

Serial No.	H-V011-E-11
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GATE VALVES

Type P (Standard: Plug)

Type S (Soft Seal)

User's Manual





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This user's guide contains information important to the proper installation, maintenance and safe use of an ASAH I AV Product. Please store this manual in an easily accessible location.

<Warning & Caution Signs>

 Warning	This symbol reminds the user to take caution due to the potential for serious injury or death.
 Caution	This symbol reminds the user to take caution due to the potential for damage to the valve if used in such a manner.

<Prohibited & Mandatory Action Signs>

	Prohibited: When operating the valve, this symbol indicates an action that should not be taken.
	Mandatory action: When operating the valve, this symbol indicates mandatory actions that must be adhered to.

(1) Be sure to read the following warranty clauses of our product

- Always observe the specifications of and the precautions and instructions on using our product.
- We always strive to improve product quality and reliability, but cannot guarantee perfection. Therefore, should you intend to use this product with any equipment or machinery that may pose the risk of serious or even fatal injury, or property damage, ensure an appropriate safety design or take other measures with sufficient consideration given to possible problems. We shall assume no responsibility for any inconvenience stemming from any action on your part without our written consent in the form of specifications or other documented approval.
- The related technical documents, operation manuals, and other documentation prescribe precautions on selecting, constructing, installing, operating, maintaining, and servicing our products. For details, consult with our nearest distributor or agent.
- Our product warranty extends for one and a half years after the product is shipped from our factory or one year after the product is installed, whichever comes first. Any product abnormality that occurs during the warranty period or which is reported to us will be investigated immediately to identify its cause. Should our product be deemed defective, we shall assume the responsibility to repair or replace it free of charge.
- Any repair or replacement needed after the warranty period ends shall be charged to the customer.
- The warranty does not cover the following cases:
 - (1) Using our product under any condition not covered by our defined scope of warranty.
 - (2) Failure to observe our defined precautions or instructions regarding the construction, installation, handling, maintenance, or servicing of our product.
 - (3) Any inconvenience caused by any product other than ours.
 - (4) Remodeling or otherwise modifying our product by anyone other than us.
 - (5) Using any part of our product for anything other than the intended use of the product.
 - (6) Any abnormality that occurs due to a natural disaster, accident, or other incident not stemming from something inside our product.

(2) General operating instructions



Warning

- Using a positive-pressure gas with our plastic piping may pose a dangerous condition due to the repellent force particular to compressible fluids even when the gas is under similar pressures used for liquids. Therefore, be sure to take the necessary safety precautions such as covering the piping with protective material. For inquiries, please contact us. For conducting a leak test on newly installed piping, be sure to check for leaks under water pressure. If absolutely necessary to use a gas in testing, please consult your nearest service station beforehand.

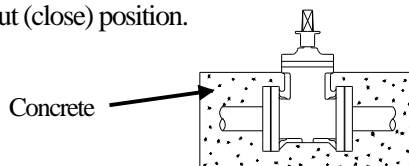


Caution

- Do not step on or apply excessive weight on valve. (It can be damaged.)
- Do not use the valve in conditions where the fluid may have crystallized. (The valve will not operate properly.)



- Keep the valve away from excessive heat or fire. (It can be damaged, or destroyed.)
- Always operate the valve within the pressure vs. temperature range. (The valve can be damaged or deformed by operating beyond the allowable range.)
- Allow sufficient space for maintenance and inspection.
- Select a valve material that is compatible with the media. For chemical resistance information, refer to “CHEMICAL RESISTANCE ON ASAHI AV VALVE”. (Some chemicals may damage incompatible valve materials.)
- Keep the valve out of direct sunlight, water and dust. Use cover to shield the valve. (The valve will not operate properly.)
- Perform periodic maintenance. (Leakage may develop due to temperature changes or periods of prolonged storage, rest, or operation.)
- Use an external screw type (Rising Stem) for fluids containing slurry or crystal-like substance. (Using an internal screw type (Non-Rising Stem) may disable opening and closing.)
- When the GATE VALVE is laid underground or it exposes with concrete (Fig. 1). Bury the GATE VALVE after putting the hand wheel into the state of shut (close) position.



(3) General instructions for transportation, unpacking and storage



Warning

- When suspending and supporting a valve, take care and do not stand under a suspended valve.

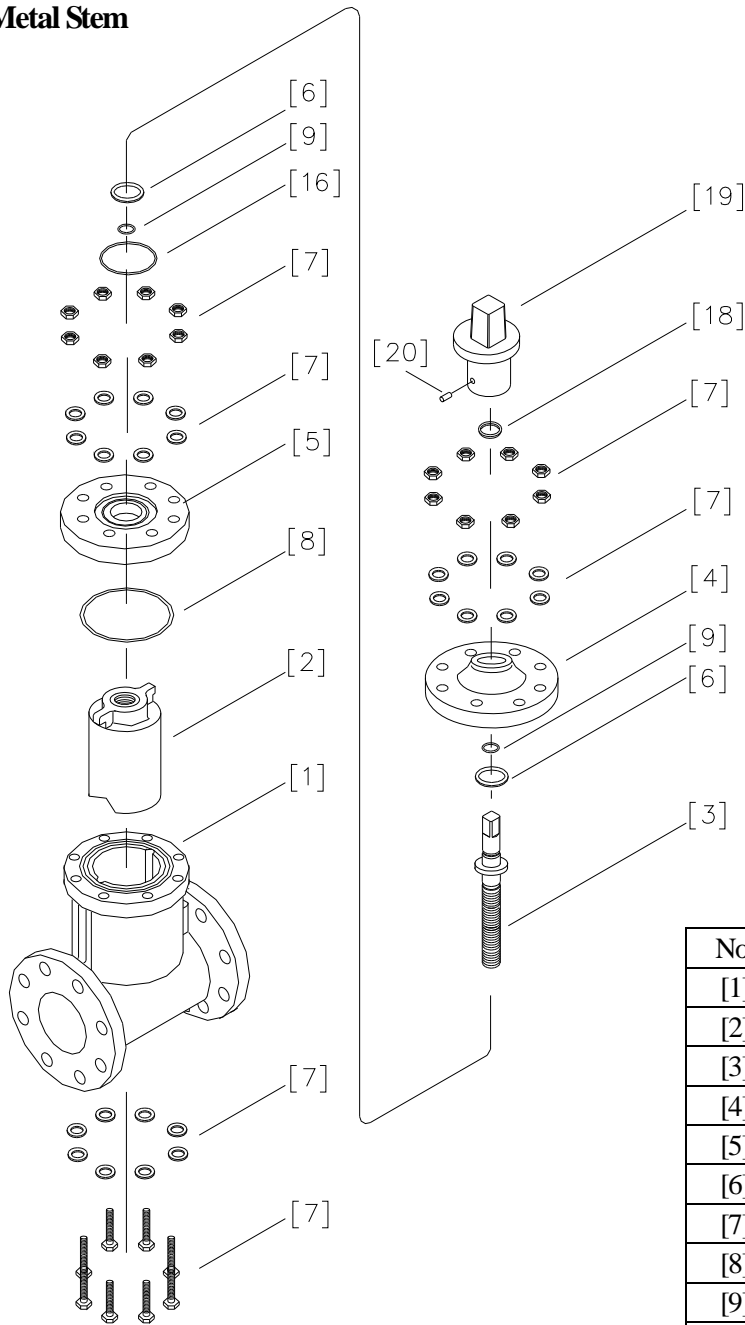


Caution

- This valve is not designed to handle impacts of any kind. Avoid throwing or dropping the valve.
- Avoid scratching the valve with any sharp object.
- Do not over-stack cardboard shipping boxes. Excessively stacked packages may collapse.
- Avoid contact with any coal tar creosote, insecticides, vermicides or paint. (These chemicals may cause damage to the valve.)
- When transporting a valve, do not carry it by the handle.
- Store products in their corrugated cardboard boxes. Avoid exposing products to direct sunlight, and store them indoors (at room temperature). Also avoid storing products in areas with excessive temperatures. (Corrugated cardboard packages become weaker as they become wet with water or other liquid. Take care in storage and handling.)
- After unpacking the products, check that they are defect-free and meet the specifications.

