SuperTrak HORIZON3™ & VERTICAL3™

Component Data Sheets

Rev. 3, May 2026

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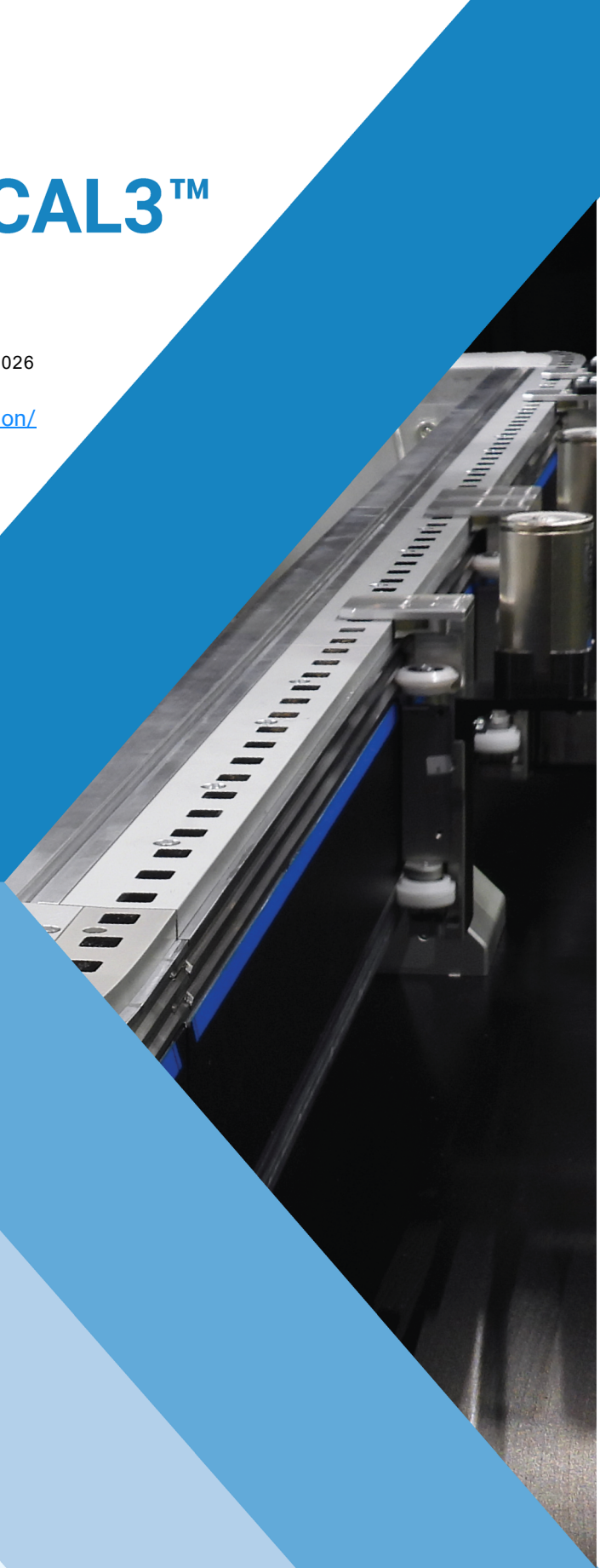

SuperTrak™ CONVEYANCE

The Foundation of World Leading Automation

Component Data Sheets

SuperTrak HORIZON3™ and VERTICAL3™ Conveyance Platform

Document Product Relevance

		Max Payload	Shuttle Pitch	Curve Configuration	This document applies
SuperTrak HORIZON3 SuperTrak VERTICAL3		3 kg	50 mm	Ø 270 mm	✓
SuperTrak HORIZON10		10 kg	154 mm	Ø 500 mm Ø 800 mm 90°	✗
SuperTrak VERTICAL10		10 kg	154 mm	Ø 500 mm	✗
SuperTrak PHARMA3		8.5 kg	154 mm	Ø 500 mm	✗

NOTICES

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GRAPHICS

All drawings, illustrations, and photographs included in this document are provided to expand and enhance the text. These graphics are representations only and are not necessarily drawn to scale. For accurate drawings, see the *Mechanical Drawing Package* and *Electrical Design Package*.

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Notes

This document provides information about SuperTrak HORIZON3™ and VERTICAL3™ components. Information found here is for general reference and may be updated without notice. Be sure you are using the most current version of this document by going to https://supertrakconveyance.com/technical-documentation/. *More information about the SuperTrak CONVEYANCE™ Platform can be found in the Operation and Maintenance Manual which is also available through the link referenced above.*

For information about spare parts, consult our spare lists on our website. For a spare parts list specific to your SuperTrak HORIZON3™ system, contact us at spares@supertrakconveyance.com .

Any content that has been added or updated in this document since the document's prior revision is marked with a vertical line in the left margin of the page, example at left here.

Frame of Reference

This document describes tooling movement using the following frame of reference, regardless of whether the system is mounted horizontally or vertically:

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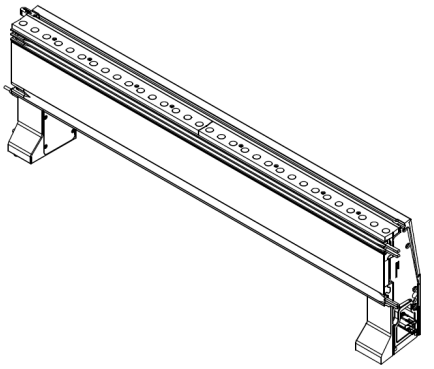
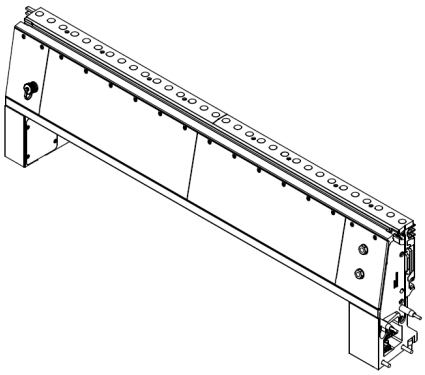
Straight Section Data Sheet

The straight section energizes coils to drive shuttles using precise encoder feedback.

