

SA3 Series AC Drives Energy Efficiency Report

(Release date: 20230519 Version: Ver1.00)

According to GB/T 12668.902-2021/IEC 61800-9-2:2017

1. Product rated specifications

SA3 series 220V models:

Model name	Input voltage (V)	Apparent output power (kVA)	Output power (kW)	Output current (A)	Standby loss (W)	Relative power loss (%)
SA3-023-0.75K/1.5KF	3PH 220V	2	0.75	5	10	0.50%
SA3-023-1.5K/2.2KF	3PH 220V	3.2	1.5	8	10	0.31%
SA3-023-2.2K/3.7KF	3PH 220V	4.2	2.2	11	10	0.24%
SA3-023-3.7F/5.5KF	3PH 220V	6.7	3.7	17.5	10	0.15%
SA3-023-5.5K/7.5KF	3PH 220V	9.5	5.5	25	15	0.16%
SA3-023-7.5K/11KF	3PH 220V	12.5	7.5	33	15	0.12%
SA3-023-11K/15KF	3PH 220V	18.3	11	49	15	0.08%
SA3-023-15K/18.5KF	3PH 220V	24.7	15	65	17	0.07%
SA3-023-18.5K/22KF	3PH 220V	28.6	18.5	75	17	0.06%
SA3-023-22K/30KF	3PH 220V	34.3	22	90	18	0.05%
SA3-023-30K/37KF	3PH 220V	45.7	30	120	20	0.04%
SA3-023-37K/45KF	3PH 220V	55	37	145	25	0.05%
SA3-023-45K/55KF	3PH 220V	65	45	170	25	0.04%
SA3-023-55K/75KF	3PH 220V	82	55	215	25	0.03%
SA3-023-75K/90KF	3PH 220V	110	75	288	26	0.02%
SA3-023-90K/110KF	3PH 220V	132	90	346	29	0.02%
SA3-023-110K/132KF	3PH 220V	165	110	432	29	0.02%

SA3 series 440V models:

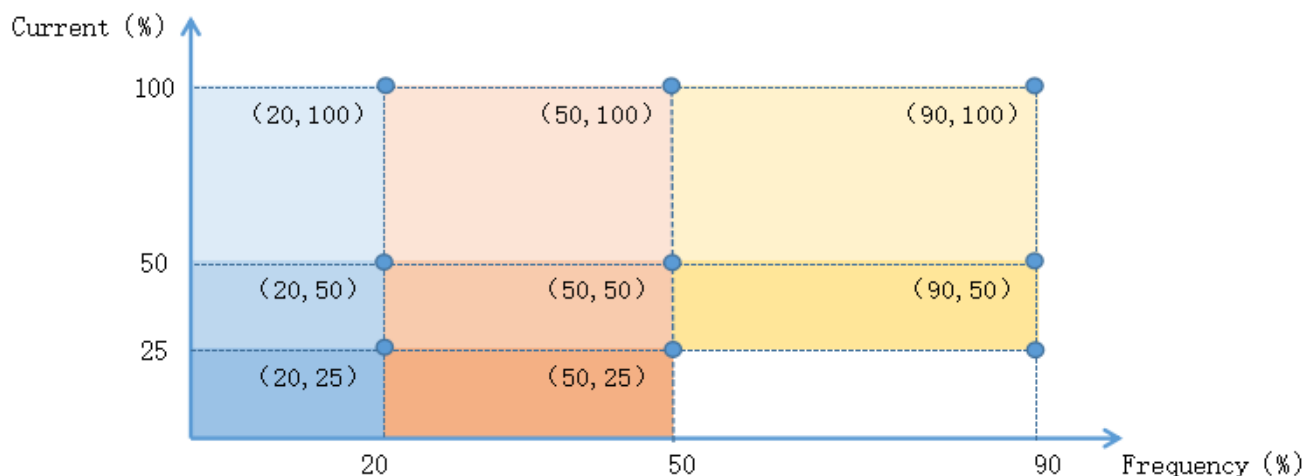
Model name	Input voltage (V)	Apparent output power (kVA)	Output power (kW)	Output current (A)	Standby loss (W)	Relative power loss (%)
SA3-043-0.75/1.5KF	3PH 440V	2	0.75	3	18	0.91%
SA3-043-1.5/2.2KF	3PH 440V	3	1.5	4.2	19	0.63%
SA3-043-2.2/3.7KF	3PH 440V	4.6	2.2	6	19	0.42%
SA3-043-3.7/5.5KF	3PH 440V	6.9	3.7	9	20	0.29%
SA3-043-5.5K/7.5KF	3PH 440V	10	5.5	12	20	0.20%
SA3-043-7.5K/11KF	3PH 440V	14	7.5	17	24	0.17%
SA3-043-11K/15KF	3PH 440V	18	11	24	25	0.14%
SA3-043-15K/18.5KF	3PH 440V	25	15	32	25	0.10%
SA3-043-18.5K/22KF	3PH 440V	29	18.5	38	28	0.10%
SA3-043-22K/30KF	3PH 440V	34	22	45	28	0.08%
SA3-043-30K/37KF	3PH 440V	46	30	60	29	0.06%
SA3-043-37K/45KF	3PH 440V	56	37	73	30	0.05%
SA3-043-45K/55KF	3PH 440V	69	45	91	30	0.04%
SA3-043-55K/75KF	3PH 440V	84	55	110	30	0.04%
SA3-043-75K/90KF	3PH 440V	114	75	150	30	0.03%
SA3-043-90K/110KF	3PH 440V	137	90	180	35	0.03%
SA3-043-110F/132KF	3PH 440V	168	110	220	35	0.02%
SA3-043-132F/160KF	3PH 440V	198	132	260	35	0.02%
SA3-043-160F/185KF	3PH 440V	236	160	310	42	0.02%
SA3-043-185F/220KF	3PH 440V	295	185	340	42	0.01%
SA3-043-220F/250KF	3PH 440V	367	220	425	42	0.01%
SA3-043-250F/285KF	3PH 440V	402	250	480	42	0.01%
SA3-043-285K/315KF	3PH 440V	438	285	530	50	0.01%
SA3-043-315K/355KF	3PH 440V	491	315	620	50	0.01%

