

# Series 60

## New Smart Positioner

- Compact design
- Convenient & powerful function
- Enhanced reliability



Right Valve, Right Application, Right Now!

J Flow Controls, LLC  
14 De Camp • Cincinnati, OH 45216  
Phone: 513-731-2900 • Fax 513-731-6939  
[www.jflowcontrols.com](http://www.jflowcontrols.com)

## PRODUCT DESCRIPTION

Series 60 Smart Valve Positioner controls valve stroke accurately according to input signal of 4-20mA being input from controller. In addition, highly efficient micro processing operator built in the product performs various and powerful functions like Auto Calibration, PID Control, Alarm and Hart protocol.

## SPECIFICATIONS

Model	Series 60L		Series 60R	
Actuator Type	Single	Double	Single	Double
Input Signal	4-20 mA DC			
Minimum Current Signal	3.2mA (Standard), 3,8mA (Hart Included)			
Supply Pressure	1.4~7kgf/cm <sup>2</sup> (0.14~0.7 MPa)			
Stroke	0.39 - 5.9 inches		0 - 90°	
Impedance	Max. 460 Ohm/20mA DC			
Air Connection	PT 1/4, NPT 1/4			
Gauge Connection	PT 1/8, NPT 1/8			
Conduit Entry	PF 1/2 (Standard), NPT 1/2 (Option)			
Protection	IP66			
Explosion Proof	Ex ia IIC T6			
Ambient Temperature	Operating Temp.: -45°F to 185°F, Explosion Temp.: -40°F to 140°F (T5)/ -40°F to 104°F (T6)			
Linearity	+0.5%.F.S.			
Hysteresis	±0.5% F.S.			
Sensitivity	±0.2% F.S.			
Repeatability	0.3% F.S.			
Flow Capacity	70 LPM			
Air Consumption	Below 2 LPM (sup=1.4K), Below 3 LPM (sup=7K)			
Output Characteristic	Linear, Quick Open, EQ%, User Set (16 Point)			
Vibrant Effect	6G			
Humidity	5-95% RH at 40			
Communication (Option)	HART Communication			
Feedback Signal (Option)	4-20mA (DC10-30V)			
Material	Aluminum Die casting			
Weight	3.3 lb.			
Painting	Epoxy Polyester Powder Coating			
Color	Blue or Black			

