

**ECO 43 - 46 - 47 - 49 X-TYPE**

**Mecc Alte Medium and High Voltage Alternators**

**Power Products Standard Alternator Range | Brushless AVR - 4 Pole**

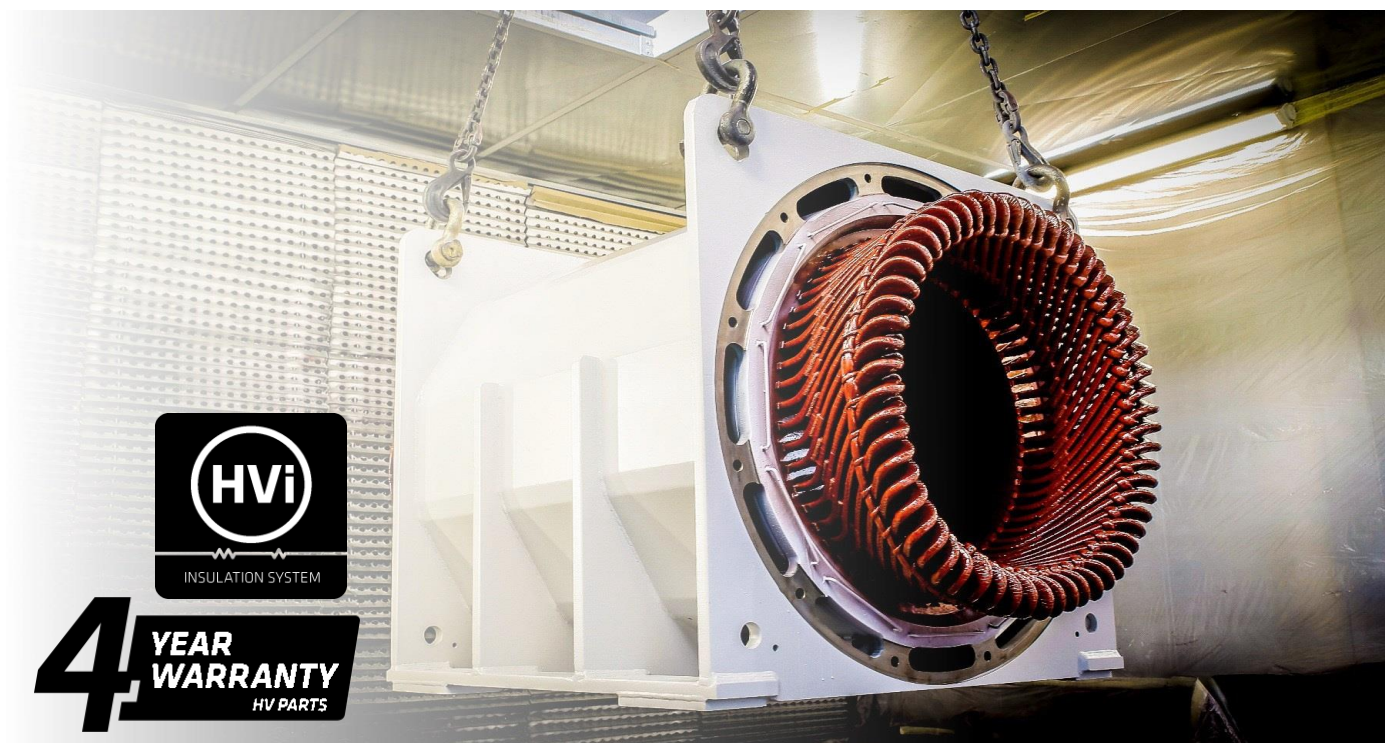
***Quick selection guide***

***ANNEX A: Low Voltage Alternator up to 5MVA (ECO47LV & ECO49LV)***

***Low / Medium / High Voltage Alternator IP55 IC611 Heat Exchanger***



**POWER**  
FROM WITHIN



**4** YEAR WARRANTY  
HV PARTS

The scope of this guide is to provide a simple tool for generators selection.

For the complete datasheets please refer to Mecc Alte DDS at <http://support.meccalte.com/dds-46>.

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It is the responsibility of the user to ensure that they are using the latest revision and validity of this document

For a complete overview of Mecc Alte Power Products - MV-HV X-Type range, please refer to our web site

