

Unimizer® Actuated Control Valves



Recommended Applications:

- Where actuated ball valves or globe valves are used to control the flow
- Where mixing and diverting capabilities are required
- For hotels and schools, air handling units, equipment rooms and pipeline products

Exploded View

Manual Operation

Can be operated in the event of a power failure.

Actuator and Plate can be Rotated after Mounting

Provides for installation in confined spaces, and makes wiring the actuator easier.

Plastic Mounting Plate, Extensions and Handle

Will not condensate in chilled or hot water applications, and reduces heat transfer to actuator in hot water applications.

Universal Mounting Plate

Allows one mounting plate to be used with almost any manufacturers' actuator.

Blow-Out Proof Stem

Is able to withstand high pressures, providing added safety.

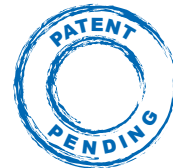


Flow Optimizer

Provides equal percentage control. Also, lowers Cv levels to globe valve range taking the guess work out of selecting control valves and eliminating the need to downsize pipes. And, offers multiple Cvs per valve size.

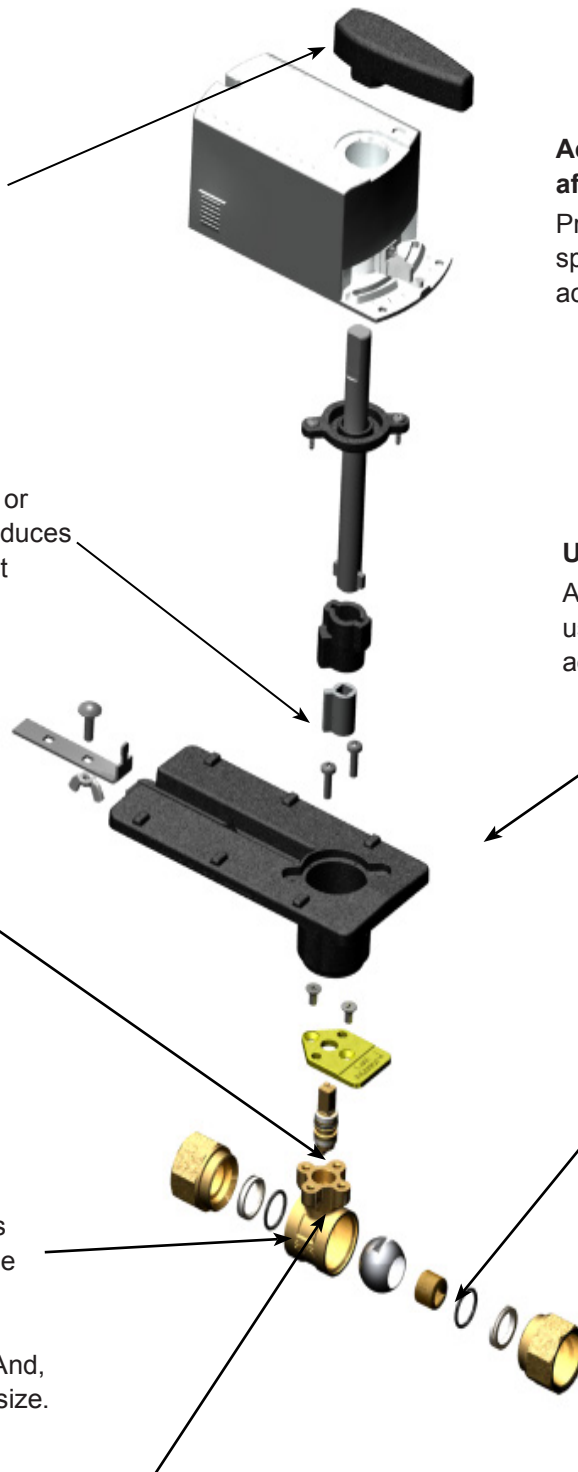
Seals and O-Rings

Reduce torque required to rotate ball (less than 35 in-lbs), allowing for use of smaller actuator.



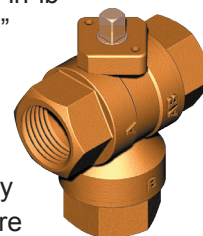
Next Generation Triple Seals and Field Repairable Stem

Provides resistance to today's chemical treatments and to temperature fluctuations following evening system shutdown, and allows for field servicing without removing the valve.



