



Totally Focused. Totally Independent.

Technical Specification

ECP34 4 C



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

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).

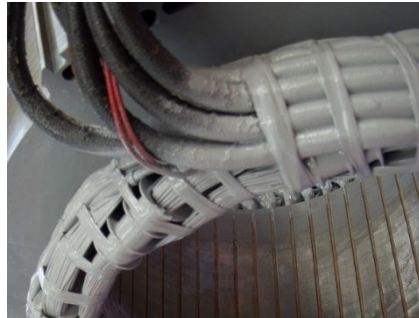
- ▶ 12 wire reconnectable:
50Hz – 380V to 440V and 220/110V to 240/120V (de-rates may apply at certain voltages)
60Hz – 380V to 480V and 220/110V to 240/120V (de-rates may apply at certain voltages)
- ▶ 6 wire reconnectable:
50Hz – 380V to 440V and 220V to 240V (de-rates may apply at certain voltages)
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 to ECO46	Std	Option	Option	Option	Option (to ECO40)	
ECO47	Std 4 wires		Option	Option		
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+ butadienic black flexible 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 ECO47	-	-	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.

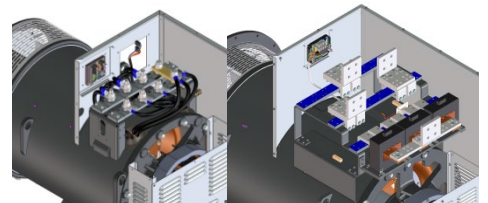
The TOTAL+ is a Mecc Alte protection system. It is the ultimate winding treatment that offers truly superior performances when the environment is really harsh, or the application very demanding. The TOTAL+ is also extremely resistant to the particle abrasion as it adsorbs the impacts.

Design

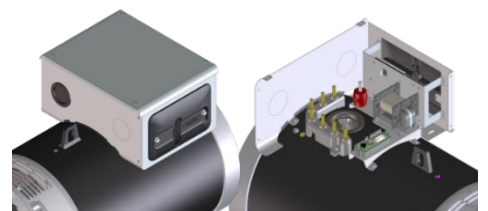
The robust mechanical structure withstands up to 5G in any direction and 9G vertically and its design permits easy access to the connections and components during routine maintenance check-ups. The mechanical design has used the most advanced FEM analysis. The materials used are: DD12 steel for the frame, C45 steel for the shaft and cast iron or aluminum pressure die cast for the end-brackets: fans are either aluminum die casted or 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 assured through a pull out drawer or a drop down panel to allow safer adjustment. Large terminal boxes allow easy access of power cables, in the ECO43 and ECO46 higher power ranges the terminal allow the convenient choice of power cable or busbar connection with versatility of entry and connection. Current transformers are available as an option on series ECO 40, 43, 46 and 47 with single or dual output.

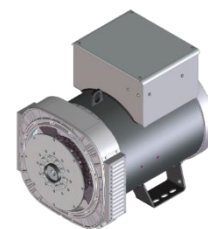


On C type family has been installed a new AVR panel. Terminal boards have been redesigned into a special L configuration, specifically to ease customer wiring; with this kind of terminal board it is possible to place a second terminal board in order to get 12 available terminals. Current transformers are available as an option on series ECO38 with single or dual output.



Ingress Protection

In addition to the protection on the windings themselves, alternators can increase the protection on the inlet side. 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

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 to ECO46	-	Std	Option
ECO47	-	-	Std
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 generator may be selected – as it has lower subtransient reactance values for non-linear loads. The whole range from 6.5 to 3400kVA is capable of >300% sustained short circuit current for up to 20 seconds.

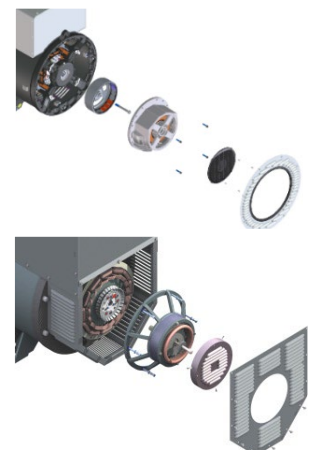
Optional PMG

The Mecc Alte PMG is available on ECP28, ECP30, ECP32, ECP34 and ECO38 as factory-fitted option; alternatively, only the predisposition for the retrofit, for subsequent assembly, is available on option.

On ECO 40, 43 and 46 series it is available as a factory-fitted or retro-fitted options.

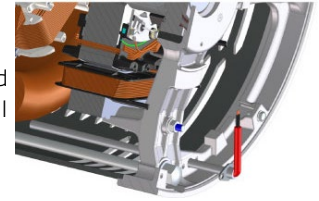
For ECO47 PMG is standard.

The complete AVR range is fully compatible with both MAUX and PMG systems, this minimises spare part 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 entire range can be equipped with anti-condensation resistors of adequate power and sized for the alternator. 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, 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

Altitude (meters)	Ambient temperature (Celsius)							
	25	40	45	50	55	60	65	70
≤ 1000	1.07	1	0.96	0.93	0.91	0.89	0.85	0.82
$> 1000 \leq 1500$	1.01	0.96	0.92	0.89	0.87	0.84	0.81	0.77
$> 1500 \leq 2000$	0.96	0.91	0.87	0.84	0.83	0.79	0.77	0.73
$> 2000 \leq 3000$	0.90	0.85	0.81	0.78	0.76	0.73	0.71	0.68
$> 3000 \leq 4000$	0.84	0.78	0.75	0.73	0.70	0.68	0.66	0.62
$> 4000 \leq 5000$	0.78	0.72	0.69	0.67	0.65	0.62	0.59	0.56
$> 5000 \leq 6000$	0.70	0.65	0.63	0.61	0.58	0.55	0.53	0.50

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.

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.

50 Hz		60 Hz			3 phase	2 phase L-L	1 phase L-N
Voltage	Factor	Voltage	Factor				
380	0.93X	415	0.85X	<i>Istantaneous</i>	1X	0.87X	1.30X
400	1X	440	0.90X	<i>Minimum</i>	1X	1.80X	3.20X
415	1.04X	460	0.95X	<i>Sustained</i>	1X	1.50X	2.50X
440	1.10X	480	1X	<i>Max Duration</i>	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.

General characteristics

Pole number	4	Insulation class	H
Phase number	3	Protection class	IP23
Number of wires	12	NDE Bearing type	6311.2RS
Execution	Brushless	DE Bearing type	6314.2RS
Regulator type	DSR	Maximum Overspeed	2250
Winding pitch	2/3	Altitude	0-1000
Code voltage reference	T0405S3	Balancing	ISO1940-1

