

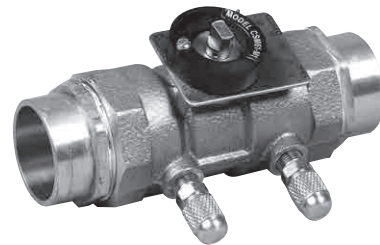
# Watts Series CSM-61(Threaded) & LFCSM-61(Solder)

## Flow Measurement/Balancing Valves

Sizes: 1¼", 1½", 2", 2½", and 3"

Watts Flow Measurement/Balancing Valves are available in the straightway pattern with threaded or solder end connections. All tapered pipe threads conform to FEDERAL SPECS H28. Valves conform to ANSI B16.18 and ANSI B16.22.

Maximum Pressure/Temperature Ratings: 300psi (20.7 bar) - 250°F (121°C).



### ⚠ WARNING



Read this Manual **BEFORE** using this equipment. Failure to read and follow all safety and use information can result in death, serious personal injury, property damage, or damage to the equipment. Keep this Manual for future reference.

### ⚠ WARNING

Use caution when soldering. Protect yourself and others. FUMES AND GASES can be hazardous to your health. HEAT RAYS (INFRARED RADIATION) from flame or hot metal can injure eyes.

## Installation

1. Install valve on return line of equipment to be balanced or as shown on the plans.
2. For maximum accuracy, the flow measurement valve should be located in an unrestricted straight pipe run so that no fittings (elbow, valve, tee, etc.) is closer to the measurement valve than 5 pipe diameters upstream and 2 pipe diameter downstream. If a balancing valve is located downstream from a circulation pump, allow a distance of ten (10) diameters between the pump and balancing valves.
3. Series CSM-61M1 and LFCSM-61M1 flow measurement valves are bidirectional and should be installed to insure ease of hooking up meter, adjusting setting and enabling memory device. A ⅛" (3 mm) NPT plugged port is installed on each measurement valve and can be used as a drain port if needed.
4. Solder end valves are designed to be soft soldered into lines without disassembly, using a low temperature solder (400°F) (204°C). Other solders such as 95/5 tin antimony (460°F) (238°C) can be used, however, extreme caution must be used to prevent seat damage. Higher temperature solders will damage the seat material.
5. Apply heat with flame directed away from the center of the valve body. Excessive heat can harm the seats.
6. Heat solder joints only to the point where solder will flow properly. Excessive heat may distort brass castings.

## Flow Measurement Instruction

1. Loosen memory screw.
2. With wrench, turn indicator to open position on indicator plate. Do not force past this point.
3. Connect, vent and prepare the differential gauge. Refer to instructions furnished with the gauge.
4. After initial pressure differential reading is taken, refer to flow rate charts to obtain flow rate based on pressure differential and valve setting. If flow rate is in excess of that specified, turn indicator towards closed position, noting pressure drop and valve setting and determining new flow rates from flow rate chart. Once correct flow rate setting has been established, slide memory stop clockwise towards open side of indicator plate until memory stop ring hits indicator plate. Do not force beyond this point. Tighten memory screw. Refer to Figure 1. The unit or system has now been balanced and the memory set.
5. After memory is set, disconnect differential gauge.

