

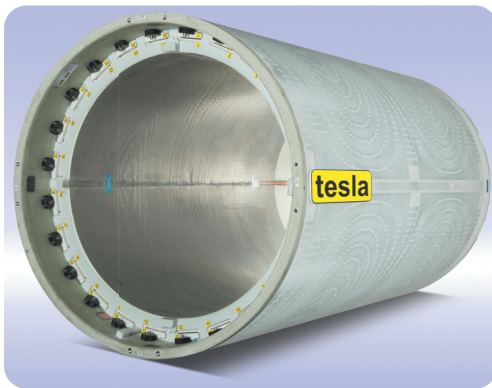


## GRADIENT DIVISION

# WHOLE BODY CLINICAL GRADIENT COILS

**Ultra-low eddy current signature, exceptional duty cycle and force balanced with main magnet**

With over 30 years of experience in MRI, and over 19,000 gradient coils shipped, Tesla Engineering Ltd. is fully committed to design, supply and 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	MFC22	MFC25	MFC36	HFC20	HFC22	HFC23	HFC24	HFC25
Internal diameter	mm	770	670	670	678	678	750	678	740
External diameter	mm	932	844	842	854	874	924	890	890
Suitable for magnet bore diameter	mm	> 940	> 850	> 850	> 882	> 880	> 930	> 900	> 900
Suitable for magnet field strength	T	3	3	3	3	3	3	3	3
Diameter of spherical imaging volume	mm	500	500	600	500	500	500	450	500
Gradient linearity (peak-to-peak)	%	< 13	< 10	< 13	< 12	< 28	< 32	< 11	< 27
Gradient sensitivity (each axis)	$\mu\text{T/m/A}$	> 55	> 55	> 58	> 60	> 70	> 64	> 99	> 45
Peak current $I_{\text{max}}$	A	850	630	700	850	700	900	900	1000
Peak voltage $V_{\text{max}}$	V	2000	900	1400	1400	1400	1400	2000	1850
Peak gradient strength @ $I_{\text{max}}$ per axis	mT/m	47	35	41	51	50	58	89	45
Peak linear Slew Rate (0-98%) @ $V_{\text{max}}$	T/m/s	> 200	> 132	> 204	> 220	> 217	> 200	> 200	> 244
Max DC current (3 axes simultaneously)	A	155	205	205	230	180	225	180	185
Steady state heat extraction	kW	9	11	13	20	8	15	18	13
Total number of shim channels (including gradient channels)	Number	$\leq 4$	$\leq 3$	$\leq 9$	$\leq 8$	$\leq 9$	$\leq 8$	$\leq 5$	$\leq 8$
Integrated Passive Shim Trays	Number	32	24	24	No	24	36	24	24
Integrated RF Screen		Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional



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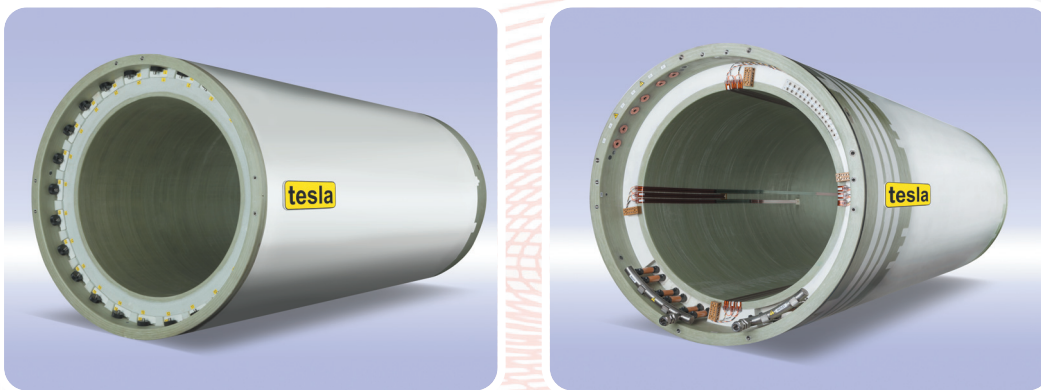


## GRADIENT DIVISION

# WHOLE BODY UHF GRADIENT COILS

**Ultra-low eddy current signature, exceptional duty cycle and force balanced with main magnet**

Tesla has extensive experience designing and making premium quality gradient coils for higher field MRI, with an impressive portfolio of the highest performance gradient coils for UHF MRI.



Tesla can provide upgrade gradient coils for existing UHF systems as well as new sites, and these coils can be customized to surpass the demanding requirements of cutting edge research projects, and best in class MRI professionals.

Some examples of UHF gradient coils are shown below :-

Gradient Description	Unit	HFC14	HFC16	HFC26
Internal diameter	mm	606	640	560
External diameter	mm	820	890	680
Suitable for magnet bore diameter	mm	> 830	> 900	> 700
Suitable for magnet field strength	T	9.4	7	11.7
Diameter of spherical imaging volume	mm	400	450	256
Gradient linearity (peak-to-peak)	%	< 20	< 7	< 7
Gradient sensitivity (each axis)	$\mu\text{T/m/A}$	> 95	> 102	> 112
Peak current $I_{\text{max}}$	A	900	833	900
Peak voltage $V_{\text{max}}$	V	2000	1800	1300
Peak gradient strength @ $I_{\text{max}}$ per axis	mT/m	85	85	> 101
Peak linear Slew Rate (0-98%) @ $V_{\text{max}}$	T/m/s	> 385	> 200	> 239
Max DC current (3 axes simultaneously)	A	225	235	110
Steady state heat extraction	kW	14.5	19	8.9
Total number of shim channels (including gradient channels)	Number	$\leq 17$	$\leq 15$	$\leq 16$
Integrated Passive Shim Trays	Number	No	24	No
Integrated RF Screen	Optional	Optional	Optional	Optional



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