<https://www.meccalte.com/en/products/power-products-mvhv>

<http://xtype.meccalte.com/>

3kV - 3,5kV	5/6th WINDING PITCH						2/3rd WINDING PITCH					
	PRP / COP RATING 40°C 0.8pf [kVA]			STANDBY RATING [kVA]			PRP / COP RATING 40°C 0.8pf [kVA]			STANDBY RATING [kVA]		
	Class H (ΔT= 125 °C)	Class F (ΔT= 105 °C)	Class B (ΔT= 80 °C)	Temp Rise / Amb °C			Class H (ΔT= 125 °C)	Class F (ΔT= 105 °C)	Class B (ΔT= 80 °C)	Temp Rise / Amb °C		
Type				163 / 27	150 / 40	130 / 40				163 / 27	150 / 40	130 / 40
ECO43MV-1VL/4	900	810	720	972	930	918	810	728	648	874	838	826
ECO43MV-2VL/4	1000	900	800	1080	1034	1020	900	810	720	972	930	918
ECO43MV-1XL/4	1100	990	880	1188	1138	1122	1000	900	800	1080	1034	1020
ECO43MV-2XL/4	1300	1170	1040	1404	1344	1326	1170	1052	936	1262	1210	1192
ECO46MV-1L/4	1500	1350	1200	1620	1552	1530	1290	1160	1032	1393	1335	1314
ECO46MV-2L/4	1650	1480	1320	1780	1700	1682	1420	1278	1136	1534	1469	1448
ECO46MV-3L/4	1800	1600	1440	1944	1863	1836	1550	1395	1240	1674	1604	1580
ECO46MV-1VL/4	2100	1900	1680	2268	2173	2142	1810	1630	1448	1955	1873	1846
ECO46MV-2VL/4	2300	2050	1840	2480	2380	2346	1980	1760	1584	2138	2049	2018
ECO46MV-3VL/4	2500	2250	2000	2700	2588	2550	2150	1935	1720	2322	2224	2192
ECO47MV-1M/4	3230	2906	2584	3488	3342	3294	3060	2754	2448	3304	3166	3120
ECO47MV-2M/4	3695	3324	2956	3990	3824	3768	3460	3114	2768	3736	3580	3528
ECO47MV-1L/4	4175	3756	3340	4508	4320	4258	3750	3374	3000	4050	3880	3824
ECO49MV-L/4	4250	3825	3400	4590	4398	4334	3820	3438	3056	4125	3953	3896
ECO49MV-VL/4	4670	4203	3736	5043	4833	4762	4200	3780	3360	4536	4347	4284
ECO49MV-XL/4	5090	4581	4072	5497	5268	5190	4580	4122	3664	4946	4740	4670

6kV - 6,6kV	5/6th WINDING PITCH						2/3rd WINDING PITCH					
	PRP / COP RATING 40°C 0.8pf [kVA]			STANDBY RATING [kVA]			PRP / COP RATING 40°C 0.8pf [kVA]			STANDBY RATING [kVA]		
	Class H (ΔT= 125 °C)	Class F (ΔT= 105 °C)	Class B (ΔT= 80 °C)	Temp Rise / Amb °C			Class H (ΔT= 125 °C)	Class F (ΔT= 105 °C)	Class B (ΔT= 80 °C)	Temp Rise / Amb °C		
Type				163 / 27	150 / 40	130 / 40				163 / 27	150 / 40	130 / 40
ECO43MV-1VL/4	900	810	720	972	930	918	810	728	648	874	838	826
ECO43MV-2VL/4	1000	900	800	1080	1034	1020	900	810	720	972	930	918
ECO43MV-1XL/4	1100	990	880	1188	1138	1122	1000	900	800	1080	1034	1020
ECO43MV-2XL/4	1300	1170	1040	1404	1344	1326	1170	1052	936	1262	1210	1192
ECO46MV-1L/4	1620	1450	1296	1750	1675	1652	1500	1350	1200	1620	1552	1530
ECO46MV-2L/4	1780	1600	1424	1920	1840	1814	1650	1480	1320	1780	1700	1682
ECO46MV-3L/4	1940	1740	1552	2095	2005	1978	1800	1600	1440	1944	1863	1836
ECO46MV-1VL/4	2270	2040	1816	2450	2350	2314	2100	1900	1680	2268	2173	2142
ECO46MV-2VL/4	2480	2230	1984	2680	2565	2528	2300	2050	1840	2480	2380	2346
ECO46MV-3VL/4	2700	2430	2160	2915	2795	2754	2500	2250	2000	2700	2588	2550
ECO47MV-1M/4	3230	2906	2584	3488	3342	3294	3100	2790	2480	3348	3208	3162
ECO47MV-2M/4	3735	3360	2988	4032	3864	3808	3580	3222	2864	3866	3704	3650
ECO47MV-1L/4	4240	3816	3392	4578	4388	4324	4060	3654	3248	4384	4202	4140
ECO49MV-L/4	4250	3825	3400	4590	4398	4334	3820	3438	3056	4125	3953	3896
ECO49MV-VL/4	4670	4203	3736	5043	4833	4762	4200	3780	3360	4536	4347	4284
ECO49MV-XL/4	5090	4581	4072	5497	5268	5190	4580	4122	3664	4946	4740	4670

