Specifications

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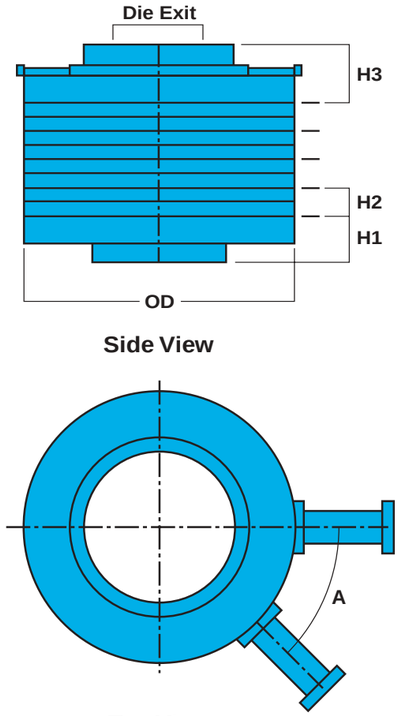

Side View

Top View

Streamlined					
Base size	75 (3)	150 (6)	225 (9)	305 (12)	460 (18)
OD (w/o heaters)	405 (16)	610 (24)	815 (32)	915 (36)	1400 (55)
H1	127 (5)	165 (6.5)	165 (6.5)	165 (6.5)	225 (8.75)
H2	75 (3)	100 (40	100 (4)	100 (4)	125 (5)
H3	170 (6.75)	220 (8.63)	220 (8.63)	220 (8.63)	200 (8)
Die Exit	25-150 (1-6)	100-250 (4-10)	220-350 (8-14)	250-425 (10-16)	450-800 (18-32)
A Angle between ports	45 degress	45 degress	45 degress	45 degress	45 degress

Dimensions shown: mm (in), subject to change.

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Streamlined Coextrusion Dies

Brampton Engineering

Taking blown film to a higher level

Brampton Engineering

The flattest film comes from Brampton's superior technology. At the heart of every Brampton Engineering multilayer blown film line is the Streamlined Coextrusion Die (SCD). The success of this die has allowed BE customers to produce high quality film for a wide range of applications.

Multilayer coextruded blown film is sought for its superior properties such as gas and aroma barrier, chemical resistance, tensile strength, optics, shrink, puncture resistance, stretch, formability, hot tack strength, seal temperature range, peelability, printability and consistent gauge. The SCD allows processors to harness the characteristics of a wide range of resins to make structures with the required properties.

With the SCD, processors can make blown film that they can sell today and it will allow them to make and sell multilayer structures of the future. The flexibility and versatility of the SCD enables processors to meet the changing needs of the market.

Over 650 modules in 3, 5, 7, 8, 9 and 10-layer dies were sold in the first ten years of production.

Multilayer coextruders around the world recognize that the Streamlined Coextrusion Die

- Allows them to add value to their film by improving the properties
- Independent control of skin (for example, gloss) and core (for example, high tensile strength) layers
- Saves money with lower resin costs – use thin layers of expensive material for superior properties and less expensive material for the remaining structure
- Gives them the versatility to run a wide variety of materials to produce many different film structures – the more layers the greater the flexibility
- Enables them to add more layers when needed
- Harnesses the properties of different resins
- Produces superior film with the same resins – the separation of materials gives superior barrier, flex cracking resistance and thermoformability.

Method of Operation

Two plates with the flow passages sandwiched together form one module for each layer of the die. The modules are stacked on top of one another to form the desired number of layers. The molten polymer enters each module at a side entry port and is distributed through the streamlined channel on the faces of the plates. The melt is then pushed through to the annular channel and merges with the melt from the other layers and exits at the die lip.

Distinguishing features

Streamlined melt distribution
The melt distribution takes place on the face of the die through the most streamlined distribution system in the industry. The absence of sharp bends prevents hangups or stagnation points, prolongs run time and reduces the need to shut down to clean the die. The standard passages are so smooth they are regularly used to process PVdC. No matter how many layers, the distribution in each module takes place on the same or similar small-sized wetted surface area. (On a conventional cylindrical die the wetted surface area increases with the number of layers. In most cases this limits the process to five-layer coextrusion. The SCD has eliminated this restriction.)

"We can use a wide variety of materials which gives us the versatility to meet our customers' demands for high quality barrier film." **Harinder Tamber, The Packaging Group, Canada, 8-layer SCD turnkey line.**

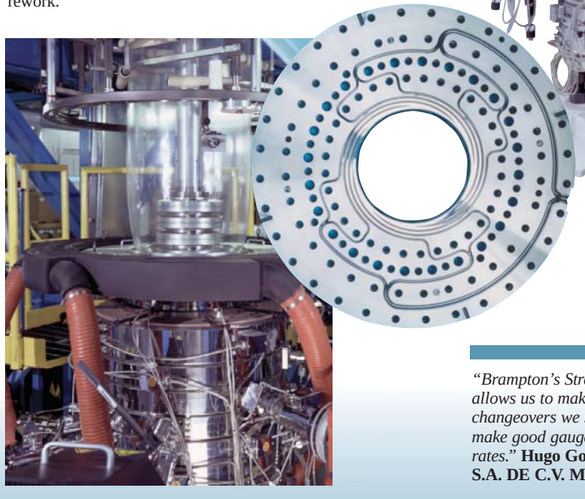
"We wanted to see a proven track record of coextrusion lines out in the field that were actually working. We quickly narrowed the field." The die is "the heart of the entire line. If you can't get the material through the die and produce high-quality film with controlled layer thickness you've got the wrong equipment." **Jim Johnson, Liqui-Box Canada (a DuPont subsidiary), Canada 5-layer line.**

Temperature isolation between layers
Between each layer there is a gap, which allows adjacent layers to be operated at up to 40°C temperature difference. This provides excellent opportunities to take advantage of the characteristics of a wide variety of resins. For example, it is possible to run EVOH next to nylon.

