

D.C. Injection Braking Systems For AC Electric Motors Driving Woodworking Machinery



D.C. BRAKE SUPPORT LINES

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Essential Regulation Compliance

PUWER 98 - Provision and Use of Work Equipment Regulations 1998 Regulation 15.
ACOP's Approved Code of Practice Paragraphs 130 to 135.

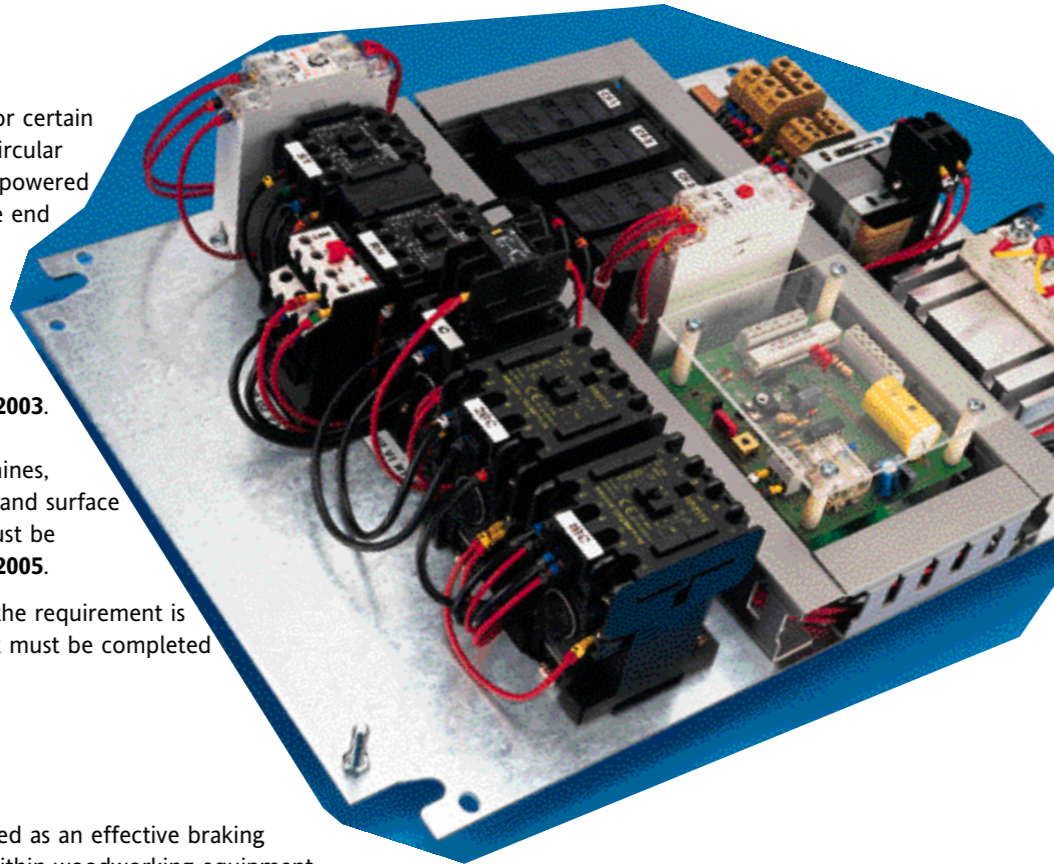
For new woodworking machinery the provision of an automatic brake is an essential requirement of the Supply of Machinery (Safety) Regulations 1992.
The requirement is to ensure that the machinery is fitted with an automatic brake, which stops the tool within a 10-second period if there is a risk of contact in run down mode.

The above regulations now specify the requirements and dates by which safe stopping devices must be retrofitted to **existing woodworking equipment**.

Time Period

ACOP specifies the timetable for certain specified classes of machine. Circular Saw benches, dimension saws, powered and hand fed cross saws, single end and double end tenoning machines and combined machines incorporating a circular saw or tenoning attachment, the work must be completed by **December 5th 2003**.
For narrow bandsaws, re saws, vertical spindle moulding machines, planing/thicknessing machines and surface planing machines, the work must be completed by **December 5th 2005**.