Features

- Factory pre-configured for perfect alignment out of the crate
- Modular 1m length
- Large electronics access panels
- Interlocking rails for effortless transitions between sections without alignment
- Includes:
  - High resolution magnetic encoders for accurate shuttle position feedback
  - Built-in shuttle ID reader
  - Precision rails
  - Integrated liquid cooling for high-demand applications
  - T-slots for flexible mounting of light tooling
  - Connectorized power input
  - Secure mounting legs
  - Connectorized section-to-section electrical and communication interconnect

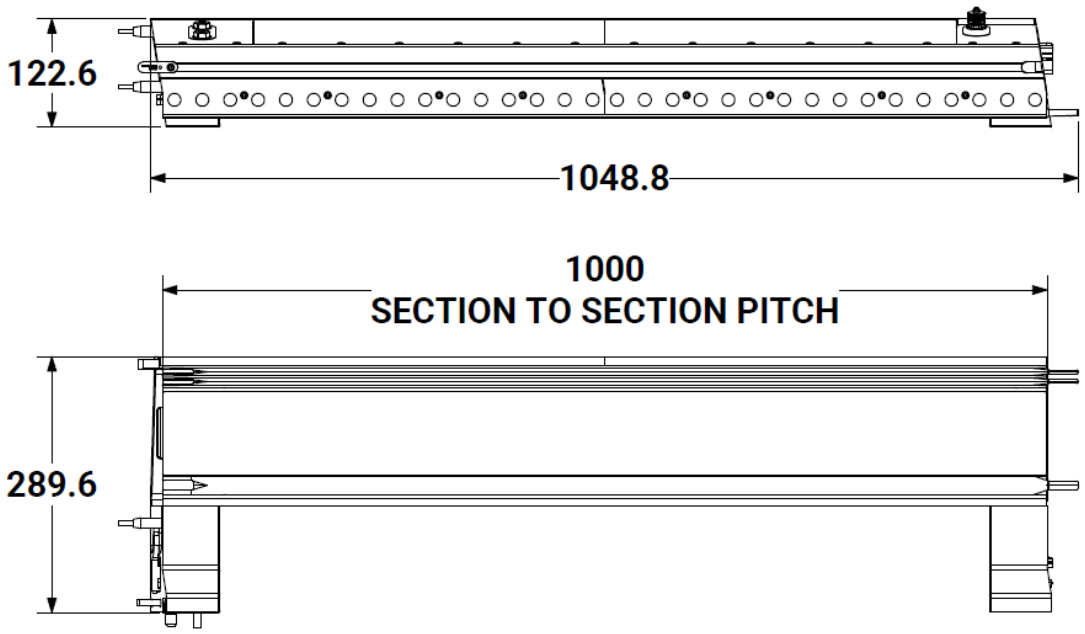




Part Numbers

Part	Part Number
Straight section	H3-L1000-HRID-LQ

Dimensions



Dimensions for reference only. See SuperTrak Design Package for detailed drawings.

Technical Specifications

Specification	Value
24V digital bus FLA	2.0A
Accelerating force (max.)	115N
Material	Aluminum anodized, steel, polycarbonate (PC), epoxy resin, EPDM foam, Buna-N rubber
FLA (Amps) on 48VDC motor bus	• Peak: 50A • Average: 14A
Voltage	• 48 VDC (motor) • 24 VDC (digital)
Approximate weight	31 kg (68 lbs)
Maximum coolant pressure	3.4 bar (50 psi)
Shuttle ID	Two locations

Straight Section Certifications

Region	Regulatory Standard Application	Description
North America Safety - OSHA/SCC	UL 61800-5-1	Adjustable Speed Electrical Power Drive Systems - Part 5-1: Safety Requirements - Electrical, Thermal and Energy
	UL508	Standard for Industrial Control Equipment
	CSA C22.2 No. 14	Industrial control equipment
North America EMI-OSHA/SCC	FCC part 15 subpart b	Unintentional Radiators
	ICES-003	Information Technology Equipment (including Digital Apparatus)
Europe Low Voltage Directive	EN 61800-5-1	Adjustable Speed Electrical Power Drive Systems - Part 5-1: Safety Requirements - Electrical, Thermal and Energy
	EN 619	Continuous handling equipment and systems - Safety and EMC requirements for equipment for mechanical handling of unit loads
	EN 60204-1	Safety of machinery – Electrical equipment of machines – Part 1: General requirements
Europe EMC Directive	EN 61800-3	Adjustable speed electrical power drive systems - Part 3: EMC requirements and specific test methods for PDS and machine tools
	EN 61000-6-2	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments
	EN 61000-6-4	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

For detailed information on SuperTrak component certifications, visit https://supertrakconveyance.com/certifications/

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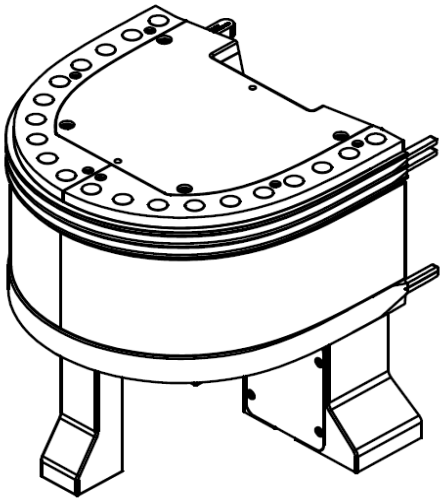
180 Deg. (Curved) Section Data Sheet

The curved section energizes coils to drive shuttles around a 180 degree curve using precise encoder feedback.

