

Hypertherm[®]

HyPerformance[®] Plasma HPR_{XD}



HYPERFORMANCE PLASMA HPR130XD, HPR260XD, HPR400XD AND HPR800XD

HyPerformance Plasma delivers HyDefinition® cut quality with greater consistency, faster cut speeds, longer consumable life and half the operating cost of competing technologies. With over ten thousand systems in use worldwide, it is clear that HyPerformance Plasma is the system of choice for customers that demand performance they can count on.



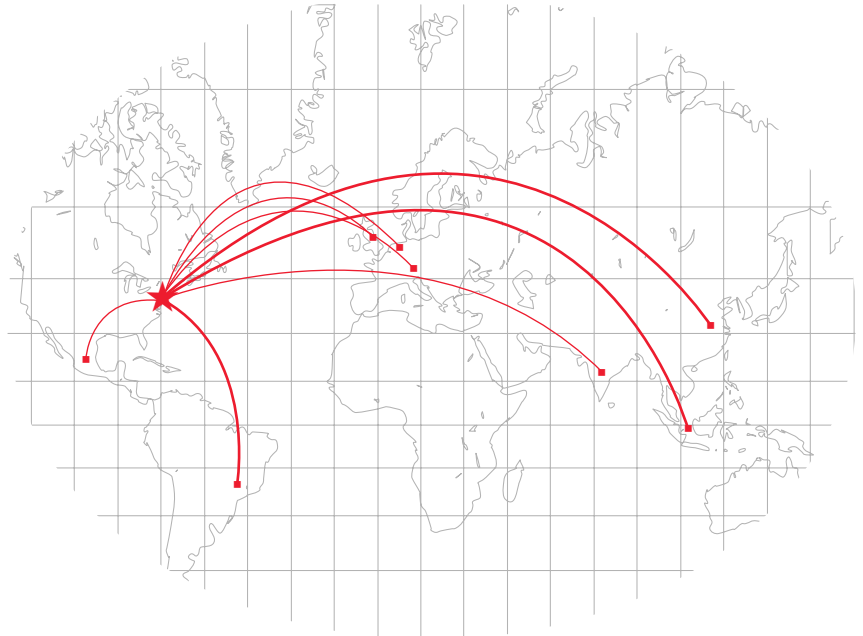


Hypertherm company overview

Listening to our customers and delivering innovative technology

The world leader in thermal cutting technology since 1968, Hypertherm has one single goal: cut the cost of cutting metal. The company's one and only focus is thermal cutting technology. Its single-minded mission is to provide customers throughout the world with the best plasma cutting equipment and service in the industry. That's why Hypertherm holds more major plasma cutting patents, and has more customers worldwide than any other brand. In competitive tests, Hypertherm systems consistently outperform the competition in the key areas of cut quality, productivity and operating cost. Hypertherm has evolved into a thriving global entity that serves a continually expanding customer base.

- Hypertherm has developed over 75 patented plasma technologies that provide customers with exceptional performance.
- Hundreds of thousands of Hypertherm plasma systems in use worldwide produce results that customers can rely on.
- Hypertherm has captured a majority market share in plasma cutting worldwide through innovation and a commitment to technology advancement.

