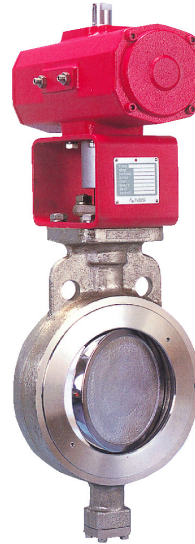


ON-OFF *UNIFLOW*

Patent
registered

ANSI Class 150. 300 PN 10. 16. 25. 40



Wafer



SEAT / Soft. Fire Safe. Metal

Single Flange

Not a Butterfly Valve

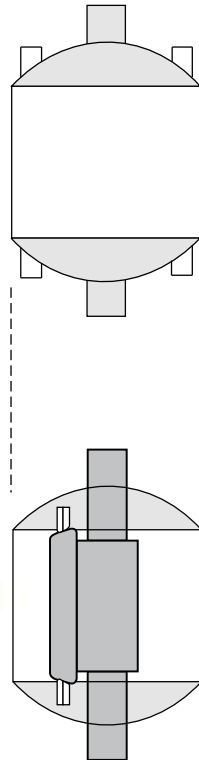
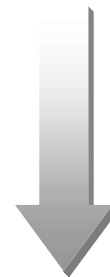
Ball Valve (Trunnion Type)



Compact and Light

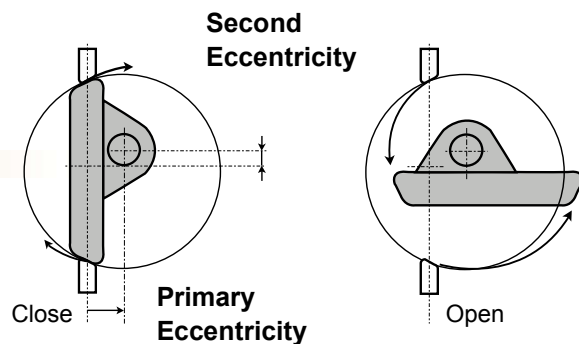


Double Eccentric



Piping Safety

Lower Price



Bi-directional Sealing

Avoiding Seat Abrasion

We propose you to reduce
Initial-cost and **Running-cost**
by

ROTARY VALVE **ON-OFF UNIFLOW**

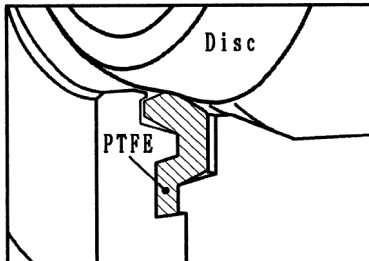
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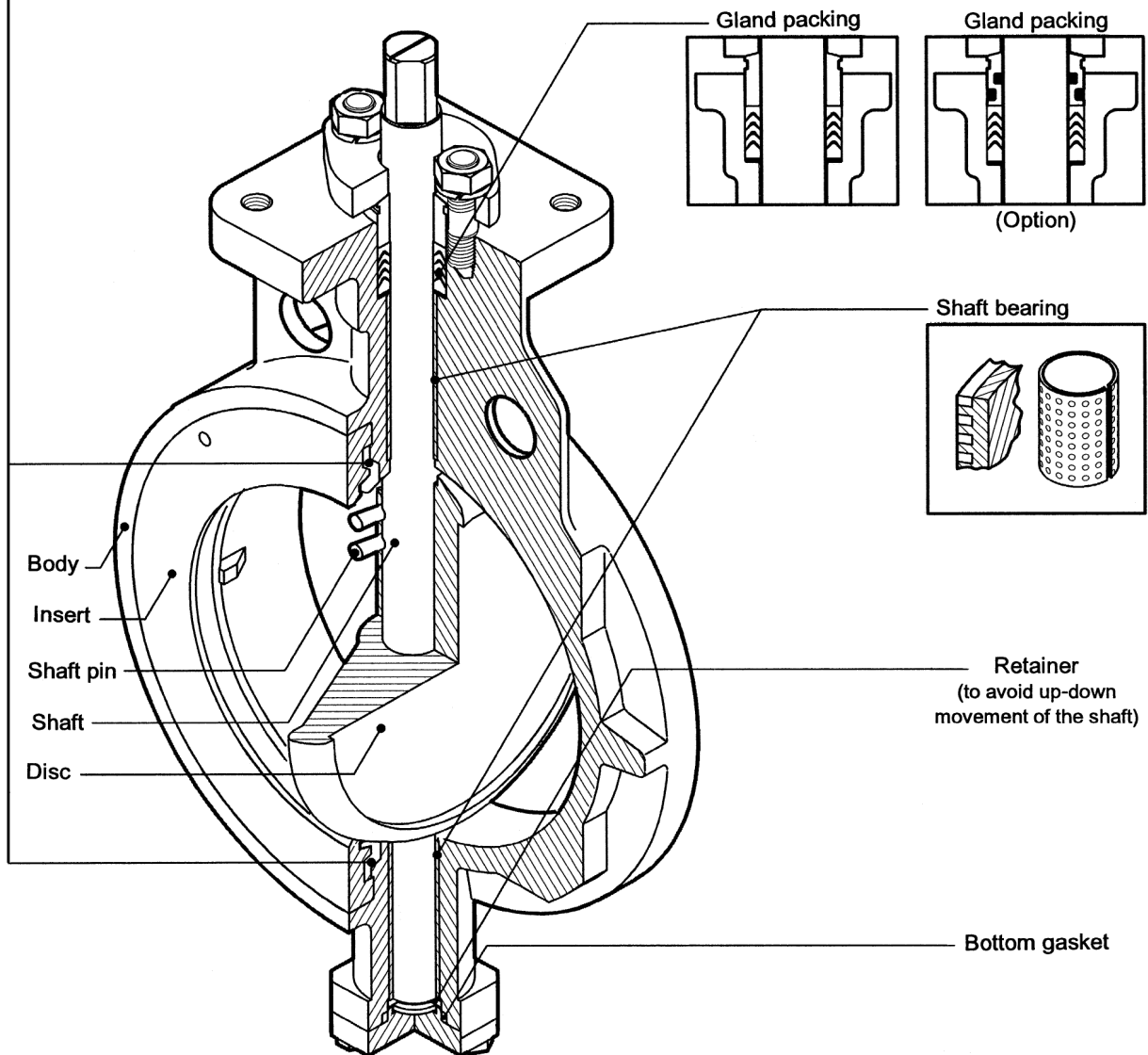
◆ UNIFLOW - Construction

UNIFLOW
SS611E-2A

Soft Single Seat



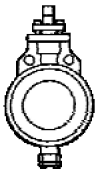
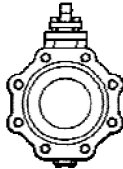
ANSI Class 150,
ISO PN10/16
PN25 (smaller than 300mm)



◆ UNIFLOW - Standard Production Range

UNIFLOW
SS611E-2A

Soft Single Seat

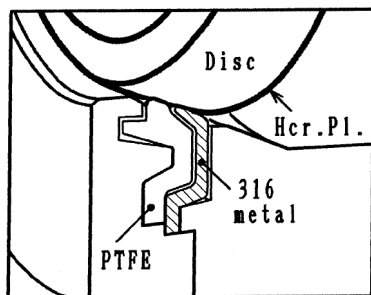
Connection		Wafer 		Single Flange 	
Rating	ANSI	Class 150		Class 150	
	ISO	PN10/16 PN25 (≤ 300mm)		PN10/16	
Nominal Size	mm(inch)	50(2") - 1200(48")		80(3") - 600(24")	
Applied Standards	Designed to	ASME / ANSI B16.34			
	Face to Face	ISO 5752/Short 350mm(14"):Medium			
	Flange Connection	ASME / ANSI B16.5, DIN 2501/Sheet 1 ASME B16.47 Series A: Standard(Series B: available upon request)			
	Bonnet	ISO 5211/1			
Materials	Body	Ductile iron, WCB	316SS(Option:304SS)	WCB	316SS
	Disc	316SS(Option: 304SS)			
	Shaft	316SS(Option: 304SS)			
	Seat	PTFE			
	Gland packing	PTFE (Double Gland Packing as an Option : O-ring/PTFE) (*)			
	Bottom gasket	PTFE			
	Shaft bearing	R-PTFE/316SS			

(*)Double Gland Packing: Certified to TA-LUFT(Technical Guideline for Clean Air Preservation)

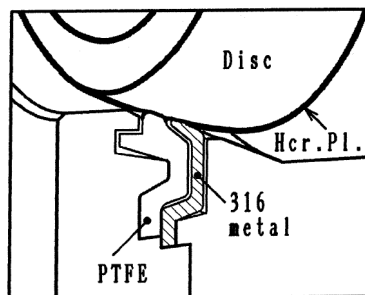
Actuators

Automated On-Off	Pneumatic Rotary Actuators(Double Acting / Spring Return) Electric Motor Actuators Hydraulic Rotary Actuators(Double Acting)
Manual	Worm Gears / Lock Levers / Ratchet Levers(option)

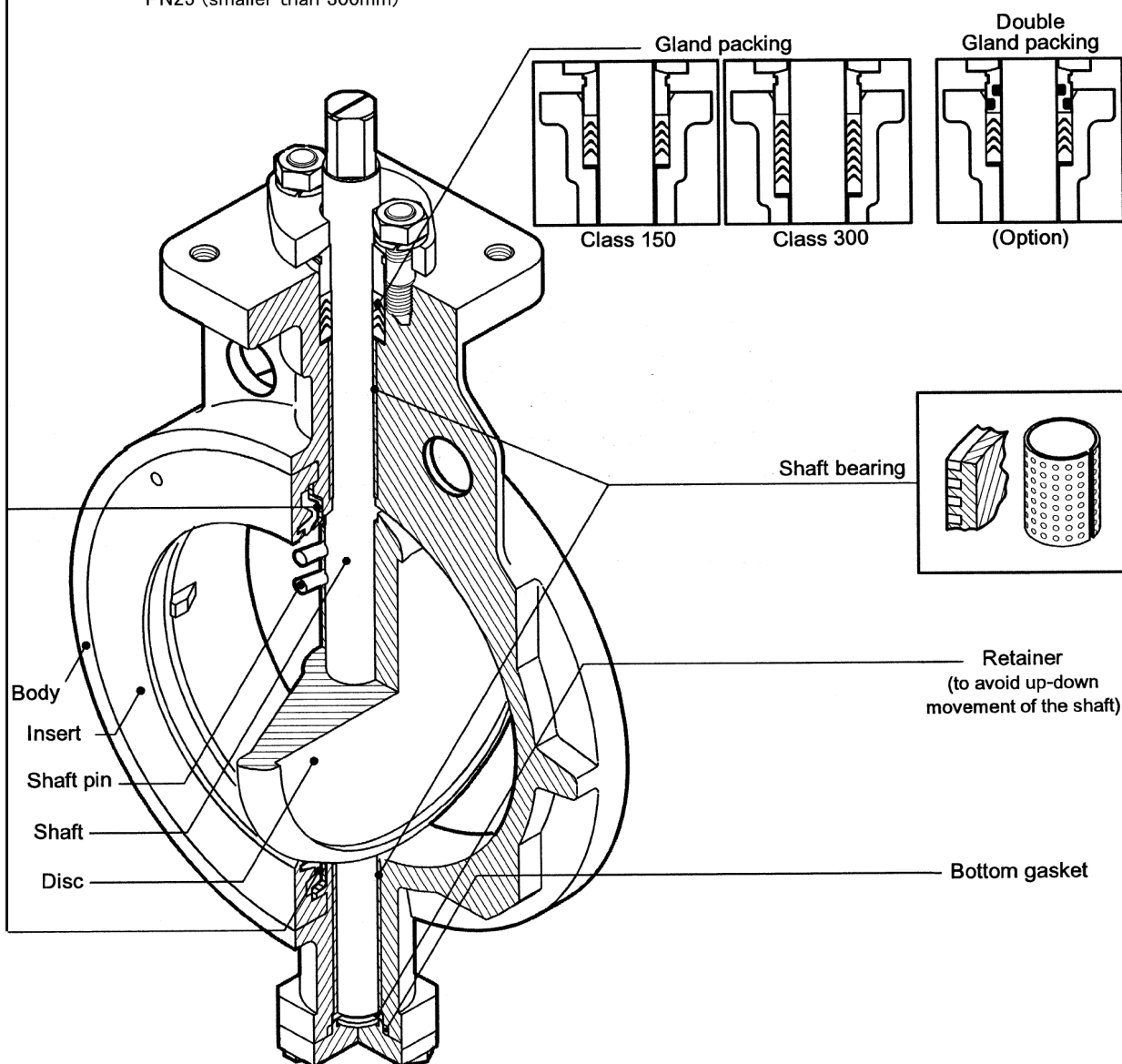
Soft Double Seat



ANSI Class 150,
ISO PN10/16
PN25 (smaller than 300mm)



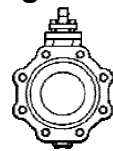
ANSI Class 300,
ISO PN25/40



◆ UNIFLOW - Standard Production Range

UNIFLOW
SS611E-2A

Soft Double Seat

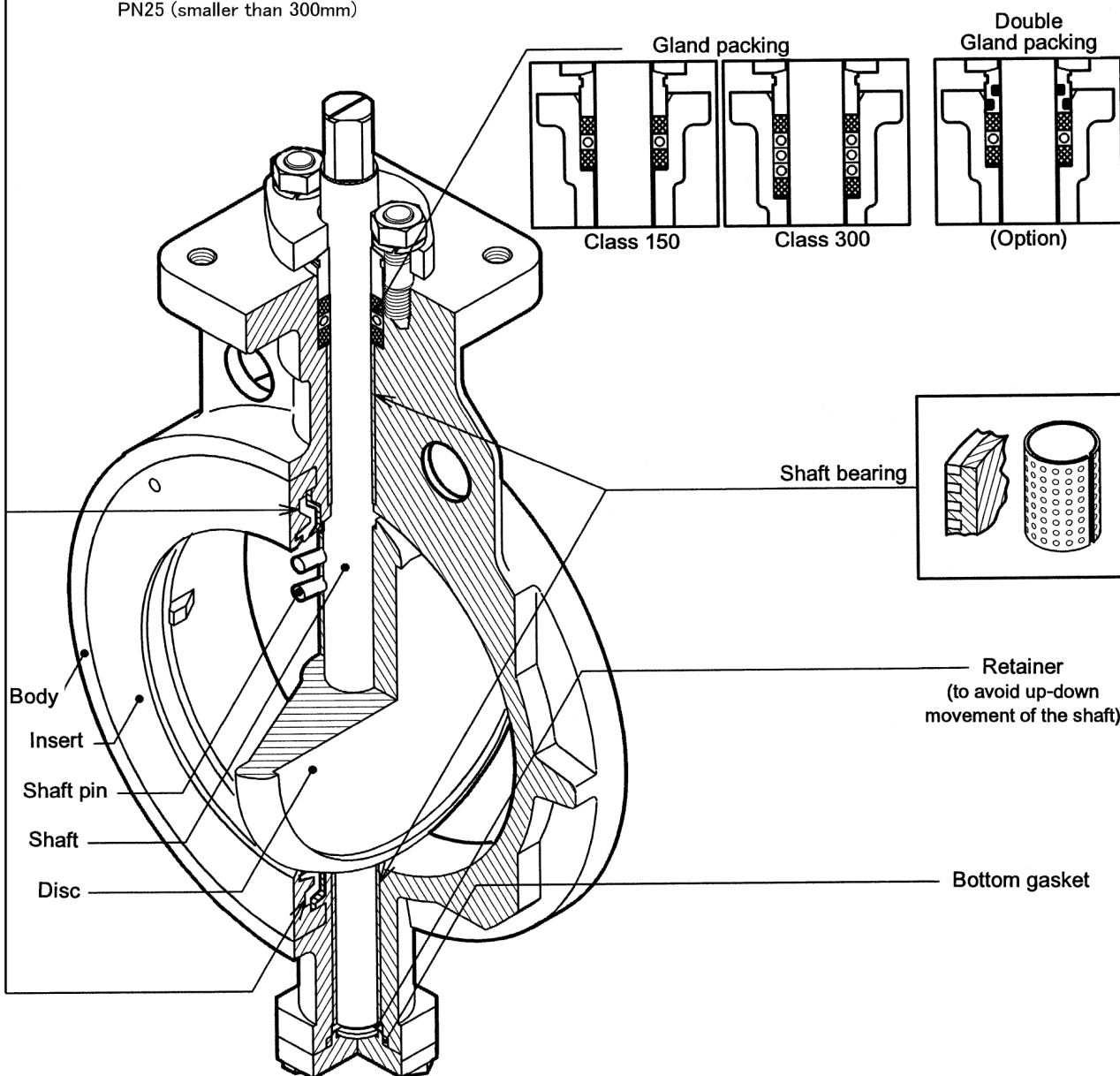
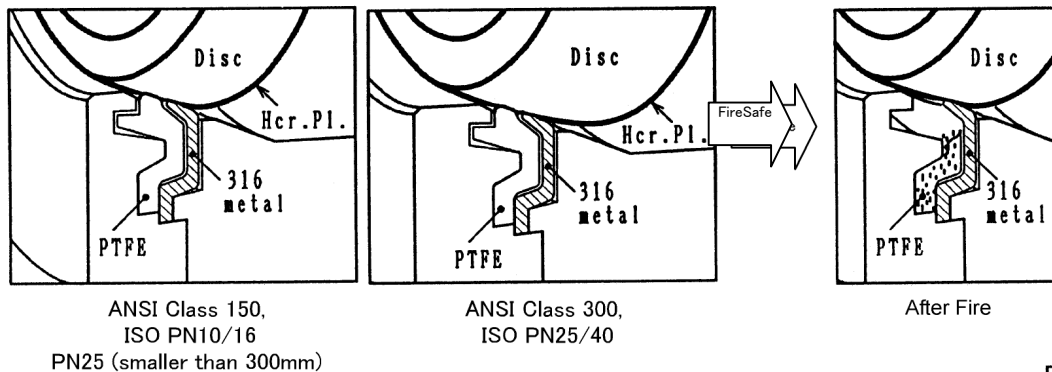
Connection		Wafer 				Single Flange 			
Rating	ANSI	Class 150		Class 300		Class 150		Class 300	
	ISO	PN10/16 PN25 (≤300mm)		PN25/40		PN10/16		PN25/40	
Nominal Size	mm (inch)	50(2") - 1200(48")		80(3") - 600(24")		80(3") - 600(24")			
Applied Standards	Designed to	ASME / ANSI B16.34							
	Face to Face	ISO 5752/Short 350mm(14"):Medium		MSS SP-68		ISO 5752/Short 350mm(14"):Medium		MSS SP-68	
	Flange Connection	ASME / ANSI B16.5, DIN 2501/Sheet 1 ASME B16.47 Series A: Standard(Series B: available upon request)							
	Bonnet	ISO 5211/1							
Materials	Body	Ductile iron, WCB	316SS (Option: 304SS)	WCB	316SS	WCB	316SS	WCB	316SS
	Disc	316SS(Option:304SS)							
	Disc surface	Sealing Surface Hard Chrome Plated (Up to 300mm or 12")							
	Shaft	316SS(Option:304SS)		17-4PH	316SS	316SS(Option:304SS)		17-4PH	316SS
	Seat	PTFE/316SS							
	Gland packing	PTFE (Double Gland Packing as an Option : O-ring/PTFE) (*)							
	Bottom gasket	PTFE							
	Shaft bearing	R-PTFE/316SS							

(*)Double Gland Packing: Certified to TA-LUFT(Technical Guideline for Clean Air Preservation)

Actuators

Automated On-Off	Pneumatic Rotary Actuators(Double Acting / Spring Return) Electric Motor Actuators Hydraulic Rotary Actuators(Double Acting)
Manual	Worm Gears / Lock Levers / Ratchet Levers(option)

Fire Safe Seat



◆ UNIFLOW - Standard Production Range

UNIFLOW
SS611E-2A

Everything except for the following specifications the "Soft Double Seat"(See Page 7.) remains unchanged for the Fire Safe Seat.

Fire Safe Seat		
Materials	Body	Except for Ductile iron
	Gland packing	Non-asbesto / Grafoil Double Gland Packing as an option : O-ring/Non-asbesto/Grafoil (*)
	Bottom gasket	Grafoil : Class 150 - smaller than 600mm(24") Grafoil/316SS : Class 150 - larger than 650mm(26"), Class 300 - all sizes

(*)Double Gland Packing: Certified to TA-LUFT(Technical Guideline for Clean Air Preservation)

Fire Safe Approvals

Applied Standards:

American Petroleum Institute(API)

Fire Safe for soft-seated quarter-turn valves/API Standard 607, Third Edition, Nov. 1985

British Standard(BS):

Testing of valves/Part 2 Specifications for fire type testing requirements BS 6755: Part 2, 1987

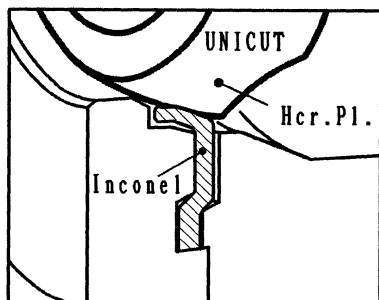
Third Party Inspection Authority:

Lloyd's Register

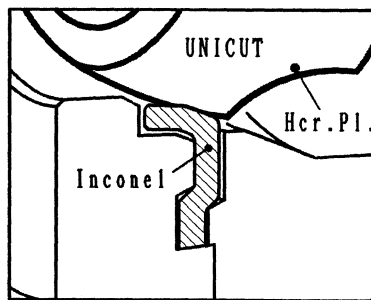
Approved Range:

Tested		Approved Range
Rating	Class 150	Class 150, 300, PN16, 25, 40
Sizes	3"(80mm)	3"(80mm), 4"(100mm), 5"(125mm), 6"(150mm)
	8"(200mm)	8"(200mm), 10"(250mm), 12"(300mm), 14"(350mm), 16"(400mm)
	16"(400mm)	larger than 16"(400mm)

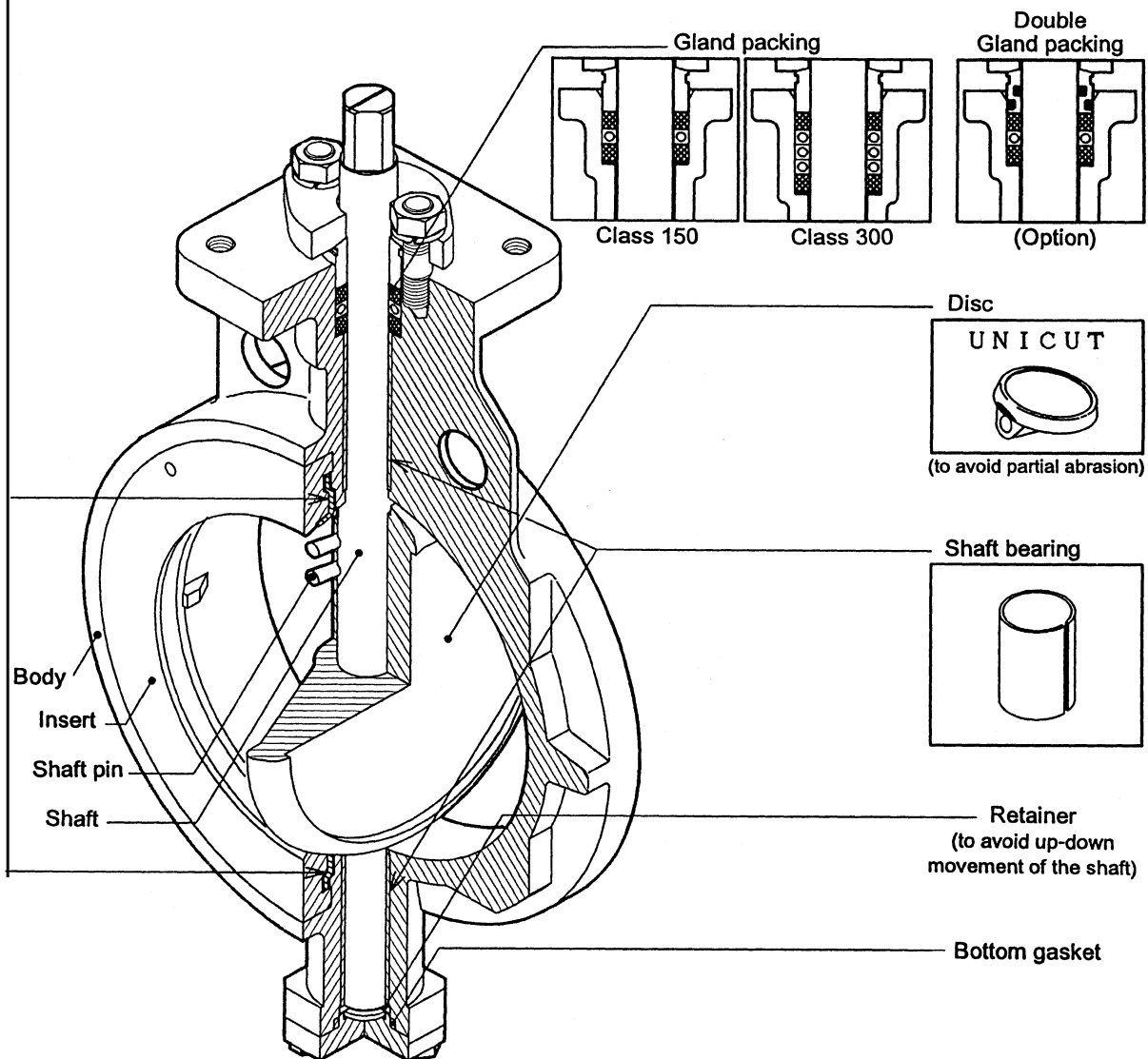
Metal Seat



ANSI Class 150,
ISO PN10/16
PN25 (smaller than 300mm)



