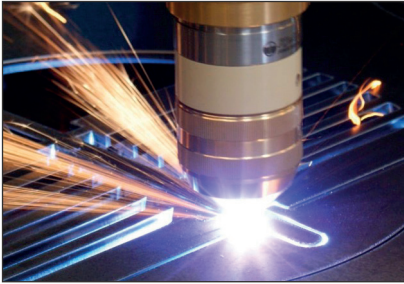


the optimum cutting system for each application

Plasma cutting

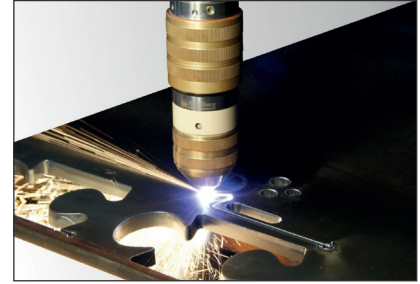
Kjellberg is the longest established manufacturer of plasma cutting technique in the market and offers plasma and laser cutting technique for a wide range of different cutting tasks. With the high-quality products made in Germany excellent results can be achieved for automated, mechanised or manual cutting. Users acquire powerful state-of-the-art systems and advanced cutting technologies which can be used in diverse application areas.



2D plasma



3D plasma



Contour Cut



Underwater plasma



Marking



Manual plasma

In the industry today, HiFocus plasma cutting is a synonym for highest cutting quality and best perpendicularity. Furthermore, the strong constriction of the arc allows very fine cutting of thin plates with a very small current.

Dry plasma cutting

Dry plasma cutting is often referred to as conventional or standard plasma cutting. However, the historic development should be regarded in a more differentiated way. Conventional plasma cutting means that the arc is only focussed by the inner diameter of the nozzle

Underwater plasma

The development of underwater plasma cutting originated in the special requirements of industrial cutting applications. Among other things, the noise pollution, radiation and

dust exposure as well as material distortions caused by heat input should be reduced.

HiFocus neo – efficient plasma cutting

When using the HiFocus technology for plasma cutting, a swirl gas is added which rotates around the plasma beam at very high speed and constricts the plasma beam heavily. The rotation of the swirl gas has the effect that the plasma beam is stabilised and protected. A big advantage for users is that this technology allows nearly rectangular cut surfaces within a broad range of material thicknesses.

Marking, Notching and Punching with Plasma

The high-precision plasma cutting systems of the HiFocus series with inverter technology - marked with an „i“ in their names - already have this marking function (exception: HiFocus 80i). It allows cutting and marking without changing the consumables of the torch.

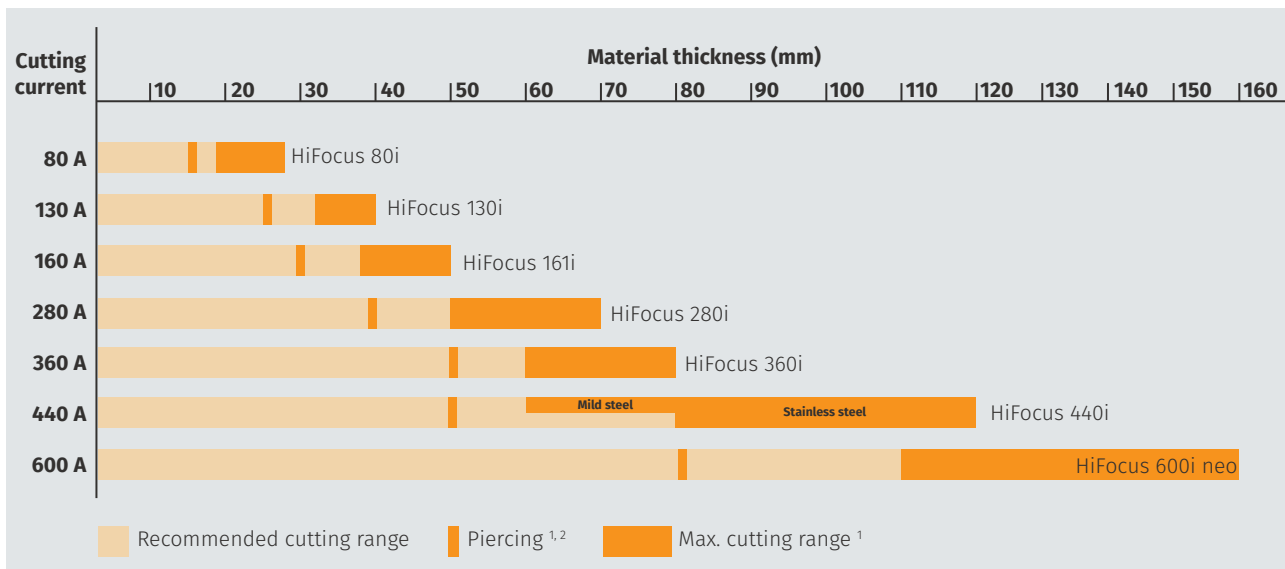
These inverter power sources achieve the best marking quality in the plasma industry in particular due to the extremely low marking currents from 5 A and the use of argon as marking gas.