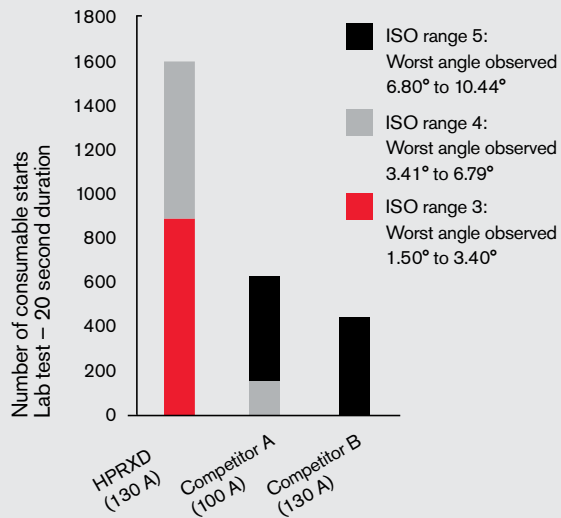


★ *Hypertherm headquarters*

▪ *Hypertherm sales and support facilities*

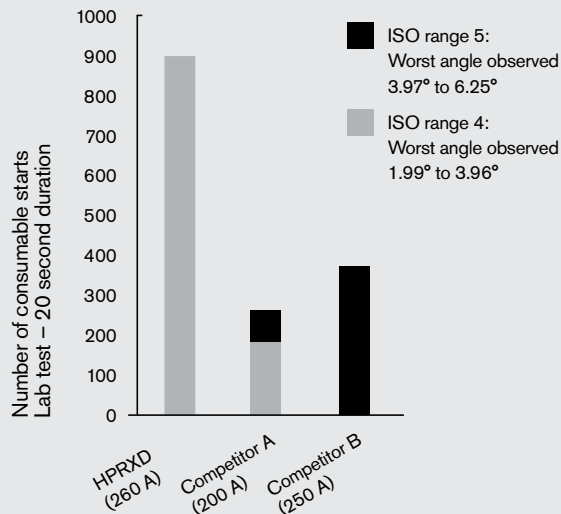
Cut quality over life (130 A)

10 mm (3/8") mild steel



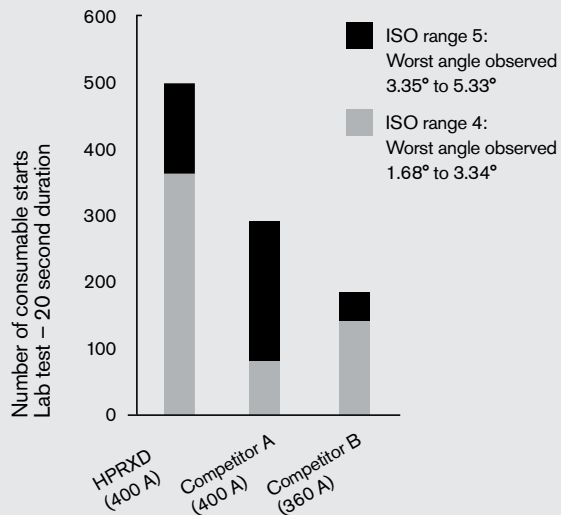
Cut quality over life (260 A)

20 mm (3/4") mild steel



Cut quality over life (400 A)

25 mm (1") mild steel



Superior cut quality and consistency

HyperPerformance Plasma cuts fine-feature parts with superior quality and consistency, virtually eliminating the cost of secondary operations.

- Patented technologies such as HyDefinition and LongLife®, deliver more consistent cut quality over a longer period of time than other systems available on the market.
- True Hole™ technology, for HyperPerformance Plasma auto gas systems, produces hole quality on mild steel that is significantly better than what has been previously achievable using plasma.*
- HyperPerformance Plasma cuts mild steel and stainless steel from thick to thin with a mirror-like finish.
- Hypertherm consumables are manufactured with the highest quality standards to ensure consistent performance.

*True Hole technology requires a HyperPerformance Plasma HPRXD auto gas system along with a True Hole enabled cutting table, nesting software, CNC, and torch height control. Consult with your table manufacturer for more details.

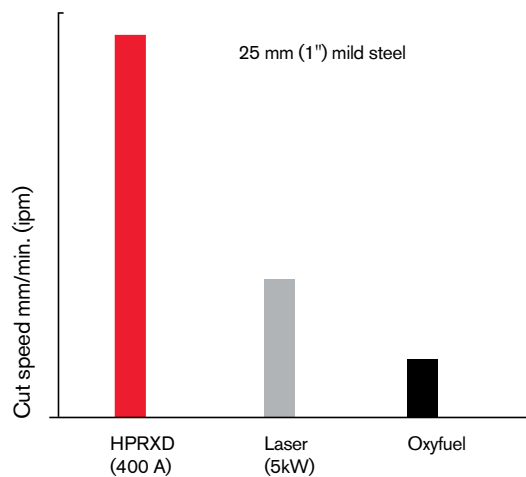


Maximized productivity

HyPerformance Plasma combines fast cutting speeds, rapid process cycling, quick changeovers and high up time to maximize productivity.

