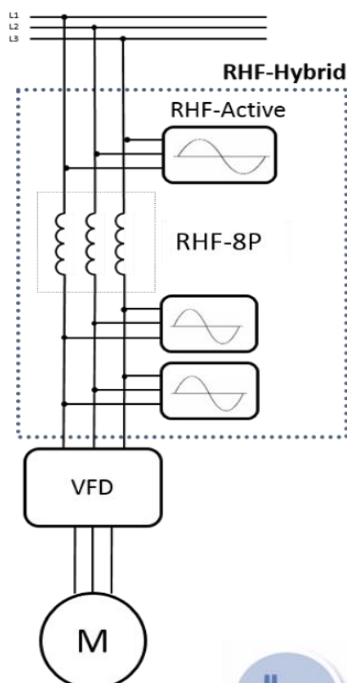


RHF-Hybrid XXX-400-50-YY-Z



Main

Product type	RHF-Hybrid, offer the highest available performance in harmonic mitigation on the market. The hybrid technology combines the benefits of the passive and active filter technology, and at the same time eliminates their disadvantages. Typical performance at nominal load: ~0.5% THDi $pf \sim 1$ at any load
Performance	Hybrid = <1% THDi
Motor Power [XXX]	55kW - 630kW (higher ratings by parallel setups)
Degree of	C = Compact: 55kW - 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 any load.
Overload	1.5
Efficiency	>99% - 99.5% (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. 40 °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

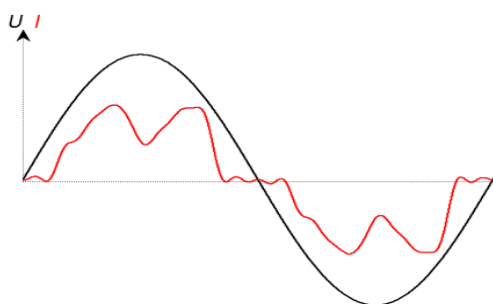
Water and wastewater treatment
HVAC / Pumps and Fans (VFD)
Industrial/ Factory Process (VFD)
DC charger
Buildings / IEEE 519-2014 requirement
Marine
Symetrical load multiple VFD



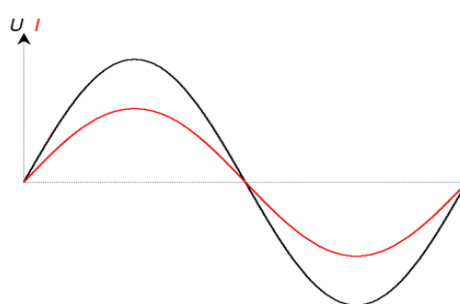
Harmonic current on standard 6-Pulse VFD

Systems with significant part of non linear loads will cause harmonic distortion on the voltage supply, which may damage equipment and supply transformer. REVCON Hybrid Harmonic Filter – RHF-Hybrid - reduces the THDi of nonlinear loads to significantly below 1%, even under difficult ambient conditions.

Due to the use of a two-stage filter module, in combination with the RHF-Active harmonic filter, the RHF-Hybrid is able to achieve a significant higher efficiency, a smooth damping across the full harmonic spectrum and a pf of close to 1 at any load.