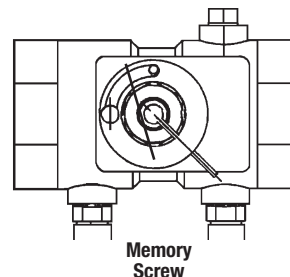


Figure 1

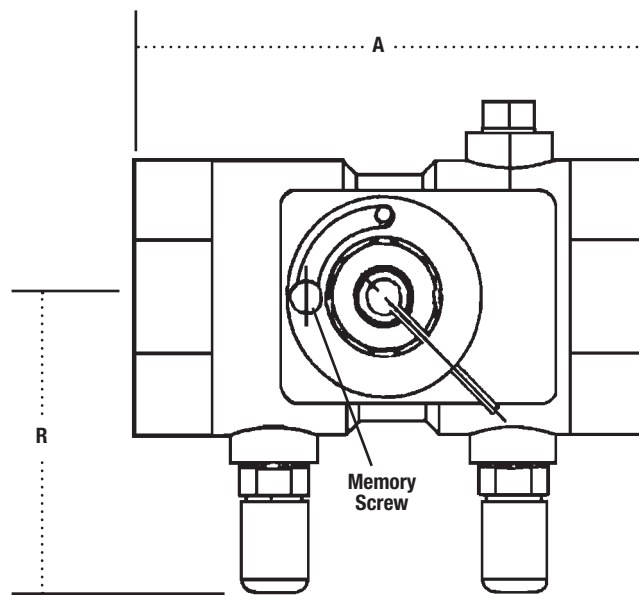
## Pressure - Temperature Limits

Pattern	Type of Solder	Working Temp.		Maximum Pressure	
		°F	°C	psi	bar
Solder-to-Solder (Lead Free)	95.5 (Tin-Antimony)	200	93	125	8.6
Thread-to-Thread	—	250	121	300	20.7