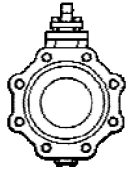
ANSI Class 300,
ISO PN25/40



◆ UNIFLOW - Standard Production Range

UNIFLOW
SS611E-2A

Metal Seat

Connection		Wafer 				Single Flange 			
Rating	ANSI	Class 150		Class 300		Class 150		Class 300	
	ISO	PN10/16 PN25 (≤300mm)		PN25/40		PN10/16		PN25/40	
Nominal Size	mm (inch)	50(2") - 1200(48")		80(3") - 600(24")		80(3") - 600(24")			
Applied Standards	Designed to	ASME / ANSI B16.34							
	Face to Face	ISO 5752/Short 350mm(14"):Medium		MSS SP-68		ISO 5752/Short 350mm(14"):Medium		MSS SP-68	
	Flange Connection	ASME / ANSI B16.5, DIN 2501/Sheet 1 ASME B16.47 Series A: Standard(Series B: available upon request)							
	Bonnet	ISO 5211/1							
Materials	Body	Ductile iron WCB	316SS (Option: SS304)	WCB	316SS	WCB	316SS	WCB	316SS
	Disc	316SS(Option: 304SS)							
	Disc surface	Sealing surface Hard Chrome Plated							
	Shaft	316SS(Option: 304SS)		17-4PH	316SS	316SS(Option: 304SS)		17-4PH	316SS
		17-4PH : for all applications exceeding 300°C							
	Seat	Inconel							
	Gland packing	Non-asbesto / Grafoil Double Gland Packing as an option: O-ring/Non-asbesto/Grafoil(*)							
	Bottom gasket	Grafoil : Class 150 - smaller than 600mm(24") Grafoil/316SS : Class 150 - larger than 650mm(26"), Class 300 - all sizes							
Shaft bearing	316SS								

(*)Double Gland Packing: Certified to TA-LUFT(Technical Guideline for Clean Air Preservation)

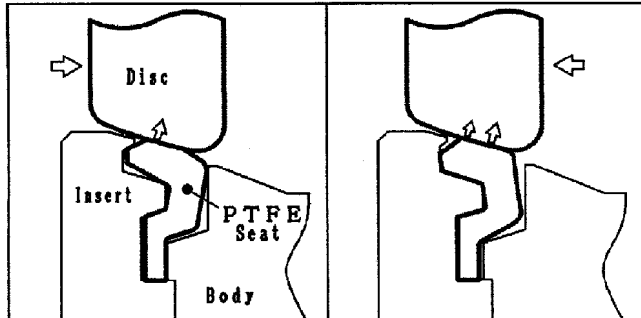
Actuators

Automated On-Off	Pneumatic Rotary Actuators(Double Acting / Spring Return), Electric Motor Actuators, Hydraulic Rotary Actuators(Double Acting)
Manual	Worm Gears / Lock Levers / Ratchet Levers(option)

Soft Single Seat

1. Seat Performance

(1) Bi-directional Sealing



(2) Leakage Standard : Zero Leakage

<Application>

- ① Fluids: Liquid, Gas
- ② Pressure/Temperature Rating:
See the diagram.
- ③ Maximum differential pressure when pressurized with shaft upstream: upto 50% of the listed rating.
- ④ For application in the slashed-line area: To be consulted to us.
- ⑤ This is for On-Off application. If the valve is used always with a slightly open degree, you are requested to consult us.

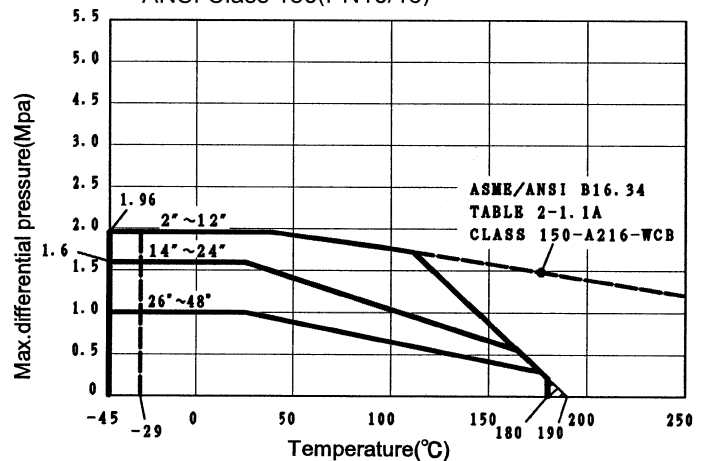
(3) Seat Life : After 100,000 cycles

Leakage in case of clean air : less than
5cc/min./inch

Leakage in case of clean water :
0cc/min./inch

■ Pressure/Temperature Rating

ANSI Class 150(PN10/16)



2. Sealing at Gland

(1) Leakage Standard : Zero Leakage

(2) Seal Life : 500,000 cycles

Leakage in case of clean air : Zero

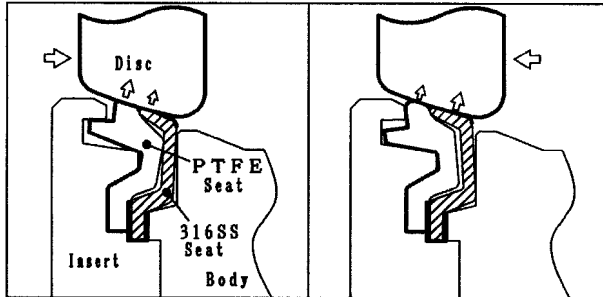
3. Function Performance

Life : 1,000,000 cycles

Soft Double Seat

1. Seat Performance

(1) Bi-directional Sealing



(2) Leakage Standard : Zero Leakage

<Application>

- ① Fluids: Liquid, Liquid gas, Gas, Steam
($\leq 150^{\circ}\text{C}$)
- ② Pressure/Temperature Rating:
See the diagram.
- ③ Maximum differential pressure when
pressurized with shaft upstream:
upto 50% of the listed rating.
- ④ For application in the slashed-line
area: To be consulted to us.
- ⑤ This is for On-Off application. If the
valve is used always with a slightly
open degree, you are requested to
consult us.

(3) Seat Life : After 100,000 cycles

Leakage in case of clear air : less than
5cc/min./inch

Leakage in case of clear water :
0cc/min./inch

2. Sealing at Gland

(1) Leakage Standard : Zero Leakage

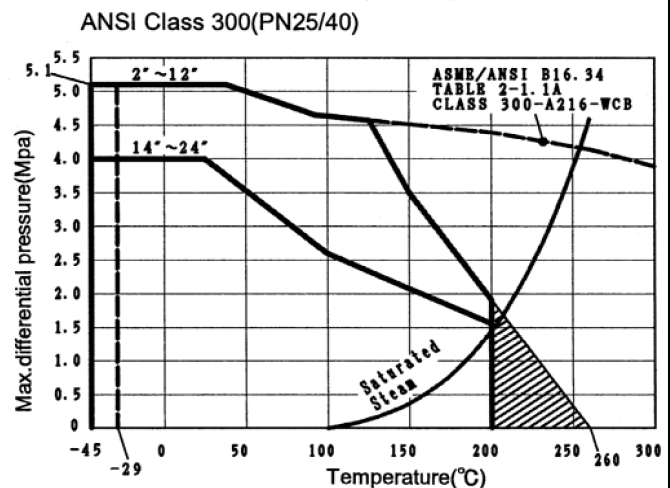
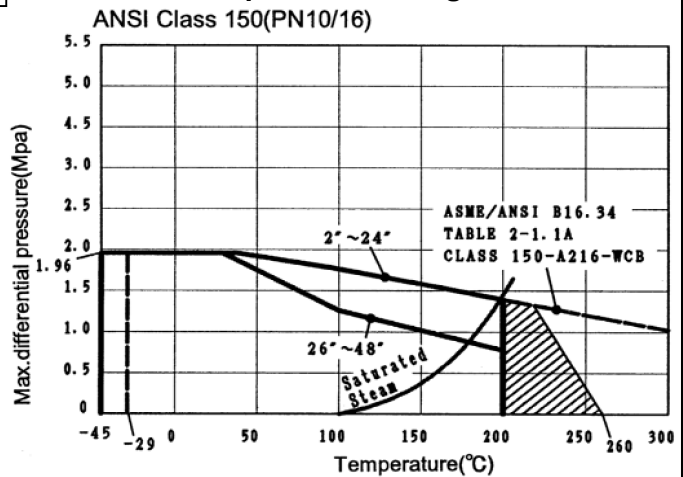
(2) Seal Life : 500,000 cycles

Leakage in case of clear air : Zero

3. Function Performance

Life : 1,000,000 cycles

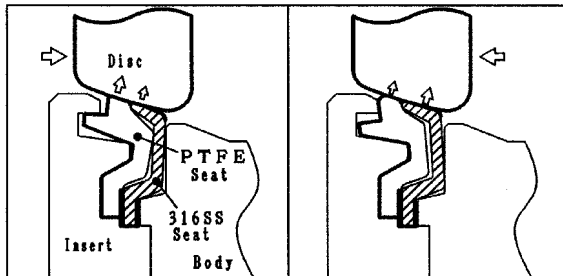
■ Pressure/Temperature Rating



Fire Safe Seat

1. Seat Performance

(1) Bi-directional Sealing



"Fire Safe" is a construction of protecting the seat from excessive flow leakage in case of fire.

(2) Leakage Standard : Zero Leakage

In case of fire: less than
400cc/min./inch(water)
acc to API/BS standards

<Application>

- ① Fluids: Flammable-, Toxic-fluids,
Liquid gas, Gas, Steam ($\leq 200^{\circ}\text{C}$)
- ② Pressure/Temperature Rating:
See the diagram.
- ③ Maximum differential pressure when
pressurized with shaft upstream:
upto 50% of the listed rating
- ④ For application in the slashed-line
area: To be consulted to us.
- ⑤ This is for On-Off application. If the
valve is used always with a slightly
open degree, you are requested to
consult us.

(3) Seat Life : After 100,000 cycles

Leakage in case of clear air : less than
2.5cc/min./inch

Leakage in case of clear water :
0cc/min./inch

2. Sealing at Gland

(1) Leakage Standard : Zero Leakage

In case of fire: less than
100cc/min./inch(water) acc to API/BS
standards

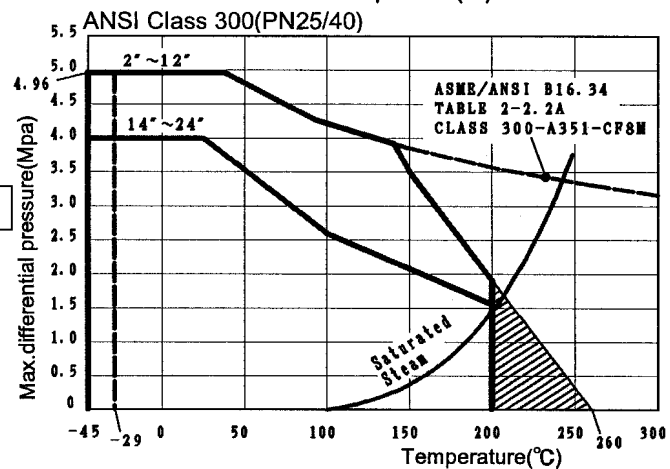
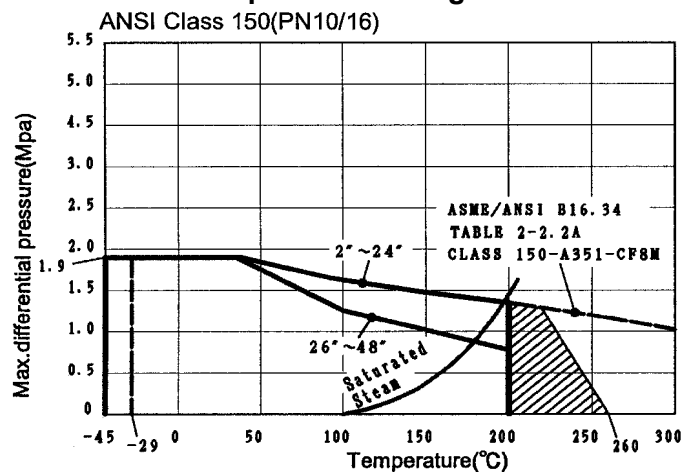
(2) Seal Life : 500,000 cycles

Leakage in case of clear air : Zero

3. Function Performance

Life : 1,000,000 cycles

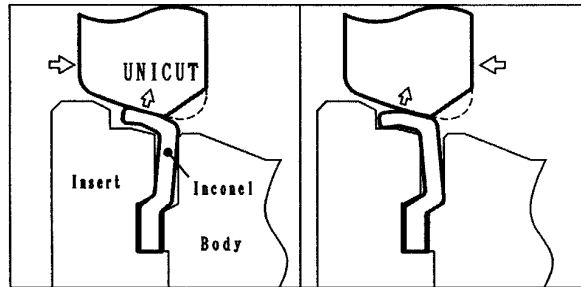
■ Pressure/Temperature Rating



Metal Seat

1. Seat Performance

(1) Bi-directional Sealing



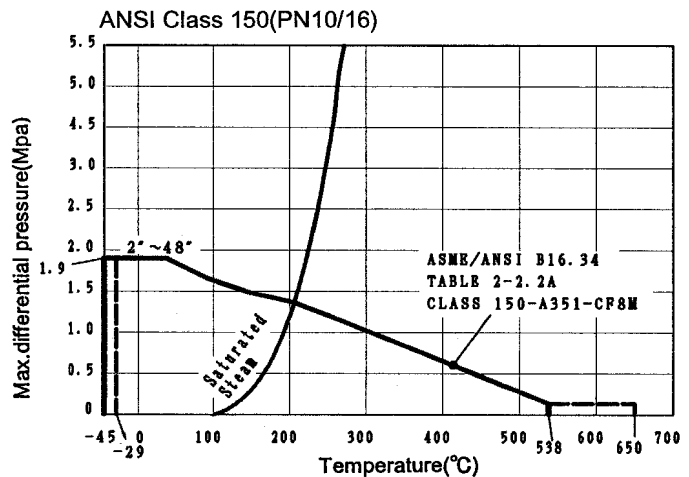
(2) Leakage Standard :

- ≤ 12" : ANSI/FCI 70-2 Class VI(option),
- ≤ 12" : ANSI/FCI 70-2 Class V,
- ≥ 14" : ANSI/FCI 70-2 Class IV x 10⁻¹

<Application>

- ① Fluids: Gas, Steam, Liquid, Liquid gas
- ② Pressure/Temperature Rating: See the diagram.
- ③ Maximum differential pressure when pressurized with shaft upstream: upto 50% of the listed rating
- ④ This is for On-Off application. If the valve is used always with a slightly open degree, you are requested to consult us.

■ Pressure/Temperature Rating



(3) Seat Life : ≤ 12" : 180,000 cycles

(less than Class V x 10/clean water)

≥ 14" : 100,000 cycles

(less than Class IV x 10⁻¹ / clear water, clean air)

2. Sealing at Gland

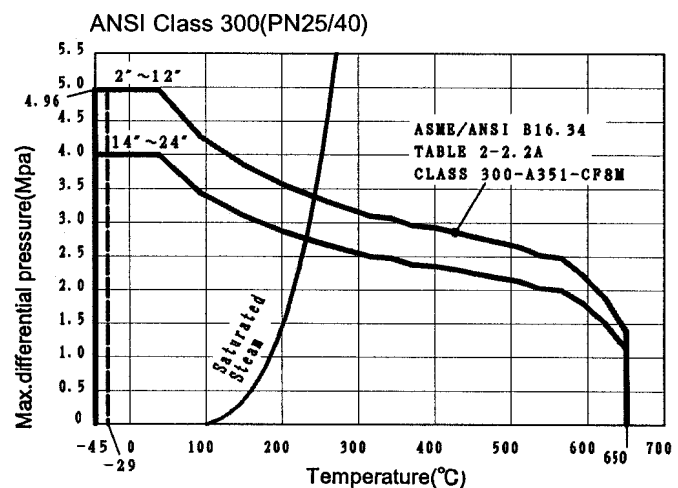
(1) Leakage Standard : Zero Leakage

(2) Seal Life : 500,000 cycles

Leakage in case of clear air : Zero

3. Function Performance

Life : 1,000,000 cycles



◆ **UNIFLOW - Performance**

UNIFLOW
SS611E-2A

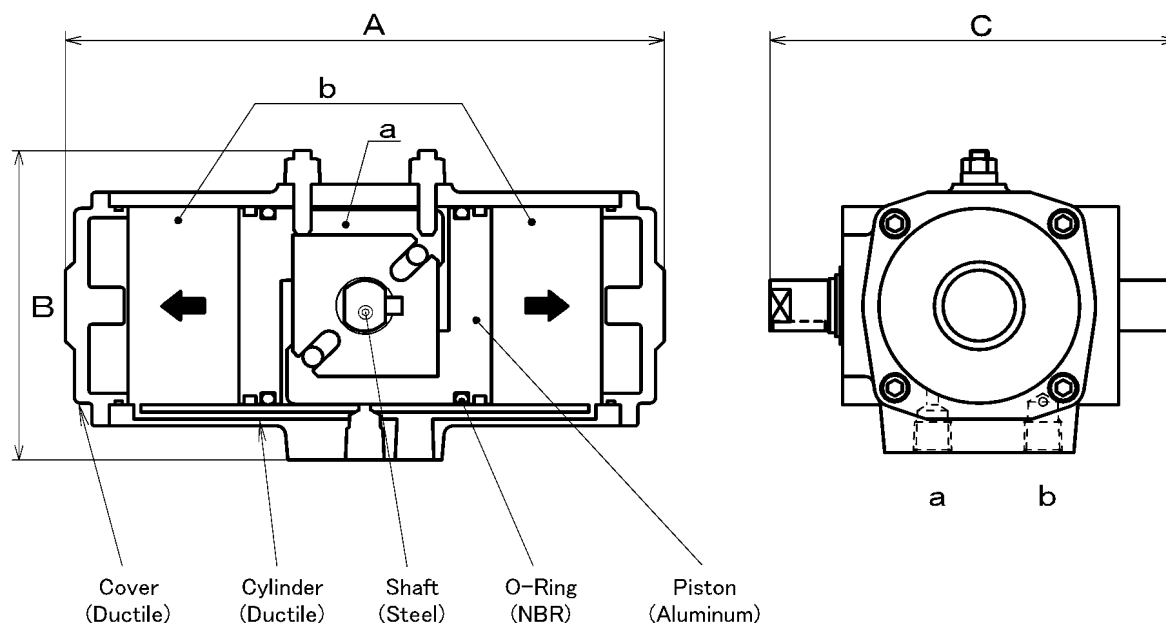
Cv Values vs. Travel Position												
ANSI Class 150/300, ISO/DIN PN10/16/25/40												
Size		ANSI	ISO/ DIN(PN)	Angle of Opening								
inch	mm			10°	20°	30°	40°	50°	60°	70°	80°	90°
2	50	150/300	10~40	2	5	10	15	23	34	47	61	67
2.5	65	150/300	10~40	3	10	18	30	44	64	90	117	128
3	80	150/300	10~40	4	14	25	42	62	93	127	167	182
4	100	150/300	10~40	13	32	57	94	144	209	290	369	410
5	125	150/300	10~40	18	48	84	140	208	312	432	536	610
6	150	150	10/16	40	100	165	265	400	600	805	1,025	1,150
		300	25/40	30	76	125	200	305	460	615	785	880
8	200	150	10/16	65	170	290	485	735	1,080	1,490	1,850	2,100
		300	25/40	60	155	265	440	665	980	1,350	1,675	1,900
10	250	150	10/16	100	260	445	735	1,120	1,680	2,270	2,850	3,200
		300	25/40	90	230	390	645	980	1,470	1,985	2,495	2,800
12	300	150	10/16	150	385	660	1,080	1,645	2,520	3,385	4,185	4,700
		300	25/40	130	335	575	945	1,435	2,200	2,955	3,650	4,100
14	350	150	10/16	190	470	810	1,335	1,950	2,850	4,060	5,105	5,800
		300	25/40	180	445	770	1,265	1,850	2,705	3,850	4,840	5,500
16	400	150	10/16	250	650	1,110	1,820	2,720	3,900	5,670	7,100	8,000
		300	25/40	235	615	1,055	1,730	2,585	3,705	5,385	6,745	7,600
18	450	150	10/16	340	850	1,460	2,415	3,520	5,300	7,400	9,280	10,500
		300	25/40	320	800	1,375	2,265	3,320	5,000	6,980	8,750	9,900
20	500	150	10/16	430	1,100	1,940	3,200	4,800	7,000	9,900	12,390	14,000
		300	25/40	400	1,020	1,800	2,970	4,460	6,500	9,190	11,500	13,000
24	600	150	10/16	650	1,700	2,940	4,830	7,300	10,700	14,900	18,500	21,000
		300	25/40	605	1,580	2,730	4,485	6,780	9,940	13,840	17,180	19,500
26	650	150	10/16	780	2,000	3,500	5,700	8,600	12,700	17,700	22,100	25,000
28	700	150	10/16	800	2,350	4,100	6,700	10,000	14,700	20,550	25,600	29,000
30	750	150	10/16	980	2,750	4,700	7,800	11,700	17,000	23,700	29,600	33,500
32	800	150	10/16	1,150	3,300	5,700	9,400	14,000	20,900	29,100	36,200	41,000
36	900	150	10/16	1,500	4,200	7,600	12,500	18,800	28,000	38,900	48,600	55,000
40	1000	150	10/16	2,000	5,400	9,700	16,000	24,000	35,700	49,500	61,800	70,000
44	1100	150	10/16	2,500	6,700	12,000	19,800	29,800	44,300	61,300	76,600	87,000
48	1200	150	10/16	3,050	8,200	14,500	23,700	35,800	53,000	73,600	92,000	104,000

Cv value indicates quantity of water at 60°F(15.6°C)in US gal./min. which flows through the valve at pressure drop of 1 psi(0.0069MPa)

◆ UNIPOWER Rotary Pneumatic Actuator

UNIFLOW
SS611E-2A

■ NC type - Double Acting



Actuator Type Number		NC091	NC201	NC351	NC651(*)
Dimensions	A (mm)	206	260	320	380
	B (mm)	107	136	164	196
	C (mm)	140	170	206	252
Weight	Kg	6.0	10.5	19.0	32.0
Output Torque (at 0.39MPa/58psi)	Nm	82.5	175	319	583
Cylinder Volume	a (liters)	0.38	0.81	1.5	2.7
	b (liters)	0.39	0.82	1.5	2.7
Air Consumption (at 0.39MPa/58psi)	liters /cycle	3.85	8.15	15.0	27.0
Operation Speed(**)	Seconds	1.0	2.3	4.0	5.0

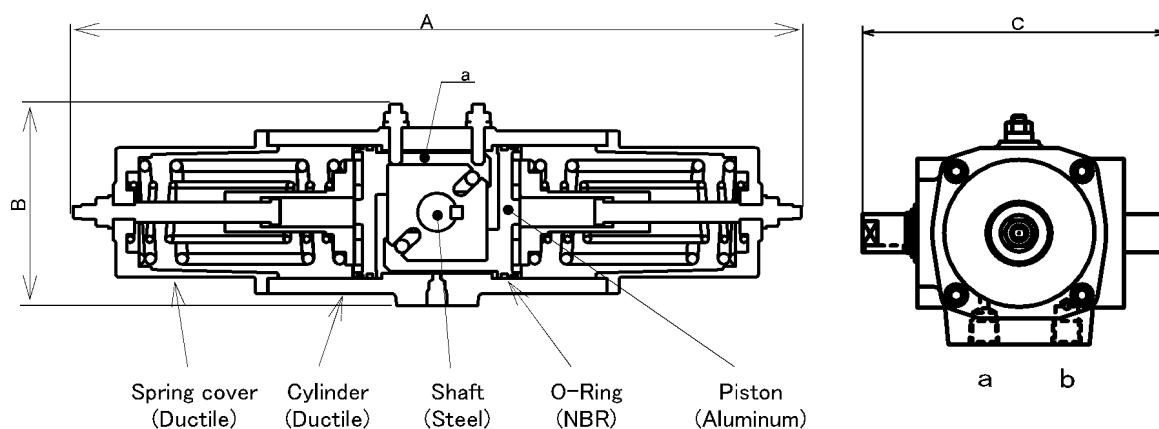
(*) : Option

(**) : UNIPOWER's own

◆ UNIPOWER Rotary Pneumatic Actuator

UNIFLOW
SS611E-2A

■ NE type - Spring Return



Operating Pressure : 0.39MPa / 58psi

Operating Temperature : -20°C ~ +80°C / -4°F ~ +176°F

Actuator Type Number			NE091S	NE201S	NE351S
Dimensions	A (mm)		368	476	572
	B (mm)		107	136	164
	C (mm)		140	170	206
Weight	Kg		7.6	14.2	24.6
Output Torque (at 0.39MPa/58psi)	Nm	FC	28	65	120
		FO	38	79	145
Cylinder Volume	a (liters)		0.38	0.81	1.5
Air Consumption (at 0.39MPa/58psi)	liters / stroke		1.9	4.05	7.5

FC : Air Failure, Valve Close

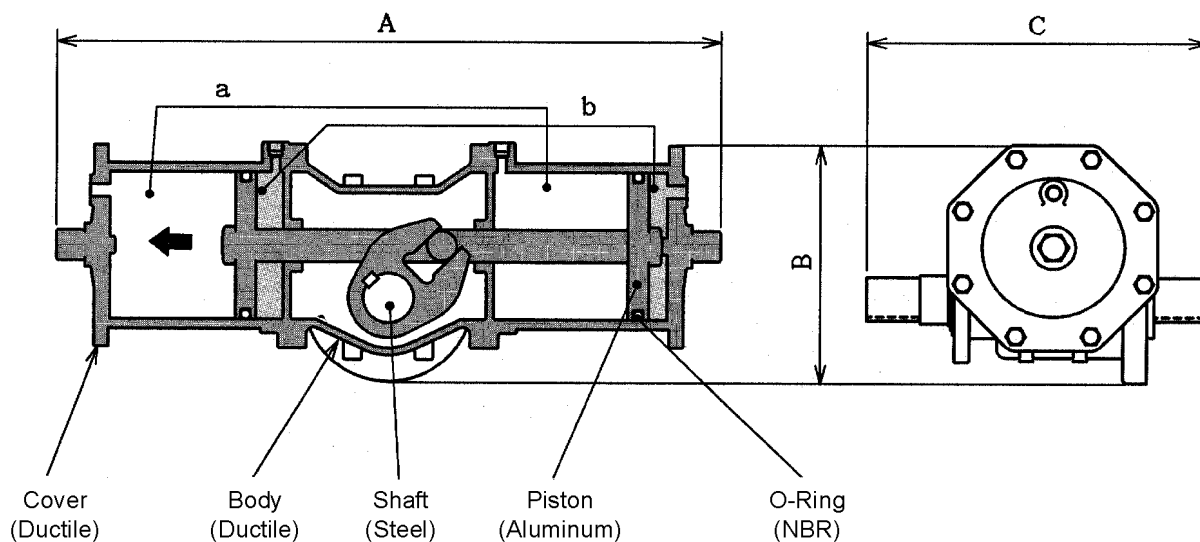
FO : Air Failure, Valve Open

As for function speed, refer to NC type Double acting actuators' as reference.

