

**APPLICATION**

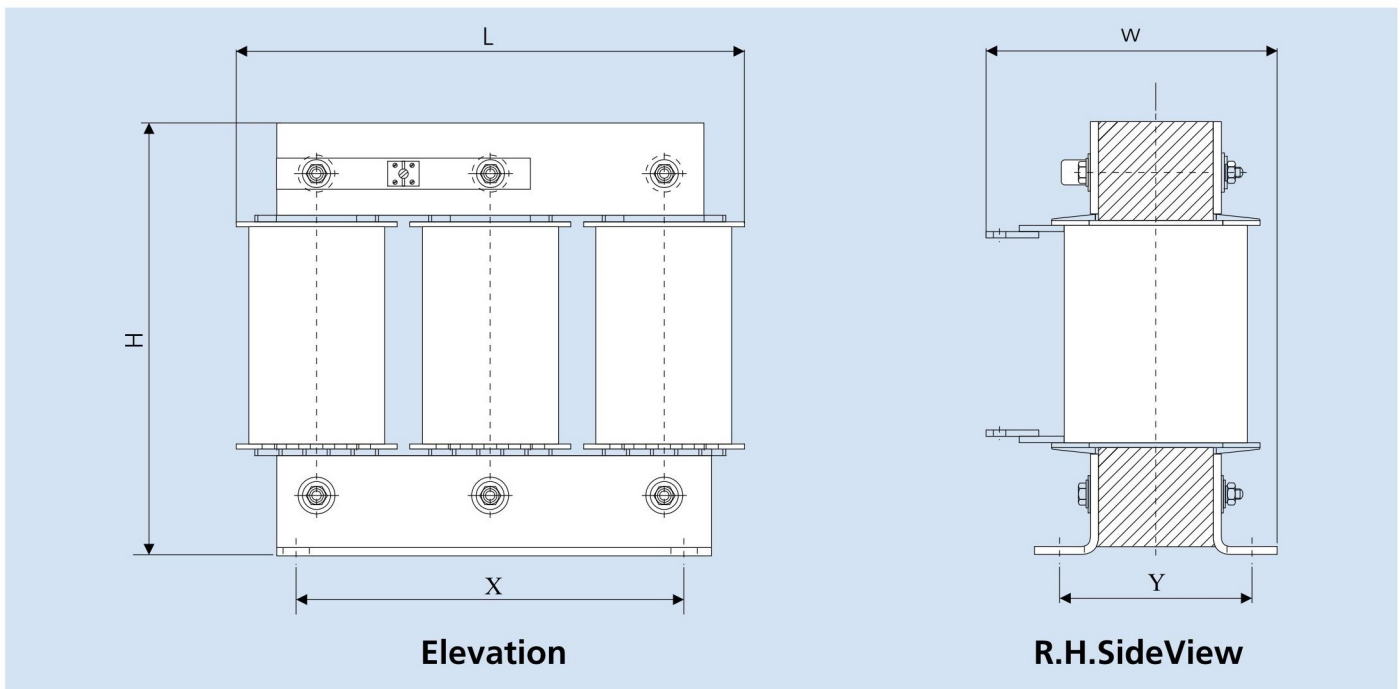
Frequent use of power electronic devices with nonlinear loads leads to harmonic distortion in electrical system. This nonsinusoidal load causes increase of effective current of power capacitor and other components of the system as well as the possibility of capacitor resonance with other inductive loads. Finally it may lead to problems or even failures in the installation. The solution is to use detuning (filtering) reactors, which creates a series resonant circuit with power capacitors. This detuned system prevents the installation from resonance effect and also acts as a filter for higher harmonic content. Usually there is recommended to use detuning reactors for the total voltage distortion THD-U higher than 3 %

**SALIENT FEATURES**

- Special Design with High-Level Saturation
- Superior Performance
- High-Grade Laminations in Magnetic Circuit
- Easy Pad Termination & Mounting
- Low Power Losses
- Protection from Excess Temperature



**REACTOR DRAWING**



**GENERAL TECHNICAL PARAMETERS**

No.	Specifications	Data
1	Rated voltage / Maximum Input Voltage	400 - 800 V / 1,1 kV
2	Frequency	50 Hz
3	Rated power	5 - 100kVAR (Ordered for special sizes)
4	Design	Three phase, iron core with multi air gap
5	Resonance Frequency	6% - 204Hz / 7% - 189 Hz / 14% - 134Hz
6	Impedance Ratio / Model	P= 6% of Capacitor Value / BRH3-6 P= 7% of Capacitor Value / BRH3-7 P= 14% of Capacitor Value / BRH3-14
7	Coil Winding Material	Aluminium[Copper on request]
8	Maximum Current Including Harmonics Overload	1.5 Times the Capacitor current
9	Tolerance of Inductance	+/- 3% at Effective Current (I <sub>eff</sub> )
10	Linearity of Inductance	1.75 x I <sub>c</sub>
11	Designed Limits for Harmonic Currents	I <sub>5</sub> = 45%, I <sub>7</sub> = 25%, I <sub>11</sub> = 12.5%, I <sub>13</sub> = 5%
12	Ventilation / IP Class	Air-Cooled / IP 00 [ Indoor ]
13	Maximum Reactor Operating Temperature	135°C at ambient temperature 45°C
14	Thermal Ovevrload Protection	Built-in thermostat cut off at 135°C
15	Insulation Class	Class F (155°C)
16	Max altitude	2000 m
17	Max relative humidity	95%
18	Statistical life expectancy	> 200 000 hours
19	Vacuum Impregnation	Yes
20	Insulation Strength Testing Voltage	3kV
21	Noise Level	Below 55db
22	Duty Cycle	Continuous
23	Compliance Standards	IEC60076-6

