Hypertherm®

command® THC

Torch Height Control system

X-Y CommandTHC

Torch-to-work distance is crucial to maintain optimal cut quality. The CommandTHC works with X-Y cutting systems to control this critical parameter and maximize plasma cutting quality and productivity.

**Patents pending worldwide.*

Ensure optimal cut quality with the Command Torch Height Control

The system

The CommandTHC is a microprocessor-based torch height control system which accurately sets the initial piercing height and controls the torch-to-work distance of a plasma torch during cutting operations. The system includes a control module, plasma system interface module, a torch lifter assembly, interconnecting cables, optional operator control pendant and optional breakaway kit.

Superior height control

- The system will respond to arc voltage changes of less than 1 volt.
- Maximum speed of retract exceeds 200 ipm (5.0 m/min).
- Built-in Ohmic touch-retract initial height sensing (IHS) feature ensures accurate, repeatable initial piercing height settings.
- A work-clear feature senses the loss of Ohmic contact for accurate positioning, even on thin, flexible sheet metal.
- Built-in motor-stall IHS feature is always active and serves as a back-up for the Ohmic IHS, when cutting non-conductive material surfaces, such as painted plate or underwater cutting.
- Rapid pull-back feature moves the torch away from the workpiece if a touch is detected during cutting.* This collision avoidance feature will prevent crashes such as workpieces that tip up or buckle.
- CNC-controlled arc voltage control can be disabled during cornering to keep the torch from diving at corners.
- Over-voltage protection automatically eliminates “torch diving” during large, out-of-limits arc voltage fluctuations; such as kerf crossings or cutting off the edge of a plate.*
- Built-in, advance preflow reduces cycle time by allowing gas to preflow during the IHS cycle.
- Optional breakaway is designed to reduce or eliminate damage to the torch due to accidental collisions in all axis.

Flexible operation

- An optional operator control pendant with backlit iquid crystal display allows easy system setup, operation and monitoring.
- Distances can employ inch or metric units.
- Programmable set points for cutting height via operator control pendant.
- Programmable delays for pierce time, machine motion acceleration time and torch retract delay time.
- All features and parameters can be set remotely via RS422 serial interface, for complete CNC control.
- System designed to work with any AC line input voltages currently available worldwide.
- System diagnostics can be displayed or transferred to the CNC.

Maximum reliability

- Heavy duty, 100% duty cycle.
- Built-in power-up diagnostics.
- Backed by Hypertherm warranty: two years on all control modules, one year on torch lifter station.

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Optimized X-Y torch lifter station

- Advanced-technology, high-torque motor allows 50-pound (25 kg) load capacity.
- 8 inches (203 mm) active stroke.
- 200 ipm (5 m/min) maximum z-axis travel speed.
- Positioning resolution 0.001 inch (0.025 mm).
- Moving mechanical parts are protected from the environment by a Teflon-coated, fiberglass sealing band and a mechanized shield.
- Moving parts are dry lubricated; no oil lubrication is required.
- Non-contact/inductive, upper and lower-limit switches.

X-Y standard system components

- X-Y THC lifter assembly
- THC control module
- Plasma system interface module
- Interconnecting cables
- Operator control pendant (optional)
- Breakaway (optional)

Specifications

X-Y torch lifter	
Limit switches	Upper and lower inductive proximity sensors
Max. Z-axis speed	200 ipm (5.0 m/min)
Max. Z-axis stroke	8 inches (200 mm)
Total weight with torch mounting block	18.25 pounds (8.4 kg)
Positioning resolution	0.001 inch (0.025 mm)
THC control function	
Set point resolution	0.5 volt
Set point range	50 – 300 volts
Maximum control accuracy	±0.5 volt
Voltage feedback (divider)	1/40.95 of arc voltage
Initial piercing height control function	
Initial piercing height mode	Set cutting height; pierce height is automatically computed
Set point resolution	0.010 inch (0.10 mm)
Set point range	0.020–1.00 inch (0.5–25.4 mm)
Pierce height factor	1 to 3 times the cutting height
Work contact sensing	Ohmic contact and/or motor torque
Work clear	Loss of Ohmic contact
Pierce delay range	0 to 5 sec
Pierce delay resolution	0.010 sec
Machine acceleration delay	0.00 to 1.00 sec
Machine acceleration delay	Resolution 0.010 sec
Initial piercing height stall force	1–10 Relative setting
Initial piercing height speed	1–10 Relative setting
Homing speed	1–10 Relative setting
Miscellaneous features	Ability to be synchronized with parallel THC systems Electrically floating interface Machine safety interlock System fully complies with the following standards and directives: CSA 22.2 #60 UL 551 EN 60974-1 EN 50199 EN 55011 Low voltage directive EMC directive

For additional information, call:
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