Phoenix™ Software Version 9.76.4

Release Notes

807400 Revision 17 – June 2017

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Contents

The following sections describe changes that have been made to Phoenix software and Hypernet® firmware.

Before you begin

Hypertherm provides regular updates to the Phoenix software and recommends that you check for updates on a regular basis. Additionally, you should update to the latest software revision after restoring a ghost image. You can download the most current software from the website www.hypertherm.com. Search for "Phoenix software updates" to find the Phoenix software updates page, where you can download:

- Phoenix software update (update.exe)
- Phoenix Help file (Help.exe)
- Cut charts (CutChart.exe)

Follow the instructions on the web page to download the updates in your language. Before you update the Phoenix software, follow these guidelines:

- Back up your system files: On the Main screen, choose Files > Save to Disk > Save System Files to Disk.
- Copy the files that you download from Hypertherm.com to the root directory of a USB memory stick.
- Be prepared to restart the CNC after you have updated the software.

Notes:

- Important! If the EDGE® Pro CNC is not already on Phoenix V9.50.0 or later, contact Return.Materials@Hypertherm.com for a free hard drive update before you upgrade to V9.50.1 or later.
- If you are downloading an updated version of Phoenix software to your CNC, you must download and install the software before you update the cut charts.
- Do not attempt to use updated cut charts until you have installed the corresponding, updated version of the software.
- If you update the software and cut charts and then restore a previous version of the software, you must also restore the corresponding cut charts.

Updating the software

The Phoenix software update in English is called update.exe. When you download the software update in a language other than English, the file is named *langauge_Phoenix9.zip*. Extract the update.exe file from the .zip file and place it in the root folder of a memory stick.

1. At the CNC, connect the memory stick that contains the file update.exe to a USB port.

   Note: Verify that update.exe resides in the root folder of the memory stick.

2. On the Main screen, choose Setups > Password. If you are not using a keyboard, double-tap the screen to display an on screen keyboard.
3. Enter UPDATESOFTWARE (one word) and choose Enter. The CNC updates the software and restarts after the update completes.

Updating the Help

1. At the CNC, connect the memory stick that contains the file Help.exe to a USB port.

   Note: Verify that Help.exe resides in the root folder of the memory stick.

2. On the Main screen, choose Setups > Password. If you are not using a keyboard, double-tap the screen to display an on screen keyboard.
3. Enter UPDATEHELP (one word) and choose Enter. The Phoenix software automatically reads the memory stick and installs the new help file.

Updating additional languages

To update additional languages on the CNC, you must update each language one at a time:

1. Choose Setups > Password > Special Setups to open the Special Setups screen.
2. Select the target language for the update. The CNC will restart in the target language.
3. Download the Phoenix software in the target language from Hypertherm.com. The file is named *langauge_Phoenix9.zip*.
4. Download the help file in the target language. The file is named *language_Help.zip.*
5. Extract the update.exe file from the .zip file and place it in the root folder of a memory stick.
6. Extract the help.exe file from the .zip file and place it in the root folder of a memory stick.
7. Connect the memory stick to a USB port on the CNC.
8. Choose Setups > Password, enter UPDATESOFTWARE (one word) and choose Enter. The CNC updates the software and restarts after the update completes.
9. After the CNC restarts, choose Setups > Password and enter UPDATEHELP (one word) and choose Enter. The The Phoenix software updates the help file.

Updating the cut charts

Hypertherm provides cut charts in two different file types: .fac and .usr. The .fac files are the factory-default cut charts. These cut charts cannot be changed. The .usr cut charts contain any changes you have made to a cut chart and saved with the Save Process soft key.

The cut chart update file (CutChart.exe) contains both .fac and .usr cut chart files. The update automatically overwrites all of .usr cut charts. Before installing the update, back up your modified cut charts.

Hypertherm recommends saving modified cut charts as custom cut charts. When you create a custom cut chart, Phoenix creates a .usr file with a unique name. This prevents the both factory and custom cut charts from being overwritten by the files in CutChart.exe. See the section *Custom Cut Charts* in the *Phoenix Operator's Manual* (806400) for instructions.

Backing up modified cut charts

1. At the CNC, connect a memory stick into a USB port.
2. On the Main screen, choose one of the cut chart soft keys, such as Plasma 1 Cut Chart.
3. Choose the Save Cut Charts soft key. Phoenix copies all the cut charts associated with the Plasma 1 Torch Type onto the memory stick.
4. Repeat this procedure for each process type you have selected on the CNC, for example, Plasma 2, Marker 1, and so on.

Updating the cut charts

1. At the CNC, connect the memory stick that contains the file CutChart.exe to a USB port.

   Note: Verify that CutChart.exe resides in the root folder of the memory stick.

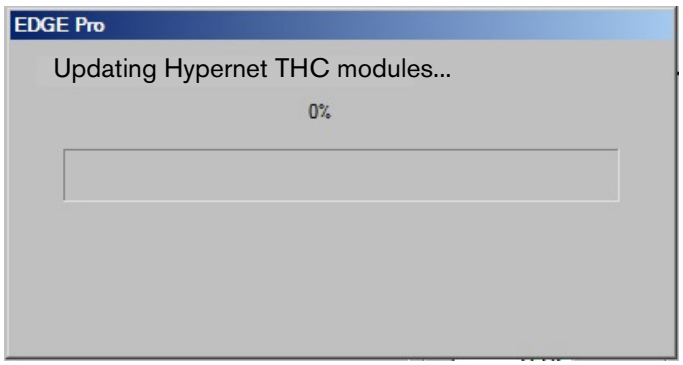
2. On the Main screen, choose Process, and choose one of the cut chart soft keys such as Plasma 1 Cut Chart.
3. Choose the Load Cut Charts soft key, then choose Yes when prompted to load cut charts from the memory stick. Phoenix extracts the cut charts and copies them to the hard drive.
4. If you have modified cut charts to copy back onto the hard drive, you will need to exit Phoenix and use Windows® Explorer to copy your .usr files back onto the hard drive. The cut chart folder is C:\Phoenix\CutCharts.

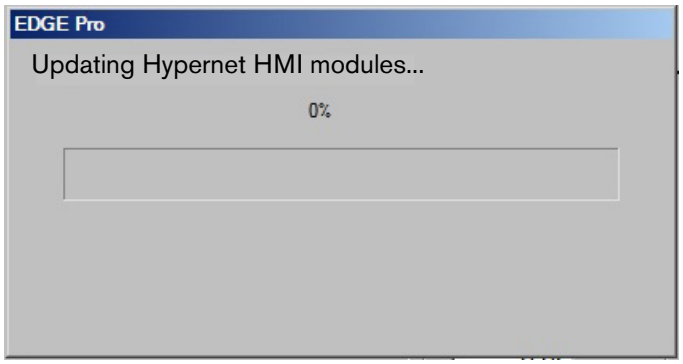
Updating the Hypernet firmware

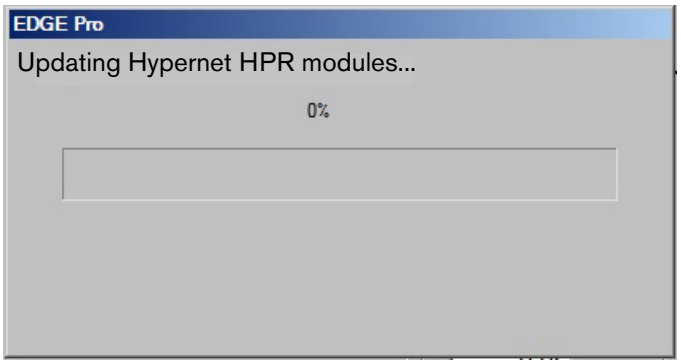
If you are using Hypernet, a Hypernet firmware update will run automatically after Phoenix restarts when its software update is complete. In order for this firmware update to run successfully, you must power up all systems that are connected to Hypernet (for example, ArcGlide THC, HPR, CNC, HMI) **before** running the firmware update. Otherwise, a communication error similar to the one shown below will display:

The following screens show an example of the sequence of messages that display when the Hypernet firmware updates successfully in an environment with THC, HMI, and HPR all connected to Hypernet:

The following messages appear during the Hypernet firmware update.







After the CNC updates the Hypernet firmware, the software update is complete.

Security update

The new Edge Pro image resolves the issue of Wannacrypt Malware with a Windows® XP security update. The Microsoft security essentials anti-malware definitions have also been updated. If an HDD Scan is performed, any temporary warning messages can be ignored unless presented as a malware concern at the end of the scan.

The security update is also available for download for other EDGE Pro units in the field. For convenience the security update is available on the Sharefile site. https://hypertherm.sharefile.com/share?#/view/s27108464b1143f18

Resolution

One of the 3 files needed to add support for a software patch that resolves a limitation in a revised LS7267 Encoder Integrated Circuit device, which is used on current analog motion control cards, is missing in the 9.76.3 release dated 3/31/17. The file which supports the EDGE Pro Ti was not included. The 9.76.4 release includes the missing file. All customers, including those who have updated to 9.76.3, should update to 9.76.4

Phoenix Software Version 9.76.3 Release Notes

Features

- Added support for HPR XD 80A and 400A SilverPlus electrodes.

Improvements

- Changes made to Phoenix MCC code to correct faulty encoder readings from a revised LS7267 encoder integrated circuit device that can fail to return the correct encoder position.
- Added support for F10, Stop Button, and Safety Mat inputs to turn off Test Lifter function from within the process screen.

Resolutions

- Changed the Torch Height Disable signal to turn off when exiting a Bevel Corner Loop, and the proper Cut Speed is being used after exiting a Bevel Corner Loop.
- The Test Lifter button now activates correctly when the THC is near the top of the Lifter Slide.
- The Stop button is being honored even when the Start and Stop buttons are pressed very quickly in succession.
- A Joystick controlled rip cut can now be started after an E-stop occurs in the middle of a previous Joystick controlled Rip Cut.
- Occasionally, when the torch was at the first pierce point, a "Traversing" message was shown giving the user the impression that Phoenix was locked up. This issue occurs when the station is not enabled, the part program contains an M37 Txx code, and the THC is in automatic mode. Now the program pauses and the correct status message, "Need Station Select", is shown.
- When activated immediately after starting a part (Trialing or Cutting), pressing the front panel E-stop no longer results in improper motion from the Return to Start button.
- Resolved a Phoenix exception issue when pressing Stop during Laser Pointer Offset in the Cut Pro Wizard.
- Resolved an issue with switching from Mild Steel to Stainless Steel with HPRXD in the Cut Pro Wizard when picking a cutting process. The process is now updated correctly and the screen is refreshed.
- A Pierce Count Overrun Check was added to prevent getting stuck on the Pause screen or with a Phoenix Exception error.

- Resolved an issue where Cutting or Trialing large parts at extremely slow speeds caused motion issues.
- Resolved an improper Return to Start motion after an E-stop when using the Part Program Resume/Power Loss function.
- Resolved an issue where pressing the E-Stop, while the Cut Pro or Align Wizards are active, resulted in the Manual Screen displaying unresponsive OK and Cancel buttons.
- Resolved a Phoenix Exception Error that occurred because of excess Speed pot activity or electrical noise introduced into the Speed pot.
- Resolved an issue where backing up on path continuously to the beginning of the part can cause IHS to occur.
- Resolved an issue with the Circle in Cross Simple Shape containing redundant G41 M07 G41 M07 codes.

Ease of use and embedded process expertise

Software enhancements

- Remote Help™ can now be used with URL-launch-capable screen-sharing tools by automatically detecting and loading a URL file (RemoteHelp.txt) from a USB memory stick attached to the CNC. Bomgar™, TeamViewer®, and ScreenConnect® are some examples of screen-sharing tools that can be used. Also, the URL was updated from support.hypertherm.com to remotehelp.hypertherm.com. There is detailed information in field service bulletin 807560, which can be found in the downloads library on Hypertherm.com.
- Phoenix now recognizes pipe and tube parts when the comment Pipe Part or Tube Part appears as the first line in the part program.
- A new output (Error During Program) was added that can be used to turn on for any fault conditions or plasma system errors that pause a program or block a part program from completing. The Program Running output was also improved so it does not stay on for any fault conditions or plasma system errors that pause a program or block a part program from completing.

Software resolutions

- Resolved an issue where a conflicting process message was displayed for oxyfuel stations using Sensor THCs that are assigned to other stations and processes for positioning.
- Resolved an issue where users were not getting valid values when a fault occurred while using Sample Arc Voltage (SAV). The value for each sample is now set to zero volts (0 V) before taking the next valid sample. If a problem occurs that prevents a new sample from being taken, such as losing the arc while cutting, the sample value will be 0 V. A zero volt value prevents the SAV algorithms from running.
- Resolved an issue where SilverPlus® was shown as an option on the Change Consumables screen when there was no SilverPlus electrode for that process. SilverPlus is no longer shown for HPRXD Bevel or HPRXD Thick Torch types.
- Resolved an issue that produced a nick in parts when cutting transitioned from a straight line to an arc due to an unneeded acceleration or deceleration at the line/arc intersection.
- Resolved an issue where updates to the Kerf and Speed edit fields in the Watch window were not updating correctly.
- Resolved an issue where Phoenix would stop working after loading a large part. Phoenix now finishes drawing the part on screen before allowing the user to exit a setup or file load screen.

- Resolved an issue that caused an MCC Error or File Not Found error when loading a part that used the M65 code (Auto Reload) at the end of a program. Phoenix now recognizes file names that begin with a number when looking for the next file in a sequence of files.

Motion support

Software resolutions

- S curve calculations were improved to prevent motion issues that could occur when trialing bevel part programs that include F codes, Phoenix now limits the speed of motions that use Bevel Angle Change on the Fly (BACF). Phoenix also limits the speed of these motions when you use Jog on Path.
- Resolved an issue that caused motion to stop or jerk when using the increase or decrease speed soft keys while cutting or running a part in Trial Mode, when the part program had Z-axis commands between each hole.
- Resolved Kerf Too Large, Segment has Disappeared and subsequent motion jerk issue when performing miter cuts from 11 to 17 degrees.
- Resolved an issue that caused a part program to shift by one or more drill points after pausing and resuming. This occurred when a part program was (1) paused at a drill point, (2) the drill was moved off path, (3) return to path was selected, (4) before restarting, trial mode was selected for one or more drill points, and (5) the program was paused again.
- Resolved an issue where motion stopped at pierce but the speedometer continued to indicate the machine was still moving.

Plasma support

Software enhancements

- Pierce Control for the MAXPRO200® now turns on with Cut Control versus after Cut Sense. Also, if preflow during IHS is enabled, the Pierce Control output will turn on when the Sensor THC lifter begins to lower to the plate during the IHS, but will not turn on between cuts, as occurs with the Cut Control and Hold outputs.
- The Change Consumable screen now shows the SilverPlus electrode for the 130 A, mild steel, HSD130 process.
- The MAXPRO200 cut charts now support 16 mm and 19 mm thicknesses for 130 A and 200 A processes.
- Cut charts and EIA code F28 were added to support Powermax 65/85/105 stainless steel cutting using F5 gas.
- Phoenix now only pauses a part program when an HPR produces a No Pilot Arc, No Arc Transfer, Lost Transfer, or Lost Current error while piercing, and displays the reason for the pause. Previously Phoenix paused the program any time the HPR produced one of these errors, not just while piercing. The program still pauses on HPR errors greater than error code 64.
- Resolved an issue where adding or removing a specific material in a cut chart caused the Plasma Cut Chart Combo boxes to reset and default to the HPR process. You had to navigate back to the cut chart you were using originally.

Software resolution

- Powermax lead lengths greater than 15.24 m (50 ft) are now recognized by Phoenix through serial communications.

Waterjet support

Software resolutions

- Resolved an issue where the Abrasive Control and Cut Control signals could activate if the Test Lifter soft key was pressed on the Main screen, the Setups screen was entered and exited, and then Change Cut Mode was pressed.
- Up to a 2-second delay (-2) is now supported for Abrasive On/Off and Water Off. If the delay exceeds -1 second for either of the two Off times, only the first -1 second delay is within the motion section. The remainder of the time will be after Cut Off and prior to lifter retract.

Bevel support

Software enhancements

- Resolved an issue for bevel and pipe machines, where the Manual Options Move Tilt dialog was grayed out after a tilt fault and re-homing.
- Resolved an issue where Bevel Offset was skipped after moving forward 2 pierces, when using BACF or BRACF (Bevel and Rotation Angle Change on the Fly) bevel motions for the first shape of a repeated nest of identical shapes.
- Resolved an issue that occurred when a bevel cut was stopped and Move Part was selected. The wrong bevel angle was used when cutting resumed. The Bevel A command was not reached after resuming near the end of a bevel corner loop.
- Resolved an issue that caused a torch collision when a bevel cut was stopped, Move Part was selected, and then the cut was resumed. Torch Height Disable deactivated too soon when resuming in a bevel corner loop.

Software resolutions

- Resolved an issue that prevented bevel offsets from being applied when a cut was resumed after being paused during an IHS with an ABXYZ bevel part program that has a command after the M07 cut on.
- Resolved an issue with rounded bevel parts using M29 and M28 follower codes. Tangent Angle Updates are now blocked during BACF A axis motions where the C axis is not being commanded and M28 (Follower Disabled) is Active.
- Resolved an issue where the Contour Bevel Head (CBH) Rotate soft key remained grayed out in manual options after the CBH was homed.

