TECHSPAN
PLASTICS & PRINTING TECHNOLOGIES

Wittmann

WATER FLOW REGULATORS

The World's Leading Water Flow Regulators

world of innovation

FLOWCON plus
The Intelligent Flow Controller from WITTMANN

Elektronics case for optional circuit boards and connector plugs to other **FLOWCON plus** units (4 units possible, 12 circuits max. per unit).

Generously dimensioned channels guarantee little loss of pressure and high flow rates. The mold connections are executed as G 3/8" internal threads, thus allowing for an individual connection (see page 15 of this brochure for a list of accessories like couplings, sockets, and hoses).

Specially developed fine regulating valve guarantees a temperatur control accuracy of ± 1 °C.

Case made of het resistant plastics guarantees a permanent temperature resistancy at 120 °C.

WITTMANN Kunststoffgeräte GmbH, based in Vienna, has for 40 years been the undisputed number one in the development and manufacture of water distribution systems for plastics processing. With their latest innovation, the company will be presenting the first example of a new generation of intelligent flow controllers – **FLOWCON plus**. With its proportional valve and zero-wear flow measurement, the WITTMANN **FLOWCON plus** ensures constant flow and a constant temperature, all achieved in reproducible fashion through the whole period of manufacture.

The design of the unit is based on the proven modular system of the flow controller series **101** and **301**: 2 to 12 circuits per unit (in steps of 2 circuits).

The protective covers are easy to remove.

Flow sensor and temperature sensor are integrated in in the plastics case in a space-saving.

Non-corrosive main connections: G 11/4", made of brass, plastics coated.

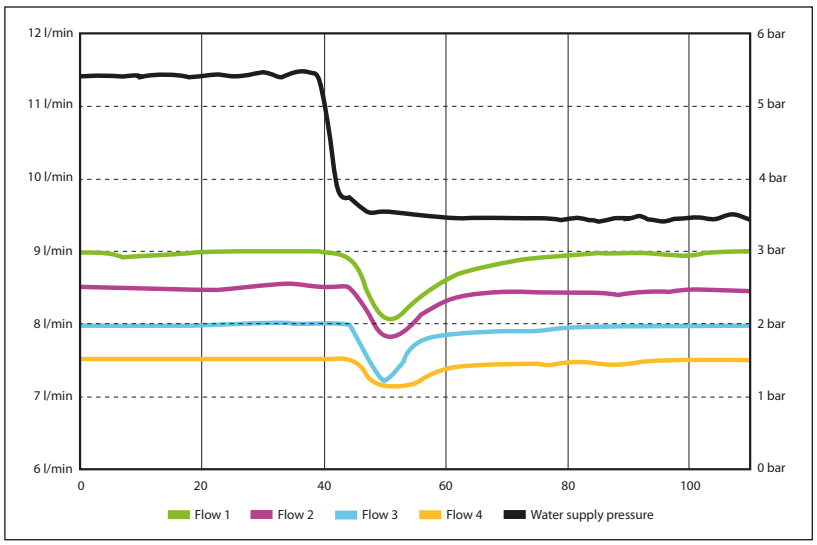
FLOWCON plus
Operation and Control

Operation via the machine monitor
Whilst **FLOWCON plus** is versatile in its applications, the ideal solution is to use it in conjunction with a WITTMANN BATTENFELD injection molding machine, which allows all WITTMANN peripherals to be fully integrated into the control system.

OPERATION VIA THE WITTMANN REMOTE CONTROL

Features of the remote control

- Access to max. 4 **FLOWCON plus** units with max. 12 circuits each (max. 48 circuits in total)
- Touch screen 5,7" TFT display for maximum ease of use
- For the stand-alone versions of the equipment, WITTMANN provides this remote control system, which is connected to **FLOWCON plus** via a serial port.



