SinkMixer™ Scald Protection Thermostatic Mixing Valve

5212 series

01364/24 NA
Replaces 01364/22 NA

ASSE 1070
NSF/ANSI/CAN 61
NSF/ANSI/CAN 372

ICC ES PMG LOW LEAD

Function

The Caleffi SinkMixer™ thermostatic mixing valve ensures that users are safeguarded against scalding water temperature conditions in applications such as sinks and lavatories. The SinkMixer is most critical in hospitals, schools, and nursing homes, where precise water temperature control is essential for the safety of vulnerable individuals. In accordance with American and Canadian product safety standards, the valve functions to control and limit the mixed outlet water temperature up to 120 °F. In the event of cold water supply failure the valve will rapidly reduce outlet flow to prevent against scalding conditions from fluctuating hot water supply conditions. The SinkMixer is equipped with integral check valves on both supply inlets to prevent against cross flow conditions .

The SinkMixer comes in two configurations: 3-port and 4-port. The 3-port compact configuration is designed for single-pipe installations in mind where only a singular tempered water is supplied to the fixture. The 4-port configuration is meant for fixtures requiring both hot and cold sources without requiring a brass T or additional piping. The 3-port configuration includes a compression fitting kit for hard pipe applications, while the 4-port configuration comes with a mounting bracket and an optional cold port plug and compression fittings kit for hard pipe installations.

The Caleffi SinkMixer family complies with ASSE 1070/ASME A112.1070/ CSA B125.70 performance requirements for water temperature limiting devices. Certified and listed by ICC-ES, PMG File 1358. Complies with low lead and lead free material requirements of NSF/ANSI/CAN 61 and NSF/ANSI/CAN 372 for use in potable water systems. Certified and listed by ICC-ES, PMG File 1512 and PMG File 1360 respectively. Certified for installation and use in compliance with UPC, IPC, NRC, and NPC plumbing codes. Certified and listed by ICC-ES, PMG File 1358.

Product range

521201A	4-port SinkMixer scald protection thermostatic mixing valve with compression union connections.....size 3/8"
521201AP	4-port SinkMixer scald protection thermostatic mixing valve with compression union connections with plug for cold water outlet and copper compression fittings kit for hard piping installations.....size 3/8"
521204A	3-port SinkMixer scald protection thermostatic mixing valve, includes compression fittings kit.....size 3/8"

Technical specifications

Materials:

Valve body, regulating spindle, spring holder, cold inlet union nut:	forged low-lead* brass
Internal shutter:	polysulfone
Hot inlet strainer:	AISI 304 stainless steel
Spring:	AISI 302 stainless steel
Seals:	Peroxide-cured EPDM
Cover:	ABS white
Mounting bracket and adjustment key:	Polyamide Nylon

* Meets the "lead free" requirement of Section 1417 of the Safe Drinking Water Act (SDWA). This product has a weighted average lead content of less than 0.25% for its wetted surfaces contacted with consumable water.

Performance

Temperature adjustment range:	95–120 °F (35–50 °C)
Temperature set:	must be commissioned on site to achieve desired temperature
Temperature stability:	±3 °F (±2 °C)
Cold inlet temperature:	Minimum 40 °F (5 °C); Maximum 85 °F (30 °C)
Hot inlet temperature:	Minimum 120 °F (50 °C); Maximum 195 °F (90 °C)
Factory Setting:	113 °F (45 °C)
Maximum operating differential pressure:	Static: 150 psi (10 bar); Dynamic: 70 psi (5 bar)
Minimum operating differential pressure (dynamic):	1.5 psi (0.1 bar)
Maximum unbalanced dynamic supply (hot/cold or cold/hot):	2:1
Minimum temperature differential between hot water inlet and mixed water outlet to ensure thermal shutoff function:	18 °F (10 °C)
Minimum temperature differential between mixed water outlet and cold water inlet to ensure stable operation:	9 °F (5 °C)
Minimum flow rate for optimum operation:	0.35 gpm (1.3 l/min)
Maximum flow rate for optimum operation:	2.3 gpm (8.5 l/min)

