

***Kjellberg***<sup>®</sup>  
**FINSTERWALDE**

the  
**FINE FOCUS**<sup>™</sup>  
company

**Plasma Cutting Unit**

**FineFocus 450**

with FineFocus Torch PB-S47 W-2 with swirl gas

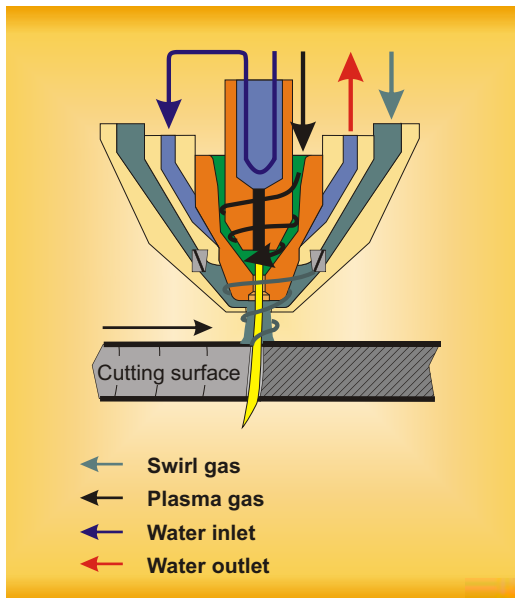


**Kjellberg Finsterwalde**  
**Pioneers in Plasma Cutting since 1959**

made in Germany

## Rework-free plasma cuts through approved swirl gas technology

Since more than 45 years, Kjellberg Finsterwalde is accomplishing pioneering work in development and production of plasma cutting technologies. The development of the **swirl gas technology** was the result of the objective target for achieving a nearly rework-free and cost-effective plasma cut. Plasma torches of the **FineFocus** series are producing due to the Double-Straight-Effect high quality surfaces at both sides of the cut, reducing so the costs for rework operations to a minimum.



Particular advantages of this technology are:

- Potential-free swirl gas nozzle guarantees a constant cut quality over a long cutting period, protecting the nozzle against upcoming hot material
- Reliable stationary piercing up to 12 mm material thickness
- Perfect running piercing up to 25 mm in connection with arc voltage depending height control
- Short lead-in paths enable small circles and hole cutting
- Dross-free cutting of stainless steels with excellent cutting quality
- Increased life time of the tungsten electrode when cutting stainless steels by reducing the nitrogen content in the plasma gas, and increasing the nitrogen content in the swirl gas

Consumables for the Plasma torch PB-S47 W



## Enhanced longevity through XL-Life-Time System

When cutting mild steels with the plasma gas air some surface nitriding can occur. To avoid porosity during welding this layer must be removed by expensive machining operations. The plasma gas oxygen prevents this problem and avoids the cost-intensive rework.



With the **XL-Life-System** with dual-gas ignition nozzles and cathodes were precisely adapted and provide for longevity of the consumables.

In addition the following effective measures increase the life of nozzles and cathodes and reduce the operating costs considerably:

- Direct and extreme effective liquid cooling around the stress loaded area of the consumables
- Soft-start-circuit for the cutting current
- Process-optimized gas control during piercing and at the cut end

## Outstanding suitability for CNC controlled demands

The technical properties and the variety of peripheral components are recommending the FineFocus 450 especially for CNC controlled applications in a capacity range of 40 to 130 A. In particular the following facts are remarkable:

- Smooth cutting current and excellent cutting quality ensured by 12-pulse circuit
- Nozzle saving, contactless high voltage ignition of the pilot arc
- Precise and reproducible adjustment of the process data by adaptive units, like plasma gas adjustment and mixing devices
- Fulfillment of highest safety standards
- Select-Control-Function for setting the cutting current
- User-friendly and extensive diagnostic and service system for the supervision of all important operation modes



## Technological parameters

Thickness	10 mm	20 mm	30 mm	40 mm	50 mm
Thickness (material depending)	Piercing with height control 25 mm				
	Recommended cutting range 35 mm				
	Maximum cutting range 45 mm				

## Cutting data (extract from the cutting charts)<sup>1)</sup>

Thickness (mm)	Mild steel	Stainless steel	Aluminium
	Max. cutting speed (mm/min)	Max. cutting speed (mm/min)	Max. cutting speed (mm/min)
	Air/O <sub>2</sub>	ArH <sub>2</sub>	ArH <sub>2</sub>
5	5000	2500	5000
10	2800	1750	4000
15	1800	1100	3000
20	1400	650	1500
25	900	600	1200
30	600	500	900
35	400	400	700
40	200	300	500
45	100	150	400

1) Guide values, determined under laboratory conditions (material depending, straight cuts)

