

## PRIAMUS Fill & Cool Compact Version Type 7007B

### PRIAMUS Fill Compact Version Automatic hotrunner control

- Multi cavity molds
- Multi component molds
- Cluster molds („Hot to cold“)
- Family molds
- Weld lines
- Integrated process monitoring
- Online viscosity monitoring

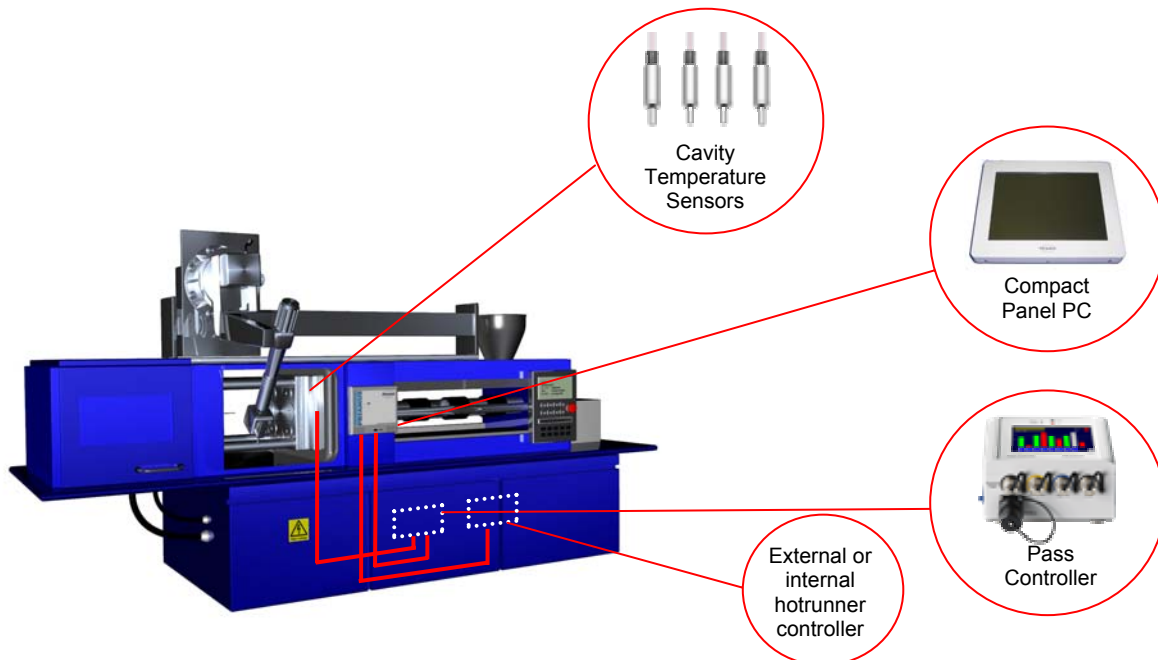


### System overview

PRIAMUS Fill Compact Version monitors and balances the melt flow in hotrunner molds for up to 8 channels.

Depending on the application cavity temperature sensors are installed either in every cavity (multi cavity and family molds) or at different positions in the same cavity (weld lines). PRIAMUS Fill analyzes the temperature information and changes the set values of the hotrunner controller automatically until balanced conditions in different cavities or a reference condition in the same cavity are achieved. For process optimizing and monitoring functions it is recommended to use additional cavity pressure sensors.