- HyPerformance Plasma delivers HyDefinition precision at unprecedented cutting speeds to deliver more parts per hour.
- Rapid cut-to-cut and cut-to-mark cycle times result in less downtime between cuts.
- Quick-disconnect torch, auto gas console option and intuitive user interface all reduce set-up time.
- Long consumable life and high system reliability maximize productive “arc-on” time.

**HyPerformance Plasma cutting
is 2 – 5 times faster**





Minimized operating cost

HyPerformance Plasma lowers your cost per part and improves profitability.

More parts per hour

- HyPerformance Plasma systems provide faster cut speeds to produce more parts per hour.
- Hypertherm's PowerPierce™ technology makes it possible to cut thicker than ever before and replace slower-cutting technologies such as oxyfuel.
- HyPerformance Plasma's superior quality and consistency maximize the number of parts produced per hour by minimizing time-consuming secondary operations.

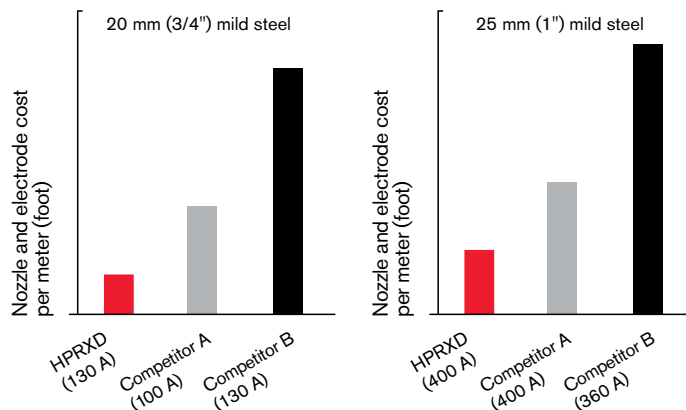
Longer consumable life

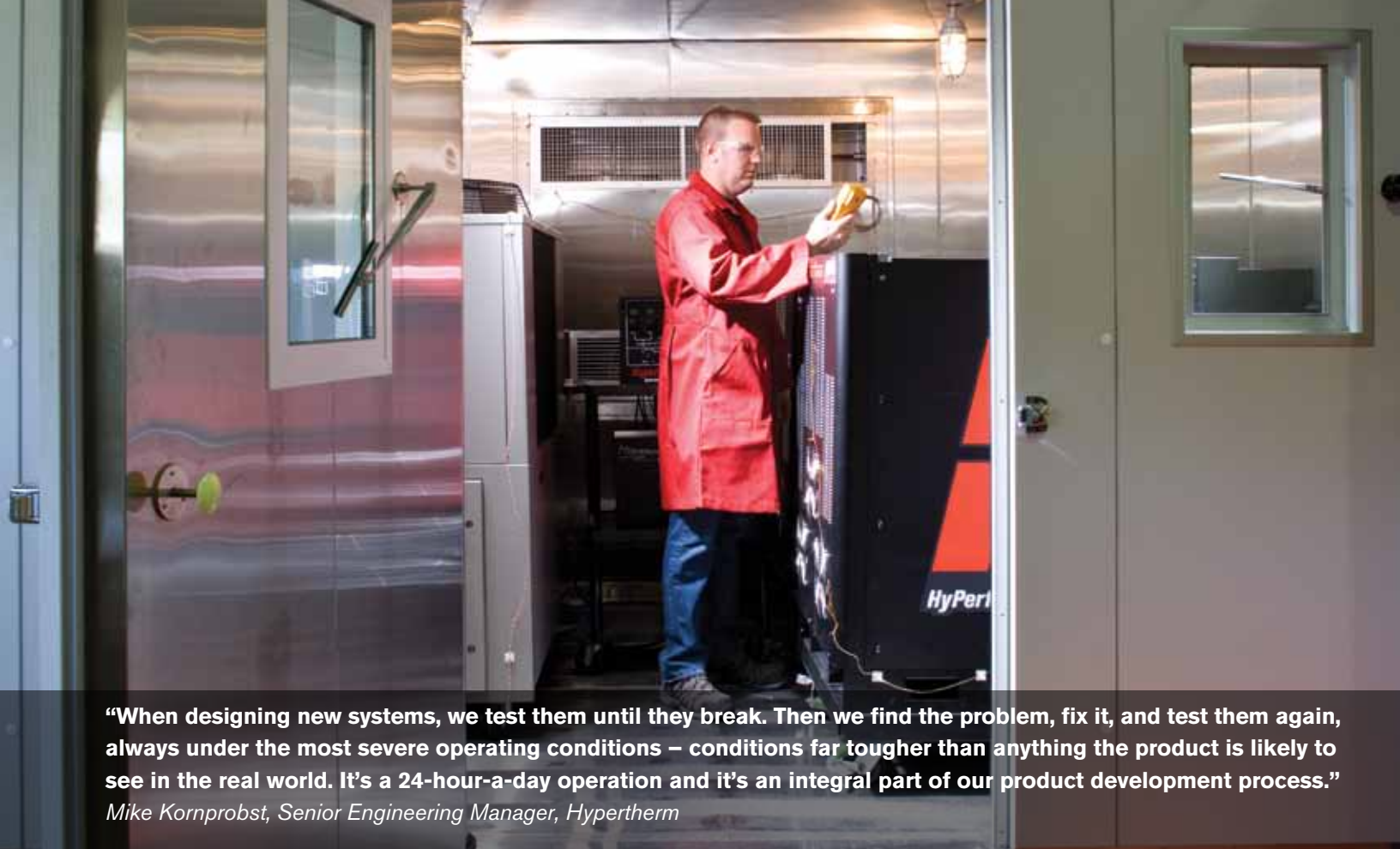
- Patented LongLife and PowerPierce technologies significantly increase consumable life and reduce your cost per part.
- Hypertherm consumables are manufactured with the highest quality standards to ensure consistently longer life.

Do more with less power

- Patented consumable designs enable industry-leading cutting speeds and robust production piercing using lower amperage levels.
- HyPerformance Plasma enables extremely high cutting speeds per amp with less cutting current than other plasma solutions on the market.
- Hypertherm's power supplies are designed to be extremely efficient in their use of electricity, enabling lower electrical expense and a reduced impact on the environment.

Minimized operating cost





“When designing new systems, we test them until they break. Then we find the problem, fix it, and test them again, always under the most severe operating conditions – conditions far tougher than anything the product is likely to see in the real world. It’s a 24-hour-a-day operation and it’s an integral part of our product development process.”

Mike Kornprobst, Senior Engineering Manager, Hypertherm

Unmatched reliability

Hypertherm combines four decades of experience and world-class design, manufacturing and testing processes to build in reliability that you can trust.

Reliable by design

- During development, Hypertherm systems endure rigorous reliability testing procedures that are equivalent to years of use in extreme operating environments.
- Systems are subject to a wide range of temperatures, humidity levels, vibration, electrical noise, and incoming voltage to ensure that the final products are extremely robust.

Robust manufacturing and test processes

- Best-in-class lean manufacturing processes reduce the opportunity for error ensuring every Hypertherm system meets our high quality standards.
- All Hypertherm systems go through extensive automated testing before they are shipped.
- Hypertherm’s manufacturing and test teams are dedicated to delivering the highest quality plasma products on the market.