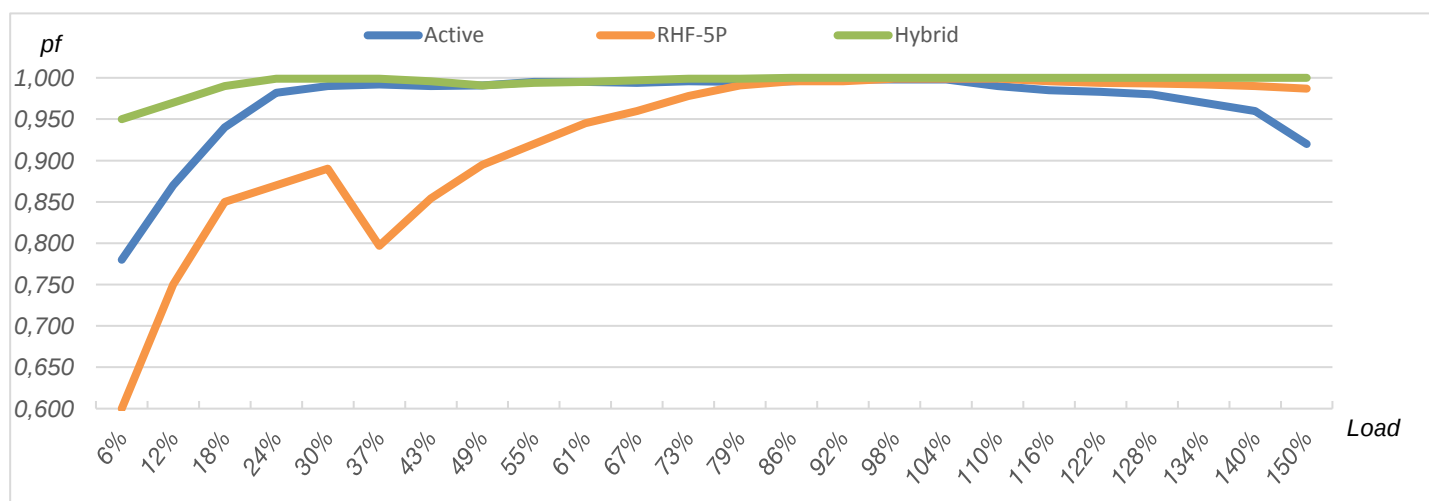


Typical input current shape when using a standard 6-pulse drive

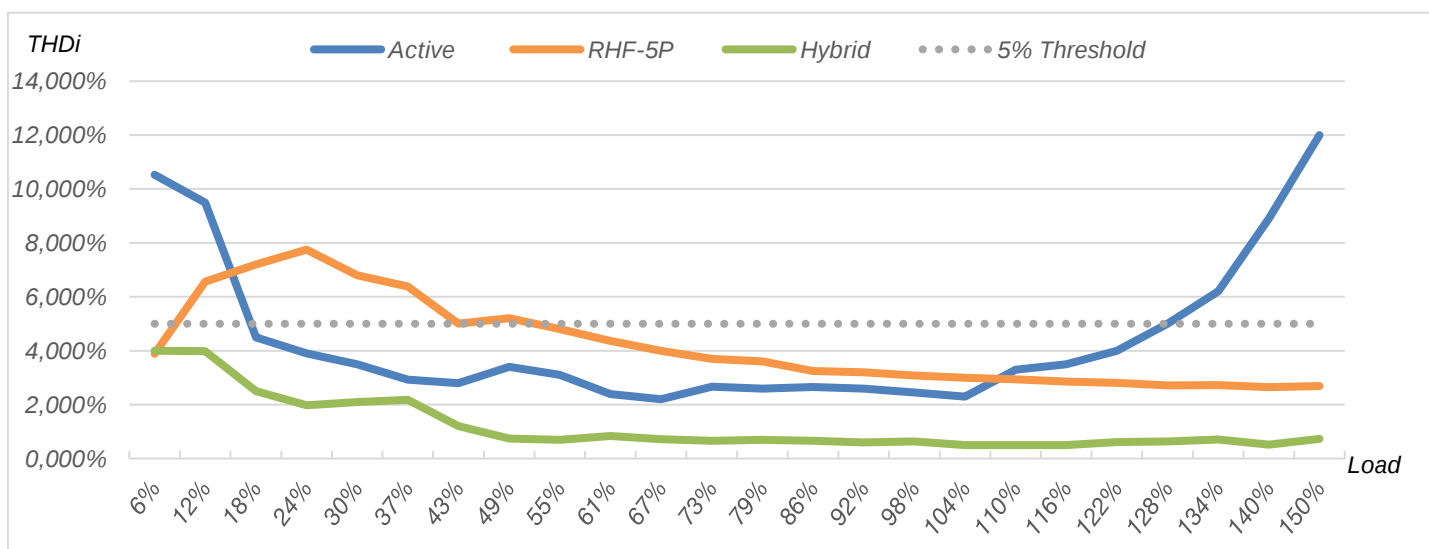


Typical input current shape when using a standard 6-pulse drive with RHF-Hybrid harmonic filter

pf comparison of active, two-stage passive and hybrid harmonic filter (pf /load)



THDi comparison of active, two-stage passive and hybrid harmonic filter (THDi/load)



*Active filter shown in this example based on typical installation with ratings designed for 100% load.

