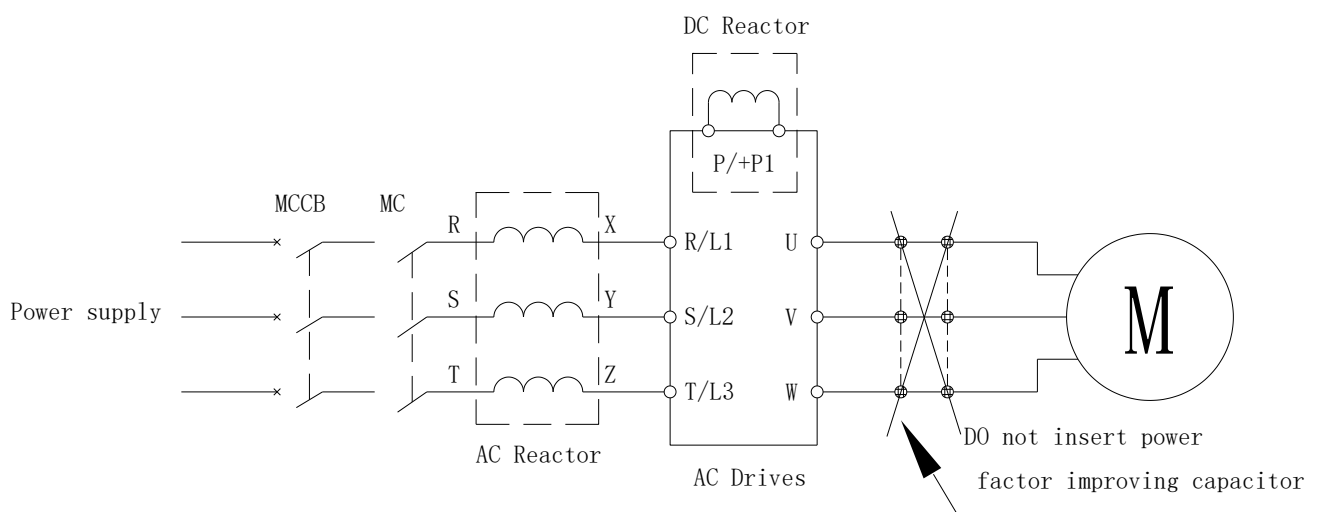


Shihlin Electric SE3 Series AC Drives Harmonics Report

(Released date: 20230527 Version: Ver1.00)

1. Harmonic suppression method

Power harmonics are generated by the rectifier parts of the AC Drives, which will affect both the power supply equipment and the power factor correction capacitor. To suppress harmonics and improve power factor, AC reactor (FA-ACL series) is added on the input side of the AC Drives, and DC reactor (FA-DCL series) is added in the DC bus circuit of the AC Drives.



2. Harmonic ratio

Reactor status	5th	7th	11th	13th	17th	19th	23th	25th	THDi
Without reactor	70.9	45.2	8.9	6.8	3.9	3.1	2.3	1.6	85.9
AC	36.6	14.4	7.9	3.4	3.3	1.2	1.2	0.8	40.9
DC	30.3	13.7	7.8	4.4	3.8	1.9	1.6	1.2	35.1
AC+DC	30.1	10.2	7.0	4.3	3.2	1.3	1.2	0.9	33.4

Note 1. The above table shows the value of each harmonic when the fundamental-wave current is 100% in this four wiring conditions: no reactor, AC reactor only, DC reactor only, and both AC and DC reactor are installed.

2. THDi may vary slightly, depending on the installation conditions and environment (e. g., cable, motor).

3. Only these 10 models (SE3-043-5.5K/7.5K/11K/15K/18.5K/22K, SE3-023-5.5K/7.5K/11K/15K) can be equipped with DC reactors.

3. Outgoing harmonic current

Model name	Output capacity	Output current	Fundamental wave current	Outgoing harmonic current converted from 6.6 kV (mA) (Without reactor, 100% operation rate)								
	(kVA)	(A)	converted from 6.6 kV (mA)	5th	7th	11th	13th	17th	19th	23th	25th	THDi
SE3-021-0.4K	1	2.7	164	116	74	15	11	6	5	4	3	141
SE3-021-0.75K	1.5	4.5	273	193	123	24	18	11	9	6	4	234
SE3-023-0.4K	1.2	3	182	129	82	16	12	7	6	4	3	156
SE3-023-0.75K	2	5	303	215	137	27	21	12	9	7	5	260
SE3-023-1.5K	3.2	8	485	344	219	43	33	19	15	11	8	416
SE3-043-0.4K	1	1.5	91	64	41	8	6	4	3	2	1	78
SE3-043-0.75K	2	2.7	164	116	74	15	11	6	5	4	3	141
SE3-043-1.5K	3	4.2	255	181	115	23	17	10	8	6	4	219
SE3-021-1.5K	3.2	8	485	344	219	43	33	19	15	11	8	416
SE3-021-2.2K	4.2	11	667	473	301	60	45	26	21	15	11	573
SE3-023-2.2K	4.2	11	667	473	301	60	45	26	21	15	11	573
SE3-023-3.7K	6.7	17.5	1,061	752	479	95	72	42	33	25	17	911
SE3-043-2.2K	4.6	6	364	258	164	33	25	14	11	8	6	312
SE3-043-3.7K	6.9	9	545	387	246	49	37	21	17	13	9	468
SE3-023-5.5K	9.5	25	1,515	1,075	684	135	103	59	47	35	25	1,301
SE3-023-7.5K	12.5	33	2,000	1,419	903	179	136	79	63	46	33	1,718
SE3-043-5.5K	10	12	727	516	328	65	49	29	23	17	12	625
SE3-043-7.5K	14	17	1,030	731	465	92	70	40	32	24	17	885
SE3-043-11K	18	24	1,455	1,032	657	130	99	57	46	34	24	1,249
SE3-023-11K	18.3	49	2,970	2,106	1,341	266	201	117	93	69	48	2,550
SE3-023-15K	24.7	65	3,939	2,794	1,779	352	267	155	123	91	64	3,383
SE3-043-15K	25	32	1,939	1,376	876	173	131	76	61	45	32	1,665
SE3-043-18.5K	29	38	2,303	1,633	1,040	206	156	90	72	53	38	1,978
SE3-043-22K	34	45	2,727	1,934	1,232	244	185	107	85	63	45	2,342