Hypertherm®

HyPerformance® Plasma HPRXD®

HYPERFORMANCE PLASMA HPR130XD, HPR260XD, HPR400XD AND HPR800XD FEATURING HYDEFINITION,® POWERPIERCE® AND HDi TECHNOLOGIES

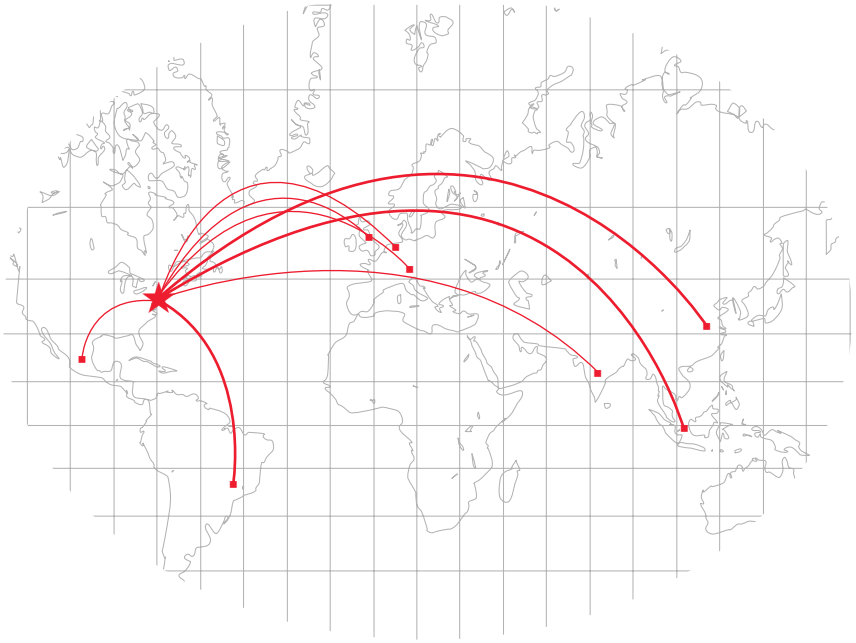
HyPerformance Plasma delivers HyDefinition® cut quality for mild steel and stainless steel with greater consistency, faster cut speeds, longer consumable life and half the operating cost of competing technologies. With over twenty thousand systems in use worldwide, it is clear that HyPerformance Plasma 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.

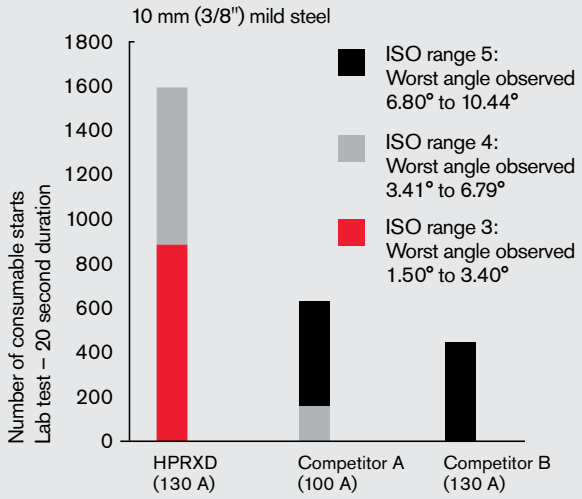
- Hypertherm has developed over 100 patented plasma technologies that provide customers with exceptional performance.
- Hundreds of thousands of Hypertherm plasma systems in use worldwide produce results that customers can rely on.
- Hypertherm has captured a majority market share in plasma cutting worldwide through innovation and a commitment to technology advancement.
- Hypertherm's plasma power supplies are engineered to deliver industry leading energy efficiency and productivity with power efficiency ratings of 90% or greater and power factors up to 0.98. Extreme energy efficiency, long consumable life, and lean manufacturing lead to the use of fewer natural resources and a reduced environmental impact.



