ALLROUNDER Multi-shot applications

In focus: Customer-specific best solution

ARBURG

ALLROUNDER Technology

Agenda

- Our Company
- The ALLROUNDER philosophy
- Machine concept overview
- Modular technologies
- Application examples
- Summary

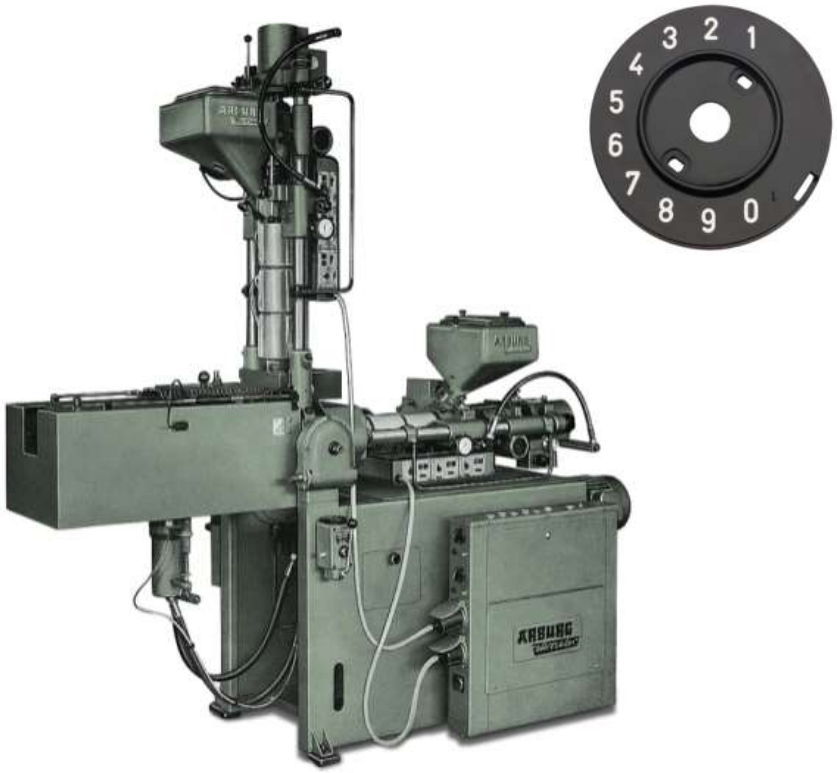
Our company

Our home is in the Black Forest

At a glance

Utilising unique know-how

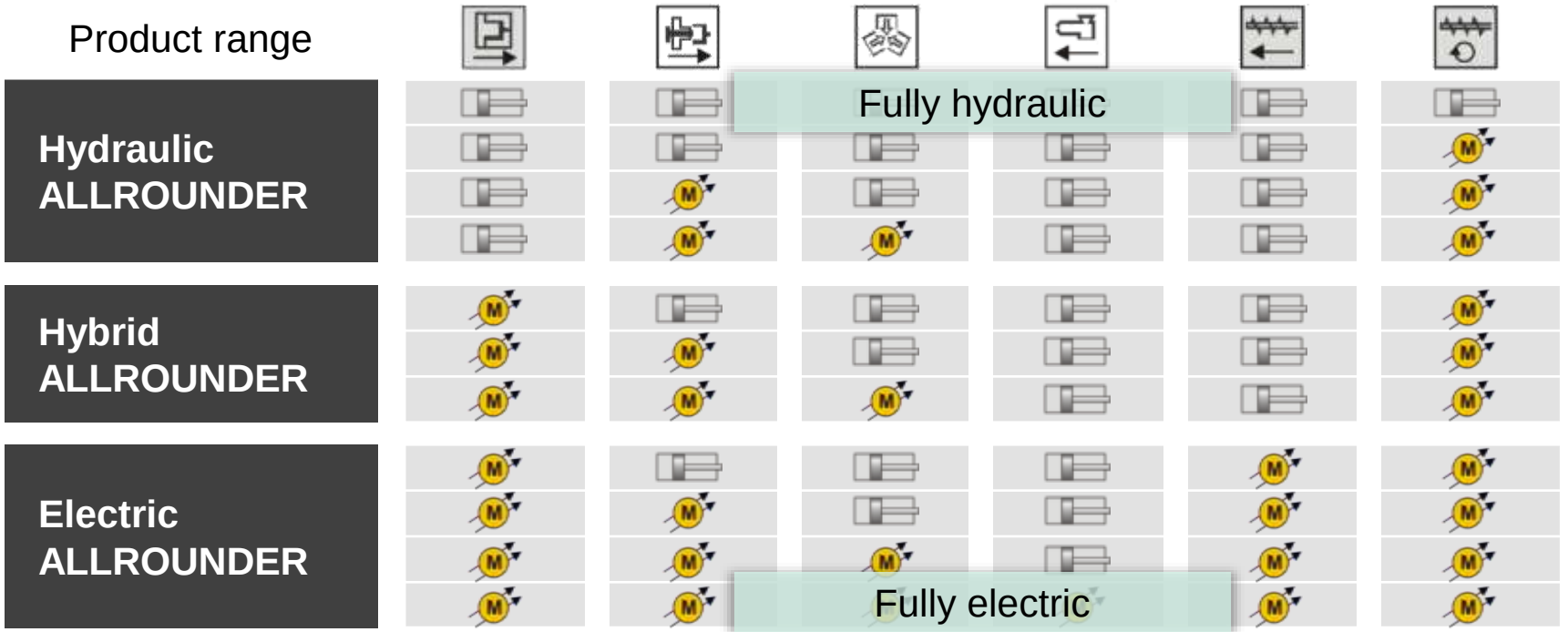
- As pioneer in this field, ARBURG has been involved in the production of multi-component parts since as early as 1962
- Today, multi-component injection moulding is one of the core areas of expertise