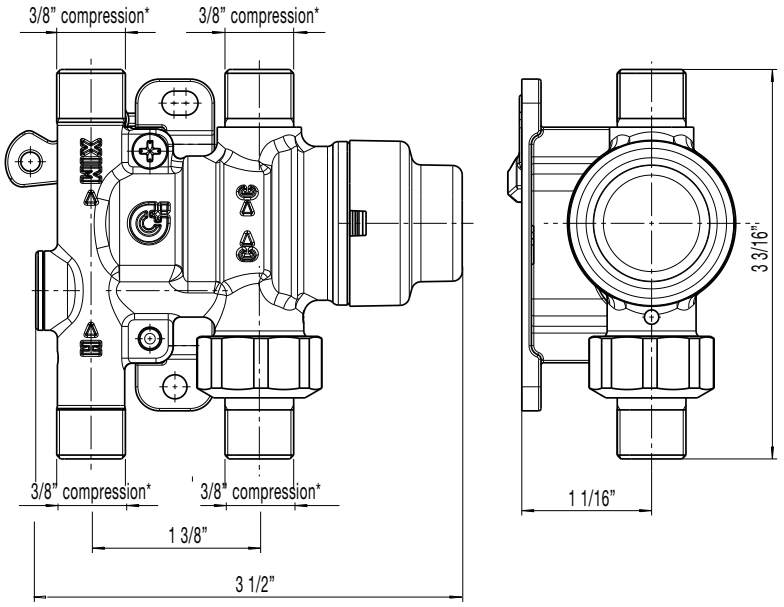
Connections

Main connections:	3/8" compression

Certifications

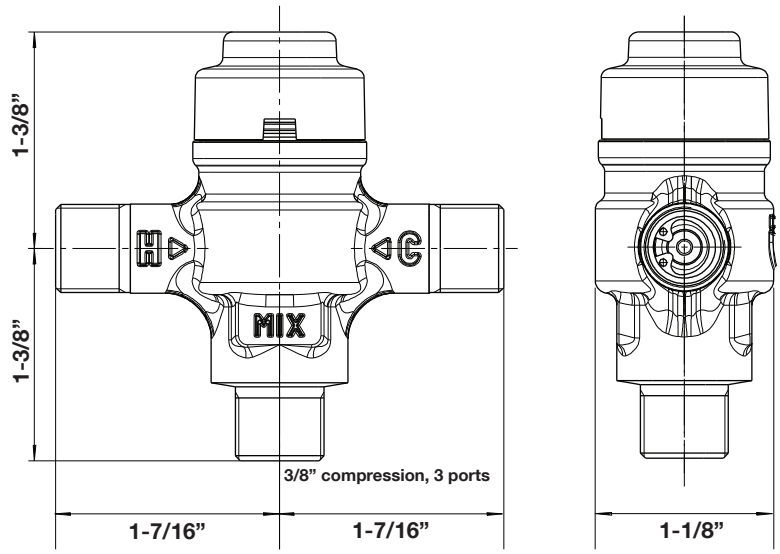
1. ASSE 1070/ASME A112.1070/CSA B125.70, CSA B125.3, UPC, IPC, IRC and NPC compliance for use in accordance with U.S. and Canadian plumbing codes. Certified and listed by ICC-ES, PMG File 1358.
2. NSF/ANSI/CAN 61, Drinking Water System Components for use in potable water systems. Certified by ICC-ES, PMG File 1512.
3. NSF/ANSI/CAN 372, US and Canadian Low-Lead and Lead-Free materials contents laws for drinking water system components. Certified by ICC-ES, PMG File 1360.