Features

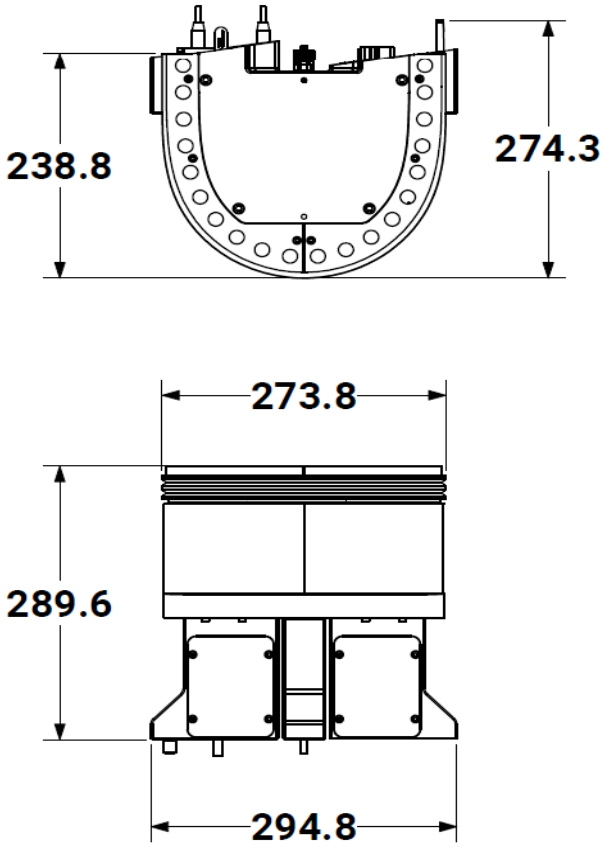


- Factory pre-configured for perfect alignment out of the crate
- Narrow 300mm diameter
- Electronics access panels
- Interlocking rails for effortless transitions between sections without alignment
- Includes:
  - High resolution magnetic encoders for accurate shuttle position feedback
  - Built-in shuttle ID reader
  - Precision rails
  - Integrated liquid cooling for high-demand applications
  - Connectorized power input
  - Secure mounting legs
  - Connectorized section-to-section electrical and communication interconnect

Part Number

Part	Part Number
180 deg. section	H3-D300-HRID-LQ

Dimensions



Dimensions for reference only. See SuperTrak Design Package for detailed drawings.

Technical Specifications

Specification	Value
24V digital bus FLA	2.0A
Acceleration	See *HORIZON3™ Shuttle Peak (Commanded) Acceleration vs. Payload* on page 17.
Material	Aluminum anodized, steel, polycarbonate (PC), epoxy resin, EPDM foam, Buna-N rubber
Voltage	• 48VDC (motor) • 24VDC (digital)
Approximate weight	25 kg (55 lbs)
Maximum coolant pressure	3.4 bar (50 psi)
Shuttle ID	Two locations

180 Deg. Section Certifications

Region	Regulatory Standard Application	Description
North America Safety - OSHA/SCC	UL 61800-5-1	Adjustable Speed Electrical Power Drive Systems - Part 5-1: Safety Requirements - Electrical, Thermal and Energy
	UL508	Standard for Industrial Control Equipment
	CSA C22.2 No. 14	Industrial control equipment
North America EMI-OSHA/SCC	FCC part 15 subpart b	Unintentional Radiators
	ICES-003	Information Technology Equipment (including Digital Apparatus)
Europe Low Voltage Directive	EN 61800-5-1	Adjustable Speed Electrical Power Drive Systems - Part 5-1: Safety Requirements - Electrical, Thermal and Energy
	EN 619	Continuous handling equipment and systems - Safety and EMC requirements for equipment for mechanical handling of unit loads
	EN 60204-1	Safety of machinery – Electrical equipment of machines – Part 1: General requirements
Europe EMC Directive	EN 61800-3	Adjustable speed electrical power drive systems - Part 3: EMC requirements and specific test methods for PDS and machine tools
	EN 61000-6-2	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments
	EN 61000-6-4	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

For detailed information on SuperTrak component certifications, visit https://supertrakconveyance.com/certifications/

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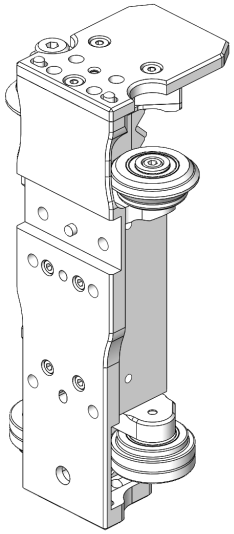
Shuttle Data Sheet

The shuttle is the base that carries and positions tooling. It contains powerful magnets and is driven by the motor using precise positional feedback.

Features

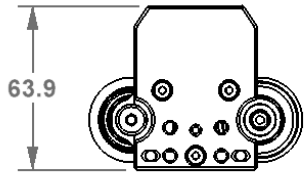


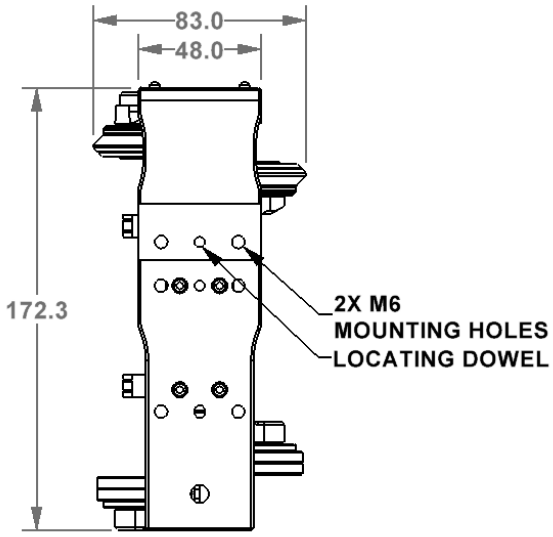
- Built-in V-rail lubrication
- Offset wheels provide stability while minimizing shuttle pitch
- V-wheels precisely locate shuttles on the track vertically
- 50 mm shuttle pitch
- Up to 3 kg payload
- Four possible tooling mounting surfaces on the front, top and bottom
- Removable by hand or by using the optional shuttle removal tool for extra leverage
- Minimal moving parts, requires infrequent maintenance
- Includes:
  - Pre-lubricated felt
  - Anti-static brush
  - Noiseless plastic wheels
  - Built-in unique shuttle ID
  - Calibrated high-resolution magnetic encoder for accurate positional feedback
  - Magnet keeper plate for safe handling and storage