Based on temperature 68°F, absolute pressure 760mmHG and relative humidity 65%

## ORDERING SCHEMATIC

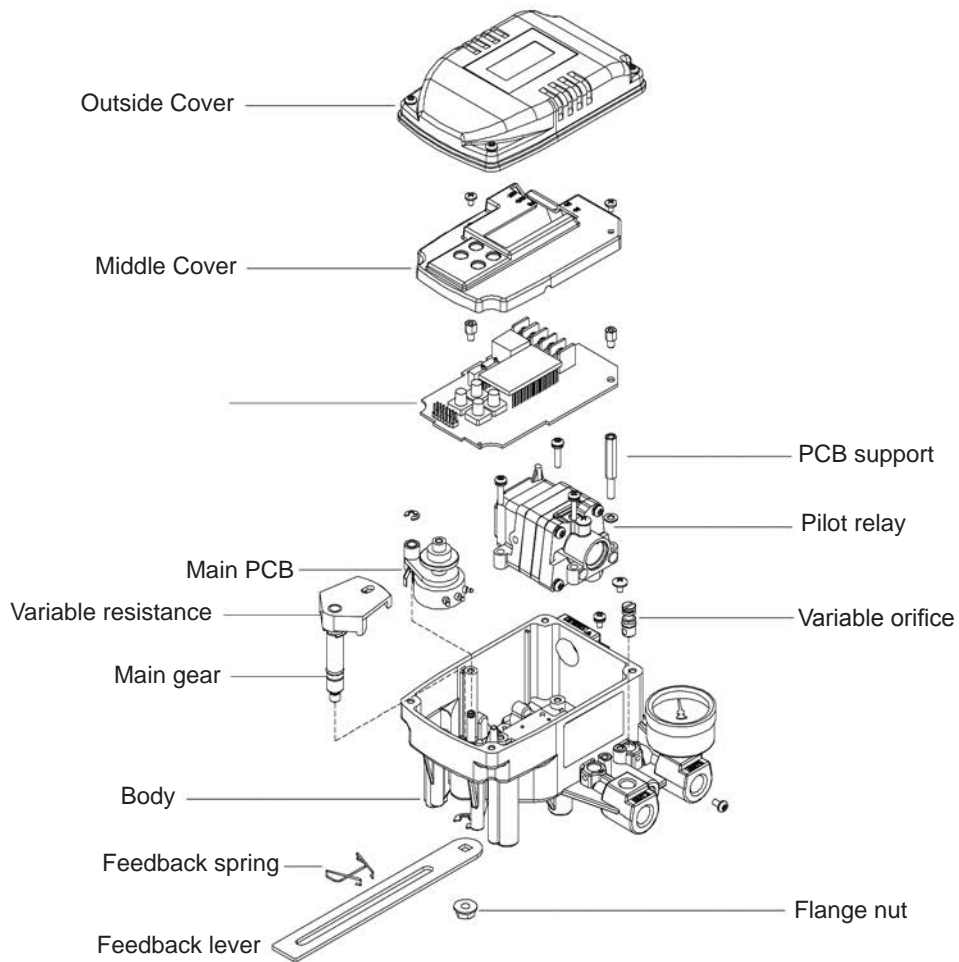
Series 60

Model	<input type="checkbox"/> L Linear	<input type="checkbox"/> R Rotary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acting Type	<input type="checkbox"/> S Single Acting	<input type="checkbox"/> D Double Acting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Explosion Proof	<input type="checkbox"/> n Non-Explosion	<input type="checkbox"/> i Ex ia IIC T6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lever Type	Linear <input type="checkbox"/> 1 0.30"~1.58"	<input type="checkbox"/> 2 0.79"~2.76"	<input type="checkbox"/> 3 3.94"~5.91"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Rotary <input type="checkbox"/> 1 M6x40L	<input type="checkbox"/> 2 M6x63L	<input type="checkbox"/> 3 M8x40L	<input type="checkbox"/> 4 M8x63L	<input type="checkbox"/> 5 NAMUR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Connection Type	<input type="checkbox"/> 1 PT	<input type="checkbox"/> 2 NPT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communication	<input type="checkbox"/> 0 None	<input type="checkbox"/> 2 HART	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Option	<input type="checkbox"/> 0 None	<input type="checkbox"/> 1 Transmitter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## STRUCTURE

Because of simple and modularized inner structure, maintenance is very easy.

The structure of Series 60 is as follows. That of Series 60 is same as linear type except feedback lever.



**Series 60 Structure**



## FEATURES & FUNCTIONS

1. LCD equipped outside of product makes to check the positioner condition in the field directly.
2. Tight shut-off and shut-open can be set voluntarily.
3. It endures severe vibration.
4. PID parameters can be easily adjusted in the field without additional communicator.
5. It is operated normally regardless of change of supply pressure during operation.
6. The pressure of air filter regulator is sent to actuator directly using A/M switch.
7. Auto calibration method is very simple.
8. Split range such as 4-12mA, 12-20mA is available.
9. It is easily equipped on small actuator because of its small size.
10. Setting Zero and Span as partial section is available by Hand Calibration function.
11. Air consumption is so small that operating cost in huge plants is decreased.
12. The valve defect is easily checked because the valve can be operated voluntarily.
13. Because it can be used in low voltage (8.5V), there is no limitation in controller.
14. It has IP 66 protection grade.
15. Variable orifice is applied and so in case of small actuator the hunting is controlled to the optimum condition during operation.
16. Air filter regulator can be attached with the product with only one linear nipple without extra piping.
17. The adjustment of valve characteristics (Linear, Quick Open, Equal Percentage) is available
18. Because of Epoxy polyester powder coating, it can be used for long periods of time in corrosive air.
19. Specific flow control is available with setting 16 points at users' command.
20. Because of simple and modularized inner structure, maintenance is very easy.

