



MAGNETISiM

Create Core

GUI Overview

TAB MENU

Core Geometry Tab (Ctrl+1)

Winding Geometry Tab (Ctrl+2)

Sim Config Tab (Ctrl+3)

Magnet Tab (Ctrl+4)

INPUT FRAME

The screenshot displays the MAGNETISiM software interface. At the top, there is a menu bar with 'File', 'Edit', 'Tool', and 'Help'. Below the menu bar is a vertical 'TAB MENU' on the left side, containing four icons: a core geometry icon, a winding geometry icon, a gear icon, and a magnet icon. The main area is divided into two panes. The left pane is the 'INPUT FRAME', which is currently showing the 'Core Geometry' tab. It contains several dropdown menus for 'Manufacturer' and 'Core Reference', and a series of input fields for dimensions: A [mm], B [mm], Bp [mm], C [mm], Cp [mm], D [mm], E [mm], F [mm], G [mm], I [mm], and Gap [mm]. Below these is the 'Core Material' section, which includes a 'Material' dropdown, four tabs for 'Magnet', 'Power Loss', 'Electrical', and 'Thermal', and input fields for 'Real Permeability', 'Imag Permeability', and 'Conductivity'. There is also a button to 'Add Permeability(f) Curve' and a checkbox for 'Permeability(f) from Internal-Database'. The right pane is the 'MODELER WINDOW', which is currently showing a 2D plot with a grid. The plot has axes ranging from -0.6 to 0.6 on the x-axis and -0.9 to 0.9 on the y-axis. At the bottom of the plot area, there are three buttons: 'Export', 'Refresh Plot', and 'Fit All'. A 'BAR TOOL' is indicated by a line pointing to the top right corner of the window.

BAR TOOL

MODELER WINDOW

Core Geometry Selection

1 Core Geometry

Manufacturer: Select Manufacturer

Geometry Core: Select Manufacturer

Core Reference: Select Manufacturer

2 Core Geometry

Manufacturer: Ferroxcube

Geometry Core: Select Geometry Core

Core Reference: Select Geometry Core

3 Core Geometry

Manufacturer: Ferroxcube

Geometry Core: E

Core Reference: Select RefCore

- 1 Select the **manufacturer** from the menu (e.g., Ferroxcube).
- 2 Select the core **geometry** (e.g., the "E" model).
- 3 Select the core **reference** (e.g., E19/8/9).
- 4 The system **automatically** loads the core parameters from the built-in database.

4 Core Geometry

Manufacturer: Ferroxcube

Geometry Core: E

Core Reference: E19/8/9

A [mm]: 19.05

B [mm]: 14.33

C [mm]: 4.75

D [mm]: 8.05

E [mm]: 5.69

F [mm]: 8.71

Gap [mm]: 0

Basic definition of the cores

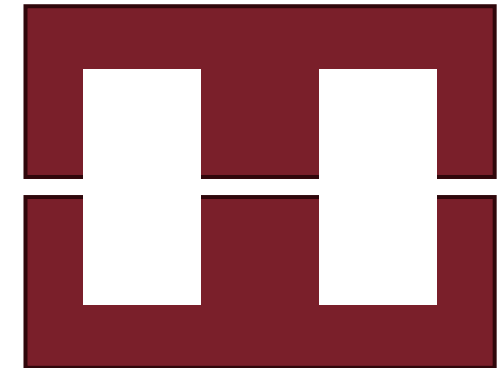
XY or RZ

AIRXY	AIRRZ
IPTXY	IPTRZ
E	EQ
EI	EQPLT
EPlanar	PQ
EIPlanar	PQI
EL	P
ELT	PT
EC	PH
U	PM
UI	RM
	ER
	ERPlanar
	EIRPlanar
	ETD

1LEG or 2LEG or 3LEG

AIRRZ	U	E
IPTRZ	UI	EI
EQ		EPlanar
EQPLT		EIPlanar
PQ		EL
PQI		ELT
P		EC
PT		U
PH		UI
PM		
RM		
ER		
ERPlanar		
EIRPlanar		
ETD		
AIRXY		
IPTXY		