Contour Cut Technology

Contour Cut stands for the precise cutting of mild steel. When cutting small contours, narrow bars and especially small holes with a diameter to thickness ratio of 1:1 an outstanding cut quality is achieved. Smooth cut surfaces and sharp cut edges reduce time-consuming aftertreatment. Thus, productivity increases while costs are reduced.

Contour Cut and Contour Cut Speed are standard in all HiFocus neo units with the plasma torches PerCut 200-211 and PerCut 440-451. Upgrades of your existing HiFocus systems are available on request.

Parameters for the family of HiFocus



¹ These data are depending on the materials to be cut and their compositions. ² Observe piercing capability!

Power source	HiFocus 80i	HiFocus 130	HiFocus 161i	HiFocus 280i	HiFocus 360i	HiFocus 440i	HiFocus 600i neo
Mains voltage ³	3~, 400 V, 50 Hz						
Fuse, slow	25 A	50 A	50 A	100 A	125 A	200 A	
Connected load	17 kVA	32 kVA	28 kVA	67 kVA	87 kVA	127 kVA	93 kVA
Cutting current (100% d.c)	10 - 80 A	20 - 130 A	10 - 160 A	10 - 280 A	10 - 360 A	10 - 440 A	100-300 A
Marking current	-	16 A	5 - 25 A	5 - 50 A	5 - 50 A	5 - 50 A	-
Dimensions (H x W x D)	970 x 510 x 970 mm	960 x 540 x 1050 mm	985 x 570 x 1140 mm	1030 x 680 x 1450 mm			
Weight	161 kg	251 kg	206 kg	505 kg	517 kg	589 kg	
Plasma gas	O ₂ , N ₂	O ₂ , Ar, H ₂ , N ₂	O ₂ , Ar, H ₂ , N ₂	O ₂ , Ar, H ₂ , F5*	O ₂ , Ar, H ₂ , F5*	O ₂ , Ar, H ₂ , F5*	
Marking gas	-	Ar	Ar	Ar	Ar	Ar	
Swirl gas	O ₂ , N ₂ , Air, F5*	O ₂ , N ₂ , Air, F5*	O ₂ , N ₂ , Air, F5*	O ₂ , N ₂ , Air	O ₂ , N ₂ , Air	O ₂ , N ₂ , Air	

³ Other voltage and frequencies on request. * Forming gas F5 (95 % N / 5 % H)

small but highly precise plasma cutting system

HiFocus 80i



HiFocus 80i System of Function and Design

The HiFocus 80i is a modern microprocessor-controlled power source that is often used in the automotive industry. Based on the well-proven soft switch inverter technology with primary switching and with an operating range from 10A to 80A, it can be used for cutting materials with a thickness between 0.5 mm and 20 mm, or up to 25 mm in case of separating cuts.

Thanks to the excellent price-performance ratio, the HiFocus 80i makes it possible for many medium-sized enterprises to cut in HiFocus quality.

The HiFocus 80i guarantees high flexibility also for smaller guiding systems and robots for a wide range of conditions of use. The special system configuration HiFocus 80i-Robo is available for the use with robots.

The HiFocusPlus technology has a number of advantages

- Minimum gas and energy consumption due to high energy density as a result of the increased constriction of the plasma arc
- Excellent cutting quality
- Low perpendicularity and inclination tolerances of the cuts
- High contour accuracy of sharp edges and small radii
- Low heat input and, therefore, low material warping
- Flexible adjustment of the cutting process to the required conditions
- Optimal process control due to quick and stepless adjustment of the cutting current
- Individual manual adjustment of gases with the plasma gas control unit PGE3-HM
- Analogue or serial interface for adaption of robots to CNC control
- Serial data transfer to PC for diagnostic purposes
- Optimal piercing due to adjustable current upslope
- Adjustable current downslope after corner, start and end signals from the guiding system

Versatile Torch Technology

The new generation of PerCut torches has been developed especially for the high demands of the HiFocus technology. They guarantee an increased constriction of the plasma arc by using swirl gases and smaller nozzle diameters and by optimising the gas rotation.