10kV - 12kV	5/6th WINDING PITCH						2/3rd WINDING PITCH					
	PRP / COP RATING 40°C 0.8pf [kVA]			STANDBY RATING [kVA]			PRP / COP RATING 40°C 0.8pf [kVA]			STANDBY RATING [kVA]		
	Class H (ΔT= 125 °C)	Class F (ΔT= 105 °C)	Class B (ΔT= 80 °C)	Temp Rise / Amb °C			Class H (ΔT= 125 °C)	Class F (ΔT= 105 °C)	Class B (ΔT= 80 °C)	Temp Rise / Amb °C		
Type				163 / 27	150 / 40	130 / 40				163 / 27	150 / 40	130 / 40
ECO43HV-1VL/4	900	810	720	972	930	918	810	728	648	874	838	826
ECO43HV-2VL/4	1000	900	800	1080	1034	1020	900	810	720	972	930	918
ECO43HV-1XL/4	1100	990	880	1188	1138	1122	1000	900	800	1080	1034	1020
ECO43HV-2XL/4	1300	1170	1040	1404	1344	1326	1170	1052	936	1262	1210	1192
ECO46HV-1L/4	1500	1350	1200	1620	1552	1530	1290	1160	1032	1393	1335	1314
ECO46HV-2L/4	1650	1480	1320	1780	1700	1682	1420	1278	1136	1534	1469	1448
ECO46HV-3L/4	1800	1600	1440	1944	1863	1836	1550	1395	1240	1674	1604	1580
ECO46HV-1VL/4	2100	1900	1680	2268	2173	2142	1810	1630	1448	1955	1873	1846
ECO46HV-2VL/4	2300	2050	1840	2480	2380	2346	1980	1760	1584	2138	2049	2018
ECO46HV-3VL/4	2500	2250	2000	2700	2588	2550	2150	1935	1720	2322	2224	2192
ECO47HV-1M/4	3160	2844	2528	3412	3270	3222	2750	2474	2200	2970	2846	2804
ECO47HV-2M/4	3600	3240	2880	3888	3726	3672	3100	2790	2480	3348	3208	3162
ECO47HV-1L/4	4000	3600	3200	4320	4140	4080	3530	3176	2824	3812	3652	3600
ECO49HV-L/4	4050	3645	3240	4374	4191	4130	3640	3276	2912	3931	3767	3712
ECO49HV-VL/4	4450	4005	3560	4806	4605	4538	4000	3600	3200	4320	4140	4080
ECO49HV-XL/4	4850	4365	3880	5238	5019	4946	4360	3924	3488	4708	4512	4446

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LIST #  
ISSUED  
PACKING

REV 8.0 MEDIUM AND HIGH VOLTAGE DIVISION  
15th February 2024; Valid until new release;  
Standard light packing on pallet

50 Hz

3,6kV-4,16kV	5/6th WINDING PITCH						2/3rd WINDING PITCH					
	PRP / COP RATING 40°C 0.8pf [kVA]			STANDBY RATING [kVA]			PRP / COP RATING 40°C 0.8pf [kVA]			STANDBY RATING [kVA]		
	Class H (ΔT= 125 °C)	Class F (ΔT= 105 °C)	Class B (ΔT= 80 °C)	Temp Rise / Amb °C			Class H (ΔT= 125 °C)	Class F (ΔT= 105 °C)	Class B (ΔT= 80 °C)	Temp Rise / Amb °C		
Type				163 / 27	150 / 40	130 / 40				163 / 27	150 / 40	130 / 40
ECO43MV-1VL/4	1080	972	864	1166	1116	1100	972	872	776	1048	1004	990
ECO43MV-2VL/4	1200	1080	960	1296	1240	1224	1080	972	864	1166	1116	1100
ECO43MV-1XL/4	1320	1188	1056	1424	1364	1346	1200	1080	960	1296	1240	1224
ECO43MV-2XL/4	1560	1404	1248	1684	1612	1590	1404	1262	1122	1514	1452	1430
ECO46MV-1L/4	1800	1620	1440	1944	1870	1836	1548	1392	1238	1672	1602	1576
ECO46MV-2L/4	1980	1780	1584	2140	2040	2018	1704	1534	1363	1840	1763	1736
ECO46MV-3L/4	2160	1920	1728	2332	2236	2202	1860	1674	1488	2009	1924	1896
ECO46MV-1VL/4	2520	2280	2016	2722	2608	2570	2172	1956	1738	2346	2247	2214
ECO46MV-2VL/4	2760	2460	2208	2980	2860	2814	2376	2136	1901	2566	2458	2420
ECO46MV-3VL/4	3000	2700	2400	3240	3105	3060	2580	2322	2064	2786	2669	2630
ECO47MV-1M/4	3876	3486	3100	4184	4010	3952	3672	3304	2936	3964	3798	3744
ECO47MV-2M/4	4434	3988	3546	4788	4588	4520	4152	3736	3320	4482	4296	4232
ECO47MV-1L/4	5010	4506	4008	5408	5184	5108	4500	4048	3600	4860	4656	4588
ECO49MV-L/4	5100	4590	4080	5508	5277	5200	4584	4125	3667	4950	4743	4675
ECO49MV-VL/4	5604	5043	4483	6051	5799	5714	5040	4536	4032	5443	5216	5140
ECO49MV-XL/4	6108	5497	4886	6596	6321	6228	5496	4946	4396	5935	5688	5604