Sensor THC support

Software enhancements

- Added a check to block upward THC motion past the upper limit, even if retracting after IHS and the Nozzle Contact Sense signal has not turned off.

Software resolutions

- When the distance to the plate surface is unknown, IHS plate sensing now starts at 12.7 mm (0.5 inches) from the home position of the THC. This maximizes the IHS distance and prevents unintended nozzle contact (home switch) detection at the top of the slide.

Translations

- Resolved an issue where the Spanish version of Phoenix would return an error when opening parts from the Simple Shape Library.
- Corrected an error where Italian text was shown instead of Russian on the Plasma Process screen soft key for HPR plasma.

Channel partner support

- Resolved an issue where the OEM Limit Tool only recognized hardware key IDs that contained 7 or 8 alphanumeric characters. When a valid 6 character ID was entered an error occurred. The OEM Limit Tool now recognizes IDs with 6 to 8 characters.

Ease of use and embedded process expertise

Software enhancements

- Added the ability to split ProNest® CNC output files using M65 codes and numerical file naming so files load faster. Support was added for retention of the skew angles across files separated by M65 codes, resume last part, and power loss recovery within each M65 split file so the next M65 file/section loads automatically.
- A “Ready To Move” message was added in the Homing screens to prevent unwanted motion from a single key press. NOTE: This message is enabled by default and requires the user to press an additional dialog box before motion occurs. Use of this feature is encouraged, but can be disabled in the Special Setups Message list box. A password is required to disable the message. Ready to Move message added for:
  - 12 Go To Home soft keys
  - All Home Axes soft keys (other than THC)
  - Forward, Backup and Return to Path
  - 2 Return to Start soft keys
  - Jog Key Watches
  - Manual Offsets
  - Send Tilt/Rotate Home
- The warning for battery-backed memory on the motherboard has been changed from “Battery Backup Invalid” to “Warning: Battery RAM invalid! If utility card or MCC were replaced or software updated, then this is normal and can be ignored. But if this message continues to occur please contact Technical Service.” The new warning better describes what might be causing the fault.
- Absolute Homing is now supported in SERCOS III systems for Kollmorgen AKD drives with the part format AKD-PXXXXX-NBS3-XXXX. Firmware version 01-13-05 or later and Phoenix version 9.76.1 or later is required.
- The option “Message plasma PS via HyperNet” has been restored on the Machine Setup screen. This allows error-free use of an ArcGlide without serial communication to the plasma power supply.

Software resolutions

- Resolved an issue with the Encoder Monitoring window with Bosch IndraDrive Cs motors and SERCOS III where Phoenix was not forcing machine homing after the Encoder Monitoring window in the amplifier had been exceeded and motion was not under feedback control. In this condition, the system loses the known position when the range of the encoder is exceeded. Homing the system reestablishes the known position.
- Resolved an issue where F Codes (speed overrides) were being ignored immediately after M07 when the creep time was set to 0.
- Manual Move Speed is now shown on the Manual Options screen. Jog speed is equal to the manual move speed.
- Resolved an issue where the incorrect drive address was displayed for all SERCOS III drive faults.
- Resolved an issue where the error message “CNC - Spare” was being displayed for an unknown drive fault. The error message was changed to “Drives Disabled – Check Drives for Possible Fault” along with a fault number that can be used for further diagnosis.
- Resolved an issue where the kerf value was reset to zero when Move to Pierce was used with simple shapes.
- Resolved a condition that could result in a Phoenix Application exception error, when a torch collision occurs while homing the bevel axes.
- Resolved an issue with the Cut Pro Wizard where 200 A was selected incorrectly if Fine Feature was the previous selection and you are loading a 130 A G59 part file with no specific material.
- Resolved a condition that could result in a Phoenix application exception error when a torch collision occurs during bevel homing.
- Resolved an issue where a Phoenix application exception caused Phoenix to shut down when the oxyfuel cut cycle started. A change was made to make sure power loss recovery files are not saved during Phoenix startup or shutdown.

Motion Support

Software enhancements

- A Probe Down Sense input was added for Offset IHS using an external probe to improve accuracy. If Offset IHS is enabled and the Torch Down Sense input is assigned, Phoenix will keep the THC from performing an IHS until the Torch Down Sense input activates. The part program will pause if the torch down sense input does not activate within 5 seconds.

Software resolutions

- Pipe and Tube commands (G01 Pxx Fyy) are now rotational RPM values for motion execution. Previously the F codes incorrectly used linear (ipm/mmpm) values. This only applies to G01 Pxx Fyy and not G00 Pxx Fyy. The latest version of ProNest (ProNest 2015 v. 11) is also required. ProNest users who would like an updated setup that supports this new feature should contact CAM support at (716) 434-3755, menu option 3 or TechSupportVoiceMail@hypertherm.com.

Waterjet support

Software enhancements

- Raise/Lower Inputs have been added for waterjet height control (WHC) so the cutting head can be raised and lowered while cutting. The cutting head moves up or down by 0.01 inches per input activation. This is for motion while cutting only, no manual motion is allowed.

Bevel support

Software enhancements

- Contour Bevel Head and Tilt-Rotator manual motions are now blocked unless the system was homed previously or homed after a fault.

Software resolutions

- Resolved an issue with uneven motion (jerking) at the end of a long bevel section when the torch returned to the vertical position. A change was made to increase the precision and number of motion corrections for slightly non-tangent segment intersections.
- Resolved a bevel alignment issue with bevel parts using M28 and M29 follower enable/disable codes.
- Resolved an issue where laser marking motion remained at creep speed after pausing and resuming the part program during a rapid move.

Sensor THC support

Software enhancements

- The Plate Sensing distance used at power up and if the system is idle for more than 30 seconds now defaults to 0 instead of 1/10th the slide length. This prevents IHS errors when handling thick material and dome shapes where only a very small IHS distance is available. An improvement was also made to enable the THC to retract to the top of the slide when at pierce or transfer height, instead of to the cut height, and the desired retract distance is greater than or equal to the current THC position. This also maximizes the space available for IHS.
  - In Phoenix 9.73.0, when performing a first initial height sense, the Sensor THC would travel a distance equal to 1/3 of the slide length (entered in the THC Axis screen) at maximum speed before starting the IHS process. In some cases, this distance exceeded the torch-to-work distance (the distance between the torch tip and the workpiece) and caused the IHS to fail and the torch to collide with the workpiece. In Phoenix 9.74.0 the Sensor THC traveled a distance equal to 1/10 of the slide length at maximum speed before starting the IHS process. In some cases this still caused IHS to fail so the plate sensing distance now defaults to 0.

Waterjet support

Support has been added for the Sensor waterjet height control (WHC). The WHC functions like the Sensor THC does for plasma, but for Waterjet cutting process. The OEM supplies the lifter mechanics and sensing probe (for example, a foot-sensor). The foot-sensor provides a 0-10 V calibrated analog input that the CNC uses to establish and maintain height while cutting.

Full documentation and manual support for this product feature is currently in process. Interested customers should contact automation applications support at Hypertherm.

Software enhancements

- Added support for Low Pressure Piercing using the G59 V827 F2 waterjet variable.

Code	Description
G59 V827 F2 Optional: PXXXXX to set pump pressure if the pump is equipped with serial communication to the CNC.	Low pressure pierce, maintain (F2) until next G59 V827, or a new cut chart is selected, or a new part program is loaded. Include P XXXXXX for pressure if there is serial communication. Set the pressure at the pump if there is no serial communication.
G04 Xx	Dwell for *x* seconds to allow the waterjet pump to transition to low pressure setting.

All other G59 variables in the part program must come before G59 V827 F2 and the G04.

The CNC also provides a Low Pressure Pierce output which can be connected to an input on the pump PLC to switch the pump to low pressure mode. You can view the Low Pressure Pierce output in the I/O section of the Watch Window.

- An input, Foot Sensor Up, has been added to protect the waterjet nozzle from being damaged when the foot-sensor is in the up position. Phoenix now detects the Foot Sensor Up input and blocks waterjet calibration, WHC IHS, and waterjet part program or rip cutting until the foot-sensor is lowered.
- Added support for Sensor waterjet height control (WHC) homing. Sensor WHC homes at power up and from the Homing screen.

- In the Waterjet Cut Chart and Waterjet Process screens, and the HyPrecision Cut Calculator, Q6 mode, Wet Run, has been renamed to Marking.
- Added support for the automatic calculation of Abrasive On Delay, Off Delay, and Water Off Delay settings in the CNC when using the Sensor WHC.

Software resolutions

- Resolved an issue where you could not select a cut speed above 600 ipm on the Waterjet Cut Chart screen. You can now set the cut speed up to the maximum value of the machine speed.
- Resolved an issue where part programs and rip cutting were still available when a Waterjet station was left enabled while the system was in Plasma mode. Part programs and rip cutting are now blocked if you are not in Trial Mode and any Waterjet WHC station is enabled.
- Resolved an issue where the G59 V829 Pierce Motion Delay, V830 Abrasive Delay On, V831 Abrasive Delay Off, and V832 Water Off Delay caused Phoenix to remain in the Pierce Motion Delay state. Limits were added to Pierce Motion, Abrasive On/Off and Water Off delays. This solution also resolved a Phoenix error where the G59 memory was not cleared on Waterjet, when the G59 code was processed.
- Resolved an issue where the Pierce Time, Pierce Motion Delay, and Pierce Displacement were not displayed properly because the precision was set to 6 significant digits. The default precision for the Process Watch screen was lowered from 6 digits to 3 digits. This solution also resolved an issue where the Abrasive On Delay and Abrasive Off Delay times sometimes display a dash (-) until Start was pressed.
- Resolved an issue with a Dual Transverse cutting system where one of the Transverse axes was parked and disabled but continued to perform Circular and Wiggle pierce motions.
- Resolved an issue where the separation value listed in the Waterjet Cut Chart Calculator displayed units in English when running in Metric mode.
- Resolved an issue where pressing STOP in Waterjet mode did not execute the Abrasive On and Off delays and Water Off delay. Water and the abrasive are turned off based on delay times in the Process screen whenever motion is paused or when pre-piercing holes. Previously under these conditions, if the delay times were negative, both processes would be turned off at the same time.
- Resolved an issue where all the cut chart drop down boxes in the Waterjet Cut Pro® Wizard went blank when using Next and Previous buttons.
- Resolved an issue where the material type could not be changed in the Waterjet CutPro Wizard.
- Resolved an issue where homing is prevented when the waterjet pump is off. The CNC now allows motion and homing when the waterjet pump is off except when an error or cut mode is active.
- Resolved an issue with Waterjet initial setup when Oxyfuel and Plasma are both selected under Setups > Password > Special Setups > Tools Installed. After selecting Waterjet as a tool, entering the Process screen and saving changes, the Waterjet Cut Chart screen showed blank pull-down menus and values in blue. Upon exit, the CNC would display an MCC error.

Motion support

Software enhancements

- Added support for the SERCOS III WAGO® I/O modules at a 2 ms module update rate over a 1 ms SERCOS III ring update rate. The CNC can also detect a loss of the bus extender cable. The SERCOS III screen now shows a generic field to add an inline I/O coupler at address 50. The following SERCOS III WAGO products are supported by Hypertherm CNCs:

WAGO Part Number	Description	Comments
750-459	Analog input module (4 inputs)	0–10 VDC (single ended)
750-351	SERCOS III coupler	
750-530	Output module (8 outputs)	24 VDC outputs
750-430	Input module (8 inputs)	24 VDC inputs
750-559	Analog output module (4 outputs)	0–10 VDC
750-627	Terminal bus extension	Allows connecting of remote I/O modules
750-628	Terminal bus extension coupler	
750-1500	Output module (16 outputs)	Ribbon cable interface
750-1400	Input module (16 inputs)	Ribbon cable interface
750-600	End module	No function (physical end cap)

- Added support for the Beckhoff EK9700 coupler I/O modules.

Beckhoff Part Number	Description
EL1008	8-channel digital input terminal 24 V DC, 3 ms
EL2008	8-channel digital output terminal 24 V DC, 0.5 A
EL3064	4-channel analog input terminal 0–10 V, single-ended, 12 bit
EL4004	4-channel analog output terminal 0–10 V, 12 bit

Software resolutions

- Resolved an issue with S-curve where motion stopped in a part program because there was too large a difference between the mG settings of two adjacent speed breaks.
- Resolved an issue where motion was stopping in the corners of a part when the speed was lowered while using Trapezoidal or S-curve deceleration at minimum corner speed.
- Resolved an issue where a prompt for backing up the non-Windows XP operating system was seen even when the Automated Backup setting in the Special Setups > System screen is set to None. The problem occurred when Norton Ghost™ was uninstalled.
- Resolved an issue where the jog keys were not visible. This occurred if you selected the jog keys in the middle watch location and then attempted to select a parameter in the upper Watch Window location.
- Resolved an issue where the alignment process was canceled when the Manual soft key within the jog key Watch Window was pressed multiple times.
- Resolved an issue where no diagonal motion was possible while in the Align screen with keyboard-only selected in the Special Setups screen. Latch Manual Motion is now supported by the Shift+F11 combination when keyboard only is selected, but is only available when F11 is used first to enable motion in the Align screen. The jog key Watch Window buttons turn green to indicate that the keyboard arrow motion keys are active.

- Resolved an issue where a part program calling for an Ar/Air marking process, with an HPRXD plasma system, resulted in the N_2/N_2 marking chart being selected. A new cutchart.exe is available at Hypertherm.com. See Updating the cut charts on page 13.
- Resolved an issue where the THC Test Lifter dialog would appear on screen and could not be cleared unless Phoenix was restarted. This occurred when there was a fault or a drive became disabled while performing the Test Lifter operation. The lifter now remains at it's current position instead of retracting if a fault occurs.

Ease of use and embedded process expertise

Notification

Some SanDisk® USB flash drives (memory sticks) manufactured during a limited period in 2013 were formatted as local disk drives. Hypertherm CNCs auto-detect a memory stick as a removable disk drive, and therefore, the SanDisk flash drives formatted as local drives cannot be read by Hypertherm CNCs. At the end of 2013, SanDisk reverted to formatting USB flash drives as removable drives.

Software enhancements

- Added support for tool offsets with plasma and waterjet or plasma and laser combination machines.
- A new option in the Special Setups screen allows you to disable the message "Unable to load some setups" which is followed by a list of parameters. This message shows when you load a new version of the Phoenix software that has parameters which the previous version did not support.

Software resolutions

- Resolved an issue where entering into Manual Options from the Align screen did not allow the user to cancel an offset after applying a manual offset in the Current Part Options screen.

  This feature is not allowed while the alignment function is in process.

- Resolved an issue where entering into Manual Options from the Align screen meant you could not cancel an offset after applying a manual offset in the Current Part Options screen. Manual Offset and Cancel Manual Offset are not allowed when entering Manual Options from the Align screen when alignment is in process.
- Resolved an issue that caused the Arc Voltage and Voltage Offset values in the process data Watch Window to display incorrectly in some languages, specifically French.
- Resolved an issue that prevented you from clearing the error list in the Watch Window by holding Right Shift+F5 or F5+].
- Resolved an issue where a soft key and several other items from the Process screen were being incorrectly displayed on the timing diagram screen.
- Resolved an issue with user level data not displaying according to the corresponding level of the user. For example, fields were being displayed in beginner mode that should not have been visible.
- Occasionally, when loading a Phoenix setup file (Phoenix.ini) onto the CNC from a memory stick, the CNC shows the message "Setups removed, modified, or corrupted. Use backup Setups?". The message appears only when you have previously saved the setup file onto a memory stick that is formatted using NTFS and not FAT. Windows® XP, the CNC operating system, does not fully support NTFS formatting on a memory stick. You can load a setup file that has been copied to an NTFS-formatted memory stick, but not saved to it.

- Resolved an issue where the string sent from the CNC to an inkjet printer, using a REA-JET print head, is being received differently than when the same string is sent from a PC to the printer. The message requires an XOR checksum. The checksum this print head is expecting requires the ETX (End of text) character to be added to the checksum. Two new character formats were added, 52 and 53. Format character 52 is a combination of format characters 16 and 32. Format character 53 is a combination of format characters 1, 16 and 32. The checksums for both include the message plus the ETX at the end of the message.
- Resolved an issue where deleting a file that had just been saved to a unique folder location would cause a Phoenix application error.
- Resolved an issue where the user was not being notified when setup files were corrupted. The boot-up operation was updated to notify the user if there are no valid Setup, Backup, and Default initialization files. This will cause the system to use factory default settings.
- Resolved an issue where Vaporize was incorrectly available in the drop down box of available materials for oxyfuel and waterjet. It is no longer available.
- Resolved an issue where the SERCOS OEM back door picture was showing the HyPath axis cover plate when fewer than 5 axes are enabled.
- Resolved an issue where the torch up and down times were not being reset to 0 when assigning an ArcGlide. This caused a delay in torch motion. The torch up and down times are now reset to 0 when assigning Sensor THC, ArcGlide, or Command THC.
- Resolved an issue where the same nozzle retaining cap was being shown on the Change Consumable screen for both aluminum and stainless steel 600 A processes.
- Corrected an issue in the LAN diagnostic test where the test would succeed when no loopback connector was installed in the LAN port.The Reset Setups/Default Setups soft key on the System Tools screen and the RESETSETUPS password now create new setup files (Phoenix.ini and Phoenix.bak) after the software loads the factory setup values.

