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Developing Profile Extrusions Dies

Modified on Monday, 02 February 2015 01:20 PM by mpieler Categorized as Extrusion Hints (10) » SUM » Screw Channel Depths » **Developing Profile Extrusions Dies**

Developing Profile Extrusions Dies is misconstrued as a “Black-art” not the science that it is, only because many do not take a scientific, systemized approach on a consistent basis. Listed below are some guidelines that will help the Die Designer/Engineer to correctly approach the development phase of profile extrusions.

Balanced Wall Profiles:
Walls are designed with equal land length

Guidelines:

- RPVC Pellets 10:1
- RPVC Powder15:1
- High Output PVC Powder 25:1
- LDPE: 15:1
- ABS: 25:1
- Development Technician runs overall profile width to specification
- After measuration, if walls are thin, wire EDM respective wall 50% of final desired thickness. (Polish)
- Appendages short, wire EDM for proper wall thickness first
- If appendages are correct wall but short, wire EDM delta difference

Unbalanced Wall Profiles:

Walls/appendages are designed with an “Equal Land Length Ratio”

- Development Tech runs overall profile width to specification
- After measuration, if walls are thin, wire EDM respective walls 50% of final desired thickness (Polish)
- If appendages are short (Flat back die) drop land length
- If appendages are short (SL Die) wire EDM wall

Assumptions:

- All walls are polished and recast is removed
- Flow diverters are used with diverter thickness added to wire burn
- Profile does not exceed barrel gate adapter

Cap-coat Balancing:

- Runner is calculated to contain volume equal to, preferably greater than volume to cap-stock surface
- Pre-land area follows the annulus runner. Preferred design should include a tapered descending pre-land.
- Balancing should be done on pre-land by dropping the pre-land depth
- Latest technology suggests secondary pre-land area and two annuli channels

Assumptions:

- All channels are symmetrical
- End of annulus channel to be streamlined to prevent stagnation
- Cap-stock thickness is designed into die lip plate over substrate layer
- High viscosity degradable resins and thin cap-coats should utilize 45 degree approach (Male/female)

- Dan Cykana, Bemis

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