The ALLROUNDER philosophy

Individuality from modularity

Flexible adaptation – to meet every requirement



Application oriented:
Modular machine technology

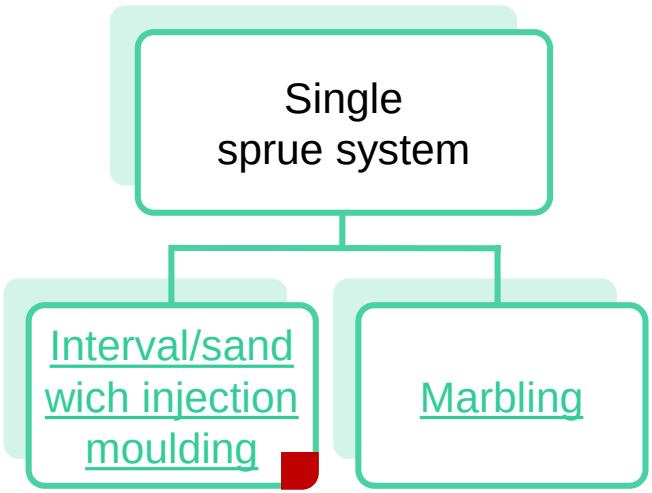
Standard multi-component machines

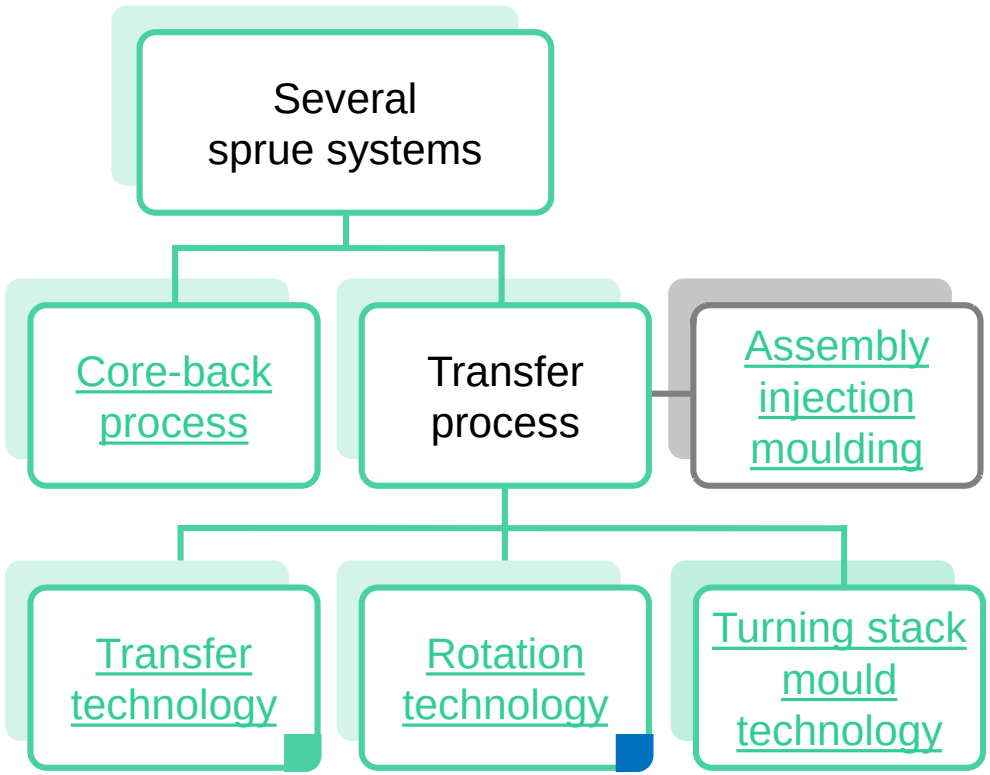
Distance between tie bars									Clamping forces	Injection units*										
920	820	720	630	570	520	470	370	270		30	70	100	170	290	400	800	1300	2100	3200	4600
										15 18	18 22 25	20 25 30	25 30 35	30 35 40	35 40 45	45 50 55	55 60 70	60 70 80	70 80 90	80 90 100
Hydraulic: ALLROUNDER S																				
									400 – 5,000		H	H	H	H	H	H	H	H	H	H
										V	V	V	V	V	V					
Electric: ALLROUNDER A																				
									600 – 5,000		H	H	H	H	H	H	H	H		
											V	V	V	V	V					