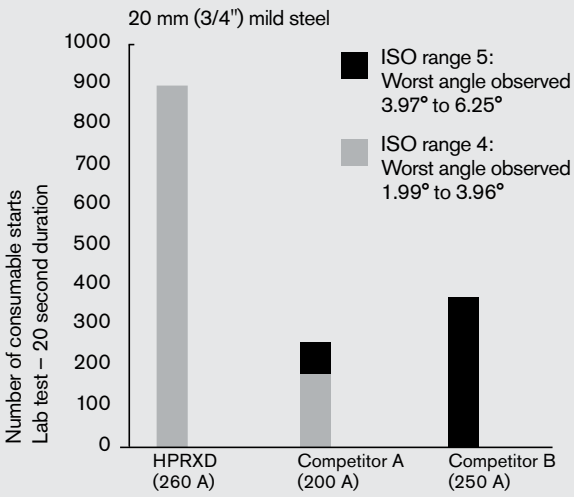
★ *Hypertherm headquarters*

▪ *Hypertherm sales and support facilities*

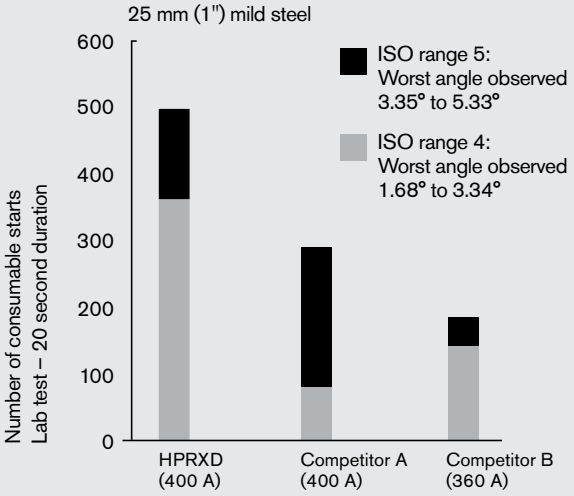
Cut quality over life (130 A)



Cut quality over life (260 A)



Cut quality over life (400 A)



Superior cut quality and consistency

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

- 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 HyPerformance Plasma auto gas systems, produces hole quality on mild steel that is significantly better than what has been previously achievable using plasma.*
- Hypertherm leads the way in stainless steel cutting, with new HDi technology for thin stainless, optimized gas mixing for mid-range thicknesses and patented PowerPierce® technology combined with an innovative controlled pierce process for the thickest piercing and cutting capability available.
- Hypertherm consumables are manufactured with the highest quality standards to ensure consistent performance.

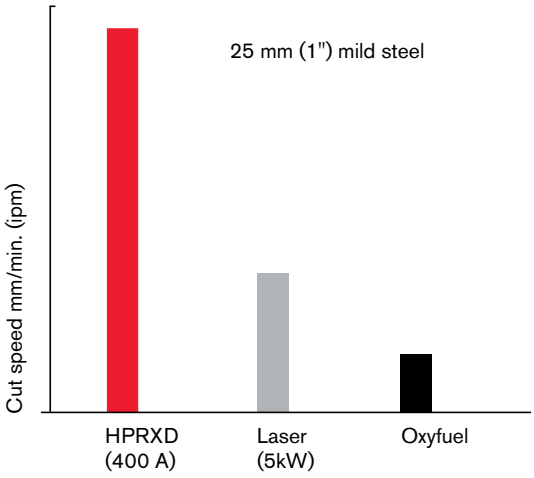
**True Hole technology requires a HyPerformance Plasma HPRXD auto gas system along with a True Hole enabled cutting table, nesting software, CNC, and torch height control. Consult with your table manufacturer for more details.*

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 patented 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.