Dimensions



Code 521201A, AP** 0.5 lb /0.3 kg

* Actual thread is 9/16" - 24 UNEF.
**AP includes a plug for cold water outlet and a bag with 4 nuts and 4 ferrules for hard pipe installations.



Code 521204A 0.5 lb /0.3 kg

* Actual thread is 9/16" - 24 UNEF.
**521204A package includes a bag with 3 nuts and 3 ferrules.

Operating principle

The thermostatic mixing valve maintains a constant outlet temperature by adjusting the ratios of hot and cold water automatically. Its immersed thermostatic element contracts or expands, moving the piston to regulate flow rates from the hot or cold inlets to achieve the desired outlet temperature. It responds to fluctuations in temperature or pressure at the inlets by automatically adjusting to maintain the set temperature. If the cold supply fails, the piston fully expands, halting water discharge from the mixed outlet.

Thermal shutoff

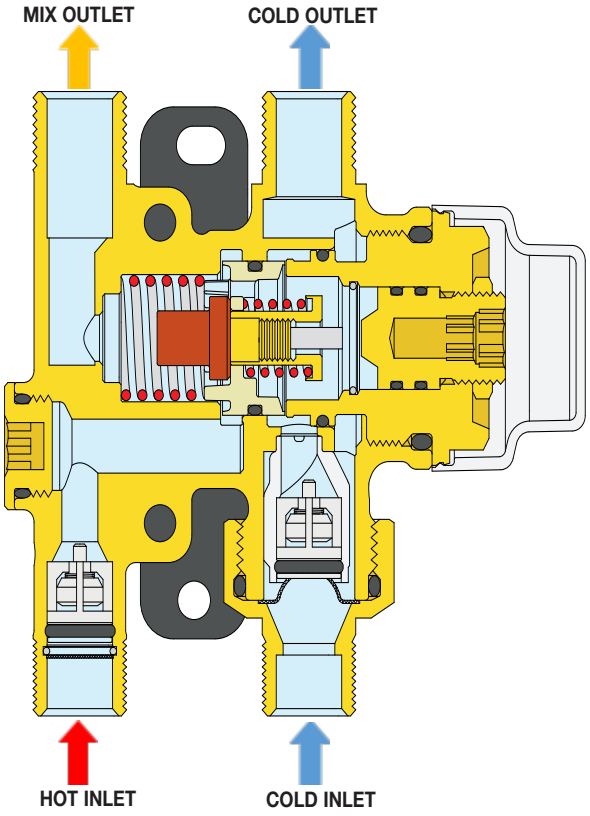
In the event of a failure of the hot supply port, the piston closes the cold supply port. Similarly, if the cold water supply fails, the piston closes the hot supply port. The Caleffi SinkMixer scald protection thermostatic mixing valve requires a minimum temperature differential from hot inlet to mixed water outlet of 18 °F (10 °C) to ensure the correct operation of the thermal shutoff feature.

Use

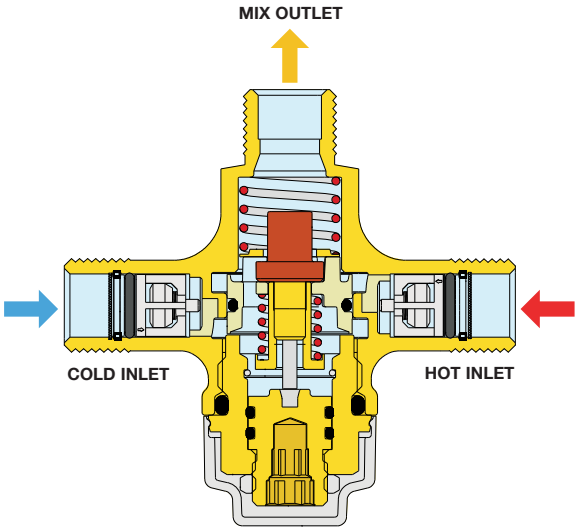
The Caleffi SinkMixer thermostatic mixing valve is designed for under sink and under counter applications in accordance with plumbing codes requirements for installation and performance requirements of ASSE 1070/ASME A112.1070/CSA B125.70.