**DETUNED HARMONIC FILTERS AT 400V NETWORK P=7% ACCORDING TO SPEC EN60076-6**

Product code	Capacitor Power (kVAR)	Capacitor Voltage (V)	Reactor Inductance (mH)	Dimension (LxWxH) mm	Dimension (XxY) mm	Fixing Holes	Weight (kg)	I rms (A)	I lin (A)	R(mOhm)	Total Loss (W)
BRH1-7/400/5	5	440	7.66	148x80x127	80x64	6x10mm	4.6	7.6	14.5	111.2	41.5
BRH1-7/400/10	10	440	3.83	194x131x152	90x78	7x12mm	8.4	15.2	30	41.6	64.3
BRH1-7/400/12.5	12.5	440	3.07	194x131x152	90x78	7x12mm	8.6	19.4	36.9	34.3	76.8
BRH1-7/400/15	15	440	2.56	194x143x152	90x90	7x12mm	10.9	22.9	44.1	25.39	85.7
BRH1-7/400/20	20	440	1.92	245x125x203	120x70	7x12mm	12.5	30.5	49.1	18.10	95.8
BRH1-7/400/25	25	440	1.532	245x125x203	120x70	7x12mm	13.3	38.1	72.3	14.65	128.4
BRH1-7/400/30	30	440	1.28	245x125x203	120x70	7x12mm	13.5	45.7	73.6	12.74	152.6
BRH1-7/400/40	40	440	0.96	245x145x203	120x90	7x12mm	18.2	61	98.1	7.29	170.7
BRH1-7/400/50	50	440	0.767	270x143x245	140x121	9x17mm	20.2	76.2	122.7	6.13	215.6
BRH1-7/400/60	60	440	0.639	298x146x245	260x95	9x17mm	25.9	91.4	147.2	5.16	258.8
BRH1-7/400/70	70	440	0.548	298x166x245	260x115	9x17mm	28.6	106.7	171.8	3.15	279
BRH1-7/400/75	75	440	0.511	298x166x245	260x115	9x17mm	28.9	114.3	184.1	2.9	289
BRH1-7/400/80	80	440	0.479	298x166x245	260x115	9x17mm	29.3	121.9	196.3	2.74	308
BRH1-7/400/90	90	440	0.426	360x175x300	200x108	9x17mm	41.6	137.2	220.9	2.21	341
BRH1-7/400/100	100	440	0.384	360x175x300	200x108	9x17mm	42.7	152.4	245.4	1.96	353

Product code	Capacitor Power (kVAR)	Capacitor Voltage (V)	Reactor Inductance (mH)	Dimension (LxWxH) mm	Dimension (XxY) mm	Fixing Holes	Weight (kg)	I rms (A)	I lin (A)	R(mOhm)	Total Loss (W)
BRH3-7/400/5	5	440	7.67	180x85x200	125x60	8x12mm	5	8.03	14.17	296.2	34.6
BRH3-7/400/10	10	440	3.83	180x115x200	125x75	8x12mm	9.5	16.34	29.17	34.7	53.5
BRH3-7/400/12.5	12.5	440	3.07	180x115x200	125x90	8x12mm	10.1	20.39	36.67	34	63.6
BRH3-7/400/15	15	440	2.56	180x115x200	125x105	8x12mm	11	24.56	43.83	27.9	71.2
BRH3-7/400/20	20	440	1.92	240x110x215	175x85	8x15mm	14.5	32.63	58.33	14.6	79.6
BRH3-7/400/25	25	440	1.53	240x120x215	175x100	8x15mm	17	40.78	72.5	13	106
BRH3-7/400/30	30	440	1.28	240x130x215	175x115	8x15mm	21	49.01	87.5	8.5	127
BRH3-7/400/40	40	440	0.96	295x145x260	200x75	8x15mm	24.5	65.35	116.67	6.7	142
BRH3-7/400/50	50	440	0.77	295x155x260	200x125	8x15mm	26.5	81.68	145.83	4.7	179
BRH3-7/400/60	60	440	0.64	295x160x260	200x130	8x15mm	35	98	175	3.4	215
BRH3-7/400/70	70	440	0.54	295x180x260	200x140	8x15mm	41	120	215	2.7	232
BRH3-7/400/75	75	440	0.51	295x190x260	200x155	8x15mm	43	123	220	2.2	240
BRH3-7/400/80	80	440	0.48	350x170x325	250x100	12x20mm	46	130.4	233.33	2.6	256
BRH3-7/400/90	90	440	0.42	350x190x325	250x125	12x20mm	49	160	285	1.9	283
BRH3-7/400/100	100	440	0.38	350x190x325	250x125	12x20mm	50	163	293.33	1.8	293