Reliable operation

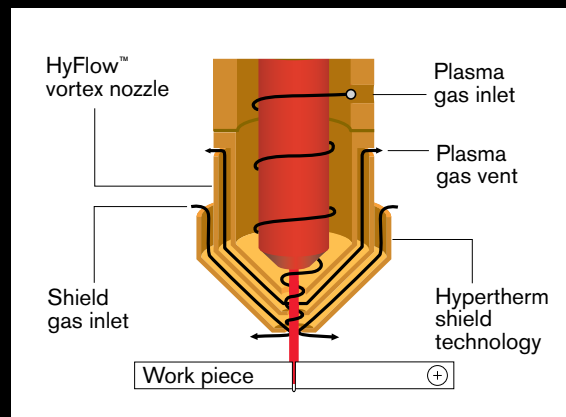
- Self-diagnostics run automatically at startup and continually while cutting to ensure that the system operates at peak performance.



Hypertherm-patented technology delivers more consistent cut quality for longer periods of time at half the operating cost.

HyDefinition®

- Vented nozzle technology aligns and focuses the plasma arc.
- HyDefinition technology enables powerful precision cutting for superior quality and consistency.

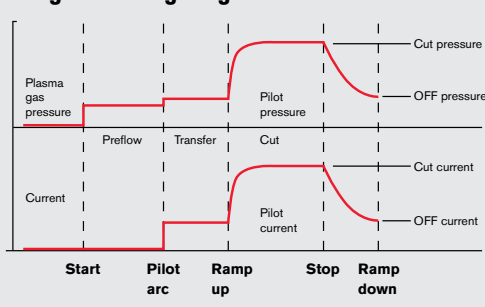


LongLife®

- Patented LongLife technology ramps current and gas flow up and down in a tightly controlled manner to reduce electrode and nozzle erosion.
- Reducing electrode and nozzle erosion enables more consistent cut quality over a longer period of time, while providing a significant reduction in operating cost.



LongLife timing diagram



Patented consumable technology

PowerPierce

liquid cooled shield*

Repels molten metal during piercing for robust production pierce capability up to 50 mm (2") mild steel and 75 mm (3") stainless steel and aluminum.

Advanced axial swirl ring*

CoolFlow*

HyDefinition

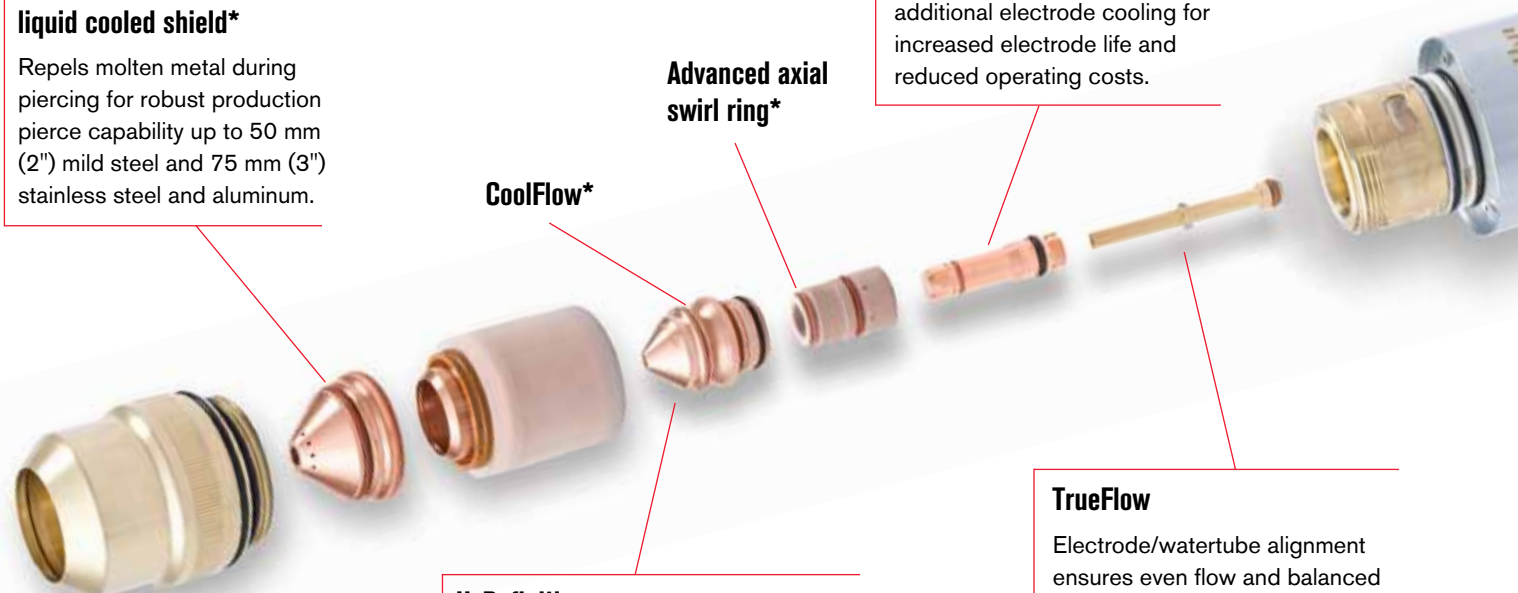
Vented nozzle technology aligns and focuses the plasma arc for powerful precision cutting, superior quality and consistency.

