Optimizing your drive!

RHF-8P XXX-460-60-YY-Z

Main

Product type	The REVCON Harmonic Filter - RHF-8P - reduces the THDi of nonlinear loads from typically 35% to below 8% even under realistic ambient conditions. Due to the use of a two-stage filter module, the RHF is able to archieve a significant higher efficiency and a smooth damping across the full harmonic spectrum.
Performance	8P = <8% THDi
Motor Power [XXX]	4kW - 710kW
Degree of Protection [YY] and design [Z]	C = Compact: kW - 315kW (IP20) S = Split: 355kW - 710kW panel mount design (IP00). E = Enclosed: 355kW - 710kW panel mount (var. IP ratings)
Design	High efficient two-stage filter (no RC damping)
Supply voltage	440-480V (+10% / -15%) 60Hz (+/- 2%)
Power factor	1 at nominal power
Overload	1.5
Efficiency	>98.8% - 99.6% (efficiency depend on rating and load)
Standards and requirements	IEC/EN 61000-2-2 / -4 IEC/EN 61000-3-2 / -4 / -12 IEEE 519-2014 Engineering Recommendation G5-5
Humidity	Humidity class F without condensation 5.....85% - Class 3K3 (non-condensing) during operation
Ambient temp.	min. 5°C (41°F) max. 45 °C (113°F) derating above 45°C (113°F) = -1.5%/K (up to 60°C (140°F))
Altitude	<1000m derating above 1000m: -5%/1000m (up to 4000m)

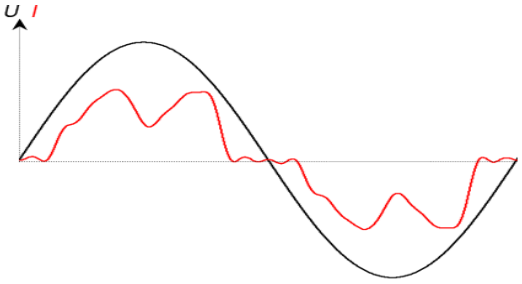
Applications

Water and wastewater treatment
HVAC / Pumps and Fans (VFD)
Industrial/ Factory Process (VFD)
DC charger
Buildings / IEEE 519-2014 requirement
Marine
Symetrical load multiple VFD

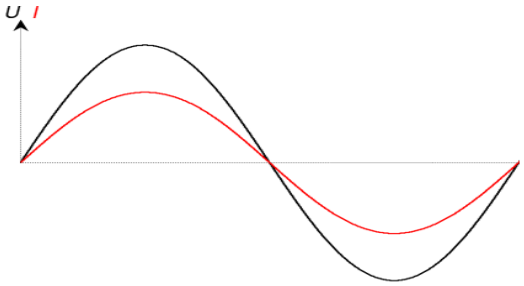
General Industry | Marine | Oil & Gas | Water Treatment | Data Center | Buildings

Harmonic current on standard 6-Pulse VFD

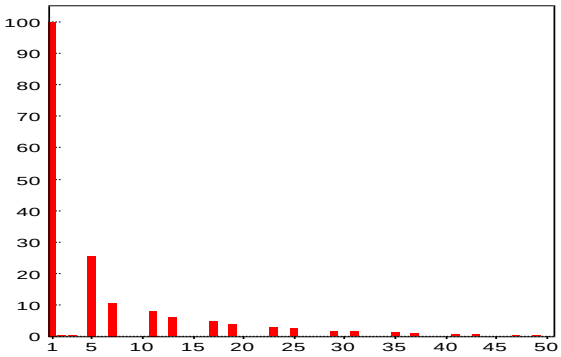
Systems with significant part of non linear loads will cause harmonic distortion on the voltage supply, which may damage equipment and supply transformer. REVCON Harmonic Filter – RHF - reduces the THDi of nonlinear loads from typically 35% to significantly below 5% (RHF-5P) or below 8% (RHF-8P) even under realistic ambient conditions.
Due to the use of a two-stage filter module, the RHF is able to achieve a significant higher efficiency and a smooth damping across the full harmonic spectrum.



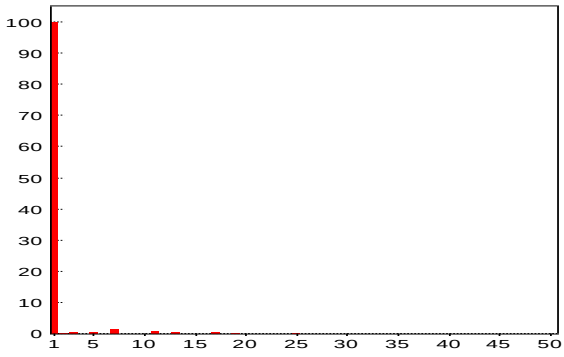
Typical input current shape when using a standard 6-pulse drive



Typical input current shape when using a standard 6-pulse drive with RHF harmonic filter



Typical harmonic current spectrum when using a standard 6-pulse drive with DC-Choke



Typical harmonic current shape when using a standard 6-pulse drive with RHF-5P

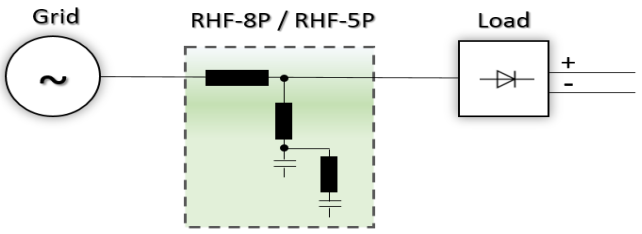
Working Principle RHF-5P - REVCON Passive Harmonic Filter

