



**25 years of Experience in the Field of Metering and  
Mixing Systems**



## Messrs 2KM's headquarters

- Are situated at approx. 60 km in the East of Cologne
- Have got about 70 employees
- 





# 2KM Production





# Poly Mix 1900

- **Hydraulically driven production equipment**
- **Mixing ratio may be programmed variably**
- **4kW Hydraulic aggregate**
- **Metering pumps with external valves**
  - A+B Pumps of identical size
- **Pressure safety with pressure sensors**





## **The Metering System PolyMix 1900**

In the field of the 2 components plastics processing the PolyMix 1900 represents a completely new metering principle which considerably differs from standard concepts.

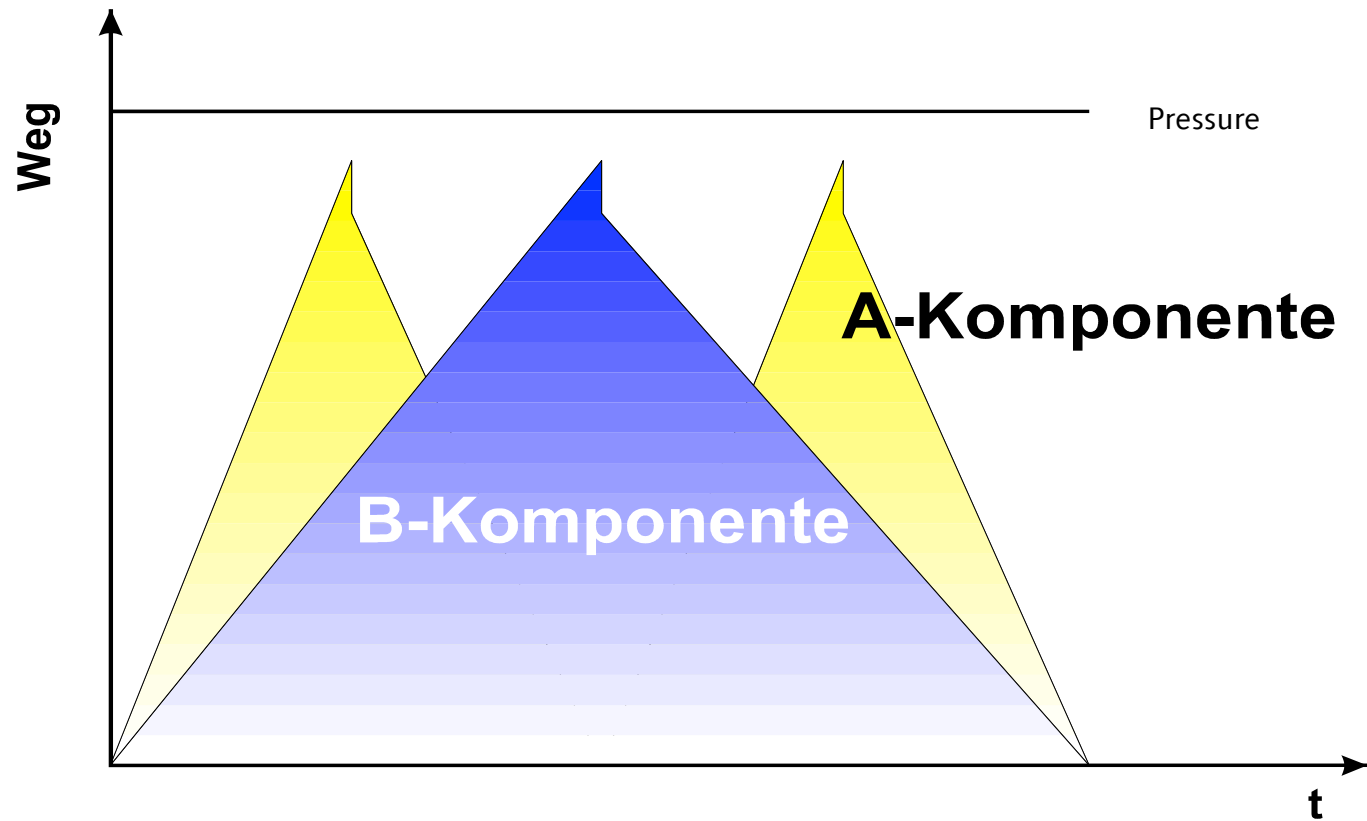
Compared to standard systems the PolyMix 1900 series works without a mechanical coupling of the metering pumps, namely lifting beams. This helped to eliminate significant error sources, such as worn bearings which inevitably show up in the course of permanent use.