Ratings 50Hz

		STANDBY-163/27				STANDBY-150/40				H-125/40				F-105/40				B-80/40			
		380V	400V	415V	440V	380V	400V	415V	440V	380V	400V	415V	440V	380V	400V	415V	440V	380V	400V	415V	440V
Series Star Y																					
Parallel Star YY		190V	200V	208V	220V	190V	200V	208V	220V	190V	200V	208V	220V	190V	200V	208V	220V	190V	200V	208V	220V
Series Delta Δ		220V	230V	240V	254V	220V	230V	240V	254V	220V	230V	240V	254V	220V	230V	240V	254V	220V	230V	240V	254V
Parallel Delta ΔΔ		110V	115V	120V	127V	110V	115V	120V	127V	110V	115V	120V	127V	110V	115V	120V	127V	110V	115V	120V	127V
ECP34 1S4 C	kVA	96	96	96	79	93	93	93	77	87,5	87,5	87,5	72	79	79	79	65	70	70	70	58
	kW	77	77	77	63	74	74	74	62	70	70	70	58	63	63	63	52	56	56	56	46
ECP34 2S4 C	kVA	110	110	110	88	105	105	105	86	100	100	100	80	90	90	90	72	80	80	80	64
	kW	88	88	88	70	84	84	84	69	80	80	80	64	72	72	72	58	64	64	64	51
ECP34 1M4 C	kVA	137	137	137	117	132	132	132	112	125	125	125	106	112	112	112	96	100	100	100	85
	kW	110	110	110	94	106	106	106	90	100	100	100	85	90	90	90	77	80	80	80	68
ECP34 2M4 C	kVA	148	148	148	125	143	143	143	120	135	135	135	114	121	121	121	103	108	108	108	91
	kW	118	118	118	100	114	114	114	96	108	108	108	91	97	97	97	82	86	86	86	73
ECP34 1L4 C	kVA	165	165	165	137	158	158	158	131	150	150	150	125	136	136	136	113	120	120	120	100
	kW	132	132	132	110	126	126	126	105	120	120	120	100	109	109	109	90	96	96	96	80
ECP34 2L4 C	kVA	176	181	181	170	169	174	174	163	160	165	165	155	144	149	149	139	128	132	132	124
	kW	141	145	145	136	135	139	139	130	128	132	132	124	115	119	119	111	102	106	106	99

Ratings 60Hz

		STANDBY-163/27				STANDBY-150/40				H-125/40				F-105/40				B-80/40			
		415V	440V	460V	480V	415V	440V	460V	480V	415V	440V	460V	480V	415V	440V	460V	480V	415V	440V	460V	480V
Series Star Y																					
Parallel Star YY		208V	220V	230V	240V	208V	220V	230V	240V	208V	220V	230V	240V	208V	220V	230V	240V	208V	220V	230V	240V
Series Delta Δ		240V	254V	265V	277V	240V	254V	265V	277V	240V	254V	265V	277V	240V	254V	265V	277V	240V	254V	265V	277V
Parallel Delta ΔΔ		120V	127V	133V	138V	120V	127V	133V	138V	120V	127V	133V	138V	120V	127V	133V	138V	120V	127V	133V	138V
ECP34 1S4 C	kVA	108	115	115	115	104	111	111	111	98	105	105	105	88	95	95	95	78	84	84	84
	kW	86	92	92	92	83	89	89	89	78	84	84	84	70	76	76	76	62	67	67	67
ECP34 2S4 C	kVA	120	132	132	132	114	126	126	126	110	120	120	120	99	109	109	109	88	96	96	96
	kW	96	106	106	106	91	101	101	101	88	96	96	96	79	87	87	87	70	77	77	77
ECP34 1M4 C	kVA	143	154	165	165	137	147	159	159	130	140	150	150	116	125	135	135	104	112	120	120
	kW	114	123	132	132	110	118	127	127	104	112	120	120	93	100	108	108	83	90	96	96
ECP34 2M4 C	kVA	154	165	178	178	148	159	172	172	140	150	162	162	125	135	146	146	112	120	130	130
	kW	123	132	142	142	118	127	138	138	112	120	130	130	100	108	117	117	90	96	104	104
ECP34 1L4 C	kVA	165	187	198	198	158	178	189	189	150	170	180	180	132	150	163	163	120	136	144	144
	kW	132	150	158	158	126	142	151	151	120	136	144	144	106	120	130	130	96	109	115	115
ECP34 2L4 C	kVA	187	210	218	218	179	201	208	208	170	191	198	198	155	165	178	178	136	153	158	158
	kW	150	168	174	174	143	161	166	166	136	153	158	158	124	132	142	142	109	122	126	126

Reactance & Time constants- Class H / 400V

Unsaturated (ref. EN60034-4)			ECP34 1S4 C	ECP34 2S4 C	ECP34 1M4 C	ECP34 2M4 C	ECP34 1L4 C	ECP34 2L4 C
X_d	Direct-axis synchronous reactance	%	324	241,2	281,3	327,6	225,3	220,4
X'_d	Direct-axis transient reactance	%	22,3	18,4	21,5	22,8	13,9	18,2
X''_d	Direct-axis subtransient reactance	%	7,4	6	7	11,1	5,8	7,7
X_q	Quadrature-axis synchronous reactance	%	170,2	157	183,2	200,9	114,8	150,3
X'_q	Quadrature-axis transient reactance	%	170,2	157	183,2	200,9	114,8	150,3
X''_q	Quadrature-axis subtransient reactance	%	29,5	32,7	38,2	41,5	24,9	32,6
X₂	Negative-sequence reactance	%	17,8	18,8	22	25,7	14,8	19,5
X₀	Zero sequence reactance	%	3,59	3,67	4,29	3,97	2,35	3,12
Saturated								
X_d	Direct-axis synchronous reactance	%	275,4	205	239,1	278,5	191,5	187,3
X'_d	Direct-axis transient reactance	%	19	15,6	18,3	19,4	11,8	15,5
X''_d	Direct-axis subtransient reactance	%	6,29	5,1	5,95	9,43	4,93	6,54
X_q	Quadrature-axis synchronous reactance	%	144,7	133,4	155,7	170,8	97,6	127,8
X'_q	Quadrature-axis transient reactance	%	144,7	133,4	155,7	170,8	97,6	127,8
X''_q	Quadrature-axis subtransient reactance	%	25,1	27,8	32,5	35,3	21,2	27,7
X₂	Negative-sequence reactance	%	15,1	16	18,7	21,8	12,6	16,6
X₀	Zero sequence reactance	%	3,59	3,67	4,29	3,97	2,35	3,12
K_{cc}	Short circuit ratio		0,36	0,49	0,42	0,36	0,52	0,53
T'_d	Transient time constant	sec	0,056	0,059	0,069	0,085	0,053	0,073
T''_d	Subtransient time constant	sec	0,012	0,014	0,017	0,019	0,011	0,014
T'_{do}	Open circuit time constant	sec	0,82	0,77	0,9	1,22	0,86	0,88
T_a	Armature time constant	sec	0,016	0,018	0,021	0,026	0,017	0,02

Additional information - Class H / 400V

I_o	Excitation current at no load	A	0,7	0,5	0,6	0,5	0,7	0,6
I_c	Excitation current at full load	A	2,7	2,4	2,7	2,6	2,9	2,8
Overload								
Overload per 10 sec.		%	300					
Heat dissipation		W	5922	6957	8342	8254	8755	10088
Telephone Harmonic Factor - THF		%	<2	<2	<2	<2	<2	<2
Waveform Distors.(THD) full load LL/LN		%	2,3 / 2,3	2,2 / 2,3	2 / 2,2	1,8 / 2	1,8 / 1,9	1,9 / 2
Waveform Distors.(THD) no load LL/LN		%	2,5 / 2,9	2,9 / 3	2,8 / 3	2,7 / 3	2,7 / 2,9	2,7 / 2,9

