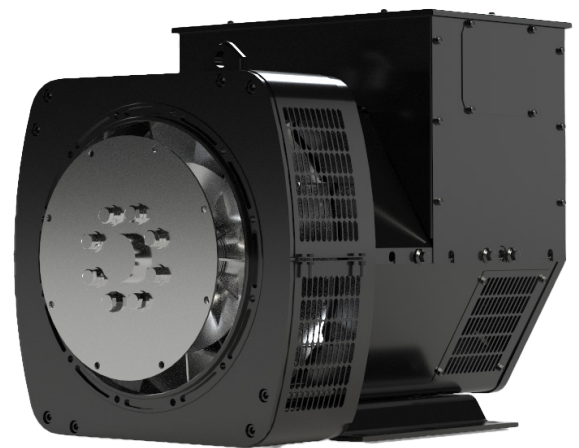


BRUSHLESS ASYNCHRONOUS ALTERNATORS

ETA274 SERIES

(50/60Hz, 4 Pole, 100.0KVA up to 250.0KVA
with AVR)



ETA274 SERIES

(50/60Hz, 4 Pole, 100.0KVA up to 250.0KVA with AVR)

Application & Standard

The 4-pole generator is suitable for matching with a reciprocating internal combustion engine (commonly called a diesel engine) to form a generator set, which can be used as a fixed power supply or backup power supply for various applications.

Alternators are in compliance to the main domestic and international standards and regulations: GB755, BS5000, IEC60034, VDE0530, CSAC22.2-100, NEMAMG-1.22. Alternators' manufacturing, design and mark are carried out in the environment of ISO9001.

Electrical Features

Transient Features

Transient voltage dip for 60% rated current at 0.4 power factor is less than 15%. Recovery time for a 15% transient voltage dip is less than 1.5s.

Overload Acceptance

4 pole alternators can be overloaded according to NEMA.

Frequency

The standard winding (B31) is suitable both for 50Hz and 60Hz.

Parallel Operation

All 4 pole alternators can operate in parallel with other alternators or with the mains, when they are equipped with the appropriate devices (AVR, current transformer...).

Single-phase Operation

274 series 4 pole alternators can be connected for single phase use.

Overspeed

The maximum overspeed is 2250rpm for the 4 pole alternator (1.25 times the 60Hz rated speed).

Electrical Data

Insulation class	H
Wires	3Phase - 6 wires
Excitation system	Brushless
Voltage regulator type	AVR SX460
Voltage regulation accuracy	+/- 1%

Short circuit distortion	300%
Total harmonic distortion	<5% (at no or linear load)
Telephone harmonic factor	<2%
Winding pitch	2/3
Power factor (cose)	0.8 / 1.0

Mechanical Features

Bearings

4 pole alternators can be provided in single bearing or double bearing configurations according to customer's requirements, as well as Engine adaptors and coupling discs which are fit for the major engines. Sealed for life bearings.

Balancing

All the rotors are dynamically balanced according to ISO1940. Double bearing rotors are balanced with a half key.

Mechanical Structure

Steel frame. Cast iron or steel housing and flanges depending on models.

Insulation & Protection

The standard winding protection can accept up to 95% relative humidity and is suitable in the cabins. Specific added coatings can be proposed for harsh environments.

Direction of Rotation

Clockwise, but can operate in both directions.

Terminal Box & Connectors

4 pole alternators have a terminal box which allows easy access for connection of AVR or reconnection. Current transformers or other optional modules can be fitted with in the box.

Enclosure

Standard enclosure is IP23.