Features and Benefits

- Griswold Controls' "universal solution" Unimizer® features multi-actuator compatibility because the same actuator is not the right choice for every job.
- The Cv ratings for Griswold Controls' Unimizer® are designed to be similar to the Cv ratings of globe valves, the range most piping systems are designed for. The product can be sized for globe valves but offers a considerable savings.
- Optimizer® parabolic flow inserts inserts have different size openings, providing five or six Cvs per valve size. This allows for an exact match to the pressure drop requirement, thereby improving the valve's authority in the system.
- The Optimizer® parabolic flow inserts insert in the ½" to 3" valves uses Noryl material, providing broad thermal capability, corrosion resistance, and low coefficient of friction and water absorption. Griswold Controls' Optimizer® parabolic flow inserts is press-fit into the ball, causing less wear and higher close-off pressure, unlike traditional discs.
- The Unimizer® is designed for low torque actuators, resulting in lower actuator costs and greater savings. A 35 in-lb actuator is sufficient to provide close-off pressure up to 100 psi for ½" to 3" valves; an 88 in-lb actuator provides 70 psi close-off pressure for 4" to 5" valves, and a 140 in-lb actuator provides 70 psi close-off for 6" valves.
- Griswold Controls' Unimizer® can be installed in the field in a "tee" pattern, just like a globe valve, due to its 3-way ball design. Elbows and extra piping are therefore not required, thus reducing the labor to install the valves, and the potential for leaks.
- The Unimizer® can be used for either mixing or diverting—the same valve fits both types of applications.
- Two-way and 3-way valves have a true equal percentage flow characteristic to coil.



Universal Mounting Plates

We are compatible with Siemens, Invensys, Honeywell, Neptronics, Johnson Controls, KMC Controls and Belimo actuators. Reference Griswold Controls' specification sheets F-4206, F-4306, F-5358 and F-5359 for available actuators.

Close-off/Torque

Unlike other flow devices, the close-off pressure¹ of Griswold Controls' Unimizer® applies to both full port valves and valves with the Optimizer® insert. This high close-off is achieved with a low torque actuator.

Close-off ΔP/Required Torque					
	1/2" to 1"	1-1/4" to 2"	2-1/2" to 3"	4" to 5"	6"
2-way	130 PSI/35 in-lbs	100 PSI/35 in-lbs	100 PSI/35 in-lbs	70 PSI/88 in-lbs	70 PSI/140 in-lbs ²
3-way	50 PSI/35 in-lbs	40 PSI/35 in-lbs	40 PSI/35 in-lbs	70 PSI/88 in-lbs	70 PSI/140 in-lbs ²

¹ The close-off pressure is the maximum allowable pressure drop across the valve body when the valve is fully closed.

² Up to 700 GPM. For flow rates higher than 700 gpm, 200 in-lbs are required.

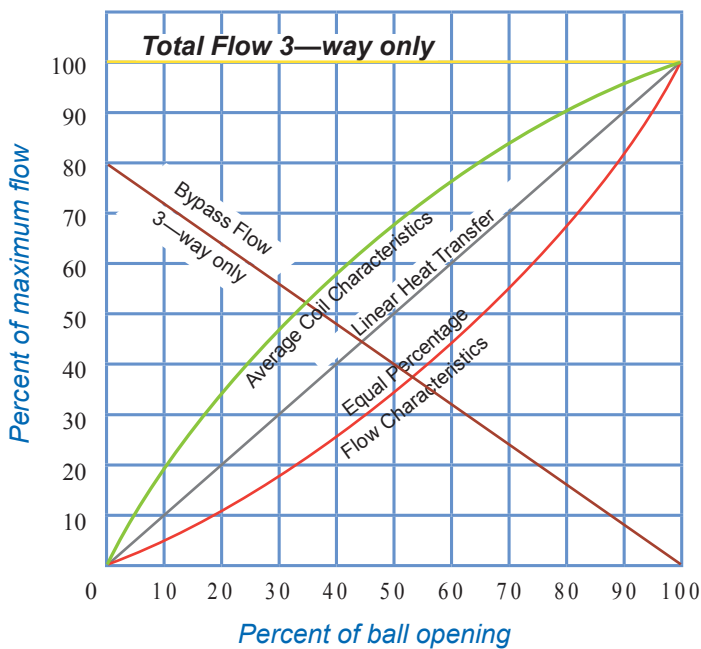
U.S. Patent #5,937,890: The Original Is Still The Best

Griswold Controls' Optimizer® parabolic flow inserts have been improving performance for almost ten years. After proving itself in the Quickset® line of manual balance valves, the Optimizer® is now a component of our actuated ball valve temperature controls, allowing the performance of a globe valve at a ball valve price.

Equal Percentage Flow



Equal movements of the valve stem at any point of the flow range change the existing flow an equal percentage regardless of the existing flow. As you can see in the graph below, our valve (red curve) mirrors the equal percentage characteristic of the coil (green curve), resulting in linear heat transfer.



True Equal Percentage Flow

True equal percentage flow means temperature adjusts smoothly, without major changes that send building occupants running for the thermostat. When the thermostat setting stays in place, the owner saves energy and money!

True Equal Percentage Flow Provides Linear Heat Transfer

Linear heat transfer means the relationship between valve opening percentage and increase in heat transfer is linear. Temperature control is functioning efficiently because it is being controlled according to design. The linear heat transfer of our 3-way Unimizer® actuated control valve means an end to fluctuating comfort conditions normally present with all other 3-way valves. Temperature adjusts smoothly and subtly to meet changing load conditions.

