

## Installation Instructions

# Series CSM-82-F

Ductile Iron Static Balancing Valves

Sizes: 1¼" - 12"



4" CSM-82-F



2" CSM-82-F

## Important Safety Information



Do not open the valve while the system is pressurized. Doing so can cause severe injury. Begin work only after the system has been fully depressurized.



Components may be extremely hot. Allow the equipment to cool completely before starting any work to avoid burns or heat-related injuries.



Corrosive substances may be present. Wear appropriate protective equipment during disassembly to prevent chemical injuries.

### ⚠ WARNING



Please read carefully before proceeding with installation. Your failure to follow any attached instructions or operating parameters may lead to the product's failure.



Keep this Manual for future reference.

### ⚠ WARNING

Local building or plumbing codes may require modifications to the information provided. You are required to consult the local building and plumbing codes prior to installation. If the information provided here is not consistent with local building or plumbing codes, the local codes should be followed. This product must be installed by a licensed contractor in accordance with local codes and ordinances.

### NOTICE

Follow the guidelines listed here for proper installation, operation, and maintenance.

### ⚠ WARNING

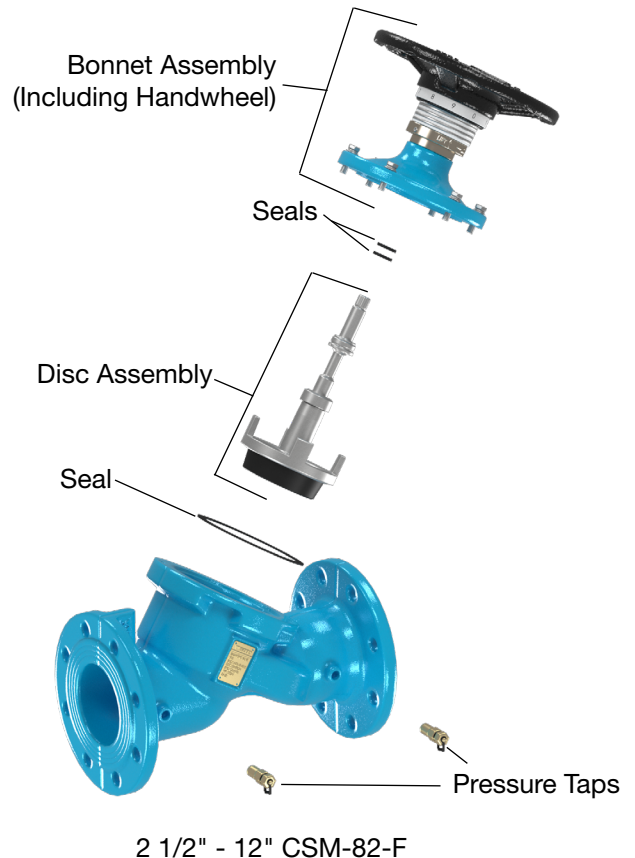
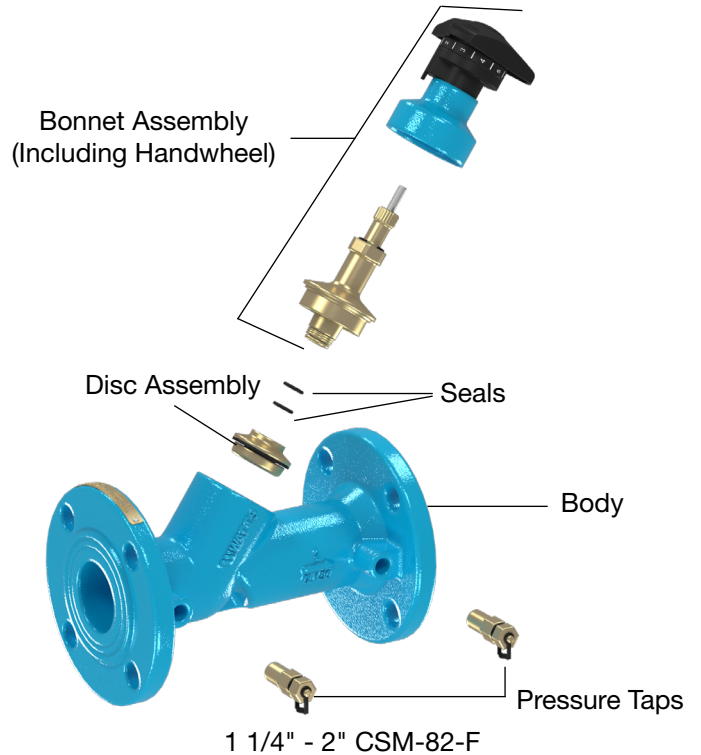
Use caution when soldering. Protect yourself and others. FUMES AND GASES can be hazardous to your health. HEAT RAYS (INFRARED RADIATION) from flame or hot metal can injure eyes.

### NOTICE

Inquire with governing authorities for local installation requirements

## General Information

Watts Series CSM-82-F balancing valves are lubricated globe valves designed for applications requiring balancing on medium to large flow rates. The valve flanges are in accordance with ANSI B16.1 Class 125. Face to Face dimensions are in accordance with ANSI B16.10.



\* See Watts.com for available repair kits.

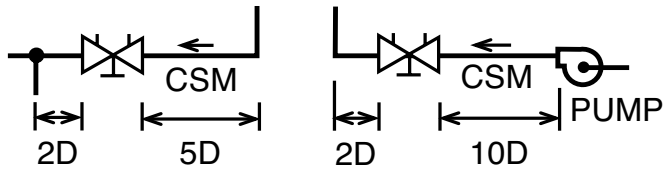
# Installation Instructions

## Pre-Installation

1. Inspect the valve to make sure there are no issues in the physical appearance of the valve. Install valve on return line of equipment to be balanced or as shown on the plans.

## Orientation

1. For maximum accuracy, the flow measurement/balancing valve should be located in an unrestricted straight pipe run so that no fittings (elbow, valve, tee, etc.) is closer to the flow measurement/balancing valve than 5 pipe diameters upstream and 2 pipe diameters 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.



