

# SCHWARZBECK MESS - ELEKTRONIK

An der Klinge 29 D-69250 Schönau Tel.: 06228/1001 Fax.: (49)6228/1003

## Helmholtz-Spulen HHS 5210-100

### Helmholtz Coils HHS 5210-100

#### Technische Daten:

Windungszahl (pro Spule):	100
Maximaler Spulenstrom:	15 A, 5 min.
Spulenstrom, nominell:	9 A continuous
Spulenabmessung, Innenmaß	1.0 m
Elektrische Kantenlänge:	1.04 m
Abmessungen:	1.15 m x 1.20 m x 0.75 m
Max. Spulenabstand:	0.70 m
Nutzbarer Frequenzbereich:	0 – 10 kHz
Induktivität (pro Spule):	31.3 mH
Wirkwiderstand (pro Spule):	2.8 $\Omega$
Resonanzfrequenz (Spulenpaar):	> 25 kHz
Gewicht:	36.5 kg

#### Specifications:

<i>Number of turns (per coil):</i>
<i>Maximum coil current:</i>
<i>Nominal coil current:</i>
<i>Inner side length of the coils:</i>
<i>Electrical side length of the coil:</i>
<i>Mechanical Dimensions:</i>
<i>Maximum Coil Separation:</i>
<i>Usable Frequency Range:</i>
<i>Inductance (per Coil):</i>
<i>Resistance (per Coil):</i>
<i>Resonant Frequency (Pair of Coils):</i>
<i>Weight:</i>

#### Folgende Angaben gelten für 0,4 m Spulenabstand:

Spulenabstand gem. IEC 1000-4-8	0.4 m
Max. Magn. Feldstärke:	2183 A/m, 5 min.
Magn. Nennfeldstärke:	1310 A/m continuous
Magn. Feldstärke bei 1 A	145.54 A/m
Spulenstrom:	(Coil Dist. 0.4 m)
Erforderlicher Strom für 1 A/m:	6.87 mA (Coil Dist. 0.4 m)

#### The following data is valid for 0.4 m coil distance:

<i>Coil Separation acc. IEC 1000-4-8:</i>
<i>Maximum Magnetic Field Strength:</i>
<i>Nominal Magnetic Field Strength:</i>
<i>Magnetic Fieldstrength, 1 A Coil</i>
<i>Current:</i>
<i>Current required for 1 A/m:</i>

#### Folgende Angaben gelten für 0,566 m Spulenabstand:

Spulenabstand für beste Feldhomogenität entlang einer Achse durch die Spulenmitten:	0.566 m
Magn. Feldstärke bei 1 A	124.66 A/m
Spulenstrom:	(Coil Dist. 0.566 m)
Erforderlicher Strom für 1 A/m:	8.02 mA (Coil Dist. 0.566 m)
Induktivität (Spulenpaar):	68.5 mH (Coil Dist. 0.566 m)

#### The following data is valid for 0.566 m coil distance:

<i>Coil Separation for best uniformity along an axes through the coil centers:</i>
<i>Magnetic Fieldstrength, 1 A Coil</i>
<i>Current:</i>
<i>Current required for 1 A/m:</i>
<i>Inductance (Coil pair):</i>