Ratings & Efficiencies

ETA274 SERIES

		Ratings							Efficiency	Inertia
Excitation	Cont. 125K/40°C				St. By 163K/27°C				50Hz, 400V at 100% Load	1-Bearing - J
	3 Phase				3 Phase					
50Hz / 1500rpm										
Voltage (Y)	380	400	415	440	380	400	415	440		
Voltage (Δ)	220	230	240		220	230	240			
Voltage (YY)				220				220		
Type	KVA / kW				KVA / kW				%	Kgm²
ETA274A1	100.0	100.0	100.0	95.0	112.0	112.0	112.0	105.0	91.6	0.969
	80.0	80.0	80.0	76.0	90.0	90.0	90.0	84.0		
ETA274B2	113.0	113.0	113.0	107.0	126.0	126.0	126.0	118.0	91.8	1.147
	90.0	90.0	90.0	86.0	101.0	101.0	101.0	94.0		
ETA274C2	125.0	125.0	125.0	119.0	140.0	140.0	140.0	131.0	92.9	1.265
	100.0	100.0	100.0	95.0	112.0	112.0	112.0	105.0		
ETA274D3	140.0	140.0	140.0	133.0	157.0	157.0	157.0	146.0	92.7	1.281
	112.0	112.0	112.0	106.0	125.0	125.0	125.0	117.0		
ETA274E3	150.0	150.0	150.0	143.0	168.0	168.0	168.0	157.0	93.0	1.379
	120.0	120.0	120.0	114.0	134.0	134.0	134.0	125.0		
ETA274F4	160.0	160.0	160.0	152.0	179.0	179.0	179.0	167.0	93.1	1.439
	128.0	128.0	128.0	122.0	143.0	143.0	143.0	134.0		
ETA274G4	175.0	175.0	175.0	166.0	196.0	196.0	196.0	183.0	93.1	1.662
	140.0	140.0	140.0	133.0	157.0	157.0	157.0	146.0		
ETA274H5	188.0	188.0	188.0	178.0	210.0	210.0	210.0	196.0	93.4	1.704
	150.0	150.0	150.0	143.0	168.0	168.0	168.0	157.0		
ETA274K5	200.0	200.0	200.0	190.0	224.0	224.0	224.0	209.0	93.7	1.712
	160.0	160.0	160.0	152.0	179.0	179.0	179.0	167.0		
ETA274L6	225.0	225.0	225.0	214.0	252.0	252.0	252.0	235.0	93.9	2.277
	180.0	180.0	180.0	171.0	202.0	202.0	202.0	188.0		
ETA274M7	250.0	250.0	250.0	238.0	280.0	280.0	280.0	261.0	94.3	2.318
	200.0	200.0	200.0	190.0	224.0	224.0	224.0	209.0		
60Hz / 1800rpm	3 Phase				3 Phase				60Hz, 440V at 100% Load	1-Bearing - J
Voltage (Y)	416	440	460	480	416	440	460	480		
Voltage (Δ)	240									
Voltage (YY)	208	220	230	240	208	220	230	240		
Type	KVA / kW				KVA / kW				%	Kgm²
ETA274A1	108.0	115.0	120.0	120.0	118.0	127.0	132.0	132.0	92.5	0.969
	86.0	92.0	96.0	96.0	95.0	101.0	106.0	106.0		
ETA274B2	121.0	129.0	135.0	135.0	133.0	142.0	149.0	149.0	92.6	1.147
	97.0	104.0	108.0	108.0	106.0	114.0	119.0	119.0		
ETA274C2	134.0	144.0	150.0	150.0	148.0	158.0	165.0	165.0	93.6	1.265
	108.0	115.0	120.0	120.0	118.0	127.0	132.0	132.0		
ETA274D3	151.0	161.0	168.0	168.0	166.0	177.0	185.0	185.0	93.3	1.281
	120.0	129.0	134.0	134.0	132.0	142.0	148.0	148.0		
ETA274E3	161.0	173.0	180.0	180.0	177.0	190.0	198.0	198.0	93.6	1.379
	129.0	138.0	144.0	144.0	142.0	152.0	158.0	158.0		
ETA274F4	172.0	184.0	192.0	192.0	189.0	202.0	211.0	211.0	93.6	1.439
	138.0	147.0	154.0	154.0	151.0	162.0	169.0	169.0		
ETA274G4	188.0	201.0	210.0	210.0	207.0	221.0	231.0	231.0	93.7	1.662
	151.0	161.0	168.0	168.0	166.0	177.0	185.0	185.0		
ETA274H5	202.0	216.0	225.0	225.0	222.0	237.0	248.0	248.0	93.9	1.704
	161.0	173.0	180.0	180.0	177.0	190.0	198.0	198.0		
ETA274K5	215.0	230.0	240.0	240.0	237.0	253.0	264.0	264.0	94.2	1.712
	172.0	184.0	192.0	192.0	189.0	202.0	211.0	211.0		
ETA274L6	242.0	259.0	270.0	270.0	266.0	285.0	297.0	297.0	94.5	2.277
	194.0	207.0	216.0	216.0	213.0	228.0	238.0	238.0		
ETA274M7	269.0	288.0	300.0	300.0	296.0	316.0	330.0	330.0	94.8	2.318
	215.0	230.0	240.0	240.0	237.0	253.0	264.0	264.0		