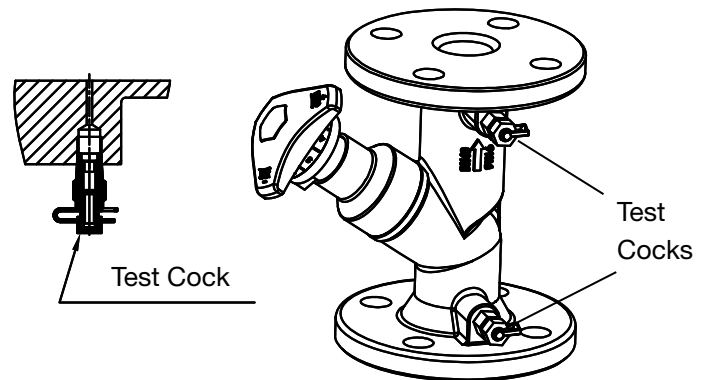
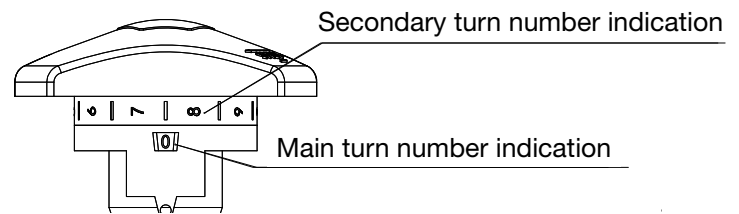
2. Install valve with the flow arrow (marked on body) in the same direction as the flow. The valve can be installed with the handwheel facing up or down.

## Installation

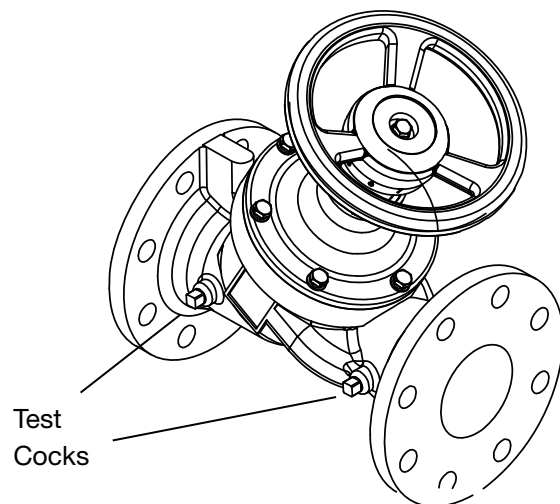
1. Install the gaskets between valve and pipe to ensure sealing. In case of end of line service, a blanking flange should be applied.
2. Install testing connectors: remove the plugs, CCW Wrap the valve parts with PTFE tape in 6-8 circles, and assemble and tighten the testing connectors (5-20 Nm torque is recommended).

## Installation

1. Turn the handwheel to adjust to the open position.
2. Connect vent and prepare the differential gauge. Refer to instructions furnished with the gauge.
3. 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. The unit or system has now been balanced.
4. Disconnect differential gauge.

