

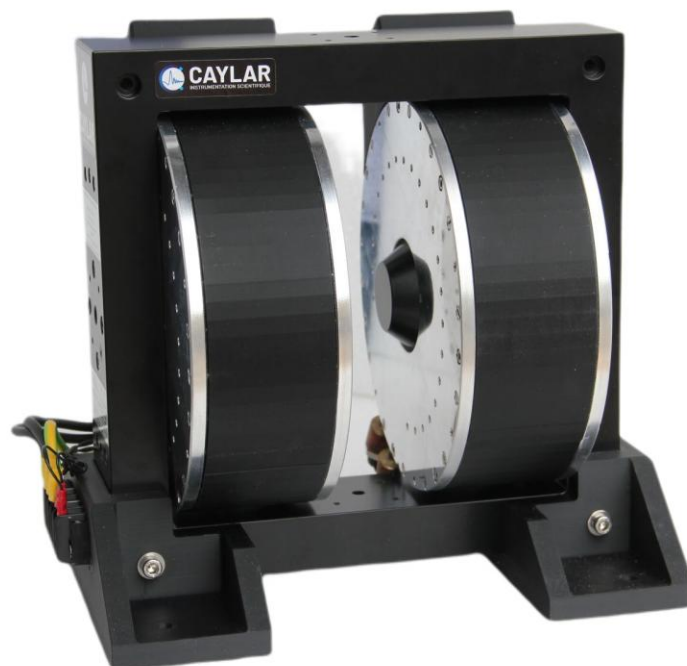
EA50H

27 Kg 200 x 250 x 228 mm

Gap (mm)	Nominal (T)
5	2.37
10	1.66
20	0.98
50	0.44

INTRODUCTION

The CAYLAR EA50H is a small H- frame 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	27 Kg
Pole Gap	5 to 50 mm
Coil Spacing	>43 mm
Dimensions	200 x 250 x 228 mm

Coils in series

Max continuous operating current	25 A (0.6 kW - Max 0.8 kW)
Max peak operating current	30 A (0.9 kW - Max 1.14 kW)
Water Cooling	4 L/min
Max coils surface temp.	45 °C
Overtemperature Interlock	70 °C (Inside coils)
Resistance @ 20 -70°C	1.05 Ω - 1.27 Ω max
Inductance	Approx ~ 156 mH ±15 %

POWER SUPPLY

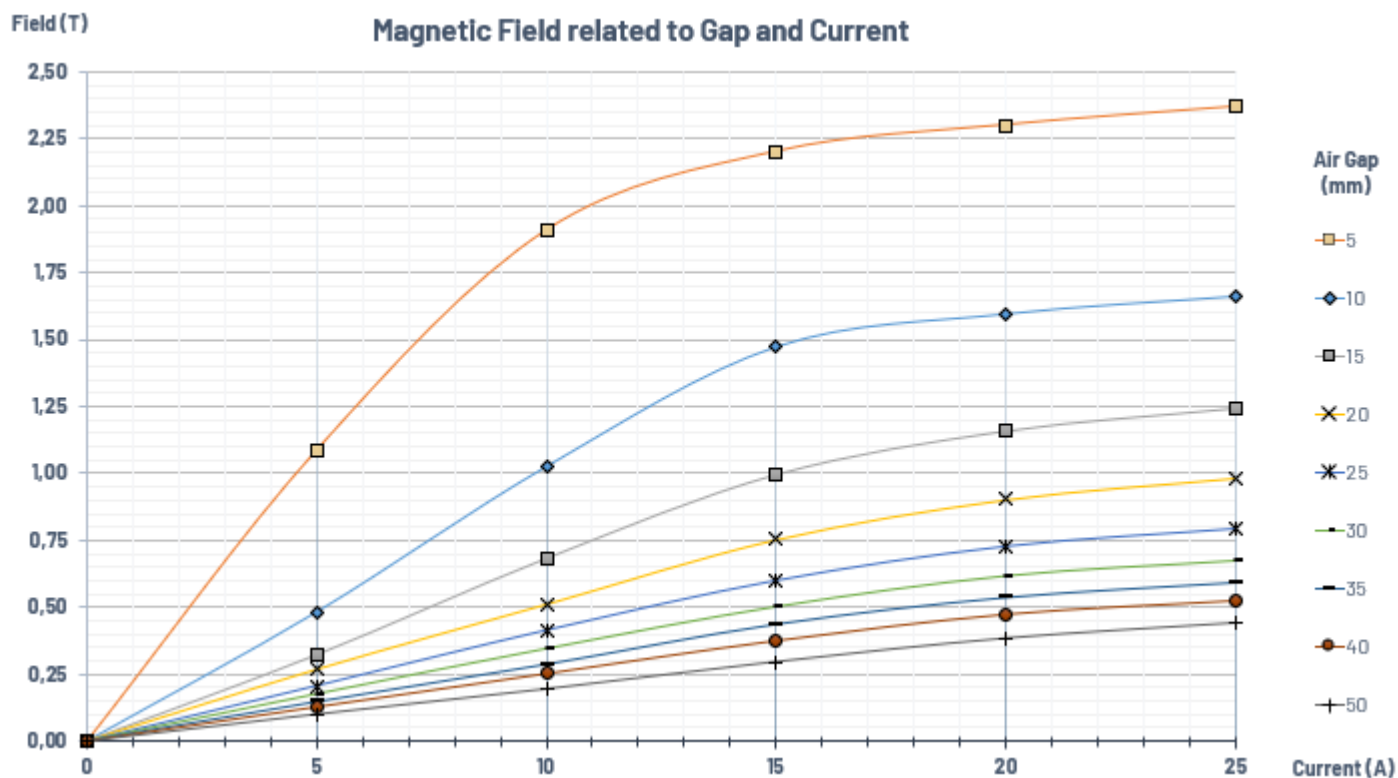
We recommend a $\pm 90A \pm 20V$ 1.5 kW bipolar 4-quadrant magnet power supply.

