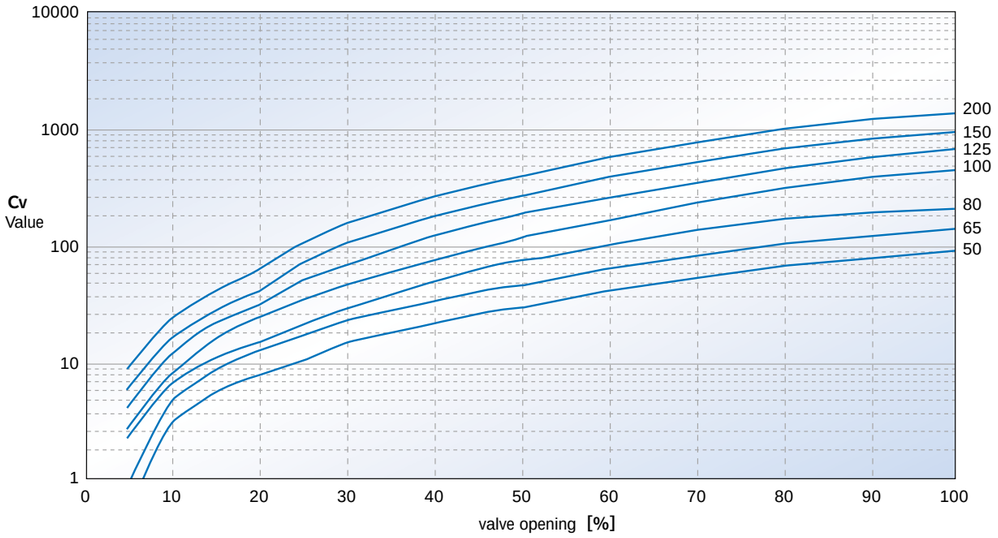
20LNR Cv Value



⚠ HANDLING INSTRUCTIONS

1. Storage conditions

- When trash or foreign objects are mixed in, it causes leak from the seat. So do not remove the valve cover until just before the valve is installed.

2. Instructions for installation

- When installing the valve, clean the inner side of the pipe and make sure there is no trash or foreign objects. If possible, install a short pipe in advance instead of a valve and flush or blow the pipe.
- Install the butterfly valve where the fluid flow is not affected. If necessary to be installed where flow path inclines, the valve stem should be installed at a right angle to the inclination.
- Install after cleaning the valve flange and pipe flange surfaces.
- When tightening the flange bolt nut, start from the bolt at the diagonal angle to avoid uneven fastening but apply even surface pressure of gasket and valve.
- Piping gaskets are not needed. When used, it could cause external leak or could negatively impact the seat so never use the gaskets.
- Never weld the pipes when valves are installed.
- When mass such as an actuator is applied to the piping (horizontal valve stem), provide a support to the actuator area or to the yoke area at the time of installation.
- When installing, it will become the cause of leak if the piping center is offset. Please install carefully.

3. Operation/Handling

- After installation, make sure the valve can be opened/closed smoothly before fluid is fed.
- Due to the fluid, the force is usually applied to the closing direction. Therefore, in case of open/close with a lever, the operation of open/close of the valve should be done softly to prevent water hammer. In case of a cylinder, use speed controller, so that the valve's open/close time should be more than 5 seconds.

4. Maintenance

- After installation, make sure the valve can be opened/closed smoothly before fluid is fed.
- When the valve shall be removed from the pipe for maintenance, make sure in advance that the main valve is closed and the fluid inside is drained.

※When using, read the "Butterfly valve safety instructions" and "20LNR…Rotary focus instruction manual". Follow the instructions and use properly.

Distributed by :

