

--For evaluation / analysis of magnet roll magnetic field for copier / facsimile--

## **Magnetic Characteristic Analysis System Apparatus for Magnet Roll**



- The principal feature of this apparatus development is research and development / performance test / quality control of magnet roll.
- 3D direction (X-Y-Z) coincidence data import by 3D direction hall probe and gauss meter is possible.
- Cover all necessary evaluation item and analysis features completely by exclusive development software.
- Distinguished repetition reproducibility by very high machine accuracy
- Adopt the high-performance gauss meter which developed exclusively for this apparatus
- Realize very high A/D conversion accuracy by our original noise suppression circuit



*Magnet Force Co., Ltd.*

## Product Outline

1. The magnet roll which can measure

◆Measurement of magnet roll of various sizes is possibility by changing it for a jig corresponding to shaft diameter.

|  |               |
|--|---------------|
| Maximum overall length (sleeve unit / shaft include) | 360mm / 450mm |
| Sleeve shaft diameter                                | φ5 ~ φ20      |
| Magnet shaft diameter                                | φ5 ~ φ14      |
| Measurement diameter                                 | φ14 ~ φ50     |

2. Maximum overall length

Maximum 400mm (Sleeve unit 360 + both ends 20mm)

3. The number of the poles which can measure

maximum 10 poles (asymmetry / symmetry)

4. Measurement circumferential direction points of one lap

You have two choices. (Both a and b, user-settable minimum angle pitch is 0.1 degree)

a) Measure magnetism five points of arbitrary angles from origin angle

b) Measure magnetism in range of arbitrary angle, and can set number of measurement point.

5. Measurement longer direction points

Arbitrary configuration between two points

(user-settable minimum moving pitch is 0.1mm)

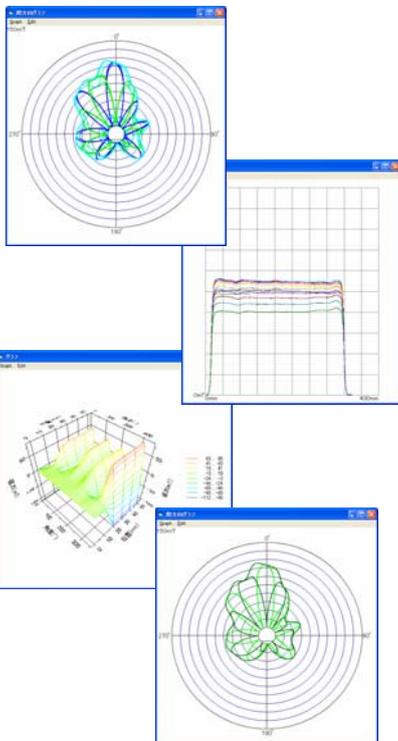
6. The direction that can measure

Choice of 1D direction measurement / 2D direction measurement / 3D direction measurement is possible on software.

◆If you select 3D direction measurement mode and use three gauss meter, simultaneous measurement of 3D direction magnetic flux density is possibility by cross sectional direction measurement / long distance direction measurement of magnet roll.

7. Gauss meter

Required specification of gauss meter will be separately discussed.



### Basic inspection item 1 (magnetic flux density measurement of 1D direction)

| Inspection Item            | Description   |
|----------------------------|---|
| 1. Polarity                | Polarity of each pole   |
| 2. Magnetic force          | Peak value of each pole   |
| 3. Angle                   | Angle in the threshold which set in measurement condition (0 ~ 100%)  |
| 4. Ripple                  | Maximum value of ripple between P1 ~ P3   |
| 5. Ripple position         | Position of the maximum ripple between P1 ~ P3  |
| 6. B ripple                | Maximum value of ripple of nine points between P1 ~ P3  |
| 7. B ripple position       | Position of the maximum B ripple between P1 ~ P3  |
| 8. V ripple                | Maximum value of V ripple between P1 ~ P3   |
| 9. V ripple position       | Position of the maximum V ripple between P1 ~ P3  |
| 10. Fluctuation 1          | Maximum value - Minimum value of longer direction magnetic force between P1 ~ P3<br>Display measurement result : Maximum value, Minimum value, Fluctuation value  |
| 11. Fluctuation 2          | Maximum value - Minimum value of longer direction magnetic force between P4 ~ P5<br>Display measurement result : Maximum value, Minimum value, Fluctuation value  |
| 12. Width of magnetic pole | Half magnetic force width<br>(Angle of magnetic force ripple [magnetic force value in the case of 50% of peak value])   |
| Measurement condition      | Long distance direction : arbitrary point (maximum 5)<br>Circumferential direction : arbitrary pole (maximum 10)<br>Measurement pitch : long distance direction 0.1mm, circumferential direction 0.1 degree |

### Basic inspection item 1 (magnetic flux density measurement of 2D direction)

| Magnetic flux density measurement                           |   | Display      | Target accuracy |
|---|---|--------------|-----------------|
| Cross-section direction                                     | Normal direction  | 0.0001T (1G) | ±0.0001T (±1G)  |
|   | Tangential direction  | 0.0001T (1G) | ±0.0001T (±1G)  |
| Longer direction  | Normal direction  | 0.0001T (1G) | ±0.0001T (±1G)  |
|   | Tangential direction  | 0.0001T (1G) | ±0.0001T (±1G)  |
| Configuration evaluation of each pole magnetic force ripple |   |              |                 |
| Cross-section direction                                     | Peak position   | 0.01 degree  | 0.1 degree      |
|   | Center angle of half magnetic force width (80% of peak value)         | 0.01 degree  | 0.1 degree      |
|   | Half magnetic force width (80% of peak value)                         | 0.1 degree   | 0.2 degree      |
| Longer direction  | Center angle of half magnetic force width (arbitrary % of peak value) | 0.01 degree  | 0.1 degree      |
|   | Magnetic force width (arbitrary % of peak value)                      | 0.1 degree   | 0.2 degree      |
|   | Gap angle of peak position for designed value                         | 0.01 degree  | 0.1 degree      |
| Other   | Center angle of half magnetic force width (arbitrary % of peak value) | 0.01 degree  | 0.1 degree      |
|   | Magnetic force width (arbitrary % of peak value)                      | 0.1 degree   | 0.2 degree      |
| Main pole position  | Gap angle of peak position for designed value                         | 0.01 degree  | 0.1 degree      |

We do design and manufacture of custom-built analysis system apparatus that suitable for your requirement specification and application. Please feel free to inquire.