◆ UNIPOWER Rotary Pneumatic Actuator

UNIFLOW
SS611E-2A

■ NS type - Double Acting



Operating Pressure : 0.39Mpa / 58psi

Operating Temperature : -20°C ~ +80°C / -4°F ~ +176°F

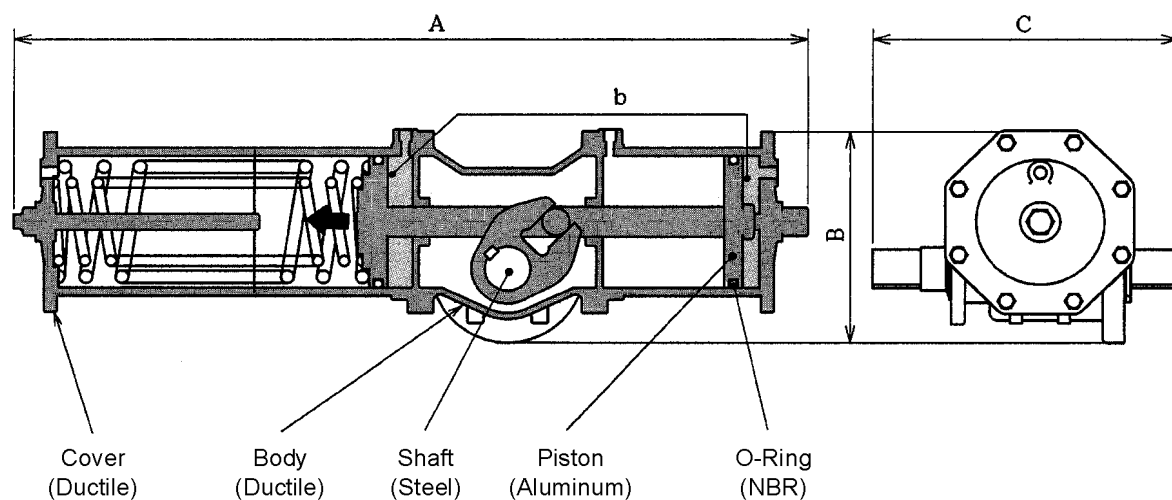
Actuator Type Number		NS-13N	NS-17N	NS-20N	NS-28N
Dimensions	A (mm)	610	750	1050	1350
	B (mm)	200	271	347	459
	C (mm)	282	390	460	590
Weight	Kg	43	80	140	270
Output Torque (at 0.39MPa/58psi)	Nm	780	1660	3620	8500
Cylinder Volume	a (liters)	3.1	6.7	14.8	34.6
	b (liters)	3.1	6.7	14.8	34.6
Air Consumption (at 0.39MPa/58psi)	liters /cycle	31.0	67.0	148.0	346.0
Operation Speed(*)	Seconds	1.0	1.5	2.0	3.0

(*): UNIPOWER's own

◆ UNIPOWER Rotary Pneumatic Actuator

UNIFLOW
SS611E-2A

■ NS type - Spring Return



Operating Pressure : 0.39MPa / 58psi

Operating Temperature : -20°C ~ +80°C / -4°F ~ +176°F

Actuator Type Number		NS-13NS	NS-17NS	NS-20NS	NS-28NS
Dimensions	A(mm)	865	983	1412	1828
	B(mm)	200	271	347	459
	C(mm)	282	390	460	590
Weight	Kg	58	107	190	390
Output Torque (at 0.39MPa/58psi)	Nm	270	620	1370	3630
Cylinder Volume	a(liters)	-	-	-	-
	b(liters)	3.1	6.7	14.8	34.6
Air Consumption (at 0.39MPa/58psi)	liters /stroke	15.5	33.5	74.0	173.0

FC : Air Failure, Valve Close (The picture above shows "FC" function.)

FO : Air Failure, Valve Open (The spring compartment will be located on the right side of the picture.)

◆UNIPOWER Rotary Pneumatic Actuator

UNIFLOW
SS611E-2A

■ Standard Specifications and Accessories				
Types Spec-Items	NC / NE		NS	
	Double Acting (NC--)	Spring Return (NE--S)	Double Acting (NS--N)	Spring Return (NS--NS)
Construction	Scotch Yoke type pneumatic cylinder rotary actuator			
Connection Standards	ISO 5211/1		ISO 5211/1 (upon request)	
	NAMUR to VDI/VDE 3845 available upon request			
Application	On-Off		On-Off	
Materials				
Body/Cover	FCD400(Ductile iron)		FCD400(Ductile iron)	
Cylinder	FCD400(Ductile iron)		STKM13(Steel pipe)	
Shaft	S45C(Steel)/hard chrome plated		S45C(Steel)/hard chrome plated	
Piston	AC4C-T6(Aluminum)		A6061-T6(Aluminum)	
O-Rings	NBR		NBR	
Operating Pressure	Air 0.39MPa / 58psi		Air 0.39MPa / 58psi	
Piping connections	Rc 1/4" for { NC091 upto NC651 NE091S upto NE351S		Rc 1/4" for NS-13N(S), Rc 3/8" for NS-17N(S) upto NS-20N(S), Rc 1/2" for NS-28N(S)	
Opening range	Rotary On-Off : 0 ~ 93°		Rotary On-Off : 0 ~ 93°	
Allowable environmental temperature	-20°C ~ +80°C / -4°F ~ +176°F		-20°C ~ +80°C / -4°F ~ +176°F	
Protection rating	Outdoors waterproof(IP55)		Outdoors waterproof(IP55)	
Standard painting (incl.Yoke)	Magenta		Magenta	
Accessories (*)				
Manual operators	G type Manual gear, (*) Lever		Manual gear	Side handle
Limit switches	1LS(water-proof), 1LX(explosion-proof) VCL(water-proof), VCX(explosion-proof)			
Solenoid valves	3-way : M00U (water-proof, explosion-proof), 4-way : M15G - M65G(water-proof, explosion-proof)			
Air filter regulators	AW3000 — AW4000, XR108			
Speed controllers	AS4000			
Quick exhaust valves	QEV—8, QEV—10, QEV—15, QEV -20			
Silencers	AN200, AN300, AN400, AN500			
Pressure equalizing valve	DH-12B			
Others(*)	Special instructions available for salty environment, extreme cold environment, special air-tubing, special joints, special painting, stainless steel bolts/nuts for outside exposed environment, volume tanks, lock-up valves, etc.			

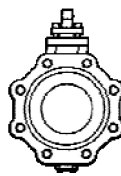
(*) : Option

◆ Maintenance

UNIFLOW
SS611E-2A



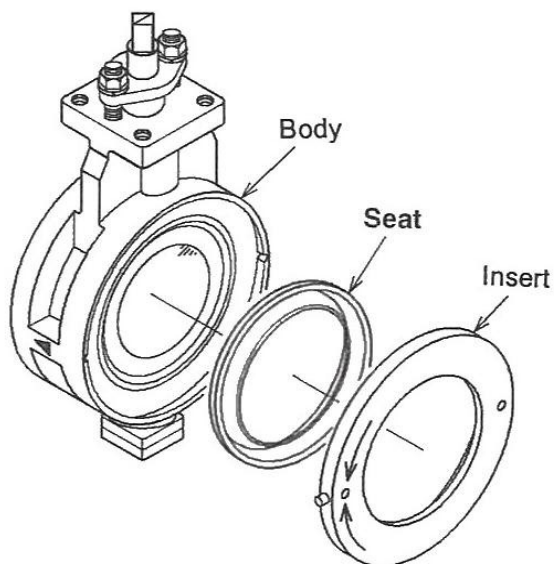
Wafer



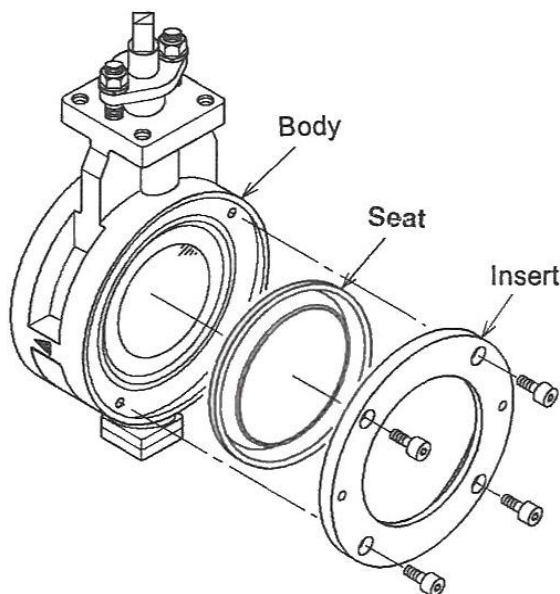
Single Flange

■ Easy Replacement of Seat and Seal

Seat replacement can be done very easily and quickly without disassembling the shaft and disc.



Flat Face Insert - for sizes smaller than 12"(300mm)



Bolted Insert - for sizes larger than 14"(350mm)

■ Seal Kits

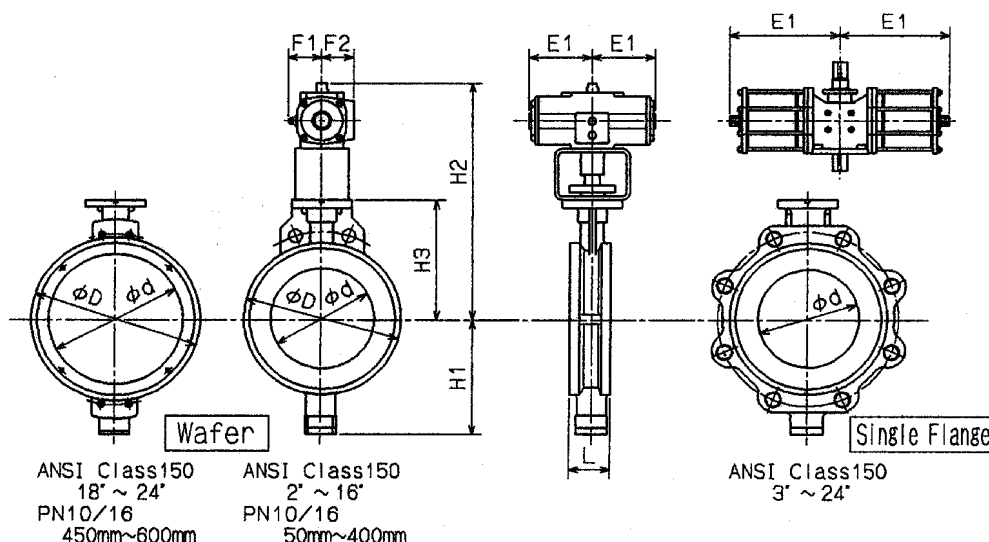
Parts Name	Soft Double Seat		Soft Single Seat	Metal Seat
	Fire Safe Seat	Double Seat		
Seat	PTFE seat Gasket tape (Grafoil:T#1220) Metal seat (316ss)			Inconel Gasket tape(Grafoil:T#1220)
Gland packing	Non-asbesto Grafoil (P#6528/P#6610 equiv.)	PTFE	PTFE	Non-asbesto Grafoil(P#6528/P#6610 equiv.)
Bottom gasket	Grafoil (*) (P#6610 equiv.)	PTFE	PTFE	Grafoil (*) (P#6610 equiv.)
Body gasket	Grafoil / 316SS (T#1804-GR)-- only for Double FlangeType(Gate A face to face)			

(*)All sizes for classes larger than ANSI 300 : Grafoil/316SS
Profiles of the seats here are roughly drawn.

◆ Dimensions of On-Off UNIFLOW

UNIFLOW
SS611E-2A

ANSI Class 150, PN10/16 (Wafer Type, Single Flange Type) 2"(50mm)-24"(600mm) with UNIPOWER (Double Acting Actuator)



(*):UNIPOWER is selected at max. differential pressure 1.0MpaG(145psi)with the recommended flow direction.

Metal seated UNIFLOW is selected in the temperature range of -45°C~350°C

(unit: mm)

Size	Seat types	L	d	D	H1	H2	H3	E1	F1	F2	UNIPOWER (*)	Weight(Kg)	
												Wafer	Single Flange
2" 50mm	soft single	43	47	102	99	325	105	103	55	52	NC091	19	-
	s.doub/F.S. metal single					351		130	73	63	NC201	24	
2.5" 65mm	soft single	46	64	122	112	340	120	103	55	52	NC091	20	-
	s.doub/F.S. metal single					366		130	73	63	NC201	25	
3" 80mm	soft single	46	75	132	120	350	130	103	55	52	NC091	20	22
	s.doub/F.S. metal single					376		130	73	63	NC201	25	27
4" 100mm	soft single	52	97	156	131	372	152	103	55	52	NC091	22	28
	s.doub/F.S. metal single					428		160	90	74	NC351	35	41
5" 125mm	soft single	56	118	188	159	416	170	130	73	63	NC201	31	-
	s.doub/F.S. metal single					446		160	90	74	NC351	39	
6" 150mm	soft single	56	139	216	170	426	180	130	73	63	NC201	34	42
	s.doub/F.S. metal single					456		160	90	74	NC351	42	50
8" 200mm	soft single	60	189	268	210	541	215	160	90	74	NC351	52	61
	s.doub/F.S. metal single					607		305	134	66	NS-13N	78	87
10" 250mm	soft single	68	235	326	237	576	250	160	90	74	NC351	63	84
	s.doub/F.S. metal single					642		305	134	66	NS-13N	89	110
12" 300mm	soft single	78	278	375	278	667	275	305	134	66	NS-13N	100	141
14" 350mm	soft single	92	317	420	316	707	315	305	134	66	NS-13N	112	150
	s.doub/F.S. metal single		320			845		375	176	95	NS-17N	159	197
16" 400mm	soft single	102	363	482	362	890	360	375	176	95	NS-17N	195	260
	s.doub/F.S. metal single		365										
18" 450mm	soft single	114	418	538	387	915	385	375	176	95	NS-17N	224	295
	s.doub/F.S. metal single		421			986		525	232	115	NS-20N	292	363
20" 500mm	soft single	127	467	592	432	945	415	375	176	95	NS-17N	255	374
	s.doub/F.S. metal single		470			1016		525	232	115	NS-20N	323	442
24" 600mm	soft single	154	548	694	506	1120	475	525	232	115	NS-20N	416	586
	s.doub/F.S. metal single		551										

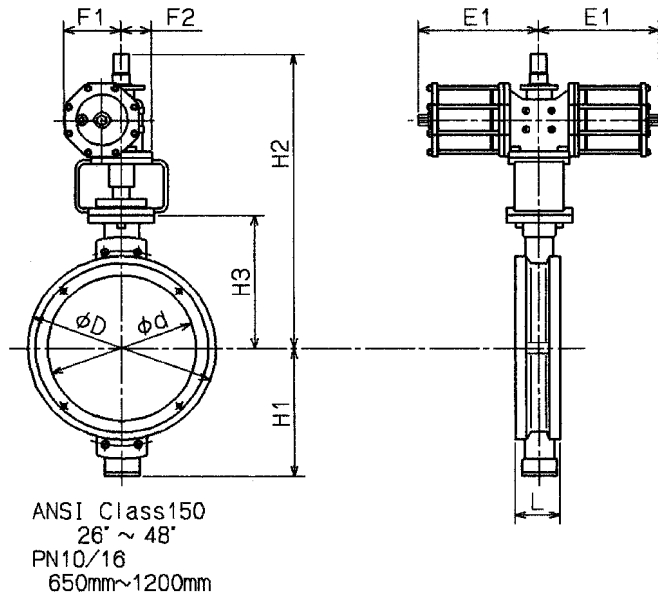
s.doub./F.S.=soft double/fire safe

(*):Supply pressure 0.39MPa

◆Dimensions of On-Off UNIFLOW

UNIFLOW
SS611E-2A

ANSI Class 150, PN10/16 (Wafer Type) 26" (650mm)-48" (1200mm) with UNIPOWER (Double Acting Actuator)



(*):UNIPOWER is selected at max. differential pressure 1.0MpaG(145psi)with the recommended flow direction.

Metal seated UNIFLOW is selected in the temperature range of -45°C~350°C

(unit: mm)

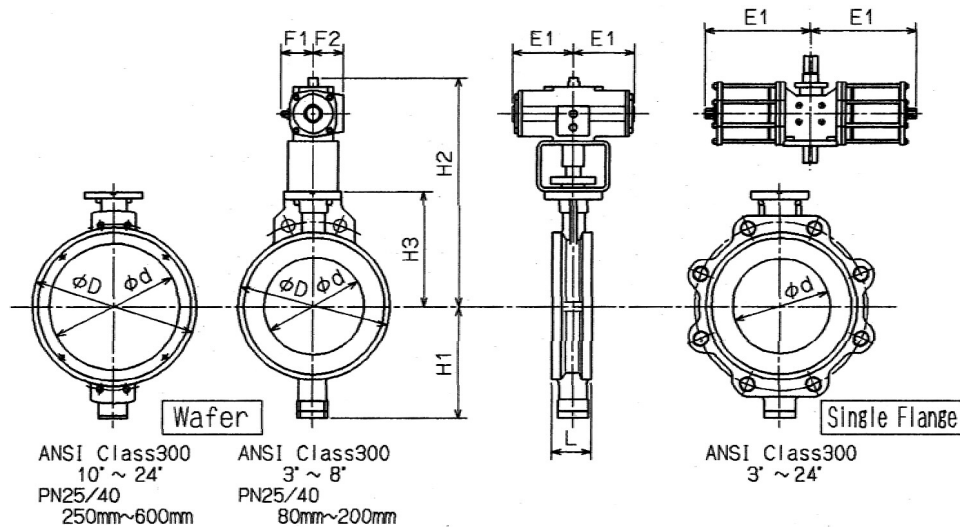
Size	Seat types	L	d	D	H1	H2	H3	E1	F1	F2	UNIPOWER (*)	Weight(Kg)	
												Wafer	
26" 650mm	soft single	165	612	740	524	1147	502	525	232	115	NS-20N	458	
	soft double					1252		675	301	158	NS-28N	598	
	metal single												
28" 700mm	soft single	165	655	800	584	1245	555	525	232	115	NS-20N	516	
	soft double					1375		675	301	158	NS-28N	656	
	metal single												
30" 750mm	soft single	190	698	857	614	1275	585	525	232	115	NS-20N	563	
	soft double					1405		675	301	158	NS-28N	703	
	metal single												
32" 800mm	soft single	190	757	914	628	1438	618	675	301	158	NS-28N	764	
	soft double					-		-	-	-	-	-	
	metal single												
36" 900mm	soft single	203	870	1005	688	1493	673	675	301	158	NS-28N	885	
	soft double					-		-	-	-	-	-	
	metal single												
40" 1000mm	soft single	216	967	1110	847	1560	740	675	301	158	NS-28N	1063	
	soft double					-		-	-	-	-	-	
	metal single												
44" 1100mm	soft single	241	1064	1220	877	-	770	-	-	-	-	-	
	soft double					-		-	-	-	-	-	
	metal single												
48" 1200mm	soft single	254	1164	1330	957	-	850	-	-	-	-	-	
	soft double					-		-	-	-	-	-	
	metal single												

(*):Supply pressure 0.39MPa

◆Dimensions of On-Off UNIFLOW

UNIFLOW
SS611E-2A

ANSI Class 300, PN25/40 (Wafer Type, Single Flange Type) 3"(80mm)-24"(600mm) with UNIPOWER (Double Acting Actuator)



(*):UNIPOWER is selected at max. differential pressure 2.0MpaG(290psi)with the recommended flow direction.

Metal seated UNIFLOW is selected in the temperature range of -45°C~350°C

(unit: mm)

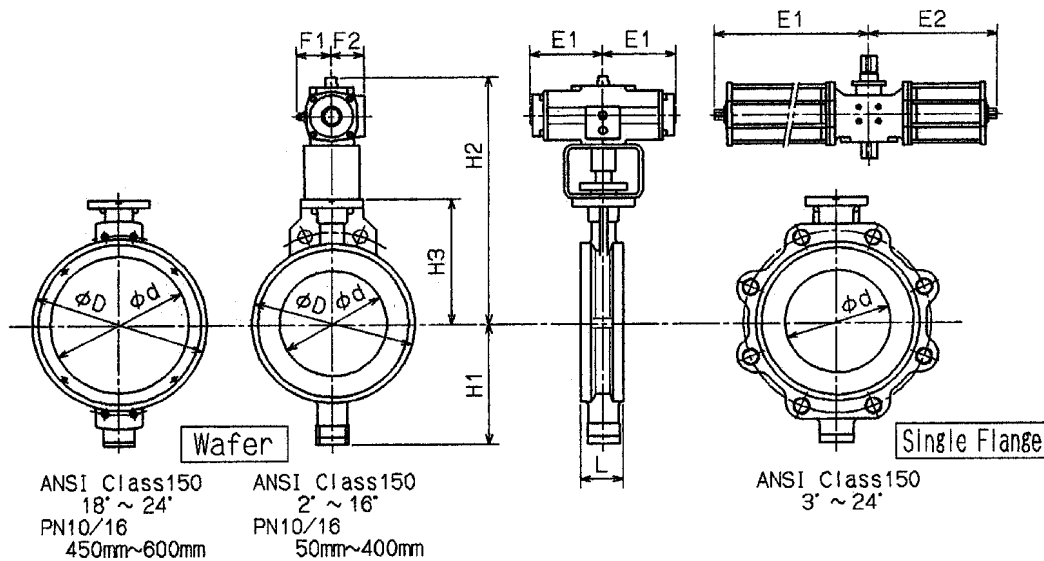
Size	Seat types	L	d	D	H1	H2	H3	E1	F1	F2	UNIPOWER (*)	Weight(Kg)	
												Wafer	Single Flange
3" 80mm	soft double /fire safe	46	75	132	120	350	130	103	55	52	NC091	20	22
	metal single					376		130	73	63	NC201	25	27
4" 100mm	soft double /fire safe	52	97	162	158	372	152	103	55	52	NC091	22	28
	metal single					428		160	90	74	NC351	35	41
5" 125mm	soft double /fire safe	56	118	188	159	416	170	130	73	63	NC201	31	40
	metal single					446		160	90	74	NC351	39	48
6" 150mm	soft double /fire safe	59	139	224	193	446	200	130	73	63	NC201	39	55
	metal single					476		160	90	74	NC351	47	63
8" 200mm	soft double /fire safe	73	189	280	216	566	240	160	90	74	NC351	59	85
	metal single					632		305	134	66	NS-13N	85	111
10" 250mm	soft double /fire safe	83	235	345	259	654	262	305	134	66	NS-13N	100	132
	metal single												
12" 300mm	soft double /fire safe	92	278	395	304	694	302	305	134	66	NS-13N	116	186
	metal single					832		375	176	95	NS-17N	163	233
14" 350mm	soft double /fire safe	118	320	440	341	870	340	375	176	95	NS-17N	182	262
	metal single												
16" 400mm	soft double /fire safe	134	365	495	376	902	372	375	176	95	NS-17N	224	359
	metal single					973		525	232	115	NS-20N	292	427
18" 450mm	soft double /fire safe	150	421	560	437	1100	410	525	232	115	NS-20N	346	510
	metal single												
20" 500mm	soft double /fire safe	159	470	622	470	1133	443	525	232	115	NS-20N	390	582
	metal single												
24" 600mm	soft double /fire safe	181	551	720	557	1343	523	675	301	158	NS-28N	637	952
	metal single												

(*):Supply pressure 0.39MPa

◆ Dimensions of On-Off UNIFLOW

UNIFLOW
SS611E-2A

ANSI Class 150, PN10/16 (Wafer Type, Single Flange Type) 2"(50mm)-24"(600mm)
with UNIPOWER (Spring Return Actuator) - FC (Fail Close)



(*):UNIPOWER is selected at max. differential pressure 1.0MpaG(145psi)with the recommended flow direction.