# Dimensions

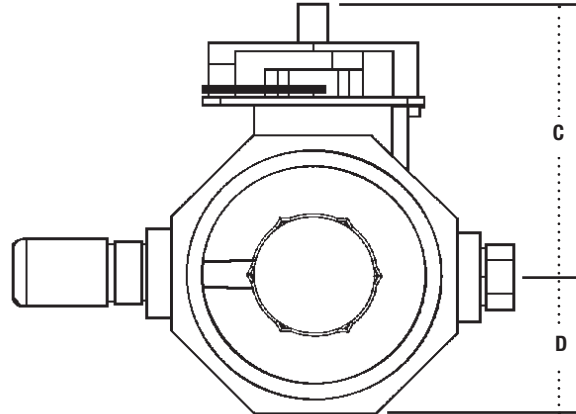
## CSM-61/LFCSM-61

Top View



## CSM-61/LFCSM-61

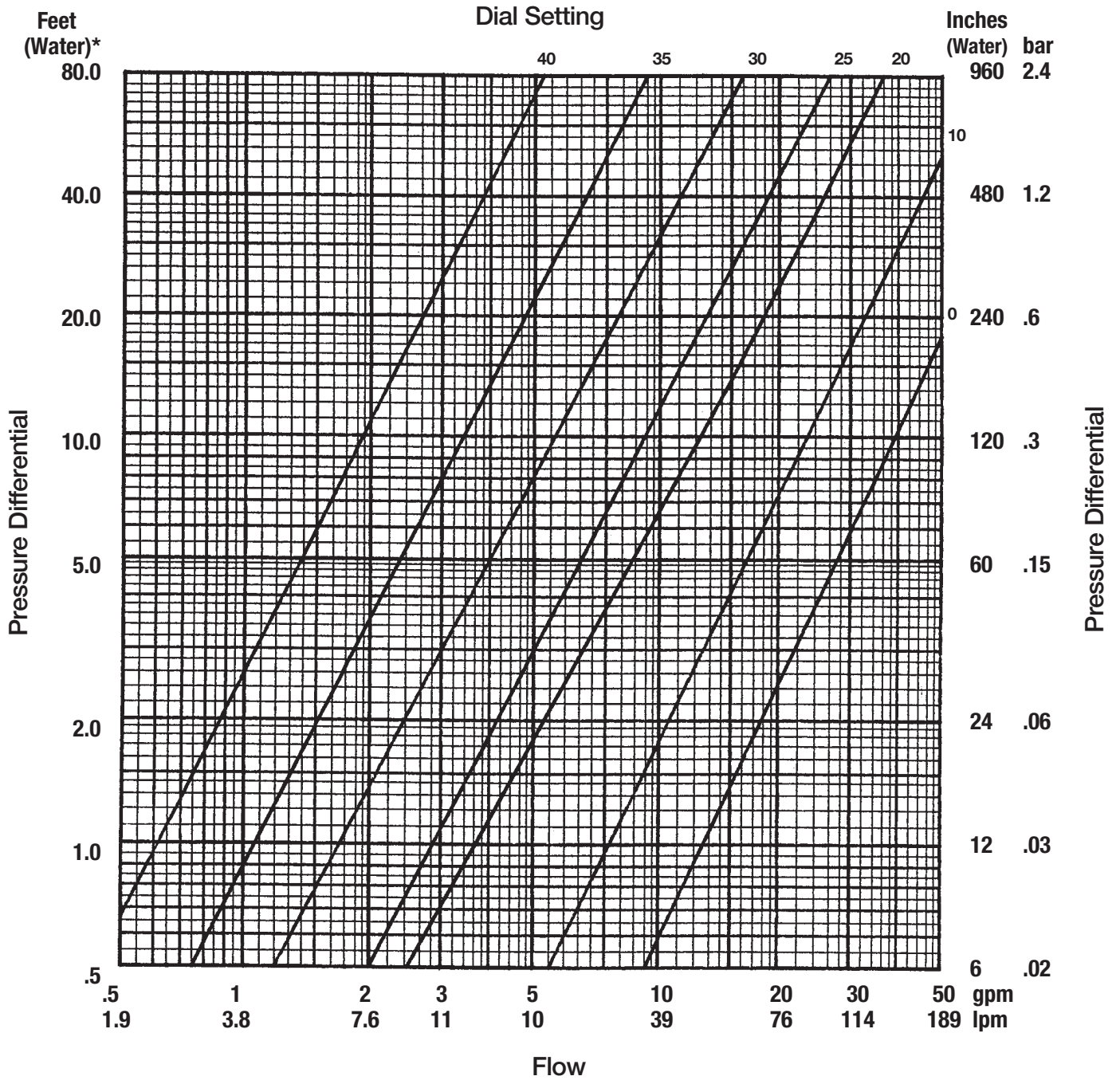
End View



MODEL	SIZE		DIMENSIONS								WEIGHT	
	in.	mm	A		C		D		R		lbs.	kgs.
LFCSM-61-M2-S	1¼	32	4 <sup>9</sup> / <sub>16</sub>	116	1 <sup>7</sup> / <sub>8</sub>	47	1 <sup>1</sup> / <sub>8</sub>	29	2 <sup>3</sup> / <sub>16</sub>	56	1.5	0.68
LFCSM-61-M2-S	1½	40	4 <sup>7</sup> / <sub>8</sub>	123	2	50	1 <sup>5</sup> / <sub>16</sub>	33	2 <sup>5</sup> / <sub>16</sub>	59	1.9	0.86
LFCSM-61-M2-S	2	50	6	153	2 <sup>9</sup> / <sub>16</sub>	66	1 <sup>1</sup> / <sub>16</sub>	40	2 <sup>5</sup> / <sub>8</sub>	67	3.4	1.54
CSM-61-M1-T	1¼	32	3 <sup>3</sup> / <sub>4</sub>	94	1 <sup>7</sup> / <sub>8</sub>	47	1	25	2 <sup>3</sup> / <sub>16</sub>	56	1.9	0.86
CSM-61-M1-T	1½	40	3 <sup>15</sup> / <sub>16</sub>	100	2	50	1 <sup>1</sup> / <sub>16</sub>	27	2 <sup>5</sup> / <sub>16</sub>	59	2.3	1.04
CSM-61-M1-T	2	50	4½	114	2 <sup>9</sup> / <sub>16</sub>	66	1 <sup>5</sup> / <sub>16</sub>	33	2 <sup>9</sup> / <sub>16</sub>	66	4.0	1.81
CSM-61-M1-T	2½	65	6½	165	4 <sup>1</sup> / <sub>8</sub>	104	2 <sup>3</sup> / <sub>16</sub>	55	3 <sup>1</sup> / <sub>8</sub>	80	13.0	5.90
CSM-61-M1-T	3	80	6 <sup>1</sup> / <sub>16</sub>	173	4 <sup>3</sup> / <sub>8</sub>	112	2 <sup>7</sup> / <sub>8</sub>	73	3 <sup>5</sup> / <sub>8</sub>	92	17.0	7.71