The PolyMix 1900 works with servo-hydraulically actuated piston pumps with integrated distance measuring.. The requested metering ratio as well as the output are programmed and monitored by means of the process computer. Thanks to this and the fact that there is no mechanical coupling of the metering pumps, a much higher metering precision is reached.

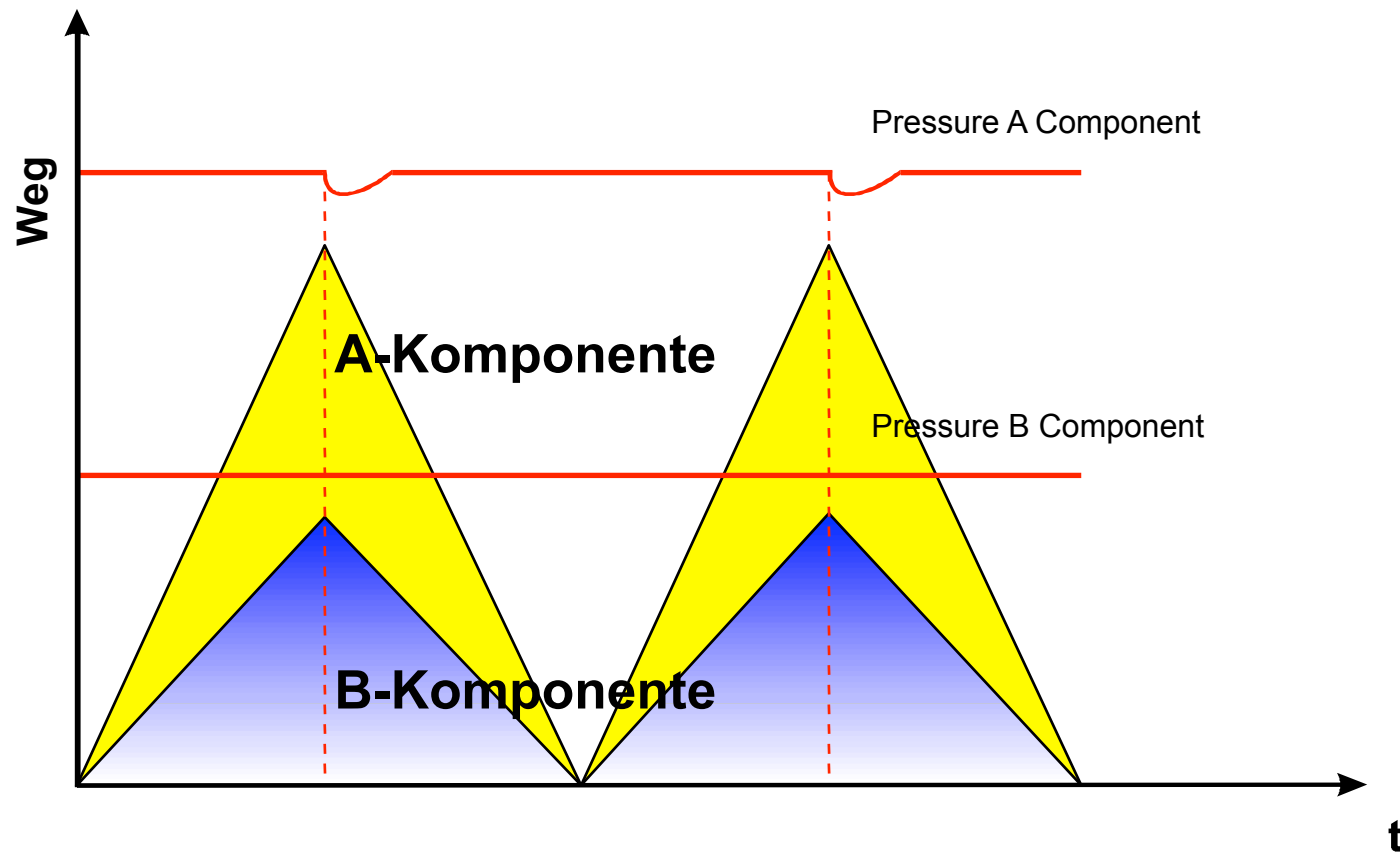
The installed volume stream metering permanently monitors the metering ratio and printouts of the according results may be made by means of a protocol printer.

All parameters are entered into the process computer and saved in so-called recipe memories. This way the mixing ratio may be changed faster than it takes to change the material vessels.

