

Performance and core specifications

4-pole alternators for continuous or standby diesel generator sets in buildings, hospitals, airports, telecoms and industry.

100–250 kVA

50 Hz continuous

4 POLES

1500 / 1800 rpm

50 / 60 Hz

B31 / B32 winding

IP23

Class H insulation

EXCITATION AND DYNAMIC PERFORMANCE

Transistor-based AVR regulation (SX460). Self-excitation has no sustained short-circuit capability; optional PMG supplies 3 times nominal current for 10 seconds.

At 60% rated current and PF 0.4: transient voltage dip <15%; recovery from a 15% dip <1.5 s.

Parallel operation with alternators or mains requires suitable AVR and current transformers.

Overload capability follows NEMA.

WINDING AND POWER QUALITY

Standard B31 / B32 windings operate at 50 or 60 Hz. Single-phase reconnection or dedicated windings are available. Operating PF: 0.8–1.0; derating is required below 0.8.

THD 2.5% at no-load or linear load per IEC; TIF <50 per NEMA.

MECHANICAL CONSTRUCTION

Single- or double-bearing configurations with engine adaptors and coupling discs. Rotors balanced to ISO 1940; double-bearing rotors use half-key balancing. Sealed-for-life bearings; steel frame with cast-iron or steel housings and flanges, depending on model.

Class H insulation; winding protection accepts up to 95% relative humidity. Additional coatings are available for harsh environments. Accessible terminal box accommodates AVR, reconnection, CTs and optional modules.

Bidirectional operation is stated in the source; its general-parameter table specifies clockwise rotation. Maximum overspeed: 2250 rpm, or $1.25 \times$ rated speed at 60 Hz.

STANDARDS

GB 755, BS 5000, IEC 60034, VDE 0530, CSA C22.2-100 and NEMA MG-1.22. Design, manufacture and marking under ISO 9001.

General parameters and efficiency

Parameter	Value	Parameter	Value
Ambient temperature	40°C	Temperature rise	125K
Short-circuit current multiple	/	Altitude	1000 m
Voltage regulation	±1%	Cooling method	IC01
Insulation class	Class H	Exciter system	Brushless self-excitation
Direction of rotation	Clockwise	Duty type	S1
Winding pitch	2/3	Maximum speed	2250 rpm
Phases	3	Power factor	0.8
Protection grade	IP23	Number of poles	4
TIF	<50	Frequency	50/60 Hz
AVR model	SX460	THF	<2%
THD	2.5%		

MOMENT OF INERTIA AND FULL LOAD EFFICIENCY

Model	Inertia J kg·m ²	50 Hz / 400 V Efficiency %	60 Hz / 440 V Efficiency %
KR274C	0.969	91.6	92.5
KR274D	1.147	91.8	92.6
KR274ES	1.265	92.9	93.6
KR274E	1.281	92.7	93.3
KR274FS	1.379	93.0	93.6
KR274F	1.439	93.1	93.6
KR274G	1.662	93.1	93.7
KR274GS	1.704	93.4	93.9
KR274H	1.712	93.7	94.2
KR274J	2.277	93.9	94.5
KR274K	2.318	94.3	94.8

Inertia values apply to single-bearing units. Efficiency values are at 100% load.

50 Hz electrical ratings

1500 rpm • Standard winding: 3-phase, power factor 0.8.

Continuous: 125K rise / 40°C ambient.

Standby: 163K rise / 27°C ambient.

Model	Unit	Continuous				Standby			
		380V	400V	415V	440V	380V	400V	415V	440V
KR274C	kVA	100	100	100	95	112	112	112	105
	kW	80	80	80	76	90	90	90	84
KR274D	kVA	113	113	113	107	126	126	126	118
	kW	90	90	90	86	101	101	101	94
KR274ES	kVA	125	125	125	119	140	140	140	131
	kW	100	100	100	95	112	112	112	105
KR274E	kVA	140	140	140	133	157	157	157	146
	kW	112	112	112	106	125	125	125	117
KR274FS	kVA	150	150	150	143	168	168	168	157
	kW	120	120	120	114	134	134	134	125
KR274F	kVA	160	160	160	152	179	179	179	167
	kW	128	128	128	122	143	143	143	134
KR274G	kVA	175	175	175	166	196	196	196	183
	kW	140	140	140	133	157	157	157	146
KR274GS	kVA	188	188	188	178	210	210	210	196
	kW	150	150	150	143	168	168	168	157
KR274H	kVA	200	200	200	190	224	224	224	209
	kW	160	160	160	152	179	179	179	167
KR274J	kVA	225	225	225	214	252	252	252	235
	kW	180	180	180	171	202	202	202	188
KR274K	kVA	250	250	250	238	280	280	280	261
	kW	200	200	200	190	224	224	224	209

WINDING CONNECTION VOLTAGES

Connection	Voltage options
Star Y	380V / 400V / 415V / 440V
Delta Δ	220V / 230V / 240V
Parallel star YY	220V (Y = 440 V)

Only 12-wire alternators can realise these connections. For other voltages, consult the factory.

60 Hz electrical ratings

1800 rpm • Standard winding: 3-phase, power factor 0.8.

