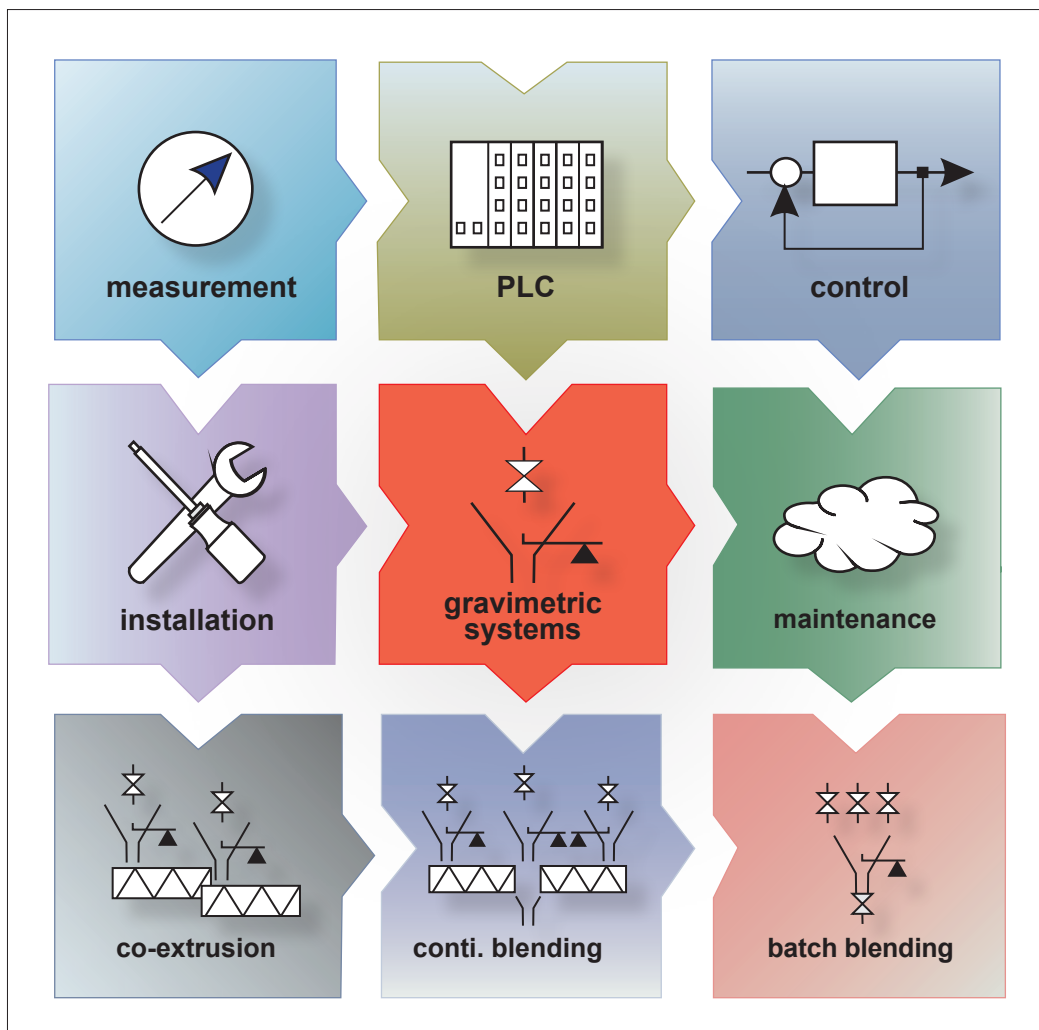


## Automation for extrusion



■ material savings

■ process optimization

■ quality improvement

## weigh hopper series BTW

- ☑ loss-in-weight measurement for free-flowing material
- ☑ range: 0,1 ... 2000 kg/h
- ☑ hopper volume: 2 ... 100 l



## continuous gravimetric blending

- ☑ 1 ... 8 screw feeder controlled by a guide value
- ☑ 1 ... 8 screw feeder with a free-fall mixer extruder throughput control
- ☑ 1 ... 8 screw feeders, side component, free-flowing main component extruder throughput control