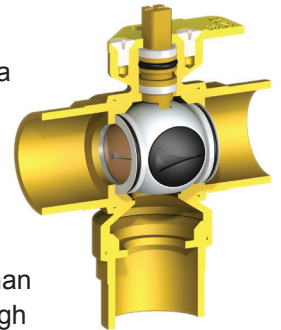
No More Overflow Problems with 3-Way Valves

Total flow is the sum of the bypass flow and the coil flow. Overflow occurs if the total flow exceeds the flow required for the system. In modulating applications, other 3-way valve manufacturers' total flow exceeds the coil flow by 10% to 20%. Griswold Controls' 3-way Unimizer® actuated control valve solves overflow problems by having the coil and bypass streams flow simultaneously through the ball. The total flow in the middle of modulation (flowing to both coil and bypass) is equal to the total flow to the coil or bypass only.

When a coil overflows, the system is either using too much pump or starving other locations and pumping too much means money is being wasted.

80% Bypass Cv Keeps System Running to Design for 3-way Valves

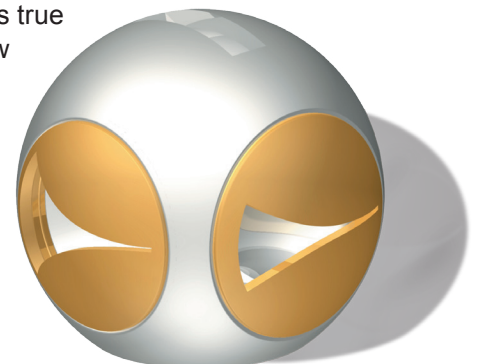
Systems are designed for a specific pressure drop across the coil. When a 3-way valve is in full bypass mode, the system loses this coil pressure drop. It is important to have a low bypass Cv to allow the bypass to compensate with a higher pressure drop. When the bypass Cv is lower than the coil Cv, there will always be enough pressure drop in bypass mode.



3-way ball in 3-way Unimizer® actuated control valve

Griswold Controls' Patent Pending 3-Way Ball

Many manufacturers either settle for providing non-equal percentage control to the coil, or they achieve equal percentage control by using a costly, custom programmed actuator. Griswold Controls' Unimizer® actuated control valve achieves true equal percentage flow from the parabolic shape of the Optimizers™ located at each port, thereby allowing the use of any standard, low cost actuator.



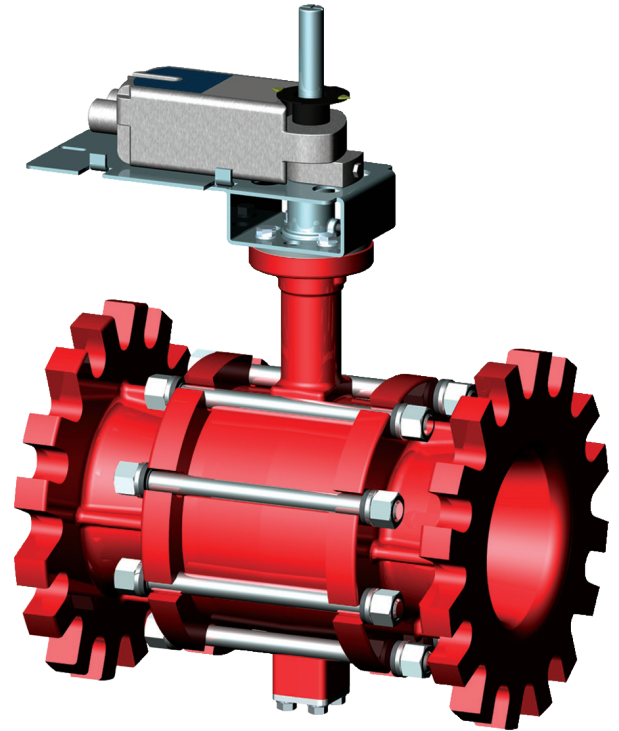
Larger Model, 4" to 6" Unimizers™

Unimizer®

Following the proven success of the ½" to 3" Unimizers™, Griswold Controls expanded its line to include 4" to 6" models. These flanged valves are available in both 2-way and 3-way configurations, and are ideal for AHU (air handling unit) applications. The larger sizes retain the equal percentage performance, universal mounting options and low torque requirements of the smaller valves.

Griswold Controls' design is simple and efficient. Most manufacturers achieve equal percentage on their 3-way valves by using a costly, custom programmed actuator. Griswold Controls' Unimizer® actuated control valve achieves equal percentage flow with the parabolic shape of their patented Optimizer® parabolic flow inserts, thereby allowing the use of any standard actuator with the valve, resulting in lower actuator costs and greater savings.

Air handling unit manufacturers recommend 3-way valves for dehumidification in air handling applications where there are large spaces with a high people load because of their more precise temperature control. The Unimizer® is a perfect choice for these applications.



