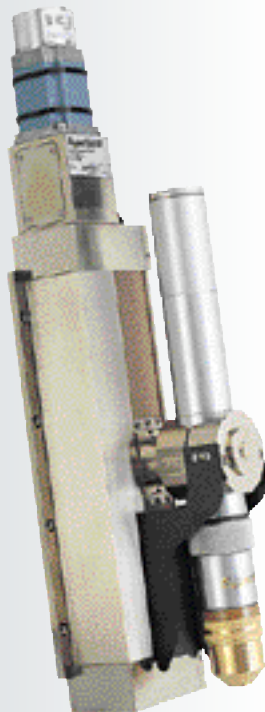


# Hypertherm<sup>®</sup> command<sup>®</sup> THC

## Torch Height Control system



X-Y CommandTHC

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

### **Ensure optimal cut quality with the Command Torch Height Control**

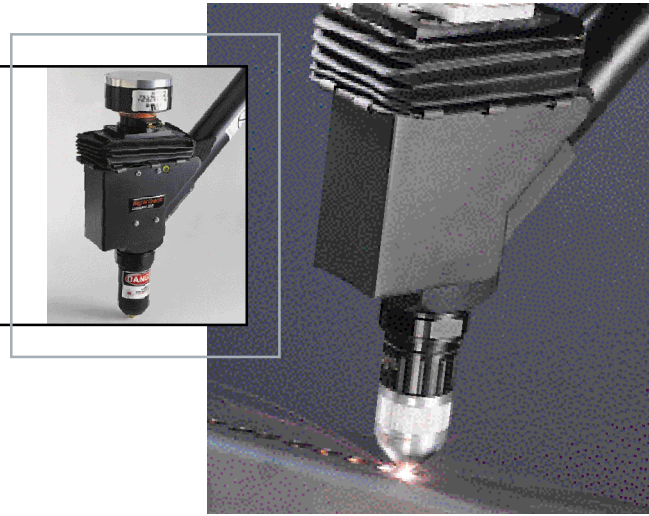
#### **The system**

The CommandTHC is a microprocessor-based torch height control system which accurately sets the initial piercing height and control 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 such 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.
- Breakaway is designed to reduce or eliminate damage to the torch due to accidental collisions in all axis.

\*Patents pending worldwide.



Robotic CommandTHC

#### **Flexible operation**

- An optional operator control pendant with backlit liquid 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.

#### **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.



### CommandTHC for Hypertherm HD3070 robotic applications

The CommandTHC provides totally integrated, independent control of the torch-to-work distance for the HD3070 HyDefinition torch used for robotic, 3-D cutting applications. Now robots using the HD3070 can consistently produce the same excellent cut quality achievable on X-Y cutting machines.

### Optimized robotic HyDefinition torchlifter station

- Lightweight HyDefinition robotic torch lifter station. Less than 7.7 pounds (3.5 kg) including the lifter, torch head and consumables.
- Lifter station incorporates the quick-disconnect mechanism for HyDefinition torches.
- Lifter station is compatible with all Hypertherm quick-change HyDefinition torches.
- Lifter station is compatible with all HyDefinition consumables through 100 amperes.
- Nozzle is on the same centerline as the robotic arm's end-effector, allowing the robot to spin the torch while maintaining a stationary cut position.
- Upper and lower travel-limit stops.
- Maximum travel  $\pm 0.5$  inch (12 mm) from the center position of the lifter.
- Dust-tight protective boot maximizes the service life of moving parts.
- Simple, robust design allows for easy maintenance and repair.
- Laser "Technology Tip" to aid in programming machine motion.

### 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)

### Robotic standard system components

- Robotic lifter assembly
- THC control module
- Breakaway
- Plasma system integrator module
- Interconnecting cables
- Operator control pendant (optional)

### Specifications

<b>X-Y torch lifter</b> Limit switches Max. Z-axis speed Max. Z-axis stroke Total weight with torch mounting block Positioning resolution	Upper and lower inductive proximity sensors 200 ipm (5.0 m/min) 8 inches (200 mm) 18.25 pounds (8.4 kg) 0.001 inch (0.025 mm)
<b>Robotic torch lifter</b> Limit switches Max. Z-axis speed Max. Z-axis stroke Total loaded weight Positioning resolution	Upper and lower inductive proximity sensors 100 ipm (2.5 m/min) $\pm 0.5$ inch (12 mm) 7.7 pounds (3.5 kg) 0.001 inch (0.025 mm)
<b>THC control function</b> Set point resolution Set point range Maximum control accuracy Voltage feedback (divider)	0.5 volt 50 – 300 volts $\pm 0.5$ volt 1/40.95 of arc voltage
<b>Initial piercing height control function</b> Initial piercing height mode Set point resolution Set point range Pierce height factor Work contact sensing Work clear Pierce delay range Pierce delay resolution Machine acceleration delay Machine acceleration delay	Set cutting height; pierce height is automatically computed 0.010 inch (0.10 mm) 0.020–1.00 inch (0.5–25.4 mm) 1 to 3 times the cutting height Ohmic contact and/or motor torque Loss of Ohmic contact 0 to 5 sec 0.010 sec 0.00 to 1.00 sec Resolution 0.010 sec
<b>Initial piercing height stall force</b>	1–10 Relative setting
<b>Initial piercing height speed</b>	1–10 Relative setting
<b>Homing speed</b>	1–10 Relative setting
<b>Miscellaneous features</b>	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:  
TOLL-FREE IN THE USA & CANADA: 1-800-643-0030**

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## Hypertherm<sup>®</sup>

The world leader in  
plasma cutting technology™

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