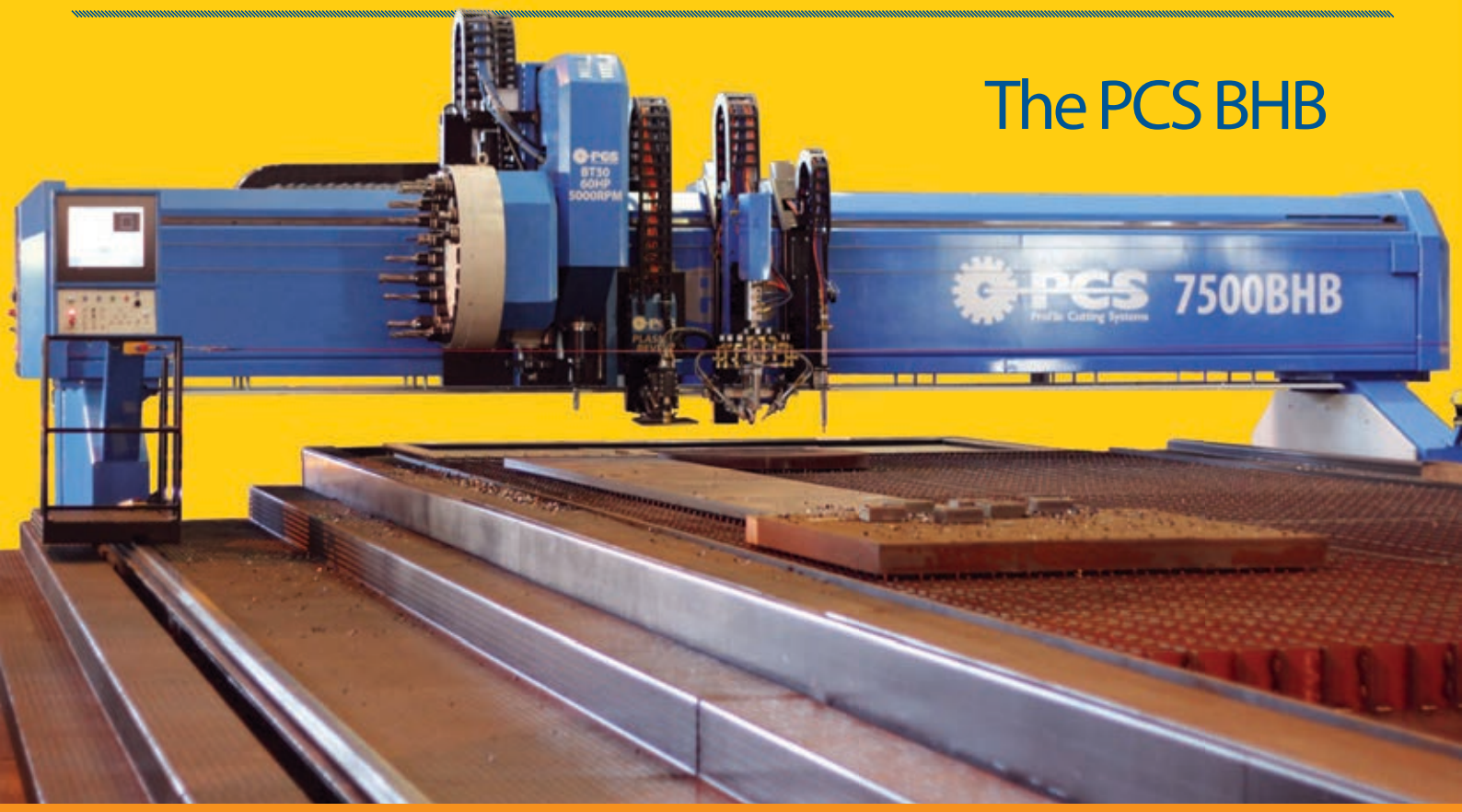
RESHAPING EFFICIENCY

The PCS BHB



The PCS BHB is the ultimate machine. No other machine on the market offers a solution with as much emphasis on brute force, rigidity and capability. With options ranging from, but not limited to, high speed drilling, tapping, boring, countersinking, milling, gas cutting, 100% duty cycle plasma cutting, plasma & gas beveling, pipe cutting, plate printing & marking or any combination, all with precision motion control on a wet or 100% dry cutting table - you're possibilities are endless!

