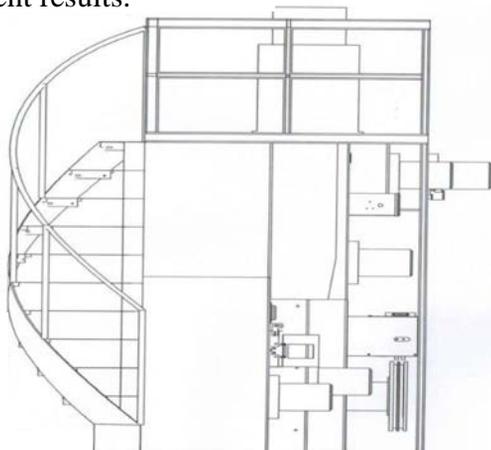# LABORATORY MACHINE

DESCRIPTION

Scientific studies are performed to improve the synthetic filament yarn properties such as UV-resistance, flame retardant and anti-bacterial properties. This can be achieved by adding micro or nano scale additives to polymer raw material during the filament yarn production. Melt spinning method is preferred in industry for these type studies. But performing R&D in a large scale industry filament yarn production line is impractical since production is non stop and industrial scale machines possess a large number of variable process parameters. This user friendly laboratory machine is, therefore, ideal for R&D studies with the following advantages:

ADVANTAGES

❑ Instant dye change with up to 1100 pounds of production capacity per day.
❑ Investigate the effects of production parameters on the structure, mechanical and specific properties of flat or textured yarns.
❑ Examine effect of various additive materials on UV-resistance, flame retardant, anti-bacterial and other properties on filament yarns.
❑ Analyze the effect of micro or nano scale additives to polymer raw material during the filament yarn production.
❑ Perform studies on texturizing properties of yarns by changing production parameters.
❑ Develop new filament yarn features by using innovative additive materials.
❑ Establish filament yarns properties.
❑ Collaborate with the manufacturer to develop new designs.
❑ Contribute to textile science and technology by performing state of the art research.
❑ Patent results.

10.3 ft

7.4 ft
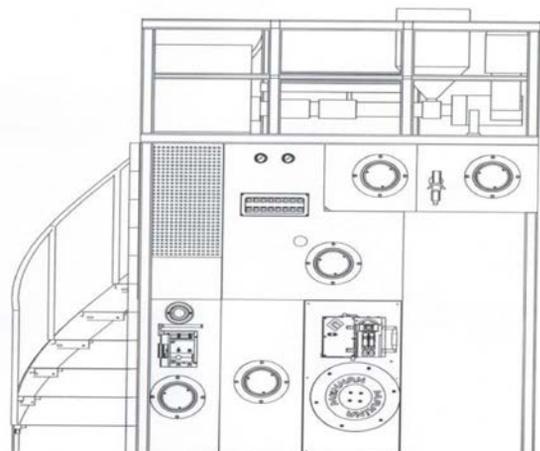
9.4 ft

LABORATORY MACHINE

PRODUCT	BCF Yarn
RAW MATERIAL	Polypropylene (PP), Polyethylene terephthalate (PET) PP: MFI 18-25, PET material should be dried
PRODUCT RANGE	1000-3000 dtex
PRODUCTION SPEED	500-1500 m/min
PRODUCTION CAPACITY	1000 dtex = 215 kg/day 2000 dtex = 300 kg/day 3000 dtex = 430 kg/day
NUMBER OF ENDS	1
INSTALLED POWER	50 kW - Air Compressor, Chiller and other auxiliaries are not included.
ENERGY CONSUMPTION	20 kW/h - Energy consumption can vary ±10% depending on local conditions.
TANGLING SYSTEM	1000-2500 dtex
HEATED GODET	3 heating zones, 50-200°C, 450-4000m/min, 200mm diameter, 300mm length, ceramic coated, oil lubrication
COLD GODET	450-4000m/min, 190mm diameter, 300mm length, ceramic coated, oil lubrication
TEXTURING UNIT	PP, 60-200°C, 4kW, hardened steel nozzle, titanium coated hardened steel lamel.
WINDER	450-1000m/min, bobbin length 250mm, Max bobbin dia 300mm, tube outside dia 80mm, tube inside dia 73mm, tube length 290mm.
SPINNERET	140mm diameter, 2x72=144 filaments
SPARE PARTS	Spinneret, Jet Nozzle, Jet Lamel, Jet Connection Pipe, Spinneret lock sleeve

INCLUDES:

- ✓ Extruder (diameter 35mm, length 30mm)
- ✓ Oil tank (Mixer, PT-100)
- ✓ Metering pump
- ✓ Quench cabinet
- ✓ Quench air unit
- ✓ Air duct
- ✓ Fan 3kW texturing unit
- ✓ Fan tangling
- ✓ Spin finish application set
- ✓ Yarn cutting and exhausting system
- ✓ Set of platform and stairs
- ✓ By pass unit
- ✓ Lubrication ceramic
- ✓ Pre-tangling
- ✓ Separator ceramic
- ✓ Heated godet
- ✓ Rotary temperature
- ✓ Cold Godet
- ✓ Separator roll
- ✓ Tangling system
- ✓ Texturing unit
- ✓ 480mm cooling drum
- ✓ Winder
- ✓ Spinneret
- ✓ Siemens machine control system and drives
- ✓ Touch screen PC control
- ✓ Consumables for installing and start up
- ✓ Spinneret setting equipment
- ✓ Godet setting equipment
- ✓ Texturize setting equipment
- ✓ Spare parts