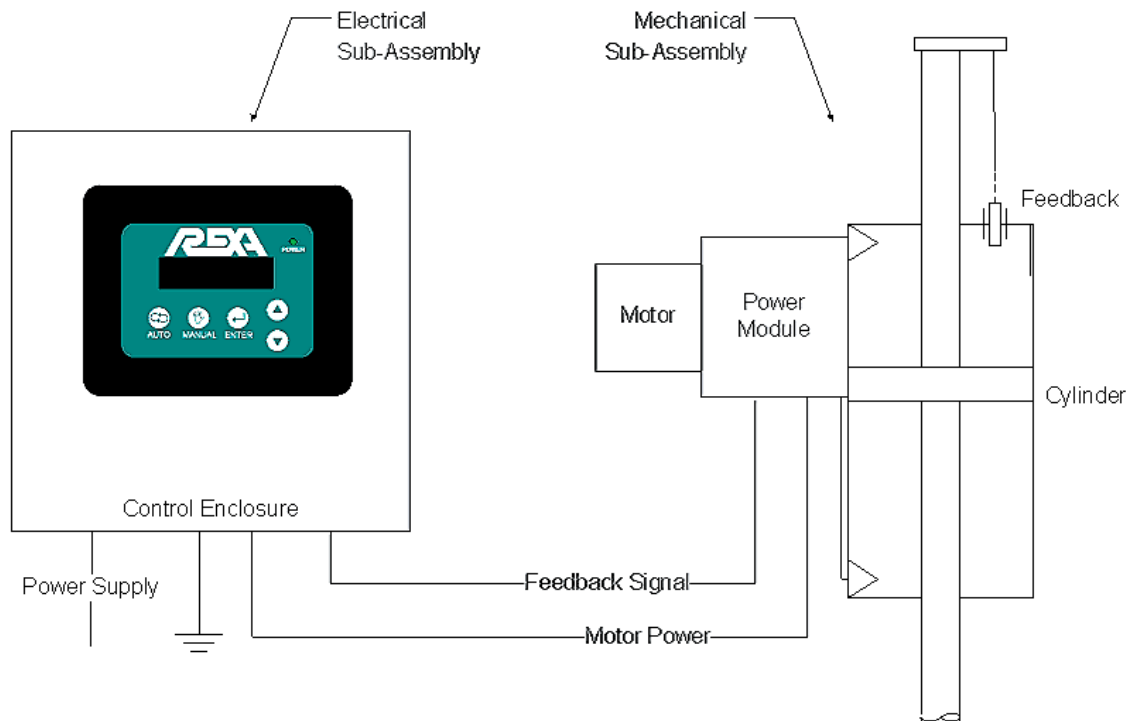


## Environmental Considerations

REXA X2 Electraulic™ Actuators are supplied as two separate components connected by a series of cables. The components are identified as the Mechanical Sub-Assembly (MSA), generally referred to as the actuator, and the Electrical Sub-Assembly (ESA) often referred to as the control enclosure. This design allows REXA customers to install the actuator in harsh environments, while mounting the control enclosure in a location more conducive to electrical equipment longevity. The ESA may be mounted up to 700 feet away from the MSA, depending on motor type and the cable used. This flexibility offers many advantages, including improved accessibility, reduced maintenance and lower installation costs. This product memo will discuss several factors that should be considered when selecting the location and performing the installation of this equipment.



*Max distance between ESA and MSA is 700 feet. See TM8 for additional information.*

## MECHANICAL SUB-ASSEMBLY (MSA)

REXA actuators are designed to operate in difficult applications and environments. Because the Mechanical Sub-Assembly is separate from the Electrical Sub-Assembly, it can be installed in a wider range of conditions. The X2 MSA is designed to meet a NEMA 4X and IP 65 environmental ratings. Ambient temperature operating ranges are as follows:

### Type L Linear Cylinder

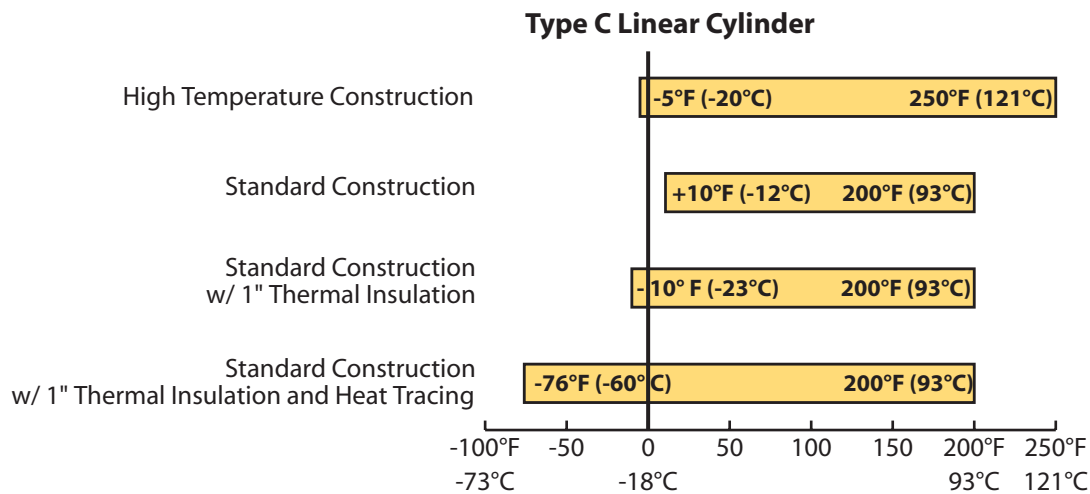
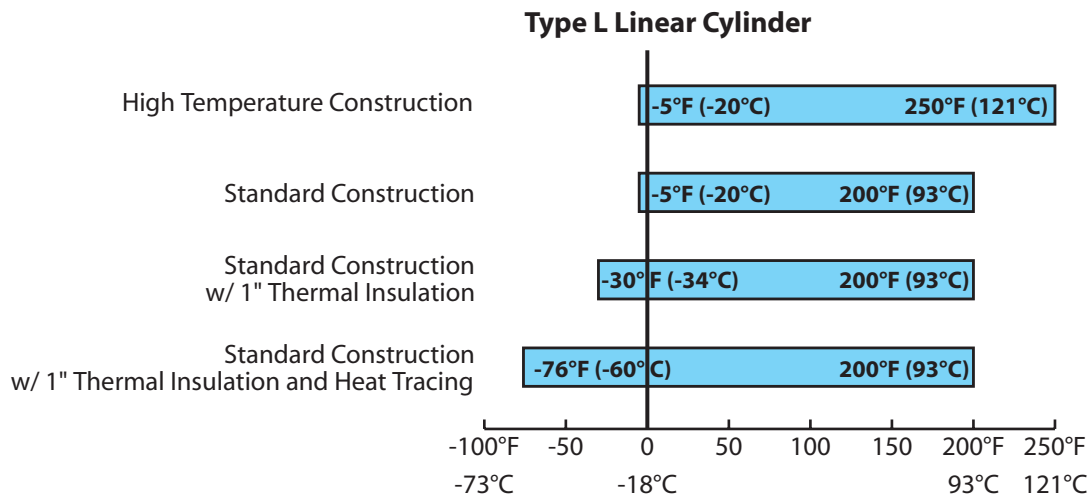
- Standard Construction: -5°F to +200°F (-20°C to +93°C)
- High Temp. Construction: -5°F to +250°F (-20°C to 121°C)