7,2kV-7,92kV	5/6th WINDING PITCH						2/3rd WINDING PITCH					
	PRP / COP RATING 40°C 0.8pf [kVA]			STANDBY RATING [kVA]			PRP / COP RATING 40°C 0.8pf [kVA]			STANDBY RATING [kVA]		
	Class H (ΔT= 125 °C)	Class F (ΔT= 105 °C)	Class B (ΔT= 80 °C)	Temp Rise / Amb °C			Class H (ΔT= 125 °C)	Class F (ΔT= 105 °C)	Class B (ΔT= 80 °C)	Temp Rise / Amb °C		
Type				163 / 27	150 / 40	130 / 40				163 / 27	150 / 40	130 / 40
ECO43MV-1VL/4	1080	972	864	1166	1116	1100	972	872	776	1048	1004	990
ECO43MV-2VL/4	1200	1080	960	1296	1240	1224	1080	972	864	1166	1116	1100
ECO43MV-1XL/4	1320	1188	1056	1424	1364	1346	1200	1080	960	1296	1240	1224
ECO43MV-2XL/4	1560	1404	1248	1684	1612	1590	1404	1262	1122	1514	1452	1430
ECO46MV-1L/4	1940	1740	1552	2095	2005	1982	1800	1620	1440	1944	1870	1836
ECO46MV-2L/4	2140	1920	1712	2310	2215	2176	1980	1780	1584	2140	2040	2018
ECO46MV-3L/4	2330	2100	1864	2515	2410	2372	2160	1920	1728	2332	2236	2202
ECO46MV-1VL/4	2720	2440	2176	2940	2815	2776	2520	2280	2016	2722	2608	2570
ECO46MV-2VL/4	2970	2670	2376	3210	3075	3032	2760	2460	2208	2980	2860	2814
ECO46MV-3VL/4	3240	2910	2592	3500	3355	3304	3000	2700	2400	3240	3105	3060
ECO47MV-1M/4	3876	3486	3100	4184	4010	3952	3720	3348	2976	4016	3848	3794
ECO47MV-2M/4	4482	4032	3584	4838	4636	4568	4296	3866	3436	4638	4444	4380
ECO47MV-1L/4	5088	4578	4070	5492	5264	5188	4872	4384	3896	5260	5042	4968
ECO49MV-L/4	5100	4590	4080	5508	5277	5200	4584	4125	3667	4950	4743	4675
ECO49MV-VL/4	5604	5043	4483	6051	5799	5714	5040	4536	4032	5443	5216	5140
ECO49MV-XL/4	6108	5497	4886	6596	6321	6228	5496	4946	4396	5935	5688	5604

11,4kV-13,8kV	5/6th WINDING PITCH						2/3rd WINDING PITCH					
	PRP / COP RATING 40°C 0.8pf [kVA]			STANDBY RATING [kVA]			PRP / COP RATING 40°C 0.8pf [kVA]			STANDBY RATING [kVA]		
	Class H (ΔT= 125 °C)	Class F (ΔT= 105 °C)	Class B (ΔT= 80 °C)	Temp Rise / Amb °C			Class H (ΔT= 125 °C)	Class F (ΔT= 105 °C)	Class B (ΔT= 80 °C)	Temp Rise / Amb °C		
Type				163 / 27	150 / 40	130 / 40				163 / 27	150 / 40	130 / 40
ECO43HV-1VL/4	1080	972	864	1166	1116	1100	972	872	776	1048	1004	990
ECO43HV-2VL/4	1200	1080	960	1296	1240	1224	1080	972	864	1166	1116	1100
ECO43HV-1XL/4	1320	1188	1056	1424	1364	1346	1200	1080	960	1296	1240	1224
ECO43HV-2XL/4	1560	1404	1248	1684	1612	1590	1404	1262	1122	1514	1452	1430
ECO46HV-1L/4	1800	1620	1440	1944	1870	1836	1548	1392	1238	1672	1602	1576
ECO46HV-2L/4	1980	1780	1584	2140	2040	2018	1704	1534	1363	1840	1763	1736
ECO46HV-3L/4	2160	1920	1728	2332	2236	2202	1860	1674	1488	2009	1924	1896
ECO46HV-1VL/4	2520	2280	2016	2722	2608	2570	2172	1956	1738	2346	2247	2214
ECO46HV-2VL/4	2760	2460	2208	2980	2860	2814	2376	2136	1901	2566	2458	2420
ECO46HV-3VL/4	3000	2700	2400	3240	3105	3060	2580	2322	2064	2786	2669	2630
ECO47HV-1M/4	3792	3412	3032	4094	3924	3866	3300	2968	2640	3564	3414	3364
ECO47HV-2M/4	4320	3888	3456	4664	4470	4406	3720	3348	2976	4016	3848	3794
ECO47HV-1L/4	4800	4320	3840	5184	4968	4896	4236	3810	3388	4574	4382	4320
ECO49HV-L/4	4860	4374	3888	5248	5029	4956	4368	3931	3494	4717	4520	4454
ECO49HV-VL/4	5340	4806	4272	5767	5526	5445	4800	4320	3840	5184	4968	4896
ECO49HV-XL/4	5820	5238	4656	6285	6022	5935	5232	4708	4185	5649	5414	5335