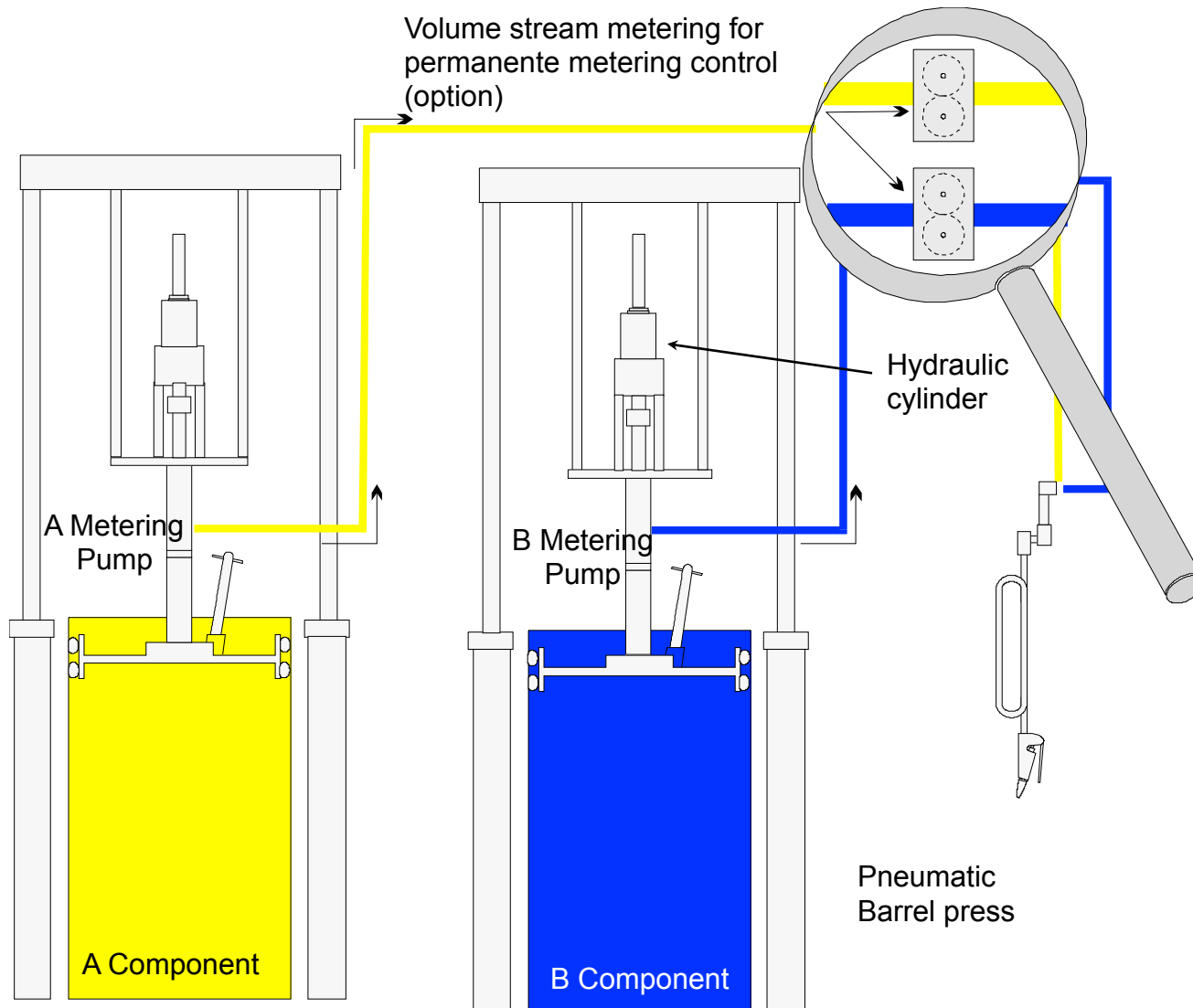
## Metering principle PolyMix 1900



## Metering principle compared to standard systems



# Flow Scheme Poly Mix 1900

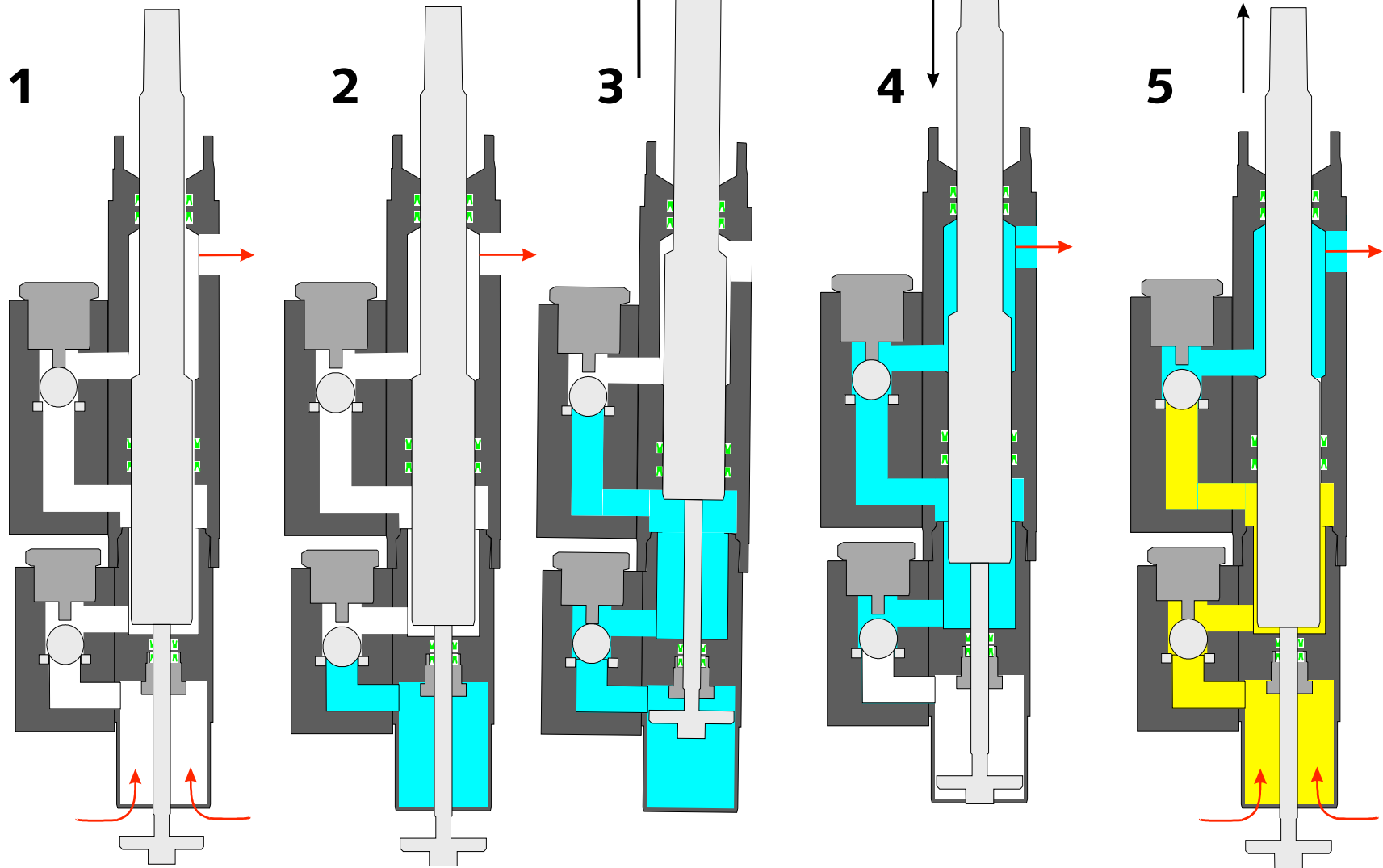




# Poly Mix Components



## Function by double-effective piston pumps





## **Function by double-effective piston pumps**

- 1 Double-effective piston pumps with external ball check valves, the ratio from the bottom to the upper piston space amounts to 2:1, this a constant output is guaranteed in both strokes.**
- 2 The pump is driven into the material which is filled until the bottom ball valve.**
- 3 In upwards stroke the material is then taken into the bottom piston space, reaching as far as the upper valve. The material has got the same pressure as the material in the vessel, respectively the vat or ring line.**
- 4 In downwards stroke the bottom ball valve is closed due to the increasing material pressure and the material is fed into the upper piston space. Given the ratio of 2:1 of the two piston spaces, material is also fed outside. Here it has to be borne in mind that the material has to be compressed onto the pressure which is measured at the pump exit. This pressure difference leads to the known pressure drop in the upper commutation point.**
- 5 During the following upwards stroke the upper ball valve is closed; while the bottom piston space is filled, the upper one is simultaneously emptied. The pressure drop caused is relatively small compared to the upper commutation point, as the material has already reached the pressure measured at the pump exit. The pressure drop is influenced only by the valve closing time as well as the time required for commutation of the actuation cylinder.**