Process stability is achieved through:

- Disruptive factors, such as constriction of cooling ducts or fluctuations in pressure are detected and the flow is controlled proportionally using stepper motors instead of the old manual regulating valves
- Monitoring of preset flow and return channel temperature tolerances
- Isolated alarm contact

FLOWCON plus

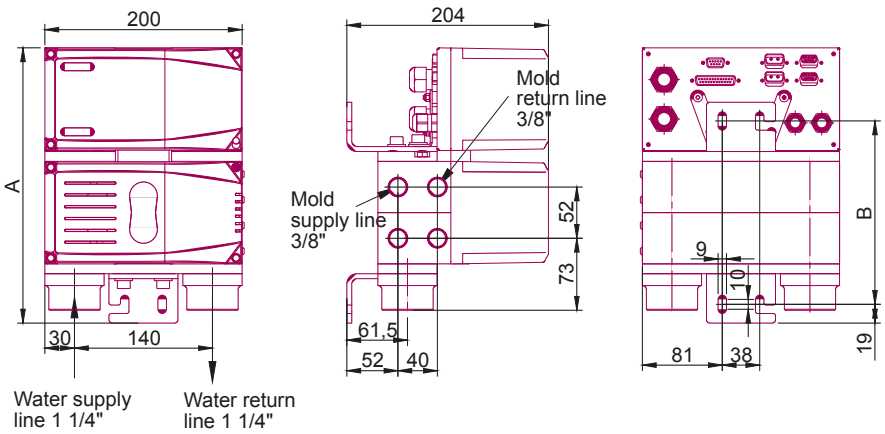
proportionally controlled flow of 1–15 l

Use as distribution equipment:
The housing components for **FLOWCON plus** are made of high-quality plastic capable of withstanding temperatures of up to 120 °C and allow water distribution equipment to be used as temperature control units. In this way, the flow can be matched to the dimensions of the cooling ducts, while permanent monitoring of multiple circuits is taking place. A uniform distribution of heat over the entire surface of the cavity is thereby obtained, which guarantees that the parts remain largely undistorted in the manufacturing process. If **FLOWCON plus** is used in conjunction with a WITTMANN temperature control unit from the **TEMPRO basic C120** range – which allows for a flow of 280 liters per minute – it ensures that there is turbulence in the tool ducts, making it possible to provide the optimum dissipation of heat.

Advantages of mounting closed to the mold:
When the **FLOWCON plus** is mounted closed to the mold using solid mounting angles on the mounting plate of the injection molding machine, the losses in temperature and pressure are minimized.

FLOWCON plus	
Operating temperature	up to 120 °C
Flow rate/circuit	1.5–15 l/min
Circuits/unit (steps of 2)	max. 12
Mold supply/return line	G 3/8"
Water supply/return line	G 1 1/4"
Electric connection I	24 V – DC (integrated solution)
Electric connection II	230 V – 50 Hz – AC – 4A (stand alone solution)

Dimensions / Distance = 52 mm		
	Maß A	Maß B
2 circuits	283	186
4 circuits	387	290
6 circuits	491	394
8 circuits	595	498
10 circuits	699	602
12 circuits	803	706



FLOWCON
Automatic Flow Regulator

Accurate control and perfect process monitoring

» Precise, stable mold temperature through automatic control.

» The development of this unit is based on many years of applied experience.

» Microprocessor controlled accuracy ± 1 °C.

» Up to 8 zones can be controlled individually.

» Storage of setup data for 7 different molds.

» A tolerance window can be set on the display. If the temperature exceeds the tolerance, a buzzer or alarm contact is activated.

» Serial interface for data transfer to IMM standard.

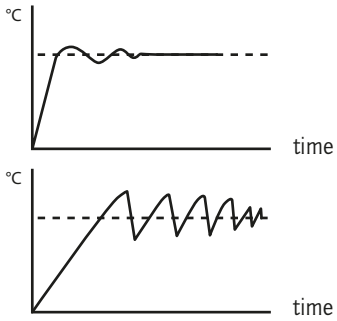
» Secures the quality of the molding process by perfect temperature control and monitoring.

» Plunger type solenoid valves with large seat diameter ensure operation even with poor water quality.

FLOWCON: OPTIMAL PRODUCT QUALITY

Mold temperature control by FLOWCON
Closed circuits reduce the period for warming up the mold. Continuous control ensures a water flow when cooling is needed and prevents cooling down the mold when production is interrupted

Mold temperature controlled by standard water flow regulator
Water flow is adjusted manually until the set value of mold temperature is reached When production is interrupted or when water pressure is changing the mold temperature will change



SIMPLE TO OPERATE

User friendly display

» Green LED shows that valve for the circuit is open.
Red LED shows that temperature is out of tolerance.