Profile Cutting Systems (PCS) is Australia's leading manufacturer of latest technology Computer Numerically Controlled (CNC) Gas and Plasma Cutters. PCS is at the forefront of design, manufacturing, installation and servicing of profile cutting machines with over 500 profile cutting machines worldwide and international sales and support spanning Australia, Europe, Asia, South East Asia and America.

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PCS BHB

The machine carriage is an all welded construction with a wholly fabricated beam that utilizes several design characteristics used within the aerospace industry. Supporting the fabricated beam are ultra solid modular side supports. The drilling process is driven by a 60HP Digital AC Servo motor. Connected to the motor is a BT50 spindle that can handle up to 1890NM of torque. The drill assembly is supported on linear rails with the vertical motion also driven by a Digital AC Servo motor. To ensure that the steel plate remains stationery the BHB utilizes a fabricated clamping mechanism which is control by an additional Digital AC Servo motor capable of producing up to 3 metric tonnes of force. To reduce machine downtime the BHB utilizes as standard a 24 Pot Automatic Tool Changer which has a tool change time of 2.5 seconds.

To ensure ultra smooth operation the side supports run on extra-reinforced fabricated rails with a machined billet running surface and vertically adjustable base plates which are adjusted on site to provide a ridged and finely tweaked level running surface. With extra powerful state of the art Digital AC dual drive system and integrated active rail cleaning system, the PCS BHB will perform to the strictest of tolerances for decades to come in a highly demanding industrial environment. As several clients have already confirmed, if you are looking to drastically reduce the lead time on projects that require high speed drilling, cutting and plate edge preparation then the BHB will provide results that cannot be matched. Furthermore one client has stated that, "the PCS BHB has drastically reduced job completion times, from 8 hours to only 2 hours."

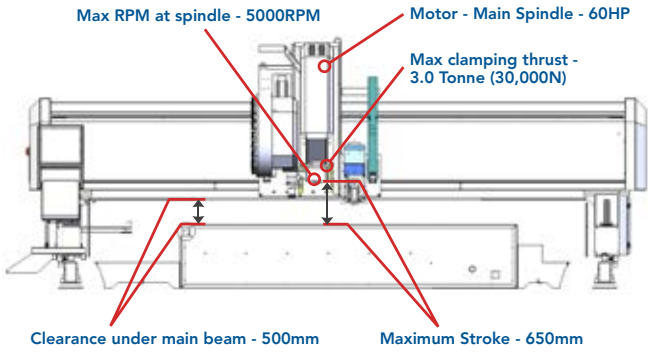

Fig. 1 - PCS BHB Front View

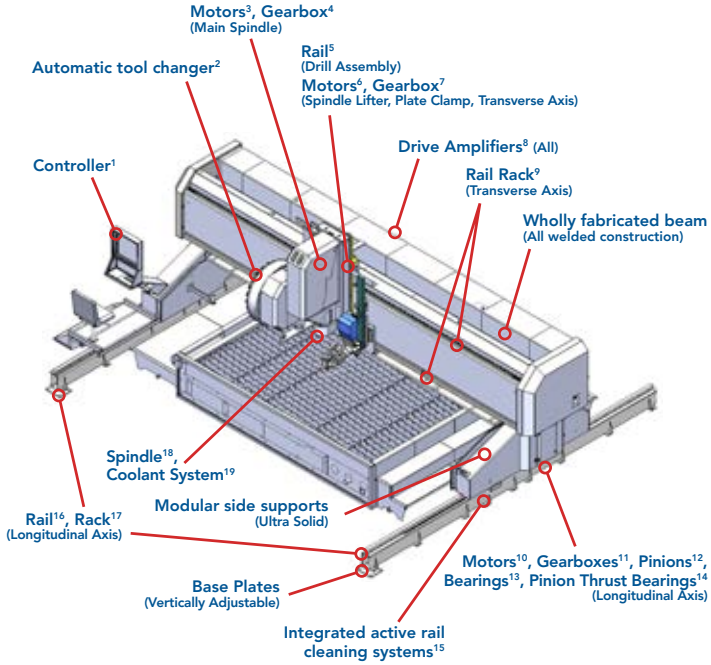

Fig. 2 - PCS BHB Parts Breakdown

Machine Dimensions

Effective cutting width	2.5 - 7.6m
Effective cutting length	Infinite
Overall machine height	3.0m