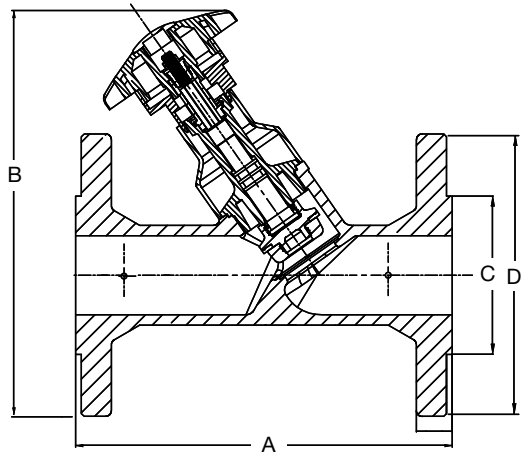


1 1/4" - 2" CSM-82-F

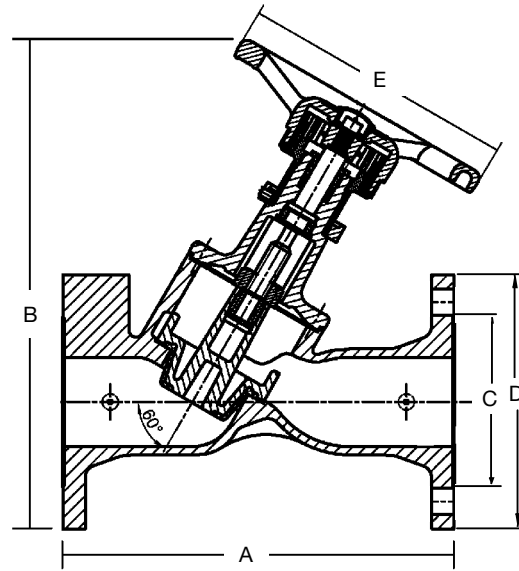


2 1/2" - 12" CSM-82-F

# Dimensions



1 1/4" - 2" CSM-82-F



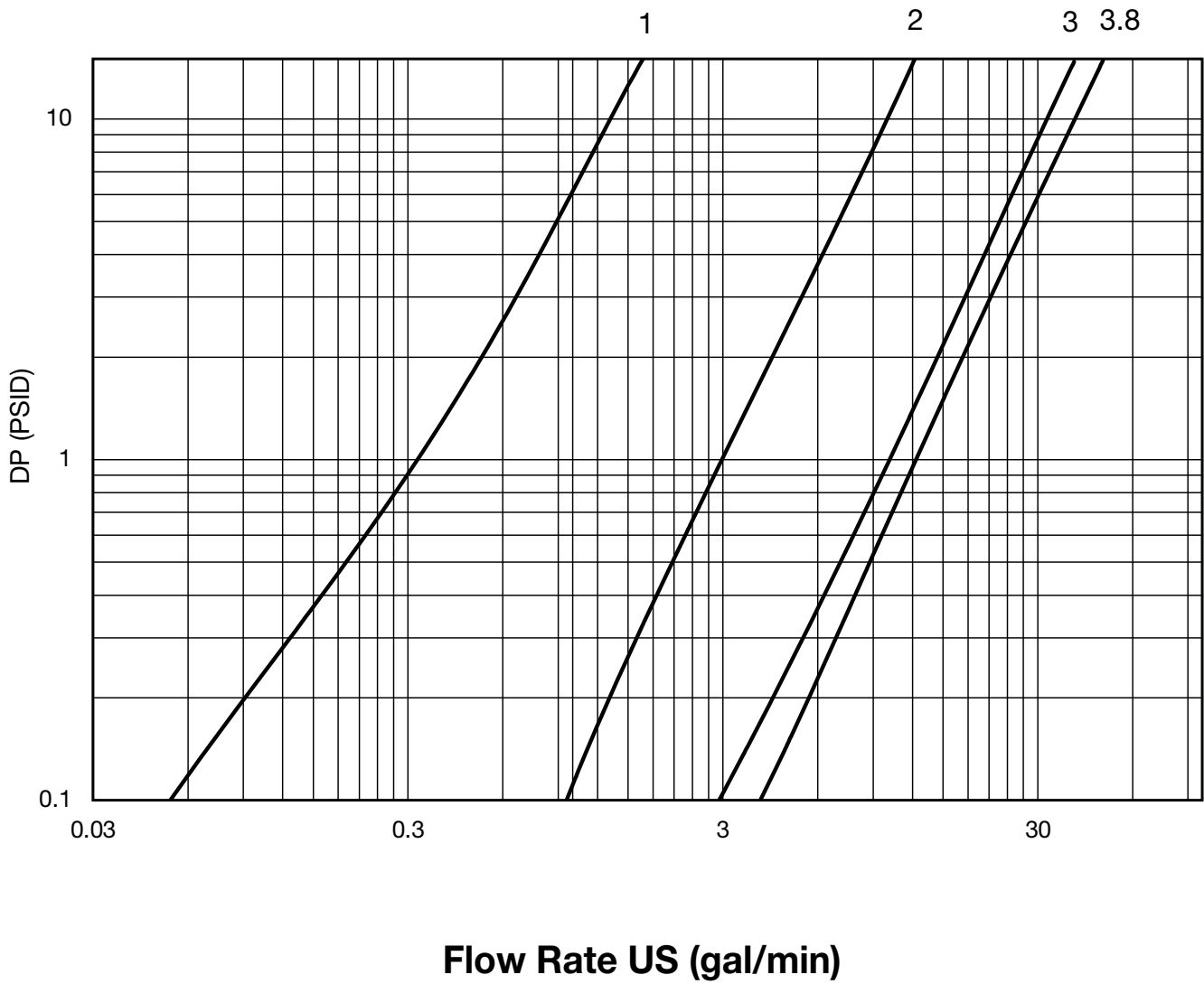
2 1/2" - 12" CSM-82-F

MODEL	SIZE	DIMENSIONS										WEIGHT	
		A		B		C		D		E		lbs.	kgs.
	<i>in.</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>		
CSM-82-F	1¼	7	180	7.26	184.5	4.61	117	4 <sup>5</sup> / <sub>8</sub>	117	-	-	10.0	4.5
	1½	7.87	200	2.91	74	5.00	127	5	127	-	-	12.4	5.6
	2	9.06	230	8.54	217	5.98	152	5 <sup>7</sup> / <sub>8</sub>	152	-	-	15.7	7.1
	2½	11.42	290	13.90	353	7.09	180	7 <sup>1</sup> / <sub>16</sub>	180	7.87	200	36.1	16.4
	3	12.20	310	14.29	363	7.48	190	7 <sup>1</sup> / <sub>2</sub>	190	7.87	200	43.5	19.7
	4	13.78	350	16.34	415	9.06	230	10 <sup>1</sup> / <sub>16</sub>	255	9.45	240	59.4	27.0
	6	18.90	480	18.90	480	11.02	280	11	280	11.42	290	98.9	44.8
	8	23.62	600	27.46	697.5	13.58	345	13 <sup>9</sup> / <sub>16</sub>	345	13.78	350	209.0	94.8
	10	28.74	730	30.49	774.5	15.94	405	15 <sup>15</sup> / <sub>16</sub>	405	16.54	420	40.6	182.6
	12	33.46	850	36.56	928.5	19.09	485	19 <sup>1</sup> / <sub>8</sub>	485	16.54	420	534.6	242.5

Suffix: F = Flanged Ends

# 1 1/4" CSM-82-F Flow Curve

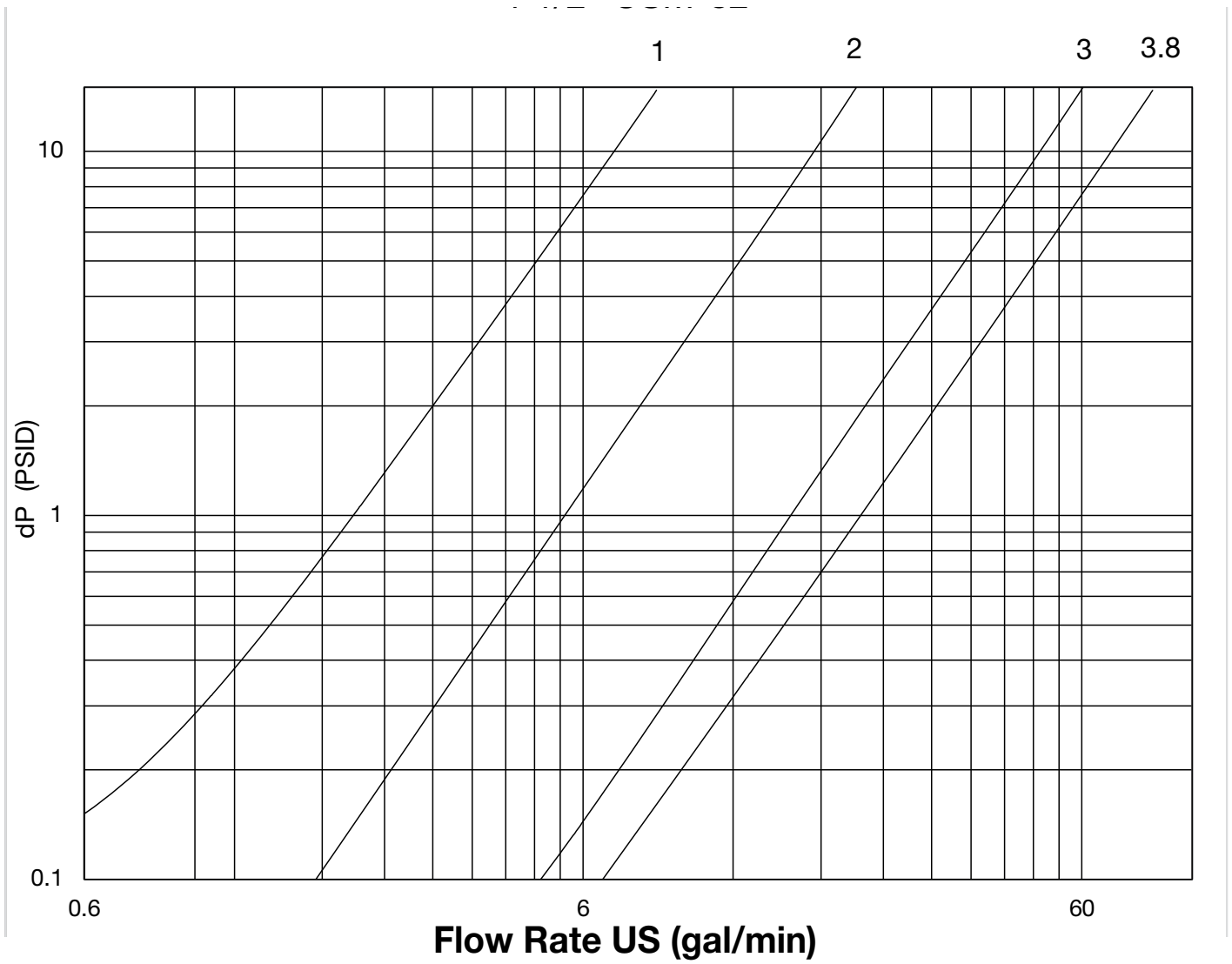
## Cross Handle Setting (Number of Turns)