* in accordance with EUROMAP

Versatile: Process technologies

Multi-component injection moulding: classification





Accessories:

- Interval unit
- Rotary unit/indexing unit
- Robotic system

Application oriented: Modular machine technology

The classic: horizontal and vertical

- Standard: multi-component machines with horizontal and vertical injection unit
- Meets most requirements with regard to Multi-component technology
- Vertical injection unit can be moved manually thanks to parting line mechanism*
- Consequently unobstructed mould installation and short set-up times

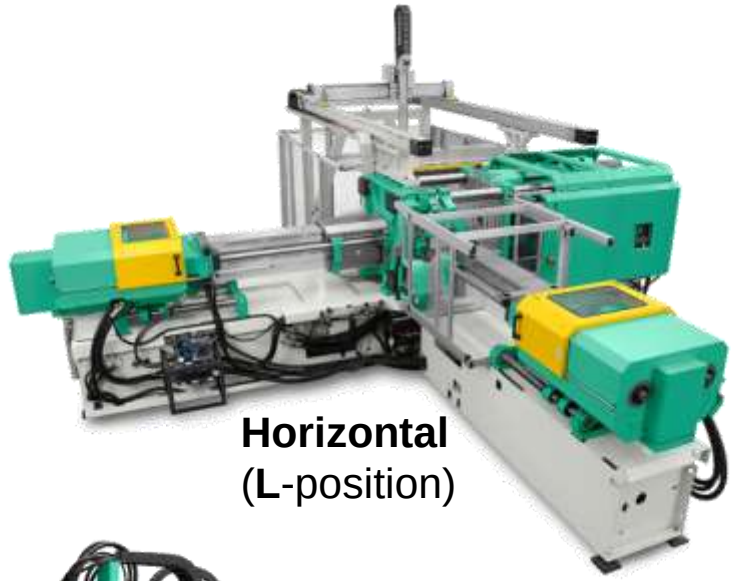
* dependent on the machine size

Application oriented:
Modular machine technology

Flexible configuration

Vertical
(**V**-position)