CoolCore®

Ring-shaped hafnium provides additional electrode cooling for increased electrode life and reduced operating costs.

TrueFlow

Electrode/watertube alignment ensures even flow and balanced cooling that translates into longer, more consistent consumable life.



PowerPierce™

- Liquid cooled shield technology repels molten metal during piercing.
- PowerPierce technology enables robust production pierce capability up to 50 mm (2") mild steel and 75 mm (3") stainless steel and aluminum.
- Patented consumable designs deliver speed and thickness capabilities expected of higher amp systems.

300 pierces at 50 mm (2")



HPR400XD with PowerPierce technology

41 pierces at 45 mm (1 3/4")



Competitor A without PowerPierce technology

True Hole™

- Patent pending True Hole** cutting technology for mild steel is a specific combination of cutting parameters that is optimized for each material thickness and hole size.
- Taper is virtually eliminated and the ding is reduced and biased to the outside of the hole, down to a 1:1 diameter to thickness ratio.
- True Hole technology produces up to a 50% improvement in mild steel hole cylindricity when compared to other plasma systems available on the market.

12 mm (1/2") mild steel



12 mm (1/2") hole with True Hole technology

12 mm (1/2") mild steel



12 mm (1/2") hole without True Hole technology

System technology (HyPerformance Plasma HPR400XD shown)

Power supply and cooler

The addition of pump motor drives eliminates frequency impact to fans and coolant flow.

Cooling system

Continuously monitors coolant temperature and flow rate to ensure optimal performance.

Gas console

- LongLife technology enables consistent HyDefinition cut quality over the longest period of time.
- Compensates for variation of incoming gas pressures.
- Continually measures and adjusts gas flows.

Power supply

- Self-calibrating current control loop for better accuracy of set current.
- High power factor/efficiency.
- Low output current ripple for reduced arc voltage deviation and a more stable plasma arc.
- Serial communications port for system monitoring by the CNC.
- CAN serial communications between major modules for system robustness.
- Remote monitoring is possible if CNC is networked.

Torch

- Quick disconnect torch reduces set-up time.



*Patent pending. Technologies and processes vary by system.

**True Hole technology requires a HyPerformance Plasma HPRXD auto gas system along with a True Hole enabled cutting table, nesting software, CNC, and torch height control. Consult with your table manufacturer for more details.

Unmatched versatility

HyPerformance Plasma cuts, bevels and marks a variety of metals, from thin to thick, making it the system that can do it all.

