

LEGIOMIX®evo Station digital mixing system

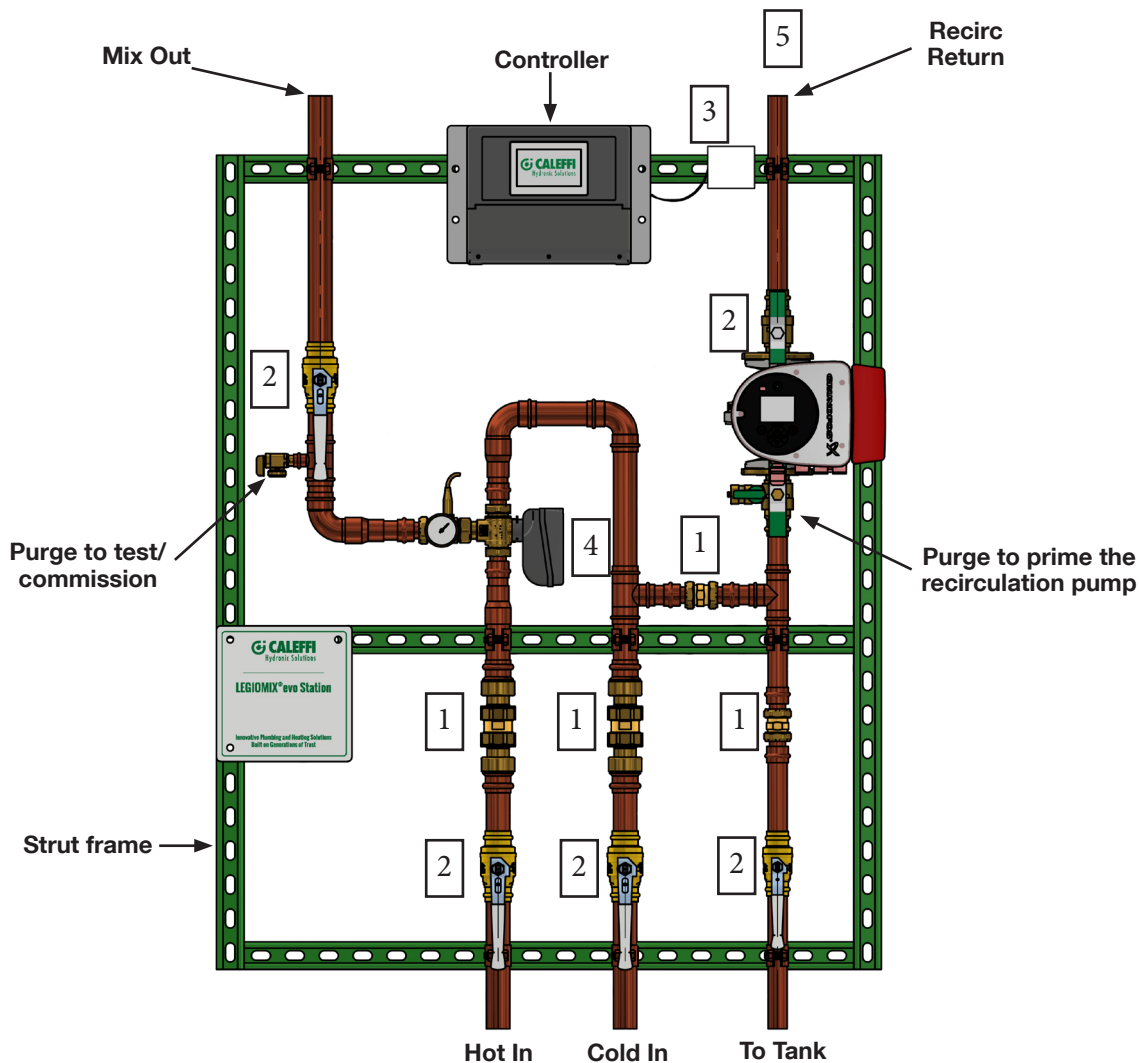
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6003AFS Series

INSTALLATION GUIDE

OVERVIEW - READ BEFORE PROCEEDING!

1. Refer to the H0013292 LEGIOMIXevo Quick Start Guide and NA11371 User's Manual for complete instructions on controller setup and commissioning.
2. Do not mount station with the actuator positioned upside-down. If the station is mounted in an alternate orientation, remount the controller to maintain a horizontal position as shown, ensuring the actuator is never inverted.
3. Tighten all union nuts prior to system pressurization. Shipping vibration may loosen threaded connections.
4. The LEGIOMIXevo Station components are shown below:



Keyed components:

1. Serviceable dual union check valve.
2. Isolation ball valves.
3. 24 V wall plug-in transformer with 20 ft cable. Strapped to strut for shipment.
4. LEGIOMIXevo valve/actuator.
5. Recirculation connection; available with or without integral circulator.

