

EA132C

158 Kg 382 x 380 x 414 mm

Gap (mm)	Nominal (T)	Max. (T)
5	3.56	3.71
10	2.86	3.01
20	2.14	2.32
50	1.02	1.23
80	0.69	0.88

INTRODUCTION

The CAYLAR EA132C is an electromagnet with a variety of air gap and pole cap configurations ideal for material studies. Several options are available and custom modifications are possible.



Mechanical

Weight	158 Kg
Pole Gap	5 to 80 mm
Coil Spacing	>92 mm
Dimensions	382 x 380 x 414 mm

Coils in series

Nominal current ¹	100 A (5.5 kW - Max 6 kW)
Max continuous operating current	140 A (11 kW - Max 11.9 kW)
Water Cooling	8 L/min
Max coils surface temp.	45 °C
Overtemperature Interlock	70 °C (Inside coils)
Resistance @ 20 -70 °C	0.5 Ω - 0.6 Ω max
Inductance	Approx ~ 174 mH ±15 %

¹ **Nominal Current:** The nominal current is defined by a good ratio Power / Magnetic Field before too high saturation.

POWER SUPPLY

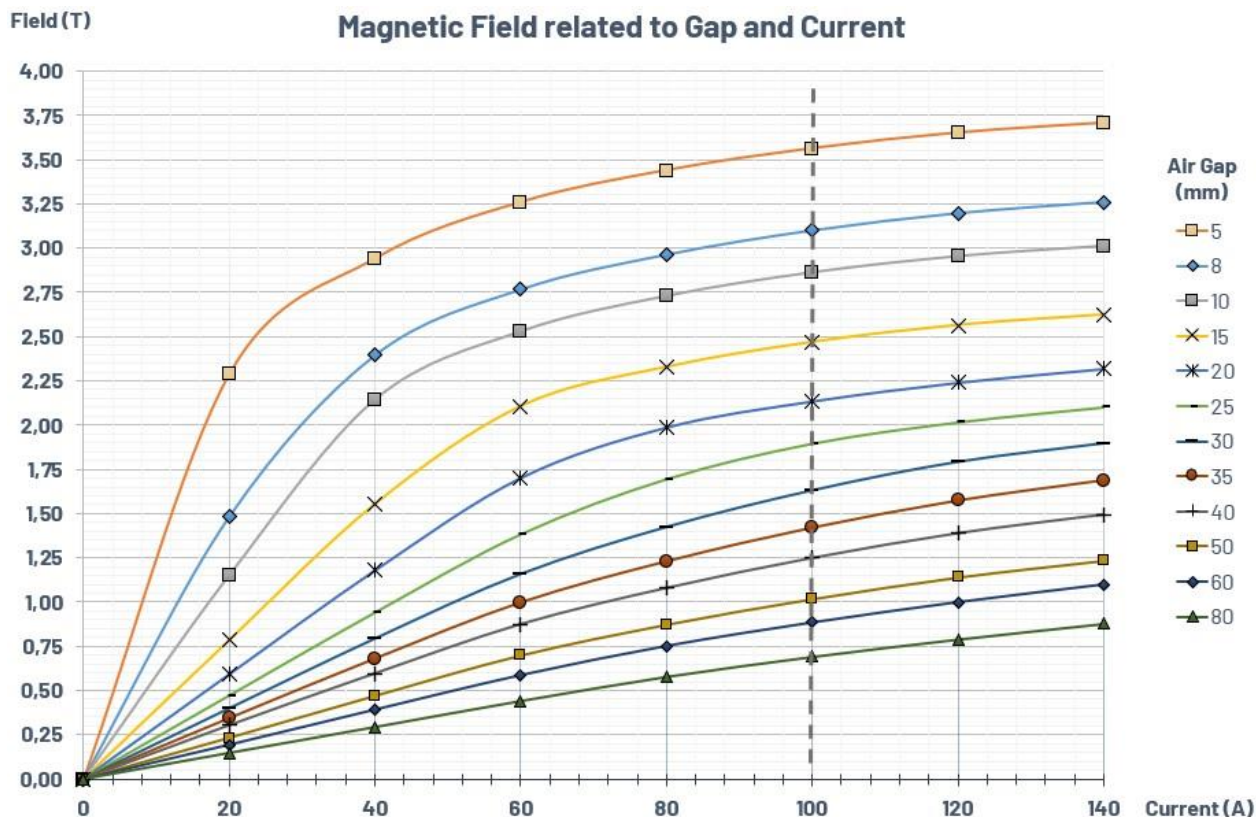
We recommend the **MPU-60V100A-4Q-10PPM**, ±100 A ±60 V 6 kW true 10 ppm bipolar 4-quadrant magnet power supply.