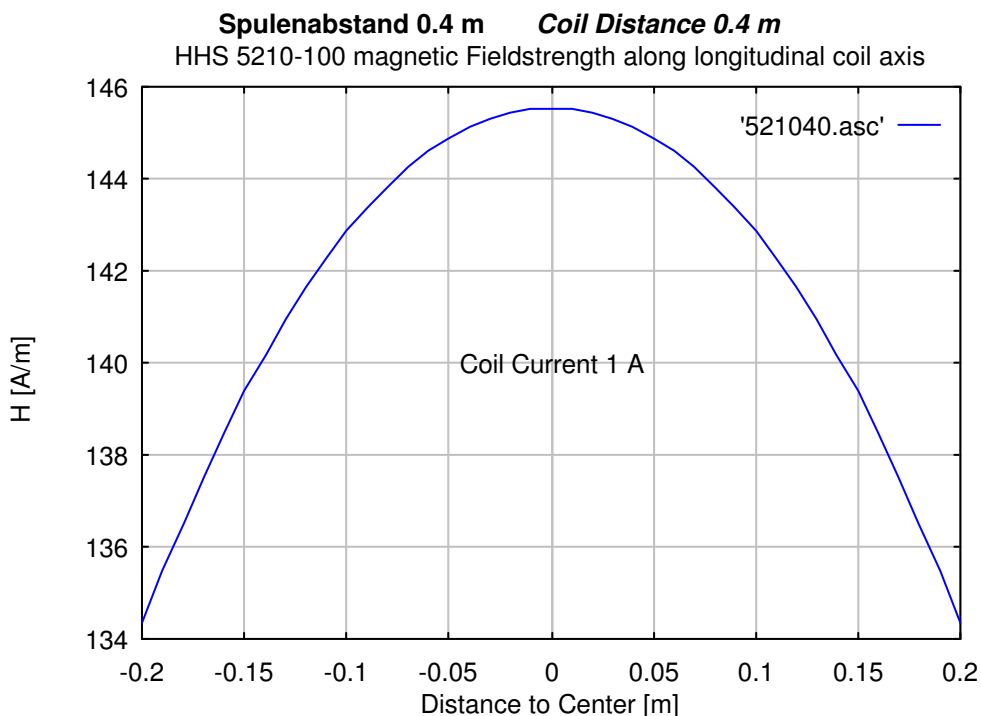
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HHS 5210-100 100 +100 Wdg. , Kantenlänge = 1.04 m, Spulenabstand <i>Coil Distance</i> 0.4 m, I = 1 Amp						
Längskomponente der magnetischen Feldstärke entlang der Spulenlängsachse						
<i>Magnet. Fieldstrength, longitudinal component along rotational axis</i>						
Abstand zur Spulenmitte [m]	H1[A/m]	H2[A/m]	Hges[A/m]	H1[dBµA/m]	H2[dBµA/m]	Hges [dBµA/m]
-0.20 (Center Coil 2)	47.7768	86.5689	134.3457	153.58	158.75	162.56
0.00 (Center Plane)	72.7699	72.7699	145.5398	157.24	157.24	163.26
0.01	73.9445	71.5690	145.5135	157.38	157.09	163.26
0.02	75.0892	70.3456	145.4349	157.51	156.94	163.25
0.03	76.2003	69.1031	145.3034	157.64	156.79	163.25
0.04	77.2740	67.8449	145.1189	157.76	156.63	163.23
0.05	78.3064	66.5742	144.8807	157.88	156.47	163.22
0.06	79.2939	65.2943	144.5882	157.98	156.30	163.20
0.07	80.2326	64.0081	144.2407	158.09	156.12	163.18
0.08	81.1189	62.7184	143.8372	158.18	155.95	163.16
0.09	81.9492	61.4278	143.3771	158.27	155.77	163.13
0.10	82.7202	60.1390	142.8592	158.35	155.58	163.10
0.11	83.4286	58.8541	142.2827	158.43	155.40	163.06
0.12	84.0713	57.5755	141.6468	158.49	155.20	163.02
0.13	84.6454	56.3051	140.9505	158.55	155.01	162.98
0.14	85.1485	55.0446	140.1932	158.60	154.81	162.93
0.15	85.5782	53.7960	139.3742	158.65	154.61	162.88
0.16	85.9326	52.5605	138.4931	158.68	154.41	162.83
0.17	86.2100	51.3397	137.5497	158.71	154.21	162.77
0.18	86.4090	50.1348	136.5438	158.73	154.00	162.71
0.19	86.5289	48.9468	135.4757	158.74	153.79	162.64
0.20 (Center Coil 1)	86.5689	47.7768	134.3457	158.75	153.58	162.56
<b>Spulenabstand 0.4 m</b>			<b>Coil Distance 0.4 m</b>			



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Längskomponente der magnetischen Feldstärke entlang der Spulenlängsachse						
<i>Magnet. Fieldstrength, longitudinal component along rotational axis</i>						
Abstand zur Spulenmitte [m]	H1[A/m]	H2[A/m]	Hges[A/m]	H1[dB $\mu$ A/m]	H2[dB $\mu$ A/m]	Hges [dB $\mu$ A/m]
0.00 (Center Plane)	62.3312	62.3312	124.6624	155.90	155.90	161.9
0.02	64.5231	60.1390	124.6621	156.19	155.58	161.91
0.04	67.0838	57.5755	124.6593	156.53	155.20	161.91
0.06	69.6022	55.0447	124.6468	156.85	154.81	161.91
0.08	72.0523	52.5605	124.6128	157.15	154.41	161.91
0.10	74.4062	50.1348	124.5410	157.43	154.00	161.91
0.12	76.6345	47.7768	124.4113	157.69	153.58	161.90
0.14	78.7070	45.4939	124.2009	157.92	153.16	161.88
0.16	80.5936	43.2915	123.8851	158.13	152.73	161.86
0.18	82.2649	41.1733	123.4382	158.30	152.29	161.83
0.20	83.6937	39.1416	122.8353	158.45	151.85	161.79
0.22	84.8553	37.1977	122.0530	158.57	151.41	161.73
0.24	85.7291	35.3416	121.0707	158.66	150.97	161.66
0.26	86.2990	33.5726	119.8716	158.72	150.52	161.57
0.28 (Center Coil 1)	86.5545	31.8892	118.4436	158.75	150.07	161.47
<b>Spulenabstand 0.566 m</b>			<b><i>Coil Distance 0.566 m</i></b>			