### PRIAMUS Fill

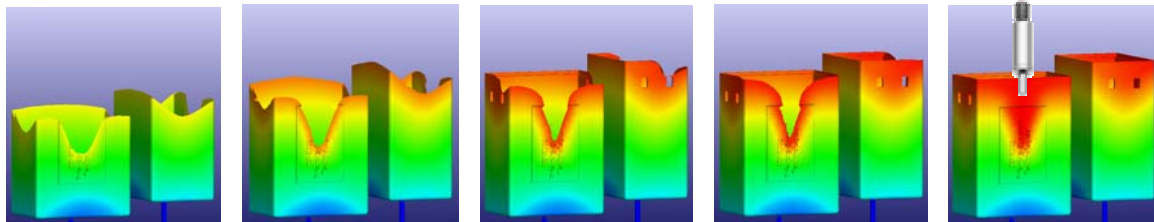


subject to technical amendments

### The idea of melt flow control

Melt flow in a cavity changes permanently depending on different melt viscosities. The only possibility to control melt flow is to make sure that the melt front reaches the same position at the same time. Cavity temperature sensors measure a temperature increase as soon as the melt arrives. PRIAMUS Fill analyzes the temperature signals automatically and calculates how the set values of the nozzles must be changed in order to achieve respectively control the desired viscosity (i.e. the correct melt front velocity).

Cavity Temperature Sensor near the end of fill



### Multi cavity hotrunner molds

Balancing problems due to different fill of the parts can be found in 2 cavity molds as well as in 8 cavity molds. In no case it is possible to influence this behaviour because the settings of the hotrunner controller are “fix”. Even “Manual” balancing by short shot studies will not succeed because the melt flow will change again due to the environmental conditions.

For permanent control one cavity temperature sensor must be installed near the end of fill in each cavity in order to detect volumetric filling.

PRIAMUS Fill analyzes the temperature signals and changes the set values of the hotrunner nozzles shot by shot until each cavity is filled at the same time – during the whole production period. Viscosity changes are therefore compensated.



### Multi component molds / family molds / weld lines

Multi component and family molds have one thing in common: In both cases different melt volumes are injected which in no case can be balanced under the same conditions. In this case one cavity temperature sensor per cavity or one cavity temperature sensor per component must be installed. After a first optimized setup of the mold the cavity temperature signals are saved and then used as a reference for further control.

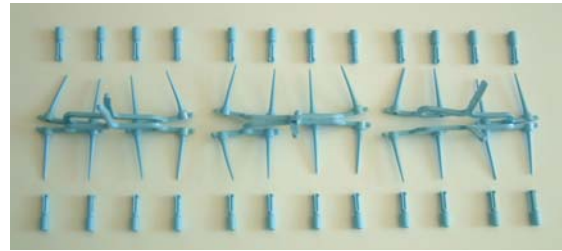
PRIAMUS Fill will then control the hotrunner nozzles according to the reference signal and keep these conditions – and therefore the parts – constant over the whole production time.



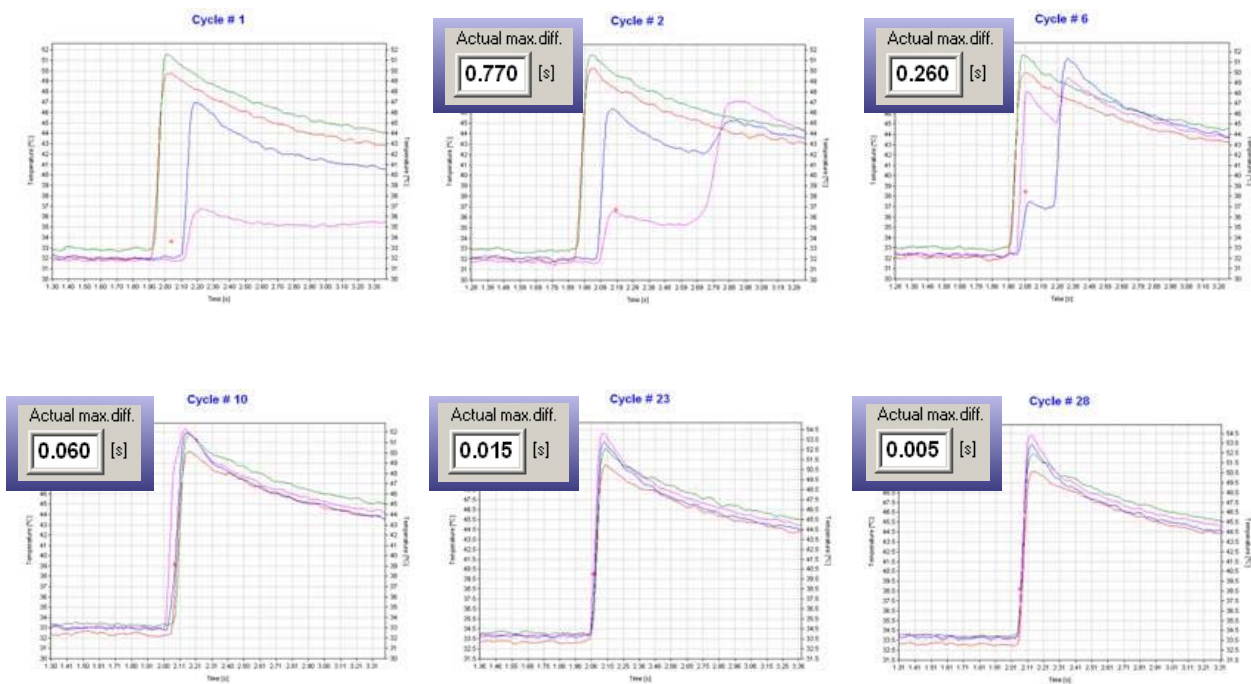
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## Cluster molds (“Hot to cold”)