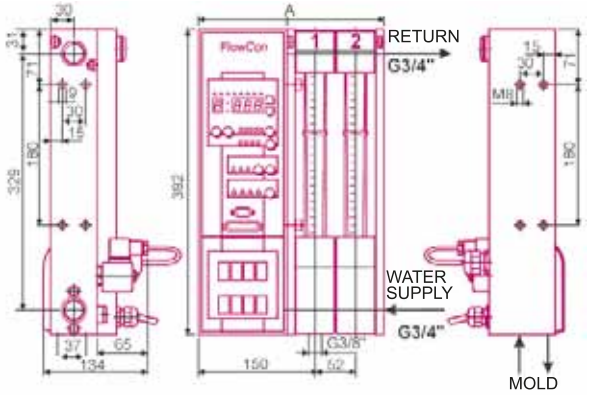
» Actual/Set temperature.

» Selection of set point, tolerance, slave control of circuits.

» Automatic or manual (fixed cycle) mode.

» Settings for slave controlled circuits.

» Selecting circuits.



Circuits	A mm	Press. max.	Temp. max.
2-zone	238	10 bar	40 °C
4-zone	343	8 bar	60 °C
6-zone	448	6 bar	80 °C
8-zone	553	4 bar	100 °C

FLOWCON
Sensor Installation

Recommended position – directly in the mold close to the cavity
Requirements for zone 1 – 8:
Mold sensor TE type J, Ø = 6 mm
incl. M10 x 1
Cable = 2000 mm

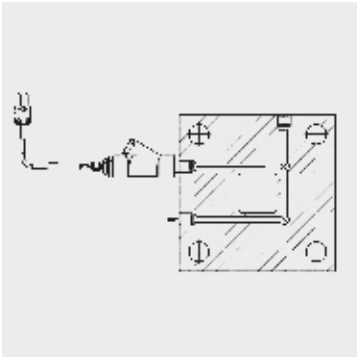
Order No. D900000542

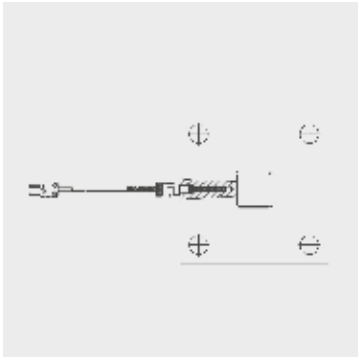
Sensor can be placed in the return line of the individual circuit
Requirements for zone 1 – 8:
Water sensor TE type J, Ø = 1,5 mm, length = 200 mm
Cable = 2000 mm

Order No. T700000855

Y-connector
(incl. screwfitting for the sensor, connection piece fittings G 3/8" and reduction G 3/8" to 1/4")

Order No. D900000550





Sensor in return line to water flow regulator
This solution requires a constant flow of water, so the sensor can realize the changes in temperature. The required flow can be selected on the display with a sequence of opening and closing.

Mold circuit sensor:
TE type J, Ø = 1,5 mm, length = 60 mm
Cable = 800 mm
incl. sensor screw M8 x 1
incl. seal disc Teflon Ø = 1,5 mm
incl. reduction G 1/4" – M8 x 1

Order No. D900000741

Option
Equalizing pipe
Feko 2,000 mm incl.
plug and socket

Order No.
ED00000235

TECHNICAL SPECIFICATIONS
FLOWCON

- Water flow: 10l/min per circuit
- Circuits: up to 8 circuits
- Water connector: G 3/8"
- Temperature measurement: type J thermocouple (option)
- Power supply: 230 V/50 Hz, 1 Ph, 1,5 A
- Power supply cable: with IEC safety plug
- Serial interface: 20mA, RS232, RS485
- Storage of setup data for 7 different molds

Interface cables

Typ	Spritzgießmaschine	Best. Nr.
20mA	ENGEL	T5-1620
RS232	ENGEL	T5-1625
20mA	KRAUSS MAFFEI	T5-1626
20mA	FERROMATIK	T5-1622
20mA	DEMAG	T5-1624
20mA	ARBURG incl. Sub-D-plug 9-pole	T5-1621
20mA	BATTENFELD incl. Sub-D-plug 9-pole	T5-1618

Cables for other types of IMM on request.