Minimum 440V Capacitors should be used with these reactors



**DETUNED HARMONIC FILTERS AT 400V NETWORK P=14% ACCORDING TO SPEC EN60076-6**

Product code	Capacitor Power (kVAr)	Capacitor Voltage (V)	Reactor Inductance (mH)	Dimension (LxWxH) mm	Dimension (XxY) mm	Fixing Holes	Weight (kg)	I rms (A)	I lin (A)	R(mOhm)	Total Loss (W)
BRH1 14/400/5	5	480	16.5	177x90x152	90x68	7x12mm	6.7	7.7	10.1	170.2	60.1
BRH1 14/400/10	10	480	8.23	237x95x200	120x68	7x12mm	11.3	15.4	20.2	78.4	94.1
BRH1 14/400/12.5	12.5	480	6.45	237x105x200	120x78	7x12mm	15.9	19.2	25.3	52.7	121.2
BRH1 14/400/15	15	480	5.45	237x105x200	120x78	7x12mm	16.2	23.1	30.3	52.3	135.4
BRH1 14/400/20	20	480	4.08	298x137x245	260x86	7x12mm	19.8	30.8	40.4	32.2	136.4
BRH1 14/400/25	25	480	3.3	298x137x245	260x86	9x17mm	20.7	38.5	50.5	28.2	138.9
BRH1 14/400/30	30	480	2.75	298x156x245	260x105	9x17mm	31.4	46.2	60.6	16.8	168.7
BRH1 14/400/40	40	480	2.06	298x166x245	260x115	9x17mm	34.6	61.5	80.8	10.7	188.9
BRH1 14/400/50	50	480	1.66	358x166x300	200x102	9x17mm	42.8	76.9	101	10.06	280.8
BRH1 14/400/60	60	480	1.358	358x176x300	200x112	9x17mm	46.5	92.3	121.20	6.9	310.1
BRH1 14/400/70	70	480	1.164	358x196x300	200x132	9x17mm	56.5	107.7	141.40	4.95	327.6
BRH1 14/400/75	75	480	1.111	358x196x300	200x132	9x17mm	57.6	115.4	151.50	4.76	334
BRH1 14/400/80	80	480	1.018	415x200x350	240x122	13x20mm	61.7	123.0	161.60	4.26	389.2
BRH1 14/400/90	90	480	0.905	415x210x350	240x132	13x20mm	65.2	138.4	181.80	3.66	403.2
BRH1 14/400/100	100	480	0.815	415x210x350	240x132	13x20mm	68.5	153.8	202.0	3.51	429.2

Product code	Capacitor Power (kVAr)	Capacitor Voltage (V)	Reactor Inductance (mH)	Dimension (LxWxH) mm	Dimension (XxY) mm	Fixing Holes	Weight (kg)	I rms (A)	I lin (A)	R(mOhm)	Total Loss (W)
BRH3 14/400/5	5	480	16.6	180x135x200	125x90	8x12mm	8.5	7.65	11.67	192.7	49.5
BRH3 14/400/10	10	480	8.3	240x135x260	175x78	8x12mm	9.5	15.4	23.33	88.5	77.4
BRH3 14/400/12.5	12.5	480	6.63	240x134x260	175x78	8x12mm	11.9	19.21	29.25	77.8	99.4
BRH3 14/400/15	15	480	5.52	240x155x260	175x78	8x12mm	14.0	23.05	35.1	64.8	111
BRH3 14/400/20	20	480	4.15	260x160x247	200x95	8x15mm	21.3	30.8	47.5	28.8	114
BRH3 14/400/25	25	480	3.32	260x180x247	200x125	8x15mm	26.3	38.51	58.5	17.7	119
BRH3 14/400/30	30	480	2.76	300x180x252	200x110	8x15mm	31.5	46.22	70.83	11.7	138
BRH3 14/400/40	40	480	2.07	300x190x252	200x135	8x15mm	35.9	61.63	93.33	10.3	155
BRH3 14/400/50	50	480	1.66	300x200x252	200x145	8x15mm	40.0	77.03	116.67	6.8	230
BRH3 14/400/60	60	480	1.38	360x180x310	250x155	8x15mm	54.0	92.43	141.67	4.6	254
BRH3 14/400/70	70	480	1.18	360x180x310	250x155	8x15mm	65.0	107.83	165.28	3.9	269
BRH3 14/400/75	75	480	1.1	360x193x310	250x175	8x15mm	67.0	115.8	176.67	3.3	274
BRH3 14/400/80	80	480	1.03	360x200x310	250x185	12x20mm	69.0	123.52	201.9	3.09	319
BRH3 14/400/90	90	480	0.92	420x232x358	300x185	12x20mm	70.0	138.96	219.46	2.7	331
BRH3 14/400/100	100	480	0.83	420x232x358	300x185	12x20mm	72.0	154	225	2.1	352

Minimum 480V Capacitors should be used with these reactors