



Totally Focused. Totally Independent.

TOTALLY COMMITTED TO

SATISFYING YOUR MARINE REQUIREMENTS



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



OUR UNIQUE COMPANY

TOTALLY FOCUSED. TOTALLY INDEPENDENT.

We only make one kind of product. That's why we've been totally focused on producing high quality alternators since we were established in 1947. Today, we have factories or distribution centres in every continent and we're the world's largest independent producer of alternators. Our independence is very important to us... and to our customers because we never compete with any of them in the end market (we don't sell complete generator sets). We believe that we're a totally unique company because of the special combination of qualities that set us apart from our competitors. We offer the highest levels of global support to our customers and we put them at the forefront of every single decision we make, which continually spurs us on in terms of our continuous development, product innovation and constantly evolving product ranges.

TOTALLY COMMITTED TO GLOBAL PRODUCTION

We manufacture the world's widest range of low voltage alternators 1 – 5,000kVA via our 'made for manufacturing' product design in Italy, the UK, China and India. Our network of factories is supported by wholly-owned subsidiaries across the globe who specialise locally in the sales, distribution and aftersales for all Mecc Alte products. This global support ensures that our customers get the assistance they need... wherever they are.

TOTALLY COMMITTED TO QUALITY

We've reached the highest possible quality standards in every area of design, production and sales. At Mecc Alte, our constant pursuit of quality begins well before the actual production process with careful checks on semi-processed parts and sample testing of electrical components. We build over 1,400 alternators every day, over 450,000 a year. We have a complete range of products and our production process is totally integrated. This ensures that every production phase, from the design and selection of materials right through to manufacture and aftersales assistance, complies with the strictest international and organisational standards.

OUR UNIQUE PEOPLE

We employ over 1,200 unique people throughout the world. Every one of them is totally committed to the global support that we offer to our customers... and to ensuring that every single alternator we produce meets the world-class standards that Mecc Alte is renowned for.

MARINE ALTERNATORS



PROVEN CAPABILITY

Mecc Alte alternators are filled with innovative features, as standard, which ensures high levels of performance and reliability. All standard products are extremely versatile and can be adapted to suit even the most demanding applications. This product is supported through an experienced, professional team able to ensure exceptional support globally both pre and post order. In addition, unique special machines customised to suit case-specific applications are available, such as stainless steel framed, low magnetism machines for naval minesweeper vessels or vertical-mounted shaft drive machines.

STANDARDS AND CERTIFICATION

The Mecc Alte marine range of alternators is supplied into both essential and non-essential duties, from the very small to the very large vessels. The BV, DNV and BKI batch type and line approval highlights the company's competence in this market sector. Additional testing and certification can be provided through all major classification societies such as ABS, BV, CCS, DNV, GL, KR, LR, NK, RINA, or others where design approvals are already in place.

EXCEPTIONAL EXCITATION



The 'MAUX' (Mecc Alte Auxiliary Winding) is used throughout the range of alternators, and has been a proven standard for Mecc Alte in all market sectors. It is a brushless excitation system deriving power from a dedicated auxiliary winding within the main stator. This winding is protected by four layers of polyester in addition to the clear varnish and EG43

severe environment protection used in marine applications. Fitted within the main stator, it minimises overall dimensions of the alternator and ensures a compact machine.

The MAUX system ensures high levels of performance with compact dimensions, and surpasses industry requirements giving >300% forced current (short circuit maintenance) for 20 seconds.

PMG excitation is an option on Frame ECO38, ECO40, ECO43 and ECO46 if necessary to satisfy more traditional specification requirements.

CONSTRUCTION

Rigid steel frames (FeP12)

Rotors are dynamically balanced with ½ key (ISO 8821), conforms to class G.2.5 (ISO 1940)

Squirrel damper 'cage' windings in the rotor for parallel operation

Digital AVRs (Automatic Voltage Regulators) are used throughout the range, ensuring ease of replacement and maximum performance



BEARINGS

Sealed for life high quality bearings up to the ECO38 frame

Regreasable bearings for ECO40 (drive end only on 2 bearing machines), ECO43 and ECO46

PROTECTION

For marine applications, the Ingress Protection level is upgraded to IP23+ with an additional protection screen. We can also offer inlet filters, IP43, IP45 and IP54 protection levels if required. On larger machines, we can offer CACA or CACW cooling by special order where requested.

