

This guide covers most of the industries and applications where DC drives are used. You will find it a useful reference tool when you are considering:

- Drive types that may be used in individual applications
- Industries where DC drives are used
- Some indication of the complexity of a particular application

If you know of any other applications where DC drives are used, we'd be happy to include them. Send your comments and suggestions to info@sprint-electric.com

Industry Type	Power	Single quadrant	4 quad regen	Field weakening	Constant torque	Single drive	Multi drive	Useful information
Metal Industries								
Rolling Mill	Up to 1000kW	✓		✓	✓		✓	Check for shock loads, and if field weakening is required.
Strip Mill	Up to 100kW	✓	✓	✓	✓	✓		Check if field weakening is required.
Slitters & Perforators	50kW – 150kW	✓	✓	✓	✓	✓		Check constant power range, may need a larger drive and motor.
Wind / Unwind	Up to 200kW		✓	✓	✓		✓	Check reel build up ratio and speed / tension range. Motor/drive needs sizing to suit. Requires Winder card.
Tube Mill	Up to 300kW		✓	✓	✓	✓	✓	May be a pair of drives linked by process, system knowledge on load sharing required.
Cast Tube Spinner	20kW – 50kW		✓	✓		✓	✓	Straight forward speed control application.
Machine Tool Spindle	5kW – 150kW		✓	✓	✓	✓		Always four quadrant regenerative drive. Additional signals in/out may be required through add on board.
Machine Tool Table	20kW – 200kW		✓	✓	✓	✓		Straight forward speed control Check if drive requires a position signal.
Wire Drawing	5kW – 75kW		✓	✓	✓	✓	✓	Usually a series of drives electronically linked. Each drive runs faster than the previous one. Control of tension usually required.
Plastics								
Extruders	5kW – 400kW	✓			✓			Straight forward speed control. Zero speed signal usually required as an interlock.
Sheet Line Reeler	1.5kW – 15kW	✓		✓	✓			Check reel build up ratio and speed range. Very thin plastic sheet can be difficult to control. Requires system knowledge.
Haul Off / Caterpillar	1.5kW – 15kW	✓		✓	✓			Straight forward speed control when linked to extruder speed. Some applications require torque control.

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Rubber								
Banbury Mixer	Up to 1000kW	✓		✓		✓		Simple speed control, but nearly always has a duty cycle which will increase the size of the drive/motor.
Calendar	Up to 500kW	✓	✓		✓		✓	Straight forward speed control.
Chemical								
Mixer	Up to 150kW	✓			✓	✓		Straight forward speed control, Environments may be hazardous, necessitating special requirements.
Extruder	Up to 100kW	✓			✓	✓		Straight forward speed control, although environments may be hazardous, if so special procedures will be required.
Stirrers & Agitators	Up to 400kW	✓			✓	✓		Straight forward speed control, although environments may be hazardous, if so special procedures will be required.
Material Handling								
Conveyor	0.5kW – 20kW	✓			✓	✓	✓	Straight forward speed control, but may need to speed follow other machinery and load share.
Automated Warehousing	0.5kW – 20kW	✓	✓		✓	✓	✓	Usually a four quadrant regenerative drive for pick and place systems.
Lift, Hoist & Crane								
Lift & Hoist	3kW – 60kW		✓		✓	✓		Usually high starting torque four quadrant regenerative drive with 'S' ramps to smooth speed changes on lifts.
Crane	3kW – 75kW		✓		✓	✓		Check duty cycle. Beware of AC supplies fed via slip rings to the drive.
Concrete Pipe Manufacturing								
Pipe Spinner	10kW – 100kW		✓		✓	✓		Straight forward speed control. Usually four quadrant regenerative drive. Check max starting torque.
Centrifugal Fans	0.5kW – 40kW	✓			✓	✓		Straight forward speed control.
Rootes Blowers	3kW – 200kW	✓			✓	✓		Straight forward speed control.
Textiles								
Ring Frame Spinners	Up to 150kW		✓		✓	✓		Usually straight forward speed control. Two or four quadrant.
Carding Machine	Up to 10kW	✓			✓	✓		Straight forward speed control.
Looms	Up to 50kW		✓		✓	✓		Straight forward speed control.

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Pumps								
Centrifugal Pumps	0.5kW – 500kW	✓			✓	✓		Straight forward speed control.
Paper & Tissue								
Paper Machines	Up to 500kW	✓	✓		✓		✓	Large integrated systems. Usually complex and will require systems knowledge.
Winders & Reelers	5kW – 80kW		✓	✓		✓		Paper reels similar to plastic winder requirements. Tissue reels, run on light tension require system knowledge. Check reel build up ratio and speed / torque range. Thin material can be difficult to control. Requires system knowledge.
Printing								
Printing Presses	Up to 180kW		✓		✓		✓	Usually multidrive systems requiring system knowledge.
Folders, Unwind & Rewind	Up to 100kW		✓	✓		✓		Paper reels similar to plastic winders tissue reels. Run on light tension. Requires systems knowledge. Check reel build up ratio and speed / torque range. Folders generally straight forward speed control.
Packaging								
Boxing, Stamping, Folding & Wrapping	Up to 75kW		✓		✓	✓		Usually straight forward speed control.
Stretch Sealing	Up to 5kW	✓			✓	✓		Usually straight forward speed control.
Entertainment								
Theatre	Up to 145kW	✓	✓			✓	✓	Usually four quadrant.
Amusement Rides	Up to 265kW	✓	✓			✓	✓	Sometimes low voltage.
Test Rigs								
Various Type of Rigs	Up to 75kW		✓	✓		✓		Usually four quadrant regenerative drive. System knowledge is required.
Fans & Blowers								
Axial Fans	0.5kW – 40kW	✓			✓	✓		Straight forward speed control, although some fans hit resonance over speed range. Requires a speed “jump” in control signal.

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Wire & Cable								
Extruders	5kW – 150kW	✓			✓	✓		Simple speed control, but starting and overload characteristics need to be looked at.
Bunchers & Strandars	10kW – 150kW		✓		✓		✓	Four quadrant regenerative drive usually linked to line speed. Additional process cards may be required.
Capstan	5kW – 100kW		✓		✓	✓		Four quadrant regenerative drive usually linked to line speed, some control of tension is required.
Take Up & Unwind Stands	5kW – 50kW		✓	✓	✓		✓	Can be a simple speed control linked to line speed or if fully controlled check reel build up ratio and speed / torque range. Motor /drive needs sizing to suit. Requires system knowledge.
Armourers	10kW – 150kW		✓		✓		✓	Usually straight forward speed control linked to line speed.
Caterpillars	1.5kW – 30kW	✓			✓	✓		Straight forward speed control when linked to Extruder speed. Some applications require torque control.
Food Industry								
Extruder	5kW to 400kW	✓			✓	✓		Straight forward speed control. Zero speed signal usually required as an interlock. Motor/drive enclosures usually IP65.
Mixer	5kW 150kW	✓			✓			Straight forward speed control. Motor/drive enclosures usually IP55 min.
Conveyors	0.5kW – 20kW	✓			✓	✓		Straight forward speed control. Motor/drive enclosures usually IP55 min.

Other Industries And Answers To Your Questions

Are you working on an application similar to those listed above?

Don't forget, there's a team of DC motor control experts available to answer your questions

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