

Kjellberg[®]
FINSTERWALDE

the
FINE FOCUS[™]
company

Mild steel with
PLUS - technology !

Plasma Cutting Units

FineFocus 800

Dry plasma cutting up to 80 mm
Underwater plasma cutting up to 40 mm

FineFocus 1600

Dry plasma cutting up to 160 mm
Underwater plasma cutting up to 100 mm



**Plasma Fine Focus technology -
the Fine Art of Plasma Cutting**

Since 1960 setting the standards for the cutting of metallic materials

Since more than 45 years Kjellberg Finsterwalde as the first and most competent producer in Europe has developed and manufactured plasma cutting equipment successfully. So in the early sixties the first plasma cutting unit PA 100 was launched already. In 1964 the Institut Prof. Manfred von Ardenne, Dresden was developing the Plasma Fine Focus technology, which was presented with the model PA 20 (picture) first time to the industry.

Then in the early seventies the plasma gas air entered the field and found its application in the economical cutting of mild steels. In the middle of the nineties Kjellberg Finsterwalde was offering the oxygen cutting technology along with the XL-Life-Time system, which is increasing the life time of the consumables significantly, and furthermore, the virtually rework-free cut reduces the operational costs considerably. From 2001 Kjellberg Finsterwalde is mainly concentrated on the development of new inverter power sources for the automated cutting, the HiFocus technology.



**Fine Focus technology -
our experience for your prospective duties**



Highest quality through the approved Plasma Fine Focus system, delivered metallic clean and dross-free cuts.

Reduced angularity and increased cutting speed on mild steels by **FineFocus^{PLUS}** technology



Double-Straight Effect



PLUS technology

Increased life of consumables

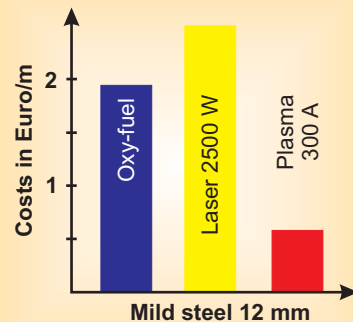
and improved cut shape at the cut end, and especially at inside contours, caused by the new microprocessor controlled torch lowering at down-slope phase.



Life time testing

Minimised costs

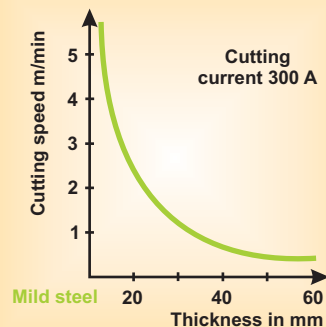
through optimized application of plasma gases and electric energy,



with optimum results compared to other cutting methods, and to competitors too

High productivity

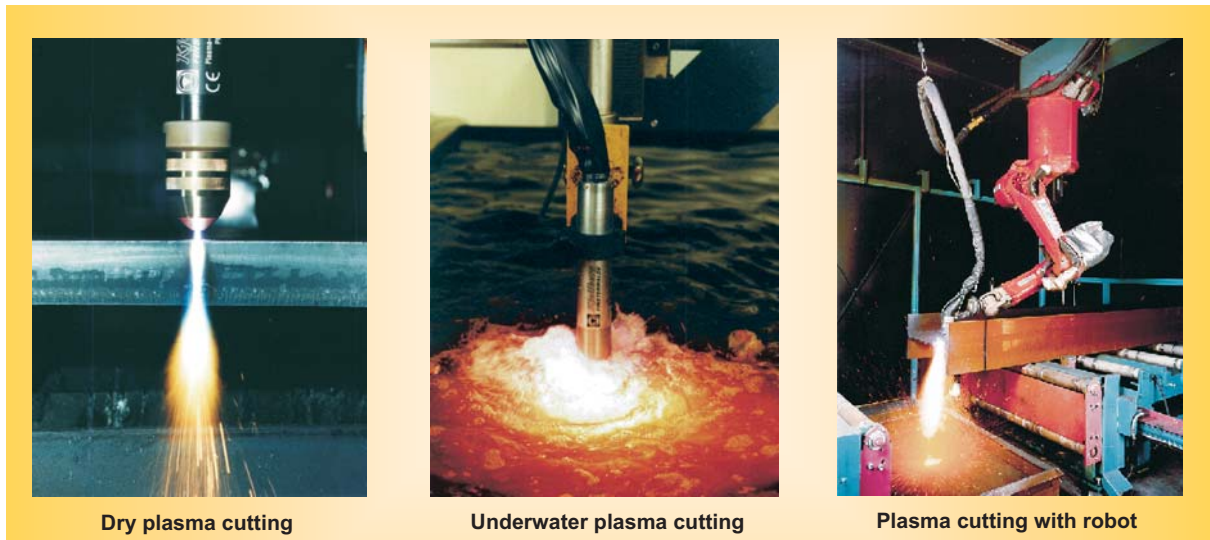
because of plasma torches with superb functionality, granting



