Hypertherm®

Powermax mechanized applications

Cutting and gouging

The best-selling Powermax air plasma metal cutting systems deliver high performance for mechanized applications.

Cut with confidence

- Spend less time on secondary operations with good cut quality and little dross.
- Increase productivity with fast cut speeds.
- Advanced consumable technology extends life and reduces operating cost.
- Consumable end of life detection avoids damage to the torch and to the work piece.
- Smart design and intense testing ensure industry-leading reliability.
- Keep cutting longer. Advanced electronics and Powercool™ technology enable high duty cycles.
- CNC interfaces and available voltage dividers make Powermax systems easy to set up and operate.
- Optional FineCut® consumables produce less dross, narrower kerf and virtually no heat-affected zone on thinner plate.
- Easily switch to a handheld torch with FastConnect™ quick disconnect torches.

Using a Powermax plasma system in a mechanized application

The equipment required to run a Powermax system in a mechanized application varies. For example:

- To automate long, straight cuts or gouges, a mechanized torch, a remote on/off pendant and a track cutter may be all that is needed.
- An entry-level X-Y table application requires a mechanized torch, control cable, and a computer numeric control (CNC) along with the table and lifter.
- For optimum performance on an X-Y table, a programmable torch height control and nesting software, such as Hypertherm's ProNest LT, would also be used.

Understanding duty cycle

The duty cycle is the amount of time that a plasma arc can remain on within a 10-minute period when operating at a specified temperature and amperage. Hypertherm uses an ambient temperature of 104° F.

Determining how long a cut can be made before exceeding the duty cycle is a function of duty cycle, amperage output, and cut speed.

For example, the Powermax85 has a 60% duty cycle at 85 amps. That increases to 80% (8 minutes out of 10) at 74 amps and to 100% at 66 amps. Cutting at full output at 30 ipm would equal 15' of continuous cutting.

In contrast, the Powermax125 has a 100% duty cycle at full output, so it can keep cutting without requiring time for cooling.

Importance of height control

A key element in any thermal cutting application is the distance from the torch to the metal. This stand-off distance is critical to cut quality. Proper pierce height, along with the correct pierce delay timing, ensures that the consumables are not damaged during the pierce. Proper cut height improves cut angularity and cut speed while reducing dross.

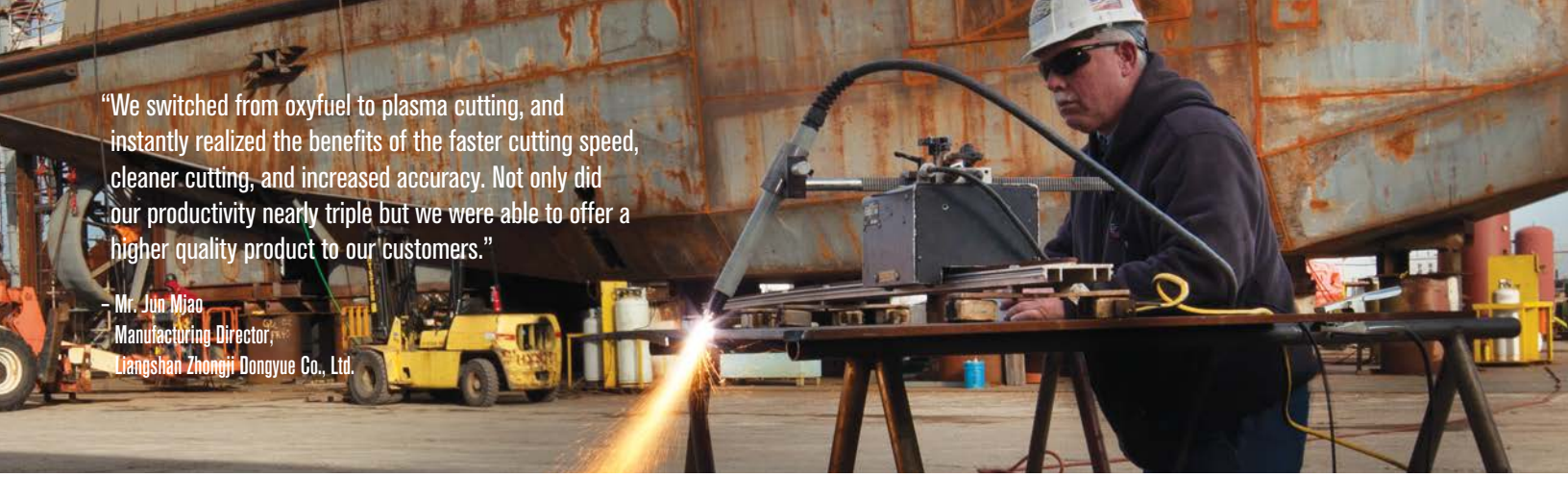
Torch height controls (THC) can be:

- Manual – height set by the operator
- Automatic – THC senses the plate and maintains a set torch-to-work distance
- Programmable – CNC sets different stand-offs for piercing and cutting

Mechanized communications

Mechanized Powermax systems include a standard machine interface through a CPC port, which provides access to start, transfer, and divided voltage signals.