There are a number of different plasma torches available for versatile applications. In addition to the standard torch PerCut 80, the quick-change plasma torch PerCut 90 with bayonet coupling can be used to take advantage of reduced downtimes and easy handling:

- Quick change of technologies due to prepared quick-change torch head
- Quick power adjustment for cutting different material thicknesses
- Comfortable change of consumables due to prepared quick-change torch head

For bevel cutting up to 45° or on three-dimensional parts, e.g. with robots, the plasma torch PerCut 160 (also available with 60° or 90° angled torch head, straight version also available as quick-change plasma torch PerCut 170) with reinforced shaft and 3D consumables is used, thus creating the best conditions for robot-based three-dimensional cutting which is a typical application for example in the automotive industry.

Technical data

Power source	HiFocus 80i
Cutting current	10-80 A (100% d.c)
Mains voltage	3x400 V, 50 Hz
Fuse, slow	25 A
Connected load	17 kVA
Open circuit voltage	400 V
Ignition	High voltage
Protection class	IP 22
Insulation class	F
Dimension (H x W x D)	1000x510x1020 mm
Weight	161 kg

Plasma torch	PerCut 80/PerCut 90
Standard version	PerCut 80
Quick change system	PerCut 90
Cutting current	max. 100 A
Clamping diameter	
PerCut 80	44 mm
PerCut 90	50 mm
Weight (with 1,5m torch pack)	3,8 kg
Cooling	coolant „Kjellfrost“
Plasma gases	O ₂ , Air, N ₂
Swirl gases	O ₂ , Air, N ₂ , F5

Material	Mild steel			Stainless steel		Aluminium	
	Max. cutting speed ¹	Cutting current (A)	speed (mm/min)	Cutting current (A)	speed (mm/min)	Cutting current (A)	speed (mm/min)
Material thickness (mm)	0,5	20	5000	-	-	-	-
	1	20	3500	30	5000	35	3800
	2	50	2600	55	4000	35	2600
	3	50	2200	55	2600	35	2300
	4	50	4500	60	2200	50	1500
	5	50	3500	60	2000	50	1400
	6	80	3200	60	1800	50	1300
	8	80	2600	-	-	50	1300
	10	80	2300	-	-	-	-
	12	80	1700	-	-	-	-
	15	80	1200	-	-	-	-
	20	80	600	-	-	-	-
	25	80	200	-	-	-	-

¹ The listed cutting speeds depend on material characteristics, gas parameters, the guiding system as well as the consumables. According to the quality parameters of the respective cutting task, the user can change the cutting speed.

cutting and marking **HiFocus 130 neo**



Advantages

- ✓ Suited for all common guiding systems as there are CNC-controlled guiding systems, pipe cutting machines or robots
- ✓ High-quality reproducible cutting results due to automatic gas control unit
- ✓ Long lifetime of consumables
- ✓ Higher cutting speeds reduce the costs per cutting metre
- ✓ Nearly dross-free cuts and therefore almost no rework required
- ✓ Low perpendicularity and surface roughness

neo: new – efficient – original

HiFocus neo systems offer a new higher level of performance. Users benefit from an excellent cutting and marking quality. High speeds improve productivity and lower process costs. Due to optimised technology, HiFocus neo delivers longer consumable life and consistent cut quality over entire parts life. The high-precision unit HiFocus 130 neo can be used for diverse cutting tasks with material thicknesses from 0.5 to 40 mm.

Cutting faster by 50 %

The patented Contour Cut technology stands for precision when cutting mild steel. Small contours, narrow webs and above all small holes with a hole diameter to material thickness ratio of 1:1 can be cut with Contour Cut in excellent quality. Contour Cut Speed allows the cutting of contours in similar quality with a speed that is up to 50 % higher.