OPTIONS

- Special pole caps (cylindrical, conical, drilled poles etc.)
- Chassis, 45° or 90° base, table.
- Rotating base (manual / motorized)
- Custom coils adapted to a power supply
- Custom dimensions, coil space, taped holes...
- AC modulation coils
- Hall Regulation

APPLICATIONS

- Magneto-optical studies, MOKE
- Magnetic hysteresis studies
- Hall effect studies
- Susceptibility measurements
- Biological studies
- Vibrating Sample Magnetometer (VSM)
- Spin magnetic resonance, NMR
- EPR, ESR spectroscopy
- Ferromagnetic resonance spectroscopy (FMR)



Full data are available on our website

Magnetic fields and uniformities

Air Gap	Pole Face	B @ 60 A	Uniformity ¹	B @ 100 A	Uniformity ¹	B @ 120A	Uniformity ¹	B @ 140 A	Uniformity ¹
5 mm	10 mm	3.26 T	/	3.56 T	/	3.65 T	/	3.71 T	/
8 mm	12 mm	2.77 T	/	3.10 T	/	3.20 T	/	3.26 T	/
10 mm	20 mm	2.53 T	/	2.86 T	/	2.96 T	/	3.01 T	/
15 mm	30 mm	2.11 T	1.39 %	2.47 T	1.16 %	2.56 T	1.09 %	2.62 T	1.05 %
20 mm	40 mm	1.70 T	0.77 %	2.14 T	1.23 %	2.24 T	1.22 %	2.32 T	1.21 %
25 mm	45 mm	1.38 T	0.75 %	1.90 T	1.12 %	2.02 T	1.16 %	2.10 T	1.15 %
30 mm	60 mm	1.16 T	0.26 %	1.63 T	0.36 %	1.79 T	0.43 %	1.90 T	0.52 %
35 mm	70 mm	1.00 T	0.19 %	1.42 T	0.25 %	1.57 T	0.28 %	1.69 T	0.32 %
40 mm	80 mm	0.87 T	0.14 %	1.25 T	0.17 %	1.39 T	0.19 %	1.49 T	0.21 %
50 mm	95 mm	0.70 T	0.18 %	1.02 T	0.16 %	1.14 T	0.16 %	1.23 T	0.18 %
60 mm	95 mm	0.59 T	0.28 %	0.88 T	0.25 %	1.00 T	0.25 %	1.10 T	0.26 %
80 mm	105 mm	0.44 T	0.35 %	0.69 T	0.34 %	0.79 T	0.33 %	0.88 T	0.33 %

¹ **Uniformity volume:** In a cylinder 1 cm high and 1 cm in diameter (coaxial with poles)
 <5 % of error on magnetic field value and uniformity

MAGNETIC FIELD DATA

¹ Normal power: It is the normal power in optimal cooling

² Power @ max temp.: Maximum power at the limit (overtemperature interlock switch)

³ Uniformity volume: In a cylinder 1cm high and 1cm in diameter (coaxial with poles)

⁴ Uniformity surface in 1cm in diameter (coaxial with poles)

5 mm Gap / 10 mm Pole face diameter

Current	Magnetic Field	Normal Power ¹	Power @max temp. ²	Uniformity volume ³	Uniformity surface ⁴
0 A	0.00 T	0.0 W	0.0 W	nc	nc
20 A	2.29 T	220.8 W	240.9 W	nc	nc
40 A	2.94 T	883.3 W	963.6 W	nc	nc
60 A	3.26 T	1987.4 W	2168.1 W	nc	nc
80 A	3.44 T	3533.2 W	3854.4 W	nc	nc
100 A	3.56 T	5520.6 W	6022.5 W	nc	nc
120 A	3.65 T	7949.7 W	8672.4 W	nc	nc
140 A	3.71 T	10820.4 W	11804.1 W	nc	nc

8 mm Gap / 12 mm Pole face diameter

Current	Magnetic Field	Normal Power ¹	Power @max temp. ²	Uniformity volume ³	Uniformity surface ⁴
0 A	0.00 T	0.0 W	0.0 W	nc	nc
20 A	1.48 T	220.8 W	240.9 W	nc	nc
40 A	2.40 T	883.3 W	963.6 W	nc	nc
60 A	2.77 T	1987.4 W	2168.1 W	nc	nc
80 A	2.96 T	3533.2 W	3854.4 W	nc	nc
100 A	3.10 T	5520.6 W	6022.5 W	nc	nc
120 A	3.20 T	7949.7 W	8672.4 W	nc	nc
140 A	3.26 T	10820.4 W	11804.1 W	nc	nc

