

**DSGE**

**DS GLOBAL ENGINEERING**

**BUTTERFLY VALVES**

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## ABOUT DSGE

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### GREETINGS

DSGE started its valve business based on valve innovation technology from its parent company, DS Group, which produces bearings and forgings for vehicles and plant construction.

We, DSGE, produce valves suitable for domestic and overseas plant industries such as desalination, power generation, water treatment, and oil & gas. We provide globally competitive valves that can meet customer requirements and international standards in line with the changing plant industry. As a specialized manufacturer of high-performance valve. we are expanding our business not only domestically but also to Asia, the Middle East, Europe, and Americas, including the United States. We are growing into a comprehensive solution company that provides differentiated services based on accumulated technology and excellent human resources.

We will continue to achieve technological innovation through continuous research with the best engineers with abundant experience, and we will strive to increase the future value of our customers and become a sustainable partner.

We, DSGE is committed to providing the highest quality and best service to our valuable customers.

DS Global Engineering

# ABOUT DSGE

## COMPANY HISTORY

2024

- 04 Establishment of DS Global Engineering Co., Ltd. (DSGE)
- 05 DS Global Engineering begins valve business
- 07 DS Global Engineering Acquired ISO9001, ISO14001, ISO45001

2022

- 01 DAESEUNG Co., Ltd. R&D Center established
- 10 DAESEUNG, DS Global, and DS Korea Co., Ltd. as a specialized company for materials, parts, and equipment
- 12 Establishment of DS Global Co., Ltd. Innovation Factory

2020

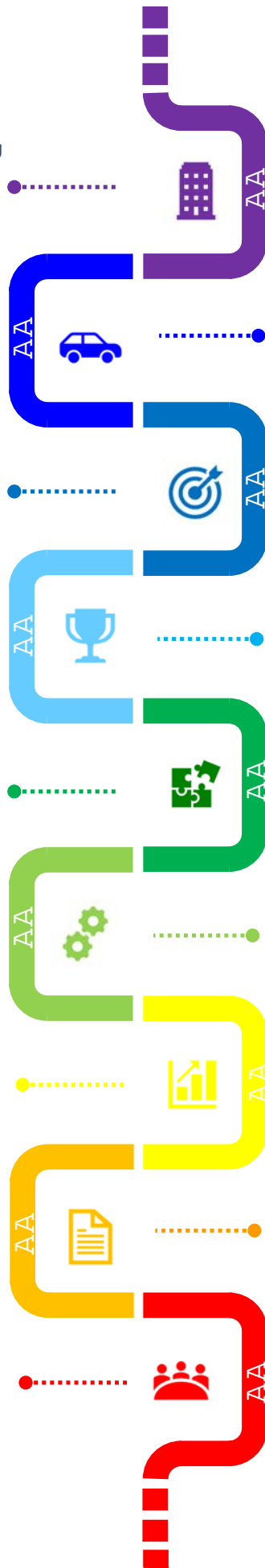
- 03 Establishment of DS Korea Co., Ltd. Ocheon Factory
- 07 Acquired venture business confirmation from DS Korea Co., Ltd.
- 12 Establishment of DS Korea Co., Ltd. Cheonbuk factory

2018

- 05 DAESEUNG Co., Ltd. acquired IATF 16949 quality certification
- 12 DAESEUNG Co., Ltd. Achieved KRW 22.5 billion in sales per year

2016

- 05 KPF Co., Ltd. Registered as a partner and started supplying



2023

- 06 DAESEUNG Co., Ltd. Gangdong Factory acquires SQ Certification for Hyundai/Kia Motors
- 07 Establishment of DS Global Co., Ltd. Technology Research Center
- 10 Valve manufacturing planning and basic business start

2021

- 06 DAESEUNG Co., Ltd. Technology Research Center established
- 08 DAESEUNG Co., Ltd. acquired certification as a technologically innovative small and medium-sized business (Inno-Biz)
- 11 Establishment of DS Global Co., Ltd.

2019

- 09 DAESEUNG Co., Ltd. certified as a dedicated research & development department
- 09 1st generation bearing new facility line 6 installed

2017

- 01 ILJIN Group partner registration and supply start
- 11 Designated as a military service exception company

# ABOUT DSGE

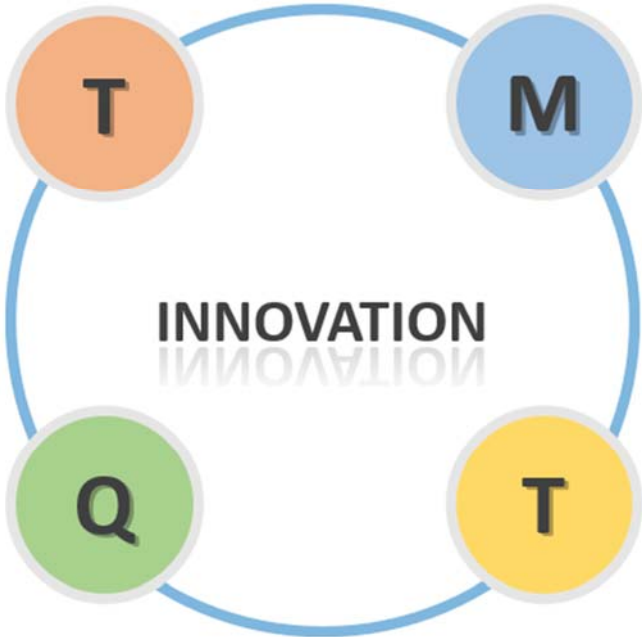
## CORPORATE INNOVATION

### Thinking

For innovation in thinking, DSGE will consistently have creativity and future-oriented thinking.

### Quality

For quality innovation, DSGE will continue to upgrade its products by dataizing all processes.



### Management

For management innovation, DSGE will continue to make changes for goals such as technology, management, and quality.

### Technology

For technological innovation, DSGE will continue to make new attempts.

## CERTIFICATE

**CERTIFICATE OF REGISTRATION  
QUALITY MANAGEMENT SYSTEM**

**DSGE Co. Ltd.**  
30 Chonheuksa-dae-ro 1-gil, Chonheok-eupyeon, Oyeongsu-si, Oyeongsangbuk-do, Korea

**Standard** ISO 9001:2015  
**Valid Date** 11 Apr. 2024 ~ 10 Apr. 2027  
(Original Certification Date 11 Apr. 2024)

**Scope** DESIGN & DEVELOPMENT AND PRODUCTION OF BUTTERFLY VALVE, GLOBE VALVE, CHECK VALVE, FLAP VALVE, CONTROL VALVE, PRESSURE REDUCING VALVE, BALL VALVE, EXPANSION JOINT (INCLUDING BELLOWS TYPE), SLUICE GATE

System Development Institute hereby certifies that Management System of the above organization has been assessed and found to meet the requirements of the standard and scope detailed above.

*KH Jang*  
President of SDI

Date of Issue: 11 Apr. 2024  
Certification No: QMS-24027  
Issue Reason: Issued at Certification

System Development Institute  
10th, 137-90 Jinnong, Cheongju, Chungcheongbuk-do, Korea  
SJKH Co., Ltd., T033-4089-7798, F033-4089-7785  
\*The Accreditation KARB Mark indicates accreditation in respect of those activities covered by the Accreditation Certification Number KARB-CC-17. \*Accredited by Member of the IAF NTA for QMS\*

**CERTIFICATE OF REGISTRATION  
ENVIRONMENTAL MANAGEMENT SYSTEM**

**DSGE Co. Ltd.**  
30 Chonheuksa-dae-ro 1-gil, Chonheok-eupyeon, Oyeongsu-si, Oyeongsangbuk-do, Korea

**Standard** ISO 14001:2015  
**Valid Date** 11 Apr. 2024 ~ 10 Apr. 2027  
(Original Certification Date 11 Apr. 2024)

**Scope** DESIGN & DEVELOPMENT AND PRODUCTION OF BUTTERFLY VALVE, GLOBE VALVE, CHECK VALVE, FLAP VALVE, CONTROL VALVE, PRESSURE REDUCING VALVE, BALL VALVE, EXPANSION JOINT (INCLUDING BELLOWS TYPE), SLUICE GATE

System Development Institute hereby certifies that Management System of the above organization has been assessed and found to meet the requirements of the standard and scope detailed above.

*KH Jang*  
President of SDI

Date of Issue: 11 Apr. 2024  
Certification No: EMS-24004  
Issue Reason: Issued at Certification

System Development Institute  
10th, 137-90 Jinnong, Cheongju, Chungcheongbuk-do, Korea  
SJKH Co., Ltd., T033-4089-7798, F033-4089-7785  
\*The Accreditation KARB Mark indicates accreditation in respect of those activities covered by the Accreditation Certification Number KARB-CC-17. \*Accredited by Member of the IAF NTA for EMS\*

**CERTIFICATE OF REGISTRATION  
OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM**

**DSGE Co. Ltd.**  
30 Chonheuksa-dae-ro 1-gil, Chonheok-eupyeon, Oyeongsu-si, Oyeongsangbuk-do, Korea

**Standard** ISO 45001:2018  
**Valid Date** 11 Apr. 2024 ~ 10 Apr. 2027  
(Original Certification Date 11 Apr. 2024)

**Scope** DESIGN & DEVELOPMENT AND PRODUCTION OF BUTTERFLY VALVE, GLOBE VALVE, CHECK VALVE, FLAP VALVE, CONTROL VALVE, PRESSURE REDUCING VALVE, BALL VALVE, EXPANSION JOINT (INCLUDING BELLOWS TYPE), SLUICE GATE

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*KH Jang*  
President of SDI

Date of Issue: 11 Apr. 2024  
Certification No: OHS-24044  
Issue Reason: Issued at Certification

System Development Institute  
10th, 137-90 Jinnong, Cheongju, Chungcheongbuk-do, Korea  
SJKH Co., Ltd., T033-4089-7798, F033-4089-7785  
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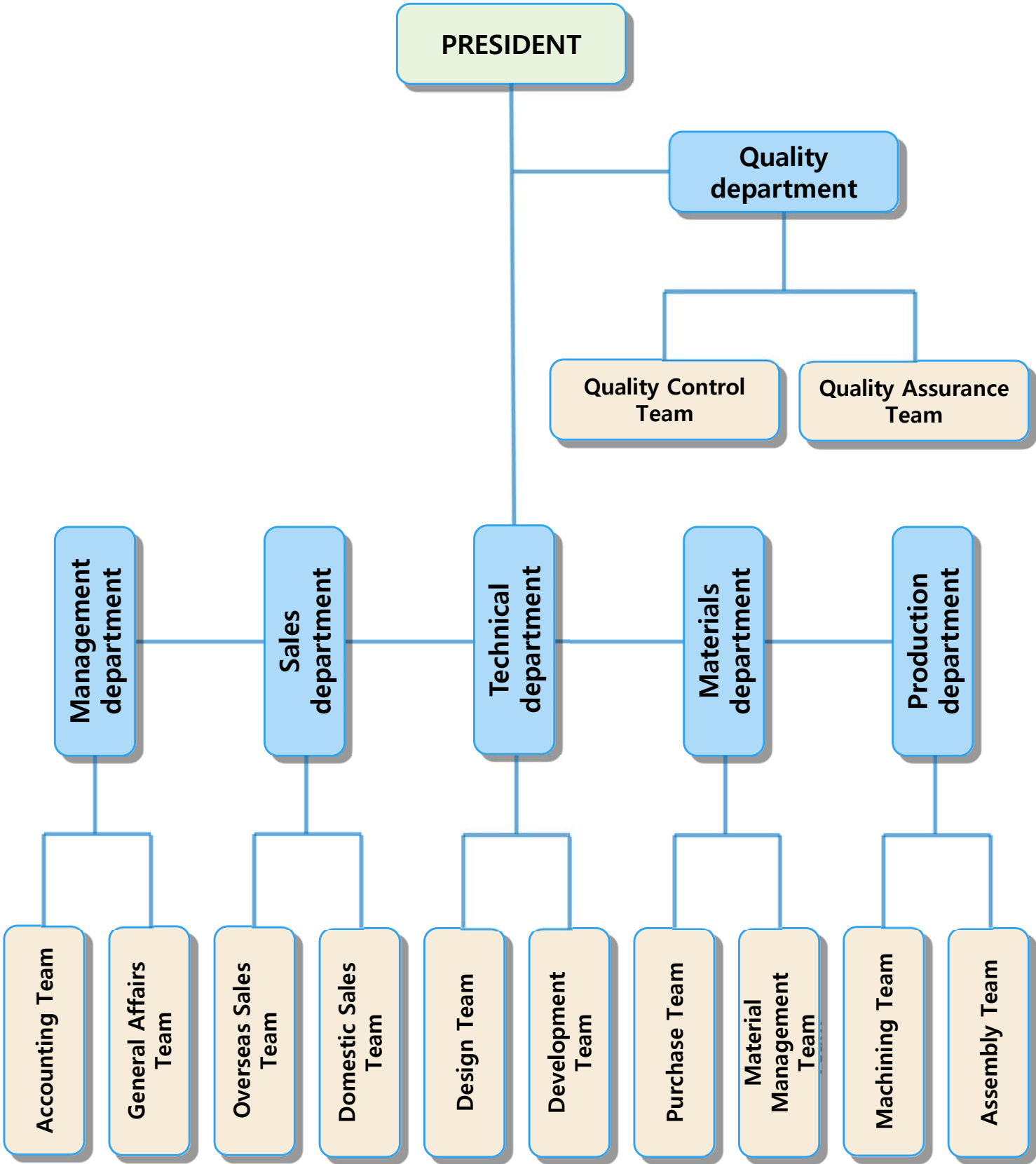
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# ABOUT DSGE

## ORGANIZATION CHART





## MANUFACTURING FACILITY



MCT



MCT



CNC



Lathe



Milling machine



Radial drilling machine

NO	DESCRIPTION	CAPACITY	Q'ty
1	Machining center	1400 x 1050 x 1200	1
2	Machining center	500 x 700 x 750	1
3	Machining center	1050 x 850 x 850	1
4	Boring Machine	3000 x 2000 x 800	1
5	Boring Machine	2000 x 1500 x 900	1
6	Boring Machine	2000 x 1600 x 600	1
7	Turning machine	Ø2500	1
8	CNC	Ø2500	1
9	CNC	Ø1200	2
10	CNC	Ø900	1
11	CNC	Ø740	1
12	CNC	Ø2000	1
13	Radial drilling machine	1600mm	1