Recommended for air handling units, equipment rooms, and pipeline products

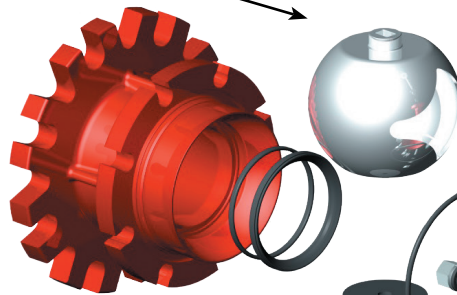
3-way modulation perfect for dehumidification

Retains equal percentage flow characteristics

Eliminates overflow on 3-way valves

3-Way Ball:

Eliminates overflow problems associated with other manufacturers' 3-way valves. Coil and bypass streams flow simultaneously through the ball so that the total flow in the middle of the modulation (when flowing to both the coil and the bypass) is equal to the total flow to the coil only.

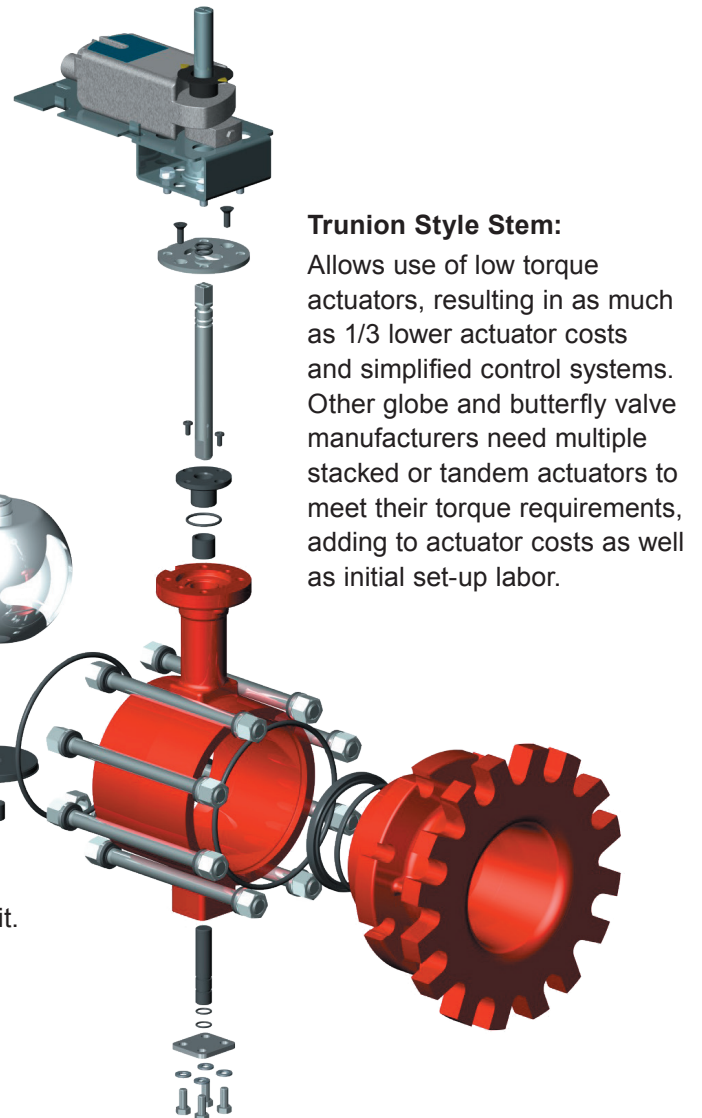


Cast Iron Housing:

Matches overall length of globe valves, allowing for easy retrofit.

Parabolic Port in Stainless Steel Ball:

Provides deeper equal percentage curve than a globe valve.



Trunion Style Stem:

Allows use of low torque actuators, resulting in as much as 1/3 lower actuator costs and simplified control systems. Other globe and butterfly valve manufacturers need multiple stacked or tandem actuators to meet their torque requirements, adding to actuator costs as well as initial set-up labor.

Typical selection for HVAC 2-position applications is 0.5 to 1.0 PSID. Typical selection for HVAC modulating applications is 3.0 to 5.0 PSID.

