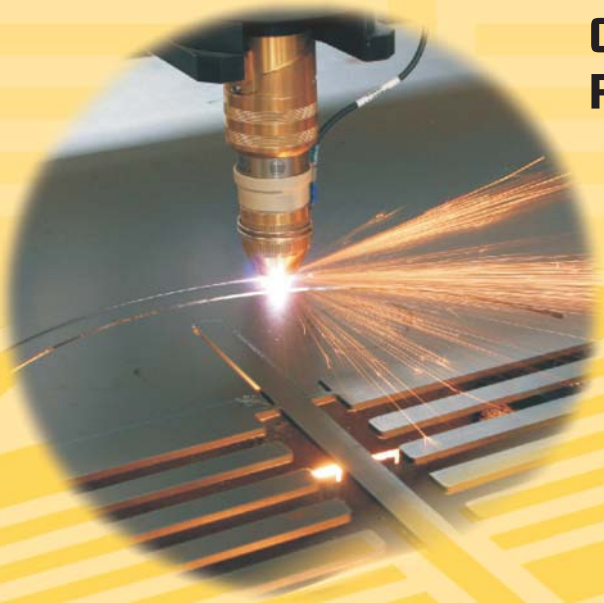
Kjellberg®
FINSTERWALDE

the FINE FOCUS™ company

Plasma Cutting Products

for each task the optimum system

HiFOCUS™
FINEFOCUS™
PA-S™
CUTFIRE™
FINEMARKER™



Pioneers in Plasma Cutting since 1959

made in Germany

Application oriented Plasma Cutting Technology

For the mechanised and the CNC-controlled cutting of electrically conductive materials Kjellberg Finsterwalde offers a wide range of plasma cutting technique, matching different requirements and demands. That expresses our continuous efforts for the advancement of the plasma cutting technique and technology. Besides the **Fine*Marker***, suitable for marking purposes, the following series of cutting installations are at disposal:

Cut*Fire*	Plasma cutting inverter - easy to handle, for plasma gas air, therefore preferred for cutting of mild steel, torch air cooled
PA-S	Step-switched power source for cutting of all metallic materials with multi-gas regime and water cooled Fine-Focus plasma torches
Fine*Focus*	Power sources for heavy load and excellent cutting quality in a material range from 5 to 160 mm in connection with swirl-gas technology
Hi*Focus*	Hi*Focus*-technology for highest demands by using primary-switched inverters, suitable for thicknesses from 0.5 to 100 mm, marking function because of optimal process control included

Hi*Focus*™ - Technique enables high Flexibility in Fabrication

This latest plasma Fine-Focus technology, characterised by largely dross-free cuts, low rawnes, less straightness and inclination tolerances as well as repeatable precision is embodied by the Hi*Focus* installations. Especially the **Hi*Focus* i series** is designated by a constant improvement of the inverter technique.

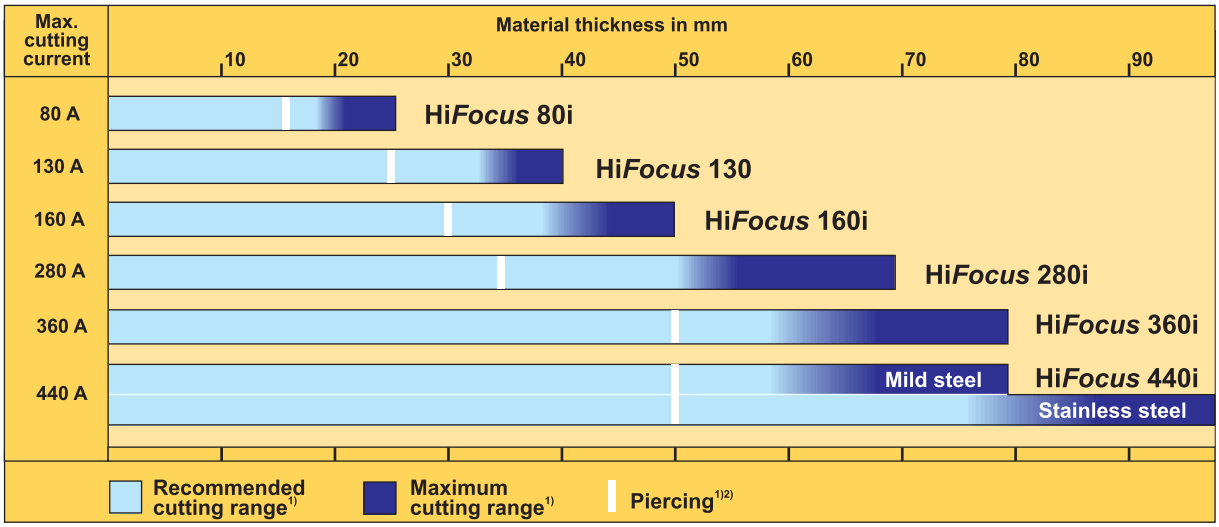
Optimised parameters for best cutting results at different materials and thicknesses are available for various technological parameters.