Suffix: S = Solder, T = Threaded

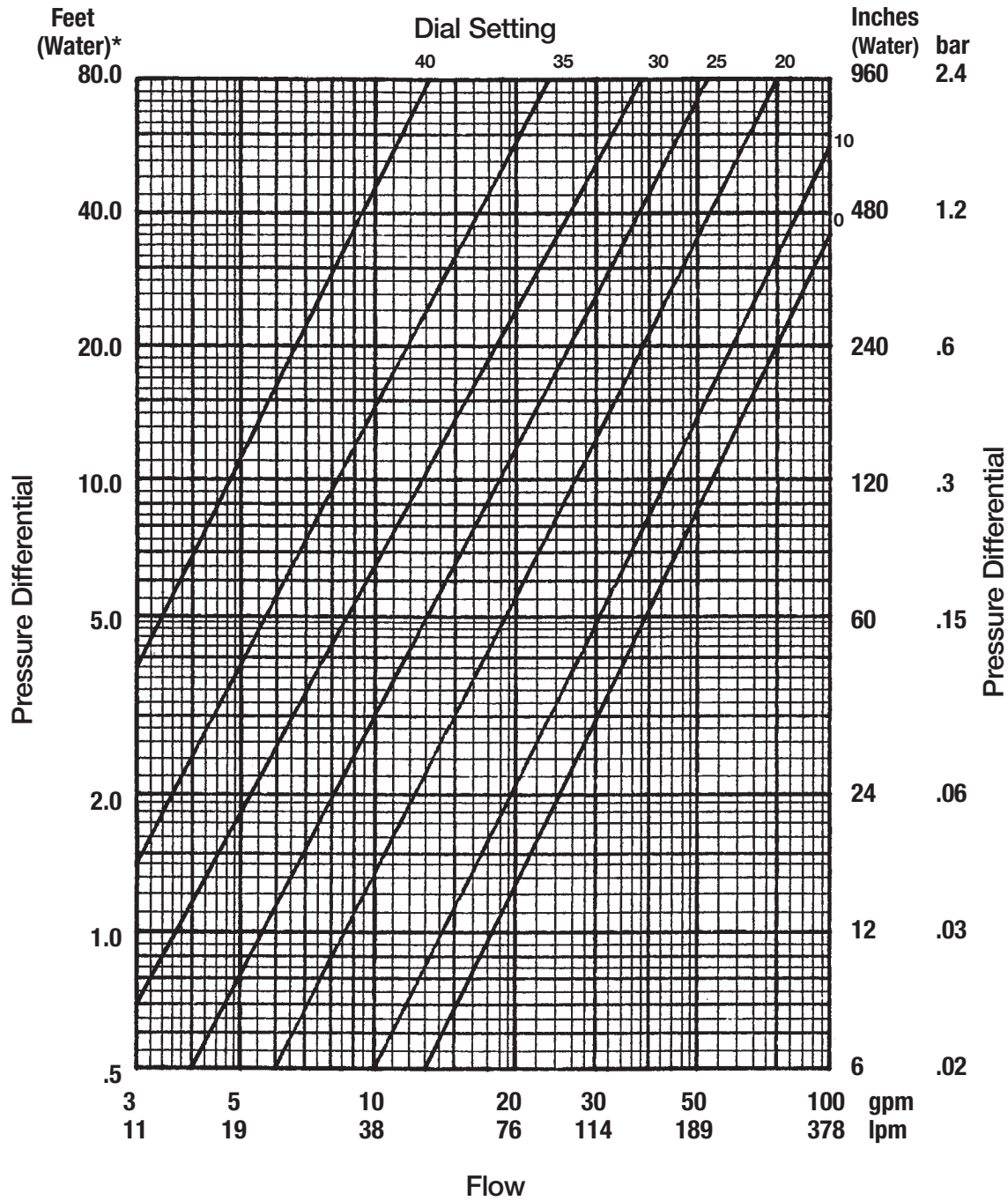
# 1 1/4" CSM-61/LFCSM-61 Flow Curve



\* To convert to kg/m<sup>2</sup>, multiply feet of water by 304.8

\*To convert to psi multiply feet of water by .4335

