

RHF-8P XXX-400-50-YY-Z



Main

Product type	The REVCON Harmonic Filter - RHF-8P - reduces the THDi of nonlinear loads from typically 35% to significantly below 8% 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.
Performance	8P = <8% THDi
Motor Power [XXX]	4kW - 630kW
Degree of	C = Compact: 4kW - 280kW (IP20)
Protection [YY]	S = Split: 315kW - 630kW panel mount design (IP00).
and design [Z]	E = Enclosed: 315kW - 630kW panel mount (var. IP ratings)
Design	High efficient double-stage filter (no RC damping)
Supply voltage	380-415V (+10% / -15%) 50Hz (+/- 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

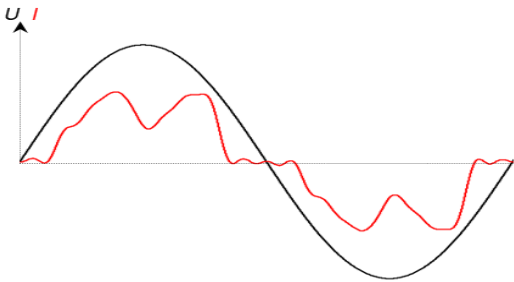


Buildings

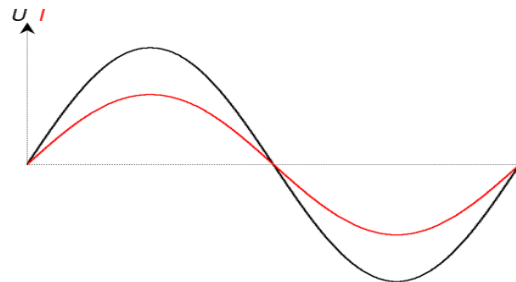
Harmonic current on standard 6-Pulse VFD

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.

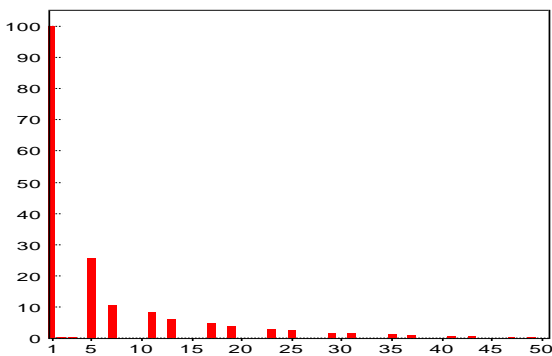
Due to the use of a two-stage filter module, the RHF is able to achieve a significant higher efficiency and a smooth damping across the full harmonic spectrum.



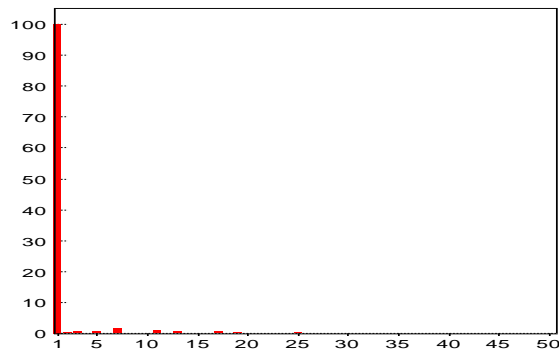
Typical input current shape when using a standard 6-pulse drive



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

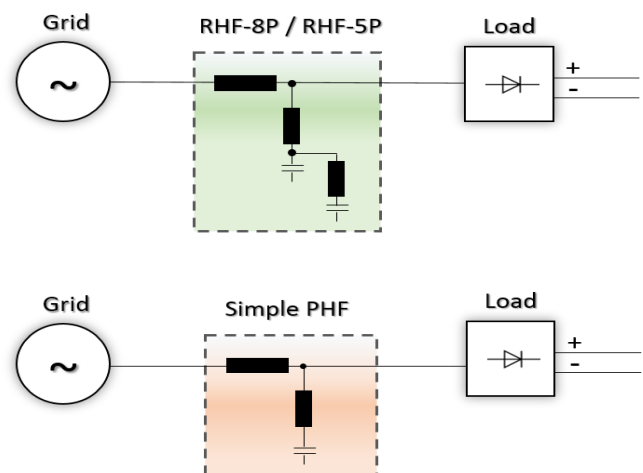
Working Principle RHF-5P - REVCON Passive Harmonic Filter

The following pictures describe the RHF-8P hardware configuration. Instead of using a simple drain circuit (Simple PHF) for the 5th Harmonic, the RHF-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 / 400V / 50Hz / 8% THDi