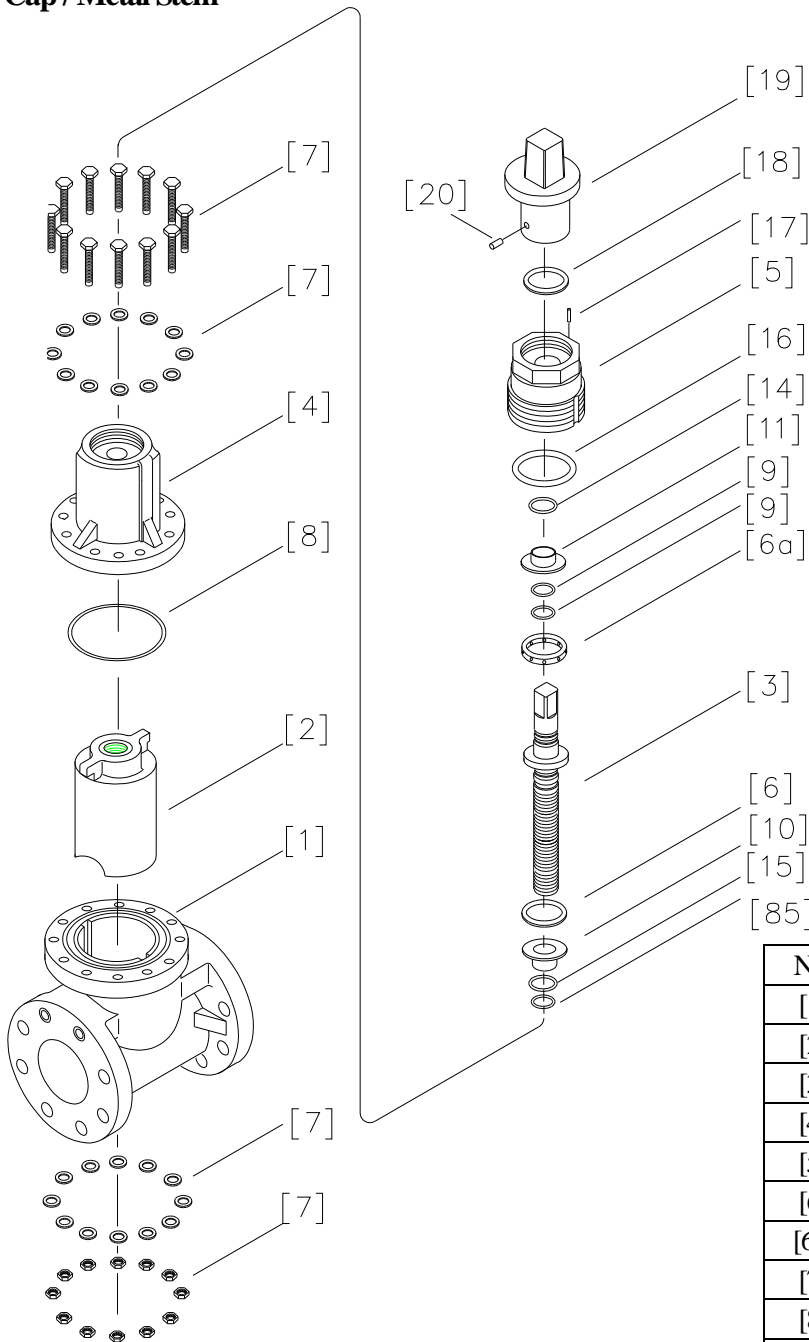
(4) Name of parts

AV Gate Valve Type P
40 (1 1/2") - 150mm (6")
Cap / Metal Stem



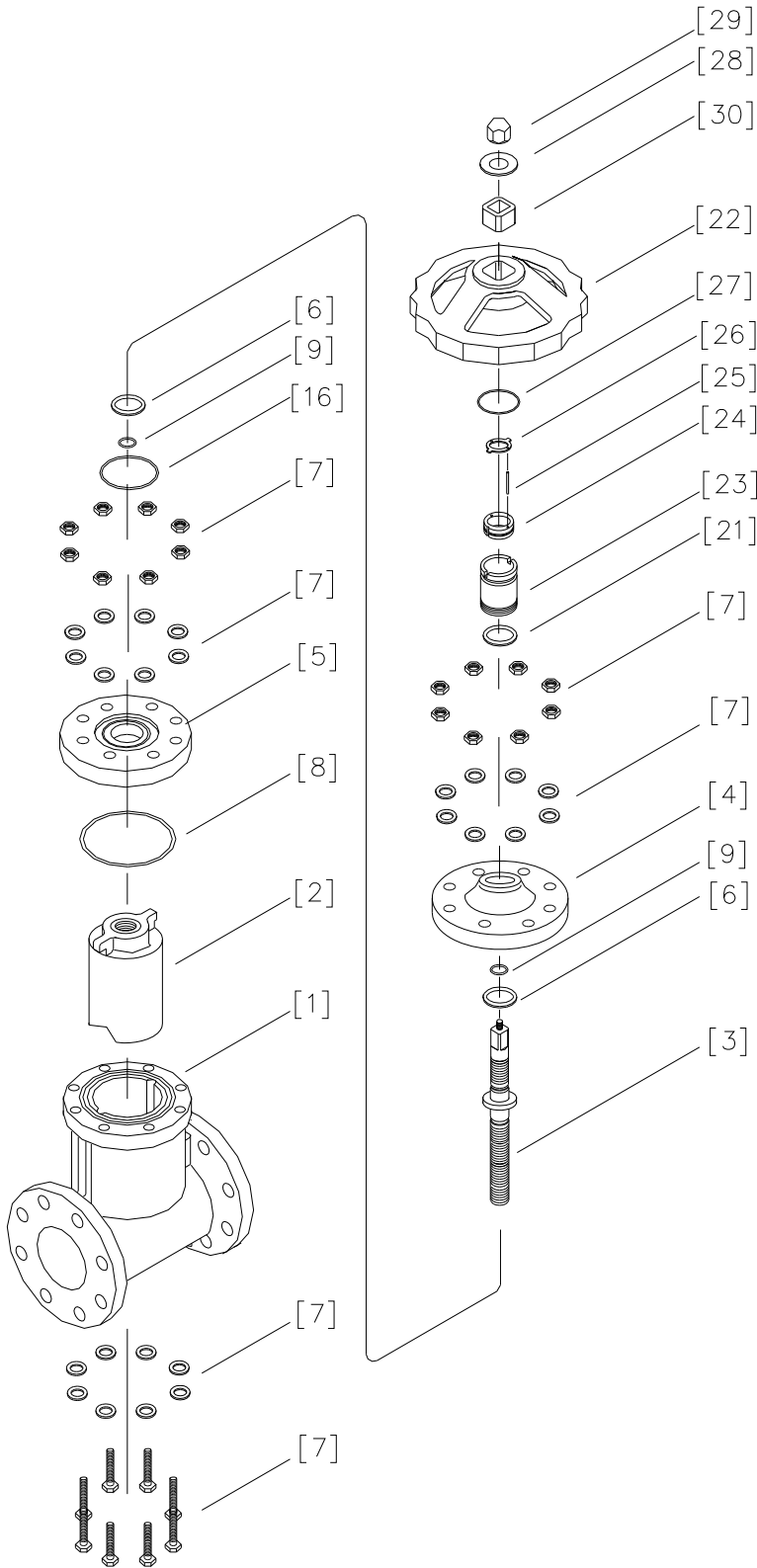
No.	DESCRIPTION
[1]	Body
[2]	Gate
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6]	Thrust ring
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[16]	O-ring (D)
[18]	Dust seal
[19]	Cap (A)
[20]	Set screw (B)

AV Gate Valve Type P
200 (8") - 350mm (14")
Cap / Metal Stem



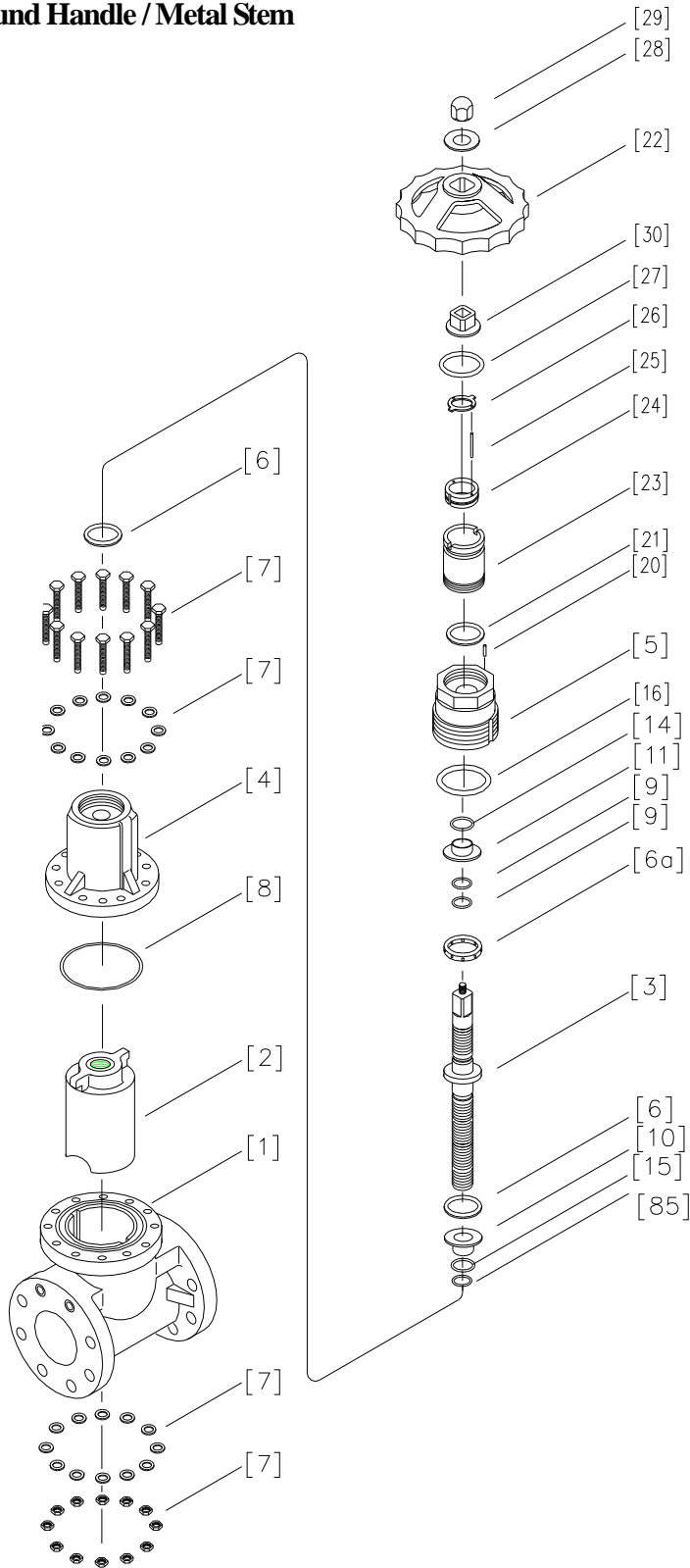
No.	DESCRIPTION
[1]	Body
[2]	Gate
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6]	Thrust ring
[6a]	Thrust bearing
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[10]	Bush (A)
[11]	Bush (B)
[15]	O-ring (F)
[16]	O-ring (D)
[17]	Set screw (A)
[18]	Dust seal
[19]	Cap (A)
[20]	Set screw (B)
[85]	O-ring (M)

