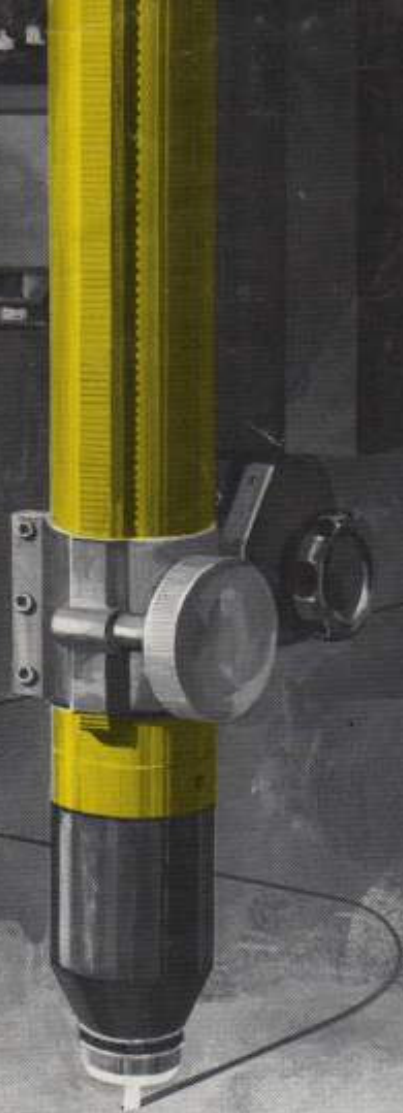


Thermal Arc PAK 45 Plasma Cutting System

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.

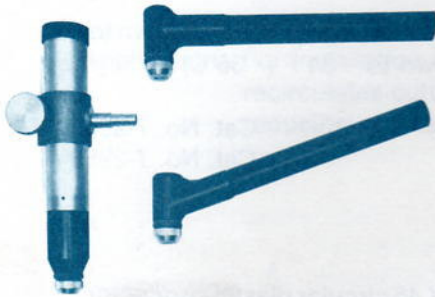


PAK 45 SYSTEM FEATURES

- 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.

CUTTING

For Dual-Flow® manual or machine cutting of most metals up to a maximum thickness of 3" (76 mm), piercing up to 3/4" (19 mm).



SPECIFICATIONS:

Current Rating 400 Amperes maximum, DC straight polarity
 Gas — Plasma Nitrogen: 30 to 100 SCFH (14 to 47 lpm)
 OR Argon/Hydrogen 65/35: 100 SCFH (50 lpm)
 Secondary Carbon Dioxide or Compressed Air: 200 SCFH (95 lpm) maximum
 OR Water: 15 gph (57 lph) maximum
 Configurations 70° head angle hand-held
 90° head angle hand-held
 Machine mounted
 Control — Hand Torch mounted ON/OFF switch
 Machine .. Operator Control Panel or Remote Pendant Control

DIMENSIONS:

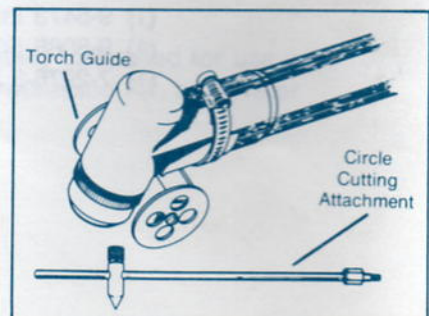
PCH-6B (70°)		PCM-6B			
	Cat. No.	A Inches (cm)	B Inches (cm)	C Inches (cm)	D Inches (cm)
PCH-6B (70°)	2-2750	16.00 (40.6)	3.75 (9.5)	1.62 (4.1)	1.50 (3.8)
PCH-6B (90°)	2-2751	15.56 (39.5)	3.75 (9.5)	1.62 (4.1)	1.50 (3.8)
PCM-6B	2-2741	13.62 (34.6)	1.50 (3.8)	6.50-12.00 (16.5-30.5)	2.25 (5.7)

PCH-6B HAND			PCM-6B MACHINE		
Key	Description	Cat. No.	Key	Description	Cat. No.
1	Head Assembly (see page C45-9)		4	Switch Assembly	8-6564
2	Heat Shield (70° and 90°)	8-7014	5	Mounting Tube (includes 8-6522 bushing)	8-6521
2a	Heat Shield (Machine)	8-6614	6	Pinion	7-2828
3	Handle	8-6519	7	Bushing	8-6522

TORCH GUIDE & CIRCLE CUTTING ATTACHMENT

Application: For use with PCH-6B hand-held torches, to facilitate manual shape and circle cutting by controlling radius and standoff.