LINE SIZE	MODEL NO.	FULL PORT ¹	CLOSE OFF ΔP ²	FLOWRATE (GPM) @ DIFFERENTIAL PRESSURE (PSI) ACROSS VALVE											
				2-POSITION HVAC APPS			HVAC MODULATING APPS								
				0.5	1.0	Cv ³	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	7.0
1/2"	UR2A1_		130 PSI	0.3	0.38	0.5	0.5	0.6	0.7	0.7	0.8	0.8	0.8	1.0	1.2
	UR2A2_			0.5	0.68	0.8	1.0	1.1	1.2	1.3	1.4	1.4	1.5	1.8	2.2
	UR2A3_			0.9	1.3	1.6	1.8	2.1	2.3	2.4	2.6	2.8	2.9	3.4	4.1
	UR2A4_			1.8	2.6	3.2	3.7	4.1	4.5	4.9	5.2	5.5	5.8	6.9	8.2
	UR2A5_			3.3	4.7	5.8	6.6	7.4	8.1	8.8	9.4	10.0	10.5	12.4	14.9
	UR2A6_	•		8.3	11.7	14.3	16.5	18.5	20.3	21.9	23.4	24.8	26.2	31.0	37.0
	UR2A7_			5.7	8.0	9.8	11.3	12.6	13.9	15.0	16.0	17.0	17.9	21.2	25.3
3/4"	UR2B6_		130 PSI	0.2	0.31	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.8	1.0
	UR2B7_			0.4	0.63	0.8	0.9	1.0	1.1	1.2	1.3	1.3	1.4	1.7	2.0
	UR2B8_			0.8	1.2	1.5	1.7	1.9	2.1	2.2	2.4	2.5	2.7	3.2	3.8
	UR2B1_			1.8	2.5	3.1	3.5	4.0	4.3	4.7	5.0	5.3	5.6	6.6	7.9
	UR2B2_			3.0	4.3	5.3	6.1	6.8	7.4	8.0	8.6	9.1	9.6	11.4	13.6
	UR2B3_	•		10.4	14.7	18.0	20.8	23.2	25.5	27.5	29.4	31.2	32.9	38.9	46.5
	UR2B4_			7.1	10.1	12.4	14.3	16.0	17.5	18.9	20.2	21.4	22.6	26.7	31.9
1"	UR2C1_		100 PSI	20.2	28.6	35.0	40.4	45.2	49.5	53.5	57.2	60.7	64.0	75.7	90.4
	UR2C2_	•		6.4	9.0	11.0	12.7	14.2	15.6	16.8	18.0	19.1	20.1	23.8	28.5
	UR2C3_			20.1	28.4	34.8	40.2	44.9	49.2	53.1	56.8	60.2	63.5	75.1	89.8
	UR2C4_	•		3.1	4.4	5.4	6.2	7.0	7.6	8.2	8.8	9.3	9.8	11.6	13.9
	UR2C5_			10.8	15.3	18.7	21.6	24.2	26.5	28.6	30.6	32.5	34.2	40.5	48.4
	UR2C6_	•		38.3	54.2	66.4	76.7	85.7	93.9	101.4	108.4	115.0	121.2	143.4	171.4
	UR2C7_			18.5	26.1	32.0	36.9	41.3	45.2	48.8	52.2	55.4	58.4	69.1	82.5
1-1/4"	UR2D5_		100 PSI	31.0	43.9	53.8	62.1	69.4	76.0	82.1	87.8	93.1	98.2	116.1	138.8
	UR2D6_			3.1	4.4	5.4	6.2	7.0	7.6	8.2	8.8	9.3	10.5	11.6	13.9
	UR2D1_			5.9	8.3	10.2	11.7	13.1	14.4	15.5	16.6	17.6	18.6	22.0	26.4
	UR2D2_	•		10.5	14.9	18.2	21.1	23.6	25.8	27.9	29.8	31.6	33.3	39.4	47.1
	UR2D3_			29.1	41.1	50.3	58.1	65.0	71.2	76.9	82.2	87.2	91.9	108.7	130.0
	UR2D4_	•		25.8	36.5	44.7	51.6	57.7	63.2	68.3	73.0	77.4	81.6	96.6	115.4
	UR2E1_			72.3	102.3	125.3	144.7	161.8	177.2	191.4	205	217	229	271	324
1-1/2"	UR2E2_	•	100 PSI	16.1	22.8	27.9	32.2	36.0	39.5	42.7	45.6	48.4	51.0	60.3	72.1
	UR2E3_			52.3	73.9	90.5	104.5	116.8	128.0	138.3	147.8	156.8	165.2	195.5	234
	UR2E4_	•		29.2	41.3	50.6	58.4	65.3	71.5	77.3	82.6	87.6	92.3	109.3	130.6
	UR2F1_			121.4	171.7	210	243	272	297	321	343	364	384	454	543
2"	UR2F2_	•	100 PSI	29.5	41.7	51.1	59.0	65.9	72.2	78.0	83.4	88.5	93.2	110.3	131.9
	UR2F3_			76.4	108.0	132.3	152.7	170.8	187.1	202	216	229	242	286	342
	UR2F4_	•		40.3	57.0	69.8	80.6	90.1	98.7	106.6	114.0	120.9	127.5	150.8	180.2
	UR2F5_			50.3	71.1	87.1	100.6	112.4	123.1	133.0	142.2	150.8	159.0	188.1	225
	UR2F6_			70.7	100.0	122.5	141.4	158.1	173.2	187.1	200	212	224	265	316
	UR2F7_			148.5	210	257	297	332	364	393	420	445	470	556	664
	UR2G1_			188.1	266	326	376	421	461	498	532	564	595	704	841
2-1/2"	UR2G2_		100 PSI	31.8	45.0	55.1	63.6	71.2	77.9	84.2	90.0	95.5	100.6	119.1	142.3
	UR2G3_			38.9	55.0	67.4	77.8	87.0	95.3	102.9	110.0	116.7	123.0	145.5	173.9
	UR2G4_			50.9	72.0	88.2	101.8	113.8	124.7	134.7	144.0	152.7	161.0	190.5	228
	UR2G5_			71.4	101.0	123.7	142.8	159.7	174.9	189.0	202.0	214.3	225.8	267.2	319
	UR2G6_			114.6	162.0	198.4	229	256	281	303.1	324	344	362	429	512
	UR2G7_	•		142.8	202	247	286	319	350	378	404	429	452	534	639
	3"	UR2H1_			100 PSI	34.6	49.0	60.0	69.3	77.5	84.9	91.7	98.0	103.9	109.6
UR2H2_			44.5	63.0		77.2	89.1	99.6	109.1	117.9	126.0	133.6	140.9	166.7	199.2
UR2H3_			58.0	82.0		100.4	116.0	129.7	142.0	153.4	164.0	173.9	183.4	217	259
UR2H4_			87.7	124.0		151.9	175.4	196.1	215	232	248	263	277	328	392
UR2H5_		•	102.5	145.0		177.6	205	229	251	271	290	308	324	384	459
4"	3URJ1_		70 PSI	64.3	91	111	129	144	158	170	182	193	203	241	288
	3URJ2_			83.4	118	145	167	187	204	221	236	250	264	312	373
	3URJ3_			107.5	152	186	215	240	263	284	304	322	340	402	481
	3URJ4_			139.3	197	241	279	311	341	369	394	418	441	521	623
	3URJ5_			179.6	254	311	359	402	440	475	508	539	568	672	803
5"	3URK1_		70 PSI	101.8	144	176	204	228	249	269	288	305	322	381	455
	3URK2_			130.8	185	227	262	293	320	346	370	392	414	489	585
	3URK3_			169.7	240	294	339	379	416	449	480	509	537	635	759
	3URK4_			218.5	309	378	437	489	535	578	618	655	691	818	-
	3URK5_			282.8	400	490	566	632	693	748	800	849	894	-	-
6"	3URL1_		70 PSI	147.1	208	255	294	329	360	389	416	441	465	550	658
	3URL2_			189.5	268	328	379	424	464	501	536	569	599	709	847
	3URL3_			244.7	346	424	489	547	599	647	692	734	774	915	-
	3URL4_			311.8	441	540	624	697	764	825	882	936	-	-	-
	3URL5_			408.0	577	707	816	912	999	-	-	-	-	-	-
	3URL6_			459.6	650	796	919	-	-	-	-	-	-	-	-

