

VICTAULIC

Tour & Andersson

Circuit Balancing Valves

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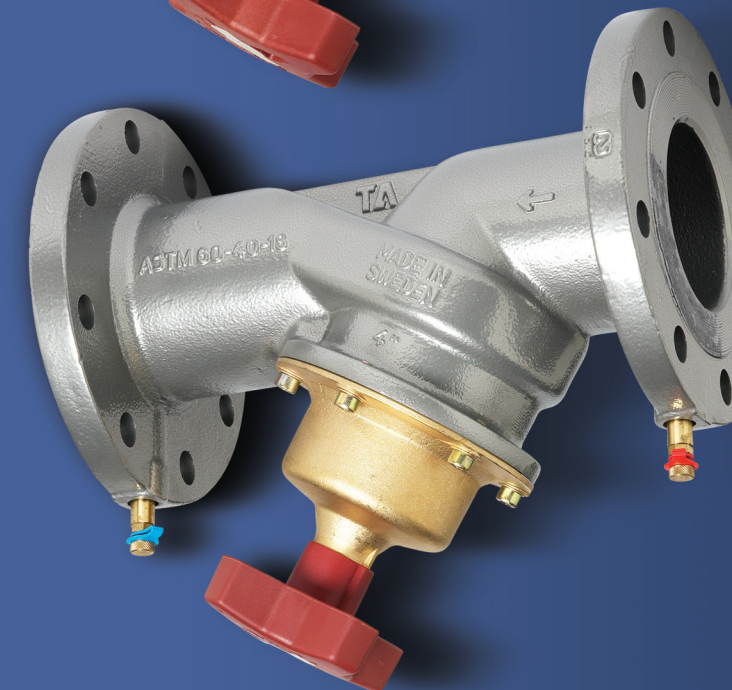
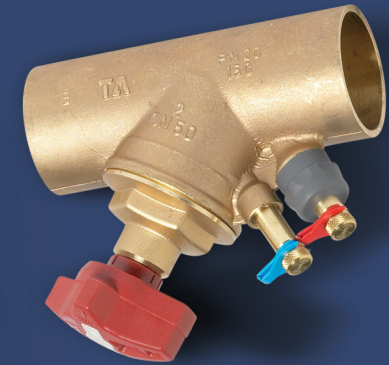
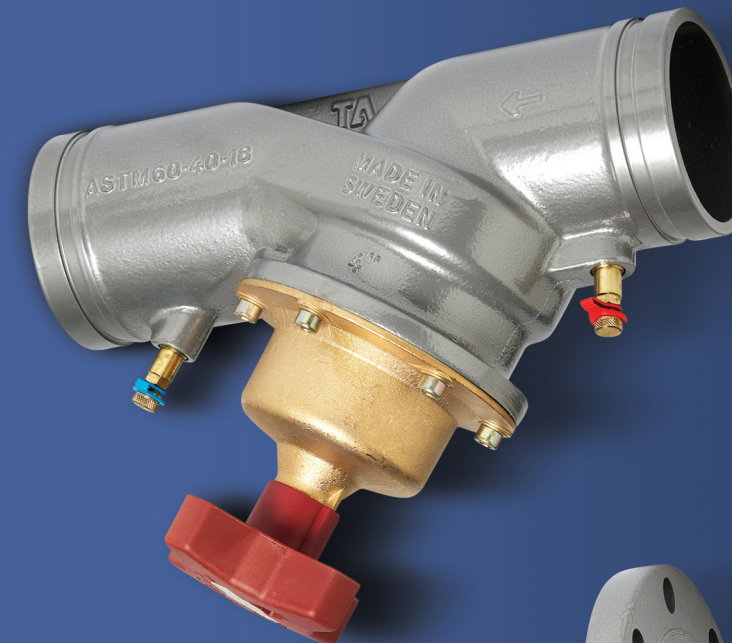
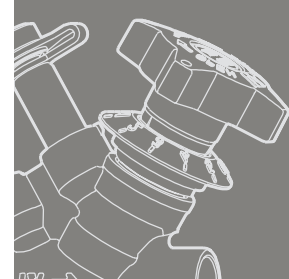
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Circuit Balancing Valves