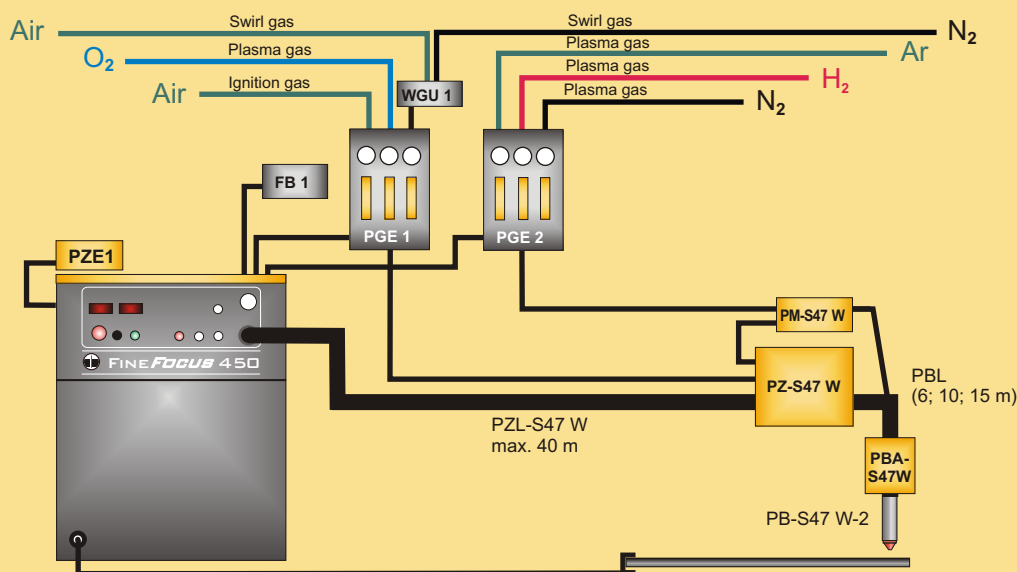
## Technical data

	FineFocus 450
Mains voltage (V) <sup>1)</sup>	230 / 400, 3 ph., 50 Hz
Connecting power (kVA)	34
Fuse, slow (A)	80 / 50
Open circuit voltage (V)	400
Cutting current (A)	40 - 130, stepless
at 100 % d.c.	100
at 75 % d.c.	130
Cutting thickness (mm)	max. 45
Quality cut	30
Piercing, stationary	12
Piercing, running	25
Plasma gases	O <sub>2</sub> , Air, Ar/H <sub>2</sub> , Ar/H <sub>2</sub> /N <sub>2</sub>
Swirl gases	Air, N <sub>2</sub>
Protection class	IP 22
Insulation class	F
Weight (kg)	251
Dimensions (mm)	1025 x 711 x 970

1) Other voltages and frequencies on request

	Plasmabrenner PB-S47 W-2
Hose parcel length (m)	1 m; 1,5 m
Closed circuit cooling	
Flow rate (l/min)	3.8
Pressure (bar / MPa)	0.45
Cutting current (A)	max. 130
Clamping diameter (mm)	42
Plasma gases	
Pressure (bar / MPa)	
Ar	6 / 0.6
H <sub>2</sub>	6 / 0.6
N <sub>2</sub>	6 / 0.6
O <sub>2</sub>	6 / 0.6
Air	6 / 0.6
Consumption (l/min)	
Ar	20 - 26
H <sub>2</sub>	10 - 20
N <sub>2</sub>	5 - 10
O <sub>2</sub>	20 - 26
Air	20
Swirl gas pressure (bar / MPa)	5 - 6 / 0.5 - 0.6
Swirl gas flow rate (l/min)	20 - 50
Ignition	High voltage
Main arc establishment	Full-automatic power increase if pilot arc contacts workpiece

### Configuration diagram FineFocus 450 with plasma torch PB-S47 W-2 and hose parcel extension, all gases



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 60974-1 (VDE 0544, part 1) and BGV D1. 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 whatever kind can't derived from this prospectus.

07-12-01

# Kjellberg®

## FINSTERWALDE

Kjellberg Finsterwalde Elektroden und Maschinen GmbH  
 Germany D - 03238 Finsterwalde Leipziger Str. 82  
 Tel.: +49 3531 500-0 Fax: +49 3531 500-227  
 E-Mail: [kjellberg@kjellberg.de](mailto:kjellberg@kjellberg.de)  
 Internet: [www.kjellberg.de](http://www.kjellberg.de)

*Kjellberg* FINSTERWALDE, FINEFOCUS and are trade marks of Kjellberg Finsterwalde Elektroden und Maschinen GmbH or of associated companies registered in Germany and/or other countries.

Copyright © 2007  
 Kjellberg Finsterwalde Elektroden und Maschinen GmbH  
 All rights reserved.