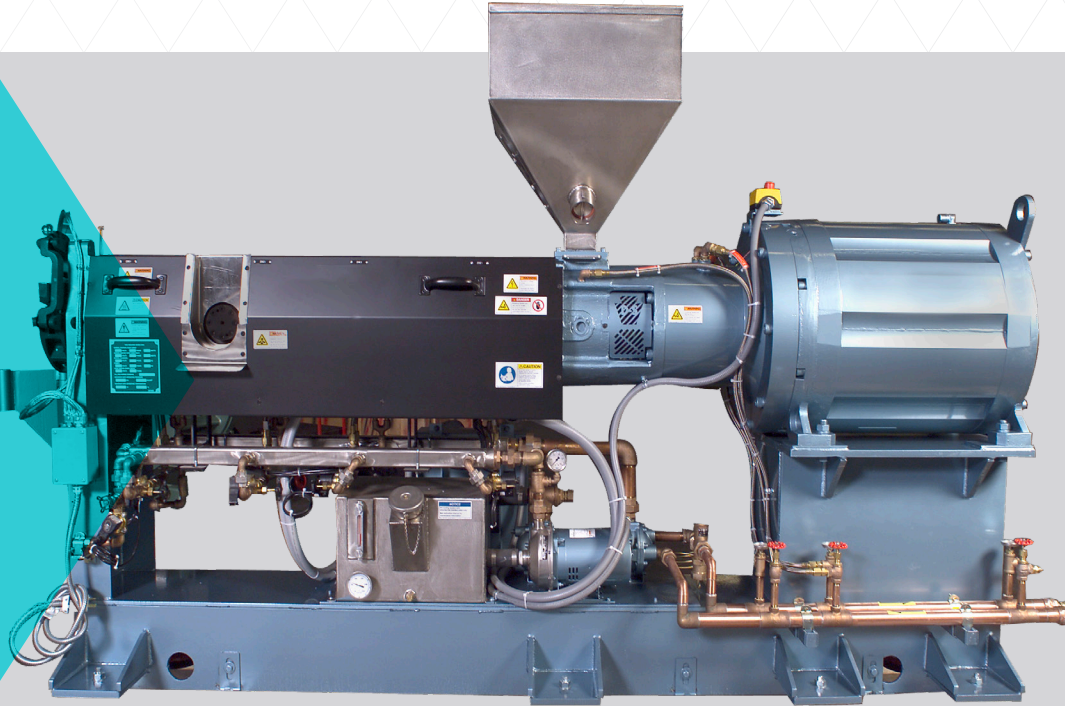




DAVIS-STANDARD®

Where your ideas take shape.

Extruder



Thermatic® Direct Drive Extruder

Overview

Davis-Standard offers a complete range of energy efficient Thermatic® 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.

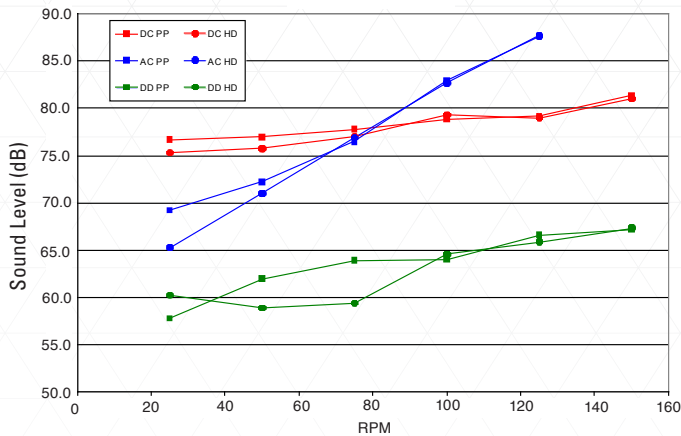
The Direct Drive System eliminates the gear reducer, simplifying the extruder mechanical design. These motors provide very high torque densities compared to conventional AC and DC motors and produce high levels of torque at low operating speeds.

Features

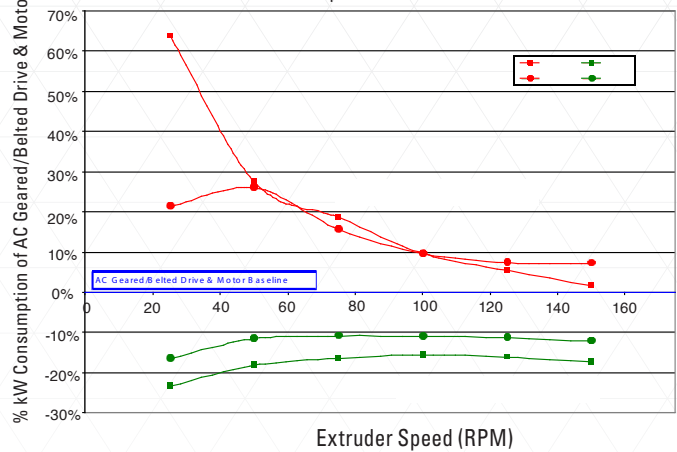
- No gear reducer
- Energy efficient
- Quiet operation
- Small footprint
- Low maintenance
- Medical clean room friendly
- Available sizes: 0.75-inch (20mm) – 5-inch (130mm) diameter extruders

Thermatic® Direct Drive Extruder

Sound Levels vs. Screw Speed
Sound Level (dB) vs. RPM
(Ambient accounted for)



Energy Consumption vs. Extruder Speed
Normalized vs. AC Drive System
Consumed Power Comparison vs. AC Geared/Belted Drive



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

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

Space Requirements

Conventional Solution:

- Motor gear reducer combination requires larger footprint for coextrusion applications

Direct Drive Solution:

- Compact extruder configuration

Service & Maintenance

Conventional Solution:

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

Direct Drive Solution:

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

AVAILABLE SIZES

Diameter	Range of Available Motor Powers		Range of Available Motor Speed
	HP	kW	
3/4-inch	1.5 - 3	1 - 2	100 - 300
1-inch (25mm)	3 - 5	2 - 4	100 - 300
1 1/4-inch	5 - 10	4 - 7.5	100 - 300
1 1/2-inch	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