CHILL Testing laboratory for research on plastic characteristics

How scratch resistant is a car bumper? And how impact resistant is a safety helmet? In the CHILL Testing laboratory we do research on the physical characteristics of plastic and rubber. Knowledge of characteristics such as impact strength, tensile behavior and flow behavior helps to determine how these materials can be applied in the best possible way. The lab offers the possibility to run tests on raw materials, semi-finished products and fully processed products. This can be done with the help of CHILL researchers and students. If you prefer, you can do the tests yourself!

Chemelot Innovation and Learning Labs

WWW.CHILLABS.NL

NEW CONNECTIONS • NEW SOLUTIONS

Collin teachline

1. Extruder E 20 T
2. Flat Film Unit
3. Blown Film Unit
4. Compounder ZK 25 T x 18 D
5. Waterbath & Pelletizer
6. Roll Mill W 100 T
7. Platen Press P 200

Extruder E 20 T

Technical data:

- Material cylinder Nitrided steel
- Screw 20 mm diam. x 25 D designed as a 3-section feedscrew with the following screw geometry:
  - Length of feeding zone 8 x D
  - Length of compression zone 6 x D
  - Length of metering zone 11 x D
  - Compression 3,08 : 1
- Screw revolution 5 – 180 rpm
- Max. Throughput (LDPE) 3,5 kg/h
- Hopper volume 3,2 ltr
- Cylinder heating zones 3 x 800 W
- Cylinder cooling zones 2 x blower

Blown Film Unit BL 50

Technical data:

- Nip-roll diameter 50 mm
- Width of nip rolls 200 mm
- Max. lay-flat width 170 mm
- Max. bubble diam. 110 mm
- Max. bubble length 750 mm
- Tractive power 250 N
- Take-off speed 1 – 12 m/min.

Blown Film Die dia. 30 mm nominal gap 0,8 mm

Extrusion, injection moulding, compounding

Flat Film Unit

Technical data:

- Roll diameter 72 mm
- Roll width 190 mm
- Tractive power 260 N
- Max. external width of die 200 mm
- Max. working width of die 100 mm
- Take-off speed 0,5 – 14 m/min.
- Winder cone inner dia. 52 mm (2”)

Compounder ZK 25 T x 18 D

Technical data:

- Screw diameter 25 mm
- Screw length 18 L/D
- Screw speed
  - co-rotating 5 – 210 rpm
- Screw torque
  - co-rotating 2 x 52 Nm
- Max. throughput 0,3 – 4,0 kg/h
- Center line screws 375 mm

Waterbath & PelletizerT

Technical data:

- Take-off speed up to 20 m/min.
- Cutting length approx. 2,5 mm
- Number of strands 1
- Diameter of strands < 4 mm
- Strand feeding height 330 mm
- Max. possible dimensions of pellet container 140 – 200 mm

Extrusion, injection moulding, compounding

BOY XS

100-14

Technical data:

Clamping unit:	horizontal
Injection unit:	horizontal
Clamping force:	100 kN
Horizontal daylight between tie bars:	160 mm (diagonal 205)
Max. opening stroke (adjustable):	150 mm
Max. platen distance:	250 mm
Centering diameter clamping side:	60 mm
Centering diameter injection side:	60 mm
Nozzle radius:	35 mm
Screw diameter:	14 mm

BOY 35E

350-92

Technical data:

Clamping unit:	horizontal
Injection unit:	horizontal
Clamping force:	350 kN
Horizontal daylight between tie bars:	280 x 254 mm
Max. opening stroke (adjustable):	300 mm
Max. platen distance:	500 mm
Centering diameter clamping side:	110 mm
Centering diameter injection side:	110 mm
Nozzle radius:	35 mm
Screw diameter:	24 mm

Roll Mill W 100 T

For mixing, plasticizing, masticating and sheeting-out of plastics and rubbers

Technical data:

- Roll diameter and roll face width 100 x 210 mm
- Batch weight approx. 50 g
- Roll speed 2 - 20 rpm
- Friction ratio 1 : 1,2
- Nip adjustment: Fine adjustment 0,2 - 2 mm

Platen Press P 200

Technical data:

- Nominal platen size 200 x 200 mm
- Effective platen size 196 x 196 mm
- Hydraulic force 120 kN
- Max. specific pressure nom. 312 N/cm2
- Max. operating temperature 300 °C