Available size for 3 Phase supply / 400V / 50Hz / <1% THDi

Compact range - Filter consisting of and filter enclosure X5-X8 and Active filter enclosure A1-A2								
Revcon Filter RHF-5P	Order code	Input current [A]	max current [A]	Motor size* [kW]	Filter encl. Passive	Filter encl. Active	Weigh [kg]	Power- loss [W]
RHF-Hybrid 55-400-50-20-C	25005012	92	138	55	X5	A1	70	605
RHF-Hybrid 75-400-50-20-C	25005013	125	188	75	X5	A1	82	665
RHF-Hybrid 90-400-50-20-C	25005014	150	225	90	X6	A1	93	869
RHF-Hybrid 110-400-50-20-C	25005015	182	273	110	X6	A2	118	1128
RHF-Hybrid 132-400-50-20-C	25005016	217	326	132	X7	A2	135	1219
RHF-Hybrid 160-400-50-20-C	25005017	262	393	160	X7	A2	152	1260
RHF-Hybrid 185-400-50-20-C	25005018	304	456	185	X7	A2	158	1307
RHF-Hybrid 200-400-50-20-C	25005019	328	492	200	X7	A2	179	1530
RHF-Hybrid 220-400-50-20-C	25005020	360	540	220	X7	A2	203	1956
RHF-Hybrid 250-400-50-20-C	25005021	410	615	250	X8	A2	223	1987
RHF-Hybrid 280-400-50-20-C	25005022	460	690	280	X8	A2	223	2145

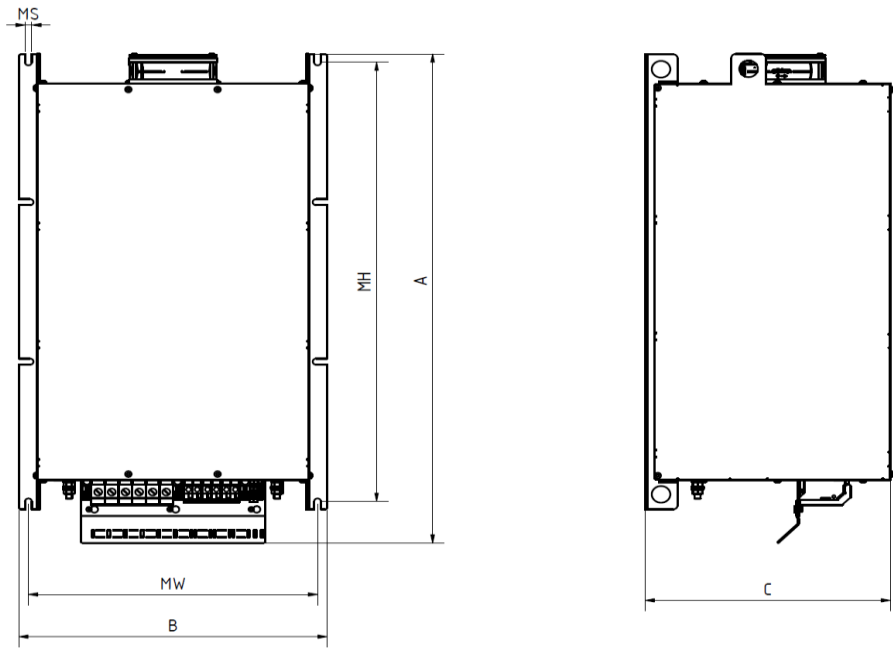
Split range - Filter consisting of line choke and filter enclosure X9-X11 and Active filter enclosure A1-A2								
Revcon Filter RHF-Hybrid	Order code	Input current [A]	max current [A]	Motor size* [kW]	Filter encl. Passive	Filter encl. Active	Weigh [Kg]	Power- loss [W]
RHF-Hybrid 315-400-50-00-S	25005023	520	780	315	X9	A2	288	1901
RHF-Hybrid 355-400-50-00-S	25005024	600	900	355	X10	A1 + A2	391	2368
RHF-Hybrid 400-400-50-00-S	25005025	650	975	400	X10	A1 + A2	404	2458
RHF-Hybrid 450-400-50-00-S	25005026	720	1080	450	X10	2 x A2	444	2944
RHF-Hybrid 500-400-50-00-S	25005027	830	1245	500	X10	2 x A2	456	3114
RHF-Hybrid 560-400-50-00-S	25005028	920	1380	560	X10	2 x A2	511	3662
RHF-Hybrid 630-400-50-00-S	25005029	1030	1545	630	X10	2 x A2	541	3792

higher ratings achieved by parallel setups.