Plasma support

Software enhancements

Added new cut processes:

True Hole®

- 80 A, 8 mm
- 80 A, 5/16 inch

True Bevel™

- 200 A, Bevel, 10 mm, 12 mm, 16 mm
- 200 A, Bevel, 3/8 inch, 1/2 inch, and 5/8 inch

ProNest® users who would like an updated setup that supports these new True Hole or True Bevel thickness/consumable combinations should contact CAM support at (716) 434-3755, menu option 3 or TechSupportVoiceMail@hypertherm.com.

Software resolutions

- Resolved an issue where conflicting processes were not detected. A station configured with an HPR system as Plasma 1 for example, could also have laser, waterjet, or oxyfuel selected for the same station. If you made a cut in plasma mode the CNC did not detect a conflicting process and abort the cut as it should have.
- Resolved an issue where you could not save the cut mode for a Powermax® system on the Process screen. You can now save the cut mode when there is serial communication and you are in Full Mode. The cut mode cannot be saved in Monitor mode.
- Resolved an issue where the Process screen crashed when leaving the Plasma 2 cut chart from the Process screen, and re-entering the Plasma 2 cut chart again.
- Resolved an issue where the shield gas pressure was missing from the HyPro HT2000 cut chart.
- Resolved an issue where the soft key for the Powermax125 Operator Manual was not displayed on the help screen and the Change Consumables instructions were not displayed on the Change Consumables screen.
- The option that specifically disables power supply communication over Hypernet (choosing No for Message Plasma PS via Hypernet) while using RS-422 communication over HyperNet, has been removed. This option was added for the MAXPRO200, but it was determined that it was not necessary. It caused some confusion with HPRXD and MAXPRO200 plasma supplies using Hypernet so the option has been removed for simplicity.
- Resolved an issue where the addition of metric only thicknesses to some Hypertherm cut charts caused an error dialog box to appear saying No Marking Process Available.

ArcGlide® THC support

Software resolutions

- Resolved an issue where the keyboard only option ( ] + F5) for clearing the errors listed in the error Watch Window did not work. The problem existed because the top row of soft keys on the ArcGlide diagnostics screen had buttons that were not set to visible so the key combination did not work.

- Resolved an issue where the THC raise/lower status message was displayed continuously or switched between displaying “Lowering Torch” and “Raising Torch”. The Alt+F4 function was also disabled. This solution also resolved an issue where the message “No THCs Selected or Enabled” was displayed continuously when using the ArcGlide. It is only displayed now when you use the raise and lower keys.
- Resolved an issue where the ArcGlide THC was not using the correct laser pointer offset distance.
- Resolved an issue where the CNC was not automatically canceling a laser pointer offset when you pressed Cycle Start to start running a part program.

Bevel support

Software resolutions

- Resolved an issue where the metric Servo Error Tolerance was not being updated when you exited from the Rotate and Tilt axes setup screens. This would cause Phoenix to ignore the error tolerance until the CNC is rebooted or Phoenix restarted. Changes to the Servo Error Tolerance now take effect immediately for the Rotate and Tilt (and Dual Rotate and Dual Tilt) axes.
- Resolved an issue where bevel tangent angle adjustments were made that did not result in the shortest path around corners. The corner bevel tangent angle adjustments are now ≤ ±180 degrees.
- Vent Control routines now can be activated by the position of the ABXYZ bevel torch tip position instead of the location of the rail to improve fume extraction.
- Resolved an issue where the bevel head was being prevented from reaching a vertical position before M28 (Rotator Disable) because of non-tangent line segments. M28 is now handled conditionally so the correction can be made for non-tangent line segments to make sure the bevel head can return to the vertical position after an M08 (Cut Off).

Pipe and tube cutting support

Software resolutions

- Resolved an issue where a part program that contained lowercase “f” (feed rate/speed) codes would load or translate incorrectly. Lowercase "f" codes will now work when used in part programs. To avoid similar issues in the future, Hypertherm recommends using upper case letters in part programs, per EIA standards.

HFL010™, HFL015™, HFL020™, HFL030™ HyIntensity Fiber Laser™ support

Software resolutions

- Resolved an issue that generated a laser power supply current fault. The fault was due to the current exceeding the maximum error setting. Increasing the maximum error corrected the issue.
- Resolved an issue that occurred when a cutting process change was made between laser and plasma. The change should have initiated a full retract on the station that became inactive to protect the tool while cutting with the other process. Added Full Retract program code support for cut off (M08RF), disable marker 1 (M10RF), and disable Marker 2 (M14RF) on Sensor THC (not currently supported on ArcGlide THC). Note that if an M50 True Hole code for plasma is used for early cut off, the Full Retract will also occur in this case.
- Resolved an issue where marking and vaporization were available as choices for material thickness. They will no longer be available in the Shape Wizard or on the cut chart screen.

- Resolved an issue where the Laser Pulse Enable parameter was always on. V810 defaults to Off, but if a value is entered it will override the Corner Power Setting. The Pulse Enable parameter is now properly set in all cases. The Cam Power parameter was removed because it is not used.
- Resolved an issue where the sub-mode was not skipping move to pierce height when there was no pierce. Laser Marking and Vaporize now move directly to cut, mark, or vaporize height. Cut height is now used as the controlling height for torch down and move slowly to final cutting height when in the laser sub-modes described above.
- Resolved an issue where the marking process was not loading properly with simple shape selected.
- Resolved an issue where the pulsing signal was turned on before deceleration. G59 V814 (Laser Mode) speed changes now work like F codes (Speed Overrides).
- Resolved an issue with flow errors occurring when the pump is on because the pump-on delay is not long enough to allow the pumps to build up system flows before the LPC checks the error state. There was no delay for the main flow switch. A delay was added with same time as the other two flow switches (Approximately 1.6 seconds.)

Firmware updates included in Phoenix version 9.76

HyIntensity Fiber Laser

- Laser head controller (LHC) remains at V2.17
  - Nozzle position offset is non-volatile and will be maintained through a power cycle.
  - Added a laser power display scaling parameter to allow 0.9 – 1.10 multiplier to the total laser power display. Use Password 20 to access the scaling parameter.
  - Changed error messages to separate the 3 types of power supply faults that can occur:
    - Error 57 is now a laser supply feedback error.
    - Error 47 laser supply current fault occurs if maximum amps for the system are exceeded.
    - Error 29 power supply error is mapped to the power supply fault input.
- Laser power controller (LPC) updated to V2.36
  - Added a delay counter to the main water flow switch to avoid nuisance trips during a restart of system. This addition makes the main flow switch the same as the existing flow switches.
  - Power supply faults were separated into the 3 separate faults that can occur
    - Laser Supply Feedback Fault – an error is generated if the command for current is >25 A and the feedback from the power supply is less than 15 A.
    - Laser Supply Current Fault – an error is generated if the feedback amperage from power supply is greater than the maximum value allowed.
    - Power Supply Error – this is an old error that is only used with the original Schaefer power supply which had a power supply fault output. The output is only checked when DIP switch 1 inside the LPC is on.
- Increased the filter timing of the laser supply feedback fault-delay due to slow feedback at beam on with the Schaefer power supply.
- Fixed the nuisance laser supply current fault in 1.5 kW and 2 kW systems. The maximum current threshold was relaxed.

Documentation changes

- Added a new user interface translation for Hungarian.
- Resolved confusion about how arc voltage offsets are used by clarifying the THC voltage offsets information in the Phoenix Operator Manual.
- Improved the way error code help is displayed by adding context sensitivity to the Help button. When the CNC displays an error and you choose the Help button, information about that error is displayed. Previously, the first page of the error section was displayed and you had to navigate to the specific error information.

Motion support

Software enhancements

- Added support for SERCOS III for the Bosch-Rexroth IndraDrive C and IndraDrive Cs that supports PLC with 'MPC' Firmware 18v08
- Resolved an issue where setting the Home parameter to Not Used on the Rail axis screen would also turn off homing for the Transverse axis. Now you can set the Home parameter individually for each axis.
- Improved bevel-on-pipe cutting motion on pipe saddle cuts where an oval geometry consists of arc segments that may include non-tangent segment intersections of 2 degrees or less.

Ease of use and embedded process expertise

Software resolutions

- Resolved an issue where the default EDGE® Pro Ti CNC setup made it difficult to add a second station. The default cut control would be activated at the same time as cut control for the second process. The default EDGE Pro Ti CNC setup was changed to use Cut Control 1 and Cut Sense 1 to make it easier to add a second station.
- Resolved an issue where customers without marker pulse encoders were getting a drive fault, or the drive would fail to boot, when Marker Homing was not enabled on the associated Phoenix™ axis setup screen. The marker pulse, bit 9, was set The Bosch Marker Evaluation in IDN 277 bit 9 is no longer turned on unless Marker Homing is enabled in the associated Phoenix axis setup screen.
- Resolved an issue where systems with more than one ArcGlide® THC showed the wrong message for a few milliseconds before displaying the correct message. This occurred after you attempted to lower the torch when the first ArcGlide THC station was off, and the second was on. However, If you had the first ArcGlide THC station on, and the second ArcGlide THC station off, you would not get the message.
- Resolved an issue where a simple shape that was mirrored had the mirroring lost when cutting was paused and the operator made a change to the kerf or a process parameter. This condition occurred only when the simple shape was mirrored in X or Y, but not both X and Y.

Plasma support

Software resolutions

- Resolved an issue where a transfer error or lost current error on an EDGE Pro CNC/MAXPRO200® plasma system installation had to be cleared multiple times before the system would cut again. Error handling for MAXPRO200 systems has been changed to match the error handling for HPR systems for improved error handling.
- Resolved an issue with HPR400XD® and HPR800XD plasma systems where motion stopped when current loss was detected, but Phoenix did not show the Pause window unless the drives were disabled using the Drive Disable input or Phoenix was restarted. This made it appear as if Phoenix was frozen. Checks for current loss in chopper 3 and chopper 4 were added to ensure that the Pause window will appear when current loss is detected.

THC support

Software resolutions

- Phoenix now tests for the type of torch height control installed prior to estimating process parameters. Process estimation should only be performed when a Sensor™ THC or an ArcGlide® THC are installed
- Resolved an issue where selecting Rip Cut from Manual Mode when the cut mode had been set to Trial Mode was causing the cut mode to change to oxyfuel, even if Oxyfuel was not an installed tool. The installed tools are now checked against the station assignments in the Station Configuration screen when Rip Cut is selected from Manual Mode.
- The Cut Height Delay calculation was improved for the Sensor THC and the ArcGlide THC (when used with Hypernet®) to improve cut quality. The issue occurred during the transition from pierce height to cut height, when Automatically Set was checked for that parameter.
- Resolved an issue with Sensor Ti THC on EDGE Pro Ti CNCs where the default maximum speed of 600 in/min was causing THC position faults. The default values have been updated to:
  - THC speed changed from 600 in/min to 400 in/min (15240 mm/min to 10160 mm/min)
  - THC acceleration rate changed from 50 mG to 30 mG
  - THC voltage gain changed from 25 to 100

Translations support

- Hypertherm CNCs are now available with an improved Japanese user interface.

Motion support

- Internal testing of Phoenix 9.75.0 revealed a drive fault condition in the SERCOS III ring that was corrected in version 9.75.1. If you loaded Phoenix 9.75.0 onto a SERCOS III CNC, it is important to update the Phoenix software to version 9.75.1.
- Resolved a Phoenix error that occurred when an I/O bus coupler was attached to the SERCOS III ring but not selected in the Setups > Password > Machine Setups > SERCOS screen, or when the I/O bus coupler was selected but the device was not physically connected to the SERCOS III ring. Also improved the detection and automatic setting of SERCOS drive and I/O bus coupler addresses when addresses have not been assigned, or have not been assigned properly.
- Resolved an issue with S-Curve acceleration on a waterjet part that contains several F codes, but the EIA F-Code Override feature on the Cutting screen is set to Disabled. The F codes in the part program were not being ignored during S-Curve calculations in this case. The F codes are now properly being ignored during S-Curve calculations if EIA F-Code Override is disabled.
- Resolved an issue on the Align screen where the operator could press both the jog keys and the Zero Positions soft key. The Zero Positions soft key is no longer active if the operator presses the jog keys.

EDGE Pro Ti support

- The Phoenix.ini setup file for the EDGE® Pro Ti CNC has been updated and provides an improved starting point for customers for the initial setup of the EDGE Pro Ti.

If your EDGE Pro Ti CNC experiences issue with nozzle contact functionality after updating to Phoenix 9.75.1, contact your table manufacturer for assistance.

Ease of use and embedded process expertise

The MAXPRO200 cut chart includes changes in the following processes:

- 50 A, Air/Air, mild steel, stainless steel and aluminum includes new pierce height values.
- 50 A, O_2/Air, mild steel, includes new metric pierce height values and a new English Pierce Height Factor.
- 200 A, Air/Air, mild steel, includes new metric pierce height values.
- 200 A, O_2/Air, mild steel, includes new metric pierce height values.
- 200 A Air/Air stainless steel includes new metric cut speeds.

- New cut charts for the HyIntensity Fiber Laser now include process parameters for three additional laser cutting modes: Marking, Vaporization, and Fine Feature. The laser cut mode can be access on the Laser Cut Chart screen or selected by the part program, using the G59 V814 Fx command. Refer to the *Phoenix Operator Manual* (806400) for more information on laser cut charts.
- Resolved an issue in the CutPro® Wizard where the Cutting Surface option was not being shown properly for 30 A and 50 A processes for the HPRXD torch type.

HFL010, HFL015, HFL020, HFL030 HyIntensity Fiber Laser support

- The Fiber Laser capacitive height sense is no longer disabled when cutting sharp corners in parts. Also, the analog voltage offsets on the Cutting screen are not applied to the Fiber Laser CHS.
- Resolved a creep speed issue when using G59 V814 codes in the middle of a Fiber Laser cut process. Dynamic V814 Fine Feature codes will now override any creep speed calculations already in progress.

Waterjet support

- Resolved an issue with Waterjet initial setup when Oxyfuel and Plasma are both selected under Setups > Password > Special Setups > Tools Installed.

ArcGlide® THC support

- Resolved an issue where the ArcGlide THC was not using the correct offset distance when you pressed Cycle Start to cancel a laser pointer offset and to start running a part program while the offset was active.

Waterjet support

Software enhancements

- Phoenix provides support of the HyPrecision™ waterjet intensifier pumps, including:
  - Built-in cut charts for stainless steel, mild steel, and aluminum. Includes support for a material type called “Other” so that customers can add their own cut charts for additional materials.
  - Waterjet cut modes Q1 Rough, Q2 Course, Q3 Medium, Q4 Smooth, and Q5 Fine for control of edge finish and speed
  - Moving and stationary piercing, and low-pressure piercing
  - Part program support for both process control and piercing techniques
  - Consumable part numbers and images
  - CutPro™ Wizard support for waterjet cutting jobs
  - Onboard Cut Speed Calculator for estimating cut chart values and manufacturing costs
  - Support for laser pointer X-Y offset by way of Tool Offset 8 for positioning before cutting
  - Serial communications which allows the CNC to set pump pressure and receive pump warning and error messages
  - Watch Window support for process data and system errors
  - Timing diagram that shows I/O and motion timing
  - Onboard manuals for HyPrecision intensifier pumps and consumables
  - QR code to access instructions for changing pump consumables

If you currently have previous waterjet cut charts or processes installed using Phoenix 9.74.0 or earlier, those cut charts and processes can no longer be used with this version of the software. Contact your table manufacturer or your local Hypertherm Technical Service or the Product Applications Engineer for assistance before updating software. Hypertherm regional office locations can be found at the beginning of this manual.

Software resolution

- Eliminated a Phoenix error that occurred when pressing Start and the part program included the M36 T6 code to select Waterjet process.

Plasma support

Software enhancements

- Phoenix provides support of the Powermax125® plasma supply cut charts, serial communications, and diagnostics.
- Cut charts are available for the Duramax™ Hyamp retrofit torch for the Powermax65, Powermax85, and Powermax105 plasma systems. These cut charts provide processes for both the Duramax Hyamp and Hyamp FineCut consumables.
- A new cut chart for the HyPro2000™ retrofit torch for the HT2000® plasma system provides cut parameters for the 130 A SilverPlus® electrode, and corrects kerf values for the 100 A Air/Air cutting process.

Software resolutions

- Any errors communicated from a serial-capable Powermax plasma supply now appear in the status area, the System Errors Watch Window, and are saved in the system error log file.
- When running an HPR plasma supply through an ArcGlide torch height control over Hypernet®, you can now access the HPR diagnostic screen after the CNC requests a password, and test the digital outputs. Previously, the HPR shut down and prevented testing of the outputs.
- Corrected the information that displayed for the water tube when the CutPro Wizard displayed the consumables for an HDi process.
- Added the 20mm material thickness for the True Hole® process for HPR XD Bevel torch type.
- Corrected the part numbers on the Change Consumables screen for the Powermax45 electrode and swirl ring.
- The torch lead length is now displayed correctly on the Setups > Diagnostic > Powermax Information screen for the Powermax65, Powermax85, and Powermax105 plasma systems. This issue was display-only.
- Corrected a data mismatch error in the Plasma Process and Cut Chart screens for HPR and HPR Bevel torch types. The Material Thickness parameter now has the same value on both screens.
- Resolved a Phoenix error that would occur when selecting a cut chart through the CutPro Wizard for the HD4070®.
- The THC Voltage Offsets on the Cutting screen displayed the analog offset values to one decimal place which could cause the value to be rounded to zero. The analog offset values have changed to show three decimal places when needed to eliminate data rounding.