Metal seated UNIFLOW is selected in the temperature range of -45°C~350°C

(unit:mm)

Size	Seat types	L	d	D	H1	H2	H3	E1	E2	F1	F2	UNIPOWER (*)	Weight(Kg)	
													Wafer	Single Flange
2" 50mm	soft single	43	47	102	99	325	105	182	-	55	52	NE091S	22	-
	s.doub/F.S.					351		238	-	73	63	NE201S	29	
	metal single					381		286	-	90	74	NE351S	41	
2.5" 65mm	soft single	46	64	122	112	366	120	238	-	73	63	NE201S	30	-
	s.doub/F.S.					396		286	-	90	74	NE351S	42	
	metal single													
3" 80mm	soft single	46	75	132	120	376	130	238	-	73	63	NE201S	30	32
	s.doub/F.S.					522		547	318	134	66	NS-13NS	75	77
	metal single													
4" 100mm	soft single	52	97	156	131	398	152	238	-	73	63	NE201S	32	38
	s.doub/F.S.					544		547	318	134	66	NS-13NS	77	83
	metal single													
5" 125mm	soft single	56	118	188	159	446	170	286	-	90	74	NE351S	48	-
	s.doub/F.S.					562		547	318	134	66	NS-13NS	81	
	metal single													
6" 150mm	soft single	56	139	216	170	456	180	286	-	90	74	NE351S	51	59
	s.doub/F.S.					572		547	318	134	66	NS-13NS	84	92
	metal single													
8" 200mm	soft single	60	189	268	210	607	215	547	318	134	66	NS-13NS	93	102
	s.doub/F.S.					745		610	373	176	95	NS-17NS	152	161
	metal single													
10" 250mm	soft single	68	235	326	237	780	250	610	373	176	95	NS-17NS	163	184
	s.doub/F.S.													
	metal single													
12" 300mm	soft single	78	278	375	278	805	275	610	373	176	95	NS-17NS	174	215
	s.doub/F.S.													
	metal single													
14" 350mm	soft single	92	317	420	316	900	315	887	525	232	115	NS-20NS	276	314
	s.doub/F.S.					320								
	metal single													
16" 400mm	soft single	102	363	482	362	961	360	887	525	232	115	NS-20NS	313	378
	s.doub/F.S.					365								
	metal single													
18" 450mm	soft single	114	418	538	387	986	385	887	525	232	115	NS-20NS	342	413
	s.doub/F.S.					1135		1155	673	301	158	NS-28NS	555	626
	metal single													
20" 500mm	soft single	127	467	592	432	1165	415	1155	673	301	158	NS-28NS	586	705
	s.doub/F.S.					470								
	metal single													
24" 600mm	soft single	154	548	694	506	1225	475	1155	673	301	158	NS-28NS	679	849
	s.doub/F.S.					551								
	metal single													

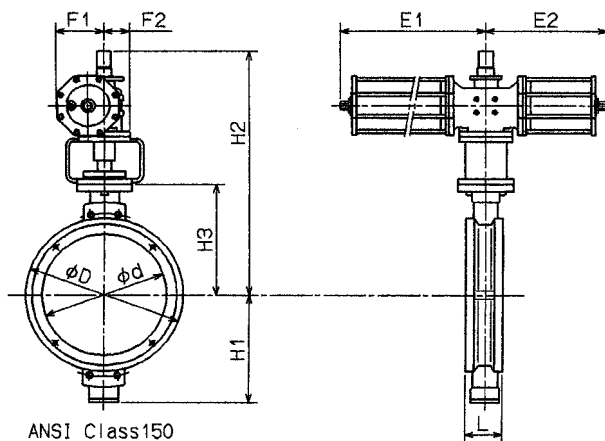
s.doub./F.S.=soft double/fire safe

(*):Supply pressure 0.39MPa

◆Dimensions of On-Off UNIFLOW

UNIFLOW
SS611E-2A

ANSI Class 150 (Wafer Type, Single Flange Type) 26"(650mm)-48"(1200mm) with UNIPOWER(Spring Return Actuator) - FC (Fail Close)



ANSI Class150
26" ~ 48"
PN10/16
650mm~1200mm

(*):UNIPOWER is selected at max. differential pressure 1.0MpaG(145psi)with the recommended flow direction.

Metal seated UNIFLOW is selected in the temperature range of -45°C~350°C

(unit: mm)

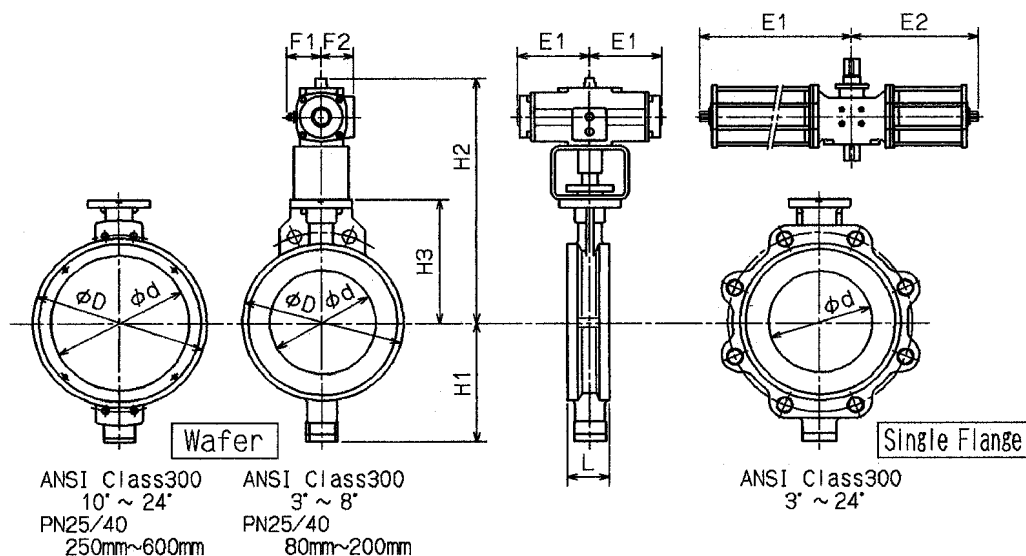
Size	Seat types	L	d	D	H1	H2	H3	E1	E2	F1	F2	UNIPOWER (*)	Weight(Kg) Wafer
26" 650mm	soft single	165	612	740	524	1252	502	1155	673	301	158	NS-28N	718
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-
28" 700mm	soft single	165	655	800	584	1375	555	1155	673	301	158	NS-28N	776
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-
30" 750mm	soft single	190	698	857	614	1405	585	1155	673	301	158	NS-28N	823
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-
32" 800mm	soft single	190	757	914	628	-	618	-	-	-	-	-	-
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-
36" 900mm	soft single	203	870	1005	688	-	673	-	-	-	-	-	-
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-
40" 1000mm	soft single	216	967	1110	847	-	740	-	-	-	-	-	-
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-
44" 1100mm	soft single	241	1064	1220	877	-	770	-	-	-	-	-	-
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-
48" 1200mm	soft single	254	1164	1330	957	-	850	-	-	-	-	-	-
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-

(*):Supply pressure 0.39MPa

◆Dimensions of On-Off UNIFLOW

UNIFLOW
SS611E-2A

ANSI Class 300 (Wafer Type) 3"(80mm)-24"(600mm) with UNIPOWER (Spring Return Actuator) - FC (Fail Close)



(*):UNIPOWER is selected at max. differential pressure 2.0MpaG(290psi)with the recommended flow direction.

Metal seated UNIFLOW is selected in the temperature range of -45℃~350℃

(unit: mm)

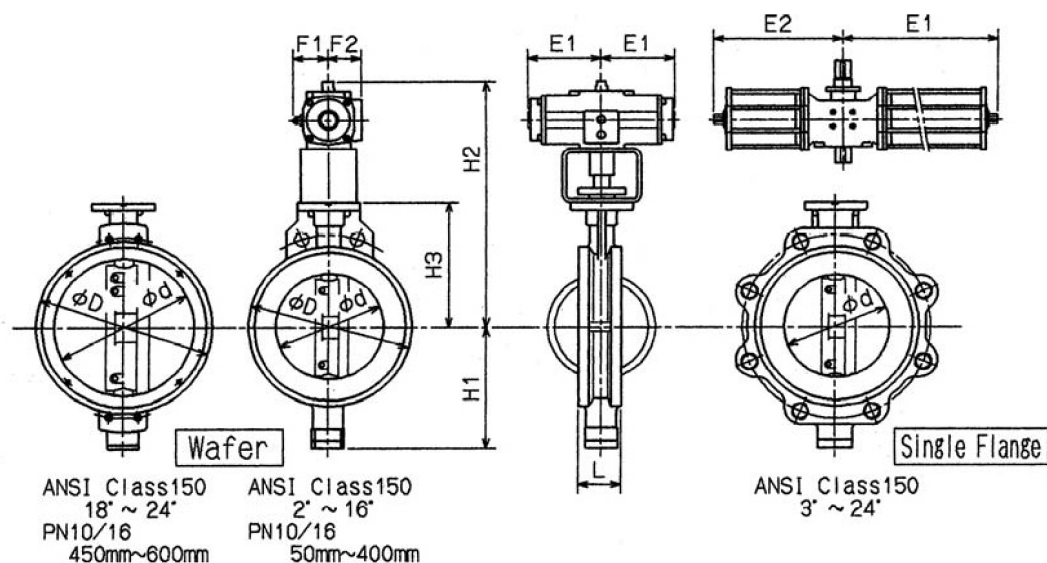
Size	Seat types	L	d	D	H1	H2	H3	E1	E2	F1	F2	UNIPOWER (*)	Weight(Kg)	
													Wafer	Single Flange
3" 80mm	soft double	46	75	132	120	376	130	238	-	73	63	NE201S	30	32
	/fire safe					522		547	318	134	66	NS-13NS	75	77
4" 100mm	metal single	52	97	162	158	428	152	286	-	90	74	NE351S	44	50
	/fire safe					544		547	318	134	66	NS-13NS	77	83
5" 125mm	metal single	56	118	188	159	446	170	286	-	90	74	NE351S	48	57
	/fire safe					562		547	318	134	66	NS-13NS	81	90
6" 150mm	metal single	59	139	224	193	476	200	286	-	90	74	NE351S	56	72
	/fire safe					592		547	318	134	66	NS-13NS	148	164
8" 200mm	metal single	73	189	280	216	632	240	547	318	134	66	NS-13NS	100	126
	/fire safe					770		610	373	176	95	NS-17NS	159	185
10" 250mm	metal single	83	235	345	259	792	262	610	373	176	95	NS-17NS	174	206
	/fire safe					887		887	525	232	115	NS-20NS	280	350
12" 300mm	metal single	92	278	395	304	887	302	887	525	232	115	NS-20NS	280	350
	/fire safe					887		887	525	232	115	NS-20NS	280	350
14" 350mm	metal single	118	320	440	341	941	340	887	525	232	115	NS-20NS	300	380
	/fire safe					1090		1155	673	301	158	NS-28NS	513	593
16" 400mm	metal single	134	365	495	376	1122	372	1155	673	301	158	NS-28NS	555	690
	/fire safe					1122		1155	673	301	158	NS-28NS	555	690
18" 450mm	metal single	150	421	560	437	1230	410	1155	673	301	158	NS-28NS	609	773
	/fire safe					1230		1155	673	301	158	NS-28NS	609	773
20" 500mm	metal single	159	470	622	470	1263	443	1155	673	301	158	NS-28NS	653	845
	/fire safe					1263		1155	673	301	158	NS-28NS	653	845
24" 600mm	metal single	181	551	720	557	-	523	-	-	-	-	-	-	-
	/fire safe					-		-	-	-	-	-	-	-

(*):Supply pressure 0.39MPa

◆Dimensions of On-Off UNIFLOW

UNIFLOW
SS611E-2A

ANSI Class 150, PN10/16(Wafer Type, Single Flange Type) 2"(50mm)-24"(600mm)
with UNIPOWER (Spring Return Actuator) - FO (Fail Open)



(*):UNIPOWER is selected at max. differential pressure 1.0MpaG(145psi)with the recommended flow direction.

Metal seated UNIFLOW is selected in the temperature range of -45°C~350°C

(unit: mm)

Size	Seat types	L	d	D	H1	H2	H3	E1	E2	F1	F2	UNIPOWER (*)	Weight(Kg)	
													Wafer	Single Flange
2" 50mm	soft single	43	47	102	99	325	105	182	-	55	52	NE091S	22	-
	s.doub/F.S.													
	metal single					381		286	-	90	74	NE351S	41	
2.5" 65mm	soft single	46	64	122	112	340	120	182	-	55	52	NE091S	23	-
	s.doub/F.S.					366		238	-	73	63	NE201S	30	
	metal single					396		286	-	90	74	NE351S	42	
3" 80mm	soft single	46	75	132	120	376	130	238	-	73	63	NE201S	30	32
	s.doub/F.S.													
	metal single					406		286	-	90	74	NE351S	42	44
4" 100mm	soft single	52	97	156	131	398	152	238	-	73	63	NE201S	32	38
	s.doub/F.S.													
	metal single					544		547	318	134	66	NS-13NS	77	83
5" 125mm	soft single	56	118	188	159	416	170	238	-	73	63	NE201S	36	-
	s.doub/F.S.					446		286	-	90	74	NE351S	48	
	metal single					562		547	318	134	66	NS-13NS	81	
6" 150mm	soft single	56	139	216	170	456	180	286	-	90	74	NE351S	51	59
	s.doub/F.S.													
	metal single					572		547	318	134	66	NS-13NS	84	92
8" 200mm	soft single	60	189	268	210	607	215	547	318	134	66	NS-13NS	93	102
	s.doub/F.S.													
	metal single					745		610	373	176	95	NS-17NS	152	161
10" 250mm	soft single	68	235	326	237	780	250	610	373	176	95	NS-17NS	163	184
	s.doub/F.S.													
	metal single													
12" 300mm	soft single	78	278	375	278	805	275	610	373	176	95	NS-17NS	174	215
	s.doub/F.S.													
	metal single													
14" 350mm	soft single	92	317	420	316	900	315	887	525	232	115	NS-20NS	276	314
	s.doub/F.S.		320											
	metal single													
16" 400mm	soft single	102	363	482	362	961	360	887	525	232	115	NS-20NS	313	378
	s.doub/F.S.		365											
	metal single													
18" 450mm	soft single	114	418	538	387	986	385	887	525	232	115	NS-20NS	342	413
	s.doub/F.S.		421			1135		1155	673	301	158	NS-28NS	555	626
	metal single													
20" 500mm	soft single	127	467	592	432	1165	415	1155	673	301	158	NS-28NS	586	705
	s.doub/F.S.		470											
	metal single													
24" 600mm	soft single	154	548	694	506	1225	475	1155	673	301	158	NS-28NS	679	849
	s.doub/F.S.		551											
	metal single													

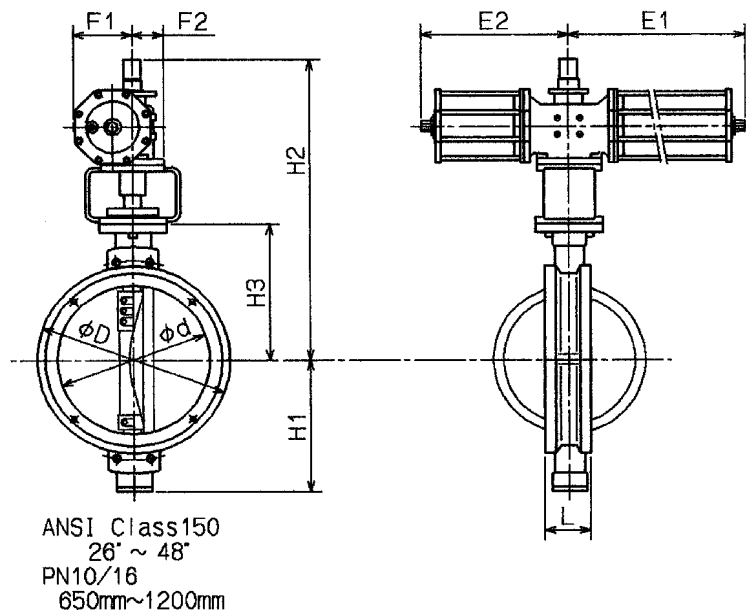
s.doub./F.S.=soft double/fire safe

(*):Supply pressure 0.39MPa

◆ Dimensions of On-Off UNIFLOW

UNIFLOW
SS611E-2A

ANSI Class 150, PN10/16 (Wafer Type) 26" (650mm)~48" (1200mm) With UNIPOWER(Spring Return Actuator) - FO (Fail Open)



(*):UNIPOWER is selected at max. differential pressure 1.0MpaG(145psi)with the recommended flow direction.

Metal seated UNIFLOW is selected in the temperature range of -45°C~350°C

(unit: mm)

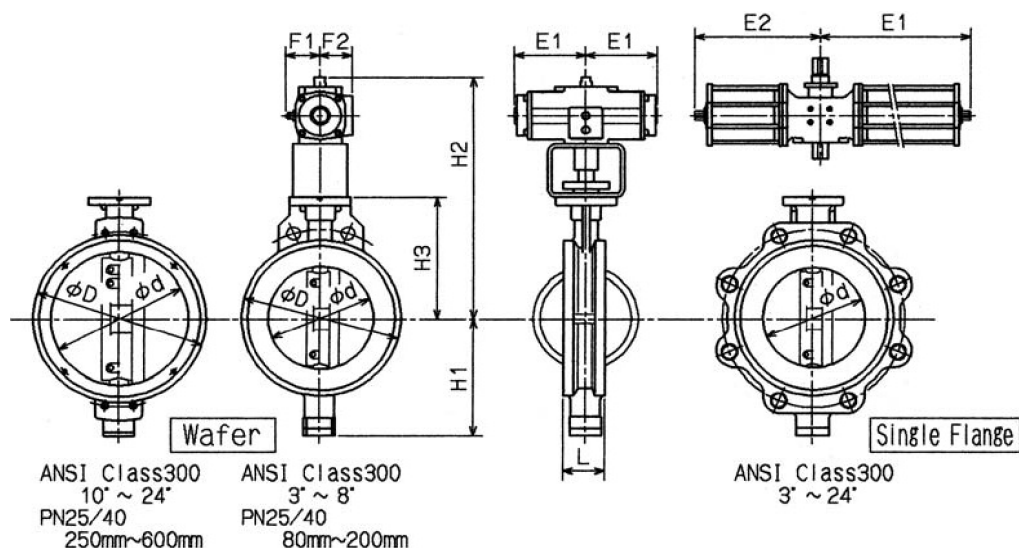
Size	Seat types	L	d	D	H1	H2	H3	E1	E2	F1	F2	UNIPOWER (*)	Weight(Kg) Wafer
26" 650mm	soft single	165	612	740	524	1252	502	1155	673	301	158	NS-28N	718
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-
28" 700mm	soft single	165	655	800	584	1375	555	1155	673	301	158	NS-28N	776
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-
30" 750mm	soft single	190	698	857	614	1405	585	1155	673	301	158	NS-28N	823
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-
32" 800mm	soft single	190	757	914	628	-	618	-	-	-	-	-	-
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-
36" 900mm	soft single	203	870	1005	688	-	673	-	-	-	-	-	-
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-
40" 1000mm	soft single	216	967	1110	847	-	740	-	-	-	-	-	-
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-
44" 1100mm	soft single	241	1064	1220	877	-	770	-	-	-	-	-	-
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-
48" 1200mm	soft single	254	1164	1330	957	-	850	-	-	-	-	-	-
	soft double					-		-	-	-	-	-	-
	metal single					-		-	-	-	-	-	-

(*):Supply pressure 0.39MPa

◆ Dimensions of On-Off UNIFLOW

UNIFLOW
SS611E-2A

ANSI Class 300 (Wafer Type, Single Flange Type) 3"(80mm)-24"(600mm) with UNIPOWER (Spring Return Actuator) - FO (Fail Open)



(*):UNIPOWER is selected at max. differential pressure 2.0MpaG(290psi)with the recommended flow direction.

Metal seated UNIFLOW is selected in the temperature range of -45°C~350°C

(unit: mm)

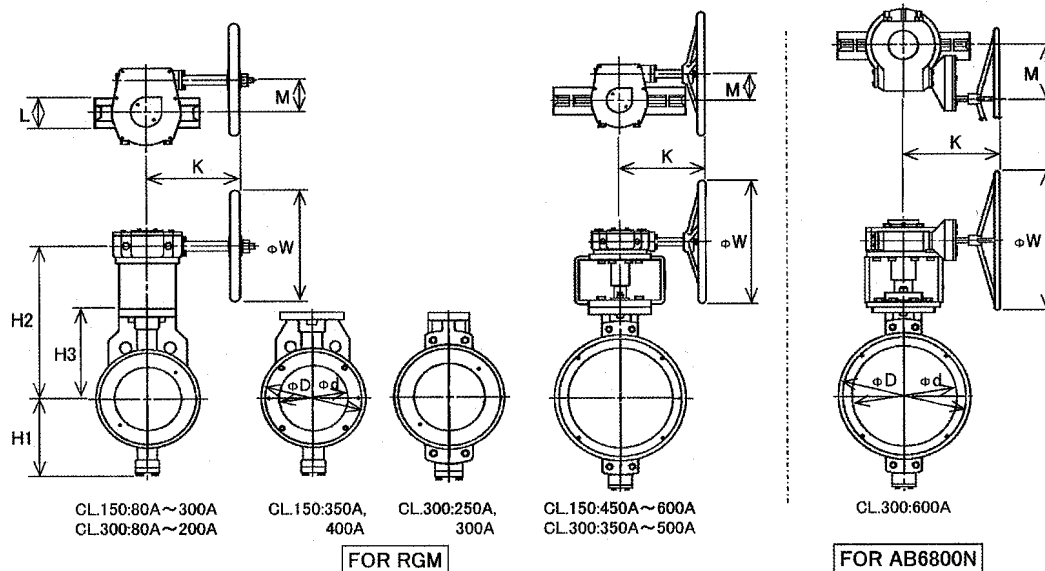
Size	Seat types	L	d	D	H1	H2	H3	E1	E2	F1	F2	UNIPOWER (*)	Weight(Kg)	
													Wafer	Single Flange
3" 80mm	soft double /fire safe	46	75	132	120	376	130	238	-	73	63	NE201S	30	32
	metal single					406		286	-	90	74	NE351S	42	44
4" 100mm	soft double /fire safe	52	97	162	158	398	152	238	-	73	63	NE201S	32	38
	metal single					544		547	318	134	66	NS-13NS	77	83
5" 125mm	soft double /fire safe	56	118	188	159	446	170	286	-	90	74	NE351S	48	57
	metal single					562		547	318	134	66	NS-13NS	81	90
6" 150mm	soft double /fire safe	59	139	224	193	476	200	286	-	90	74	NE351S	56	72
	metal single					592		547	318	134	66	NS-13NS	89	105
8" 200mm	soft double /fire safe	73	189	280	216	632	240	547	318	134	66	NS-13NS	100	126
	metal single					770		610	373	176	95	NS-17NS	159	185
10" 250mm	soft double /fire safe	83	235	345	259	792	262	610	373	176	95	NS-17NS	174	206
	metal single													
12" 300mm	soft double /fire safe	92	278	395	304	887	302	887	525	232	115	NS-20NS	280	350
	metal single													
14" 350mm	soft double /fire safe	118	320	440	341	941	340	887	525	232	115	NS-20NS	300	380
	metal single					1090		1155	673	301	158	NS-28NS	513	593
16" 400mm	soft double /fire safe	134	365	495	376	1122	372	1155	673	301	158	NS-28NS	555	690
	metal single													
18" 450mm	soft double /fire safe	150	421	560	437	1230	410	1155	673	301	158	NS-28NS	609	773
	metal single													
20" 500mm	soft double /fire safe	159	470	622	470	1263	443	1155	673	301	158	NS-28NS	653	845
	metal single													
24" 600mm	soft double /fire safe	181	551	720	557	-	523	-	-	-	-	-	-	-
	metal single													

(*):Supply pressure 0.39MPa

◆ Dimensions of On-Off UNIFLOW

UNIFLOW
SS611E-2A

ANSI Class 150, PN10/16 (Wafer Type, Single Flange Type) 2"(50mm)-24"(600mm) with Manual Gear



(*):Manual gear is selected at 1.0MPaG with the Insert-side higher pressure.

