Labtech Engineering

A Quick Guide to our Full Range Scientific Polymer Processing Machines for Laboratory and Pilot Plant Applications



























TWIN SCREW EXTRUDERS WITH Ø 12 AND 16 MM

with Modular Barrels for Optimum Flexibility



12 MM TWIN-SCREW EXTRUDER



16 MM TWIN-SCREW EXTRUDER POWDER COATING LINE



The MicroScientific 12 mm and 16 mm Twin-Screw Extruders are designed to process regular polymers in powder or pellet forms.

Features:

- ·clamshell barrel
- •up to 52 L/D length
- nitrided screw components
- ·standard temperature 400°C
- •screw speed 800 RPM
- ·drive power 2.2 kW

Options:

- gravimetric feeders
- ·side feeders for 16 mm twins only
- manual or fully computerized touch screen controllers

16 mm Twin-Screw Extruder
with downstream units Water Bath and Pelletizer







BARREL WITH WATER-COOLING

SIDE FEEDER

TWIN SCREW EXTRUDERS WITH Ø 20 AND 26 MM

with Modular Barrels for Optimum Flexibility



26 MM TWIN-SCREW EXTRUDER WITH NEW BARREL DESIGN

Modular Co-Rotating Twin-Screw Extruders are available with clamshell barrels and our unique high tool steel barrel inserts with screw diameters of 20 and 26 mm have L/D ratios of up to 60. These extruders are suitable for laboratory, research, and small batch productions. The single elements are mounted on hexagonal shafts of screws for optimum flexibility of screw configurations.

Extruders are available with both single and twin-screw hopper feeders, vacuum pumps with multiple vent outlets on the barrel, twin-screw side feeders, liquid feeders, quick screen changers, and a multitude of screw element types and combinations.



Optional

Computerized
Controller equipped with
LCD Touch Screen



distinct of the second of the



26 MM TWIN-SCREW EXTRUDER MODULAR BARREL SECTION





Also available in high-output 20 mm MaxiCompounder with 11 kW drive motor and 1200 max screw RPM

26 mm MaxiCompounder with 22 **k**W drive motor and 1200 max screw RPM

TWIN SCREW EXTRUDERS WITH Ø 26 MM COMBI

with Co- and Counter-Rotating Twin Screw



The Scientific 26 mm Combi Co- and Counter-Rotating Twin-Screw Extruder is made with a complete modular build-up of the clamshell barrel, where each barrel section has a length of 4 D or 104 mm.

The standard twin has a drive power of 15 kW and a max screw RPM of 400 for Counter-Rotating and 800 for Co-Rotating. It has a re-designed high torque gearbox comprising of additional shaft supporting gears, and a direct drive gear pump for closed-loop forced oil lubrication and cooling.

26 MM COMBI TWIN-SCREW EXTRUDER

The screws are built up from single individual elements mounted on splined screw shafts. These standard screw components are made from high-grade tool steel which is through-hardened and nitrided. Optionally, the screw elements and barrel inserts can be made in hardened stainless steel for acid resistance or in very hard PPM steel for optimum wear resistance which may be needed when compounding ceramic materials.







CO-ROTATING AND COUNTER-ROTATING GEARBOX SWITCH LEVER

Located in the gearbox is the push-pull mechanical lever that allows easy changeover of the screws when switching directions from co-rotating to counter-rotating or vice-versa. When counter-rotating screws are used in the extrusion process, the Limit Switch will be activated and the screw direction indicator will light up on the control panel.

TWIN SCREW EXTRUDERS WITH Ø 36 MM

with Modular Barrels for Optimum Flexibility

The new high output 36 mm twin-screw extruder with segmented screws on high torque splined shafts with barrel lengths of up to 60+L/D. The maximum screw RPM is 900 for standard and 1200 for **Maxi36Compounder**



36 MM TWIN SCREW EXTRUDER



The computerized control has full visualization of all extruder parameters on the touch screen





Drive System



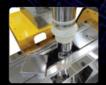
Highly Sensitive Torque Limiter

The modular section barrel is equipped with thick barrel lining inserts made for very high wear-resistant steel. And the screw elements are also made for very highwear resistant steel. The screws are built up from individual element mounted on the splined hardened shafts.

Both the Standard and the Maxi36Compounder can be equipped with an induction motor or water-cooled motor drive with a high-torque gearbox having a motor-driven gear pump for closed-loop forced oil cooling system.

