Aqua Tech

水のマエザワ

NO. 82e

Quick Closing Gate

Reliable shut-off sequence in an emergency

Maezawa Industries, Inc.

An excellent performance, ensured operation in an emergency

Automatic Closing Operation

The gate can be link with seismometer, water level meter,etc.
A water passage can be shut off when the value of sensors exceeds a set valve.

Rapid and Reliable Closing Sequence

The gate will be quickly closed by self weight to block the water passage channel in an emergency such as earth-quake, heavy rain.(*1)

Excellent Water Stop Functionality

In addition to the durability of the gate system, the QCG will stop the water tightly with perfect timing as designed based on customer's specification.

Small Output Actuator

The QCG is equipped with Maezawa original worm gear that can effectively transmit the power from the actuator, compared with that of the legacy-typed-gear. Thus the required actuator power can be reduced by 50%.

Adjustable Self-Closing Speed

The closing speed can be adjusted by the exhaust throttle valve of the built-in air brake.

(*1)The closing speed is multiple times as quicker as that of conventional model. The quick closing gate is suitable for securing potable water, secondary disaster prevention and protection of facilities.

Ensured Clutch Operation

The quick Closing Gate employs Wet Multiple Disk Electromagnetic Clutch which is stable in performance.
Furthermore, the clutch can be operated on/off by manual lever, with minimum power.

Reliable Position Indicator and Limit Switch

Position Indicator and Limit Switch are linked by worm wheel. They will never lose synchronism under normal operation or even after the self-closing-sequence.

Quick Closing Gate plays an important in prevention of a secondary disaster

Standard Specification

《Type》

Type	Nominal Size
Rectangular Opening, Rising Stem	200 - 3000mm
Circular Opening, Rising Stem	200 - 2000mm
Backflow, Rectangular Opening, Rising Stem	200 - 2000mm
Backflow Circular Opening, Rising Stem	200 - 2000mm