Horizontal/
parallel
(**P**-position)



Horizontal
(**L**-position)

Angled
(**W**-position)

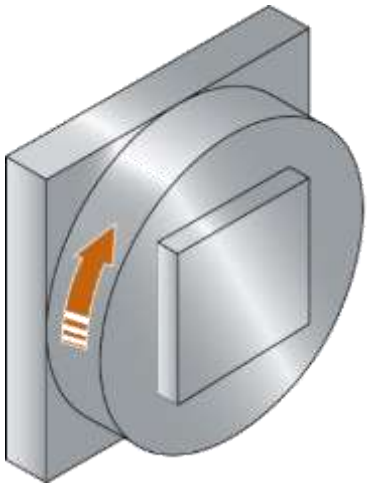
Moving
(**M**-position)

Versatile: Process technologies

Rotation technology

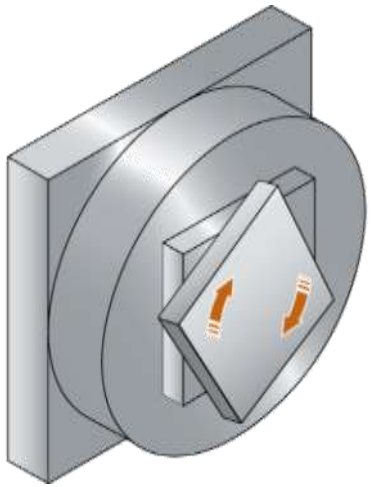
Versions for rotary movement

Mould half rotation

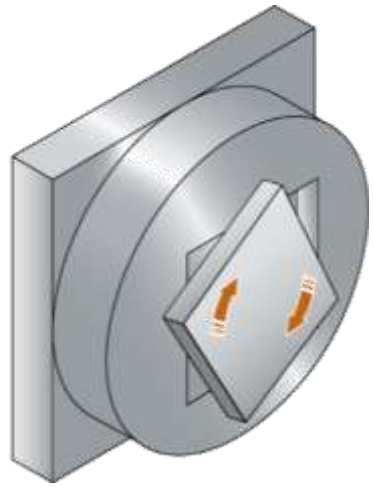


Note: cavity only changeable on nozzle side

Index rotation



Mould platen rotation