rework-free cutting surfaces and low extra expenses, also at high cutting speed.

Versatile application of the plasma cutting unit **FineFocus 800**

The universal technological concept of the **FineFocus 800** and **FineFocus 1600** enables in connection with relevant accessories the effective solution of all cutting operations at metallic materials up to 80 mm resp. 160 mm. They are especially designed for cutting with CNC-controlled guiding systems and robots. **FineFocus**-plasma cutting units are suitable for straight, profile and bevel cutting, for dry and under water applications, using all kind of cutting gases.



Dry plasma cutting

Underwater plasma cutting

Plasma cutting with robot

FineFocus 800

- **FineFocus 800** can cut all electro conductive materials with up to 300A at 100% d.c..
- Technical gases as well as air can be used to cut thicknesses up to 80mm.
- **FineFocus 800** power source is available in SINGLE- and TWIN-version. TWIN can operate with two parallel torches. Furthermore **FineFocus 800** can be equipped with a hand torch.
- PB-S80 W torch with swirl gas can be used for dry and underwater applications (UWP) and is also available with quick-change head PB-S80 WSM.

FineFocus 1600

- Parallel operation of two units **FineFocus 800** with the plasma machine torch PB-S151 W up to 600 A for dry cutting (with external cooling, without swirl gas), or
- with the plasma machine torch PB-S100 WU for underwater cutting up to 100 mm

Free selectable gas mixtures ensure superior cutting results

The material-specific composition, the pressure and the flow rate of the plasma gases have a substantial influence on the achievement of optimum results during the cutting of metals and alloys.



PGE 3-800 Automatic

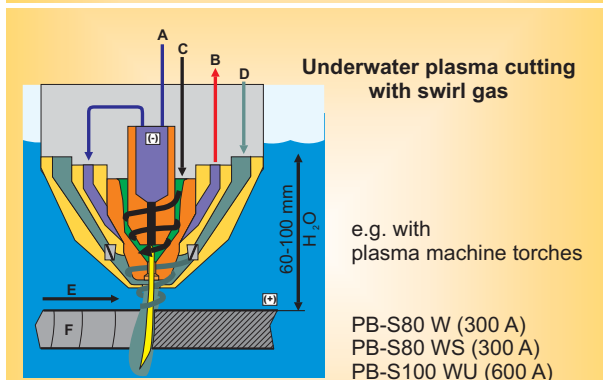
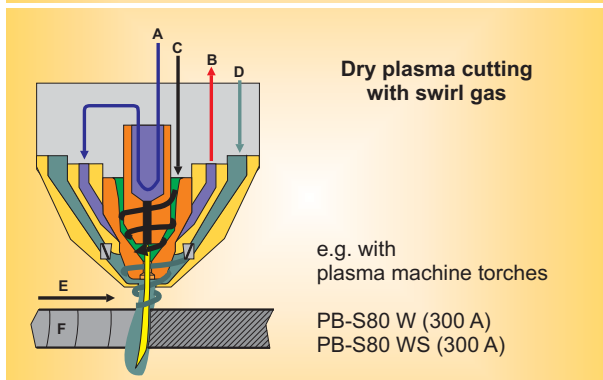
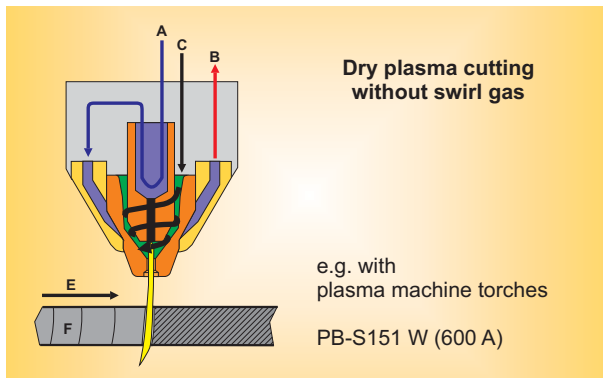
For the provision of gases and gas mixtures **Kjellberg Finsterwalde** is offering the manual gas console PGE 2-800 and PGC 3-800 and the automatic gas box PGE 3-800 Automatic.