Metal seated UNIFLOW is selected in the temperature range of -45°C~350°C

(unit: mm)

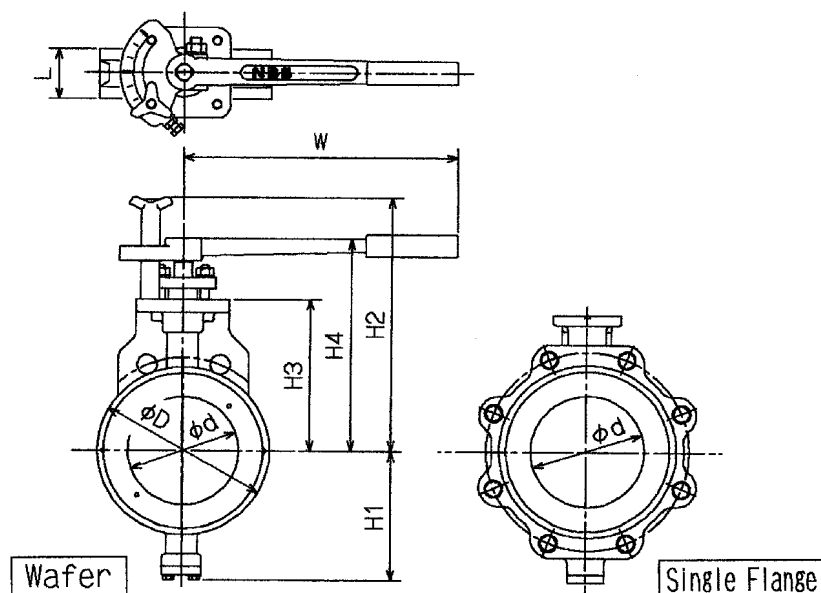
Size	Seat types	L	d	D	H1	H2	H3	K	M	W	Gear(*)	Weight(Kg)				
												Wafer	Single Flange			
2" 50mm	soft single	43	47	102	99	213	105	165	38	160	RGM-1	10	-			
	s.doub/F.S.															
	metal single															
2.5" 65mm	soft single	46	64	122	112	227	120	165	38	160	RGM-1	10	-			
	s.doub/F.S.															
	metal single															
3" 80mm	soft single	46	75	132	120	237	130	165	38	160	RGM-1	11	13			
	s.doub/F.S.															
	metal single															
4" 100mm	soft single	52	97	156	131	259	152	165	38	160	RGM-1	12	18			
	s.doub/F.S.															
	metal single															
5" 125mm	soft single	56	118	188	159	282	170	165	38	160	RGM-1	16	-			
	s.doub/F.S.															
	metal single															
6" 150mm	soft single	56	139	216	170	292	180	165	38	160	RGM-1	22	30			
	s.doub/F.S.					318		212		63		200	RGM-2	30	38	
	metal single							212		63		200	RGM-2	30	38	
8" 200mm	soft single	60	189	268	210	353	215	212	63	200	RGM-2	37	46			
	s.doub/F.S.															
	metal single															
10" 250mm	soft single	68	235	326	237	388	250	212	63	200	RGM-2	47	66			
	s.doub/F.S.							221		315		51	70			
	metal single									315		51	70			
12" 300mm	soft single	78	278	375	278	463	275	221	63	315	RGM-2	61	101			
	s.doub/F.S.															
	metal single															
14" 350mm	soft single	92	317	420	316	503	315	221	63	315	RGM-2	70	110			
	s.doub/F.S.		320			513		256		90		80	120			
	metal single							256		90		80	120			
16" 400mm	soft single	102	363	482	362	608	360	256	90	315	RGM-3	117	182			
	s.doub/F.S.		365					299		450		120	185			
	metal single									450		120	185			
18" 450mm	soft single	114	418	538	387	633	385	299	90	450	RGM-3	146	217			
	s.doub/F.S.		421			642		359		120		166	237			
	metal single							299		90		174	293			
20" 500mm	soft single	127	467	592	432	663	415	299	90	450	RGM-3	174	293			
	s.doub/F.S.		470			672		359		120		194	313			
	metal single							359		120		194	313			
24" 600mm	soft single	154	548	694	506	792	475	382	120	630	RGM-4	275	445			
	s.doub/F.S.		551					401		800		280	450			
	metal single									800		280	450			

s.doub./F.S.=soft double/fire safe

◆ Dimensions of On-Off UNIFLOW

UNIFLOW
SS611E-2A

ANSI Class 150, PN10/16 (Wafer Type, Single Flange Type) 2"(50mm)-8"(200mm) with Lock Lever Handle



ANSI Class150 2" ~ 8"
PN10/16 50mm~200mm

ANSI Class150
3" ~ 8"

(*):Lock lever is selected at 1.0MPaG with the Insert-side higher pressure.

Metal seated UNIFLOW is selected in the temperature range of -45°C~350°C

(unit:mm)

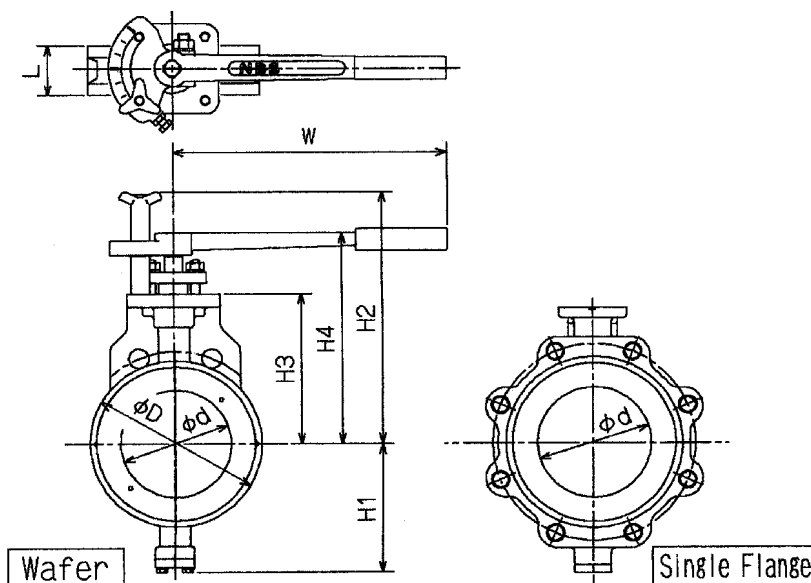
Size	Seat types	L	d	D	h	H1	H2	H3	H4	W (*)	Weight(Kg)	
											Wafer	Single Flange
2" 50mm	soft single	43	47	102	19	99	223	105	171	280L	7	-
	s.doub/F.S.											
	metal single											
2.5" 65mm	soft single	46	64	122	19	112	238	120	186	280L	8	-
	s.doub/F.S.											
	metal single											
3" 80mm	soft single	46	75	132	19	120	248	130	196	280L	9	11
	s.doub/F.S.											
	metal single											
4" 100mm	soft single	52	97	156	19	131	270	152	218	280L	10	16
	s.doub/F.S.											
	metal single											
5" 125mm	soft single	56	118	188	22	159	289	170	238	350L	13	-
	s.doub/F.S.											
	metal single											
6" 150mm	soft single	56	139	216	22	170	299	180	248	350L	16	24
	s.doub/F.S.											
	metal single											
8" 200mm	soft single	60	189	268	22	210	350	215	300	500L	24	33
	s.doub/F.S.											
	metal single											

s.doub./F.S.=soft double/fire safe

◆Dimensions of On-Off UNIFLOW

UNIFLOW
SS611E-2A

ANSI Class 300, PN25/40(Wafer Type, Single Flange Type) 3"(80mm)-6"(150mm) with Lock Lever Handle



ANSI Class300 3" ~ 6"
PN25/40 80mm~150mm

ANSI Class300
3" ~ 8"

(*):Lock lever is selected at 2.0MPaG with the Insert-side higher pressure.

Metal seated UNIFLOW is selected in the temperature range of -45°C~350°C

(unit:mm)

Size	Seat types	L	d	D	h	H1	H2	H3	H4	W (*)	Weight(Kg)	
											Wafer	Single Flange
3" 80mm	soft double	46	75	132	22	120	248	130	196	280L	9	11
	fire safe											
	metal single											
4" 100mm	soft double	52	97	162	22	158	269	152	217	280L	10	16
	fire safe											
	metal single											
5" 125mm	soft double	56	118	188	22	159	289	170	238	350L	13	22
	fire safe											
	metal single											
6" 150mm	soft double	59	139	224	22	193	319	200	268	350L	21	37
	fire safe											
	metal single											

◆ How to order UNIFLOW(Product Code No.)

UNIFLOW
SS611E-2A

Code No.: ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ - ⑨ ⑩

Example: 12 6W A15 6 6 6 F2 S 6 (*)

The above example is for Valve size 12"(DN300), Wafer type, ANSI Class 150, CF8M-body, CF8M-disc, 316ss-shaft with fire safe seat, standard bonnet and with UNIPOWER(NS-type pneumatic spring return actuator).

①	Size inch mm	
2	2	50
2,5	2,5	65
3	3	80
4	4	100
5	5	125
6	6	150
8	8	200
10	10	250
12	12	300

②	Body Type (Connection)
6W	Wafer type
6L	Single Flange type
6F	Double Flange type (Gate F.-to-F.)
6K	One-Side Flange type

③	Rating
P00	Undrilled
P10	PN10
P16	PN16
P25	PN25
P40	PN40
P64	PN64
P100	PN100
A15	ANSI 150
A30	ANSI 300
A60	ANSI 600

⑤	Disc material
4	CF8
6	CF8M
4L	CF3
6L	CF3M
K	Monel
(* *)	

⑥	Shaft material
4	304SS
6	316SS
X	17-4PH
4L	304L
6L	316L
7	317SS
K	Monel
Other materials available upon request	

⑦	Seat/Seal material
P	Soft Single Seat(PTFE)/ Seal: PTFE
D2	Soft Double Seat(PTFE+316SS)/Seal: PTFE
F2	Soft Double Seat(PTFE+316SS)/Seal: Grafoil
N	Metal Single Seat(Inconel)/Seal: Grafoil
L	Cryogenic Seat(316SS+PTFE)
LK	Cryogenic Seat-Zero leak(316SS+special soft seat)

④	Body material
D	Ductile
C	WCB
4	CF8
6	CF8M
4L	CF3
6L	CF3M
K	Monel
Other materials available upon request	

⑧	Bonnet type
S	Standard type
E	Extension bonnet
J	Jacket type

⑨	Actuation
0	Bare shaft
1	Ratchet lever (option)
2	Lock lever
3	Manual gear
4	UNIPOWER(NC-spring ret.)
5	UNIPOWER(NC-double act.)
6	UNIPOWER(NS-spring ret.)
7	UNIPOWER(NS-double act.)
8	UNIMOTOR(electric)
9	Hydraulic
4P	UNIPOWER(NC-2 stage spring)
When UNIPOWER with manual gear, add "3" after the code number.	

⑩	(*)
When special features or accessories are required, they shall be described after the code number "9" in details.	

(* *)
Other materials
available
upon request

(* *)

Other materials
available
upon request

When special features or accessories are required, they shall be described after the code number "9" in details.

◆ How to order UNIFLOW(Product Code No.)

UNIFLOW
SS611E-2A

Code No.: ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ - ⑨ ⑩

Example: 20 5U A15 6 6 6 F2 S 7 (*)

The above example is for Valve size 20"(DN500), Wafer type, ANSI Class 150, CF8M-body, CF8M-disc, 316ss-shaft with fire safe seat, standard bonnet and with UNIPOWER(NS-type pneumatic double acting actuator).

①	Size	
	inch	mm
14	14	350
16	16	400
18	18	450
20	20	500
24	24	600
26	26	650
28	28	700
30	30	750
32	32	800
36	36	900
40	40	1000
44	44	1100
48	48	1200

②	Body Type (Connection)
5U	Wafer type
5L	Single Flange type

⑤	Disc material
C	WCB(Optional)
4	CF8
6	CF8M
4L	CF3
6L	CF3M
K	Monel
(**)	

⑨	Actuation
0	Bare shaft
3	Manual gear
4	UNIPOWER(NC-spring ret.)
5	UNIPOWER(NC-double act.)
6	UNIPOWER(NS-spring ret.)
7	UNIPOWER(NS-double act.)
8	UNIMOTOR(electric)
9	Hydraulic

③	Rating
P00	Undrilled
P10	PN10
P16	PN16
P25	PN25
P40	PN40
P64	PN64
P100	PN100
A15	ANSI 150
A30	ANSI 300
A60	ANSI 600

⑥	Shaft material
4	304SS
6	316SS
X	17-4PH
4L	304L
6L	316L
7	317SS
K	Monel
Other materials available upon request	

When UNIPOWER with manual gear, add "3" after the code number.

④	Body material
D	Ductile
C	WCB
4	CF8
6	CF8M
4L	CF3
6L	CF3M
K	Monel
Other materials available upon request	

⑦	Seat/Seal material
P	Soft Single Seat(PTFE)/ Seal: PTFE
D2	Soft Double Seat(PTFE+316SS)/Seal: PTFE
F2	Fire Safe Seat(PTFE+316SS)/Seal: Grafoil
N	Metal Single Seat(Inconel)/Seal: Grafoil
L	Cryogenic Seat(316SS+PTFE)
LK	Cryogenic Seat-Zero leak(316SS+special soft seat)

⑧	Bonnet type
S	Standard type
E	Extension bonnet
J	Jacket type

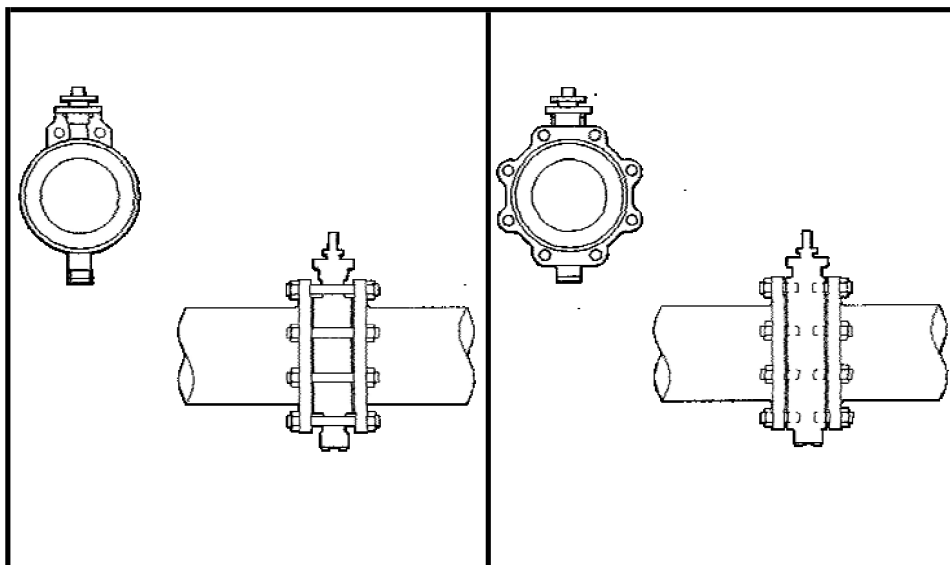
⑩	
(*)	When special features or accessories are required, they shall be described after the code number "9" in details.

(**)
Other materials
available
upon request

◆ Instructions for piping

UNIFLOW
SS611E-2A

■ Connections



Wafer

Single Flange

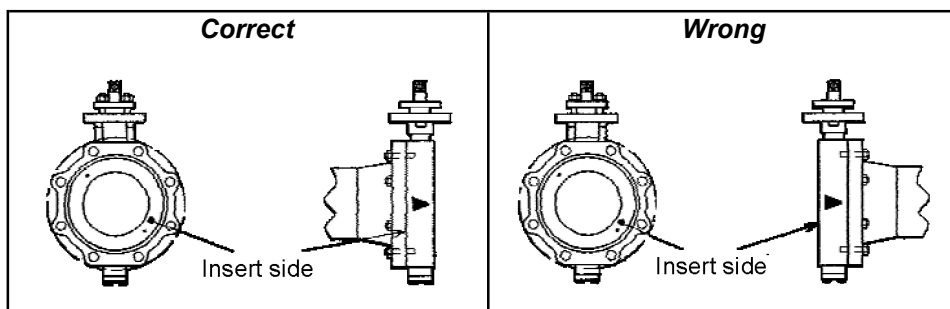
■ Cautions before Installation

- (1) Welding spatter and other foreign matters in the piping line may cause damage on the seat and resulting higher torque: they must be thoroughly flushed.
- (2) On the UNIFLOW body there is an arrow mark (▶) to indicate the recommended flow direction. The valve should be installed as follows:-



- (3) Wafer Type and Single Flange Type UNIFLOW obtain correct sealing by tightening the flange bolts for piping of the Insert-ring side. If the piping flanges are not placed the fluid can not be shut off.

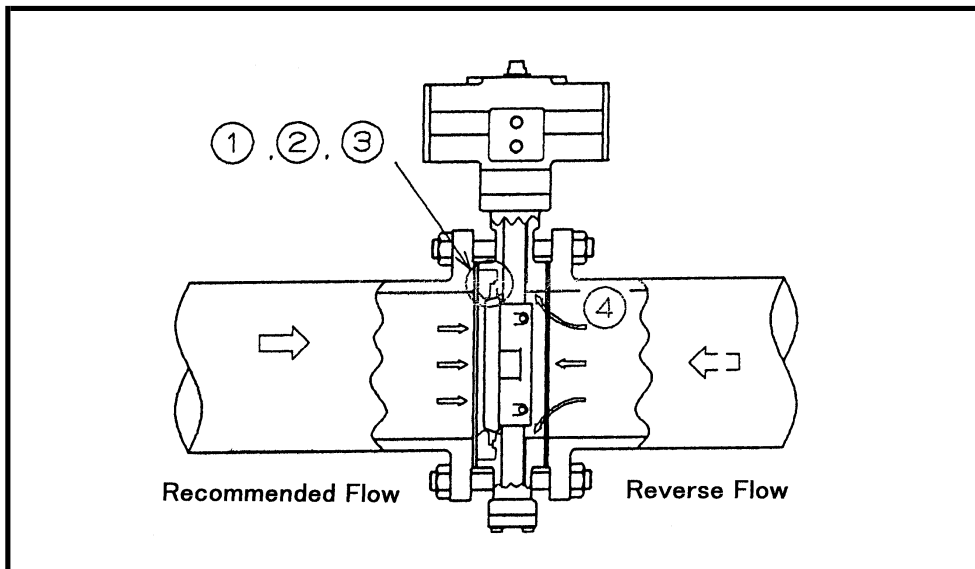
■ Piping Orientation for Single Flange Type



■ Recommended Flow Direction

UNIFLOW seals the fluids bi-directionally, we however, recommend you to use in our recommended flow direction as illustrated hereunder, you will then have the following advantages:-

- ① Much less seat wear; meaning **Longer Sealing Life**.
- ② The fluid will not contact the sealing surface of the seat, also **Longer Seat Life**.
- ③ Lighter start-up torque; meaning **Lower in Cost** by selecting more economical(smaller) Actuators
- ④ As it seals the fluids at the seat, the fluid pressure will not affect the gland sealing part directly; meaning **Longer Sealing Life of the Gland packings**.



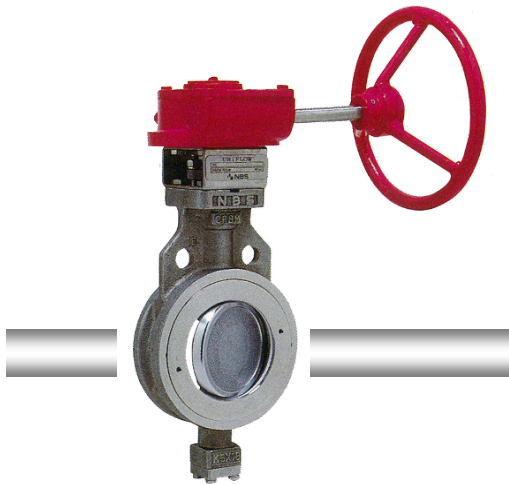
■ Cautions for application of reverse flow pressure:

In case of flow loading by reverse pressure, the valve opening torque becomes higher; the selection of proper actuator will then be different. Consult us.

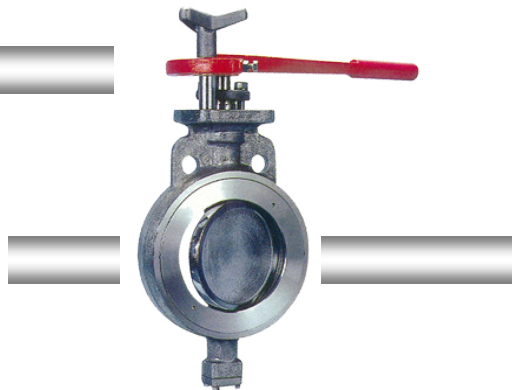
■ Cautions for applications other than On-Off

UNIFLOW is designed to use for On-Off application. In case the valve is used with slightly opening degree all the time, you are requested to consult us for further information.

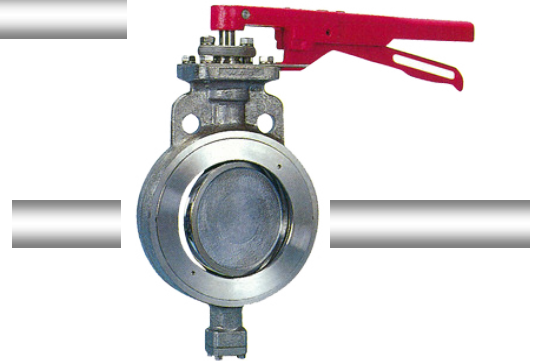
Manual ON-OFF UNIFLOW



with Worm Gear



with Lock Lever



with Ratchet Lever (Option)

Warranty

1. Warranty

NBS undertakes to replace or repair at its cost, ex-works an NBS certified workshop:

- Any product which is found to have defective workmanship through design or manufacture.
- Any product which fails in service provided that the NBS installation, operation and maintenance specification and procedures manual has been followed.

2. Term of warranty

The warranty is valid for a period of 12 months after commissioning or 18 months from delivery ex-works the NBS factory, whichever occurs sooner.

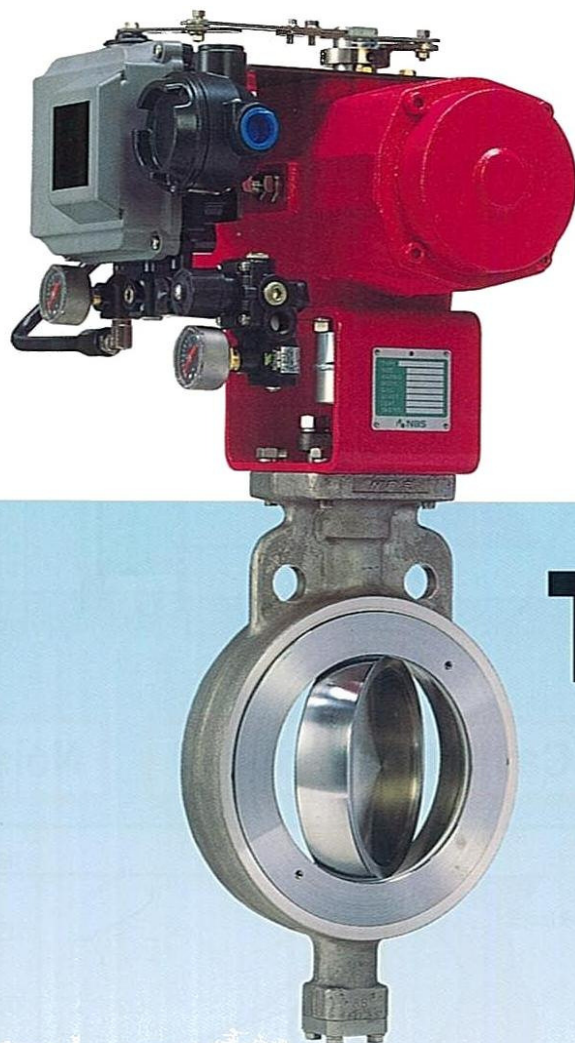
3. The following products shall be excluded from the warranty.