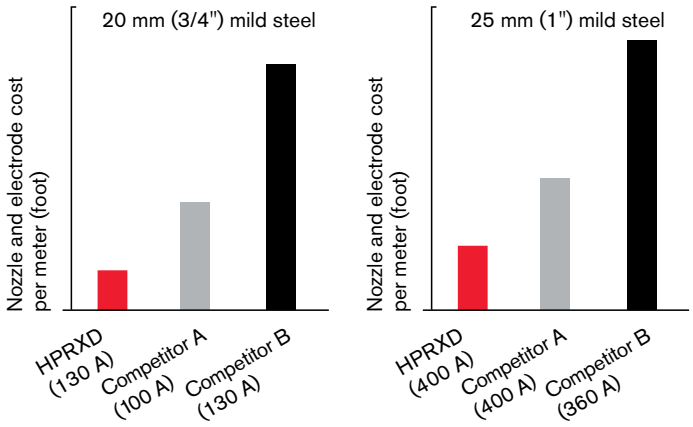
Longer consumable life

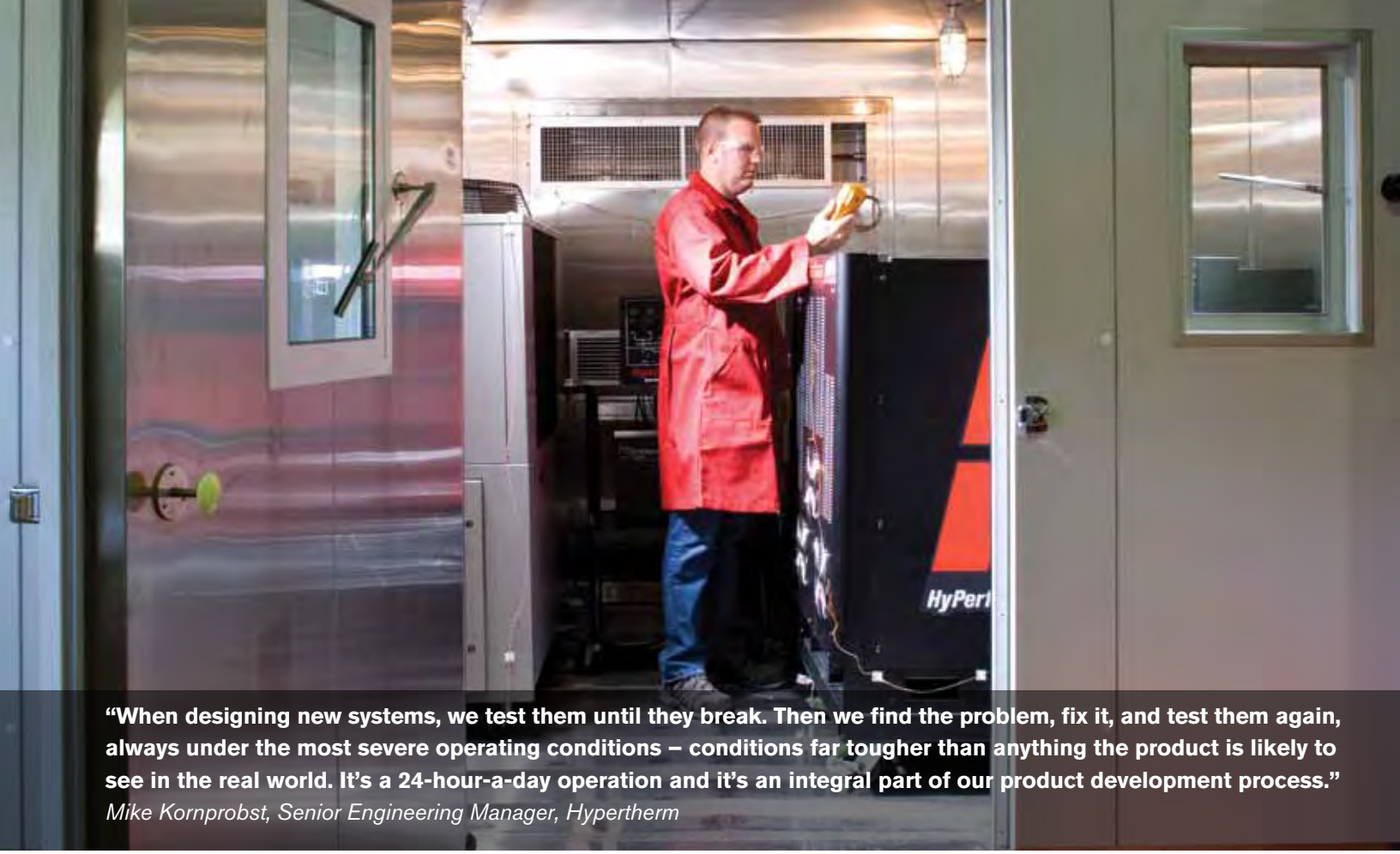
- LongLife and PowerPierce technologies significantly increase consumable life and reduce your cost per part.
- Hypertherm consumables are manufactured with the highest quality standards to ensure consistently longer life.