Victaulic is the

EXCLUSIVE NORTH AMERICAN

DISTRIBUTOR OF TOUR & ANDERSSON

CIRCUIT BALANCING VALVES. THE

COMPLETE LINE OF BALANCING VALVES

ARE AVAILABLE IN ½" – 12" SIZES AND

ARE USED IN HYDRONIC HEATING AND

COOLING COMFORT SYSTEMS. TOUR &

ANDERSSON BALANCING VALVES ADJUST

THE FLOW OF HOT OR COLD WATER TO

PROVIDE MAXIMUM EFFICIENCY AND

DESIGNED FLOW TO THE COILS OR

VARIABLE AIR VOLUME EQUIPMENT

IN COMMERCIAL, INSTITUTIONAL

AND INDUSTRIAL BUILDINGS.



WHY BALANCING IS IMPORTANT:

Today, it is more important than ever to save energy. One way is to ensure that your heating or cooling system is properly balanced.

- Accurately and easily calculate pressure drops in heating and cooling systems.
- Calculated pressure losses in control valves, strainers and other system accessories are accurate.
- Eliminate the need to install oversized equipment.
- Equipment lasts longer and minimizes maintenance costs by reducing over and under flows that can shorten the life span of equipment.
- Reduces expensive fuel and electrical consumption.
- Chilled water or cooling systems are designed with narrow temperature spans and are critical to balance.
- Optimum building occupant comfort.

PERFORMANCE:

UNBALANCED SYSTEM

In areas where flow is too high, there will be excessive heating or cooling.

In areas where flow is too low, capacity to provide the required heating or cooling will be lacking.

The average temperature of a building must be raised and lowered seasonally to satisfy human comfort. People compensate by using space heaters or by opening windows, therefore wasting energy.

Maintenance personnel may install larger and more equipment or "blindly" throttle valves throughout the system until the flows are completely out of control.

Consequences...

- Reduced performance
- Frequent complaints
- Waste of energy and money
- Inconsistent heating and cooling zones

VS. BALANCED SYSTEM

The system supplies sufficient heating or cooling to all parts of the building with optimum efficiency.

Buildings maintain a comfortable, even temperature throughout the building.

The average temperature can be set lower in the winter and higher in the summer to substantially reduce energy costs.

The pumps will operate against lowest possible load, saving pump energy and reducing the need for maintenance.

Consequences...

- Optimum system performance
- Satisfied occupants
- Reduced maintenance and service costs
- Yearly energy and money savings



Tour & Andersson Difference

The Tour & Andersson Circuit Balancing Valves offer a reliable, simple and cost effective way to measure and balance all flow rates. Full throttling range is achieved by 4, 8, 12, or 16 full turns of the handwheel, enabling a more precise setting. This high degree of careful adjustment means that the system can be balanced accurately.

The actual pressure drops in heating and cooling systems are difficult, if not impossible, to establish by calculation. The water flows are more than likely incorrect. They can be easily corrected by regulating the desired water flow with Y-pattern Globe Style Balancing Valves (with multiple turn handles). By measuring the pressure drop across the valve seat at a particular setting, the water flow for the valve size can be easily read from the appropriate pressure drop graph. If the flow does not conform to that specified, reset the valve and repeat the measuring procedure until the correct flow has been obtained. A hidden but easily set memory stop allows for dual use of the valve for shut-off as well.

THE TOUR & ANDERSSON RESEARCH AND DEVELOPMENT TEAM DESIGNED ONE VALVE WITH FOUR DISTINCT FUNCTIONS:

1. Precise flow measurement.
2. Precision flow balancing.
3. Isolation/positive shut-off valve.
4. Drain/Fill/Vent Connection (option on 1/2" Series 786/787).