INSULATION AND IMPREGNATION

Insulation materials used provide a system insulated to Class H level. Superior processes are employed to add an EG43 compound after insulation over the main and exciter windings to give marine standards of protection. Mecc Alte offer a range of insulation systems from GREY to TOTAL+ protection for operating in the harshest of environments.



MECC ALTE MARINE IN DEPTH

RELIABILITY

Lower component count throughout the range, and also within individual machines, has focussed efforts to enhance the reliability of the products.

In testimony to this, the reliability prediction according to the military standard MIL-HDBK-217F, was a failure rate of 75,82 fpmh (failures per million hours), 13,189 hours mtbf (mean time between failures). Standardised components are used to give high degrees of interchangeability and to reduce levels of spares stock holdings on vessels.

MINIMUM MAINTENANCE

The Mecc Alte marine alternators are built with low maintenance in mind. Bearings have up to 40,000 hours' life expectancy, and windings have high degrees of protection. Where maintenance is necessary, access is very simple and the commonality of parts ensures global spares availability.

COMPACT DIMENSIONS

Mecc Alte marine alternators are amongst the most compact and light alternator packages available. Machines are high efficiency, which demonstrates the technical processes and advanced design of the Mecc Alte product.

REGULATORS

Simplicity and effectiveness are key in the area of the 'MAUX' control system. Mecc Alte use the highly reliable DSR and DER AVRs (Digital Simplified and Digital Enhanced Regulators). Uncomplicated as either may work on any machine in the Mecc Alte range. Effective because voltage control up to +/-0.5% is available and both are available for parallel operation.

The DER regulator has more features and includes automatic 3ph sensing and soft start abilities.

These digital regulators have been introduced and have the added benefits of finer adjustments, remote monitoring, 3ph/1ph sensing and real-time data logging. Software is supplied by Mecc Alte.

QUALITY ASSURANCE

Products are built in accordance with ISO 9001, accredited by RINA; batch and line production and product approvals also by Det Norske Veritas, Bureau Veritas and BKI; approvals by Canadian Standards Authority (CSA) and also Underwriters Laboratory (UL).

Designs are executed according to the most common specifications such as CEI 2-3, IEC 34-1, EN 60034-1, VDE 0530, BS 4999-5000, CAN/CSA-C22.2 No.14-95 – No.100-95.

ACCESSORIES / OPTIONS

A large number of accessories are available on request, including:

Anti-condensation heaters

Temperature detectors (thermistors or PT100) for windings and bearings

Higher degrees of mechanical protection with optional inlet filters, IP43, IP45 or IP55 (CACW/CACA by special order)

Parallel operation CTs

Gland plates (specific to each contract)

TOTAL+ Advanced Winding Protection System

50Hz 4 POLES 1,500RPM 400V

Model	Ambient temperature in celsius degrees [°C] according to the survey society													[G] IP 45 Coeff
	40°			45°				50°						
	Temperature increase in celsius degrees [°C] according to the survey society													
Survey Society See Note	125° ABS BV DNV GL KR RINA	105° ABS BV DNV GL KR RINA	80° ABS BV DNV GL KR RINA	120° ABS BV DNV GL KR RINA	110° LR	100° ABS BV DNV GL KR RINA	95° LR	75° ABS BV DNV GL KR RINA	70° LR	115° ABS KR	95° ABS	90° KR	70° ABS KR	
ECP3 1S 4	6.5	6	5.2	6.2	5.9	5.8	5.5	5	4.7	6	5.6	5.3	4.8	0.846
ECP3 2S 4	8	7.5	6.4	7.7	7.3	7.2	6.8	6.1	5.8	7.4	7	6.5	6	0.812
ECP3 1L 4	11	10	8.8	10.6	10	9.6	9.4	8.4	8	10.2	9.3	8.9	8.2	0.818
ECP3 2L 4	13.5	12.5	10.8	13	12.3	12	11.5	10.4	9.9	12.6	11.6	10.9	10	0.815
ECP3 3L 4	15	14	12	14.4	13.7	13.4	12.8	11.5	11	14	13	12.2	11.2	0.8
ECP28 S 4 A	17	16	13.6	16.3	15.5	15.4	14.5	13.1	12.4	15.8	14.9	13.8	12.6	0.853
ECP28 M 4 A	20	18.5	16	19.2	18.2	17.8	17	15.4	14.6	18.6	17.2	16.2	14.9	0.85
ECP28 2L 4 A	25	23	20	24	22.8	22.1	21.3	19.2	18.3	23.3	21.4	20.3	18.6	0.84
ECP28 VL 4 A	30	26	24	28.8	27.3	25	25.5	23	21.9	27.9	24.2	24.3	22.3	0.8
ECP32 2S 4 B	35	33	28	33.6	32	31.7	30	26.9	26	32.6	30.7	28	25	0.829
ECP32 3S 4 B	42.5	39	34	40.8	38	37.4	36	32.6	31	39.5	36.3	34	30	0.8
ECP32 1M 4 B	50	48	40	48	46	46.1	43	38.4	37	46.5	44.6	41	36	0.8
ECP32 2M 4 B	63	60	50	60.5	58	57.6	54	48	46	58.6	55.8	51	45	0.833
ECP32 3L 4 B	75	67	60	72	69	64.3	64	57.6	55	69.8	62.3	61	54	0.8
ECP32 4L 4 B	80	71	64	76.8	74	68.2	66	61.4	59	74.4	66	65	59	0.8
ECP34 1S 4 A	85	77	68	81.6	77	73.9	72	65.3	62	79.1	71.6	69	63.2	0.765
ECP34 2S 4 A	105	95	84	101	96	91.2	89	80.6	77	98	88.4	85	78.1	0.81
ECP34 1L 4 A	135	121	108	130	123	116	115	104	99	126	113	109	100	0.8
ECP34 2L 4 A	150	136	120	144	137	131	128	115	110	140	126	122	112	0.8
ECP34 3L 4 A	160	145	128	154	145	139	137	123	117	149	135	129	119	0.8
ECO38 1S 4 A	180	170	144	173	164	163	153	138	131	167	158	146	134	0.805
ECO38 2S 4 A	200	185	160	192	182	178	170	154	146	186	172	162	149	0.8
ECO38 3S 4 A	225	207	180	216	205	199	191	173	164	209	193	182	167	0.8