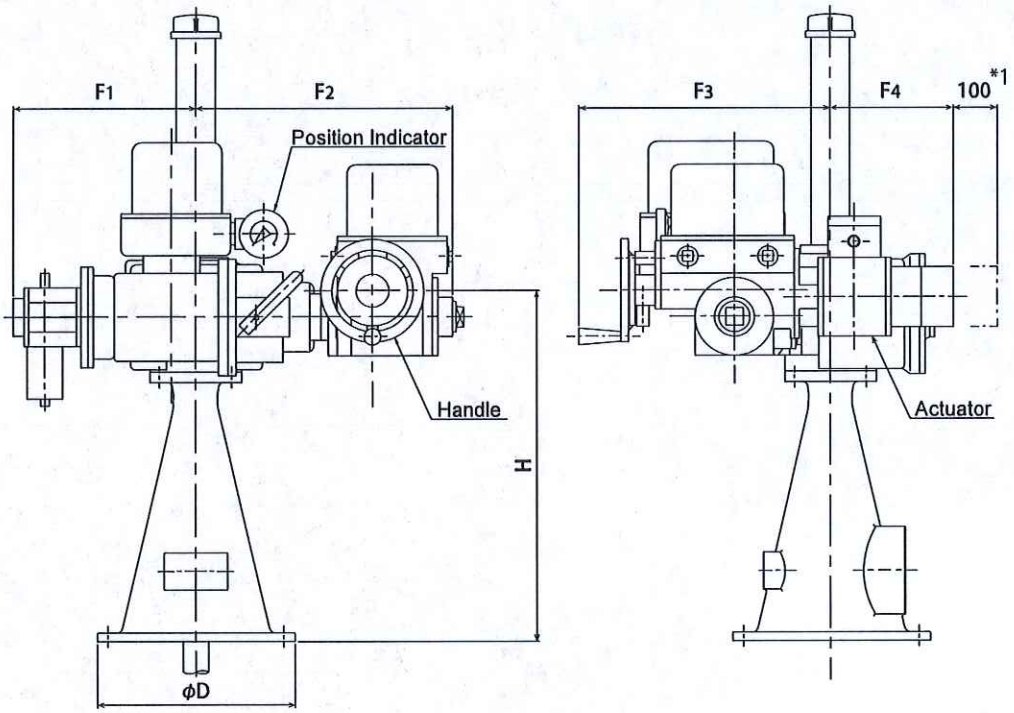
《Major Materials》

Part name		Material
Slide		FC200
Gate Frame		FC200
Seat	on Slide	CAC403 - 406
	on Frame	SUS304
	on Element	SUS304

《Fluid Type》 Potable Water, Waste Water, etc.