Reactance & Time constants- Class H / 480V

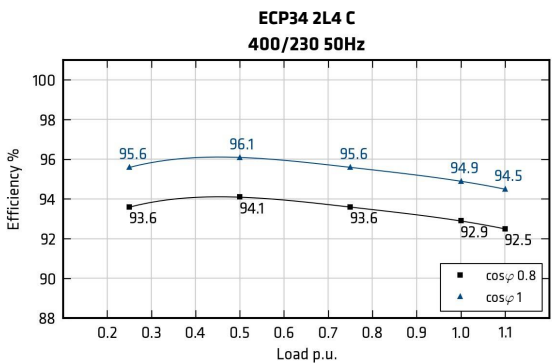
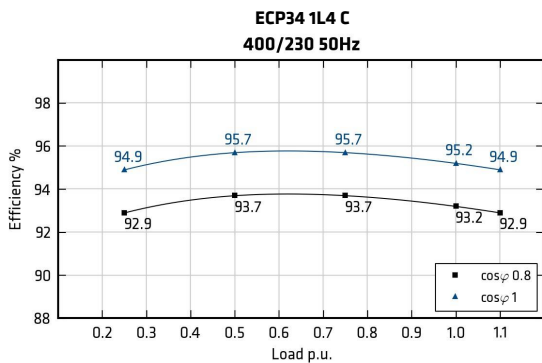
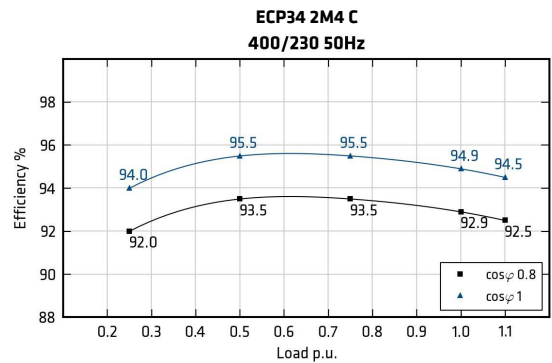
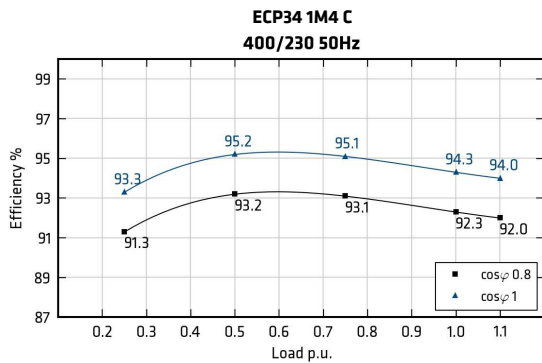
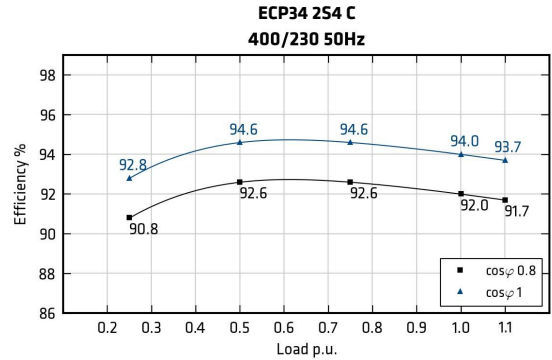
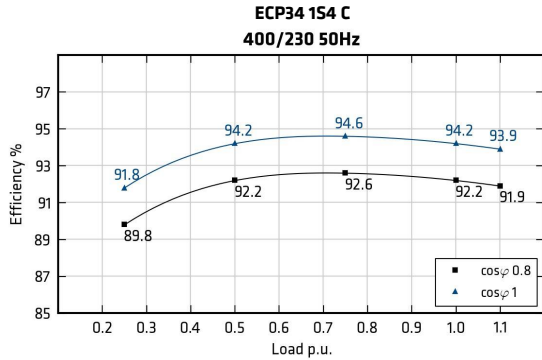
Unsaturated (ref. EN60034-4)			ECP34 1S4 C	ECP34 2S4 C	ECP34 1M4 C	ECP34 2M4 C	ECP34 1L4 C	ECP34 2L4 C
X_d	Direct-axis synchronous reactance	%	324	241,2	281,3	327,6	225,3	227,3
X'_d	Direct-axis transient reactance	%	22,3	18,4	21,5	22,8	13,9	18,8
X''_d	Direct-axis subtransient reactance	%	7,4	6	7	11,1	5,8	7,94
X_q	Quadrature-axis synchronous reactance	%	170,2	157	183,2	200,9	114,8	155
X'_q	Quadrature-axis transient reactance	%	170,2	157	183,2	200,9	114,8	155
X''_q	Quadrature-axis subtransient reactance	%	29,5	32,7	38,2	41,5	24,9	33,6
X₂	Negative-sequence reactance	%	17,8	18,8	22	25,7	14,8	20,1
X₀	Zero sequence reactance	%	3,59	3,67	4,29	3,97	2,35	3,22
Saturated								
X_d	Direct-axis synchronous reactance	%	275,4	205	239,1	278,5	191,5	193,2
X'_d	Direct-axis transient reactance	%	19	15,6	18,3	19,4	11,8	16
X''_d	Direct-axis subtransient reactance	%	6,29	5,1	5,95	9,43	4,93	6,75
X_q	Quadrature-axis synchronous reactance	%	144,7	133,4	155,7	170,8	97,6	131,8
X'_q	Quadrature-axis transient reactance	%	144,7	133,4	155,7	170,8	97,6	131,8
X''_q	Quadrature-axis subtransient reactance	%	25,1	27,8	32,5	35,3	21,2	28,6
X₂	Negative-sequence reactance	%	15,1	16	18,7	21,8	12,6	17,1
X₀	Zero sequence reactance	%	3,59	3,67	4,29	3,97	2,35	3,22
K_{cc}	Short circuit ratio		0,36	0,49	0,42	0,36	0,52	0,52
T'_d	Transient time constant	sec	0,056	0,059	0,069	0,085	0,053	0,073
T''_d	Subtransient time constant	sec	0,012	0,014	0,017	0,019	0,011	0,014
T'_{do}	Open circuit time constant	sec	0,82	0,77	0,9	1,22	0,86	0,88
T_a	Armature time constant	sec	0,016	0,018	0,021	0,026	0,017	0,02

Additional information - Class H / 480V

I_o	Excitation current at no load	A	0,7	0,5	0,6	0,5	0,7	0,6
I_c	Excitation current at full load	A	2,7	2,4	2,7	2,6	2,9	2,8
Overload								
Overload per 10 sec.		%	300					
Heat dissipation		W	7603	8121	9730	9905	9846	10111
Telephone Interference Factor - TIF			<40	<40	<40	<40	<40	<40
Waveform Distors.(THD) full load LL/LN		%	2,3 / 2,3	2,2 / 2,3	2 / 2,2	1,8 / 2	1,8 / 1,9	1,9 / 2
Waveform Distors.(THD) no load LL/LN		%	2,5 / 2,9	2,9 / 3	2,8 / 3	2,7 / 3	2,7 / 2,9	2,7 / 2,9

