
Orrex Plastics Company
ORREX

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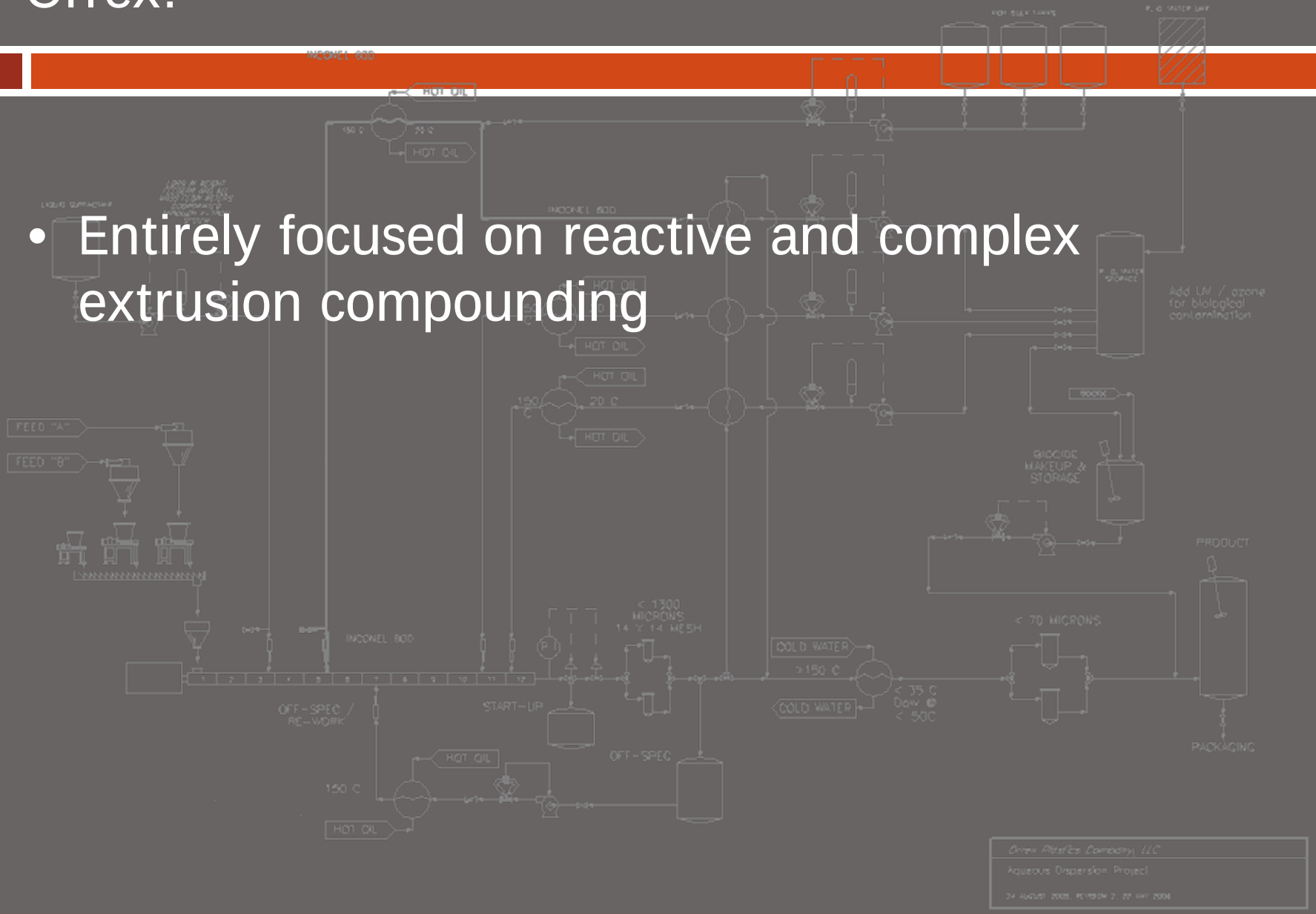
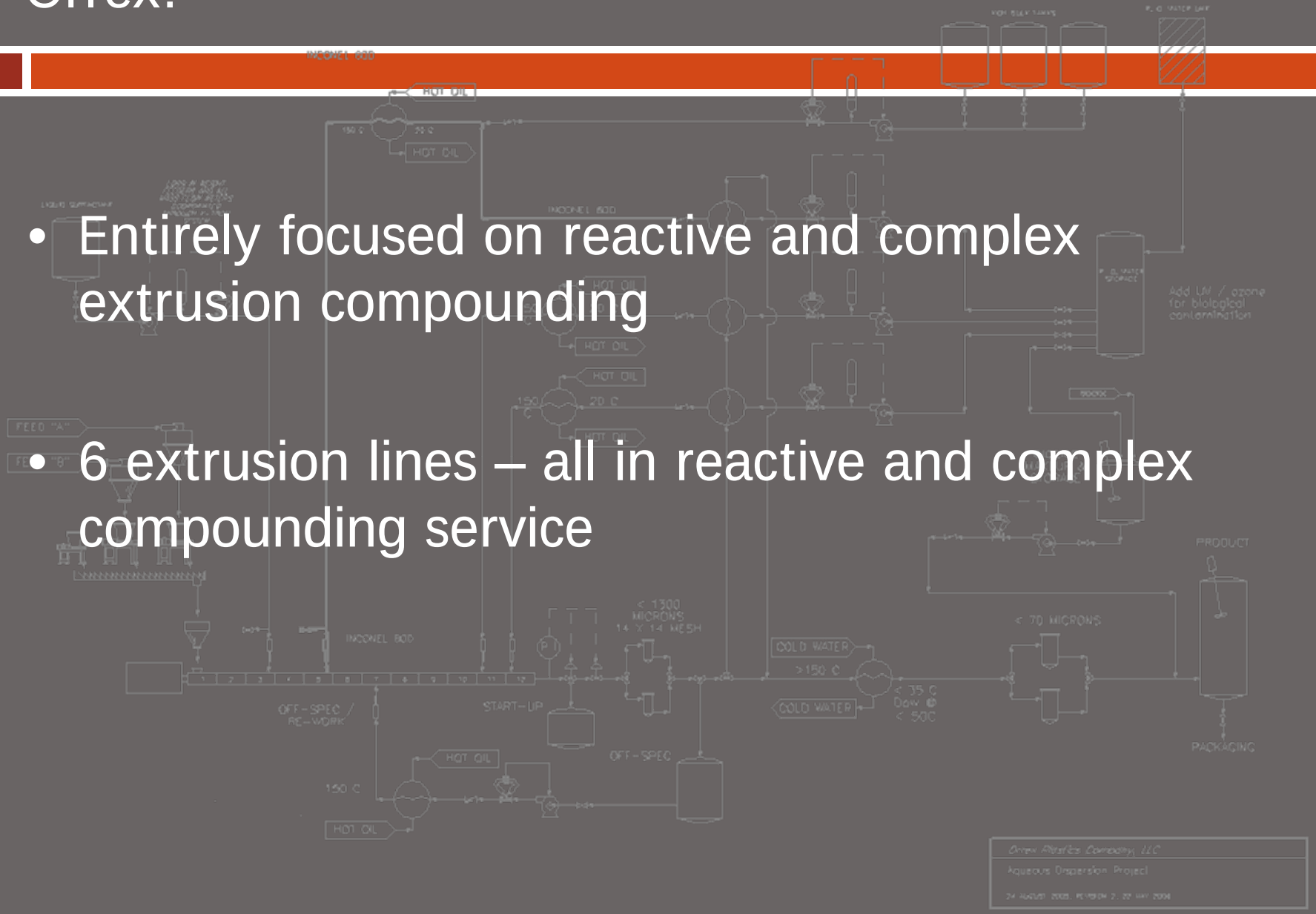
- Entirely focused on reactive and complex extrusion compounding



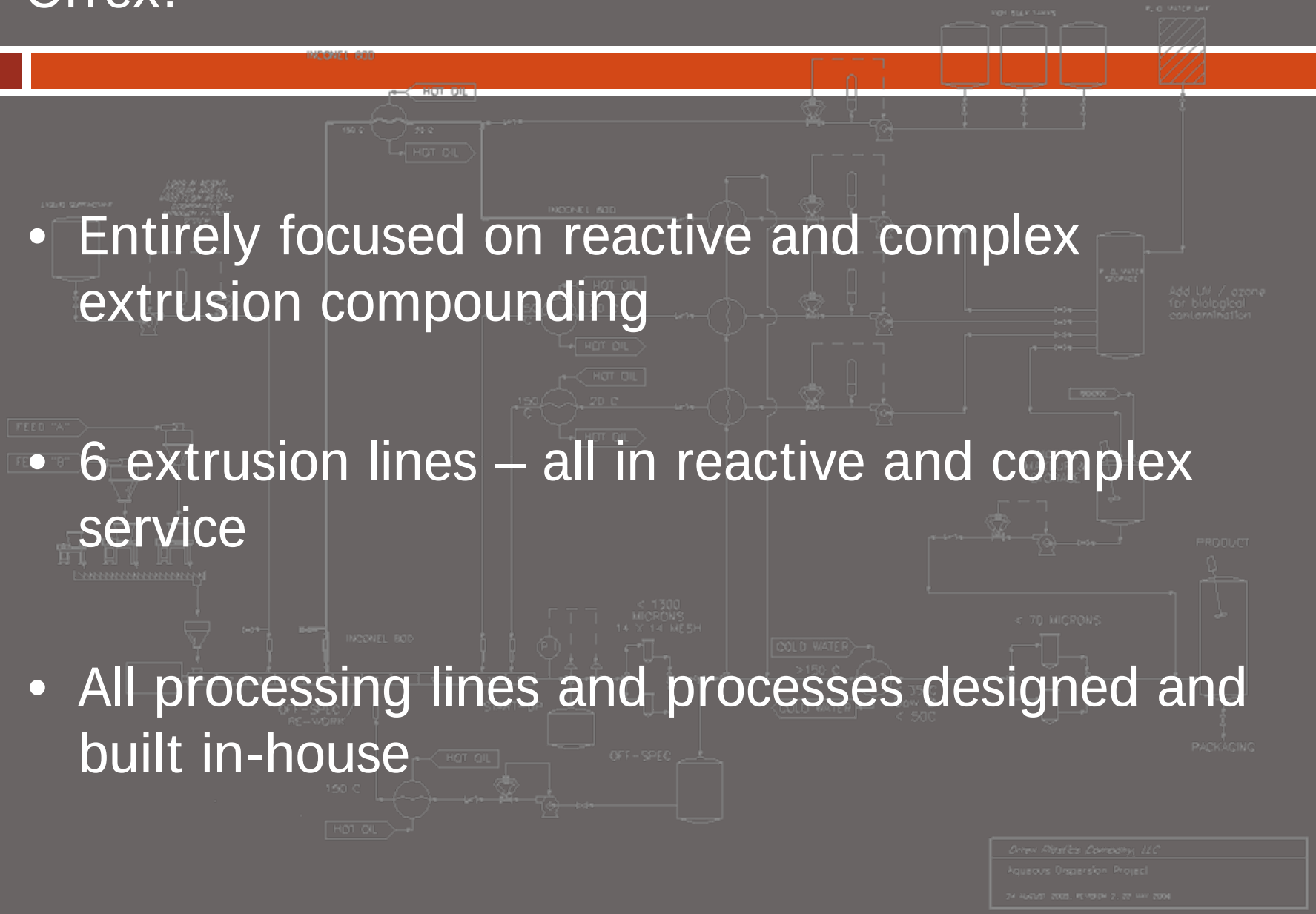
Orrex:

- Entirely focused on reactive and complex extrusion compounding
- 6 extrusion lines – all in reactive and complex compounding service

