

# FlowCon Unimizer 2-way 1/2"-3"

## Actuated Control Valves

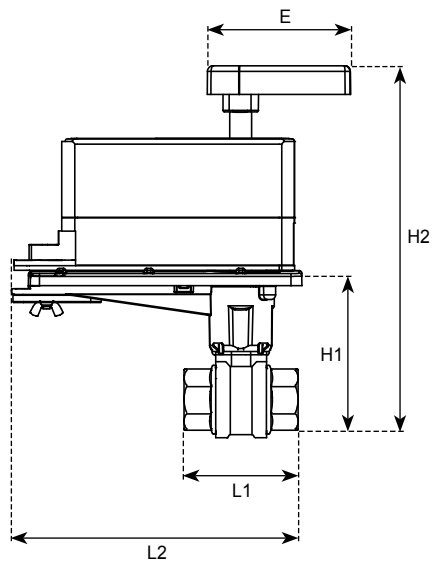


### SPECIFICATIONS

Pressure rating:	360 psi / 2400 kPa
Temperature rating, media:	-4°F to +248°F / -20°C to +120°C
Temperature rating, ambient:	-4°F to +122°F / -20°C to +50°C
Media:	Chilled water, hot water (Fluid grp. 2) For higher glycol content than 50% or additional fluids, please consult factory
Material:	
- Flow Optimizer:	Glass filled polymer
- Body:	Forged brass ASTM B283-06
- End connections:	Brass - ISO or NPT
- Field repairable stem:	Dual teflon seals and EPDM o-ring
- Stem seals:	EPDM o-rings
- Ball valve:	Nickel-plated brass ball Optional: Stainless steel ball
- Ball seals:	Teflon seals with EPDM o-rings
Angle of rotation:	0-90°
Leakage rates:	IEC 60534-1 Class IV

**DIMENSIONS AND WEIGHTS (NOMINAL) (measured in inches unless noted)**

Model no.	Size (")	Size (mm)	Cv	L1	L2	H1	H2	D depth (not shown)	E (handle)	Weight (lbs)
				NPT/BSP	NPT/BSP					
FUR2A_	1/2	15	0.38 0.68 1.3 2.6 4.7 8.0 11.7	2.4	6.7	3.8	8.3	3.0	2.0	1.0
FUR2B_	3/4	20	0.31 0.63 1.2 2.5 4.3 7.0 14.70	2.4	6.7	3.8	8.6	3.0	2.0	1.2
			10.1 28.6	2.8	6.7	4.1				
FUR2C_	1	25	9.0 28.4	2.8	6.7	4.1	8.6	3.0	2.0	1.2
			4.4 15.3 26.1 43.9 54.2	3.1	6.7	4.4				9.0
FUR2D_	1 1/4	32	4.4 8.3 14.9 25.0 41.1	3.0	6.7	4.5	9.0	3.0	2.0	1.5
			36.5 102.3	3.6	7.1	4.9				9.5
FUR2E_	1 1/2	40	22.8 30.0 73.9	3.4	7.0	4.9	9.5	3.0	2.0	2.6
			41.3 171.7	4.1	7.3	5.4				10.0
FUR2F_	2	50	41.7 108.0	4.0	7.2	5.4	10.0	3.5	2.0	3.2
			57.0 71.1 100.0 210.0 256.0	4.9	7.7	6.1				10.7
FUR2G_	2 1/2	65	45.0 55.0 72.3 101.0 162.0 202.0	5.4	7.9	6.1	10.7	3.5	2.0	5.5
FUR2H_	3	80	49.0 63.0 82.0 124.0 145.0	5.7	8.1	6.4	10.9	4.0	2.0	6.4



## MODEL NUMBER SELECTION

**FUR2** . . . . .

Insert ball size:  
**A**=1/2", 15 mm    **B**=3/4", 20mm    **C**=1", 25mm    **D**=1 1/4", 32mm  
**E**=1 1/2", 40mm    **F**=2", 50mm    **G**=2 1/2", 65mm    **H**=3", 80mm

Insert a Cv value (**1, 2, 3, 4, 5, 6, 7, 8** or **9**) (see flow rate table next page):

Select connection standard:  
**F**=FNPT    **B**=ISO

Select ball and stem:  
**B**=Standard    **S**=Optional 316 SS

Insert mounting kit number:  
**1**=Neptronic  
**2**=Johnson Controls  
**3**=Invensys  
**4**=Honeywell  
**5**=Siemens  
**6**=Belimo  
**7**=KMC Controls

**T**=Optional aluminum hanging ID tag

Example: FUR2.A.3.N.B.1.T=Unimizer 2-way 1/2" (Cv equal to 1.3 GPM) with NPT end connections, standard ball and stem, Neptronic mounting kit and ID-tag.

