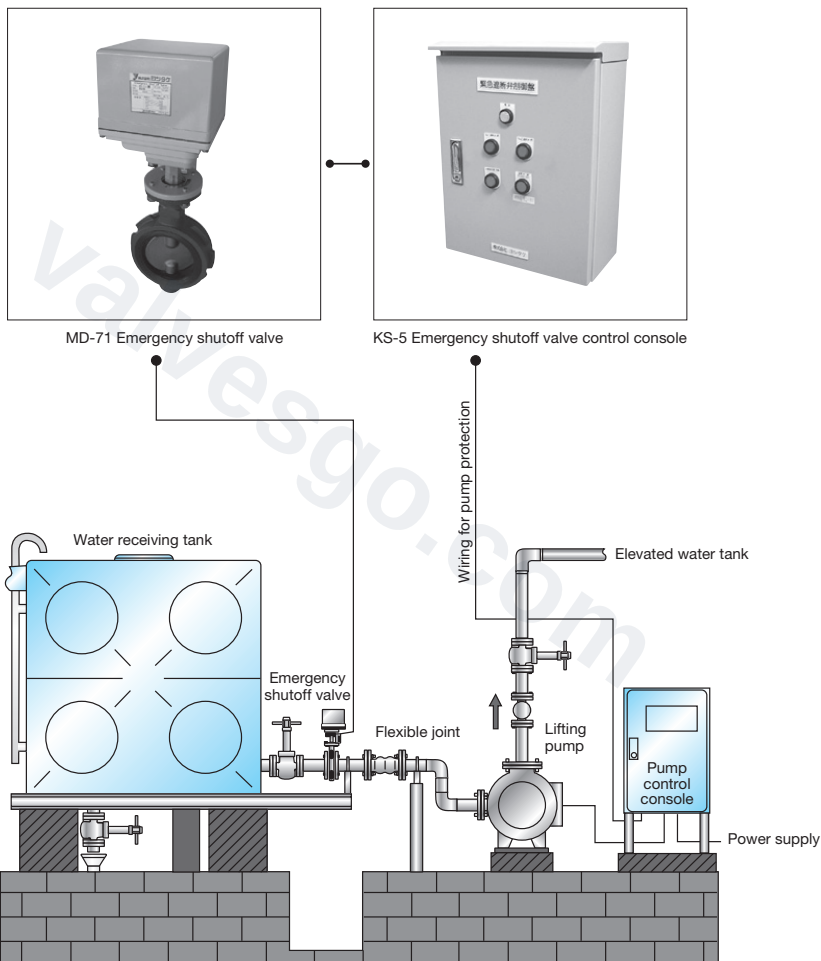


## What is Emergency Shutoff System?

Step  
0

If a piping system is damaged by a big earthquake, important water for living stored in a water receiving tank or gravity water tank will be lost. It is, therefore, necessary to prevent the interruption of lifelines and reserve water for living after the disaster. Additionally, national standards and guidelines stress the necessity of “emergency shutoff valves” for the purpose of preserving water. Yoshitake’s emergency shutoff system comprises an “emergency shutoff valve” and an “emergency shutoff valve control console” and is designed to automatically close the valve when the earthquake sensor inside the control console works. It is capable of supplying water for living reserved in the water receiving tank or gravity water tank even after a disaster.