WFC 100
Water Flow Control up to 100 °C

Monitoring and distributing

The **WFC** is the low-cost version of the **FLOWCON plus**. This model does not offer the possibility to automatically readjust the flow rate.

The **WFC 100** is a pure control device for flow and temperature.

It is equipped with a maintenance-free flow measurement unit.

Manual control valves offer the possibility to readjust the flow of every single circuit.

The values for flow and temperature are displayed on a 7-segment display, and these values are controlled using the set tolerances.

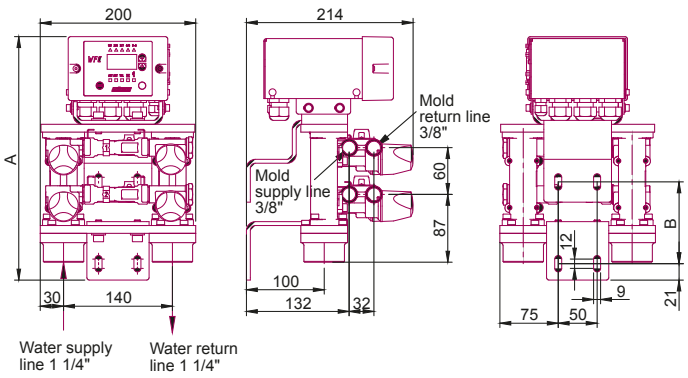
The cases of the **WFC** device are made of high-quality hot pressed brass.

Standard equipment

- 7-segment display with actual value display.
- Flow and temperature monitoring for up to 8 circuits.
- Control valves in mold forward line and return line.
- Serial interface (20mA, RS232, RS485).
- Isolated alarm contact.
- Mounting angle.

WFC 100	
Operating temperature	max. 100 °C
Pressure	max. 10 bar
Measurement	1,5–20 l/min
Mold connections	3/8"
Water supply and return	1 1/4"
Electric connection	24 V – 50/60 Hz
Execution	4, 6 or 8 circuits
Option	230 V – 50/60 Hz

Dimensions / Distance = 60 mm		
	Measure A	**Measure B**
2 circuits	312	105
4 circuits	433	226
6 circuits	554	347
8 circuits	674	468



WFC 180
Water Flow Control up to 180 °C

Monitoring and distributing

The **WFC 180** does not offer the possibility to automatically readjust the flow rate.

The **WFC 180** is a pure control device for flow. It is equipped with a maintenance-free flow measurement unit.

The device is using the ultrasonic flow measuring method, and it offers an extremely high measurement precision, even at flow rates of less than 1 l/min. The flow rate of the single circuits can be readjusted using optional ball valves.

The values for flow and temperature are displayed on a 7-segment display, and these values are controlled using the set tolerances.

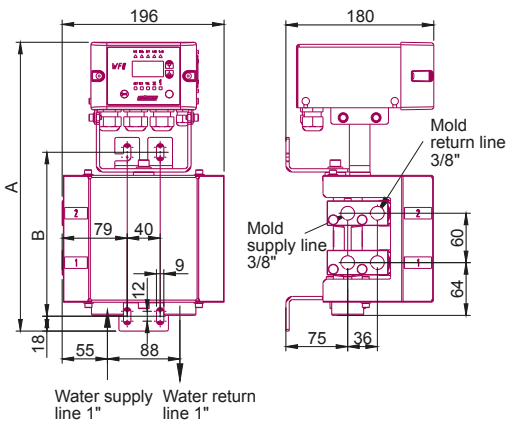
The cases of the **WFC** device are made of high-quality hot pressed brass.

Standard equipment

- 7-segment display with actual value display.
- Flow monitoring for up to 4 circuits.
- Serial interface (20mA, RS232, RS485).
- Isolated alarm contact.
- Mounting angle.

WFC 180	
Operating temperature	max. 180 °C
Pressure	max. 15 bar
Measurement	0,5–40 l/min
Mold connections	3/8"
Water supply and return	1"
Electric connection	24 V – 50/60 Hz
Execution	2 + 4 circuits
Option	230 V – 50/60 Hz

Dimensions		
	Measure A	Measure B
2 circuits	350	199
4 circuits	471	320



THE ADVANTAGES OF OUR WATER FLOW REGULATORS

Housings molded of reinforced polyphenylene oxide for tough industrial use.