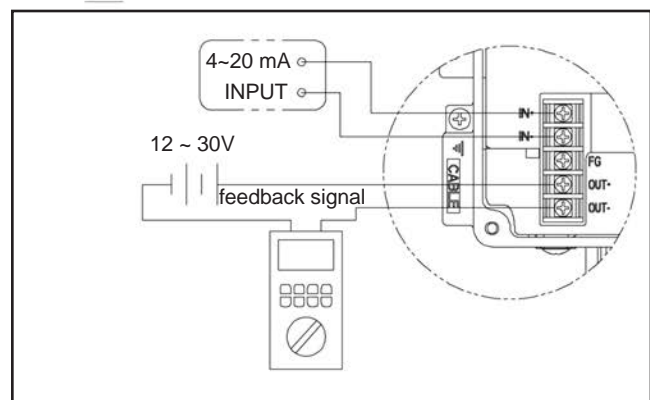
### OPTION 1

Hart communication makes to process various information of valve and positioner.



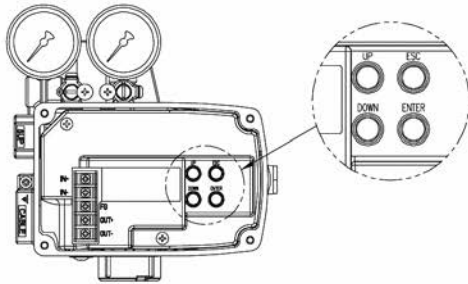
### OPTION 2

Valve system is stable by outputting analog Feedback signal.



# FEATURES & FUNCTIONS

## Button



Series 60 perform various functions using four buttons.

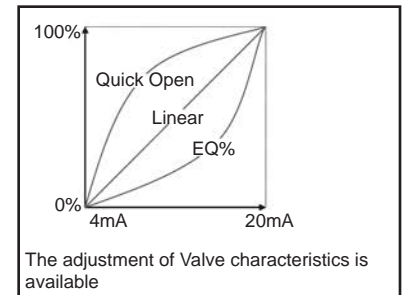
## LCD



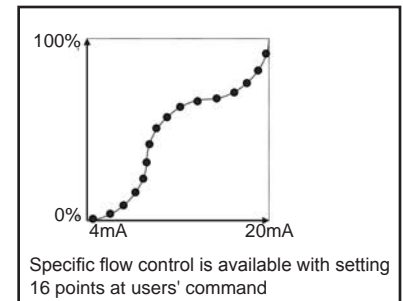
LCD equipped outside of product makes checking the positioner condition in the field directly.



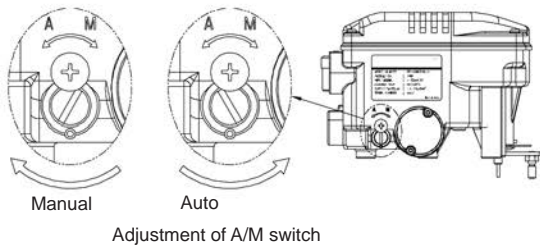
## Linear, Quick Open, EQ%



## User Defined

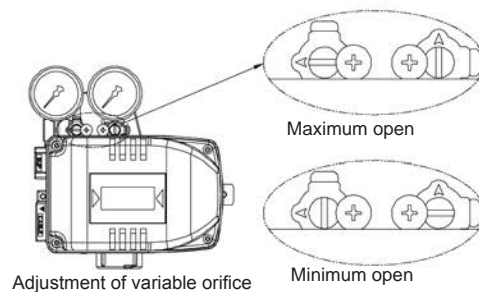


## A/M Switch



If this switch is set as auto, supply pressure is transmitted to actuator by the operation of Series 60 and if it is set at manual, supply pressure of air filter regulator is transmitted to actuator regardless of Series 60.

## Variable orifice



The actuator volume is too small, hunting can occur. In this case, adjust variable orifice using (-) driver, then hunting is prevented by reducing flow rate of supply pressure transmitting to actuator.

