SANMOTION Application Case

Industrial Sewing Machine

SANYO DENKI

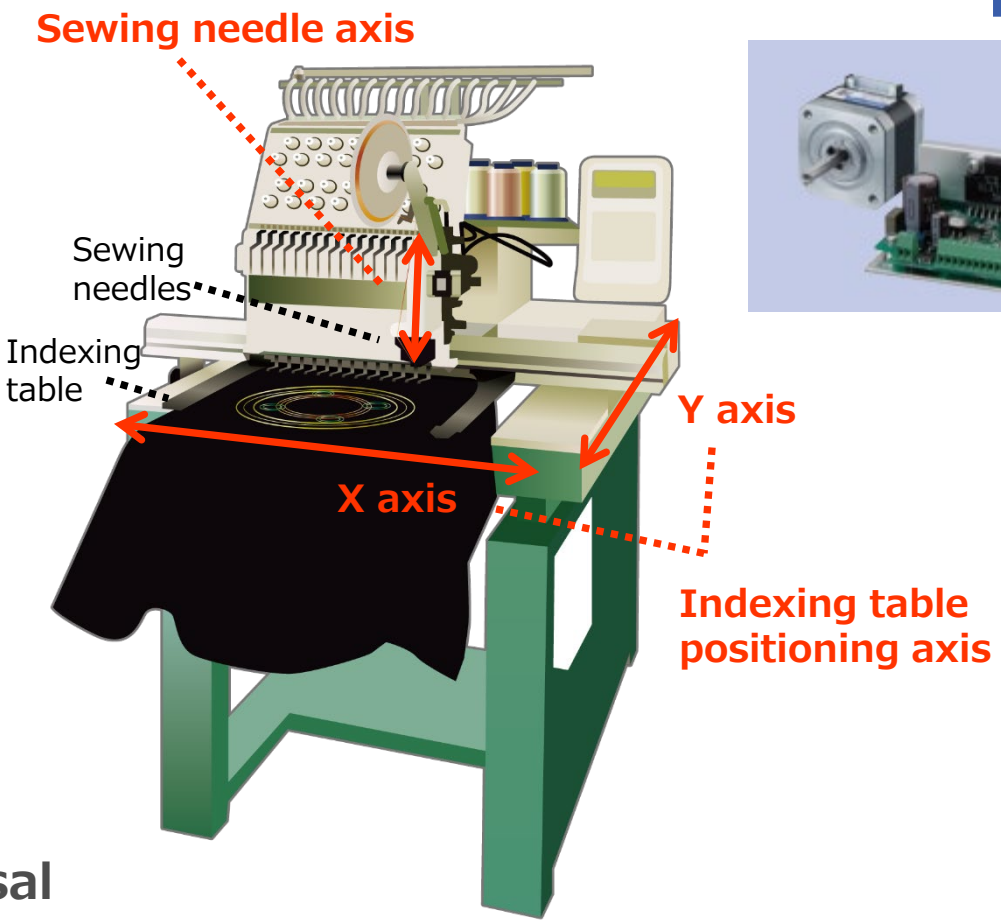
SANMOTION 2-PHASE STEPPING SYSTEMS F2

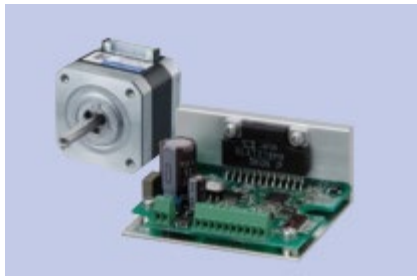
Description

Industrial sewing machine sews embroidery designs on fabrics.

Fabrics are moved and adjusted with the vertical movements of sewing needles, to create embroidery patterns on fabrics. High speed, high accuracy and high synchronization between axes are required.

Structure:
Indexing table positioning axis (X axis, Y axis)
Sewing needle axis





SANYO DENKI Proposal

Indexing table positioning axis: X axis, Y axis	SANMOTION F2	2-Phase Stepping motor	60 mm sq. (2 pcs)
Sewing needle axis	SANMOTION F2	2-Phase Stepping motor	42 mm sq. (1 pcs)

Driver: SANMOTION F2 DC input driver

Features

■2-Phase stepping motor + driver

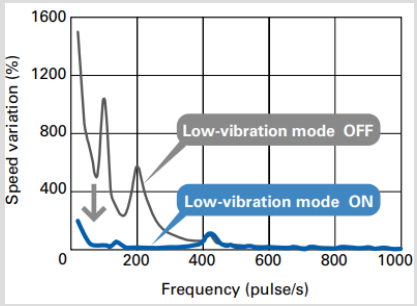
[Indexing table positioning axis: X axis, Y axis]
[Sewing needle axis]

■Wide variety of products

- Motor sizes range from 14 mm sq. to 106 mm diameter.
- Unipolar drive and bipolar drive are available.

■Low vibration

- Low vibration mode makes smooth motions possible even under coarse resolution settings such as 1-division (full step) and 2-division (half step).



- Micro step drive with resolution setting up to 16 divisions can be used, enabling smooth equipment operation with low vibration.
- By selecting basic step angle at 0.9° instead of the usual 1.8°, vibration can be reduced and smooth operation is possible. (80% reduced for 42 mm sq. motor)

■Stepping motor with high synchronization

- Accurate control is possible with pulse signals sent from the host device. (Delays occur in induction motors.)

Merits

■Ideal solution for customer

- Customers could select the ideal motor with the required torque and size that suits their unique equipment requirements, from the wide variety of motors we provide.

■High-performance machine

- Higher machine performance with improved sewing accuracy and speed.
- Customer competitiveness improved with stable machine quality, made possible by the synchronization of sewing axis and indexing table.
- Lower vibration and noise level

➢ Customers could further improve machine accuracy and reduce vibration by using 3-Phase (basic angle 1.2°) or 5-Phase (0.72°) stepping motors.

<Characteristics of 5-Phase stepping driver>

- Micro step drive can be set to a resolution of up to 250 divisions.
- Low vibration mode function provides smooth driving, even with coarse resolution settings.