UNIQUE VALVE ADVANTAGES

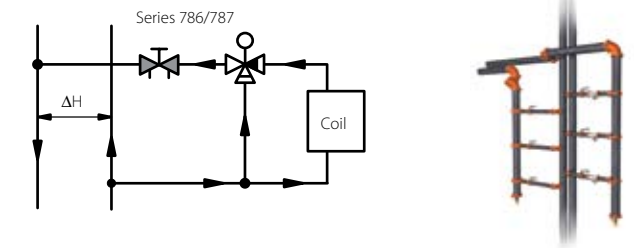
- EPDM O-ring seal ensures positive shut-off (fluoroelastomer optional).
- Y-pattern globe valve designed specifically for balancing and easy water flow regulation and allows for less pressure drop if sized to flow as little as 2 feet of water.
- Unique hidden memory stop feature ensures set position is maintained.
- Precision-machined port opening and regulating disc ensures precise flow measurements and smooth, quiet flow adjustment.
- Can be installed in any position.
- Drain/Fill/Vent connection for zone or entire system (option on 1/2" Series 786/787).
- All non-ferrous metal parts are pressure die-cast copper alloy Ametal*. Ametal eliminates added expense for dielectric fittings.
- Eliminate need for additional service drain/fill/vent and shut-off valves (on 1/2" to 2" series 786/787).
- Removable handle.

*Ametal is a registered trademark of Tour & Andersson

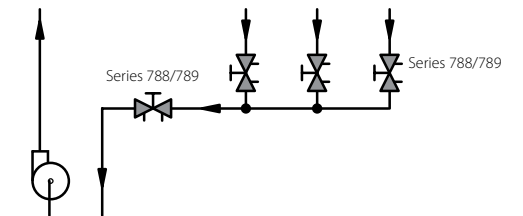
TYPICAL APPLICATIONS

- COIL FOR CHILLED OR HOT WATER
- PRIMARY – SECONDARY CONNECTIONS
- PUMP AND BRANCHES
- COOLING TOWER AND CHILLER CONNECTIONS
- VAV BOX

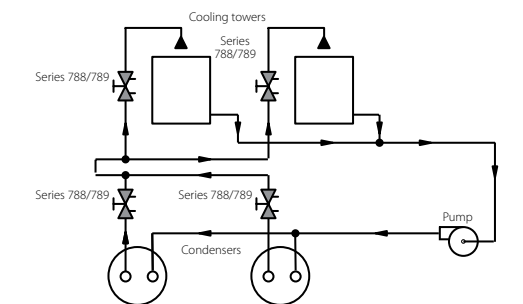
Coil – CW or HW



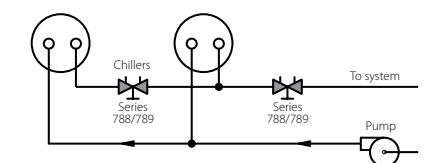
Pump and Branches



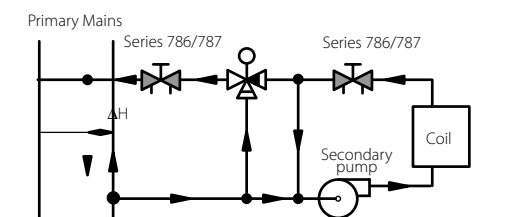
Cooling Tower



Chiller Connections



Primary – Secondary Connections



Product Selection Guide

Balancing valves should be sized in relation to the GPM flows (and not in relation to pipeline size).

- The minimum flow is calculated from the minimum recommended pressure drop 1 Ft. WG (= 3 kPa).
- The nominal flow is calculated from the maximum setting of the valve and the minimum recommended pressure drop, 2 Ft. WG (= 6 kPa).
- The maximum flow is calculated from the maximum setting of the valve and the maximum pressure drop, 20 Ft. WG (= 60 kPa).

A computer program, TA Select II, is available for sizing of valves and other applications.

BALANCING VALVE SELECTION:



SERIES 785

- Designed for soldered installation in heating and cooling systems.
- Available in size ½" – ¾".
- Y-pattern globe style offers precise flow measurement and balancing
- Metal seal shut-off, memory feature and locking feature to maintain setting.
- Rated for 125 psi/861 kPa service and temperatures from -4°F/-20°C to +250°F/110°C.