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PACKING

REV 8.0 MEDIUM AND HIGH VOLTAGE DIVISION  
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Standard light packing on pallet

60 Hz



Type of Construction and Mounting Arrangements (IM CODE)	ECO43	ECO46	ECO47	ECO49
Single Bearing B3/B14 mounting configuration with SAE/Disc (IM 1001)	STD	STD	POA	POA
Double Bearing B3/B14 mounting configuration (IM1001)	STD	POA	STD	STD
Single or double bearing B20 (IM1101) or other custom IM configuration	POA	POA	POA	POA
SAE Adapter - Bell House SAE 00-00 (0) - length 200mm for ECO43-46, length 250mm for ECO47, length 300mm for ECO49	POA	POA	POA	POA
SAE Adapter - Bell House SAE 00-00 - length or flange SAE custom dimension	POA	POA	POA	POA

Type of cooling system (IC CODE) and protection degree (IP CODE)	ECO43	ECO46	ECO47	ECO 49
IP23 Protection (Deep proof) and IC01 Cooling System	STD	STD	STD	STD
Up to IP43 Protection screens	POA	POA	POA	POA
Cooling system IC611 - Heat exchanger Air / Air - Alternator protection IP44 or higher	POA	POA	POA	POA
Cooling system IC616 - Heat exchanger Air / Air - Alternator protection IP44 or higher	POA	POA	POA	POA
Cooling system IC81W - Heat exchanger Air / Water - Alternator protection IP44 or higher	POA	POA	POA	POA

Excitation and Regulation Systems	ECO43	ECO46	ECO47	ECO 49
Digital AVR Mecc Alte DER2A (three phase sensing, USB connection, high dynamic response, voltage regulation accuracy +/- 0.5%)	STD	STD	STD	STD
PMG - Permanent Magnet Generator excitation system	STD	STD	STD	STD
Reinforced varistor (Silicon carbide surge protection - 1400 Vpeak - 5,5kV)	NA	NA	STD	STD
Basler DECS 100 -B11 or B15 Enhanced digital Excitation Control System +/- 0.25%, VAR/PF control, etc	POA	POA	POA	POA
Basler DECS 150-1N52V1N1S Enhanced digital excitation control system +/- 0.25%, PF regulation, droop control, Diode Failure, etc	TBA	TBA	TBA	TBA
Basler DECS 250-CN1CN1N Enhanced digital excitation control system +/- 0.25%, PF regulation, droop control, Diode Failure (LOOSE SUPPLIED)	POA	POA	POA	POA
ABB Unitrol 1005 Light - 5A, AVR/FCR/PF/VAR, Rotating diode monitoring, Modbus TPC remote control, etc	POA	POA	POA	POA
ABB Unitrol 1010 Light - 10A, AVR/FCR/PF/VAR, Rotating diode monitoring, Modbus TPC remote control, etc	POA	POA	POA	POA
ABB Unitrol 1010 Basic - 10A, AVR/FCR/PF/VAR, Rotating diode monitoring, autom. Synchr., reactive load sharing, motor start support, etc	POA	POA	POA	POA
Hot-swap redundancy excitation control system with Basler DUAL DECS or ABB DUAL UNITROL on mounting plate	POA	POA	POA	POA

Sensing	ECO43	ECO46	ECO47	ECO 49
No. 6 PT100 RTD (3-wires) on stator winding - 2 x PT100 each phase	STD	STD	STD	STD
No. 1 PT100 RTD (3-wires) on NDE bearing - single bearing mounting configuration	POA	POA	POA	POA
No. 1 PT100 RTD (3-wires) each bearing - NDE + DE bearing - double bearing mounting configuration	POA	POA	POA	POA
PT100 RTD 4-wires type or DUPLEX (6-wires) type applicable on stator winding and/or bearings	POA	POA	POA	POA
Mechanical predisposition for vibration sensors (1 horizontal and 1 vertical sensor DE + 1 horizontal sensor NDE) - wiring upon request	POA	POA	POA	STD
No.1 vibration sensor VSA001 and No.1 controller VSE002 - special requests to be defined	POA	POA	POA	POA
Arrangement for Rotor-earth protection (Ansi 64F)	NA	NA	POA	POA