Mould insert rotation

Essentials and advantages

Characteristics of rotary and index units

Hydraulic

- Low-cost entry
- Fixed angle of rotation*

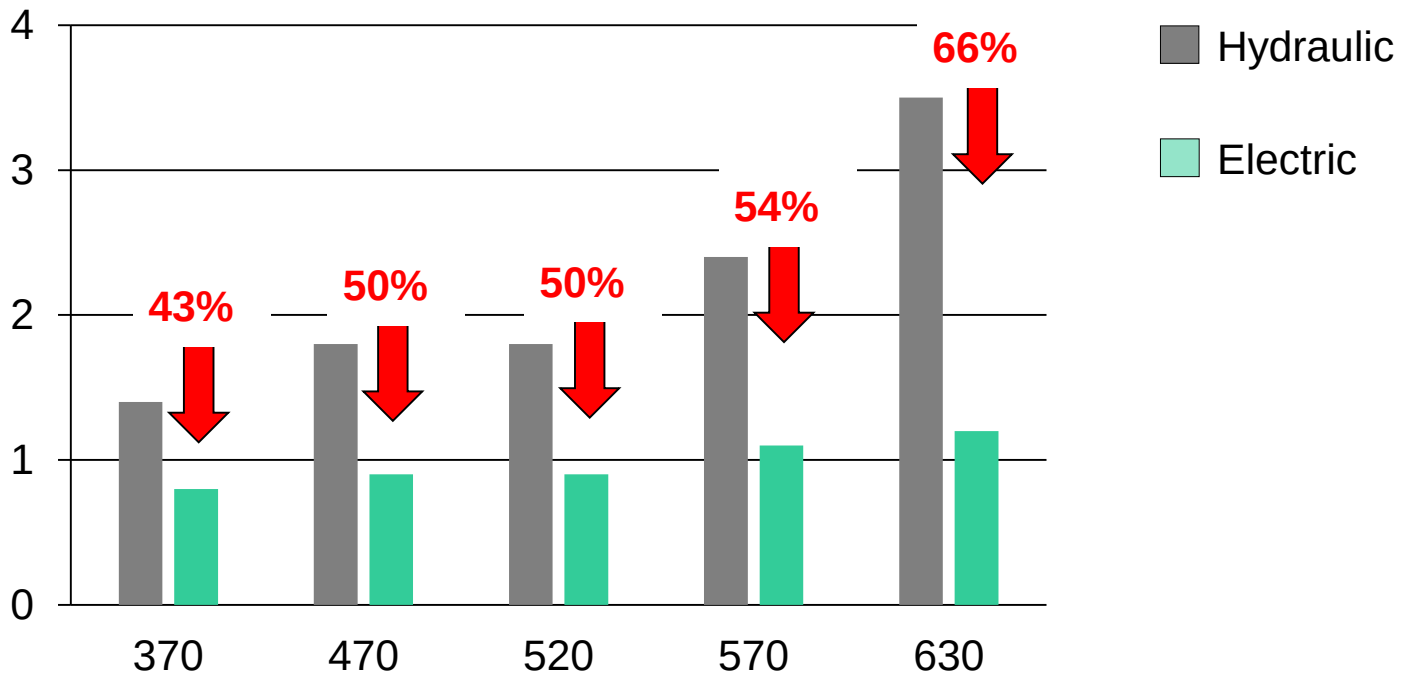
Electric

- Fast and precise rotation
- Freely programmable angle of rotation
- Energy-saving

*Further angles of rotation available on request

Essentials and advantages

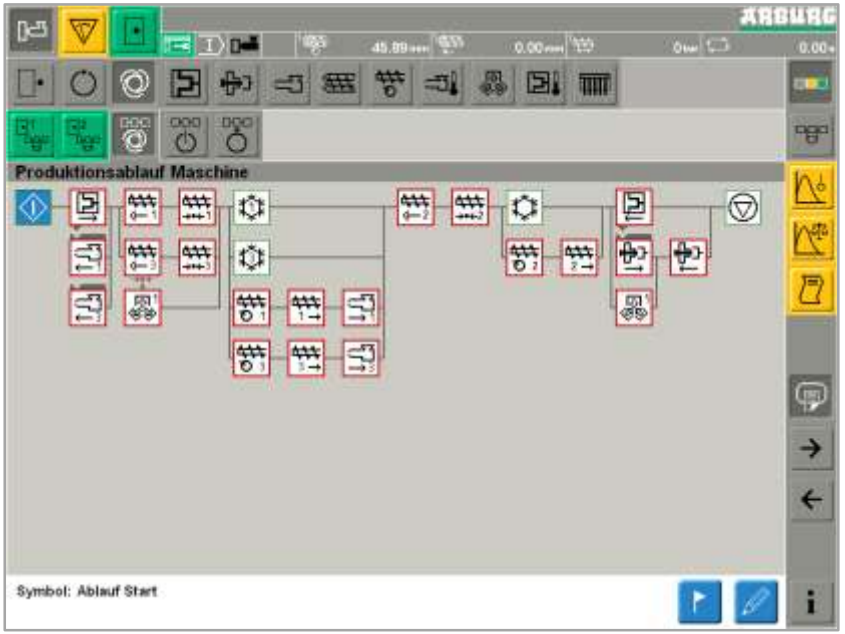
Shorter rotation times – High production efficiency