NO	DESCRIPTION	CAPACITY	Q'ty
14	Milling machine	800mm	1
15	Milling machine	800mm	1
16	Lathe	Ø600	1
17	Lathe	Ø1060	1
18	Compressor	200L	1
19	Crane	Max. 20ton	1
20	Crane	Max. 10ton	1
21	Crane	Max. 5ton	1
22	Crane	Max. 3ton	1
23	Crane	Max. 2.5ton	1
24	Crane	Max. 1ton	1
25	Shot Blast Machine	3000 x 3500	1
26	Painting booth	200m <sup>2</sup>	1

## TEST EQUIPMENT



Hydraulic Test M/C



Ultrasonic Thickness Gauge



Paint thickness Gauge



Surface Roughness tester



Portable PMI



Helium Leak Detector

NO	DESCRIPTION	CAPACITY	Q'ty
1	Hydraulic Test M/C (400kgf/cm <sup>2</sup> )	50A ~ 300A	1
2	Hydraulic Test M/C (158kgf/cm <sup>2</sup> )	300A ~ 600A	1
3	Hydraulic Test M/C (110kgf/cm <sup>2</sup> )	400A ~ 1000A	1
4	Pressure Gauge	0.5MPa ~ 100MPa	15
5	Torque Wrench	196N-m ~ 2100N-m	3
6	Vernier calipers	150mm ~ 2000mm	6
7	In/Outside Micrometer	200mm ~ 1000mm	4
8	Height Gauge	150mm ~ 600mm	4
9	Depth Gauge	0~200mm	1
10	Ultrasonic Thickness Gauge	2mm ~ 200mm	1
11	Dial gauge	(0 ~ 10) mm, 0.01 mm	8

NO	DESCRIPTION	CAPACITY	Q'ty
12	P/Thickness Gauge	3# #833µm	2
13	Durometer shore durometer	Type "A" & Type "D"	2
14	Leeb Hardness tester	TIME5370	1
15	Surface Roughness tester	SJ210	1
16	Light meter	0~200000 lux	1
17	AC Clamp meter	3280-10F	1
18	Portable PMI Analyzer	X-MET 8000	1
19	Helium Leak Detector	ASM 142D	1
20	Pressure Recorder(Digital Type)	0~10MPa	1
21	Temperature Recorder	GR100	1
22	Variable area gas flowmeter	500ml ~ 10000ml	3



# ABOUT PRODUCT

## DOUBLE ECCENTRIC BUTTERFLY VALVES

### ★ High temperature and pressure Valve

Double eccentric butterfly valves are used in many applications because they are easy to operate, feature strong sealing forces and have a long service life.

It is easy to maintain and has the advantage of long service life and durability.

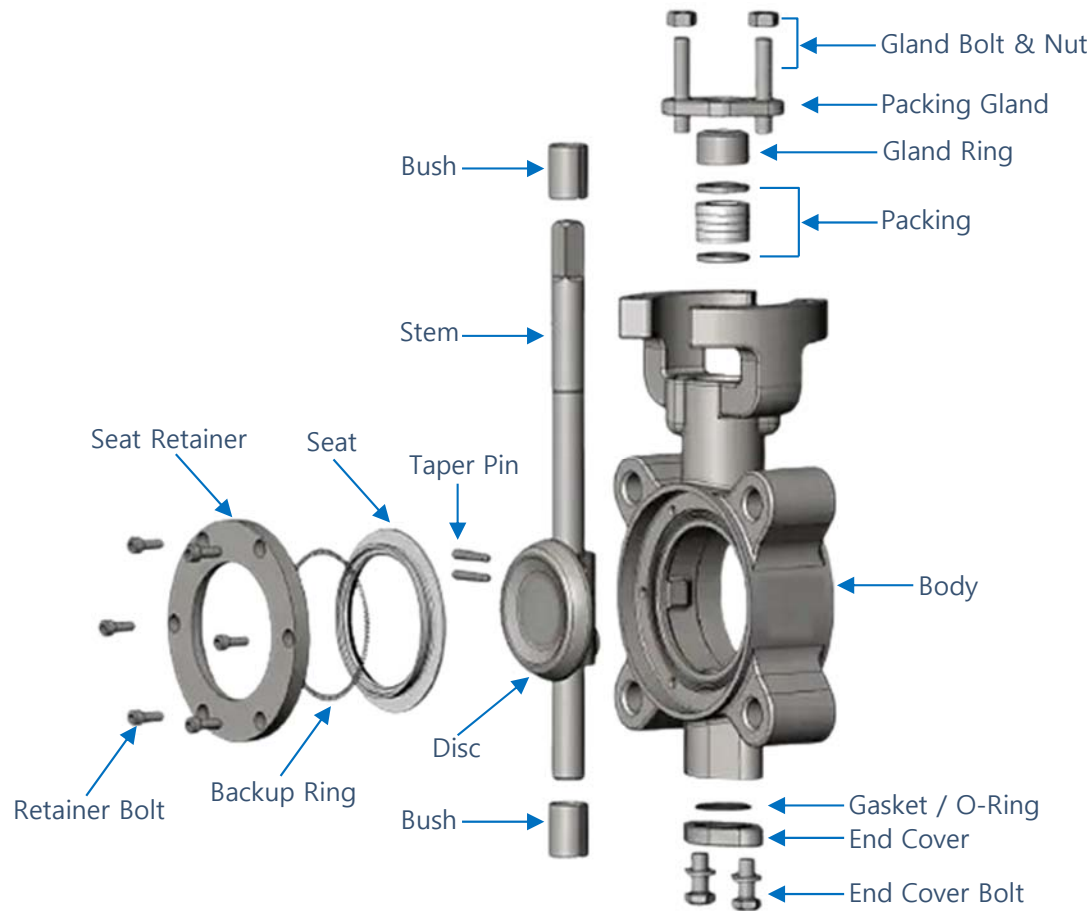


### Applicable Specifications

Division	Description
Valve Design	API 609 Category B, MSS SP-67, BS EN593
Rating	ASME 150LB, 300LB PN 10, 16, 25, 40 JIS 10K, 16K, 20K
Size	DN50(2") to DN1800(72")
Connection	Lugged, Wafer & Double Flanged
Temperature Range	-40°C to 250°C
Option	Stem extension Anti-static device Heating jacket Fusion bonded epoxy Coating Fugitive Emission Packing (ISO15848) Fire safety design (API 607)
Operator	Manual Hand Lever / Manual Worm Gear (with Locking device) Electric Actuator Pneumatic Actuator

# ABOUT PRODUCT

## DOUBLE ECCENTRIC BUTTERFLY VALVES



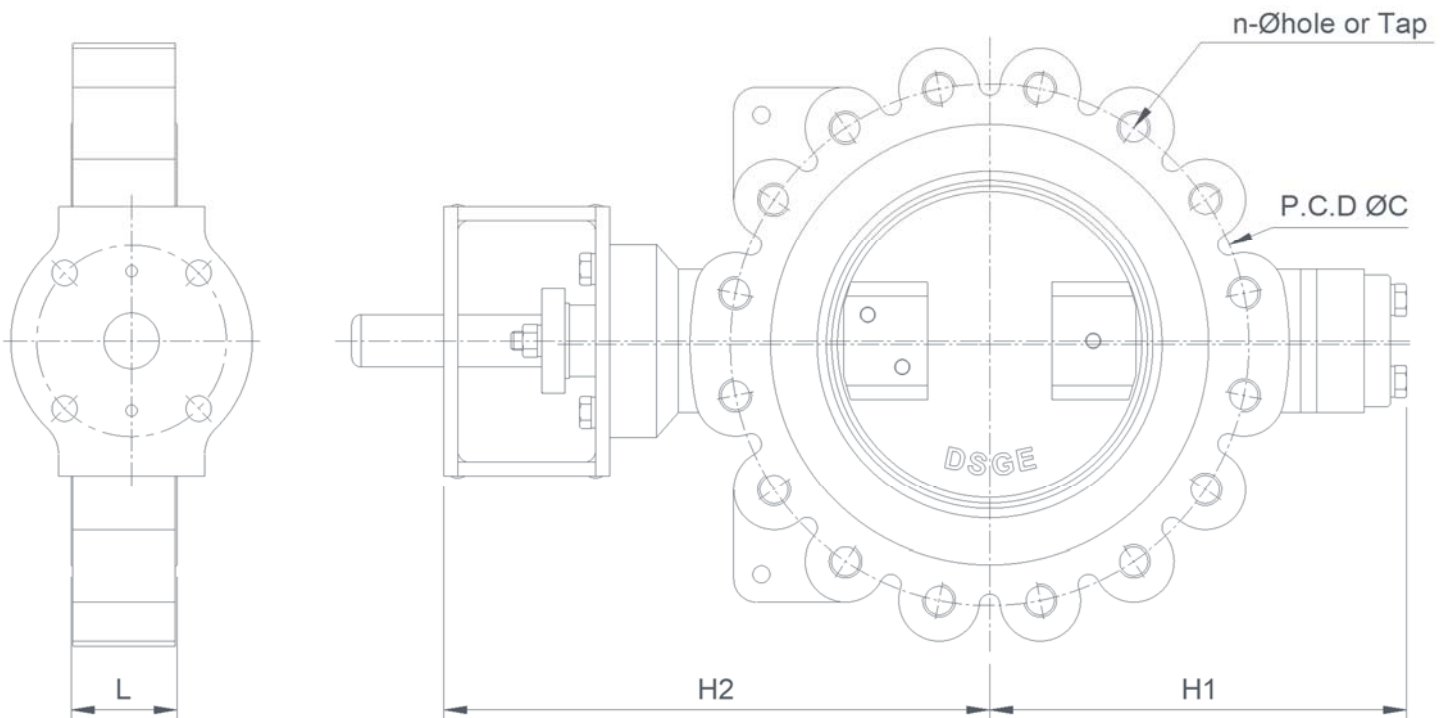
### Basic Material Specifications

No	Part Name	Materials
1	Body	Ductile, Cast Steel, Stainless, Duplex, Aluminum Bronze, Titanium, Etc.
2	Disc	Stainless, Duplex, Monel, Hastelloy, Aluminum Bronze, Titanium, Etc.
3	Seat	Rubber, Teflon, Metal, UHMWPE, Etc.
4	Backup Ring	Stainless, Duplex, Monel, Hastelloy, Etc.
5	Seat Retainer	Stainless, Duplex, Monel, Hastelloy, Aluminum Bronze, Titanium, Etc.
6	Retainer Bolt	Stainless, Duplex, Monel, Titanium, Etc.
7	Stem	Stainless, Duplex, Monel, Hastelloy, Titanium, Etc.
8	Tapper Pin	Stainless, Duplex, Monel, Hastelloy, Titanium, Etc.
9	Packing	NBR, EPDM, VITION, Graphite, Teflon, Etc.
10	Packing Gland	Stainless, Duplex, Titanium, Etc.
11	Gland Ring	Stainless, Duplex, Titanium, Etc.
12	Gland Bolt & Nut	Stainless, Duplex, Monel, Titanium, Etc.
13	End Cover	Steel plate, Stainless, Aluminum Bronze, Etc.
14	End Cover Bolt	Stainless, Duplex, Monel, Titanium, Etc.
15	Gasket / O-Ring	Graphite, Teflon, NBR, EPDM, VITION, Etc.
16	Bush	Metaloplast, Stainless, Bronze, Oilless, Etc.

• Due to the manufacturer's design characteristics, some parts have been deleted or simplified.

# ABOUT PRODUCT

## DOUBLE ECCENTRIC BUTTERFLY VALVES



### DIMENSION TABLE – 150LB

SIZE		L		FLANGE - ASME B16.5				REFERENCE	
mm	inch	WAFER LUG	FLANGE	P.C.D	Hole Q'ty	Øhole	Tap	H1	H2
50	2	48	108	120.6	4	19.1	5/8"(11UNC)	100	127
80	3	48	114	152.4	4	19.1	5/8"(11UNC)	123	160
100	4	54	127	190.5	8	19.1	5/8"(11UNC)	155	200
150	6	57	140	241.3	8	22.2	3/4"(10UNC)	194	254
200	8	64	152	298.4	8	22.2	3/4"(10UNC)	240	315
250	10	71	165	362.0	12	25.4	7/8"(9UNC)	291	382
300	12	81	178	431.8	12	25.4	7/8"(9UNC)	347	455
350	14	92	190	476.2	12	28.6	1"(8UN)	383	502
400	16	102	216	539.8	16	28.6	1"(8UN)	434	569
450	18	114	222	577.8	16	31.8	1-1/8"(8UN)	464	609
500	20	127	229	635.0	20	31.8	1-1/8"(8UN)	510	670
600	24	154	267	749.3	20	35.0	1-1/4"(8UN)	602	790

- Flange rating : According to ASME B16.5/ASME B16.47 Series "A" & Series "B" / DIN / BS / JIS / User Spec.
- Face to Face dimension : According to API 609 & Maker standard.
- Other dimensions are also possible.

# ABOUT PRODUCT

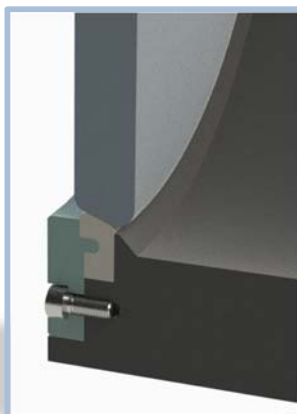
## DOUBLE ECCENTRIC BUTTERFLY VALVES

### DIMENSION TABLE – 300LB

SIZE		L		FLANGE - ASME B16.5				REFERENCE	
mm	inch	WAFER LUG	FLANGE	P.C.D	Hole Q'ty	Øhole	Tap	H1	H2
50	2	48	150	127.0	8	19.1	5/8"(11UNC)	102	134
80	3	48	180	168.1	8	22.2	3/4"(10UNC)	135	177
100	4	54	190	200.2	8	22.2	3/4"(10UNC)	160	212
150	6	59	210	269.7	12	22.2	3/4"(10UNC)	217	285
200	8	73	230	330.2	12	25.4	7/8"(9UNC)	265	348
250	10	83	250	387.4	16	28.6	1"(8UN)	311	408
300	12	92	270	450.8	16	31.8	1-1/8"(8UN)	362	475
350	14	117	290	514.4	20	31.8	1-1/8"(8UN)	413	542
400	16	133	310	571.5	20	35.0	1-1/4"(8UN)	460	602
450	18	149	330	628.6	24	35.0	1-1/4"(8UN)	505	663
500	20	159	350	685.8	24	35.0	1-1/4"(8UN)	550	723
600	24	181	390	812.8	24	41.3	1-1/2"(8UN)	655	857

- Flange rating : According to ASME B16.5/ASME B16.47 Series "A" & Series "B" / DIN / BS / JIS / User Spec.
- Face to Face dimension : According to API 609 & Maker standard.
- Other dimensions are also possible.

