Kjellberg
FINSTERWALDE

the FINE FOCUS company

Plasma Cutting Unit

Fine*Focus* 450

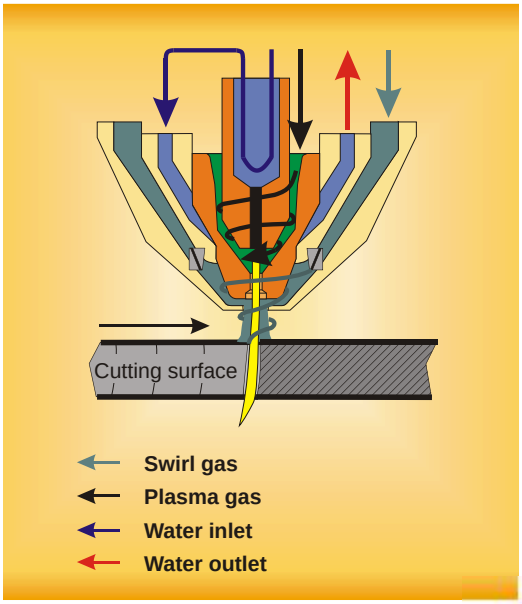
with Fine*Focus* Torch PB-S47 W-2 with swirl gas

made in Germany

Our know-how from over 45 years development and production of plasma technology to your advantage!

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 **Fine*Focus*** 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

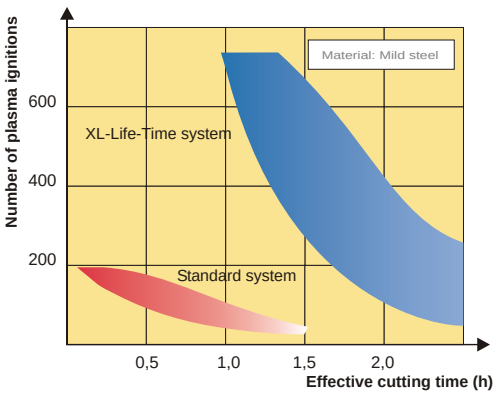
Enhanced longevity through XL-Life-Time System

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

For the **XL-Life-Time-System** with dual-gas ignition nozzles and cathodes were precisely adapted, multiplying subsequently so the life of the consumables. Furthermore the number of plasma ignitions increased significantly, make Kjellberg Finsterwalde in all to the leader of the oxygen cutting technology.

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



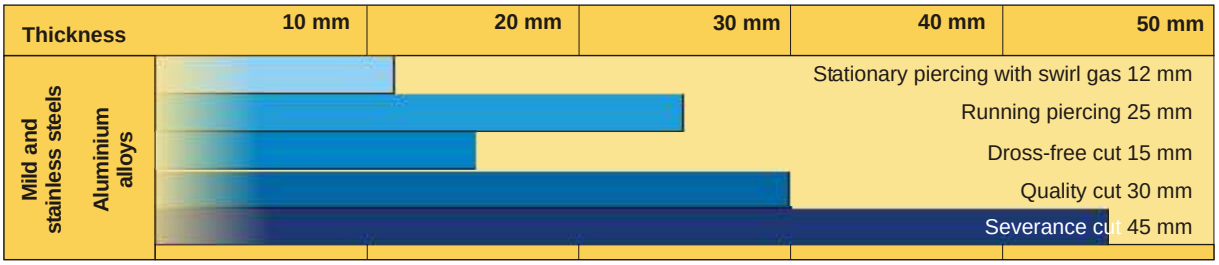
(Opposite values were determined under laboratory conditions.)

Outstanding suitability for CNC controlled demands

The technical properties and the variety of peripheral components are recommending the Fine*Focus* 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



Cutting data (extract from the cutting charts)[1)]

Thickness (mm)		Mild steel		Stainless steel		Aluminium	
		Air	Oxygen	Air	ArH_2	Air	ArH_2
5	Severance cut[2)]:	>5000	5000		2500		>5000
	Qualitäty cut:	3000	3500		2200		2750
10		2400	2800		1750		4000
		1700	2200		1300		1400
15		1500	1800		1100		3000
		1100	1400	not recommended	750	not recommended	1200
20		1000	1400		650		1500
		800	1000		550		800
25		700	900		600		1200
		350	600		450		650
30		500	600		500		900
		200	400		400		450
35		200	400		400		700
		-	200		250		300
40		100	200		300		500
		-	-		-		250
45		-	100		150		400
		-	-		-		200

1) Guide values, determined under laboratory conditions (material depending, straight cuts)
2) First value severance cut, second value quality cut

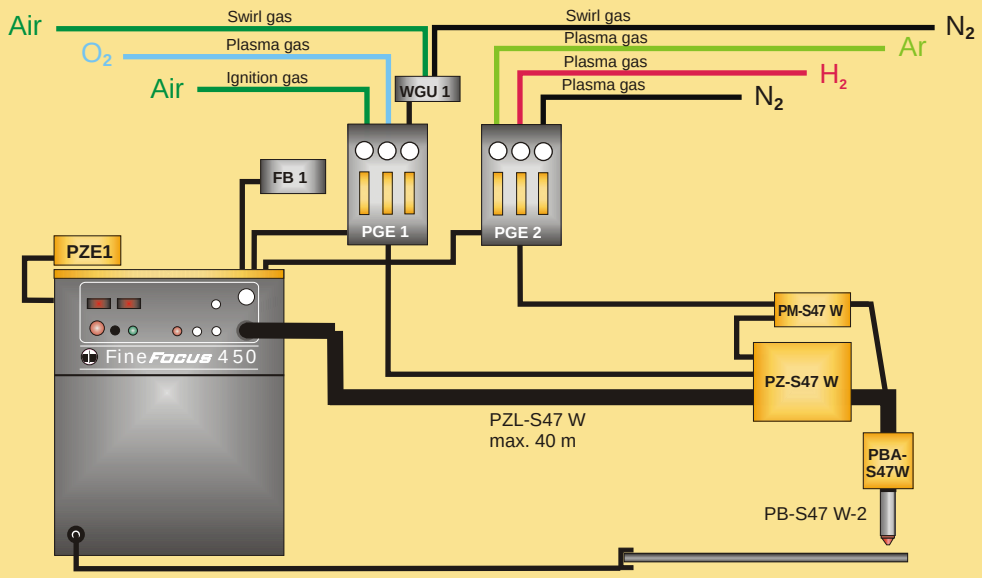
Technical data

	Fine*Focus* 450
Mains voltage (V)[1)]	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	35
Piercing, stationary	12
Piercing, running	25
Plasma gases	O_2, Air, Ar/H_2, $Ar/H_2/N_2$
Swirl gases	Air, N_2
Protection class	IP 22
Insulation class	F
Weight (kg)	251
Dimensions (mm)	1025 x 711 x 970

1) Other voltages and frequencies on request

	PB-S47 W-2
Hose parcel length (m)	6; 10; 15
Cloosed 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_2	6 / 0.6
N_2	6 / 0.6
O_2	6 / 0.6
Air	6 / 0.6
Consumption (l/min)	
Ar	20 - 26
H_2	10 - 20
N_2	5 - 10
O_2	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 Fine*Focus* 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.

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