

SYSTEM COOLING™

System Cooling offers Injection Molders an exclusive and affordable solution for monitoring flow and temperature circuits within an injection mold.

The efficiency of the mold cooling circuits are critical to a stable process and the manufacturer of high quality, dimensionally stable parts. System Cooling can protect your mold and improve quality by quickly identifying cooling problems and alerting the user to various common cooling circuit problems, such as:

- No water flow from the mold heater
- Blocked waterways
- Scale / rust build-up
- Incorrect piping.





Touch Screen Controller





Molders that run parts with critical tolerances and require consistency of mold cooling can generate reports to support their industry certifications.

HARDWARE

Touch Screen Controller

Using a remote, mounted touch screen the system will monitor and display the flow and temperature for every circuit. The Touch Screen is used to:

- Set warning and alarm limits for flow and temperature to all monitored zones individually.
- View current status graphically or as text.
- Feed alarm signals to an ancillary device such as an alarm tower, hot runner controller or molding machine.
- Store data and mold setups in the internal memory where they are time and date stamped for ultimate traceability.



Simple Overview

The user can see an immediate overview of cooling circuit status 'at a glance' on a single screen with instant display status alarms should the flow / temperature go outside of tolerance.

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Historical Data

Historical data recording means that a

performance log for each circuit and man-

ifold is stored on the internal memory, al-

lowing the user to track the performance

and easily identify problems.

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Event Log

Alarm errors, warnings and operator changes are all stored with a time and date stamp and can be reviewed at any time.

AST

MANIFOLD

The slim line and compact design has been developed to enable the System Cooling manifold to be mounted into the smallest space possible next to the machine platens, keeping pipe runs to an absolute minimum, improving flow rates to the mold and reducing cycle times. Other notable features include:

- 1-1/2" NPT flow and return ports on both the top and bottom of the manifold provide flexibility in connection
- · Can be mounted on either the fixed or moving half of the molding machine
- · Can be supplied with color-coded ball valves
- Available with 4, 8 or 12 ports as standard (other sizes are available on request)
- Multiple manifolds can be electronically 'daisy-chained' to accommodate the necessary number of flow channels
- Available in Aluminum or Stainless Steel.

The System Cooling Manifold is equipped with very compact sensors that are capable of reading both flow and temperature:

- Sensors measure based on the Vortex Flow principle.
- It has no moving parts and a large flow path.
- · Ideally suited to mold cooling even when using heavily contaminated water.
- Integrated directly into the manifold, keeping size to an absolute minimum.



Individual port sensors are embedded in the manifold providing increased accuracy.



12-port manifold with staggered color coded ball valves for convenient, visual connection.

INTERFACE MODULE

System Cooling is equipped with a DIN-Rail mounted interface module (MFIO) - this is the hub of the system and allows the manifolds to be easily connected to external devices.

- The interface module facilitates true 'plug and play' operation, allowing multiple manifolds to be monitored.
- Enables simple connection to the touch screen, power supply, alarm signals in/out and machine communications.
- Allows data to be fed into production monitoring systems or other devices using the onboard communication ports.







INTEGRATED SOLUTION CAPABILITY

AST can offer custom solutions where the electronics is built into the machine control panel and integrated directly into the injection molding machine.

- Eliminate the need for another controller.
- Display all System Cooling screens on an existing display.
- Closed loop design provides safety against starting molds without flow.

The manifold is equipped with network-ready electronics and can be connected to the network/internet via the ethernet connection.

- Monitor flow from any location directly on your smartphone or laptop.
- Configure settings on site or remotely.
- Feed data to an external production monitoring system.



PORTABLE TESTING

New Molds

Moldmakers must often supply new molds to the customer complete with a report of operating parameters including data relating to the cooling circuits in the mold. Now moldmakers can easily connect the System Cooling Test Rig to the mold as part of the benchmarking process.

Mold Maintenance

Mold cooling circuits need to be maintained regularly to remove scale and rust to ensure maximum productivity. With the System Cooling Test Rig, the cooling channels can be analyzed and tested. The flow and pressure can be precisely controlled to simulate the production setup.

