

TS4000 DC Magnetic Properties Measuring System for Soft Magnetic Materials



*Above picture is only for reference, subject to actual delivery

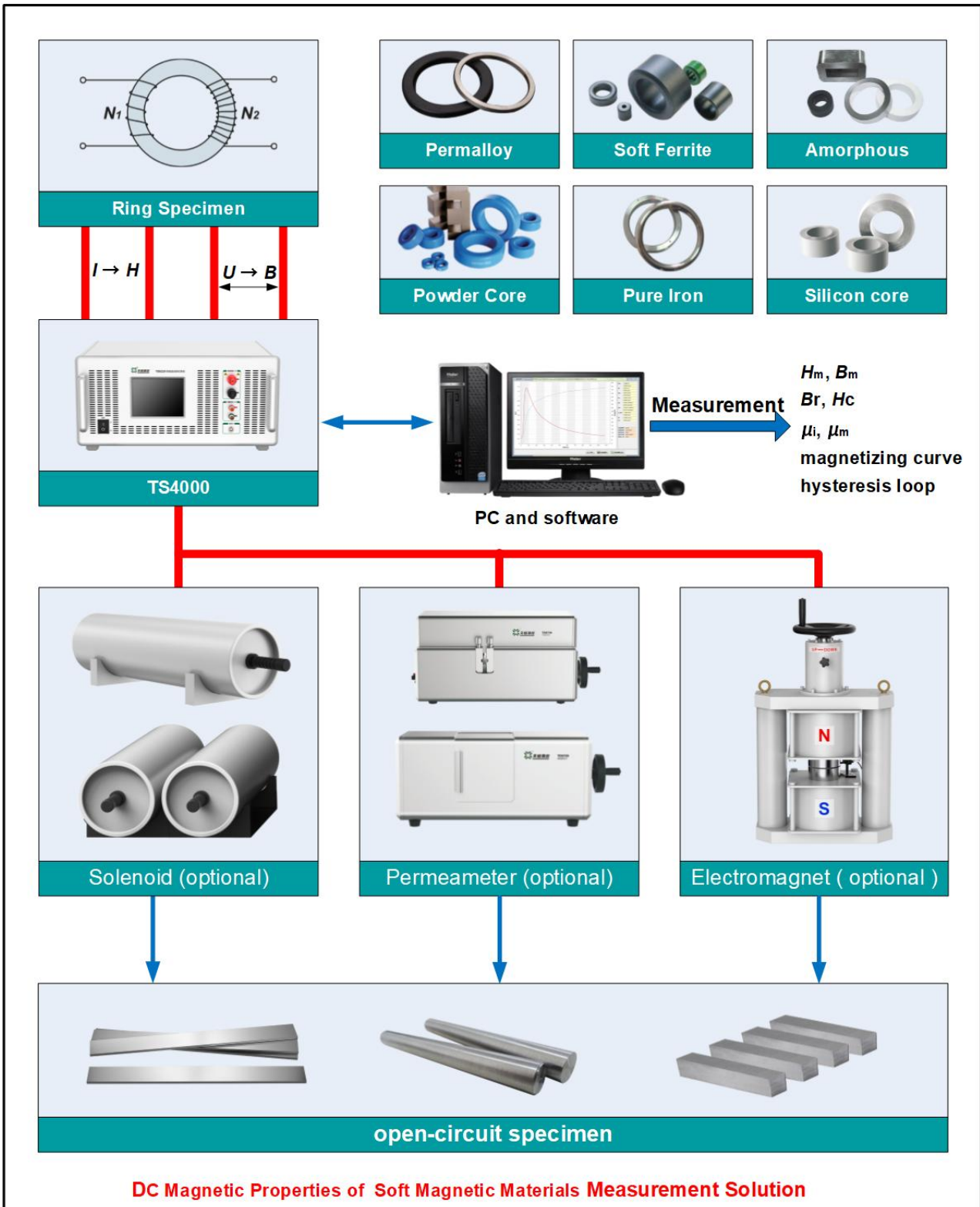
1. Summary

TS4000 is DC Magnetic Properties Measuring System for Soft Magnetic Materials. The product design conforms to the standard IEC 60404-4, IEC 60404-7. The complete system contains DC excitation and measurement host, Type A or B Permeameter (optional accessories), solenoid (optional accessories), electromagnet (optional accessories), system level software.

2. Features

- Electrical parameters calibration function.
- The specimen is demagnetized using slow amplitude reduction.
- Ultra-wide range of current continuously and stably adjustment.
- Scanning method doesn't use relay to switch current range.
- Support scanning and impact testing method.
- .A/B Permeameter (optional): apply for open-circuit specimen testing.
- Solenoid (optional) : apply for Hc of specimen testing.
- Modular design, easy to upgrade or maintenance.
- Automatically testing by professional software.