Technical specifications

System specifications

Power supply: 24 V (AC) $\pm$ 10% 50/60 Hz
(115/24 VAC transformer included in package)

Average power consumption: 5 VA
Stand-by power consumption: 3.5 VA
Max. power consumption:

- Controller: 9 VA
- Actuator: 6 VA
- Total: 15 VA

Ambient temperature:

- Operation: 32 - 120 °F (0 - 50 °C) EN 60721-3-3 Cl. 3K4, max. humidity 95%
- Transportation: -20 - 160 °F (-30 - 70 °C) EN 60721-3-2 Cl. 2K3, max. humidity 95%
- Storage: -5 - 160 °F (-20 - 70 °C) EN 60721-3-1 Cl. 1K2, max. humidity 95%

Adjustment temperature range: 70 - 185 °F (20 - 85 °C)
Disinfection temperature range: 100 - 185 °F (40 - 85 °C)
Charge reserve: 15 days in the event of electric supply failure with a rechargeable backup button battery

Battery recharging time: 12 h

Cable for connection to the power supply:

Insulated cable equivalent or greater than SJOOOW, 16 - 18 AWG

Station components

Frame: epoxy painted steel uni-strut
Pipes: copper type L
Ball valves: low-lead brass
Check valves: stainless steel
Main connections: copper 1", 1¼", 1½", 2", 2½" and 3"

Mixing valve body

Materials*:

- Body: DZR low-lead brass, EN 12165 CW724R
- Ball: AISI 316 stainless steel
- Hydraulic seals: peroxide-cured EPDM
- Ball seats: PTFE

*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 by consumable water.

Max. body pressure rating: 230 psi (16 bar)
Max. operating pressure: 150 psi (10 bar)
Max. inlet temperature: 212 °F (100 °C)
Temperature gauge scale: 32 - 176 °F (0 - 80 °C)
Suitable fluids: water
Max. water hardness: 10 grains

Mixing valve performance

Accuracy: $\pm$ 3° F ($\pm$ 2° C)
Max. operating differential pressure (dynamic): 70 psi (5 bar)
Max. ratio between inlet pressures (H/C or C/H): 2:1

Mixing valve certifications

- ASSE 1017, certified and listed by ASSE.
- NSF/ANSI/CAN 61 and NSF/ANSI/CAN 372, US and Canadian Low-Lead and Lead-Free materials contents laws for drinking water system components. Certified by ICC-ES.
- CSA B125.3, UPC, IPC, IRC and NPC compliance for use in accordance with U.S. and Canadian plumbing codes. Certified and listed by IAPMO R&T.

Mixed outlet and recirculation return temperature sensors*

Body material: stainless steel
Sensor type: NTC
Working temperature range: 14 - 255 °F (-10 - 125 °C)
Resistance: 10kΩ at 75 °F (25 °C)
Cable length: 39" (1 m)

Water storage temperature sensor*

Body material: stainless steel
Sensor type: NTC
Size: 6 mm
Working temperature range: -13 - 230 °F (-25 - 110 °C)
Resistance: 100kΩ at 75 °F (25 °C)
Cable length: 75"

Actuator with fail-safe** function

Power supply: 24V (AC/DC) $\pm$ 15% 50/60 Hz from controller
Control signal: 0 - 10 V
Power consumption: 6 VA
Ambient temperature:

- Operation: 32 - 130 °F (0 - 55 °C) EN 60721-3-3 Cl. 3K4, max. humidity 95%
- Transportation: -22 - 160 °F (-30 - 70 °C) EN 60721-3-2 Cl. 2K3, max. humidity 95%
- Storage: -4 - 160 °F (-20 - 70 °C) EN 60721-3-1 Cl. 1K2, max. humidity 95%

Supply cable length: 32" (0.8m)

**The fail-safe function allows the automatic closure of the hot inlet port in case of power failure.

Additional actuator specifications (EN 60730-1/-2-14)

Protection cover: self-extinguishing V0
Protection class: IP 65
Compliant with directives: FCC, IC, CE, UKCA
Control type: Type 1
Environmental pollution grade: grade 2
Activation type: multi-position
Nominal pulse voltage: 500 V peak for overvoltage category II
Dynamic torque: 11 ft-lbs (15Nm)