Kjellbergs Hi*Focus* technology achieves **laserlike cuts according to quality range 2 to 4** as per DIN EN ISO 9013 and furthermore contrary to laser up to **thicknesses of 80 mm**. Conventional plasma cutting just attains quality range 5 as per DIN.

Precondition for such results are an ingenious process control, the gas control **Flow*Control*** and an **outstanding torch technique**. Plasma Fine-Focus torches of the PerCut series are offered with quick-change heads and in different versions for cutting application at 3D parts in connection with cutting tables or with robots.

Beside straight line, contoured and bevel cutting up to 45° the plasma cutting units Hi*Focus* 160i, Hi*Focus* 280i, Hi*Focus* 360i and Hi*Focus* 440i are applicable for marking, notching and punch marking as well.

Range of Application



1) These data are depending on the materials to be cut and their composition. 2) Attend piercing technology!

Technical Data

	Hi*Focus* 80i	Hi*Focus* 130	Hi*Focus* 160i	Hi*Focus* 280i	Hi*Focus* 360i	Hi*Focus* 440i
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	33 kVA	67 kVA	87 kVA	127 kVA
Cutting current at 100% d.c.	80 A	130 A	160 A	280 A	360 A	440 A
Cutting gases **Marking gas** **Swirl gases**	Air, O_2, N_2 - Air, O_2, N_2, H_2	Air, O_2, Ar, H_2, N_2 - Air, O_2, N_2, H_2	Air, O_2, Ar, H_2, N_2 Ar Air, O_2, N_2, H_2	Air, O_2, Ar, H_2, N_2 Ar Air, O_2, N_2	Air, O_2, Ar, H_2, N_2 Ar Air, O_2, N_2	Air, O_2, Ar, H_2, N_2 Ar Air, O_2, N_2
Dimensions (L x W x H)	1000 x 510 x 1020 mm	960 x 540 x 1050 mm		1030 x 680 x 1450 mm		
Weight	161 kg	251 kg	196 kg	505 kg	517 kg	589 kg

3) Other voltages and frequencies on request

Flow*Control* - the most advanced Plasma Gas Control

For getting high quality cuts gas mixtures and flow rates have to be adapted carefully to the respective workpiece to be cut. Conventional gas mixing devices are keeping only the gas pressure constant and operate mainly with pre-mixed gases, preventing therefore the possibility of a job-related optimisation of the process. That makes it difficult to achieve a high cutting quality.

The patented **Flow*Control*** of Kjellberg Finsterwalde enables **an unique automatic and flow-controlled plasma gas supply**. The data are stored in a data bank and at any time reproducible.

This high-class technique stands for:

- customised, safe reproducible gas mixtures
- exact dosage of different gas amounts and compositions
- constancy of gas parameters and precise reproducibility by microprocessor control and monitoring
- compensation of pressure fluctuations in the system
- use of cutting data from the included data bank for different materials and thicknesses
- storage of customer specific cutting data and materials in the data bank

The gas supply units of the Flow*Control* series are suitable for all Hi*Focus* installations, with exception of the Hi*Focus* 80i. Also for marking operations an optimal gas supply is warranted. The gas consoles are controllable by a serial interface and can be upgraded on demand.