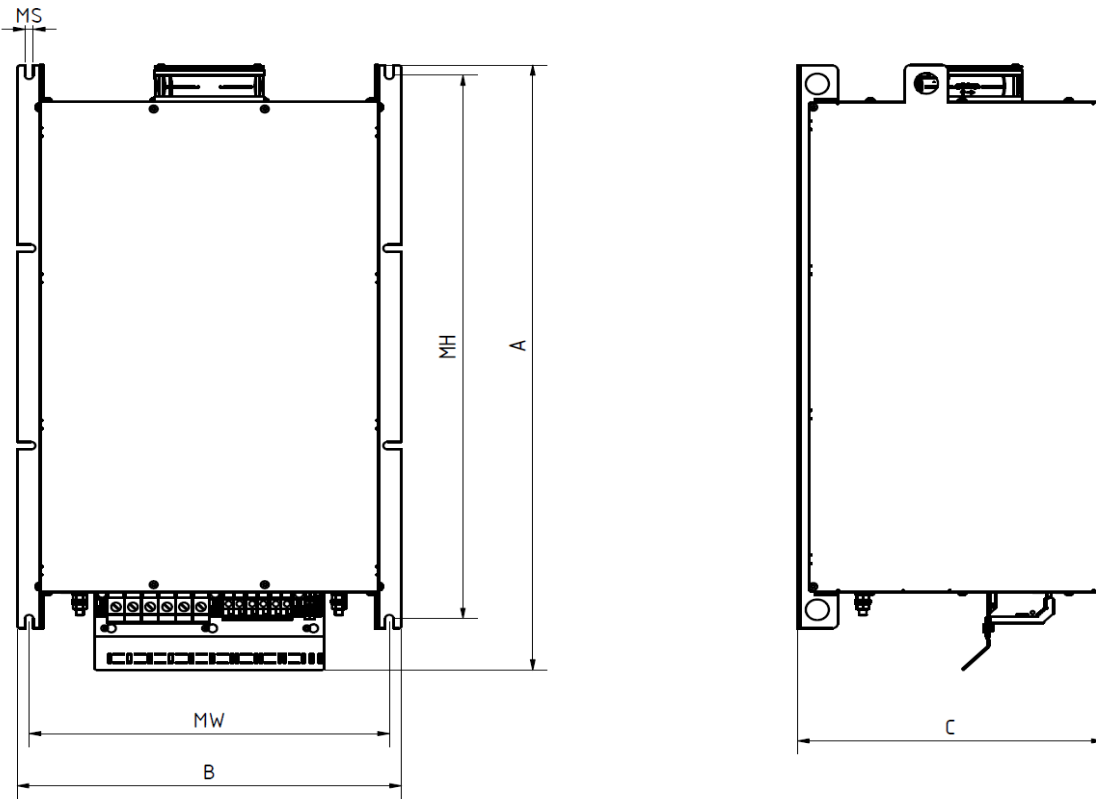
Compact range - All filter components combined in one enclosure							
Revcon Filter RHF-5P	Order code	Input current [A]	max current [A]	Motor size*	Filter encl.	Weight [kg]	Power- loss [W]
RHF-8P 4.0-400-50-20-C	25001002	7.3	11	4.0kW	X1	14	82
RHF-8P 5.5-400-50-20-C	25001003	10	15	5.5kW	X1	14	93
RHF-8P 7.5-400-50-20-C	25001004	14	21	7.5kW	X1	15	103
RHF-8P 11-400-50-20-C	25001005	22	33	11kW	X2	21	191
RHF-8P 15-400-50-20-C	25001006	27	41	15kW	X2	24	209
RHF-8P 18.5-400-50-20-C	25001007	32	48	18.5kW	X3	33	203
RHF-8P 22-400-50-20-C	25001008	38	57	22kW	X3	37	212
RHF-8P 30-400-50-20-C	25001009	52	78	30kW	X3	39	244
RHF-8P 37-400-50-20-C	25001010	63	95	37kW	X4	44	322
RHF-8P 45-400-50-20-C	25001011	76	114	45kW	X4	56	354
RHF-8P 55-400-50-20-C	25001012	92	138	55kW	X5	62	398
RHF-8P 75-400-50-20-C	25001013	125	188	75kW	X5	74	458
RHF-8P 90-400-50-20-C	25001014	150	225	90kW	X6	85	662
RHF-8P 110-400-50-20-C	25001015	182	273	110kW	X6	102	713
RHF-8P 132-400-50-20-C	25001016	217	326	132kW	X7	119	804
RHF-8P 160-400-50-20-C	25001017	262	393	160kW	X7	136	845
RHF-8P 185-400-50-20-C	25001018	304	456	185kW	X7	142	892
RHF-8P 200-400-50-20-C	25001019	328	492	200kW	X7	163	1115
RHF-8P 220-400-50-20-C	25001020	360	540	220kW	X7	185	1235
RHF-8P 250-400-50-20-C	25001021	410	615	250kW	X8	205	1266
RHF-8P 280-400-50-20-C	25001022	460	690	280kW	X8	205	1424

Split range - Filter consisting of line choke and filter enclosure X9-X11								
Revcon Filter RHF-8P	Order code	Input current [A]	max current [A]	Motor size*	Filter encl.	Weight		Power- loss [W]
						Filter Modul [Kg]	line inductor [Kg]	
RHF-8P 315-400-50-00-S	25001023	520	780	315kW	X9	170	100	1180
RHF-8P 355-400-50-00-S	25001024	600	900	355W	X10	240	125	1440
RHF-8P 400-400-50-00-S	25001025	650	975	400kW	X10	240	130	1530
RHF-8P 450-400-50-00-S	25001026	720	1080	450kW	X10	270	140	1808
RHF-8P 500-400-50-00-S	25001027	830	1245	500kW	X10	270	150	1978
RHF-8P 560-400-50-00-S	25001028	920	1380	560kW	X10	315	160	2220
RHF-8P 630-400-50-00-S	25001029	1030	1545	630kW	X10	315	190	2350

*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.