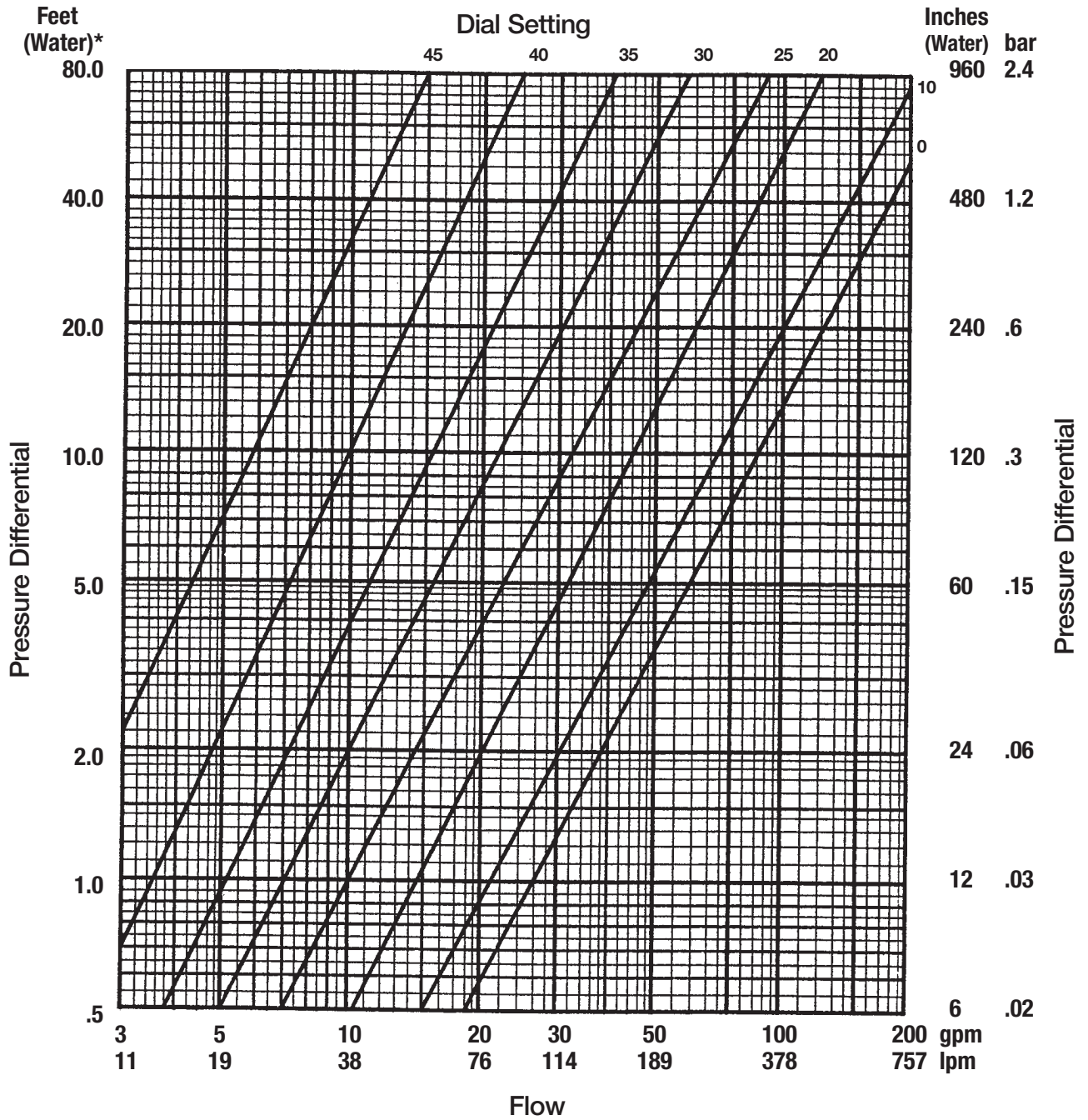
# 1½" CSM-61/LF-CSM-61 Flow Curve



\* To convert to kg/m<sup>2</sup>, multiply feet of water by 304.8

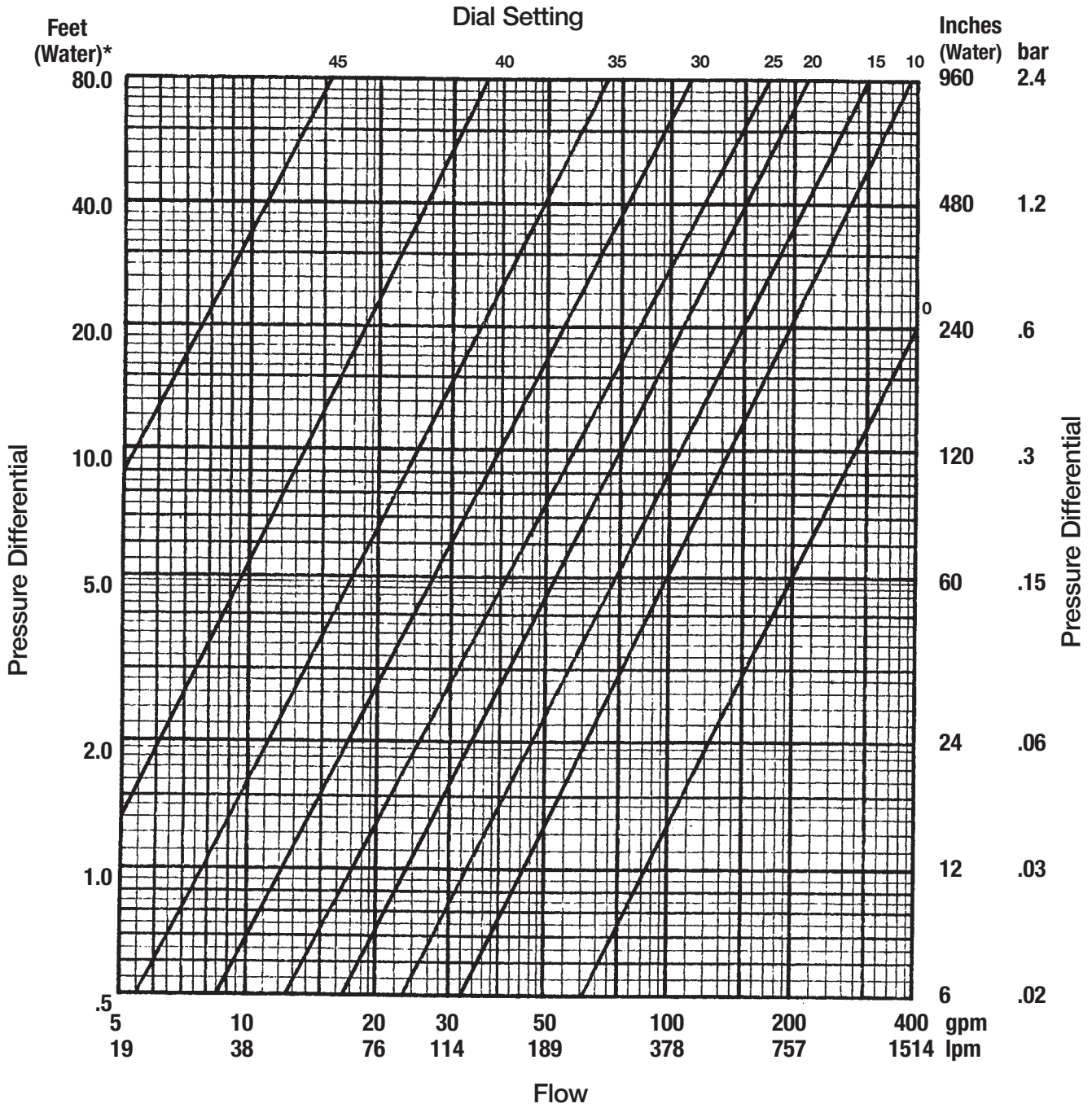
\*To convert to psi multiply feet of water by .4335

# 2" CSM-61/LFCSM-61 Flow Curve



\* To convert to kg/m<sup>2</sup>, multiply feet of water by 304.8  
 \*To convert to psi multiply feet of water by .4335