For any other machine where the requirement is deemed as necessary, the work must be completed by **December 5th 2008**.



Solution

D.C. Injection has been approved as an effective braking method for AC Motor drives within woodworking equipment.

When the machine starter is de energized, the brake unit senses the break in supply and simultaneously supplies a controlled D.C. voltage to the windings of the motor. A powerful braking force is developed within the motor, which is then adjusted to ensure the precise stopping time is adhered to. On completion the supply is completely isolated from the motor avoiding accidental re start.

Effective Modification

D.C. Injection Braking systems provide a simple, rapid and reliable solution as they are incorporated within the control function and utilize the existing motor drive which:

- Eliminates the cost of motor replacement
- Avoids any need for motor removal and modification
- Overcomes the need for additional mechanical brake space.

The result being a dramatic reduction in modification cost and down time.



D.C. Brake for Woodworking Machines

The **S10 brake** range is a comprehensive choice of D.C. Injection Brake Systems **dedicated** to the woodworking industry regulations.

Our professional team offer many years unrivalled expertise in the controls industry.

For **off the shelf delivery, installation, advice or complete design** to suit **any woodworking machine** call us on the **D.C. Brake Support Line 01924 330217**



The Range

DOL & Star Delta: Complete starter enclosed in pressed steel IP55 enclosure with D.C. Injection brake for any starter replacement.

Retrofit Module: Boxed module available for wiring to existing starters to ensure full compliance.

Chassis & Components: Provided as individual items for incorporation into purpose built control panels.

TYPE	Motor Rating kW	Motor FLC	Max. DC Current	Complete Starter Reference	Enclosure Size		
					H	W	D
Direct On Line Three Phase	2.2	5	20	DC1EJS	184	184	149
	4.0	7.5	20	DC1EKS	184	184	149
	5.5	12	20	DC1ELS	184	184	149
	7.5	15	56	DC2EMS	305	285	159
	11	21	56	DC3EMS	305	285	159
	15	30	56	DC4ERS	305	285	159
Star Delta Three Phase	22	40	90	DC5ESS	400	400	200
	5.5	13	20	DY1EKS	305	285	159
	7.5	17	56	DY1ELS	500	400	200
	11	22	56	DY1ELS	500	400	200
	15	29	56	DY2EMS	500	400	200
Direct On Line Single Phase	22	43	90	DY3ENS	500	500	200
	0.5	5	20	DP1CHS/10	184	284	149
	1.5	12	20	DP1CLS/10	184	284	149
Retrofit Module Direct on Line	2.2	17	20	DP2CNS/10	184	284	149
	Up to 5.5kW			RMD1	184	184	149
	7.5 to 18kW			RMD2	305	285	159
Retrofit Module Star Delta	18 / 22kW			RMD3	305	285	159
	Up to 5.5kW			RMS1	184	284	149
	7.5 to 18kW			RMS2	400	400	200
Components	18 / 22kW			RMS3	400	400	200
	For individual parts please call the Sales Department						

For D.C. Injection Brakes above outputs shown please consult our support line.

Technical Specification - Controlled Stopping

Suitable for motor powers up to 22kW three phase, up to 2.2kW single phase

Control Voltage 110,240,415 ±10% 50Hz ±2½%

Separate Power and Timing Units:-

Timing Two 8 amp relays to interlock normal starter operation and D.C. Injection
Delay between stop button and energising D.C. (½ to 1 sec)
Adjustable D.C. Injection time 0.5-25 secs
Delay between end of D.C. and restart 300ms

Power D.C. current adjustable up to a maximum of between 2 and 2½ times motor full load current
D.C. voltage typically adjustable between 30-100v
D.C. derived from Thyristor controlled half wave rectification with flywheel diode. 12 stops per hour



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