AV Gate Valve Type P
40 (1 1/2") - 150mm (6")
Round Handle / Metal Stem



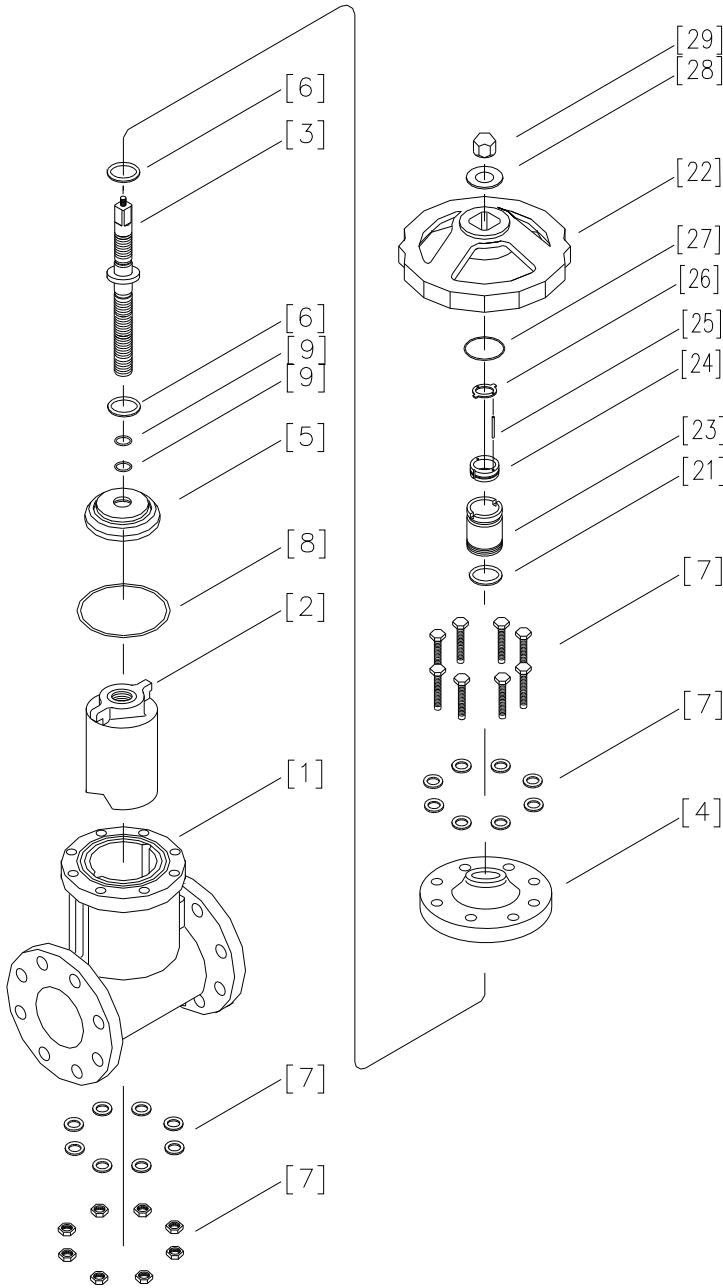
No.	DESCRIPTION
[1]	Body
[2]	Gate
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6]	Thrust ring
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[16]	O-ring (D)
[21]	Packing
[22]	Handle
[23]	Indicating cover
[24]	Indicating ring
[25]	Guide pin
[26]	Guide pin holder
[27]	O-ring (G)
[28]	Washer
[29]	Box nut
[30]	Handle bush

AV Gate Valve Type P
200 (8") - 350mm (14")
Round Handle / Metal Stem



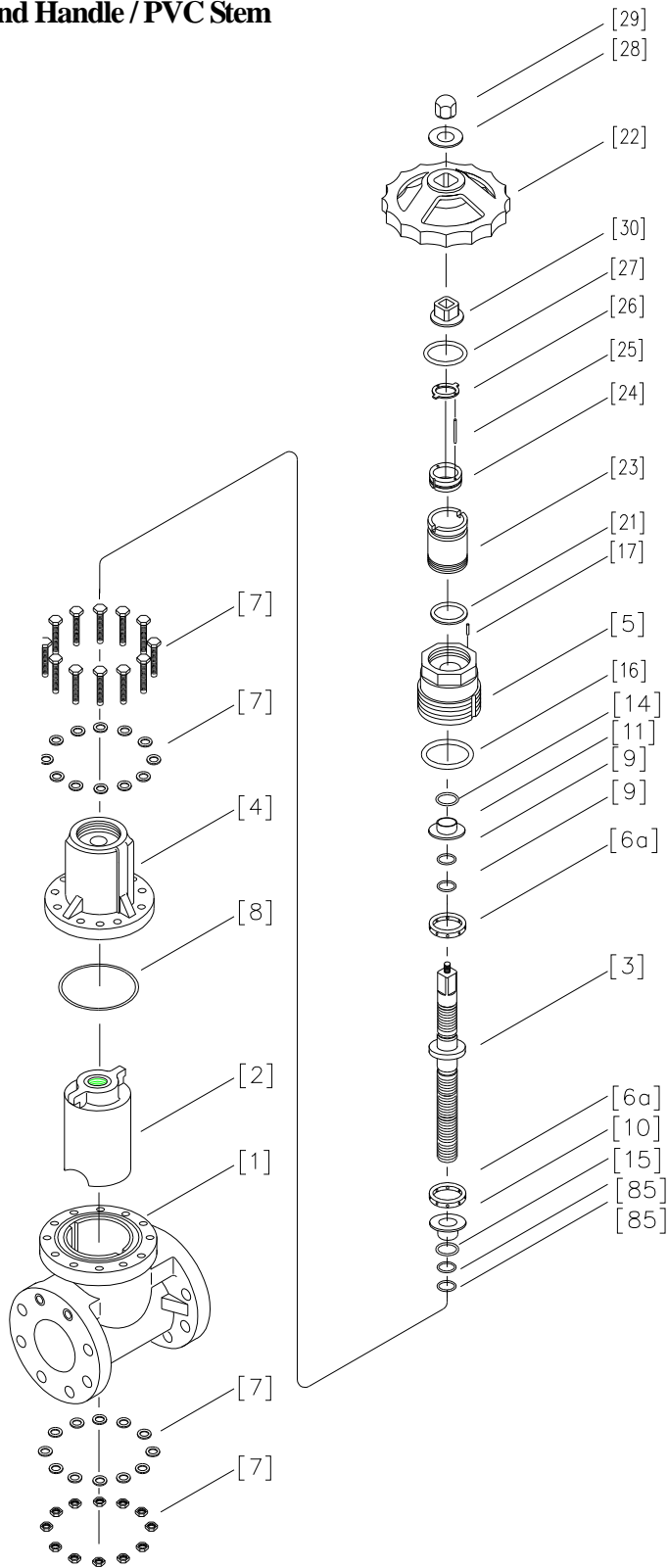
No.	DESCRIPTION
[1]	Body
[2]	Gate
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6]	Thrust ring
[6a]	Thrust bearing
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[10]	Bush (A)
[11]	Bush (B)
[14]	O-ring (E)
[15]	O-ring (F)
[16]	O-ring (D)
[20]	Set screw (A)
[21]	Packing
[22]	Handle
[23]	Indicating cover
[24]	Indicating ring
[25]	Guide pin
[26]	Guide pin holder
[27]	O-ring (G)
[28]	Washer
[29]	Box nut
[30]	Handle bush
[85]	O-ring (M)

AV Gate Valve Type P
40 (1 1/2") - 150mm (6")
Round Handle / PVC Stem



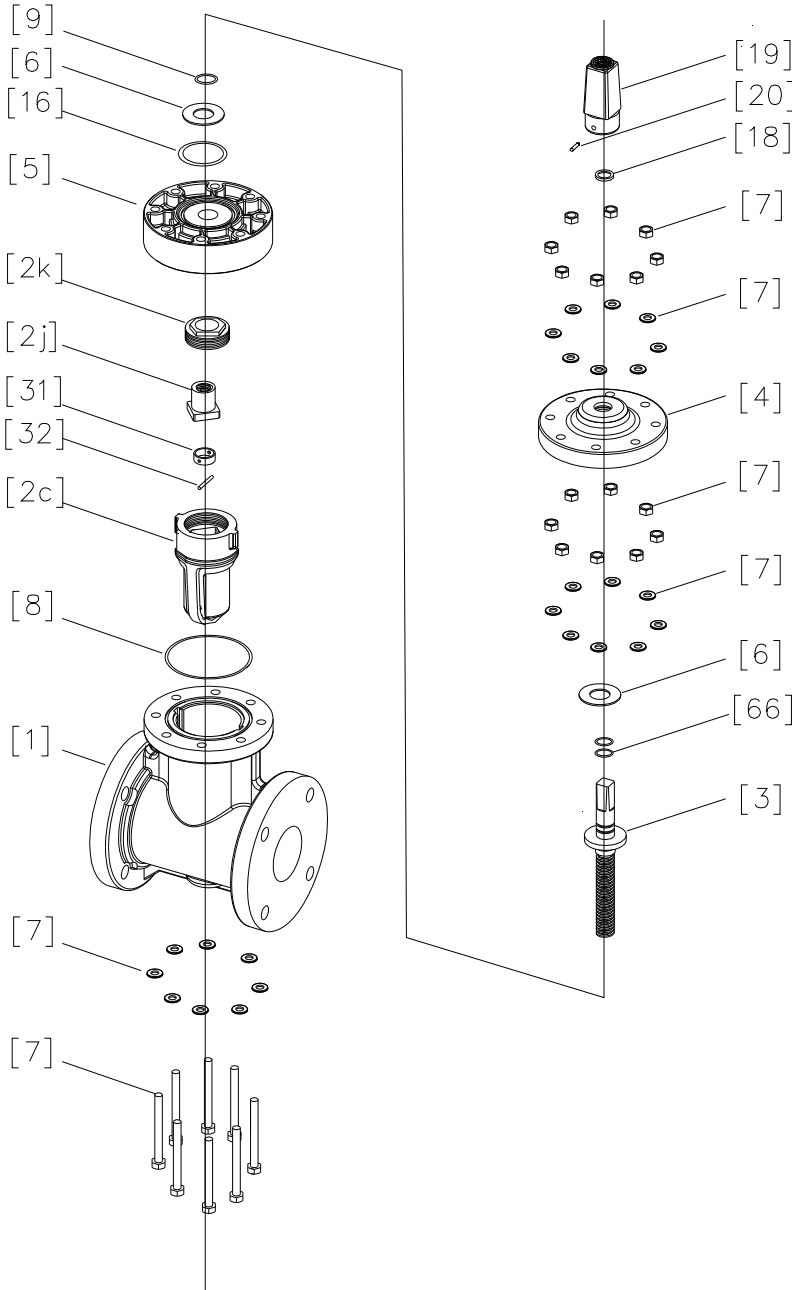
No.	DESCRIPTION
[1]	Body
[2]	Gate
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6]	Thrust ring
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[21]	Packing
[22]	Handle
[23]	Indicating cover
[24]	Indicating ring
[25]	Guide pin
[26]	Guide pin holder
[27]	O-ring (G)
[28]	Washer
[29]	Box nut