Drive System and Controller

Controller[1]		Burny® XL PC based controller *19" USB touch screen, Windows XP embedded, 2GB DDR3 RAM, 60GB SSD, SERCOS, remote diagnostics and Ethernet Network ready*
Drive Amplifiers	**Longitudinal & Transverse[8]**	Independent 3-Axis (X, XX & Y) AC digital Rexroth IndraDrive amplifiers. SERCOS comms.
	Main Spindle[8]	56kW Rexroth IndraDrive. DEVICENET comms
	Plate Clamp[8]	AC digital Rexroth IndraDrive amplifiers. DEVICENET comms
Motors	**Longitudinal Axis[10]**	43.5Nm max torque Rexroth AC servo motor
	Transverse Axis[6]	43.5Nm max torque Rexroth AC servo motor
	Main Spindle[3]	60HP Bosch Rexroth AC servo motor
	Spindle Lifter[6]	70Nm max torque Rexroth AC servo motor
	Plate Clamp[6]	70Nm max torque AC Rexroth servo motor
	Bevel Axis (optional)	2x 0.90kW AC 1.8Nm max torque Rexroth servo motor 1x 1.86kW AC, 8.1Nm max torque Rexroth servo motor
Gearbox	**Longitudinal Axis[11]**	Extra Heavy Duty Planetary Gearboxes <7 arcmin
	Transverse Axis[7]	Planetary 16:1 Backlash <7 arcmin
	Main Spindle[4]	Belt Reduction
	Spindle Lifter[7]	Ballscrew, Belt Reduction
	Plate Clamp[7]	Ballscrew, Belt Reduction
	Bevel Axis (optional)	Planetary grease packed 1x 50:1 <9 arcmin 1x 5:1 <6 arcmin

Standard Drilling Operation

Spindle[18]	Custom PCS 200mm dia.
Torque at spindle	1890Nm Peak
Max clamping thrust	3.0 Tonne (30,000N)
Max RPM at spindle	5000rpm
Max hole diameter	110mm
Max tool diameter in tool changer	110mm, 130mm with adjacent pockets empty.
Maximum stroke	650mm
Clearance under main beam	500mm
Material thickness	Up to 300mm
Coolant system[19]	Through tool fluid & external jets As Standard Optional through tool MQL (Minimum Quantity Lubricant)
Spindle taper	BT50
Automatic tool changer[2]	DETA 24 tool ATC – 2.5sec tool change
Drilling time - 2" hole, 4" plate	< 26 Seconds

Recommended Plasma Cutting Operation

Power Source	Kaliburn *ProLine* or *Spirit* Plasma System(s)
Output Current	100 - 400 amp
Plasma Torch Lifter System	INOVA Torch Height Control System
Cutting Capacity	1 - 50 mm (Max capacity 75mm)

Standard Gas Cutting Operation

Number of torches	Up to 6
Cutting capacity	Up to 300mm (12")
Hi-speed pre-heat	As standard
Fast pierce with auto retract	As standard
Gas torch lifter system	PLC controlled as standard

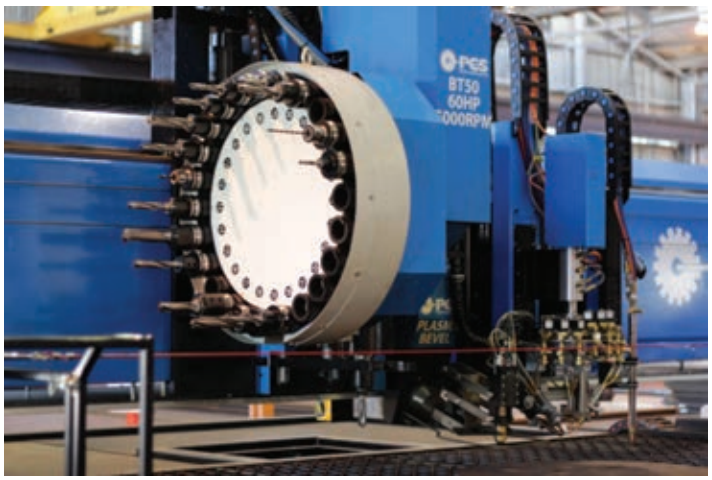

Fig. 3 - Automatic Tool Changer

Fig. 4 - PCS BHB Rear

Fig. 5 - Modular Side Support

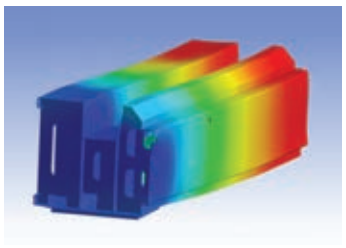

Fig. 6 - Stress Test (Main Beam)