《Design Head》 10m

Dimension



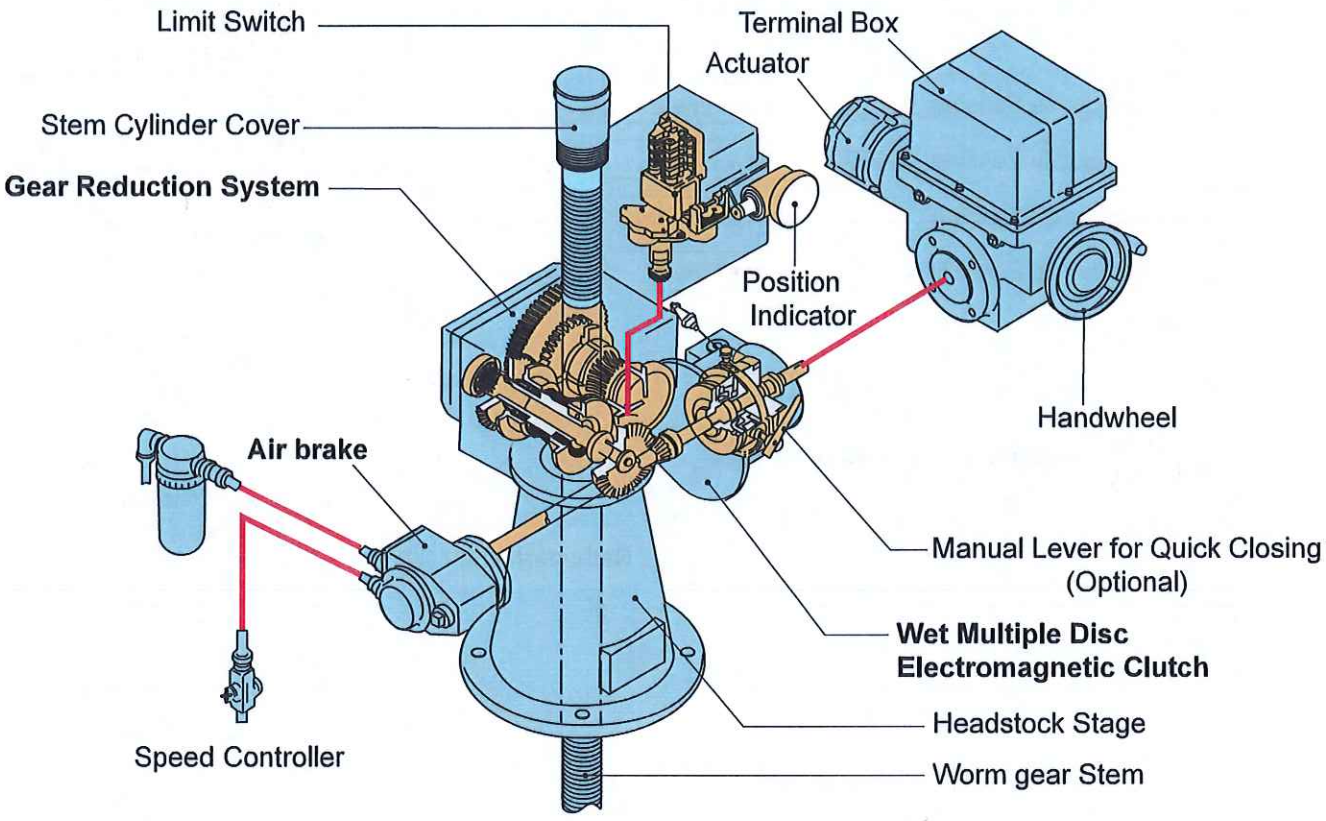
Unit : mm

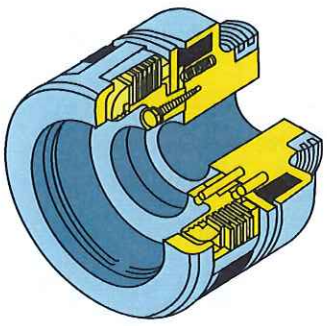
Model \ Symbol	Actuator	Output	F1*2	F2	F3	F4	H	D
MEG-3	MEG-00	0.4 kW	417	585	590	272	800	450
		0.75 kW				277		
MEG-6	MEG-00	0.75 kW	455	605	627	240	800	510
		1.5 kW				320		
MEG-12	MEG-0	1.5 kW	512	624	713	327	800	570
		2.2 kW				372		
MEG-20	MEG-1	2.2 kW	685	757	780	343	800	700
		3.7 kW				373		
MEG-30	MEG-2	3.7 kW	691	759	848	529	892	800
		5.5 kW						

*1: Space for motor removal *2: Size of F_1 depends on the Air brake class.

*3: Please contact us for inquiries about Duplex Headstock, and other specifications.

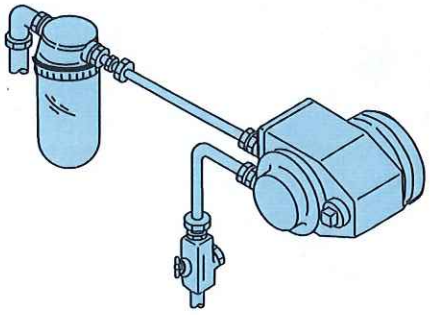
Structure and Function





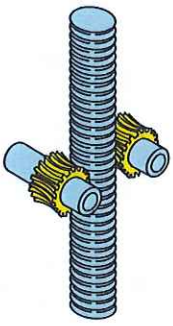
Clutch

In order to ensure the stable own-weight-closing sequence at emergency, the Quick Closing Gate employs Wet Multiple Disk Electromagnetic Clutch.
This clutch can be operated locally or by remote.
Furthermore, it can be force closed by operating a manual lever for quick closing.



Air brake (Braking System)

The Quick Closing Gate can control the closing speed by reliable air brake that can avoid the damage of the frame and wedge caused by the acceleration of self- weight sequence the gate closing by.