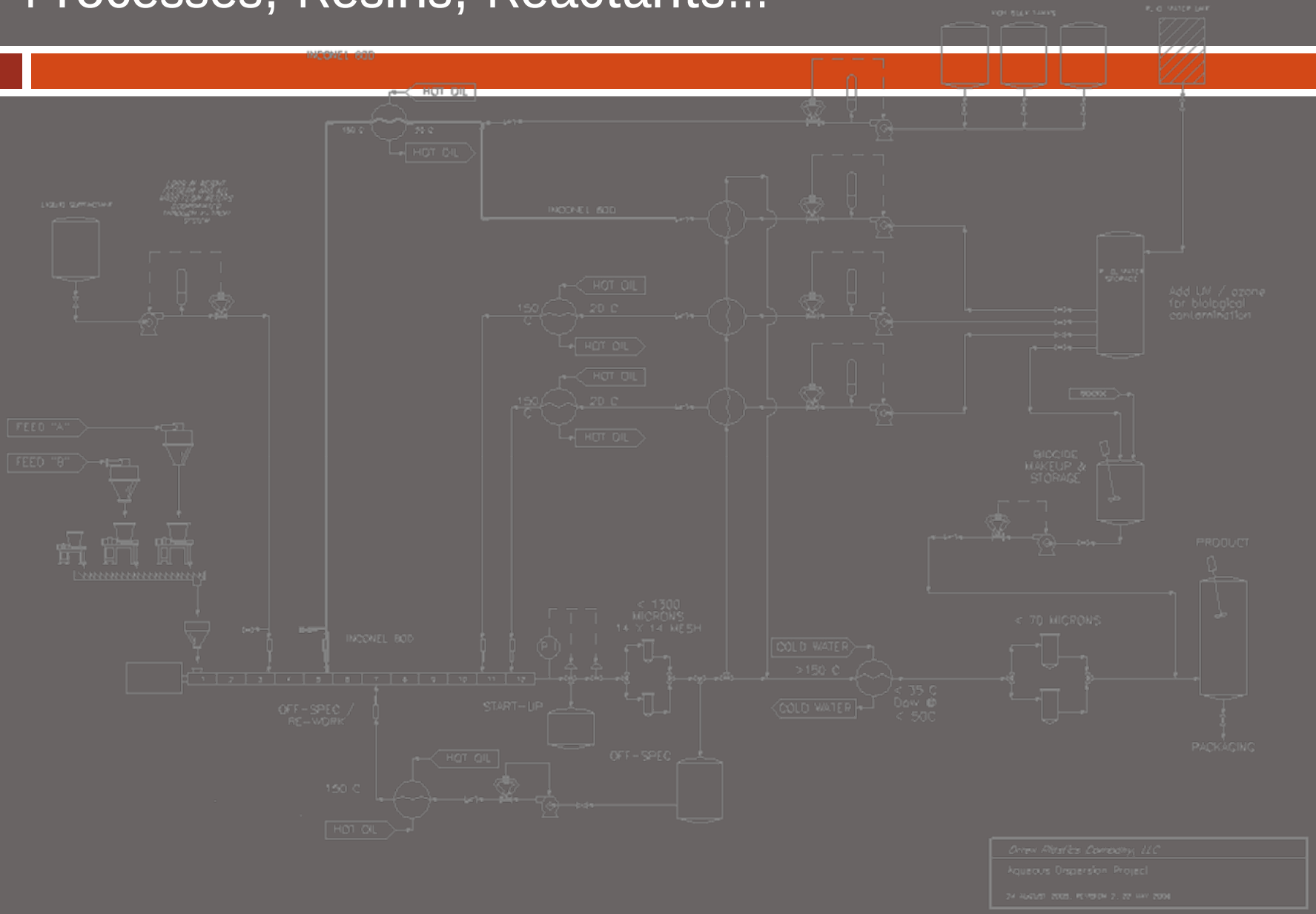


Orrex:

- Entirely focused on reactive and complex extrusion compounding
- 6 extrusion lines – all in reactive and complex service
- All processing lines and processes designed and built in-house



Processes, Resins, Reactants...



Processes, Resins, Reactants...

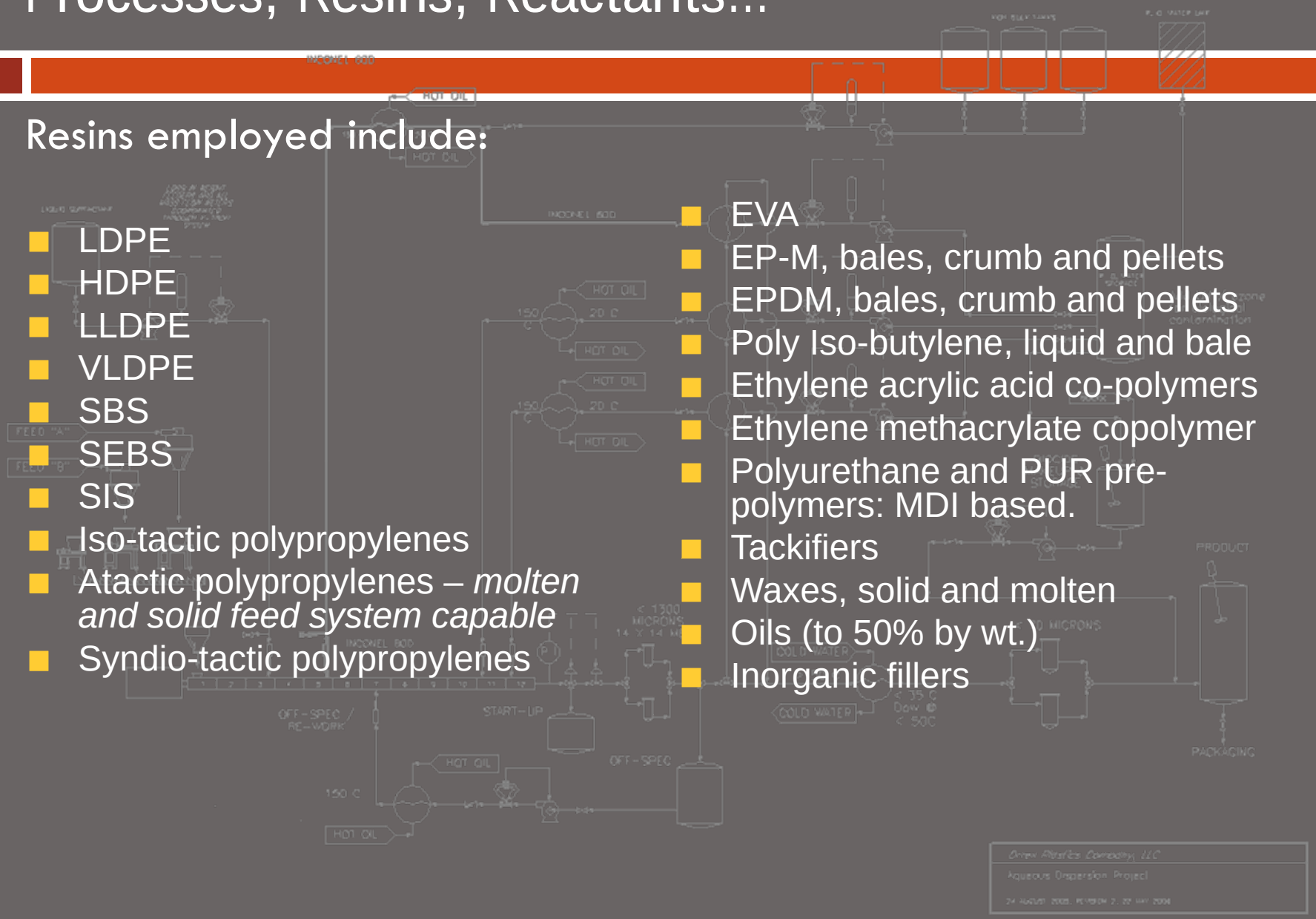
- Graft modification, with and without peroxides
- Viscosity modification, with and without peroxides
- Neutralization
- Vulcanization
- Esterification and trans-esterification
- Amination
- Mineral addition...

... plus multiple combinations of these reactions and polymer additions in one pass.

Processes, Resins, Reactants...

Resins employed include:

- LDPE
- HDPE
- LLDPE
- VLDPE
- SBS
- SEBS
- SIS
- Iso-tactic polypropylenes
- Atactic polypropylenes – *molten and solid feed system capable*
- Syndio-tactic polypropylenes
- EVA
- EP-M, bales, crumb and pellets
- EPDM, bales, crumb and pellets
- Poly Iso-butylene, liquid and bale
- Ethylene acrylic acid co-polymers
- Ethylene methacrylate copolymer
- Polyurethane and PUR pre-polymers: MDI based.
- Tackifiers
- Waxes, solid and molten
- Oils (to 50% by wt.)
- Inorganic fillers



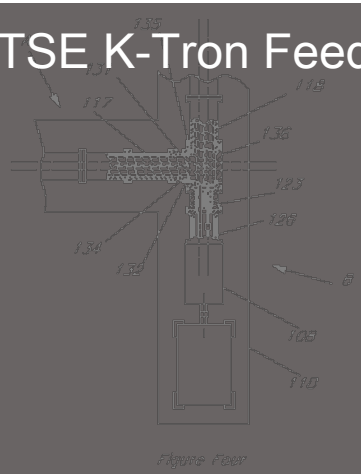
Processes, Resins, Reactants...

Reactants employed include:

- Maleic anhydride
- Organic peroxides, including di-tert butyl peroxide
- Organo silanes
- NaOH, LiOH & KOH
- Tempo (Tetramethylpiperidinyl-1-oxy)
- Cyclohexane-methanol
- Methanol and IPA
- Titanates
- Vulcanizates and appropriate Ti based catalyst systems
- Amines
- Water

Processing Line Design: Lines 1, 2 ,4 ,6, 7 & 8

- Line 1 is a 92 mm, 44:1 W&P, 600 hp / 580 rpm TSE K-Tron Feeder assemblies



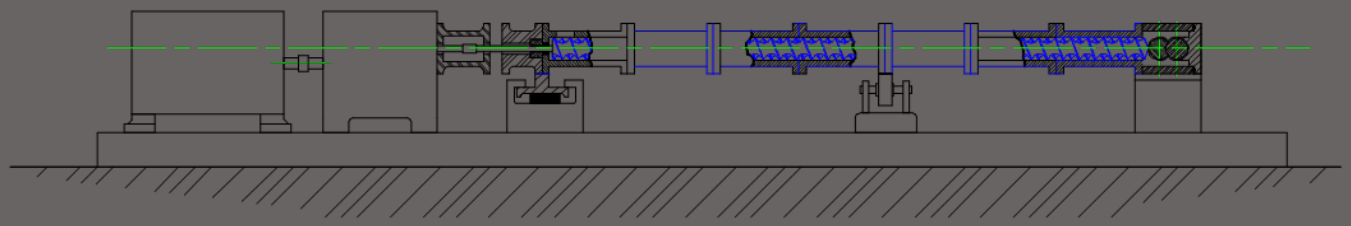


Figure Eight

Processing Line Design: Lines 1, 2 ,4 ,6, 7 & 8

- Line 1 is a 92mm, 44:1 W&P, 600 hp / 580 rpm TSE K-Tron Feeder assemblies
- Lines 2, 4, 6 & 8: Each is a 92 mm, 44:1 W&P or Century, 700 hp / 640 rpm TSE with identical K-Tron Feeder assemblies

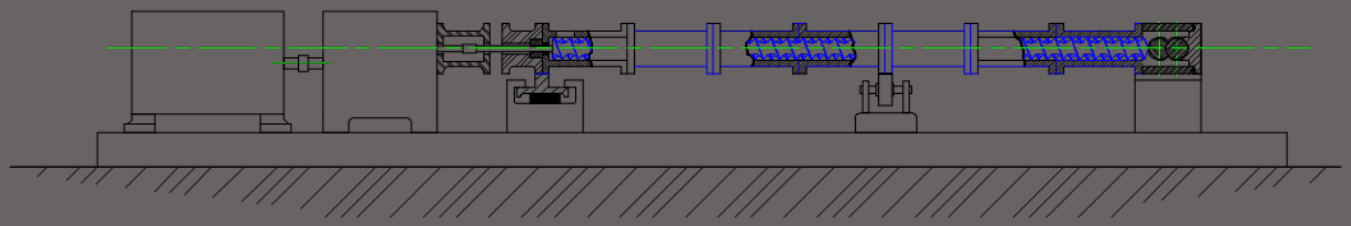


Figure Eight

Processing Line Design: Lines 1, 2 ,4 ,6, 7 & 8

- Line 1 is a 92 mm, 44:1 W&P, 600 hp / 580 rpm TSE K-Tron Feeder assemblies
- Lines 2, 4, 6 & 8: Each is a 92 mm, 44:1 W&P or Century, 700 hp / 640 rpm TSE with identical K-Tron Feeder assemblies
- Line 7 is a 40 mm, 48:1 Coperion 50 hp / 560 rpm Inconel TSE with K-Tron Feeders. This line is designed for both R & D and production.

