

EA73C

34 Kg 278 x 225 x 233 mm

Gap (mm)	Nominal (T)	Max. (T)
5	2.68	2.82
10	1.94	2.07
20	1.17	1.36
50	0.48	0.59

INTRODUCTION

The CAYLAR EA73C is a C 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	34 Kg
Pole Gap	5 to 50 mm
Coil Spacing	>65 mm
Dimensions	278 x 225 x 233 mm

Coils in series	
Nominal current ¹	90 A (1.1 kW - Max 1.3 kW)
Max continuous operating current	120 A (1.9 kW - Max 2.3 kW)
Water Cooling	4 L/min
Max coils surface temp.	45 °C
Overtemperature Interlock	70 °C (Inside coils)
Resistance @ 20 -70°C	0.14 Ω - 0.17 Ω max
Inductance	Approx ~ 25 mH ±15 %

POWER SUPPLY

We recommend a ± 90 A ± 20 V 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

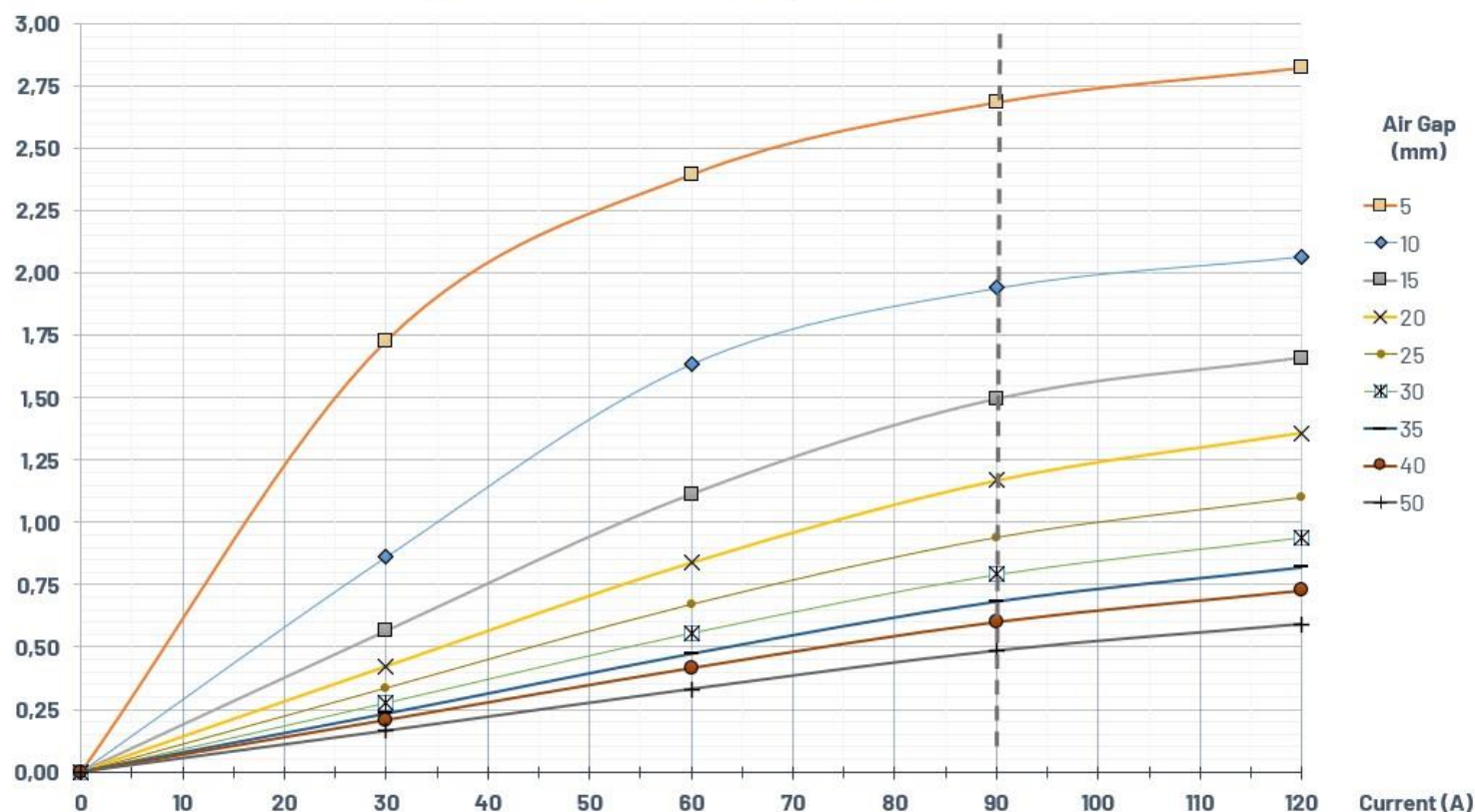
APPLICATIONS

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

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

Field (T)