Any valve delivered as a bare shaft valve without an NBS actuator.

- Failures attributed to actuators or related accessories not installed by NBS.
- Failures as a result of a process, other machine or piece of equipment.



234 Kuwaki, Oyama-cyo, Sunto-gun, Shizuoka
410-1315, Japan



Try
the newest
technology in
rotary flow control!

Controllability

at small valve opening that is not possible with a butterfly valve.

Full open flow capacities

that are not possible with a same size globe valve.

Rotary Control Valve

UNICON

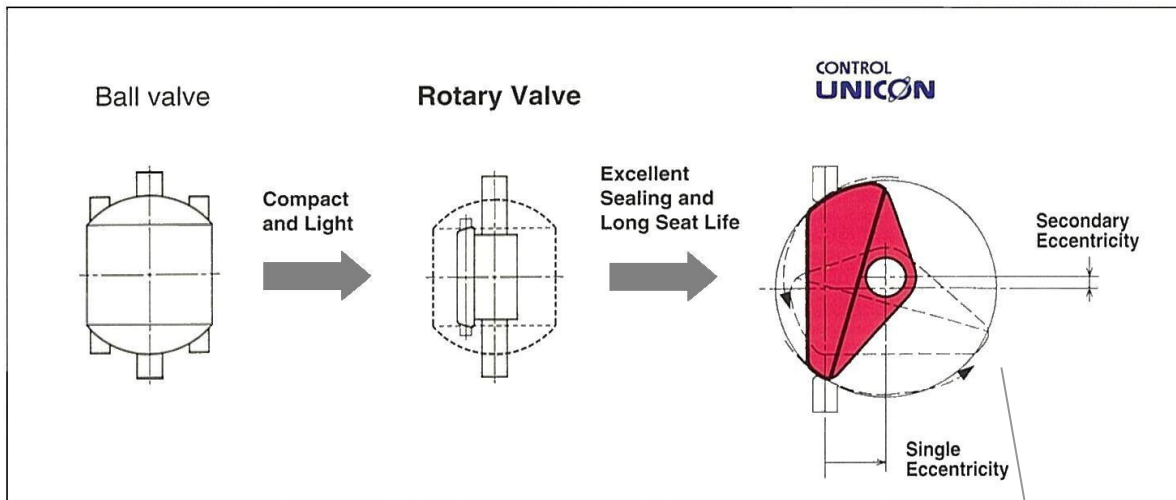
- ANSI Class 150, 300, 600
- 2" ~ 48" (50mm ~ 1200mm)
- Wafer Type, Lugged Type, Flanged Type
- Double Seat, Fire Safe Seat, Metal Seat

Contents

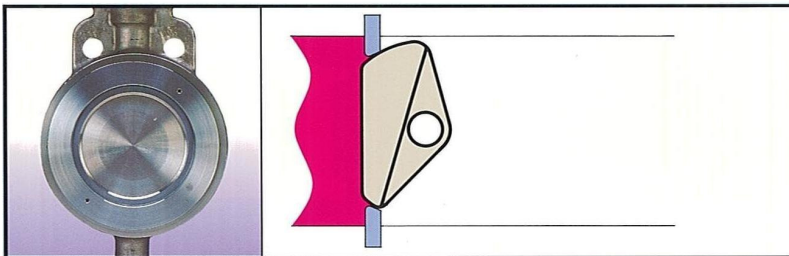
page

● UNICON is not a Butterfly valve	3
● UNICON - Construction and Production Range	
- Soft Double Seat	5/6
- Fire Safe Seat	7/8
- Metal Seat	9/10
● UNICON - Performance	
- Soft Double Seat / Fire Safe	11
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- Flow Controllability (Curve) - Basic Formula	13
- Flow Characteristics (Cv Value)	14
- Kc — Cavitation Coefficient	15
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- UNIPOWER - Selection Table (for Gas Control)	23
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● How to order UNICON (Product Code No.)	25
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UNICON *is not a butterfly valve.*
It is a Rotary Control Valve.



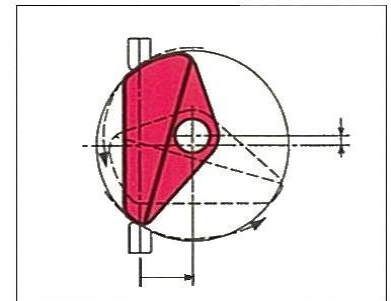
Tight Shutoff



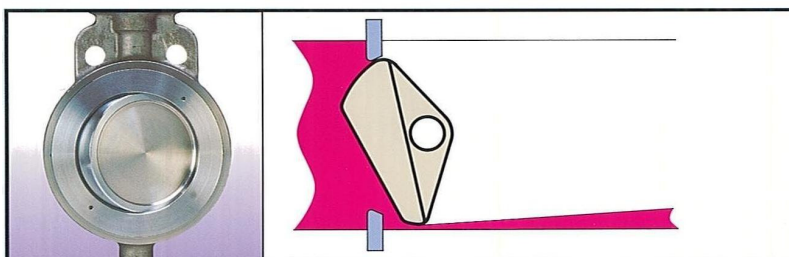
■ **Disc**

● **Double Eccentricity**

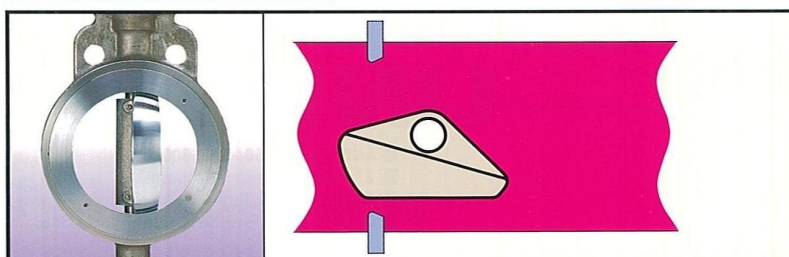
The disc moves entirely away from the seat at all points in the very few degrees. This assures a long seat life.



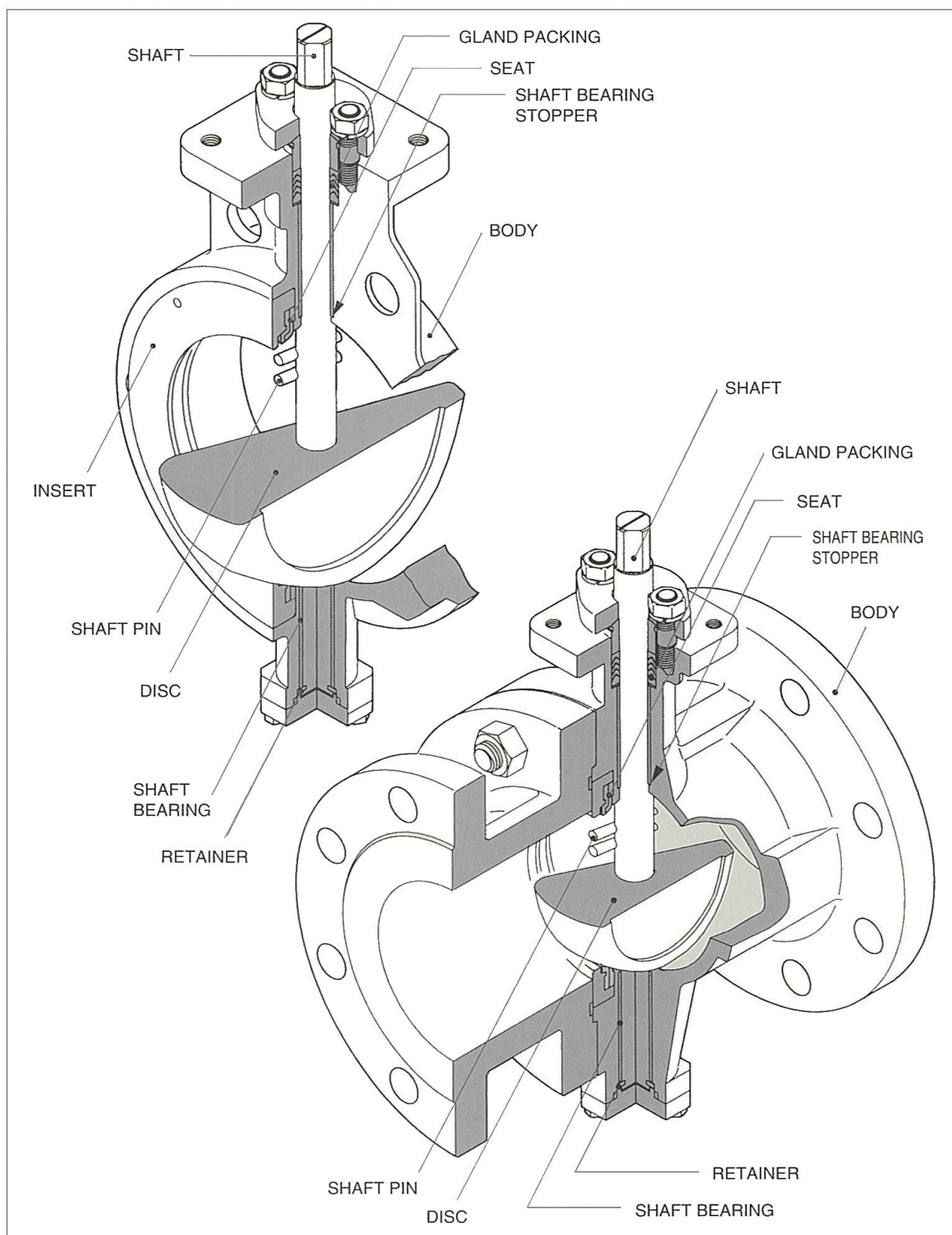
Precise Control



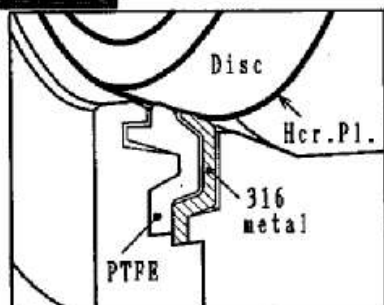
Large Flow Capacity



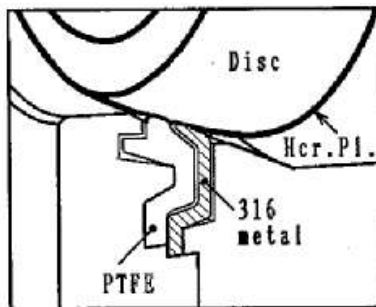
Construction



Soft Double Seat



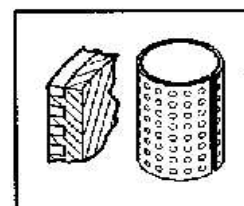
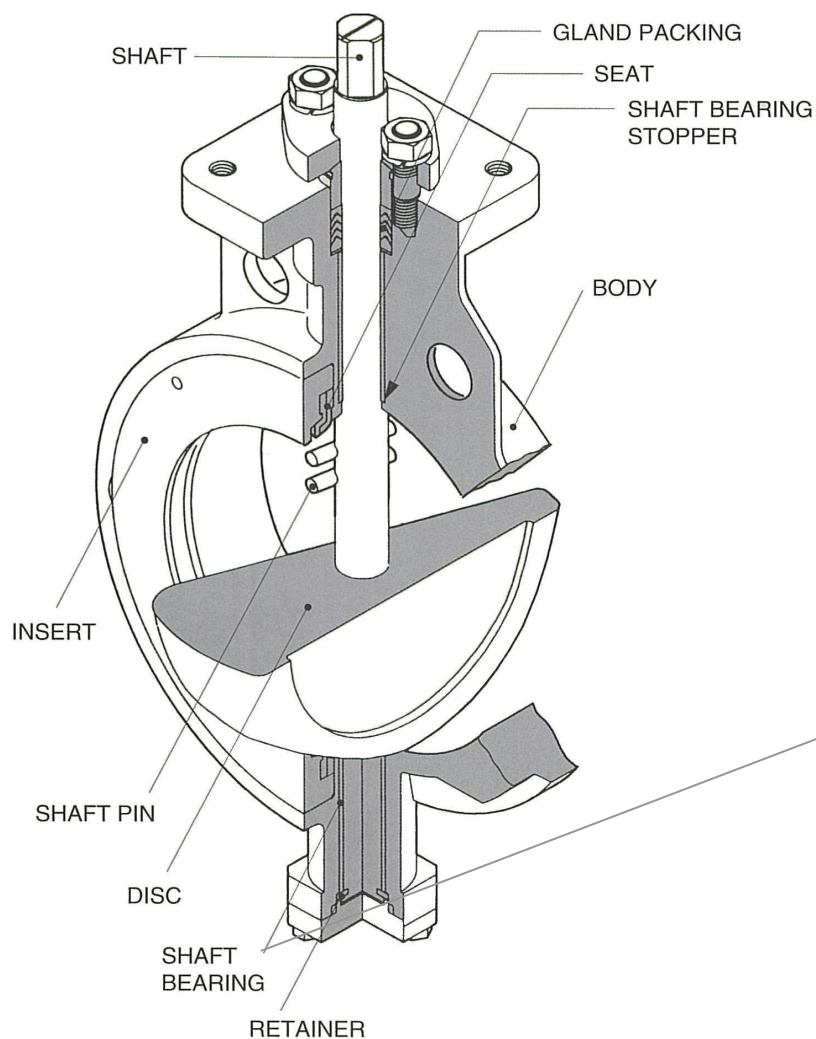
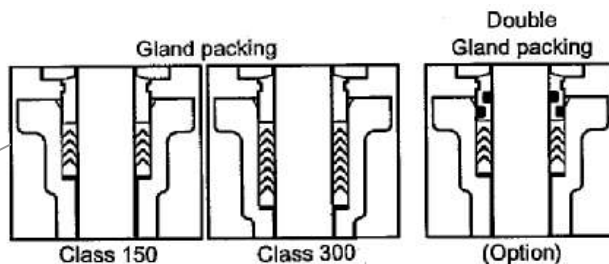
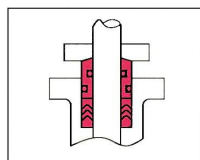
ANSI Class 150,
ISO PN10/16
PN25 (smaller than 300mm)



ANSI Class 300,
ISO PN25/40

■ Anti Air pollution Gland

- TA-LUFT
(Clean Air Preservation)
- Prevents external leakage from the gland. Double seal allows maintenance-free.



Shaft Bearing

Soft Double Seat

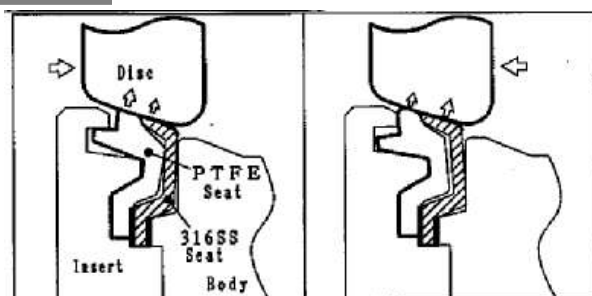
Connection		Wafer				Double Flange / Single Flange			
						 			
Rating	ANSI	Class 150		Class 300		Class 150		Class 300	
	ISO	PN10/16 PN25 (≤300mm)		PN25/40		PN10/16		PN25/40	
Nominal Size	mm (inch)	50(2") - 1200(48")		80(3") - 600(24")		80(3") - 600(24")			
Applied Standards	Designed to	ASME / ANSI B16.34							
	Face to Face	ISO 5752/Short 350mm(14"):Medium		MSS SP-68		ISO 5752/Short 350mm(14"):Medium		MSS SP-68	
	Flange Connection	ASME / ANSI B16.5, DIN 2501/Sheet 1 ASME B16.47 Series A: Standard(Series B: available upon request)							
	Bonnet	ISO 5211/1							
Materials	Body	Ductile iron, WCB, 304SS	316SS	WCB	316SS	WCB	316SS	WCB	316SS
	Disc	316SS(Option:304SS)							
	Disc surface	Sealing Surface Hard Chrome Plated							
	Shaft	316SS(Option:304SS)		17-4PH	316SS	316SS(Option:304SS)		17-4PH	316SS
	Seat	PTFE/316SS							
	Gland packing	PTFE (Double Gland Packing as an Option : O-ring/PTFE) (*)							
	Bottom gasket	PTFE							
	Shaft bearing	R-PTFE/316SS							

(*)Double Gland Packing: Certified to TA-LUFT(Technical Guideline for Clean Air Preservation)

Actuators

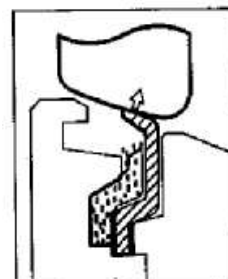
Automated	Pneumatic Rotary Actuators(Double Acting / Spring Return)
-----------	---

Fire Safe Seat

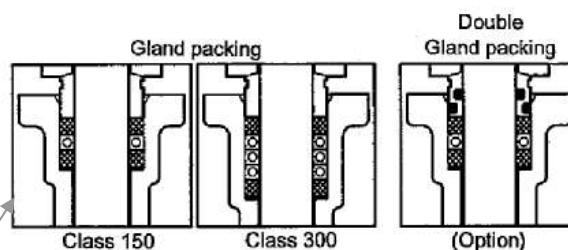


ANSI Class 150,
ISO PN10/16
PN25 (smaller than 300mm)

ANSI Class 300,
ISO PN25/40



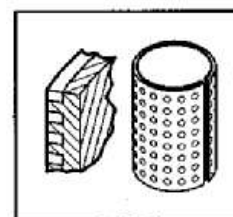
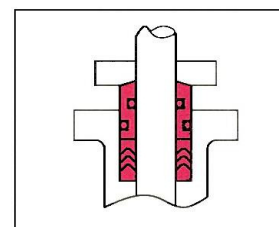
After Fire



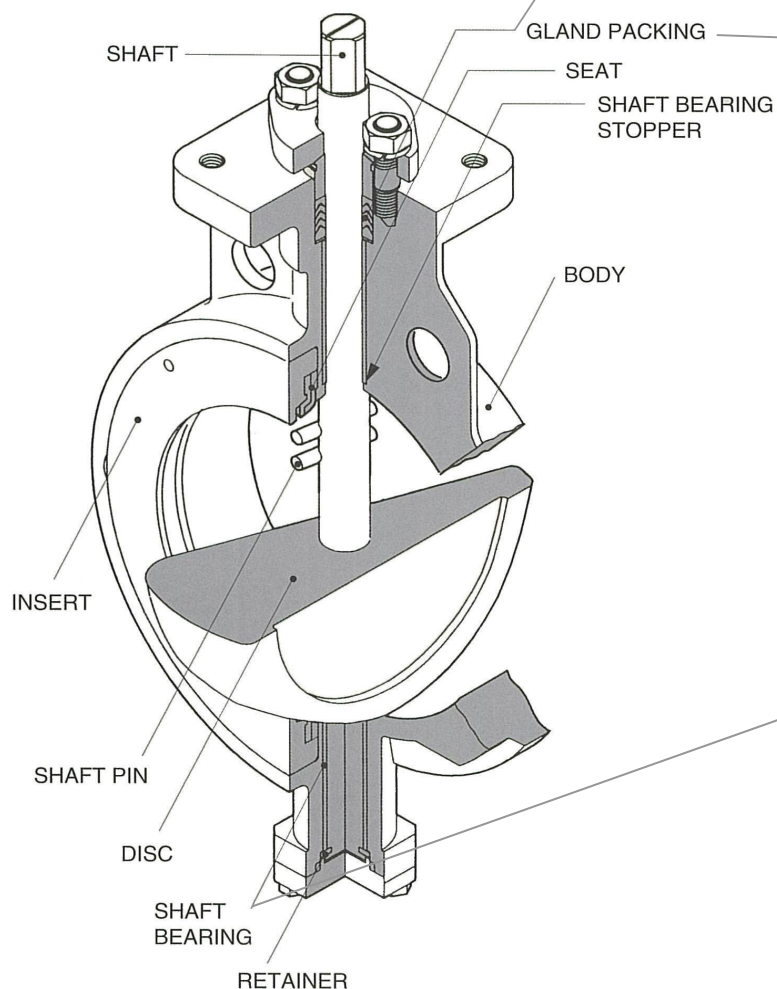
■ Anti Air pollution Gland

- TA-LUFT
(Clean Air Preservation)

Prevents external leakage from the gland. Double seal allows maintenance-free.



Shaft Bearing



Everything except for the following specifications the "Soft Double Seat"(See Page 6.) remains unchanged for the Fire Safe Seat.

Fire Safe Seat		
Materials	Body	Except for Ductile iron
	Gland packing	Non-asbesto / Grafoil Double Gland Packing as an option : O-ring/Non-asbesto/Grafoil (*)
	Bottom gasket	Grafoil : Class 150 - smaller than 600mm(24") Grafoil/316SS : Class 150 - larger than 650mm(26"), Class 300 - all sizes

(*)Double Gland Packing: Certified to TA-LUFT(Technical Guideline for Clean Air Preservation)

Fire Safe Approvals

Applied Standards:

American Petroleum Institute(API)

Fire Safe for soft-seated quarter-turn valves/**API Standard 607**, Third Edition,
Nov. 1985

British Standard(BS):

Testing of valves/Part 2 Specifications for fire type testing requirements **BS 6755**:
Part 2, 1987

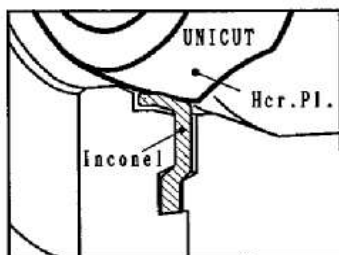
Third Party Inspection Authority:

Lloyd's Register of Shipping

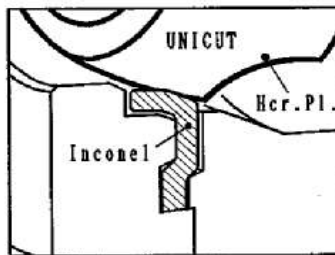
Approved Range:

Tested		Approved Range
Rating	Class 150	Class 150, 300, PN16, 25, 40
Sizes	3"(80mm)	3"(80mm), 4"(100mm), 5"(125mm), 6"(150mm)
	8"(200mm)	8"(200mm), 10"(250mm), 12"(300mm), 14"(350mm), 16"(400mm)
	16"(400mm)	larger than 16"(400mm)

Metal Seat



ANSI Class 150, ISO PN10/16
PN25 (smaller than 300mm)

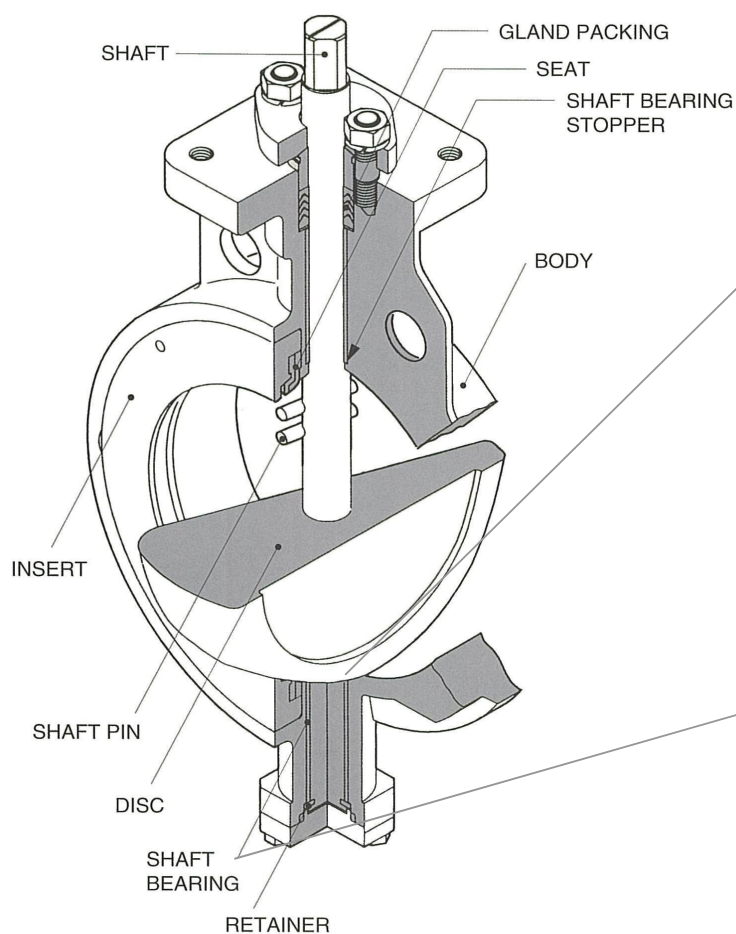
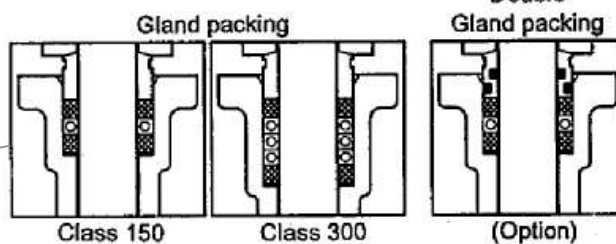
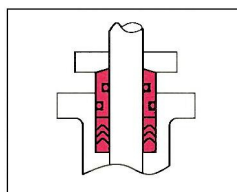


ANSI Class 300, ISO PN25/40

■ Anti Air pollution Gland

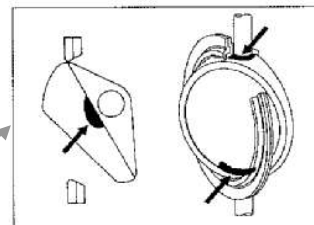
- TA-LUFT
(Clean Air Preservation)

Prevents external leakage from the gland. Double seal allows maintenance-free.