AV Gate Valve Type P
200 (8") - 350mm (14")
Round Handle / PVC Stem



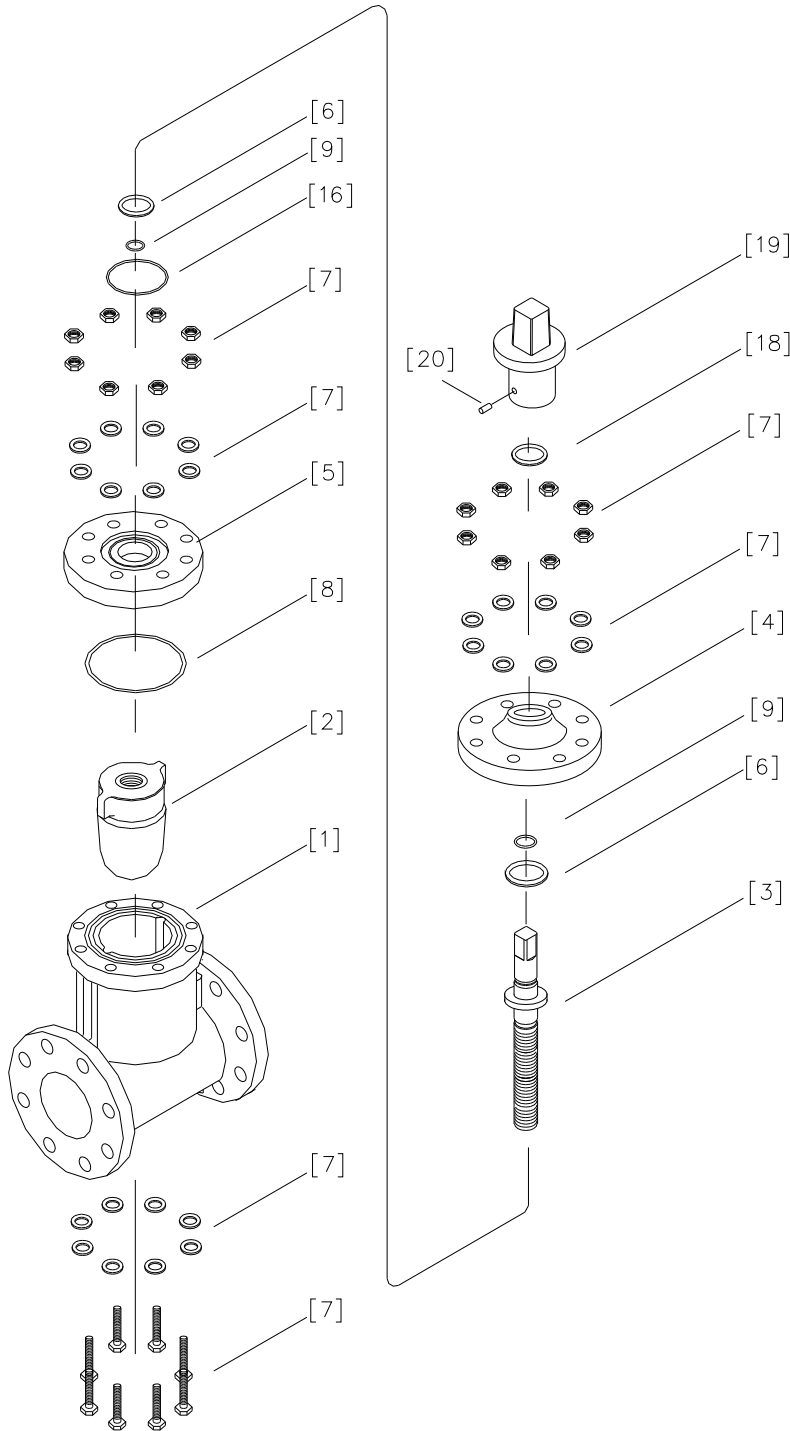
No.	DESCRIPTION
[1]	Body
[2]	Gate
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6]	Thrust ring
[6a]	Thrust bearing
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[10]	Bush (A)
[11]	Bush (B)
[14]	O-ring (E)
[15]	O-ring (F)
[16]	O-ring (D)
[17]	Set screw (A)
[21]	Packing
[22]	Handle
[23]	Indicating cover
[24]	Indicating ring
[25]	Guide pin
[26]	Guide pin holder
[27]	O-ring (G)
[28]	Washer
[29]	Box nut
[85]	O-ring (M)

AV Gate Valve Type S (Type 66)
40 (1 1/2") - 150mm (6")
Cap / Metal Stem



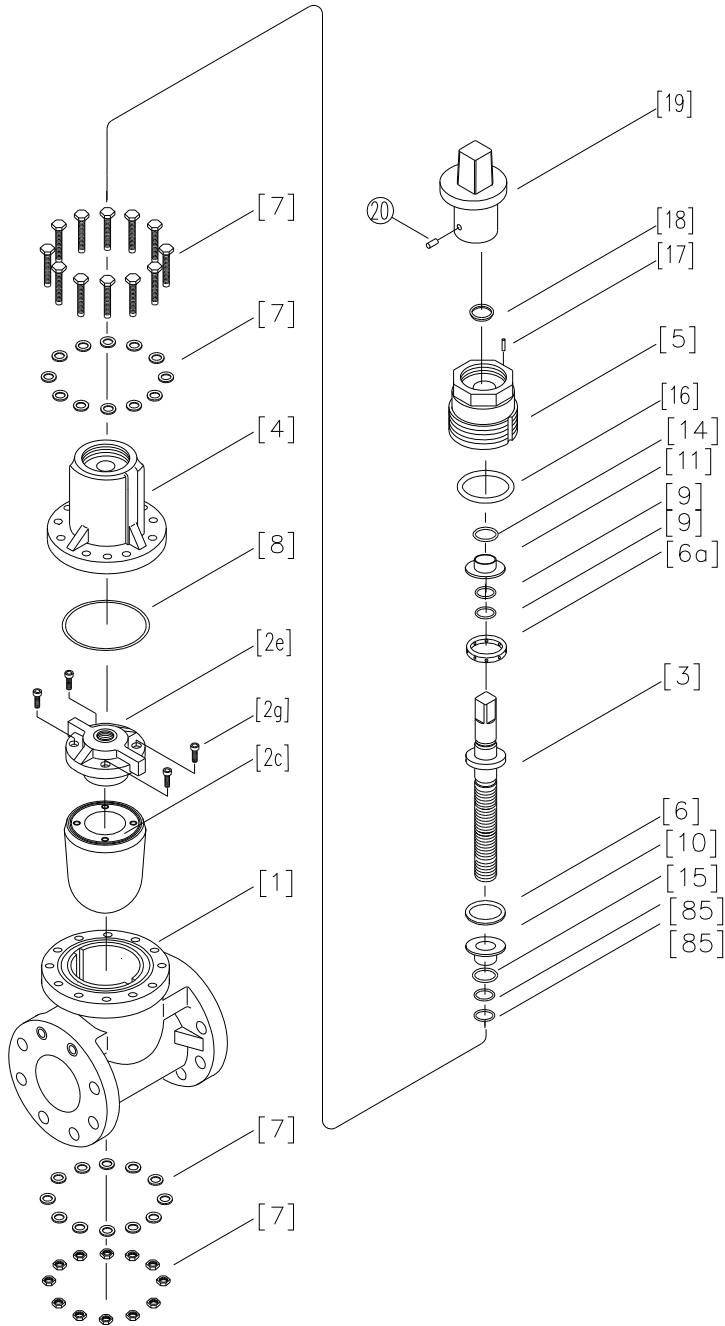
No.	DISCRIPTION
[1]	Body
[2c]	Gate (A)
[2j]	Female screw metal
[2k]	Female screw holder
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6]	Thrust ring
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[16]	O-ring (D)
[18]	Dust screw
[19]	Cap
[20]	Set screw (B)
[31]	Stopper (A)
[32]	Pin (A)
[66]	O-ring (H)