The entire barrel is covered with modular high polished stainless steel panels. This makes the cover very easy to clean. The modular panels are easy to remove with only one key lock for each unit. And with this, it is very easy and fast to get access to the barrel and to mount additional side or top feeders.









TWIN SCREW EXTRUDER PHARMACEUTICAL

5 sizes with Ø 12, 16, 20, 26 and 36 mm



PHARMACEUTICAL MODULAR 12 MM Twin Screw extruder line

The extruder is supplied with a stainless steel gravimetric hopper feeder type LGF 80 TS complete with hopper unit with a "spiral type" twin feed screws and a stirring arm (agitator) above the feeding screws, DC motor port.





The main screen shows all extruder functions and the controls can be made in compliance with 21 CFR Part 11 regulations

DESIGNED FOR OPTIMUM PRODUCTION
OF PHARMACEUTICAL COMPOUNDS
BUILT ACCORDING TO GMP
STANDARDS



PHARMACEUTICAL MODULAR 26 MM TWIN SCREW EXTRUDER

Our Pharmatech Co-Rotating Twin-Screw Extruders are made with a complete modular buildup of the clamshell barrel. The compounder is available in 12, 16, 20, and 26 mm and barrel lengths from 25 to 40 L/D and with an AC vector motor drive.



Closed-Loop Water
Circulating Unit
with Heat Exchanger
and Vacuum Pump
System



The Clamshell Barrel is equipped with exchangeable barrel wear lining inserts for optimum economy and ease of replacement. These standard inserts are built to GMP standards in stainless steel with a focus on cleanliness.

SINGLE-SCREW EXTRUDERS

9 sizes with Ø 8, 12.5, 16, 20, 25, 30, 40, 45 and 60



SINGLE-SCREW EXTRUDER
8 MM

The amazing 12.5 mm conical extruder which can handle regular pellets
The 12.5 and 20 mm extruders are also available

C- clamp connection to extruder allows fast and easy attachment of downstream equipment.



The Single-Screw Laboratory Extruders with diameters 8 to 60 mm are available in a 30 L/D ratio. The 25, 30, 40, and 45 mm

extruders are available as both vented or non-vented versions with plain screws or equipped with Maddock mixing elements as well as a mixing section on the screw tip.



SINGLE-SCREW EXTRUDERS 12.5, 20 MM



SINGLE-SCREW EXTRUDERS

16 MM



SINGLE-SCREW EXTRUDERS 25, 30 MM



SINGLE-SCREW EXTRUDERS 40, 45 MM

PELLETIZING SYSTEMS

Die-Face Cutter, Sidecut and Strand Pelletizer

The Amazing Sidecut Pelletizer cuts anything a pair of scissors can and more.



AIR COOLED DIE-FACE CUTTER

SIDECUT PELLETIZER

The unique Sidecut Pelletizer can cut from the softest TPE to the most rigid engineering polymers with available sizes of standard and micro versions with the output of up to 900 kg/hr.

The Sidecut Pelletizer can be used to pelletize practically any type of thermoplastic resin, even materials that cannot be pelletized using conventional machines, i.e., rubbery materials such as soft PVC and thermoplastic elastomers.

Strand Pelletizers are available from our smallest version with only a few kg outputs to over 400 kg/hr.

Air-Cooled Die-Face Cutter with Parallel-Axes die and rotor design is only suitable for PVC and other "dry" resin types like certain grades of thermoplastic rubber which do not stick to the die.



STRAND PELLETIZER
HIGH-POWER VERSION

STANDARD PELLETIZER

BENCHTOP PELLETIZER

MINI BLOWN



Single Layer Type LMF-200 and Multilayer Type LMF-200 COEX

MINI SINGLE-LAYER BLOWN FILM LINE

Our New Scientific Mini Single-Layer Blown Film Line is a viable low-cost alternative to our regular blown film lines.

- ·mini 16 mm single-screw extruder
- ·single-layer blown film spiral mandrel die
- ·annular die lip diameter of 25 mm
- ·compact film blowing tower
- nip rolls width of 200 mm

Electrical components are neatly kept below the bench subcabinet with a sliding base



Our latest development of a very practical, economic and compact **Mini Scientific Co-Ex Film Blowing Line** available in 3 layer 3-extruder version, as well as 5-layer 5-extruder version.