The BHB has been developed and refined on the most advanced computer modeling programs to ensure deflection is minimised

Fig. 7 - Cut Sample

Machine Travel

Traverse speed		20m/min (Safety Limited)
Profiling speed		Up to 20m/min
Max acceleration		0.9 m/s/s
Machine accuracy on axis		0.1mm
Machine repeatability on axis		0.1mm
Rack – Longitudinal axis[17]		SRCPF10-2000 CP Rack Pitch 10mm. Rack has an accuracy of 0.01mm in 12m of length. Material: S45C Steel
Rail – Longitudinal axis[16]		60mm machined hardened billet
Rail rack – Transverse axis[9]		Upper: HD Rexroth precision ground linear rail/helical rack. Lower: HD Rexroth precision ground linear rail lower.
Rail – Drill assembly[5]		35MM Rexroth Linear Rail
Pinions	**Longitudinal axis[12]**	SSCPG10-20 CP10 teeth grinding spur gears. Pitch: 10mm Material: S45C Steel
	Transverse axis	Precision ground helical
Pinion thrust bearings[14]		As Standard
Cable carrier		Cable carrier standard. Floor mounted.
Bearings[13]		Linear bearings on transverse axis and drill assembly. High quality, readily available bearings used throughout
Integrated active rail cleaning system[15]		As standard

Standard Safety Features

Machine protection	Heat shields standard
E-Stop	Independent Emergency-Stop circuit
End Limits	Software controlled with redundant mechanical limit switches

Options

- Up to 7.6m effective cutting width
- Infinite length
- Extra hi-flow gas manifold
- Up to 10 gas torches
- Independent torch station select
- Automatic torch height control
- Auto igniters
- Plate cooling rings
- Plasma cutting
- Plasma bevel
- Gas bevel
- Rotary pipe cutting axis
- Through tool MQL
- Swarf extraction system
- Paint marking
- Pin marking
- Powder marking
- PCS TurboGas
- Automatic plate alignment
- Automatic plate feed
- Extra safety devices
- Operators chair
- Operator safety shield
- Wireless pendant
- Digitally zoned fume extraction
- PCS designed & manufactured cutting tables

PCS
Profile Cutting Systems

THINGS TO LOOK OUT FOR

Good quality, Durable Rack, Rail and Pinions?

Many cheaper machines utilize smaller or less durable components which work great at first; however these machines are destined to suffer premature wear. Any mechanical backlash or abnormality will guarantee poor quality cutting while cornering at several meters per minute. Furthermore premature wear will result in excessive stress on other components such as motors, belts and drive amplifiers. In many cases the price difference between a cheap and quality machine is quickly eroded by the loss of clients seeking better quality cutting; and excessive maintenance callouts.

Dealing with High-Frequency Electrical Interference?

The plasma cutting process produces extreme levels of high-frequency electrical interference. PCS's extensive two decades of plasma experience and close relationships with component manufacturers has resulted in premeditated methods to screen, protect and select electrical components. Even the slightest penetration of high-frequency electrical interference can lead too difficult to detect intermittent errors which reduce the cutting quality and productivity.

Installation Charges?

PCS provides installation included with any PCS BHB quotation. Installation costs can equate to thousands of dollars. Many imported machines require installation by a third party where by any abnormality in the installation process will ultimately be charged to the end user.

Engineering and Test Capability?

PCS employ only the very best personnel. In particular staffs within the mechanical and electrical engineering departments are required to have exceptional qualifications while utilizing cutting edge computer engineering packages. In the design stage, all of the PCS machine models are rigorously tested and calculated through advanced computer modeling. This stage permits both major and fine mechanical adjustments that result in increased longevity achieved by very few manufacturers. Once an unparalleled result is achieved a prototype is produced and put through the harshest of tests, and amendments are made. The final result is a benchmarked machine model that can operate exactly as stated in our quotations with no hidden surprises.

Local Support?

When buying from PCS you are dealing directly with the manufacturer who cannot hide from Australian laws behind international barriers. PCS stocks an immense array of spare parts and consumables to ensure that machine downtime is kept to a minimum should a breakdown or natural disaster occurs. Equally important, PCS directly provides exceptional knowledge and advice. How much confidence regarding application and technical knowledge can be placed with a cheap machine importer? What down time can you expect for any breakdowns and how will this affect your corporate image? Can you trust the machine manufacturer to provide spare parts for years to come?

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