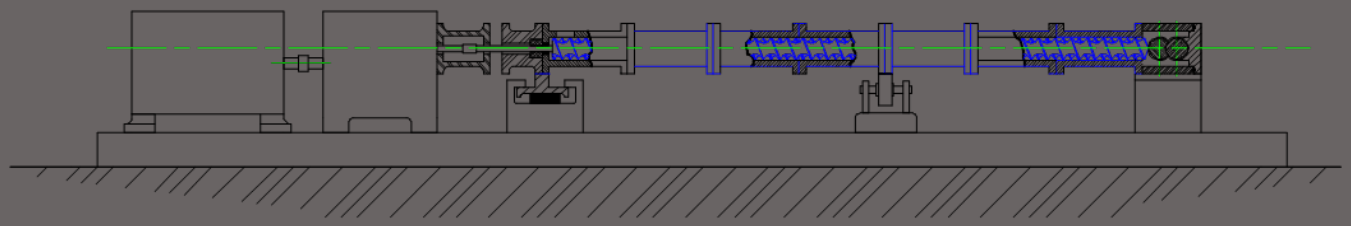
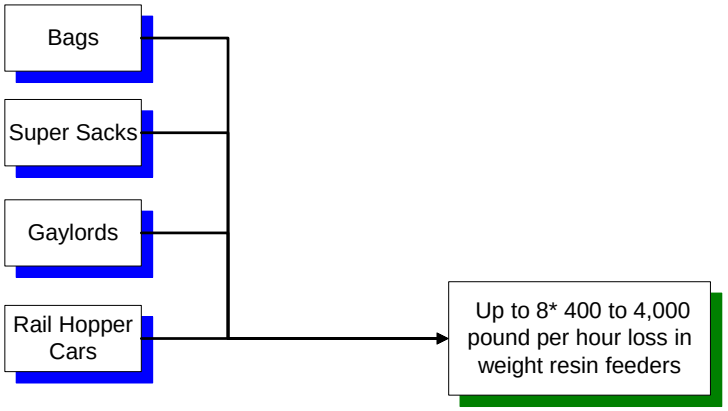


Figure Eight

Lines 1, 2 ,4 ,6, 7 & 8

- Bags
- Super Sacks
- Gaylords
- Rail Hopper Cars

Lines 1, 2 ,4 ,6, 7 & 8



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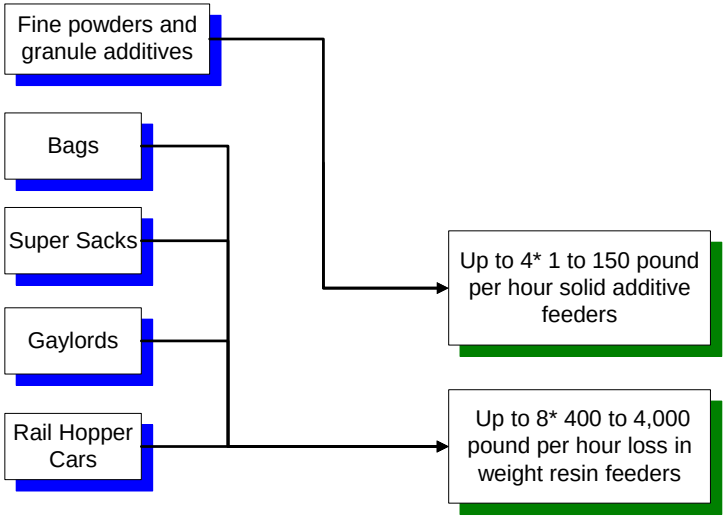

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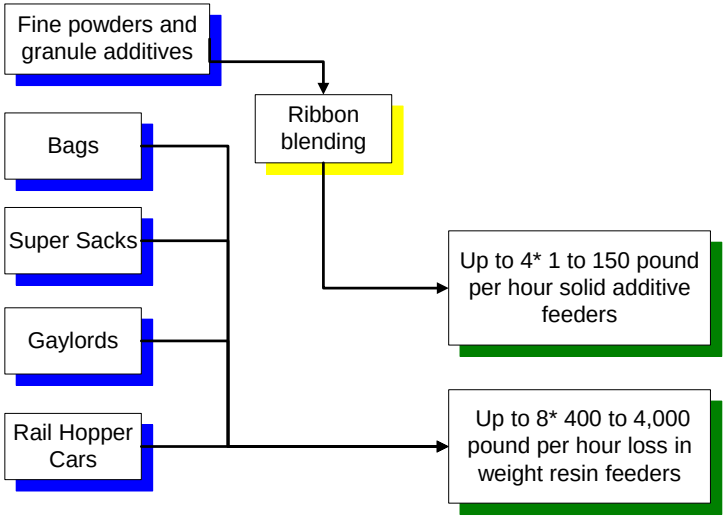

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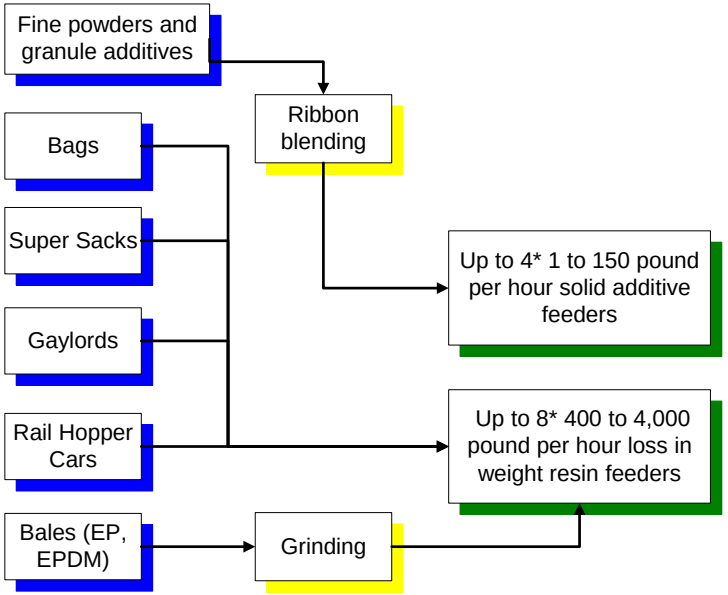

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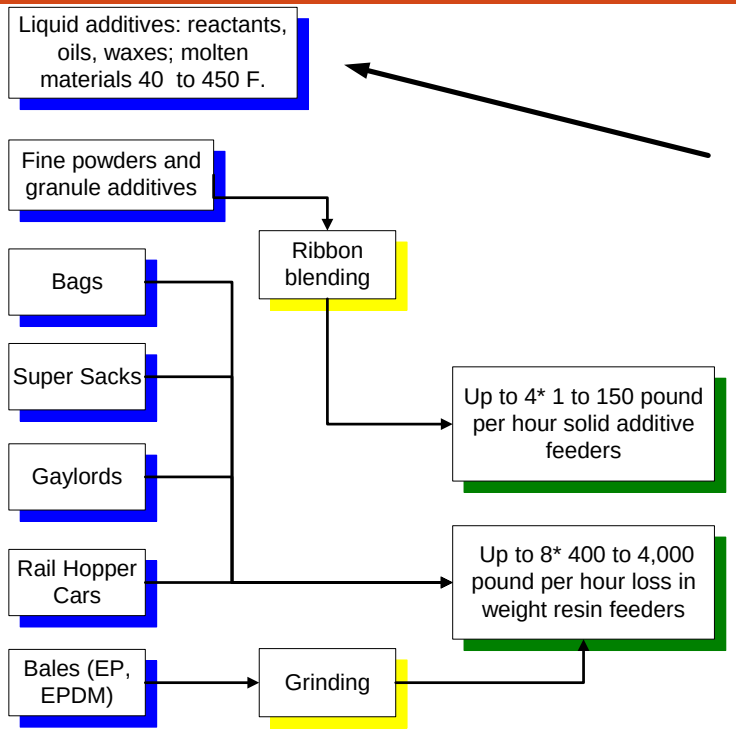

Maleic anhydride, peroxides, caustics, water, oils, silanes, polyurethane pre-polymers, waxes, poly-iso-butenes, atactic poly alpha olefins

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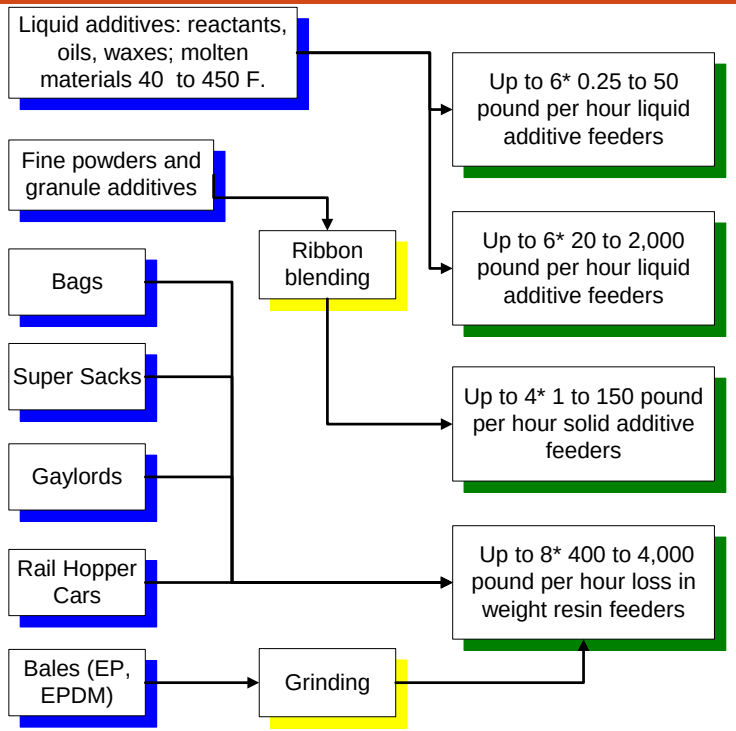

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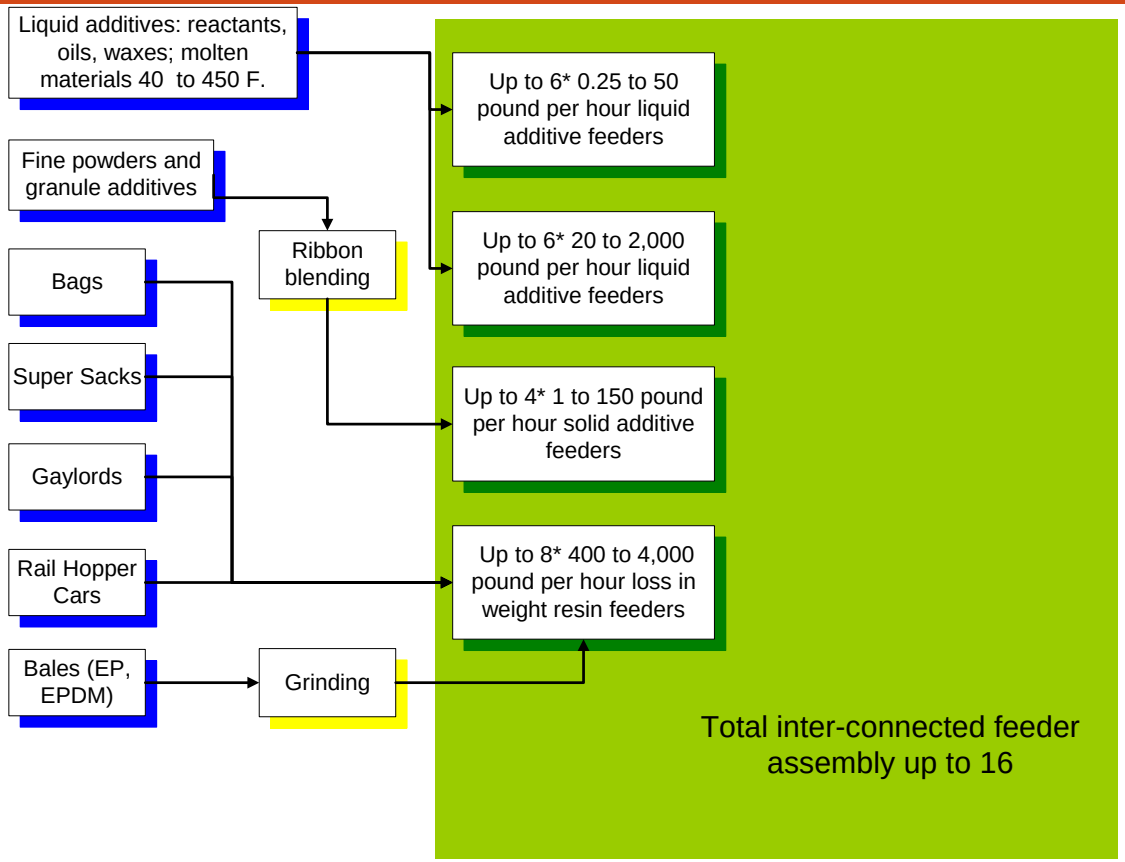