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

APPLICATIONS

- Magneto-optical studies, MOKE
- Magnetic hysteresis studies
- Hall effect studies
- Biological studies



Full data are available on our website

Magnetic fields and uniformities							
Air Gap	Pole Face	B@ 5 A	Uniformity ¹	B @ 15 A	Uniformity ¹	B @ 25 A	Uniformity ¹
5 mm	12 mm	1.09 T	/	2.20 T	/	2.37 T	/
10 mm	15 mm	0.48 T	/	1.47 T	/	1.66 T	/
15 mm	22 mm	0.32 T	1.10 %	1.00 T	1.84 %	1.25 T	1.91 %
20 mm	25 mm	0.27 T	2.48 %	0.75 T	1.78 %	0.98 T	1.76 %
25 mm	30 mm	0.21 T	1.67 %	0.60 T	1.27 %	0.79 T	1.24 %
30 mm	38 mm	0.18 T	0.91 %	0.50 T	0.85 %	0.67 T	0.84 %
35 mm	40 mm	0.15 T	0.89 %	0.44 T	0.86 %	0.59 T	0.88 %
40 mm	45 mm	0.13 T	0.72 %	0.38 T	0.75 %	0.53 T	0.00 %
50 mm	50 mm	0.10 T	0.00 %	0.29 T	0.00 %	0.44 T	0.00 %

¹Uniformity volume: In a cylinder **0.5 cm high and 0.5 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 **0.5 cm high and 0.5 cm** in diameter (coaxial with poles)

⁴ Uniformity surface in **0.5 cm in diameter** (coaxial with poles)

5 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
5 A	1.09 T	26.4 W	31.6 W	nc	nc
10 A	1.91 T	105.4 W	126.5 W	nc	nc
15 A	2.20 T	237.2 W	284.7 W	nc	nc
20 A	2.30 T	421.7 W	506.1 W	nc	nc
25 A	2.37 T	658.9 W	790.7 W	nc	nc

10 mm Gap / 15 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
5 A	0.48 T	26.4 W	31.6 W	nc	nc
10 A	1.02 T	105.4 W	126.5 W	nc	nc
15 A	1.47 T	237.2 W	284.7 W	nc	nc
20 A	1.59 T	421.7 W	506.1 W	nc	nc
25 A	1.66 T	658.9 W	790.7 W	nc	nc

15 mm Gap / 22 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 %	nc
5 A	0.32 T	26.4 W	31.6 W	1.10 %	nc
10 A	0.68 T	105.4 W	126.5 W	1.50 %	nc
15 A	1.00 T	237.2 W	284.7 W	1.84 %	nc
20 A	1.16 T	421.7 W	506.1 W	1.82 %	nc
25 A	1.25 T	658.9 W	790.7 W	1.91 %	nc

20 mm Gap / 25 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 %	nc
5 A	0.27 T	26.4 W	31.6 W	2.48 %	nc
10 A	0.51 T	105.4 W	126.5 W	2.12 %	nc
15 A	0.75 T	237.2 W	284.7 W	1.78 %	nc
20 A	0.90 T	421.7 W	506.1 W	1.73 %	nc
25 A	0.98 T	658.9 W	790.7 W	1.76 %	nc

25 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 %	nc
5 A	0.21 T	26.4 W	31.6 W	1.67 %	nc
10 A	0.41 T	105.4 W	126.5 W	1.34 %	nc
15 A	0.60 T	237.2 W	284.7 W	1.27 %	nc
20 A	0.72 T	421.7 W	506.1 W	1.24 %	nc
25 A	0.79 T	658.9 W	790.7 W	1.24 %	nc

30 mm Gap / 38 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 %	nc
5 A	0.18 T	26.4 W	31.6 W	0.91 %	nc
10 A	0.34 T	105.4 W	126.5 W	0.86 %	nc
15 A	0.50 T	237.2 W	284.7 W	0.85 %	nc
20 A	0.61 T	421.7 W	506.1 W	0.85 %	nc
25 A	0.67 T	658.9 W	790.7 W	0.84 %	nc

35 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 %	nc
5 A	0.15 T	26.4 W	31.6 W	0.89 %	nc
10 A	0.29 T	105.4 W	126.5 W	0.84 %	nc
15 A	0.44 T	237.2 W	284.7 W	0.86 %	nc
20 A	0.54 T	421.7 W	506.1 W	0.88 %	nc
25 A	0.59 T	658.9 W	790.7 W	0.88 %	nc

40 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 %	nc
5 A	0.13 T	26.4 W	31.6 W	0.72 %	nc
10 A	0.25 T	105.4 W	126.5 W	0.74 %	nc
15 A	0.38 T	237.2 W	284.7 W	0.75 %	nc
20 A	0.47 T	421.7 W	506.1 W	0.75 %	nc
25 A	0.53 T	658.9 W	790.7 W	0.75 %	nc

50 mm Gap / 50 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 %	nc
5 A	0.10 T	26.4 W	31.6 W	0.72 %	nc
10 A	0.19 T	105.4 W	126.5 W	0.74 %	nc
15 A	0.29 T	237.2 W	284.7 W	0.75 %	nc
20 A	0.38 T	421.7 W	506.1 W	0.75 %	nc
25 A	0.44 T	658.9 W	790.7 W	0.88 %	nc