Model	Ambient temperature in celsius degrees [°C] according to the survey society													[G] IP 45 Coeff
	40°			45°				50°						
	Temperature increase in celsius degrees [°C] according to the survey society													
Survey Society See Note	125° ABS BV DNV GL KR RINA	105° ABS BV DNV GL KR RINA	80° ABS BV DNV GL KR RINA	120° ABS BV DNV GL KR RINA	110° LR	100° ABS BV DNV GL KR RINA	95° LR	75° ABS BV DNV GL KR RINA	70° LR	115° ABS KR	95° ABS	90° KR	70° ABS KR	
ECO38 1L 4 A	250	230	200	240	228	221	213	192	183	233	214	203	186	0.8
ECO38 2L 4 A	300	275	240	288	273	264	255	230	219	279	256	243	223	0.8
ECO38 3L 4 A	350	320	280	336	319	307	298	269	256	326	298	284	260	0.8
ECO40 1S 4 B	400	370	320	384	364	355	340	307	292	372	344	324	298	0.825
ECO40 2S 4 B	450	410	360	432	410	394	383	346	329	419	381	365	335	0.822
ECO40 3S 4 B	500	450	400	480	455	432	425	384	365	465	419	405	372	0.82
ECO40 1L 4 B	550	500	440	528	501	480	468	422	402	512	465	446	409	0.818
ECO40 1.5L 4 B	625	564	500	600	568	541	530	480	457	581	525	506	465	0.768
ECO40 2L 4 B	680	630	544	653	619	605	578	522	496	632	586	551	506	0.735
ECO40 VL 4 B	750	690	600	720	683	662	638	576	547	698	642	608	558	0.735
ECO43 1S 4 A	800	730	640	768	728	701	680	614	584	744	679	648	595	0.775
ECO43 2S 4 A	930	850	744	893	846	816	791	714	679	865	791	753	692	0.785
ECO43 1M 4 A	1025	950	820	984	933	912	870	787	748	953	884	830	763	0.780
ECO43 2M 4 A	1150	1050	920	1104	1046	1008	977	883	840	1070	977	930	856	0.774
ECO43 2L 4 A	1300	1200	1040	1248	1183	1152	1105	998	949	1209	1116	1053	967	0.77
ECO43 VL 4 A	1400	1280	1120	1344	1274	1229	1190	1075	1022	1302	1190	1134	1042	0.77
ECO46 1S 4 A	1500	1350	1200	1440	1365	1296	1275	1152	1095	1395	1256	1215	1116	0.733
ECO46 1.5S 4 A	1650	1480	1320	1584	1502	1421	1403	1267	1205	1535	1376	1337	1228	0.733
ECO46 2S 4 A	1800	1600	1440	1728	1638	1536	1530	1382	1314	1674	1488	1458	1339	0.722
ECO46 1L 4 A	2100	1900	1680	2016	1911	1824	1785	1613	1533	1953	1767	1701	1562	0.729
ECO46 1.5L 4 A	2300	2050	1840	2208	2093	1968	1955	1766	1679	2139	1907	1863	1711	0.729
ECO46 2L 4 A	2500	2250	2000	2400	2275	2160	2125	1920	1825	2325	2093	2025	1860	0.7
ECO46 VL 4 A	2800	2500	2240	2688	2548	2400	2380	2150	2044	2604	2325	2268	2083	0.714