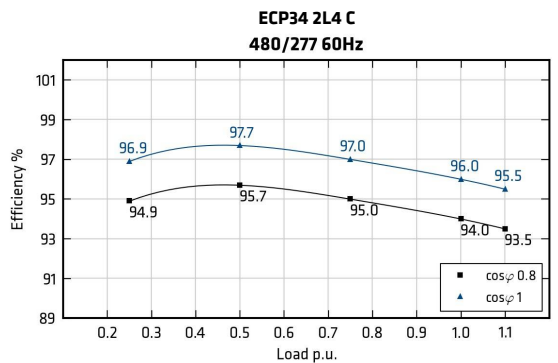
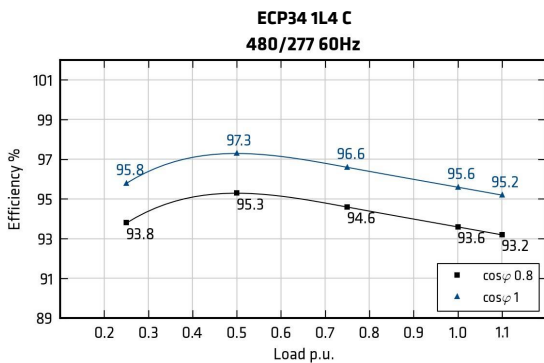
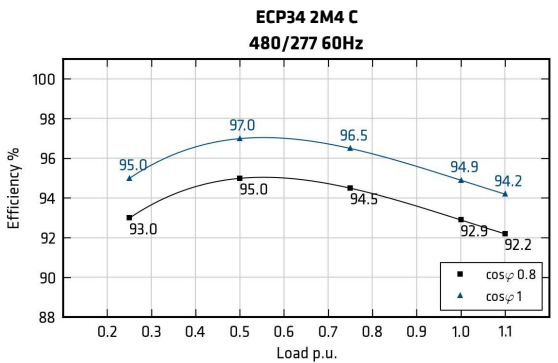
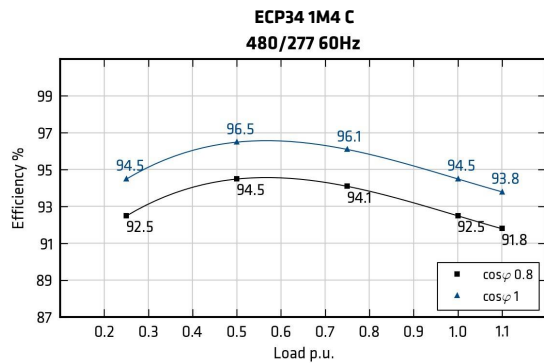
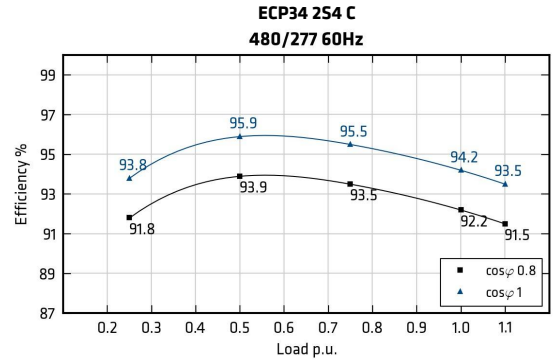
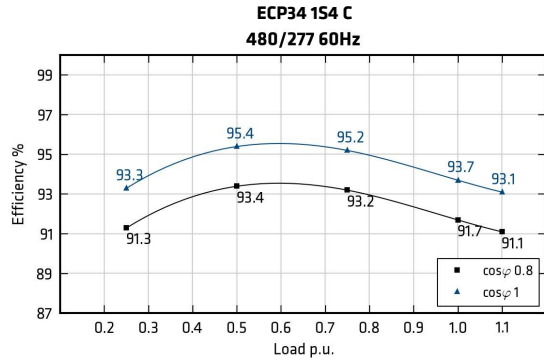
Efficiencies @ 50Hz

Models		380V 50Hz					400V 50Hz					415V 50Hz					440V 50Hz				
		0.25	0.5	0.75	1	1.1	0.25	0.5	0.75	1	1.1	0.25	0.5	0.75	1	1.1	0.25	0.5	0.75	1	1.1
ECP34 1S4 C	%	90,1	92,2	92,5	92,3	92,1	89,8	92,2	92,6	92,2	91,9	89,6	92,2	92,6	92,0	91,7	89,5	91,9	92,1	91,6	91,3
ECP34 2S4 C	%	91,1	92,6	92,5	92,1	91,9	90,8	92,6	92,6	92,0	91,7	90,6	92,6	92,6	91,8	91,4	90,5	92,3	92,1	91,4	91,1
ECP34 1M4 C	%	91,2	93,0	92,8	92,2	92,0	91,3	93,2	93,1	92,3	92,0	91,1	93,1	92,9	92,0	91,7	90,8	92,8	92,4	91,5	91,2
ECP34 2M4 C	%	91,9	93,3	93,2	92,8	92,5	92,0	93,5	93,5	92,9	92,5	91,8	93,4	93,3	92,6	92,2	91,7	93,2	92,9	92,2	91,8
ECP34 1L4 C	%	93,0	93,5	93,5	93,1	92,8	92,9	93,7	93,7	93,2	92,9	92,5	93,5	93,5	92,8	92,5	92,5	93,3	93,1	92,5	92,2
ECP34 2L4 C	%	93,9	94,1	93,5	92,9	92,5	93,6	94,1	93,6	92,9	92,5	93,4	94,1	93,5	92,6	92,2	93,3	93,8	93,1	92,3	91,9

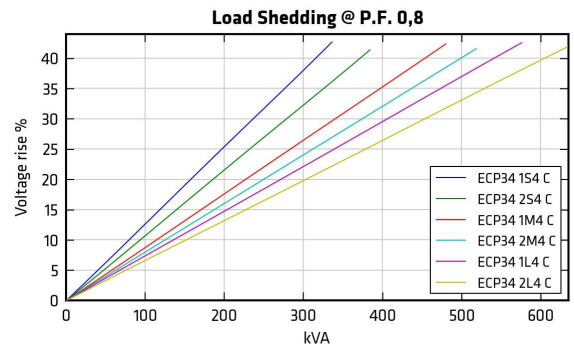
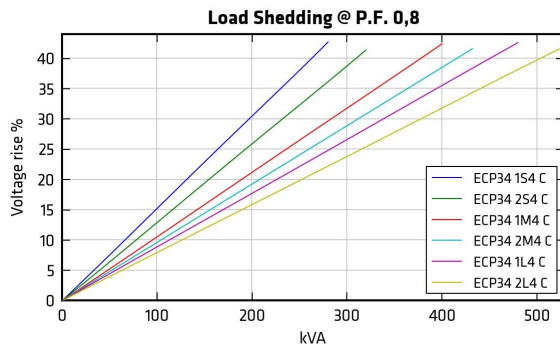
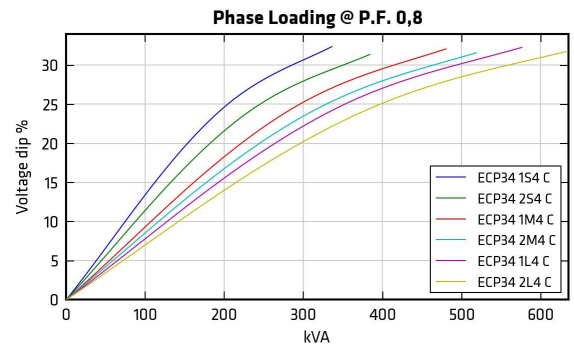
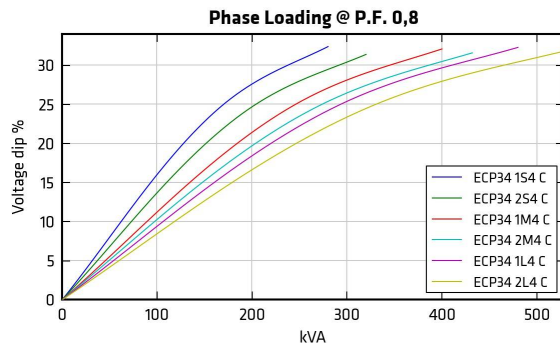
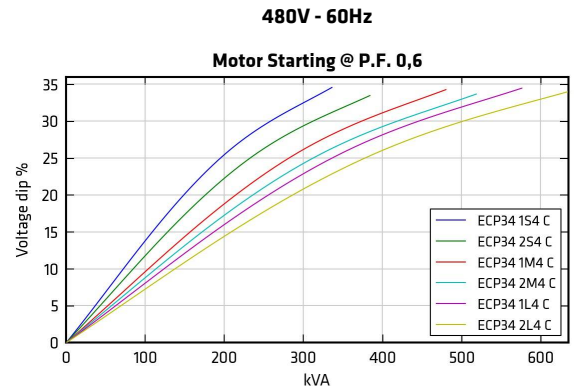
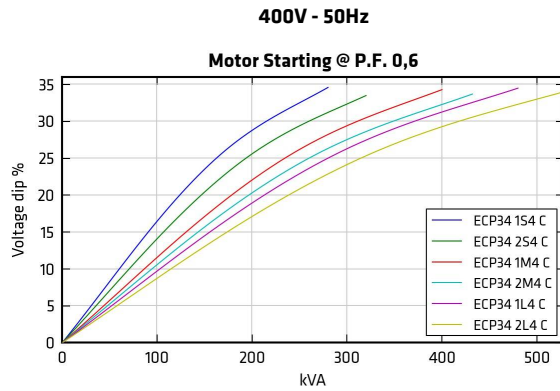