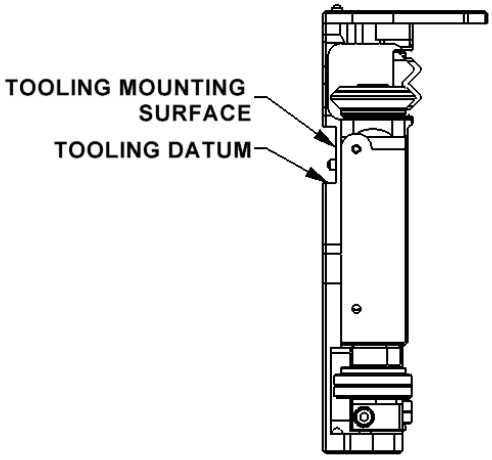
Part Number

Part	Part Number
Shuttle assembly	H3V3-S50-HRID

Dimensions



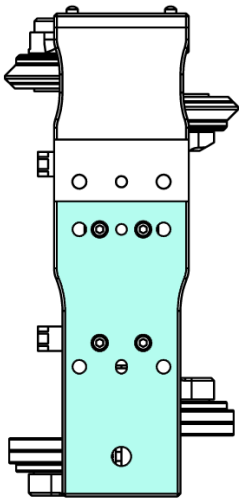




Dimensions for reference only. See SuperTrak Design Package for detailed drawings.

Mounting holes and locating dowel shown above are the primary recommended location for mounting. Additional tool mounting holes are available:

- on the top of the shuttle, as pictured above.
- on the front face of the shuttle, as pictured at right.



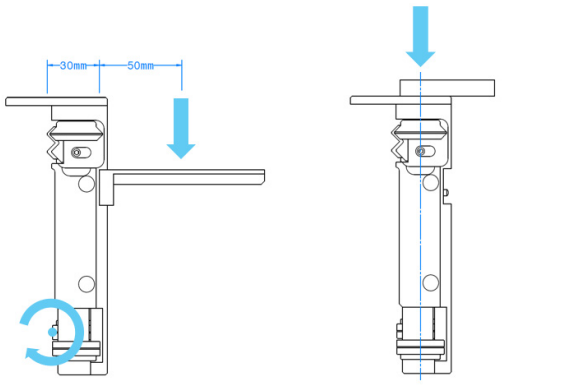
Technical Specifications

Specification	Applicable For	Value
Acceleration (max.)	1 kg (2.20lb) payload	Straight section: 35 m/s2 (114.8 ft./s2) Curved section: 22 m/s2 (72.2 ft./s2)[a] See *Relationship Between Shuttle Payload, Acceleration, and Velocity* on page 17.
	3 kg (6.61lb) payload	Straight section: 11 m/s2 (36.1ft./s2) Curved section: 5 m/s2 (16.4 ft./s2)[a] See *Relationship Between Shuttle Payload, Acceleration, and Velocity* on page 17.
Material	Shuttles	• Metals - aluminum, steel, stainless steel • Plastics - acetal • Misc - wool felt, mineral oil, neodymium, rubber, magnetic elastomer, polycarbonate+adhesive
Maximum unsupported process torque perpendicular to shuttle motion[b]	Straight sections	8 N-m (5.90 ft.-lbf) not to exceed 150 N (33.72 ft.-lbf)
	180 deg. section	5.6 N-m (4.13 ft.-lbf) not to exceed 100 N (22.48 ft.-lbf)
Maximum static radial loading per wheel	Shuttles	In Y direction: 75 N (16.9 lbf)
Minimum pitch from center-to-center of two (2) shuttles (as measured along the flat rail)	Straight section	50 mm (1.97 in.)
Minimum pitch from center-to-center of two (2) shuttles (as measured along the flat rail on the constant curvature section at the apex)	180 deg section	65 mm (2.56 in.)
Payload[c]	Shuttles	See *Relationship Between Shuttle Payload, Acceleration, and Velocity* on page 17.
Repeatability[d]	Straight section (X-axis)	±0.01 mm (±0.00039 in.)
	Curved sections (X-axis)	±0.025 mm (±0.00098 in.)

Specification	Applicable For	Value
Velocity (max.)[e]	Straight section	4 m/s (13.1 ft./s)
	Curved section	4 m/s (13.1 ft./s)
Weight (without keeper plate)	Shuttles	0.54 kg (1.19 lbs)
Weight (with keeper plate)	Shuttles	0.59 kg (1.29 lbs)

a. Acceleration on curved sections is applicable to HORIZON3™ but not to VERTICAL3™.

b. Includes process force, product fixture mass, and product mass. The rotation point for the moment load is calculated from the flat wheels for downward forces.



(A) Cantilever Load
Maximum downwards force: 100N
Maximum unsupported moment: 8 Nm (5.9 ft-lbf)

*For a load that is 50 mm away from the tooling surface. Rotation point is where the flat wheels contact the track.

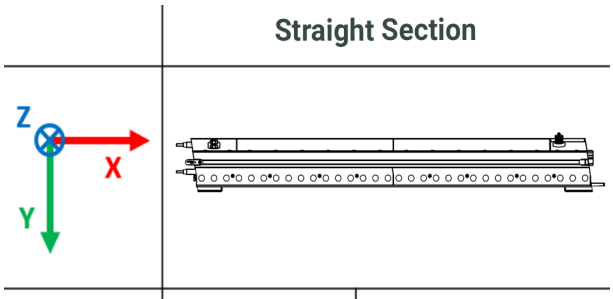
(B) Top Load
Maximum downwards force: 150N

*For a load directly above the wheel shafts.

c. Payload is the mass of the tooling and parts added to the base shuttle and does not include the weight of the base shuttle itself. For example, if you weighed the whole shuttle and it came to 2kg, considering the formula below:
(Payload Weight) = (Total Weight) - (Shuttle Weight)
The payload would be 1.46kg = 2kg - 0.54kg

d. Values listed in table are for a single shuttle, not shuttle-to-shuttle. The X-axis repeatability for straight sections is defined in the graphic at right.

Repeatability is higher where shuttle wheels are in the rail joints.

