

Simple-tune RF Small-Animal Imaging Platform

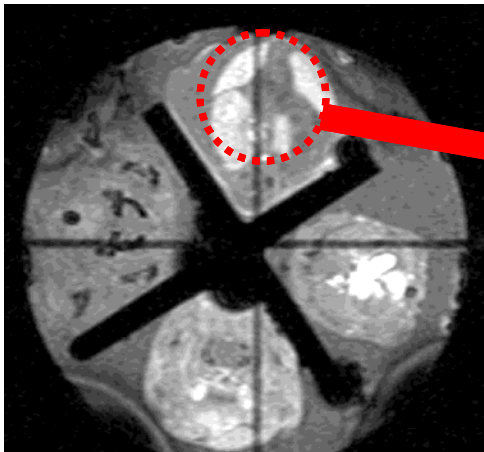
Prompt delivery of standard sizes.



Shown with CP *Litzcage* rf coil (removable rf shield not shown.) All standard sizes available to 500 MHz. Standard Coil Sizes 25 mm, 38 mm, 50 mm, 63 mm diameter.

Mouse Embryo – 50 micron isotropic resolution

Imaged @ 7T on a Doty Small Animal Imaging Platform – CP *Litzcage* coil with ID=25 mm and Length=22 mm



Versatile, Open, Robust, Economical

The CP *Litzcage* is semi-open and mounted on an almost transparent, short coil form. The removable rf shield tube allows for full access to the coil area.

The CP *Litzcage* rf coil has SNR typically 15% higher than that of conventional CP birdcages of similar dimensions. B_1 homogeneity is typically 10-30% better, and the coil has superior B_0 homogeneity.

Easy tuning

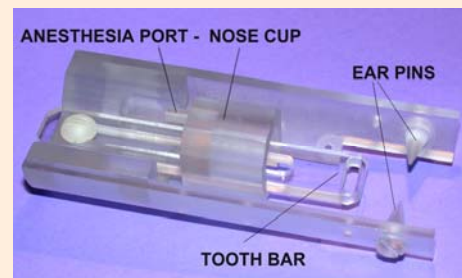
A unique symmetrizing circuit ensures the coil is easily tuned and matched to the full range of samples with negligible loss in efficiency, channel separation, or symmetry. Tuning range is an order of magnitude greater than with conventional birdcages and tuning methods.

Custom Coils Also Available

Single-tuned and double-tuned *Litz* coils can be used with the platform but they are less “open”. The *Litz* coil is mounted on an opaque substrate whereas the *Litzcage* is mounted on a semi-transparent form. The extra length of the *Litz* coil also makes access more limited.

Images courtesy of: Youssef Zaim Wadghiri, Amanda Schneider, Emily N. Gray, Orlando Aristizabal, Daniel H. Turnbull and David Gutstein - New York University

An adjustable head-holder is available for 38 mm coils. Equipped with an adjustable tooth bar and variable depth ear pins (which gently insert into the ear canals) adjustments are simple – yet the result is gentle, secure, immobilization of the head. Finally, the nose cup can be slid over the nose and attached to the anesthesia line.

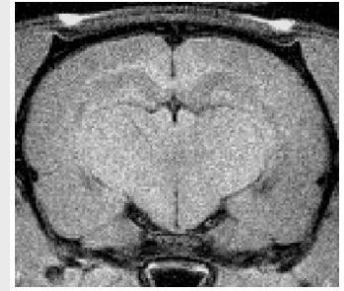


25 mm ID Litzcage on Small-Animal ¹H Imaging Platform					
Coil Length mm	Removable Shield Diameter cm	¹ H MHz	τ_{90} , μ S	Square pulse, Total Power, W	
				Unloaded	Heavy Load*
22	10	200	22	40	50
54	10	200	56	12	26
22	10	300	34	24	36
54	10	300	42	28	90
22	10	400	24	60	108
54	10	400	56	22	100
22	10	500	28	48	100
54	10	500	70	20	110

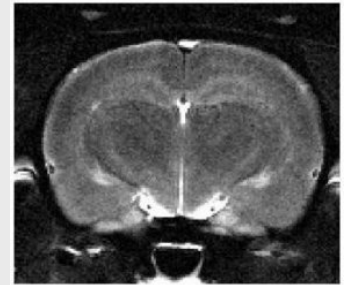
38 mm ID Litzcage on Small-Animal ¹H Imaging Platform					
Coil Length mm	Removable Shield Diameter cm	¹ H MHz	τ_{90} , μ S	Square pulse, Total Power, W	
				Unloaded	Heavy Load*
33	10	200	48	22	35
80	10	200	60	24	110
33	10	300	38	44	110
80	10	300	90	18	140
33	10	400	50	34	110
80	10	400	95	22	200
33	10	500	62	28	100
80	10	500	118	20	180

50 mm ID Litzcage on Small-Animal ¹H Imaging Platform					
Coil Length mm	Removable Shield Diameter cm	¹ H MHz	τ_{90} , μ S	Square pulse, Total Power, W	
				Unloaded	Heavy Load*
36	10	200	26	120	250
108	10	200	78	34	300
36	10	300	38	80	250
108	10	300	115	26	330
36	10	400	52	60	240
108	10	400	122	35	450
36	10	500	52	82	300
108	10	500	154	30	400

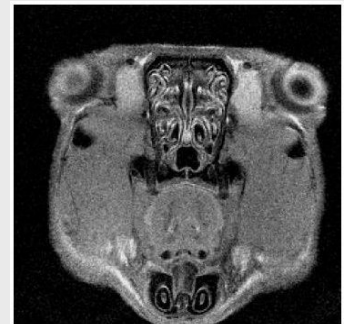
63 mm ID Litzcage on Small-Animal ¹H Imaging Platform					
Coil Length mm	Removable Shield Diameter cm	¹ H MHz	τ_{90} , μ S	Square pulse, Total Power, W	
				Unloaded	Heavy Load*
55	12	200	50	75	300
130	12	200	118	34	420
55	12	300	75	52	300
130	12	300	142	35	550
55	12	400	80	58	450
130	12	400	190	32	500
55	12	500	100	52	320
130	12	500	236	28	400



T1 Rat Brain



T2 Rat Brain



T2 Rat Head

These rat brain images were acquired using a 38 mm *Litzcage* at 200 MHz (on a Doty Small Animal Imaging Platform).

The animal was concurrently monitored with scalp EEG after a neuro-surgical procedure.

Image courtesy of:
Dr. Joel Garbow and
Dr. John Zempel,
Washington University,
St. Louis, Missouri.

*Note: A heavy load is a cylinder of 100 mM saline, 75% of coil ID, full rung length.