EPDM O-ring seals are heat and water resistant.

All units are 100% leak tested before shipping.

Our sight tube is polyamide 12 which is superior, compared to competitor's polycarbonate, when higher temperature water is used. Competitors charge extra for the better material. On our unit it is standard.

Reference marks are molded in, not painted on.

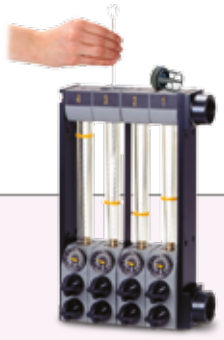
Thermometer is located directly in the water flow giving a more precise reading and a quicker reaction to changes. Competitor's thermometers are not in the water flow path.

Enlarged water passages minimize flow restrictions, deliver increased flow volume through the molds and enhance heat transfer performance. In fact, pressure drop from our regulators is about half that of competitive units. That's an important difference if plant water pressure is low.

Competitor's regulators include a large diameter valve for the main seat which means regulation is not precise. With a very small movement of the handwheel, the valve is opened almost completely. Our units have a smaller diameter seat which allows better adjustment of flow.

WITTMANN Flow Regulators include precision, threaded brass inserts (**Series 301**) or brass sockets (**Series 101**) for your water hose connections, unlike poorly designed regulators which use leak-prone molded threads which can strip easily.

Using brass valves and brass connections is resulting in highest corrosion resistance.



Easier to clean
The water flow regulators are exceptionally easy to clean. A top access cap is simply removed and a brush (provided) quickly cleans the tubes without removing them.

Individual sight tubes can be easily removed and reseated, if necessary. Precision O-rings positively seal the sight glass, absolutely leakproof even under maximum loads.

SERIES 101

Flow Rate 0 – 10 l/min per circuit

The essential device for your plastics processing machines for open and closed cooling circuits. Flow volume is indicated in accordance with the float measuring principle: a cone is lifted by the water flowing in the return of the mold circuit.

Technical Specifications

» Flow range per circuit: Standard 0 – 10 l/min. On request: AI, PVC-cones.

» Standard: Mold connections with 12 mm brass socket for 3/8" hoses.
On request: Threaded connection with G 3/8" brass threaded sleeve with screwed 14 mm brass socket for 1/2" hose, or screwed 20 mm brass socket for 3/4" hose

Order data for standard model with thermometer

Circuits	Order No.	Circuits	Order No.
1-zone	DF01TA0000	8-zone	DF08TA0000
2-zone	DF02TA0000	10-zone	DF10TA0000
4-zone	DF04TA0000	12-zone	DF12TA0000
6-zone	DF06TA0000		

SERIES 301

Flow Rate 0 – 30 l/min per circuit

The optimum flow regulator for large injection molding and blow molding machines.
Its low pressure drop makes it suitable for highest flow volumes. However, by means of a special design of the regulating valves, excellent regulation and accurate reproduction of cooling water volume and temperature in the different mold circuits can also be achieved for low flow volumes.

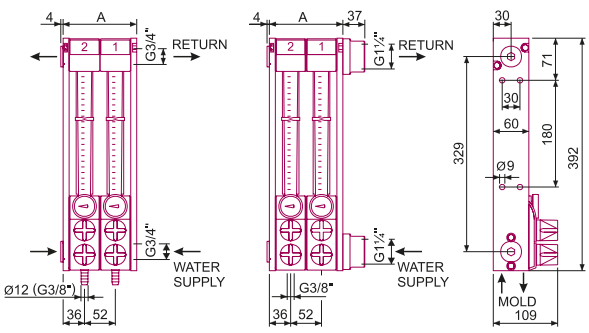
Technical specifications

» Flow range per circuit: Standard 0 – 30 l/min. On request: AI, PVC-cones.