HANDWHEEL POSITION	1	2	3	FULL OPEN
1 1/4"	0.28	2.93	10.02	12.22

# 1 1/2" CSM-82-F Flow Curve

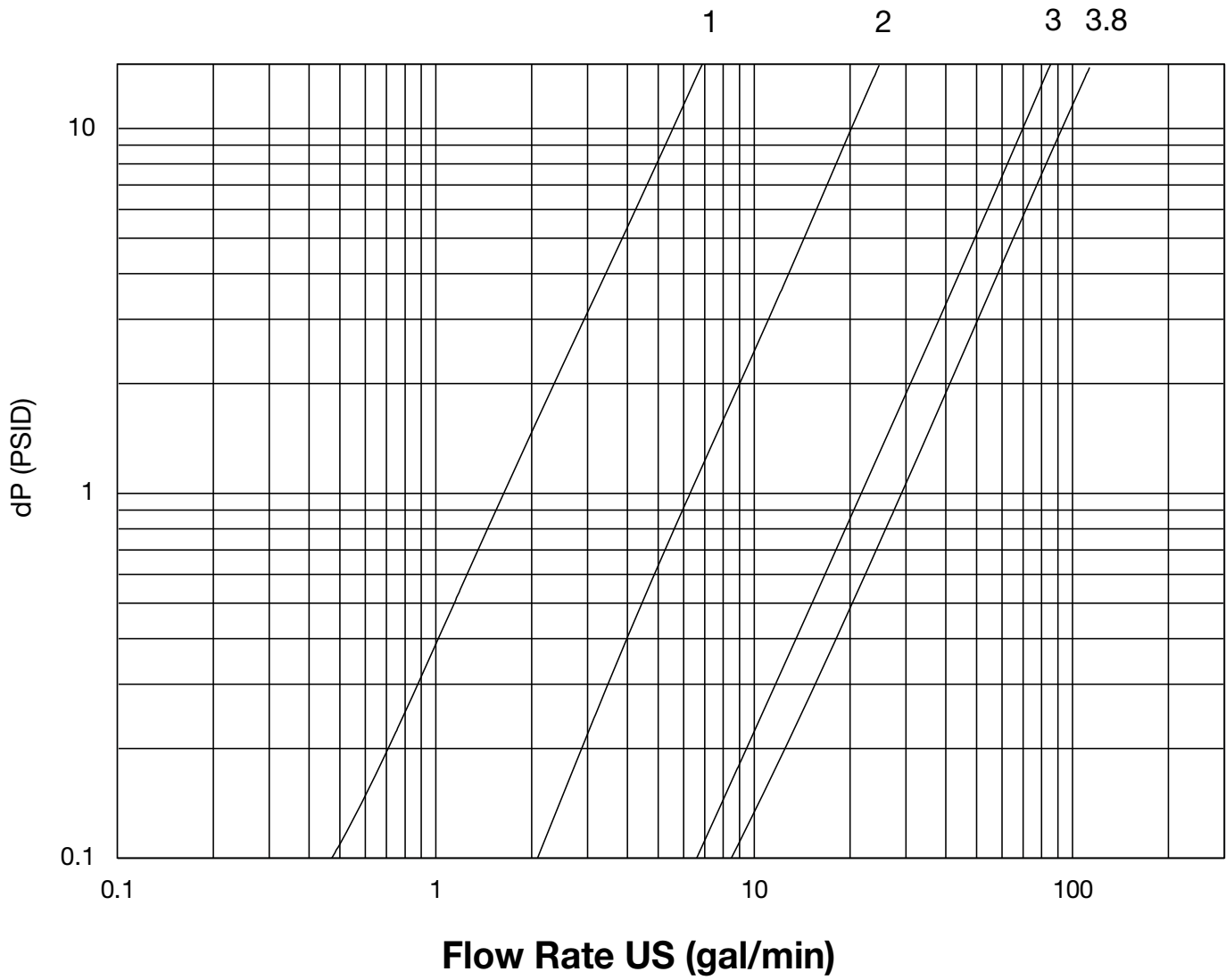
## Cross Handle Setting (Number of Turns)



HANDWHEEL POSITION	1	2	3	FULL OPEN
1 1/2"	2.03	5.41	15.60	21.47

# 2" CSM-82-F Flow Curve

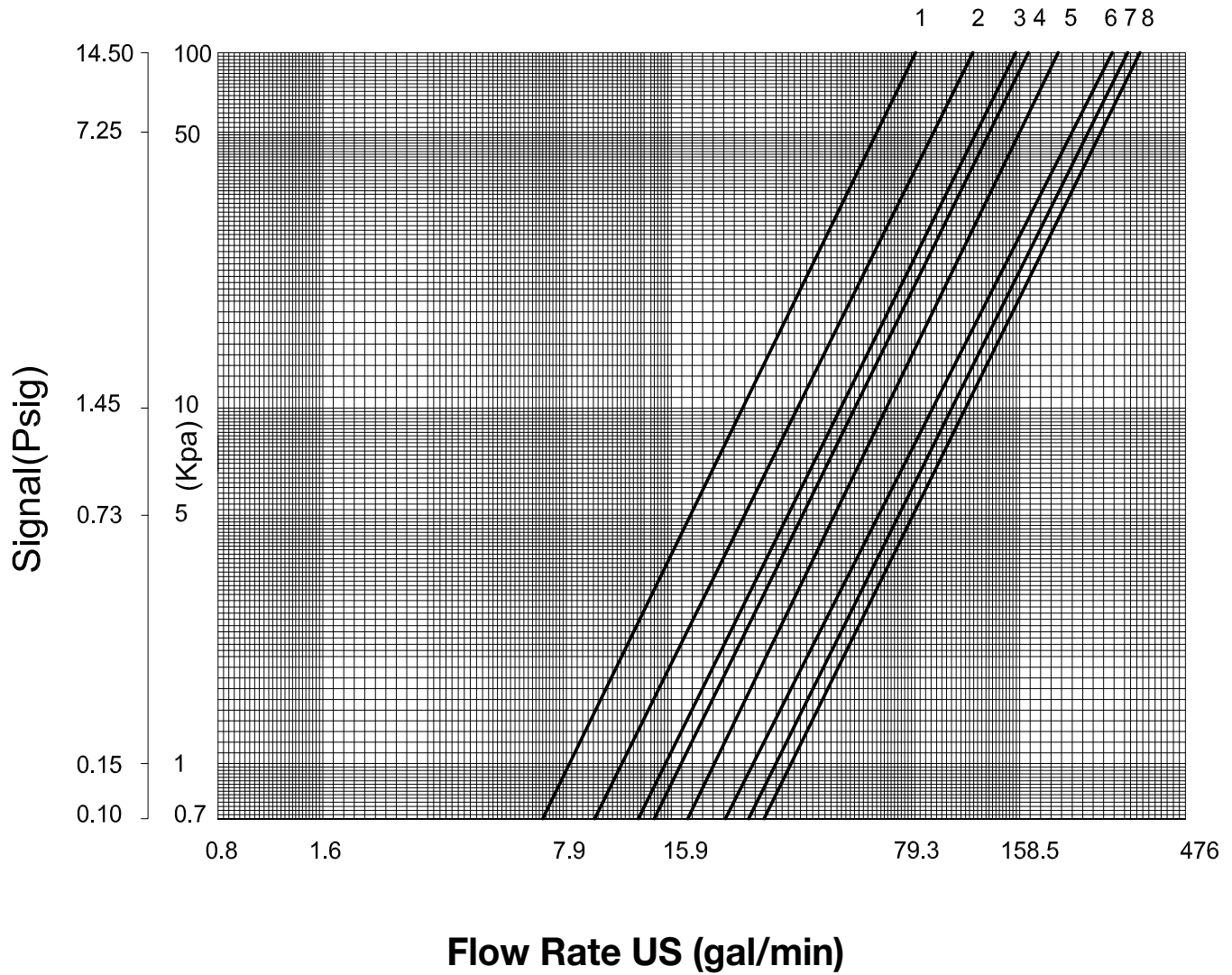
## Cross Handle Setting (Number of Turns)



