



# Linear Scales ST422

## SERIES 579 — Compact Type

### SPECIFICATIONS

| Model                                 | ST422                                                      |
|---------------------------------------|------------------------------------------------------------|
| Detection method                      | Reflective photoelectric linear encoder                    |
| Output signal                         | 2-phase sinusoidal signals, 2-phase square wave signals    |
| Main scale grating pitch              | 40μm                                                       |
| Signal output pitch                   | 40μm                                                       |
| Effective range                       | 10 to 3000mm                                               |
| Accuracy (20°C)*1                     | ±1μm, ±2μm, ±3μm/m                                         |
| Resolution                            | 0.2μm/ 0.5μm/ 1μm/ 5μm (Selectable with internal switch)   |
| Scale reference point                 | Center point (10 to 75mm) 50mm pitch (100mm or more)       |
| Maximum response speed                | 5000mm/s (varies depending on the setting)                 |
| Minimum edge-to-edge interval         | 125ns/ 250ns/ 500ns/ 1μs (selectable with internal switch) |
| Operating temperature/ humidity range | 0 to 40°C, RH 20 to 80% (no condensation)                  |
| Storage temperature/ humidity range   | -20 to 60°C, RH 20 to 80% (no condensation)                |
| Head cable length                     | 1m                                                         |

\*1:

| Effective range | Accuracy |
|-----------------|----------|
| 300mm or less   | ±1μm     |
| 500mm or less   | ±2μm     |
| 1000mm or less  | ±3μm     |
| 3000mm or less  | ±3μm/m   |

- The maximum response speed is 5000mm/s. (When resolution is 1μm and the minimum edge interval is 125ns.)
- Ultra-compact detector control unit allows use in applications where space-saving design is important.
- The maximum effective measurement length of 3000mm enables use on large machines.
- Simultaneous output of 2-phase square wave signals (maximum resolution: 0.2μm) and 2-phase sinusoidal wave signals (main signal: 40μm) is available.
- LED function for indicating signal errors.
- Equipped with scale reference point output.

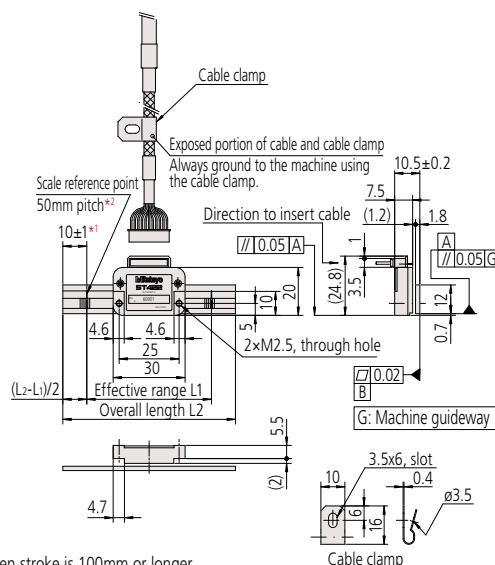
### Dimensions of scale units

| Order No. | Code      | Effective range L <sub>1</sub> (mm) | Overall length L <sub>2</sub> (mm) | Scale fixing pitch L <sub>3</sub> (mm) | Retaining spring A | Retaining spring B |
|-----------|-----------|-------------------------------------|------------------------------------|----------------------------------------|--------------------|--------------------|
| 579-631   | ST422-10  | 10                                  | 30                                 | —                                      | —                  | —                  |
| 579-632   | ST422-25  | 25                                  | 45                                 | —                                      | —                  | —                  |
| 579-633   | ST422-50  | 50                                  | 70                                 | —                                      | —                  | —                  |
| 579-634   | ST422-75  | 75                                  | 95                                 | —                                      | —                  | —                  |
| 579-635   | ST422-100 | 100                                 | 120                                | —                                      | —                  | —                  |
| 579-636   | ST422-150 | 150                                 | 170                                | —                                      | —                  | —                  |
| 579-637   | ST422-200 | 200                                 | 220                                | —                                      | —                  | —                  |
| 579-638   | ST422-250 | 250                                 | 270                                | —                                      | —                  | —                  |
| 579-639   | ST422-300 | 300                                 | 320                                | —                                      | —                  | —                  |
| 579-640   | ST422-350 | 350                                 | 370                                | —                                      | —                  | —                  |
| 579-641   | ST422-400 | 400                                 | 440                                | 100                                    | 1 pc.              | 4 pcs.             |
| 579-642   | ST422-450 | 450                                 | 490                                | 75                                     | 1 pc.              | 6 pcs.             |
| 579-643   | ST422-500 | 500                                 | 540                                | 80                                     | 1 pc.              | 6 pcs.             |
| 579-644   | ST422-600 | 600                                 | 640                                | 100                                    | 1 pc.              | 6 pcs.             |
| 579-645   | ST422-700 | 700                                 | 740                                | 85                                     | 1 pc.              | 8 pcs.             |
| 579-646   | ST422-800 | 800                                 | 840                                | 100                                    | 1 pc.              | 8 pcs.             |
| 579-647   | ST422-900 | 900                                 | 940                                | 90                                     | 1 pc.              | 10 pcs.            |