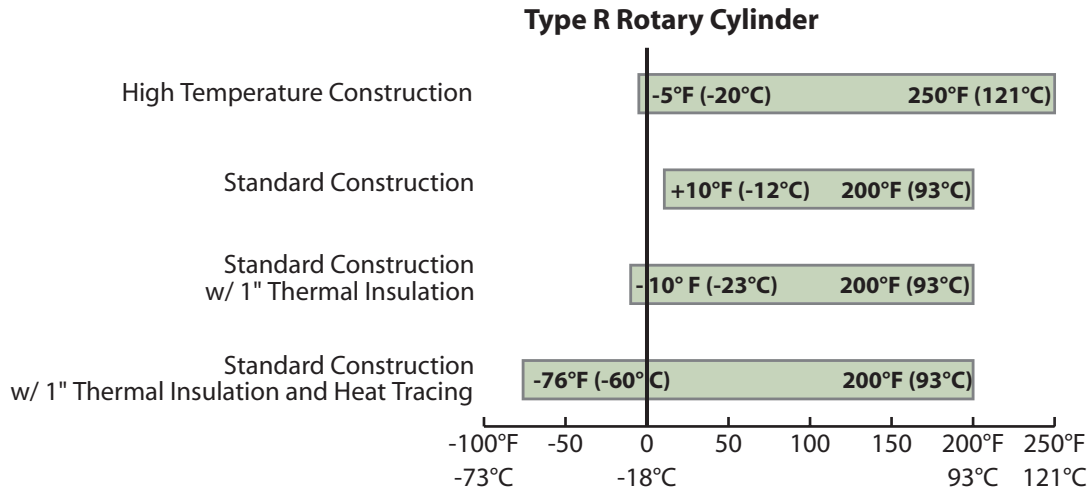
### Type C Linear Cylinder

- Standard Construction: +10°F to +200°F (-12°C to +93°C)
- High Temp. Construction: -5°F to +250°F (-20°C to 121°C)

### Type R Rotary Cylinder

- Standard Construction: +10°F to +200°F (-12°C to +93°C)
- High Temp. Construction: -5°F to +250°F (-20°C to 121°C)





## Low Temperature Considerations

REXA Electraulic™ actuators and drives use Castrol SYNTEC® SAE 5W-50 motor oil as the hydraulic media. An electric motor drives a positive displacement gear pump to develop a nominal working pressure of 2000 psi over the standard temperature range and motor speeds of 60% to 100%. The output force of the unit is directly related to the pressure developed.

Certain installation practices allow the unit to maintain the proper oil viscosity in environments that may see lower temperatures.

- One inch of thermal insulation covering the entire unit allows type L linear cylinders to be used in ambient conditions down to: -30°F (-34°C).
- One inch of thermal insulation covering the entire unit allows type C linear and type R rotary cylinders to be used in ambient conditions down to: -10°F (-23°C).
- Heat tracing and one inch of thermal insulation covering the entire unit allows all cylinders to be used in ambient conditions down to: -76°F (-60°C).
- A speed setting below 60% may allow operation at somewhat lower temperatures than specified.

## High Temperature Considerations

Due to the decrease in viscosity and corresponding pump efficiency, rated output is reduced for ambient temperatures above +200°F (+93°C). A unit with high temp construction at the maximum +250°F (+121°C) limit will produce approximately 75% of the nominal rating. The output reduction can be assumed to be linear between these temperatures.

## ELECTRICAL SUB-ASSEMBLY (ESA)

The ESA or control enclosure should be mounted in a location that minimizes the damaging effects of temperature extremes and chemical or environmental pollutants (excessive dirt, soot or other particulate). Whenever possible, mounting in a control room environment is preferable. The X2 ESA is designed to meet a NEMA 4 and IP 65 environmental ratings; optional constructions allow for a NEMA 4X enclosure. Ambient temperature operating range is:

### Stepper Units (B & C)

Standard Construction: - 40°F to +140°F (-40°C to +60°C)

### Servo & Booster Pump Units (1/2D, D, D-P9 & D-P40)

Standard Construction: - 40°F to +120°F (-40°C to +50°C)

## ABOUT AMBIENT TEMPERATURE RATINGS

Ambient temperature ratings listed for REXA products take into account the internal heat rise due to normal operation of the unit. It does not take into account any additional external factors that can affect the relative temperature a product may be exposed to. Factors such as wind velocity, solar load and radiated heat sources, can increase or decrease the effective temperature the product may experience.

These external influences must be considered when determining the location and method of installation of any type of equipment. The need for and use of ancillary equipment to block or reduce these effects can often only be assessed at the time of installation. The supplier has no way of assessing the effects of solar gain, wind chill, radiated heat or other external environmental impacts as they relate to any installation. A sampling of issues to be considered is listed below:

- A unit exposed to high wind conditions may require a simple barrier to reduce heat convection.
- Solar heating can produce high temperatures on exposed metal surfaces. A sun shade will greatly reduce these temperatures.
- Proximity to high process temperatures may cause a radiated heat load. A sheet of aluminum acting as a thermal barrier will help minimize these affects.

Forethought and consultation with your local representative can provide the best approach for your specific environment.