» Standard: Mold connections with G 3/8" brass threaded sleeve
On request: with screwed 14 mm brass socket for 1/2" hose, or screwed 20 mm brass socket for 3/4" hose

Order data for standard model with thermometer

Circuits	Order No.	Circuits	A	Pressure	Temp.
1-zone	DR01TB0000	1-zone	72	max.	max.
2-zone	DR02TB0000	2-zone	124	10 bar	40 °C
4-zone	DR04TB0000	4-zone	229	8 bar	60 °C
6-zone	DR06TB0000	6-zone	334	6 bar	80 °C
8-zone	DR08TB0000	8-zone	439	4 bar	100 °C
10-zone	DR10TB0000	10-zone	543		
12-zone	DR12TB0000	12-zone	647		



Series 101 Series 301

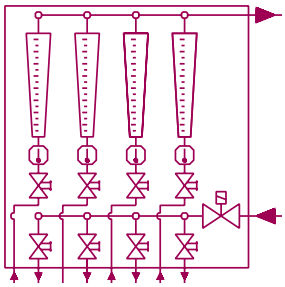
OPTIONS
Solenoid Valves

The Series **101** and **301** water flow regulators can be supplied with shutdown solenoid valves and dry-out valves.

Valve Z:

» Central shutdown of several mold circuits.

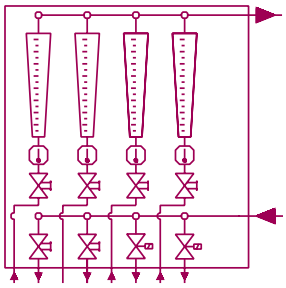
» Application: e.g. controlled by the cycle of the injection molding machine. When the injection cycle is stopped the cold water flow is shutdown to avoid condensation on the mold cavities.



Valve E:

» Shutdown of cooling water in individual mold circuits.

» Application: e.g. chilled cores The valve can also be controlled by a temperature controller from the injection molding machine for mold temperature control.



Option: Dry-out valve

» Connection thread R 1/4" for compressed air.

» Allows complete clean out of regulator sight glasses.

WFC RETROFITTING
for the 101, 301 and 200/230 Series

Low-cost flow control and temperature flow

With this option, existing and newly acquired WITTMANN flow controllers of the **101**, **301** and **200/230** water flow controller series can be equipped with an an entirely automatic control system – without circumstances.

The maximum operating temperature is 100 °C (at a pressure of 4 bar).

By means of the manual control valves, the flow rate of every single circuit can be readjusted.

To each electronic unit up to 8 circuits can be connected.

Retrofitting is very simple.

Maintenance-free flow measurement unit including return flow temperature measurement.

Standard equipment

- 7-segment display with actual value display.
- Flow and temperature monitoring.
- Control valves in mold forward line and return line.
- Isolated alarm contact.

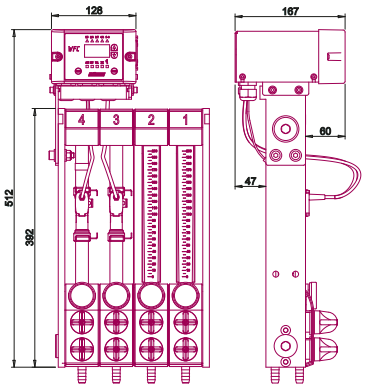
Options

- Interface: P2 protocol, 20 mA hardware
- Power supply: 230 V – 50/60 Hz – 24 V

Flow measurement vortex

- Measurement range 1.3–20 or 2–40 l/min
- Measurement precision 1.5% of max. value

WFC Retrofitting	
Operating temperature	40/60/80/100 °C
Pressure	10/8/6/4 bar
Number of circuits	up to 8
Electric connection	24 V – 50/60 Hz – 0,63 A – AC/DC



SERIES 200/230

Brass Water Flow Regulator

The upper and lower blocks as well as the manifolds are made of brass for high temperatures and pressures.

Technical specifications

» **Temperature max. 100 °C**

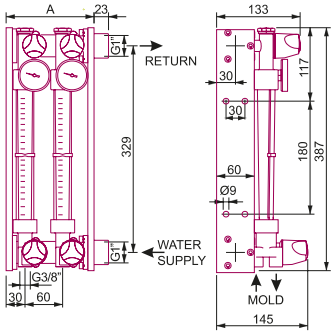
» **Pressure max. 16 bar.**

» **Flow range per circuit**:
Series 200 0 – 10 l/min
Series 230 0 – 30 l/min
On request: AI, PVC-cones.