10 mm Gap / 20 mm Pole face diameter

Current	Magnetic Field	Normal Power ¹	Power @max temp. ²	Uniformity volume ³	Uniformity surface ⁴
0 A	0.00 T	0.0 W	0.0 W	nc	nc
20 A	1.15 T	220.8 W	240.9 W	nc	nc
40 A	2.15 T	883.3 W	963.6 W	nc	nc
60 A	2.53 T	1987.4 W	2168.1 W	nc	nc
80 A	2.73 T	3533.2 W	3854.4 W	nc	nc
100 A	2.86 T	5520.6 W	6022.5 W	nc	nc
120 A	2.96 T	7949.7 W	8672.4 W	nc	nc
140 A	3.01 T	10820.4 W	11804.1 W	nc	nc

15 mm Gap / 30 mm Pole face diameter

Current	Magnetic Field	Normal Power ¹	Power @max temp. ²	Uniformity volume ³	Uniformity surface ⁴
0 A	0.00 T	0.0 W	0.0 W	0.00 %	0.00 %
20 A	0.79 T	220.8 W	240.9 W	0.85 %	0.16 %
40 A	1.55 T	883.3 W	963.6 W	0.89 %	0.25 %
60 A	2.11 T	1987.4 W	2168.1 W	1.39 %	0.56 %
80 A	2.33 T	3533.2 W	3854.4 W	1.27 %	0.53 %
100 A	2.47 T	5520.6 W	6022.5 W	1.16 %	0.48 %
120 A	2.56 T	7949.7 W	8672.4 W	1.09 %	0.46 %
140 A	2.62 T	10820.4 W	11804.1 W	1.05 %	0.44 %

20 mm Gap / 40 mm Pole face diameter

Current	Magnetic Field	Normal Power ¹	Power @max temp. ²	Uniformity volume ³	Uniformity surface ⁴
0 A	0.00 T	0.0 W	0.0 W	0.00 %	0.00 %
20 A	0.59 T	220.8 W	240.9 W	0.31 %	0.11 %
40 A	1.18 T	883.3 W	963.6 W	0.42 %	0.16 %
60 A	1.70 T	1987.4 W	2168.1 W	0.77 %	0.30 %
80 A	1.99 T	3533.2 W	3854.4 W	1.22 %	0.49 %
100 A	2.14 T	5520.6 W	6022.5 W	1.23 %	0.49 %
120 A	2.24 T	7949.7 W	8672.4 W	1.22 %	0.48 %
140 A	2.32 T	10820.4 W	11804.1 W	1.21 %	0.47 %

25 mm Gap / 45 mm Pole face diameter

Current	Magnetic Field	Normal Power ¹	Power @max temp. ²	Uniformity volume ³	Uniformity surface ⁴
0 A	0.00 T	0.0 W	0.0 W	0.00 %	0.00 %
20 A	0.47 T	220.8 W	240.9 W	0.65 %	0.24 %
40 A	0.94 T	883.3 W	963.6 W	0.72 %	0.27 %
60 A	1.38 T	1987.4 W	2168.1 W	0.75 %	0.28 %
80 A	1.70 T	3533.2 W	3854.4 W	0.89 %	0.33 %
100 A	1.90 T	5520.6 W	6022.5 W	1.12 %	0.41 %
120 A	2.02 T	7949.7 W	8672.4 W	1.16 %	0.42 %
140 A	2.10 T	10820.4 W	11804.1 W	1.15 %	0.42 %

30 mm Gap / 60 mm Pole face diameter

Current	Magnetic Field	Normal Power ¹	Power @max temp. ²	Uniformity volume ³	Uniformity surface ⁴
0 A	0.00 T	0.0 W	0.0 W	0.00 %	0.00 %
20 A	0.40 T	220.8 W	240.9 W	0.12 %	0.05 %
40 A	0.79 T	883.3 W	963.6 W	0.23 %	0.09 %
60 A	1.16 T	1987.4 W	2168.1 W	0.26 %	0.10 %
80 A	1.42 T	3533.2 W	3854.4 W	0.30 %	0.11 %
100 A	1.63 T	5520.6 W	6022.5 W	0.36 %	0.14 %
120 A	1.79 T	7949.7 W	8672.4 W	0.43 %	0.16 %
140 A	1.90 T	10820.4 W	11804.1 W	0.52 %	0.19 %