AV Gate Valve Type S
65mm (2 1/2"), 125mm (5")
Cap / Metal Stem



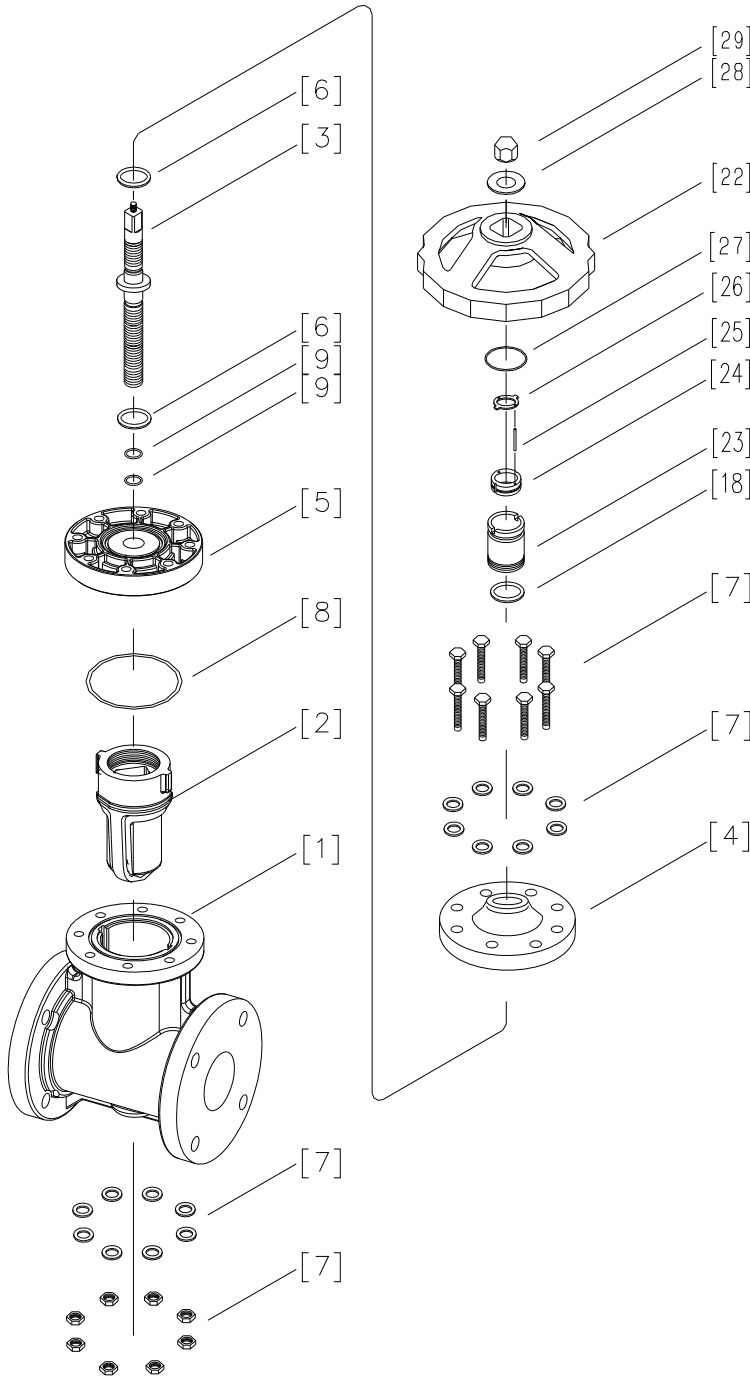
No.	DESCRIPTION
[1]	Body
[2]	Gate
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6]	Thrust ring
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[16]	O-ring (D)
[18]	Dust seal
[19]	Cap
[20]	Set screw (B)

AV Gate Valve Type S
200mm (8")
Cap / Metal Stem



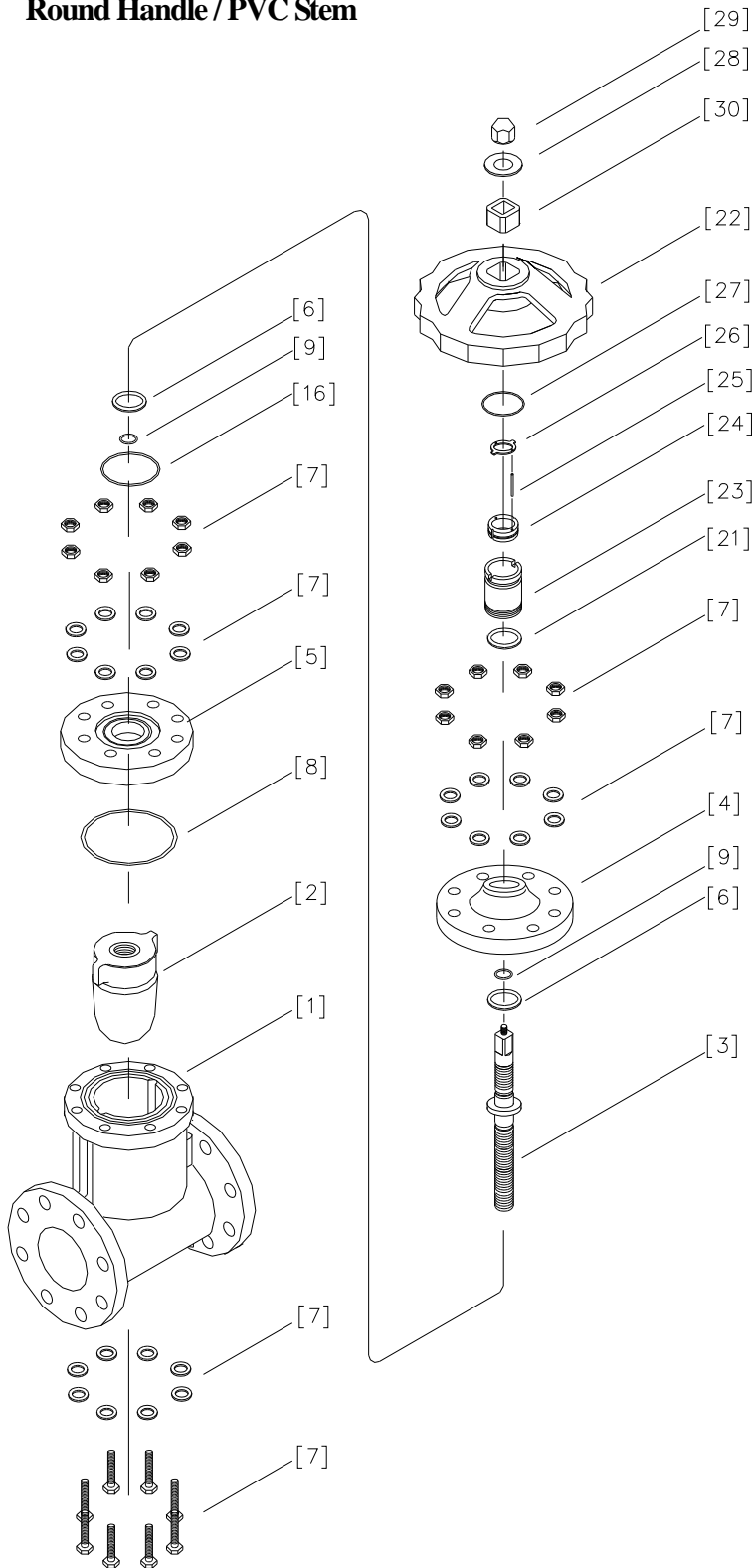
No.	DESCRIPTION
[1]	Body
[2c]	Gate (A)
[2e]	Gate (B)
[2g]	Bolt (A)
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6]	Thrust ring
[6a]	Thrust bearing
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[10]	Bush (A)
[11]	Bush (B)
[14]	O-ring (E)
[15]	O-ring (F)
[16]	O-ring (D)
[17]	Set screw (A)
[18]	Dust screw
[19]	Cap
[20]	Set screw (B)
[85]	O-ring (M)

AV Gate Valve Type S
40 (1 1/2") - 150mm (6")
Round Handle / PVC Stem



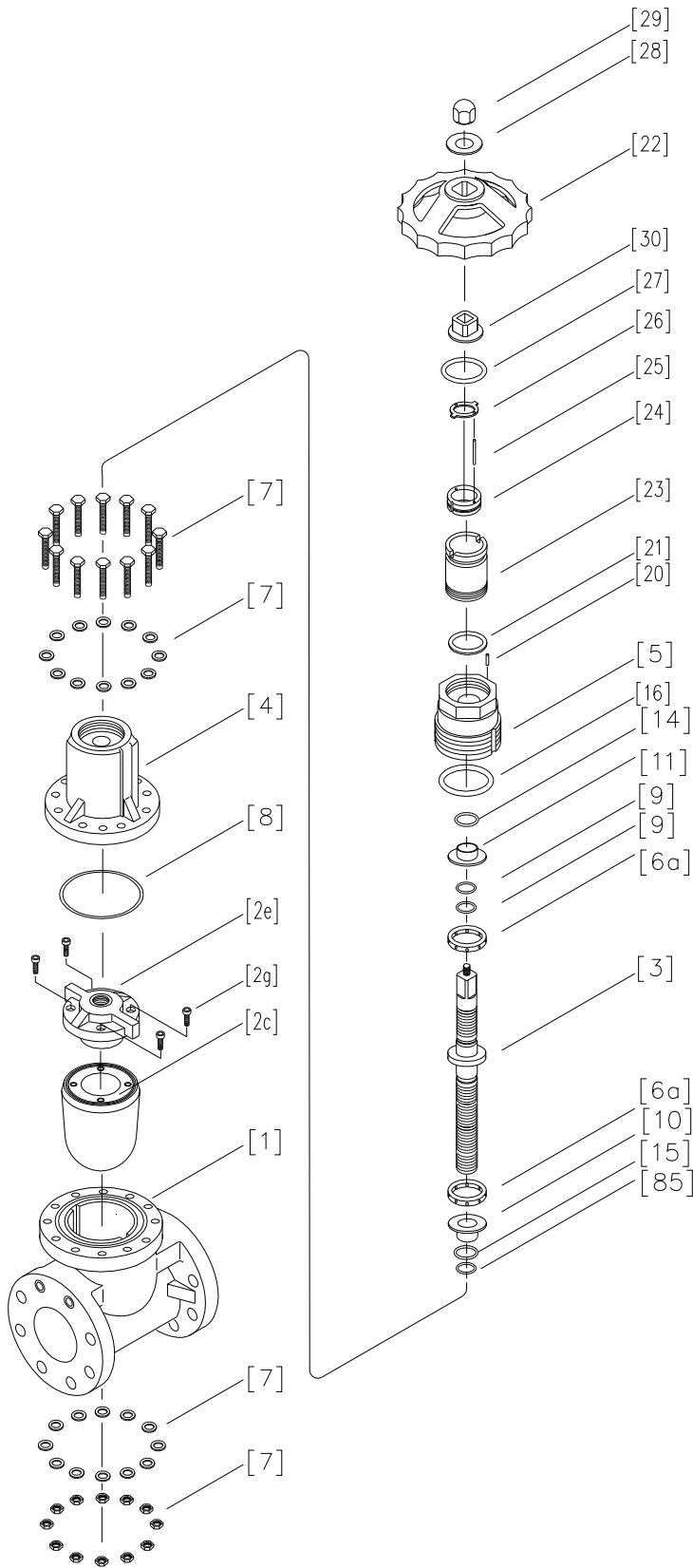
No.	DESCRIPTION
[1]	Body
[2c]	Gate (A)
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6]	Thrust ring
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[21]	Packing
[22]	Handle
[23]	Indicating cover
[24]	Indicating ring
[25]	Guide pin
[26]	Guide pin holder
[27]	O-ring (G)
[28]	Washer
[29]	Box nut