Valve and system sizing according to current legislation considering the nominal flow rate at each outlet is required.

The SinkMixer serves to prevent accidental scalding by ensuring the outlet water temperature is correctly tempered and limited. Verification of desired outlet temperature using a thermometer at the faucet is recommended.

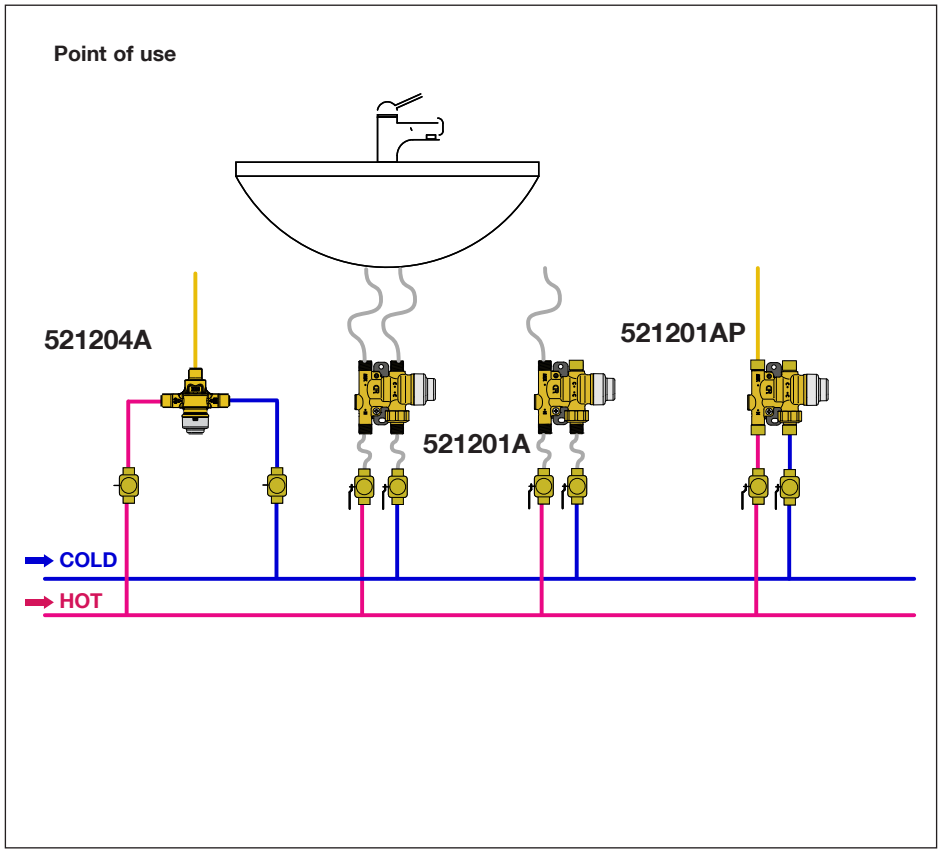


Code 521201A, AP

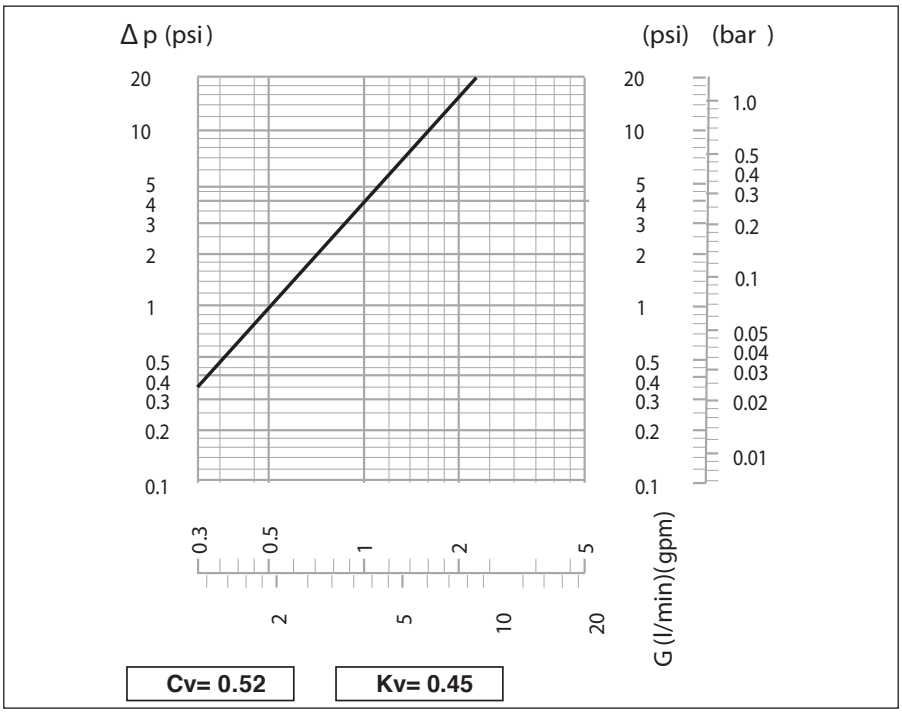


Code 521204A

Application diagram



Flow curve



Flow should never exceed standards for pipe size and materials.

Installation

The following instructions must be read prior to the installation of a Caleffi SinkMixer thermostatic mixing valve. The installer should also be aware of his responsibility and duty of care to ensure that all aspects of the installation comply with current regulations and legislation. The Caleffi SinkMixer should be installed using the appropriate standard, code of practice and legislation applicable to each state and following the details in this manual. The Caleffi SinkMixer series must be installed by a licensed plumber.

Prior to the installation of the valve, the system must be checked to ensure that the system operating conditions fall within the recommended operating range of the valve, i.e. verify supply temperatures, supply pressures, risk assessments, etc.

The supply system into which the Caleffi SinkMixer is to be installed must be thoroughly flushed and cleaned to remove any debris which may accumulate during the installation. Failure to remove any debris will affect the performance and the manufacturer's warranty on the product. In areas that are subject to high levels of aggressive water, provision must be made to treat the water prior to it entering the valve.

