



MANUFACTURING EQUIPMENT

Blending & Granulation

- Blending: V-Shell (1qt to 75 cu. ft. with intensifier bar), V-Shell Processors (2 cu. ft & 20 cu. ft with intensifier bar & spray), Bin (Bohle 1 to 40L), Turbula Mixers (2L & 17L)
- Granulation: Key High Shear KG-5 (4L), Fuji Vertical (100L), AMF Glen 340 (150kg, heat jacketed bowl), Hobart (30qt & 140qt), T.K. Fielder (25L, 65L & 150L)
- Roller Compactor: Freund TF156 (20kg to 30kg/hour)
- Fluid Bed Processing: Niro MP1 (5kg), Glatt (30L and 50L bowls), Mendel FBP-1 (0.5kg to 3kg) and Fluid Air (120L); with solvent recovery & Wurster column
- Spray Drying: Niro MOBILE MINOR (aqueous and solvent systems)
- Extrusion:
 - Extruder: Leistritz Micro-18 Twin-screw (200 g to 40 kg/hour)
 - Extruder: Leistritz Nano-16 Twin Screw (20g to 200 g/hour)
 - Wet mass extruder/granulator: Cavela 25, Fuji / LCI DGL1
 - Sponizer: Caleva 250 , Fuji / LCI QJ-400
- Supporting Equipment Includes: mills and drying ovens

Compression

- Small Scale:
 - Globe Manual Tablet Press
 - Stokes Single Station (F)
- Rotary:
 - Mendel MTP-8/10 Alpha- 12 station, D tooling (up to 48,000/hr)
 - Manesty B3B - 16 station, B tooling (up to 36,000/hr)
 - Cadmach DB16 - 16 station, B tooling (up to 36,000/hr)
 - Cadmach DC16 - 16 station, D tooling (up to 36,000/hr)
 - Manesty Beta - 16 station, B tooling (up to 63,000/hr)
 - Fette P1000 - 28 station, B tooling (up to 100,000/hr)
 - Key Int. BBC4 - 35 station, B tooling (up to 120,000/hr)
 - Kikusui Libra (5) - 36 station, B tooling (up to 150,000 /hr)
 - Sejong MRC-30N - 30 station, D tooling (up to 216,000 /hr)
- Instrumented Presses:
 - Piccola B/10- 10 station, B tooling (up to 20,000/hr)
 - Kikusui Aquarius LD-A - 9 station , B tooling (up to 8,100/hr)
 - Key Int. BBC4 - 35 station, B tooling (up to 120,000/hr)
- Tablet in Tablet:
 - Kikusui Aquarius LD-A - 9 station , B tooling (up to 8,100/hr)
- Bi-Layer:
 - Key Int. BBC4 - 35 station, B tooling (up to 120,000/hr)
- Tablet Printing: Hartnett Delta model (250,000 tablets/hr)
- Supporting Equipment Includes: Weight checking, dedusting friability & hardness testing, and metal detection

Coating

- Mendel MTC-1 (lab scale) & MTC-10
- Driam Driacoater -8" & 24" pans (5kg to 25kg)
- Accelacoat -24" & 48" pans (15kg to 120kg)
- O'Hara Coating Pan -48' & 48'Ex (120kg to 160kg)
- Keith KMMC -16" (up to 18L)
- Wurster Coating Columns for Fluid Air, Niro MP1 and Glatt Fluid Beds (up to 100kg)

Encapsulation

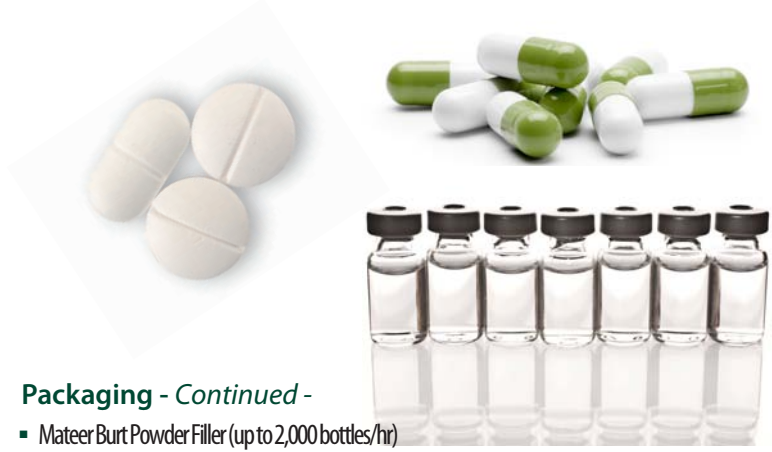
- Powders, Pellets & Granules:
 - Bonapace InCap - 8 station, size 4 to 00 (up to 4,000/hr)
 - Minicap 50 & 100 (up to 1500 & 3000/hr)
 - Zanasi LZ64 (up to 4,000/hr)
 - Zanasi IMA 40F (up to 40,000/hr)
 - MG America MG2 Futurea (up to 48,000/hr)
 - MG America Suprema (up to 48,000/hr)
 - MG America MG2 G140, size 5 to 00 (up to 140,000/hr)
- Liquid Filled Hard Gel Capsules:
 - Bonapace InCap - 8 station, size 4 to 00 (up to 4,000/hr)
 - Shionogi LIQFIL SUPER 40 (up to 40,000/hr)
 - MG America MG2 Futurea (up to 48,000/hr)
 - Capsugel CFS-1200 (up to 1,200/hr)
 - Shionogi Capsule Bander S100 (up to 100,000/hr)
 - Quali Seal Capsule Banding, size 3 to 00 (10 capsules/plate)
- Soft Gel:
 - Bochang - 4" die, size 2 to 20 oblong (up to 40,000/hr)
 - Bochang - 10" die, size 2 to 20 oblong (up to 40,000/hr)
 - Gwalo Capsule Polishers (36" & 48")
- Over Encapsulation:
 - Quali Fill 10 Semi-Automatic, size 3 to 00 (up to 420 capsules/plate)
- Capsule Printing: Ackley (up to 300,00 capsules/hr)
- Supporting Equipment Includes: Automated capsule loading, sorting, weight checking (up to 60,000/hr) and polishing