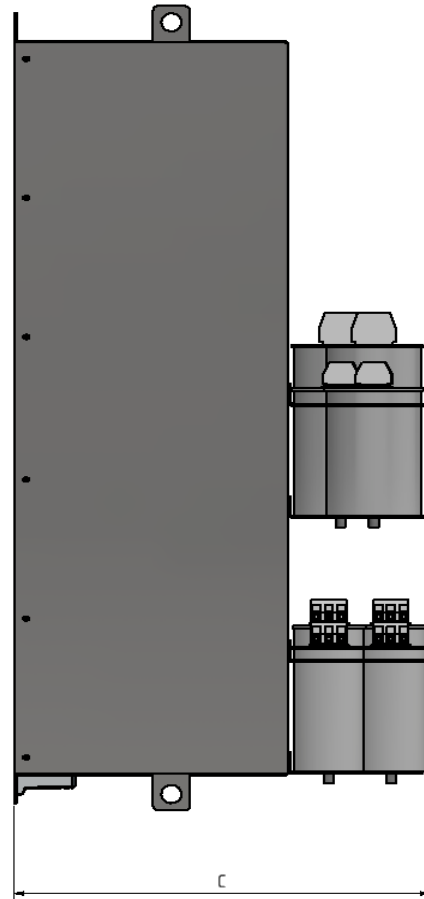
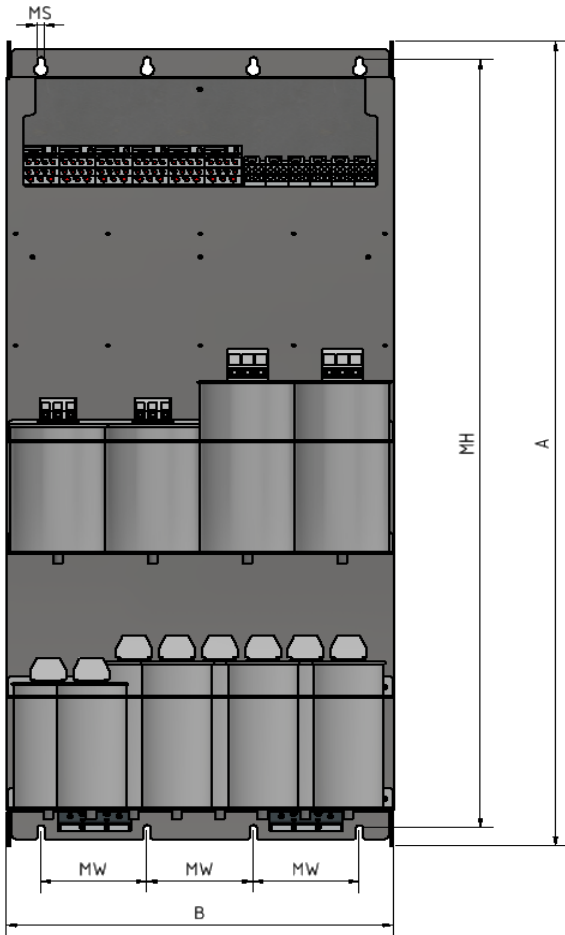
Overview enclosure size compact execution

Enclosure Size	Height A [mm]	Width B [mm]	Depth C [mm]	Height MH [mm]	Width MW [mm]	Mount MS [mm]
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



Overview enclosure size separate execution

Enclosure Size	Height A [mm]	Width B [mm]	Depth C [mm]	Height MH [mm]	Width MW [mm]	Mount MS [mm]
X9	1100	274	510	1052	211	9
X10	1100	474	510	1050	130	9
X11	1100	674	510	1050	200	9



Overview line inductor size separate execution

line inductor type	Width A [mm]	Height B [mm]	Depth 1 C [mm]	Depth 2 D [mm]	bus bars MH E [mm]	Width MW F [mm]	depth MW G [mm]	bus bars MW H [mm]	Mount MS I/J [mm]
RHF-8P 315-400-50-00-S	420	370	223	340	230	370	181	140	14
RHF-8P 355-400-50-00-S	420	370	253	370	230	370	211	140	14
RHF-8P 400-400-50-00-S	420	370	253	370	230	370	211	140	14
RHF-8P 450-400-50-00-S	480	420	250	370	260	430	210	160	14
RHF-8P 500-400-50-00-S	480	420	265	385	260	430	225	160	14
RHF-8P 560-400-50-00-S	480	420	280	400	260	430	240	160	14
RHF-8P 630-400-50-00-S	480	520	300	420	340	430	260	160	14