PGE 3-800:
For adjusting the plasma gases oxygen and the swirl gases

PGE 2-800:
For adjusting the plasma gases nitrogen, hydrogen and argon

Process principles of the plasma cutting



Legend:

A) Water inlet
B) Water outlet

C) Plasma gas
D) Swirl gas

E) Cutting direction
F) Cutting surface

Technological leader by advanced torch configuration

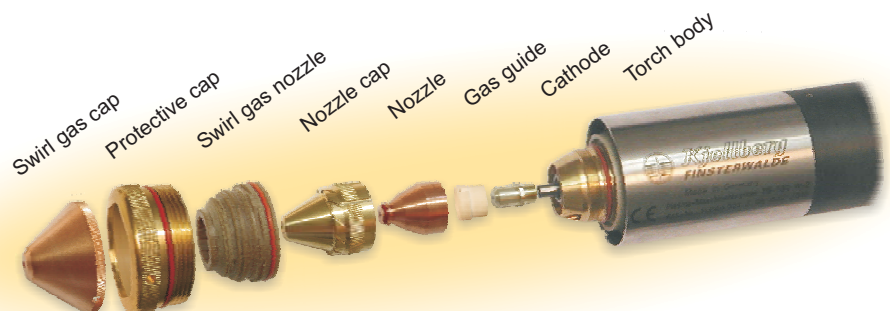
- High longevity of plasma torches and consumables due to the direct cooling of thermally high loaded torch parts, like cathode and nozzle
- Double piercing capacity by the wear-reducing second gas ignition
- Perfect and constant quality over long cutting periods
- Process-optimized cutting gas or mixed gas adjustments are granting optimum cutting results at different materials
- The plasma gas oxygen avoids nitration on the cutting surfaces of mild steels and eliminates therefore secondary finishing operations
- The YellowXLife™ system multiplies the life time of consumables when using the plasma gas O₂

... and sophisticated swirl-gas technology

- The use of Kjellberg FineFocus torches acc. to patent DE 3832630/ DE 301299 are granting highest productivity at lowest cost level
- Machine torch suitable for dry-cutting and underwater cutting, and all plasma gases as well, only by changing the consumables
- Potential-free swirl gas cap protects nozzle against upcoming hot material
- Trouble-free stationary and running piercing within a defined thickness range
- Swirl gas technology reduces cut angel deviation
- Cutting quality can be directly influenced by the selected swirl gas