» **Standard:** Mold connections with G 3/8" brass threaded sleeve.
On request: with screwed 14 mm brass socket for 1/2" hose, or screwed 20 mm brass socket for 3/4" hose

Order data for standard model with thermometer

Circuits	Order No.		Series 200/230		Series 200/230	
	Series 200	Series 230	Press. max.	Temp. max.	Circuits	A mm
2-zone	DH02TB0000	DQ02TB0000	16 bar	20 °C	2-zone	140
4-zone	DH04TB0000	DQ04TB0000	10 bar	40 °C	4-zone	262
6-zone	DH06TB0000	DQ06TB0000	8 bar	60 °C	6-zone	384
8-zone	DH08TB0000	DQ08TB0000	6 bar	80 °C	8-zone	506
10-zone	DH10TB0000	DQ10TB0000	4 bar	100 °C	10-zone	628
12-zone	DH12TB0000	DQ12TB0000			12-zone	750



SERIES 401

Flow Rate 0 – 8 l/min per circuit

The ideal unit specially designed for the smaller range of injection molding machines up to approx. 80 tons clamping force.

Technical specifications

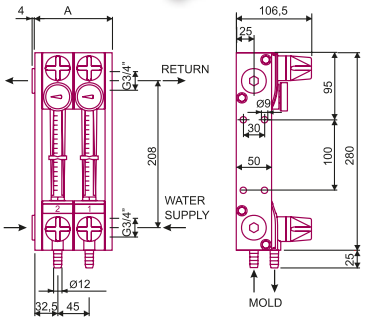
» **Flow range per circuit:** Standard 0 – 8 l/min. On request: AI, PVC-cones

» **Standard:** Mold connections with 12 mm brass socket for 3/8" hose

Order data for standard model with thermometer

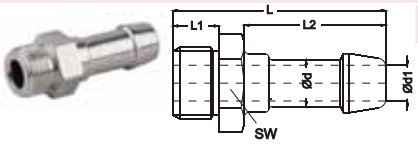
Circuits	Order No.
2-zone	DD02TA0000
4-zone	DD04TA0000
6-zone	DD06TA0000
8-zone	DD08TA0000

Serie 401		Serie 401	
Press. max.	Temp. max.	Circuits	A
10 bar	40 °C	2-zone	110
8 bar	60 °C	4-zone	200
6 bar	80 °C	6-zone	290
4 bar	100 °C	8-zone	380



ACCESSORIES
Couplings, Sockets, and Hoses

Hose socket with external thread (1 neck), brass nickel-plated

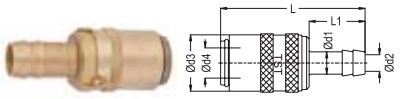


Order No.	Thread Ø F	Tube inside Ø d	d_1	L	L_1	L_2	SW
HA–1170	3/8"	13	9	52	12	33	19

Hoses for 140°

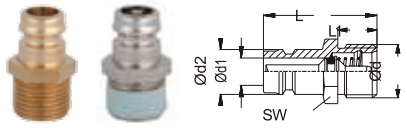
Order No.	Ø inside mm	Ø ext. mm	Working pressure max. (20 °C) bar	Burst press. (20 °C) bar	Length m	Weight kg/m	Bend radius min. mm
HA–1171	12.7	19.5	28	112	20	0.24	100
HA–1172	12.7	19.5	28	112	20	0.24	100
HA–1173	12.7	19.5	28	112	20	0.24	100

Quick couplings (090 series)



With valve Order No.	Without valve Order No.	Series	d_1	d_2	d_3	d_4	L	L_1
HA–1174	HA–1175	9	13 – 1/2"	10	23	13	60	23

Lock nipples (090 series)



Order No.	Ø d	Ø d_1	d_2	L	L_1	SW
HA–1176	BSP 3/8"	9	13	30	12	17
HA–1177	BSP 3/8"	9	13	30	12	17

Hose clamp, stainless steel

Order No.	Ø var. mm
HA–1178	17.1–20,0

Standard pincers

Order No.
BW–2402

CONNECTION EXAMPLE

TECHSPANGROUP
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info@techspan.co.nz

www.techspan.co.nz

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