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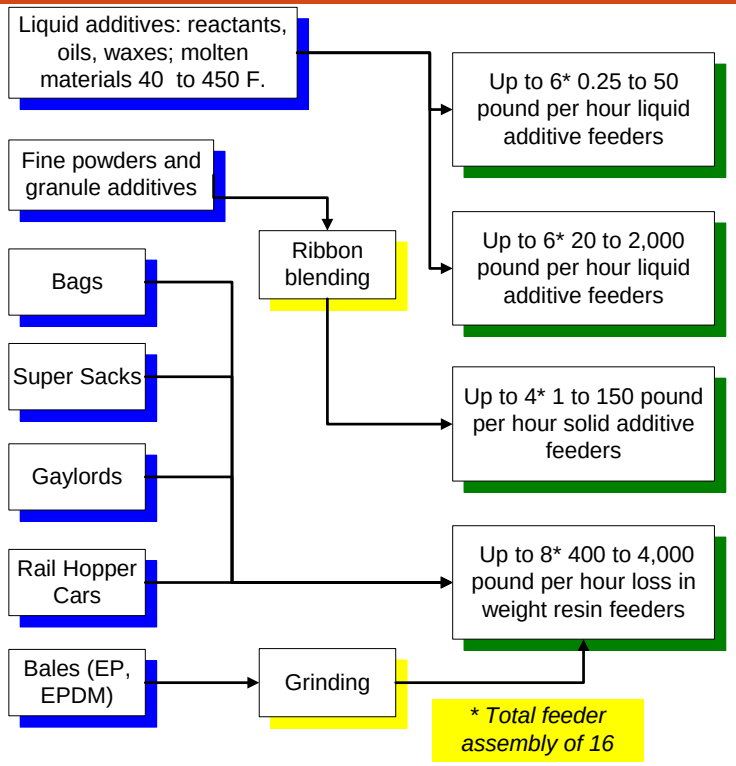

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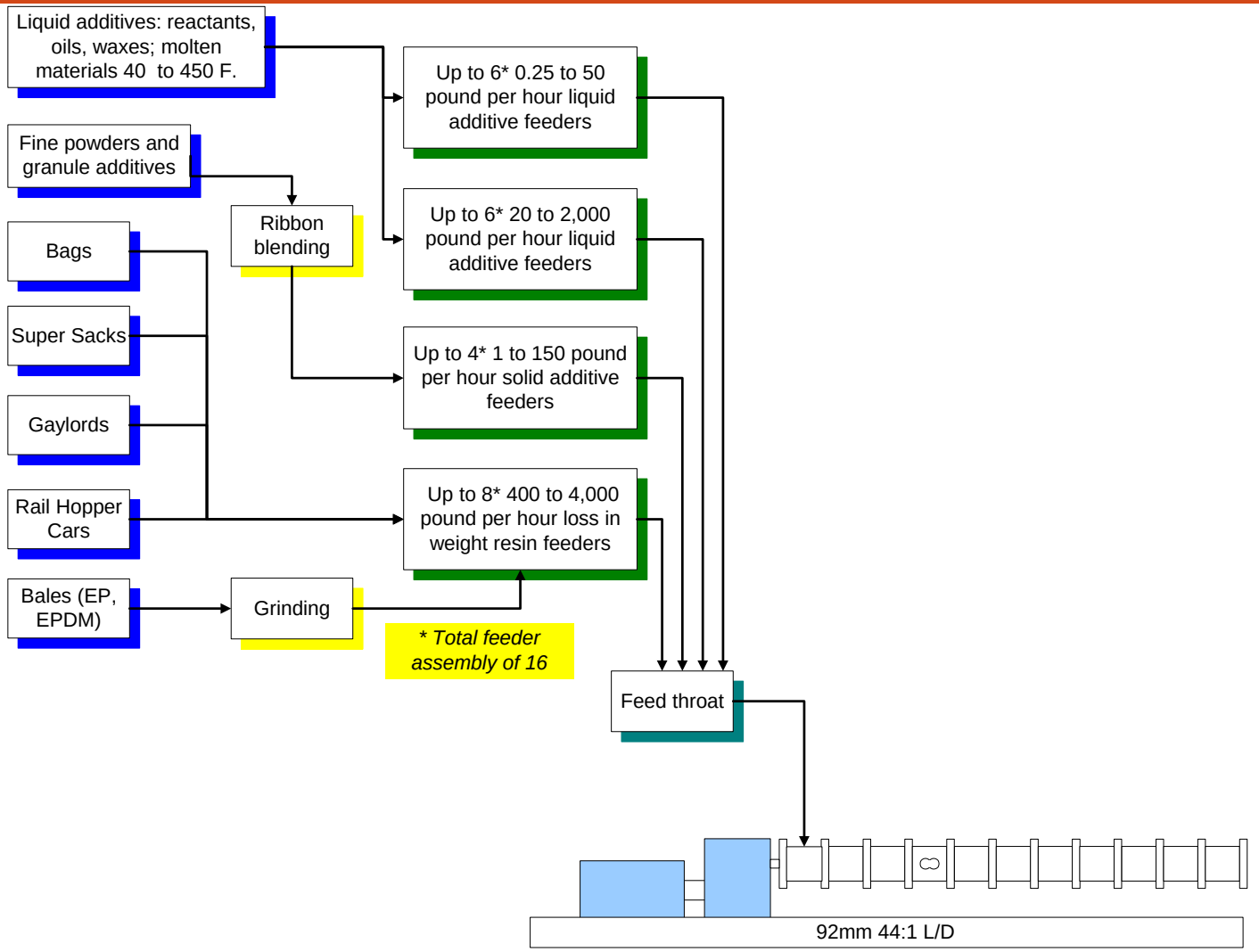

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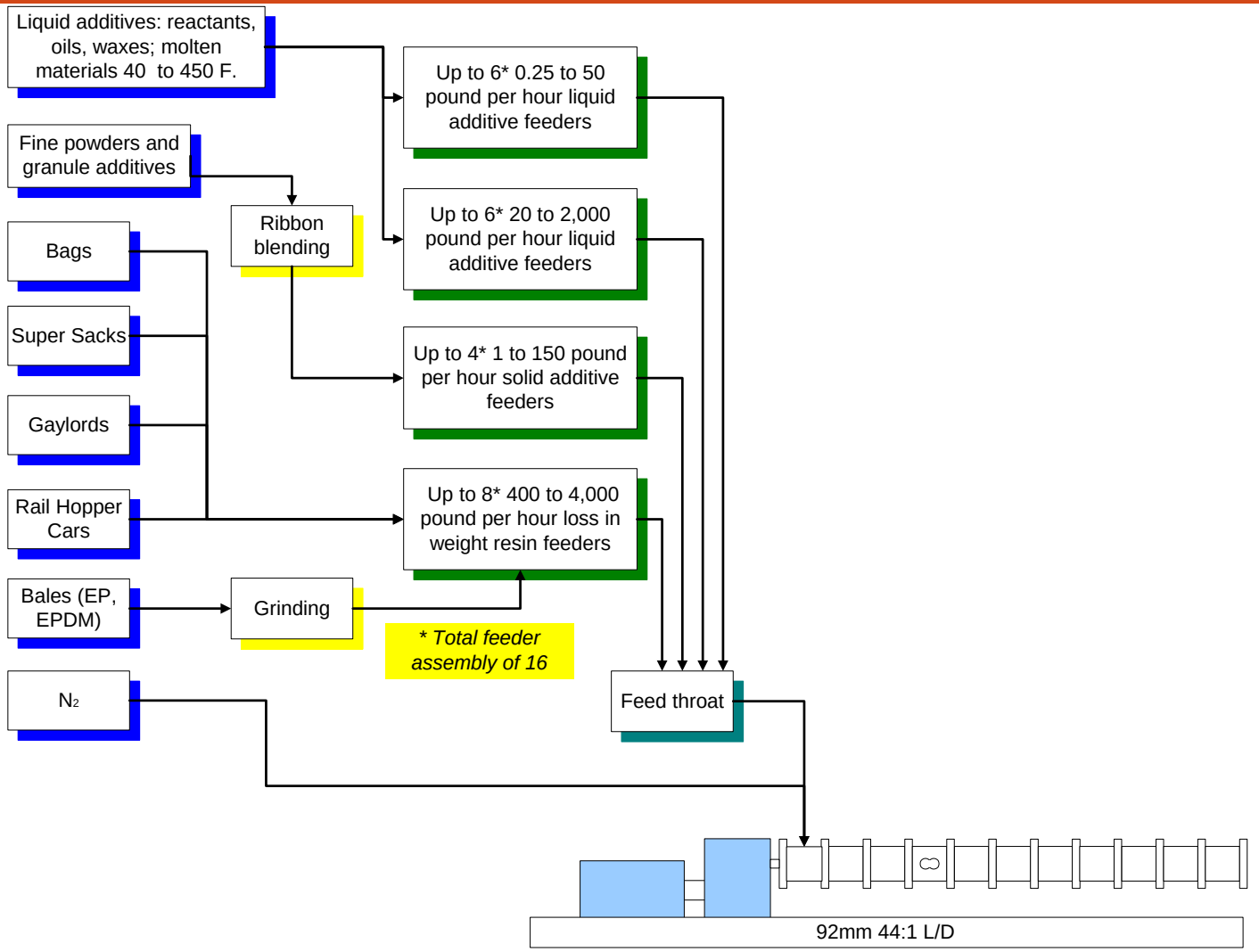

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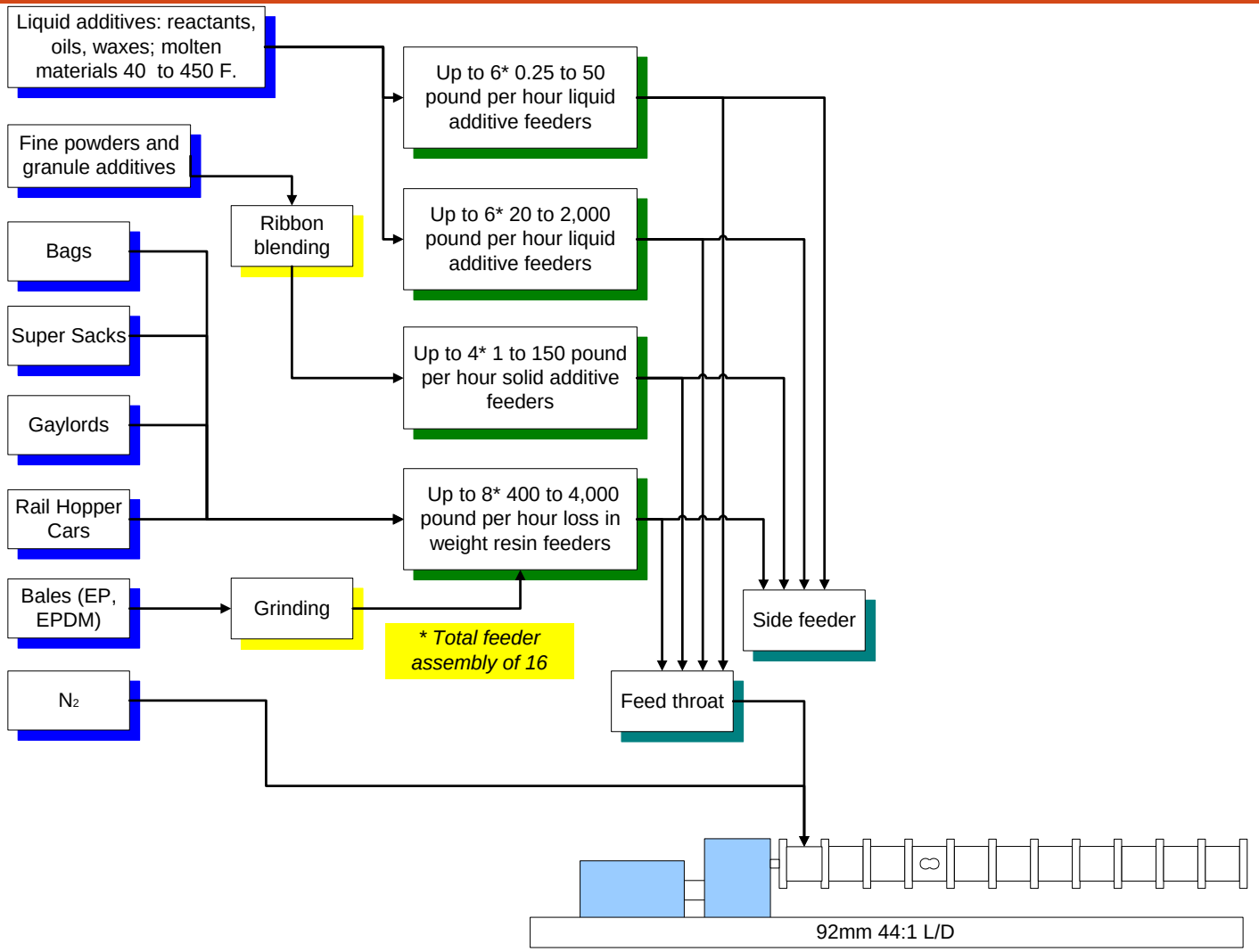