Note 1.The input power frequency of all the above models are 50/60HZ.

Note 2.Ambient temperature- High Duty: Within 50°C, Normal Duty: Within 40°C.

2. Reference operation points

Below are the 8 reference operation points by using 60HZ as 100% frequency and rated current as 100% current :



3. Power loss

SA3 series 220V models:

Loss(W)	Reference operation points							
	(90, 100)	(90, 50)	(50, 100)	(50, 50)	(50, 25)	(20, 100)	(20, 50)	(20, 25)
SA3-023-0.75K/1.5KF	82	42	92	47	24	59	30	15
SA3-023-1.5K/2.2KF	137	71	112	61	41	90	50	34
SA3-023-2.2K/3.7KF	146	72	122	66	40	97	51	31
SA3-023-3.7F/5.5KF	199	99	175	90	54	144	76	46
SA3-023-5.5K/7.5KF	205	105	249	127	65	170	87	44
SA3-023-7.5K/11KF	342	171	292	161	111	241	125	81
SA3-023-11K/15KF	604	384	544	272	163	423	254	152
SA3-023-15K/18.5KF	670	310	603	301	181	469	281	169
SA3-023-18.5K/22KF	674	474	607	303	182	472	283	170
SA3-023-22K/30KF	990	630	891	446	267	693	416	249
SA3-023-30K/37KF	1,350	780	1,215	608	365	945	567	340
SA3-023-37K/45KF	1,665	962	1,499	749	450	1,166	699	420
SA3-023-45K/55KF	1,716	826	1,544	772	463	1,201	721	432
SA3-023-55K/75KF	2,097	1,010	1,888	944	566	1,468	881	529
SA3-023-75K/90KF	2,860	1,377	2,574	1,287	772	2,002	1,201	721
SA3-023-90K/110KF	3,432	1,652	3,089	1,544	927	2,402	1,441	865
SA3-023-110K/132KF	4,195	2,019	3,775	1,888	1,133	2,936	1,762	1,057

SA3 series 440V models:

Loss(W)	Reference operation points							
	Model name	(90, 100)	(90, 50)	(50, 100)	(50, 50)	(50, 25)	(20, 100)	(20, 50)
SA3-043-0.75/1.5KF	62	48	59	45	37	51	41	33
SA3-043-1.5/2.2KF	89	57	85	56	47	73	52	42
SA3-043-2.2/3.7KF	119	80	105	79	51	98	59	47
SA3-043-3.7/5.5KF	163	105	156	109	61	125	87	53
SA3-043-5.5K/7.5KF	214	134	196	137	75	156	90	58
SA3-043-7.5K/11KF	333	185	283	177	104	215	131	83
SA3-043-11K/15KF	453	246	388	233	149	287	174	112
SA3-043-15K/18.5KF	557	341	522	311	183	395	225	134
SA3-043-18.5K/22KF	685	372	616	308	185	479	288	173
SA3-043-22K/30KF	858	413	772	386	232	601	360	216
SA3-043-30K/37KF	873	631	786	393	236	611	367	220
SA3-043-37K/45KF	1,100	600	990	495	297	770	462	277
SA3-043-45K/55KF	1,400	700	1,260	630	378	980	588	353
SA3-043-55K/75KF	1,400	930	1,260	630	378	980	588	353
SA3-043-75K/90KF	2,220	1,080	1,998	999	599	1,554	932	559
SA3-043-90K/110KF	2,500	1,600	2,250	1,125	675	1,750	1,050	630
SA3-043-110F/132KF	3,890	1,500	3,501	1,751	1,050	2,723	1,634	980
SA3-043-132F/160KF	4,000	2,700	3,600	1,800	1,080	2,800	1,680	1,008
SA3-043-160F/185KF	4,440	2,160	3,996	1,998	1,199	3,108	1,865	1,119
SA3-043-185F/220KF	5,000	3,200	4,500	2,250	1,350	3,500	2,100	1,260
SA3-043-220F/250KF	7,002	2,700	6,302	3,151	1,891	4,901	2,941	1,765
SA3-043-250F/285KF	7,780	3,000	7,002	3,501	2,101	5,446	3,268	1,961
SA3-043-285K/315KF	8,000	5,400	7,200	3,600	2,160	5,600	3,360	2,016
SA3-043-315K/355KF	9,170	4,870	8,253	4,126	2,476	6,419	3,851	2,311

4. Power loss rate and efficiency level

SA3 series 220V models:

loss rate(%) Model name	Power loss rate with reference operation points(%)								IE class
	(90, 100)	(90, 50)	(50, 100)	(50, 50)	(50, 25)	(20, 100)	(20, 50)	(20, 25)	
SA3-023-0.75K/1.5KF	4.11%	2.09%	4.61%	2.35%	1.20%	2.95%	1.50%	0.77%	IE2
SA3-023-1.5K/2.2KF	4.28%	2.21%	3.51%	1.91%	1.28%	2.81%	1.57%	1.07%	IE2
SA3-023-2.2K/3.7KF	3.48%	1.71%	2.90%	1.57%	0.94%	2.31%	1.21%	0.73%	IE2
SA3-023-3.7F/5.5KF	2.97%	1.48%	2.61%	1.34%	0.81%	2.15%	1.13%	0.68%	IE2
SA3-023-5.5K/7.5KF	2.16%	1.10%	2.62%	1.34%	0.68%	1.79%	0.91%	0.46%	IE2
SA3-023-7.5K/11KF	2.74%	1.37%	2.34%	1.29%	0.89%	1.93%	1.00%	0.65%	IE2
SA3-023-11K/15KF	3.30%	2.10%	2.97%	1.49%	0.89%	2.31%	1.39%	0.83%	IE2
SA3-023-15K/18.5KF	2.71%	1.26%	2.44%	1.22%	0.73%	1.90%	1.14%	0.68%	IE2
SA3-023-18.5K/22KF	2.36%	1.66%	2.12%	1.06%	0.64%	1.65%	0.99%	0.59%	IE2
SA3-023-22K/30KF	2.89%	1.84%	2.60%	1.30%	0.78%	2.02%	1.21%	0.73%	IE2
SA3-023-30K/37KF	2.95%	1.71%	2.66%	1.33%	0.80%	2.07%	1.24%	0.74%	IE2
SA3-023-37K/45KF	3.03%	1.75%	2.72%	1.36%	0.82%	2.12%	1.27%	0.76%	IE2
SA3-023-45K/55KF	2.64%	1.27%	2.38%	1.19%	0.71%	1.85%	1.11%	0.67%	IE2
SA3-023-55K/75KF	2.56%	1.23%	2.30%	1.15%	0.69%	1.79%	1.07%	0.64%	IE2
SA3-023-75K/90KF	2.60%	1.25%	2.34%	1.17%	0.70%	1.82%	1.09%	0.66%	IE2
SA3-023-90K/110KF	2.60%	1.25%	2.34%	1.17%	0.70%	1.82%	1.09%	0.66%	IE2
SA3-023-110K/132KF	2.54%	1.22%	2.29%	1.14%	0.69%	1.78%	1.07%	0.64%	IE2