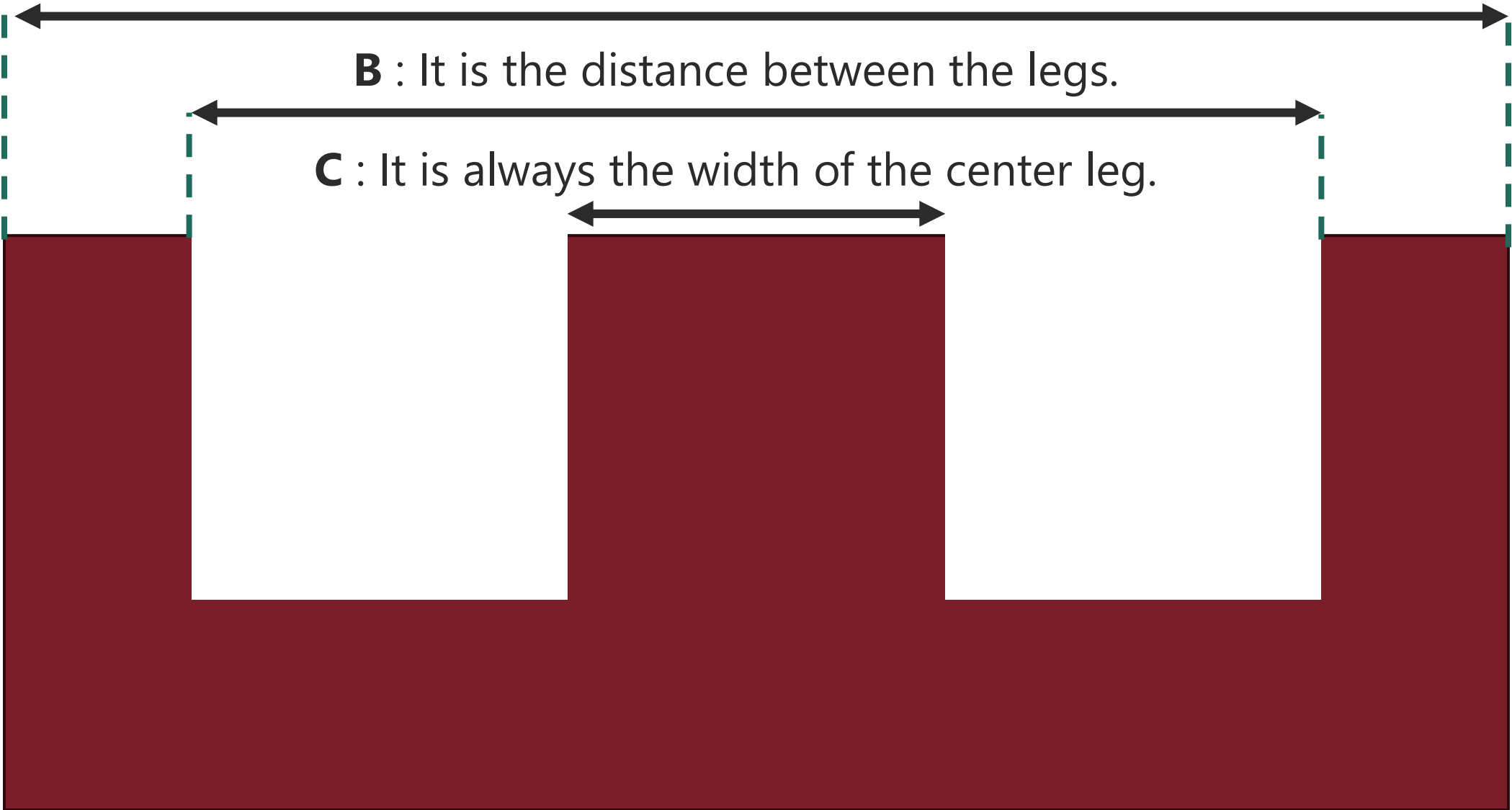
SET or WITH_I

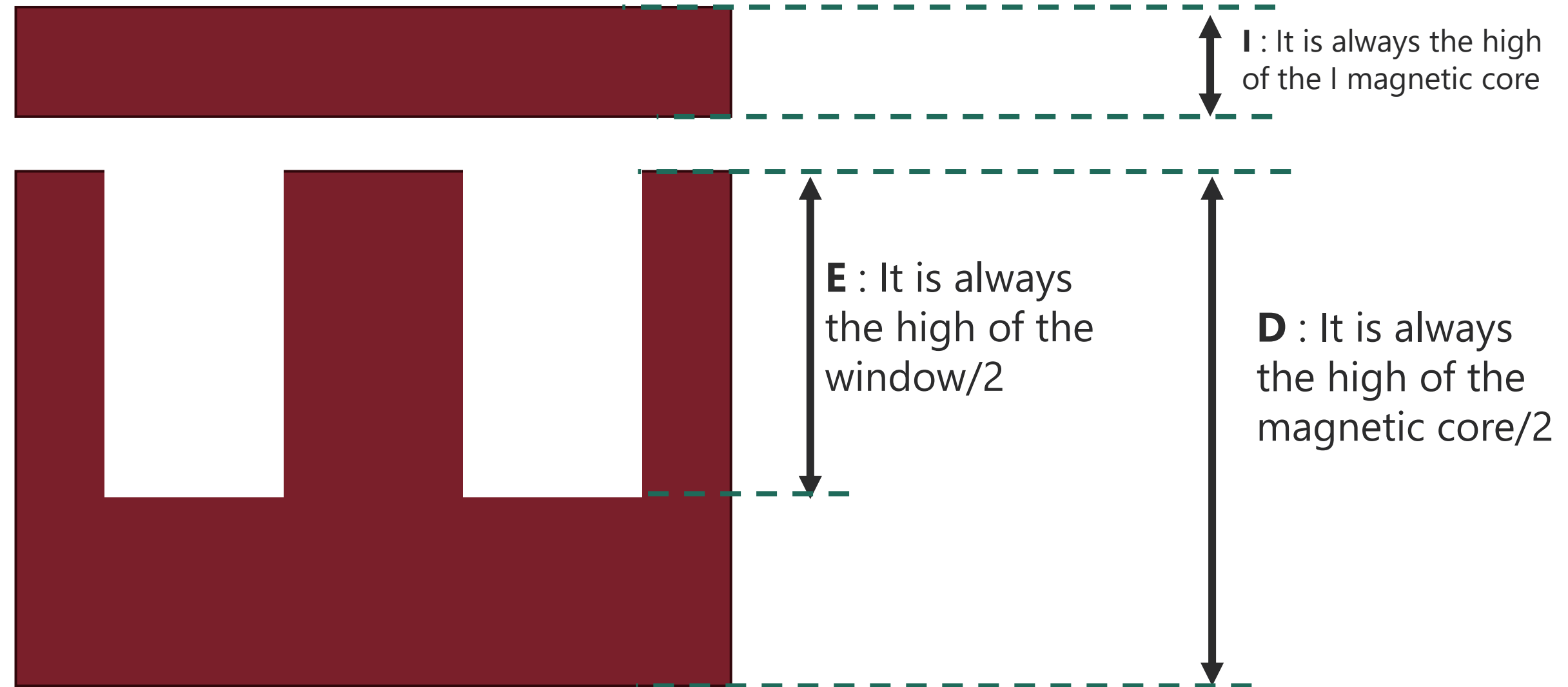