1 These valves are full port and do not have the Optimizer® insert.
 2 Close-off pressure is measured with 35 in-lb. actuator. The "close off pressure" is the maximum allowable pressure drop across the valve body when the valve is fully closed.
 3 Cv is defined as the quantity of water in GPM at 60ΔF that will flow through a given valve with a pressure drop of 1PSI. Hence the 1.0 PSI pressure differential column in the table above is equivalent to the Cv value.

3-Way Rate & Cv Selection

Typical selection for HVAC 2–position applications is 0.5 to 1.0 PSID. Typical selection for HVAC modulating applications is 3.0 to 5.0 PSID.

LINE SIZE	MODEL NO.	THROUGH Cv	FULL PORT ¹	CLOSE OFF ΔP ²	FLOWRATE (GPM) @ DIFFERENTIAL PRESSURE (PSI)											
					2-POSITION HVAC APPS					HVAC MODULATING APPS						
					0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	7.0	10.0
1/2"	3WRA__	A=0.33		50 PSI	0.2	0.33	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.9	1.0
	3WRA__	B=0.59			0.4	0.59	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.3	1.6	1.9
	3WRA__	C=1.0			0.7	1.0	1.2	1.4	1.6	1.7	1.9	2.0	2.1	2.2	2.6	3.2
	3WRA__	D=2.4			1.7	2.4	2.9	3.4	3.8	4.2	4.5	4.8	5.1	5.4	6.3	7.6
	3WRA__	E=4.3			3.0	4.3	5.3	6.1	6.8	7.4	8.0	8.6	9.1	9.6	11.4	13.6
	3WRA__	F=8.0			5.7	8.0	9.8	11.3	12.6	13.9	15.0	16.0	17.0	17.9	21.2	25.3
3/4"	3WRB__	A=0.40		50 PSI	0.3	0.40	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9	1.1	1.3
	3WRB__	B=0.66			0.5	0.66	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.7	2.1
	3WRB__	C=1.3			0.9	1.3	1.6	1.8	2.1	2.3	2.4	2.6	2.8	2.9	3.4	4.1
	3WRB__	D=2.4			1.7	2.4	2.9	3.4	3.8	4.2	4.5	4.8	5.1	5.4	6.3	7.6
	3WRB__	E=3.8			2.7	3.8	4.7	5.4	6.0	6.6	7.1	7.6	8.1	8.5	10.1	12.0
	3WRB__	F=11.0	•		7.8	11.0	13.5	15.6	17.4	19.1	20.6	22.0	23.3	24.6	29.1	34.8
1"	UR3C__	A=0.40		50 PSI	0.3	0.40	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9	1.1	1.3
	UR3C__	B=0.65			0.5	0.65	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.7	2.1
	UR3C__	C=1.3			0.9	1.3	1.6	1.8	2.1	2.3	2.4	2.6	2.8	2.9	3.4	4.1
	UR3C__	D=2.3			1.6	2.3	2.8	3.3	3.6	4.0	4.3	4.6	4.9	5.1	6.1	7.3
	UR3C__	E=3.5			2.5	3.5	4.3	4.9	5.5	6.1	6.5	7.0	7.4	7.8	9.3	11.1
	UR3C__	F=10.0			7.1	10.0	12.2	14.1	15.8	17.3	18.7	20.0	21.2	22.4	26.5	31.6
	UR3C__	G=8.6			6.1	8.6	10.5	12.1	13.6	14.9	16.1	17.2	18.2	19.2	22.7	27.2
	UR3C__	H=22.3			15.8	22.3	27.3	31.5	35.3	38.6	41.7	44.6	47.3	49.9	59.0	70.5
	UR3C__	J=14.9			10.5	14.9	18.2	21.1	23.6	25.8	27.9	29.8	31.6	33.3	39.4	47.1
	UR3C__	K=4.5			3.2	4.5	5.5	6.4	7.1	7.8	8.4	9.0	9.5	10.1	11.9	14.2
1-1/4"	UR3D__	M=30.8		40 PSI	21.8	30.8	37.7	43.6	48.7	53.3	57.6	61.6	65.3	68.9	81.5	97.4