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.

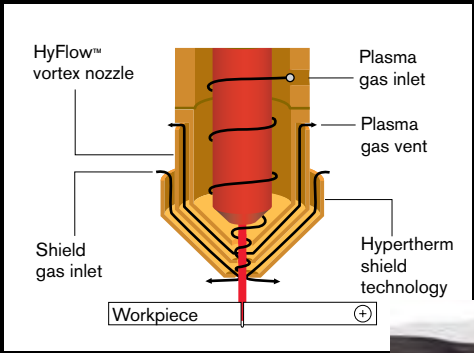
Reliable operation

- Self diagnostics are performed automatically at start up and continually throughout the cutting process. This ensures the system is operating at full capability.

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

HyDefinition®

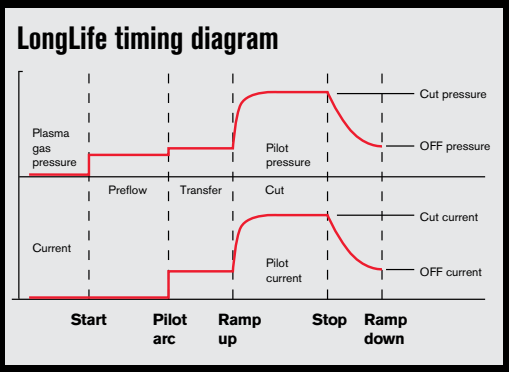
- Vented nozzle technology aligns and focuses the plasma arc.
- HyDefinition technology enables powerful precision cutting for superior quality and consistency on mild steel.
- New HDi technology now delivers HyDefinition quality to thin stainless steel cutting.