## material feeding

- ☑ vacuum conveyor
- ☑ control system



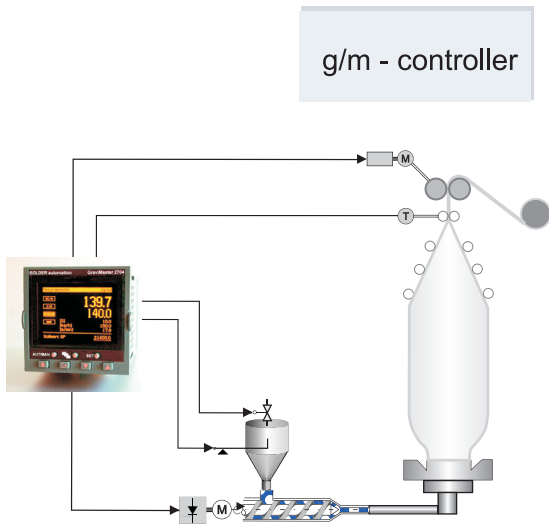
## gravimetric vibrating feeder

### application area

- ☑ shear-sensitive material
- ☑ short glass fibers
- ☑ powder



## stand-alone control units

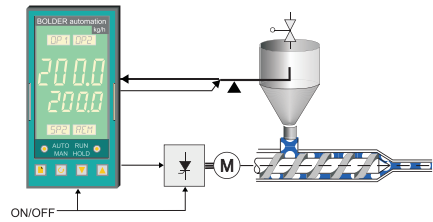


g/m - controller

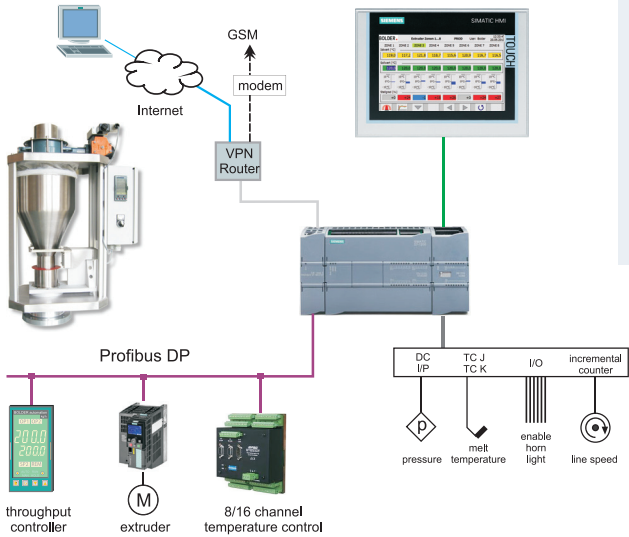


gravimetric blender

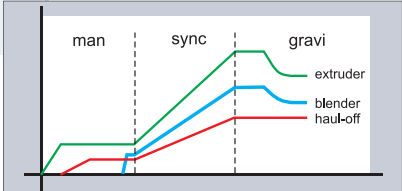
extruder throughput controller



## extrusion control systems

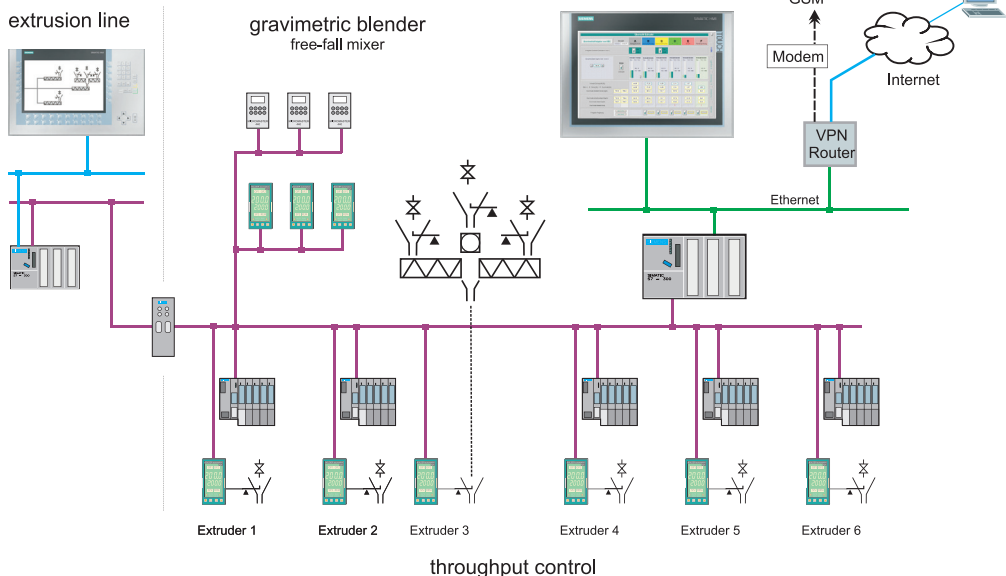


- loss-in-weight control
- temperature control
- synchronous drive control
- extrusion specific strategies
- ⇒ improvement of quality
- ⇒ material savings