Valve Size		Min. Flow GPM/LPM	Nominal Flow Range GPM/LPM	Max. Flow GPM/LPM
Nominal Size Inches/mm	Actual Outside Diameter Inches/mm			
½	0.840	0.27	0.5 – 3.0	9.5
15	21.3	1.02	1.9 – 11.4	36.0
¾	1.050	0.38	3.0 – 4.0	15.0
20	26.7	1.44	11.4 – 15.1	56.8



SERIES 786/787

- Designed for soldered or threaded systems; available in sizes ½" through 2".
- 4 – 360° adjustment turns of digital handwheel for maximum setting.
- Hidden memory stop feature ensures set position is maintained.
- Configured for connecting directly to coil outlets.
- Includes self-sealing EPDM measurement points and an EPDM seat.
- An optional drain kit and insulation kit is available.
- Rated for 300 psi/2065 kPa service and temperatures from -4°F/-20°C to +250°F/120°C.

Valve Size		Min. Flow GPM/LPM	Nominal Flow Range GPM/LPM	Max. Flow GPM/LPM
Nominal Size Inches/mm	Actual Outside Diameter Inches/mm			
½	0.840	0.13	0.5 – 2.8	8.6
15	21.3	0.49	1.9 – 10.6	32.6
¾	1.050	0.39	2.8 – 6.0	20.0
20	26.7	1.48	10.6 – 22.7	75.7
1	1.315	0.45	6.0 – 10.0	30.0
25	33.7	1.70	22.7 – 37.9	113.6
1¼	1.660	0.87	10.0 – 15.0	48.0
32	42.4	3.29	37.9 – 56.8	181.7
1½	1.900	1.30	15.0 – 20.0	66.0
40	48.3	4.92	56.8 – 75.7	249.8
2	2.375	2.00	20.0 – 36.0	110.0
50	60.3	7.57	75.7 – 136.3	416.4



SERIES 788/789

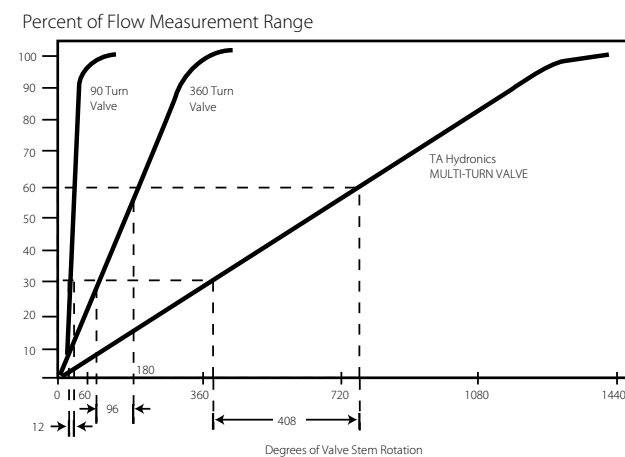
- Designed for grooved or flanged end connections; available in sizes 2½" – 12".
- 8, 12 or 16 – 360° adjustment turns of digital handwheel for maximum setting.
- Hidden memory stop feature ensures set position is maintained.
- Includes self-sealing EPDM measure points and an EPDM seat.
- Optional insulation kit is available.
- Series 788 is rated for 250 psi/1724 kPa service and temperatures from -4°F/-20°C to +250°F/110°C.
- Series 789 is rated for 350 psi/2413 kPa service and temperatures from -4°F/-20°C to +230°F/120°C.

Valve Size		Min. Flow GPM/LPM	Nominal Flow Range GPM/LPM	Max. Flow GPM/LPM
Nominal Size Inches/mm	Actual Outside Diameter Inches/mm			
2½	2.875	1.40	36.0 – 100.0	290.0
65	73.0	5.30	136.3 – 378.5	1097.7
3	3.500	1.50	100.0 – 130.0	410.0
80	88.9	5.68	378.5 – 492.1	1551.9
4	4.500	1.90	130.0 – 200.0	650.0
100	114.3	7.19	492.1 – 757.0	2460.3
5	5.563	4.20	200.0 – 320.0	1020.0
125	141.3	15.90	757.0 – 1211.2	3860.7
6	6.625	5.00	320.0 – 450.0	1430.0
150	168.3	18.93	1211.2 – 1703.3	5412.6
8	8.625	30.00	450.0 – 800.0	2600.0
200	219.1	113.55	1703.3 – 3028.0	9841.0
10	10.750	70.00	800.0 – 1300.0	4040.0
250	273.0	264.95	3028.0 – 4920.5	15291.4
12	12.750	115.00	1300.0 – 1500.0	4950.0
300	323.9	435.28	4920.5 – 5677.5	18735.8

