / 4C			469,0		
ECO38 1M / 4C	881,5	784,2	524,0	282,0	899,0
ECO38 2M / 4C			504,0		
ECO38 1L / 4C	1051,5	954,2	639,0	452,0	1069,0
ECO38 2L / 4C			589,0		
ECO38 VL / 4C	1091,5	994,2	609,0	492,0	1109,0

* Shaft mass and inertia also include rotor keys



Tipo / Type	A	B	C	C.o.G.
Type / Type	[mm]	[mm]	[mm]	[mm]
ECO38 1S / 4C	856	726	294	347,6
ECO38 2S / 4C				342,3
ECO38 1M / 4C	926	796	294	388,8
ECO38 2M / 4C				377,3
ECO38 1L / 4C	1096	966	454	495,4
ECO38 2L / 4C				463,5
ECO38 VL / 4C	1136	1006	494	TBD



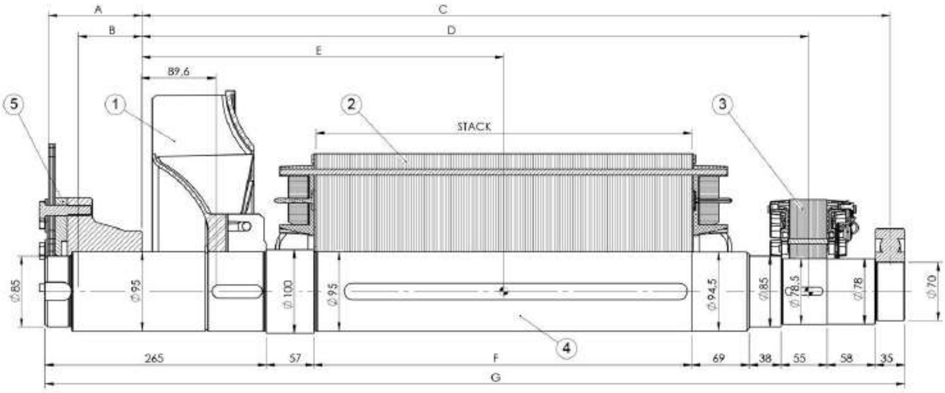
VIEW A

1) REMOVABLE COVER FOR ACCESS TO MAIN TERMINALS

2) REMOVABLE PANEL FOR ACCESS TO AVR

3) SCREW M10 FOR GROUNDING

MOMENTS OF INERTIA - SINGLE BEARING

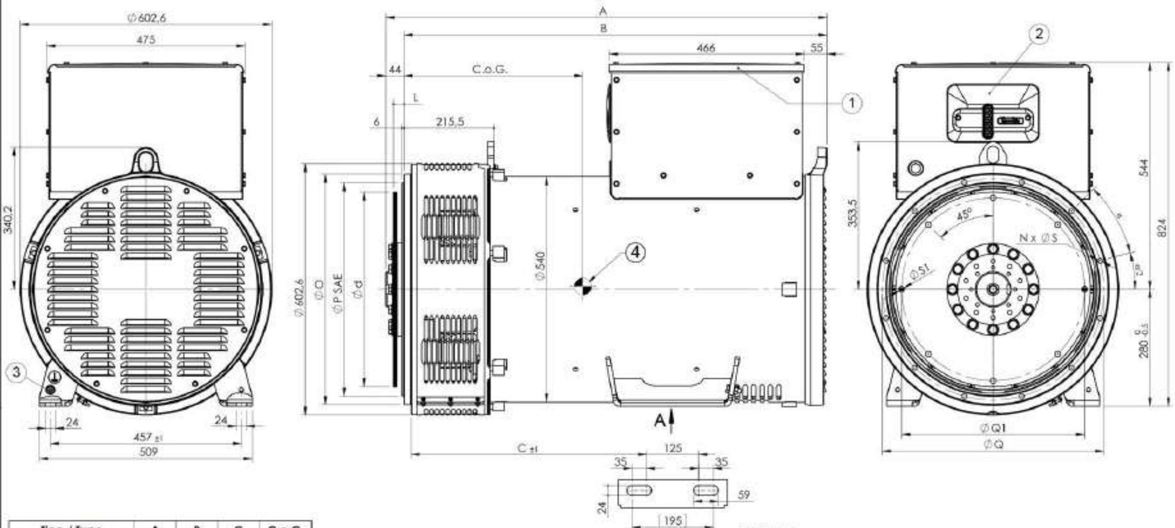


* Shaft mass and inertia also include rotor keys

POS.	1		2		3		4		TOTAL	
COMPONENT	FAN		MAIN ROTOR		EXCITER ROTOR		SHAFT *			
	WEIGHT	J	WEIGHT	J	WEIGHT	J	WEIGHT	J	WEIGHT	J
TYPE	[kg]	[kgm²]	[kg]	[kgm²]	[kg]	[kgm²]	[kg]	[kgm²]	[kg]	[kgm²]
ECO38 1S / 4C	6,6	0,1633	106,2	1,4461	11,7	0,0806	40,2	0,0434	164,8	1,7333
ECO38 2S / 4C			115,9	1,5767					174,5	1,8639
ECO38 1M / 4C			130,4	1,7724			44,1	0,0479	192,9	2,0641
ECO38 2M / 4C			150,0	2,0378					212,5	2,3295
ECO38 1L / 4C			184,2	2,5007			53,7	0,0588	256,2	2,8033
ECO38 2L / 4C			232,9	3,1584					304,9	3,4610
ECO38 VL / 4C			253,0	3,4336			55,9	0,0613	327,2	3,7388

SAE	5 | SHAFTS COUPLING FLEX PLATE			
N.	A	B	WEIGHT [kg]	J [kgm²]
11,5	110,6	75,7	19,3	0,1793
14,0	96,4	74,1	22,4	0,3630

DIMENSION / TYPE	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]
ECO38 1S / 4C	656,5	559,2	324,0	212,0	789,0
ECO38 2S / 4C			314,0		
ECO38 1M / 4C	726,5	629,2	369,0	282,0	859,0
ECO38 2M / 4C			349,0		
ECO38 1L / 4C	896,5	799,2	484,0	452,0	1029,0
ECO38 2L / 4C			434,0		
ECO38 VL / 4C	936,5	839,2	454,0	492,0	1069,0



Tipo / Type	A	B	C	C.o.G.
Type / Type	[mm]	[mm]	[mm]	[mm]
ECO38 1S / 4C	816	772	420	388.7
ECO38 2S / 4C				383.6
ECO38 1M / 4C	886	842	420	430.5
ECO38 2M / 4C				419.4
ECO38 1L / 4C	1056	1012	580	538.1
ECO38 2L / 4C				506.7
ECO38 VL / 4C	1096	1052	620	527.0

SAE N.	Flangia / Flange Bride / Flansch					
	O	P	Q	S	N	α
3	451	409.58	428.62	12	12	30
2	489	447.68	466.72	12	12	30
1	552	511.18	530.22	12	12	30
1/2	648	584.20	619.12	14	12	30
0	711	647.70	679.45	14	16	22.5

SAE N.	Giunti a dischi / Disc coupling Disque de monopalier / Scheiben kupplung			
	d	L	Q1	S1
11 1/2	352.42	39.6	333.37	11
14	466.72	25.4	438.15	13.5

1) REMOVABLE COVER FOR ACCESS TO MAIN TERMINALS

2) REMOVABLE PANEL FOR ACCESS TO AVR

3) SCREW M10 FOR GROUNDING

4) CENTER OF GRAVITY IN CONFIGURATION SAE 1 FLYWHEEL 14

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