

## THERMATIC-E2™ EXTRUDER

### OVERVIEW

Davis-Standard, LLC offers a complete range of energy efficient extruders. The Direct Drive System is based on a Permanent Magnet Synchronous Motor (PMSM), technology that offers several advantages over conventional extruder drive and motor gear reducer systems.

The Direct Drive System eliminates the gear reducer, simplifying the extruder mechanical design. These motors provide very high torque densities compared to conventional AC and DC motors and produce high levels of torque at low operating speeds.

### FEATURES

- No gear oils
- Energy efficient
- Quiet Operation
- Small footprint
- Low maintenance
- Medical clean room friendly
- Available sizes: 0.75-inch (20mm) – 5-inch (130mm) diameter extruders

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## COMPARISON OF DIFFERENT SOLUTIONS

### ENERGY EFFICIENCY

Up to 15 percent energy savings may be realized versus a conventional AC drive with gear reducer systems. A 2 1/2-inch 30:1 extruder processing HDPE materials at 100 screw RPM will consume 10 percent less energy than a conventional AC drive with a gear reducer. The same 2 1/2-inch 30:1 extruder processing PP materials at 100 screw RPM will consume 15 percent less energy than a conventional AC drive with a gear reducer.

Up to 25 percent energy savings may be realized versus a conventional DC drive with gear reducer systems. A 2 1/2-inch 30:1 extruder processing HDPE materials at 100 screw RPM will consume 25 percent less energy than a conventional DC drive with a gear reducer. The same 2 1/2-inch 30:1 extruder processing PP materials at 100 screw RPM will consume 25 percent less energy than a conventional DC drive with a gear reducer.

### NOISE EMISSION

#### CONVENTIONAL SOLUTION:

- Noise emission caused by gearcase
- Noise emission caused by motor fan, especially with higher powered motors

#### DIRECT DRIVE SOLUTION:

- Quiet operation:
- No gear reducer
  - Watercooled
  - Less than 80 dBA

### SERVICE & MAINTENANCE

#### CONVENTIONAL SOLUTION:

- Motor gear reducer combination requires larger footprint for coextrusion applications

#### DIRECT DRIVE SOLUTION:

- Compact extruder configuration

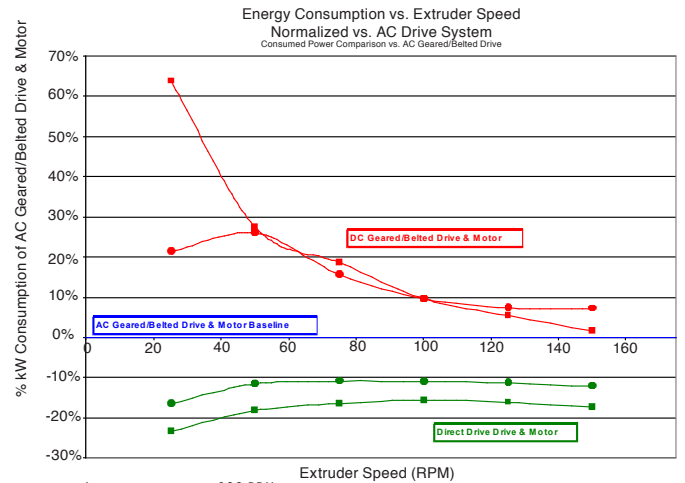
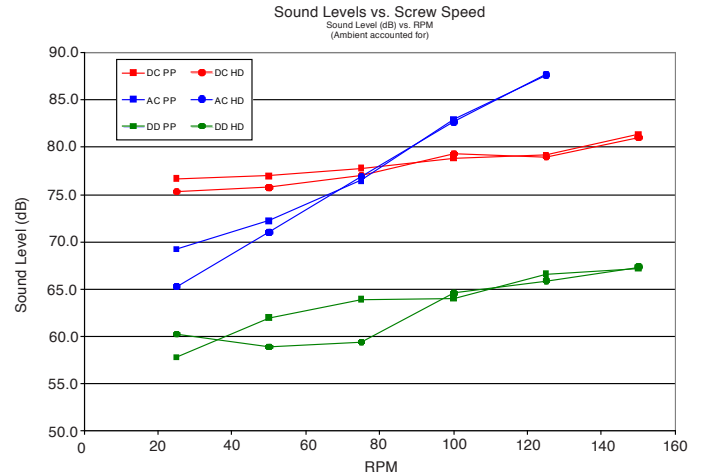
### SPACE REQUIREMENTS

#### CONVENTIONAL SOLUTION:

- Regular maintenance required:
  - Gear reducer (oil changes)
  - DC motors (brush replacement)
- Oil leaks possible

#### DIRECT DRIVE SOLUTION:

- Low maintenance
- Longer lifetime of motor
- Oil free system possible



In operating range – 100 RPM  
 DC system consumes – 5-15% MORE power than AC system  
 DD system consumes – 12-15% LESS power than AC system

### AVAILABLE SIZES

Diameter	Range of Available Motor Powers		Range of Available Motor Speeds (RPM)
	HP	kW	
3/4-inch (20mm)	1.5 - 3	1 - 2	100 - 300
1-inch (25mm)	3 - 5	2 - 4	100 - 300
1 1/4-inch (32mm)	5 - 10	4 - 7.5	100 - 300
1 1/2-inch (38mm)	7.5 - 15	6 - 11	100 - 300
1 3/4-inch (45mm)	10 - 20	7.5 - 15	100 - 300
2-inch (50mm)	14 - 40	10 - 30	100 - 300
2 1/2-inch (65mm)	40 - 75	30 - 55	100 - 300
75mm	50 - 100	40 - 75	100 - 300
3 1/2-inch (90mm)	75 - 150	55 - 110	100 - 300
4-inch (100mm)	100 - 200	75 - 150	100 - 300
4 1/2-inch (115mm)	150 - 300	110 - 225	100 - 300
5-inch (130mm)	200 - 400	150 - 300	100 - 300