- ·mini 16 mm single-screw extruder
- ·loss-in-weight hopper feeders
- ·360° oscillating haul-off unit
- pneumatic nip rolls
- ·3 or 5 layers pancake die









MINI 3 & 5 LAYERS CO-EX BLOWN FILM LINE



SINGLE LAYER FILM BLOWING LINES



Single and Multi-layer Film Blowing Lines for lay-flat film widths of up to 550 mm has many features such as a twin channel air cooling ring, variable speed haul-off and nip-rolls, etc.

The film-blowing attachment is connected to our single-screw extruder with a C-clamp on the flange to the extruder unit. The attachment is built up on an individual self-supporting frame with lockable casters and thus can be easily removed from the extruder.

The die is mounted on the two tower pillars that are adjustable in height to align with the extruder flange.

The film-blowing attachment is equipped with a film bubble stabilizing cage and synchronously adjustable film collapsing frames with polished teak wood or carbon roller gate rods.

Film Blowing Line with a 45 mm Single-Screw Extruder producing a maximum lay-flat film width of 550 mm





DOWNWARD SINGLE LAYER BLOWN FILM LINE

SINGLE-LIP AIR RING



WATER-QUENCHING AND COLLAPSED A-FRAME



Also Available for Multilayer COEX Blown Films

The LWQF-400 is a water quenching film blowing attachment for downward extrusion of the film bubble. The meltcoming out of the single die is blown up in same way as with conventional blown film system but it is here directed downward and is firstly lead through an air ring, after which it is blown up to required size and led through a water quenching ring where the film is in immediate contact to a water curtain which will cool down the film instantaneously. After passing the water quenching unit, the film bubble is collapsed in an A-frame before entering the lower set of nip-rolls. The water on the flattened film is removed with squeegees and finally passed through a heating tunnel for efficient removal of all water.

water on the film.

with Film Bubble Water-Quenching

Film drying box is equipped with hot air chamber for efficient removal of all The outfeed section of the water quenching film line is equipped with Nip-Rolls which are driven individually by an AC motor. The speed is regulated on the control panel. The upper roll is made of rubber and the lower roll is made of steel with chrome plating. 25 MM, 30 L/D SINGLE SCREW EXTRUDER

MULTI LAYERS FILM BLOWING LINES

Co-Ex Film Blowing Lines with up to 9 Layers

5 Layer Co-Ex Blown Film Line using one 30 mm and four 25 mm extruders with 30 LD



5 Layers CO-EX Film Blowing Line with 5 Extruders

The film tower is of type LF-400/COEX with a total Nip Roll width of 400 mm which allows for a lay flat film width of around 350 mm.



9 Layers Blown Film Line using two 30 mm and seven 25 mm extruder 30 L/D with Gravimetric

Hopper Feeders and Dual-Channel High-Efficiency

Air Ring, Stabilizing Film Bubble Cage, Film Bubble Size Controller, and Oscillating Nip Roll.





CO-EX Film Blowing Line with MDO

Also available for in-line or off-line MDO Film Stretching attachment

MDO FILM STRETCHING ROLLS consisting of preheating rolls, stretching gap groups, annealing groups, cooling rolls, and pressing rolls

VERTICAL MACHINE DIRECTION STRETCHING LINE

with Roll Size Range of 350, 450, 600, 800 and 1200 mm

Our MDO attachments are standalone stretching units where the films can be fed into the MDO unit for stretching either directly from the cast film or blown film units during the production of the film (in-line), or from rolls of cast film or blown film that have been previously made and stored, ready to be used for later stretching (off-line). It will stretch both single and multi-layer films to a maximum stretching rate of 10 times (depending on the material).



The stretching rolls can be adjusted both in speed and distance to obtain the required stretching rate. The output speed of MDO-350, 400, and 600 mm are variable between 0 - 30 mmin while MDO-800 has an output speed of 50 mmin and MDO-1200 has 75 mmin. All MDO sizes have heavy-duty bearings supporting the rolls on both sides, preventing any flexing at one side that might occur with rolls that are only supported by bearings on one side.



Heavy-Duty Wind-Up Unit with Edge Trimmers



Optional Automatic Turret-Revolving Wind-Up Unit

Heating units are efficiently arranged to provide tempered water to high-torque rolls

MINI CAST FILM

Single Layer Type LMCR-150 and Multilayer Type LMCR-150 COEX

MINI SINGLE-LAYER FILM AND SHEET LINE TYPE LMCR-150



Our New Scientific Mini Single-Layer Film and Sheet Line Type LMCR-150 has been developed to fill the gap of supplying a very compact and economic cast film and sheet line for laboratory applications.