Measurement Report

After maintenance users can generate fully documented reports from any location, directly on a smartphone or laptop, certifying that all flow and pressure values are regained. The reports generated document:

- Flow volume/capacity; pressure loss through the mold.
- Pressure leak test results.













SYSTEM COOLING SPECIFICATIONS

MANI	FOLD	FLOW SENSOR			
Manifold feed	1-1/2" NPT	Sensor type	Vortex		
Manifold ports	1/2" NPT	Range (flow)	2-40 litres/min or 1-15 litres/min		
Number of ports	4/8/12 Standard	Accuracy (flow)	1.5% fs		
	(other sizes on request)	Range (temperature)	0 - 90°C		
Regulation	Color coded ball valves per circuit (optional)	Resolution (temperature)	0.5°C		
		Accuracy (temperature)	+/- 1,5% fs		
Manifold connection	Customer specified	Sensor signal	0,35 – 3,5 V		
Operating temperature (max)	0 - 90°C	Output signal	Voltage		
Operating pressure (max)	10 bar	Response time	<1s		
Temperature sensing	Per circuit (return)	Power supply	5 VDC		
Flow sensing	Per circuit (return)	Seal	EPDM		
Temperature sensing main inlet	Yes (optional)	Burst pressure	18 bar (40 °C)		
Power supply	12 - 24 VDC	Connection	Quick connect - plug and play		

TOUCH	SCREEN			
Display	15.6" touch screen (optional)			
Control	Microprocessor based / computer based (optional)			
Communication ports	Ethernet / USB			
Communication system	ASCII (USB) / HTML / SSH (optional) / VNC (optional)			
Protocols	USB Serial / TCP/IP			
Storage (log and settings)	Internal (optional) / USB (optional)			
Machine control integration	Yes (optional)			
Remote Access via internet/network	Yes (optional)			
Number of zones (flow and temperature)	Max 12 Zones / manifold (expandable)			
Number of manifolds	Multiple (plug and play)			
Display units (flow)	Litres / gallons switchable / RAW (optional)			
Display units (temperature)	°C / °F switchable / RAW (optional)			
Warning limits	10% of alarm limits (optional)			
Alarm limits	User definable per zone (optional)			
Alarm output	Potential free output warning / alarm			
Marker input	Potential free			
Idle mode input	Potential free			
Power supply	12 - 24 VDC			

ORDERING INFORMATION

Complete Set Manifold, Touch Screen 15.4" and Interface

Manifold only

CATALOG NUMBER	TYPE	ZONES	FLOW VOLUME/ ZONE	CATALOG NUMBER	TYPE	ZONES	FLOW VOLUME/ ZONE
SCS-4-1	Anodized Alu 1-1/2"	4	1-15 l/m	SCM-4-1	Anodized Alu 1-1/2"	4	1-15 l/m
SCS-8-1	Anodized Alu 1-1/2"	8	1-15 l/m	SCM-8-1	Anodized Alu 1-1/2"	8	1-15 l/m
SCS-12-1	Anodized Alu 1-1/2"	12	1-15 l/m	SCM-12-1	Anodized Alu 1-1/2"	12	1-15 l/m
SCS-4-2	Anodized Alu 1-1/2"	4	2-40 l/m	SCM-4-2	Anodized Alu 1-1/2"	4	2-40 l/m
SCS-8-2	Anodized Alu 1-1/2"	8	2-40 l/m	SCM-8-2	Anodized Alu 1-1/2"	8	2-40 l/m
SCS-12-2	Anodized Alu 1-1/2"	12	2-40 l/m	SCM-12-2	Anodized Alu 1-1/2"	12	2-40 l/m
SCS-4-1-SS	Stainless Steel 1"	4	1-20 l/m	SCM-4-1-SS	Stainless Steel 1"	4	1-20 l/m
SCS-8-1-SS	Stainless Steel 1"	8	1-20 l/m	SCM-8-1-SS	Stainless Steel 1"	8	1-20 l/m
SCS-12-1-SS	Stainless Steel 1"	12	1-20 l/m	SCM-12-1-SS	Stainless Steel 1"	12	1-20 l/m