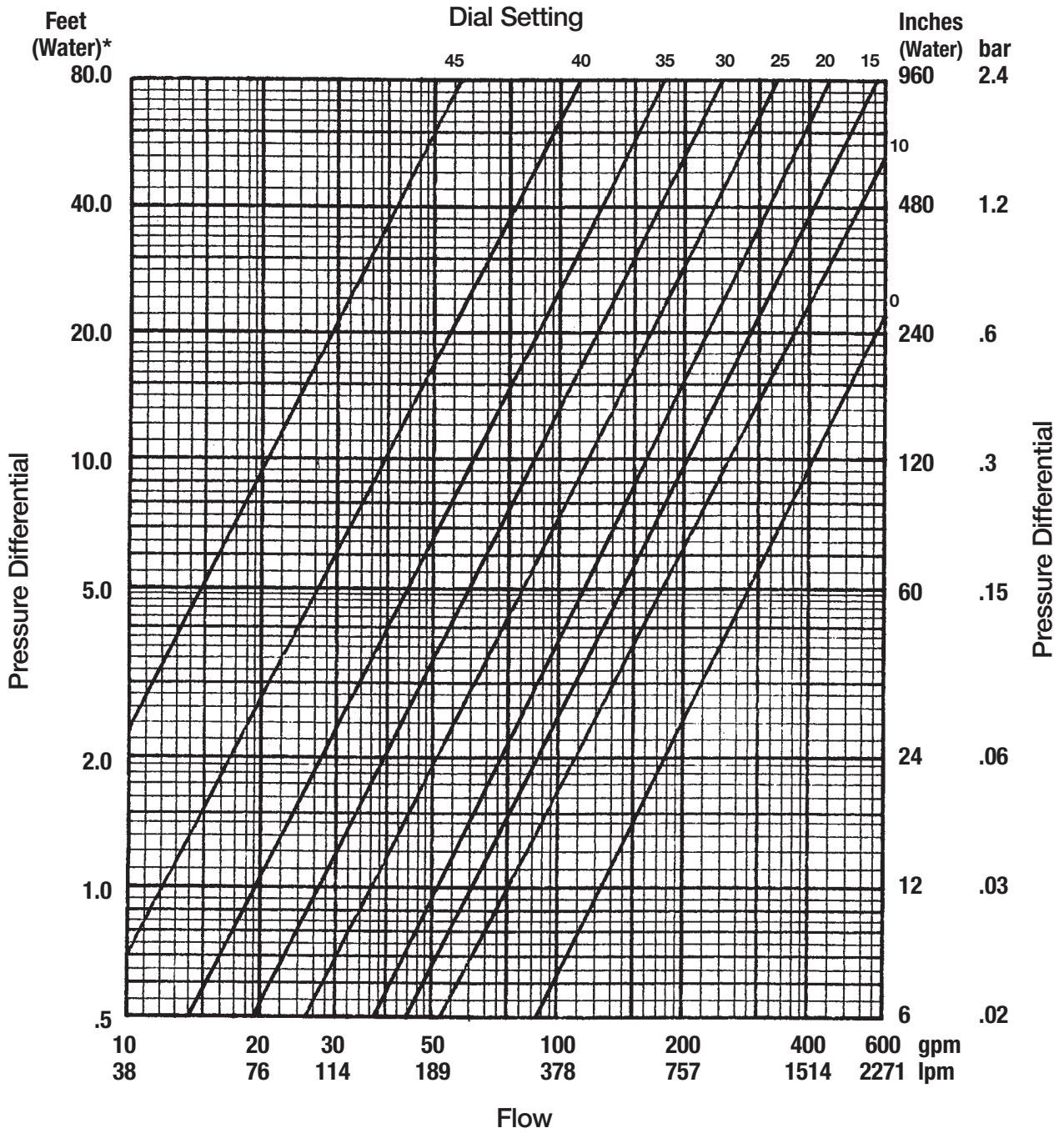
# 2 1/2" CSM-61/LFCSM-61 Flow Curve



\* To convert to kg/m<sup>2</sup>, multiply feet of water by 304.8

\*To convert to psi multiply feet of water by .4335

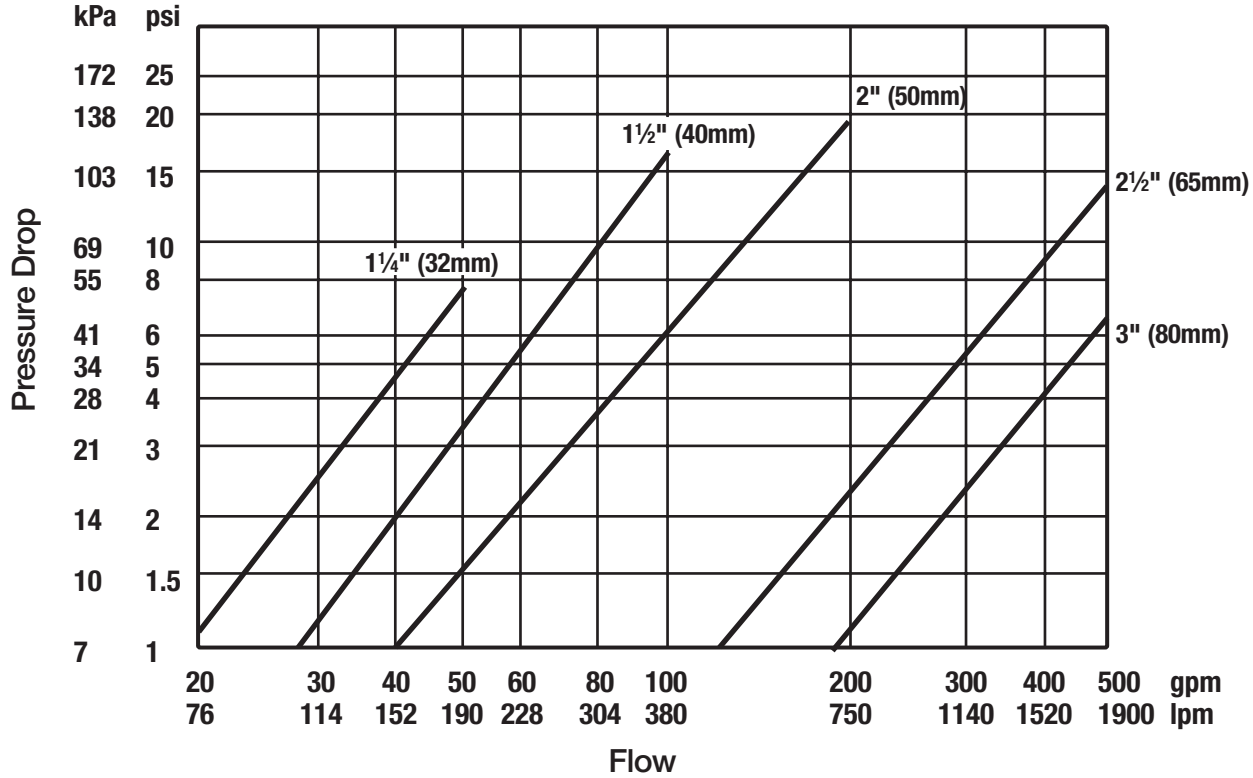
# 3" CSM-61/LFCSM-61 Flow Curve



\* To convert to kg/m<sup>2</sup>, multiply feet of water by 304.8  
 \*To convert to psi multiply feet of water by .4335

# CSM-61/LFCSM-61 Pressure Drop Curve

Pressure Drop Curve  
(In open position, equal to zero setting)



SIZE		C <sub>v</sub>
in.	mm.	
1 1/4	32	19
1 1/2	40	27
2	50	41
2 1/2	65	134
3	80	195

**WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.  
For more information: [www.watts.com/prop65](http://www.watts.com/prop65)

**Limited Warranty:** Watts Regulator Co. (the "Company") warrants each product to be free from defects in material and workmanship under normal usage for a period of one year from the date of original shipment. In the event of such defects within the warranty period, the Company will, at its option, replace or recondition the product without charge.

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The remedy described in the first paragraph of this warranty shall constitute the sole and exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental, special or consequential damages, including without limitation, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which the Company has no control. This warranty shall be invalidated by any abuse, misuse, misapplication, improper installation or improper maintenance or alteration of the product.

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