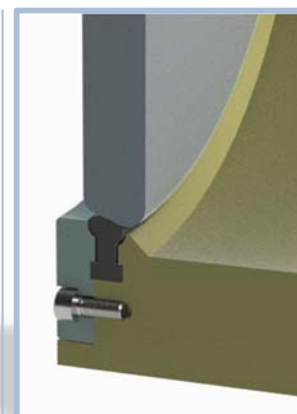
### SEAT DESIGN



#### TEFLON SEAT

**SEAT MATERIALS**  
PTFE, R-PTFE, PEEK, Etc.

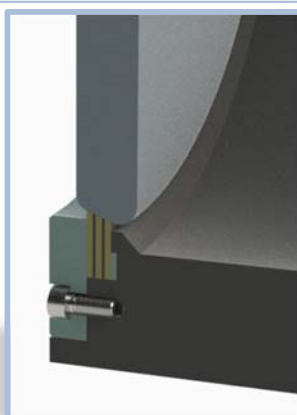
**FEATURES**  
Best suited as a Bi-Directional seat and ideal for applications involving corrosive or hazardous chemicals such as acids, alkalis and solvents.



#### RUBBER SEAT

**SEAT MATERIALS**  
EPDM, NBR, VITON, Etc.

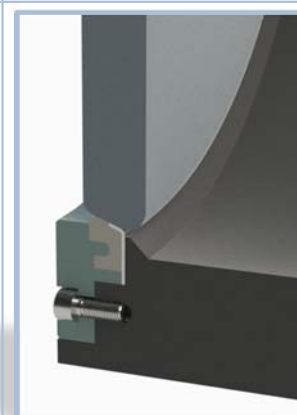
**FEATURES**  
Its sealing performance is superior to sheets made of other materials and its advantage is that its torque is small.



#### METAL SEAT

**SEAT MATERIALS**  
STAINLESS, MONEL, DUPLEX, Etc.

**FEATURES**  
It has a design that maintains high sealing performance at high temperatures and pressures, ensures long life, and prevents sheet damage.



#### FIRE SAFETY SEAT

**SEAT MATERIALS**  
TEFLON WITH METAL SEAT

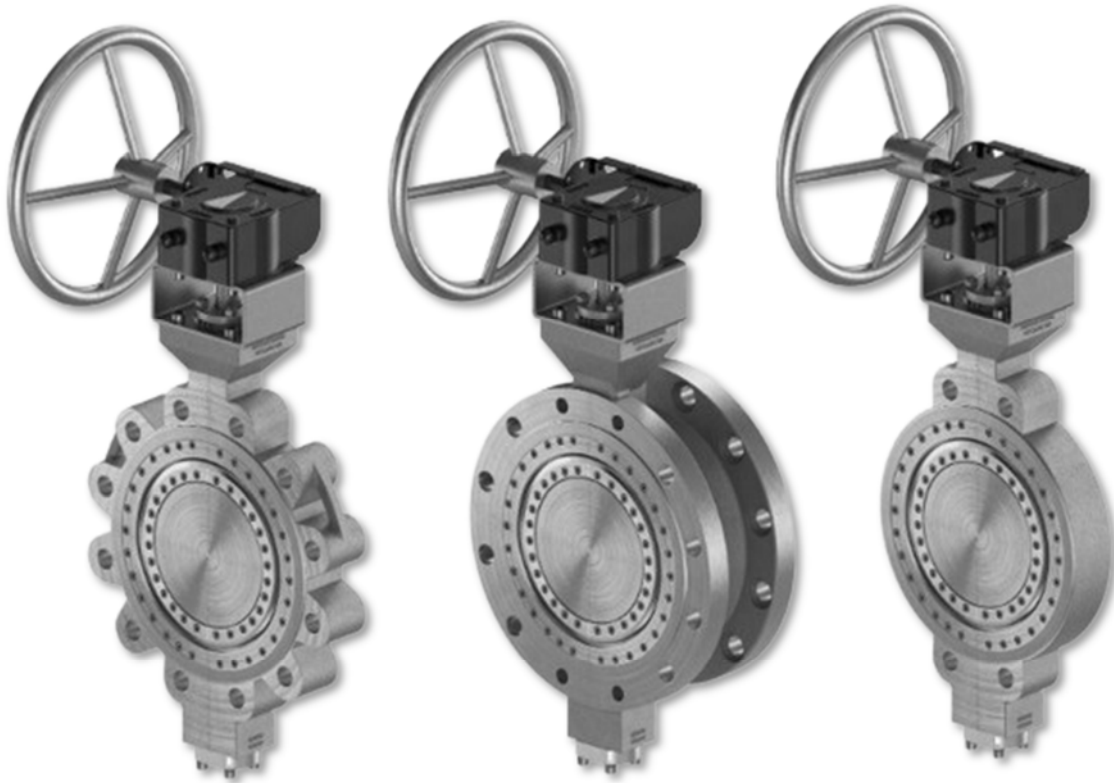
**FEATURES**  
Fire Safety type seat consisting of dual structures of Resilient and metal materials can prevent seat from burning out in case of fire.

# ABOUT PRODUCT

## TRIPLE ECCENTRIC BUTTERFLY VALVES

### ★ High pressure, High temperature, High performance Valve

Triple offset butterfly valves are ideal for the most demanding applications, especially those requiring airtight sealing and leak-proof shutoff for routine safety and operation. The product is 100% fireproof, resistant to high temperatures and can withstand high pressure levels without leaking.



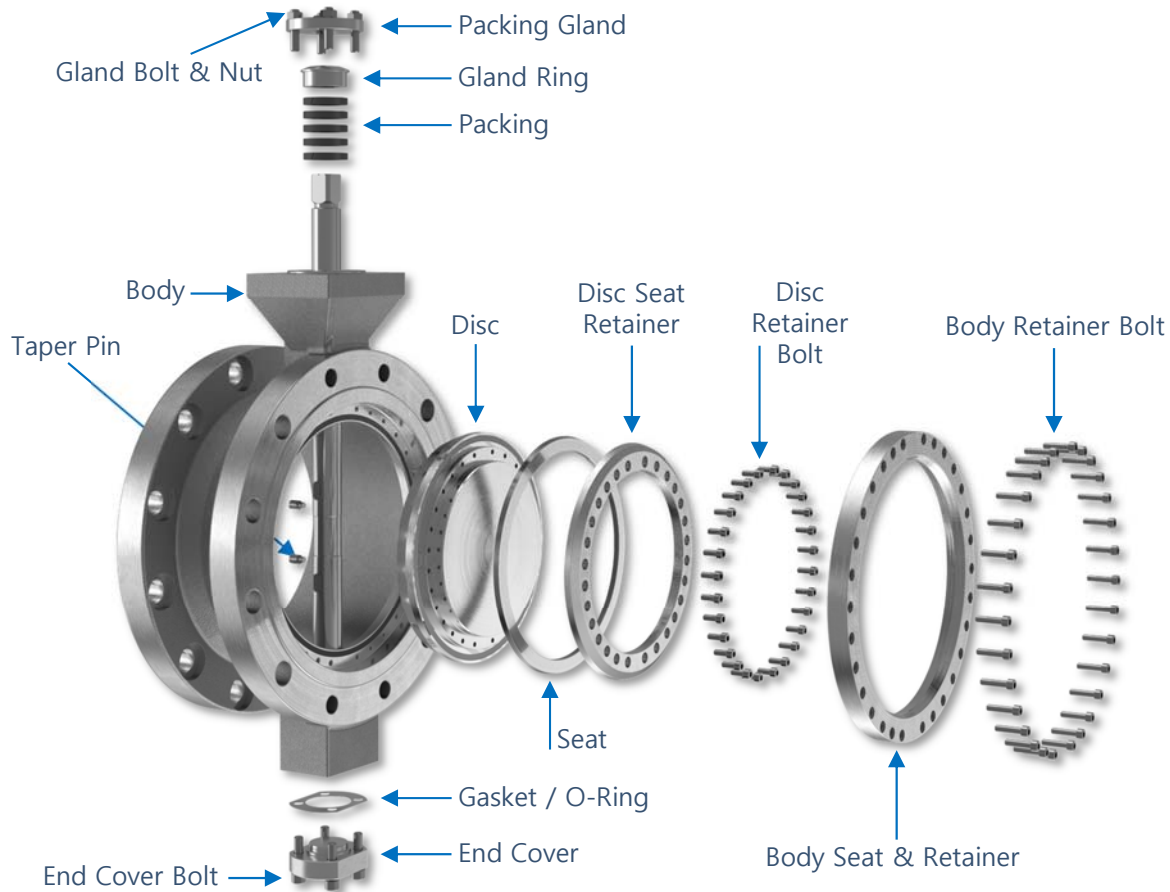
### Applicable Specifications

Division	Description
Valve Design	API 609 Category B, MSS SP-67, BS EN593
Rating	ASME 150LB, 300LB, 600LB PN 10, 16, 25, 40, 64 JIS 10K, 16K, 20K
Size	DN50(2") to DN2000(80")
Connection	Lugged, Wafer, Double Flanged & Buttweld End
Temperature Range	-40°C to 300°C
Option	Stem extension Anti-static device Heating jacket Fusion bonded epoxy Coating Fugitive Emission Packing (ISO15848) Topentry & Buttweld end Type
Operator	Manual Hand Lever / Manual Worm Gear (with Locking device) Electric Actuator Pneumatic Actuator



# ABOUT PRODUCT

## TRIPLE ECCENTRIC BUTTERFLY VALVES



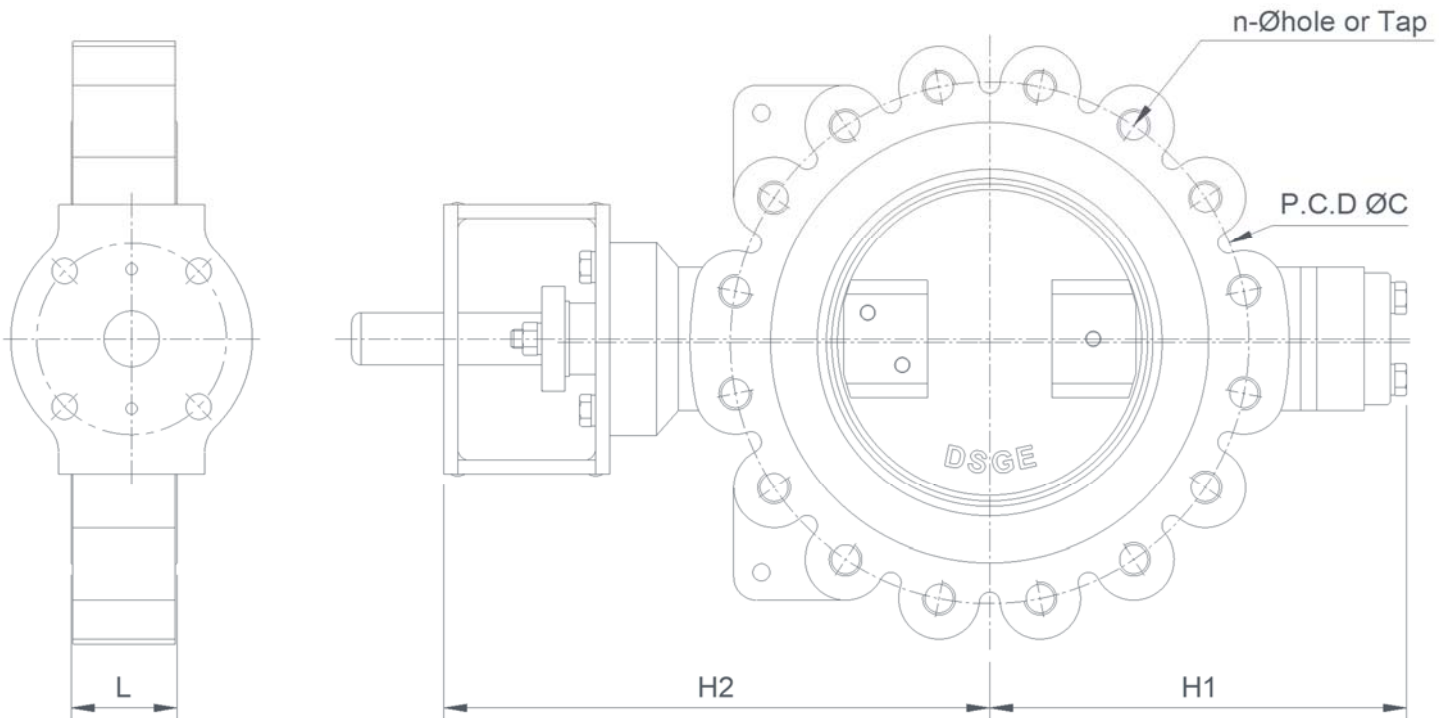
### Basic Material Specifications

No	Part Name	Materials
1	Body	Cast Steel, Stainless, Duplex, Aluminum Bronze, Titanium, Etc.
2	Disc	Stainless, Duplex, Monel, Hastelloy, Aluminum Bronze, Titanium, Etc.
3	Seat	Metal+Graphite, Metal+Teflon, Solid Metal, etc.
4	Disc Seat Retainer	Stainless, Duplex, Monel, Hastelloy, Aluminum Bronze, Titanium, Etc.
5	Disc Retainer Bolt	Stainless, Duplex, Monel, Titanium, Etc.
6	Body Seat & Retainer	Stainless, Duplex, Monel, Hastelloy, Aluminum Bronze, Titanium, Etc.
7	Body Retainer Bolt	Stainless, Duplex, Monel, Titanium, Etc.
8	Stem	Stainless, Duplex, Monel, Hastelloy, Titanium, Etc.
9	Tapper Pin	Stainless, Duplex, Monel, Hastelloy, Titanium, Etc.
10	Packing	Graphite, Teflon, Etc.
11	Packing Gland	Stainless, Duplex, Titanium, Etc.
12	Gland Ring	Stainless, Duplex, Titanium, Etc.
13	Gland Bolt & Nut	Stainless, Duplex, Monel, Titanium, Etc.
14	End Cover	Steel plate, Stainless, Aluminum Bronze, Titanium, Etc.
15	End Cover Bolt	Stainless, Duplex, Monel, Titanium, Etc.
16	Gasket / O-Ring	Graphite, Teflon, NBR, EPDM, VITON, Etc.