Magnetic Field related to Gap and Current



Full data are available on our website

Magnetic fields and uniformities

Air Gap	Pole Face	B@ 60 A	Uniformity ¹	B @ 90 A	Uniformity ¹	B @ 120 A	Uniformity ¹
5 mm	7 mm	2.40 T	/	2.68 T	/	2.82 T	/
10 mm	20 mm	1.64 T	/	1.94 T	/	2.07 T	/
15 mm	22 mm	1.11 T	8.00 %	1.49 T	8.63 %	1.66 T	9.01 %
20 mm	25 mm	0.84 T	6.83 %	1.17 T	6.31 %	1.36 T	7.36 %
25 mm	30 mm	0.67 T	4.84 %	0.94 T	4.27 %	1.10 T	4.43 %
30 mm	38 mm	0.56 T	3.19 %	0.79 T	2.78 %	0.94 T	2.82 %
35 mm	42 mm	0.47 T	2.78 %	0.68 T	2.45 %	0.82 T	2.48 %
40 mm	48 mm	0.42 T	2.08 %	0.60 T	2.02 %	0.73 T	2.02 %
50 mm	60 mm	0.33 T	1.46 %	0.48 T	1.47 %	0.59 T	1.49 %

¹Uniformity 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 / 7 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
30 A	1.73 T	122.1 W	146.5 W	nc	nc
60 A	2.40 T	488.5 W	586.2 W	nc	nc
90 A	2.68 T	1099.1 W	1318.9 W	nc	nc
120 A	2.82 T	1953.9 W	2344.6 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
30 A	0.86 T	122.1 W	146.5 W	nc	nc
60 A	1.64 T	488.5 W	586.2 W	nc	nc
90 A	1.94 T	1099.1 W	1318.9 W	nc	nc
120 A	2.07 T	1953.9 W	2344.6 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
30 A	0.56 T	122.1 W	146.5 W	8.09 %	nc
60 A	1.11 T	488.5 W	586.2 W	8.00 %	nc
90 A	1.49 T	1099.1 W	1318.9 W	8.63 %	nc
120 A	1.66 T	1953.9 W	2344.6 W	9.01 %	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
30 A	0.42 T	122.1 W	146.5 W	6.68 %	nc
60 A	0.84 T	488.5 W	586.2 W	6.83 %	nc
90 A	1.17 T	1099.1 W	1318.9 W	6.31 %	nc
120 A	1.36 T	1953.9 W	2344.6 W	7.36 %	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
30 A	0.34 T	122.1 W	146.5 W	6.68 %	nc
60 A	0.67 T	488.5 W	586.2 W	6.83 %	nc
90 A	0.94 T	1099.1 W	1318.9 W	6.31 %	nc
120 A	1.10 T	1953.9 W	2344.6 W	7.36 %	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
30 A	0.28 T	122.1 W	146.5 W	4.96 %	nc
60 A	0.56 T	488.5 W	586.2 W	4.84 %	nc
90 A	0.79 T	1099.1 W	1318.9 W	4.27 %	nc
120 A	0.94 T	1953.9 W	2344.6 W	4.43 %	nc

35 mm Gap / 42 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
30 A	0.23 T	122.1 W	146.5 W	2.30 %	nc
60 A	0.47 T	488.5 W	586.2 W	2.78 %	nc
90 A	0.68 T	1099.1 W	1318.9 W	2.45 %	nc
120 A	0.82 T	1953.9 W	2344.6 W	2.48 %	nc

40 mm Gap / 48 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
30 A	0.21 T	122.1 W	146.5 W	2.07 %	nc
60 A	0.42 T	488.5 W	586.2 W	2.08 %	nc
90 A	0.60 T	1099.1 W	1318.9 W	2.02 %	nc
120 A	0.73 T	1953.9 W	2344.6 W	2.02 %	nc

50 mm Gap / 60 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
30 A	0.16 T	122.1 W	146.5 W	1.87 %	nc
60 A	0.33 T	488.5 W	586.2 W	1.46 %	nc
90 A	0.48 T	1099.1 W	1318.9 W	1.47 %	nc
120 A	0.59 T	1953.9 W	2344.6 W	1.49 %	nc