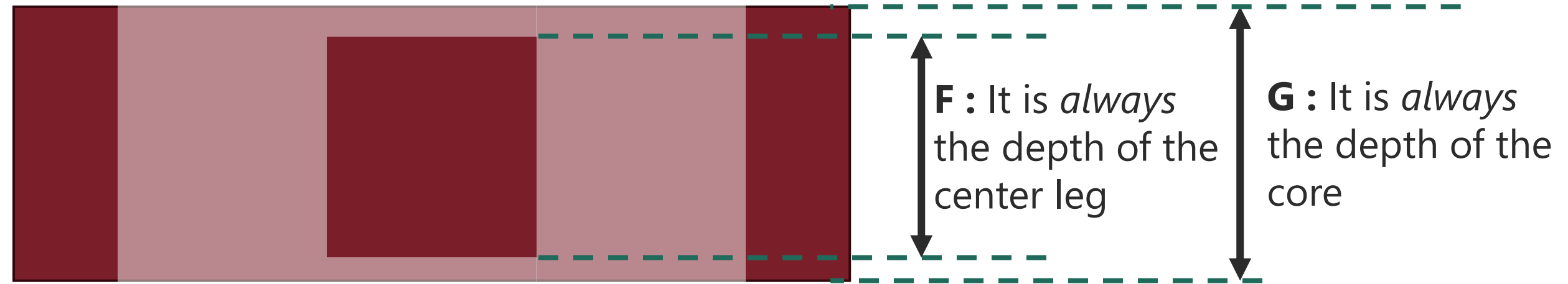
A : It is always the width of the magnetic core

B : It is the distance between the legs.