The 4-port valve is recommended to be installed in a position oriented with the cover to the right with cold inlet/outlet on the right side (allowing direct connection to the sink's cold water inlet fitting) resulting in the hot inlet/mix outlet on the left aligning direct to the hot water inlet sink fitting. The 3-port valve is recommended to be installed with the MIX port up. It is essential that the access to the valve is not obstructed for future maintenance that may be required to the valve or associated fittings.

It is essential that when the installation is designed and/or installed, all current legislation is noted, e.g. the maximum distance from the outlet of the valve to any terminal fitting.

The connecting hot and cold water supplies must be connected to the valve strictly in accordance with the indications on the body of the valve. The inlets of the valves are clearly marked with the letter H (Hot) and C (Cold). The outlet is marked with the word MIX. The valve has male 3/8" compression threads for conection to standard 3/8" compression faucet connectors and stops.

Where one or both the incoming supply pressures are excessive, a Caleffi pressure reducing valve should be installed to reduce the pressure(s) within the limits.

The Caleffi SinkMixer valve is supplied complete with the check valves at the hot and cold inlets.

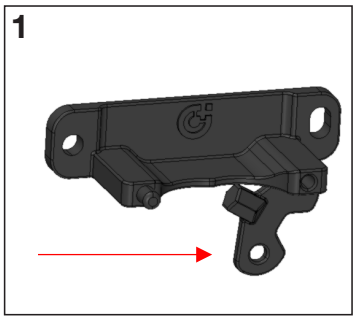
Mount the 4-port SinkMixer valve to the wall underneath the sink with black plastic mounting bracket supplied with valve but not attached. Use mounting screw to attach the mounting bracket to the valve to meet the orientation described above. Break off the adjustment key for adjusting the termperature, see commisioning section.

