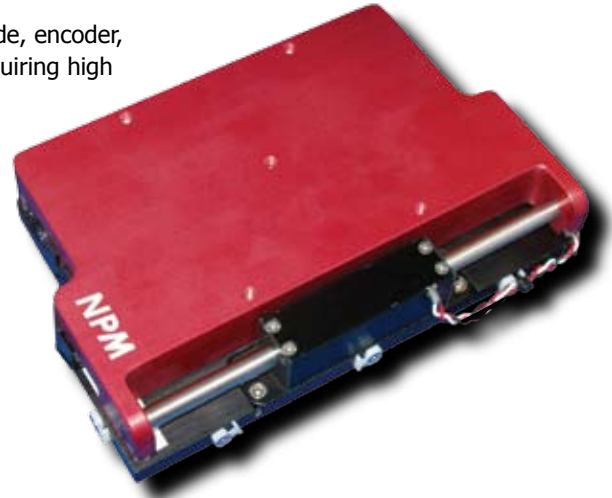


The SCR075 stage is a complete single axis stage which integrates a slide guide, encoder, and Linear Shaft Motor. It offers a wide range of advantages for applications requiring high performance and accuracy. The Linear Shaft Motor allows for higher resolution, speed, and continuous force than standard stepper or piezo servomotors.

The SCR075 uses a standard S080Q Linear Shaft Motor, however, the coil windings are customizable to a double or triple winding. The SCR075 features a moving magnet design, a precision ground cross roller, and a built-in encoder.

Each SCR stage requires a servo driver to operate the stage. Any two SCR stages will bolt directly together to form a very stiff, compact X-Y assembly, without the need for adaptor plates. Two SCR stages can be supplied as an X-Y stage to insure true orthogonal orientation between the two axes.



Stage Specifications

| Stage Specifications ¹ | Units | SCR075-050 | SCR075-100 | SCR075-150 |
|---|------------------|------------------------|------------|------------|
| Travel/Stroke | mm | 50 | 100 | 150 |
| Stage Width (B) | mm | 140 | 190 | 240 |
| Accuracy | μm | 3 | 5 | 7 |
| Encoder Resolution | nm | 1000, 500, 100, 50, 10 | | |
| Bi-Directional Repeatability ² | | ±1 count | | |
| Maximum Acceleration | m/s ² | 25 | 20 | 15 |
| Maximum Velocity ³ | m/s | 1.1 | 1.4 | 1.5 |
| Load Capacity ⁴ | kg | 45.5 | | |
| Moving Mass | kg | 0.55 | 0.7 | 0.93 |
| Total Mass | kg | 1 | 1.3 | 1.7 |
| Straightness & Flatness | μm | 2.5/25mm | | |
| Home Limit Switches | | Standard | | |
| Home Switch Location | | Center | | |
| Limit Switch Over Travel | mm | 1 | | |
| Hard Stop Over Travel | mm | 2 | | |
| Bearing | | Cross-roller Bearing | | |
| Linear Shaft Motor | | S080Q | | |

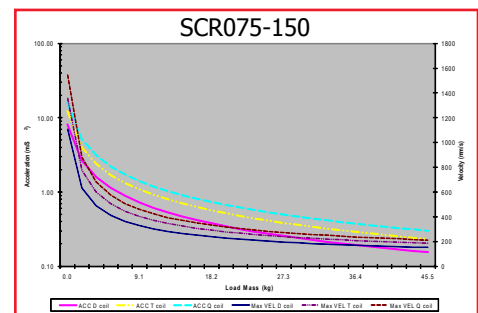
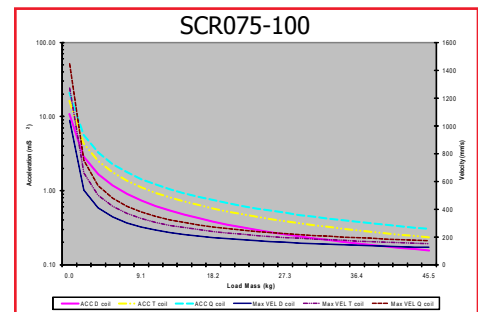
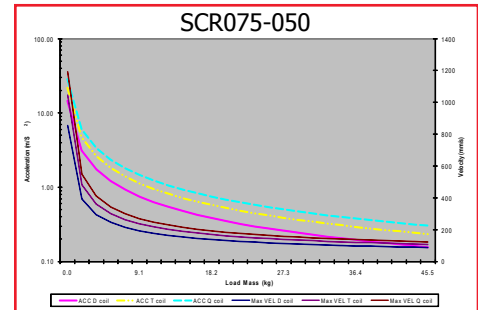
Note 1: Standard stage specifications are based on the S080Q Linear Shaft Motor