Efficiencies @ 60Hz

Models		415V 60Hz					440V 60Hz					460V 60Hz					480V 60Hz					
		0.25	0.5	0.75	1	1.1	0.25	0.5	0.75	1	1.1	0.25	0.5	0.75	1	1.1	0.25	0.5	0.75	1	1.1	
ECP34 1S4 C	%	91,6	93,2	92,8	91,1	90,3	91,6	93,3	92,9	91,5	91,0	91,6	93,4	93,2	91,8	91,3	91,3	93,4	93,2	91,7	91,1	91,1
ECP34 2S4 C	%	92,1	93,7	93,1	91,6	90,6	92,1	93,8	93,2	92,1	91,4	92,1	93,9	93,5	92,3	91,5	91,8	93,9	93,5	92,2	91,5	91,5
ECP34 1M4 C	%	92,5	94,0	93,3	91,7	91,0	92,6	94,2	93,7	92,1	91,2	92,6	94,3	94,0	92,4	91,7	92,5	94,5	94,1	92,5	91,8	91,8
ECP34 2M4 C	%	92,9	94,4	93,6	92,0	91,3	93,1	94,7	94,1	92,5	91,8	93,1	94,8	94,4	92,8	92,0	93,0	95,0	94,5	92,9	92,2	92,2
ECP34 1L4 C	%	94,0	95,0	94,1	92,9	92,5	94,0	95,1	94,4	93,3	92,9	93,9	95,1	94,4	93,5	93,1	93,8	95,3	94,6	93,6	93,2	93,2
ECP34 2L4 C	%	95,2	95,5	94,6	93,4	92,8	95,2	95,6	94,8	93,8	93,3	95,2	95,7	94,9	94,0	93,4	94,9	95,7	95,0	94,0	93,5	93,5



Transients voltage



In order to scale transient curves as a function of a power factor or voltage if not indicated, please proceed as follows:

Power Factor coefficient corrector (PFCC), to be used on power factor 0.6 curves:

$$PFCC = \sin(\text{ARCCos}(PF_{\text{new}})) / 0.8$$

Example. The PFCC at power factor 0.3 is 1.192 [$PFCC = \sin(\text{ARCCos}(0.3)) / 0.8$]. This means that the voltage fall at a given power at pf 0.3 is equivalent to the one that can be read on the pf 0.6 curve if the load is considered 1.192 times bigger (19% higher value.).

In this example, a 100 kVA load insertion at pf 0.3 is equivalent in voltage fall to a 119kVA load insertion at pf 0.6.

Voltage coefficient corrector (VCC):

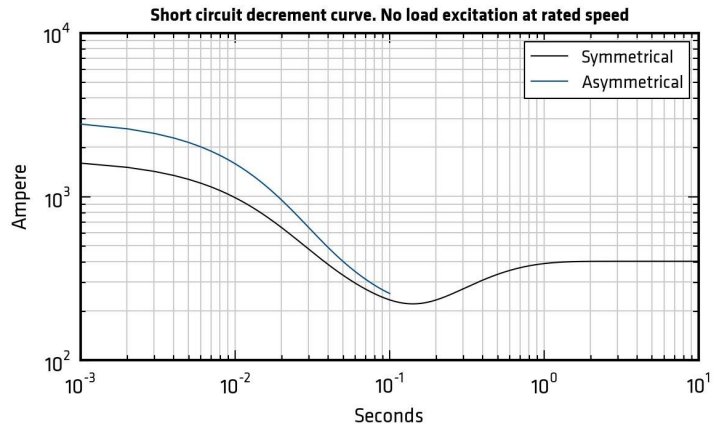
$$VCC = (400/V_{\text{new}})^2 \text{ if } 50 \text{ Hz}; VCC = (480/V_{\text{new}})^2 \text{ if } 60 \text{ Hz}$$

Example. VCC at 415V 60 Hz is 1.338 [$VCC = (480/415)^2$]. This means that the voltage fall at a given power at 415V is equivalent to the one that can be read on the power factor 0.6 curve if the load is considered 1.338 times bigger (33% higher value.).

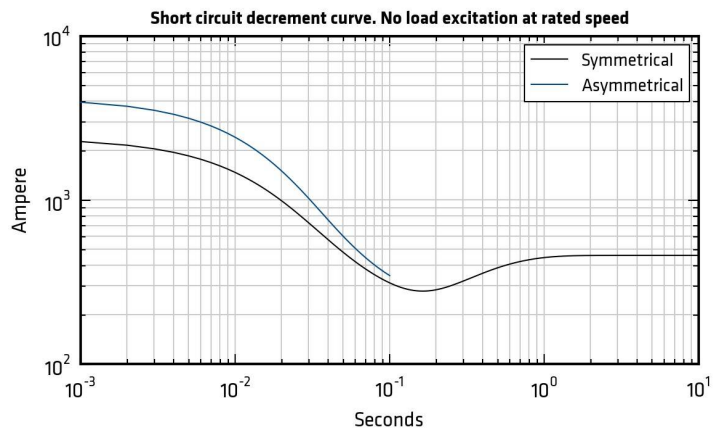
In this example, a 100 kVA load insertion at 415V is equivalent in voltage fall to a 133kVA load insertion at 480V.