# Specifications and Structure of MD-71·MD-71-N



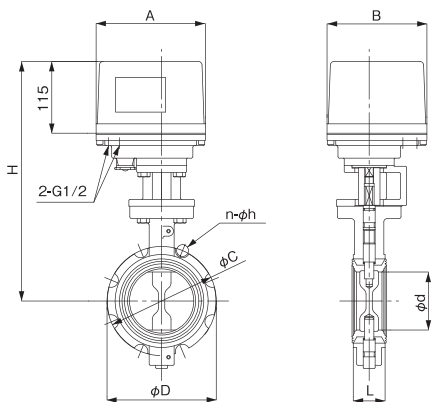
## Specifications

| Model                        |                                  | MD-71                                                                                                   | MD-71-N (JWWA) |
|------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------|----------------|
| Application                  |                                  | City water                                                                                              |                |
| Applicable pressure          |                                  | 0-1.0 MPa                                                                                               |                |
| Applicable fluid temperature |                                  | 5-60°C                                                                                                  |                |
| Installation posture         |                                  | Can be installed in any posture, from upright to sideways to horizontal piping.                         |                |
| Opening-closing time         |                                  | 50A and 65A: 3-4 seconds, 80A and 100A: 6-10 seconds, 125A and 150A: 12-17 seconds, 200A: 36-50 seconds |                |
| Actuator                     | Rated voltage                    | 24 V DC                                                                                                 |                |
|                              | Power consumption                | 50-100A: MAX. 80 VA 125-200A: MAX.120 VA                                                                |                |
|                              | Ambient temperature              | -20 - 55°C (no freeze condition)                                                                        |                |
|                              | Measure against dew condensation | Space heater contained                                                                                  |                |
|                              | Manual operation                 | Manual operation mechanism provided                                                                     |                |
|                              | Protective structure             | Outdoor rainproof structure (JIS C0920 IP65)                                                            |                |
| Material                     | Wire lead-in port                | G 1/2                                                                                                   |                |
|                              | Body                             | FCD 450                                                                                                 |                |
|                              | Valve                            | Stainless steel or Stainless steel cast                                                                 |                |
|                              | Seat                             | FKM                                                                                                     |                |
| Connection                   |                                  | JIS 10K flanged                                                                                         |                |

· Please contact us when using fluid is other than city water.

## Dimensions (mm) and Weights (kg)

| Nominal size | d   | L  | H   | D   | A     | B   | JIS 10K flanged |       | Weight |
|--------------|-----|----|-----|-----|-------|-----|-----------------|-------|--------|
|              |     |    |     |     |       |     | C               | n-h   |        |
| 50A          | 52  | 41 | 332 | 115 | 175   | 160 | 120             | 4-19  | 7.7    |
| 65A          | 64  | 44 | 349 | 135 | 175   | 160 | 140             | 4-19  | 9.2    |
| 80A          | 78  | 44 | 356 | 145 | 175   | 160 | 150             | 8-19  | 9.7    |
| 100A         | 103 | 51 | 384 | 175 | 175   | 160 | 175             | 8-19  | 12     |
| 125A         | 129 | 54 | 406 | 206 | 175   | 160 | 210             | 8-23  | 15     |
| 150A         | 154 | 54 | 419 | 231 | 175   | 160 | 240             | 8-23  | 16     |
| 200A         | 205 | 64 | 501 | 290 | 217.5 | 175 | 290             | 12-23 | 30     |



## Cv Value and Calculation Formula

| 50A | 65A | 80A | 100A | 125A | 150A | 200A |
|-----|-----|-----|------|------|------|------|
| 159 | 266 | 457 | 860  | 1320 | 2020 | 3540 |

$$C_v = \frac{0.365 \sqrt{V \cdot G}}{\sqrt{P}}$$

$P_1$  : Inlet pressure [MPa·A]  
 $P_2$  : Outlet pressure [MPa·A]  
 $\Delta P$  :  $P_1 - P_2$  [MPa]  
 $G$  : Specific gravity (against water)  
 $V$  : Max. flow rate of fluids [m<sup>3</sup>/h]  
 $C_v$  : Cv value of each nominal size

· The shape of the 200A is partly different from the figure.