Freely programmable: SELOGICA control system

Integrated mould functions

- Mould functions and robotic systems fully integrated into SELOGICA
  - Programming as for additional machine axes
  - Central display of error messages in plain text
- Perfect adaptation and synchronisation of movement sequences



At a glance

Reliable process control

- SELOGICA – the perfect, freely programmable control system
  - Convenient sequence programming with graphical symbols – ideal for complex sequences
  - Patented, real-time plausibility check during sequence programming
- Full integration of peripherals such as rotary units

Example of application

Turnkey solution: Wristwatch

Assembled parts:
Watch and buckle

Length
230 mm

Watch-strap in an
LSR/LSR combination
with 70/20 Shore A

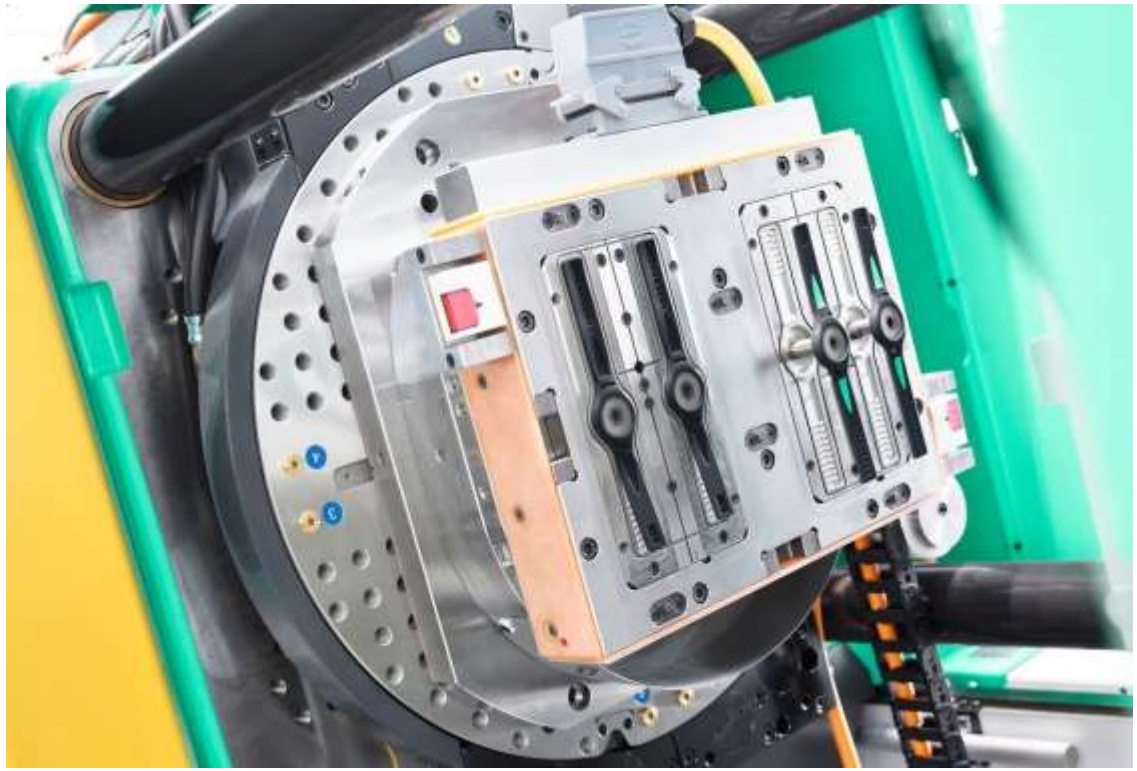
Cavities	2 + 2
Part weight	16.5 [g]
Material	LSR + LSR

Example of application

Turnkey solution: Wristwatch

Mould technology
for waste-free process
with minimal burr

- Electric rotary unit – rapid transfer of pre-moulded parts
- Temperature control, electric and with cooling water – reliable regulation
- Cold runner with needle shut-off nozzle - direct injection