Motion support

Software enhancements

- SERCOS III CNCs that use the Bosch IndraDrive Cs, now support the “Use Marker Pulse” option when you enable homing by selecting home switch or overtravel switch on the Machine Setups > Axis screens. Homing to marker pulse provides greater precision and repeatability because the marker pulse occurs in the same position on the encoder and is not affected by factors that can affect a switch.

- SERCOS III CNCs now support a 4-axis setup without a Sensor THC axis. The CNC requires the SERCOS III drives to be in axis order 1 – 4 for ease of setup and operation:

Drive address	Axis
1	Transverse or Rail
2	Rail or Transverse
3	Dual Gantry
4	Dual Transverse

Software resolutions

- Resolved an issue where pressing the ALT key while traversing using the joystick would stop the traverse and it couldn't be restarted. Traversing can now be restarted if interrupted by pressing the ALT key.
- Resolved a SERCOS III issue when using the Bosch inline bus coupler and I/O modules and the CNC did not properly recognize I/O above address 64.
- Resolved an issue on a SERCOS III CNC where the CNC would not re-enable after activating the Fast Stop or Safety Mat input and the CNC is left unattended for 15 minutes.
- Resolved an issue that caused rough motion when using Forward and Backup on Path when beveling with S-curve acceleration enabled.
- Resolved an issue that occasionally caused rough motion when the speed potentiometer or the Decrease Speed soft key was used to slow down while cutting.
- Resolved a THC drive fault that occurred when using Backup On Path from the end of a multi-F code part.
- Dual Transverse Encoder Counts per mm/inch, Servo Error Tolerance, Home Position, and Home Offset parameters are now being calculated correctly when switching between English and metric units.
- Resolved an issue where manual rip cut becomes latched when the Fume Extraction dialog box opens after pressing an arrow key.
- Resolved an issue when using S-curve acceleration that could result in rough motion and cause the part program to stop in the middle of a cut on a complex part.
- Improved Backup on Path when using S-curve acceleration to avoid increased velocity if releasing the Backup soft key at the end of the acceleration ramp.
- In a SERCOS III ring, an issue has been resolved where the cyclic rate for each Bosch IndraDrive Cs Basic drive was set to 2 ms during ring phase up, and the only way to change the cyclic rate was by editing the Phoenix.ini file. The CNC now automatically sets the correct cyclic rate based on the drive model.
- Resolved an error that occurred in both SERCOS II and SERCOS III rings when using the diagnostic passwords 1SA – 12SA and the password contained a number that exceeded the number of axes defined on the CNC.
- Resolved a Phoenix error that occurred in a SERCOS III ring when an unsupported I/O bus coupler was installed in the ring. The following Bosch I/O bus coupler is supported by Hypertherm CNCs:
  - R-IL S3 BK DI8 DO4-PAC – SERCOS III bus coupler, 8 digital inputs, 4 digital outputs, 500 mA

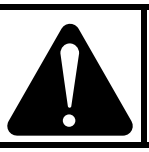
Ease of use and embedded process expertise

Software enhancements

- To aid in energy conservation, when fume extraction equipment is connected to the CNC and automatically activated with the Fume Extraction Control output, the CNC now turns off the output when the operator pauses the part

program, after the Fume Extraction Delay timer elapses. Automatically shutting off fume extraction equipment retains the heating or cooling air present in the building where the cutting system is located.

- The digital speedometer now displays a decimal point for speeds below 20 inches/min. This change was not needed when running in mm/min.
- A new password, 7235, now opens the Diagnostic > I/O, Drives and Motors, and Machine Interface screens.



WARNING

Only qualified technical personnel should use this password. Contact your original equipment manufacturer or Hypertherm Technical Service for assistance.

This password allows you to conduct diagnostic tests that previously required the use of the Machine Setups password. After exiting a diagnostic screen, the CNC requires that you re-enter the password to each time you need to open a diagnostic screen.

Software resolutions

- Resolved an issue where the Overburn Length and Lead-out radius for the simple shape named “Slant Rectangle with Circular Hole” displayed the units incorrectly.
- Resolved an issue where an EDGE Pro Ti error message, *“Servo Power Failure,”* and a Fiber Laser error message, *“Lost Connection to CNC”*, were each displayed without a number.
- Resolved an issue that grayed out the Watch Window buttons on the Main screen after exiting the CutPro Wizard Align screen.
- The CNC only displays a communication fault to a Powermax plasma supply when a station is enabled and the CNC cannot communicate with the Powermax. Previously, a status message, “Powermax Link Failure” would display when a station was disabled.
- In a cutting system with a serial connection between the CNC and the CommandTHC, both devices were applying the pierce delay time to a cut so that the pierce delay time doubled. This issue has been corrected so that only the CommandTHC applies the pierce delay time while the CNC proceeds immediately to the cutting state when the cut/mark sense input activates after the pierce delay. In a cutting system without a serial connection between the CNC and the CommandTHC, the operator must set the pierce delay in the pendant or in the CNC to 0 to avoid having the pierce delay time double.
- On the Dual Gantry Axis screen, the Laser Compensation Yes / No selection is available only when an RTL file for the Dual Gantry axis is loaded into CNC.
- When you choose Files > Save to Disk, the Save System Files to Disk soft key is now always displayed. Previously, this soft key was hidden if Phoenix could not detect a file ending in the .log extension.
- On rare occasions, the PCI Analog board, PCI-4 Rev C, would be incorrectly recognized as ISA-16 Rev 0 in the Control Information screen and cause the CNC to misidentify the analog I/O. This condition resulted in Nozzle Contact Sense and Nozzle Contact Enable operating incorrectly and the Diagnostics > I/O > Analog Input screen displaying the I/O incorrectly.
- In the Plasma Process screen, a message notifying the operator to save changes was incorrectly displayed when the operator exited the screen without having made any changes.
- In the Drives and Motors diagnostics screen, interrupting the Test Transverse 2 operation would enable test buttons that were not valid for the configuration.

- The Escape key now defaults to the No option on all Yes/No message boxes.
- For a consistent operator experience, the messages that appear when using Update Help and Update Manuals on the Special Setups screen are now identical ("Unable to update files. Make sure memory stick loaded with update files from <Hypertherm.com> is installed.").
- An "Invalid Password" message has been removed that appeared when the operator cancelled the Adjust Dual Gantry Skew operation from the Manual Operations screen.
- For improved operation of Remote Help, and to eliminate additional steps taken by the operator, the Microsoft Lync web client plug-in is now factory-installed on all CNCs.
- When entering the Manual Options screen from the Change Consumables screen, manual motion is disabled, so the Watch Window jog keys are now also disabled.
- Resolved an issue where the Cut Mode on the Main screen would allow the operator to select cut processes that weren't assigned to a station. Now, the tool selection made in Special Setups must also be assigned to a station in the Station Configuration screen.
- Certain cut speeds caused the speedometer's green and yellow portions to be incorrectly drawn when the Speedometer is redrawn after returning to a screen with it visible in the Watch window.
- Resolved an issue where Hypernest® would raise an error when trying to open a file if the nest generation was triggered from the Nester screen in Phoenix.
- When in Multitasking mode, the Remote Help soft key is no longer available.
- Resolved an issue when a part program is paused and the Forward or Backup On Path soft keys caused the cursor to stay in the original location on the part path and not show the commanded motion change.

HFL010, HFL015, HFL020, HFL030 HyIntensity Fiber Laser support

Software enhancements

- Expanded support for Fiber Laser cut processes:
  - In the Fiber Laser Cut Chart screen, the Laser Mode option allows selection of Cutting, Marking, Vaporization, or Fine Feature cut modes.
  - The Laser Mode selection activates the Mode Gas option to allow gas selection for Marking and Vaporization modes. The Mode Gas option is display-only for Cutting and Fine Feature modes.
  - Cutting and Fine Feature modes activate the Frequency and Duty Cycle options.
  - The Fiber Laser Process screen also includes an option to select the Laser Mode.
  - Part program support has been added to select the Laser Mode option using the G59 V814 Fx where:
    - 1 = Cutting
    - 2 = Marking
    - 3 = Vaporization
    - 4 = Fine Feature

    Selecting the Laser Mode loads the corresponding values for cut height, power, gas pressure, and kerf. Modulation Frequency and Duty Cycle values can be edited for cutting and Fine Feature modes and are read-only for other modes.
- Marking and Vaporization processes do not require piercing. The Phoenix software now pre-sets the pierce parameters in the laser cut chart to the following values:

  - Pierce Height: 100% of the Cut Height
  - Pierce Time: 0
  - Creep Time: 0
- Part programs for Fiber Laser now support selection of Laser Marking Mode the M09 and M10 codes, and selection of Laser Cutting Mode with the M07 and M08 codes. To select Laser Vaporization and Fine Feature modes requires specific G59 V814 F2 and G59 V814 F3 codes.
- Changed the mode gas field on the Fiber Laser cut chart screen to show the actual gas type instead of the gas selection code in order to make it easier to understand, and regrouped other mode related variables on the cut chart screen.
- Torch Height Disable and Torch Height Enable no longer occur when cutting with the Fiber Laser. When a Fiber Laser is selected as a station on the CNC, the torch height control is always enabled. Previously, the operator had to set the Torch Height Disable Speed parameter on the Speeds screen to 0%.

Software resolutions

- The Escape key now defaults to No in Yes/No message boxes that display when a fault, Remote Pause, or Drive Disable condition occurs. Previously, the Enter key was used to clear these message boxes, but when Yes was highlighted, this action could cause unexpected motion in Laser cut mode.
- Resolved an issue where the Torch Collision signal did not reach the CNC if a torch collision occurred during manual or trial motion. The Fiber Laser now activates a Torch Collision output through Hypernet.

ArcGlide torch height control

Software enhancements

- On a dual torch cutting system using either ArcGlide or Sensor THC lifters, and HPR plasma systems, when one torch does not transfer and returns an HPR error 20, 21, 24, 25 or 26, the second torch shuts off and the part program pauses. The operator can now disable the station then continue the part program with one torch or cancel the part program.

Software resolutions

- The Transverse and Rail offset boxes are no longer displayed on the Manual Options Screen when the ArcGlide offsets are selected.
- ArcGlide lifter no longer lowers from the retract height to the transfer height while traversing. This issue occurred only when the retract height and Start IHS distance were equal. The lifter now retracts to either the retract height or transfer height for the traverse.

Sensor THC support

Software resolutions

- Resolved a Sensor THC issue that occurred when using the Skip IHS feature with a full retract selected that caused the torch to fire at the top of the slide.

Bevel cutting support

Software enhancements

- When running a part program for an ABXYZ bevel cutting system, the CNC checks for non-tangent segments and performs a smoothing routine when it detects the intersection of two segments that exceeds 0.1 degrees of non-tangency. The CNC uses the FC xx.xx code (where xx.xx is speed in RPM) that overlays the active bevel angle to smooth the motion. This smoothing protects the cutting system from sudden motion that could damage the cutting table or bevel head.

  For information that can help you determine the type of bevel head on your cutting system, see the *Machine Setup* section of the *Phoenix V9 Series Installation and Setup Manual* (806410).

Translations support

- When running Phoenix in Simplified Chinese or Traditional Chinese and viewing the Diagnostics screen, question marks were being displayed. Now the screen displays “Not Found” when a label isn’t translated.

Firmware updates included in Phoenix version 9.75.0

HyIntensity Fiber Laser

- Laser head controller (LHC) V2.13
  - Added a new I/O diagnostic screen that displays the CNC control parameters on one screen. This screen provides immediate feedback on the laser I/O to help in troubleshooting a laser cutting application running on a generic CNC.
  - Added functionality to support low power module fault diagnostics.
- Laser power controller (LPC) V2.16
  - Corrected an issue in the HFL030 where the temperature sensors were not generating a fault for an over-temperature condition.
  - When a power module has a low power error, the Fiber Laser becomes disabled. The customer must contact Hypertherm Technical Service for assistance. See the list of regional offices at the beginning of this document for information on contacting Hypertherm.

Plasma support

Software resolution

- Resolved a Phoenix error in the CutPro Wizard when using the HD4070 plasma supply with an HPR torch.
- Resolved an issue with the Sensor THC where, when using Skip IHS with a full retract, the torch fired while at the top of the slide.This only occurred when the retract height was set to a height value that was large enough to put the torch at the top of the lifters stroke.

Motion support

- Resolved an issue when using S-Curve acceleration that could result in rough motion and cause the part program to stop in middle of cut on a complex part.
- Improved Backup on Path when using S-Curve acceleration to avoid increased velocity if releasing the Backup soft key at the end of the acceleration ramp.

SERCOS III

Motion support

- Phoenix now supports Bosch firmware 16V24 only, 17V14 or later, and 18V06 or later. 'MPE' Bosch firmware 16V24 or 17V14 does not support 1mSec operation so a 2 mSec update rate must be used. 1 mSec rate will work with all future MPE firmware versions.
- Resolved an issue where IndraDrive Cs Sercos III absolute homing was not working. The absolute homing check is now by overall drive type only, not by individual axis. At this time all drives are required to be of a similar type.

Ease of use and embedded process expertise

Software enhancement

- Added support for the following HPRXD processes for 0.125 material:
  - 30A mild steel
  - 50A mild steel
  - 80A mild steel
  - 45A F5/N_2 stainless steel
  - 45A N_2/N_2 stainless steel
  - 60A stainless steel
  - 60A HDi (thin stainless steel)

HFL010, HFL015, HFL020, HFL030 HyIntensity Fiber Laser support

- Resolved an issue where the Torch Collision signal did not reach the CNC through Hypernet if a torch collision occurred during manual or trial motion. The Fiber Laser now activates a Torch Collision output through Hypernet.

Firmware updates included in Phoenix version 9.74.1

HyIntensity Fiber Laser

- Laser head controller (LHC) remains at V2.10
- Laser power controller (LPC) updated to V2.13
- With a 3kW configuration, module 5 temperature sensors were not generating a fault for an overtemp condition. the problem was due to variable scaling for the 3kW configuration, since these inputs are scaled differently for 3kw only.

Waterjet

Software resolution

- Resolved an issue when using M36T6 part program code to select Waterjet process. M36 T6 (Waterjet Process Select) caused a Phoenix app error when pressing F9.

SERCOS III support

Software enhancements

- SERCOS III is supported on EDGE Pro, MicroEDGE Pro, and EDGE Pro sub-chassis models.
- Phoenix 9.74.0 now supports SERCOS III for the following components:
  - Servo drive amplifiers:
    - Kollmorgen AKD™
    - Bosch Indradrive Cs (released in Phoenix 9.73.0)
  - Inline I/O:
    - Bosch Inline I/O (released in Phoenix 9.73.0)
- Compatible AKD drives use the following part number format: AKD-PXXXXX-***NBS3***-XXXX where ***NBS3*** designates the drive with firmware compatible with Phoenix 9.74.0. These drives support:
  - 7 digital inputs
  - 2 digital outputs
  - 1 analog input
  - 1 analog output
- Compatible Bosch Indradrive Cs drives require firmware version 16V24.
  - 7 digital inputs
  - 1 digital output
  - 1 analog input
  - 1 analog output
- SERCOS III features:
  - Position mode for linear and rotational axes and velocity mode for the Sensor THC axis
  - Positional scaling support
  - Ability to force drive and inline addressing during phase-up

- Automatic detection by the CNC of the Bosch I/O bus coupler for SERCOS III during ring phase-up
- Automated phase-up of dual transverse configurations as well as a wide range of other axis configurations
- Continued support for 1SA through 12SA SERCOS diagnostic passwords
- Support for an analog output command in the part program using the following format: *Oxx Ayy.yyy Sxx*
- Kollmorgen AKD Servo Drive WorkBench software and Workbench Help (1.8.7.34650) is factory-installed on Hypertherm CNCs.
- Successful completion of full regression and acceptance testing for Kollmorgen AKD drives

- Limitations for AKD drives in Phoenix 9.74.0:
  - Drives must be connected to the ring in drive address order and axis order (Axis 1 = drive address 1, Axis 2 = drive address 2, and so on).
  - Absolute encoders and absolute homing are not supported by AKD drives at this time.
  - For ease of setup, use the default motor revolution scaling settings in the Kollmorgen WorkBench software.

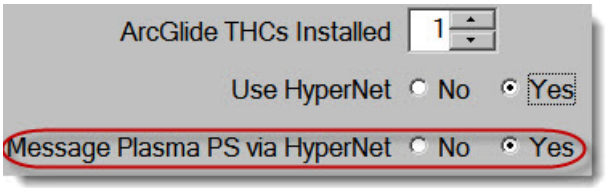
EDGE Pro, MicroEDGE Pro, EDGE Pro Ti support

- Wireless networking support is now standard on all EDGE Pro models.
- SERCOS III support is now available for EDGE Pro and MicroEDGE Pro CNCs.
- The wireless network card driver has been updated from 1.4.3 to 3.2.7 to support the current wireless network card. The new driver has been tested and is backward compatible with older wireless network cards.