Cluster molds are so called “hot to cold” applications. Cold runners however cannot be controlled and unbalanced conditions in the single cavities cannot be compensated. The complete clusters however can be balanced and compared to each other. In this case the average cavity temperature signal of the single cavities will be used for control while the single cavity temperature signals are monitored.



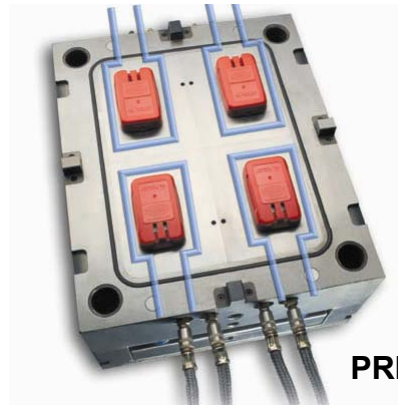
## Example: Balancing of a 4-cavity mold



subject to technical amendments

## PRIAMUS Cool – Process depending mold Temperature control

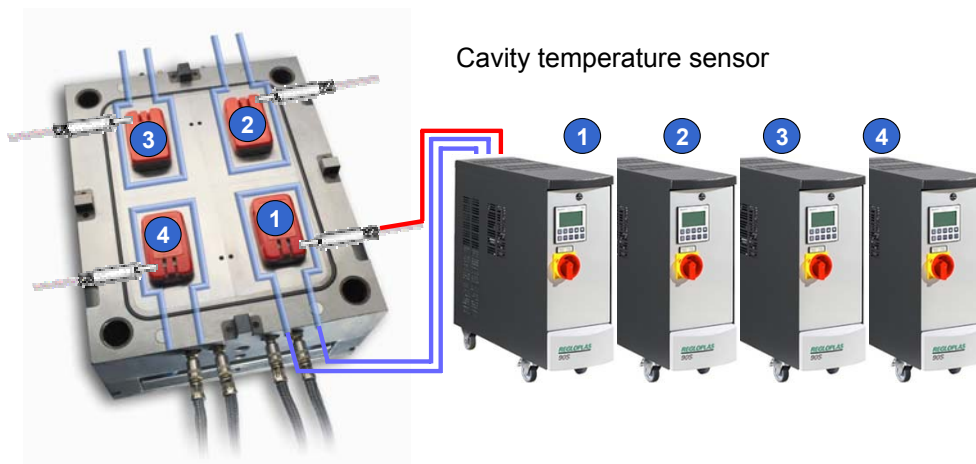
- Automatic balancing of mold surface temperature
- Uniform temperature distribution on the mold surface
- Closed loop
- Balanced / optimized shrinkage conditions
- Single or multi cavities