- HyPerformance Plasma cuts carbon steel, stainless steel, aluminum and other metals with HyDefinition precision.
- Bevel cutting up to 45°.
- Mark, cut and bevel with the same consumables.
- Full range of cutting thicknesses for mild steel from 0.5 mm (gauge) material to production piercing of 50 mm (2") with a maximum cutting thickness up to 80 mm (3.2").
- Stainless steel and aluminum cutting range from 0.5 mm (gauge) material to production piercing of 75 mm (3") with a maximum cutting thickness up to 160 mm (6-1/4").
- Components and capabilities have been specifically designed for use in X-Y, bevel and robotic cutting applications.
- Modular power supply and console design allows for easy upgrades to increase your capabilities.



HyPerformance Plasma product line

HyPerformance Plasma customers can choose the systems and combination of options that best suit their requirements today. Modules are designed to work interchangeably providing the flexibility of an easy upgrade path, allowing you to add new capabilities should your needs change in the future.



HPR130XD (30 – 130 amps)

Mild steel cut capacity

Dross free: 16 mm (5/8")
Production (pierce): 32 mm (1-1/4")
Severance (edge starts): 38 mm (1-1/2")

Stainless steel cut capacity

Production (pierce): 20 mm (3/4")
Severance (edge starts): 25 mm (1")

Aluminum cut capacity

Production (pierce): 20 mm (3/4")
Severance (edge starts): 25 mm (1")



HPR260XD (30 – 260 amps)

Mild steel cut capacity

Dross free: 32 mm (1-1/4")
Production (pierce): 38 mm (1-1/2")
Severance (edge starts): 64 mm (2-1/2")

Stainless steel cut capacity

Production (pierce): 32 mm (1-1/4")
Severance (edge starts): 50 mm (2")

Aluminum cut capacity

Production (pierce): 25 mm (1")
Severance (edge starts): 50 mm (2")



HPR400XD (30 – 400 amps)

Mild steel cut capacity

Dross free: 38 mm (1-1/2")
Production (pierce): 50 mm (2")
Severance (edge starts): 80 mm (3.2")

Stainless steel cut capacity

Production (pierce): 45 mm (1-3/4")
Severance (edge starts): 80 mm (3.2")

Aluminum cut capacity

Production (pierce): 38 mm (1-1/2")
Severance (edge starts): 80 mm (3.2")



HPR800XD (30 – 800 amps)

Mild steel cut capacity

Dross free: 38 mm (1-1/2")
Production (pierce): 50 mm (2")
Severance (edge starts): 80 mm (3.2")

Stainless steel cut capacity

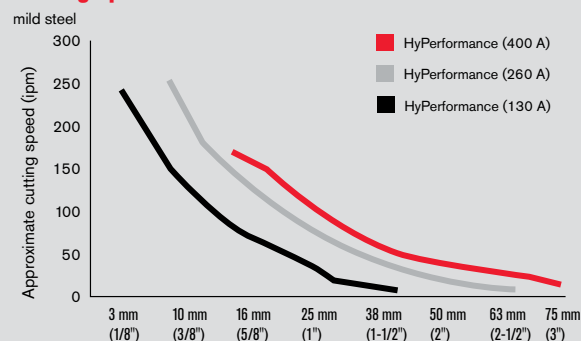
Production (pierce): 75 mm (3")
Severance (edge starts): 160 mm (6-1/4")

Aluminum cut capacity

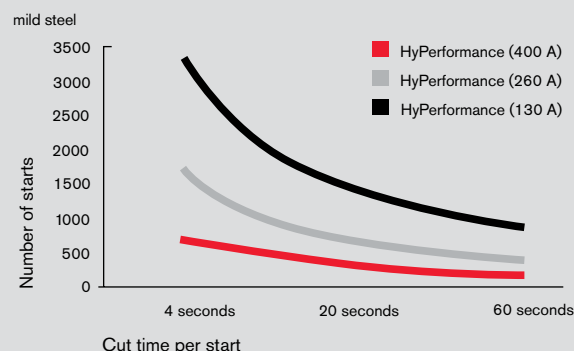
Production (pierce): 75 mm (3")
Severance (edge starts): 160 mm (6-1/4")

System comparisons

Cutting speed



Consumable life



Gas console options

Manual gas console

- Provides an intuitive and easy to use operator interface for the system.
- Operators manually select gas types and set gas flows.
- Automatically adjusts for variations in incoming gas pressure to produce consistent cutting performance.