Operating Environment and Alternator Features	ECO43	ECO46	ECO47	ECO 49
Mecc Alte HVI class H insulation system (impregnation with class H solid epoxy resin and VPI process)	STD	STD	STD	STD
Epoxy overcoating for windings protection for the main stator and exciter stator (harsh and marine environments)	STD	STD	STD	STD
Epoxy overcoating for windings protection for the main rotor and the exciter rotor (harsh and marine environments)	POA	POA	STD	STD
Amagnetic side panels for cable exit	STD	STD	STD	STD
Full stainless-steel terminal box	POA	POA	POA	POA
Cable box hood for cable entry in alternator terminal box- left side or right side	POA	POA	POA	POA
Anti-condensation Heaters, 250W (2 X 125W) 230VAC	STD	NA	NA	NA
Anti-condensation Heaters, 300W (2 X 150W) 230VAC	NA	STD	NA	NA
Anti-condensation Heaters, 600W (4 X 150W) 230VAC	NA	NA	STD	STD
External painting, RAL7021 dark grey	STD	STD	STD	STD
External painting, customized RAL	POA	POA	POA	POA
Separate terminal boxes for star point and main line	POA	POA	POA	POA

Bearings Insulation and Shaft Grounding	ECO43	ECO46	ECO47	ECO 49
Insulated NDE bearing - bearing ceramic coating	POA	POA	POA	NA
Insulated DE bearing - bearing ceramic coating	POA	POA	POA	NA
Insulated NDE bearing - fiberglass ring	NA	NA	NA	POA
Insulated DE bearing - fiberglass ring	NA	NA	NA	POA
Shaft grounding with AEGIS® ring	POA	POA	POA	POA

Current and Voltage Transformers - CTs and VTs	ECO43	ECO46	ECO47	ECO 49
No. 1 VT Ph-Ph single secondary for measuring: Un/100V - 15 VA - cl.0.5 (for alternator voltage regulation and for customer measure)	STD	STD	STD	STD
No. 1 CT single secondary for measuring: In/1A - 15VA - cl.0.5 - FS10 (available for customer integration: e.g. external droop controller)	STD	STD	STD	STD
Set of No. 3 CTs single secondary winding for measuring: In/1A - 15VA - cl.0.5 - FS10	POA	POA	POA	POA
Set of No. 3 CTs double secondary winding for measuring and protection: In/1A - 15VA - cl.0.5 - FS10 / 1A - 15VA - 5P10	POA	POA	POA	POA
Set of No. 3 CTs double secondary winding for measuring and protection (differential 87G): In/1A - 15VA - cl.0.5 - FS10 / 1A - 15VA - 5P10	POA	POA	POA	POA
Set of No. 3 VTs Ph-Grd single secondary winding for measuring: Un:√3/100V:√3 - 15 VA - cl.0.5	POA	POA	POA	POA
Set of No. 3 VTs Ph-Grd double secondary winding for measuring and protection: Un:√3/100:√3 - 15VA - cl.0.5 / 100:√3 - 15VA - 3P	POA	POA	POA	POA
No.1 Neutral CT, single secondary winding for protection fitted inside terminal box (terminal box larger than standard): In/1A-15VA-5P10	POA	POA	POA	POA
Set of CTs and VTs with different features (measurement and protection burden, class) and configuration upon request	POA	POA	POA	POA

Marine Certification	ECO43	ECO46	ECO47	ECO 49
Marine Certification (Lloyds, DNV etc.)	POA	POA	POA	POA

Warranty*	ECO43	ECO46	ECO47	ECO49
2 years warranty for the whole alternator from shipment	STD	STD	STD	STD
4 years warranty for the main stators (main stators wound and power cables) of alternators with output voltage higher than 3kV*	STD	STD	STD	STD
2 years warranty period to be restarted after successful genset's FAT or Commissioning	POA	POA	POA	POA
3rd year warranty extension (or more years)	POA	POA	POA	POA

Alternator Packing for Shipping	ECO43	ECO46	ECO47	ECO49
Pallet packing, suitable for truck transport (standard packing)	STD	STD	STD	STD
Seaworthy packing, suitable for sea freight (wood box and barrier bag)	POA	POA	POA	POA

\*validity subjected to maintenance/preservation according to Mecc Alte Power Products documentation.

STD = Standard Included in Generator Price
POA = Price on Application
TBA = To Be Advised
NA = Not Available

Price and specifications may be subject to change without notice, quick reference above is for guidance only.

## Power Products Alternator Range 4 pole | Brushless AVR - Medium and High Voltage

AC Alternators, AVR Controlled, Brushless, 1500/1800RPM, 50/60HZ (6wires)

### Standard Production Test

Each and every alternator produced is subjected to a routine test (Static and Dynamic Tests), which is conducted in accordance with IEC EN 60034-1: 2004 Section 9.1 "Routine Tests". Mecc Alte Power Products will issue a test report for each alternator. Below list is for reference only, test feasibility is subjected to the final operating conditions of alternator.