• Due to the manufacturer's design characteristics, some parts have been deleted or simplified.

# ABOUT PRODUCT

## TRIPLE ECCENTRIC BUTTERFLY VALVES



### DIMENSION TABLE – 150LB

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50	2	48	108	120.6	4	19.1	5/8"(11UNC)	100	127
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400	16	102	216	539.8	16	28.6	1"(8UN)	434	569
450	18	114	222	577.8	16	31.8	1-1/8"(8UN)	464	609
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- Face to Face dimension : According to API 609 & Maker standard.
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**ABOUT PRODUCT****TRIPLE ECCENTRIC BUTTERFLY VALVES****DIMENSION TABLE – 300LB**

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80	3	48	180	168.1	8	22.2	3/4"(10UNC)	135	177
100	4	54	190	200.2	8	22.2	3/4"(10UNC)	160	212
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**DIMENSION TABLE – 600LB**

SIZE		L		FLANGE - ASME B16.5				REFERENCE	
mm	inch	WAFER LUG	FLANGE	P.C.D	Hole Q'ty	Øhole	Tap	H1	H2
50	2	54	150	127.0	8	19.1	5/8"(11UNC)	102	134
80	3	54	180	168.1	8	22.2	3/4"(10UNC)	135	177
100	4	64	190	215.9	8	25.4	7/8"(9UNC)	172	228
150	6	78	210	292.1	12	28.6	1"(8UN)	234	308
200	8	102	230	349.2	12	31.8	1-1/8"(8UN)	280	368
250	10	117	250	431.8	16	35.0	1-1/4"(8UN)	347	455
300	12	140	270	489.0	20	35.0	1-1/4"(8UN)	392	515
350	14	155	290	527.0	20	38.1	1-3/8"(8UN)	423	555
400	16	178	310	603.0	20	41.3	1-1/2"(8UN)	484	636
450	18	200	330	654.0	20	44.5	1-5/8"(8UN)	525	690
500	20	216	350	723.9	24	44.5	1-5/8"(8UN)	581	763
600	24	232	390	838.2	24	50.8	1-7/8"(8UN)	673	883

- Flange rating : According to ASME B16.5/ASME B16.47 Series "A" & Series "B" / DIN / BS / JIS / User Spec.
- Face to Face dimension : According to API 609 & Maker standard.
- Other dimensions are also possible.

# ABOUT PRODUCT

## TRIPLE ECCENTRIC BUTTERFLY VALVES

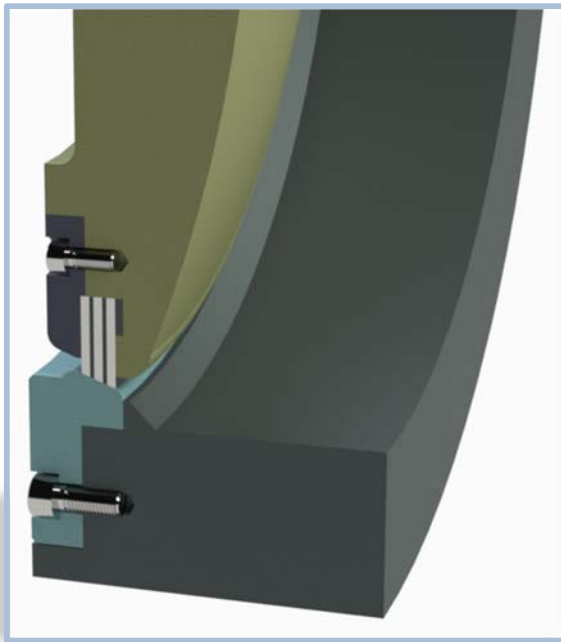
### SEAT DESIGN

#### High pressure, high temperature, high performance design

The triple offset design is ideally suited to metal seat valves providing tight performance in high temperature, high pressure and fire safety applications.

Ideal for the most demanding applications, especially those requiring airtight seals and leak-proof shutoffs for everyday safety and operation. The product is 100% fireproof, resistant to high temperatures and can withstand high pressure levels without leaking.

### DISC SEAT DESIGN



#### SEAT MATERIALS

BODY SEAT : INTEGRAL(SOLID METAL), WELD OVERLAY

DISC SEAT : STELL PLATE+GRAPHITE,  
STELL PLATE+TEFLON, Etc.

\*STELL PLATE : STAINLESS, MONEL, DUPLEX, Etc.

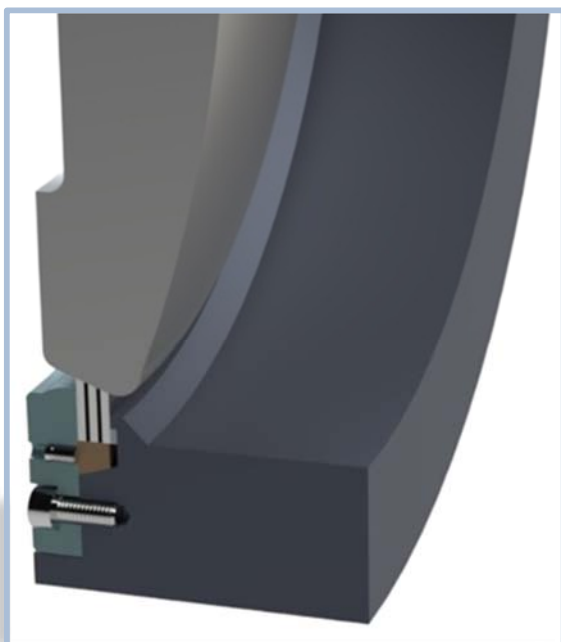
#### FEATURES

Typical triple offset type

The cost-effectiveness is good.

It is used in low-speed pipes due to the high risk of damaging the lamella seat due to fluid flow when the disc is opened.

### BODY SEAT DESIGN



#### SEAT MATERIALS

BODY SEAT : STELL PLATE+GRAPHITE,  
STELL PLATE+TEFLON, Etc.

\*STELL PLATE : STAINLESS, MONEL, DUPLEX, Etc.

DISC SEAT : INTEGRAL(SOLID METAL)

#### FEATURES

Special triple offset type

Hi-performance Design

Sheets have a long lifespan

Although it has a structure that minimizes damage to the seat due to fluid flow when the valve is opened, the production cost is high due to the large number of parts.

## ABOUT PRODUCT

### WATERWORKS BUTTERFLY VALVES

#### ★ Valves for waterworks systems

WaterWorks butterfly valves are designed for use in waterworks systems as well as the process and power industries. Available in a variety of sizes and configurations, they are suitable for use in a variety of water systems.

WaterWorks butterfly valves are made of durable materials that will not corrode and can withstand harsh environments.



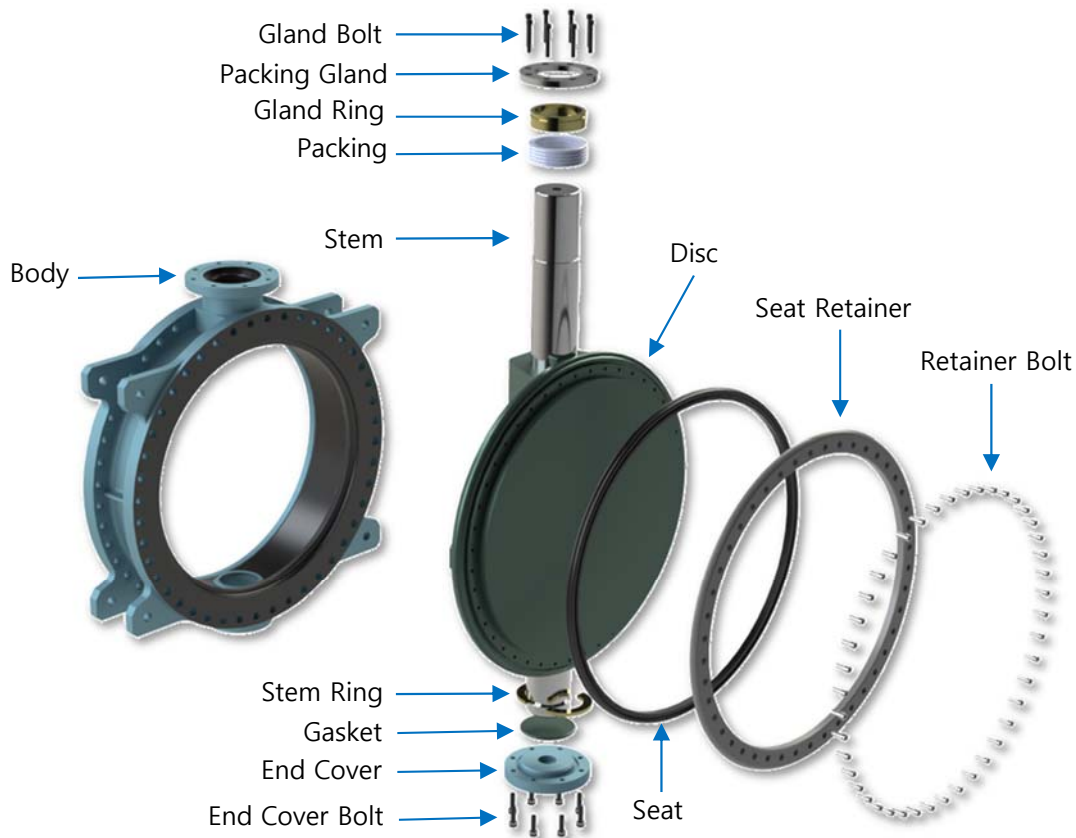
#### Applicable Specifications

Division	Description
Valve Design	AWWA C504, MSS SP-67, BS EN593
Rating	AWWA C207 CLASS-D, CLASS-E ASME 150LB, 300LB PN 10, 16
Size	DN650(26") to DN4000(160")
Connection	Double Flanged
Temperature Range	-20°C to 80°C
Option	Body & Disc Rubber lining Anti-static device Fusion bonded epoxy Coating Fugitive Emission Packing (ISO15848)
Operator	Manual Worm Gear (with Locking device) Electric Actuator Pneumatic Actuator



# ABOUT PRODUCT

## WATERWORKS BUTTERFLY VALVES



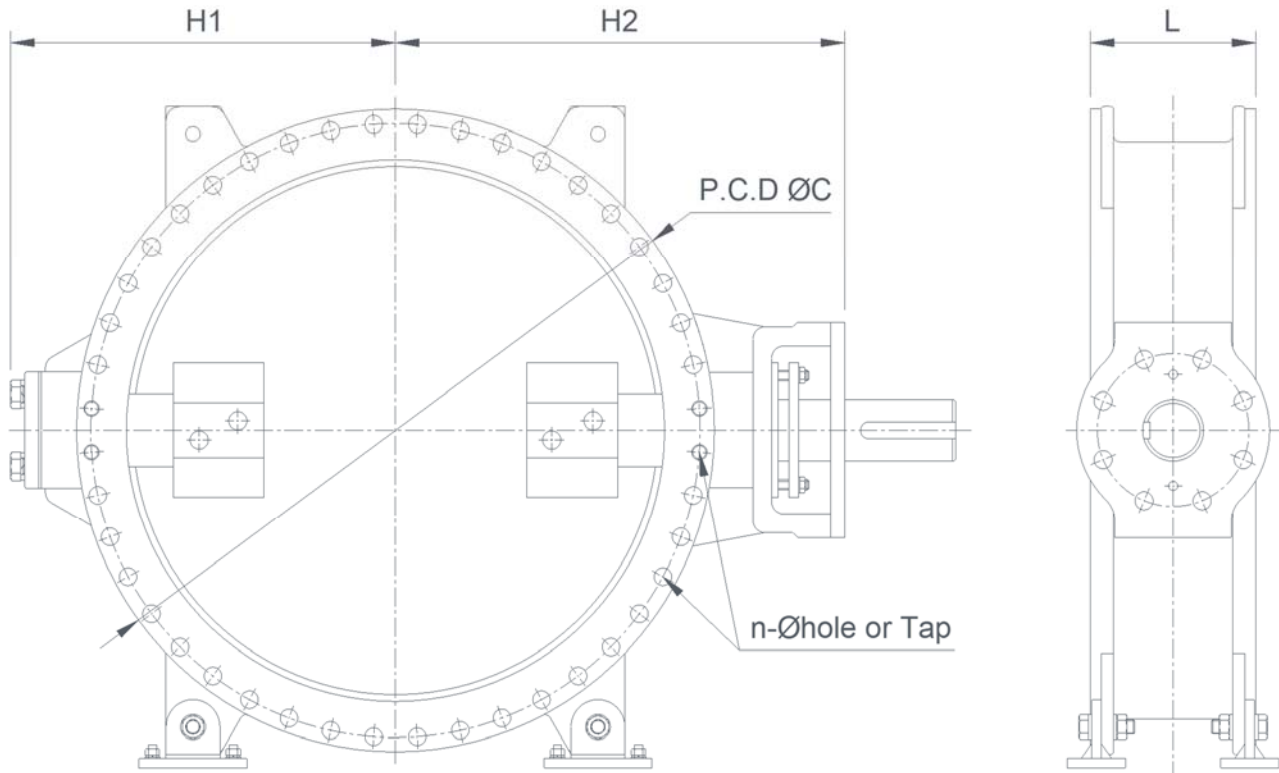
### Basic Material Specifications

No	Part Name	Materials
1	Body	Ductile, Cast Steel, Stainless, Duplex, Aluminum Bronze, Etc.
2	Disc	Stainless, Duplex, Monel, Hastelloy, Aluminum Bronze, Etc.
3	Seat	NBR, EPDM, VITON Etc.
4	Seat Retainer	Stainless, Duplex, Monel, Hastelloy, Aluminum Bronze, Etc.
5	Retainer Bolt	Stainless, Duplex, Monel, Titanium, Etc.
6	Stem	Stainless, Duplex, Monel, Hastelloy, Etc.
7	Stem Ring	Stainless, Aluminum Bronze, Etc.
8	Packing	NBR, EPDM, VITON, Graphite, Teflon, Etc.
9	Packing Gland	Stainless, Duplex, Etc.
10	Gland Ring	Stainless, Duplex, Etc.
11	Gland Bolt	Stainless, Duplex, Etc.
12	Gasket	Teflon, Graphite
13	End Cover	Steel plate, Stainless, Aluminum Bronze, Etc.
14	End Cover Bolt	Stainless, Duplex, Monel, Titanium, Etc.