The chill roll attachment is designed to produce a maximum untrimmed layflat width of 125 mm. It is equipped with a mini single-screw extruder having a 16 mm screw diameter and a long L/D ratio of 30 designed to easily process a very large variety of plastic resins and of regular pellet shapes. The flat film and thin sheet die has a streamlined 90-degree die adapter with a produced film or sheet width of approximately 115 mm. The rubber haul-off nip-roll is driven by a servo motor giving a very steady and even pull of the film and sheet from the chill roll. The film is collected in an expandable air shaft wind-up unit which is also driven by a servo motor.



MINI THREE-LAYER FILM AND SHEET LINE TYPE LMCR-150 CO-EX



Our New Scientific Three-Layer Mini Cast Film and Sheet Line Type LMCR-I5O-COEX is a latest addition to Labtech's Mini Machine Lines. This Mini Cast Film Co-Ex Line have installations of mini-sized hoppers, extruders, die, feedblock, chill roll, rubber nip rolls, edge-trimmer, cassette wind-up and film wind-up. The whole chill roll assembly is mounted on a bench cabinet while the extruders are mounted on an elevated base of the same bench cabinet. The chill roll attachment is designed to produce a maximum untrimmed layflat width of IOO mm. The line occupies a minimum floor space of 1.7 m x 1 m and height of 1.4m. The sub-cabinet has a sliding base to hold all the electric components inside



Tabletop version connected to our 20 mm, 30 L/D extruder



COMPACT CHILL ROLL LINE FOR SPOT CHECKING



MEDIUM SIZE CHILL ROLL **ATTACHMENTS**

Available with unwinds for laminations and coatings. Windups are available in single or two station versions with manual or automatic tensioning controls. The rolls are cored with spiral channels for water cooling and heating.

SINGLE LAYER CHILL ROLL LINES

Flat Film and Sheet Chill Roll Lines

Our large size chill roll attachments have roll diameters of 175 mm and are equipped with heavy duty hydraulic lay on of both lower and upper rolls against the center roll. Available in various roll widths up to 700 mm Individual water tempering or oil heating for each roll. Equip with motorized tilting mechanism, the roll stack can be placed in any position from horizontal to vertical or inclined at 45 degrees. The Chill roll attachment is supplied with individual servo

motor drives for each roll.



We offer a large range of floor versions, connected to our single screw extruders of sizes 25, 30, 40 and 45 mm all with 30 L/D or to our twin-screw extruders of sizes 16, 20 and 26 mm



HEAVY-DUTY MULTI-ANGLE **ROLL STACK DESIGN**



Flat dies with adjustable lip gaps have widths of up to 150 mm for benchtop version and up to 700 mm for the floor Standard microns and sheets up to 1.5 mm thickness. Special dies are available for thicker sheets and with exchangeable die lips.

NEW! J-TYPE ROLL STACK

CO-EX CHILL ROLL LINES

with up to 9 layers of Cast Film

High-Speed Chill Roll Attachments for films down to 10 microns with a line speed of up to 100 m/min



LARGE HIGH SPEED CO-EX CHILL ROLL ATTACHMENTS

MDO unit in-line with a co-ex cast film line which is equipped with two edge-cutting stations positioned before the MDO unit and the other at the wind-up station



Also available with in-line or off-line MDO film stretching attachments Single and 2-Station MDO units with roll widths from 300 to 800 mm



Available with a large range of chill rolls for 2 to 9 layers with die sizes from 100 to 800 mm and with extruder sizes from 12.5 to 45 mm



The Manifold Die is also supplied with our coextrusion lines to deliver uniform molten extrudate and accurate layer thickness.

supplied with our

are made of up to

9 layers





MEDIUM ECONOMY-SIZE CHILL ROLL



HEAVY DUTY CHILL ROLL LINES WITH 300 TO 400 MM ROLL WIDTHS



NEW LARGE SIZE HIGH-SPEED CO-EX LINE

Featuring the Downstream MDO Attachment



NEW LARGE SIZE 3/5 LAYERS CO-EX CHILL ROLL LINE

The line will be used for a multitude of polymers from polyolefin to more advanced thermoplastics like PET etc. It is equipped with two single screw extruders and one twin, feed block, die and a new

design of a chill roll attachment with large 600 mm diameter rolls. Downstream the line has a new large vertical MDO unit as well as a wind up unit with automatic change over of the film rolls.



