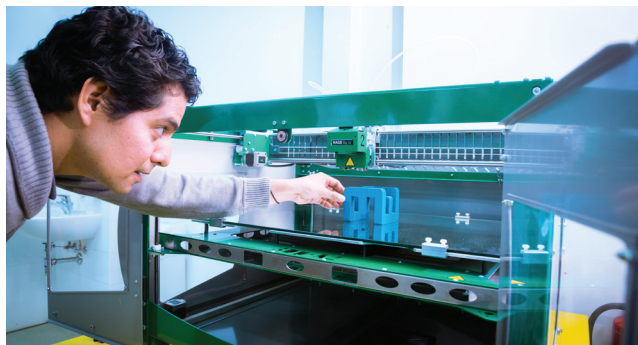


One of the essential tasks of the Department of Polymer Engineering and Science is the applied science. The close cooperation with the industry allows the direct implementation of new scientific findings in the industrial practice.

With the long lasting experience in the field of extrusion we can design screws and dies with analytical and numerical 3D-FEM calculations. Furthermore, we are able to solve different tasks via experiments on the available extrusion equipment. This enables us to verify the simulated and calculated results with practical experiments and to improve the methodologies.

We work closely together with all departments of the Montanuniversität and as well with the Polymer Competence Center Leoben (PCCL). Therefore, we can offer our customers the best support for questions in processing, testing and analytical problems.



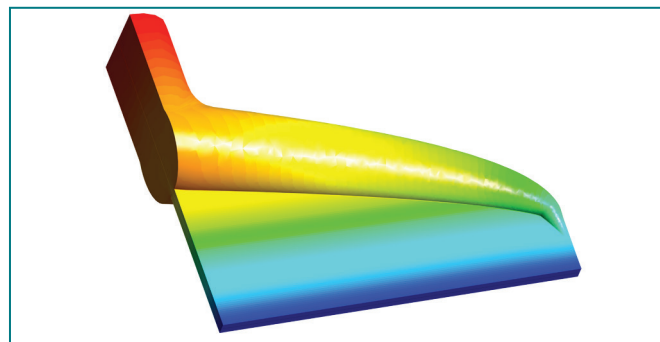
## Services

- 3D-FEM simulation of dies and screws
- Analytical calculations of dies and screws
- Extrusions experiments
- Residence time measurements
- Material data for solid conveying
- Additive manufacturing with 3D-Fused Filament Fabrication (FFF)

**Dipl.-Ing. Stephan Schuschnigg**  
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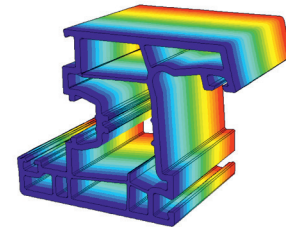
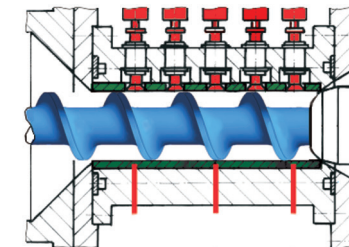
- Fast order processing
- Comprehensive benefits catalogue
- Modern equipment
- Many years of experience



## Contact

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# Extrusion

[www.kunststofftechnik.at](http://www.kunststofftechnik.at)

## Our services

### Simulation of extrusion

3D fluid simulations using Ansys® Polyflow and mechanical, thermal simulations using Abaqus®.

### Calculations for screws

Analytical calculations for single and twin screw extruders with different processing zones (solid conveying, melting, metering, shearing and mixing zones).

### Die design

Analytical and numerical fluid dynamical die design with consideration of the die body, the temperature and die swell.

### Material data for the solid conveying zone

Measuring the pressure anisotropy coefficient and the bulk density in dependency of the pressure and temperature. Measurements of the inner and outer friction coefficient of polymer bulk materials.

### Residence time distribution

Measurement of the residence time distribution with NIR and dielectrically methods using different tracers.

## Software

- Ansys® Polyflow
- Abaqus®
- OpenFOAM®
- C++
- MATLAB®

## Our equipment

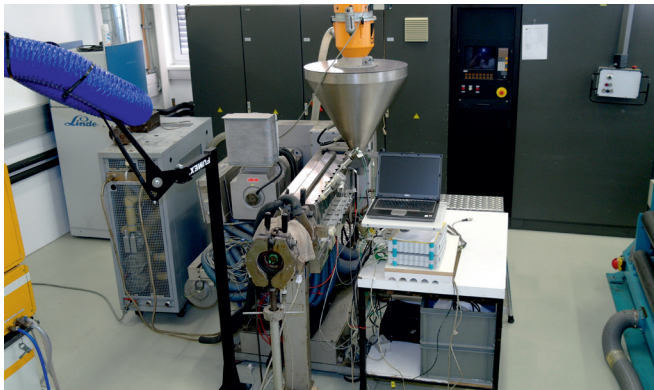
### Film line Collin

- Extruder "Teachline" E30P
- Extruders "Teachline E20T-H SCD 15"
- 5 layer feedblock
- Coathanger die 250 mm
- Chill roll with haul off unit CR 136/-350 mm
- Corona treatment



### Single screw extruder for foaming and casting

- Rosendahl  $\varnothing = 45$  mm
- Different screws 24-36 D
- Cast film unit SML, width 600 mm
- Metering station for regrind
- Gas dosing unit for foams



## Our equipment

### Pipe extrusion line

- Extruder battenfeld-cincinnati Proton 45-28 G
- Vacuum cooling bath Kuag ATL-C 63
- Caterpillar haul-off unit Kuag RAE 63/1
- Cutter Graewe TE 63 H



### Further equipment

- High-temperature corotating twin screw extruder Leistritz ZSE 18MP-48D
- Conical counterrotating twin screw extruder battenfeld-cincinnati Konos 38 RP
- Filtertest extruder Collin FT-E20T-MP-IS
- 3D printer Hage A3Dp-A2
- Friction measurement extruder
- Blow moulding machine Kautex KEB 1
- Thermoforming machine Illig UA 60EDH OST G