- Enetra reserve the right to change the specifications of their products without notice as ongoing process of development.
- Consult Enetra for further information.
- Only 12 wire alternator can be realized, for other voltages please consult Enetra.
- General Parameters:** Cooling method: IC01 | THD=2.5% | TIF=50 | Altitude:1,000m | Temperature Rise: 125K | Ambient Temperature: 40°C

Reactance & Time Constant

ETA274 SERIES

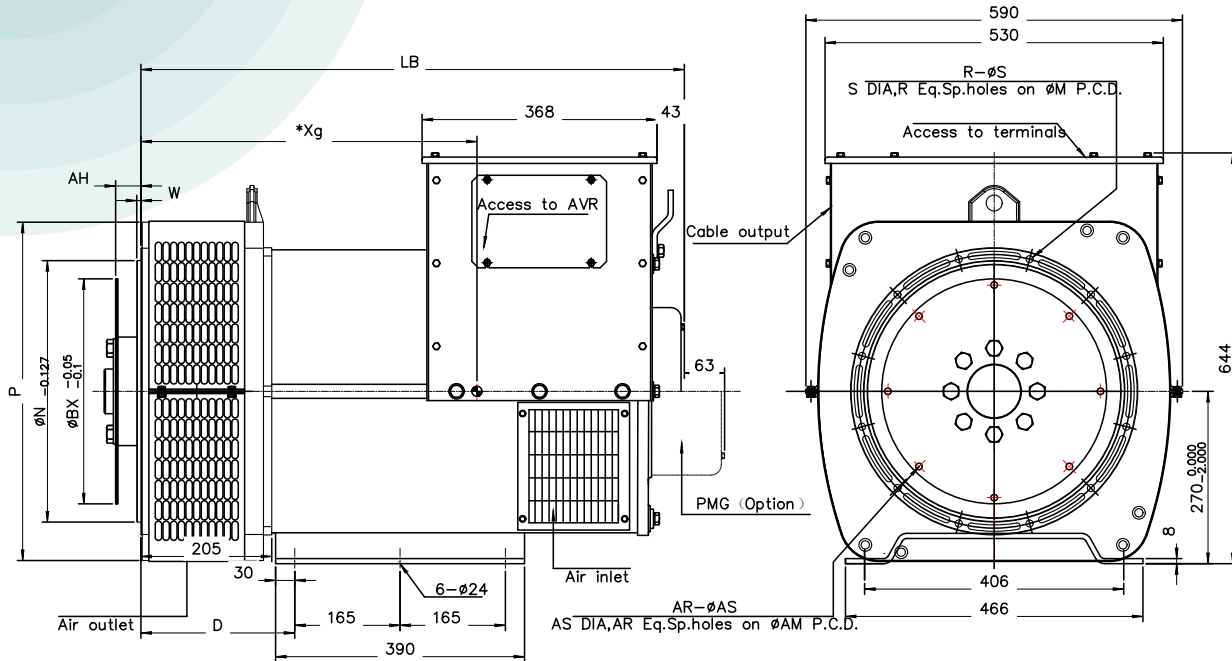
Type	Rating (50Hz) Cont./125K/ 40°C/0.8/400V	Reactance								Time Constant			
		Kcc	Xd	X'd	X''d	Xq	X''q	X2	X0	T'd	T''d	T'do	Ta
	KVA	%	%	%	%	%	%	%	%	ms	ms	ms	ms
ETA274A1	100.0	0.27	371.0	28.5	17.1	210.0	18.4	1.78	1.48	77.0	10.0	2780.0	8.0
ETA274B2	113.0	0.28	355.0	26.6	15.6	201.0	16.8	1.62	1.29	67.0	8.0	2493.0	10.0
ETA274C2	125.0	0.32	311.0	22.0	12.3	175.0	13.3	1.28	0.94	52.0	6.0	2033.0	8.0
ETA274D3	140.0	0.27	374.0	27.2	15.6	211.0	16.7	1.61	1.21	62.0	8.0	2383.0	13.0
ETA274E3	150.0	0.28	354.0	25.5	14.4	200.0	15.4	1.49	1.09	56.0	7.0	2154.0	14.0
ETA274F4	160.0	0.28	358.0	25.6	14.3	202.0	15.4	1.49	1.07	54.0	7.0	2106.0	15.0
ETA274G4	175.0	0.31	326.0	22.2	12.0	183.0	12.9	1.24	0.83	45.0	6.0	1824.0	13.0
ETA274H5	188.0	0.26	384.0	26.9	14.8	216.0	15.9	1.53	1.06	52.0	6.0	2057.0	19.0
ETA274K5	200.0	0.27	374.0	26.1	14.3	211.0	15.3	1.48	1.01	49.0	6.0	1949.0	20.0
ETA274L6	225.0	0.28	358.0	24.7	13.3	202.0	14.2	1.38	0.90	42.0	5.0	1701.0	22.0
ETA274M7	250.0	0.32	310.0	20.2	10.4	174.0	11.3	1.08	0.63	32.0	4.0	1346.0	20.0