HANDWHEEL POSITION	1	2	3	FULL OPEN
2"	1.50	6.26	21.86	29.00

# 2 1/2" CSM-82-F Flow Curve

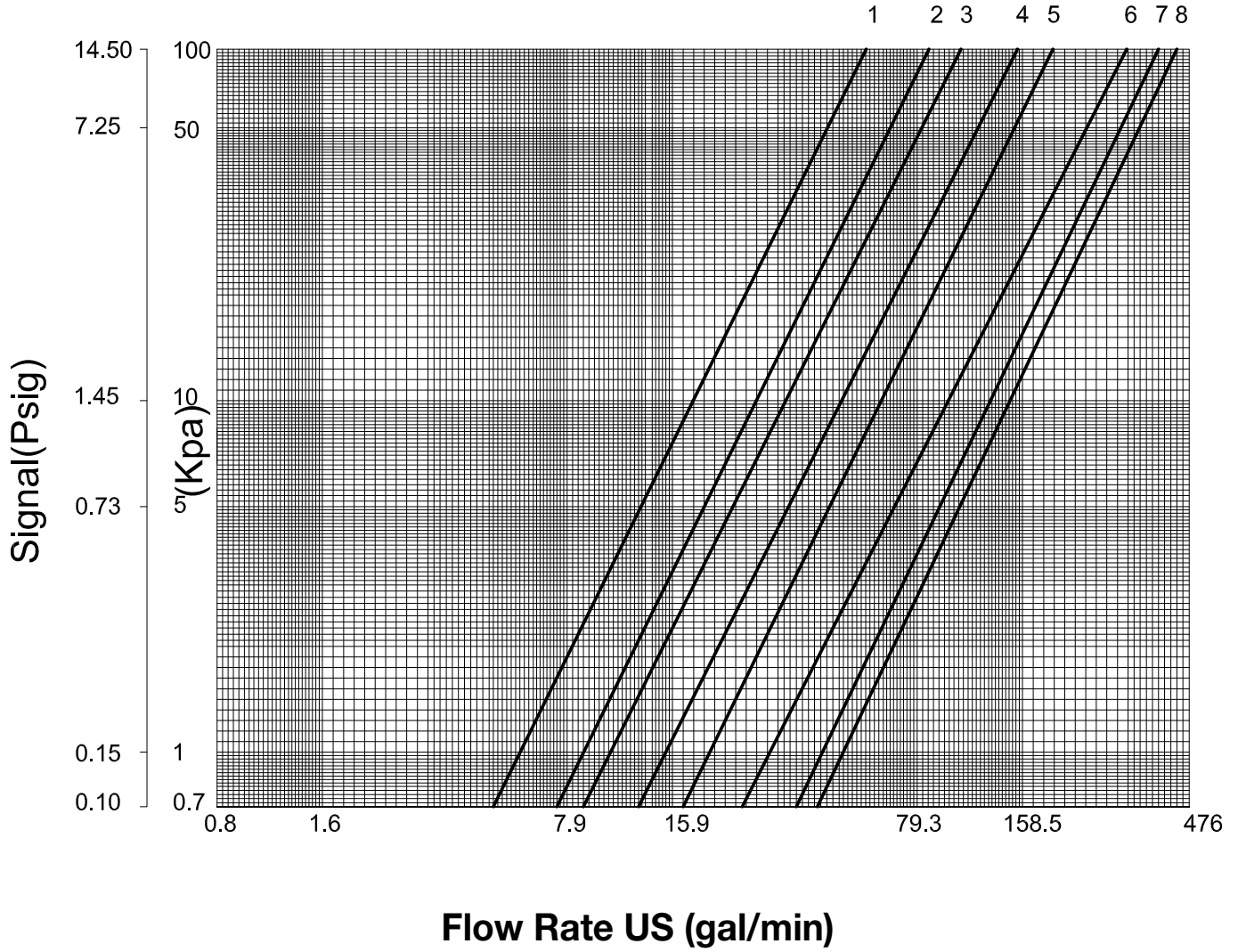
## Handwheel Setting (Number of Turns)