Note 2: Repeatability +/- 2 counts at sub 0.1μm resolutions

Note 3: For 10nm (0.01μm) resolution, max velocity of encoder is limited to 135mm/sec; for 50nm (0.05μm), the limit is 675mm/sec; and for 100nm (0.1μm), the limit is 1350mm/sec

Note 4: Please contact our Applications Engineers for loads exceeding 45.5kg

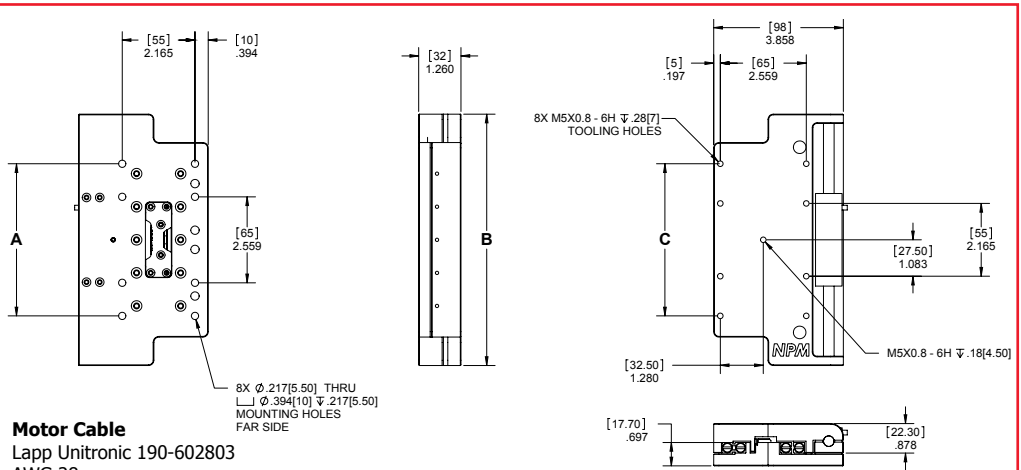
Acceleration/Velocity Curves



Linear Shaft Motor Specs Dimensions

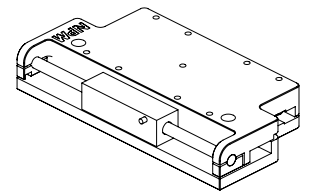
| Linear Shaft Motor Force Specifications | Units | S080Q |
|---|---------|-------|
| Fundamental Motor Constant | N/W | 1.39 |
| Motor Force Constant (Kf) | N/A rms | 4.2 |
| Back-EMF Constant | V/m/s | 1.4 |
| Coil Resistance @ 25°C | Ω | 9.0 |
| Coil Inductance | mH | 1.3 |
| Continuous Current @ 135°C | A | 0.84 |
| Acceleration Current | A | 3.4 |
| Continuous Force @ 135°C | N | 3.5 |
| Acceleration Force | N | 14 |
| Continuous Power Rating | W | 12.7 |
| Thermal Resistance | °C/W | 17.3 |

Note: Curves apply only to the stage's standard Linear Shaft Motor, the S080Q. If you are interested in using the S080D or S080T in your stage, please contact our application engineers to learn more about these coils.