Milling

- Quadro Comils (194 & 197)
- Fitzmill Comminutor
- Erweka AR400
- Shifters: SWECO Sifter (48"), Weston Vibrating Sifter (24")
- Fryma Colloid Mill MZ80/A
- US Stoneware Roller Mills (non-product contact)

To learn more about Pii, contact us at bd@pharm-int.com or (410) 584-0001

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MANUFACTURING EQUIPMENT

Liquids & Semi Solid Processing

- Homogenizers: Ross 150L, Silverson DX60 & 275LS, IKA Turrax T25, Kinematica AG PT-MR 3100
- Gifford-Wood AGI Mixer, includes Air Driven, Drum Rotator, & Prop Mixers (with lifts) (30G)
- Kettles/Tanks:
 - Lee "Tri-Mix" Turbo Shear Jacketed Kettles (100 & 200 G)
 - Hamilton Jacketed Kettle (50G)
 - Groen Kettle (10G)
- Fryma AG Colloid Mill MZ80/A
- Gel Melter Tank (300L)
- Cozzoli Liquid Filler (25 tubes/min)
- CO.MA.DI.S C-945 (45 tube/min)

Aseptic Processing

- Batch Sizes from 1.0L – 300L
- Class 100 to 100,000 cleanrooms
- Disposable product contact parts
- Terminal sterilization
- Vial Filling:
 - M&O Perry; 2mL - 100mL vials (1,800/hr)
 - Pre and post inert gas overlay
- Syringe Filling:
 - Groninger DFN 1000 Syringe Filler: 0.5mL - 20mL syringes; (2,500/hr)
 - Pre and post inert gas overlay
- Lyophilization
 - R&D: Virtis 25XL 25ft²: 3mL - 100mL vials
 - GMP: Millrock CIP / SIP 60ft²: 2mL - 50mL vials
- Lee Vessel 250LD (250L)
- Guenberg Hot Air Sterilizer Oven (31.4ft³)
- WFI U dished tank (400G)
- Grunenburg Oven
- Baker Co. Isolator
- MOTT Nitrogen Spargers

Packaging

- Fully automated, custom-built solid dosage packaging line (up to 60 bottles/min)
- Blister Packaging—Thermo & Cold forming
 - Ima TR100 (140 blisters/min)
 - Zed Ind. Z-Med Card Sealer
 - SEPHA Deblistering Machine

Packaging - Continued -

- Mateer Burt Powder Filler (up to 2,000 bottles/hr)
- Harland Comet Labeling Machine
- Supporting Equipment Includes: Bar code readers & verifiers, bin feeders, printers, conveyors, check weighting systems, cappers, counters, induction sealers, torque testers, & metal detectors

United Kingdom

Oral

- Encapsulation:
 - H&H Modu C low dose encapsulator, size 3 (up to 24,000/hr)
 - Zanasi LZ64, size 4 to 0 (up to 4,000/hr)
 - Xcelodose 600, size 00 to 4
 - Perry Accofil semi automated vacuumatic powder dispensing unit
 - Flexicon peristaltic liquid filling machine
 - Profill plates, all sizes
 - Globe Pharma GPCP-352 capsule polisher
 - CI Electronics B20 & SP120 check weighing machines
 - Compression:
 - SCI Automated Tablet Press - 7 station, B tooling
 - Globe Pharma GPTD-102 tablet deduster
 - CI Electronics B20 & SP120 check weighing machines
 - Coating:
 - O'Hara MX Labcoater - 12" & 19"; with solvent recovery
 - O'Hara FBGB1 Fluid Bed with Wurster column
 - Blending, Mixing, Milling & Granulation:
 - Pharmatech MB30 Blender (1L & 30L)
 - GEA jacketed high shear blenders (5L & 10L)
 - Turbula T2F blender (up to 2L)
 - GEA PharmaConnect® "Plug and Play" Drive control Unit
 - GEA TRV jacketed high shear blender (10L)
 - O'Hara FBGB1 Fluid Bed with Wurster column
 - Anhydro MS35 Spray Dryer (35 kg/h drying gas rate)
 - Globe Pharma 197 Cone Mill
 - Silverson SL2T Mixer/Homogenizer
 - Other
 - Buchi Rotary Evaporator
 - Microfluidics Microfluidizer
- ### Inhalation
- Pamasol Inhalation Filler & Crimper
 - Anhydro MicroSpray 35 Spray Dryer (35 kg/h drying gas rate)

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