HANDWHEEL POSITION	1	2	3	4	5	6	7	8	FULL OPEN
2½"	21.50	30.98	40.92	44.74	57.11	75.72	86.24	92.71	96.87

# 3" CSM-82-F Flow Curve

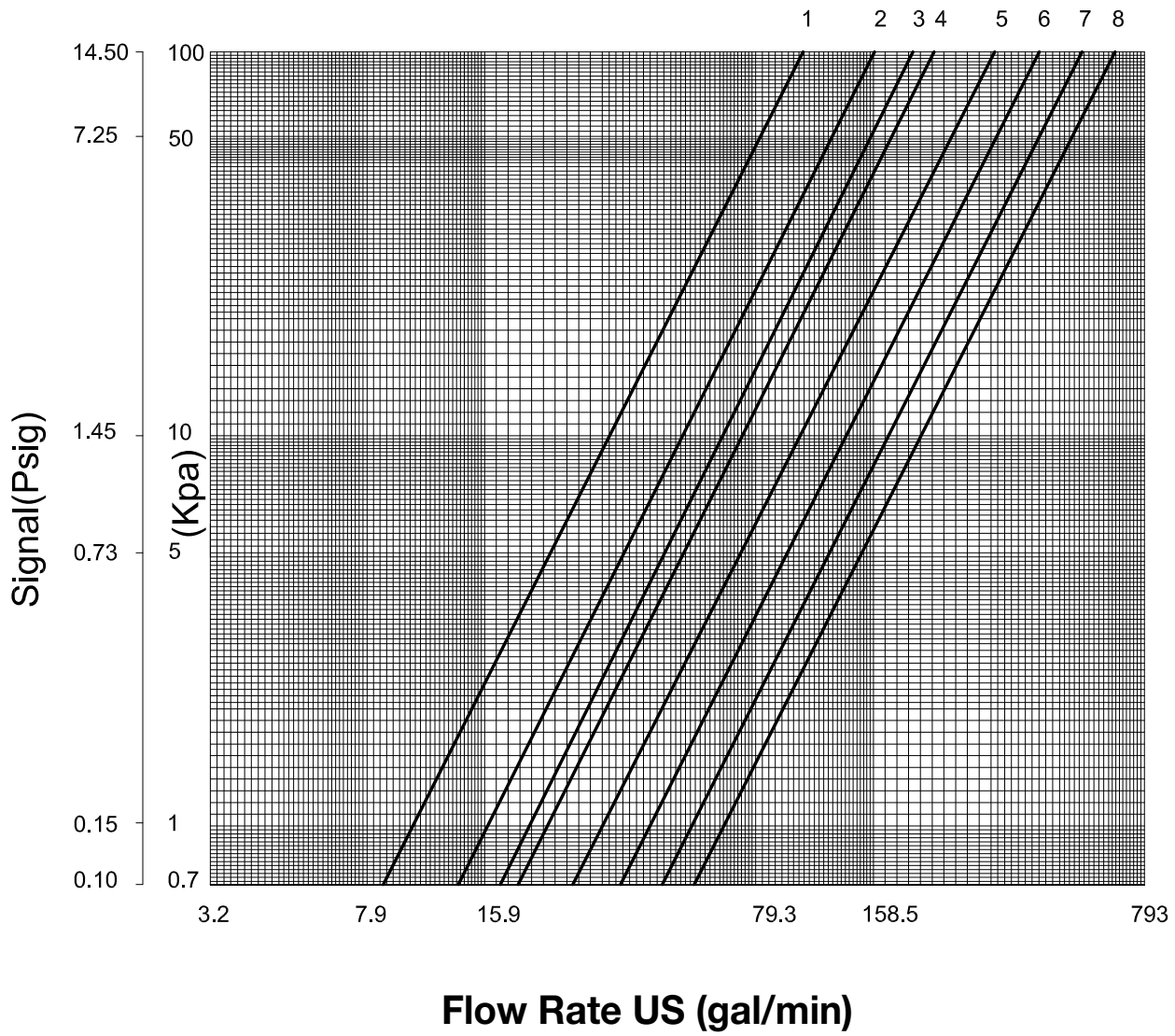
## Handwheel Setting (Number of Turns)



HANDWHEEL POSITION	1	2	3	4	5	6	7	8	FULL OPEN
3"	15.37	23.12	27.86	40.34	53.06	82.77	114.21	131.44	138.14

# 4" CSM-82-F Flow Curve

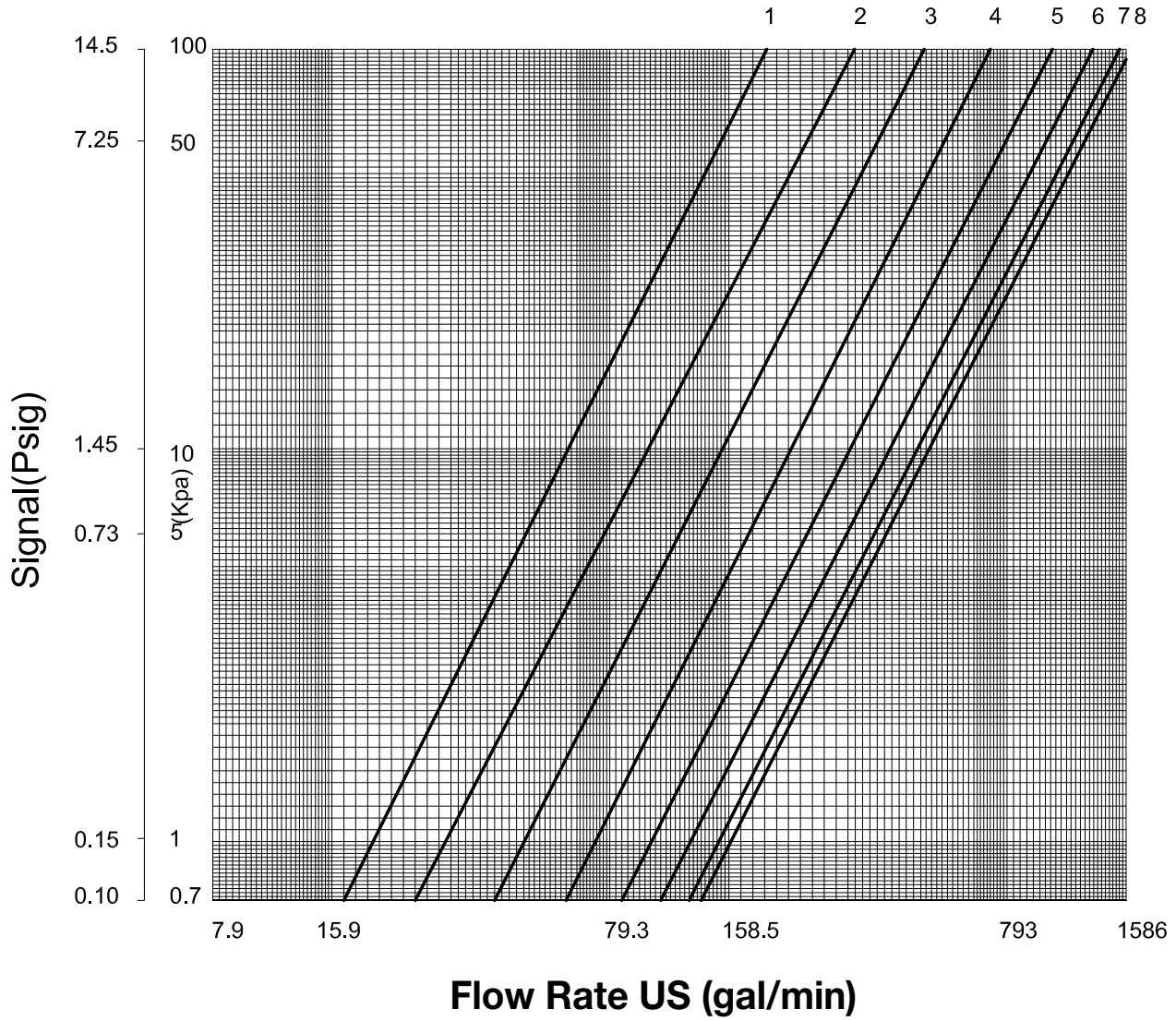
## Handwheel Setting (Number of Turns)