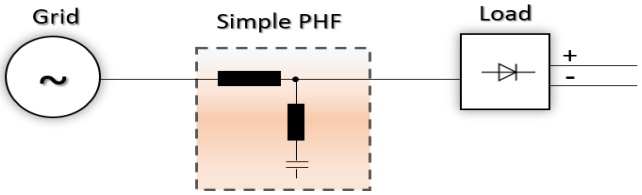
The following pictures describe the RHF-8P hardware configuration. Instead of using a simple drain circuit (Simple PHF) for the 5th Harmonic, the RHF-5P and RHF-8P use a two-stage filter which enables the following advantages:

1. Performance: The RHF is designed to reach its stated performance in the field and not defined for unique simulated conditions. The double stage filter offers a smooth damping of all Harmonics, instead of focusing on the 5th Harmonic.

2. Full Drive Power: The RHF allows for 100% DC Bus voltage at 100% drive load. This avoid further calculations and de-rating of the drive. (Drives connected to Simple Harmonic Filter may have up to 7% lower power ratings)!

3. Efficiency: Simple Harmonic Filter may add RC circuits in order to reach specified performance which leads to a significant lower efficiency. The RHF-5P double stage harmonic filter cause up to 70% less power loss than comparable <5% THDi solutions.





Available size for 3 Phase supply / 460V / 60Hz / 8% THDi

Revcon Filter RHF-8P	Order code	Input current [A]	max current [A]	Motor size*	Filter encl.	Weight [kg]	Power-loss [W]
RHF-8P 4-460-60-20-C	25001052	6	9	4kW	X1	14	82
RHF-8P 5.5-460-60-20-C	25001053	10	15	5.5kW	X1	14	93
RHF-8P 7.5-460-60-20-C	25001054	14	21	7.5kW	X1	15	103
RHF-8P 11-460-60-20-C	25001055	19	29	11kW	X2	21	191
RHF-8P 15-460-60-20-C	25001056	25	38	15kW	X2	24	209
RHF-8P 18.5-460-60-20-C	25001057	31	47	18.5kW	X3	33	203
RHF-8P 22-460-60-20-C	25001058	36	54	22kW	X3	37	212
RHF-8P 30-460-60-20-C	25001059	48	72	30kW	X3	39	244
RHF-8P 37-460-60-20-C	25001060	55	83	37kW	X4	44	295
RHF-8P 45-460-60-20-C	25001061	66	99	45kW	X4	56	311
RHF-8P 55-460-60-20-C	25001062	77	116	55kW	X5	62	323
RHF-8P 75-460-60-20-C	25001063	105	158	75kW	X5	74	408
RHF-8P 90-460-60-20-C	25001064	125	188	90kW	X6	85	537
RHF-8P 110-460-60-20-C	25001065	150	225	110kW	X6	85	543
RHF-8P 132-460-60-20-C	25001066	180	270	132kW	X6	102	556
RHF-8P 160-460-60-20-C	25001067	217	326	160kW	X7	119	755
RHF-8P 185-460-60-20-C	25001068	252	378	185kW	X7	142	732
RHF-8P 200-460-60-20-C	25001069	280	420	200kW	X7	142	813
RHF-8P 220-460-60-20-C	25001070	300	450	220kW	X7	163	942
RHF-8P 250-460-60-20-C	25001071	340	510	250kW	X7	163	1068
RHF-8P 280-460-60-20-C	25001072	380	570	280kW	X7	172	1115
RHF-8P 315-460-60-20-C	25001073	436	654	315kW	X8	205	1482
RHF-8P 355-460-60-00-S	25001074	480	720	355W	**	***	1488
RHF-8P 400-460-60-00-S	25001075	550	825	400kW	**	***	1717
RHF-8P 450-460-60-00-S	25001076	650	975	450kW	**	***	1852
RHF-8P 500-460-60-00-S	25001077	740	1110	500kW	**	***	2097
RHF-8P 560-460-60-00-S	25001078	830	1245	560kW	**	***	2336
RHF-8P 630-460-60-00-S	25001079	920	1380	630kW	**	***	2417
RHF-8P 710-460-60-00-S	25001080	1030	1545	710kW	**	***	2731

*The corresponding motor size listed in this file is based on the following technical specification:
Motor is IE3 6-Pol or lower. VFD efficiency is 97% or higher and have internal DC-Choke of 3% or higher.

** Split range (design for Panel installation) includes separate line choke and filter circuit. Design is to meet 600mm or 800mm wide Panel. Drawings on request.

*** Split range (design for Panel installation) includes separate line choke and filter circuit. Individual weigth depend on required options and setup.

Overview enclosure size

Enclosure Size	Height A [mm]	Width B [mm]	Depth C [mm]	Height MH [mm]	Width MW [mm]	Mount MS [mm]
X0	285	71	265	273	50	5.5
X1	322	196	205	278	163	6.8
X2	454	232	248	382	205	6,8
X3	592	378	245	523	353	9
X4	621	378	338	554	353	9
X5	736	418	333	661	392	9
X6	764	418	405	661	392	9
X7	957	468	451	780	443	9
X8	957	468	515	780	443	9