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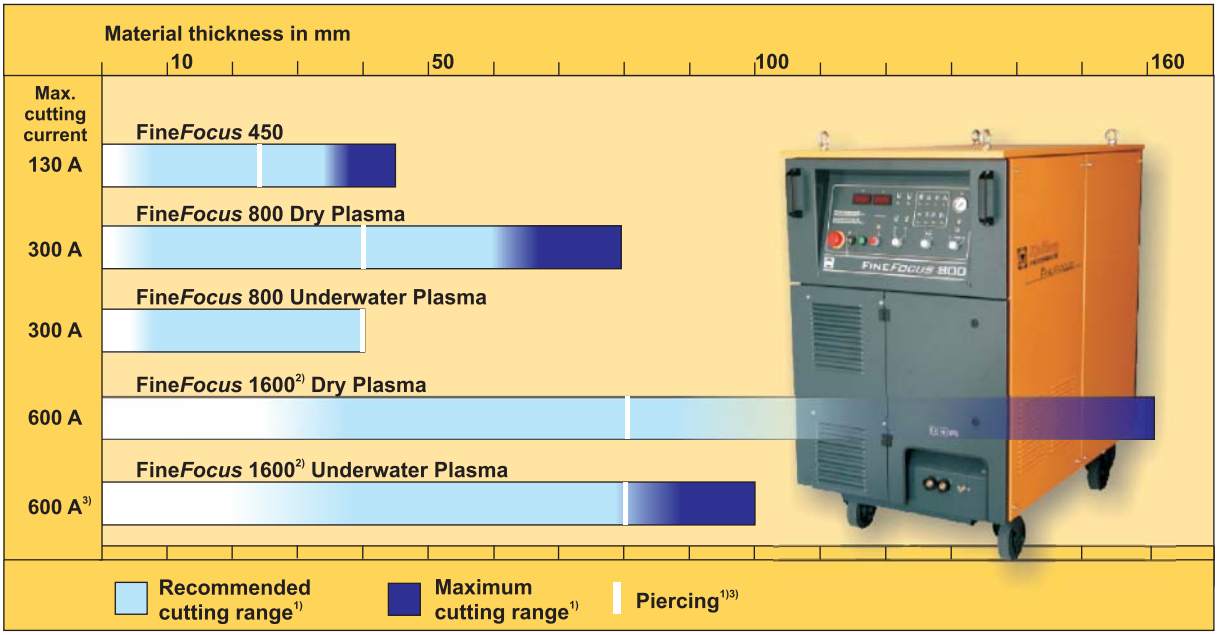
With FineFocus Plasma Cutting up to 160 mm Plate Thickness

These approved plasma installations, equipped with thyristor-controlled power sources and designed for the cutting of thicker materials are now available with improved parameters, offering an attractive price-performance ratio.

Besides the plasma unit Fine*Focus* 450 with 130 A, the Fine*Focus* 800 fascinates with the new **micro-processor-sequence control** for optimising the gases and current flow as well as with the ***PLUS*-Technologie** (up to 300 A) with its excellent cutting speed and quality, also on stainless steels, in a range up to 80 mm.

An outstanding torch technology enables the paralleling of two units Fine*Focus* 800, withstanding hardest working conditions, as found when dismantling nuclear reactors for instance.

Range of Application



1) These data are depending on the materials to be cut and their compositions.
2) Two pieces Fine*Focus* 800 parallel connected;
3) Attend piercing technology!