AV Gate Valve Type S
65mm (2 1/2"), 125mm (5")
Round Handle / PVC Stem



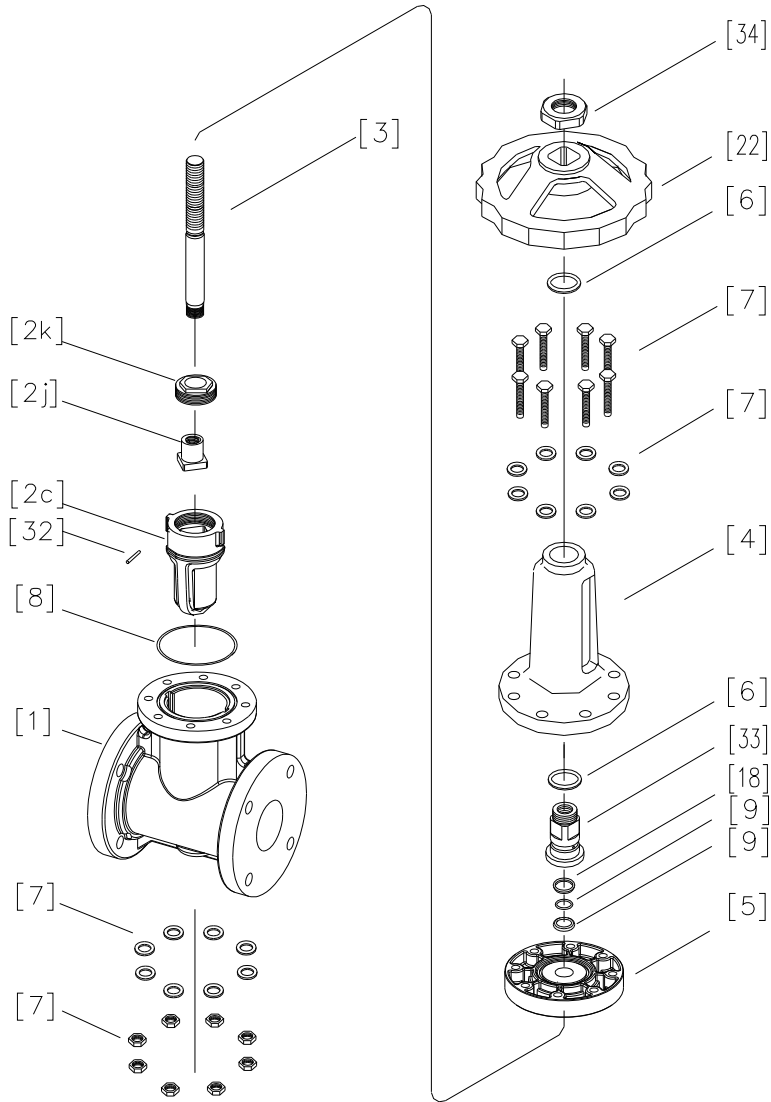
No.	DESCRIPTION
[1]	Body
[2]	Gate
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6]	Thrust ring
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[16]	O-ring (D)
[21]	Packing
[22]	Handle
[23]	Indicating cover
[24]	Indicating ring
[25]	Guide pin
[26]	Guide pin holder
[27]	O-ring (G)
[28]	Washer
[29]	Box nut
[30]	Handle bush

AV Gate Valve Type S
200mm (8")
Round Handle / PVC Stem



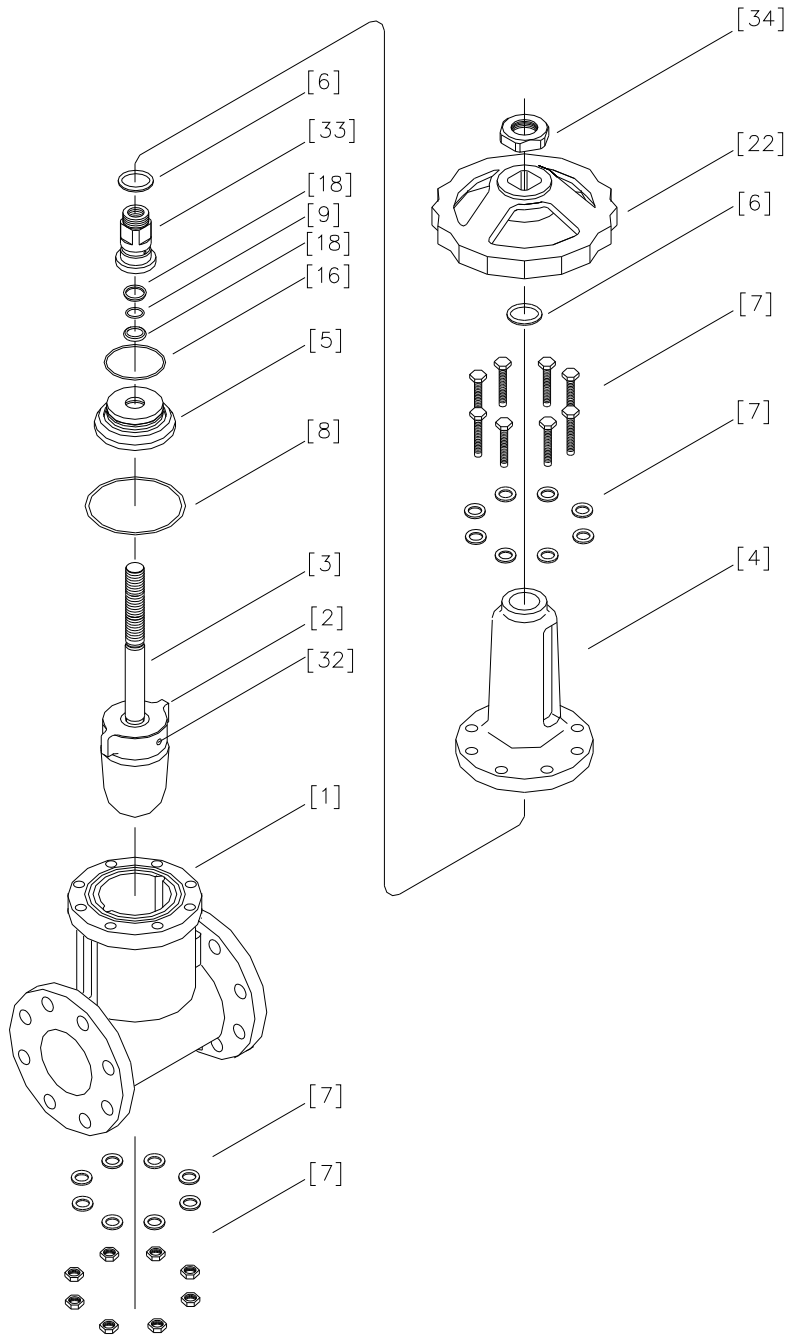
No.	DESCRIPTION
[1]	Body
[2c]	Gate (A)
[2e]	Gate (B)
[2g]	Bolt (A)
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6a]	Thrust bearing
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[10]	Bush (A)
[11]	Bush (B)
[14]	O-ring (E)
[15]	O-ring (F)
[16]	O-ring (D)
[17]	Set screw (A)
[18]	Dust seal
[21]	Packing
[22]	Handle
[23]	Indicating cover
[24]	Indicating ring
[24]	Guide pin
[26]	Guide pin holder
[27]	O-ring (G)
[28]	Washer
[29]	Box nut
[30]	Handle bush
[85]	O-ring (W)

AV Gate Valve Type S
40 (1 1/2") - 150mm (6")
External Threaded Type
Round Handle / Metal Stem