## Cv SELECTION AND FLOW RATE TABLE (GPM)

Line size	Model no	Full <sup>1</sup> port	Close OFF $\Delta P^2$ (bar)	Flow rate (GPM) differential pressure (psi) across valve												Cv <sup>3</sup>	Model number code for Cv
				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"	FUR2.A.1_		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	0.38	1
	FUR2.A.2_			0.5	0.68	0.8	1.0	1.1	1.2	1.3	1.4	1.4	1.5	1.8	2.2	0.68	2
	FUR2.A.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	1.3	3
	FUR2.A.4_			1.8	2.6	3.2	3.7	4.1	4.5	4.9	5.2	5.5	5.8	6.9	8.2	2.6	4
	FUR2.A.5_			3.3	4.7	5.8	6.6	7.4	8.1	8.8	9.4	10.0	10.5	12.4	14.9	4.7	5
	FUR2.A.6_	•		8.3	11.7	14.3	16.5	18.5	20.3	21.9	23.4	24.8	26.2	31.0	37.0	11.7	6
	FUR2.A.7_			5.7	8.0	9.8	11.3	12.6	13.9	15.0	16.0	17.0	17.9	21.2	25.3	8.0	7
3/4"	FUR2.B.6_		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	0.31	6
	FUR2.B.7_			0.4	0.63	0.8	0.9	1.0	1.1	1.2	1.3	1.3	1.4	1.7	2.0	0.63	7
	FUR2.B.8_			0.8	1.2	1.5	1.7	1.9	2.1	2.2	2.4	2.5	2.7	3.2	3.8	1.2	8
	FUR2.B.1_			1.8	2.5	3.1	3.5	4.0	4.3	4.7	5.0	5.3	5.6	6.6	7.9	2.5	1
	FUR2.B.2_			3.0	4.3	5.3	6.1	6.8	7.4	8.0	8.6	9.1	9.6	11.4	13.6	4.3	2
	FUR2.B.9_			4.9	7.0	8.6	9.9	11.1	12.1	13.1	14.0	14.8	15.7	18.5	22.1	7.0	9
	FUR2.B.3_	•		10.4	14.7	18.0	20.8	23.2	25.5	27.5	29.4	31.2	32.9	38.9	46.5	14.7	3
	FUR2.B.4_			7.1	10.1	12.4	14.3	16.0	17.5	18.9	20.2	21.4	22.6	26.7	31.9	10.1	4
	FUR2.B.5_	•		20.2	28.6	35.0	40.4	45.2	49.5	53.5	57.2	60.7	64.0	75.7	90.4	28.6	5
1"	FUR2.C.1_		100 psi	6.4	9.0	11.0	12.7	14.2	15.6	16.8	18.0	19.1	20.1	23.8	28.5	9.0	1
	FUR2.C.2_	•		20.1	28.4	34.8	40.2	44.9	49.2	53.1	56.8	60.2	63.5	75.1	89.8	28.4	2
	FUR2.C.7_			3.1	4.4	5.4	6.2	7.0	7.6	8.2	8.8	9.3	9.8	11.6	13.9	4.4	7
	FUR2.C.3_			10.8	15.3	18.7	21.6	24.2	26.5	28.6	30.6	32.5	34.2	40.5	48.4	15.3	3
	FUR2.C.4_	•		38.3	54.2	66.4	76.7	85.7	93.9	101.4	108.4	115.0	121.2	143.4	171.4	54.2	4
	FUR2.C.5_			18.5	26.1	32.0	36.9	41.3	45.2	48.8	52.2	55.4	58.4	69.1	82.5	26.1	5
	FUR2.C.6_			31.0	43.9	53.8	62.1	69.4	76.0	82.1	87.8	93.1	98.2	116.1	138.8	43.9	6
1-1/4"	FUR2.D.5_		100 psi	3.1	4.4	5.4	6.2	7.0	7.6	8.2	8.8	9.3	9.8	11.6	13.9	4.4	5
	FUR2.D.6_			5.9	8.3	10.2	11.7	13.1	14.4	15.5	16.6	17.6	18.6	22.0	64.4	8.3	6
	FUR2.D.1_			10.5	14.9	18.2	21.1	23.6	25.8	27.9	29.8	31.6	33.3	39.4	47.1	14.9	1
	FUR2.D.7_			17.7	25.0	30.6	35.4	39.5	43.3	46.8	50.0	53.0	55.9	66.1	79.1	25.0	7
	FUR2.D.2_	•		29.1	41.1	50.3	58.1	65.0	71.2	76.9	82.2	87.2	91.9	108.7	130.0	41.1	2
	FUR2.D.3_			25.8	36.5	44.7	51.6	57.7	63.2	68.3	73.0	77.4	81.6	96.6	115.4	36.5	3
	FUR2.D.4_	•		72.3	102.3	125.3	144.7	161.8	177.2	191.4	205	217	229	271	324	102.3	4
1-1/2"	FUR2.E.1_		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	22.8	1
	FUR2.E.5_			21.2	30.0	36.7	42.4	47.4	52.0	56.1	60.0	63.6	67.1	79.4	94.9	30.0	5
	FUR2.E.2_	•		52.3	73.9	90.5	104.5	116.8	128.0	138.3	147.8	156.8	165.2	195.5	234	73.9	2
	FUR2.E.3_			29.2	41.3	50.6	58.4	65.3	71.5	77.3	82.6	87.6	92.3	109.3	130.6	41.3	3
	FUR2.E.4_	•		121.4	171.7	210	243	272	297	321	343	364	384	454	543	171.7	4
2"	FUR2.F.1_		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	41.7	1
	FUR2.F.2_	•		76.4	108.0	132.3	152.7	170.8	187.1	202	216	229	242	286	342	108.0	2
	FUR2.F.5_			40.3	57.0	69.8	80.6	90.1	98.7	106.6	114.0	120.9	127.5	150.8	180.2	57.0	5
	FUR2.F.3_			50.3	71.1	87.1	100.6	112.4	123.1	133.0	142.2	150.8	159.0	188.1	225	71.1	3
	FUR2.F.6_			70.7	100.0	122.5	141.4	158.1	173.2	187.1	200	212	224	265	316	100.0	6
	FUR2.F.7_			148.5	210	257	297	332	364	393	420	445	470	556	664	210	7
	FUR2.F.4_	•		188.1	266	326	376	421	461	498	532	564	595	704	841	266	4
2-1/2"	FUR2.G.2_		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	45.0	2
	FUR2.G.3_			38.9	55.0	67.4	77.8	87.0	95.3	102.9	110.0	116.7	123.0	145.5	173.9	55.0	3
	FUR2.G.4_			50.9	72.0	88.2	101.8	113.8	124.7	134.7	144.0	152.7	161.0	190.5	228	72.0	4
	FUR2.G.5_			71.4	101.0	123.7	142.8	159.7	174.9	189.0	202.0	214.3	225.8	267.2	319	101.0	5
	FUR2.G.6_			114.6	162.0	198.4	229	256	281	303.1	324	344	362	429	512	162.0	6
	FUR2.G.7_	•		142.8	202	247	286	319	350	378	404	429	452	534	639	202	7
	3"	FUR2.H.1_			100 psi	34.6	49.0	60.0	69.3	77.5	84.9	91.7	98.0	103.9	109.6	129.6	155.0
FUR2.H.2_			44.5	63.0		77.2	89.1	99.6	109.1	117.9	126.0	133.6	140.9	166.7	199.2	63.0	2
FUR2.H.3_			58.0	82.0		100.4	116.0	129.7	142.0	153.4	164.0	173.9	183.4	217	259	82.0	3
FUR2.H.4_			87.7	124.0		151.9	175.4	196.1	215	232	248	263	277	328	392	124.0	4
FUR2.H.5_		•	102.5	145.0		177.6	205	229	251	271	290	308	324	384	459	145.0	5