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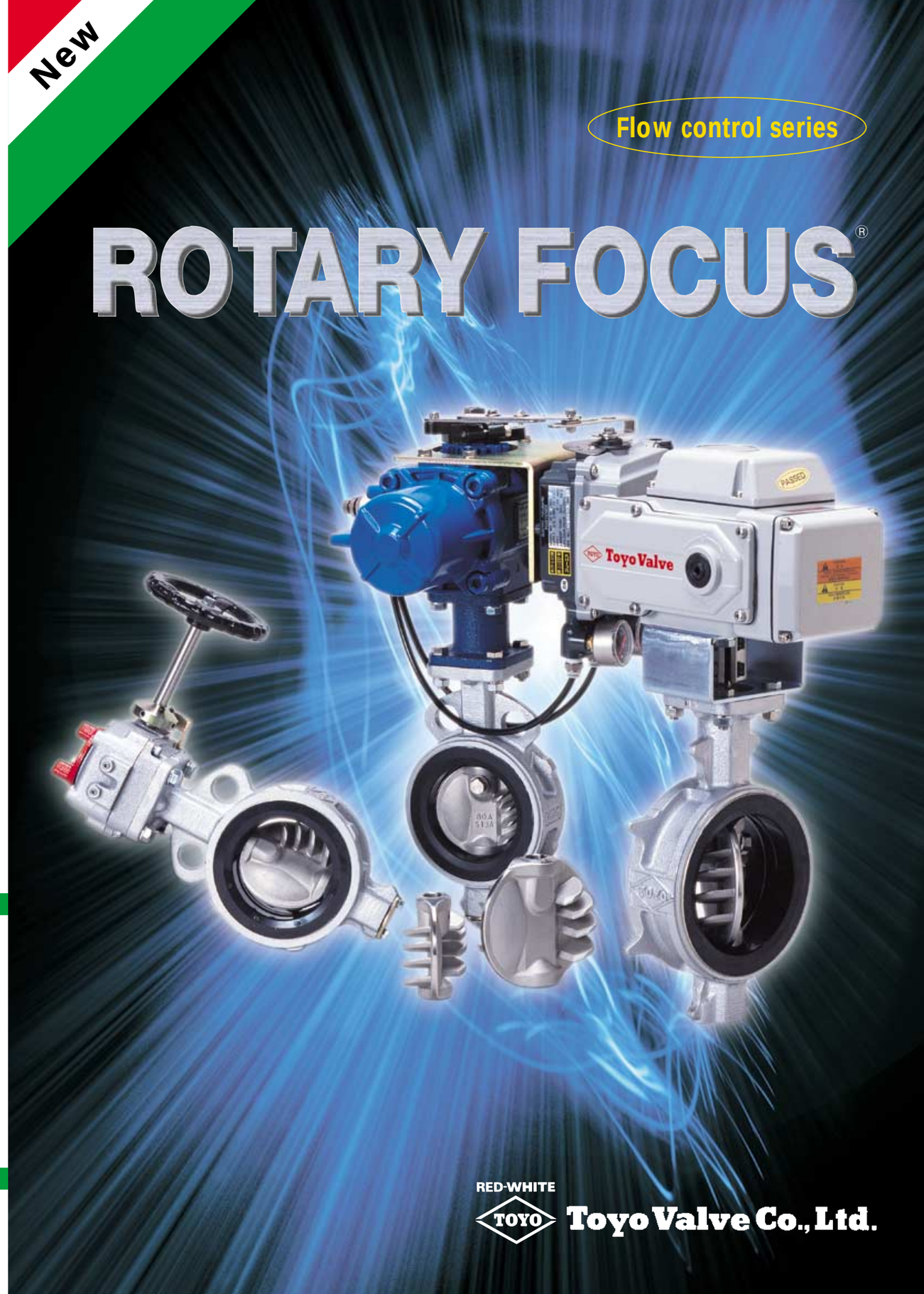
New

Flow control series

ROTARY FOCUS®



RED-WHITE TOYO **Toyo Valve Co., Ltd.**

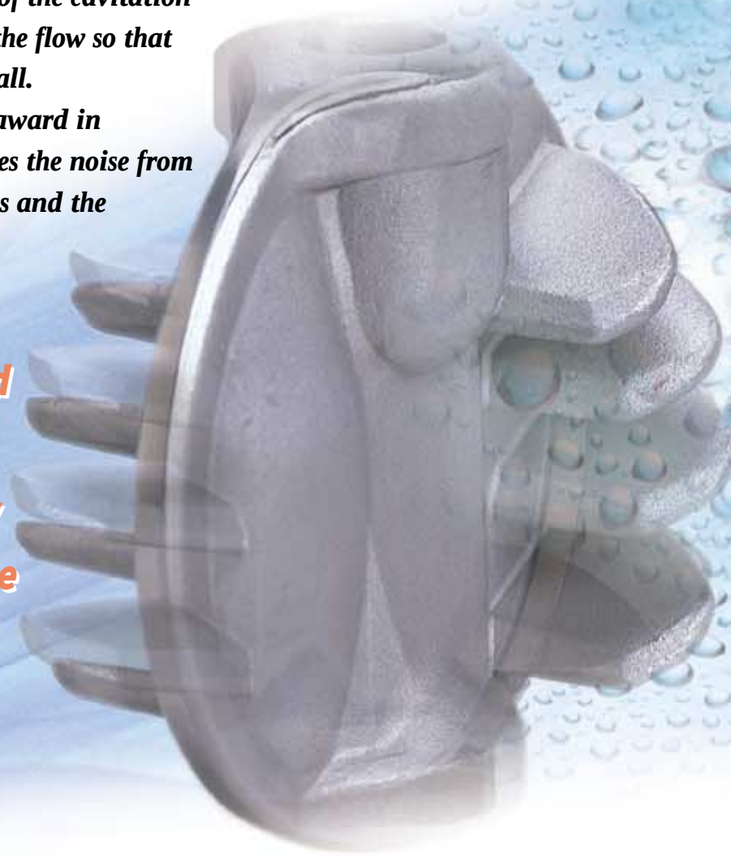
PAT.P

ROTARY FOCUS® Butterfly Valve

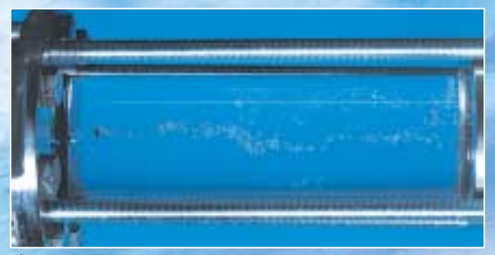
Flow control series

Creates vortex at the downstream side and with centrifugal force, the air bubbles of the cavitation are guided towards the center of the flow so that the fluid becomes the defensive wall.
It has a patent structure (patent award in progress) that dramatically reduces the noise from the burst of cavitation air bubbles and the damage of the pipe.