HANDWHEEL POSITION	1	2	3	4	5	6	7	8	FULL OPEN
4"	27.28	42.31	56.07	63.81	86.93	113.17	143.23	172.71	206.58

# 6" CSM-82-F Flow Curve

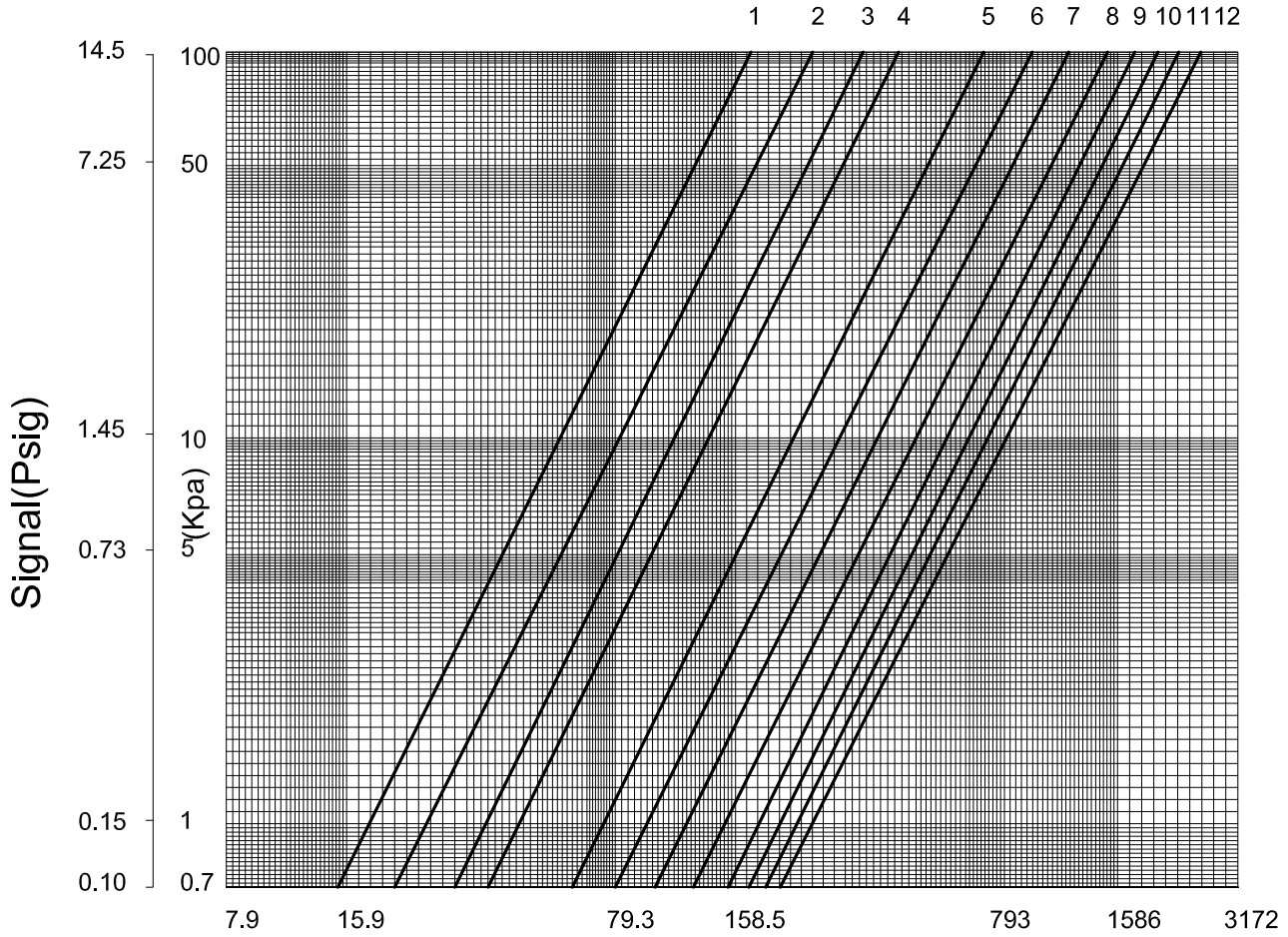
## Handwheel Setting (Number of Turns)