# AUTO CALIBRATION

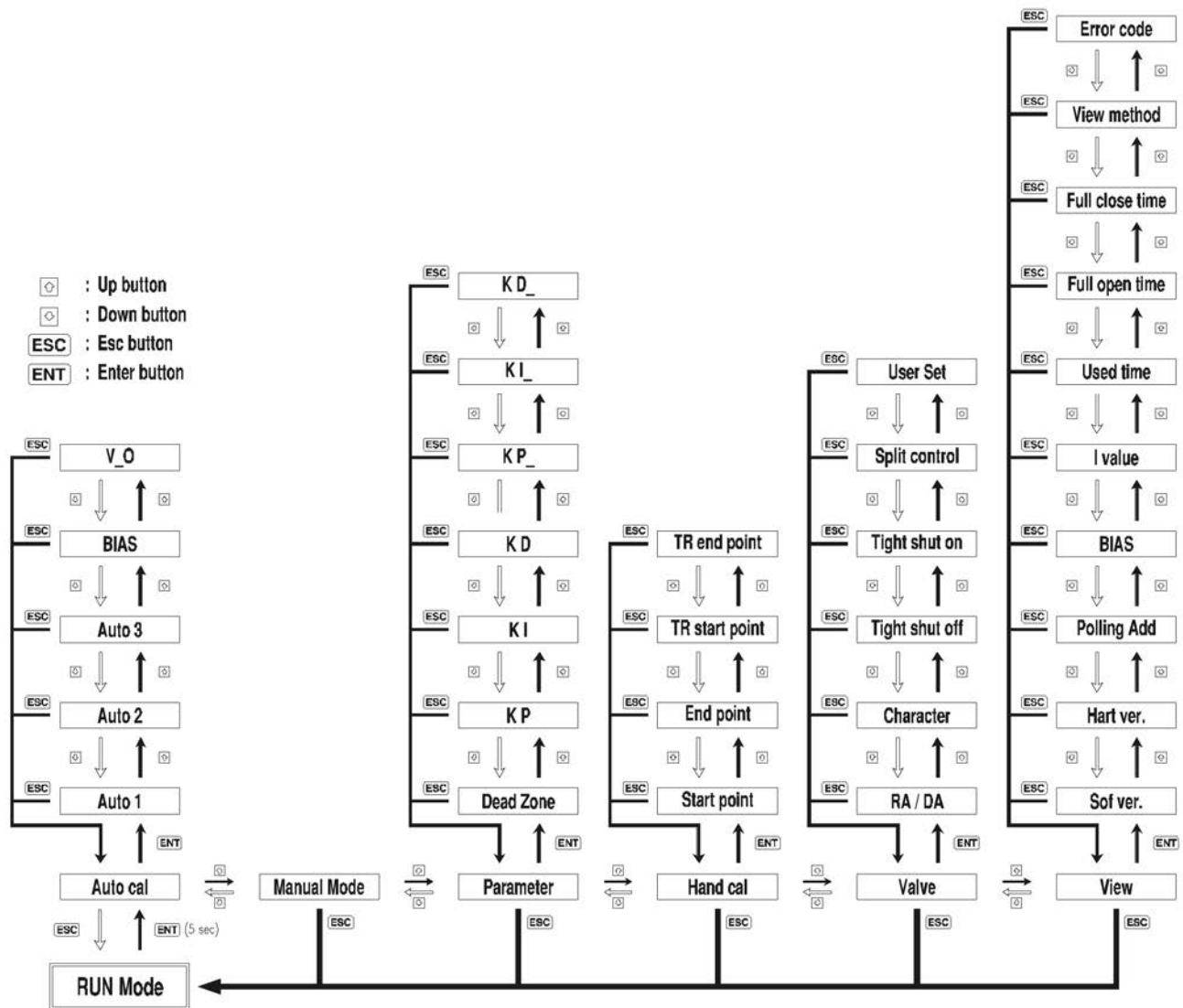
	Zero POINT	END POINT	KP, KI KD	BIAS	V_0	RA / DA
AUTO1	0	0	X	0	0	0
AUTO2	0	0	0	0	0	0
AUTO3	X	X	0	0	0	0
BIAS	X	X	X	0	X	X
V_0	X	X	X	X	0	X