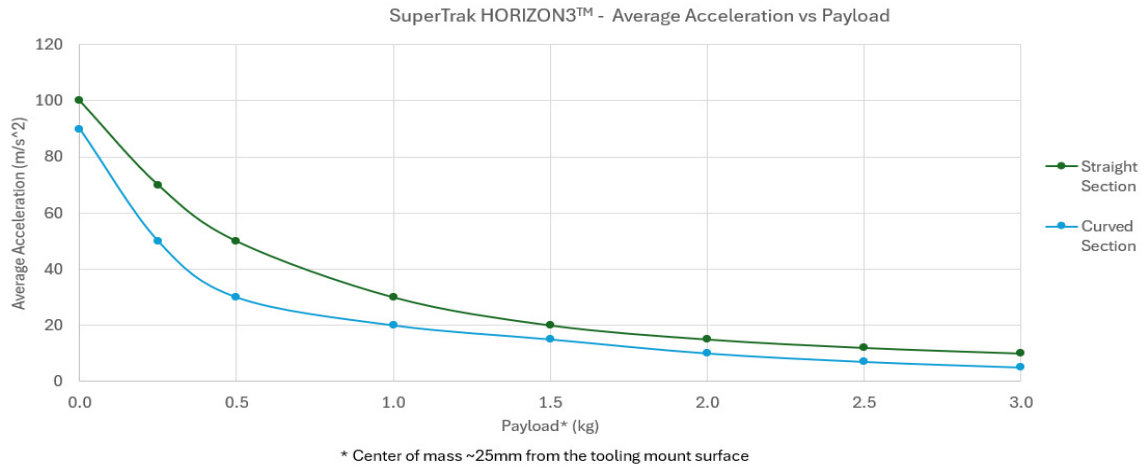


	Repeatability
X	+/- 10µm

e. Speed around curved sections is mass dependent.

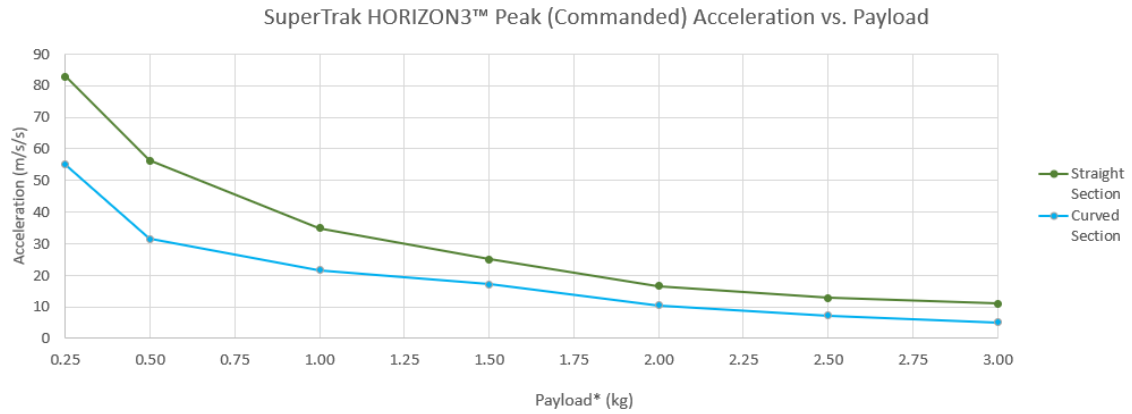
Relationship Between Shuttle Payload, Acceleration, and Velocity

HORIZON3™ Shuttle Average Acceleration vs. Payload



* Center of mass ~25mm from the tooling mount surface

HORIZON3™ Shuttle Peak (Commanded) Acceleration vs. Payload



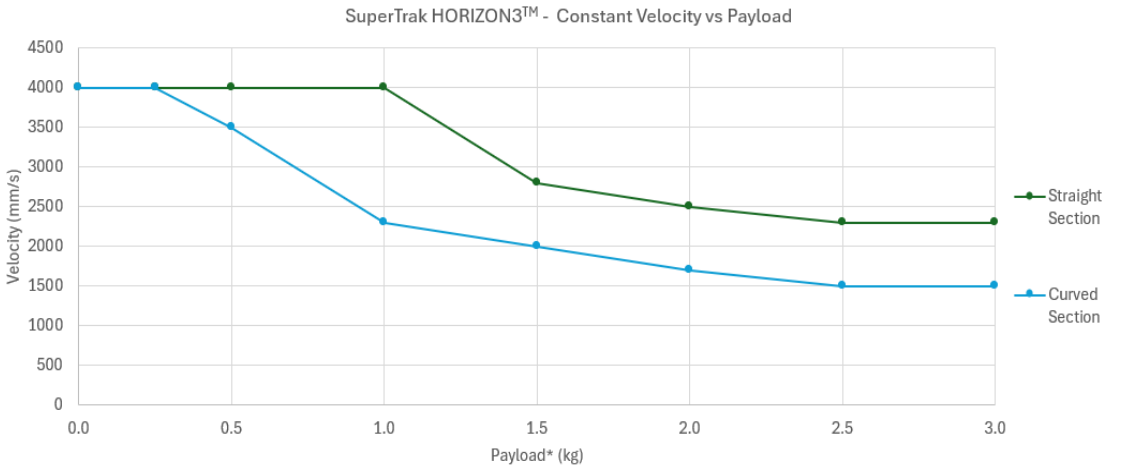
*Center of mass ~25mm from the tooling surface

Performance limitation changes from motor limit to mechanical instability after 2kg.