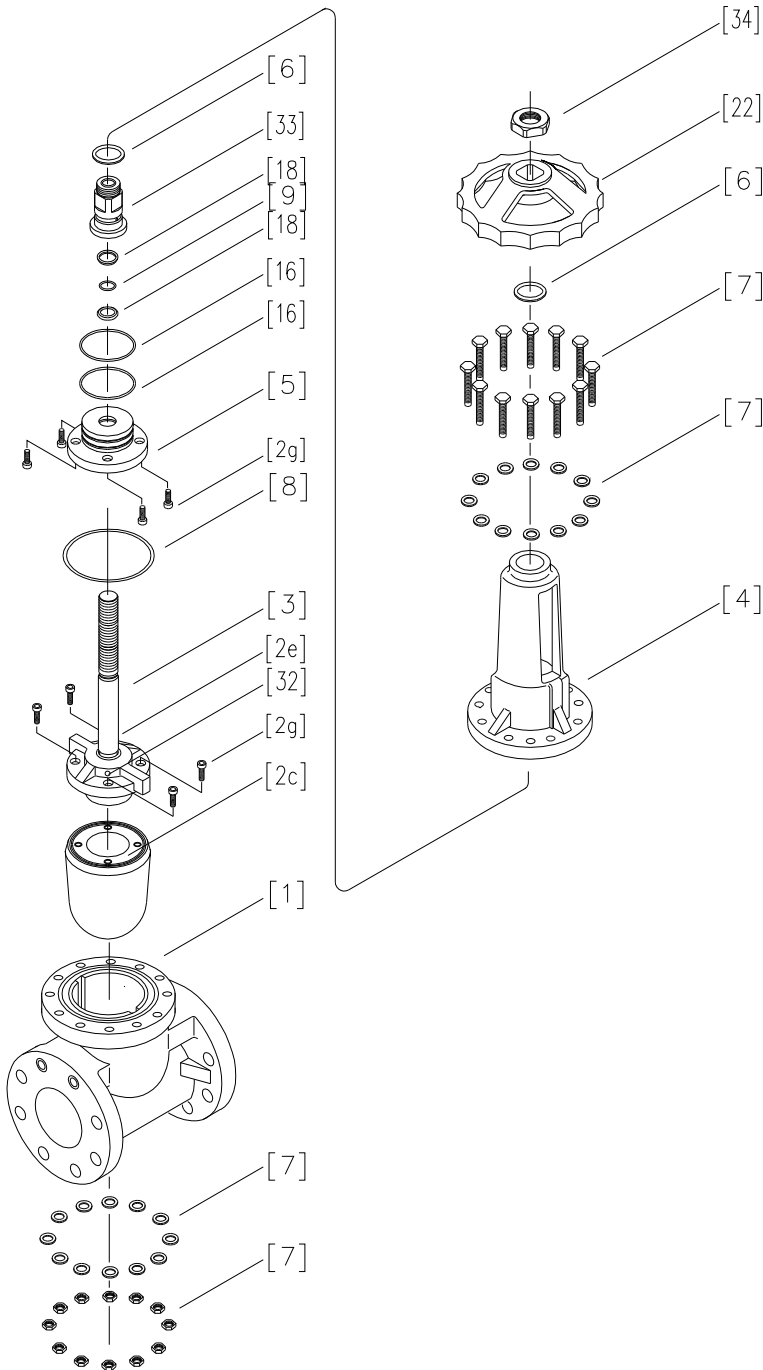
No.	DESCRIPTION
[1]	Body
[2c]	Gate (A)
[2j]	Female screw metal
[2k]	Female screw holder
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6]	Thrust ring
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[18a]	Dust seal (A)
[22]	Handle
[32]	Pin (A)
[33]	Sleeve
[34]	Nut

AV Gate Valve Type S
65mm (2 1/2"), 125mm (5")
External Threaded Type
Round Handle / Metal Stem



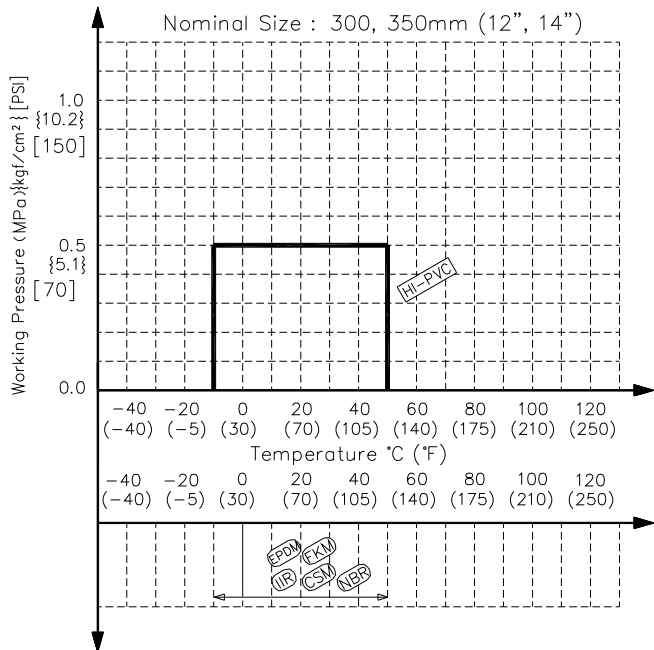
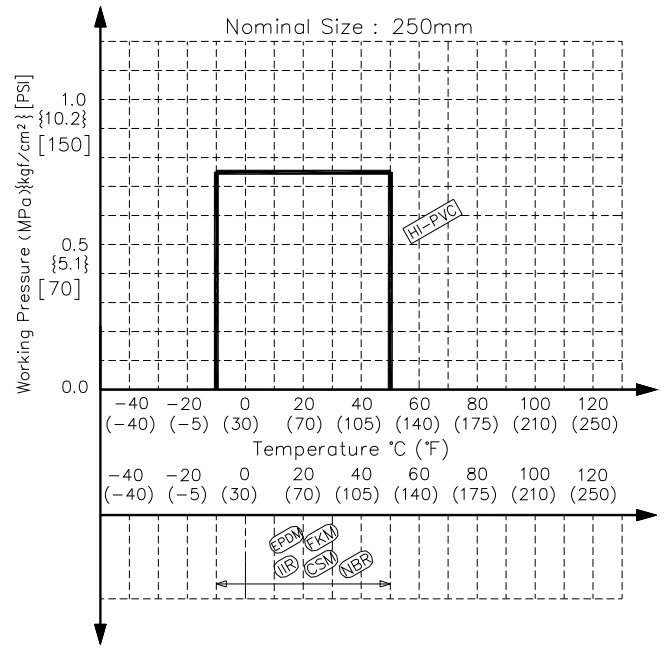
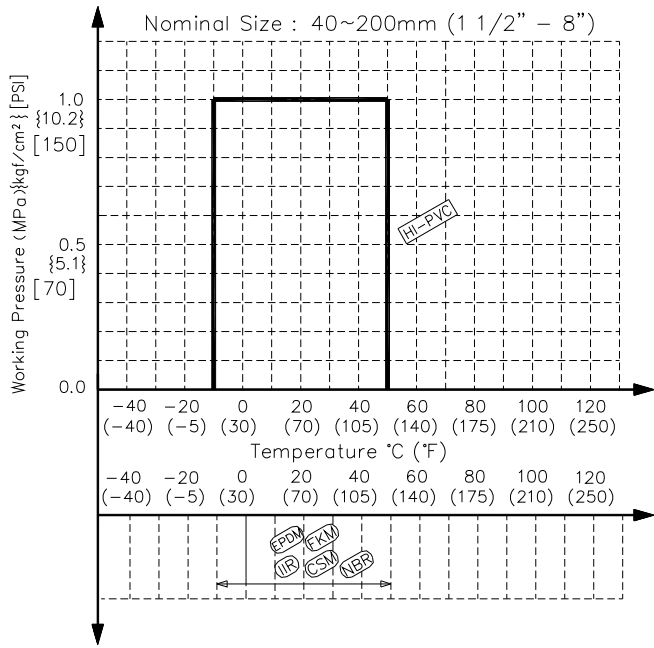
No.	DESCRIPTION
[1]	Body
[2]	Gate
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6]	Thrust ring
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[16]	O-ring (D)
[18]	Dust seal
[22]	Handle
[32]	Pin (A)
[33]	Sleeve
[34]	Nut

AV Gate Valve Type S
200mm (8"), 250mm (10")
External Threaded Type
Round Handle / Metal Stem




No.	DESCRIPTION
[1]	Body
[2c]	Gate (A)
[2e]	Gate (B)
[2g]	Bolt (A)
[3]	Stem
[4]	Bonnet (A)
[5]	Bonnet (B)
[6]	Thrust ring
[7]	Bolt-nut (A)
[8]	O-ring (B)
[9]	O-ring (C)
[16]	O-ring (D)
[18]	Dust seal
[22]	Handle
[32]	Pin (A)
[33]	Sleeve
[34]	Nut


(5) Working pressure vs. temperature




(6) Installation procedure


Flanged type


 - When suspending and supporting a valve, take care and do not stand under a suspended valve.

Warning  - Be sure to conduct a safety check on all hand and power tools to be used before beginning work.

- Wear protective gloves and safety goggles as fluid remain in the valve even if the pipeline is empty.
(You may be injured.)

 - When installing a pipe support by means of a U-band or something similar, take care not to over-tighten.
(Excessive force may damage the pipe.)

Caution  - When installing pipes and valves, ensure that they are not subjected to tension, compression, bending, impact, or other excessive stress.

 - Use flat faced flanges for connection to AV Valves.


- Ensure that the mating flanges are of the same standards.

- Be sure to use sealing gaskets (AV Gasket), bolts, nuts, and washers and tighten them to specified torques.
(When a non-AV gasket is used, a different tightening torque specification should be followed.)

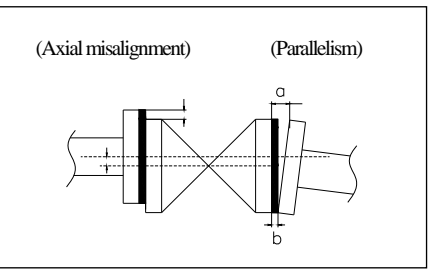
- Necessary items
- Torque wrench
 - Spanner wrench
 - Bolt-nut-washer (For many flanges specification)
 - AV gasket

Procedure

- 1.1) Set the AV gasket between the flanges.
- 1.2) Insert washers and bolts from the pipe side, insert washers and nuts from the valve side, then temporarily tighten them by hand.