Controller

Display: Touch screen, capacitive color, 4.3"
Housing: self-extinguishing A EN 60721-3-3 Cl. 3K4 BS VO, color black

Power Supply: 24 VAC $\pm$ 10% 50/60 Hz
(115/24 VAC transformer included in package)

Max. power consumption: 9 VA
Average power consumption: 5 VA
Stand-by power consumption: 3.5 VA
Adjustment temperature range: 70 - 185 °F (20 - 85 °C)
Disinfection temperature range: 100 - 185 °F (40 - 85 °C)
Ambient temperature:

- Operation: 32 - 120 °F (0 - 50 °C), EN 60721-3-3 Cl. 3K4, max. humidity 95%
- Transportation: -20 - 160 °F (-30 - 70 °C), EN 60721-3-2 Cl. 2K3, max. humidity 95%
- Storage: -5 - 160 °F (-20 - 70 °C), EN 60721-3-1 Cl. 1K2, max. humidity 95%

Protection class: IP 54 (Class II appliance) surface mounted, includes hardware

Contact rating:

- Mixing valve control: 0 - 10 VDC signal / 500 mA
- Relay: 10(2) A / 24 VAC
- PTC self-recovery fuse: 30 V / 3.5 A
- Conforms to directives: FCC, IC, CE, UKCA

Additional controller specification (EN 60730-1)

Control type: Type 1
Environmental pollution grade: grade 2
Nominal pulse voltage: 500 V peak for overvoltage category II

Recirculation pump 1" Station

Max. flow rate: 26 gpm (98 lpm)
Max. head height: 42' (12.8 m)
Max. working pressure: 232 psi (16 bar)
Temperature range: 14 - 230 °F (-10 - 110 °C)
Max. power consumption: 125 W

Recirculation pump 1¼" - 3" Station

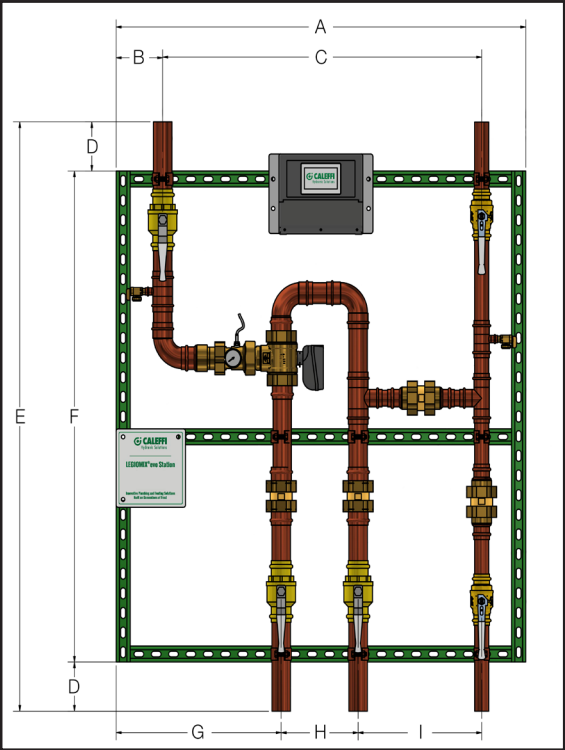
Max. flow rate: 50 gpm (189 lpm)
Max head height: 59' (18m)
Max. working pressure: 232 psi (16 bar)
Temperature range: 14 - 230 °F (-10 - 110 °C)
Max. power consumption: 171 W

LEGIOMIXevo Station sizing and selection procedure

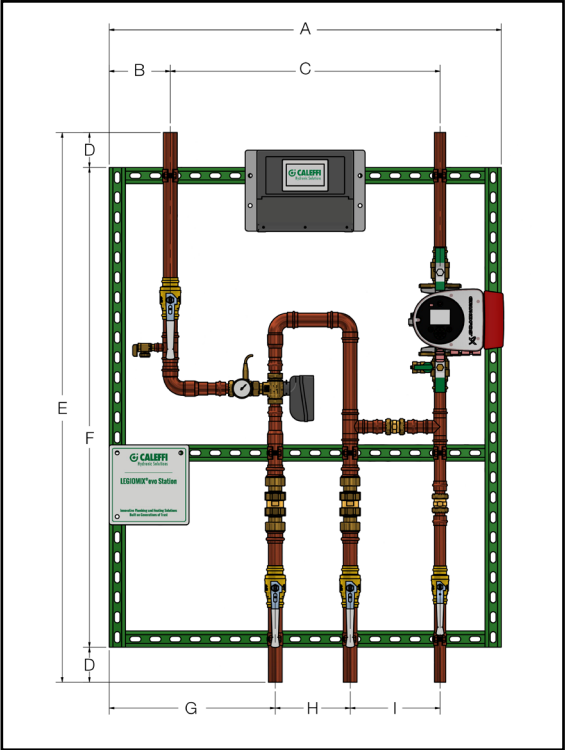
Station Size	¹ Max. GPM (@ 5 fps pipe velocity)	Station Cv
1"	14	8.4
1¼"	20	9.1
1½"	29	21
2"	50	38
2½"	76	43
3"	106	46