Motor Cable
Lapp Unitronic 190-602803
AWG 28
U-red
V-white
W-black
Length: 3000mm
Encoder cable length:
minimum 1000mm

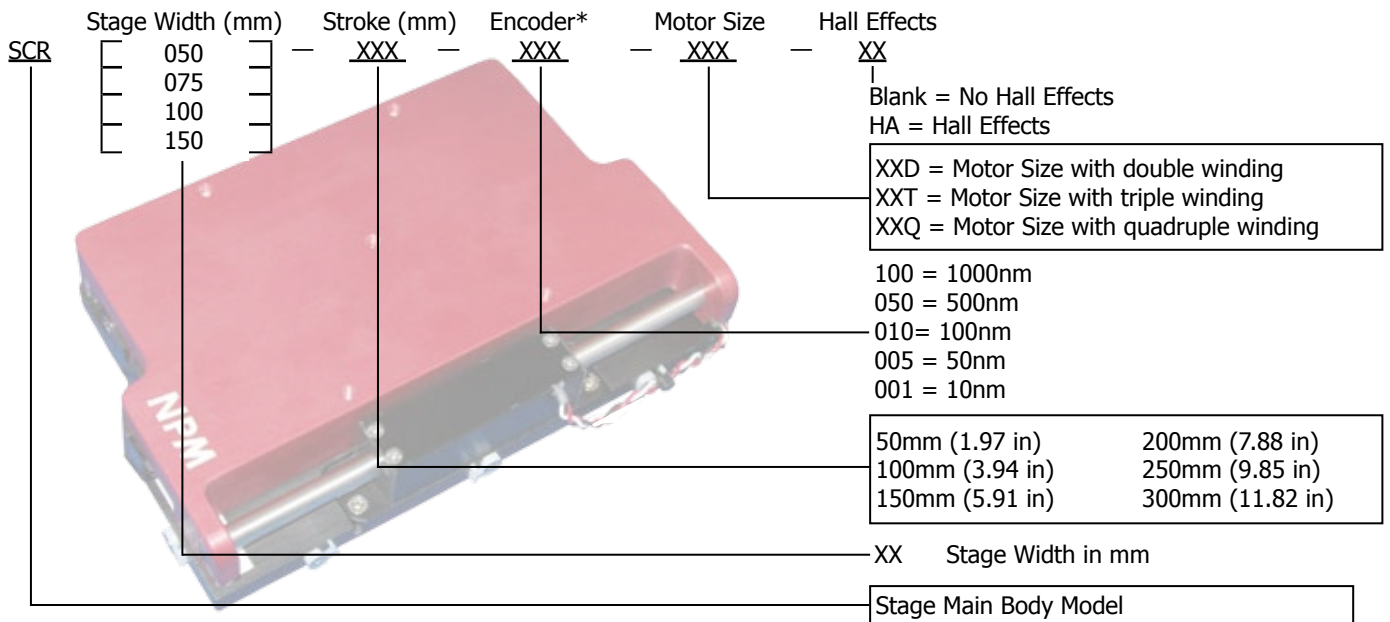
| MODEL | TRAVEL mm | A | B | C |
|------------|-----------|-----|-----|-----|
| SCR075-050 | 50 | N/A | 140 | N/A |
| SCR075-100 | 100 | 115 | 190 | 115 |
| SCR075-150 | 150 | 165 | 240 | 165 |



All units are listed as mm

SCR Stage Part Numbering Guide

Example model number: SCR100-50-010-080Q



*SCR Encoder Upgrade Notice

As of September 1, 2010, all Nippon Pulse SCR Nanopositioning stages are available with a upgraded encoder. Any stage built after September 1, 2010, and beginning with unit SN#080210-001, comes standard with the **Renishaw Tonic Encoder**.

The previous encoder was the Renishaw RGH24, which used optional and separate read switch end-of-travel limits. The Tonic Encoder includes limit switches as a part of the new read head and makes end limits standard at no additional cost. This change optimizes performance and eliminates extra wiring needed with the optional limit switches. Other benefits of using the new encoder include improving interpolation feedback by four times, achieving 5nm resolution without the use of a large RGB interpolator, and increased resolution and speed options.