Technical data

	Fine*Focus* 450	Fine*Focus* 800	Fine*Focus* 800 UWP[5)]	Fine*Focus* 1600
Mains voltage[4)]	3 ~, 400 V, 50 Hz			
Fuse, slow	50 A	125 A	145 A	2x 125 A
Connected load	34 kVA	83 kVA	102 kVA	168 kVA
Cutting current (100% d.c.)	100 A (130A/75% d.c.)	300 A	300 A	600 A
Cutting gases	O_2, Air, Ar/H_2, Ar/H_2/N_2,	O_2, Air, Ar/H_2, Ar/H_2/N_2,	O_2, Air, Ar/H_2, Ar/H_2/N_2,	Ar/H_2, Ar/H_2/N_2
Swirl gases	Air, N_2	Air, N_2	Air, N_2	N_2
Dimensions (L x W x H)	960 x 540 x 1050 mm	1370 x 875 x 1505 mm	1370 x 875 x 1505 mm	2x 1370x875x1505 mm
Weight	251 kg	556 kg	564 kg	2x 556 kg

4) Other voltages and frequencies on request. 5) UWP = Underwater plasma

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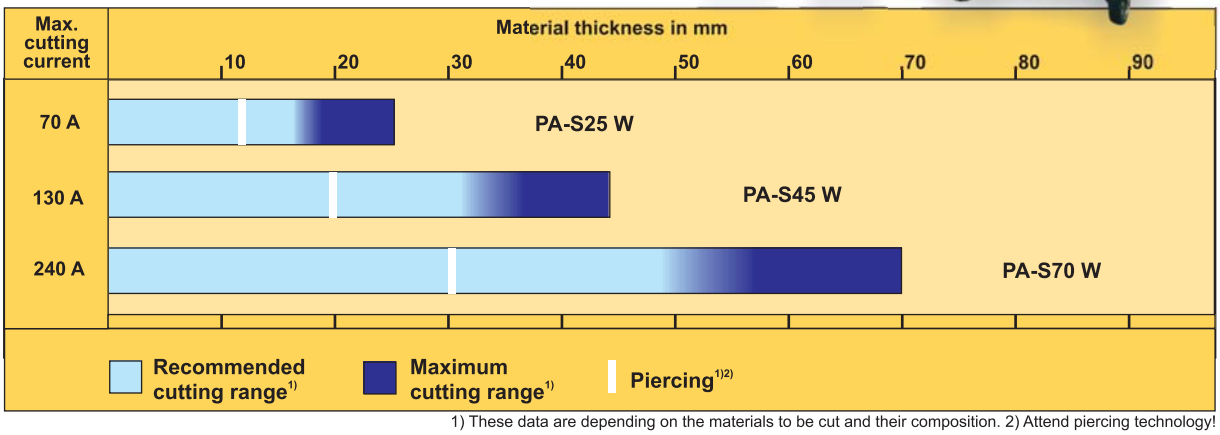
PA-S series - an approved Plasma Fine-Focus Technology

With its conventional step-switched power sources these units have got world wide recognition, because they are offering various technical and economical advantages, as there are:

- longevity of consumables because of the application of direct water cooled, easy to handle Fine-Focus torches
- outstanding cutting results, also at stainless steels and aluminium, due to the alternative use of technical gases or compressed air
- mechanised gouging applicable
- contour cutting, straight line cutting and bevel cutting up to 60° can be performed, as well as interrupted cutting, and that at all 2D and 3D positions
- attractive price-performance ratio

The units of the PA-S series are suitable for cutting and gouging operations in connection with Fine-Focus hand torches too.

Range of Application



1) These data are depending on the materials to be cut and their composition. 2) Attend piercing technology!

Technical Data

	PA-S25 W	PA-S45 W	PA-S70 W
Mains voltage[3)]	3~, 230/400 V, 50 Hz	3~, 400 V, 50 Hz	3~, 400 V, 50 Hz
Fuse, slow	50 / 32 A	63 A	125 A
Connected load,	21 kVA	38 kVA	75 kVA
max.Cutting current at d.c.	25 A / 100 % 45 A / 100 % 70 A / 75 %	45 A / 100 % 85 A / 100 % 130 A / 60 %	80 A / 100 % 160 A / 100 % 240 A / 80 %
Plasma gases	Ar/H_2, $Ar/H_2/N_2$, Ar/N_2, Air, O_2	Ar/H_2, $Ar/H_2/N_2$, Ar/N_2, Air, O_2	Air, H35 (35% H_2/65% Ar)
Dimensions (L x W x H)	920 x 630 x 960 mm	1,040 x 710 x 990 mm	1,380 x 870 x 1,080 mm
Weight	168 kg	240 kg	460 kg