C-TYPE CHILL ROLLING STACK

NEW SINGLE TO 5-LAYER LAMINATION C-TYPE CHILL ROLL LINE

The newly developed design of the Cast Film Lamination Line of Labtech Engineering can laminate up to 5 layers and consists of a 60 mm single-screw extruder, a C-type chill roll stack, 2 unwinders at the front, 1 unwinder at the rear, and 1 unwinder at the top of the platform. The lamination line is also equipped a 3-zone coat-hanger flat die with vacuum blower and static edge-pinner, a rotary-knife edge-cutter with edge-trimmed cassettes and a wind-up.



WORLD'S SMALLEST POLYMER PROCESSING LINES

The Amazing Ultra Micro Series



Stainless Steel and Transparent Acrylic top barrel cover and hopper



THE ULTRA MICRO
SINGLE SCREW PELLETIZING LINE



NEW ULTRA MICRO 3-LAYERS, 3 Extruders Co-ex Chill Boll Line



THE ULTRA MICRO CHILL ROLL LINE



THE ULTRA MICRO Film blowing line





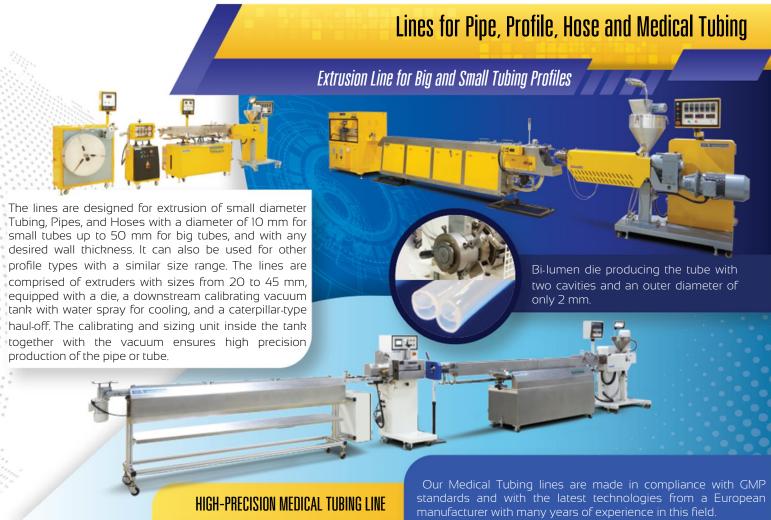
Designed by our engineers to reproduce larger lab and production lines based on our Ultra small extruder with conical screw that can be used with regular pellet sizes



THE COMBI FILM BLOWING
AND CHILL ROLL LINE
WITH ONE COMMON EXTRUDER



THE ULTRA MICRO 3-LAYERS
CO-EX BLOWN FILM LINE
WITH 3 EXTRUDERS



High Speed 3D Filament Production Line

High Output at a Speed of 130 m/min for Common Filament Polymers



Bottle Blow Moulding Lines

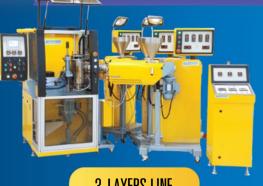
Single and Multi-Layer Co-Ex Versions



The lines used a streamlined die for optimum colour dispersion. A minimum amount of purging is needed for colour change over.

Fully automatic hydraulic bottle blow moulding attachment can be attached to our 20 and 25 mm single screw extruders.





NOW ALSO AVAILABLE FOR LARGER BOTTLES

Our range of Blow Moulding lines produces single layer or multilayer bottles of up to 125 ml size and can resin types that can be blown

3-LAYERS LINE

2-LAYERS LINE

The Lager Bottle Blow Moulding attachment can be equipped with a 250 ml bottle mould of your own design

Our new larger bottle blow moulding attachment can produce bottles of up to 250 ml. The attachment is hydraulic with high clamping force. The co-ex 2 and 3 layer dies are made with adjustable parison thickness and they produce a very even layer thickness over the entire bottle



Filter Testers with Full Conformance to DIN Norm



COMPUTERIZED FILTER TESTER TYPES LFT34, 44 -GP WITH 20, 25 MM EXTRUDER









Fully computerized version with on board large capacity PC a featuring a practical keyboard and mouse for convenience in entering all test data. This version automatically calculates the filter test value.



and standardization of master batches and compounds.