• Due to the manufacturer's design characteristics, some parts have been deleted or simplified.

# ABOUT PRODUCT

## WATERWORKS BUTTERFLY VALVES



### DIMENSION TABLE – 150LB

SIZE		L		FLANGE - AWWA C207 CLASS.D & E ASME B16.47 SERIES-A			REFERENCE	
mm	inch	Short Body	Long Body	P.C.D	Hole Q'ty	Øhole	H1	H2
650	26	(305)	(559)	806.5	24	35.0	485	635
700	28	(305)	(559)	863.6	28	35.0	520	680
750	30	305	559	914.4	28	35.0	550	720
800	32	(305)	(559)	977.9	28	41.3	590	770
850	34	(305)	(559)	1028.7	32	41.3	620	810
900	36	305	559	1085.9	32	41.3	650	830
1000	40	(305)	(610)	1200.2	36	41.3	720	950
1100	44	(381)	(660)	1314.5	40	41.3	790	1035
1200	48	381	660	1422.4	44	41.3	855	1120
1300	52	(381)	(711)	1536.7	44	47.7	925	1210
1350	54	381	711	1593.9	44	47.7	960	1255
1500	60	381	762	1759.0	52	47.7	1060	1385

- Flange rating : According to AWWA C207 CLASS-D&E/ASME B16.47 Series "A" & Series "B" / DIN / BS / JIS / User Spec.
- Face to Face dimension : According to AWWA C504 & Maker standard.
- Other dimensions are also possible.

# ABOUT PRODUCT

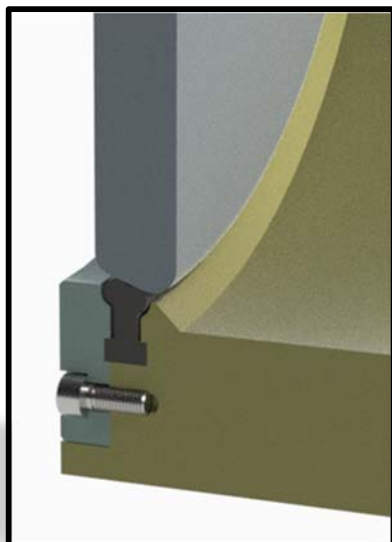
## WATERWORKS BUTTERFLY VALVES

### DIMENSION TABLE – 300LB

SIZE		L		ASME B16.47 SERIES-A			REFERENCE	
mm	inch	Short Body	Long Body	P.C.D	Hole Q'ty	Øhole	H1	H2
650	26	(305)	(559)	876.3	28	44.5	525	690
700	28	(305)	(559)	939.8	28	44.5	565	740
750	30	305	559	997.0	28	47.7	600	785
800	32	(305)	(559)	1054.1	28	50.8	635	830
850	34	(305)	(559)	1104.9	28	50.8	665	870
900	36	305	559	1168.4	32	54.0	705	920
1000	40	(305)	(610)	1155.7	32	44.5	695	910
1100	44	(381)	(660)	1263.6	32	47.7	760	995
1200	48	381	660	1371.6	32	50.8	825	1080
1300	52	(381)	(711)	1479.6	32	54.0	890	1165
1350	54	381	711	1549.4	28	60.3	930	1220
1500	60	381	762	1701.8	32	60.3	1025	1340

- Flange rating : According to AWWA C207 CLASS-F / ASME B16.47 Series "A" & Series "B" / DIN / BS / JIS / User Spec.
- Face to Face dimension : According to AWWA C504 & Maker standard.
- Other dimensions are also possible.

### SEAT DESIGN



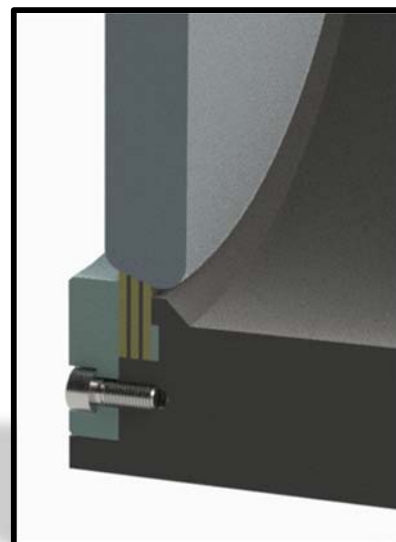
#### RUBBER SEAT

##### SEAT MATERIALS

EPDM, NBR, VITON, Etc.

##### FEATURES

Its sealing performance is superior to sheets made of other materials and its advantage is that its torque is small.



#### METAL SEAT

##### SEAT MATERIALS

STAINLESS, MONEL, DUPLEX, Etc.

##### FEATURES

It has a design that maintains high sealing performance at high temperatures and pressures, ensures long life, and prevents sheet damage.

# ABOUT PRODUCT

## NON-SLAM CHECK VALVES

### ★ Non-Slam check Valve ( Cylinder type )

Check valve slam occurs after pump stoppage when reverse flow passes by the check valve disc before the valve is fully closed. The reverse flow is stopped instantaneously by the closed check valve, which causes a loud shock wave as well as water hammer in the pipe. DSGE's Non-slam check type is a cylinder attachment type, and in the event of reverse flow, it quickly shuts off with a counterweight and uses the cushion of the cylinder to prevent slamming.

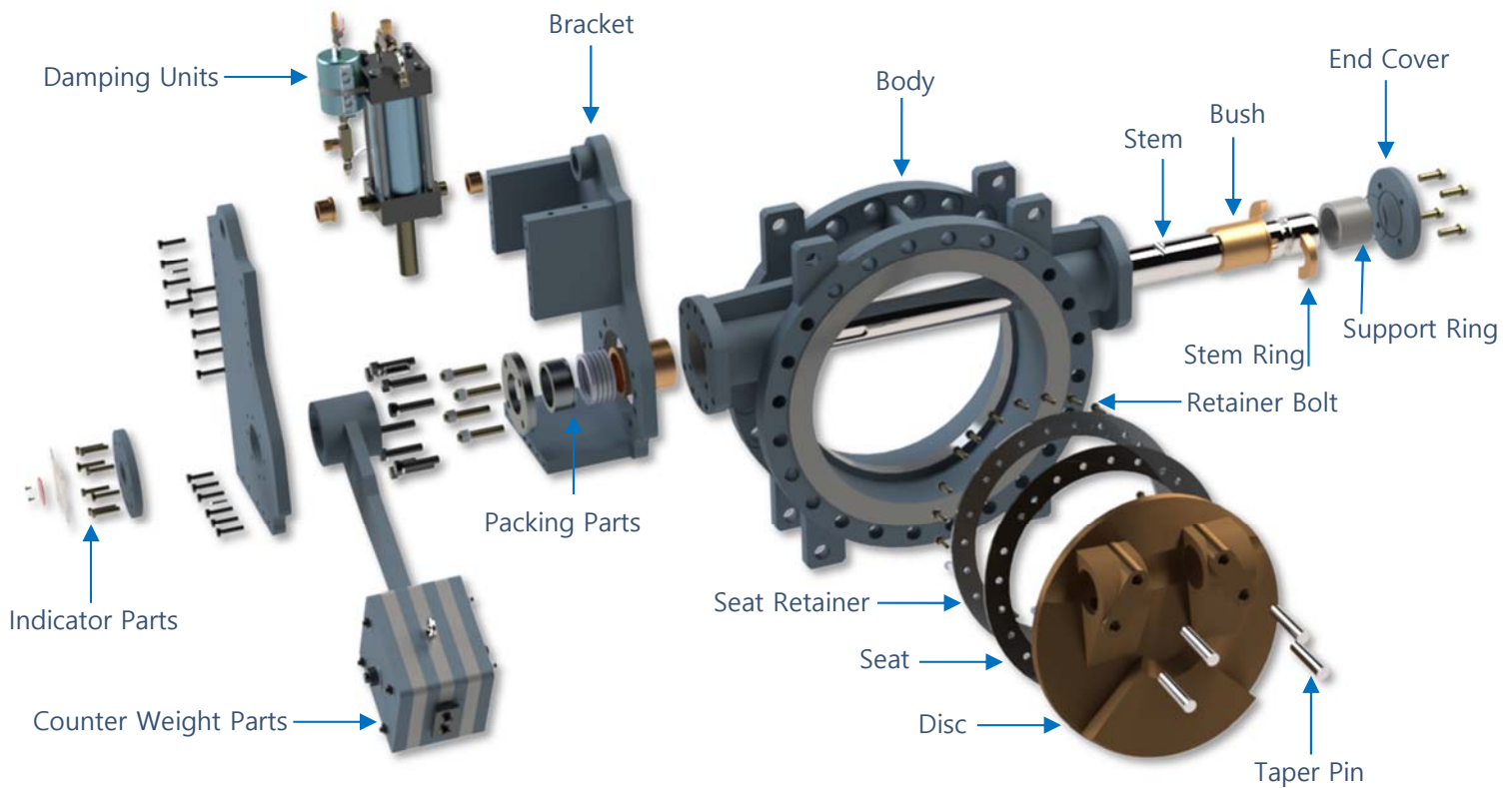


### Applicable Specifications

Division	Description
Valve Design	Butterfly Valve Type (add. Damping Cylinder, Counter Weight, Tilting Seat, Stepping)
Rating	AWWA C207 CLASS-D, CLASS-E ASME 150LB, 300LB, 600LB JIS 10K, 20K
Size	DN300(12") to DN2000(80")
Connection	Double Flanged
Temperature Range	-20°C to 120°C
Option	Body Rubber lining Anti-static device Fusion bonded epoxy Coating Fugitive Emission Packing (ISO15848)
Operator	Hydro Damping Cylinder

# ABOUT PRODUCT

## NON-SLAM CHECK VALVES



### Basic Material Specifications

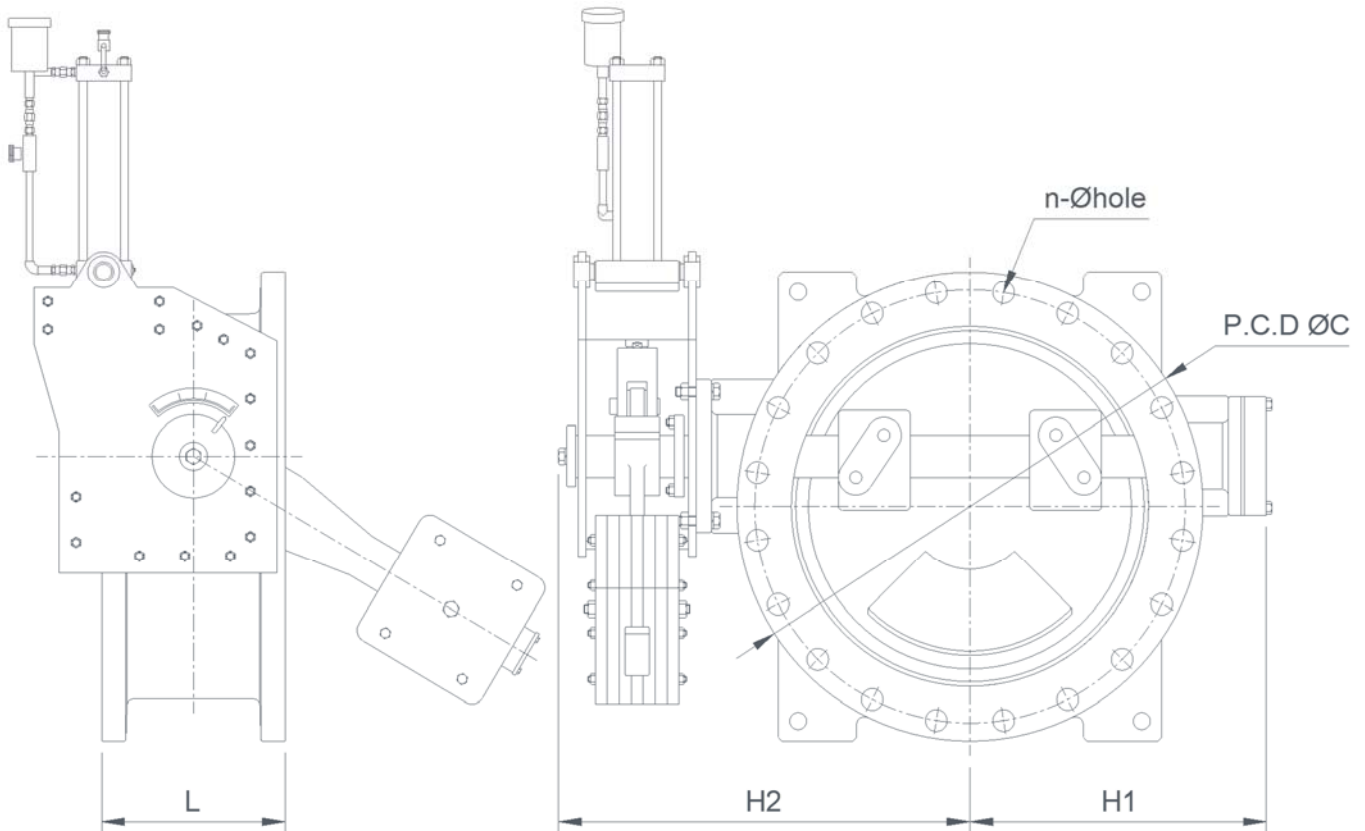
No	Part Name	Materials
1	Body	Cast Steel, Stainless, Duplex, Aluminum Bronze, Hastelloy, Etc.
2	Disc	Stainless, Duplex, Aluminum Bronze, Hastelloy, Etc.
3	Seat	NBR, EPDM, VITON Etc.
4	Seat Retainer	Stainless, Duplex, Aluminum Bronze, Hastelloy, Etc.
5	Retainer Bolt	Stainless, Duplex, Monel, Titanium, Etc.
6	Stem	Stainless, Duplex, Monel, Hastelloy, Etc.
7	Tapper Pin	Stainless, Duplex, Monel, Hastelloy, Etc.
8	Stem Ring	Stainless, Aluminum Bronze, Etc.
9	Support Ring	Stainless, Aluminum Bronze, Etc.
10	Bush	Stainless, Aluminum Bronze, Oilless bearing, Etc.
11	End Cover	Steel plate, Stainless, Aluminum Bronze, Etc.
12	Packing Parts	Teflon, Graphite, Cloth inserted Rubber, Etc.
13	Bracket	Steel plate, Cast steel, Etc.
14	Damping Units	Manufacture Standard.
15	Counter Weight Parts	Manufacture Standard.
16	Indicator Parts	Manufacture Standard.