Static Routine Test	Code Test
Surge test (before and post impregnation)	TES01
Winding resistance at cold condition	TES02
Polarization Index (PI)	TES03
Insulation resistance + D.A.R.	TES04
Withstand high voltage test	TES05
Dynamic Routine Tests	Code Test
Overspeed test (120%) for 2 minutes	TES06
Phase sequence rotation viewed from DE side	TES07
X-axis radial vibration measurement during no load test	TES08
AVR setting - No load voltage regulation test of AVR	TES09
Zero power factor test	TES10
No load losses at unity power factor	TES11

### Type Tests (Upon Request)

Additional tests are performed upon customer or consultant specific requirement only. Such tests will be conducted within the Mecc Alte technical office test area in Italy, and may be subjected to additional costs based on the required tests. If type tests are required a thorough report will be issued.

Static and Dynamic Type Test	Code Test
Thermal test at PF = 0	TES12
Voltage balance test	TES13
Momentary overload at PF0 (only for ECO43 and ECO46 models, based on test room capability)	TES14
Open circuit characteristic (OCC) and losses	TES15
Short circuit characteristic (SCC) and losses	TES16
Sustained short circuit 3xIn per 10 sec (only for ECO43 and ECO46 models with DECS-150)	TES17
Simulated step response at no load (only with DECS-150)	TES18
Shaft Voltage at no load	TES19
Dynamic Impedance for main rotor during generator manufacturing	TES20
Waveform distortion factor (THD) - waveform analysis at no load L-L, L-N	TES21
Telephone harmonic factor (THF) - for 50Hz alternator	TES22
Telephone influence factor (TIF) - for 60Hz alternator	TES23
Full load losses (Separation method)	TES24
Generator efficiency (Separation method)	TES25
Airflow	TES26
Reactance measurement (Xdq, Xq', Xdq'', X0, X2) unsaturated	TES27
Temperature rise at zero power factor	TES28
Sound level measurement (no load)	TES29
Tan Delta (tanδ)	TES30
Partial Discharge	TES31
Other test available if clearly specified and requested by customer - to be defined during engineering phase	TES32

### Witnessed Tests

Possibility on request to attend the tests with an extra cost to be defined with the customer.

Information and specifications may be subject to change without notice, quick reference above is for guidance only.

Alternators are available in a wide range of voltage throughout three main voltage classes.

Special and dedicated windings for specific voltages and frequencies available upon request: 5,5kV@50Hz - 2,4kV@60Hz etc.

<b>3 kV - 4,16kV</b>	Winding code	Winding code		
	<b>T63M5S6</b>	<b>T63M5S3</b>	<b>3 kV</b>	<b>3,6 kV</b>
	PITCH 5/6	PITCH 2/3	<b>50 Hz</b>	<b>60 Hz</b>
	Winding code	Winding code		
<b>T64M5S6</b>	<b>T64M5S3</b>	<b>3,3 ÷ 3,5 kV</b>	<b>3,96 ÷ 4,16 kV</b>	
PITCH 5/6	PITCH 2/3	<b>50 Hz</b>	<b>60 Hz</b>	
<b>6 kV - 7,92kV</b>	Winding code	Winding code		
	<b>T66M5S6</b>	<b>T66M5S3</b>	<b>6 kV</b>	<b>7,2 kV</b>
	PITCH 5/6	PITCH 2/3	<b>50 Hz</b>	<b>60 Hz</b>
	Winding code	Winding code		
<b>T67M5S6</b>	<b>T67M5S3</b>	<b>6,3 ÷ 6,6 kV</b>	<b>7,56 ÷ 7,92 kV</b>	
PITCH 5/6	PITCH 2/3	<b>50 Hz</b>	<b>60 Hz</b>	
<b>10 kV - 13,8kV</b>	Winding code	Winding code		
	<b>T60H5S6</b>	<b>T60H5S3</b>	<b>10 ÷ 10,5 ÷ 11 kV</b>	<b>12 ÷ 12,47 ÷ 13,2 kV</b>
	PITCH 5/6	PITCH 2/3	<b>50 Hz</b>	<b>60 Hz</b>
	Winding code	Winding code		
	<b>T61H5S6</b>	<b>T61H5S3</b>	<b>11,5 ÷ 12 kV</b>	<b>13,8 kV</b>
	PITCH 5/6	PITCH 2/3	<b>50 Hz</b>	<b>60 Hz</b>
Winding code	Winding code			
<b>T62H5S6</b>	<b>T62H5S3</b>	<b>N.A.</b>	<b>11,4 kV</b>	
PITCH 5/6	PITCH 2/3	<b>50 Hz</b>	<b>60 Hz</b>	

Basic delivery time for MV/HV range

<b>ECO43</b>	<b>Alternators available starting from 12 - 13 calendar weeks *</b>
<b>ECO46</b>	<b>Alternators available in 12 - 13 calendar weeks *</b>
<b>ECO47</b>	<b>Alternators available in 14 - 15 calendar weeks *</b>
<b>ECO49</b>	<b>Alternators available in 17 - 18 calendar weeks *</b>

\* If August or Christmas in the period, please add +2 calendar weeks.