Application Areas

- Metal construction and engineering
- Steel service centres
- Steel and hall construction
- Plant and tank construction
- Pipeline engineering
- Shipbuilding
- Commercial vehicle industry
- Crane construction
- Offshore constructions
- Wind power plants

Cost-saving Torch Technique

The Kjellberg plasma torches of the PerCut series are equipped with a unique liquid cooling system which guarantees a long lifetime of the consumables, thus making it possible to achieve savings in the gas consumption. Furthermore, the quick change head reduces the times for changing the consumables. Due to their acuteangled design, difficult-to-access areas can be reached easily and bevel cuts with an angle of up to 50° are possible.

Robust Consumables

With the long-living consumables made by Kjellberg change times are reduced and the productivity of the cutting process increases. The previously offered range of consumables is expanded by powerful copper cathodes for cutting with oxygen. They are characterised by long lifetime and an excellent price-performance ratio.



Technical data

Power source	HiFocus 130 neo
Mains voltage ¹	3x400 V, 50 Hz
Fuse, slow	25 A
Connected load	32 kVA
Cutting current	20-130 A
Marking current	16 A
Dimension (H x W x D)	1000x510x1020 mm
Weight	161 kg

³ Other voltage and frequencies on request.

Plasma torch	PerCut
Standard version	PerCut 201
Quick change system	PerCut 211
Cutting range	0,5 - 40 mm
Clamping diameter	50,8 mm
Plasma gases	O ₂ , Ar/H ₂ , N ₂
Marking gases	Ar
Swirl gases	O ₂ , Air, N ₂ , F ₅ ²

² Forming gas F5 (95 % N / 5 % H)

Material	Mild steel		Stainless steel		Aluminium		
	Max. cutting speed ¹	Cutting current (A)	speed (mm/min)	Cutting current (A)	speed (mm/min)	Cutting current (A)	speed (mm/min)
Anygavastagsäg (mm)	0,5	20	8000	-	-	-	-
	1	20	5500	55	5500	35	3800
	4	60	4100	80	3200	50	1500
	6	90	3700	130	1700	130	3500
	10	130	3400	130	1400	130	1300
	15	130	1900	130	1100	130	1200
	20	130	1300	130	700	130	1000
	25	130	1000	130	500	130	800
	30	130	500	130	400	130	500

¹ The listed cutting speeds depend on material characteristics, gas parameters, the guiding system as well as the consumables. According to the quality parameters of the respective cutting task, the user can change the cutting speed.

plasma cutting from 0.5 to 50 mm

HiFocus 161i neo



neo: new – efficient – original

HiFocus neo systems offer a new higher level of performance. Users benefit from an excellent cutting and marking quality. High speeds improve productivity and lower process costs. Due to optimised technology, HiFocus neo delivers longer consumable life and consistent cut quality over entire parts life. The high-precision unit HiFocus 161i neo can be used for diverse cutting tasks with material thicknesses from 0.5 to 50 mm.

Cutting faster by 50 %

The patented Contour Cut technology stands for precision when cutting mild steel. Small contours, narrow webs and above all small holes with a hole diameter to material thickness ratio of 1:1 can be cut with Contour Cut in excellent quality. Contour Cut Speed allows the cutting of contours in similar quality with a speed that is up to 50 % higher.

Advantages

- ✓ Suited for all common guiding systems as there are CNC-controlled guiding systems, pipe cutting machines or robots
- ✓ High-quality reproducible cutting results due to automatic gas control unit
- ✓ Long lifetime of consumables
- ✓ Higher cutting speeds reduce the costs per cutting metre
- ✓ Nearly dross-free cuts and therefore almost no rework required
- ✓ Low perpendicularity and surface roughness

Application Areas

- Metal construction and engineering
- Steel service centres
- Steel and hall construction
- Plant and tank construction
- Pipeline engineering
- Shipbuilding
- Commercial vehicle industry
- Crane construction
- Offshore constructions
- Wind power plants

Cost-saving Torch Technique

The Kjellberg plasma torches of the PerCut series are equipped with a unique liquid cooling system which guarantees a long lifetime of the consumables, thus making it possible to achieve savings in the gas consumption. Furthermore, the quick change head reduces the times for changing the consumables. Due to their acuteangled design, difficult-to-access areas can be reached easily and bevel cuts with an angle of up to 50° are possible.

Robust Consumables

With the long-living consumables made by Kjellberg change times are reduced and the productivity of the cutting process increases. The previously offered range of consumables is expanded by powerful copper cathodes for cutting with oxygen. They are characterised by long lifetime and an excellent price-performance ratio.