Throttling Characteristics

This curve illustrates the advantage of the four (4) turn adjustment available with TA Hydronics balancing valves ($\frac{1}{2}$ – 2"/15 – 50mm). Valves 2 $\frac{1}{2}$ "/65mm and larger have 8, 12 or 16 turns.

- A 90° fully open to closed valve requires just a 12° change in adjustment to equal a 30% change of the flow.
- A 360° fully open to closed valve would require a 96° change in adjustment to equal the same 30% change in the flow measurement.
- TA Hydronics balancing valves would require a 408° change in adjustment to equal the same 30% change in the flow.



Accessories



SERIES 736 TA LINK DIFFERENTIAL PRESSURE SENSOR

Links the waterborne heating and cooling system and the building's monitoring system (BMS).

- Continuously measures the flow and differential pressure through and across the Tour & Andersson Circuit Balancing Valves.
- Incorporates a safety valve to protect it against excessive differential pressure.
- Contains measurement probes for direct connection to the measurement points on Series 787/787-U and Series 788/789 valves.





TA SELECT II COMPUTER PROGRAM

TA Select II helps you choose the right balancing valve, taking the desired flow, pressure drop, and flow rate into consideration. The software:

- Will advise the correct combination of valve, handwheel position and pipe sizes to correctly balance the system.
- A sophisticated viscosity correction procedure displays the density, viscosity, specific heat and freezing point of fluids such as glycols and brines. It also shows the true value of flows in the valves.

To order TA Select II, please visit www.victaulic.com or call **1-800-PICK-VIC**.



STYLE 738 PORTABLE DIFFERENTIAL PRESSURE METER

Accurately measures differential pressure in Tour & Andersson circuit balancing valves.

- Converts pressure differential to flow measurement by using the supplied balancing wheel.
- Use on systems up to the full rated working pressure of Tour & Andersson circuit balancing valves.



STYLE 737 TA CBI METER

Computerized Balancing Instrument

TA CBI is a computer programmed balancing instrument. It consists of an electronic differential pressure gauge and a microcomputer which has been programmed with the Tour & Andersson circuit balancing valve characteristics, which makes possible a direct reading of flow and differential pressures.

The TA CBI has two main components:

- An instrument which contains a microcomputer, input touch pad, LCD display and rechargeable NiMH batteries.
 - A sensor unit which contains a piezoresistive pressure sensor, one measurement valve and connections. The measurement valve has a safety function which protects the sensor from too high differential pressures.
- Features and Uses:
- Differential pressure measurement: sensor for high total pressures and low differential pressures gives quick results and reliable readings.
 - Temperature measurement: A Pt 1000 temperature sensor which allows measurement directly in the media is included.
 - Automatic calibration: When the sensor is connected and the instrument switched on, the sensor is automatically calibrated before each measurement sequence.
 - Automatic venting: The design of the sensor unit and a short flow-through during calibration eliminates measurement errors caused by insufficient venting.
 - Balancing: The instrument has two built in programs, TA Balance and TA Method, to ease and accelerate the balancing process.
 - PC communication: Measured values can be saved in the TA CBI and then transferred to a PC for printout as a commissioning report. It is also possible to prepare the measurements by describing the system in the PC and then downloading the data to the CBI.
 - Media correction: A CBI can calculate flows with different contents of glycol or similar antifreeze additives in the water.
 - Troubleshooting: Since differential pressures, flows or temperatures for up to 24,000 measured values can be logged, periods from 20 hours to 65 days can be analyzed.
 - Delivery: Supplied in a durable case with instruction manual, software and accessories.