Type	Rating (60Hz) Cont./125K/ 40°C/0.8/440V	Reactance								Time Constant			
		Kcc	Xd	X'd	X''d	Xq	X''q	X2	X0	T'd	T''d	T'do	Ta
	KVA	%	%	%	%	%	%	%	%	ms	ms	ms	ms
ETA274A1	108.0	0.23	441.0	33.9	20.4	250.0	21.9	2.11	1.76	76.0	10.0	3309.0	8.0
ETA274B2	121.0	0.24	423.0	31.7	18.6	239.0	20.0	1.93	1.54	67.0	8.0	2967.0	10.0
ETA274C2	134.0	0.27	370.0	26.2	14.7	209.0	15.9	1.53	1.12	51.0	6.0	2420.0	8.0
ETA274D3	151.0	0.22	446.0	32.4	18.5	252.0	19.9	1.92	1.44	62.0	8.0	2836.0	13.0
ETA274E3	161.0	0.24	422.0	30.3	17.2	238.0	18.4	1.78	1.30	55.0	7.0	2563.0	14.0
ETA274F4	172.0	0.23	426.0	30.4	17.1	240.0	18.3	1.77	1.27	54.0	7.0	2506.0	14.0
ETA274G4	188.0	0.26	388.0	26.4	12.2	218.0	15.4	1.48	1.36	44.0	6.0	2171.0	13.0
ETA274H5	202.0	0.22	457.0	32.0	17.6	257.0	18.9	1.83	1.56	51.0	6.0	2448.0	18.0
ETA274K5	215.0	0.22	445.0	31.1	17.0	251.0	18.2	1.76	1.22	49.0	6.0	2319.0	20.0
ETA274L6	242.0	0.23	426.0	29.3	15.9	240.0	16.9	1.64	1.07	42.0	5.0	2025.0	22.0
ETA274M7	269.0	0.27	368.0	24.1	12.4	207.0	13.4	1.29	0.75	31.0	4.0	1601.0	20.0

*LFLT-012 - rev 07 /2024 / **The information contained in this datasheet may change without notice.

Dimensions & Weights

ETA274 SERIES



Dimensions & Weights							
	LB		Xg	Weight	Package		
	SAE1	SAE2&3	mm	Kg	Length (mm)	Width (mm)	Height (mm)
ETA274A1	690.0	675.0	323.0	340.0	840.0	650.0	830.0
ETA274B2	730.0	715.0	335.0	376.0	880.0	650.0	830.0
ETA274C2	730.0	715.0	350.0	394.0	880.0	650.0	830.0
ETA274D3	770.0	756.0	355.0	421.0	970.0	650.0	830.0
ETA274E3	770.0	756.0	365.0	432.0	970.0	650.0	830.0
ETA274F4	810.0	796.0	373.0	460.0	970.0	650.0	830.0
ETA274G4	810.0	796.0	385.0	472.0	970.0	650.0	830.0
ETA274H5	850.0	836.0	395.0	491.0	1010.0	650.0	830.0
ETA274K5	850.0	836.0	403.0	512.0	1010.0	650.0	830.0
ETA274L6	910.0	896.0	428.0	563.0	1070.0	650.0	830.0
ETA274M7	965.0	951.0	455.0	631.0	1120.0	650.0	830.0

Flange (mm)							
SAE #	P	N	M	R-φS	W	D	α°
1	560.0	511.175	530.225	12-φ12	6.5	255.0	15.0°
2	530.0	447.675	466.725	12-φ12	6.5	241.0	15.0°
3	530.0	409.575	428.625	12-φ12	6.5	241.0	15.0°

Coupling Disc (mm)				
SAE #	BX	AM	AR-φAS	AH
10	314.325	295.30	8-φ11	53.8
11.5	352.425	333.38	8-φ11	39.6
14	466.725	438.15	8-φ14	25.4