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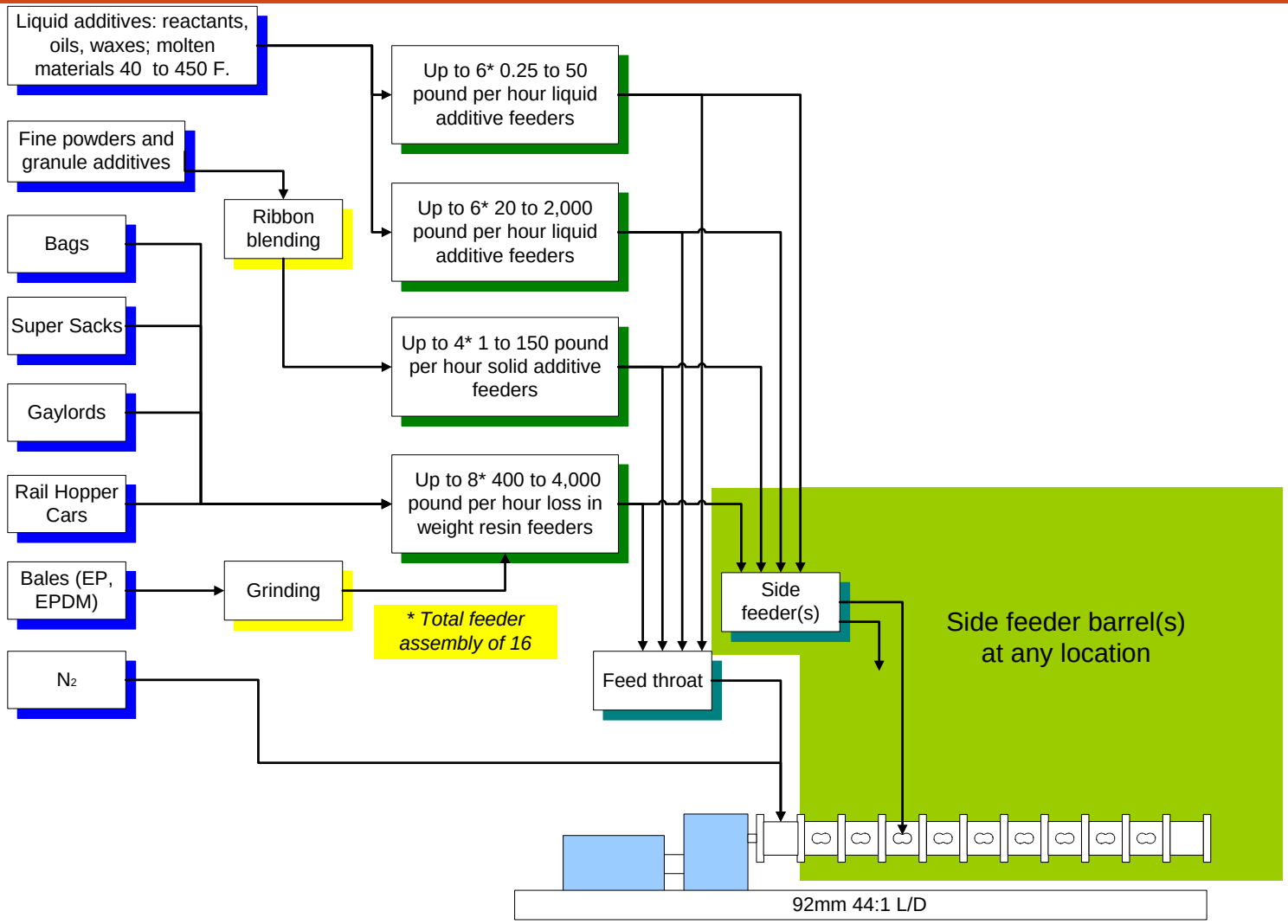

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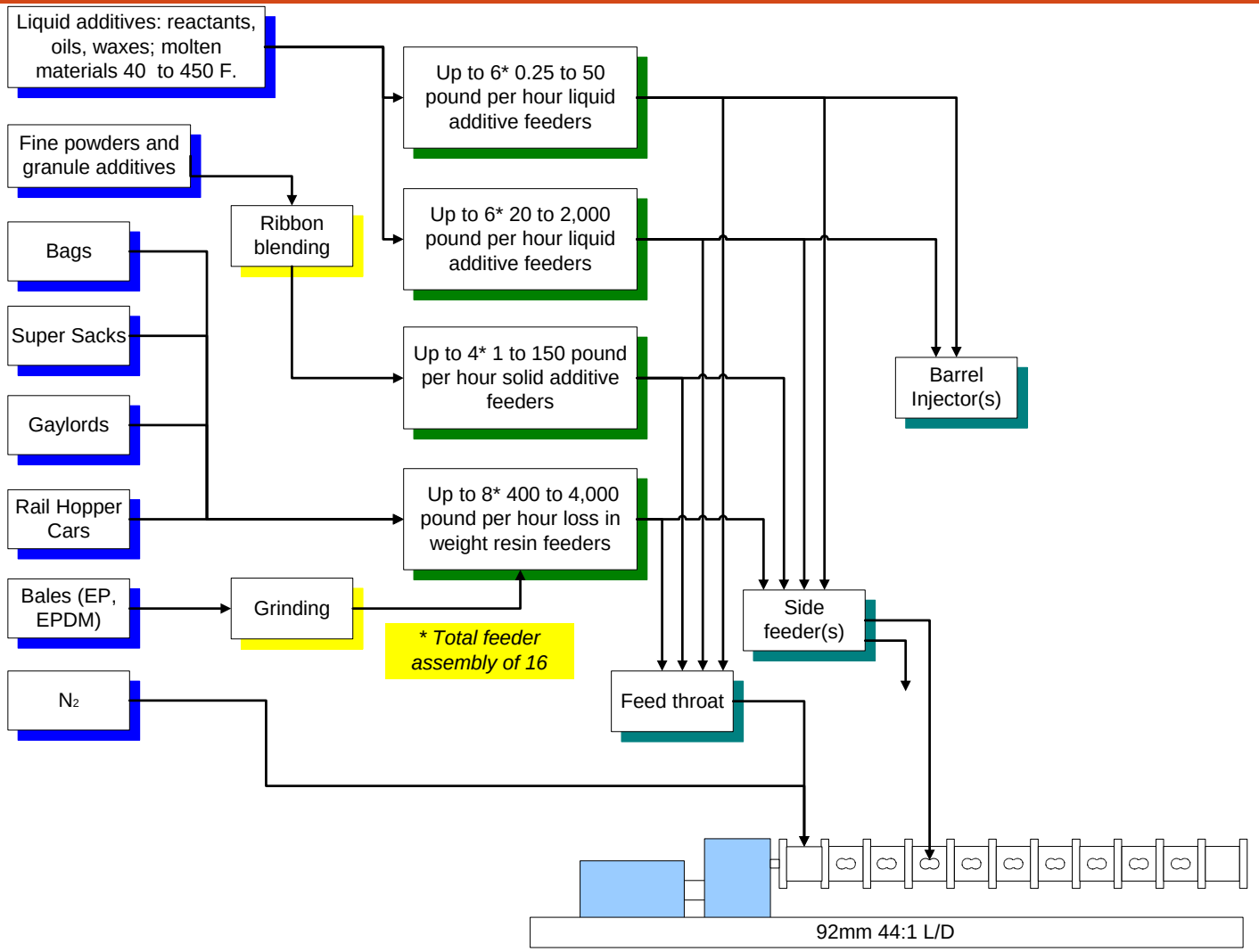

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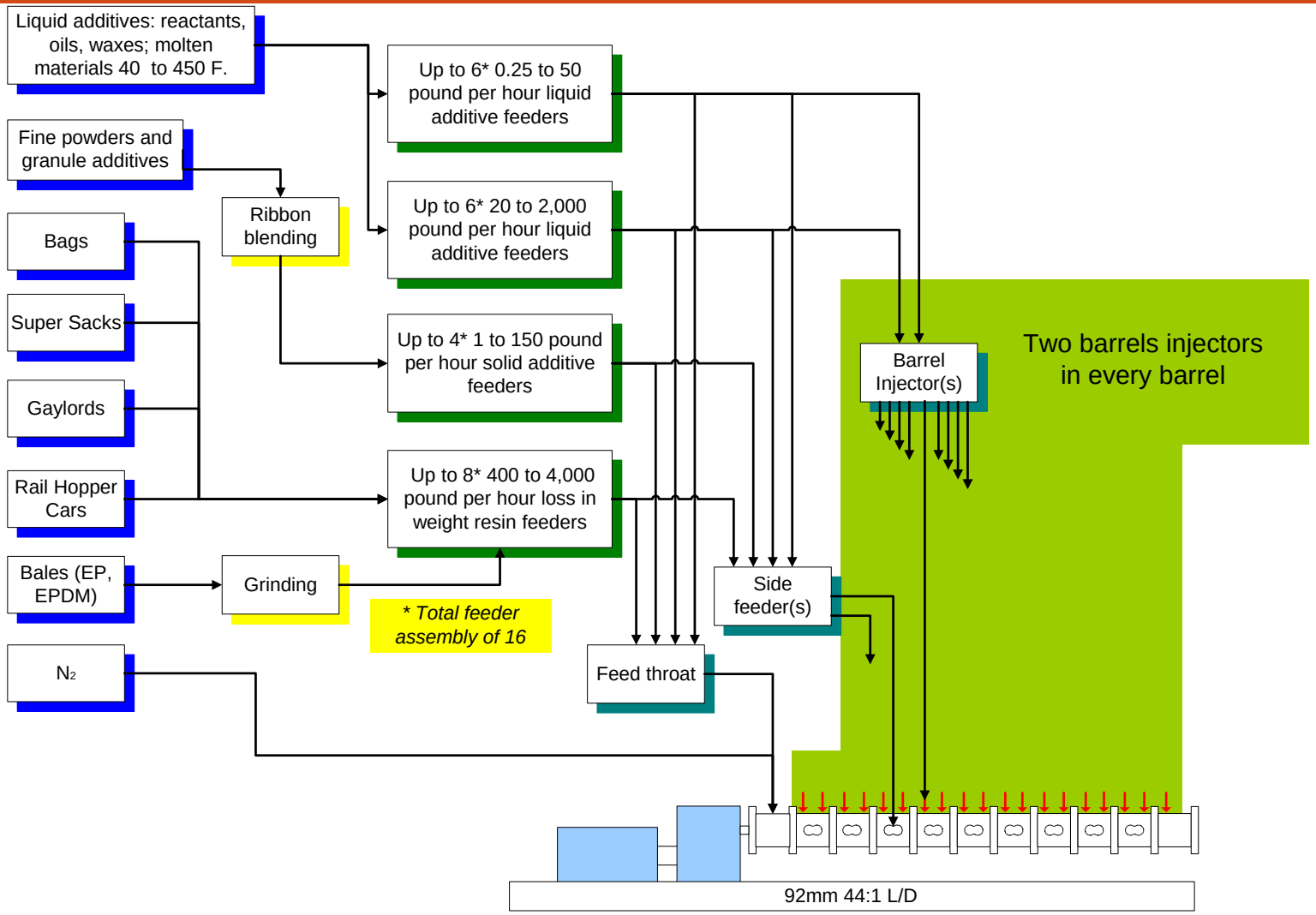