| Order No. | Code       | Effective range L <sub>1</sub> (mm) | Overall length L <sub>2</sub> (mm) | Scale fixing pitch L <sub>3</sub> (mm) | Retaining spring A | Retaining spring B |
|-----------|------------|-------------------------------------|------------------------------------|----------------------------------------|--------------------|--------------------|
| 579-648   | ST422-1000 | 1000                                | 1040                               | 100                                    | 1 pc.              | 10 pcs.            |
| 579-649   | ST422-1100 | 1100                                | 1140                               | 90                                     | 1 pc.              | 12 pcs.            |
| 579-650   | ST422-1200 | 1200                                | 1240                               | 100                                    | 1 pc.              | 12 pcs.            |
| 579-651   | ST422-1300 | 1300                                | 1340                               | 130                                    | 1 pc.              | 10 pcs.            |
| 579-652   | ST422-1400 | 1400                                | 1440                               | 100                                    | 1 pc.              | 14 pcs.            |
| 579-653   | ST422-1500 | 1500                                | 1540                               | 125                                    | 1 pc.              | 12 pcs.            |
| 579-654   | ST422-1600 | 1600                                | 1640                               | 100                                    | 1 pc.              | 16 pcs.            |
| 579-655   | ST422-1700 | 1700                                | 1740                               | 120                                    | 1 pc.              | 14 pcs.            |
| 579-656   | ST422-1800 | 1800                                | 1840                               | 100                                    | 1 pc.              | 18 pcs.            |
| 579-657   | ST422-2000 | 2000                                | 2040                               | 100                                    | 1 pc.              | 20 pcs.            |
| 579-658   | ST422-2200 | 2200                                | 2240                               | 100                                    | 1 pc.              | 22 pcs.            |
| 579-659   | ST422-2400 | 2400                                | 2440                               | 100                                    | 1 pc.              | 24 pcs.            |
| 579-660   | ST422-2500 | 2500                                | 2540                               | 95                                     | 1 pc.              | 26 pcs.            |
| 579-661   | ST422-2600 | 2600                                | 2640                               | 100                                    | 1 pc.              | 26 pcs.            |
| 579-662   | ST422-2800 | 2800                                | 2840                               | 100                                    | 1 pc.              | 28 pcs.            |
| 579-663   | ST422-3000 | 3000                                | 3040                               | 100                                    | 1 pc.              | 30 pcs.            |

### ST422 Scale unit mounting dimensions

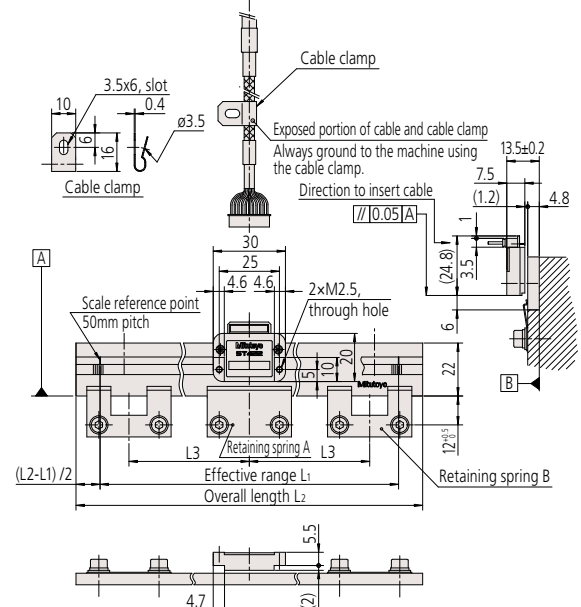
- ST422-10 to 350 (Adhesive fixing type) \*3



- \*1 When stroke is 100mm or longer
- \*2 One center point when stroke is 10 to 75mm
- \*3 For information on fixing methods for adhesive fixing type

- ST422-400 to 3000

Unit: mm



- Any scale size drawings are available on request.

Mitutoyo