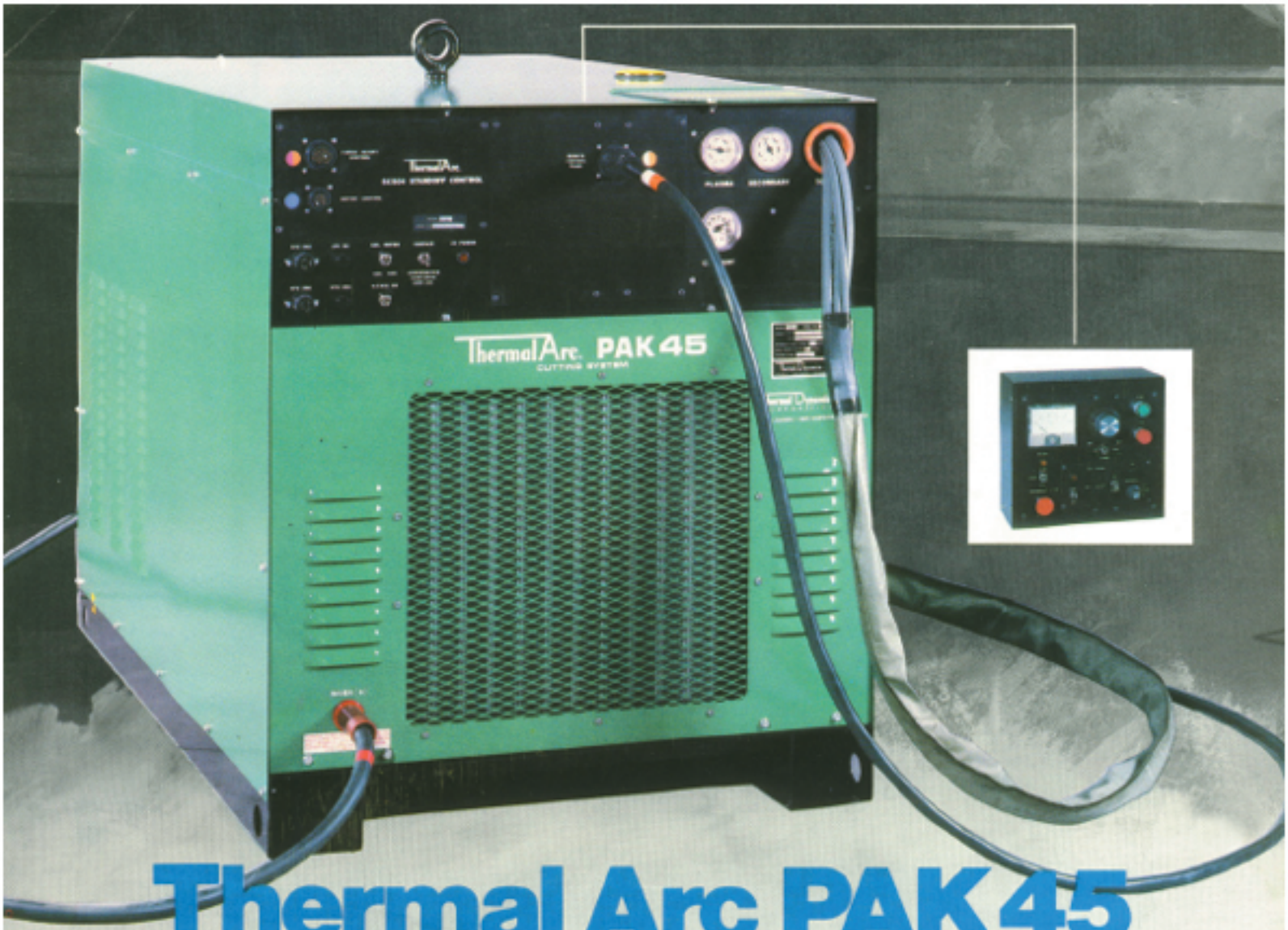
THERMAL ARC PAK45™

PLASMA CUTTING SYSTEM

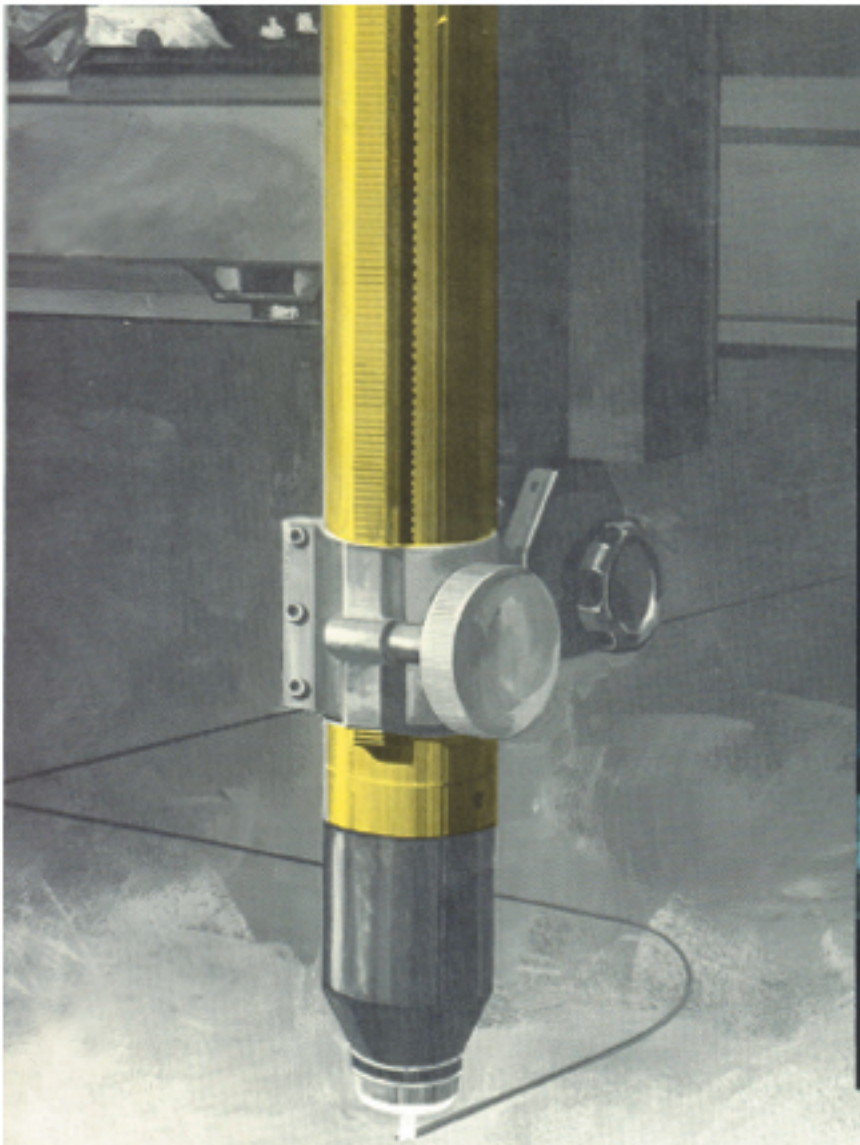


Thermal Arc PAK 45 Plasma Cutting System

The PAK 45 is a compact, versatile plasma cutting system designed for high speed cutting of most metals up to 2″ thick (51 mm), with maximum cutting capability to 3″ (76 mm). The cutting current is continuously adjustable between 50 and 400 amperes, to enable quality hand or machine cutting over a wide range of material thicknesses.

Included in the PAK 45 unit are: computer interface circuitry; pilot arc ignition circuit; the circuitry for starting and stopping the cutting arc; safety interlocks; a closed loop coolant recirculator to cool the torch; and a 400 amp power supply. Torch connections are inside of the unit protected by an access door with a safety interlock.

The PAK 45 system is supplied with either a PCH-6B hand torch or a PCM-6B machine torch, both with Thermal Arc's exclusive Dual-Flow® design. Dual-Flow® uses a secondary gas or water surrounding the plasma arc to assist the high velocity plasma arc in blowing the molten metal away from the cut. The result is fast, clean, dross-free cuts. The secondary flow also assists in cooling the front end of the torch, prolongs consumable parts life, and reduces build-up of spatter on the torch. Nitrogen or a mixture of argon and hydrogen can be used as the plasma gas. Carbon dioxide, water, compressed air, or nitrogen can be used as the secondary gas for desired cut quality and cost performance.