3. Applications



4. Magnetic Parameter Specifications

Specimen type	Method	Parameter	Uncertainty ($k = 2$)	Repeatability
Ring specimen	impact testing method	B_s	1.0%	0.3%
		B_r	1.0%	0.3%
		H_c	1.0%	0.5%
		μ_i	4.0%	1.5%
		μ_m	2.0%	1.0%
Open-circuit specimen	Permeameter (impact method)	B_s	2.0%	0.5%
	Permeameter, electromagnet (scanning method)	B_s	2.0%	0.5%
		B_r	—	0.5%
		H_c	—	0.5%
Solenoid (throwing method, fluxgate)	H_c	2.5% ^①	1.0% ^①	

- Measurement conditions : $(23 \pm 5)^\circ\text{C}$, demagnetized before testing.
- Ring specimen should be thin-walled rings, the ratio of outer diameter to inner diameter should be less than 1.1.
- Note ①: use reference specimen to test.

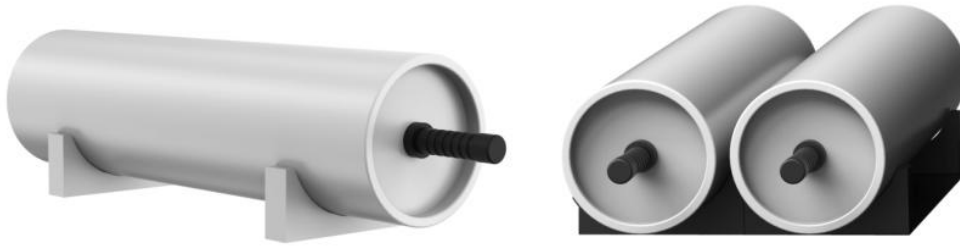
5. Electrical Parameter Specifications

Output	Current range	0 ~ ± 25 A
	Maximum power	1000 W
	Adjustment fineness	0.005%*RG ^①
	Current uncertainty(k=2)	0.2%
Flux meter	Range	500 μWb、5 mWb、25 mWb
	Drift	Max. value of 0.05%*RG/min or 1 μWb/min
	Uncertainty(k=2)	0.3% + 5 μWb
Tesla meter (Optional)	Range	0~2000 mT
	Uncertainty(k=2)	0.5%*RG (B≤2000 mT)
	Features	Hall probe nonlinear correction function
Note ①: RG is the range value; ②Tesla meter function is optional.		

6. General specifications

Power Supply	AC (220±22) V, (50±2) Hz
Temperature performance	Operating temperature: 0~40°C; Storage temperature: -20°C~70°C
Humidity performance	Operating humidity: 40%~80% R·H, no condensation Storage humidity : < 95% R·H, no condensation

7. Solenoid (optional)



Model	TS7750-A-55-600	TS7750-B-55-600	TD7750-C-55-600
Type	Single solenoid	Double solenoid	Fluxgate solenoid
Diameter of inner hole ϕ	55 mm	55 mm	55 mm
Length of inner hole L	600 mm	600 mm	600 mm
Turns number of Coil	About 2270 T	About 2270 T	About 2270 T
I_{max}	DC, ± 20 A	DC, ± 10 A	DC, ± 20 A
Coil constant K_H	About 3780 1/m	About 3780 1/m	About 3780 1/m
Coil constant K_B	About 4.75 mT/A	About 4.75 mT/A	About 4.75 mT/A
Impedance	About 1.8 Ω	About 3.6 Ω	About 1.8 Ω
Dimension (L \times W \times H, mm)	650 \times 230 \times 230	650 \times 600 \times 230	650 \times 230 \times 230
Weight	About 50 kg	About 100 kg	About 50 kg
Working temperature	0°C~45°C	0°C~45°C	0°C~45°C

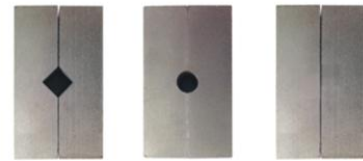
8. Type A and B Permeameter (optional)



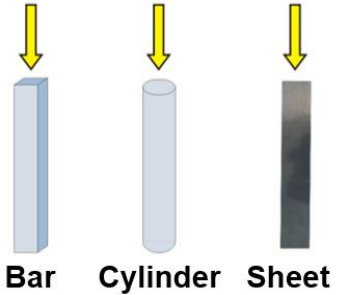
TS7710-A Type A Permeameter



TS7710-B Type B Permeameter



Pole shoe




Bar

Cylinder

Sheet

Model	TS7710-A	TS7710-B
Type	Type A Permeameter	Type B Permeameter
Range of H	(1 ~ 200) kA/m	(1 ~ 50) kA/m
Coil	Field coil	Rogowski-Chattock coil
Specimen length	≥ 250 mm	≥ 100 mm
Diemension (L × W × H)	490 mm × 330 mm × 240 mm	580 mm × 220 mm × 270 mm
Weight	About 65 kg	About 53 kg

9. Electromagnet (optional)

Picture	Functional
	H_{max} is up to 1.2T.
	Magnetic field programmable continuously adjustable.
	Poles are made of pure iron, and its surface is highly parallel
	Pole diameter: 100 mm,
	The gap between 2 poles can be adjusted in the range of 0 ~ 50mm
	Low input power.
	Natural cooling mode, don' use external water cooler.