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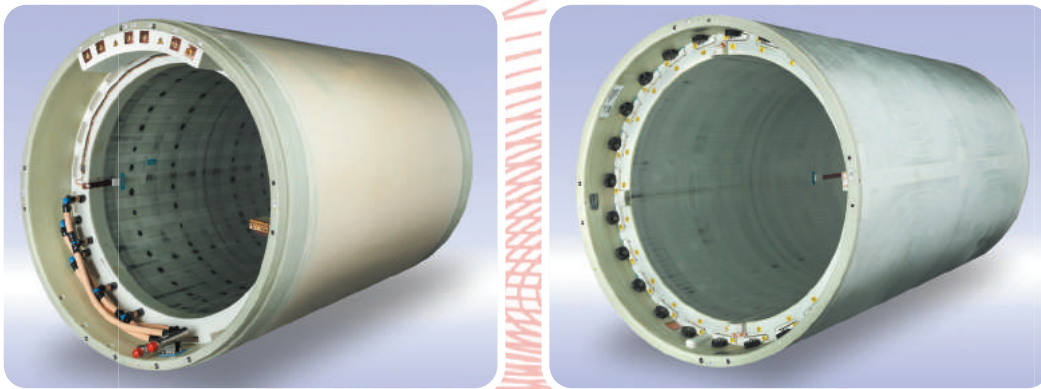
GRADIENT DIVISION

With over 30 years of experience in MRI, and over 18,000 gradient coils shipped, Tesla Engineering Ltd. is fully committed to design, supply and provide field support for whole body and pre-clinical gradient coils for new and existing systems, for commercial and research applications.

We have a whole range of state of the art designs of gradient coils for clinical imaging from value systems through to ultra wide bore and ultra high field MRI. We have products for virtually all magnet and amplifier combinations. New designs are quickly available on request.

Some examples of clinical gradient coils are shown below :-

Gradient Description	Unit	MFC7 MFC8 MFC9 MFC11 MFC19	MFC13 MFC21	MFC16	MFC18	MFC22	MFC25 MFC28 MFC29	HFC20
Internal diameter	mm	681	681	681	652	770	670	678
External diameter	mm	890	890	890	812	932	844	854
Suitable for magnet bore diameter	mm	> 900	> 900	> 900	> 820	> 940	> 850	> 882
Suitable for magnet field strength	T	3	3	3	3	3	3	3
Diameter of spherical imaging volume	mm	500	500	500	450	500	500	500
Gradient linearity (peak-to-peak)	%	< 10	< 10	< 10	< 7	< 13	< 10	< 13
Gradient sensitivity (each axis)	μT/m/A	> 61	> 51	> 58	> 68	> 55	> 55	> 53
Peak current I_{max}	A	630	650	630	630	850	630	850
Peak voltage V_{max}	V	900	900	900	2000	2000	900	1400
Peak gradient strength @ I_{max} per axis	mT/m	39	33	37	43	47	35	45
Peak linear Slew Rate (0-98%) @ V_{max}	T/m/s	> 130	> 144	> 150	> 225	> 200	> 132	> 240
Max DC current (3 axes simultaneously)	A	150	215	150	210	155	205	262
Steady state heat extraction	kW	6	8	5	16	9	11	13
Total number of shim channels (including gradient channels)	Number	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
Integrated Passive Shim Trays	Number	24	24	24	24	32	24	No
Integrated RF Screen		Optional	Optional	Optional	Optional	Optional	Optional	Optional

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