Auto calibration types

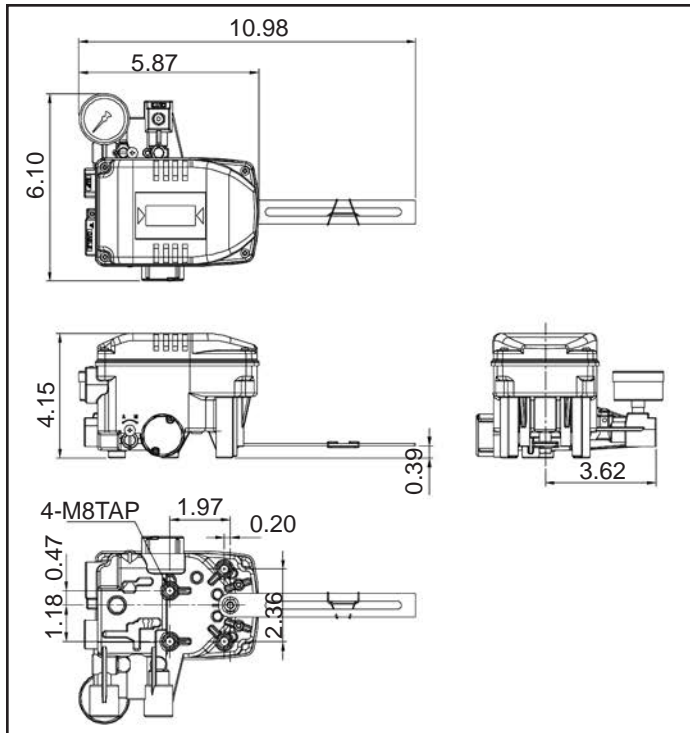
AUTO1 calibration is useful for users' in the field and AuTO2 calibration is for valve company or initial parameters setting of Series 60.

It takes about 2-3 minutes for auto calibration and it can be different by actuator's volume. AUTO1, AUTO2 and AUTO3 calibration set RA/DA automatically.