Pressure drop across station (PSID)						
	1	1.5	2	3	5	7.5
Station size	² Flow rates (GPM) @ above pressure drop					
1"	8.4	10.3	11.9	14.5	18.8	23
1¼"	9.1	11.1	12.9	15.8	20.3	24.9
1½"	21	25.7	29.7	36.4	47	57.5
2"	38	46.5	53.7	65.8	85	104.1
2½"	43	52.7	60.8	74.5	96.2	117.8
3"	46	56.3	65.1	79.7	102.9	126

- A. Obtain the maximum GPM (demand) of domestic hot water from project documentation.
- B. Select station size which has a Max GPM value equal to or greater than the project maximum GPM demand.
1. The maximum GPM rating for the LEGIOMIX station is based on 5 feet per second pipe velocity in the station's copper tubing. This velocity recommendation is for water temperatures up to 140°F and is from the UPC (Uniform Plumbing Code) and the CDA (Copper Development Association) "Copper Tube Handbook". To minimize the potential of erosion-corrosion in the station piping, do not exceed 5 fps velocity.
 2. The PSI/GPM table is for reference only, showing various GPM values at various pressure drops across the station.



6003 LEGIOMIXevo without pump



6003 LEGIOMIXevo with pump

Without Pump													
Code	Mixed out, hot/cold in	Recirculation	A	B	C	D	E	F	G	H	I	Net Wt (lb)	Gross Wt (lb)
600366AFS	1"	3/4"	35 1/4"	5 1/4"	24 3/4"	3 1/2"	39"	32"	14 1/4"	7 1/2"	8 1/4"	67	192
600376AFS	1 1/4"	1"	39 1/4"	6 1/4"	27"	3 1/2"	43"	36"	10 1/8"	7 1/2"	9"	88	213
600386AFS	1 1/2"	1 1/4"	47 1/4"	5"	33 3/4"	4"	48"	40"	16 5/8"	8 1/2"	13 1/4"	105	281
600396AFS	2"	1 1/2"	47 1/4"	5 3/8"	36 3/4"	5"	60"	50"	19"	8 7/8"	14 1/4"	143	319
600360AFS	2 1/2"	1 1/2"	55 1/4"	7"	43 1/4"	5"	70"	60"	28 1/4"	8 1/2"	13 1/2"	160	336
600380AFS	3"	2"	55 1/2"	8"	42 1/2"	5 1/8"	70 1/4"	60"	29"	8 1/2"	12 1/2"	163	339
With Pump													
600366AFS 001	1"	1"	35 1/4"	5 1/4"	24 3/4"	3 1/2"	39"	32"	14 1/4"	7 1/2"	8 1/4"	74	199
600376AFS 001	1 1/4"	1"	39 1/4"	6 1/4"	27"	3 1/2"	43"	36"	10 1/8"	7 1/2"	9"	102	227
600386AFS 001	1 1/2"	1 1/4"	47 1/4"	5"	33 3/4"	4"	48"	40"	16 5/8"	8 1/2"	13 1/4"	119	295
600396AFS 001	2"	1 1/2"	47 1/4"	5 3/8"	36 3/4"	5"	60"	50"	19"	8 7/8"	14 1/4"	157	333
600360AFS 001	2 1/2"	1 1/2"	55 1/4"	7"	43 1/8"	5"	70"	60"	28 1/4"	8 1/2"	13 1/2"	174	350
600380AFS 001	3"	2"	55 1/2"	8"	42 1/2"	5"	70"	60"	29"	8 1/2"	12 1/2"	179	355



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

AVERTISSEMENT: Ce produit peut vous exposer à des produits chimiques comme le plomb, qui est connu dans l'État de Californie pour causer le cancer, dommages à la naissance ou autre. Pour plus d'informations rendez-vous www.P65Warnings.ca.gov.

LEAVE THIS MANUAL WITH THE USER.

Laissez ce manuel à la disposition de l'utilisateur.



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