\*Detailed delivery schedule to be verified and agreed at order placement. It's recommended for Customer to contact MAPP before placing the order.

Information and specifications may be subject to change without notice, quick reference above is for guidance only.

ECO47LV - ECO49LV

Extended standard series low voltage alternator  
 Standard alternator range | Brushless AVR - 4 Pole

*LOW VOLTAGE	2/3rd WINDING PITCH								EURO [€]
	PRP / COP RATING 0.8pf [kVA]								
	Temperature Rise class H (ΔT= 125 °C) / Ambient Temperature 40°C								
	50 Hz				60 Hz				
Type	220/380 V	230/400 V	240/415 V	254/440 V	240/415 V	254/440 V	265/460 V	277/480 V	
ECO47LV-1M/4	2850	3000	2850	2727	3113	3300	3450	3600	Ask MAPP
ECO47LV-2M/4	3278	3450	3278	3136	3579	3795	3968	4140	Ask MAPP
ECO47LV-1L/4	3677	3870	3677	3518	4015	4257	4451	4644	Ask MAPP
ECO47LV-2L/4	3800	4000	3800	3636	4150	4400	4600	4800	Ask MAPP
ECO49LV-L/4	3990	4200	3990	3818	4358	4620	4830	5040	Ask MAPP
ECO49LV-VL/4	4389	4620	4389	4200	4793	5082	5313	5544	Ask MAPP
ECO49LV-XL/4	4779	5030	4779	4573	5219	5533	5785	6036	Ask MAPP

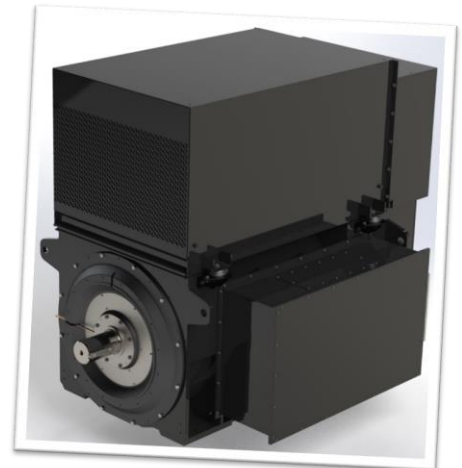
\* Nominal power on the table above is only for reference. Please contact MAPP for any proper alternator sizing and quotation.  
 Dedicated electrical and magnetical features upon custom request (for example suitable reactances for datacenter application X"d<12%).  
 Please contact your local representative or Mecc Alte directly for more information.

Low / Medium / High Voltage Alternator IP55 IC611 Air to Air Heat Exchanger cooling system

TECHNICAL INFORMATION

- Options are available to satisfy detailed customer requirements, up to achieving a 'Totally Enclosed' alternator with up to IP55 rated enclosures. These require heat exchangers to cool the captive air circuit by another medium in an external circuit. The heat exchangers are mounted onto the alternator to allow the internal region encasing the electrical wound assemblies to be sealed off from local environmental.
- Reasons for this range from, protecting internal components from an aggressive external environment – ie corrosive and/or saline related air borne. Another possible reason is that the installed area does not have sufficient volume of cooling air and the secondary cooling medium is 'imported' (ducted) into the alternator.
- The heat exchangers can be based on water cooling identified by the term Cooling Air Cooling Water (CACW), or air cooling identified by Cooling Air Cooling Air (CACA), or IC616/IC611. Defined as per IEC 60034-6:
  - with IC611, the primary fluid (air) is driven by an internal fan mounted at NDE side shaft
  - with IC616, the air is driven by an additional forced ventilation

in both cases the internal air is moved by a fan mounted at the DE side shaft.



FEATURES AND BENEFITS

- Suitable for Oil and Gas application
- Class H power – 0.5MVA and 3MVA (full Class H rise and 40°C ambient).
- Protection on internal circuit to IP55.
- Separate terminal boxes – one for neutral point and one for line side.
- Ideal where operating environment presents a risk to internal components.

Mecc Alte has been awarded with the ADNOC qualification and has finalised the data for the series of LV/MV/HV IP55 alternators, which are available via a project basis.

Please contact your local representative or Mecc Alte Power Products directly for more information.

Prices & specifications may be subject to change without notice, quick reference ratings is for guidance only.  
 It is the responsibility of the user to ensure that they are using the latest revision and validity of this document