To ensure that the performance of the Caleffi SinkMixer valve is maintained (in the event of cold water failure), the temperature of the hot water supply at the point of entry to the valve must be a minimum of 18 °F higher than the set mixed water discharge temperature.

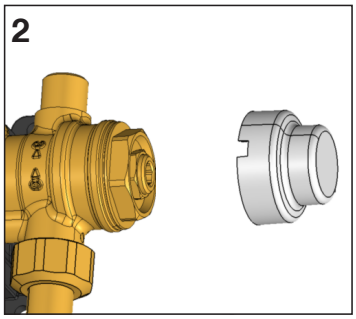
If the valve is not installed correctly, it will not function correctly and may put the user in danger.

For single-pipe fixtures (tempered water only), code 521201AP comes complete with a plug/nut for the valve cold outlet port. Code NA10741 is a 5-pack of plugs/nuts to plug cold outlet port when installing code 521201A (unit coming without this plug/nut) in single pipe fixture undersink piping. Code 521201AP also includes a copper compression fittings kit for hard pipe installations.

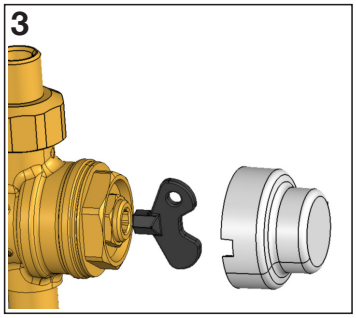
Temperature adjustment (4-port)



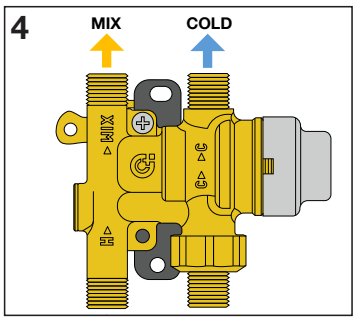
Remove 1/4" hex key from mounting bracket.



Remove white cap.



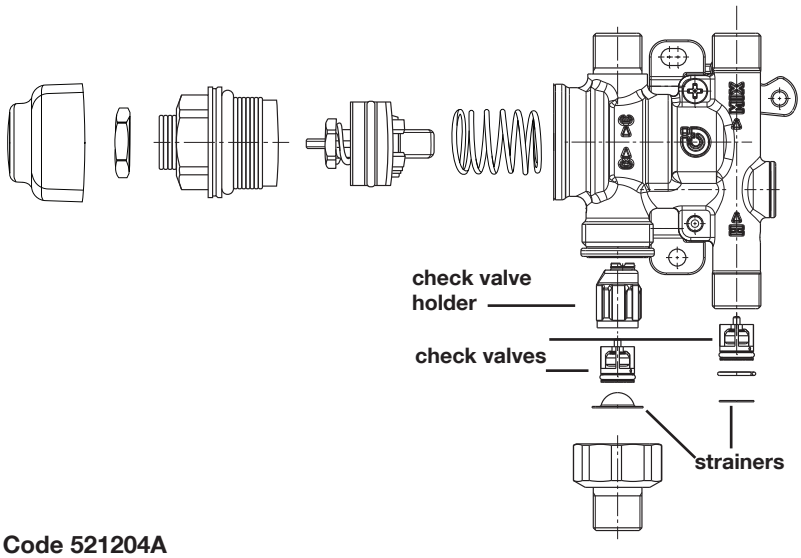
Adjust temperature setting with 1/4" hex key. After adjustment, lock the temperature with locking nut.