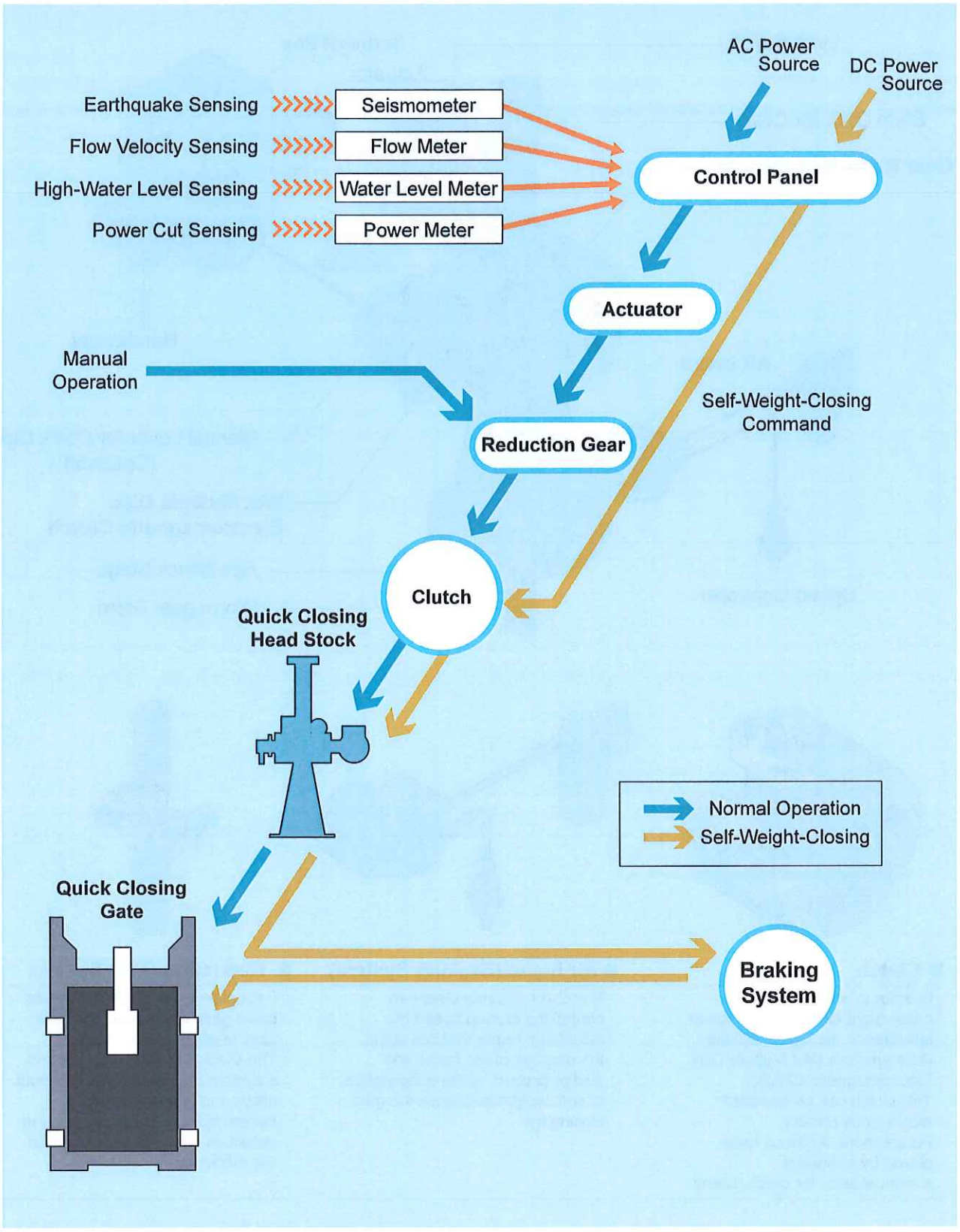


Reduction Gear System

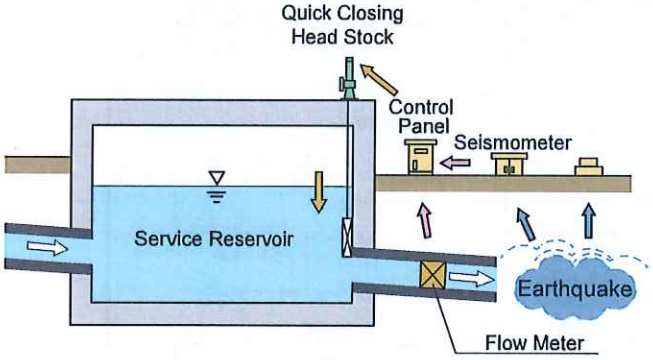
Reduction Gear System consists bevel gear, worm gear and spur gear made of special steel.
The Quick Closing Gate employs a system that will not self-lock and allows the gate to fall free.
Furthermore, a ball bearing in the reduction gear box will maximize the efficiency.