• Due to the manufacturer's design characteristics, some parts have been deleted or simplified.



# ABOUT PRODUCT

## NON-SLAM CHECK VALVES



### DIMENSION TABLE – 150LB

SIZE		L	ASME B16.5 (12inch ~ 24inch) ASME B16.47 SERIES-A(26inch ~ 60inch)			REFERENCE	
mm	inch		P.C.D	Hole Q'ty	Øhole	H1	H2
300	12	270	431.8	12	25.4	310	490
350	14	290	476.2	12	28.6	350	530
400	16	310	539.8	16	28.6	390	590
450	18	330	577.8	16	31.8	430	640
500	20	350	635.0	20	31.8	470	700
600	24	390	749.3	20	35.0	560	830
700	28	430	863.6	28	35.0	640	950
800	32	470	977.9	28	41.3	710	1050
900	36	510	1085.9	32	41.3	790	1170
1000	40	550	1200.2	36	41.3	870	1280
1200	48	630	1422.4	44	41.3	990	1400
1500	60	(710)	1759.0	52	47.7	1180	1590

- Flange rating : According to AWWA C207 CLASS-D&E/ASME B16.47 Series "A" & Series "B" / DIN / BS / JIS / User Spec.
- Face to Face dimension : According to ISO 5752 SERIES 14 & Maker standard.
- Other dimensions are also possible.

# ABOUT PRODUCT

## NON-SLAM CHECK VALVES

### DIMENSION TABLE – 300LB

SIZE		L	ASME B16.5 (12inch ~ 24inch) ASME B16.47 SERIES-A(26inch ~ 60inch)			REFERENCE	
mm	inch		P.C.D	Hole Q'ty	Øhole	H1	H2
300	12	270	450.8	16	31.8	330	480
350	14	290	514.4	20	31.8	380	570
400	16	310	571.5	20	35.0	420	630
450	18	330	628.6	24	35.0	470	690
500	20	350	685.8	24	35.0	510	760
600	24	390	812.8	24	41.3	605	900
700	28	430	939.8	28	44.5	700	1040
800	32	470	1054.1	28	50.8	780	1160
900	36	510	1168.4	32	54.0	860	1270
1000	40	550	1155.7	32	44.5	850	1260
1200	48	630	1371.6	32	50.8	980	1390
1500	60	(710)	1701.8	32	60.3	1170	1580

### DIMENSION TABLE – 600LB

SIZE		L	ASME B16.5 (12inch ~ 24inch) ASME B16.47 SERIES-A(26inch ~ 60inch)			REFERENCE	
mm	inch		P.C.D	Hole Q'ty	Øhole	H1	H2
300	12	270	489.0	20	35.0	360	530
350	14	290	527.0	20	38.1	380	570
400	16	310	603.0	20	41.3	450	660
450	18	330	654.0	20	44.5	480	720
500	20	350	723.9	24	44.5	540	800
600	24	390	838.2	24	50.8	625	928
700	28	430	965.2	28	54.0	720	1060
800	32	470	1079.5	28	60.3	800	1180
900	36	510	1193.8	28	66.7	880	1300
1000	40	550	1212.8	32	60.3	890	1310
1200	48	630	1460.5	32	73.0	1020	1450
1500	60	(710)	1822.4	28	92.1	1210	1680

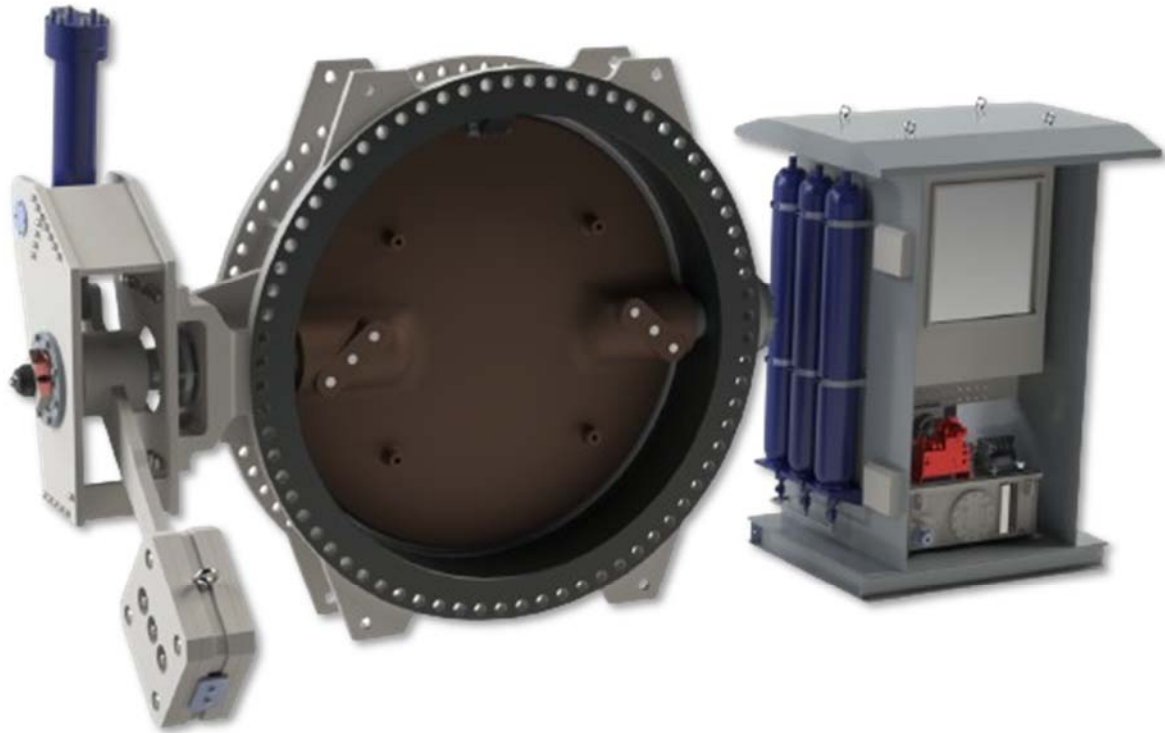
- Flange rating : According to ASME B16.47 Series "A" & Series "B" / DIN / BS / JIS / User Spec.
- Face to Face dimension : According to ISO 5752 SERIES 14 & Maker standard.
- Other dimensions are also possible.

# ABOUT PRODUCT

## COMBINED NON-RETURN VALVES

### ★ Combined Non-Return Valve ( Combined Check type )

DSGE's NRV basically includes a Non Slam function that automatically shuts off in the event of pump failure or power outage. Additionally, Shut off and Control functions are included due to the HPU.

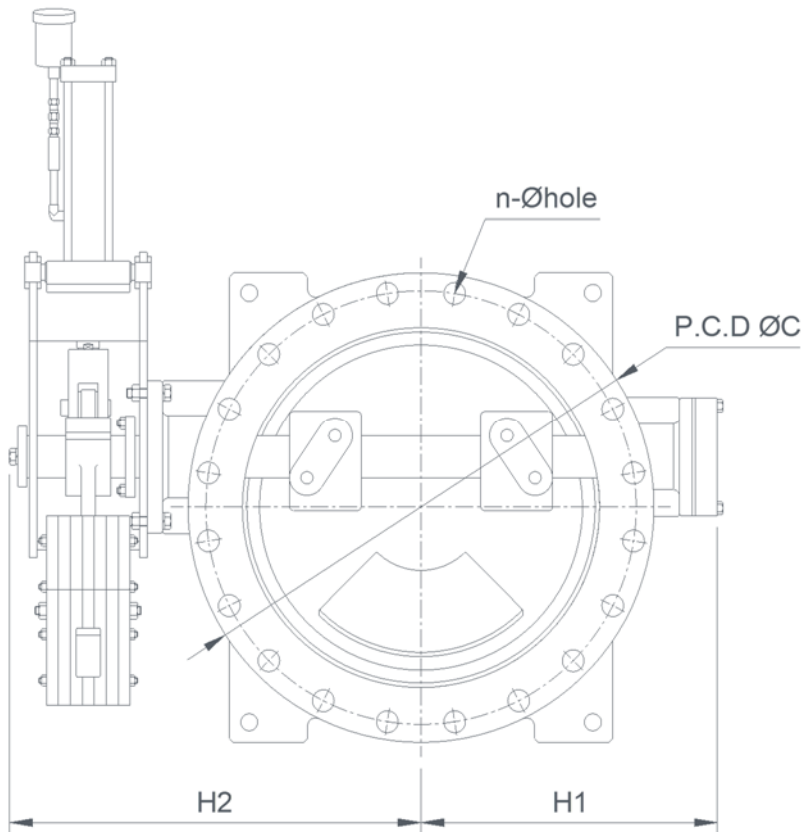


### Applicable Specifications

Division	Description
Valve Design	Butterfly Valve Type ( Non Slam Function + HPU )
Rating	AWWA C207 CLASS-D, CLASS-E ASME 150LB, 300LB JIS 10K, 20K
Size	DN600(24") to DN4000(160")
Connection	Double Flanged
Temperature Range	-20°C to 80°C
Option	Body Rubber lining Anti-static device Fusion bonded epoxy Coating Fugitive Emission Packing (ISO15848)
Operator	Hydro Cylinder Hydro Pump Units ( Hart Protocol , Field Bus , 4-20mA Signal Wiring )

# ABOUT PRODUCT

## COMBINED NON-RETURN VALVES



Hydro Power Units

- \* 380~480Volt Moter/Pump
- \* Power Fail - 1 cycle Accumulator
- \* Valve Position Trasmmitter  
( Opt : Air conditioner )



### DIMENSION TABLE – 150LB

SIZE		L	ASME B16.47 SERIES-A ASME B16.5 (24inch only)			REFERENCE	
mm	inch		P.C.D	Hole Q'ty	Øhole	H1	H2
600	24	390	749.3	20	35.0	560	830
650	26	(430)	806.5	24	35.0	600	895
700	28	430	863.6	28	35.0	640	950
750	30	(470)	914.4	28	35.0	680	1010
800	32	470	977.9	28	41.3	710	1050
900	36	510	1085.9	32	41.3	790	1170
1000	40	550	1200.2	36	41.3	870	1280
1100	44	(630)	1314.5	40	41.3	930	1340
1200	48	630	1422.4	44	41.3	990	1400
1300	52	(710)	1536.7	44	47.7	1070	1480
1350	54	(710)	1593.9	44	47.7	1110	1520
1500	60	(710)	1759.0	52	47.7	1210	1630

- Flange rating : According to AWWA C207 CLASS-D&E/ASME B16.47 Series "A" & Series "B" / DIN / BS / JIS / User Spec.
- Face to Face dimension : According to ISO 5752 SERIES 14 & Maker standard.
- Other dimensions are also possible.

# ABOUT PRODUCT

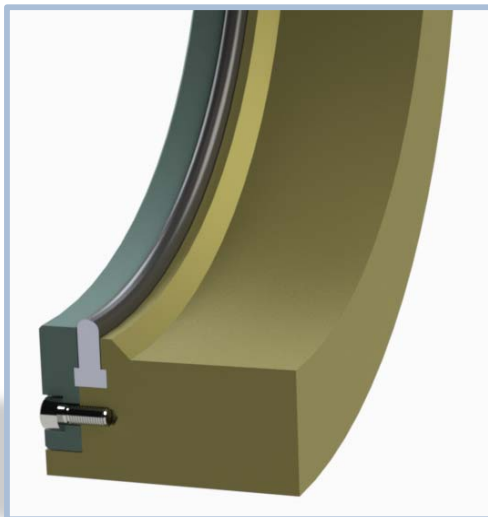
## COMBINED NON-RETURN VALVES

### DIMENSION TABLE – 300LB

SIZE		L	ASME B16.47 SERIES-A ASME B16.5 (24inch only)			REFERENCE	
mm	inch		P.C.D	Hole Q'ty	Øhole	H1	H2
600	24	390	812.8	24	41.3	605	900
650	26	(430)	876.3	28	44.5	655	970
700	28	430	939.8	28	44.5	700	1040
750	30	(470)	997.0	28	47.7	745	1100
800	32	470	1054.1	28	50.8	780	1160
900	36	510	1168.4	32	54.0	860	1270
1000	40	550	1155.7	32	44.5	850	1260
1100	44	(630)	1263.6	32	47.7	900	1310
1200	48	630	1371.6	32	50.8	1000	1490
1300	52	(710)	1479.6	32	54.0	1050	1540
1350	54	(710)	1549.4	28	60.3	1090	1600
1500	60	(710)	1701.8	32	60.3	1170	1680

- Flange rating : According to AWWA C207 CLASS-F / ASME B16.47 Series "A" & Series "B" / DIN / BS / JIS / User Spec.
- Face to Face dimension : According to ISO 5752 SERIES 14 & Maker standard.
- Other dimensions are also possible.

### SEAT DESIGN



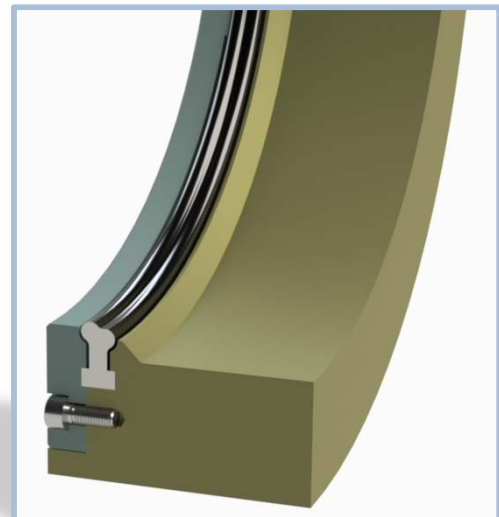
#### GENERAL TYPE DESIGN

##### SEAT MATERIAL

NBR, EPDM, VITON, Etc.

##### FEATURES

Low pressure type  
Seat manufacturing is easy  
Manufacturing cost is low  
Torque is low



#### SPECIAL TYPE DESIGN

##### SEAT MATERIAL

NBR, EPDM, VITON, Etc.

##### FEATURES

High pressure type  
Bi-Directional type  
High Performance type  
Manufacturing cost is expensive



# ABOUT PRODUCT

## CONCENTRIC BUTTERFLY VALVES

### ★ General Rubber Seat Valve

This is the most common and simple design. On a centric (concentric) butterfly valve the stem is centered in the middle of the disc and the disc centered in the bore. It is normally resilient seated valve. They are often chosen for their affordability and efficiency in handling low-pressure applications.