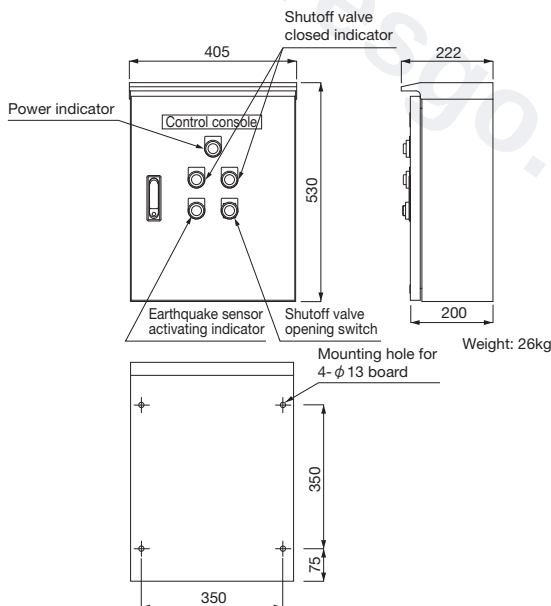
## Specifications and Structure of KS-5

### ■ Specifications

| Model                                               |                                        | KS-5                                                                                                        |
|-----------------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Number of emergency shutoff valves to be controlled |                                        | 2 *1                                                                                                        |
| Supply power source                                 |                                        | 85-240 V AC, 50 / 60 Hz                                                                                     |
| Ambient temperature                                 |                                        | -10 ~ 50°C                                                                                                  |
| Backup power source                                 |                                        | 24 V DC                                                                                                     |
| Backup time                                         |                                        | Approx. 5 hours                                                                                             |
| Storage battery                                     |                                        | Storage battery manufactured by Japan Storage Battery (PE 12 V 2.2)                                         |
| Charging method                                     |                                        | Constant charging method (float charging)                                                                   |
| Measure against lightning                           |                                        | Surge absorber provided                                                                                     |
| Output terminal                                     | For emergency shutoff valve control    | 24 V DC                                                                                                     |
|                                                     | For pump protection                    | No-voltage c-contact (one c-contact) *2                                                                     |
|                                                     | For earthquake sensor external warning | No-voltage a-contact (one a-contact) (ON contact when the earthquake sensor is working)                     |
|                                                     | For power external warning             | No-voltage a-contact (one a-contact) (ON contact when the power inside the control console unusually drops) |
| Shutoff valve opening switch                        |                                        | Pushbutton switch for resetting provided                                                                    |
| Earthquake sensor                                   | Detection direction                    | All horizontal directions                                                                                   |
|                                                     | Set acceleration                       | 200 Gal (equal to 5 upper in Japan Meteorological Agency's seismic intensity)                               |
| Installation location                               |                                        | Indoor and outdoor (equal to JIS C 0920 IP44)                                                               |
| Installation method                                 |                                        | Wall-hang type                                                                                              |

\*1 Available with for controlling one, three or four emergency shutoff valve(s).

\*2 It is different when controlling three or four emergency shutoff valves.

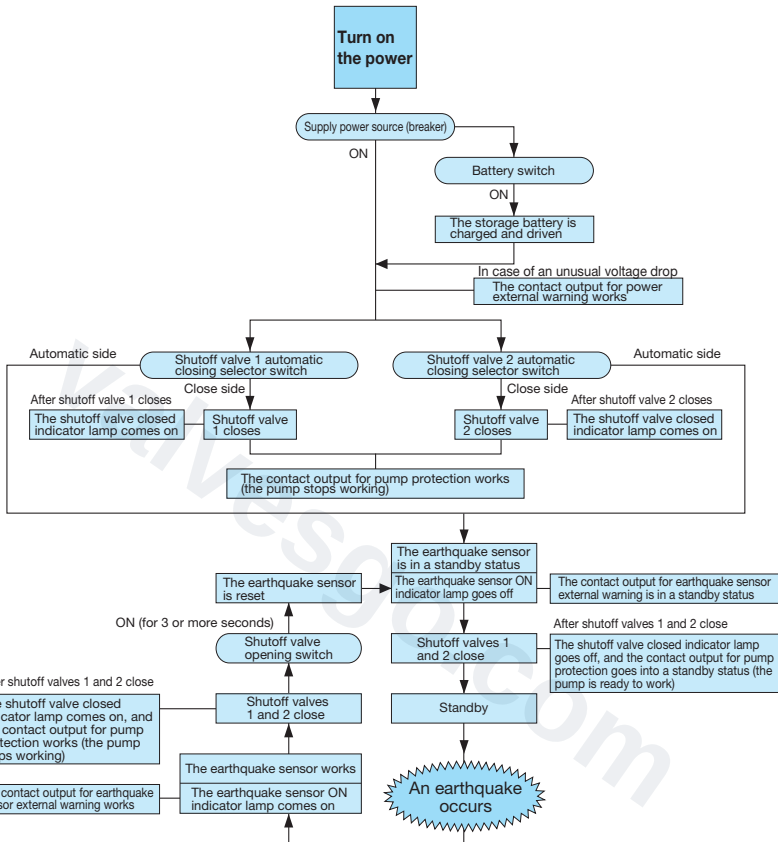


· The figure shown above is a control console for controlling two emergency shutoff valves. The shapes of control consoles for controlling one, three, and four emergency shutoff valves are slightly different.

#### Reference What is Gal ...?

One Gal is defined as an acceleration of 1 centimeter per second (1 cm/s) . That is, the gal can also be expressed as 1 centimeter per second squared (1 cm/s<sup>2</sup>). In the International System of Units (SI), the unit of acceleration is meter per second squared (m/s<sup>2</sup>), and 1 Gal is equal to 0.01 m/s<sup>2</sup>. Although the gal is a non-SI unit, Japan's Measurement Law permits the use of Gal and Milligal (mGal) only for the measurement of gravitational acceleration as well as vibration acceleration regarding earthquakes.

## Operation Flowchart (for Controlling Two Shutoff Valves)

Step  
1

9

## ■ Features

1. An earthquake sensor (acceleration: 200 Gal) is installed inside the control console that automatically works in case of an earthquake (the shutoff valves close in intensity 5 upper).
2. The control console properly works with the backup power source even in case of a power failure.
3. The pump instantly stops when the shutoff valves close (this requires wiring between the interlock terminal of the emergency shutoff valve control console and that of the pump control console).
4. Resetting after a shutoff valve control is easy. (Just by pressing the shutoff valve opening switch.)
5. The control console can be manually operated.