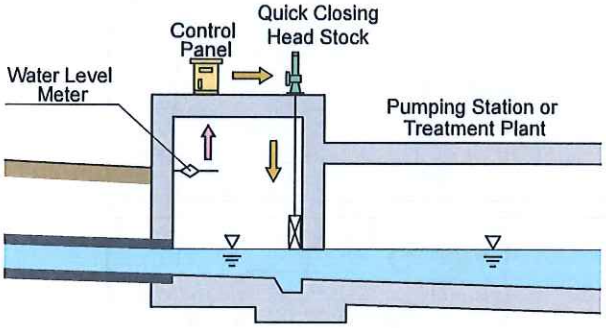
Shut off the water passage by self-weight-closing feature in an emergency

Working Flow



Example of Self-Weight-Closing System





"Quick Closing System" linked with Seismometer.

When an earthquake occurs and exceeds the pre-set magnitude, a seismometer will send a signal to a control panel. Then, the seismometer will send a command for Self- Weight-Closing, disengage the clutch and shut-off the gate at the service reservoir.

Self-Weight-Closing System linked with Water Flow Meter

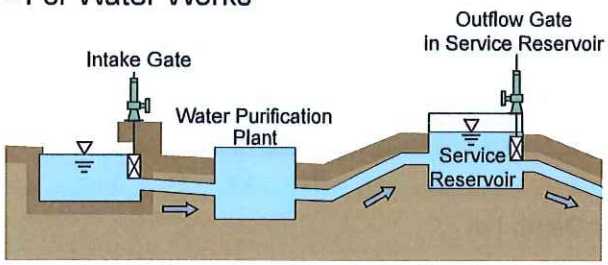
If water pipeline breaks, the water flow meter will detect the abnormal flow of the service reservoir, and the system will then send a command to the Quick Closing Gate to start the self-weight-closing sequence. The gate will be closed for second disaster prevention and will secure the potable water in the reservoir.

Self-Weight-Closing System linked with Water Level Meter

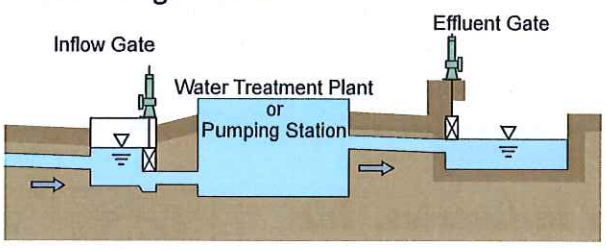
When the water level meter detects an, abnormal water level due to the rapid inflow of water in the pumping station or in the water purification plant, the system will send a command to the Quick Closing Gate to execute the Self-Closing- Sequence to protect the pumping station or water purification plant.

Example of Application

■ For Water Works



■ For Sewage Works



Water Intake Gate

The QCG will shut-off the water intake gate to protect the water purification plant when a river or lake water rapidly increase, in case of equipment failure or blackout in the water purification plant.

Outflow Gate in Water Distribution Reservoir

When water pipeline breaks down by unexpected reason, such as earthquake,etc, the QCG will shut-off the outflow gate to secure the potable water and to prevent secondary disaster.