Increased efficiency with fast flushing, changeovers
Each layer holds only a small volume of molten polymer. Because of the short residence time in the module, polymer flushing and changeovers are fast, saving time, materials and money.

Low maintenance
The SCD is easy to clean because all the distribution channels are on the face of the flat die plate; there are no hidden flow passages. Because of its unique modularity, processors can clean only the layers that need to be cleaned. The SCD allows operators to clean the modules is sequence or leave some layers unopened thus saving time and effort.

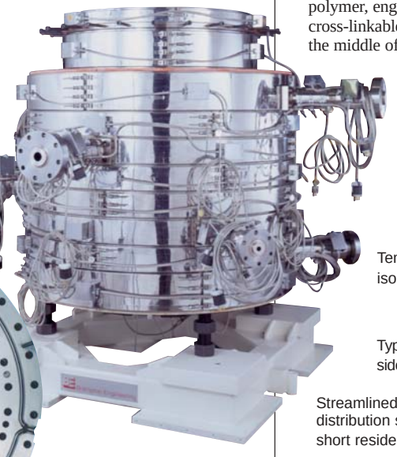
Easy upgrades
The two-plate modules are stacked on top of one another to the desired layer count. Layers may be added, replaced or relocated without sending the system back to the factory for rework.



Convenient Compact size
The top of the SCD is less than 230mm (9 inches) above the centerline of the highest extruder feeding system. A 400mm (16-inch) five-layer head is only 780mm (31-inches) high. This size provides for easier operation and makes the tower height more effective.

"Brampton's Streamlined Coextrusion Die allows us to make what we can sell. With fast changeovers we save on resin consumption and make good gauge film with excellent output rates." **Hugo Gonzalez, Director, Filmpack S.A. DE C.V. Mexico. 5-layer line.**

The BE Streamlined Coextrusion Die "met our expectations to produce a secure eight-layer coextruded film with even gauge variation (per individual layers) using different materials." **Uwe Meyn, Manager, Composite Films Operation of Wolff Walsrode, Germany, 8-layer die.**



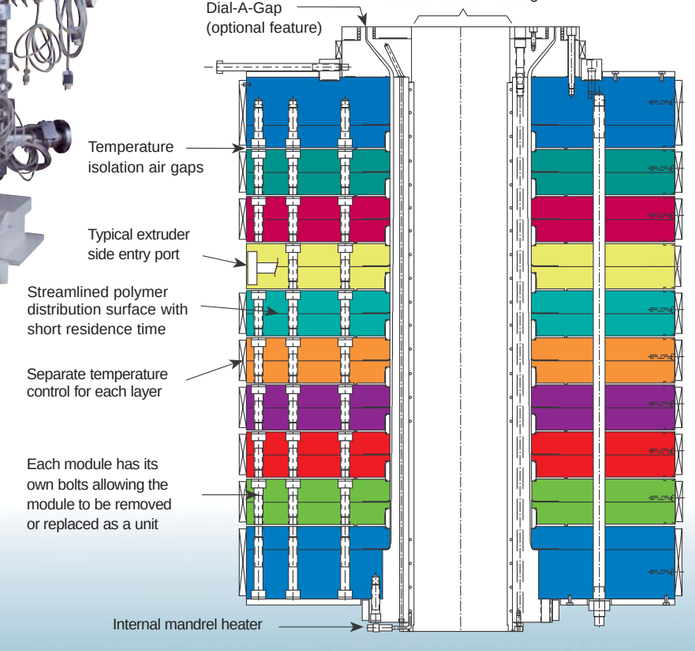
Options

- Internal bubble cooling. The center bore of the SCD allows for fitting an IBC system on all SCD 150mm (6-inches) or bigger.
- Air ring. Brampton Engineering offers a variety of air rings for the SCD.
- Gauge Control Systems. I-Flex Lip provides precise gauge control while maintaining output rates. Eliminator AutoGauge Air Ring combines the efficiencies of the air ring with effective gauge control.
- Dial-a-Gap (Adjust-a-Gap, [Manual]) option allows processors to optimize the die gap for every type, blend, and grade of polymer without changing die lips.
- ISO-Therm option provides temperature isolation of up to 150°C of an individual layer to allow processing of two materials of widely different operating temperatures in adjacent layers. For example, rubberized polymer, engineering plastics, EVOH, cross-linkable polymers, LCP or PVdC in the middle of a structure containing nylon.

Quality: Brampton Engineering world headquarters continues to meet the ISO 9001 standard that covers, design, manufacture, assembly, installation and service of our products.

Brampton Engineering is a world leader in the design and manufacture of complete blown film systems including blenders, extruders, dies, air rings, internal bubble cooling systems, bubble cages, collapsing frames, oscillating haul-offs, nips, winders and integrated control systems.

"Brampton Engineering has the ability to plan all the parameters on the line to meet our special requests." **Teddy Maurice, Plastopil, Israel 9-layer SCD line.**



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