35 mm Gap / 70 mm Pole face diameter

Current	Magnetic Field	Normal Power ¹	Power @max temp. ²	Uniformity volume ³	Uniformity surface ⁴
0 A	0.00 T	0.0 W	0.0 W	0.00 %	0.00 %
20 A	0.34 T	220.8 W	240.9 W	0.10 %	0.04 %
40 A	0.68 T	883.3 W	963.6 W	0.17 %	0.07 %
60 A	1.00 T	1987.4 W	2168.1 W	0.19 %	0.07 %
80 A	1.23 T	3533.2 W	3854.4 W	0.22 %	0.08 %
100 A	1.42 T	5520.6 W	6022.5 W	0.25 %	0.10 %
120 A	1.57 T	7949.7 W	8672.4 W	0.28 %	0.11 %
140 A	1.69 T	10820.4 W	11804.1 W	0.32 %	0.12 %

40 mm Gap / 80 mm Pole face diameter

Current	Magnetic Field	Normal Power ¹	Power @max temp. ²	Uniformity volume ³	Uniformity surface ⁴
0 A	0.00 T	0.0 W	0.0 W	0.00 %	0.00 %
20 A	0.30 T	220.8 W	240.9 W	0.06 %	0.02 %
40 A	0.60 T	883.3 W	963.6 W	0.13 %	0.05 %
60 A	0.87 T	1987.4 W	2168.1 W	0.14 %	0.06 %
80 A	1.08 T	3533.2 W	3854.4 W	0.16 %	0.07 %
100 A	1.25 T	5520.6 W	6022.5 W	0.17 %	0.07 %
120 A	1.39 T	7949.7 W	8672.4 W	0.19 %	0.08 %
140 A	1.49 T	10820.4 W	11804.1 W	0.21 %	0.09 %

50 mm Gap / 95 mm Pole face diameter

Current	Magnetic Field	Normal Power*	Power @max temp. *	Uniformity volume*	Uniformity surface*
0 A	0.00 T	0.0 W	0.0 W	0.00 %	0.00 %
20 A	0.23 T	220.8 W	240.9 W	0.30 %	0.11 %
40 A	0.47 T	883.3 W	963.6 W	0.22 %	0.08 %
60 A	0.70 T	1987.4 W	2168.1 W	0.18 %	0.07 %
80 A	0.87 T	3533.2 W	3854.4 W	0.17 %	0.07 %
100 A	1.02 T	5520.6 W	6022.5 W	0.16 %	0.07 %
120 A	1.14 T	7949.7 W	8672.4 W	0.16 %	0.07 %
140 A	1.23 T	10820.4 W	11804.1 W	0.18 %	0.08 %

60 mm Gap / 95 mm Pole face diameter

Current	Magnetic Field	Normal Power*	Power @max temp. *	Uniformity volume*	Uniformity surface*
0 A	0.00 T	0.0 W	0.0 W	0.00 %	0.00 %
20 A	0.19 T	220.8 W	240.9 W	0.41 %	0.14 %
40 A	0.39 T	883.3 W	963.6 W	0.32 %	0.12 %
60 A	0.59 T	1987.4 W	2168.1 W	0.28 %	0.11 %
80 A	0.75 T	3533.2 W	3854.4 W	0.26 %	0.10 %
100 A	0.88 T	5520.6 W	6022.5 W	0.25 %	0.10 %
120 A	1.00 T	7949.7 W	8672.4 W	0.25 %	0.10 %
140 A	1.10 T	10820.4 W	11804.1 W	0.26 %	0.11 %

80 mm Gap / 105 mm Pole face diameter

Current	Magnetic Field	Normal Power*	Power @max temp. *	Uniformity volume*	Uniformity surface*
0 A	0.00 T	0.0 W	0.0 W	0.00 %	0.00 %
20 A	0.15 T	220.8 W	240.9 W	0.40 %	0.14 %
40 A	0.29 T	883.3 W	963.6 W	0.37 %	0.14 %
60 A	0.44 T	1987.4 W	2168.1 W	0.35 %	0.13 %
80 A	0.58 T	3533.2 W	3854.4 W	0.35 %	0.13 %
100 A	0.69 T	5520.6 W	6022.5 W	0.34 %	0.13 %
120 A	0.79 T	7949.7 W	8672.4 W	0.33 %	0.13 %
140 A	0.88 T	10820.4 W	11804.1 W	0.33 %	0.13 %