

**COMMENTS**

<b>Material Handling</b>	
<b>Polymer Storage</b>	
How much polymer storage capacity is available? (kg or lb)	
How is polymer to be stored? Silos? Boxes? Indoors or outside?	
If silo Storage is available, are they purged with nitrogen or dry air?	
Under what environmental conditions would polymer be stored?	
<b>Polymer Drying</b>	
Are there drying capabilities?	
Are the dryer(s) dessicant bed or hot air only?	
What is the capacity of dryer(s)? (kg or lb)	
What is the air flow capacity of dryer(s)?	
What is the temperature control range of dryers (max and min temp)?	
Are there dryers available for all feed streams? (virgin, additives, & regrind)?	
What material is currently used in the dryer(s)	
How easy is it to completely clean dryer(s) and dryer(s) loader(s)?	
<b>Polymer Crystallizing</b>	
Are there capabilities to crystallize either pellets or regrind?	
What type of crystallizer?	
What is the crystallizer output?	

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What is the temperature control range of the crystallizer?	
What is the plant standard mode of crystallizer operation (regrind only, regrind and virgin blend)	
<b>Polymer Blending</b>	
Are there polymer blending capabilities?	
Please describe blending system	
<b>Polymer Regrind</b>	
How is material captured for regrind?	
Describe regrind system (attach process flow sheet)	
Can regrind system be easily cleaned?	
Type of grinders and size of screens?	
<b>Sheet Extrusion: For coextrusion systems - complete for each extruder</b>	
<b>Extruder</b>	
Does the extruder have a slide gate at the feed throat?	
Is the extruder twin-screw or single-screw?	
If single-screw, is this a one or two-stage screw?	
What is the extruder diameter?	
What is the extruder L / D?	
Does the extruder have a vent section? Is the vent in the top or side?	
What is the maximum screw speed (actual screw RPM)?	

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<p>What is the extruder drive power (HP or kW)? Is the drive field weakened? (A 1150 based speed drive which is field weakened reaches maximum HP at 1150 rpm, and operates at constant torque between 1150 and 1750 rpm. There is more power at lower rpm's.)</p>	
<p>Give the typical conditions for current production (Actual RPM, output and amp load for existing material)</p>	
<p>What is the drive maximum amp load?</p>	
<p>What is the compression ratio on the extruder screw (ratio of depth in feed section to depth in metering section)? If 2-stage, the first compression is of more concern.</p>	
<p>Give the screw design details (attach drawing if available). Include channel depths</p>	
<p>How many heating / cooling zones are on the extruder? Are the zones air or water cooled?</p>	
<p>Is there feed throat cooling? Is there a temperature monitor or control loop?</p>	
<p>Is there screw cooling? Air or water, is there a temperature monitor or control</p>	
<p>Does line normally use regrind (if so, how much )?</p>	
<p>How is regrind introduced to the extruder</p>	
<p>Does the extruder have a grooved feed section in the feed zone?</p>	
<p>Are there capabilities for addition / mixing of masterbatches. What are the addition rates?</p>	
<p>Does the extruder have an extruder pressure overload protection system? Describe.</p>	
<p>Does the extruder have a drive overload protection system? Describe.</p>	
<p>Is there a melt temperature probe at the extruder outlet? Describe.</p>	
<p><b>Filtering</b></p>	

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What type of polymer filter is used (continuous, changer, breaker plate, candle)?	
What is the size of normal filter screen? What types are available?	
Where is the filter located?	
<b>Metering</b>	
Is there a gear pump (metering pump)? What is the pump capacity (cc/rev)?	
Describe the gear pump control system	
Can the control loop be manually adjusted?	
What is the maximum pump speed?	
What is the pump drive power (HP or kW)?	
<b>Die</b>	
Is the die mounted horizontally or vertically?	
What is the type of die (T-die, coathanger, other)? Is it a single layer, combining block or multimanifold?	
What is the die width?	
What is the number & location of die zones?	
What is the nominal die lip gap and the adjustment range?	
Are there die lip heaters?	
Is there a restrictor bar?	
Are there deckles on the die? Internal or external?	

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Is there automatic or manual die control?	
Is there local ventilation over the die?	
<b>Chill Roll Stand</b>	
Is the roll stack vertical, inclined or horizontal? If vertical, is it upstack or downstack?	
Is the primary nip pneumatic or hydraulic? What is the maximum PLI or Kg/linear cm (force per unit length) at nip?	
What are the roll diameters? What is the roll finish?	
What are number and location of temperature controls on rolls?	
What are the flow capacities and heat removal capacities for the roll heat exchangers?	
Are there secondary cooling rolls?	
What are the minimum temperature setpoints on the rolls?	
Are there capabilities for sheet coating? Is it dip or spray coating?	
Is there a speed differential or clutch on third chill roll to accommodate shrinkage?	
Can the primary nip be adjusted vertically, relative to the die centerline?	
What is the horizontal distance from die lip to primary nip?	
Is there a regen drive (regenerative or four-quadrant drive) on pull rolls to isolate sheet tension? This motor has coordinated drives that rapidly adjust to conditions in which the motor torque and motor directions are aligned (pulling) and in opposition (breaking).	
Is there a sheet gauging system? Is it a scanning or single point gauging system?	
Are there any static eliminator bars in the process?	

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<b>Winding / Slitting / Treating</b>	
What type of slitters (blade, rotary shear or other)?	
Where are the slitters located?	
Is there a surface treater? Corona or flame? Single or two sided?	
What is the minimum and maximum width of edge trim?	
What type of winder (torque, center wind, surface wind)?	
Is it a single or dual station winder?	
<b>Quality Control Testing Capabilities</b>	
What type of QC tests do you routinely perform?	
% moisture (Raw material)	
MFR, RV or IV (Raw material)	
Color (L*, a*, b*)	
Optics (clarity and haze)	
% denest or antistat	
COF	
Tensiles	
Shrinkage	
Other	
How long are samples retained?	

## COMMENTS

Does the plant use SPC?	
Is the plant ISO 9001, 14001 or EMAS certified?	
Does the plant have a health and safety system in place?	