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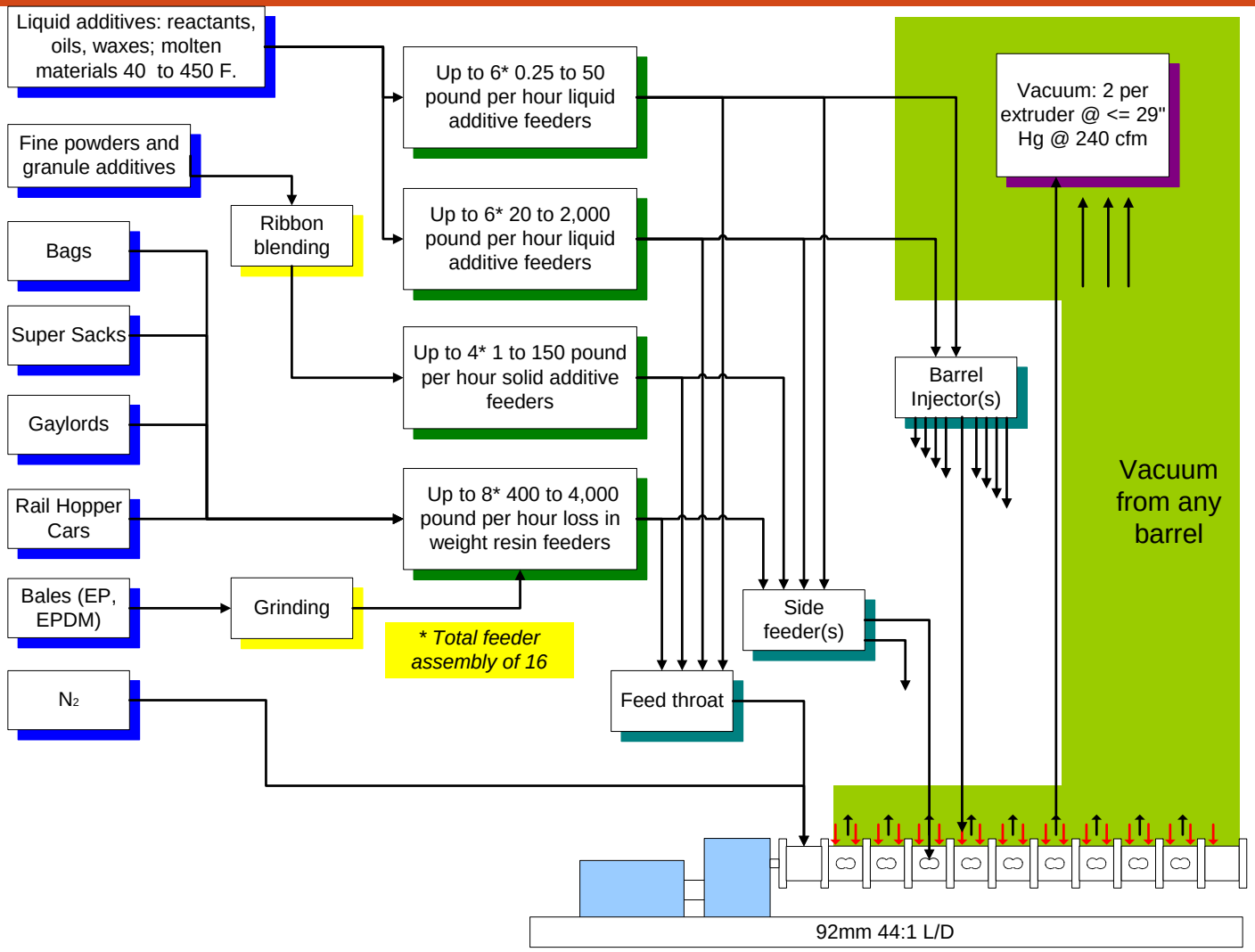

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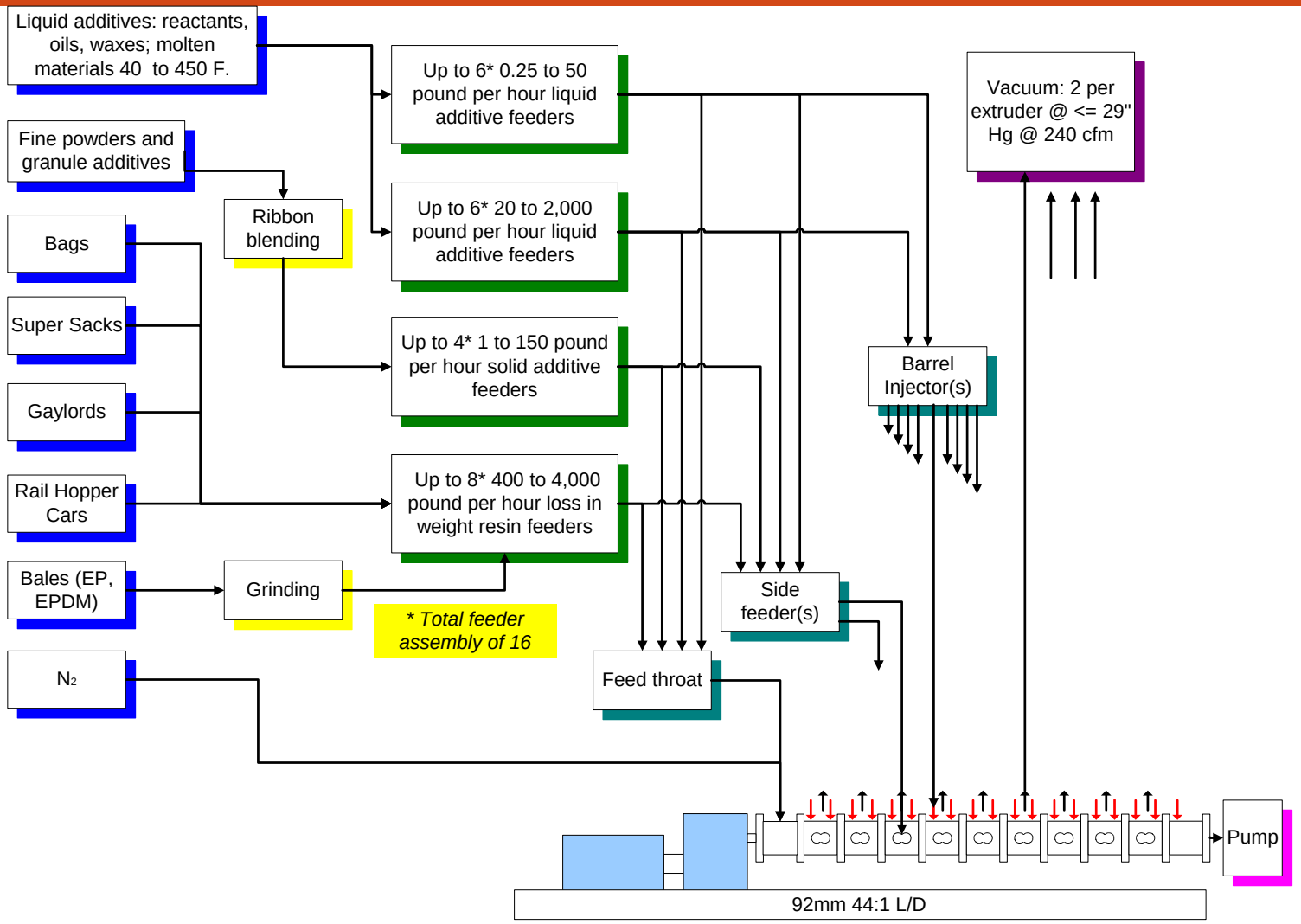

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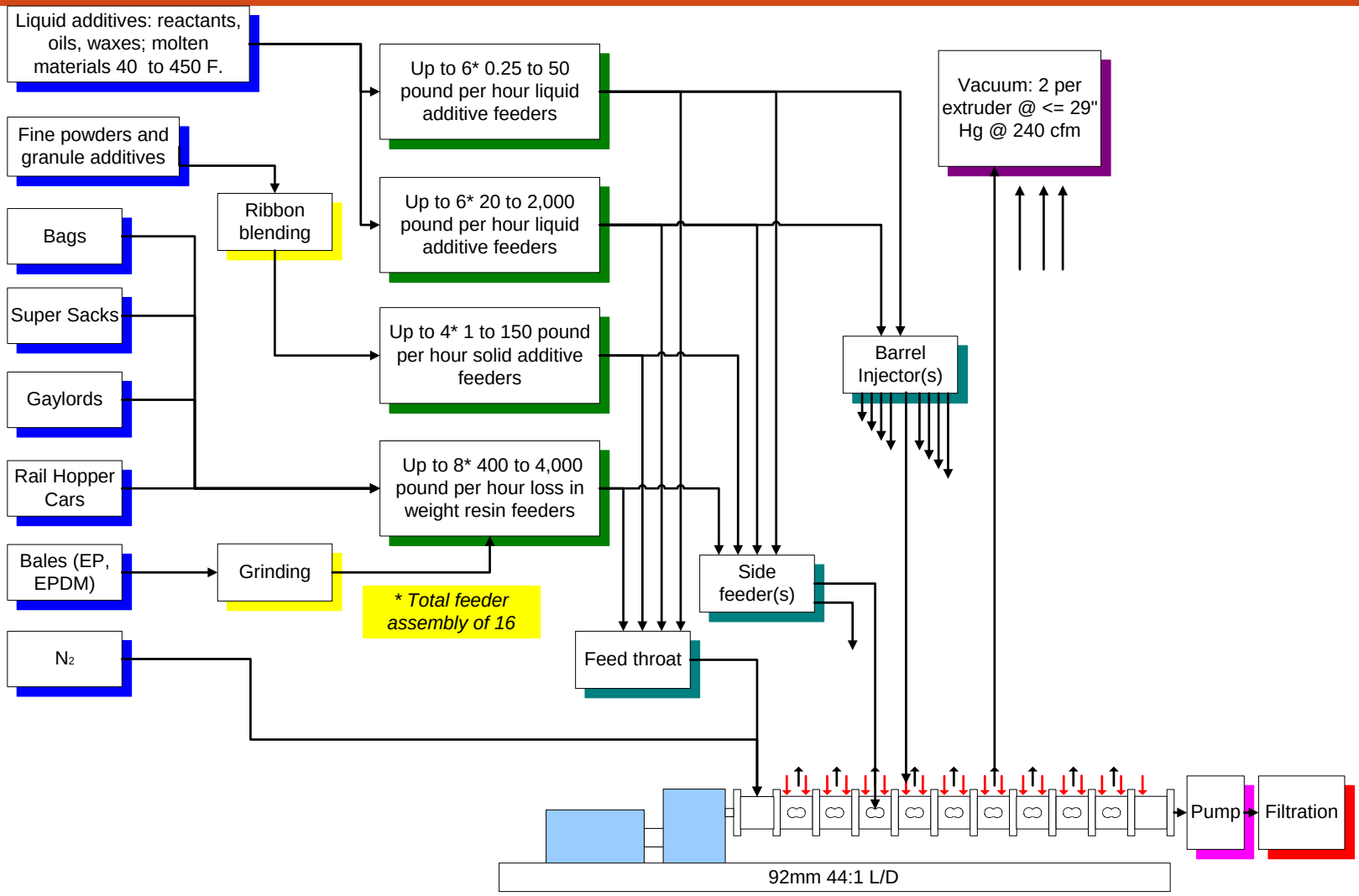