SA3 series 440V models:

loss rate(%)	Power loss rate with reference operation points(%)								IE class
	Model name	(90, 100)	(90, 50)	(50, 100)	(50, 50)	(50, 25)	(20, 100)	(20, 50)	
SA3-043-0.75/1.5KF	3.10%	2.40%	2.95%	2.25%	1.85%	2.55%	2.05%	1.65%	IE2
SA3-043-1.5/2.2KF	2.97%	1.90%	2.83%	1.87%	1.57%	2.43%	1.73%	1.40%	IE2
SA3-043-2.2/3.7KF	2.59%	1.74%	2.28%	1.72%	1.11%	2.13%	1.28%	1.02%	IE2
SA3-043-3.7/5.5KF	2.36%	1.52%	2.26%	1.58%	0.88%	1.81%	1.26%	0.77%	IE2
SA3-043-5.5K/7.5KF	2.14%	1.34%	1.96%	1.37%	0.75%	1.56%	0.90%	0.58%	IE2
SA3-043-7.5K/11KF	2.38%	1.32%	2.02%	1.26%	0.74%	1.54%	0.94%	0.59%	IE2
SA3-043-11K/15KF	2.52%	1.37%	2.16%	1.29%	0.83%	1.59%	0.97%	0.62%	IE2
SA3-043-15K/18.5KF	2.23%	1.36%	2.09%	1.24%	0.73%	1.58%	0.90%	0.54%	IE2
SA3-043-18.5K/22KF	2.36%	1.28%	2.13%	1.06%	0.64%	1.65%	0.99%	0.60%	IE2
SA3-043-22K/30KF	2.52%	1.21%	2.27%	1.14%	0.68%	1.77%	1.06%	0.64%	IE2
SA3-043-30K/37KF	1.90%	1.37%	1.71%	0.85%	0.51%	1.33%	0.80%	0.48%	IE2
SA3-043-37K/45KF	1.96%	1.07%	1.77%	0.88%	0.53%	1.38%	0.83%	0.50%	IE2
SA3-043-45K/55KF	2.03%	1.01%	1.83%	0.91%	0.55%	1.42%	0.85%	0.51%	IE2
SA3-043-55K/75KF	1.67%	1.11%	1.50%	0.75%	0.45%	1.17%	0.70%	0.42%	IE2
SA3-043-75K/90KF	1.95%	0.95%	1.75%	0.88%	0.53%	1.36%	0.82%	0.49%	IE2
SA3-043-90K/110KF	1.82%	1.17%	1.64%	0.82%	0.49%	1.28%	0.77%	0.46%	IE2
SA3-043-110F/132KF	2.32%	0.89%	2.08%	1.04%	0.63%	1.62%	0.97%	0.58%	IE2
SA3-043-132F/160KF	2.02%	1.36%	1.82%	0.91%	0.55%	1.41%	0.85%	0.51%	IE2
SA3-043-160F/185KF	3.36%	1.64%	3.03%	1.51%	0.91%	2.35%	1.41%	0.85%	IE2
SA3-043-185F/220KF	3.03%	1.94%	2.73%	1.36%	0.82%	2.12%	1.27%	0.76%	IE2
SA3-043-160F/185KF	1.88%	0.92%	1.69%	0.85%	0.51%	1.32%	0.79%	0.47%	IE2
SA3-043-185F/220KF	1.69%	1.08%	1.53%	0.76%	0.46%	1.19%	0.71%	0.43%	IE2
SA3-043-220F/250KF	1.91%	0.74%	1.72%	0.86%	0.52%	1.34%	0.80%	0.48%	IE2
SA3-043-250F/285KF	1.94%	0.75%	1.74%	0.87%	0.52%	1.35%	0.81%	0.49%	IE2
SA3-043-285K/315KF	1.83%	1.23%	1.64%	0.82%	0.49%	1.28%	0.77%	0.46%	IE2
SA3-043-315K/355KF	1.87%	0.99%	1.68%	0.84%	0.50%	1.31%	0.78%	0.47%	IE2

Note 1.All of the above inverter loss data are tested by adopting the " Input-output loss determination method for complete drive modules (CDM) "and are under a typical factory laboratory environment.

Note 2.The loss value of the inverter will be affected by the following factors: the inverter parameter settings (such as carrier frequency setting, torque boost, etc.),factory power voltage fluctuations, voltage harmonics, the type of motor used, the actual wiring, etc.