Continuous: 125K rise / 40°C ambient.

Standby: 163K rise / 27°C ambient.

Model	Unit	Continuous				Standby			
		416V	440V	460V	480V	416V	440V	460V	480V
KR274C	kVA	108	115	120	120	118	127	132	132
	kW	86	92	96	96	95	101	106	106
KR274D	kVA	121	129	135	135	133	142	149	149
	kW	97	104	108	108	106	114	119	119
KR274ES	kVA	134	144	150	150	148	158	165	165
	kW	108	115	120	120	118	127	132	132
KR274E	kVA	151	161	168	168	166	177	185	185
	kW	120	129	134	134	132	142	148	148
KR274FS	kVA	161	173	180	180	177	190	198	198
	kW	129	138	144	144	142	152	158	158
KR274F	kVA	172	184	192	192	189	202	211	211
	kW	138	147	154	154	151	162	169	169
KR274G	kVA	188	201	210	210	207	221	231	231
	kW	151	161	168	168	166	177	185	185
KR274GS	kVA	202	216	225	225	222	237	248	248
	kW	161	173	180	180	177	190	198	198
KR274H	kVA	215	230	240	240	237	253	264	264
	kW	172	184	192	192	189	202	211	211
KR274J	kVA	242	259	270	270	266	285	297	297
	kW	194	207	216	216	213	228	238	238
KR274K	kVA	269	288	300	300	296	316	330	330
	kW	215	230	240	240	237	253	264	264

WINDING CONNECTION VOLTAGES

Connection	Voltage options
Star Y	416V / 440V / 460V / 480V
Delta Δ	240V (Y = 416 V)
Parallel star YY	208V / 220V / 230V / 240V

Only 12-wire alternators can realise these connections. For other voltages, consult the factory.

Reactance and time constants

Reactance in %; time constants in ms. Kcc is the short-circuit ratio.

50 HZ AT 400 V

Model	Kcc	Xd	X'd	X''d	Xq	X''q	X2	X0	T'd	T''d	T'do	Ta
KR274C	0.27	371	28.5	17.1	210	18.4	1.78	1.48	77	10	2780	8
KR274D	0.28	355	26.6	15.6	201	16.8	1.62	1.29	67	8	2493	10
KR274ES	0.32	311	22.0	12.3	175	13.3	1.28	0.94	52	6	2033	8
KR274E	0.27	374	27.2	15.6	211	16.7	1.61	1.21	62	8	2383	13
KR274FS	0.28	354	25.5	14.4	200	15.4	1.49	1.09	56	7	2154	14
KR274F	0.28	358	25.6	14.3	202	15.4	1.49	1.07	54	7	2106	15
KR274G	0.31	326	22.2	12.0	183	12.9	1.24	0.83	45	6	1824	13
KR274GS	0.26	384	26.9	14.8	216	15.9	1.53	1.06	52	6	2057	19
KR274H	0.27	374	26.1	14.3	211	15.3	1.48	1.01	49	6	1949	20
KR274J	0.28	358	24.7	13.3	202	14.2	1.38	0.90	42	5	1701	22
KR274K	0.32	310	20.2	10.4	174	11.3	1.08	0.63	32	4	1346	20

60 HZ AT 440 V

Model	Kcc	Xd	X'd	X''d	Xq	X''q	X2	X0	T'd	T''d	T'do	Ta
KR274C	0.23	441	33.9	20.4	250	21.9	2.11	1.76	76	10	3309	8
KR274D	0.24	423	31.7	18.6	239	20.0	1.93	1.54	67	8	2967	10
KR274ES	0.27	370	26.2	14.7	209	15.9	1.53	1.12	51	6	2420	8
KR274E	0.22	446	32.4	18.5	252	19.9	1.92	1.44	62	8	2836	13
KR274FS	0.24	422	30.3	17.2	238	18.4	1.78	1.30	55	7	2563	14
KR274F	0.23	426	30.4	17.1	240	18.3	1.77	1.27	54	7	2506	14
KR274G	0.26	388	26.4	14.2	218	15.4	1.48	1.36	44	6	2171	13
KR274GS	0.22	457	32.0	17.6	257	18.9	1.83	12.56	51	6	2448	18
KR274H	0.22	445	31.1	17.0	251	18.2	1.76	18.22	49	6	2319	20
KR274J	0.23	426	29.3	15.9	240	16.9	1.64	1.07	42	5	2025	22
KR274K	0.27	368	24.1	12.4	207	13.4	1.29	0.75	31	4	1601	20

SYMBOL DEFINITIONS

Code	Parameter	Code	Parameter
Kcc	Short circuit ratio	X2	Negative sequence saturation reactance
Xd	Direct axis synchronous unsaturated reactance	X0	Zero sequence unsaturated reactance
X'd	Direct Axis Transient Saturation Reactance	T'd	Short-circuit transient time constant
X''d	Direct Axis Subtransient Saturation Reactance	T''d	Subtransient time constant
Xq	Quadrature axis Synchronous Unsaturated Reactance	T'do	Open circuit time constant
X''q	Quadrature Subtransient Saturation Reactance	Ta	Armature time constant