50Hz Short circuit decrement curves - No load excitation at rated speed

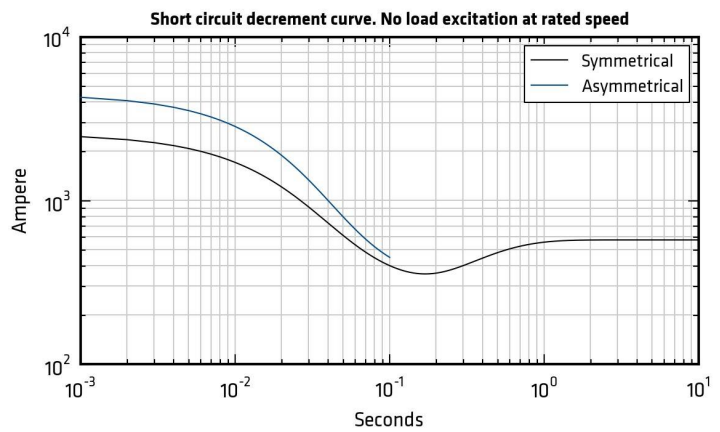
ECP34 1S4 C



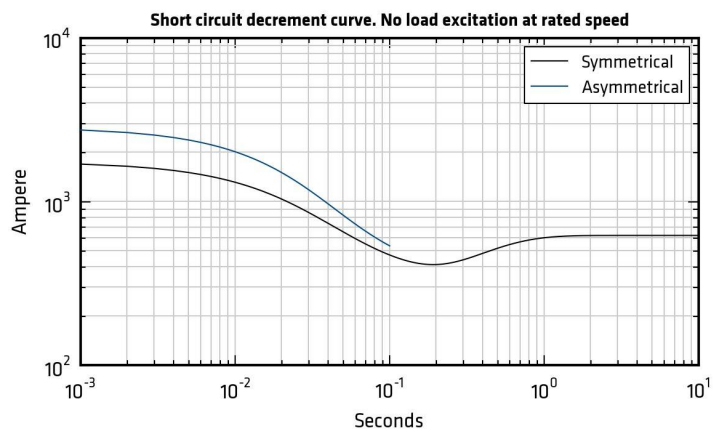
ECP34 2S4 C



ECP34 1M4 C



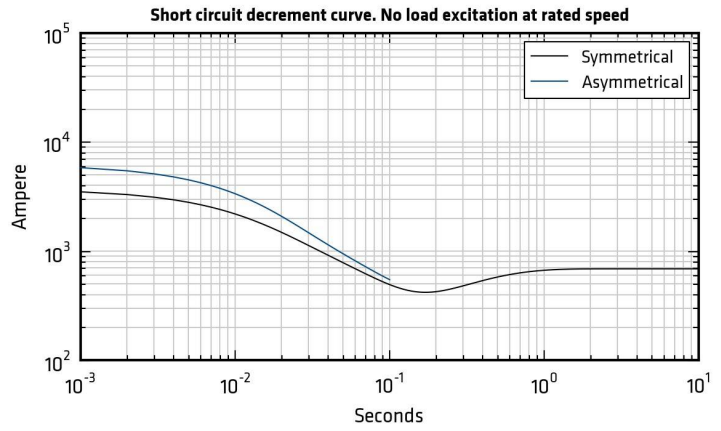
ECP34 2M4 C



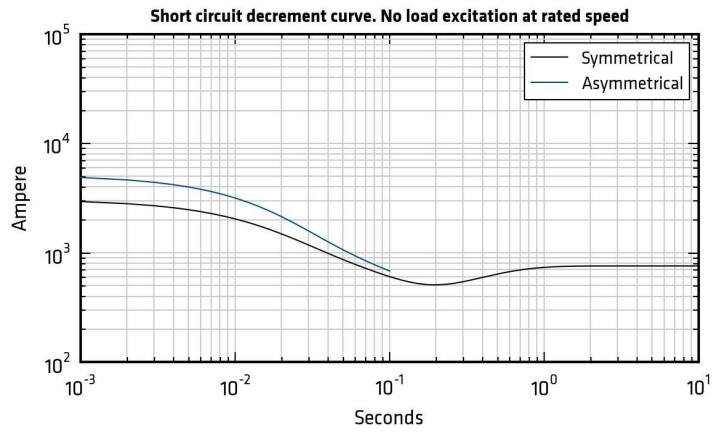
*Please refer to tables at page 6

50Hz Short circuit decrement curves - No load excitation at rated speed

ECP34 1L4 C



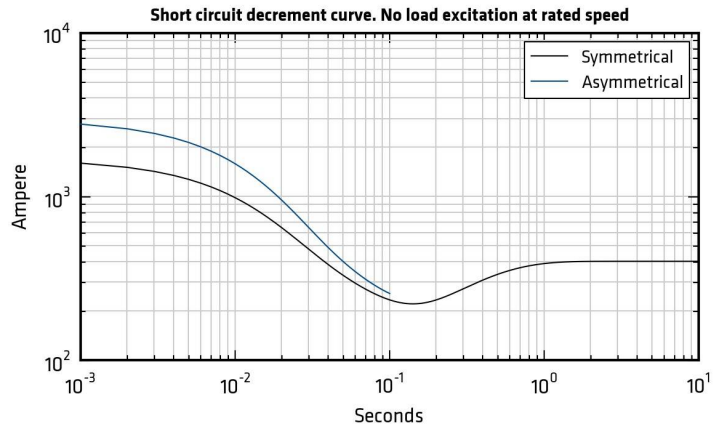
ECP34 2L4 C



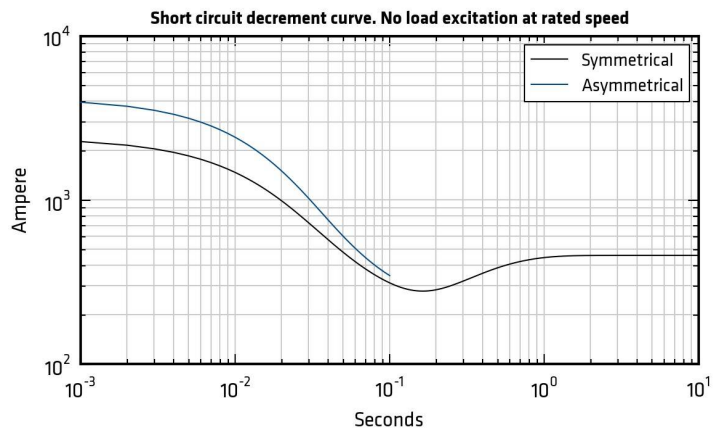
*Please refer to tables at page 6

60Hz Short circuit decrement curves - No load excitation at rated speed

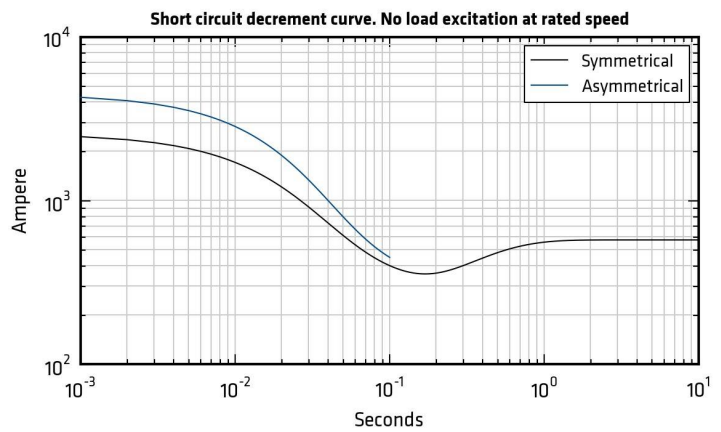
ECP34 1S4 C



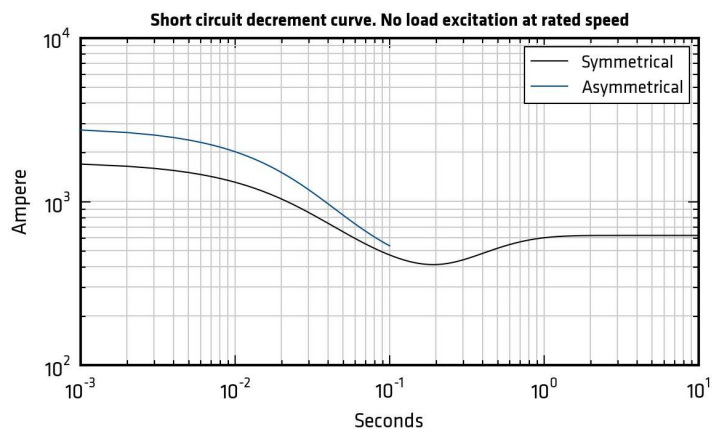
ECP34 2S4 C



ECP34 1M4 C



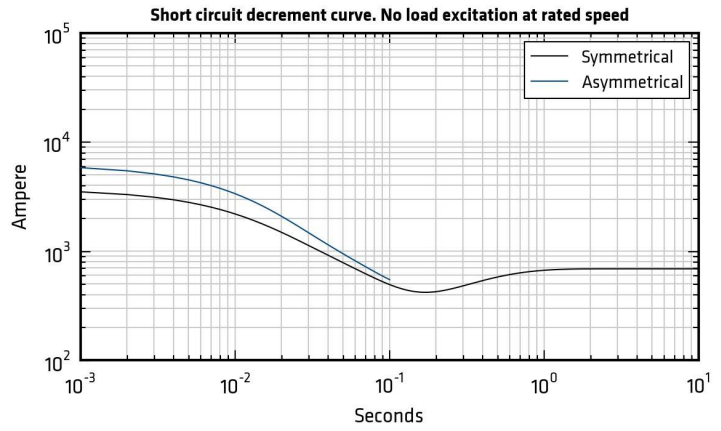
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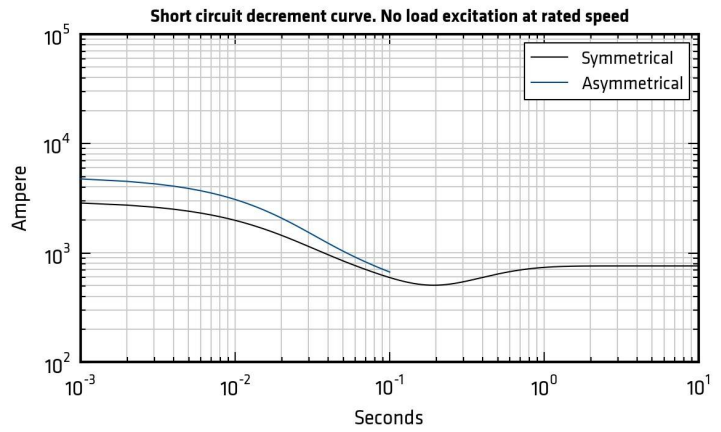
*Please refer to tables at page 6

60Hz Short circuit decrement curves - No load excitation at rated speed