LongLife®

- 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*

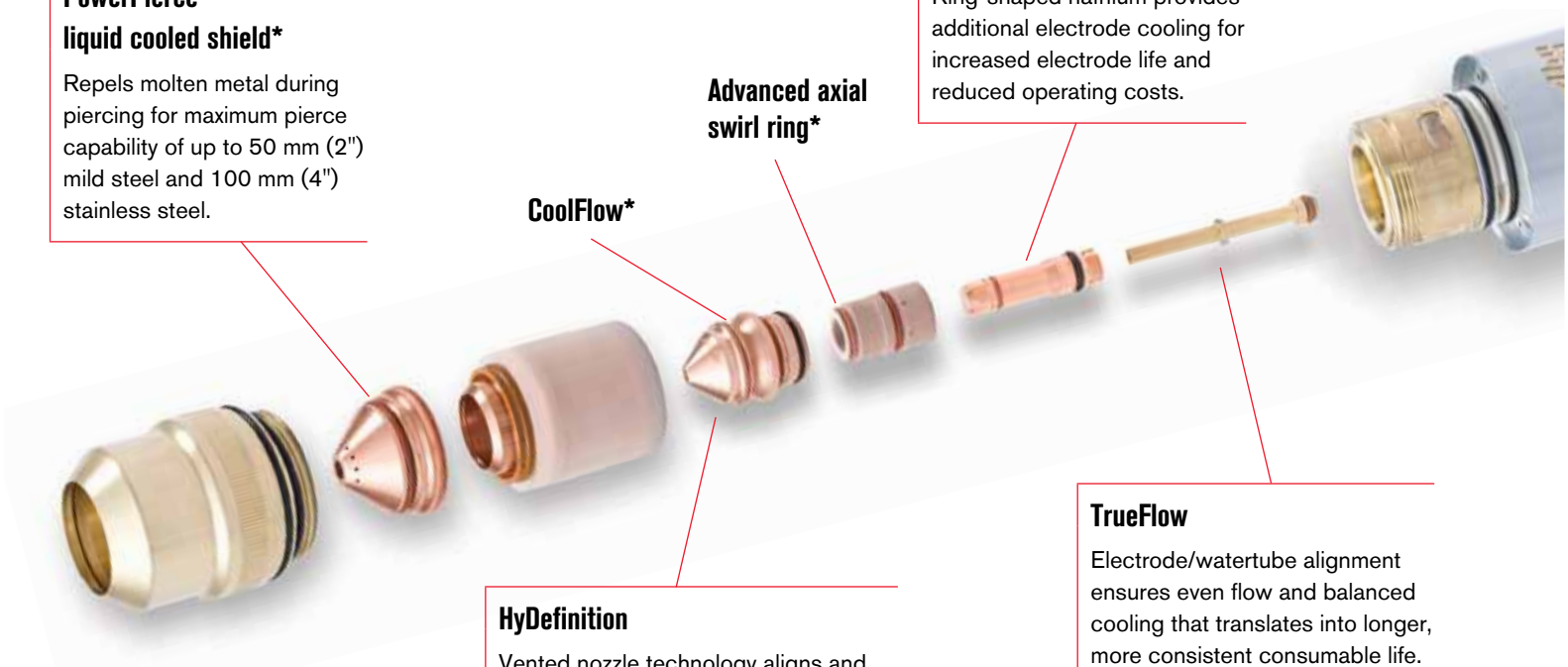
Repels molten metal during piercing for maximum pierce capability of up to 50 mm (2") mild steel and 100 mm (4") stainless steel.

CoolFlow*

Advanced axial swirl ring*

CoolCore®

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



HyDefinition

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

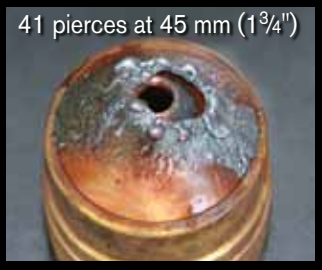
TrueFlow

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

PowerPierce®

- Patented PowerPierce liquid cooled shield repels molten metal during piercing for maximum pierce capability of up to 50 mm (2") mild steel and 100 mm (4") stainless steel.
- Patented consumable designs deliver speed and thickness capabilities expected of higher amp systems.

HPR400XD with PowerPierce technology



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") hole with True Hole technology

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.

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.

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.

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.
- Customized factory-tested cut charts available for a variety of applications, including bevel, True Hole, fine feature, and underwater cutting.
- 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 cutting range from 0.5 mm (gauge) material to production piercing of 75 mm (3") with a maximum pierce rating of 100 mm (4") and a maximum cutting thickness up to 160 mm (6-1/4").
- HDi technology delivers HyDefinition cut quality on thin stainless from 3 to 6 mm (12 ga to 1/4").
- Optimized gas mixing delivers superior cut quality and consistency with excellent surface finish on mid-range stainless steel thicknesses.
- Components and capabilities have been specifically designed for use in X-Y, bevel and robotic cutting applications.
- Modular power supply and console design enables easy upgrades to increase system capabilities when requirements change.