3) Other voltages and frequencies on request

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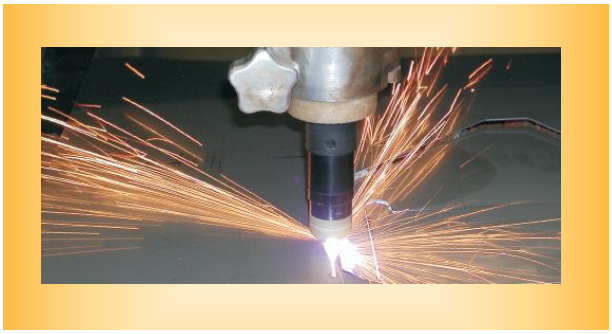
Cut*Fire* 100i - Inverter Technique for Professionals in Metal Working

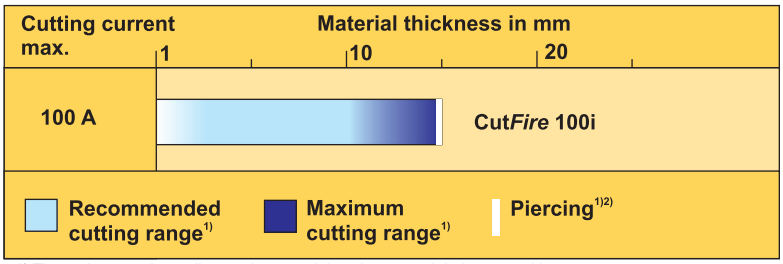
With the inverter power source **Cut*Fire* 100i** Kjellberg Finsterwalde offers a easy to handle plasma cutting system. Designed for simple thin sheet cutting application in combination with any kind of mechanized guiding systems, CNC cutting machines and robots. Perfect for handikraft and industry, manufacturer of exhausting systems and control cabinets.



Cut*Fire* 100i represents the latest inverter technology. Equipped with the well established air cooled plasma machine torch **Flash 100**.

- High reliability with soft-switch-inverter module made in Germany
- **100% duty cycle**
- With high efficiency of 92%
- Low investment costs
- Dust protection through inbuilt filters
- CNC interface
- Low weight
- Functional operation panel:
  - Digital current meter
  - Current pre-setting function
  - LED display for process monitoring
  - Emergency stop, safety key switch

Range of Application



1) These data are depending on the materials to be cut and their composition.
2) Attend piercing technology!

Technical Data

Power source	Cut*Fire* 100i
Mains voltage	3x 400 V, 50 Hz
Connected load	16.6 kVA
Fuse, slow	25 A
Open circuit voltage	330 V
Cutting current at 100% d.c.	20 - 100 A
Cutting voltage	max. 130V
Cutting power	13 kW
Protection class	IP 21
Dimensions (L x W x H)	710 x 280 x 590 mm
Weight	50 kg
Plasma torch	Flash 100
Plasma gas	air

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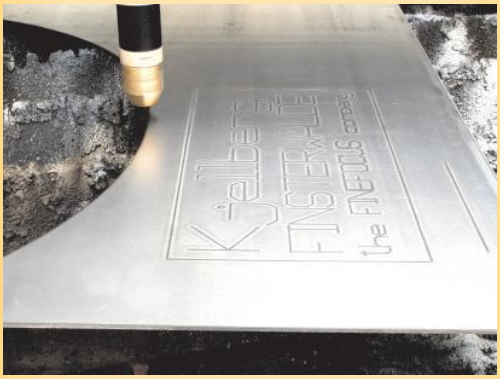
Fine*Marker* - a Plasma System for Marking, Notching and Punch Marking

Supplementary to existing oxyacetylene or plasma cutting installations Kjellberg Finsterwalde offers as an accessory a marking system that is controllable through an interface from the guiding machine. Mild steels, stainless steels and primered plates, even with wet or oily surface, can be furnished with markings at a **speed up to 12 m/min**.



The **stepless control** of the marking current in the range of 4 to 25 A allows marking of plates or profiles durably or temporarily. When choosing deep notches the markings remain readable also after coating the surface. Punctual notchings are possible with according programming of the CNC.