Plasma support

Software enhancements

- The CNC now displays the power supply status, including gas pressure status, while the torch is lowering for these plasma supplies: HPR, HPRXD, MAXPRO200, Powermax, HD4070®, and FineLine.
- A new option on the Machine Setups screen, when ArcGlide® is installed, allows you to disable serial messages to the plasma supply over Hypernet®. Choose No when you have a MAXPRO200 and an ArcGlide on the cutting system. Choose Yes when you have an HPR plasma system allowing the CNC to communicate with the HPR using Hypernet.



- Cut charts have been added for the Ultra-Cut® 400.
- Powermax swirl ring and electrode part numbers are displayed correctly underneath the consumable images on the Change Consumables screen.

Software resolutions

- Corrected the consumable images and part numbers for the following Powermax processes:
  - Powermax65: Torch type M65 – 45A and 65A processes
  - Powermax65: Torch type FineCut® – 40A and 45A processes
  - Powermax85: Torch type M85 – 45A, 65A, and 85A processes
  - Powermax85: Torch type M85 – FineCut process
  - Powermax105: Torch type M105 – 45A, 65A, 85A, and 105A processes
  - Powermax105: Torch type M105 – FineCut process
- Resolved an issue for True Hole™ 20 mm thickness for 260A and 400A processes.
- Resolved an error that occurred when choosing the Change Consumable soft key on the Main Screen with the MAXPRO200 as the plasma system.
- Corrected an issue where arc hours were not being displayed properly on the HPR diagnostics screen.
- Corrected an issue where a manual rip cut would begin immediately after selecting Yes in response to the “Ready to Start Cutting?” screen. Now the operator presses and holds one of the manual motion soft keys to perform the rip cut after responding to the “Ready to start cutting?” screen.
- In the 3070 Auto Gas screen, the Save Data feature was attempting to save the auto gas settings to diskette. Save Data now directs the settings file to the location selected from the menu.

Motion support

Software resolutions

- Made enhancements to S-curve to prevent certain conditions within a part program where motion may stop, then jump forward slightly, if the operator pressed Pause.
- When using Auto Torch Spacing and choosing Manual Options > Go to Home X or Go to Home Y, or using M77 and M78 codes in the part program, the master torch homes at 25% of maximum machine speed. Previously, the master torch would home at 60% of maximum machine speed.
- Resolved a Phoenix error during Home All when a hardware overtravel activates while the Sensor THC is homing, and you choose the Setups soft key on the error dialog.
- The Test Lifter soft key on the Diagnostics screen no longer requires nozzle contact sense.
- When performing a Dual Gantry Skew adjustment, the joystick can be moved in a non-rail direction.
- Resolved an issue where the M50 code disables the torch height control after the creep time elapses.

Ease of use and embedded process expertise

Software enhancement

- In the CutPro Wizard, laser pointer is now an option for Oxyfuel offset.

Software resolutions

- Use of the joystick is prevented when switching from Phoenix to another application on the CNC. The joystick operates properly when Phoenix is reactivated.
- Resolved an intermittent application error that occurred during Phoenix shutdown after performing a software update.
- Resolved an issue where a setup file that contains extra space characters does not load properly.
- In the pulley cover simple shape, setting the cover hole diameter to 0 eliminates the holes in the simple shape.
- Resolved an issue that corrupted the oxyfuel cut charts.
- The Set Now soft key for process timers was disabled under some conditions. It is now always enabled.
- Resolved an application error that occurred when using mapped folders on a network in conjunction with the Save All Files to Zip command.
- When loading a DXF file without lead-in and lead-out information, a dialog opened with the lead-in and lead-out options. Double-clicking on one of the numeric fields would display the QWERTY keyboard and labels associated with the field names. Now, double-clicking a numeric field displays a numeric keypad instead and properly labels the fields.
- In the EDGE Pro Ti, the software now checks the Servo Power Good status bit before enabling motion. An error is displayed if motion is attempted and this status bit indicates power failure.
- When running a job in multitasking mode without the Watch Window displayed, and the part program called for a process change the CNC would pause until the operator displayed the Watch Window. The CNC now checks the Watch Window in multitasking mode even if it is not displayed. This issue occurred only in plasma cutting and marking processes.
- In keyboard-only operation, the operator can activate multitasking mode using] + F1 from the Main screen. Pressing this key combination again from the Main screen exits multitasking mode.
- In plasma cutting or marking processes, if an IHS fails, the CNC now displays the status message while the torch retracts until the retract completes.
- Resolved an issue where a folder stored on a memory stick and named only with numbers could not be deleted.
- If the IHS fails after pressing Test Lifter, the CNC now displays a IHS Failed status message on the Main screen. Previously, this message appeared only on the Manual Options screen.
- When using the Test Lifter feature with Nozzle Contact IHS set to OFF, the torch stalled on the plate for position detection then performed a full retract to the upper hard stop. The torch now retracts to the transfer height after it stalls on the plate.
- The “Need Station Select” message is displayed in all cases where stations are assigned and not on.
- The operator console controls are re-enabled when the operator exits the I/O diagnostic screen.
- The Laser Compensation soft keys in the Axes screens of the Machine Setups are disabled if there are no compensation files available.
- Resolved a screen drawing issue when using kerf with marking. When kerf is used with marking, any kerf-generated arcs and lines are drawn in a dark red-brown color.
- For Marker 1 and 2 Process screens, Ignition is now set to OFF for the Sensor THC, ArcGlide, and CommandTHC. The generic Marker Process screen maintains the setting selected for that marker.
- The Help key has been removed from the onscreen keyboard.

HFL010, HFL015, HFL020, HFL030 HyIntensity Fiber Laser support

Software enhancements

- In the Fiber Laser Cut Chart screen, nozzle selections are presented in metric units.
- The Fiber Laser settings for Minimum Corner Power and Start Corner Power now support a range of 0 – 100%.
- Part programs for Fiber Laser now support these M-codes:
  - M50 – Disable Sensor THC
  - M51 – Enable sensor THC
- When selecting a Fiber Laser in the Station Configuration screen, the CNC automatically selects the laser head.

Software resolutions

- Resolved an issue where the incorrect speed could be used if a creep speed was not programmed with a laser cut, vaporization, or mark. The creep speed multiplier was incorrectly applied to the programmed cut speed.
- Resolved an error that occurred when the operator pressed the Stop button or disabled the station during CHS calibration.
- The Test Lifter soft key on the Laser Process screen now performs the same lifter test as the soft key on the Main Screen when Nozzle Contact IHS is disabled.
- The operator can set up only one Fiber Laser in the Station the Configuration screen.
- Resolved the issue where a plasma True Hole verification dialog box could appear when starting a laser part program after performing a test lifter operation. Laser parts do not use True Hole verification.
- Resolved the MCC error that occurred if CHS calibration was interrupted quickly after it had started.
- Resolved the issue where the laser beam would not come on when Height Control: Manual was selected without IHS in Manual being enabled.

ArcGlide torch height control

Software enhancement

- When cutting thick workpieces of 50 mm (2 inches) or greater, and the pierce time is set to 0.5 seconds or higher, the ArcGlide can detect when the torch is crossing a kerf, such as the cut from a part lead-in, and disable the torch height control for the length of the kerf crossing.

Software resolutions

- Corrected an issue that enabled the ArcGlide and illuminated the LED on front of the ArcGlide lifter. The LED now turns OFF when None is selected as a lifter in the Station Configuration screen.
- The Diagnostic screen for ArcGlide now shows the correct values for position.
- To move, the ArcGlide must be assigned in the Station Configuration screen.

Sensor THC

Software resolutions

- The Voltage Gain setting for the Sensor THC Axis has a valid range of 0 – 500%. However, after restarting Phoenix, the Voltage Gain was being reset to 50%. The Voltage Gain setting is now saved in the Phoenix.ini file.
- The Sensor THC now travels 1/10 of the slide length at maximum speed before beginning the first IHS process, which occurs at power-up or when the torch has been idle for 30 seconds or more.

  In Phoenix 9.73.0, when performing a first initial height sense, the Sensor THC would travel a distance equal to 1/3 of the slide length (entered in the THC Axis screen) at maximum speed before starting the IHS process. In some cases, this distance exceeded the torch-to-work distance (the distance between the torch tip and the workpiece) and caused the IHS to fail and the torch to collide with the workpiece. In Phoenix 9.74.0, this has been changed to minimize the chance of IHS failure.

Bevel cutting support

Software enhancement

- In a part program consisting of “bevel angle change on the fly” segments (BACF), the CNC executes certain F codes that are directly associated with and preceding the BACF segments during trialing and Forward/Backup on Path. This results in smooth motion when trialing and prevents excessive wear on machine mechanics. The CNC still ignores other F codes other than those associated with the BACF segments during trialing and Forward/Backup on Path. Previously, the CNC ignored *all* F codes during trialing and Forward/Backup on Path.

Software resolution

- Resolved a rotate position error that occurred when resuming a bevel part program multiple times when a tilt angle was active.

Pipe and tube cutting support

Software resolution

- Resolved an issue where pipes with a diameter of 635 mm (25 inches) or less used in programs that contain park M codes would cut at limited speed then change to full program or machine speed for the rest of the program. Pipe speed is now limited for second and subsequent parts in pipe programs that contain park M codes.

Manuals and help

Software enhancements

- The CNCs now provide a method for updating the manuals stored on the CNC. The Update Manuals feature allows the customer to obtain and load manuals in any language that may have become available between Phoenix launches.

  After performing a Phoenix upgrade, a message now advises the customer to check for new manuals in the Hypertherm.com Downloads Library. The message also provides instructions for obtaining the manuals, and gives the

password used to copy the manuals onto the CNC. These instructions also appear in the Phoenix V9.74.0 Operator Manual (806400).

1. In the Downloads Library, choose a product from the Product Type list, and a language from the Language list.
2. Choose the Manuals link and save the file to the root of a USB memory stick.
   - Do not change the name of the file from its name in the Downloads Library. The file name is a part number and revision level.
   - Do not create an additional folder on the memory stick. Place the PDF manual files in the root folder of the memory stick.
3. Load the manuals onto your CNC:
   - Insert the memory stick containing one or more Hypertherm product manuals into a USB port on the CNC.
   - Choose Main Screen > Setups > Password and enter UPDATEMANUALS (all one word). You can also use the Special Setups password screen and choose the Update Manuals soft key. The CNC copies the manuals from the memory stick to the hard drive.

Notes:

- Updating or restoring a setup file does not re-enable the Update Manuals dialog.
- Updating the Phoenix software does re-enable the Update Manuals dialog.
- The message appears for the first 10 times you start the CNC, or until you select the “Do not show this message again” checkbox.

Software resolution

- Added information to Phoenix Operator’s Manual to advise the customer that when the CNC translates a DXF file, it writes the translated file in the same location as the source DXF file. A DXF file should either be copied to the CNC parts folder or uploaded to the CNC parts folder prior to translating, or the server where the DXF file resides must allow the CNC read/write privileges.

Firmware updates included in Phoenix version 9.74.0

HFL030 HyIntensity Fiber Laser firmware updates

- Laser head controller (LHC) V2.8
- Laser power controller (LPC) V2.10
  - Resolved an issue where there was no laser output when pulse frequency was set from 16 Hz to 499 Hz.

ArcGlide

- ArcGlide control module V2.6.
  - Includes changes to support kerf crossing for thick-plate cutting.
  - In the RS-422 interface to the ArcGlide, an issue has been resolved with the homing command where the ArcGlide would receive the home command, go to home, move off the home switch 0.1 inches, then repeat the motion to the home switch and off again. This resolution eliminated the repeated motion.

MAXPRO200, Rev E

- Changed error threshold limits for Phase loss and Bus voltage.
- Made changes to the starting sequence to improve starting reliability of several processes.
- Changed the software to be compatible with the new flow switch.
- Added delay during transfer to match beta testing.
- Ensure CNC error output is off during power up.

EDGE® Pro Ti support

Software enhancements

- Phoenix includes full support for the new EDGE Pro Ti CNC system, including:
  - Automatic remapping of EDGE Ti settings when loading old setup files on the EDGE Pro Ti
  - Diagnostic kits similar to those provided for EDGE Pro
  - Integrated access to the *EDGE Pro Ti CNC Instruction Manual* (807660)
  - Successful completion of full regression and acceptance testing for the EDGE Pro Ti
- The EDGE Pro Ti enables you to make I-Gain adjustments by factors of 10 in Current Loop Mode. In place of using fractional I-Gains, you can use an I-Gain of 1 – 5, which can help to reduce following errors from occurring on completion of the move.

SERCOS III support

Note: SERCOS III is available in Phoenix starting with version 9.73.0 but requires CNC hardware that is planned for release in early 2013.

Software enhancements

- Phoenix includes full support for the SERCOS III protocol for device motion and I/O control, including:
  - Support for both economy drives and basic drives. While economy drives are supported, Hypertherm recommends using basic drives for achieving optimal motion performance.
  - Support for the following Bosch I/O bus coupler in Phoenix version 9.73.0: Rexroth inline bus coupler for SERCOS III, with digital inputs and outputs (for example, Bosch part number R-IL S3 BK DI8 DO4-PAC)
  - Ability to force drive and inline addressing during phase-up
  - Automatic detection by the CNC of the Rexroth inline Bosch I/O bus coupler for SERCOS III during ring phase-up
  - Automated phase-up of dual transverse configurations as well as a wide range of other unusual axis configurations

- ❑ Support for absolute encoders and absolute homing
- ❑ Continued support for 1SA through 12SA SERCOS diagnostic passwords
- ❑ To use SERCOS III with Phoenix, 16V24 IndraDrive Cs firmware is required. If Phoenix detects an "MPE" economy Cs drive during ring phase-up, it forces a 2 ms cycle time; for basic drives, the "MPB" firmware automatically runs at 1 mSec cycle time. Hypertherm recommends looking for updates as new firmware versions are added in order to ensure that firmware compatibility is maintained. The CNC alerts you with the following message during phase-up if it detects the wrong firmware version:
IndraDrive firmware 16V24 is required and is not loaded in all drives. Please contact Bosch and ensure firmware version 16V24 is loaded.
- ❑ Support for an analog output command in the part program using the following format: *Oxx Ayy.yyy Sxx*
- ❑ Successful completion of full regression and acceptance testing for SERCOS III

MAXPRO200® support

Software enhancements

- Phoenix includes full support for the MAXPRO200 plasma power supply, including:
  - ❑ Serial communication support for plasma cutting setup and for diagnostics. The G59 code support in Phoenix is the same for MAXPRO200 as it is for HPR except for the torch type. The new Fvalue *F54* identifies the MAXPRO200 power supply. The full part program code for the MAXPRO200 is *G59 V502 F54*.
  - ❑ New cut charts for the MAXPRO200
  - ❑ Support for all MAXPRO200 consumables
  - ❑ A new Diagnostic screen with information to aid troubleshooting, such as checking for possible gas pressure leaks
  - ❑ Successful completion of full regression and acceptance testing for the MAXPRO200

HFL010, HFL015, HFL020, HFL030 HyIntensity Fiber Laser support

Software enhancements

- Phoenix now supports the standard M09 and M10 marking codes for the Hypertherm HyIntensity Fiber Laser part programs. G59 codes are required to select the proper marking process.
- Phoenix now supports a "Marking" thickness in fiber laser cut charts.
- From the fiber laser Diagnostics screen in Phoenix, operators can now select the Help soft key to open the fiber laser manual.
- Phoenix now includes integrated support for the HFL030 3 kW HyIntensity Fiber Laser system, including:
  - ❑ Ability to select HFL030 as the fiber laser system from the Station Configuration screen
  - ❑ Inclusion of HFL030 fiber laser consumables in the CutPro™ Wizard
  - ❑ Integration of HFL030-related fiber laser error codes and error messages
- Two new options were added to the Special Setups screen – "Verify Lens Installed" and "Verify Nozzle Installed" – to enable you to turn off the nozzle and lens change messages that pop up when you make a process change that requires a different nozzle or lens after loading a part program. (These messages are turned on by default.)

Software resolutions

- The torch lifter now moves to the pierce height during the test lifter function regardless of whether nozzle contact is enabled. If nozzle contact is enabled, the nozzle will touch the plate and then retract to the pierce height; if nozzle contact is not enabled, the lifter moves directly to the pierce height.
- Phoenix now displays a “Need Station Selection” message if the Test Gas soft key is pressed without an active station selected.
- Phoenix no longer displays the “Piercing” status indefinitely when pulse piercing is enabled and height control is in Manual mode.
- When you run a gas test for fiber laser, the gas pressure properly transitions from pierce pressure to cut pressure.
- Calling non-contiguous material type cut charts from within a fiber laser part program no longer triggers an error in Phoenix.
- You can now use the fiber laser Tape Shot function even when the Pulse Pierce mode is active.
- If a fiber laser communications fault occurs when you are attempting a rip cut, the torch height controller no longer oscillates. Once the communication fault clears, you can resume the rip cut.
- Phoenix no longer switches to oxyfuel mode when backing up from a cut segment to a mark segment on a path during a marking part program.
- Selecting the Test Gas soft key when in pulse pierce mode no longer moves through the staged pierce states, which prevents the fiber laser head from moving in a downward motion.
- Phoenix now loads the correct marking speed when you select a fiber laser marking cut chart.
- Phoenix now enables you to perform a test lifter with fiber laser from the main screen and no longer requires that a plasma station be selected.