	HORIZON3™ Straight Section		HORIZON3™ Curve		Jerk
Payload (kg)	Peak (Commanded) Acceleration - Straight (m/s^2)	Average Acceleration - Straight (m/s^2)	Peak (Commanded) Acceleration - Curve (m/s^2)	Average Acceleration - Curve (m/s^2)	Jerk in Millions (mm/s^3)
0.25	83	70	55	50	15
0.5	56	50	31	30	10
1.0	35	30	22	20	3
1.5	25	20	17	15	1
2.0	17	15	11	10	1
2.5	13	12	7	7	1
3.0	11	10	5	5	0.5

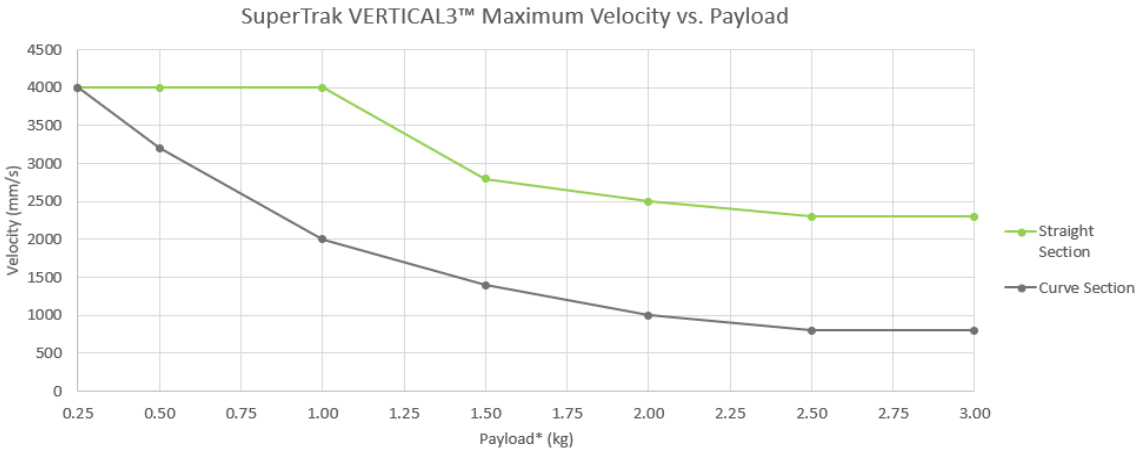
**Jerk values listed here are recommended values based on payload.*

HORIZON3™ Shuttle Maximum Velocity vs. Payload



** Center of mass ~25mm from the tooling mount surface*

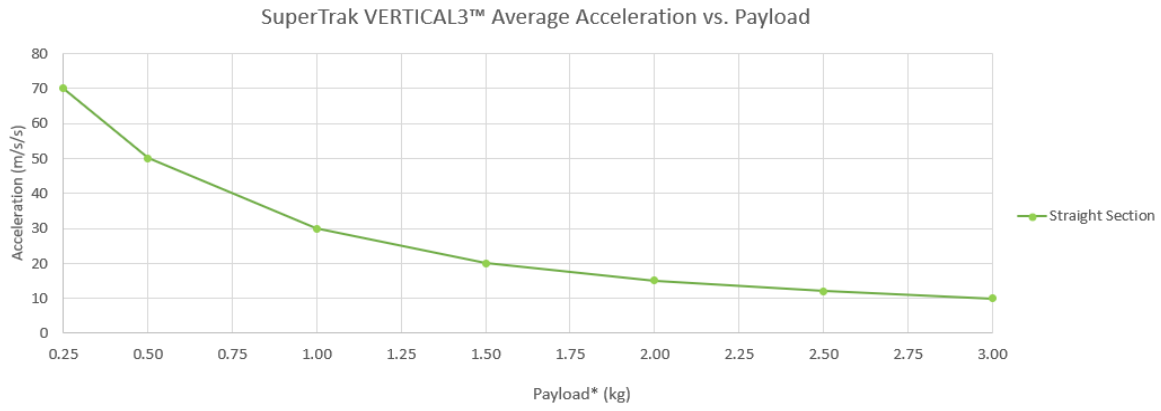
VERTICAL3™ Shuttle Maximum Velocity vs. Payload



*Center of mass ~25mm from the tooling surface

Higher velocities create risk of shuttles detaching from SuperTrak platform.

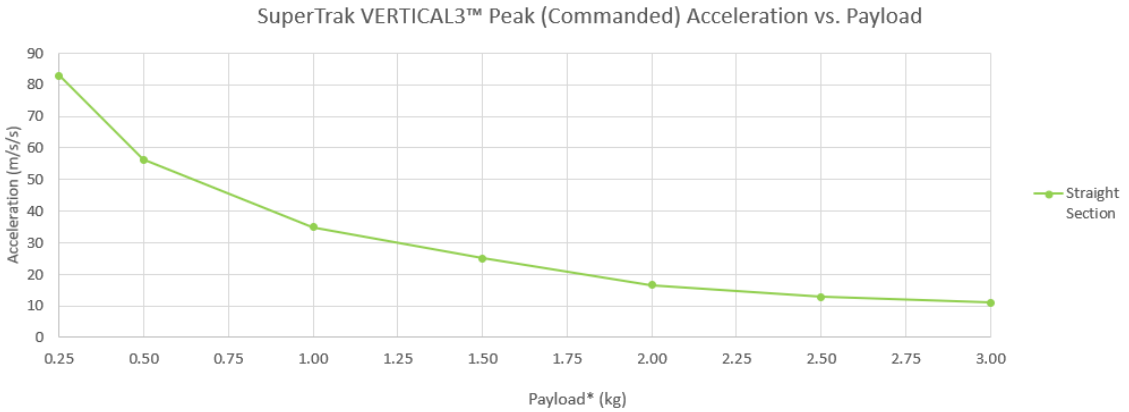
VERTICAL3™ Shuttle Average Acceleration vs. Payload



*Center of mass ~25mm from the tooling surface
Performance Limitation changes from motor limit to mechanical instability after 2kg.

Acceleration vs. payload is not applicable for VERTICAL3™ curved track sections

VERTICAL3™ Shuttle Peak (Commanded) Acceleration vs. Payload



*Center of mass ~25mm from the tooling surface
Performance limitation changes from motor limit to mechanical instability after 2kg.

VERTICAL3™ Straight Section			
Payload (kg)	**Peak (Commanded) Acceleration - Straight (m/s^2)**	***Jerk in Millions (mm/s^3)***	**Average Acceleration - Straight (m/s^2)**
0.25	83	*15*	70
0.5	56	*10*	50
1.0	35	*3*	30
1.5	25	*1*	20
2.0	17	*1*	15
2.5	13	*1*	12
3.0	11	*0.5*	10

**Jerk values listed here are recommended values based on payload.*

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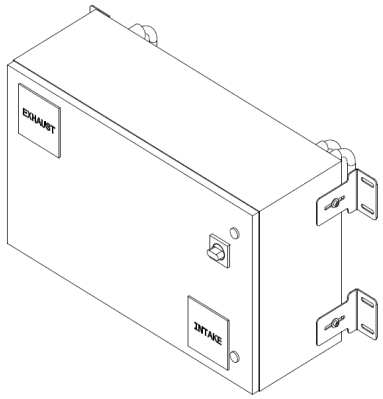
Control Panel Data Sheet

The control panel provides AC power distribution and shuttle control for the SuperTrak HORIZON3™ and VERTICAL3™ system.