C : It is always the width of the center leg.







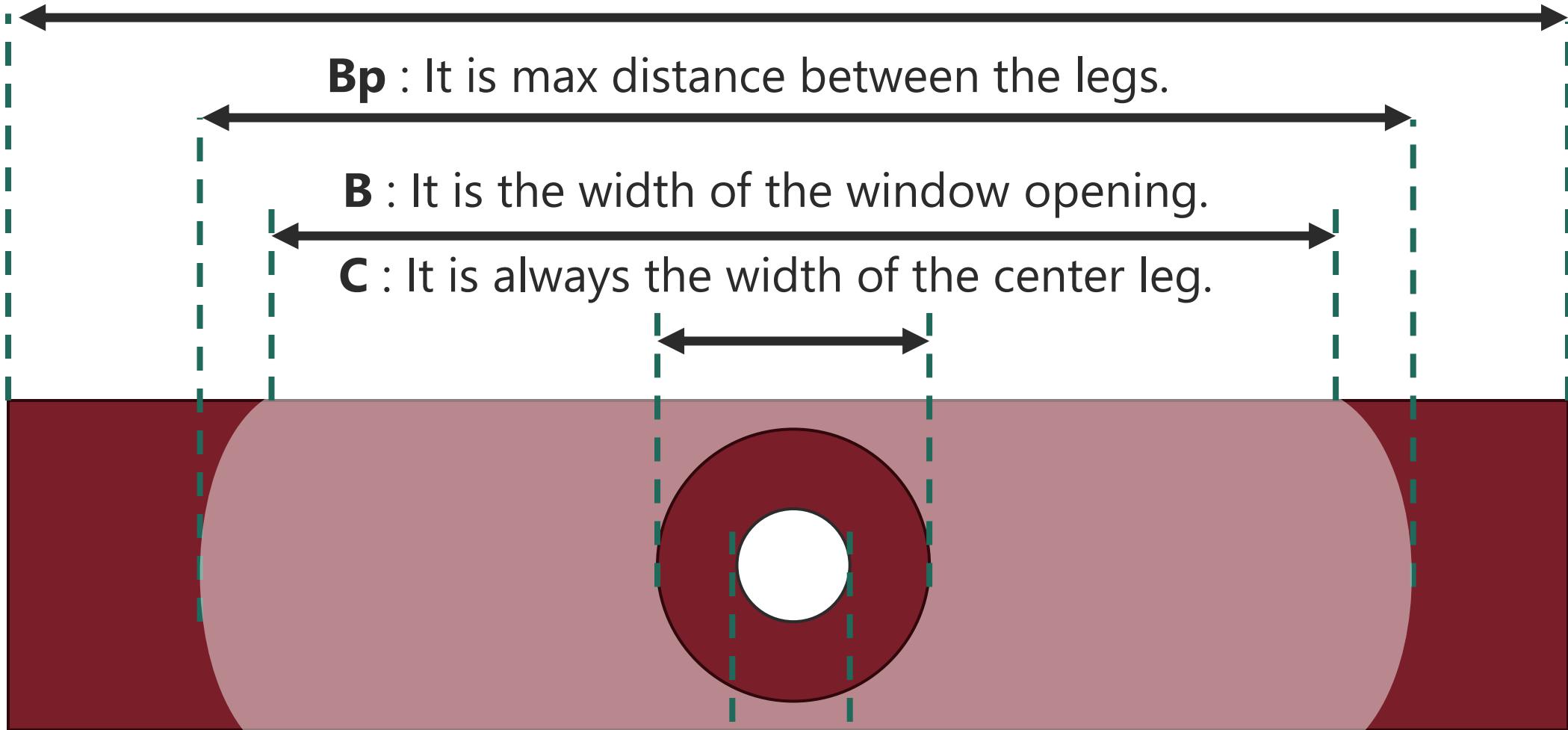
Normally, F and G are equal, and therefore G is not defined. However, there are some cases where it is necessary, such as with the EL core.