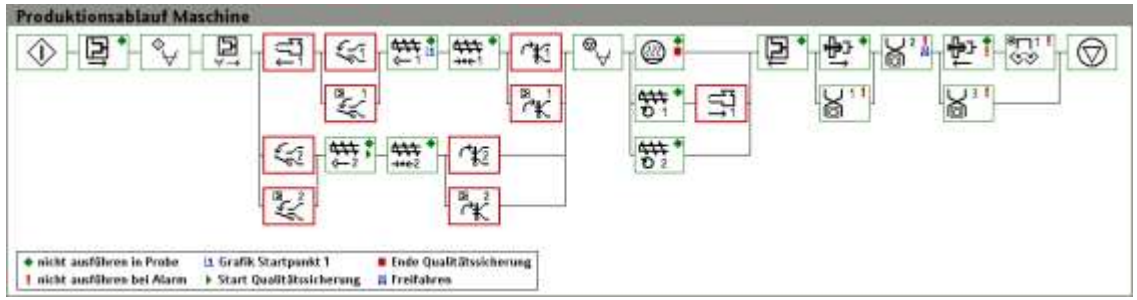


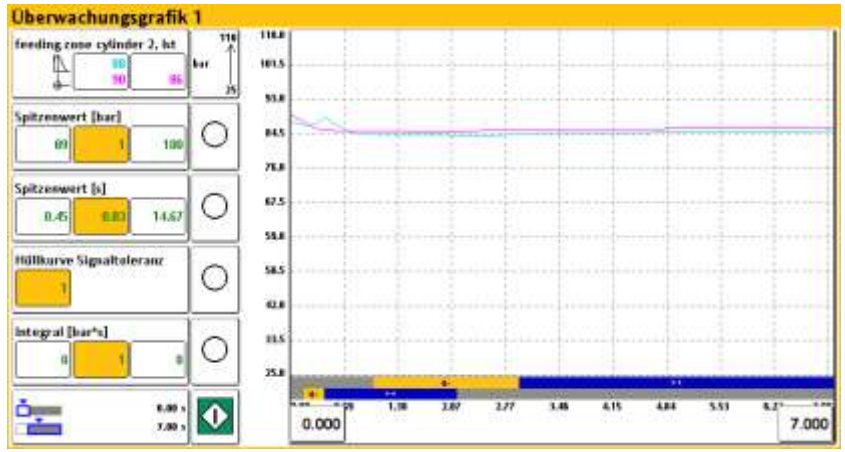
Example of application

Turnkey solution: Wristwatch

Detailed process control and quality assurance

- Central SELOGICA controls all sequences
- Cooling water supply regulated online
- Pressure in LSR cylinder modules and vacuum monitored online
- Dye feeds with flow measurement





Example of application

Turnkey solution: Wristwatch

Innovative overall concept

- Electric two-component ALLROUNDER 570 A 2000-400/70
- Electric LSR dosage units
- Precision mould technology
- Vertical robotic system MULTILIFT V 15
- Integrated cooling and assembly station

Cycle time	[s]	60

Example of application

Multi-component technology: handle for garden saw

Cavities	1 + 1
Part weight	88.5 [g]
Material	PP + TPO

Example of application

Multi-component technology: handle for garden saw

Hydraulic ALLROUNDER 570 S 2200-400/170

- Simultaneous, precise movements thanks to hydraulic accumulator technology – injection units can be moved completely independently
- Precise and quick transfer of pre-moulded parts with servo-electric indexing unit
- Robotic cell with six-axis robot suspended on linear axis
- Designed for high-volume production: reliable and efficient process sequence with in-line quality assurance
- Central SELOGICA control system – mould functions and automation integrated