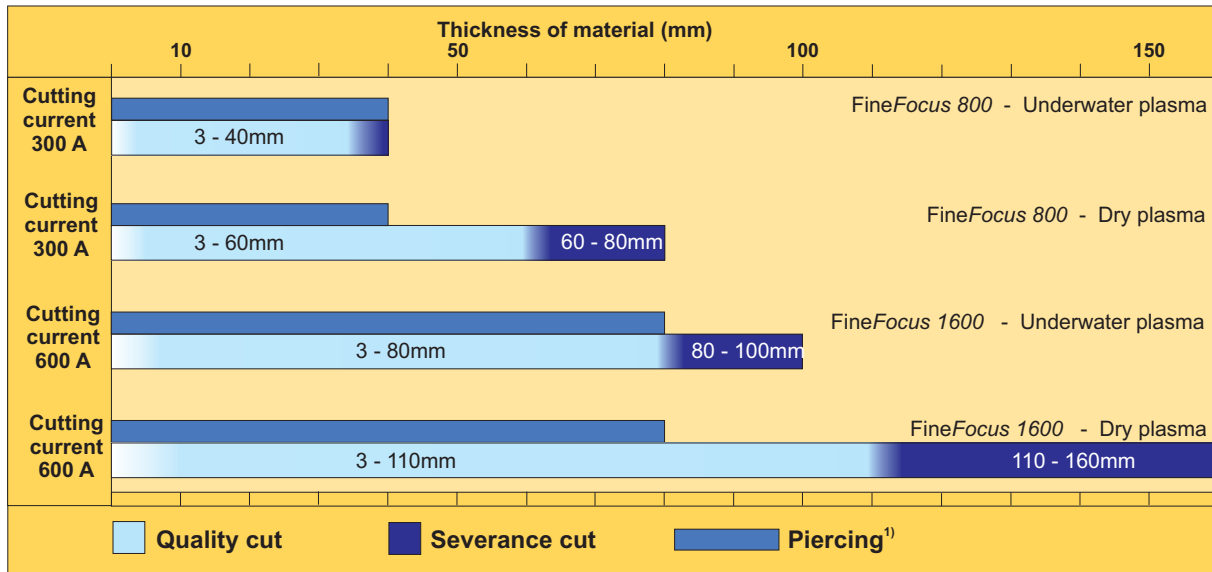


**Quick-change torch
PB-S80 WS, ready for cutting**



Components of the plasma machine torch PB-S80 W

Cutting ranges of the FineFocus 800 and 1600¹⁾



1) Attend piercing technology!

Cutting parameters for quality cutting²⁾

Material	FineFocus 800						FineFocus 1600					
	PB-S80 W			PB-S80 W (UWP)			PB-S151 W (only Ar/H ₂)			PB-S100 WU		
	Thick-ness (mm)	Cutting current (A)	Cutting speed (mm/min)	Thick-ness (mm)	Cutting current (A)	Cutting speed (mm/min)	Thick-ness (mm)	Cutting current (A)	Cutting speed (mm/min)	Thick-ness (mm)	Cutting current (A)	Cutting speed (mm/min)
Mild steel	5	200	5000									
	6	200	4300									
	8	300	5000									
	10	300	4100									
	15	300	3200	6	300	4200						
	20	300	2000	10	300	2600						
	25	300	1500	20	300	1800						
	30	300	1200	25	300	1000						
	40	300	700	30	300	600						
60	300	300	40	300	400							
Stainless steel				4	220	3800						
	5	200	2300	6	220	3200	20	220	900			
	10	200	1700	8	220	1800	30	250	700			
	15	250	1700	10	300	1600	45	500	600	20	600	1300
	20	250	1100	15	300	1300	60	600	500	40	600	800
	30	250	800	20	300	1000	80	600	250	60	600	500
	40	300	550	30	300	500	100	600	200	80	600	250
	60	300	200	40	300	400	120	600	150	100	600	200
Aluminium	6	200	5000									
	10	200	4000									
	16	250	3100									
	20	250	2500									
	30	250	1400									
	40	250	1000									
	60	250	450									

2) Listed cutting speeds are depending on material characteristics, gas parameter, guiding system as well as proper consumables. According to quality requirements cutting speeds may differ.