WE WERE FIRST IN THE WORLD TO PRODUCE FILTER TESTERS



COMPLITERIZED FILTER TESTER TYPE LFT57-GP WITH 25 MM EXTRUDER Standard filter sizes from 40 down to 5 microns, as well as DIN sizes. Available for both our 20 and 25 mm extruders

Our filter test head with gear pump is designed specifically for easy cleaning where the melt flows in a straight line from extruder through gear pump all the way up to the filter. The filter is easily Installed and removed with our quick clamping system

COMPACT FILTER TESTER TYPE WITH 20 MM EXTRUDER

TWO-ROLL POLYMER & RUBBER MILLS



The MicroScientific Benchtop Two-Roll Mill Type LRM-M-100 is intended mainly for learning institutes and laboratories with smaller batch size preferences.

BENCH-TOP TWO-ROLL MILL TYPE

Polymer mills are available with roll diameters of 100, 110, 150, and 200 mm. Roll heating is available in 3 ways, with Standard 3-Zone, with TRUE 3-Zone Electric Roll Heating System, with Oil Heating and Cooling System, or with Electric Roll Heating and Water- Cooling System.

Available from manual versions to fully automatic hands- free computerized mills used for color matching, quality control, and research.

Optional fully computerized operations from an LCD color touch screen with an extremely user-friendly software design



Rubber mills with water cooled or oil heated and cooled rolls with variable speed heavy-duty direct drives to the rolls.



Automatic Rollover Device



Rubber mills have direct drive to the rolls with heavy-duty helical bevel gears



STANDARD LABORATORY TWO-ROLL MILL



TWO-ROLL MILL WITH OPTIONAL LOBOT COLOR MATCHER

HYDRAULIC PRESSES

Benchtop Laboratory Hydraulic Presses

LP-20B, LP-30B



Scientific Laboratory
Hydraulic Press 80 MT is
suitable for rubber,
thermosetting and
thermoplastics resins





Modern designed steel cabinet with curved sliding front door. The front door is equipped with a large Plexiglas window and the control cabinet is recessed so that it is covered by the front door when opened.

Laboratory presses from 20 to 80 MT platen closing force, with double set of heating and cooling platens as standard.

Available with fully automatic platen insert cooling system, as well as many platen sizes and control options.

Presses with option for Automatic Platens Insert Cooling System











ASTM Presses with High-Precision Chilled Water-Cooling System





High Speed Mixers

Laboratory and Pilot Plant sizes of high-speed fluid mixers are made in high-polished stainless steel.

- ·available in 25 and 75 liter
- infinitely variable impeller speeds
- automatic mixing cycles
- optional water cooling impeller







The computer version with colored LCD touch screen controls is made from our very own user-friendly software design.





 prints graphics and data of all running parameters via PC. HIGH POWER JACKETED HIGH SPEED LABORATORY MIXERS WITH OPTIONAL COOLING MIXER

BENCH TOP MINI MIXERS

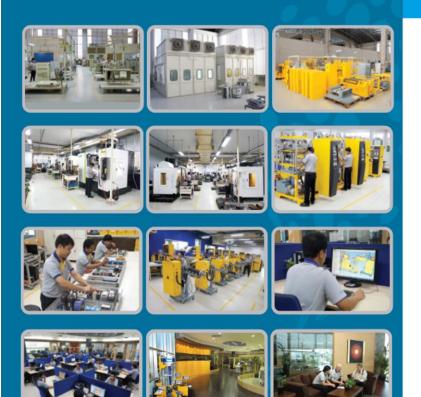


Benchtop Mixers are mini high-speed mixers ideal for fast and easy mixing of dry powders.

- · available in 1.5, 5 and 10 liter gross volumes
- with infinitely variable speed impeller drive
- easy-to-clean components



Labtech Engineering Our company's facilities, our capabilities





Our laboratory testing applications have a large range of machines. These machines are available at all times for prospective customers to test in accordance to their specific requirements whenever convenient.

Our production facilities

We recently acquired the factory building next door which has doubled our production and office area having a total of 10,000 square meters. This expansion will enable us to increase our production substantially so that we are able to meet the ever increasing demand for many years to come.

























Laboratory Polymer Processing Machines manufactured by





Contact Us

For more information regarding our wide range of Polymer Processing Laboratory Machines, you are most welcome to contact us directly at the below address, email, and phone number.

Or if you prefer, please check our website for the locations of our agents worldwide.

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