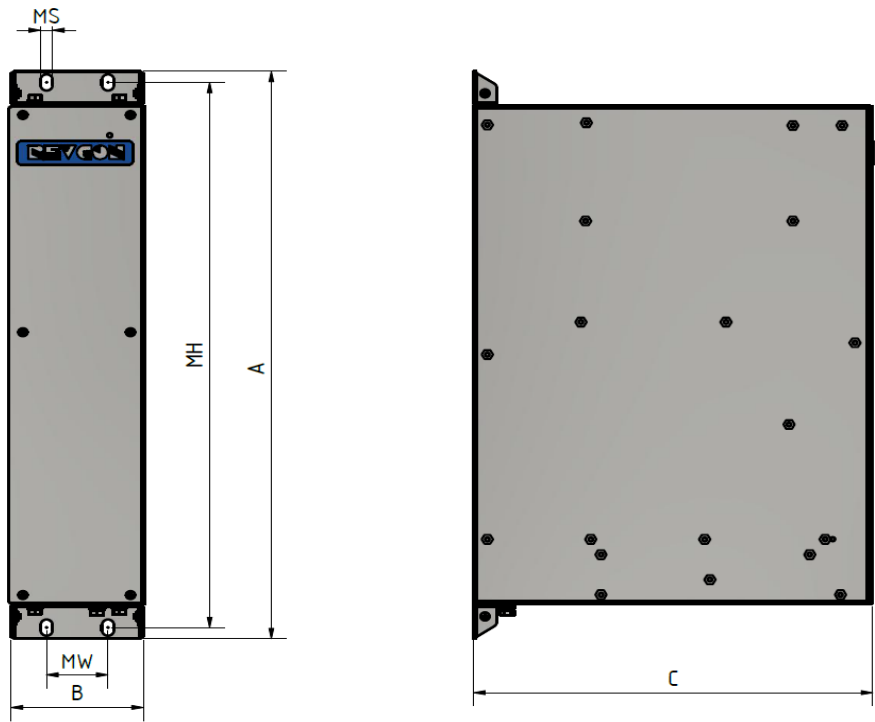
*The corresponding motor size listed in this file is based on the following technical specification:
Motor is IE3 6-Pol or lower. VFD efficiency is 97% or higher and have internal DC-Choke of 3% or higher.

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]
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

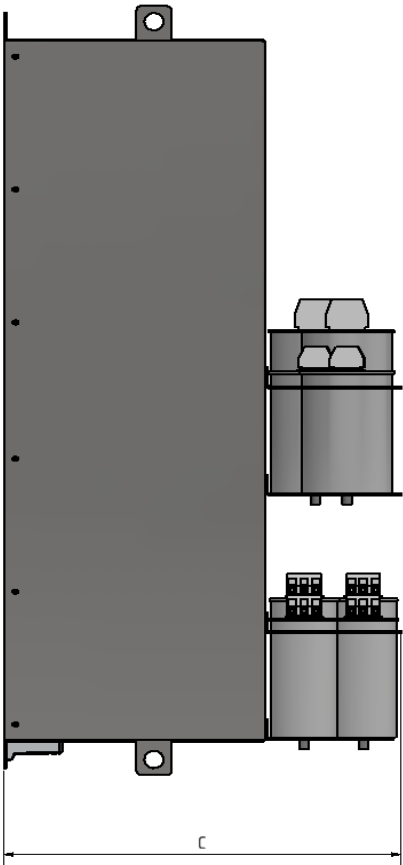
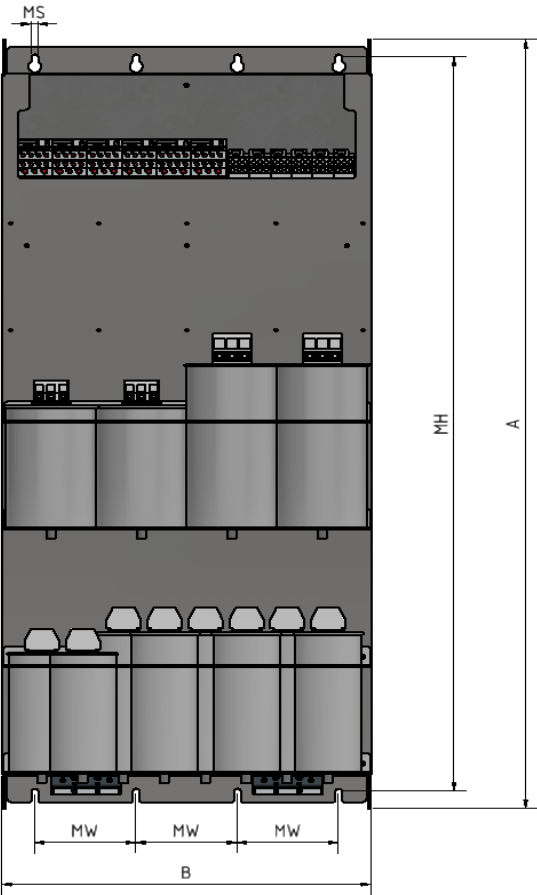


Enclosure Size	Height A [mm]	Width B [mm]	Depth C [mm]	Height MH [mm]	Width MW [mm]	Mount MS [mm]
A1	410	86	260	394	40	8
A2	510	106	360	544	40	8



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