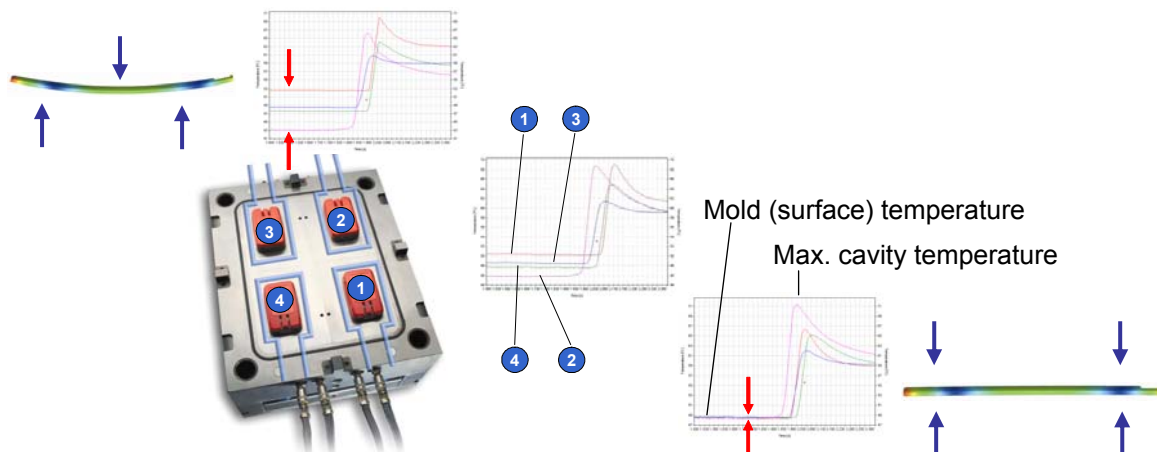
PRIAMUS Cool

### Description

Besides the optimized fill conditions it is the temperature on the mold surface which mainly influences the part shrinkage and its final properties. Non-uniform temperature distribution over the mold surface inevitably leads to different shrinkage of the molded part – and therefore to different dimensions and warpage. PRIAMUS Cool analyzes the measured cavity temperatures automatically and corrects the single cooling circuits until a uniform temperature distribution on the mold surface is achieved.



It does not make any difference if this relates to separate cooling circuits of multi cavity molds or to cooling circuits of large area parts such as bumpers or instrument panels.





### Order Codes

Type	Description
7007B	PRIAMUS Fill & Cool Compact for 8 channels

### Scope of delivery

Compact Panel PC Type 8009A incl. Windows XP Professional  
 Ethernet connecting cable  
 Power cable  
 Software-CD

### Accessories \*

Mold equipment (example)			
Type	Description	Type	Description
8600A400	Mold equipment incl. Pass Controller type 8104A004 (8 temperature signals), PDDI type 8906A, connecting cable type 1245A5 (Digital I/O) and connecting cable type 1246A5 (power supply)	8600A211	Mold equipment incl. Pass Controller type 8104A004 (2 temperature signals, 2 pressure signals, 4 voltage signals), PDDI type 8906A, connecting cable type 1245A5 (Digital I/O) and connecting cable type 1246A5 (power supply)

Single components	
Type	Description
6001A/B... 6002A/B... 6003A/B... 6004A/B... 6006B... 6007B... 6010B... 6011B... 6411A...	Cavity pressure sensors with and without sensitivity detection for process optimizing and monitoring.
	Connecting cables for cavity pressure sensors with and without sensitivity detection as well as for cavity temperature sensors (see data sheet Pass Controller)

\*: Please contact PRIAMUS SYSTEM TECHNOLOGIES for a detailed quotation

### Requirements

PRIAMUS Fill & Cool requires an interface to the hotrunner controller respectively to the temperature controllers. The system provides a data base in which a number of interfaces already is included. The according controller must be selected during installation.

It is also possible to add new interface protocols to this data base which however requires certain programming time. The programming of a new interface protocol is free of charge.

Please contact PRIAMUS SYSTEM TECHNOLOGIES for the actual list of available interface protocols.

### Remark / Process Monitoring

PRIAMUS Fill & Cool Compact includes a complete process monitoring system. Both cavity pressure and cavity temperature as well as voltage (machine) signals can be monitored entirely.