A : It is always the width of the magnetic core

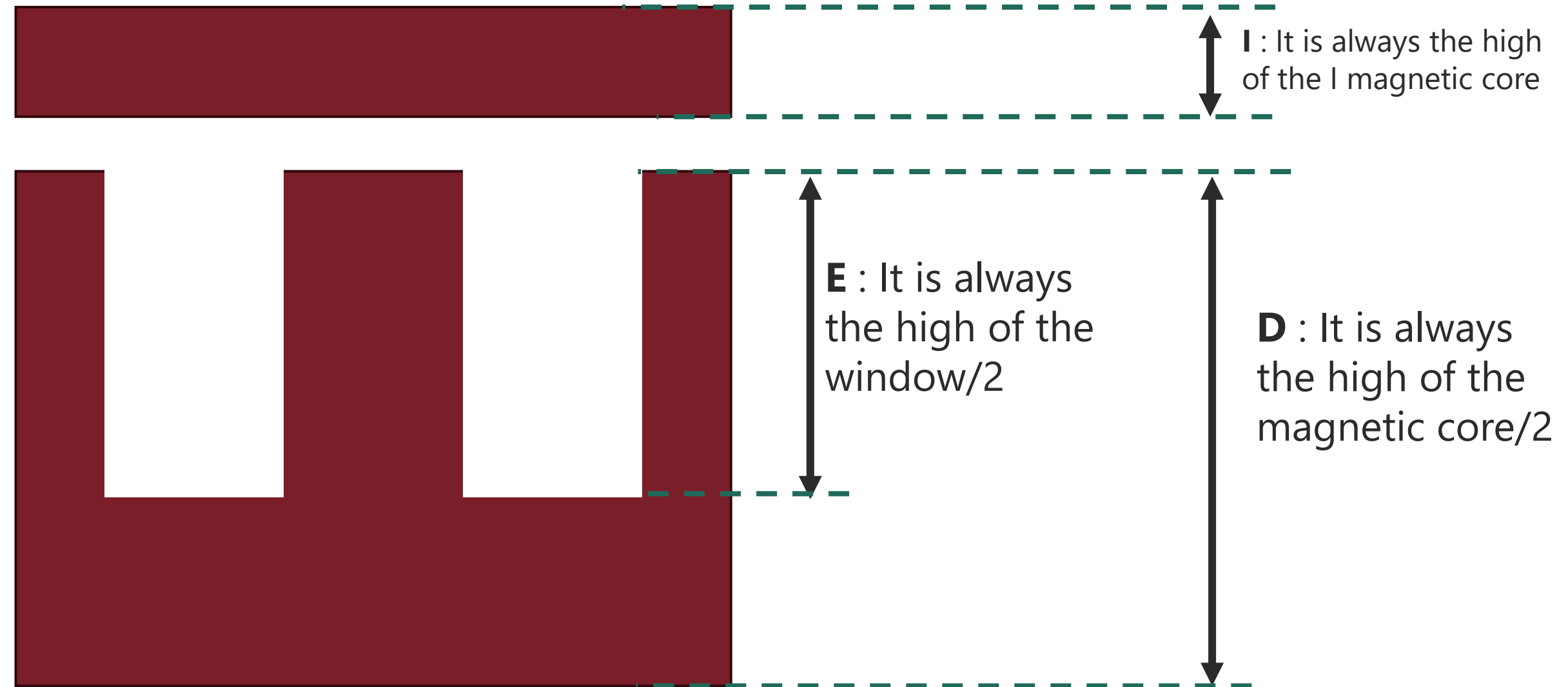
B_p : It is max distance between the legs.

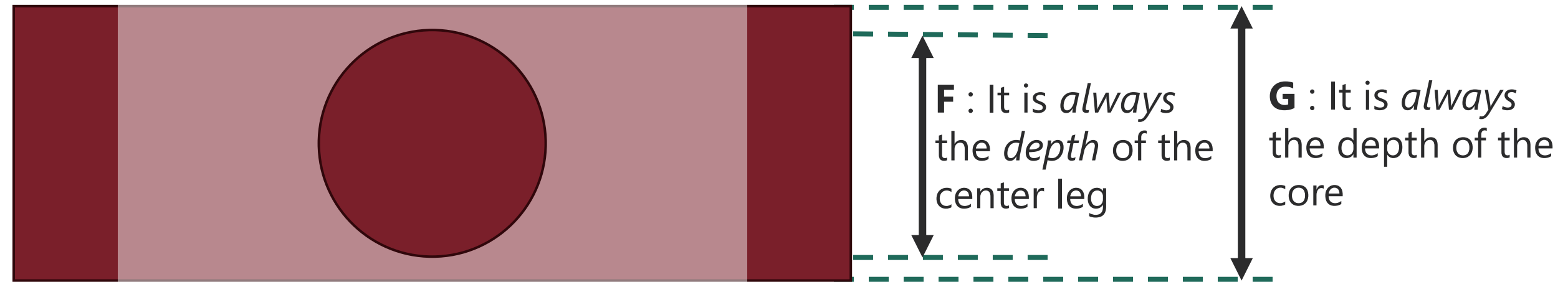
B : It is the width of the window opening.