	Cat. No.	Wt.
Torch Guide		
6B (70°)	7-2939	1 lb. (0.4 kg)
6B (90°)	7-2940	1 lb. (0.4 kg)
Guide with Circle Cutting Attachment		
6B (70°)	7-2947	1.5 lb. (0.6 kg)
6B (90°)	7-2948	1.5 lb. (0.6 kg)
Circle Cutting Attachment Only		
6B (70° or 90°)	7-2949	0.5 lb. (0.2 kg)



OPTIONAL ACCESSORIES

1. SC-504 STANDOFF CONTROL PACKAGE (Cat. No. 3-5030) controls the torch standoff automatically by signaling a customer supplied motorized torch lifter.
Includes (1) 3-5029 SC-504 Electronic Unit
(1) 3-5028 SC-504 Control Panel

Note: A Torch Height Motor Cable is required for use with the above SC-504 Standoff Control if the Remote Control Panel and Interface Cable (Item 2 below) are *not* selected. It connects the Electronic Unit (mounted in PAK 45) with the motorized torch lifter or cutting machine controls. Select the desired length from the chart below.

A Torch Height Control Cable is required for use with the SC-504 Standoff Control when the Remote Control Panel Adaptor Kit (Cat. No. 7-3063) is ordered. It connects the SC-504 control panel (mounted in the Remote Operator Control Panel) with the Electronic Unit (mounted in the PAK 45). Select the desired length from the chart below:

Description	25'	50'	75'	100'	125'
*Torch Height Motor Cable	9-3485	9-5090	9-5263	9-5437	9-5369
Torch Height Control Cable	9-3484	9-5088	9-5262	9-5438	9-5370

*Not required if Item 2 (below) and Interface Cable are selected.

2. REMOTE CONTROL PANEL ADAPTOR KIT for remote mounting of the operator control panel at the cutting machine controls.

Cat. No. 7-3063 Includes: (1) 9-3972 Control Panel Enclosure
(1) 9-3973 PAK 45 Cable Connection Panel

NOTE: A Control Panel Cable is required for use with the above adaptor kit. It connects the remote mounted control panel with the PAK 45. Select the desired length from the chart below.

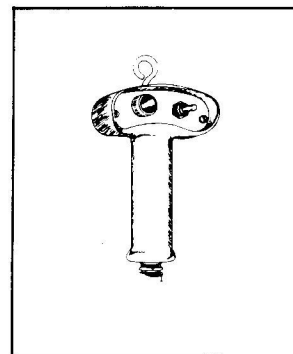
Description	25'	50'	75'	100'	125'
Control Panel Cable	9-5439	9-5440	9-5441	9-5442	9-5443

NOTE: An Interface Cable is recommended for all machine mounted cutting systems with Remote Control Panel to provide necessary interface signals, including standoff control, in one cable attached to the rear of the control panel. Selection of this cable eliminates the need for the Torch Height Motor Cable described above. Select the desired length from the chart below.

Description	5'	10'	25'	50'
Interface Cable	9-5472	9-5473	9-5474	9-5475

3. REMOTE PENDANT CONTROL (Cat. No. 7-3040) for remote on/off and current control of a PAK 45/PCM-6B system when not using Remote Control Panel Adaptor Kit. Remote Pendant control includes 25' control cable.

Remote Pendant Control (Cat. No. 7-3085) same as above with 50' control cable.



THERMAL ARC PAK 45™



PLASMA CUTTING SYSTEM

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 169/155/140 A 380/460/500 V 169/140/129 A 220/380/500 V 293/169/129 A 180/200/220 V 358/322/293 A
Dimensions:	Width: 32" (81.3 cm) Height: 36" (91.4 cm) Depth: 48" (121.9 cm)
Shipping Weight:	1640 pounds (743 kg) (Power Supply Only)

PAK 45 CUTTING DATA

MATERIAL THICKNESS AND TYPE		CURRENT* (AMPERES)	BEST QUALITY CUTTING SPEED * In/Min (m/min)	MAXIMUM CUTTING SPEED * In/Min (m/min)
1/8" (3.2 mm)	Stainless Steel	100	145 (3.68)	180 (4.57)
	Aluminum		180 (4.57)	310 (7.87)
	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: 200 SCFH (95 lpm) maximum or water: 15 gph (57 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 gas 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.

This information represents our best judgment but Thermal Dynamics Corporation assumes no liability for its use.

Thermal Dynamics offers a full line of time and money-saving Thermal Arc plasma cutting and welding products to satisfy your specific metalworking needs. Thermal Dynamics is plasma.



Thermal Dynamics
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