## enhanced machine control systems

- co-extrusion control
- layer-thickness control
- gravimetric blending
- material feeding
- process supervision

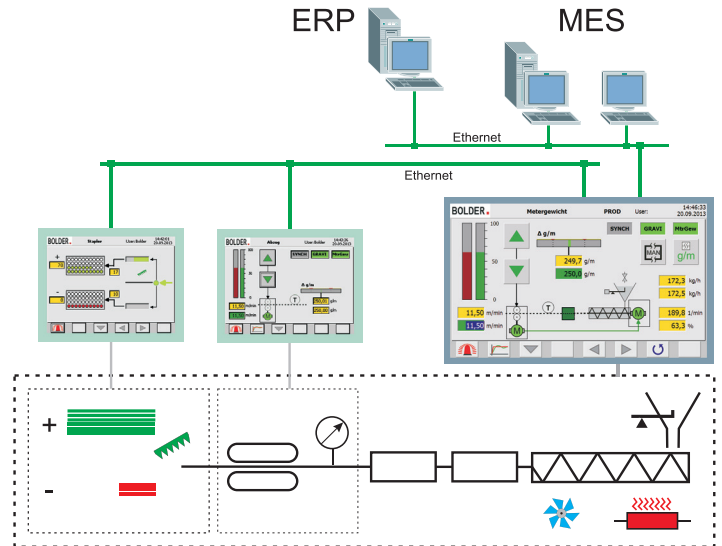


throughput control

## production

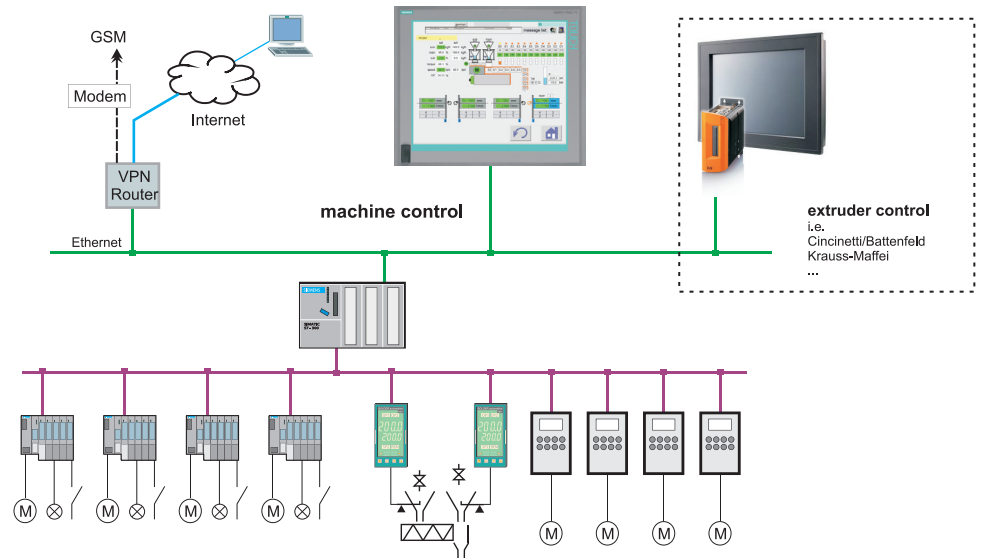
### requirements

- ☑ to plan the production
  - ☑ to meet the schedule
  - ☑ to assure quality
  - ☑ to avoid wastage
- ⇒ information acquisition, visualisation, processing  
 PLC, MES, ERP  
 ⇒ continuous process improvement



## system integration

- ☑ integration of PLCs, drives, gauges etc.
- ☑ networking
- ☑ visualisation



## communication

- ☑ line supervisor
- ☑ diagnostics
- ☑ remote control