60Hz 4 POLES 1,800RPM 450V

Model	Ambient temperature in celsius degrees [°C] according to the survey society													[G] IP 45 Coeff
	40°			45°				50°						
	Temperature increase in celsius degrees [°C] according to the survey society													
Survey Society See Note	125° ABS BV DNV GL KR RINA	105° ABS BV DNV GL KR RINA	80° ABS BV DNV GL KR RINA	120° ABS BV DNV GL KR RINA	110° LR	100° ABS BV DNV GL KR RINA	95° LR	75° ABS BV DNV GL KR RINA	70° LR	115° ABS KR	95° ABS	90° KR	70° ABS KR	
ECP3 1S 4	7.8	7.2	6.2	7.5	7.1	6.9	6.6	6	5.7	7.3	6.7	6.3	5.8	0.846
ECP3 2S 4	9.6	9	7.7	9.2	8.7	8.6	8.2	7.4	7	8.9	8.4	7.8	7.2	0.812
ECP3 1L 4	13.2	12	10.6	12.7	12	11.5	11.2	10.2	9.6	12.3	11.2	10.7	9.9	0.818
ECP3 2L 4	16.2	15	13	15.6	14.7	14.4	13.8	12.5	11.8	15.1	14	13.1	12.1	0.815
ECP3 3L 4	18	16.5	14.4	17.3	16.4	15.8	15.3	13.8	13.1	16.7	15.3	14.6	13.4	0.8
ECP28 S 4 A	19.5	18	15.6	18.7	17.7	17.3	16.6	15	14.2	18.1	16.7	15.8	14.5	0.853
ECP28 M 4 A	23.5	21	19.2	22.6	21.8	20.2	20.4	18.4	17.5	21.9	19.5	19.4	17.9	0.85
ECP28 2L 4 A	29	26.5	23	27.8	26.4	25.4	24.7	22.1	21.2	27	24.6	23.5	21.4	0.84
ECP28 VL 4 A	36	32	28.8	34.6	32.8	30.7	30.6	27.8	26.3	33.5	29.8	29.2	27	0.8
ECP32 2S 4 B	42	40	34	40.3	38	38.4	36	32.6	31	39.1	37.2	34	31.6	0.829
ECP32 3S 4 B	51	49	40	49	47	47	44	39.4	37	47.4	45.6	41	38.1	0.8
ECP32 1M 4 B	60	58	48	57.6	55	55.7	51	46.1	44	55.8	53.9	49	44.6	0.8
ECP32 2M 4 B	73	70	58	70.1	67	67.2	63	55.7	53	67.9	65.1	59	53.9	0.833
ECP32 3L 4 B	88	81.5	71	83.5	80	79.7	75	67.2	64	80.9	77.2	71	65.1	0.8
ECP32 4L 4 B	94	86	75	90.2	85	82.6	80	72	68	87.4	80	76	69.8	0.8
ECP34 1S 4 A	102	92	82	98	93	88.3	87	77.8	74	95	85.6	83	75.3	0.765
ECP34 2S 4 A	126	114	101	121	115	109	107	97	92	117	106	102	94	0.81
ECP34 1L 4 A	156	141	125	150	142	135	132	120	114	145	131	126	116	0.8
ECP34 2L 4 A	175	157	140	168	159	151	149	134	128	163	146	142	130	0.8
ECP34 3L 4 A	189	167	151	181	172	160	161	145	138	176	155	153	140	0.8
ECO38 1S 4 A	220	205	176	211	200	197	187	169	161	205	191	178	164	0.805
ECO38 2S 4 A	240	220	192	230	218	211	204	184	175	223	205	194	179	0.8
ECO38 3S 4 A	225	207	180	259	205	240	191	207	164	251	233	182	201	0.8