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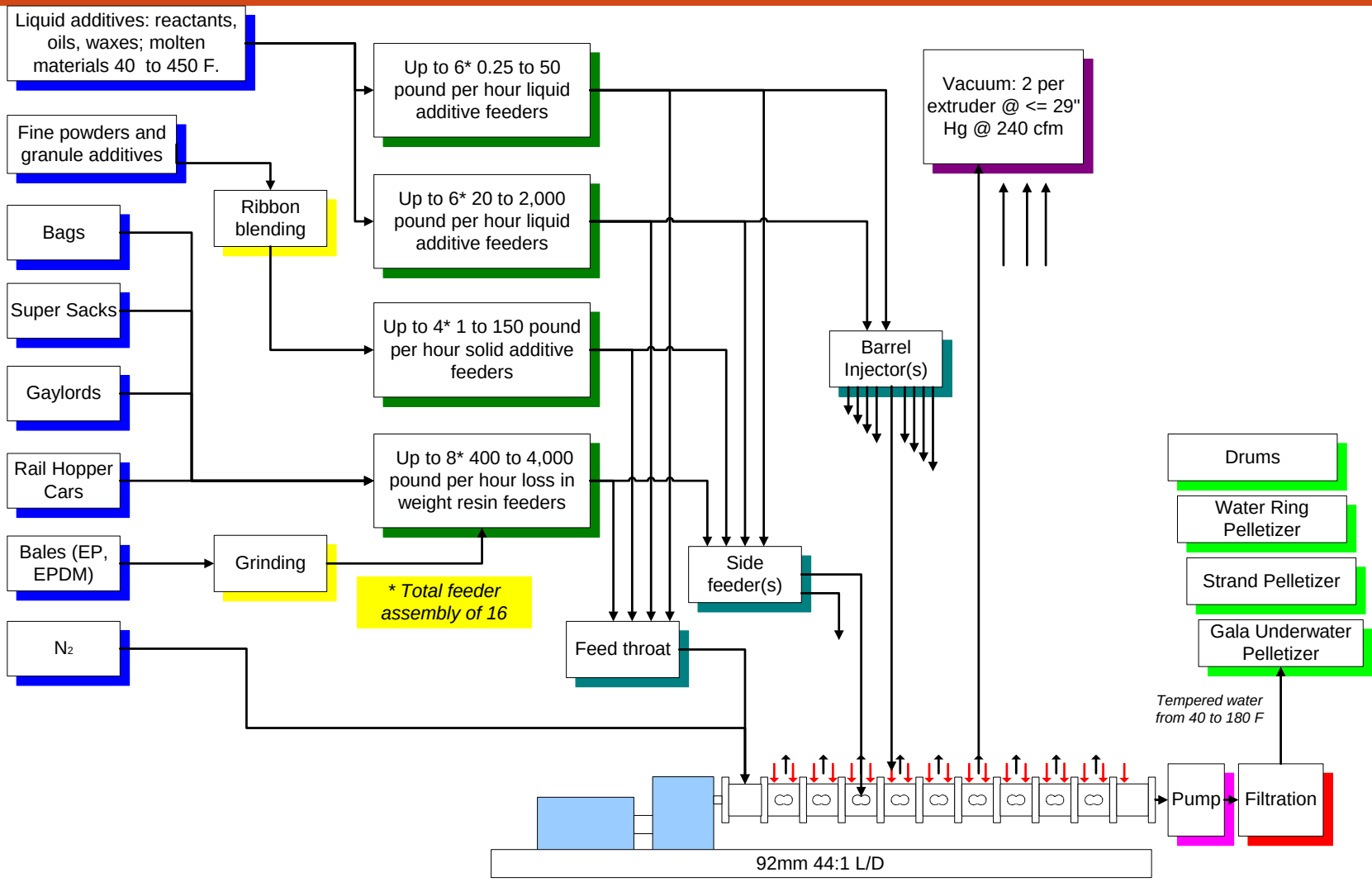

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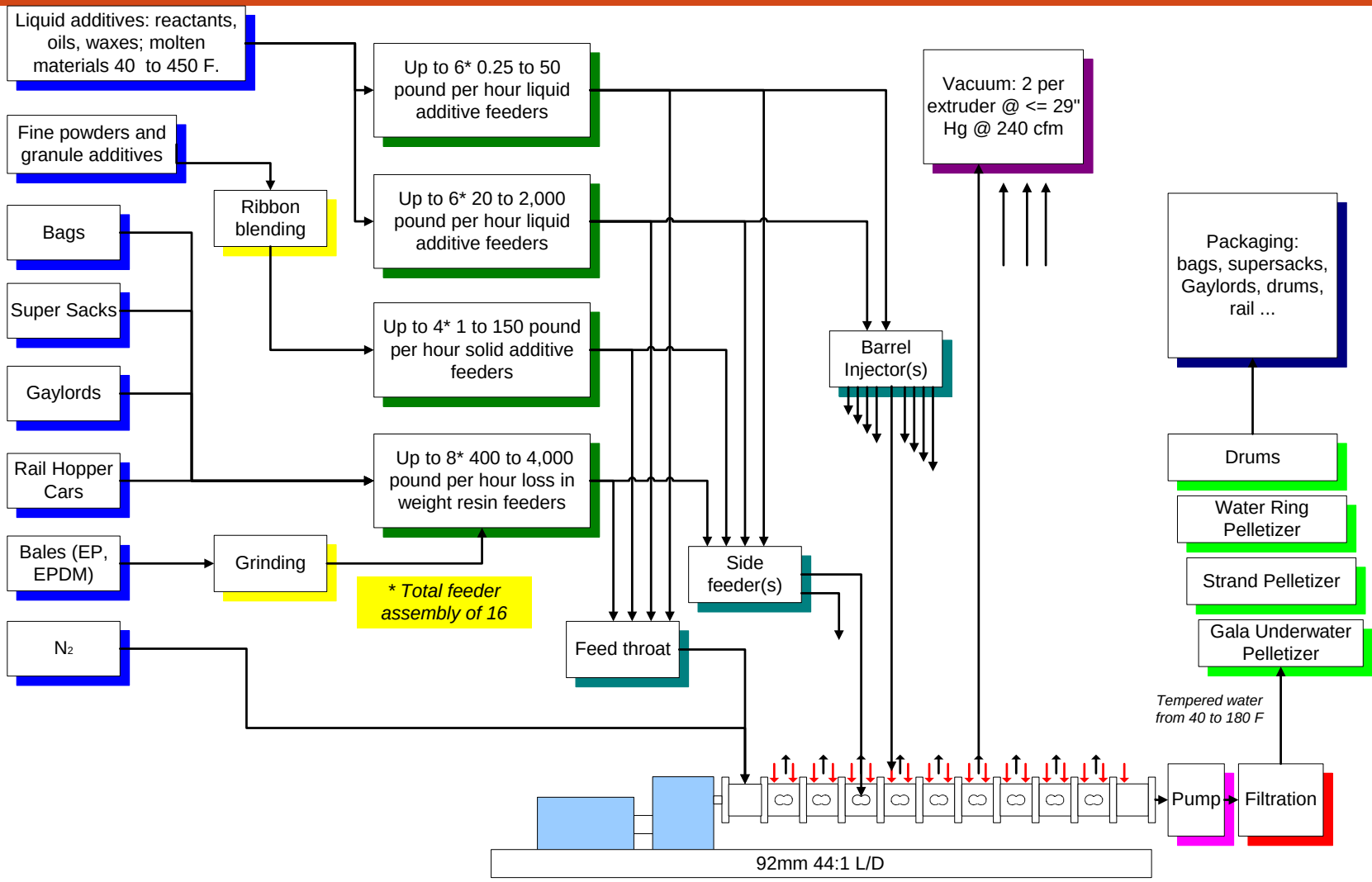

Processing Line Design: Lines 3-4 & 5-6

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- Each is a pair of 92mm, 44:1, 700 hp / 640 rpm TSE with identical K-Tron feeder assemblies for a total configuration of 88:1 with 1,400HP

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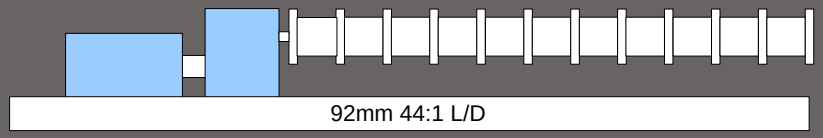

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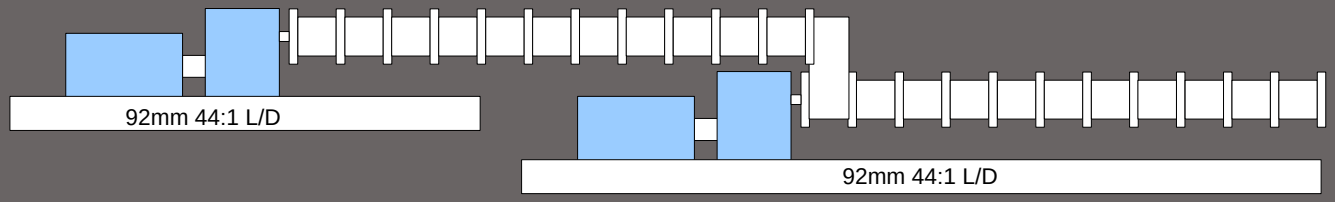

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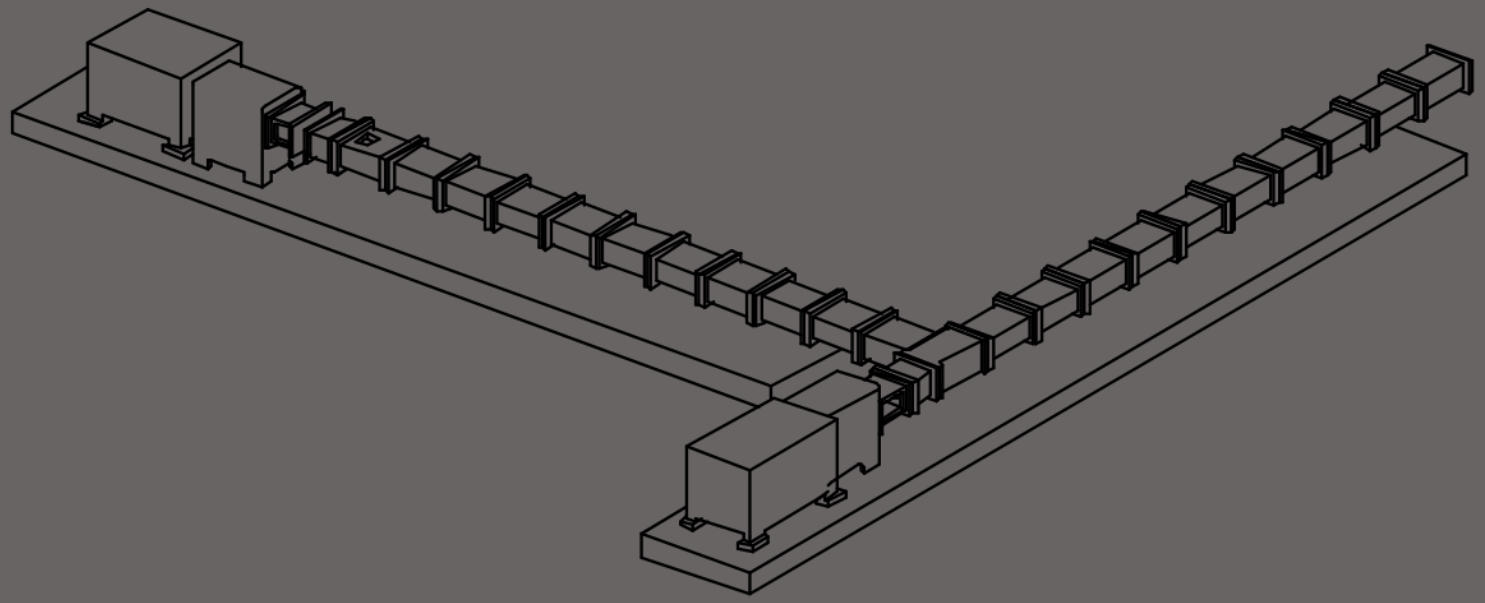

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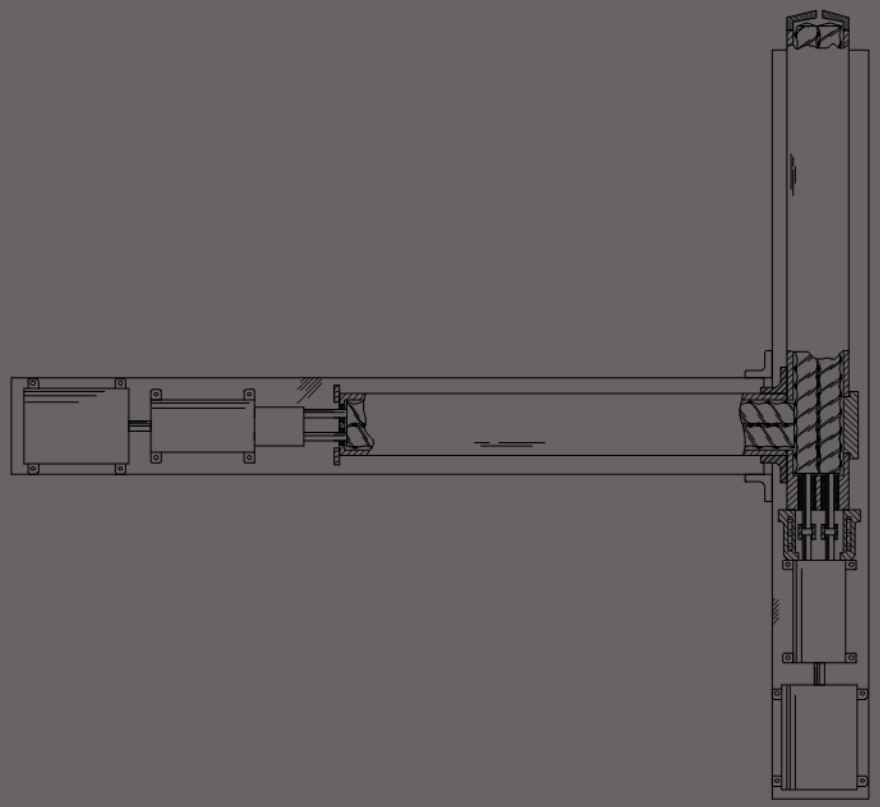