## Further Advantages

- **The mixing ratio is adjusted electronically.**
  - By servo-hydraulics, no lever arms, thus no wear
- **Only two instead of three pumps**
- **Easy diagnosis in case of disturbances by process control**
- **Process safety by metering control (option)**
- **Protocol printed by means of printer (option)**

# Metering System PolyMix 1900

- **Hydraulically driven metering unit with variable mixing ratio**
- **Metering directly from the material vat**
- **Mixing ratio 1:1 to 10:1**
- **Variable output**
- **High performance by processor control**



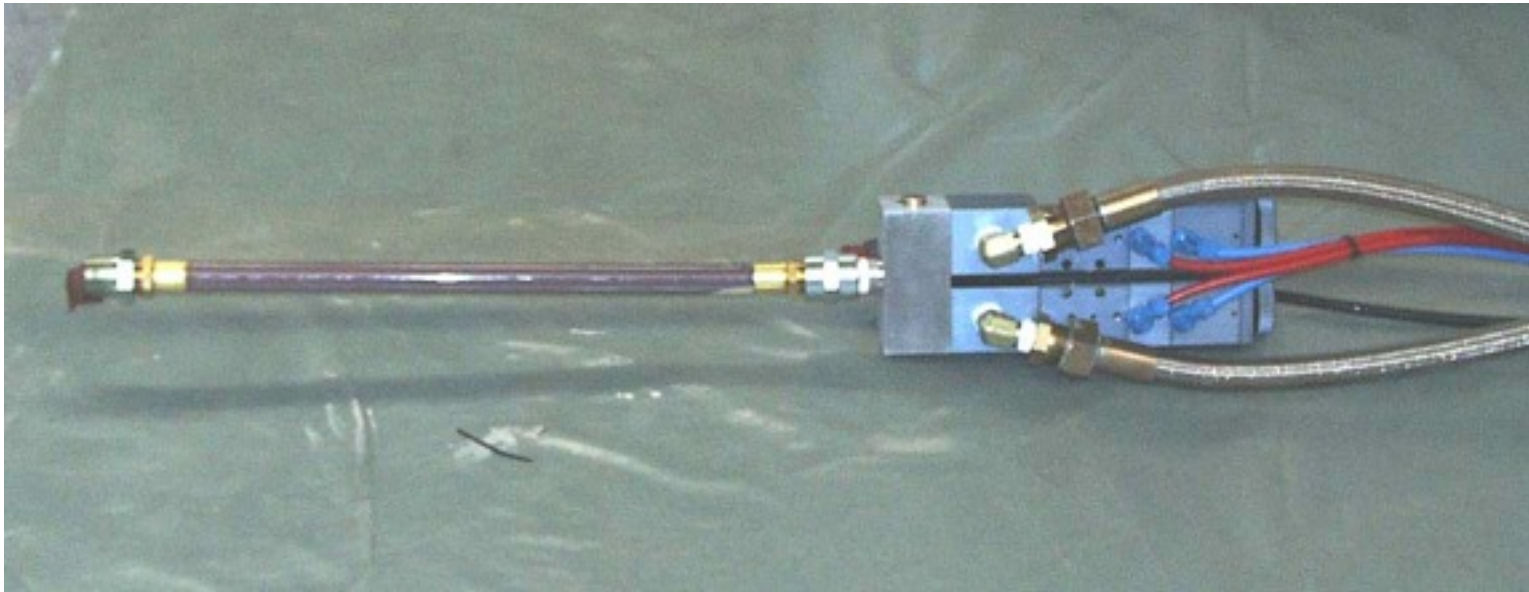
## Compact Machine from 20 to 200 Liter

- **Linear layout of hydraulic cylinder and piston pump**
- **Large-volume metering pumps**
- **Low material shearing**
- **Compact construction**
- **High dynamic by servo-hydraulics**





## Mixer Path with Static Mixer



## 2KM Process Control

- **Menu-controlled operator assistance**
- **Display of all process parameters**
- **Entry of the product data**
  - Mixing ratio
  - Output
  - Pressure parameters
  - Processing time



# 2KM Processor Control



- Display of all set and effective values
- Parametration of all process data
- Protocol of the process parameters by means of printer or BDE interface
- Online assistance during parametration
- Warning hints in the status line, in clear text