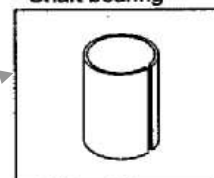


• Patented "UNICUT"

Prevents abrasion and wear that may occur between disc and metal seat. Assures a longer sealing life.



Shaft bearing



◆ **UNICON- Standard Production Range**

UNICON
SS811E

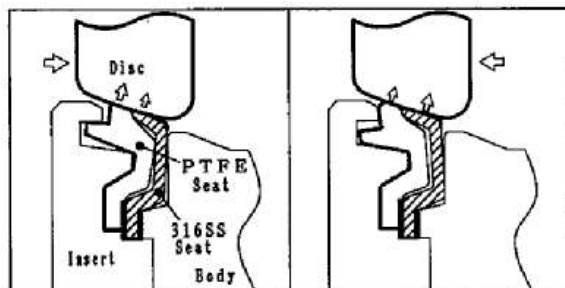
Metal Seat									
Connection		Wafer				Double Flange / Lugged			
									
Rating	ANSI	Class 150		Class 300		Class 150		Class 300	
	ISO	PN10/16 PN25 (≤300mm)		PN25/40		PN10/16		PN25/40	
Nominal Size	mm (inch)	50(2") - 1200(48")		80(3") - 600(24")		80(3") - 600(24")			
Applied Standards	Designed to	ASME / ANSI B16.34							
	Face to Face	ISO 5752/Short 350mm(14"):Medium		MSS SP-68		ISO 5752/Short 350mm(14"):Medium		MSS SP-68	
	Flange Connection	ASME / ANSI B16.5, DIN 2501/Sheet 1 ASME B16.47 Series A: Standard(Series B: available upon request)							
	Bonnet	ISO 5211/1							
Materials	Body	Ductile iron WCB 304SS	316SS	WCB	316SS	WCB	316SS	WCB	316SS
	Disc	316SS(Option: 304SS)							
	Disc surface	Sealing surface Hard Chrome Plated							
	Shaft	316SS(Option: 304SS)	17-4PH	316SS	316SS(Option: 304SS)		17-4PH	316SS	
		17-4PH : for all applications exceeding 300°C							
	Seat	Inconel							
	Gland packing	Non-asbesto / Grafoil Double Gland Packing as an option: O-ring/Non-asbesto/Grafoil(*)							
	Bottom gasket	Grafoil : Class 150 - smaller than 600mm(24") Grafoil/316SS : Class 150 - larger than 650mm(26"), Class 300 - all sizes							
	Shaft bearing	316SS							

(*)Double Gland Packing: Certified to TA-LUFT(Technical Guideline for Clean Air Preservation)

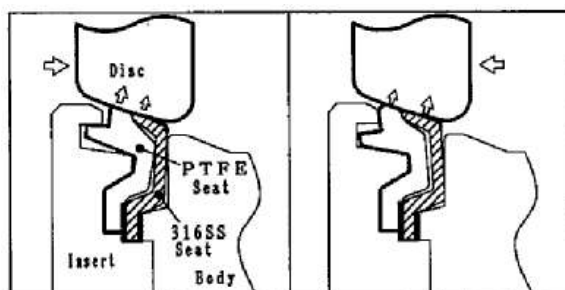
Actuators	
Automated	Pneumatic Rotary Actuators(Double Acting / Spring Return)

Soft Double Seat / Fire Safe Seat

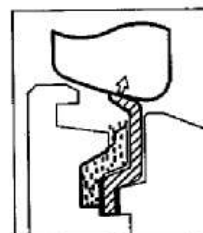
Soft Double Seat



Fire Safe Seat

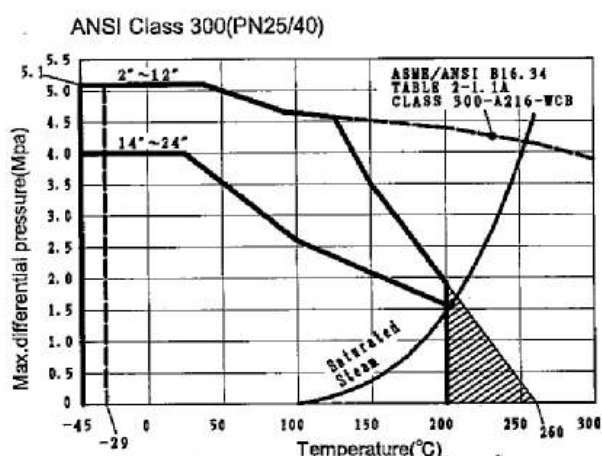
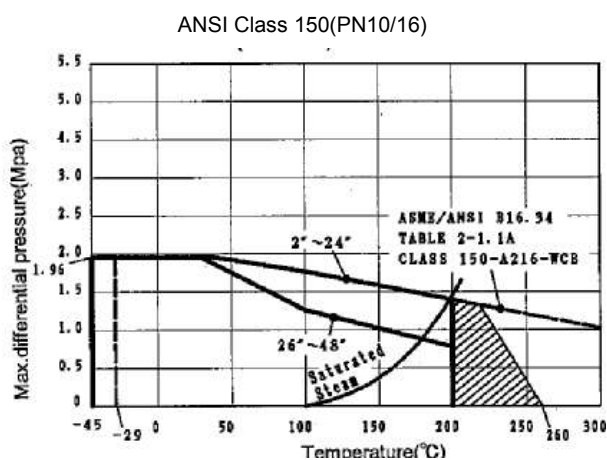


After Fire



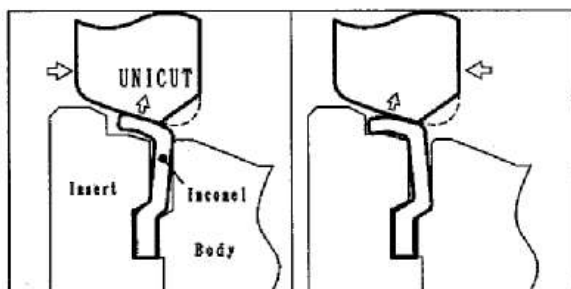
■ Sealing Performance : Tight Shutoff

■ Pressure/Temperature Rating



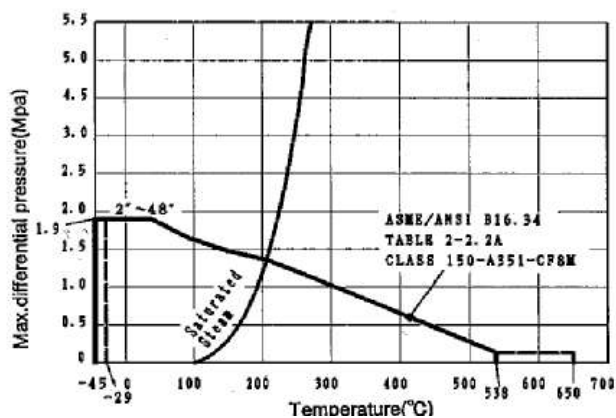
For details, consult us under Fax:+81 3 3443 6779, Tel:+81 3 3443 6778,
e-mail address: nbstokyo@oak.ocn.ne.jp

Metal Seat

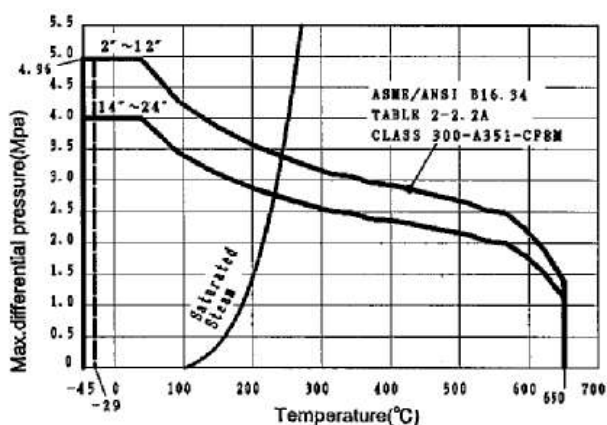


■ Pressure/Temperature Rating

ANSI Class 150(PN10/16)



ANSI Class 300(PN25/40)

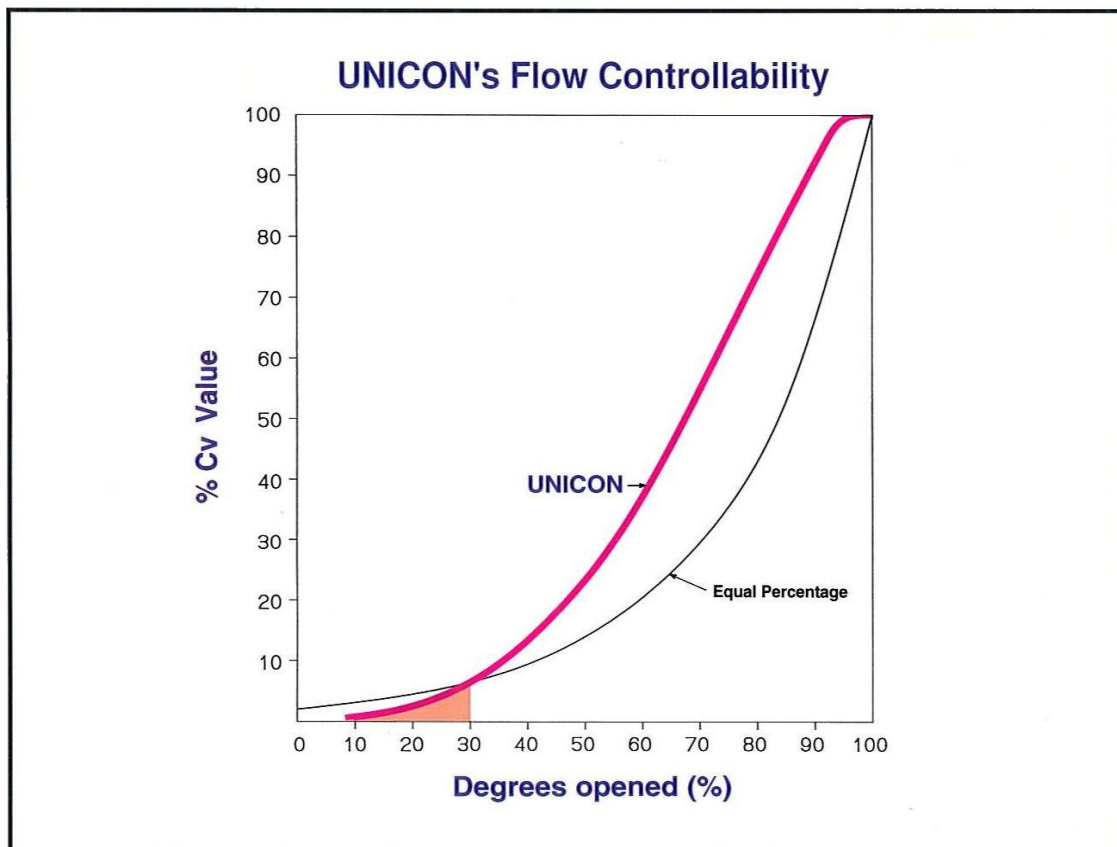


For details, consult us under Fax:+81 3 3443 6779, Tel:+81 3 3443 6778,
e-mail address: nbstokyo@oak.ocn.ne.jp

◆ UNICON - Performance



You can obtain precise disc positioning to increase controllability at small valve openings.



■ Basic Formulas for obtaining Cv-Value

For determining the valve nominal size, Multiply the Cv-Value gotten from these formulas by 1.25 and select the correct size from the above Cv-Value list.

▼ For Liquids

$$C_v = 1.17Q \sqrt{\frac{G}{\Delta P}}$$

▼ For Gases

When

$$\textcircled{1} \Delta P < \frac{P_1}{2}$$

$$C_v = \frac{Q}{272} \sqrt{\frac{G(273+T)}{\Delta P(P_1+P_2)}}$$

When

$$\textcircled{2} \Delta P \geq \frac{P_1}{2}$$

$$C_v = \frac{Q \sqrt{G(273+T)}}{236P_1}$$

▼ For Steam

When

$$\textcircled{1} \Delta P < \frac{P_1}{2}$$

$$C_v = \frac{WK}{13.5 \sqrt{\Delta P(P_1+P_2)}}$$

When

$$\textcircled{2} \Delta P \geq \frac{P_1}{2}$$

$$C_v = \frac{WK}{11.9P_1}$$

▼ For Steam in general

$$C_v = 1210 \sqrt{\frac{W}{\Delta P(V_1+V_2)}}$$

Q : Volume rate of flow (liquid m^3/h , gas Nm^3/h)
[※ $1\text{ft}^3/\text{h} = 0.02832\text{m}^3/\text{h}$]

W : Volume rate of flow (steam kg/h) [※ $1\text{lb} = 0.45359\text{kg}$]

P_1 : Inlet pressure (liquid kgf/cm^2 , gas / steam kgf/cm^2 abs.)

P_2 : Outlet pressure (liquid kgf/cm^2 , gas / steam kgf/cm^2 abs.)

ΔP : Pressure drop $P_1 - P_2$ (kgf/cm^2) [※ $1\text{Mpa} = 10.2\text{kgf}/\text{cm}^2$
[※ $1\text{psi} = 0.07\text{kgf}/\text{cm}^2$]

G : Specific gravity of fluid (water = 1, air = 1)

T : Temperature of fluid ($^{\circ}\text{C}$) [※ $^{\circ}\text{C} = 5/9(^{\circ}\text{F} - 32)$]

K : $1 + (0.0013 \times \text{TSH})$

TSH ($^{\circ}\text{C}$) : Total Temperature minus saturation Temperature

V_1 : Specific volume ($\text{cm}^3/\text{g} \dots P_1$) [※ $1\text{ft}^3/\text{lb} = 62.4\text{cm}^3/\text{g}$]

V_2 : Specific volume ($\text{cm}^3/\text{g} \dots P_2$)

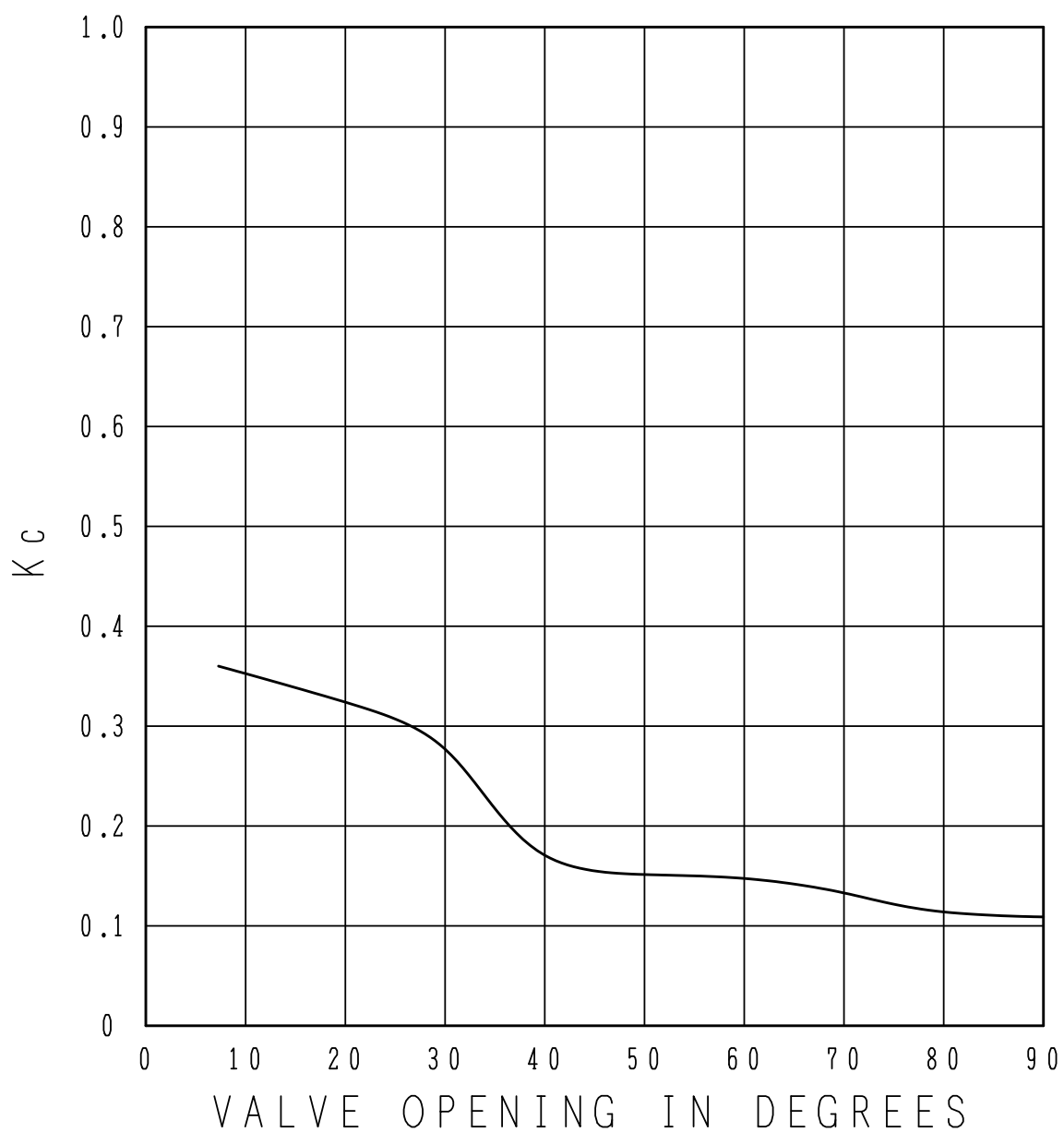
Notes : When $P_2 < \frac{1}{2} P_1$ use $\frac{P_1}{2}$ instead of ΔP

For V_2 , use V_2 in accordance with $\frac{P_1}{2}$

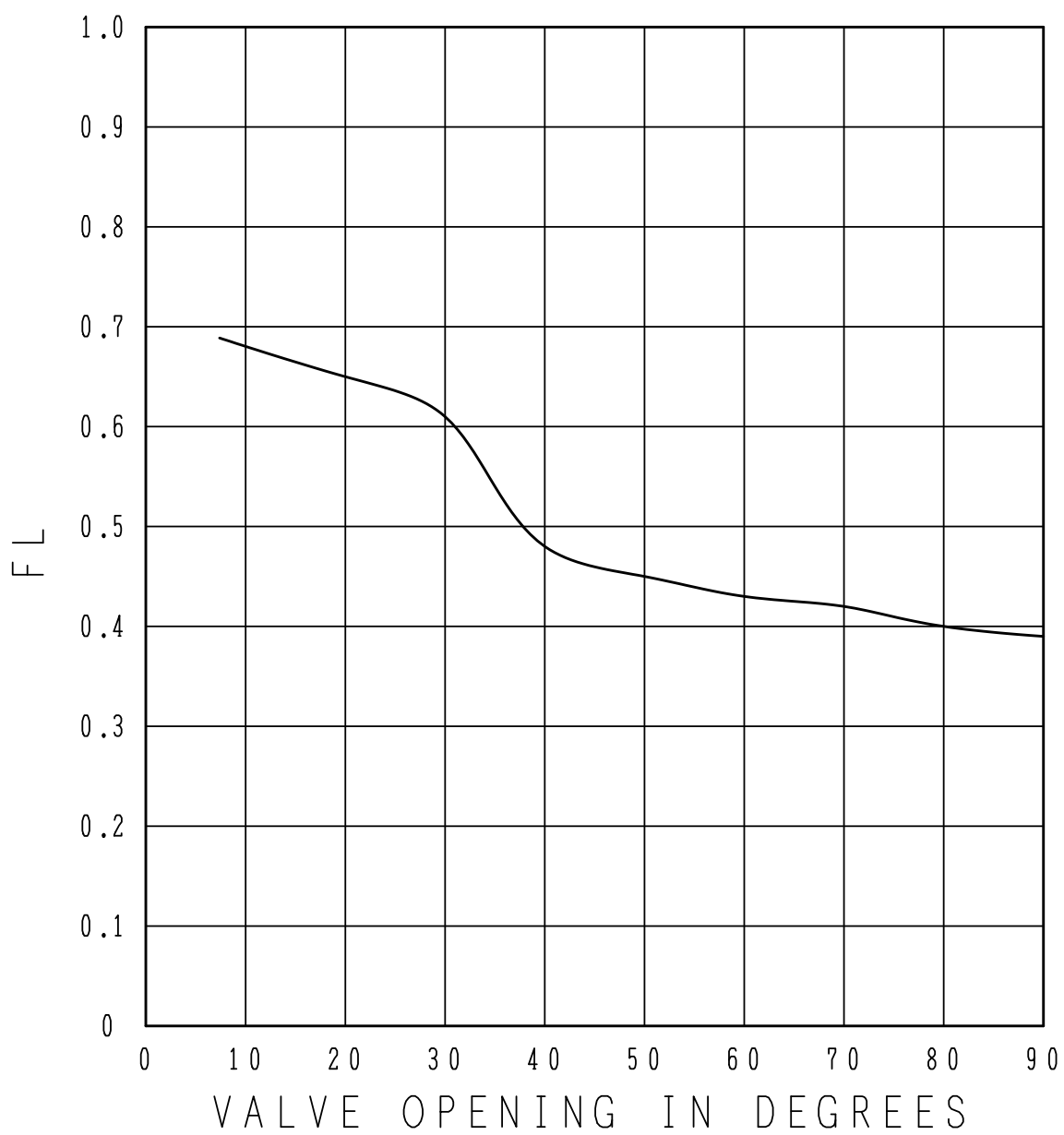
Cv Values vs. Travel Position												
ANSI Class 150/300, ISO/DIN PN10/16/25/40												
Size		ANSI	ISO/ DIN(PN)	Angle of Opening								
inch	mm			10°	20°	30°	40°	50°	60°	70°	80°	90°
2	50	150/300	10~40	0.44	3	6.4	13	21	26	35	41	44
2,5	65	150/300	10~40	0.72	4.9	10.5	21	34	43	57	67	72
3	80	150/300	10~40	1.24	8.4	18.1	36.7	59	73	99	115	124
4	100	150/300	10~40	3	15	30	69	120	200	272	317	339
5	125	150	10~16	5.1	21	43.5	92	160	230	328	421	449
6	150	150	10/16	7.18	25.9	51	114	197	258	385	524	559
		300	25/40	5.39	19.7	38.6	86	150	198	294	401	428
8	200	150	10/16	9.53	38.3	112.6	236	341	548	786	962	1042
		300	25/40	8.8	34.9	103	214	309	497	712	871	943
10	250	150	10/16	41.6	61.5	184	384	653	980	1354	1658	1748
		300	25/40	37.4	54.4	164	337	571	858	1184	1452	1530
12	300	150	10/16	73.7	79	221	455	771	1158	1603	2092	2442
		300	25/40	63.9	87.9	234	510	833	1229	1682	2066	2130
14	350	150	10/16	94	101	282	582	986	1482	2051	2677	3125
		300	25/40	89	96	268	552	935	1405	1945	2538	2963
16	400	150	10/16	124	134	374	771	1306	1962	2717	3546	4139
		300	25/40	118	127	355	733	1241	1864	2581	3369	3932
18	450	150	10/16	163	176	489	1009	1710	2569	3556	4642	5418
		300	25/40	153	165	461	952	1612	2422	3353	4376	5108
20	500	150	10/16	217	234	652	1346	2280	3425	4742	6189	7224
		300	25/40	201	217	606	1250	2117	3180	4403	5747	6708
24	600	150	10/16	241	351	978	2019	3420	5137	7113	9283	10836
		300	25/40	223	326	909	1875	3176	4770	6605	8620	10062
26	650	150	10/16	286	418	1165	2403	4071	6116	8468	11051	12900
28	700	150	10/16	377	550	1534	3165	5362	8054	11152	14554	16989
30	750	150	10/16	422	615	1715	3539	5995	9006	12468	16273	18995
32	800	150	10/16	516	753	2099	4331	7337	11021	15259	19916	23247
36	900	150	10/16	687	1003	2795	5767	9769	14675	20318	26517	30953
40	1000	150	10/16	861	1257	3503	7226	12242	18390	25461	33231	38789
44	1100	150	10/16	1074	1567	4368	9012	15266	22933	31751	41440	48372
48	1200	150	10/16	1205	1758	4900	10108	17124	25724	35616	46484	54259