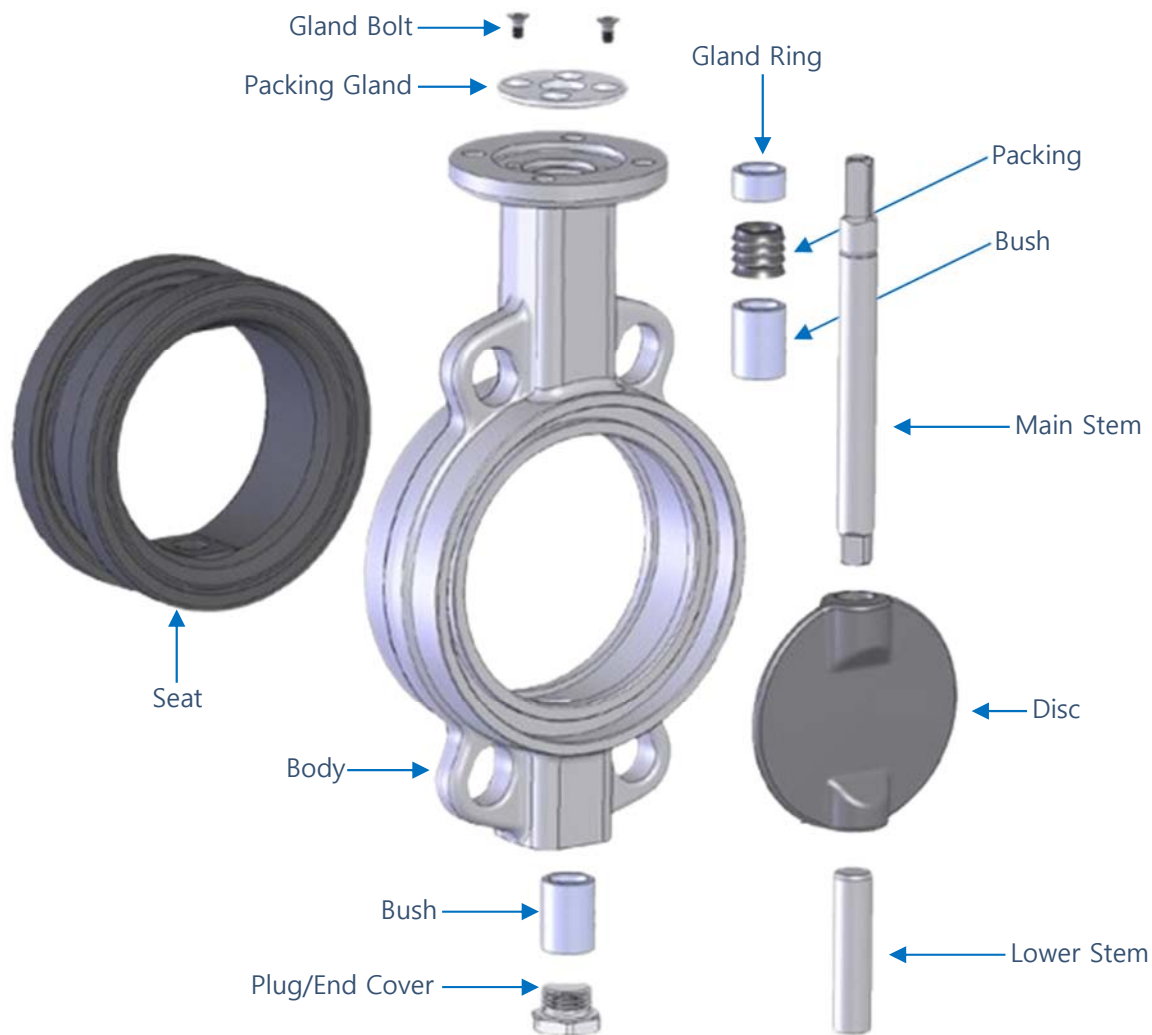


### Applicable Specifications

Division	Description
Valve Design	API 609 Category A, MSS SP-67, BS EN593
Rating	ASME 125LB, 150LB PN 6, 10 JIS 10K, 20K
Size	DN50(2") to DN2000(80")
Connection	Lugged, Wafer & Flanged
Temperature Range	-20°C to 120°C
Option	Stem extension Anti-static device Teflon V-packing
Operator	Manual Hand Lever / Manual Worm Gear (with Locking device) Electric Actuator Pneumatic Actuator

# ABOUT PRODUCT

## CONCENTRIC BUTTERFLY VALVES



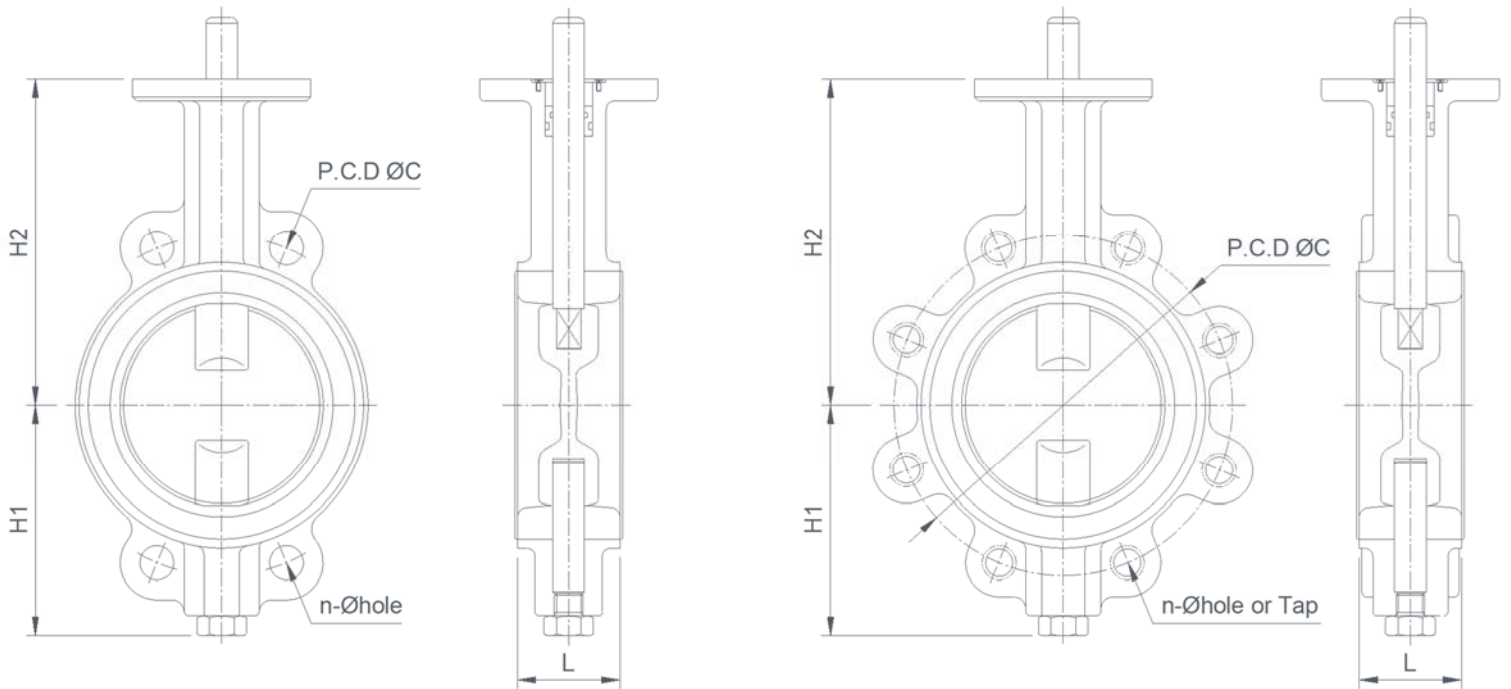
### Basic Material Specifications

No	Part Name	Materials
1	Body	Ductile, Cast Steel, Stainless, Duplex, Hastelloy, Etc.
2	Disc	Stainless, Duplex, Monel, Hastelloy, Hastelloy, Etc.
3	Seat	EPDM, NBR, VITON, Etc.
4	Main Stem	Stainless, Duplex, Monel, Hastelloy, Etc.
5	Lower Stem	Stainless, Duplex, Monel, Hastelloy, Etc.
6	Bush	Metaloplast, Stainless, Bronze, Oilless, Etc.
7	Packing	NBR, EPDM, VITON, Teflon, Acetal, Etc.
8	Gland Ring	Stainless, Duplex, Bronze, Etc.
9	Packing Gland	Stainless, Duplex, Bronze, Etc.
10	Gland Bolt	Stainless, Duplex, Monel, Etc.
11	Plug / End Cover	Steel plate, Stainless, Etc.

• Due to the manufacturer's design characteristics, some parts have been deleted or simplified.

# ABOUT PRODUCT

## CONCENTRIC BUTTERFLY VALVES



**DIMENSION TABLE – 150LB**

SIZE		L	FLANGE - ASME B16.5				REFERENCE	
mm	inch		P.C.D	Hole Q'ty	Øhole	Tap	H1	H2
50	2	43	120.6	4	19.1	5/8"(11UNC)	65	130
80	3	46	152.4	4	19.1	5/8"(11UNC)	85	165
100	4	52	190.5	8	19.1	5/8"(11UNC)	92	173
150	6	56	241.3	8	22.2	3/4"(10UNC)	124	220
200	8	60	298.4	8	22.2	3/4"(10UNC)	160	242
250	10	68	362.0	12	25.4	7/8"(9UNC)	224	324
300	12	78	431.8	12	25.4	7/8"(9UNC)	267	386
350	14	78	476.2	12	28.6	1"(8UN)	295	426
400	16	102	539.8	16	28.6	1"(8UN)	334	483
450	18	114	577.8	16	31.8	1-1/8"(8UN)	358	517
500	20	127	635.0	20	31.8	1-1/8"(8UN)	393	568
600	24	154	749.3	20	35.0	1-1/4"(8UN)	464	671

- Flange rating : According to ASME B16.5/ASME B16.47 Series "A" & Series "B" / DIN / BS / JIS / User Spec.
- Face to Face dimension : According to API 609 & Maker standard.
- Other dimensions are also possible.

# ABOUT PRODUCT

## CONCENTRIC BUTTERFLY VALVES

### SEAT DESIGN



It is a basic Bi-Directional type butterfly structure. Designed to provide a tight seal between the valve disc and the valve body, preventing fluid leakage and pressure loss.

### FEATURE OF RUBBER

Common Name	ASTM Code	Max. Temp.	Strong Acid	Weak Acid	Strong Alkali	Weak Alkali	Sun light Resistance	Water Resistance	Solvent
Buna-n	NBR	90°C	X	○	○	◎	○	◎	△
Neoprene	CR	90°C	X	○	○	◎	◎	◎	X
Natural Rubber	NR	65°C	X	○	○	◎	○	◎	X
ETP	EPDM	120°C	○	◎	◎	◎	◎	◎	X
Viton	FKM	150°C	◎	◎	◎	◎	◎	◎	○

NOTE : ◎ very good / ○ good / △ fair / X poor

This is a description of general characteristics and may vary depending on piping environment and operating conditions.

For special environmental and operating conditions, please contact DSGE.

**ABOUT PRODUCT****CONCENTRIC BUTTERFLY VALVES****VALVE Cv TABLE**

SIZE		10°	20°	30°	40°	50°	60°	70°	80°	90°
mm	inch									
50	2	7	14	21	33	53	86	139	212	255
80	3	14	30	44	69	133	183	296	454	545
100	4	26	52	78	122	200	322	523	803	961
150	6	57	114	134	271	441	712	1153	1771	2120
200	8	99	198	299	466	321	1228	1988	3055	3656
250	10	156	315	474	739	1206	1946	3150	4840	5794
300	12	210	424	639	997	1629	2625	4249	6527	7814
350	14	281	563	849	1324	2160	3487	5647	8675	10384
400	16	349	700	1055	1645	2684	4332	7014	10773	12898
450	18	477	958	1444	2242	3675	5932	9605	14755	17663
500	20	560	1123	1695	2642	4312	6960	11268	17311	20722
600	24	812	1630	2460	3835	6258	10100	16355	25123	30074
650	26	923	1932	2914	4543	7415	11969	19377	29766	35632
700	28	1119	2245	3387	5280	8617	13907	22520	34594	41410
750	30	1290	2590	3906	6090	9939	16039	25971	39896	47760
800	32	1532	3076	4640	7235	11805	19052	30851	47390	56730
850	34	1766	3544	5347	8335	13604	21954	35549	54608	65370
900	36	1980	3973	5994	9345	15250	24613	39854	61222	73280
950	38	2210	4436	6694	10435	17030	27483	44500	68360	81830
1000	40	2453	4926	7431	11584	18905	30510	49400	75890	90850
1050	42	2710	5440	8206	12793	20880	33690	54560	83820	100340
1100	44	2980	5980	9021	14063	22950	37040	59980	92130	110290
1150	46	3260	6545	9874	15392	25120	40550	65650	100450	120720
1200	48	3555	7316	10766	16781	27390	44200	71580	109950	131620



