July 13, 2017

JS Registered New Technology on its Innovation Program

—Contribute to a reduction of damage from inundation. Ready for a cloudburst with new pump —

Japan Sewage Works Agency (JS) has been running *JS Innovation Program** since 2011. The program aims to encourage the development of new technologies that meet various needs of municipal wastewater treatment business and facilitate their introduction to our entrusted projects.
JS has added the following technology on *JS Innovation Program*.

All Speed/Water Level Type Horizontal Submersible Pump

Developer: *JS, Ishigaki Company, Ltd.*
Technology Summary: The new horizontal submersible pump can drain rainwater at lower water level than the existing pumps. The pump makes full speed operation all the time regardless of water level. This mechanism keeps inside water level of channel low and works for overflows caused by heavy rains. Besides, the pump can avoid repeating start-up and shut-down operation and reduce electrical load.

* *Note that JS Innovation Program verifies registered technologies for their applicability* ***only*** *at JS' entrusted projects.*

* *Click below to learn more about JS Innovation Program*
https://www.jswa.go.jp/e/r_d/r_d1/r_d1-2.html

All Speed/Water Level Type Horizontal Submersible Pump

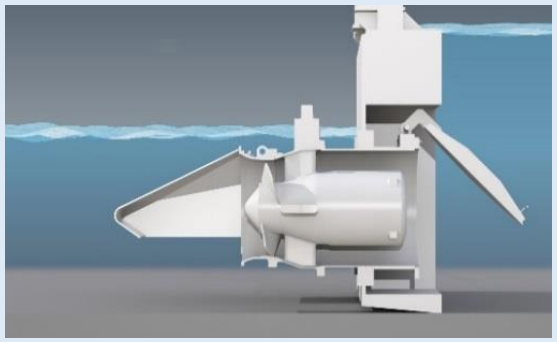
Developer : JS, Ishigaki Company Ltd.

Background

A pump gate combining floodgates and submersible pumps has a low-cost and a short period of construction. So, it suits a small-scale rainwater pump station. Pump operation should start as low water level as possible to avoid the risk of overflows caused by heavy rains. But on the other hand, when a submersible pump starts running at low water level, it will stop at short intervals. A submersible pump has a conflict between the low water level operation to control overflows and frequent on/off operation that causes electric trouble.

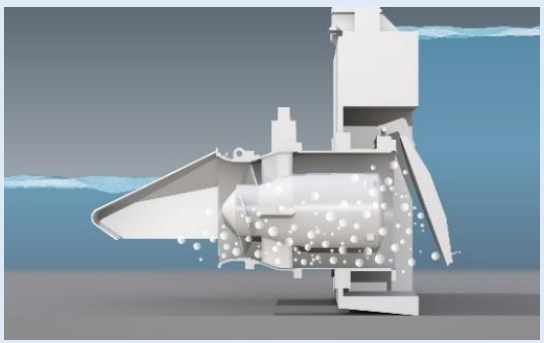
Summary

All speed/water level* type horizontal submersible pump solves the problem. The pump is operable at low water level that works for overflow control at stormwater. Besides, since it allows continuous operation without a frequent on/off, the pump is friendly to electric devices.
* All speed/water level operation: The pump runs at full-speed while changing its operation modes which are max-discharge, air/water, and standby operation depending on water level.



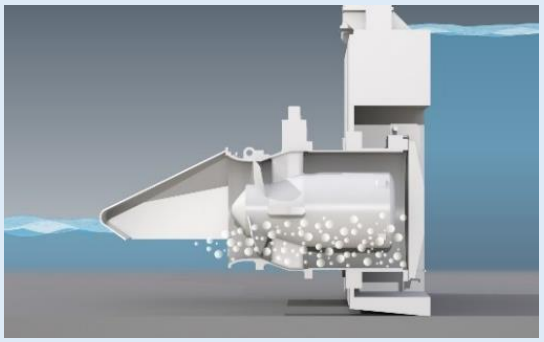
Max-discharge operation

Same operation as the conventional pumps



Air/water operation

Mixed discharge of vacuumed air and water. Discharge amount changes depending on the water level.



Standby operation

Running without discharge. A timer stops operation after a certain period of time.

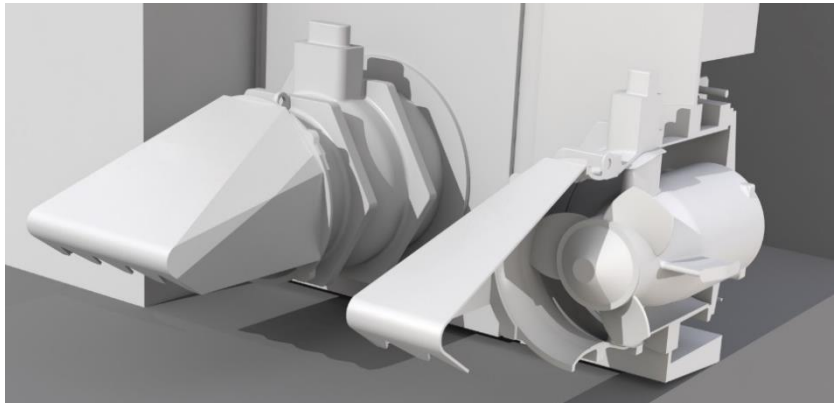
Features

- Discharge amount changes depending on water levels of suction side (No inverter required).
  A high water level → Discharge amount increases, A low water level →Discharge amount decreases
- At low water level and no discharge condition, the pump runs standby operation. After a particular time, the standby operation automatically stops. Runoff starts when water level increases. This mechanism reduces frequent on/off operation and load of electric devices.

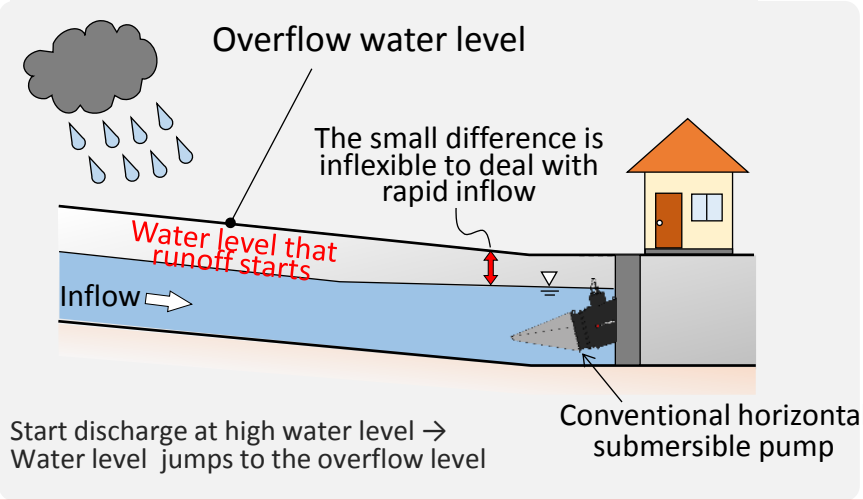
Benefits

- **Reduction of inundation damage**
  Runoff operation starts at low water level and continues. The water level in the channel can stay low to deal with a rapid increase of water level in the time of storm water.
- **Stable operation**
  Reducing load to electric devices reduces failure risks.
- **LCC reduction**
  No inverter is required. Simple & compact configuration.

Image of Installation



Conventional pump



New pump