Low cost…
Dramatically reduced the cavitation
High range flexibility
Low torque, low noise



▲ Cavitation state in general valve
(Air bubbles are generated in entire pipe.)



▲ After passing through 20LNR
(Air bubbles are collected towards the center.)

This comb-shaped disc creates vortex at the downstream side and controls cavitation.

1 Decreasing of cavitation

By placing the comb-shaped disc slanted against the flow, the swirl will be created on the downstream side of the flow. With this swirl, the air bubbles of cavitation will be collected towards the center (center of the pipe). Having this effect, fluid itself becomes the protection wall and enables dramatic reduction of pipe damage and noise compared to that of the conventional control valve.

2 Smaller unbalanced torque

Configuring the disc curved (fan shape), the torque is applied towards the disc open direction. Due to this effect, closing direction torque (unbalanced torque) applied to the conventional butterfly valve becomes smaller. Therefore, it achieved stable motion under half-open condition.

3 High range ability

The disc sealing method and external diameter fabrication are thoroughly designed so that with regular baking seat application, it enabled control with high accuracy. In addition, the fixation of disc and stem, the connector between the stem and actuator are designed as segmented type and bolt fixation type. Therefore, the rattle has been eliminated and control from small open range to full open range (full open of 80 degrees) became possible. Due to this, range ability achieved 1:150 that is at the best accuracy level for butterfly valves.

4 Enabled bi-directional control

When the conventional control valve is concerned, the direction of the flow used to be fixed. If the direction has to be changed due to the piping space, installation used to be difficult. However, with this butterfly valve, the flow control can be bi-directional and can be accomplished efficiently.

5 Upgraded controllability with high-accuracy motor

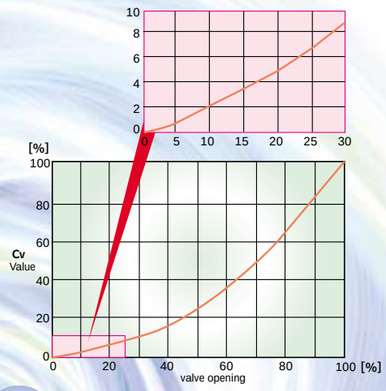
The feature of the motor can be easily changed and can optionally add microcomputer type motor equipped with functions that enable fluid flow features to match the piping at sites. And also prepared regular proportional control type to immediately respond to the customers' needs. In addition, decomposing capability of microcomputer type motor is theoretically 1/1000 and in actual 1/500. This enables the valve to operate at 100% performance.

6 Corresponds to high flow rate

Since the seat is baked on the body, it meets high flow rate of 6m/s.

7 Durablity and high range ability

The valve of new configuration which has durability but no jumping was successfully developed by designing the disc seal touching smoothly to the seat, and by improving its rigidity. By this effect, flow control has become possible by small valve opening. Durability has increased to more than double the conventional type. (Refer to Cv value chart)



8 Low cost

The conventional control valve used to be expensive because of the special parts fabrication. However, this butterfly valve utilized parts from our standard baked type 20K rubber seated valve and achieved dramatic cost reduction.

Product specification

Model type		20LNR
Fig.No.		646L / 646G
Applicable flange standards		JIS 10K、16K、20K ASME125、150 ISO PN10、PN16、PN20 ＊1
Nominal diameter		50、65、80、100、125、150、200、250、300 ＊2
End-to-end dimension		JIS B2002 type 46 (ISO 5752 Basic Series 20)
Maximum service pressure		2.0MPa (bi-directional control capability)
Body type		Wafer Type
Service temperature range		NBR：0℃～70℃ EPDM：0℃～100℃ ＊3
Test pressure	Shell	1.5 times the maximum allowable pressure.
	Seat	1.1 times the maximum allowable pressure.
Material	① Body	FCD450
	② Disc	SCS13A
	③ Stem	SUS420J2
	④ Seat	EPDM、NBR
Actuator type		Lever : 50～150 Worm gear, Pneumatic Cylinder, Motor, Diaphragm : 50～300
Applicable fluid		Air, Sweet Water, Industrial Water, Hot Water,Sea Water, Oil, etc.
Flow rate		6m/s (short time:9m/s)

＊1.Please inform the standard No. of the mating flange when ordering ＊2.Nominal diameter 250 and 300 will be on sale soon.
＊3.Please refer to the P-Tratings for service temperature rangs.