For increased control of the power supply through a CNC, Powermax mechanized configurations can include an RS-485 serial interface port (ModBus ASCII protocol) to communicate with the CNC.



"We switched from oxyfuel to plasma cutting, and instantly realized the benefits of the faster cutting speed, cleaner cutting, and increased accuracy. Not only did our productivity nearly triple but we were able to offer a higher quality product to our customers."

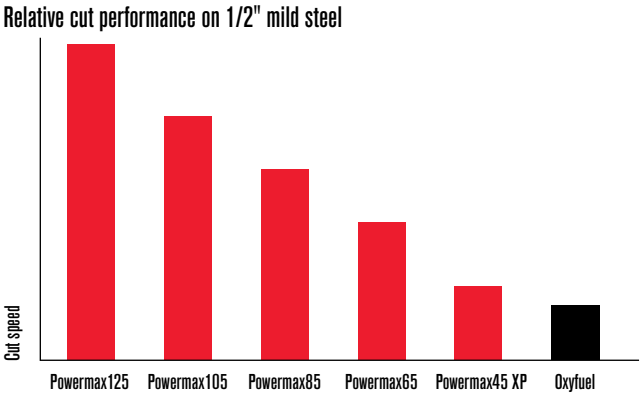
– Mr. Jun Miao
Manufacturing Director,
Liangshan Zhongji Dongyue Co., Ltd.

Track cutting and gouging

Plasma outperforms oxyfuel

- Plasma cuts have less dross, less warping, and a smaller heat-affected zone.
- Plasma can cut stainless steel, aluminum, and other metals.
- Plasma's greater productivity on thicknesses up to 1-1/2" leads to a lower cost per part and higher profitability.

Pipe cutting and beveling

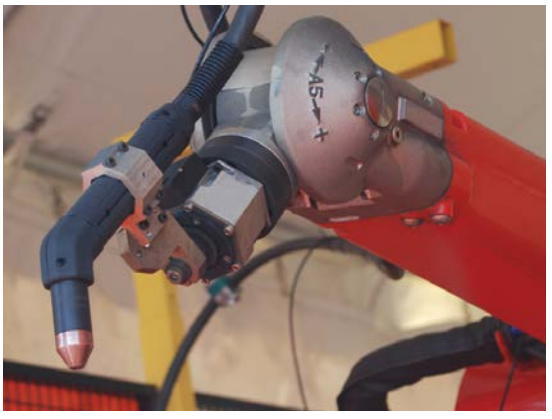


X-Y cutting

Mechanized feature set

Model	CPC machine interface port	Serial interface port	Consumable end of life detection	Full-length machine torch	Mini machine torch	Optional robotic torches	Removable gear rack	Voltage divider*	Remote On/Off pendant	Marking capability
Powermax45 XP	●	●		●	●	●	●	●	●	●
Powermax65	●	●		●	●	●	●	●	●	
Powermax85	●	●		●	●	●	●	●	●	
Powermax105	●	●	●	●	●	●	●	●	●	
Powermax125	●	●	●	●	●	●		●	●	

*20:1, 21.1:1, 30:1, 40:1, and 50:1 ratios



Robotic 3-dimensional cutting

Cutting specifications

System	Output current	Pierce with automatic THC*	Pierce without automatic THC	Duty cycle at full output	Amps @ 100% duty
Powermax45 XP	10–45 A	1/2"	1/2"	50%, 200–240 V, 1-PH 480 V, 3-PH	32 A
Powermax65	20–65 A	5/8"	1/2"	50%, 230–600 V, 1-/3-PH 40%, 200–208 V, 1-/3-PH	46 A
Powermax85	25–85 A	3/4"	5/8"	60%, 230–600 V, 3-PH 50%, 240 V, 1-PH 40%, 200–208 V, 1-PH	66 A
Powermax105	30–105 A	7/8"	3/4"	80%, 480–600 V, 3-PH 70%, 240 V, 3-PH 54%, 208 V, 3-PH 50%, 200 V, 3-PH	94 A, 480–600 V 88 A, 240 V 77 A, 208 V 74 A, 200 V
Powermax125	30–125 A	1"	7/8"	100%, 480/600 V, 3-PH	125 A