Length
230 mm

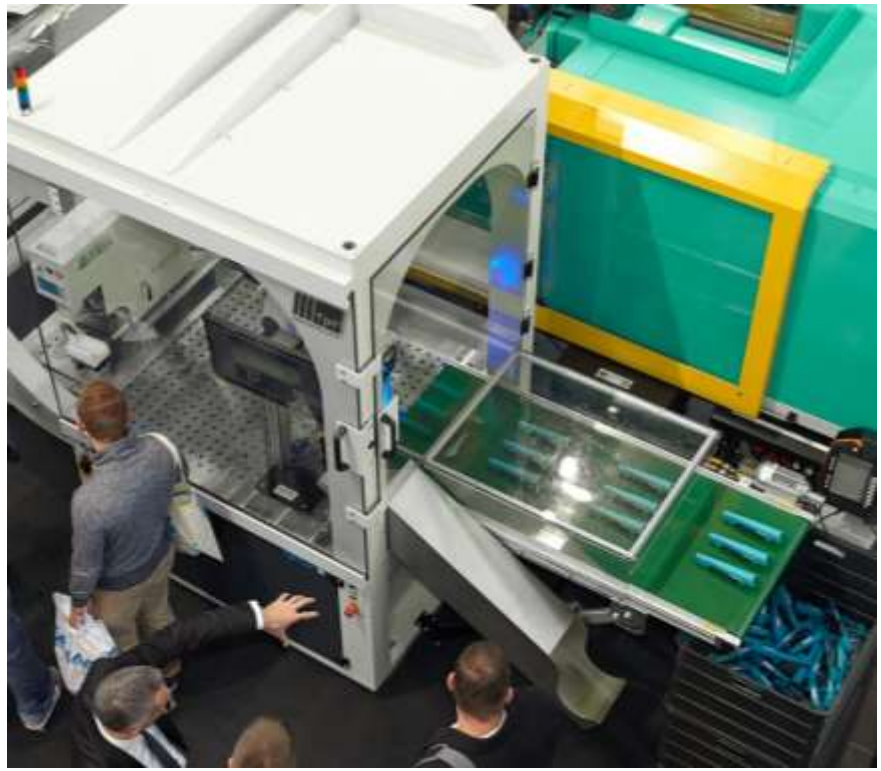
Cavities	1 + 1
Part weight	88.5 [g]
Material	PP + TPO

Example of application

Multi-component technology: handle for garden saw

Robotic cell: compact
and flexible to use

- High degree of functionality in a confined space
- Dynamic movements and fast mould-entry operations via linear axis
- Individual configuration, e.g. with pad printing and test equipment
- Standardised interfaces

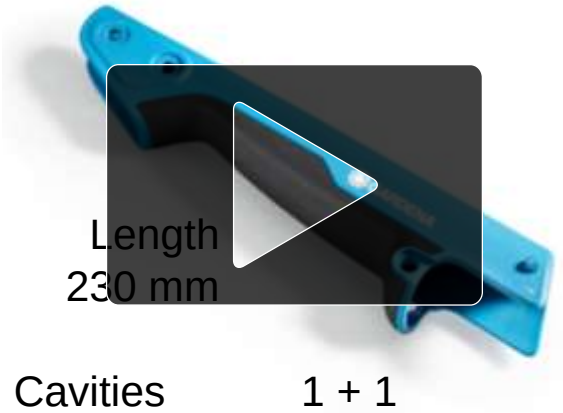


Example of application

Multi-component technology: handle for garden saw

Hydraulic ALLROUNDER 570 S 2200-400/170

Cycle time	[s]	35



Reliable operation –
with precisely adapted technology

- Simple start-up – one central control system
- Targeted process optimization – coordinated removal
- In-line quality assurance

Cavities	1 + 1
Part weight	88.5 [g]
Material	PP + TPO

Summary

In focus: Customer-specific best solution

- ALLROUNDER technology
  - Sophisticated machine technology with high quality and performance
  - Machine technology precisely adapted to the specific injection moulding task through modular component system
  - High degree of standardisation through cross-machine series approach
  - Wide product range – from fully hydraulic to fully electric
- Result: high cost-effectiveness and efficiency for each application

Thank you !

- 16th May, ARBURG Ltd 25th Anniversary open house.
- 09:30 to 15:30
- Speakers including…….