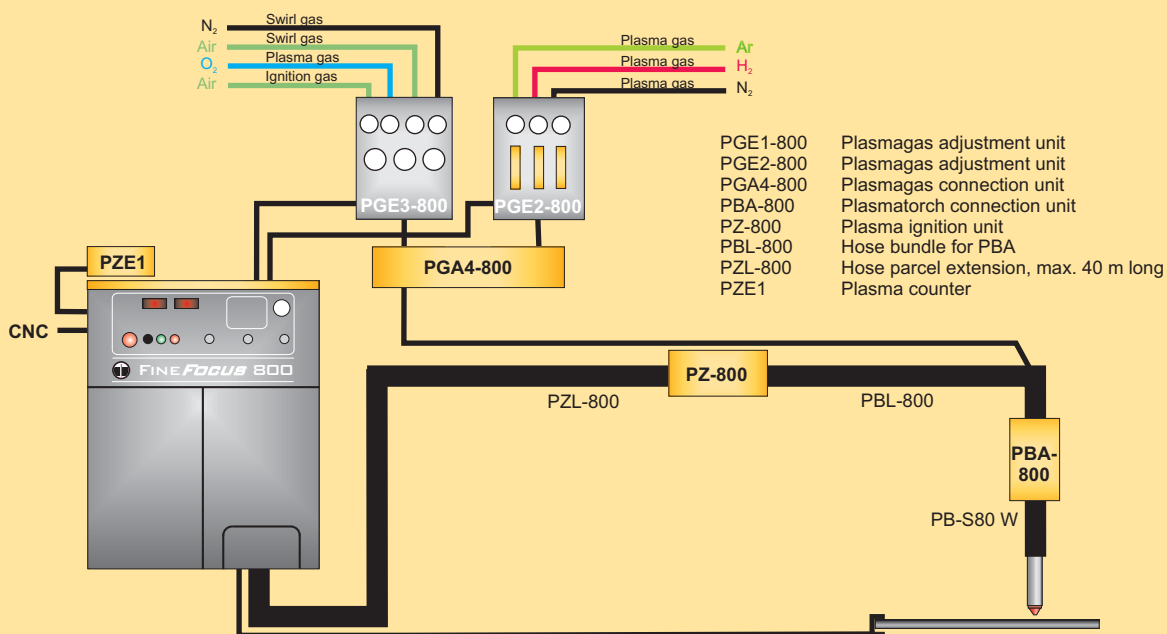
Technical data

Power source	FineFocus 800		FineFocus 800		FineFocus 1600 (2x FineFocus 800)
	Single	Twin	Single	Twin	
Technology	Dry plasma		UWP		Dry plasma/ UWP
Mains voltage ¹⁾	3 x 400 V, 50 Hz		3x 400 V, 50 Hz		3x 400 V, 50 Hz
Connected load, max	83 kVA		100 kVA		2x 100 kVA
Fuse, slow	125 A		160 A		2x 160 A
Open circuit voltage	400 V		400 V		400 V
Cutting current at 100 % d.c.	80 - 300 A		80 - 300 A		160 - 600 A
Cutting voltage	200 V		200 V		200 V
Cutting power	max. 60 kW		max. 60 kW		max. 120 kW
Protection class	IP 22		IP 22		IP 22
Dimensions (L x B x H)	1375 x 870 x 1505		1375 x 870 x 1505		2x 1370 x 875 x 1505
Weight	556 kg 566 kg		564 kg 574 kg		2x 574 kg
Plasma torch	PB-S80 W		PB-S80 W		PB-S80 W, PB-S151 W, PB-S100 WU

1) other voltages and frequencies on request

Plasma torch	PB-S80 W	PB-S151 W	PB-S100 WU
Max. cutting current	300 A	600 A	600 A
Duty cycle	100%	100%	100%
Cutting range			
- Dry plasma	3 - 80 mm	30 - 160	-
- UWP	3 - 40 mm	-	30 - 100 mm
Plasma gas	Ar, H ₂ , N ₂ , O ₂ , Air	Ar, H ₂	Ar, H ₂ , N ₂
Swirl gas	N ₂ , Air	-	N ₂
Torch cooling	Coolant "Kjellfrost"	Coolant "Kjellfrost"	Coolant "Kjellfrost"

Configuration diagram FineFocus 800 with plasma torch PB-S80 W-2 and hose parcel extension, all gases



Kjellberg-plasma cutting systems 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: EN 60974 (VDE 0544). The plasma cutting systems 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 can not be derived from this prospectus.

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Kjellberg®

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