Technical data

Power source	HiFocus 161i neo
Mains voltage ¹	3x400 V, 50 Hz
Fuse, slow	50 A
Connected load	28 kVA
Cutting current	10-160 A
Marking current	5-25 A
Dimension (H x W x D)	985x570x1140 mm
Weight	206 kg

³ Other voltage and frequencies on request.

Plasma torch	PerCut
Standard version	PerCut 201
Quick change system	PerCut 211
Cutting range	0,5 - 50 mm
Clamping diameter	50,8 mm
Plasma gases	O ₂ , Ar/H ₂ , N ₂
Marking gases	Ar
Swirl gases	O ₂ , Air, N ₂ , F5 ²

² Forming gas F5 (95 % N / 5 % H)

Material	Mild steel			Stainless steel		Aluminium	
	Max. cutting speed ¹	Cutting current (A)	speed (mm/min)	Cutting current (A)	speed (mm/min)	Cutting current (A)	speed (mm/min)
Anyagvastagság (mm)	0,5	20	6000	-	-	-	-
	1	20	4200	55	5500	35	3800
	4	60	4100	80	3200	50	1500
	6	90	3700	130	1700	130	3500
	10	130	3400	130	1400	130	1300
	15	130	1900	160	1100	160	1500
	20	130	1300	160	800	160	1300
	25	160	1100	160	600	160	1100
	30	160	800	160	500	160	600
	40	160	500	160	300	160	400
	50	160	200	160	100	160	100

¹ The listed cutting speeds depend on material characteristics, gas parameters, the guiding system as well as the consumables. According to the quality parameters of the respective cutting task, the user can change the cutting speed.

plasma cutting from 0.5 to 120 mm at highest quality
HiFocus 280i, 360i, 440i neo



neo: new – efficient – original

HiFocus neo systems offer a new higher level of performance. Users benefit from an excellent cutting and marking quality. High speeds improve productivity and lower process costs. Due to optimised technology, HiFocus neo delivers longer consumable life and consistent cut quality over entire parts life.

The units HiFocus 280i, 360i and 440i neo can be used for diverse cutting tasks with material thicknesses from 0.5 to 120 mm. With the same equipment it is also possible to cut underwater.

Application Areas

- Metal construction and engineering
- Steel service centres
- Steel and hall construction
- Plant and tank construction
- Pipeline engineering
- Shipbuilding
- Commercial vehicle industry
- Crane construction
- Offshore constructions
- Wind power plants

Cutting faster by 50 %

The patented Contour Cut technology stands for precision when cutting mild steel. Small contours, narrow webs and above all small holes with a hole diameter to material thickness ratio of 1:1 can be cut with Contour Cut in excellent quality.

Contour Cut Speed allows the cutting of contours in similar quality with a speed that is up to 50 % higher.

Technical data

Power source	HiFocus 280i neo	HiFocus 360i neo	HiFocus 440i neo
Mains voltage ¹	3x400 V, 50 Hz		
Fuse, slow	100 A	125 A	200 A
Connected load	67 kVA	87 kVA	127 kVA
Cutting current	280 A	360 A	440 A
Marking current	5-50 A		
Dimension (H x W x D)	1030x680x1450 mm		
Weight	505 kg	517 kg	589 kg

³ Other voltage and frequencies on request.

Plasma torch	PerCut
Standard version	PerCut 441
Quick change system	PerCut 451
Cutting range	0,5 - 120 mm
Clamping diameter	50,8 mm
Plasma gases	O ₂ , Ar/H ₂ , N ₂ , F5 ²
Marking gases	Ar
Swirl gases	O ₂ , Air, N ₂

² Forming gas F5 (95 % N / 5 % H)

Operation data (extract)

HiFocus 280i, 360i, 440i neo from 0,5 mm

Mat. thickness (mm)	Mild steel		Stainless steel		Aluminium	
	Cutting current (A)	Speed (mm/min)	Cutting current (A)	Speed (mm/min)	Cutting current (A)	Speed (mm/min)
0,5	20	8000	-	-	-	-
1	20	5500	55	5500	35	3800
4	60	4100	80	3200	50	1500
6	90	3700	130	1700	130	3500
10	130	3400	130	1400	130	1300
15	130	1900	130	1100	130	1200
20	130	1300	130	700	130	1000
25	130	1000	130	500	130	800
30	130	500	130	400	130	500