ECP34 1L4 C



ECP34 2L4 C

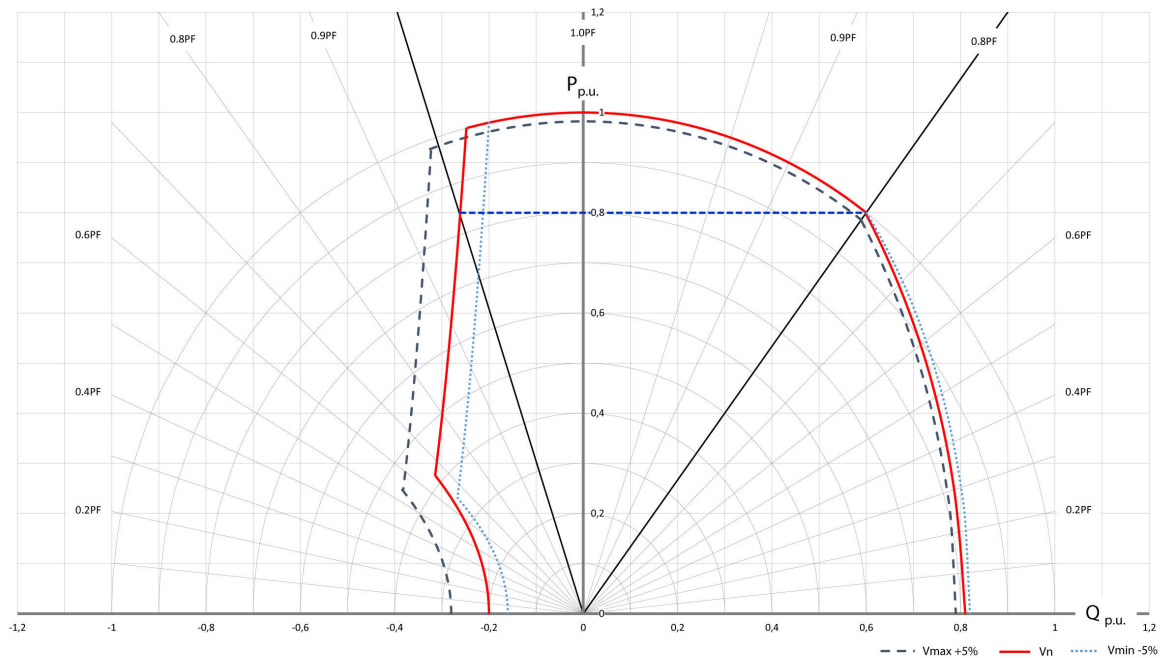


*Please refer to tables at page 6

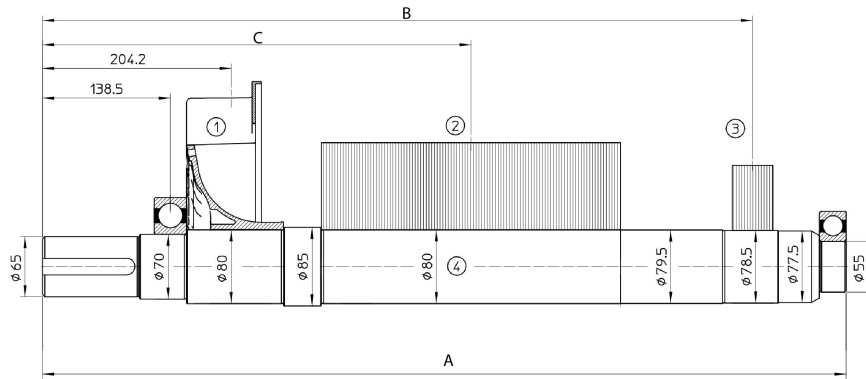
Additional Characteristics

Data	ECP34 1S4 C		ECP34 2S4 C		ECP34 1M4 C		ECP34 2M4 C		ECP34 1L4 C		ECP34 2L4 C		
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	
Damper cage	Aluminium												
Stator Winding Resistance (20°C)	Ω	0,033		0,027		0,021		0,02		0,014		0,015	
Rotor Winding Resistance (20°C)	Ω	2,392		2,844		3,09		3,172		3,467		3,624	
Stator Exciter Resistance (20°C)	Ω	13,47		13,47		13,47		13,47		13,47		13,47	
Rotor Exciter Resistance (20°C)	Ω	0,36		0,36		0,36		0,36		0,36		0,36	
Weight of complete generator	kg	302,0		349,0		370,0		388,0		423,0		440,0	
Unbalanced magnetic pull	kN/mm	4,8		5,1		5,3		5,4		5,5		5,4	
Air flow	m ³ /min	29,2	34,4	29,2	34,4	29,2	34,4	29,2	34,4	29,2	34,4	29,2	34,4
Noise level at 1m/7m	dB(A)	79/65	83/69	79/65	83/69	79/65	83/69	79/65	83/69	79/65	83/69	79/65	83/69

