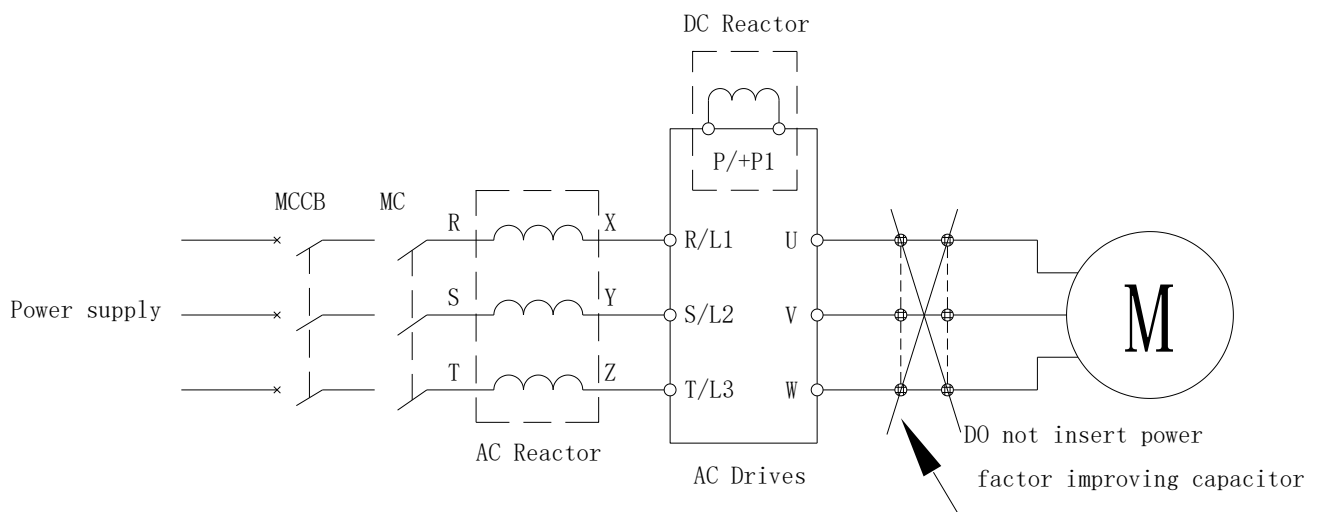


Shihlin Electric SF3 Series AC Drives Harmonics Report

(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. 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 6.6k (mA)	5th	7th	11th	13th	17th	19th	23th	25th	THDi
SF3-043-5.5K/3.7KG	10	13	788	559	356	70	53	31	25	18	13	677
SF3-043-7.5K/5.5KG	14	18	1,091	774	493	98	74	43	34	25	18	937
SF3-043-11K/7.5KG	18	24	1,455	1,032	657	130	99	57	46	34	24	1,249
SF3-043-15K/11KG	25	32	1,939	1,376	876	173	131	76	61	45	32	1,665
SF3-043-18.5K/15KG	29	38	2,303	1,633	1,040	206	156	90	72	53	38	1,978
SF3-043-22K/18.5KG	34	45	2,727	1,934	1,232	244	185	107	85	63	45	2,342
SF3-043-30K/22KG	46	60	3,636	2,579	1,642	325	246	143	114	84	59	3,123
SF3-043-37K/30G	56	73	4,424	3,138	1,998	396	300	174	139	102	72	3,799
SF3-043-45K/37KG	69	91	5,515	3,912	2,491	493	374	217	173	127	90	4,736
SF3-043-55K/45KG	84	110	6,667	4,728	3,011	596	452	262	209	154	109	5,725
SF3-043-75K/55KG	114	150	9,091	6,448	4,106	813	616	357	285	210	148	7,807
SF3-043-90K/75KG	137	180	10,909	7,737	4,927	975	739	428	342	252	178	9,368
SF3-043-110K/90KG	168	220	13,333	9,457	6,022	1,192	904	523	418	308	218	11,450
SF3-043-132K/110KG	198	260	15,758	11,176	7,117	1,409	1,068	619	494	364	257	13,532
SF3-043-160K/132KG	236	310	18,788	13,326	8,485	1,680	1,273	738	589	434	307	16,134
SF3-043-185K/160KG	295	340	20,606	14,615	9,306	1,842	1,397	809	646	476	336	17,696
SF3-043-220K/185G	367	425	25,758	18,269	11,633	2,303	1,746	1,011	807	595	420	22,120
SF3-043-250K/220KG	402	480	29,091	20,633	13,138	2,601	1,972	1,142	911	672	475	24,982
SF3-043-280K/250KG	438	530	32,121	22,782	14,507	2,872	2,177	1,261	1,006	742	524	27,584
SF3-043-315K/280KG	491	620	37,576	26,651	16,970	3,360	2,547	1,475	1,177	868	613	32,269
SF3-043-355K/315KG	544	683	41,394	29,359	18,695	3,701	2,806	1,625	1,297	956	676	35,547