Water Inflow Gate

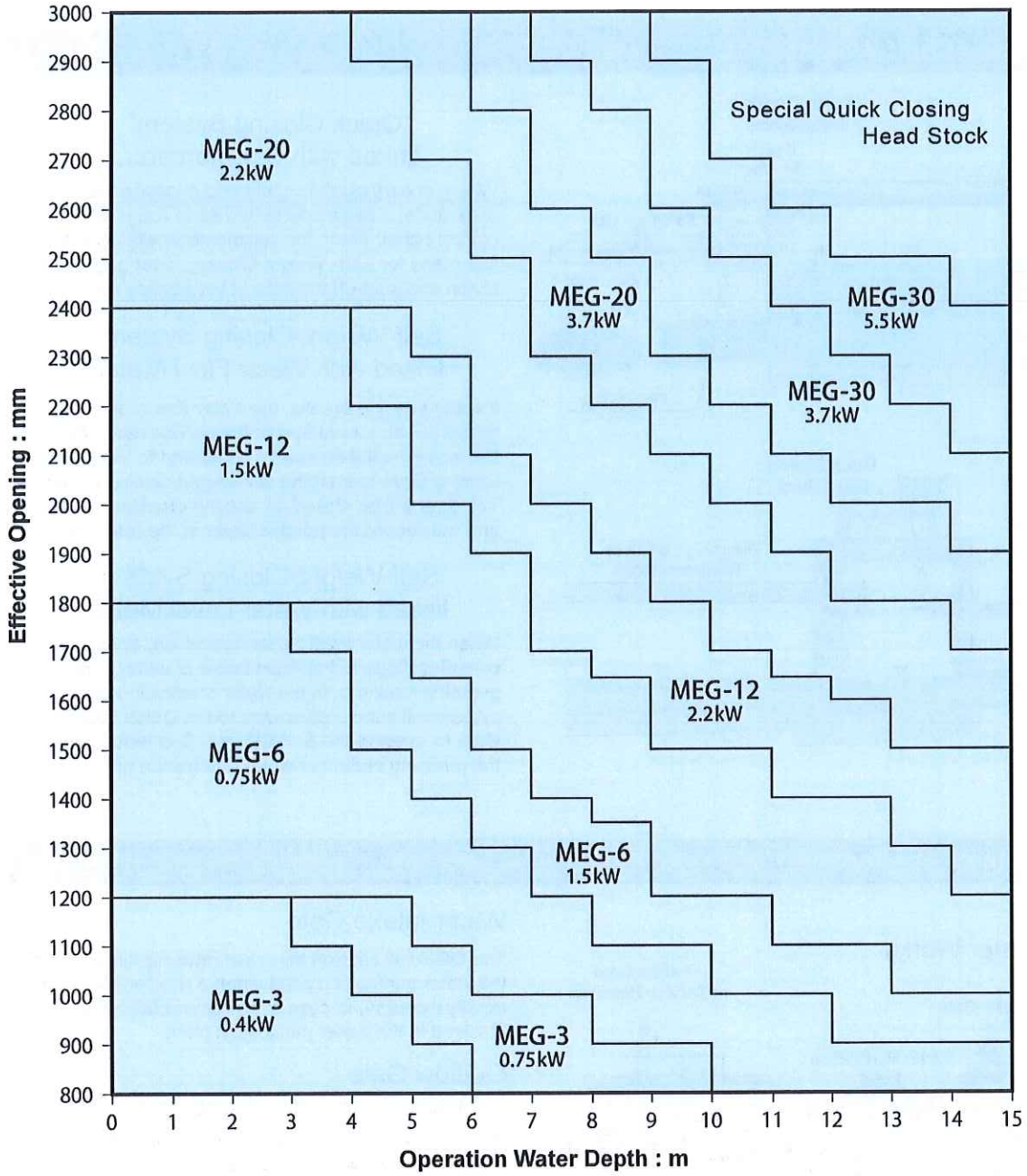
The QCG will shut-off the inflow gate to protect pumping station or each facilities in treatment plant when the rapid inflow of water, blackout or pumping station failure.

Water Effluent Gate

When a river water rapidly increase, the QCG will shut-off the water effluent gate to prevent the backflow in the treatment plant and to protect each facilities.

Type Selection

Quick Closing Head Stock Selection Table (Standard Rectangular Opening Sluice Gate)



1. If the effective opening is square shaped, chose the headstock at the intersection of "Effective Opening" and "Operation Water Depth" mentioned in the above diagram.
2. If the effective opening is rectangular shaped, assume $\sqrt{\text{Effective Depth} \times \text{Effective Height}}$ as an effective opening and find the intersection with the "Operation Water Depth" in above mentioned diagram.
3. If the intersection is on the marginal line, choose the headstock at the left below.

Any information in this document is subject to change without notice.

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