The outstanding feature of the Fine*Marker* represents the water cooled plasma torch and outperforms all competitors. By that all the necessary and unalterable requirements for an automated process, like longevity of consumables, heavy duty operating cycles, continuous workflow, etc. are assured.

Technical Data

Mains voltage [1)]	3~, 400 V, 50 Hz
Fuse, slow	16 A
Marking current	4 - 25 A
Duty cycle	100 %
Marking gases	Ar
Speed	1.5 - 12 m/min
Flow rate	7,0 l/min
Dimensions (L x W x H)	710 x 400 x 440 mm
Weight	30 kg

1) Other voltages/frequencies on request

Arc Voltage depending Height Controls ensure safe Plasma Process

A safe plasma process and a high cutting quality can be achieved only, if the torch distance to the workpiece surface always is constant, and if the torch is lifted up when piercing starts.

The arc voltage depending height controls ensure process stability and constant good cutting quality, and furthermore they are offering a number of **cost-saving effects** (increase of lifetime of consumables, material saving by better plate utilization, accuracy of the cut, collision protection, etc.).

Kjellberg offers two different height control systems, KHC 9100 and C1000.

Kjellberg-plasma cutting units are **CE-conform** and correspond with the valid guidelines and instructions of the European Union. They are developed and fabricated on basis of following standards and instructions: **EN 60974 (VDE 0544)**. The plasma cutting units are labelled with the **S-sign** and therefore applicable to environments with increased hazard of electric shock.
The fabrication takes place according to **DIN EN ISO 9001**. The factory-owned quality assurance comprises piece and cutting performance tests, documented by test certificate.

Our products represent a high level of quality and reliability. We reserve the rights to change design and/or technical specification during the series fabrication.
Claims of any kind cannot be derived from this prospectus.

Tradition gives an Enterprise Identity, Character and Profile

Europe's biggest factory for arc welding machines and welding electrodes

1922 - Foundation of the Kjellberg Finsterwalde Elektro-Maschinen GmbH

1934 - First automatic welder from Finsterwalde

1936 - Kjellberg becomes largest producer of arc welding equipment in Europe

1941 - With 5,000 employees Kjellberg is the largest manufacturer of arc welding equipment in the world

1959 - **Year of birth** of the plasma technology at Kjellberg Finsterwalde

1962 - **First** successful industrial application of a plasma cutting unit with 50 kW

1965 - **Patent: Fine-Focus Plasma Cutting** with the Forschungsinstitut Manfred von Ardenne, Dresden

PA 20 - first unit with Plasma Fine Focus Technology

1970 - First application of **air as plasma gas** worldwide

1975 - Kjellberg-Plasma dominates the Japanese shipyards

1980 - **Technology of the under water plasma** launched

1988 - **First** primary switched **inverter** with Plasma Cutting Unit PA 12i

1991 - Innovative novelties in the manufacturing program and renewed sales network are basis for the reconstruction of the enterprise

1995 - **The heavy duty life time system XL-Life** enables the breakthrough of the Oxygen-cutting technology

1998 - Adaptation of the **Swirl Gas Technology** to the Fine Focus Cutting

2000 - **Hi*Focus*** - a new technology with laserlike cutting quality enters the market

2001 - First **Soft-Switch-Inverter Module** with microprocessor control applied

2002 - **Flow-controlled Automatic Plasmagas Supply** - a step into a new dimension of quality and reproducibility - a worldwide novelty

2003 - **Hi*Focus*^{PLUS} - the no. 1** of the Fine Focus Plasma Technology dominates the quality level of plasma cutting

2006 - **Hi*Focus* 80i / 160i / 280i / 360i** - the first complete series of primary switched inverter technology

2007 - Launching of new generation of consumables - **Yellow*XLife*™**

2008 - Unmatched flexibility with the new **Hi*Focus* 440i - the worldwide strongest high precision plasma cutting machine**

2009 - Kjellberg is celebrating its 50th anniversary and is one of the longest established manufacturers of plasma cutting technology on the market

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