***Pierce capacity depends on the equipment being used. For Powermax systems, the higher capacity can be achieved when using an automatic torch height control to set independent pierce heights and cutting heights for the torch.**

Power supply specifications

	Powermax45 XP	Powermax65	Powermax85	Powermax105	Powermax125
Input voltage	200–240 V, 1-PH, 50–60 Hz 480 V, 3-PH, 50–60 Hz	200–480 V, 1-PH, 50–60 Hz 200–600 V, 3-PH, 50–60 Hz	200–480 V, 1-PH, 50–60 Hz 200–600 V, 3-PH, 50–60 Hz	200–600 V, 3-PH, 50–60 Hz	480/600 V, 3-PH, 50/60 Hz
kW output	6.5 kW	9 kW	12.2 kW	16.8 kW	21.9 kW
Input current	200-240 V, 1-PH, 39/32 A 480 V, 3-PH, 9.4 A	200/208/240/480 V, 1-PH, 52/50/44/22 A 200/208/240/480/600 V, 3-PH, 32/31/27/13/13 A	200/208/240/480 V, 1-PH, 70/68/58/29 A 200/208/240/480/600 V, 3-PH, 42/40/35/18/17 A	200/208/240/480/600 V, 3-PH, 58/56/49/25/22 A	480/600 V, 31/24 A
Output voltage	145 VDC	139 VDC	143 VDC	160 VDC	175 VDC
Maximum open circuit voltage	275 VDC	295 VDC	305 VDC	300 VDC	320 VDC
Dimensions with handles (D x W x H)	17.4" x 6.8" x 14.1"	19.7" x 9.2" x 17.9"	19.7" x 9.2" x 17.9"	23.3" x 10.8" x 20"	23.3" x 10.8" x 20"
Weight with torch	33 lbs.	64 lbs.	71 lbs.	100 lbs.	480 V: 105.7 lbs. 600 V: 104.7 lbs.
Recommended gas inlet flow rate/ pressure	Cutting: 400 scfh, 6.7 scfm @ 85 psi Marking: 350 scfh, 5.8 scfm @ 55 psi	Cutting: 400 scfh, 6.7 scfm @ 85 psi	Cutting: 400 scfh, 6.7 scfm @ 85 psi	Cutting: 460 scfh, 7.7 scfm @ 85 psi	Cutting: 550 scfh, 9.2 scfm @ 85 psi

For location nearest you, visit:
www.hypertherm.com

Engineered and assembled in the USA

ISO 9001:2008

Environmental stewardship is one of Hypertherm's core values, and it is critical to our success and our customers' success. We are striving to reduce the environmental impact of everything we do. For more information: www.hypertherm.com/environment.

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Hypertherm®
SHAPING POSSIBILITY®

Mechanized system configurations ordering information*

Torch lead length	25'		35'	50'	
Remote on/off pendant	with remote	without remote	with remote	with remote	without remote
Powermax45® XP with voltage divider and CPC, 240 V	088116	088121	088117	088118	088122
Powermax45 XP with voltage divider, CPC, serial port, and I/O cables, 240 V		088119			088120
Powermax45 XP with voltage divider, CPC, hand torch, and machine torch, 240 V	088123				
Powermax65® with voltage divider and CPC	083277	083294		083278	083302
Powermax65 with voltage divider, CPC, and serial port, no I/O cables		083328			
Powermax65 with voltage divider, CPC, serial port and I/O cables (D-sub connectors)		083303			083305
Powermax65 with voltage divider, CPC, hand torch, and machine torch		083300			
Powermax85® with voltage divider and CPC	087115	087132		087116	087137
Powermax85 with voltage divider, CPC, and serial port, no I/O cables		087164			
Powermax85 with voltage divider, CPC, serial port and I/O cables (D-sub connectors)		087138			087140
Powermax85 with voltage divider, CPC, hand torch, and machine torch		087135			
Powermax105® with voltage divider and CPC	059378	059380		059379	059381
Powermax105 with voltage divider, CPC, serial port and I/O cables (D-sub connectors)		059386			059387
Powermax105 with voltage divider, CPC, hand torch, and machine torch		059384			
Powermax125® with voltage divider and CPC					
480 V	059539			059540	
600 V	059552			059553	
Powermax125 with voltage divider, CPC, serial port and I/O cables (D-sub connectors)					
480 V		059542			059543
600 V		059550			059551
Powermax125 with voltage divider, CPC, hand torch, and machine torch					
480 V				059541	
600 V				059544	