PAK 45 SYSTEM FEATURES

- Underwater cutting capability — effectively reduces smoke, fumes, noise and arc glare without part changes in the torch.
- Removable operator control panel — can be easily removed from the PAK 45 unit and mounted on any cutting machine for complete cutting system operation from one convenient operator station.
- Unique arc starter — reduces the possibility of high frequency interference with electronic controls.
- Continuously adjustable current control — the operator can preset and change desired cutting amperage using a front panel dial or remote control.
- Feedback control circuit — stabilizes cutting current against fluctuations in input voltage, cutting speed, and/or material thickness.
- Automatic pilot arc restarting — enables cutting of materials such as grating and expanded metal.
- Compact unit — controls, power supply and coolant recirculator contained in one unit for convenient installation and operation.
- Dual-Flow® 6B torch — produces fast, high quality cuts with low operating expense.
- Power factor better than 85% — for efficient operation.
- Optional Torch Standoff Control — automatically finds and maintains the proper torch standoff by signalling a customer supplied motorized torch lifter. Performs on material positioned on the surface of a cutting table or submerged 2" (51 mm) to 3" (76 mm) underwater.
- Optional Hi-Flow water shield assembly — produces a curtain of water around the cutting arc to reduce smoke, fumes, noise and arc glare, used as an alternative to underwater cutting.