# ABOUT PRODUCT

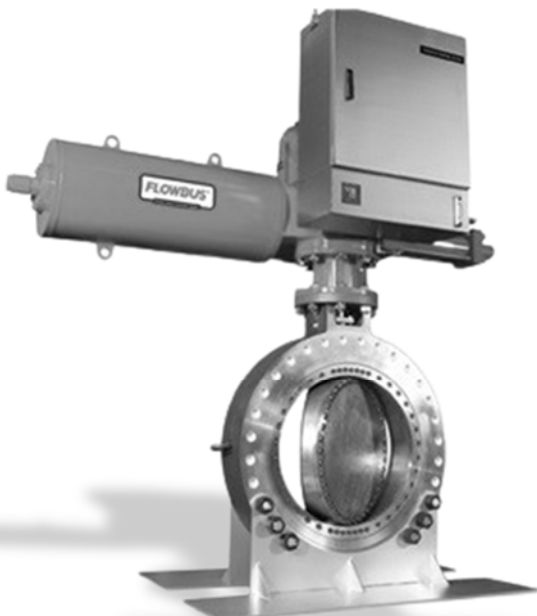
## ACTUATOR OPERATED BUTTERFLY VALVE



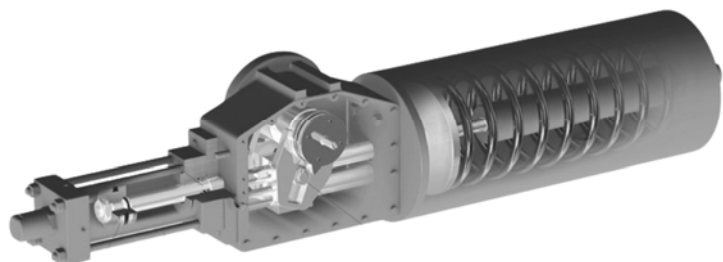
*Pneumatic Butterfly Valve*



*Motorized butterfly valve*

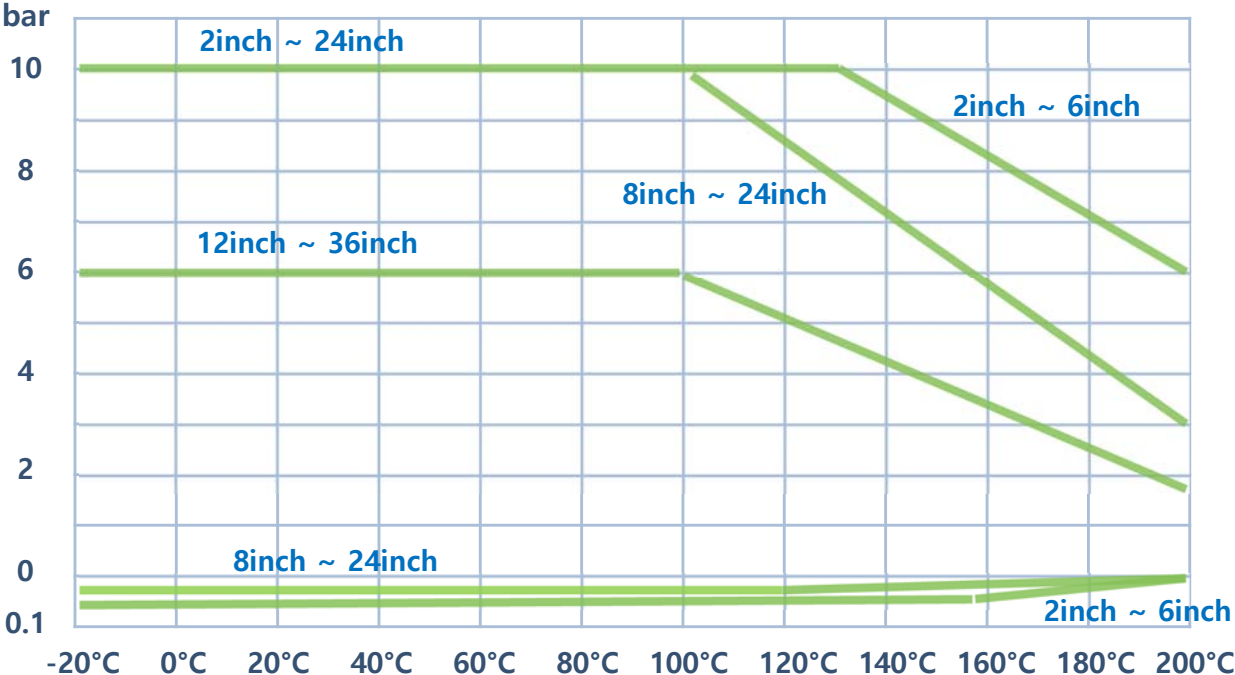


*Hydraulic Butterfly Valve*

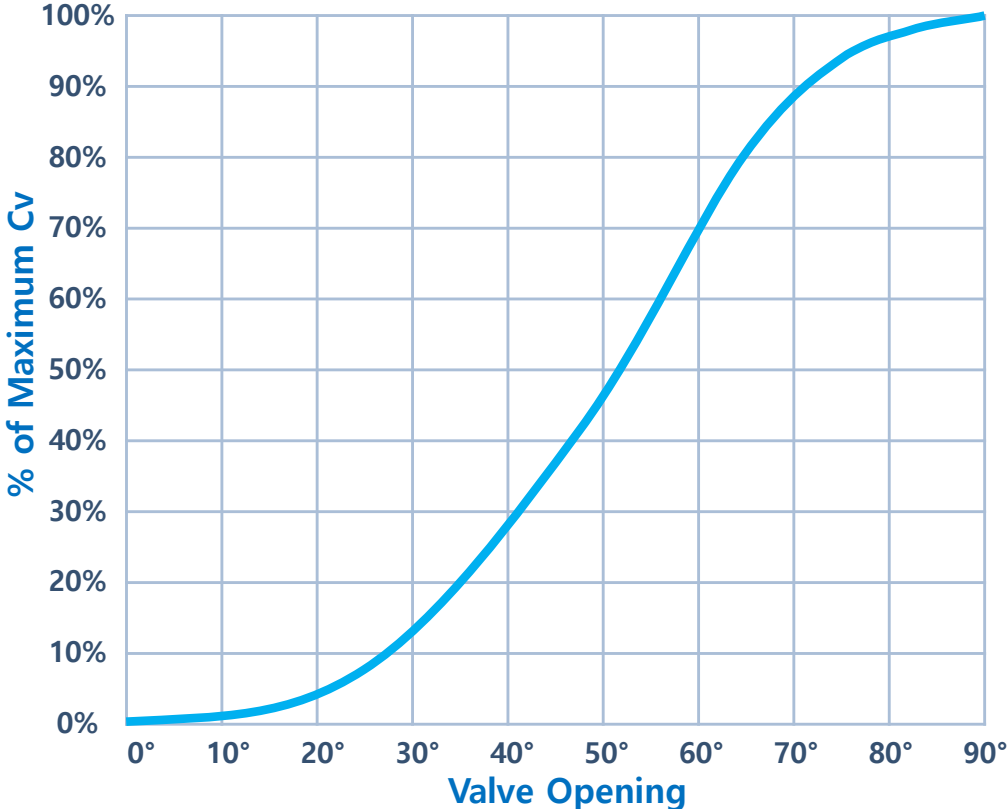


# TECHNICAL DATA

## PRESSURE-TEMPERATURE-DIAGRAM



## FLOW CURVE

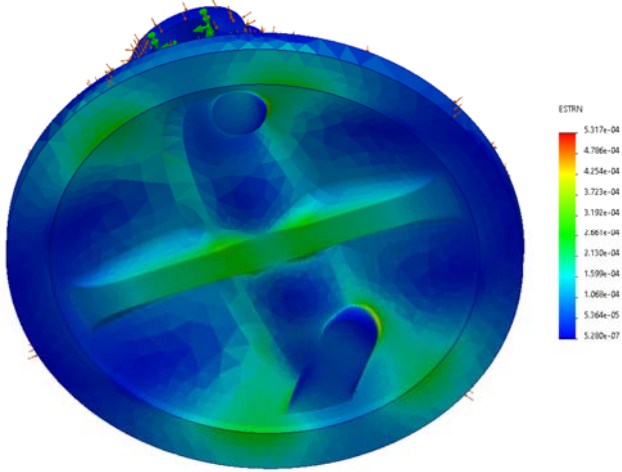
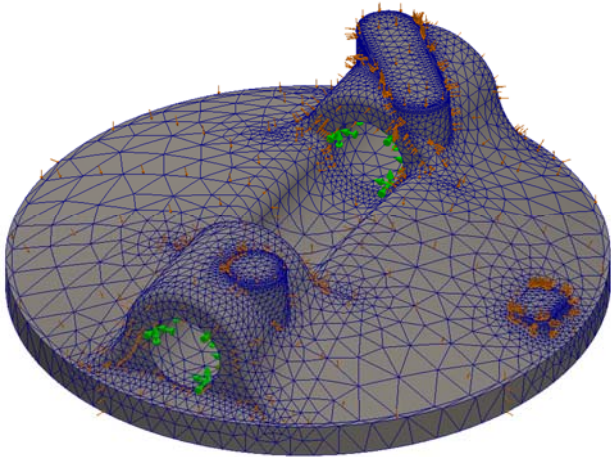


# TECHNICAL DATA

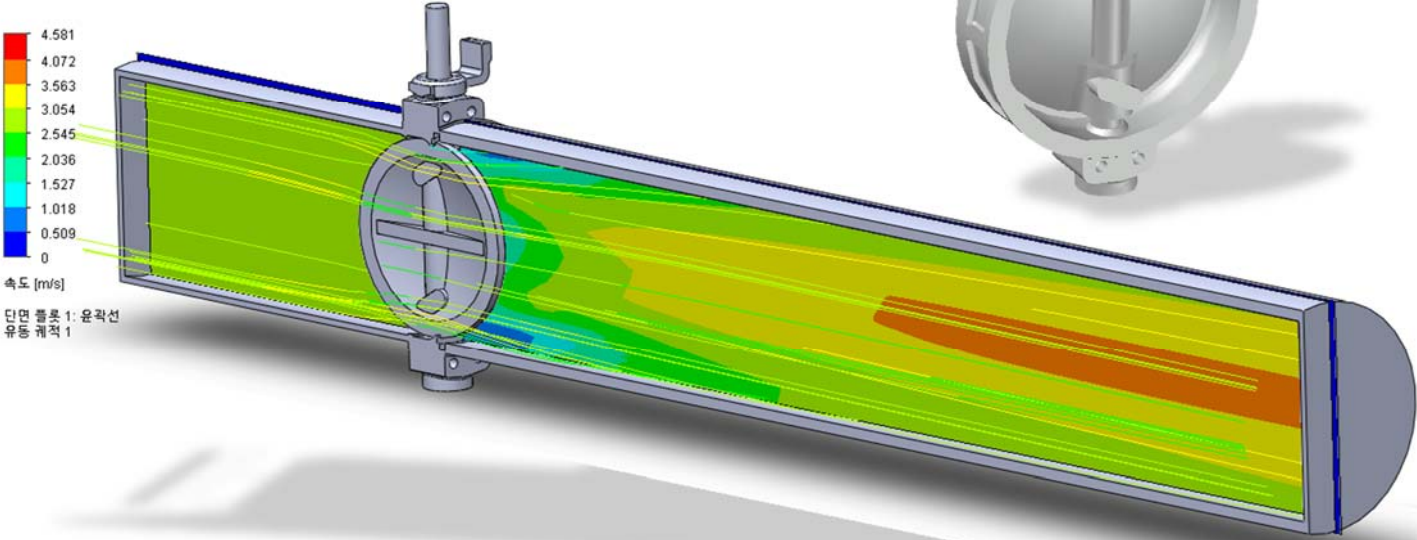
## FLUID ANALYSIS DATA

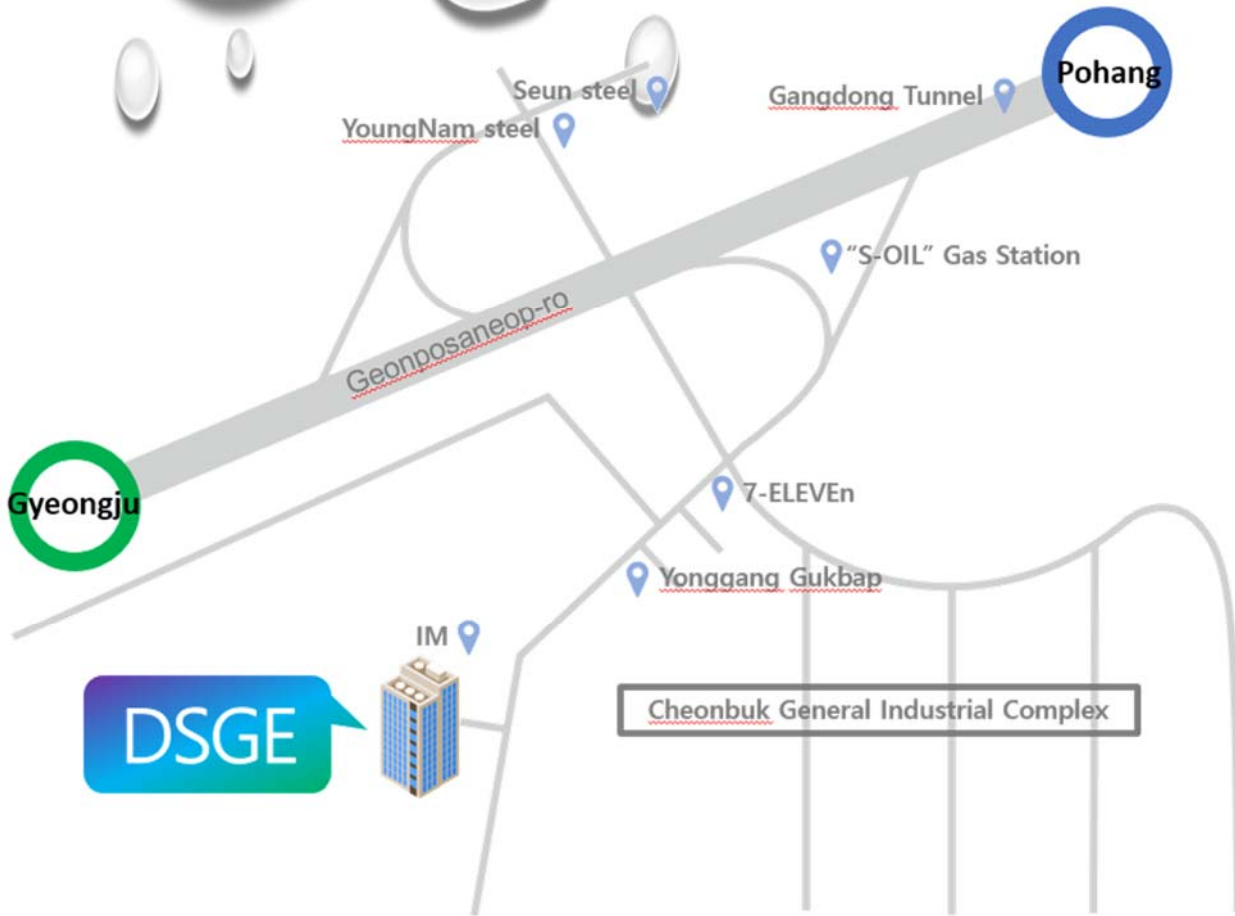
Mesh setting  
( Disc Part )

Von mises stress  
( Disc Part )



Hi-performance  
600A class150  
Fluid Analysis Sample





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**DSGE**

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