Mild steel, from 20 mm

Type	HiFocus 280i neo	HiFocus 360i neo	HiFocus 440i neo			
Mat. thickness (mm)	Cutting current (A)	Speed (mm/min)	Cutting current (A)	Speed (mm/min)	Cutting current (A)	Speed (mm/min)
20	280	2100	360	2700	400	2800
30	280	1200	360	1550	400	1800
40	280	720	360	1000	400	1150
50	280	400	360	700	400	720
60	280	200	360	450	400	520
70	280	150	360	170	400	320
80	-	-	360	120	440	280
100	-	-	-	-	440	150
120	-	-	-	-	440	100

Stainless steel, from 20 mm

Típus	HiFocus 280i neo		HiFocus 360i neo		HiFocus 440i neo	
Anyag-vas-tagság (mm)	Vágási áram (A)	Sebes-ség (mm/perc)	Vágási áram (A)	Sebes-ség (mm/perc)	Vágási áram (A)	Sebes-ség (mm/perc)
20	280	1500	360	1700	440	2100
30	280	1000	360	1200	440	1300
40	280	670	360	850	440	1000
50	280	570	360	600	440	750
60	280	430	360	530	440	630
70	280	280	360	420	440	480
80	-	-	360	330	440	440
100	-	-	-	-	440	190
120	-	-	-	-	440	100

Aluminium, from 20 mm

Típus	HiFocus 280i neo		HiFocus 360i neo		HiFocus 440i neo	
Anyag-vas-tagság (mm)	Vágási áram (A)	Sebes-ség (mm/perc)	Vágási áram (A)	Sebes-ség (mm/perc)	Vágási áram (A)	Sebes-ség (mm/perc)
20	280	3800	360	4000	440	4500
30	280	2200	360	3000	440	2800
40	280	1550	360	1800	440	2400
50	280	1200	360	1500	440	1700
60	280	800	360	1300	440	1300
70	280	450	360	1000	440	1000
80	-	-	360	750	440	850
100	-	-	-	-	440	300
120	-	-	-	-	440	150

¹ The listed cutting speeds depend on material characteristics, gas parameters, the guiding system as well as the consumables. According to the quality parameters of the respective cutting task, the user can change the cutting speed.

cutting efficiently from 0.5 to 160 mm

HiFocus 600i neo



neo: new – efficient – original

With a maximum cutting current of 600 A the plasma cutting system HiFocus 600i neo sets new standards: Materials with a thickness of up to 160 mm can be cut precisely; also marking and bevel cutting is possible.

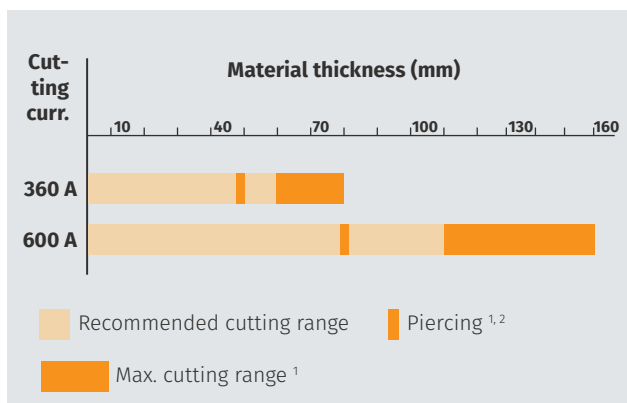
For cutting mild steel fast and precisely the patented Contour Cut technology is applied. Consisting of two power sources and an external cooling unit the plasma cutting system can be used in combination with CNC-controlled guiding systems, robots or pipe cutting machines and for underwater plasma cutting.

Technical data

	HiFocus 360i neo	Power Modul HiFocus 600i neo
Conn. load max.	87 kVA	93 kVA
Cutting current	10-360 A	10-600 A
Marking current	5-50 A	-
Cutting range	0,5-160 mm	
Gas control	automatic: FlowControl	

Robust Consumables

With the long-living consumables made by Kjellberg change times are reduced and the productivity of the cutting process increases. The previously offered range of consumables is expanded by powerful copper cathodes for cutting with oxygen. They are characterised by long lifetime and an excellent price-performance ratio.



¹ These data are depending on the materials to be cut and their compositions. ³ Observe piercing capability!



ProCAM Engineering and Development Ltd.

Factory Hungary-2142 Nagytarcsa, Ganz Ábrahám utca 4.

Office Hungary-2142 Nagytarcsa, Ady Endre u. 36/A.

Phone/Fax +36 28 737 046

E-mail info@procamkft.hu

Internet www.precitrack.com