Motion support

Software enhancements

- Phoenix now includes support for S-curve part programs for plasma and fiber laser systems. S-curve motion is a feature that allows smoother motion during acceleration than traditional, or trapezoidal, motion. The S-curve commands in Phoenix smooth out acceleration and reduce “jerk” for a given acceleration rate.

Software resolutions

- In latched mode, the touch screen jog keys now function the same way as the keyboard jog keys. If one jog key is used to start motion, any of the jog keys can be used to stop motion.
- When you are using CNC-controlled numbered torch down outputs and torch down sense inputs, Phoenix now turns off each torch down output individually when the corresponding torch down sense input activates (instead of turning off all the torch down outputs at once after all the torch down sense inputs are active).
- When Sensor THC is in use, Phoenix checks to ensure stations are selected during IHS. Phoenix stops (or cancels) a station’s IHS if that station is turned off during the test IHS (or after the IHS test has been started).
- An MCC error was resolved by blocking any Backup On Path function when the Jog Speed control on the operator console of the CNC is set to zero.
- Phoenix now checks and scales metric speed potentiometer changes properly to ensure the entire range is handled correctly as speed values increase.

- Phoenix ensures the speed increase/decrease buttons will work by forcing the speed potentiometer to be uninstalled if there is no built-in Hypertherm front panel (based on model number).
- Phoenix will stop THC motion when the raise/lower switch is turned off after screens have been changed. Raise/lower touchscreen functions will also terminate the raise/lower motion when screens are changed.
- To prevent unintended jog motion when you open a drop-down menu that displays over the on-screen jog keys, Phoenix can recognize your selection as a menu command rather than a motion command.
- The Move Distance dialog is now blocked when rip cutting is active.
- Phoenix now blocks motion commands and rip cutting commands when the Return to Start function is active.

Bevel cutting support

Software enhancements

- The *Goto Home X Head 2* (M77 T2) and *Goto Home Y Head 2* (M78 T2) commands now support pipe applications (which means that rotating dual transverse is selected). The dual transverse (pipe) axis will move the correct distance based on the circumference of the pipe.
- Excess BACF motion was eliminated for certain part programs and corner loops where BACF lead-ins are used. Phoenix now verifies that the bevel head is not vertical (or very nearly vertical) prior to running the imaginary rotational indexes to maintain the bevel head alignment. This enhancements applies to all dual tilt-style bevel heads, with or without ABXYZ mode.
- Checks were added in Phoenix to prevent the joystick from interrupting the Bevel Rotate or Tilt Jog commands.

Software resolutions

- On a pipe or tube machine setup, the ABXYZ (or 5-axis) bevel now produces smoother areas in the part program where two segments meet that are not tangent.
- Active bevel angle tracking was improved to enforce the Bevel Trial Limit speed. This means that if you use a speed-potentiometer to change the trial speed during a trial, Phoenix no longer ignores the Bevel Trial Limit setting (when at an active bevel angle), which would cause the machine to move at the speed-potentiometer setting.
- Adding a process for HPRXD® bevel cutting no longer causes the Marker process to be removed from the cut chart (which in turn resulted in a Phoenix or MCC error).

Plasma support

Software enhancements

- In the Plasma Process screen (Setups > Process > Plasma 1 [or 2] Cut Chart), the gas pressure settings for Powermax® power supplies now account for gouging pressures – which are lower than typical cutting pressures – when a gouging process is selected.

Software resolutions

- The plasma process parameters (for example, Cut Height, Set Arc Voltage, Cut Off Time, and so on) that you can select to display in the Watch Window are shortcuts to the same values found in the Plasma Process screen (Setups > Process > Plasma 1 [or 2] Cut Chart). Phoenix now prevents operators from being able to set higher operating values in the Watch Window that are outside the allowable range for each process parameter.

- The Preflow During IHS setting was removed from the Plasma Process screen when the CNC is configured for a Powermax cutting torch because that feature is not supported with the Powermax systems.

Ease of use and embedded process expertise

Software enhancements

- The scope of the cut charts has been expanded, and the stability of the cut charts has been improved.
  - The HPRXD Change Consumables screen now displays HyDefinition inox (HDi) labeling, when applicable.
  - Phoenix now supports specialized HPRXD cut charts for HDi thin stainless steel, Fine Feature mild steel, and Underwater mild steel cutting.
  - Updated cut charts were added for the Powermax65, Powermax85, and Powermax105.
  - For HPRXD standard and bevel cut charts, all True Hole part programs now use a single designation (specific material 99) for True Hole cut charts that covers both metric and English thicknesses.
- Phoenix now supports “Low Oil Level “and “Low Air Pressure” inputs that block motion until appropriate maintenance on the cutting table is performed. These inputs work the same as the Remote Pause input – when either input turns on, motion comes to a stop, and the program pauses and remains paused until the operator turns off the input.
- The Cutting Tips soft key has expanded coverage and now opens a dialog (cut chart and main screens). When selected, it presents you with the following eight options for opening documentation that provides cutting recommendations specific to each type of specialized cutting process:
  - Plasma cutting
  - Fiber laser cutting
  - Thick stainless steel piercing
  - Underwater cutting
  - Bevel cutting
  - HDi thin stainless steel cutting
  - Fine Feature cutting
  - Underwater cutting
- The OEM limit software was updated to support additional new features, including True Hole conversion.
- Driver re-initialization was improved for:
  - Loading of setup files
  - Changes made to the Station Configuration screen
  - Changes to other key parameters
- An issue was resolved that could occur when saving and exiting the Station Configuration screen.
- Phoenix checks that M36 process codes in the part program match the Tool Installed settings on the Special Setups screen. This way, operators can use M36 codes to select the various processes (for example, Plasma, Plasma2, and Waterjet) without the possibility of selecting an invalid command.
- Performing pipe cutting and tube cutting on the same machine no longer causes either the pipe or the tube to rotate in the wrong direction when the X axis is assigned to the rail.
- The Traditional Chinese (Taiwan) interface translation was updated for this release.

Software resolutions

- Fixes have been made in Phoenix to prevent various reported issues that were triggering errors in very specific instances.
- Phoenix no longer changes a marking process to a cutting process when you pause or resume a part program with Sample Arc Voltage on.
- Phoenix now verifies the Load screen is not active before incrementing the USB front panel Watch Window time-out timer. This prevents a "front panel not responding" message from displaying when you try to access a mapped drive from the Files screen when the drive is disconnected.
- Phoenix now updates the IHS offset and uses it properly with plasma and marking in plasma part programs.
- The distance between the CAD part origin and the part geometries will always be less than the plate size setting specified in the Setups screen in Phoenix in order to ensure reliable importing of raw DXF files with HyperDXF.
- Phoenix prevents screen drawing issues when software updates are in progress.
- Holding down the F5 key or pressing it repeatedly while in the Part/Sheet View no longer causes an error in Phoenix.
- A memory leak was eliminated in Phoenix by ensuring that all cut-time blocks are deleted properly when a translator error occurs.
- When you are using an RS-422 serial connection and you run a revision query, revision 2.3 is now correctly returned as the ArcGlide controller version.
- The product copyright dialog box was expanded to include Hypertherm patent information.
- When you create a custom cut chart, Phoenix now creates a marker chart as well to store marker values. This prevents an MCC error and an "invalid marking process" error that were occurring because the marker values were not getting populated within the user file for the new cut chart.
- Phoenix now displays an "invalid process" message to alert you when a G59 code is entered that is out of range.

Safety enhancements

It is important to be aware of the following safety enhancements, which were first implemented in Phoenix version 9.72.3:

- Drops of water can be a safety concern if the CNC is installed on an X-Y water table and the Watch Window is set up with jog keys. If water splashes from the table onto the touchscreen, the drops can activate a jog key and create unintended motion on the table. Unintended motion can result in danger to the operator and other people, damage to machinery, or faults in cutting.

  For this reason, the CNC now displays the following warning when an operator turns on the Jog Key Watch Window: "*Warning: You are selecting a Watch Window option that allows Machine Motion directly from the Touch Screen. The Touch Screen is not designed for use in wet environments. If the Touch Screen is used in a wet environment where water droplets can occur on the Touch Screen you should not use the Jog Keys option.*" This warning is enabled by default, but you can turn it off from the Special Setups screen.
  You can also prevent the jog keys from displaying in the Watch Window by selecting the "Not Installed for the Touch Screen" option on the Special Setups screen.
- Powermax torches no longer will fire during the IHS down motion.
- The CNC now pauses all motion prior to displaying any pop-up message dialog boxes. This change prevents motion from continuing in the background while the message box is active. The concern was identified for specific configurations, and more detailed information has been issued separately. The update of the software is strongly recommended. Contact your table manufacturer if you have further questions.

Firmware updates included in Phoenix version 9.73.0

HFL030 HyIntensity Fiber Laser firmware updates

- **Laser Head Controller (LHC)**
  - The LHC firmware provides full support for the HFL030 fiber laser power supply, including support for new error messages.
  - The pressure now displays correctly when you are cutting with O_2 and feedback of less than 1 volt is returned.
  - All interface menus now disable unsupported features based on the hardware configuration.
  - Laser power is now calculated in the LPC and is sent to the LHC for display.
  - Phoenix version 9.73.0 supports LHC version 2.6.
- **Laser Power Controller (LPC)**
  - A latching fault was added for low module output errors that latches after three faults during any “on” period. You cannot restart the laser without first cycling power.
  - A power supply error was added to generate a fault when excessive errors occur between the command feedback current.
  - Command watts scaling was modified to account for the fiber laser module current offset. This results in more accurate fiber laser power outputs for power commands less than 1000 watts. You will need to program lower power settings for tape shot and possibly for marking when upgrading this firmware on existing systems.
  - Enhancements were made to the analog input configuration to avoid incorrect configuration during power cycling of the power supply.
  - All interface menus now disable unsupported features based on the hardware configuration.
  - The Beam Delivery Optic (BDO) delay time was increased to 25 mSec to avoid instances in which the counter did not get updated properly.
  - Phoenix version 9.73.0 supports LPC version 2.9.

Software enhancements

Ease of use and embedded process expertise

- Keyboard users can access consumable change instructions with the F12 key.
- When an operator enters an invalid Head Spacing or Pipe Circumference value in the ShapeWizard™, the CNC now displays a message indicating the acceptable range of values for torch spacing.
- Best practice recommendation: An M51 T value should be used while cutting instead of an M51 value to disable and re-enable Arc Voltage Control (AVC). The T value adds a time delay prior to re-enabling AVC to allow time for the arc to stabilize. An M50 should precede every M51 or M51 T to guarantee that AVC is disabled.
- The Special Setups screen now includes an option to disable oxyfuel cut charts for simpler handling of cut charts when oxyfuel is not being used.
- The cut charts were updated to include 3/16-inch and 1/4-inch specifications for HPRXD stainless steel, 45 amp, F5/N_2.
- The kerf re-acquire time and kerf detect voltage features have been reinstated in Phoenix. This enables operators to override the calculated settings if needed.
- HyperCAD and HyperNest buttons no longer appear unless enable on the HASP.

HFL010, HFL015, HFL020 HyIntensity Fiber Laser support

- Phoenix now supports several G59 process overrides for the Hypertherm HyIntensity Fiber Laser part programs.

  The G59 process overrides follow this format:

  - G59 V8xx F*value*

  Where:

  - V8xx identifies the process parameter.
  - F*value* identifies the value for the process parameter.

Example: G59 V800 F1 – sets the pierce mode to pulse pierce.

Variable	Name	Range
V800	Laser pierce mode	0 = blast pierce 1 = pulse pierce
V803	Laser cut power	The maximum power in watts supported by the laser. For the HFL015, the maximum cut power is 1500W.
V804	Laser creep time	0 – 9.999 seconds
V805	Laser cut height	0 – 50.8 mm (0 – 2 in)
V806	Laser cut pressure	0 – 6.9 bar (0 – 100 psig)
V807	Laser pierce pressure (for blast pierce)	0 – 6.9 bar (0 – 100 psig)
V808	Laser cut duty cycle	1 – 100%
V809	Laser modulation frequency	1 – 500 Hz
V810	Enable or disable laser duty cycle (V808) and modulation frequency (V809) by way of the part program	0 – disables use of V808 and V809 codes from the part program. 1 – enables the use of V808 and V809 codes from the part program.
V811	Start corner power	10% to 100%
V812	Minimum corner power	10% to 100%
V813	Laser purge time override	0 – 10 seconds

- M08 RT for laser is now supported to prevent retracts between pierce points.

  Note: In M08 RT for laser, the T indicates pierce height (Retract to Pierce Height); however, for plasma, the T indicates transfer height (Retract to Transfer Height). There is no transfer height with laser.

- Error code handling is now available with the HyIntensity Fiber Laser (HFL). Error code handling generates a dialog in which the Help link opens to the error code section in the HyIntensity Fiber Laser Instruction Manual.
- The Help button now works correctly on the Laser Process and Laser Cut Chart screens.
- Phoenix provides an updated Fiber Laser process screen with new parameters. The Fiber Laser process screen now displays the actual position of the nozzle extension. If the position of the nozzle extension differs from the extension recommended on the cut chart by more than 1 mm, the nozzle extension value on the Fiber Laser process screen displays in red.
- A rendering of the laser nozzle consumable was added to the CutPro Wizard and the consumables change screen for laser.
- Operators can now use the fiber laser to do multi-staged piercing cycles. The system supports three stages for piercing, with the parameters for each stage accessible via the cut charts. Each stage includes the following variables:
  - Dwell time
  - Pierce height
  - Duty cycle
  - Frequency
- The fiber laser cut charts now include a vaporization thickness for removing protective coatings.

- The CNC now presents operators with a dialog when adding a new nozzle to allow them to specify which nozzle to change when both plasma and laser are enabled.
- Brass and copper material types have been added to the fiber laser cut charts.

Plasma support

- The cut charts for all HPRXD mechanized systems now include 5/16-inch True Hole specifications.
- In preparation for future cut chart development, operators can now select the following additional metric thicknesses via G59 codes:

Thickness	Fvalue	Gauge and Fraction
0.55 mm	100	25GA
0.7 mm	101	23GA
7 mm	102	9/32 inches
13 mm	103	17/32 inches
15 mm	93	19/32 inches
16 mm	35	5/8 inches
17 mm	104	11/16 inches
18 mm	105	23/32 inches
19 mm	36	3/4 inches
20 mm	106	25/32 inches
21 mm	107	13/16 inches
24 mm	108	15/16 inches
26 mm	109	1-1/32 inches
27 mm	110	1-1/16 inches
29 mm	39	1-1/8 inches
30 mm	111	1-3/16 inches
31 mm	112	1-7/32 inches
33 mm	113	1-5/16 inches
34 mm	114	1-11/32 inches
37 mm	115	1-15/32 inches

- Phoenix fully supports the Powermax 105, including:
  - New cut charts for the Powermax 105
  - Full support for the 105 A process
  - Support for the new Low Speed (LS) FineCut torch type
  - Support for all Powermax 105 consumables
- New G59 process variable values have been added to support the Powermax 105 plasma supply.

Variable	Name	Powermax 105 value	Definition
V501	Power supply type	F48	Powermax 105
V502	Torch type	F53	Low Speed FineCut consumables
		F52	180° machine torch (full length or mini)
V504	Process current	F105	105 A

Safety enhancements

- Drops of water can be a safety concern if the CNC is installed on an X-Y water table and the Watch Window is set up with jog keys. If water splashes from the table onto the touchscreen, the drops can activate a jog key and create unintended motion on the table. Unintended motion can result in danger to the operator and other people, damage to machinery, or faults in cutting.

  For this reason, the CNC now displays the following warning when an operator turns on the Jog Key Watch Window: "*Warning: You are selecting a Watch Window option that allows Machine Motion directly from the Touch Screen. The Touch Screen is not designed for use in wet environments. If the Touch Screen is used in a wet environment where water droplets can occur on the Touch Screen you should not use the Jog Keys option.*" This warning is enabled by default, but you can turn it off from the Special Setups screen.
  You can also prevent the jog keys from displaying in the Watch Window by selecting the "Not Installed for the Touch Screen" option on the Special Setups screen.
- Powermax torches no longer will fire during the IHS down motion.
- The CNC now pauses all motion prior to displaying any pop-up message dialog boxes. This change prevents motion from continuing in the background while the message box is active. The concern was identified for specific configurations, and more detailed information has been issued separately. The update of the software is strongly recommended. Contact your table manufacturer if you have further questions.

Software resolutions

Ease of use and embedded process expertise

- The CNC no longer logs (or posts) start-loss messages for the HPR plasma supplies when the HPR issues the errors during process changes. As an example, a process change between pierce points when preflow during IHS was enabled was causing the CNC to log a start-loss message even though a true start loss had not occurred, which could mislead the operator into thinking there was a problem. The CNC now logs a message only when a true start loss has occurred.
- The Resume Last Part function now properly updates the pierce count, cut mode, and cut positions when the operator resumes a saved part, even when:
  - The cut mode has changed
  - The units have changed
  - The operator is resuming a part at a pierce point
- In instances where both of the following conditions are encountered during homing, the system now allows motion off of the hardware key in the proper direction:
  - An axis engages the hardware overtravel switch while homing to the home switch
  - The home switch is faulty.
- The Resume Last Part motion now functions correctly when using Move To Pierce or Return to Start with an absolute mode (G90) part program.
- The nesting software no longer adds parts if the operator cancels out of the Number of Parts dialog when the following are in use:
  - Automatic Nesting
  - Keyboard is Not Installed
- In Latched Manual Mode, the touch screen jog keys and keyboard jog keys now function the same way: when one jog key is used to start motion, any of the jog keys can be used to stop motion.