C : It is always the width of the center leg.



C_p : It's the inner hole.

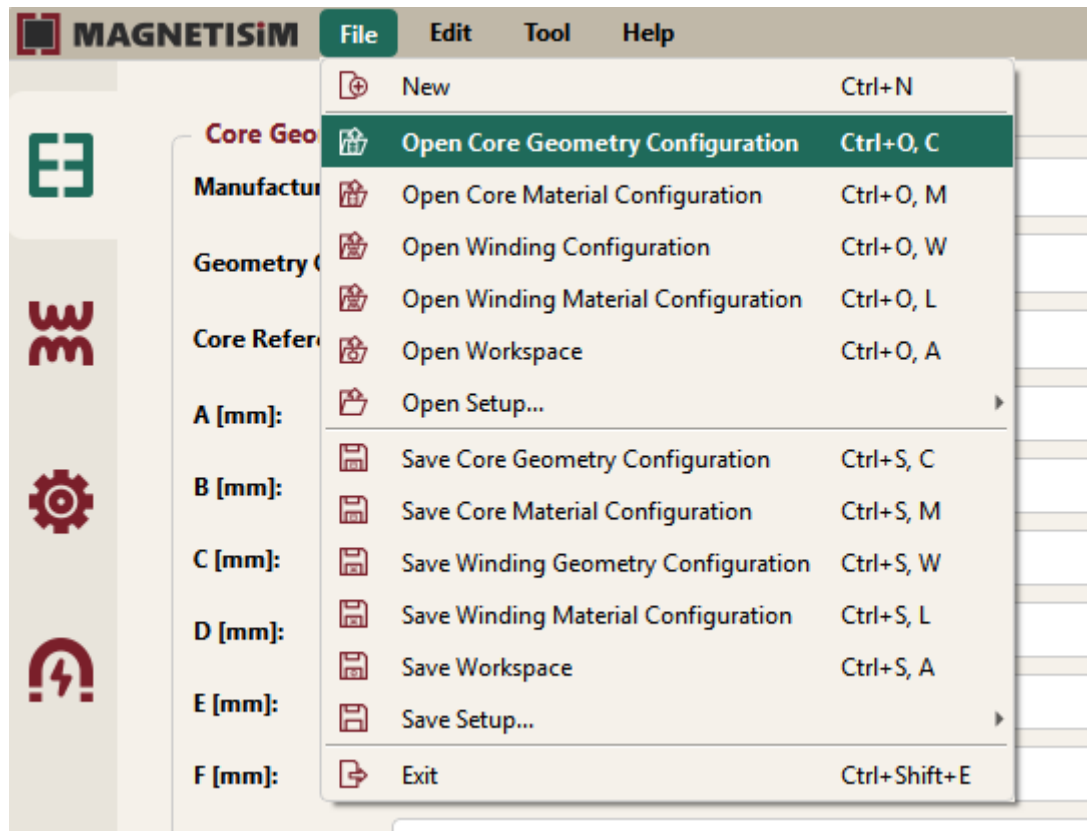




Normally, F and G are equal, and therefore G is not defined. However, there are some cases where it is necessary, such as with the EL core.

XY & RZ Core – *.json

Behind the scenes, MAGNETISiM saves all this custom magnetic core data in a structured *.json format. You can easily share, save, or load these configurations using the "File" menu (e.g., "Save Core Material Configuration"). You can also find material templates on the MAGNETISiM GitHub repository.



```
{
  "Manufacturer": "Ferroxcube",
  "MagCore": "U",
  "Reference": "U25/16/6",
  "A": 25.4,
  "B": 12.7,
  "Bp": 0.0,
  "C": 0.0,      # Because is U Core
  "Cp": 0.0,
  "D": 15.9,
  "E": 9.5,
  "F": 6.4,
  "G": 0.0,
  "I": 0.0,
  "Gap": 0.0,
  "CoreType": [
    "XY",
    "2LEG", # 1LEG or 3LEG
    "SET"  # or WITH_I
  ]
}
```



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