



## Navigation



## Extrusion 1-0-Wiki Pages

- [Main Page](#)
- [Best Papers](#)
- [Book Reviews](#)
- [Consultants Corner](#)
- [Extruder Software](#)
- [Extrusion Hints](#)
- [Safety](#)
- [Shop Tools](#)
- [Sponsors](#)
- [Technical Articles](#)

## Search the Wiki


»

## Viewing/Creating

- [Random Page](#)
- [Create a new Page](#)
- [All Pages](#)
- [Categories](#)

## Account Management

- [Login/Logout](#)
- [Language Selection](#)
- [Your Profile](#)
- [Create Account](#)

## Administration

- [Administration](#)
- [File Management](#)

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## An Engineer's Five-Step Plan to a Seamless Extruder Start-Up

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(10) » [Acid Flushing of TSE Barrel Cooling Bores](#) » [Telltale Temperatures](#) » [An Engineer's Five-Step Plan to a Seamless Extruder Start-Up](#)

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An Engineer's Five-Step Plan to a Seamless Extruder Start-Up

Many new lines are built and commissioned every year and the large majority of them come online producing in-specification product in a short period of time, if not from the initial start. There are however, lines where nothing seems right or to go well at the point where production is required. The questions that are raised at that point are:

1. Why is this happening?
2. Whose fault is it?
3. What do we do to correct the problem?
4. Who pays for the changes?

As you can imagine, this is not a happy time to be associated with the line but with a little extra attention it could have been a resounding success.

So what is the genesis of the few times when a line starts poorly? In my experience it is usually related to the lack of a clear description of what the line is supposed to do, or a poor specification. What do I mean? First you will generally get what you ask for, and if you ask for a film line, you will get a film line. But, if what you really wanted was a line to produce a barrier coextrusion for deep draw thermoforming, you may end up with a line for cast PE or cast PP for bread bags! It is all in how you ask (side bar A: creating a new line specification; asking for what you want).

Assuming you have specified the line well, how can you make sure the line starts to produce sellable goods in the minimum time? There are five start-up steps every business owner, manager, project manager and process engineer should know when installing and starting a new line. These five steps should be performed in sequence and not all at once during the line start in production.

1. The "smoke test" (turn it on and make sure it keeps working).
2. Check that all critical process safety or shutdown switches and indicators are operational. Any item which can cause a runaway must be checked carefully.
3. Ensure all of the moving parts of the line turn the right direction and don't shake themselves to pieces or suffer from excessive wear at start up.
4. Confirm the design calculations of each critical process component by measuring the actual performance with the materials you plan to use.
5. Start the line and begin the process of making the product to specification. Once again measuring the performance against targets.

These five steps can be done in sequence as each component is installed, prior to shipping to your location and in combination with other installed components. For me, one of the most critical steps is step four, as it determines if the line will be able to produce product at the rate and quality that you need for maximum productivity and profit.

Five steps—almost sounds almost too simple—but it is very necessary to ensure that all is well when product production is scheduled and new capacity is needed. A poor line start up benefits no one, except perhaps your competitors.


Who is responsible for all of these checks? Ultimately the purchaser, but how and who conducts the checks, pays for necessary modifications etc. are a partnership with the supplier (if a turnkey) or critical component suppliers. At times there may be multiple entities responsible for the final outcome. This has to be clear in the contract for the supply and installation of the line and various technology components. If it isn't clear who is responsible for a poor start (it could be you!), then you can only hope for honest suppliers who stand behind their equipment, or perhaps the courts. Make sure they did not supply a terrific line for the production of a product

you did not really want.

- Eldridge Mount

Return to [Extrusion Hints](#).

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