Thermal Arc PAK 45 System Specifications

PAK 45 SPECIFICATIONS

Output:	400 Amperes (continuous) DC, infinitely variable between: 100 and 400 amperes—High Range 50 and 150 amperes—Low Range
Panel Controls:	RUN/SET/PURGE switch Current control knob HIGH/LOW range switch START/STOP buttons Emergency STOP button Secondary/Water Shield switch Hi-Flow Water Shield switch Surface/Underwater switch
Panel Indicators:	READY, AC and DC power indicator lights Plasma and secondary gas pressure gages Coolant pressure gage 500 amp ammeter
Safety Interlocks:	Leads access door Coolant, plasma and secondary gas pressure Temperature
Control Circuit:	24 Volt
Input Power:	3 phase, 50 or 60 Hz, 208/230/460 V 320/290/140 A 230/460/575 V 290/140/115 A 380/415/460 V 170/160/140 A 380/460/500 V 170/140/130 A 220/380/500 V 300/170/130 A 180/200/220 V 370/330/300 A
Dimensions:	Width: 32" (81.3 cm) Height: 36" (91.4 cm) Depth: 48" (121.9 cm)
Shipping Weight: (Power Supply Only)	1670 pounds (758 kg)

PAK 45 CUTTING DATA

MATERIAL THICKNESS AND TYPE		CURRENT* (AMPERES)	CUTTING SPEED * BEST QUALITY In/Min (m/min)	CUTTING SPEED * MAXIMUM In/Min (m/min)
1/8" (3.2 mm)	Stainless Steel	100	145 (3.68)	180 (4.57)
	Aluminum		180 (4.57)	210 (5.33)
	Mild Steel		125 (3.18)	150 (3.81)
1/4" (6.4 mm)	Stainless Steel	100	65 (1.65)	90 (2.29)
	Aluminum		70 (1.78)	90 (2.29)
	Mild Steel		40 (1.02)	80 (2.03)
1/2" (12.7 mm)	Stainless Steel	100	15 (0.38)	25 (0.64)
	Aluminum		30 (0.76)	40 (1.02)
	Mild Steel		20 (0.51)	30 (0.76)
1/4" (6.4 mm)	Stainless Steel	200	155 (3.94)	180 (4.57)
	Aluminum		155 (3.94)	180 (4.57)
	Mild Steel		90 (2.29)	170 (4.32)
1/2" (12.7 mm)	Stainless Steel	200	60 (1.52)	70 (1.78)
	Aluminum		70 (1.78)	95 (2.41)
	Mild Steel		60 (1.52)	70 (1.78)
1/4" (6.4 mm)	Stainless Steel	300	170 (4.32)	245 (6.22)
	Aluminum		180 (4.57)	265 (6.73)
	Mild Steel		125 (3.18)	180 (4.57)
1/2" (12.7 mm)	Stainless Steel	300	115 (2.92)	150 (3.81)
	Aluminum		125 (3.18)	160 (4.06)
	Mild Steel		70 (1.78)	80 (2.03)
1" (25.4 mm)	Stainless Steel	300	50 (1.27)	55 (1.40)
	Aluminum		65 (1.65)	70 (1.78)
	Mild Steel		30 (0.76)	35 (0.89)
1/2" (12.7 mm)	Stainless Steel	400	115 (2.92)	155 (3.94)
	Aluminum		140 (3.55)	190 (4.83)
	Mild Steel		75 (1.91)	90 (2.29)
1" (25.4 mm)	Stainless Steel	400	60 (1.52)	70 (1.78)
	Aluminum		70 (1.78)	95 (2.41)
	Mild Steel		40 (1.02)	45 (1.14)
2" (50.8 mm)	Stainless Steel	400	20 (0.51)	20 (0.51)
	Aluminum		30 (0.76)	40 (1.02)
	Mild Steel		20 (0.51)	20 (0.51)
3" (76.2 mm)	Stainless Steel	400	10 (0.25)	10 (0.25)
	Aluminum		20 (0.51)	25 (0.64)

6B TORCH SPECIFICATIONS

Current Rating:	400 Amperes
Gas-Plasma:	Nitrogen: 30 to 100 SCFH (14 to 47 lpm) or argon/hydrogen 65/35: 100 SCFH (47 lpm)
-Secondary:	Carbon Dioxide or Compressed Air: 270 SCFH (127 lpm) maximum or water: 15 gph (56 lph) maximum
Configurations:	70° head angle hand-held 90° head angle hand-held 180° machine mounted
Control-Hand:	Torch mounted ON/OFF switch
-Machine:	Operator Control Panel or Remote Pendant Control

*These are typical speeds for the current shown. Higher or lower current may be used with corresponding adjustment of speeds.

The chart above represents typical cutting speeds for various types and thicknesses of material. Nitrogen was used as the plasma gas and carbon dioxide or water as the secondary for cutting up to 2 inches thick. A mixture of 65% argon and 35% hydrogen was used as the plasma gas and nitrogen as the secondary gas for material over 2 inches thick.

THERMAL DYNAMICS

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