PQ Diagram



MOMENTS OF INERTIA - DOUBLE BEARING



POS. COMPONENT	1 FAN		2 MAIN ROTOR		3 EXCITER ROTOR		4 SHAFT		TOTAL		DIMENSION TYPE	A [mm]	B [mm]	C [mm]
	WEIGHT [kg]	J [kgm ²]	WEIGHT [kg]	J [kgm ²]	WEIGHT [kg]	J [kgm ²]	WEIGHT [kg]	J [kgm ²]	WEIGHT [kg]	J [kgm ²]				
ECP34 1S4 C	1.4	0,0211	61,7	0,5625	11,7	0,0798	27,8	0,0213	102,6	0,6847	ECP34 1S4 C	775,5	674	444
ECP34 2S4 C			78,6	0,7148			27,8	0,0213	119,5	0,837	ECP34 2S4 C	815,5	714	441,5
ECP34 1M4 C			88,1	0,8009			29,4	0,0226	130,6	0,9244	ECP34 1M4 C	870,5	769	474
ECP34 2M4 C			91,4	0,8311			29,4	0,0226	133,9	0,9546	ECP34 2M4 C			436,5
ECP34 1L4 C			102,3	0,9293			31,6	0,0244	147	1,0546	ECP34 1L4 C			464
ECP34 2L4 C			108,5	0,9851			31,6	0,0244	153,2	1,1104	ECP34 2L4 C			

B0947_51_ECP34C_B3814

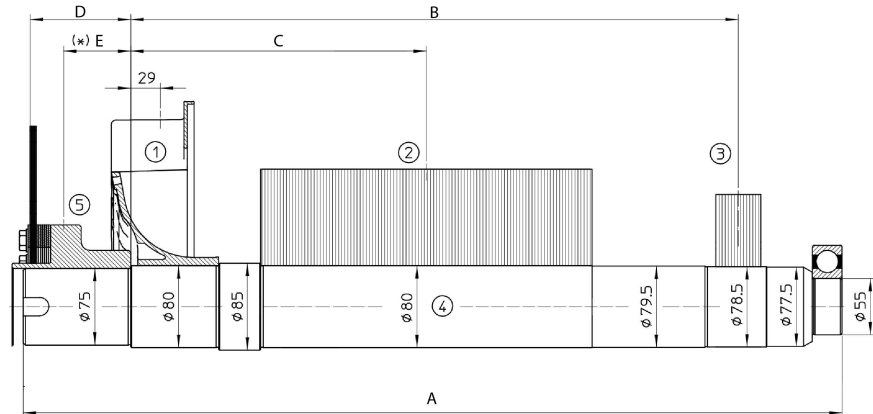
Technical drawings of the motor. The main drawing shows the front view (left), side view (middle), and rear view (right). Dimensions include: front view (width 419, height 799, 289, 250, 25, 28, 406±1, 462, 18, 1, 1); side view (length 105, 6, 223, 164, 497, $\phi 409,6$, $\phi 455$, $\phi 45$, 70, 80, 1, 120, 140, 206, 147, 62, 1, 5); rear view (width 419, height 799, 289, 250, 25, 28, 406±1, 456, 18, 1, 1). Callouts 1-6 point to specific features. A table lists the series and model specifications.

SERIE SERIES	MODELLO MODEL	A	B	l	C.G.
ECP34	1S4 C	797	687	292	331
	2S4 C				316
	1M4 C	837	727	332	339
	2M4 C				336
	1L4 C	892	782	387	370
	2L4 C				364

1 COPERCHIO REMOVIBILE PER ACCESSO AL TERMINALI PRINCIPALI
 REMOVABLE COVER FOR ACCESS TO MAIN TERMINALS
 2 PANNELLO REMOVIBILE PER ACCESSO AL REGOLATORE
 REMOVABLE PANEL FOR ACCESS TO AVR
 3 FORO STANDARD PER INGRESSO CAVI $\phi 80$
 STANDARD HOLE ON FRONT FOR CABLE ENTRY $\phi 80$
 4 PRE-TAGLIO SU PANNELLO PRINCIPALE PER INGRESSO CAVI $\phi 80$
 PRE-CUT ON MAIN PANEL FOR CABLE ENTRY $\phi 80$
 5 PRE-TAGLIO SU PANNELLO LATERALE PER INGRESSO CAVI $\phi 28$
 PRE-CUT ON LATERAL PANEL FOR CABLE ENTRY $\phi 28$
 6 VITE M8 PER MESSA A TERRA
 SCREW M8 FOR GROUNDING

B0940_04_ECP34C_B3814

MOMENTS OF INERTIA - SINGLE BEARING



POS. COMPONENT	1 FAN		2 MAIN ROTOR		3 EXCITER ROTOR		4 SHAFT		TOTAL	
	WBGHT [kg]	J [kgm ²]	WBGHT [kg]	J [kgm ²]	WBGHT [kg]	J [kgm ²]	WBGHT [kg]	J [kgm ²]	WBGHT [kg]	J [kgm ²]
ECP34 1S4 C	1,4	0,0211	61,7	0,5625	11,7	0,0798	26,5	0,0209	101,3	0,6843
ECP34 2S4 C			78,6	0,7148			26,5	0,0209	118,2	0,8366
ECP34 1M4 C			88,1	0,8009			28,1	0,0222	129,3	0,924
ECP34 2M4 C			91,4	0,8311			28,1	0,0222	132,6	0,9542
ECP34 1L4 C			102,3	0,9293			30,5	0,024	145,9	1,0542
ECP34 2L4 C	108,5	0,9851	30,5	0,024	152,1	1,11				

DIMENSION TYPE	A [mm]	B [mm]	C [mm]
	ECP34 1S4 C	705,5	499
ECP34 2S4 C	745,5	539	266,5
ECP34 1M4 C	800,5	594	299
ECP34 2M4 C			289

SAE N°	5) SHAFTS COUPLING FLEX PLATE	
	D	E
10	112,8	79
11 1/2	98,4	73,6
14	84,4	70

80938_01_ECP34C_MD35

SAE N.	GIUNTI A DISCHI / DISC COUPLING DISQUE DE MONOPALIER / SCHEIBENKUPPLUNG			
	d	L	Q1	S1
10	314,32	53,8	295,27	11
11 1/2	352,42	39,6	333,37	11
14	466,72	25,4	438,15	14

SERIE	MODELLO	C. G.		
		A	B	I
ECP34	1S4 C	676	786	351
	2S4 C			325
	1M4 C	716	826	391
	2M4 C			344
	1L4 C			379
	2L4 C	771	881	446

SAE N.	FLANGIA / LANGE BRIDE / FLANSCH			
	o	P	Q	α
3	455	409,6	428,6	30°
2	492	447,7	466,7	30°
1	555	511,2	530,2	30°

1) COPERCHIO REMOVIBILE PER ACCESSO AI TERMINALI PRINCIPALI
REMOVABLE COVER FOR ACCESS TO MAIN TERMINALS

2) PANNELLO REMOVIBILE PER ACCESSO AL REGOLATORE
REMOVABLE PANEL FOR ACCESS TO AVR

3) FORO STANDARD PER INGRESSO CAVI #80
STANDARD HOLE ON FRONT FOR CABLE ENTRY #80

4) PRE-TAGLIO SU PANNELLO PRINCIPALE PER INGRESSO CAVI #80
PRE-CUT ON MAIN PANEL FOR CABLE ENTRY #80

5) PRE-TAGLIO SU PANNELLO LATERALE PER INGRESSO CAVI #28
PRE-CUT ON LATERAL PANEL FOR CABLE ENTRY #28

6) VITE M8 PER MESSA A TERRA
SCREW M8 FOR GROUNDING

7) CENTRO DI GRAVITA' IN CONFIGURAZIONE SAE 3 FLYWHEEL 11 1/2
GRAVITY CENTER IN CONFIGURATION SAE 3 FLYWHEEL 11 1/2

80851_04_ECP34C_MD35

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