*All include work lead

Power supply ordering information

	Powermax45 XP		Powermax65	Powermax85	Powermax105	Powermax125	
	240 V	480 V				480 V	600 V
With CPC port and voltage divider	088104	088110	083266	087104	059371	059488	059509
With CPC port, voltage divider, and serial interface port	088105	088111	083267	087105	059372	059489	059510

Mechanized torch ordering information

	Powermax45 XP	Powermax45 XP/65/85/105					Powermax125				
	Duramax® Lock machine torches	Duramax® machine torches		Duramax® robotic torches			Duramax® Hyamp™ machine torches		Duramax® Hyamp™ robotic torches		
Cable length	Full-length	Full-length	Mini	45°	90°	180°	Full-length	Mini	45°	90°	180°
15'		059476	059481				059519	059514			
25'	088167	059477	059482	059464	059465	059466	059520	059515	059564	059565	059566
35'	088168	059478	059483				059521	059516			
50'	088169	059479	059484	059585	059586	059587	059522	059517			
75'		059480					059523				

Mechanized I/O cables

Cable length	Remote on/off pendant	CPC connector, spade plug, no divided voltage	CPC connector, spade plug, for divided voltage	CPC connector, D-sub, for divided voltage	RS-485 serial communication, unterminated	RS-485 serial communication, D-sub
25'	128650	023206	228350	223048	223236	223239
50'	128651	023279	228351	123896	223237	223240
75'	128652					

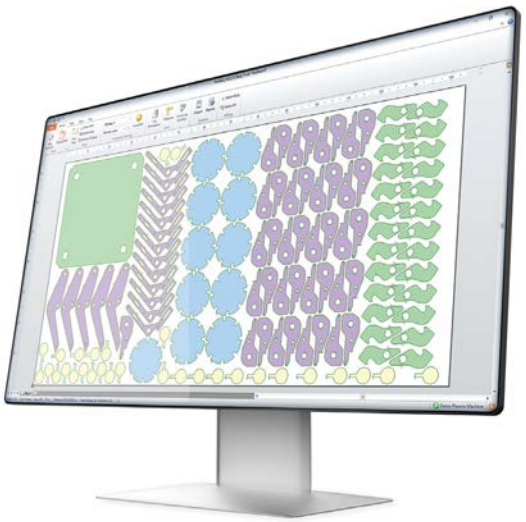
Work leads	Powermax45 XP	Powermax65	Powermax85	Powermax105	Powermax125
Ring terminal					
25'		223220	223209	223284	223925
50'		223201	223210	223285	223926
75'		223202	223211	223286	223927
C-clamp					
25'		223194	223203	223287	223298
50'		223195	223204	223288	223299
75'		223196	223205	223289	223300
Hand clamp					
25'	223595	223125	223035	223254	223295
50'	223596	223126	223034	223255	223293
75'	223127		223033	223256	223294

Kits

	Powermax45 XP	Powermax65	Powermax85	Powermax105	Powermax125
Voltage divider upgrade kit	428653	228697	228697	228884	
RS-485 Serial interface kit	428654	228539	228539	228539	228539
Torch lifter adapter for Hypertherm THCs	228127	228127	228127	228127	228539
Hyamp™ torch holder adapter for portable automation					428495
Consumable starter kit, mechanized	428560	228964	228967	228848	428100
Consumable starter kit, ohmic	428561	228965	228968	228969	428101
Essentials kit, mechanized		851466	851469	851472	851475
Essentials kit, ohmic		851467	851470	851473	851476

Hypertherm light industrial software

Hypertherm offers nesting software and sheet metal layout software appropriate for use with Powermax® systems and light industrial CNC tables.



- ProNest® LT is a powerful CAD/CAM nesting software developed for light industrial mechanized cutting. ProNest LT helps fabricators and manufacturers increase material savings, boost productivity, reduce operating costs and improve part quality by offering the right level of expertise for your needs.
- Design2Fab® sheet metal layout software is engineered to dramatically reduce the time it takes to develop and lay out flat patterns for HVAC duct, mechanical, kitchen, industrial, roofing, and other specialty fitting layouts.

For subscription information or a free trial of either package, visit www.hypertherm.com/CAM

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