Note 1: These valves are full port and do not have the Optimizer insert.

Note 2: Close-Off Pressures 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. (Do not use actuators with torques higher than 90 in-lbs).

Note 3: Cv is defined as the quantity of water in GPM at 60°F that will flow through a given valve with a pressure drop of 1 psi. Hence the 1.0 psi pressure differential column in the table above is equivalent to the Cv value.

## GENERAL SPECIFICATIONS

### 1. ACTUATED BALL VALVE

- 1.1. Valve housing shall consist of forged brass ASTM B283-06 rated at no less than 360 psi at +248°F.
- 1.2. Manufacturer shall be able to provide glass-filled polymer ball insert to make flow control equal percentage.
- 1.3. Valve ball shall consist of chemically nickel-plated brass. Manufacturer shall be able to provide optional 316 SS ball and stem.
- 1.4. Valve shall have EPDM O-Rings behind ball seals to allow for a minimum close-off pressure of 100 psi with 35 in-lb of torque for 1/2"-3" sizes.
- 1.5. Valve shall be available with a minimum of 25 unique Cv values.
- 1.6. Stem shall be removable/replaceable without removing valve from line and shall include both teflon seals and EPDM O-ring.

### 2. VALVE ACTUATOR

- 2.1. Control valve actuator shall be analog modulating (4-20 mA or 2-10 V), floating (tri-state), pulse width modulation, or two position as indicated in the control sequence.
- 2.2. Actuator shall provide minimum torque required for full valve shutoff position.
- 2.3. A 3.0 feet cable shall be provided for installation to electrical junction box.
- 2.4. A universal mounting plate shall allow installation of actuators meeting the system electrical requirements and valve torque requirements as provided by Neptronic, Belimo, ELO Drive, Honeywell, Invensys, Johnson Controls, KMC or Siemens. The control valve actuator may be furnished by the controls contractor under Section 15970 or by the valve manufacturer.

### 3. ACCESSORIES

- 3.1. Identification tags shall be available for all valves; tags shall be indelibly marked with Cv, model number and location; tags shall be aluminum.

## UPDATES

**For latest updates please see [www.flowcon.com](http://www.flowcon.com)**

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