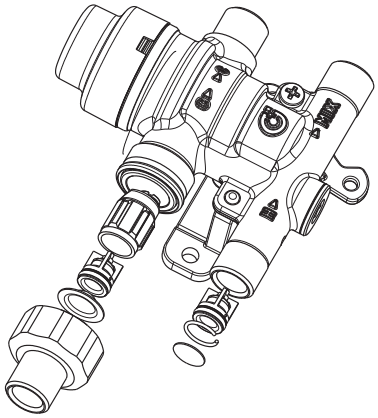


Replace tamper proof cap and store key in safe place.

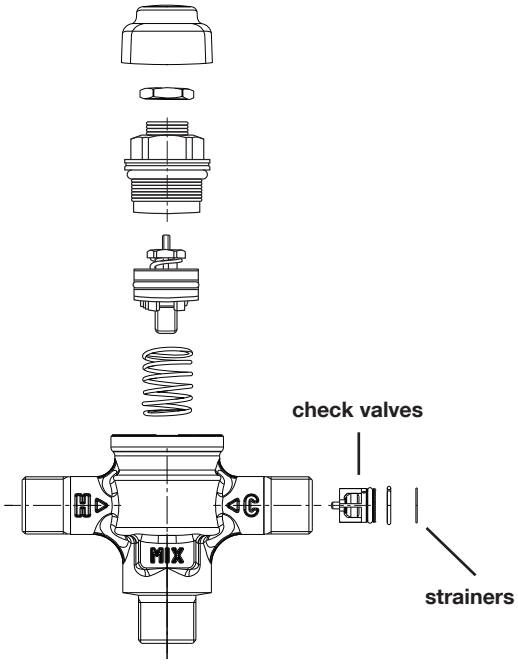
NOTE: Follow steps 2, 3 and 4 for the 3-port version.