HANDWHEEL POSITION	1	2	3	4	5	6	7	8	FULL OPEN
6"	55.49	86.70	127.16	187.27	269.35	339.86	399.98	428.88	439.28

# 8" CSM-82-F Flow Curve

## Handwheel Setting (Number of Turns)

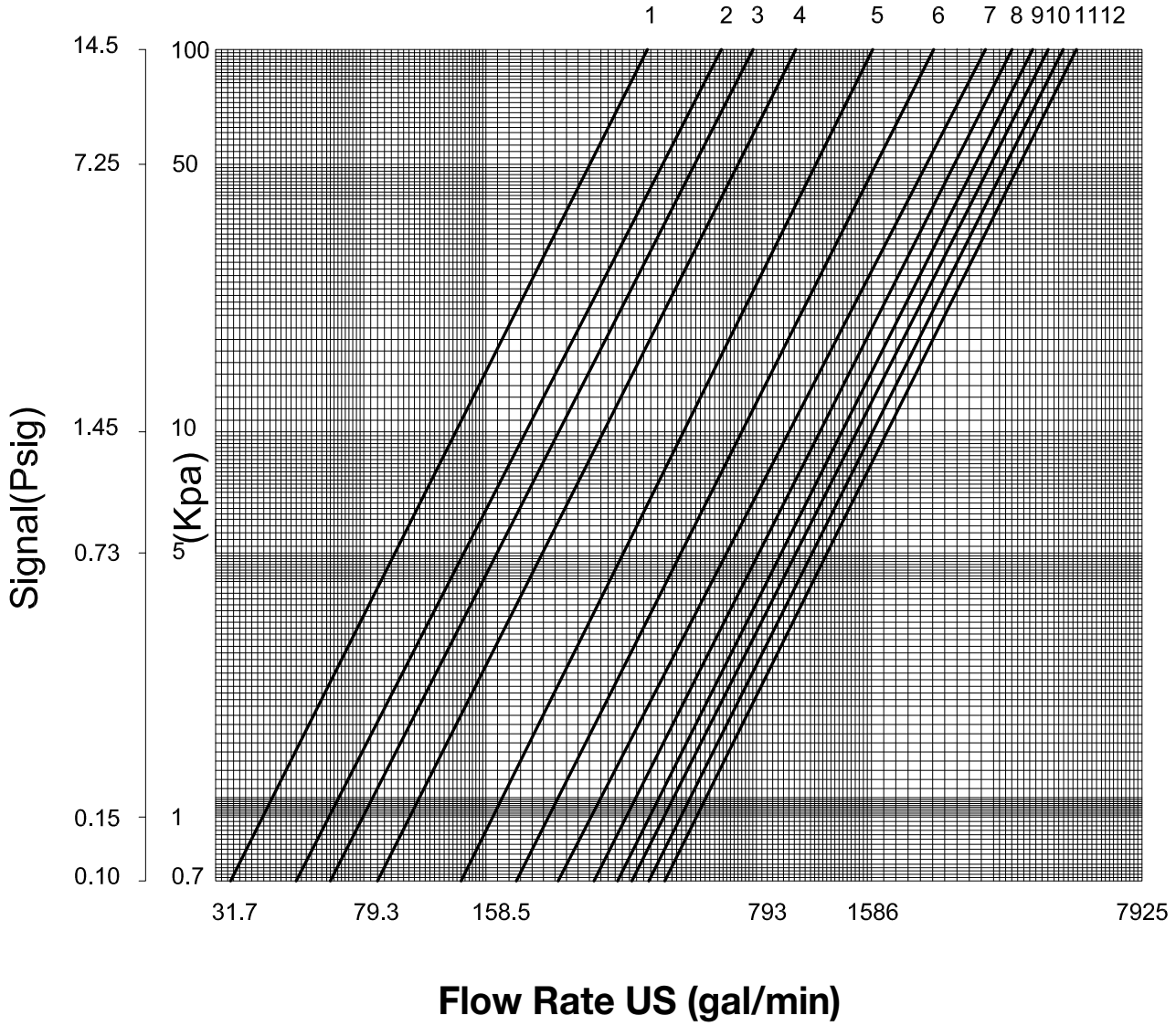


## Flow Rate US (gal/min)

HANDWHEEL POSITION	1	2	3	4	5	6	7	8	9	10	11	12	FULL OPEN
8"	47.40	70.52	93.64	114.44	186.12	248.54	313.28	391.88	476.27	557.19	631.18	-	702.85

# 10" CSM-82-F Flow Curve

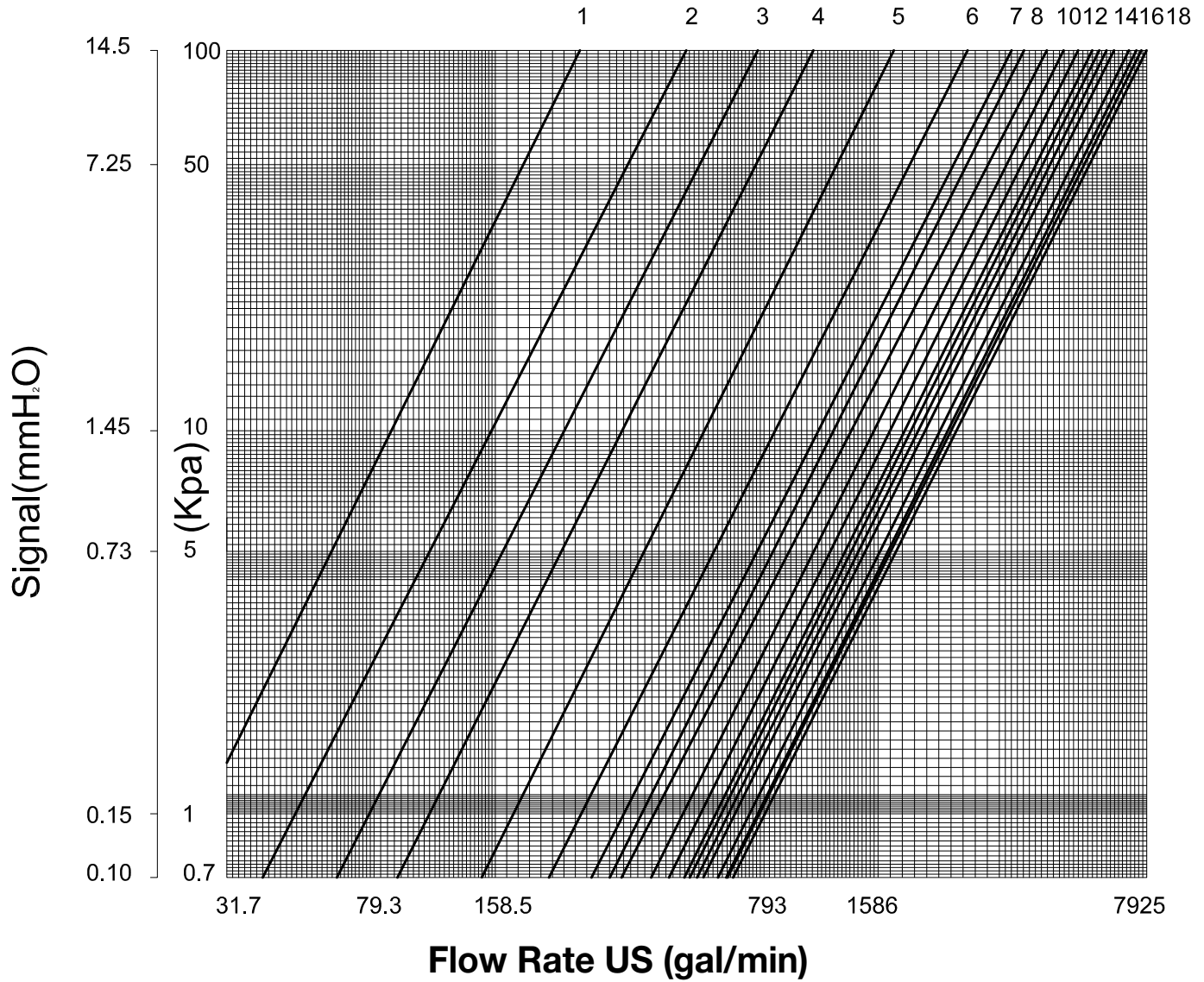
## Handwheel Setting (Number of Turns)



HANDWHEEL POSITION	1	2	3	4	5	6	7	8	9	10	11	12	FULL OPEN
10"	112.13	168.78	204.61	268.19	425.41	627.71	803.42	961.79	1109.76	1208.02	1330.56	1443.84	1493.55

# 12" CSM-82-F Flow Curve

## Handwheel Setting (Number of Turns)



HANDWHEEL POSITION	1	2	3	4	5	6	7	8	9	10	11	12
12"	72.83	130.63	201.14	283.22	458.93	725.97	915.55	1009.19	1158.31	1285.47	1413.79	1538.64

HANDWHEEL POSITION	13	14	15	16	17	18	FULL OPEN
12"	1598.75	1669.26	1739.78	1894.68	1973.29	1999.88	2070.40

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