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 to easily upgrade to meet future needs.

HPR130XD
(30 – 130 amps)

Mild steel cut capacity

Dross free*: 16 mm (5/8")

Production pierce: 32 mm (1-1/4")

Maximum cutting capacity: 38 mm (1-1/2")

Stainless steel cut capacity

Production pierce: 20 mm (3/4")

Maximum cutting capacity: 25 mm (1")

Aluminum cut capacity

Production pierce: 20 mm (3/4")

Maximum cutting capacity: 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")

Maximum cutting capacity: 64 mm (2-1/2")

Stainless steel cut capacity

Production pierce: 32 mm (1-1/4")

Maximum cutting capacity: 50 mm (2")

Aluminum cut capacity

Production pierce: 25 mm (1")

Maximum cutting capacity: 50 mm (2")

HPR400XD
(30 – 400 amps)

Mild steel cut capacity

Dross free*: 38 mm (1-1/2")

Production pierce: 50 mm (2")

Maximum cutting capacity: 80 mm (3.2")

Stainless steel cut capacity

Production pierce: 45 mm (1-3/4")

Maximum pierce**: 75 mm (3")

Maximum cutting capacity: 80 mm (3.2")

Aluminum cut capacity

Production pierce: 38 mm (1-1/2")

Maximum cutting capacity: 80 mm (3.2")

HPR800XD
(30 – 800 amps)

Mild steel cut capacity

Dross free*: 38 mm (1-1/2")

Production pierce: 50 mm (2")

Maximum cutting capacity: 80 mm (3.2")

Stainless steel cut capacity

Production pierce: 75 mm (3")

Maximum pierce**: 100 mm (4")

Severance: 160 mm (6-1/4")

Aluminum cut capacity

Production pierce: 75 mm (3")

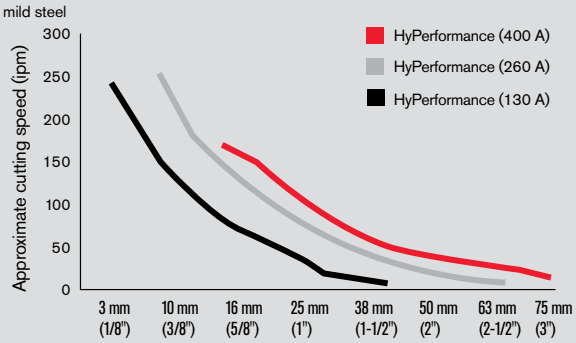
Severance: 160 mm (6-1/4")

** Feature and material type can influence dross free performance.*

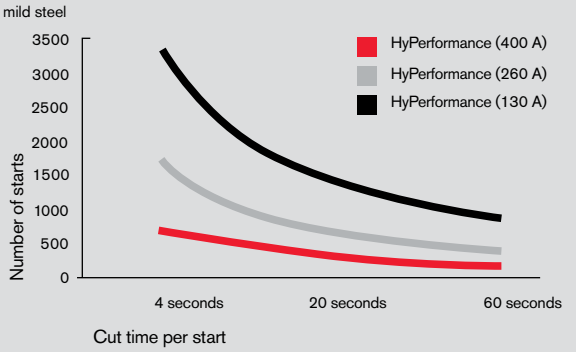
*** Maximum pierce requires controlled motion process. See technical documentation for details.*

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.
- Adjusts for variations in incoming gas pressure to produce consistent cutting performance.

Auto gas console

- Allows full control of all plasma system settings from the CNC, simplifying operator training requirements.
- 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 and optimized gas mixing for mid-range stainless cutting.

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	60	3	2770	0.105	120
F5 plasma		4	2250	0.135	95
N_2 shield		5	1955	3/16	80
		6	1635	1/4	60
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	400†	20	1810	3/8	75
plasma		40	720	1 1/2	30
N_2 shield		80	190	3	10
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

HDi

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% N_2
** H35 = 35% H, 65% Ar

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