	UR3D__	B=19.4	•		13.7	19.4	23.8	27.4	30.7	33.6	36.3	38.8	41.2	43.4	51.3	61.3
	UR3D__	C=12.7			9.0	12.7	15.6	18.0	20.1	22.0	23.8	25.4	26.9	28.4	33.6	40.2
	UR3D__	D=4.1			2.9	4.1	5.0	5.7	6.4	7.0	7.6	8.1	8.6	9.1	10.7	12.8
	UR3D__	E=8.7			6.1	8.7	10.6	12.3	13.7	15.0	16.2	17.3	18.4	19.4	22.9	27.4
	UR3D__	F=34.1	•		24.1	34.1	41.8	48.2	53.9	59.1	63.8	68.2	72.3	76.2	90.2	107.8
1-1/2"	UR3E__	G=26.8		40 PSI	19.0	26.8	32.8	37.9	42.4	46.4	50.1	53.6	56.9	59.9	70.9	84.7
	UR3E__	A=13.4			9.5	13.4	16.4	18.9	21.1	23.2	25.0	26.7	28.4	29.9	35.4	42.3
	UR3E__	B=4.0			2.8	4.0	4.9	5.7	6.4	7.0	7.5	8.1	8.5	9.0	10.7	12.7
	UR3E__	C=8.3			5.8	8.3	10.1	11.7	13.1	14.3	15.5	16.5	17.5	18.5	21.9	26.1
	UR3E__	D=32.0	•		22.6	32.0	39.2	45.3	50.6	55.5	59.9	64.0	67.9	71.6	84.7	101.3
	UR3E__	E=23.5			16.6	23.5	28.8	33.3	37.2	40.8	44.0	47.1	49.9	52.6	62.3	74.4
2"	UR3F__	F=61.1		40 PSI	43.2	61.1	74.8	86.4	96.6	105.8	114.3	122.2	129.6	136.6	161.6	193.2
	UR3F__	A=23.9			16.9	23.9	29.3	33.8	37.8	41.4	44.7	47.8	50.7	53.4	63.2	75.6
	UR3F__	B=56.7			40.1	56.7	69.4	80.2	89.7	98.2	106.1	113.4	120.3	126.8	150.0	179.3
	UR3F__	C=38.2			27.0	38.2	46.8	54.0	60.4	66.2	71.5	76.4	81.0	85.4	101.1	120.8
	UR3F__	D=108.5			76.7	108.5	132.9	153.4	171.6	187.9	203	217	230	243	287	343
2-1/2"	UR3G__	E=82.6		40 PSI	58.4	82.6	101.2	116.8	130.6	143.1	154.5	165.2	175.2	184.7	219	261
	UR3G__	A=38.1			26.9	38.1	46.7	53.9	60.2	66.0	71.3	76.2	80.8	85.2	100.8	120.5
	UR3G__	C=74.1			52.4	74.1	90.8	104.8	117.2	128.3	138.6	148.2	157.2	165.7	196.1	234
4"	UR3G__	B=99.5	•	70 PSI	70.4	99.5	121.9	140.7	157.3	172.3	186.1	199.0	211	223	263	315
	3WRJA__	A=91			64.3	91	111	129	144	158	170	182	193	203	241	288
	3WRJB__	B=118			83.4	118	145	167	187	204	221	236	250	264	312	373
	3WRJC__	C=152			107.5	152	186	215	240	263	284	304	322	340	402	481
	3WRJD__	D=197			139.3	197	241	279	311	341	369	394	418	441	521	623
	3WRJE__	E=254			179.6	254	311	359	402	440	475	508	539	568	672	803
	3WRJF__	F=327			231.2	327	400	462	517	566	612	654	694	731	-	-
5"	3WRKA__	A=144		70 PSI	101.8	144	176	204	228	249	269	288	305	322	381	455
	3WRKB__	B=185			130.8	185	227	262	293	320	346	370	392	414	489	585
	3WRKC__	C=240			169.7	240	294	339	379	416	449	480	509	537	635	759
	3WRKD__	D=309			218.5	309	378	437	489	535	578	618	655	691	818	-
	3WRKE__	E=400			282.8	400	490	566	632	693	748	800	849	894	-	-
6"	3WRLA__	A=208		70 PSI	147.1	208	255	294	329	360	389	416	441	465	550	658
	3WRLB__	B=268			189.5	268	328	379	424	464	501	536	569	599	709	847
	3WRLC__	C=346			244.7	346	424	489	547	599	647	692	734	774	9151	-
	3WRLD__	D=441			311.8	441	540	624	697	764	825	882	936	-	-	-
	3WRLE__	E=577			408.0	577	707	816	912	999	-	-	-	-	-	-
3WRLF__	F=650		459.6	650	796	919	-	-	-	-	-	-	-	-		