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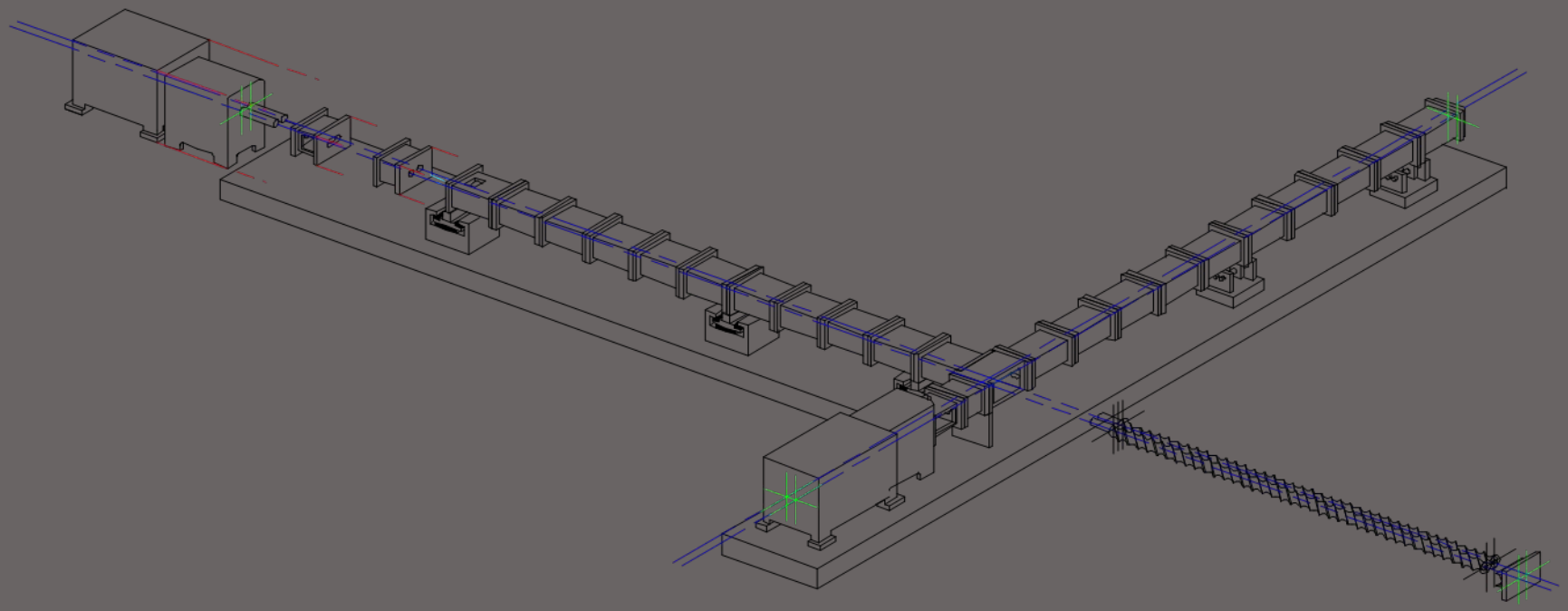

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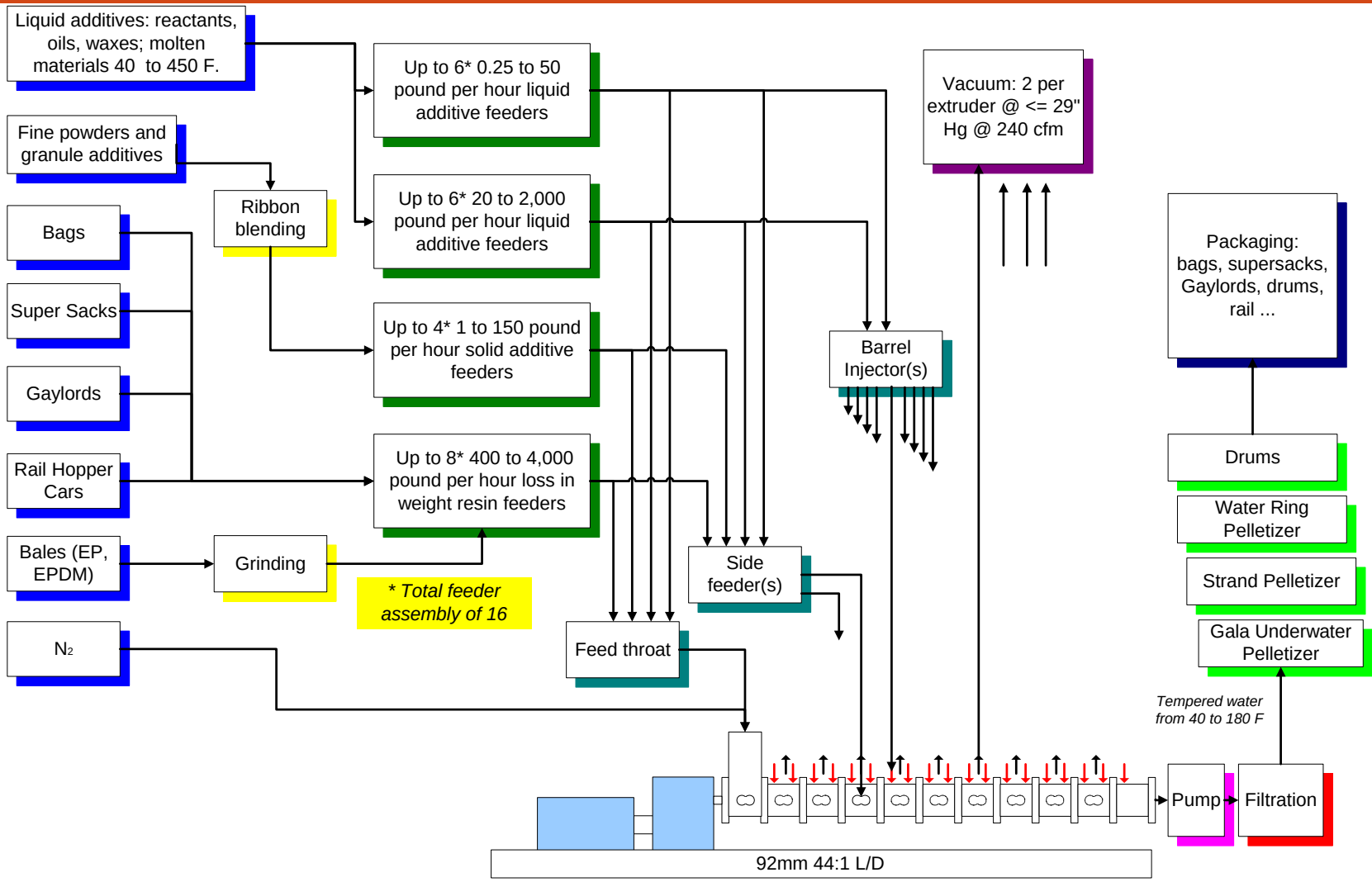

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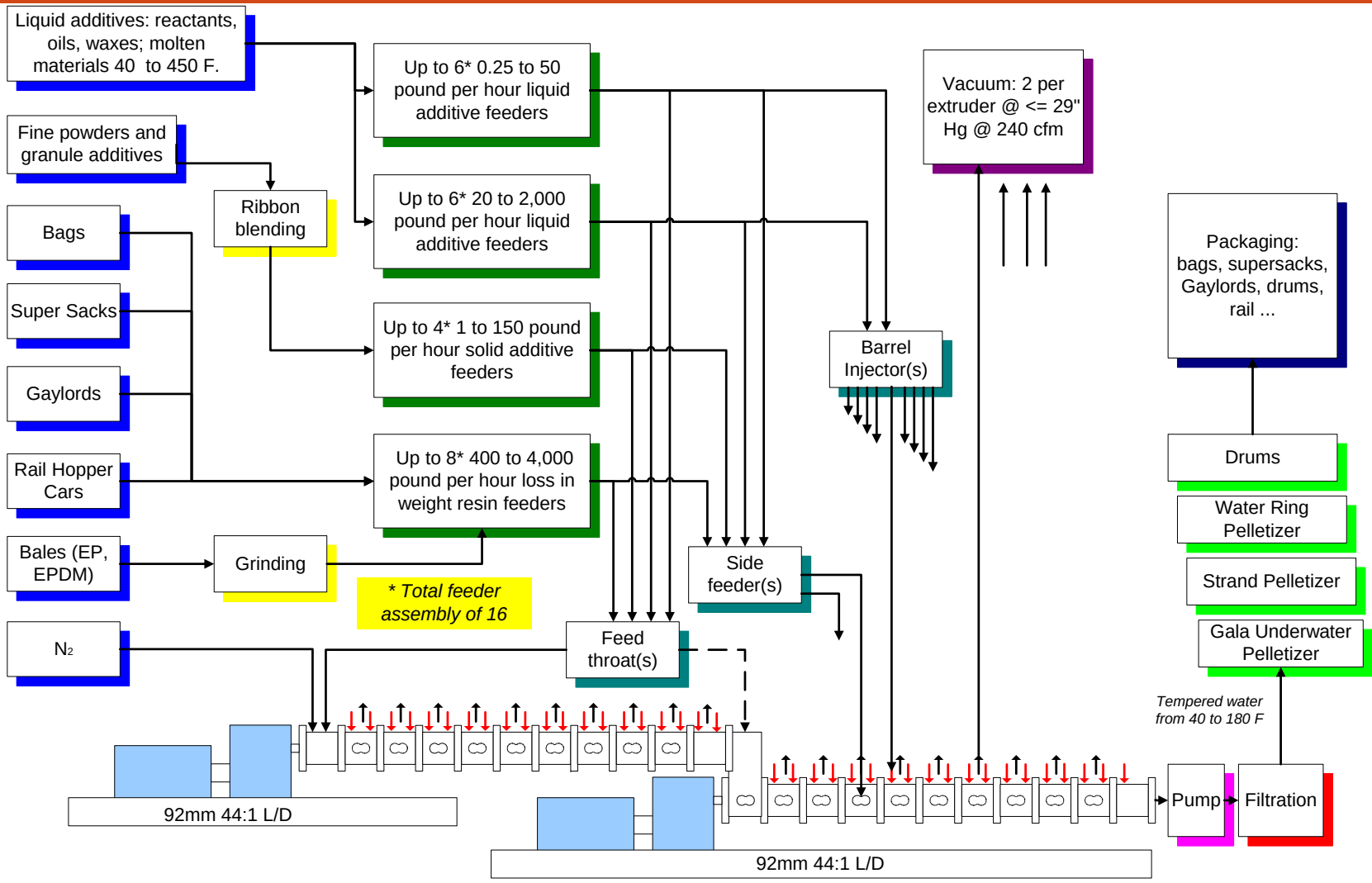
Liquid additives: reactants, oils, waxes; molten materials 40 to 450 F.
Fine powders and granule additives
Bags
Super Sacks
Gaylords
Rail Hopper Cars
Bales (EP, EPDM)
N2
Ribbon blending
Grinding
Up to 6* 0.25 to 50 pound per hour liquid additive feeders
Up to 6* 20 to 2,000 pound per hour liquid additive feeders
Up to 4* 1 to 150 pound per hour solid additive feeders
Up to 8* 400 to 4,000 pound per hour loss in weight resin feeders
* Total feeder assembly of 16
Feed throat(s)
Side feeder(s)
Barrel Injector(s)
Vacuum: 2 per extruder @ <= 29" Hg @ 240 cfm
Packaging: bags, supersacks, Gaylords, drums, rail ...
Drums
Water Ring Pelletizer
Strand Pelletizer
Gala Underwater Pelletizer
Tempered water from 40 to 180 F
Pump
Filtration
92mm 44:1 L/D
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