Features

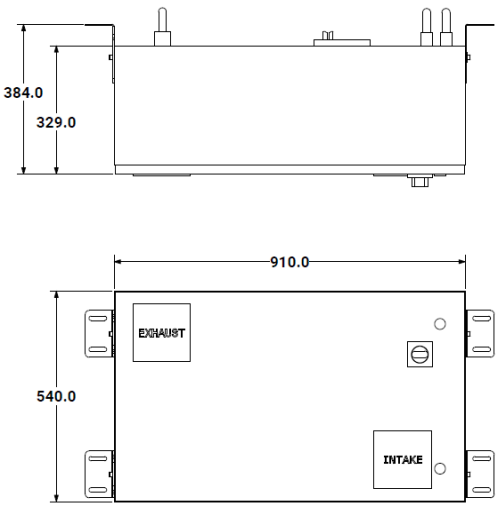
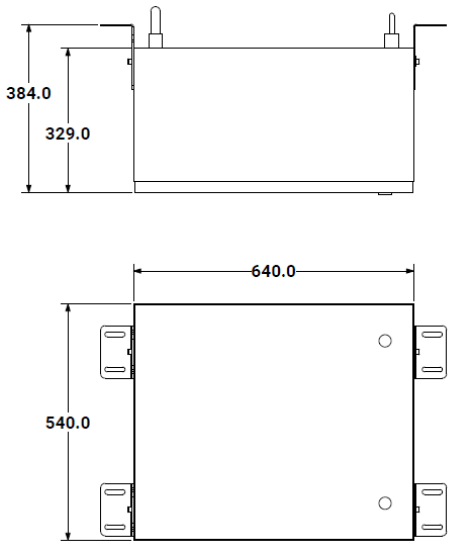


- Integration with the automation system safety circuit utilizes dual channel input with a feedback loop via provided terminals.
- Available in two (2) line voltage options:
  - 400Y230 VAC
  - 208Y120 VAC
- Available in two panel configurations:
  - Combined logic and power panel (pictured at right)
  - Split logic and power panel
- Includes:
  - A buffer module (may also be referred to as an uninterruptible power supply or UPS)
  - Filtered cooling fan and air exhaust
  - An open interface to programmable logic controller (PLC): PROFINET, EtherNet/IP, or EtherCAT

Part Numbers

Panel Option	Part Number	Description
Combined panel	H3V3-CBN-EU-SI-1PH	European voltage 400Y230VAC, SIMATIC, single-phase power supply
	H3V3-CBN-NA-SI-1PH	North American voltage 208Y120VAC, SIMATIC, single-phase power supply
Power panel	H3V3-PWR-EU-1PH	European voltage 400Y230VAC, single-phase power supply
	H3V3-PWR-NA-1PH	North American voltage 208Y120VAC, single-phase power supply
Logic panel	H3V3-LGC-AD	Advantech IPC platform panel (generic)
	H3V3-LGC-SI	Siemens SIMATIC IPC control panel

Dimensions

Power-only panel or combined logic and power panel	Logic panel
	

Dimensions for reference only. See SuperTrak Design Package for detailed drawings.

Technical Specifications

Specification	Value
Control voltage	24VDC
Frequency	50/60 Hz
Full load amps	36A
Largest load	10A
Line voltage	400Y230VAC+PE (EU) 208Y120VAC+PE (North America)
Materials	Steel sheet, lacquered, RAL7024, polyamide (PA)
Phases	3 ph, 5-wire (L1, L2, L3+N+PE)
Short circuit current rating	5kA
Approximate Weight	Combined Panel: 70 kg (154.3 lbs)

Control Panel Certifications

Region	Regulatory Standard Application	Description
North America Safety - OSHA/SCC	UL 508A	Industrial Control Panels
	CSA C22.2 No. 14	Industrial control equipment
North America EMI-OSHA/SCC	FCC part 15 subpart b	Unintentional Radiators
	ICES-003	Information Technology Equipment (including Digital Apparatus)
Europe Low Voltage Directive	EN 60204-1	Safety of machinery – Electrical equipment of machines – Part 1: General requirements
Europe EMC Directive	EN 61800-3	Adjustable speed electrical power drive systems - Part 3: EMC requirements and specific test methods for PDS and machine tools
	EN 61000-6-2	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments
	EN 61000-6-4	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

* For detailed information on SuperTrak component certifications, visit https://supertrakconveyance.com/certifications/

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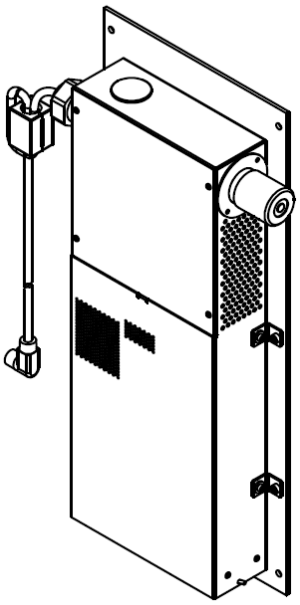
Power Supply Data Sheet

The power supply supplies power to straight and curved sections.