- The CNC performs an additional check to ensure dual transverse software travel limits are enabled after the machine has been homed. This prevents incorrect transverse motion from occurring after homing the machine.
- The serial messaging ports now close and open properly when the operator starts the part program from the Manual Options screen. This eliminates the need to restart the CNC before the operator is able to begin cutting from the Manual Options screen a second time.
- The operator can now search for a file using only the file name. File search no longer requires both the file name and extension.
- Setting a process to "other" on the Station Configuration screen no longer causes an application error.
- The M77 T2 and M78 T2 Go To Home commands now correctly home the Transverse 2 axis (pipe axis) instead of the Transverse 1 axis.
- Phoenix now ignores the torch retract height when it is updated to a new version to avoid a condition in which the THC performs a full retract after an application update.
- Park dual head inputs now function properly when a tube program is loaded. In addition, the operator now is prompted to turn off park inputs when starting a pipe or tube part program.
- Double-clicking or tapping on the Simple Shapes screen when no shape is selected no longer causes a blank entry to be added to the top of the File screen.
- The CutPro Wizard no longer returns an application error when an operator first selects the pulley or the sprocket and then selects a different part.
- The CNC now properly saves a change of units – whether from metric to English or English to metric – regardless of whether a part is selected when the change is made.
- All of the G59 cut chart process selection codes values are now correct in the ShapeWizard.
- A corrupted cut chart file for mild steel on HPR power supplies was fixed and will no longer trigger MCC errors when loaded.
- Cut chart file changes were made to ensure that the fiber laser cut chart factory and user files match as shipped from the factory.
- A Phoenix application error was resolved by correctly handling the fiber laser and non-fiber laser processes when using the CutPro Wizard.

Ease of troubleshooting and diagnostics

- The Help file now opens to the correct screen even when accessed multiple times within a session. In addition, the Help file was updated to open to the correct section when accessed from the Laser Process screen.
- Selecting the Cancel button after launching the Remote Help feature now correctly cancels the help without continuing to launch the Web browser.
- Dual Port Error Messages now include the phrase "MCC Hardware Fault" at the beginning of the error message in order to more clearly indicate a hardware issue, where *xxxx*, *yyyy*, *zzzz* and *n* are variable values:

  "MCC Hardware Fault: Found Bad Location at Word Address *xxxx*, Data Write *yyyy*, Data Read *zzzz*, in Dual Port Test *n*!"
- The Save Original Text option on the Save Files to Disk screen had been omitted for the Phoenix V9.72.0 Operator's Manual. The definition is: Hypertherm CNCs can import part files programmed for other CNCs. When you import one of these files, the Phoenix operating software translates the file into the format used by the Hypertherm CNC. The Save Original Text option saves the imported part file in its original format instead of the Hypertherm CNC format.

Applications and flexibility

- Entering negative signs (-) in the ArcGlide setup screen edit fields no longer causes a Phoenix application error.

HFL010, HFL015, HFL020 HyIntensity Fiber Laser support

- The CNC now properly handles capacitive height sense (CHS) voltage input when switching from Hypernet to analog voltage feedback and when using a utility card along with an Analog Input Card (AIC).
- All English-value thicknesses, when selected from the part program, now display the correct cut chart values.
- The Sensor THC tracking is now more stable around the specified cut height in laser cut mode. Also, the response time over Hypernet is improved for the Sensor THC tracking when using automatic height control with the laser.
- In the Watch Window, the statuses for THC Locked On and Voltage remain on instead of toggling between on and off.
- The Fiber Laser process screen now functions properly so that when you adjust the parameters on the screen, a change in the nozzle extension position no longer causes the other parameters to revert to their original values.
- Both English and metric gas pressure units now get sent to the laser correctly over Hypernet, whether they originate in the part program or the Laser Process screen.
- The oscilloscope now records the CHS voltage more accurately.
- New limits are in place to cap the Initial Height Sense (IHS) start height at 0.1 inches (2.54 mm) on the low end and at the slide length of 0.2 inches (5.08 mm) on the top end.
- The CNC now ensures that a Sensor THC and a Lens Axis has been assigned before it allows the operator to specify move distances for these axes.
- Laser postflow settings will no longer cause any cut-off delays when fiber laser is in use.
- The CNC now displays the proper cut charts and screens when operators use the CutPro Wizard with the laser. Motion no longer stops when operators are running the Specialty Laser Artwork part and using Creep Time.
- Phoenix now checks laser Hypernet every 10 ms while waiting for message boxes and dialogs to be dismissed during error handling. This prevents a Hypernet timeout on a torch collision or remote pause.
- When the operator elects to change consumables from the Laser Cut Chart screen, Phoenix will always display laser consumables even if the currently selected cut process is not laser.
- The Reset Process button on the Laser Cut Chart screen now enables properly when the operator changes cut chart items from the factory default settings.
- When the operator starts the fiber laser process and no THC is selected, a prompt now displays for the operator to make a THC selection before continuing.

Plasma support

- The CNC now prevents operators from being able to select two different plasma power supplies for the same plasma process. This ensures that the correct plasma supply displays for each Station Configuration screen and that the correct cut charts are used.
- The HSD130® cut charts were updated to display the correct Transfer Height and Pierce Height specifications for all thicknesses.
- The Timing Diagram screen now displays correctly when selected from either the Plasma Process screen or the Marker Process screen.

- Phoenix now saves the Sample Voltage (On or Off) parameter setting on the Marker Process screen in the setup file. This means that any time Phoenix is restarted, it retains the specified sample arc voltage setting rather than reverting it to “off.”
- The CNC now prevents a blank or corrupted setup file from turning on the HPR Diagnostic Watch Windows and causing an error.

Firmware updates included in Phoenix Version 9.72.3

HFL010, HFL015, HFL020 HyIntensity Fiber Laser firmware updates

Laser Head Controller (LHC)

- A filter was implemented for the capacitive height sense (CHS) to improve stability during tip touch and when debris contacts the nozzle during piercing or cutting.
- The fiber laser now checks for invalid CHS and nozzle parameters and forces a calibration if these values are not valid.

Laser Power Controller (LPC)

- The communications time-out limit between the fiber laser and the Hypertherm CNC has been increased to prevent unneeded communication errors. The fiber laser now continues communicating with the Hypertherm CNC after a communications time-out error to prevent the CNC from faulting with a lost-laser connection.The fiber laser now continuously monitors the power supply command and feedback currents and generates a power supply fault if they differ by more than 20%. This will detect a low line voltage condition in the fiber laser supply.

Software resolutions

- A Phoenix application error has been resolved that occurred when setting a process in the Station Configuration screen to “Other”. (15757)
- Resolved an issue where the Cut Control output activated after the following sequence of events: Perform a Test IHS (Test Lifter), open the Manual Options, then cancel the Manual Options screen. The Cut Control output no longer activates if this occurs. (15676)

Software enhancements

Ease of use and embedded process expertise

- Sensor THC improvements:
  - Automatic process settings
  - Full Rapid Part technology for improved productivity
  - Sampled arc voltage for improved consumable life and part quality
  - Sampled arc voltage with bevel for improved part quality
  - Sensor THC Start IHS Height is now measured as the safe distance from the plate. The first IHS is performed at slow speed to find the plate height. Subsequent IHS operations rapidly approach the plate to the set Start IHS Height and then change to the slow IHS speed for the IHS.
- Oxy fuel cut charts have been added, including support for Victor, Harris and user-defined torches.
- Images for the HPRXD SilverPlus consumable have been added and these consumables are now supported on the Consumable Change Screen and Cut Pro Wizard.
- The HFL010 (1 Kw) and HFL020 (2 Kw) laser systems are now available on the Station Configuration screen.
- New G59 process variables are available for Hypertherm Fiber Laser systems.
- A new soft key at the bottom of the laser Process screen allows the operator to do a tape shot for beam alignment. Two dialog boxes allow the operator to confirm the action.
- New keyboard key icons have been added to all soft keys when the touch screen is not installed.
- Process variables for Moving Pierce in thick plate have been added for Sensor THC and ArcGlide THC for Plasma 1 and Plasma 2. The new codes must be included before every moving Pierce Cut-On (M07). These new program codes are:
  - V610, V635 – Percent Moving Delay
  - V611, V636 – Pierce End Height Factor
  - V612, V637 – Puddle Jump Height Factor
- New G59 process variables (V613, V638, V663, and V688) are available to set AVC Delay in part programs. This value sets the number of seconds that are required for the plasma system to achieve steady-state operation at the cut height.

- Support for the M08 RT program code has been added to prevent retracts between pierce points.
- Cut charts have been added for the HyPro torch when it is used with the Max 200.

Ease of troubleshooting and diagnostics

- Remote Help now uses Microsoft® Lync™.
- Updated Sensor THC operation and setup sections have been added to the *Operator's Manual* and *Setup and Installation Manual*.

Applications and flexibility

- Rectangular tube and round pipe cutting with bevel functions are now available.
- Improved analog axis configuration is enabled for 4 and 6 axis CNCs.

Pipe and tube cutting with dual transverse axis

- The following park codes are no longer required in a pipe or tube part program unless there is a Go To Home command at the beginning of the part:
  - M86 Unpark Head 1
  - M87 Park Head 1
  - M88 Unpark Head 2
  - M89 Park Head 2

Software resolutions

- Vent Control outputs are now turned off whenever a pipe or tube part program is loaded, except for the special lowest numbered vent output, to avoid fan noise issues.
- The process selection dialog for rip cutting and marking now includes all available processes.
- Spacing and layout of the HPR Information screen has been made consistent with other screens.
- Keyboard function keys now operate correctly after the user uses the keyboard to open the Help file.
- Move to Pierce now operates correctly after torch spacing, whether torch spacing is done before or after a rapid traverse to the pierce point.
- The Cut Pro Wizard now loads a part from a memory stick to Current Part by default.
- The Cut Pro Wizard now displays the correct cut chart information on the verification screen.
- The G84 plasma process code now occurs before the prompts for the Go To Home commands in the bevel alignment function so that the HPR turns on sooner, if it was not on at the beginning of bevel alignment. This change allows the Maintenance Mode command to the HPR to turn off the coolant pump.
- Scrolling through values in a Cut Chart now behaves correctly after adding a cut chart.
- When an invalid process is selected in a part program, the part program pauses and an Invalid Process Selected message displays.
- The thickness option "None" in laser cut charts has been changed to "Marking".
- Skip IHS is now working correctly with both the Sensor THC and ArcGlide THC.

- CPU Voltage is correctly displayed in the key log file.
- Voltage tracking is performed in Normal mode and is locked on within 2 volts of the Set Arc Voltage value. Voltage tracking must be selected in Special mode and the values for locking must be set.
- The maximum number of mapped network drives is increased to 1000.
- Minor cosmetic changes have been made to the Align screen for consistency when the touch screen is not installed.
- Values for Cut Gas 1 and 2 and Mixed Gas 1 and 2 now display correctly on the HPR Diagnostics screen.
- The Backspace, Space, and Shift keys on the touch screen keyboard now work properly in Text Editor.
- Material Thickness values that display are now limited to the values for the display mode that the operator has selected (metric or decimal).
- The Cut Chart Screen now displays the correct cut chart, regardless of the display units selected.
- “Set Power” has been changed to “Cut Power” in the fiber laser cut charts.
- During Teach Trace, the torch now moves but does not fire.
- The machine no longer accelerates when a speed step change occurs within a part program.
- Support for “Storage Mode” has been added for IndraDrive IDN S-269 to prevent EEProm from wearing out in IndraDrive flash memory.
- G00 Cxx and G00 Pxx program codes that move the bevel rotational axis or the pipe or tube (Dual Transverse) axis must now be used explicitly in part programs. G00 Cxx codes can no longer be used for both axes.

Software enhancements

- The Shape Wizard and the pipe-cutting application both fully support minimum and maximum pipe diameters in metric units.
- A new password, updatesoftware, has been added so that a customer can load the latest version of the Phoenix software onto the CNC without having to access the password-protected Special Setups screen. Refer to the Updating the Phoenix Software section later in these release notes for more information.
- Dual transverse axis is now supported on 4-axis analog EDGE Pro Hypath CNCs and analog MicroEDGE® Pro Hypath CNCs. Axes can be set up in the following ways.

1	Transverse or Rail	Transverse or Rail
2	Rail or Transverse	Rail or Transverse
3	Sensor THC	Dual Gantry
4	Dual Transverse	Dual Transverse

Refer to the Applications chapter of the Phoenix Software V9 Series Installation and Setup Manual (806410 Rev 6) for more information.

SharedView and Internet Explorer 9

If you are running a Phoenix demo on a Windows® laptop with Internet Explorer 9 and working with SharedView (Remote Help), be advised that SharedView exits with an application error in Internet Explorer 9 as soon as sharing starts.

Hypertherm CNCs run Internet Explorer 8 or earlier and do not experience this issue. However, if you are a technician working with a customer with Remote Help, you will need to set the compatibility of SharedView or use Internet Explorer 8.

Setting compatibility in SharedView

1. Right-click on the SharedView icon and choose Properties.
2. Choose the Compatibility tab.
3. Select Run this program in compatibility mode and choose Windows XP from the menu.
4. Choose OK.

Reloading Internet Explorer 8

1. Start Control Panel and select Programs, then Programs and Features.
2. On the left, select Turn Windows Features On or Off.
3. Clear the check box for Internet Explorer 9, then exit the Control Panel.
4. Reboot the computer. Windows automatically reloads Internet Explorer 8.

Software resolutions

- Latched motion has been blocked when adjusting Dual Gantry Skew. Any customers using Dual Gantry should update to 9.71.1.
- A momentary output activation in the EDGE Pro and MicroEDGE Pro Picopath at boot up has been resolved. Any customers using the Picopath interface on their EDGE Pro or MicroEDGE Pro should update to 9.71.1
- Minor software resolutions
- The CutPro Wizard exits if a software overtravel occurs, or if the Fast Stop or Remote Pause inputs activate, so that the operator can correct the overtravel condition.
- The CutPro Wizard displays the material thickness in metric measurements for metric parts.
- When the CutPro Wizard encounters a part program with both a load material command and an invalid G59 code, it continues as normal and the part runs until the invalid G59 code is run. At that time an Invalid Process message displays.
- The CutPro Wizard displays the material thickness according to the Material Thickness setting on the Cutting screen (Gauge and fraction or Decimal).
- The CutPro Wizard displays the correct cut chart information in the Verify Process screen.
- In keyboard-only operation on the Plate Alignment screen, the F11 key switches from edit parameters to manual motion without losing sequence.
- In keyboard-only operation during recovery from a torch-collision condition, Phoenix resets the keyboard.
- In keyboard-only operation in the Manual Options screen, press F11 to enable the arrow keys and joystick for manual motion.
- In a setup with an HPR and a zinc marker, if the HPR is not turned on but the marker is being used, Phoenix would report an HPR Link Fail status and continually display the Lowering Torch message. Phoenix now ignores the HPR Link Fail condition when a marker is used but not assigned in the Station Configuration screen.
- When pausing and restarting a part program (press Cycle Stop, then Cycle Start) with consecutive M07/M08 or M09/M10 codes, Phoenix ensures that a pierce point is not skipped.
- An updated cut chart was added for the HPR800XD for the 800 amp stainless steel process with corrected values for Transfer Height and Pierce Height.

- Pressing F11 for Multi-Tasking now takes effect after the system is in the cutting state.
- After you open Help, a one-second delay has been added before you can exit Help. After you exit Help, another one-second delay had been added before you can reopen Help.
- The ArcGlide Process screen allows you to enter a negative number for the Cut Off time.
- Joystick functionality has been added to Teach Trace.
- Axis homing to Marker Pulse now works correctly.
- Load and Save screens in Windows 7 with mapped network folders now works correctly.
- MAX®100 cut charts display material thicknesses in both decimal measurements and fractions.
- The Help buttons on the HPR Outputs screens now work properly.
- The HPR diagnostics screen is labeled correctly for the HPR system.

Software enhancements

- Support for the new Hypertherm MicroEDGE Pro CNC has been added to this version of Phoenix software. This version also supports the wireless communication feature of the MicroEDGE Pro.
- Square and rectangular tube cutting with a rotational axis has been added to the capabilities of dual transverse configurations.
- Drilling and tapping with a PLC is now supported. Program codes and I/O for drill and tool change cycles have been added to support this multi-function application.
- Ease-of-use functions have been added to enhance keyboard function with Phoenix software.
- An external program can now be launched from the Main screen of Phoenix software using a customized soft key.
- “Waiting For IHS,” “Ignition,” or “Lowering Torch” status messages no longer display when the operator presses Cycle Start when both ArcGlide stations are in the Off position. ArcGlide stations now operate like Sensor THC stations. During the operation of a program, the lifters no longer raise or lower unless the station is enabled (using an M37 code). Also, if both stations are off, the status message “Needs Station Select” will occur, instead of “Waiting for IHS.”
- When Home All is selected, all assigned THC lifters are homed. No other axes are homed until THC homing is complete.
- When Phoenix launches, the SERCOS ring now starts up after the Copyright dialog message is acknowledged.
- When Absolute Encoders are used in a SERCOS drive system, Phoenix issues a Drive Halt command after homing to allow position data to be updated. Drives do not lose power during Drive Halt.
- When Manual Select is ON for a station, the True Hole verification tool displays a message to warn the operator. The operator can choose to continue, to change the station to Auto Select, or to stop the program.
- If an operator tries to jog an ArcGlide THC or Sensor THC when a station is disabled or operating in Program mode, the message “No THCs Enabled…” displays.
- If power has to be cycled to a Powermax plasma system as the result of a fault, such as Cap Sense Fault, Phoenix now re-sends the cutting process after the serial link is re-established.