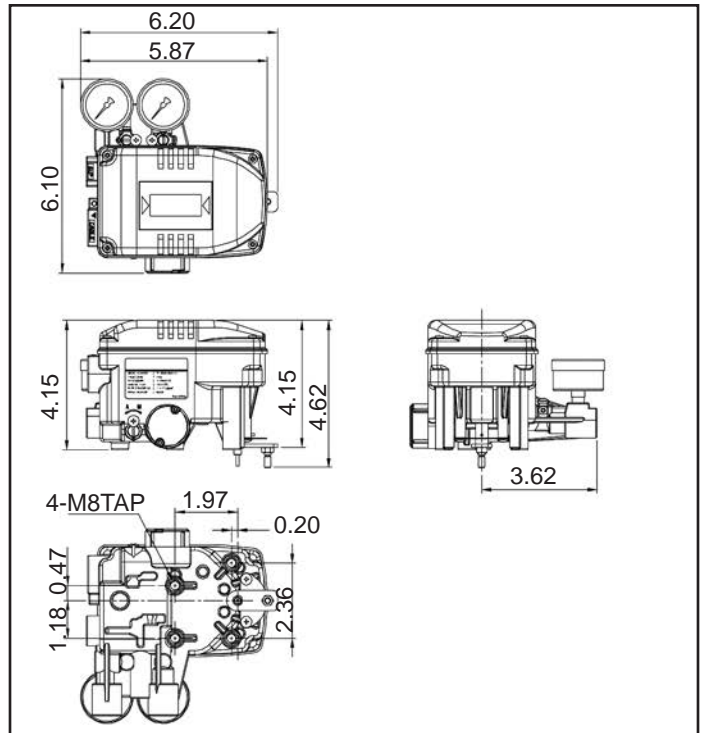
# MAIN SOFTWARE MAP



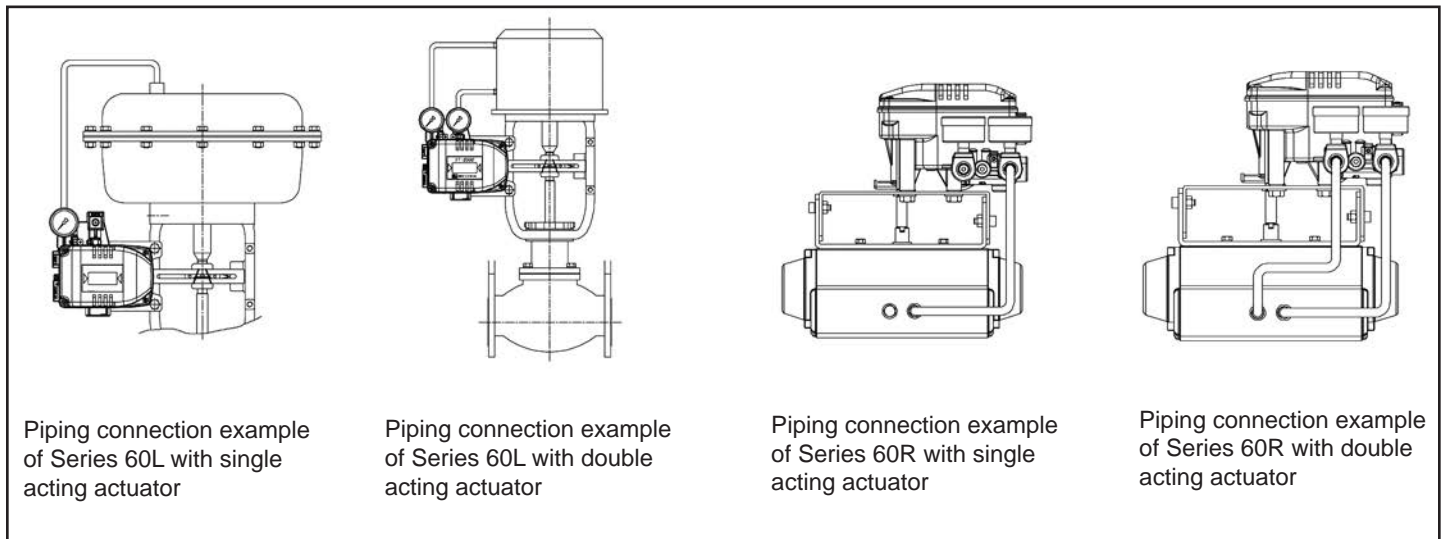
## SERIES 60L DRAWING



## SERIES 60R DRAWING



## PIPING CONNECTION WITH ACTUATOR



Piping connection example of Series 60L with single acting actuator

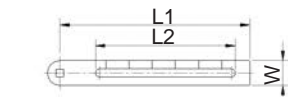
Piping connection example of Series 60L with double acting actuator

Piping connection example of Series 60R with single acting actuator

Piping connection example of Series 60R with double acting actuator

## SERIES 60 LEVER

Type A, B, C



Type D



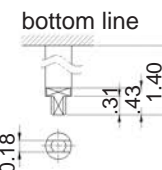
Lever Type	Stroke	L1	L2	W
A	4~1.6	3.90	3.01	0.79
B	.8~2.8	6.04	4.45	
C	2~4	8.54	4.86	
D	4~6	11.89		

Series 60 Linear Type

Type A, B, C, D



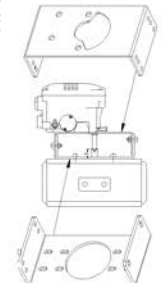
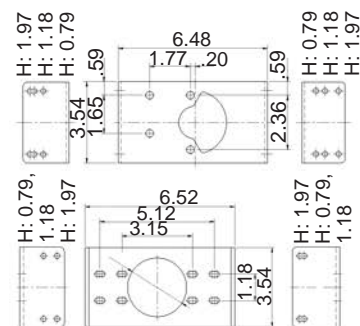
Type E



Lever Type	L1	L2	M
A	1.57	0.59	M6
B	2.48	1.46	
C	1.57	0.59	
D	2.48	1.46	M8
E	NAMUR		

Series 60 Rotary Type

## SERIES 60 BRACKET



Example



Right Valve, Right Application, Right Now!

14 De Camp • Cincinnati, OH 45216  
Phone: 513-731-2900 • Fax 513-731-6939  
[www.jflowcontrols.com](http://www.jflowcontrols.com)