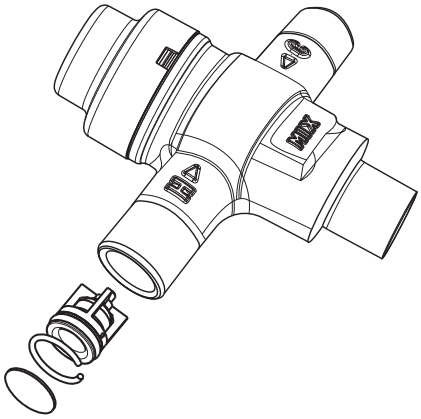
Code 521201A, AP





Code 521204A



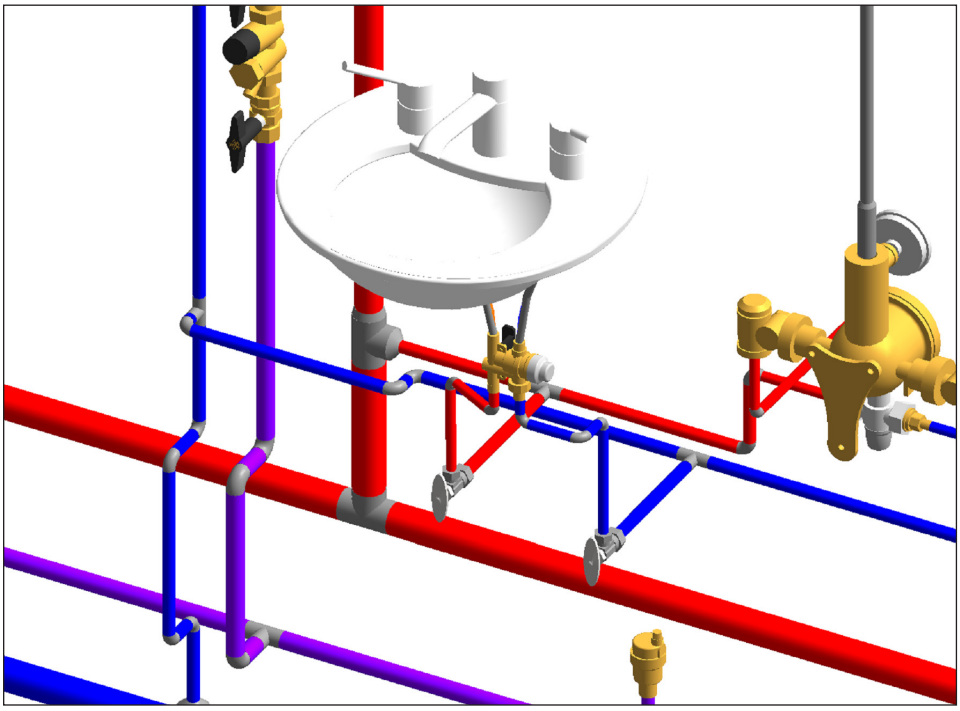


Replacement check valve and strainers for 521201A under sink thermostatic mixing valves.

F0001270.....check valve and two strainers, one set for the cold inlet port and one set for the hot inlet port.

5-pack of plugs/nuts to plug the valve cold outlet port when using code 521201A with a single-pipe fixture.

NA10741.....plug/nut 3/8" compression (5-pack)



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SPECIFICATION SUMMARY

521201A
Scald Protection point of use 4-port thermostatic valve certified to ASSE 1070, NSF/ANSI 372-2011 Drinking Water Systems Components-Lead Content Reduction of Lead in Drinking Water, California Health and Safety Code 116875 S.3874, and NSF/ANSI/CAN 61-2018, Drinking Water System Components – Health Effects. Threaded 3/8" compression connection. Low-lead forged brass body (<0.25% Lead content). Polysulfone shutter. Seal in Peroxide-cured EDPM. Stainless steel spring. Maximum working temperature 195 °F (90 °C). Setting range from 95–120 °F (35–50 °C). Tolerance of ±3 °F (±2 °C). Maximum working pressure 150 psi (10 bar). Maximum unbalanced dynamic supply pressure 2:1. Tamper-proof setting lock and check valves on the inlets.

521201AP
Scald Protection point of use 4-port thermostatic valve certified to ASSE 1070, NSF/ANSI 372-2011 Drinking Water Systems Components-Lead Content Reduction of Lead in Drinking Water, California Health and Safety Code 116875 S.3874, and NSF/ANSI/CAN 61-2018, Drinking Water System Components – Health Effects. Threaded 3/8" compression connection. Low-lead forged brass body (<0.25% Lead content). Polysulfone shutter. Seal in Peroxide-cured EDPM. Stainless steel spring. Maximum working temperature 195 °F (90 °C). Setting range from 95–120 °F (35–50 °C). Tolerance of ±3 °F (±2 °C). Maximum working pressure 150 psi (10 bar). Maximum unbalanced dynamic supply pressure 2:1. Tamper-proof setting lock and check valves on the inlets. Includes plug/nut for cold water outlet port for use with single-fixture fixtures providing tempered water only and copper compression fittings kit for hard pipe installations.

521204A
Scald Protection point of use 3-port thermostatic valve certified to ASSE 1070, NSF/ANSI 372-2011 Drinking Water Systems Components-Lead Content Reduction of Lead in Drinking Water, California Health and Safety Code 116875 S.3874, and NSF/ANSI/CAN 61-2018, Drinking Water System Components – Health Effects. Threaded 3/8" compression connection. Low-lead forged brass body (<0.25% Lead content). Polysulfone shutter. Seal in Peroxide-cured EDPM. Stainless steel spring. Maximum working temperature 195 °F (90 °C). Setting range from 95–120 °F (35–50 °C). Tolerance of ±3 °F (±2 °C). Maximum working pressure 150 psi (10 bar). Maximum unbalanced dynamic supply pressure 2:1. Tamper-proof setting lock and check valves on the inlets.

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