Software resolutions

- Timer/Counter readings in the HPR Diagnostic screen are no longer being truncated and shifted to the next parameter after 4 characters.
- SERCOS II ring phase-up is now more reliable for devices with Baud rates lower than 16 MB. As a result, the Beckhoff KL4004 analog module is now supported.
- Software Over-travel faults no longer stop motion when tilt or rotate axes are homed.
- When a user presses Help on an Error message dialog, Phoenix now opens the Manual pause window and launches Help.
- In an application that uses multiple HPR auto-gas torches, Phoenix communicates with the HPR when the corresponding station is enabled. When the station is disabled, the user can no longer open the HPR diagnostic screen for that station. If all stations are disabled, a new dialog displays the message “No Active HPR Communications” when the user tries to open the HPR diagnostic screen. In addition, when the user opens the HPR diagnostic screen, the only choices are the enabled stations.
- When the serial link is down or a station is disabled, all the values in the HPR Watch Window become 0.
- The Volts/Min setting in the Change Consumable screen can now be reset to 0 VPM after this value had been set to a value other than 0.
- The Command THC is now fully supported in Phoenix. Process parameters within a part program (G59 V5xx) or from the CutPro Wizard and cut chart changes (Arc Voltage, Cut Height, Pierce Height, etc.) now update the Command THC over the serial link.
- Radio buttons for Pierce On with Cut On (on the Sensor THC > Plasma 1 screen) have been changed to Yes and No.
- Key Logging now supports new screens that have been added to Phoenix.
- ArcGlide software has been changed to add a 0.5 second retract delay for the ArcGlide for older plasma systems, such as the HT2000. This setting is selected by setting a dip switch within the ArcGlide control module.
- Checks for serial communication between the EDGE Pro and the Command THC are no longer made after the operator presses Cycle Start. This change has eliminated the “MCC not Responding” fault that displayed when cutting large nests.
- Pressing cycle stop while performing a manual move no longer results in a Phoenix application error.
- If Hypernet communication to the ArcGlide THC is disabled because the station is disabled, the CNC now displays “Need Station Select” after the operator presses Cycle Start.
- Port settings for the Powermax65/85 no longer change unexpectedly between Full and Monitor after a change is saved on the Plasma process screen.
- After Hypernet communications are re-established between the CNC and the ArcGlide, Hypernet communication errors are no longer displayed in the System Error Watch Window and in the Status Message area.
- The “Fault” dialog message has been changed to read “Hardware Fault or Failure, Possible High Frequency….Power Must be Cycled.”
- Phoenix now only communicates with devices whose station is enabled because the station switch is in the On position, there is an M37 code within a CNC program, or the station switch is in the Program position.
- Motion flags are now properly set when exiting the Teach Trace screen so that the torch moves and the program is not inhibited.

Software enhancements

- Dual transverse axes are now supported in Phoenix software for the EDGE Pro CNC with the HyPath or SERCOS interface. Dual transverse axes allow either two-torch mirror and tandem cutting or pipe and plate cutting on the same table. This feature requires 6 axes on the EDGE Pro and 10 axes enabled in software (with a password.)
- Support for waterjet systems has been added to the Station Configuration screen so that a specific model can be selected. When a waterjet system is configured, cut charts and process screens are also enabled.
- Waterjet installation and operation has been automated to allow automatic feed rate of abrasives, dynamic, wiggle, and low pressure pierce control. I/O points have been added for water jet fault, low pressure pierce, abrasive control, and pierce control.
- Phoenix now supports round pipe cutting on a dedicated pipe-cutting system or on a combination flat plate and pipe-cutting system. Given the encoder counts per revolution, the CNC uses the dual transverse axis to rotate the pipe. The CNC uses arc voltage and the outside radius of the pipe from the part program to control cut height and rotation speed.
- New M codes within part programs activate outputs to an external PLC for drilling, tapping, and tool change cycles. This feature simplifies wiring, installation, and operation of a multi-tool cutting table.
- Bevel cutting has been enhanced to include AB/CXYZ bevel configurations. This enhancement uses A, B/C, X, Y, and Z axes (plus X2 or Y2 on a dual side drive) to position and maintain the tool at a center point and simplifies table configuration and installation. In addition, new beveling consumables for the HPR plasma systems allow the torch tip to cut closer to the workpiece, and at higher angles.
- The Powermax 65/85 serial link allows RS-485 serial communication with a Hypertherm CNC for enhanced control and operation of the power supply, including current and gas pressure. Enhanced diagnostics for the G4 systems are available on the new Powermax Diagnostics screen in Phoenix software.
- Motion compensation data that is collected by a laser interferometer can now be incorporated into motion control by Phoenix software. This feature dynamically compensates for discrepancies between measured and commanded motion.
- When a True Hole part program is loaded into the CNC, Phoenix automatically verifies the correct I/O settings, setup and process values and console settings. If the settings are correct, the text “with True Hole Technology” displays under the part program file name on the Main screen. If there are errors, Phoenix offers to autocorrect them or provides information about the corrective action.
- A Help button now links error messages to the error troubleshooting section of the online Help.

- Consumable change instructions have been added to Phoenix software and are accessible through the consumable change screen or the CutPro Wizard, based on the system configuration.
- New thicknesses (9 mm [11/32 inches] and 16 mm [21/32 inches]) have been added to HPRXD cut charts. Corresponding Fvalues for program codes have also been added.
- Powermax 65/85 status messages are distinguished by the identifier “Powermax –”.

Software resolutions

- Current setting change codes in a part program that override cut chart values are now being sent to auto-gas plasma systems, as well as changing the current in the Process screen.
- The CNC now cuts the first pierce point after a move to pierce.
- All process changes are now sent to the HPR plasma system the first time a part program is run.
- The serial link for a Powermax 65/85 remains in Full mode after changes to the Process screen or cut charts are made.
- Fault messages are labeled Hardware Fault for messages about hardware issues.

Software enhancements

- Support for the Hypertherm HFL015 laser system has been added to the Station Configuration screen. If HFL015 is selected from the Laser dropdown list, LF150 can be selected in the Head dropdown list. These selections activate Hypernet between the laser and EDGE Pro CNC, make laser cut charts available, and create the Sensor THC/HFL015 Laser process screen.
- The Station Configuration screen has been expanded in size and now accommodates laser and waterjet options. There are now 4 screens with setup for 2 stations on each screen.
- Support has been added for bevel system designs that require transformation management for 5-axis dynamic interpolation to enable proper torch orientation for height and bevel angle.
- A low speed output for the lifter has been added to allow a fine jog adjustment when lifter motion begins and the torch is close to the plate.
- Cut charts for HyPro2000 and Powermax G4 torches have been added. New G59 codes have also been added to allow the cut charts for these torches to be used automatically in part programs.
- Routines have been added to verify that the cutting system is set up to optimize the performance of True Hole part programs. If any of the settings are not optimized, a message window lists them. This window also includes an Auto Correct button that instructs the CNC to correct the settings, when possible.
- Buttons have been added to the CutPro Wizard, Consumable Change, and Help screens to access information about how to change consumables.
- A new soft key located within an HPR cut chart lets the user send cut chart settings from the CNC to an HPR auto gas system. This feature allows the user to verify that the process was sent correctly and to perform cut flow, and other tests.
- The error message window has been redesigned to include the error number and three new soft keys. The Setups soft key returns the user to the Setups screen. The Manual soft key allows the user to perform manual functions to correct the error. The Help soft key displays the online Help at the beginning of the Error Message section.
- Three new outputs have been created to indicate when motion is commanded to an axis. These outputs can be used for safety circuitry or indicator lights on a cutting table.

Software resolutions

- Joystick motion is blocked in certain stages of the CutPro Wizard and Align Wizard to prevent the wizard from cancelling prematurely.
- Now, in all situations, the EDGE Pro is now sending G59 V5xx process changes to the HPRXD so it can switch processes while it is cutting.
- All manual motion is blocked when the operator completes a plate alignment and the CNC is performing the Final Plate Alignment move.
- New status messages (Software Limit, SafetyMat, E-stop, Remote Pause, Drive Disabled, and Torch Collision) are now displayed as a status messages in the Main screen and in the Home Axes screen.

Software enhancements

- Cut charts for HPR800XD plasma systems have been added to the software.
- The Oscilloscope function now includes the ability to record the arc voltage for an ArcGlide THC.
- An error is displayed if a part program is paused because of an ArcGlide error.
- The Help button on ArcGlide error messages opens the ArcGlide Instruction Manual in the Error messages section.
- The manual move speed and kerf share the same location in the Watch Window. Now, when the Manual Move window is open or when the program is paused, the manual move speed is displayed so the user can view the currently selected move speed.
- The Manual Offset Active message displays to remind the operator of this condition.
- If a CNC or drives are disabled and an operator tries to access either the CutPro Wizard, or Align Wizard, a message displays to remind the operator that the CNC or drives are disabled. The CNC or drives must be enabled before the operator can access either wizard.
- A soft key, Test All Non-THC, has been added to the Drives and Motors screen. This key allows users to perform a motion test for all axes except the THC axis. The Test All soft key still tests all drive axes.
- HPR outputs now remain on for only 60 seconds when they are forced on from the HPR Diagnostic window.
- If a part program is paused and the torch is moved forward or backward on path or to a pierce point, the program returns to G59 V5xx V6xx codes and reruns them. This insures that the right process is used, even when the process codes are skipped over in the part program.
- The cut speed is now updated only when running or trialing a part program, resuming the last part, or switching to cut modes.
- The M-code M34 Tvalue, which is used to space torches on the gantry, now begins with torch 2 (value = 1 because the first torch (Master) is fixed to the gantry). This code is backward compatible if the code M34 T2 was used to space torch 3; M34 T3 spaced torch 4, and so on.
- The G00 Zvalue performs a Z axis move for all enabled THCs. The code raises or lowers THCs that are in manual mode to the Z value.
- The program speed pot now controls the cutting speed during a manual rip cut so the operator can control the rip cut speed.
- The Command THC can now be raised and lowered by using the jog keys in the Watch Window. These keys can also be used in the Main window, Manual Options, CutPro Wizard and Align Wizard.

- Auto torch spacing can be used to space a dual transverse, 2-torch cutting system. The torches must be in home position, then in the Manual Options window, the user selects the torch to space from (master or slave), selects a spacing distance, and presses the Space Torches soft key.
- On SERCOS CNCs with dual bevel heads, the bevel speed can now be scaled between head 1 and head 2 so that the speed of both heads is consistent.
- On SERCOS EDGE Pro CNCs, absolute encoders can now be used with a dual transverse axis.
- The absolute position in SERCOS drive amplifier now matches the position shown at the CNC after the SERCOS ring phases up.
- Error codes for Bosch Indradrive SERCOS drives now have 5 characters so the error codes that display on the drive amplifier. Although these codes appear to be different from the codes that display on the CNC, they refer to the same error.

Software resolutions

- In configurations with EDGE Pro CNC, ArcGlide THC, and HPR plasma system, cutting stops if a major HPRXD or ArcGlide error occurs. In addition, an error message is displayed and the message must be acknowledged and the error must be fixed before cutting can resume.
- Cut time parameters no longer display on top of HPR parameters when the HPR watch window is selected.
- After a torch collision or similar fault, the operator must acknowledge the dialog box before motion can occur. Motion will come to a controlled stop if the fault occurs during jogging.
- The Command THC is now in manual mode whenever the operator is not cutting. This allows front panel switches to function under all conditions.
- In ESSI part programs with M00 (program stop) codes, the cut path no longer displays offset from the part during cutting or trialing.
- Application errors no longer occur on an EDGE Pro CNC when a user moves the joystick on the Homing window then exits to the Manual Move window.

Software enhancements

- Support for the ArcGlide THC has been added to this release of Phoenix software. Features include:
  - Simplified ArcGlide Process setup.
  - New options in the Watch Window for Hypernet I/O and HPR and ArcGlide THC errors.
  - New screen for ArcGlide diagnostic controls and information.
  - New program codes and setup overrides.
  - Skip IHS parameter to increase production rates in large nests.
  - Rapid Ignition™ technology for faster cut-to-cut cycle time when used with HPRXD and MTC ProNest software.
- Added support for independent A and C axis operation when used with some bevel head mechanical designs.
- New advanced application strategies for bevel cutting have been added to handle a broader scope of head designs.
- One-step troubleshooting .zip file that includes latest part, setup, key logging, and error files.
- The joystick and speedpots now provide table movement and speed control on most screens.
- Sensor THC Raise and Lower jog keys in the Watch Window now use 3 speeds. The Manual Options speed settings now control which speeds are used and active during cutting with plasma and oxyfuel.
- Both Sensor THC and ArcGlide THC wait until Cut Sense has been removed before they retract the torch.
- Only one torch collision occurs if jogging with plate contact.

Software resolutions

- Torch Height Disable no longer remains on after the first segment of the first bevel part.
- Manual raise and lower switches on the Sensor THC now always work with an HD4070 plasma system.
- Pending F codes are now canceled with any new speed request, especially when the operator switches from trial mode to plasma mode during a trial.
- The Command THC now retains the full retract parameter on the Plasma Process screen.
- The joystick now works in the Align Wizard in all cases.

Software enhancements

- True Hole technology has been enabled in Phoenix software. If a part program uses True Hole technology, the message, “With True Hole Technology” displays on the cutting and pause screens.
- The CutPro Wizard now:
  - Prompts operators with the correct consumables to load based on the process selections within the part program.
  - Prompts operators with the correct plate to load based on the part program.
  - Skips the process selection prompts when a valid cut chart is selected in the part program.
- In addition to Help for Phoenix software, the manuals for Hypertherm plasma and CNC systems are available on the CNC in same language as the Phoenix software. Users can click on the Help button to access these manuals.
- Cutting table manufacturers can load their own manuals in .pdf format on the CNC and provide access to users when they click the Help button.
- Troubleshooting steps for HPR errors are now available in Help on the CNC.
- Users can test the CNC motherboard to determine whether applications other than Phoenix are overloading the CNC processor.
- Cut charts for the HPR130XD and HPR260XD plasma systems have been added.

Software resolutions

- Part programs no longer resume with the previous wrong tilt angle after Pause, Backup on Path and Resume.
- The system now recognizes if the Raise and Lower Torch soft keys are enabled for the Sensor THC and allows them to function correctly in the Align Wizard.
- When the arc voltage is changed on the Process Watch screen, it is also changed on the Process screen.
- Part programs with F-codes now properly execute these codes after Pause and Resume.

Software enhancements

- Support for six analog axes has been added for EDGE Pro systems without SERCOS.
- Support for up to 48 analog I/O has been added for EDGE Pro systems with the HyPath interface.
- Interface diagnostic tests have been added for troubleshooting potential hardware issues in all EDGE Pro systems:
  - Front panel
  - Serial port
  - USB port
- Additional interface tests have been added for HyPath systems:
  - Servo axis ports
  - I/O ports
  - Sensor THC ports
- Automatic monitoring of clean and field power supplies has been added for the EDGE Pro.
- Cut optimization tips have been added to the online Help on the CNC.
- Checks for EDGE Pro hardware prior to running Version 9.00 software.
- The HPR/4070 Disable Power Supply message no longer displays during motion.
- Unicode filenames now display in Load and Save setup screens when loading from a USB memory device to the hard drive folder.
- In systems with a Sensor THC, if the Sensor THC home switch is on (even after homing is performed) and if the Nozzle Contact Enable output is On (which occurs after the IHS height is reached), the THC begins an IHS move.

  Note: This happens automatically and is not a parameter that can be set.

- Support for transformed bevel head use has been added so that when Pause and Resume are used, the transformed angles are maintained.
- Navigation with a mouse has been enhanced for users of Phoenix Version 7.0 and 8.0 who do not have a touch screen.

  Note: Users must first click the mouse to move the cursor on the screen.

Software resolutions

- When users alternate between HPRXD and HPR on the same process, the MCC Not Responding message no longer appears when the user exits the Cut Charts screen in the following situation:
  a. XD torch type and Argon Marking is selected.
  b. The Torch Type selection is returned to standard HPR.
  c. OK is pressed again.
- When using X or Y mirroring with bevel and the ShapeWizard, the tilt axis is now tilted correctly if the user:
  a. Loads a part, enters Part Options, and selects 90 degrees and Y Mirror options.
  b. Enters Shape Wizard, selects the highlighted line, and presses Replace Segment.
  c. When raise and lower torch jog keys are grayed out in the Watch Window, they no longer function for the Command THC or Sensor THC.
- A tilt angle is retained, if it is active, during a Sensor THC IHS and pierce after the following sequence of steps are completed:
  a. Cut
  b. Pause
  c. Resume
  d. Pause
  e. Backup on path with a pierce