Features

- Provides a modular power system; adjust the number of SuperTrak conveyance platform power supplies based on the size and requirements of the system.
- Includes:
  - A 48VDC power output cable
  - An AC power input plug
  - One (1) air filter
  - M8 three-pin connection for PLC monitoring
  - Mounting plate (as pictured at right)--can be ordered without mounting plate



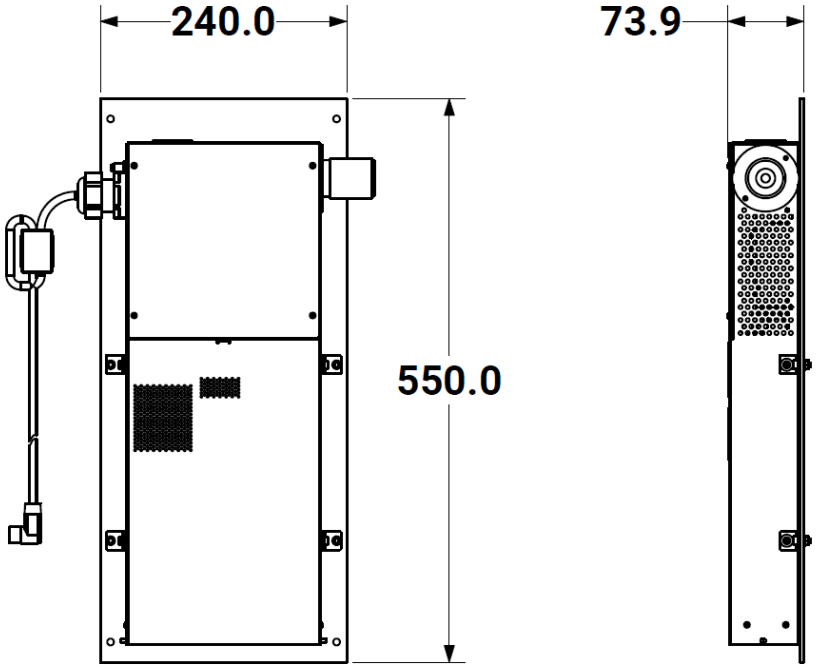
Part Numbers

Part	DC Output Cable Length[a]	Part Number
Power supply with mounting plate and cable	2 m (standard)	48V-1500W-2M-1PH-MT
	5 m (optional)	48V-1500W-5M-1PH-MT
Power supply with cable and without mounting plate	2 m (standard)	48V-1500W-2M-1PH
	5 m (optional)	48V-1500W-5M-1PH

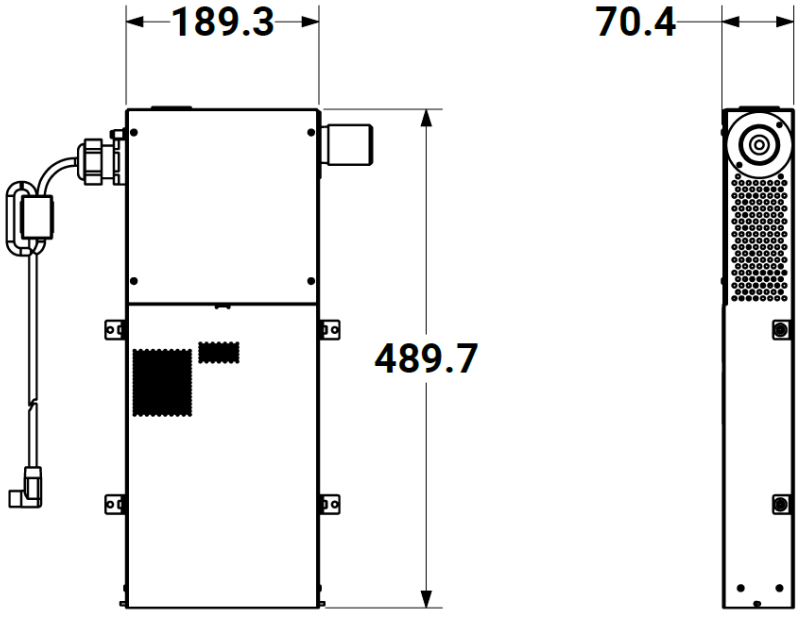
a. All power supplies on a track must have the same cable lengths. Do not use power supplies with varying cable lengths on the same system.

Dimensions

With mounting plate



Without mounting plate



Dimensions shown are for reference only. See SuperTrak Design Package for detailed drawings.

Technical Specifications

Specification	Value
Cable length	2000 mm (78.74 in.) - standard
	5000 mm (196.85 in.) - optional
Cable bend radius (inside)	30 mm (1.18 in.)
Frequency	50/60Hz
Main voltage (input)	200-240VAC
Efficiency (%)	91-93% (typical, dependent on voltage)
Material	Aluminum, brass, nickel-plated, polyamide (PA), PUR
Max. number of power supplies	Application-dependent
Output wattage (continuous)	1500W
Output voltage	48VDC
Approximate weight	9 kg (19.8 lbs)
SCCR	5kA

Power Supply Status Input

Overcurrent/Short-Circuit Protection

- Overcurrent protection is built in (105% of rated current).
- The power supply will automatically recover when the fault condition is removed.

Overvoltage Protection

- Overvoltage protection is built in (Vo+5.6 – 11.2).
- If the overvoltage protection circuit is activated, shut down the input voltage, wait at least three minutes and turn on the AC input again to recover the output voltage.

Thermal Protection

The built-in thermal protection circuit will be activated under the following conditions and will shut down the output when the fan stops or air flow is blocked from the fan.

If the thermal protection circuit is activated, shut off the input voltage and eliminate the overheating conditions. To recover the output voltage, allow the unit to fully cool down (~10min) before reapplying the input voltage.

Power Supply Certifications

Region	Regulatory Standard Application	Description
North America Safety - OSHA/SCC	UL 61010-1	Standard for Safety Requirements for Electrical Equipment For Measurement, Control, and Laboratory Use; Part 1: General Requirements
	UL508	Standard for Industrial Control Equipment
	CAN/CSA-C22.2 No. 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements
North America EMI-OSHA/SCC	FCC part 15 subpart b	Unintentional Radiators
	ICES-003	Information Technology Equipment (including Digital Apparatus)
Europe Low Voltage Directive	EN 60204-1	Safety of machinery – Electrical equipment of machines – Part 1: General requirements
	EN 61010	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements
Europe EMC Directive	EN 61800-3	Adjustable speed electrical power drive systems - Part 3: EMC requirements and specific test methods for PDS and machine tools
	EN 61000-6-2	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments
	EN 61000-6-4	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

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