Model	Ambient temperature in celsius degrees [°C] according to the survey society													[G] IP 45 Coeff
	40°			45°				50°						
	Temperature increase in celsius degrees [°C] according to the survey society													
Survey Society See Note	125° ABS BV DNV GL KR RINA	105° ABS BV DNV GL KR RINA	80° ABS BV DNV GL KR RINA	120° ABS BV DNV GL KR RINA	110° LR	100° ABS BV DNV GL KR RINA	95° LR	75° ABS BV DNV GL KR RINA	70° LR	115° ABS KR	95° ABS	90° KR	70° ABS KR	
ECO38 1L 4 A	300	280	240	288	273	269	255	230	219	279	260	243	223	0.8
ECO38 2L 4 A	350	320	280	336	319	307	298	269	256	326	298	284	260	0.8
ECO38 3L 4 A	420	385	336	403	382	370	357	323	307	391	358	340	312	0.8
ECO40 1S 4 B	465	425	372	446	423	408	395	357	339	432	395	377	346	0.825
ECO40 2S 4 B	525	475	420	504	478	456	446	403	383	488	442	425	391	0.822
ECO40 3S 4 B	590	530	472	566	537	509	502	453	431	549	493	478	439	0.82
ECO40 1L 4 B	645	585	516	619	587	562	548	495	471	600	544	522	480	0.818
ECO40 1.5L 4 B	728	657	583	699	6									

MARINE ALTERNATORS

- a. 230V/400V
- b. 115V/200V/230V/400V
- c. 230V/400V/460V/800V
- d. 260V/450V - 277V/480V
- e. 130V/225V/260V/450V - 138V/240V/277V/480V
- f. 260V/450V/520V/900V - 277V/480V/554V/960V
- g. To size the machine for IP45 protection, multiply the coefficient in the last column for the power rating considering the required operating temperature and temperature rise. For inlet filter only or IP43, consider a factor of 0.93

Ambient operating temperature and alternator temperature rise classification can be changed according to the requirements of the survey societies. Therefore, please consider the information quoted as an indication only. Mecc Alte is not responsible for incorrect sizing based upon this guide.

Variation is possible if different voltages are requested. In addition, to ensure correct sizing, please contact your local sales office.

	Amb. Temp	Temp. Rise		
		Class H	Class F	Class B
Rina	40°C	125°C	105°C	80°C
	45°C	120°C	100°C	75°C
Germanischer Lloyd	40°C	125°C	105°C	80°C
	45°C	120°C	100°C	75°C
Lloyd's Register	40°C	115°C	100°C	75°C
	45°C	110°C	95°C	70°C
Der Norske Veritas	40°C	125°C	105°C	80°C
	45°C	120°C	100°C	75°C
Bureau Veritas	40°C	125°C	105°C	80°C
	45°C	120°C	100°C	75°C
American Bureau of Shipping	40°C	125°C	105°C	80°C
	45°C	120°C	100°C	75°C
	50°C	115°C	95°C	70°C
Korean Register	40°C	125°C	100°C	80°C
	45°C	120°C	95°C	75°C
	50°C	115°C	90°C	70°C



OUR QUALITY, SERVICE AND AFTERSALES

We have reached the highest possible quality standards in every area of design, production and sales. With us, the pursuit of quality begins long before actual production, with checks on semi-processed parts and sample tests on electronic components.

These tests are performed with rapid aging methods by means of alternating exposure to extreme temperatures. Our quality is enhanced during the production process with computerised equipment making checks on electronic and electrical circuits. The high quality of our finished products is due to a perfect combination – high performance and maximum reliability. That quality is certified by international bodies such as the Canadian Standards Association (CSA), the Underwriters Laboratories (UL) and Det Norske Veritas (DNV) and Bureau Veritas, further supported by our ISO 9001 accreditation from Registro Italiano Navale (RINA).

Every quality mark is a guarantee of the rigorous assessment of prototypes and a commitment to continuous audits by external inspectors to monitor product consistency – and product quality.

This quality assurance allows us to be proud of our products. Our products are now globally recognised. This high market acceptance has originated from a combination of effective marketing through our sales and distribution facilities, established training plans for our many customers, and consistently great aftersales service. We are a professional and responsible company and understand that a good reputation breeds success.

We recognise that our reputation depends on continually delivering high standards of support – whenever and wherever it is required. With an extensive global service and aftersales network, you can be assured that your product will be supported anywhere in the world.

Our quality is certified by international bodies and is supported by our ISO 9001 accreditation across the whole group. This quality assurance allows us to be proud of our products and gives you peace of mind knowing our alternators are built with the highest possible quality standards.



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