Auto gas console

- Controls all of the plasma system settings from the CNC. When coupled with an intuitive CNC interface it reduces the time it takes to train new operators and set up new jobs.
- Automatically changes processes on the fly to enable rapid switching between cutting and marking.
- Automatically adjusts for variations in incoming gas pressure to produce the most consistent cutting performance.
- The auto gas console is required to enable True Hole technology.



Operating data

Material	Current (amps)	Thickness (mm)	Approximate cutting speed (mm/min.)	Thickness (inches)	Approximate cutting speed (ipm)
Mild steel	30	0.5	5355	.018	215
O ₂ plasma		3	1160	.135	40
O ₂ shield		6	665	1/4	25
O ₂ plasma	80†	3	6145	.135	180
Air shield		6	3045	1/4	110
		20	545	3/4	25
O ₂ plasma	130†	6	4035	1/4	150
Air shield		10	2680	3/8	110
		25	550	1	20
O ₂ plasma	200	6	5248	1/4	200
Air shield		12	3061	1/2	115
		25	1167	1	45
		50	254	2	10
O ₂ plasma	260†	10	4440	3/8	180
Air shield		20	2170	3/4	90
		64	195	2 1/2	8
O ₂ plasma	400†	12	4430	1/2	170
Air shield		25	2210	1	85
		50	795	2	30
		80	180	3	10
Stainless steel	45	1	5740	.036	240
F5 plasma		2.5	2510	.105	90
N ₂ shield		6	845	1/4	30
F5 plasma	80	4	2180	.135	105
N ₂ shield		6	1225	1/4	45
		10	560	3/8	25
H35 plasma	130†	10	980	3/8	40
N ₂ shield		12	820	1/2	30
		25	260	1	10
H35 plasma	260†	12	1710	1/2	65
N ₂ shield		20	1085	3/4	45
		25	785	1	30
		50	270	2	10
H35 and N ₂ plasma	400†	20	1810	3/8	75
N ₂ shield		40	720	1 1/2	30
		80	190	3	10
N ₂ plasma	600†	40	970	1 1/2	40
N ₂ shield		60	434	2 1/2	16
		80	305	3	12
H35 plasma	800†	75	464	3	18
N ₂ shield		125	155	5	6
		160	100	6 1/4	4
Aluminum	45	1.5	4420	.048	220
Air plasma		4	2575	.135	110
Air shield		6	1690	1/4	60
H35 plasma	130†	12	1455	1/2	55
N ₂ shield		20	940	3/4	40
		25	540	1	20
H35 plasma	260†	12	5160	1/2	190
N ₂ shield		20	2230	3/4	90
		50	390	2	14
H35 plasma	400†	20	2420	3/4	100
N ₂ shield		40	1190	1 1/2	50
		80	210	3	10
H35 plasma	800†	75	907	3	35
N ₂ shield		160	179	6 1/4	7

Note: Take care in comparison: Competitors often show maximum cutting speeds, rather than speeds that deliver the best cuts, as shown above. Cut speeds listed above deliver best cut quality for a given process, but cut speeds can be up to 50% faster.

The operating data chart does not list all processes available for the HPR130XD, HPR260XD and HPR400XD. Please contact Hypertherm for more information.

† Consumables support up to 45° bevel capability.

Gas supply

Plasma gas	O ₂ , N ₂ , F5*, H35**, Air, Ar
Shield gas	N ₂ , O ₂ , Air, Ar
Gas pressure	8.3 bar (120 psi) Manual gas console 8.0 bar (115 psi) Automatic gas console

* F5 = 5% H, 95% N₂

** H35 = 35% H, 65% Ar

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