- 1 These valves are full port and do not have the Optimizer® insert.
- 2 Close–off pressure is measured with 35 in–lb. actuator. The “close off pressure” is the maximum allowable pressure drop across the valve body when the valve is fully closed.
- 3 Cv is defined as the quantity of water in GPM at 60ΔP that will flow through a given valve with a pressure drop of 1PSI. Hence the 1.0 PSI pressure differential column in the table above is equivalent to the Cv value.

Griswold Controls' Coil Piping Package program includes over 900 standard packages. Engineers do not have to design or detail the various elements that are required at the supply and return end of each coil. They can just select one of Griswold Controls standard packages, which are available for both automatic and manual flow control applications. We also offer downsized components to the automatic temperature control as a standard package. Standard packages up to 2" ship within 48 hours after the order is received direct to the job site, preassembled and ready to install. If variations to the standard packages are necessary they can be readily accommodated, but they will affect the 48 hour ship time. In addition, options such as hoses and extension kits can be easily added, but similarly this will increase the lead time.

Standard packages offer:

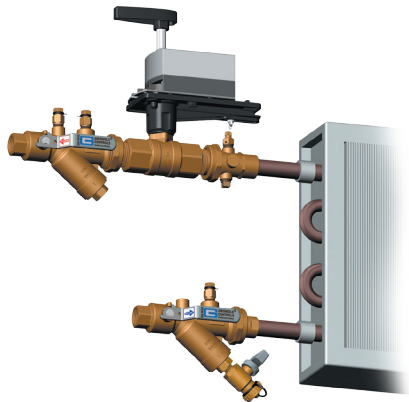
- Wide selection of preassembled, easy to order configurations
- Easy ordering: order by specific part numbers
- Timely delivery
- Variety of options: downsized automatic temperature control, extra pressure/temperature ports, and the inclusion of Griswold Controls Automizer™ and Unimizer® temperature control valves.

Custom Coil Piping Packages

Griswold Controls offers custom packages in line sizes from 2-1/2" thru 8". The components can be shipped loose or assembled and shipped on a skid—your choice. These packages are available with flange, weld or grooved end

connections and can include balancing valves, strainers, butterfly valves, control valves and reducers. A variety of options are also available for customized packages, including the addition of hoses and extension kits.

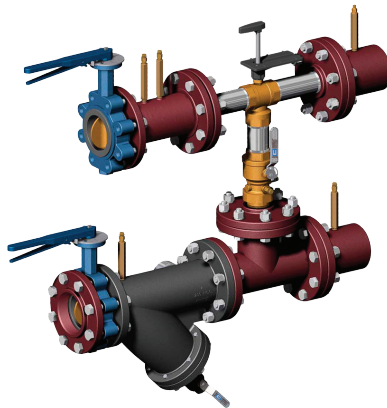
Terminal Units 1/2" to 2"



Standard 2-way IRIS Package with Unimizer®

- Isolator S with 20-Mesh Strainer, CPTA and Drain Valve
- Union with CPTA
- 2-way Unimizer (with any standard actuator)
- Isolator R with Automatic Flow Control Cartridge and two CPTA valves

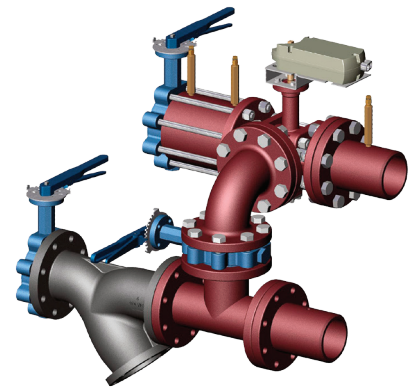
Air Handling Units 2" to 3"



Custom 3-way 3UF Package with Unimizer®

- Y-Strainer with Butterfly and Drain Valve
- Tee Connection
- 3-Way Unimizer
- Flange Valve with Butterfly Valve
- Accessory Flanges with PTs

Equipment Rooms 4" to 8"



Custom 2-way 3WR Package with Unimizer®

- Y-Strainer with Butterfly Valve
- Tee Connection
- Butterfly Valve on Bypass
- 3-Way Unimizer
- Wafer Valve with Butterfly Valve
- Accessory Flanges with PTs



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