 - The parallelism and axial misalignment of the flange surface should be under the values shown in the following table to prevent damage the valve.
(A failure to observe them can cause destruction due to stress application to the pipe)

Unit: mm (inch)		
Nom. Size	Axial Misalignment	Parallelism (a-b)
40-150mm (1 1/2"-6")	1.5 (0.06)	1.5 (0.06)
200-350mm (8"-14")	2.0 (0.08)	2.0mm (0.08)



1.3) Tighten the bolts and nuts gradually with a torque wrench to the specified torque level in a diagonal manner.

(Refer to Fig.1.)



 - Tighten the bolts and nuts gradually with a torque wrench to the specified torque level in a diagonal manner.

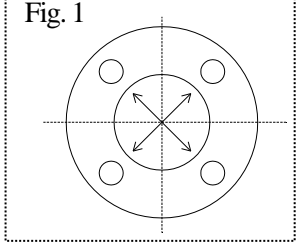


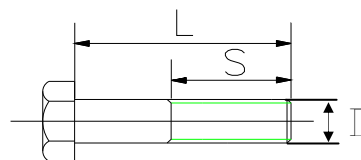
Fig. 1

Recommended torque value Unit: N·m [kgf·cm] [lb·inch]

Nom. Size	Torque value	Nom. Size	Torque value
40 (1½")	20.0{204}[177]	150 (6")	40.0{408}[355]
50 (2")	22.5{230}[200]	200 (8")	55.0{561}[488]
65 (2½")	22.5{230}[200]	250 (10")	55.0{561}[488]
80 (3")	30.0{306}[266]	300 (12")	60.0{612}[532]
100 (4")	30.0{306}[266]	350 (14")	60.0{612}[532]
125 (5")	40.0{408}[355]	-	-

2.1) Bolt Length (Flanges: AV TS Flange)

n: Number of Bolt, d: Nominal Size, L: Length, S: Length of Threaded



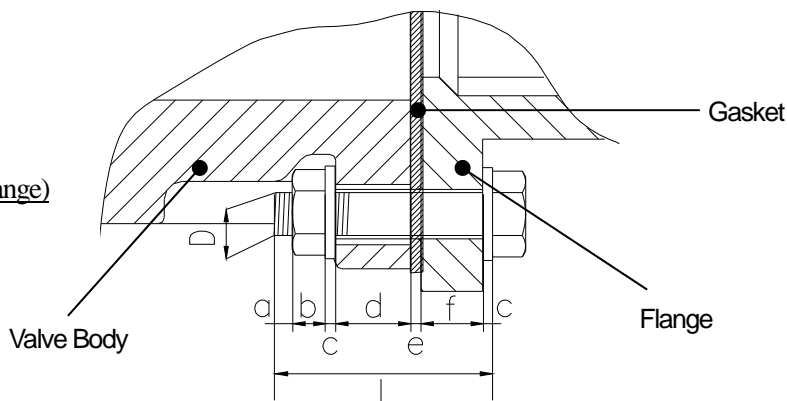
Dimension of Bolt (Minimum)

Nom. Size mm (inch)	JIS 10K (unit: mm)				ANSI Class150 (unit: inch)				DIN PN10 (unit: mm)			
	n	D	L	S	n	D	L	S	n	D	L	S
40mm (1½")	4	M16	65mm	38mm	4	W5/8"-11	2.56"	1.50"	4	M16	65mm	38mm
50mm (2")	4	M16	70mm	38mm	4	W5/8"-11	2.76"	1.50"	4	M16	70mm	38mm
65mm (2½")	4	M16	75mm	38mm	4	W5/8"-11	2.95"	1.50"	4	M16	75mm	38mm
80mm (3")	8	M16	75mm	38mm	4	W5/8"-11	2.95"	1.50"	8	M16	75mm	38mm
100mm (4")	8	M16	80mm	38mm	8	W5/8"-11	3.15"	1.50"	8	M16	80mm	38mm
125mm (5")	8	M20	85mm	46mm	8	W3/4"-10	3.35"	1.81"	8	M16	85mm	46mm
150mm (6")	8	M20	80mm	46mm	8	W3/4"-10	3.15"	1.81"	8	M20	80mm	46mm
200mm (8")	10	M20	85mm	46mm	6	W3/4"-10	3.35"	1.81"	6	M20	85mm	46mm
250mm (10")	12	M22	95mm	50mm	12	W7/8"-9	3.74"	1.97"	12	M20	95mm	50mm
300mm (12")	14	M22	95mm	50mm	10	W7/8"-9	3.74"	1.97"	10	M20	95mm	50mm
350mm (14")	12	M22	100mm	50mm	8	W1"-8	3.94"	1.97"	12	M20	100mm	50mm

<Inserted metal of Body> Dimension of Bolt (Minimum)

Nom. Size mm (inch)	JIS 10K (unit: mm)				ANSI Class150 (unit: inch)				DIN PN10 (unit: mm)			
	n	D	L	S	n	D	L	S	n	D	L	S
200mm (8")	2	M20	55mm	46mm	2	W3/4"-10	2.17"	1.81"	2	M20	55mm	46mm
300mm (12")	2	M22	60mm	50mm	2	W7/8"-9	2.36"	1.97"	2	M20	60mm	50mm
350mm (14")	4	M22	60mm	50mm	4	W1"-8	2.36"	1.97"	4	M20	60mm	50mm

2.2) Bolt Length (Flanges: Except for AV TS Flange)



$$\text{Bolt Length [L]} = \text{Three threads beyond Nut of Bolt [a]} + \text{Thickness of Nut [b]} + \text{Thickness of Washer} \times 2 [\text{c}] + \text{Body [d]} + \text{Thickness of Gasket [e]} + \text{Thickness of Flange [f]}$$

Nom. Size mm (inch)	a	b	c	d	e	f
40mm (1½")	Three threads beyond Nut	Thickness of Nut	Thickness of Washer × 2	22mm (0.87")	Thickness of Gasket	Thickness of Flange
50mm (2")				23mm (0.91")		
65mm (2½")				24mm (0.94")		
80mm (3")				25mm (0.98")		
100mm (4")				27mm (1.06")		
125mm (5")				27mm (1.06")		
150mm (6")				27mm (1.06")		
200mm (8")				28mm (1.10")		
250mm (10")				30mm (1.18")		
300mm (12")				31mm (1.22")		
350mm (14")	32mm (1.26")					

Threaded type

Caution



- Avoid excessive tightening. (The valve can be damaged.)

- Do not use the pipe wrench. (The valve can be damaged.)

- Make sure that the threaded connections are plastic x plastic. (Metallic thread can cause damage.)



- Wrap the threaded joints on our plastic piping with sealing tape. Using a liquid sealing agent or liquid gasket may cause stress cracks (Environmental Stress Cracking). Our product warranty shall not apply in case of said use, even when said use is unavoidable.

Necessary items

- Sealing tape
- Strap wrench

Procedure

- 1) Wind a sealing tape around the external thread of joint, leaving the end (about 3mm) free.
- 2) Tighten the external thread of joint and the body lightly by hand.
- 3) Using a spanner wrench, screw them in by turning 90-180 degrees carefully without damaging them.

(7) Operating procedure

Caution



- Do not exert excessive force in closing the valve.



- Do not use the valve to fluid containing slurry. (The valve will not operate properly.)



- When operating the handle, be sure to do so with your hand. (Using a tool may damage the handle.)



- Turn the handle gently to open or close.
(For the left open valve, turn the handle clockwise to close and counter clockwise to open.
For the right open valve, turn the handle to the reverse side of left open valve.)
- The cap type should not be forced to operate as it dose not have any travel indicators.

(8) Disassembling method for replacing parts

  - Be sure to conduct a safety check on all hand and power tools to be used before beginning work.

Warning - Wear protective gloves and safety goggles as fluid remain in the valve even if the pipeline is empty.
(You may be injured.)

- Do not change or replace valve parts under line pressure.

  - When connecting a ASAHl AV Valve to metal piping, take care not to let the pipe stress on the ASAHl AV Valve.

Caution

- Necessary items
- Allen wrench
 - Spanner wrench

<Disassembly>

Procedure



- 1) Remove the cap with a hexagon wrench.
(Ask the nearest branch about the round handle type. Other types, except from the round handle and any parts related to the valve travel indicate, are the same procedure as the cap type.)
- 2) Bonnet (A) and bonnet (B) can be removed with the stem by loosening the bolt nut.

<Assembly>

Procedure

Carry out the assembly work in the reverse procedure of its disassembly.

(9) Inspection items

  - Perform periodic maintenance. (Leakage may develop due to temperature changes or over periods of prolonged storage, rest or operation.)

Caution



○Inspect the follow items;

(1)	Check for flaws, cracks, or deformation on the valve.
(2)	Check for leaks to the outside.
(3)	Check for the deformation of seat or disc due to improper installation of valve.
(4)	Check for the smoothness of handle operation.

(10) Troubleshooting

Problem	Cause	Treatment
Fluid leaks from by in the full closed position.	The seat is scratched or worn.	Replace the body or the gate.
	Foreign matter is in the valve.	Clean the valve.
	The gate is scratched or worn.	Replace the body or the gate.
Fluid leaks to the valve.	The O-ring is scratched or worn.	Replace the o-ring.
	The bolt-nut is loose.	Retighten the bolt-nut.
The handle does not operate smoothly.	Foreign materials have adhered.	Clean the valve.
	Deformation. (Due to heat etc.)	Replace parts.
The valve does not operate.	The stem is broken.	Replace the stem.
	The engagement between the stem and the gate is broken.	Replace the stem and the gate.

(11) Handling of residual and waste materials

  - Make sure to consult a waste treatment dealer for recommendations on the proper disposal of plastic valves. (Poisonous gas is generated when the valve is burned improperly.)

Gate Valves
Type P (Standard: Plug)
Type S (Soft Seal)



ASAHI AV VALVES

Distributor

Asahi Organic Chemicals Industry's homepage

<http://www.asahi-yukizai.co.jp/en/>