Cv value indicates quantity of water at 60°F(15.6°C)in US gal./min. which flows through the valve at pressure drop of 1 psi(0.0069MPa)

Kc - Cavitation Coefficient(primary)



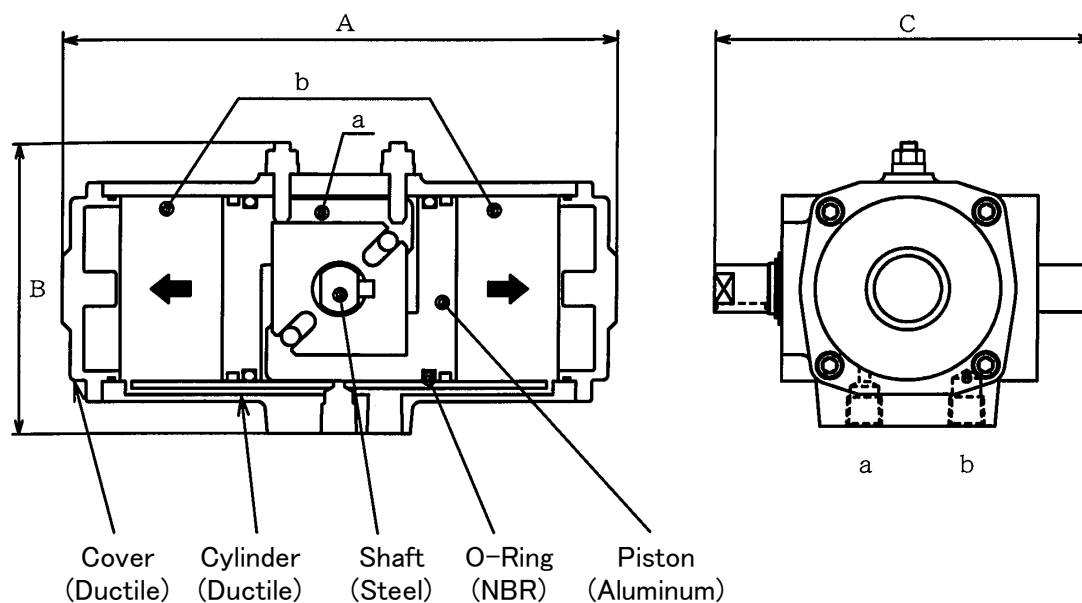
FL - Recovery Coefficient



◆ UNIPOWER Rotary Pneumatic Actuator

UNICON
SS811E

■ NC type - Double Acting



Actuator Type Number		NC091	NC201	NC351	NC651(*)
Dimensions	A (mm)	206	260	320	380
	B (mm)	107	136	164	196
	C (mm)	140	170	206	252
Weight	Kg	6.0	10.5	19.0	32.0
Output Torque (at 0.39MPa/58psi)	Nm	82.5	175	319	583
Cylinder Volume	a (liters)	0.38	0.81	1.5	2.7
	b (liters)	0.39	0.82	1.5	2.7
Air Consumption (at 0.39MPa/58psi)	liters /cycle	3.85	8.15	15.0	27.0
Operation Speed(**)	Seconds	1.0	2.3	4.0	5.0

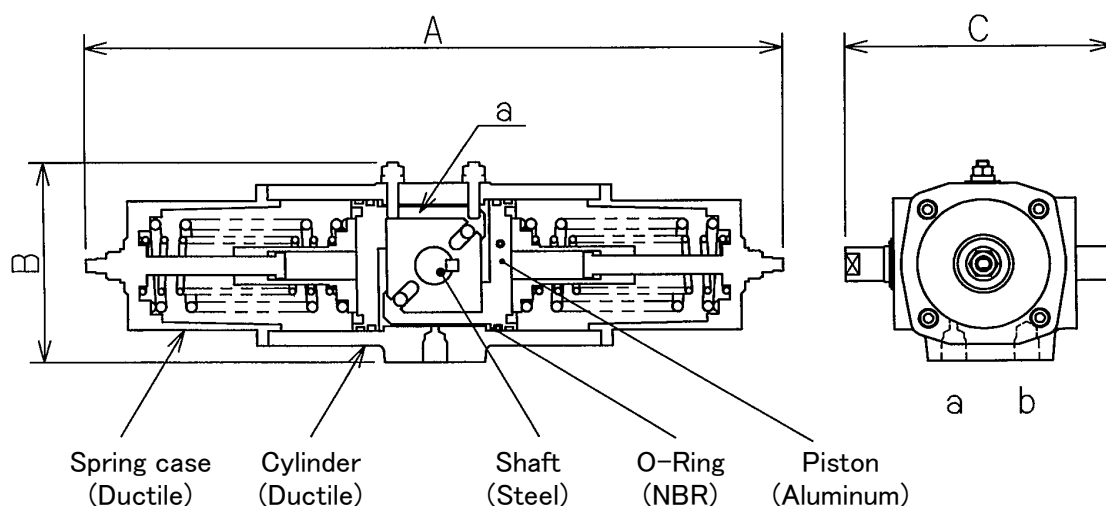
(*) : Option

(**) : UNIPOWER's own

◆UNIPOWER Rotary Pneumatic Actuator

UNICON
SS811E

■ NE type - Spring Return



Operating Pressure : 0.39MPa / 58psi

Operating Temperature : -20°C ~ +80°C / -4°F ~ +176°F

Actuator Type Number			NE091S	NE201S	NE351S
Dimensions	A (mm)		368	476	572
	B (mm)		107	136	164
	C (mm)		140	170	206
Weight	Kg		7.6	14.2	24.6
Output Torque (at 0.39MPa/58psi)	Nm	FC	28	65	120
		FO	38	79	145
Cylinder Volume	a (liters)		0.38	0.81	1.5
Air Consumption (at 0.39MPa/58psi)	liters / stroke		1.9	4.05	7.5

FC : Air Failure, Valve Close

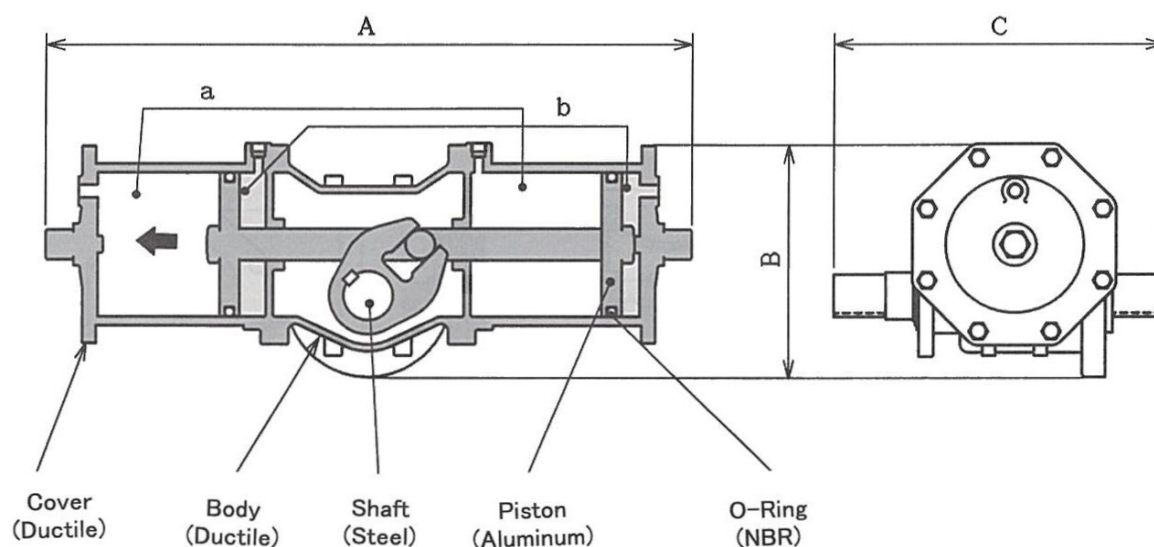
FO : Air Failure, Valve Open

As for function speed, refer to NC type Double acting actuators' as reference.

◆ UNIPOWER Rotary Pneumatic Actuator

UNICON
SS811E

■ NS type - Double Acting



Operating Pressure : 0.39Mpa / 58psi

Operating Temperature : -20°C ~ +80°C / -4°F ~ +176°F

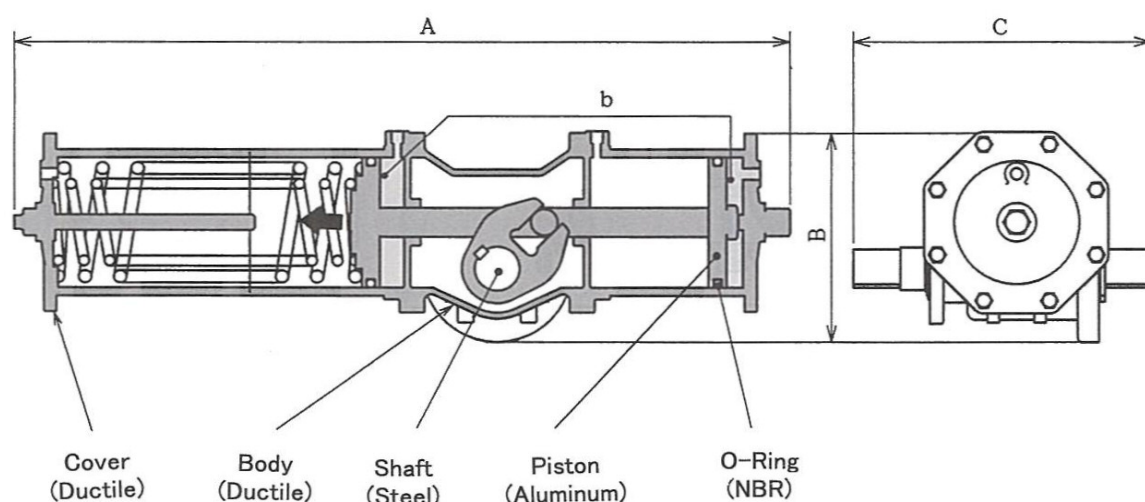
Actuator Type Number		NS-13N	NS-17N	NS-20N	NS-28N
Dimensions	A (mm)	610	750	1050	1350
	B (mm)	200	271	347	459
	C (mm)	282	390	460	590
Weight	Kg	43	80	140	270
Output Torque (at 0.39MPa/58psi)	Nm	780	1660	3620	8500
Cylinder Volume	a (liters)	3.1	6.7	14.8	34.6
	b (liters)	3.1	6.7	14.8	34.6
Air Consumption (at 0.39MPa/58psi)	liters /cycle	31.0	67.0	148.0	346.0
Operation Speed(*)	Seconds	1.0	1.5	2.0	3.0

(*): UNIPOWER's own

◆UNIPOWER Rotary Pneumatic Actuator

UNICON
SS811E

■ NS type - Spring Return



Operating Pressure : 0.39MPa / 58psi

Operating Temperature : -20°C ~ +80°C / -4°F ~ +176°F

Actuator Type Number		NS-13NS	NS-17NS	NS-20NS	NS-28NS
Dimensions	A(mm)	865	983	1412	1828
	B(mm)	200	271	347	459
	C(mm)	282	390	460	590
Weight	Kg	58	107	190	390
Output Torque (at 0.39MPa/58psi)	Nm	270	620	1370	3630
Cylinder Volume	a(liters)	-	-	-	-
	b(liters)	3.1	6.7	14.8	34.6
Air Consumption (at 0.39MPa/58psi)	liters /stroke	15.5	33.5	74.0	173.0

FC : Air Failure, Valve Close (The picture above shows "FC" function.)

FO : Air Failure, Valve Open (The spring compartment will be located on the right side of the picture.)

◆UNIPOWER Rotary Pneumatic Actuator

UNICON
SS811E

■ Standard Specifications and Accessories				
Types Spec-Items	NC / NE		NS	
	Double Acting (NC--)	Spring Return (NE--S)	Double Acting (NS--N)	Spring Return (NS--NS)
Construction	Scotch Yoke type pneumatic cylinder rotary actuator			
Connection Standards	ISO 5211/1		ISO 5211/1 (upon request)	
	NAMUR to VDI/VDE 3845 available upon request			
Application	On-Off		On-Off	
Materials				
Body/Cover	FCD400(Ductile iron)		FCD400(Ductile iron)	
Cylinder	FCD400(Ductile iron)		STKM13(Steel pipe)	
Shaft	S45C(Steel)/hard chrome plated		S45C(Steel)/hard chrome plated	
Piston	AC4C-T6(Aluminum)		A6061-T6(Aluminum)	
O-Rings	NBR		NBR	
Operating Pressure	Air 0.39MPa / 58psi		Air 0.39MPa / 58psi	
Piping connections	Rc 1/4" for { NC091 upto NC651 NE091S upto NE351S		Rc 1/4" for NS-13N(S), Rc 3/8" for NS-17N(S) upto NS-20N(S), Rc 1/2" for NS-28N(S)	
Opening range	Rotary On-Off : 0 ~ 93°		Rotary On-Off : 0 ~ 93°	
Allowable environmental temperature	-20°C ~ +80°C / -4°F ~ +176°F		-20°C ~ +80°C / -4°F ~ +176°F	
Protection rating	Outdoors waterproof(IP55)		Outdoors waterproof(IP55)	
Standard painting (incl.Yoke)	Magenta		Magenta	
Accessories (*)				
Manual operators	G type Manual gear, (*) Lever		Manual gear	Side handle
Limit switches	1LS(water-proof), 1LX(explosion-proof) VCL(water-proof), VCX(explosion-proof)			
Solenoid valves	3-way : M00U (water-proof, explosion-proof), 4-way : M15G - M65G(water-proof, explosion-proof)			
Air filter regulators	AW3000 — AW4000, XR108			
Speed controllers	AS4000			
Quick exhaust valves	QEV—8, QEV—10, QEV—15, QEV -20			
Silencers	AN200, AN300, AN400, AN500			
Pressure equalizing valve	DH-12B			
Others(*)	Special instructions available for salty environment, extreme cold environment, special air-tubing, special joints, special painting, stainless steel bolts/nuts for outside exposed environment, volume tanks, lock-up valves, etc.			

(*) : Option

Actuator Selection for UNICON(Double Seat)

(Supply Pressure: 0.39MPa/4bar/58psi)

Code No.
(example)

8 **WA15** **C** **6** **6** **D2** **S**

UNICON Wafer type ANSI Class 150 Carbon steel body Double Seat (Details, See page 25.)

Valve size		3" 80mm	4" 100mm	6" 150mm	8" 200mm	10" 250mm	12" 300mm	14" 350mm	16" 400mm	18" 450mm	20" 500mm	24" 600mm
Gas Control with Double Acting Actuator		NC091	NC201	NC201	NC351	NS13N	NS13N	NS17N	NS17N	NS20N	NS20N	NS20N
Gas Control with Spring Return Actuator	FC	NE201S	NE351S	NS13NS	NS17NS			NS20NS		NS28NS		
	FO	NE201S	NE351S		NS17NS			NS20NS		NS28NS		

FC Air Failure, Valve closes

FO Air Failure, Valve opens

Above selection is applied for Double seated UNICON and for Gas Control.

For Metal seated UNICON, or for Liquid Control, or for ANSI Class 300 valves, please refer to the separate Selection Tables(SS612-0); pages 23, 24.

Selection of UNIPOWER(for Control of Gas)

Supply Pressure: 4kgf/cm²(58psi)

Metal seated valves: Selected for the temperature range of -45°C~+450°C (-49F~+842F)

NC/NE Type / NS Type

Rating	ANSI CLASS 150									ANSI CLASS 300								
Max. Differential Pressure	(from recommended flow) 1.0MPa/10.2kgf/cm ²									(from recommended flow) 2.0MPa/20.4kgf/cm ²								
Actuator Type (Function)	Double Acting			Spring Return(FC) Air Failure, Valve Close			Spring Return(FO) Air Failure, Valve Open			Double Acting		Spring Return(FC) Air Failure, Valve Close		Spring Return(FO) Air Failure, Valve Open				
Seat Type Valve size	S	FS	M	S	FS	M	S	FS	M	FS	M	FS	M	FS	M			
50mm(2″)	NC091		NC201	NE201S	NS-13NS		NE091S			NC091	NC201	NE201S	NS-13NS	NE201S	NS-13NS			
65mm(2.5″)							NE201S											
80mm(3″)																		
100mm(4″)			NC351	NE351S						NC201	NC351	NE351S	NS-17NS	NE351S	NS-17NS			
125mm(5″)	NC201						NE351S											
150mm(6″)							NS-13N	NS-13NS	NS-13NS									
200mm(8″)	NC351						NS-13N			NS-13N		NS-17NS	NS-20NS	NS-17NS	NS-20NS			
250mm(10″)	NS-13N		NS-17N	NS-17NS	NS-20NS		NS-17NS			NS-17N	NS-20NS	NS-28NS	NS-28NS	NS-28NS	NS-28NS			
300mm(12″)							NS-20NS											
350mm(14″)																		
400mm(16″)	NS-17N			NS-20NS			NS-20NS			NS-20N	NS-28N							
450mm(18″)							NS-28NS											
500mm(20″)																		
600mm(24″)	NS-20N		NS-28N							NS-28N								
650mm(26″)																		
700mm(28″)																		
750mm(30″)																		
800mm(32″)																		
900mm(36″)																		
1000mm(40″)																		
1100mm(44″)																		
1200mm(48″)																		

Seat Type

FS/D : Fire safe seat/ Double seat

M : Metal seat

Seat Type

FS/D : Fire safe seat/ Double seat

M : Metal seat

"S"(Single PTFE seat) is not applied for UNICON.

Selection of UNIPOWER(for Control of Liquid)

Supply Pressure: 4kgf/cm²(58psi)

Metal seated valves: Selected for the temperature range of -45°C~+450°C (-49F~+842F)

NC/NE Type / NS Type

Rating	ANSI CLASS 150						ANSI CLASS 300																
Max. Differential Pressure	(from recommended flow) 1.0MPa/10.2kgf/cm ²						(from recommended flow) 2.0MPa/20.4kgf/cm ²																
Actuator Type (Function)	Double Acting		Spring Return(FC) Air Failure, Valve Close		Spring Return(FO) Air Failure, Valve Open		Double Acting		Spring Return(FC) Air Failure, Valve Close		Spring Return(FO) Air Failure, Valve Open												
Seat Type Valve size	FS D	M	FS D	M	FS D	M	FS D	M	FS D	M	FS D	M											
50mm(2″)	NC091	NC351	NE201S	NS-13NS	NE201S	NS-13NS	NC091	NC351	NE201S	NS-13NS	NE201S	NS-13NS											
65mm(2.5″)			NE351S		NE351S		NC201		NE351S		NE351S												
80mm(3″)									NS-13NS		NE351S												
100mm(4″)	NC201	NS-13N	NS-13NS	NS-17NS	NS-13NS	NS-17NS	NC351	NS-13N			NS-17NS	NS-17NS											
125mm(5″)			NS-17NS	NS-20NS	NS-20NS	NS-20NS					NS-17NS	NS-17NS											
150mm(6″)											NS-17NS	NS-17NS											
200mm(8″)	NC351	NS-17N	NS-17NS	NS-20NS	NS-17NS	NS-20NS	NS-17N		NS-17NS	NS-20NS	NS-17NS	NS-20NS											
250mm(10″)	NS-13N		NS-20NS		NS-20NS				NS-20NS		NS-20NS												
300mm(12″)	NS-13N																						
350mm(14″)	NS-17N	NS-20N	NB-28NS	NS-28NS	NS-28NS	NS-28NS	NS-20N		NS-28NS		NS-28NS												
400mm(16″)																							
450mm(18″)																							
500mm(20″)	NS-20N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N		NS-28N	NS-28N	NS-28N	NS-28N											
600mm(24″)	NS-28N																						
650mm(26″)																							
700mm(28″)																							
750mm(30″)	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N											
800mm(32″)																							
900mm(36″)																							
1000mm(40″)	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N	NS-28N											
1100mm(44″)																							
1200mm(48″)																							

Seat Type

FS/D : Fire safe seat/ Double seat
M : Metal seat

Seat Type

FS/D : Fire safe seat/ Double seat

M : Metal seat

◆ **How to order UNICON(Product Code No.)**

UNICON
SS811E

Code No.: ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ - ⑨ ⑩

Example: 12 8W A15 6 6 6 F2 S 6 (*)

The above example is for Valve size 12"(DN300), Wafer type, ANSI Class 150, CF8M-body, CF8M-disc, 316ss-shaft with fire safe seat, standard bonnet and with UNIPOWER(NS-type pneumatic spring return actuator).

①	Size inch mm		②	Body Type (Connection)	⑤	Disc material	⑨	Actuation
2	2	50	8W	Wafer type	4	CF8	0	Bare shaft
2,5	2,5	65	8L	Single Flange type	6	CF8M	1	Ratchet lever (option)
3	3	80	8F	Double Flange type (Gate F.-to-F.)	4L	CF3	2	Lock lever
4	4	100			6L	CF3M	3	Manual gear
5	5	125			K	Monel	4	UNIPOWER(NC-spring ret.)
6	6	150			(* *)		5	UNIPOWER(NC-double act.)
8	8	200					6	UNIPOWER(NS-spring ret.)
10	10	250					7	UNIPOWER(NS-double act.)
12	12	300					8	UNIMOTOR(electric)
							9	Hydraulic
14	14	350					4P	UNIPOWER(NC-2 stage spring)
16	16	400					When UNIPOWER with manual gear, add "3" after the code number.	
18	18	450						
20	20	500						
24	24	600						
26	26	650						
28	28	700						
30	30	750						
32	32	800						
36	36	900						
40	40	1000						
44	44	1100						
48	48	1200						

③	Rating
P00	Undrilled
P10	PN10
P16	PN16
P25	PN25
P40	PN40
P64	PN64
P100	PN100
A15	ANSI 150
A30	ANSI 300
A60	ANSI 600

④	Body material
D	Ductile
C	WCB
4	CF8
6	CF8M
5	A105
4L	CF3
6L	CF3M
K	Monel
Other materials available upon request	

⑥	Shaft material
4	304SS
6	316SS
X	17-4PH
4L	304L
6L	316L
7	317SS
K	Monel
Other materials available upon request	

⑦	Seat/Seal material
P	Soft Single Seat(PTFE)/ Seal: PTFE
D2	Soft Double Seat(PTFE+316SS)/Seal: PTFE
F2	Soft Double Seat(PTFE+316SS)/Seal: Grafoil
N	Metal Single Seat(Inconel)/Seal: Grafoil
L	Cryogenic Seat(316SS+PTFE)
LK	Cryogenic Seat-Zero leak(316SS+special soft seat)

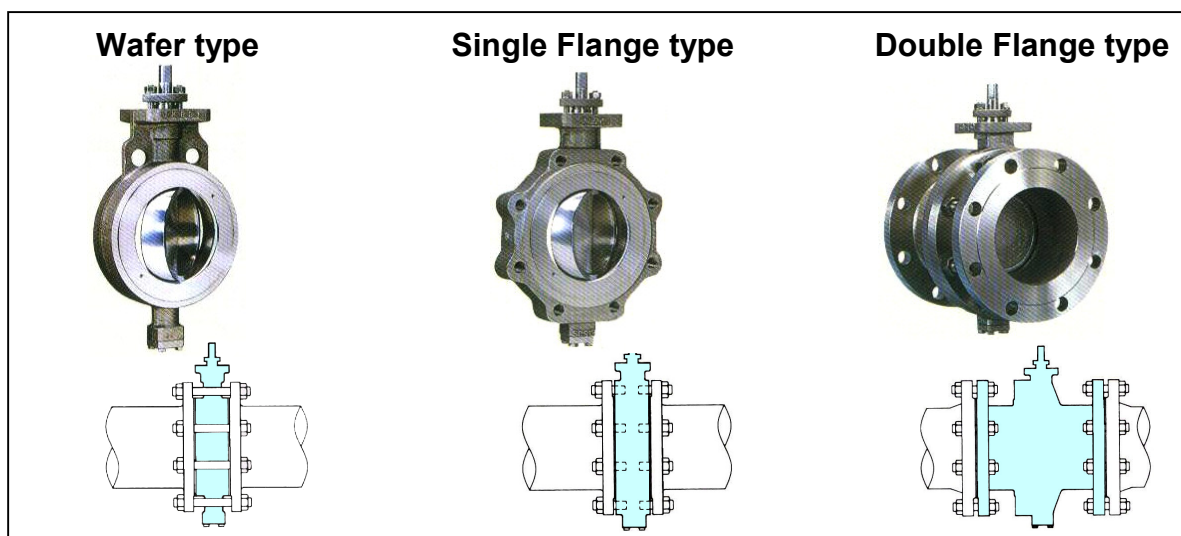
⑧	Bonnet type
S	Standard type
E	Extension bonnet
J	Jacket type

⑩ (*)	When special features or accessories are required, they shall be described after the code number "9" in details.
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(* *)
Other materials available upon request

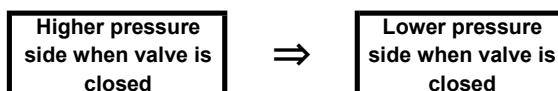
(*)
Other materials available upon request

■ **Connections**



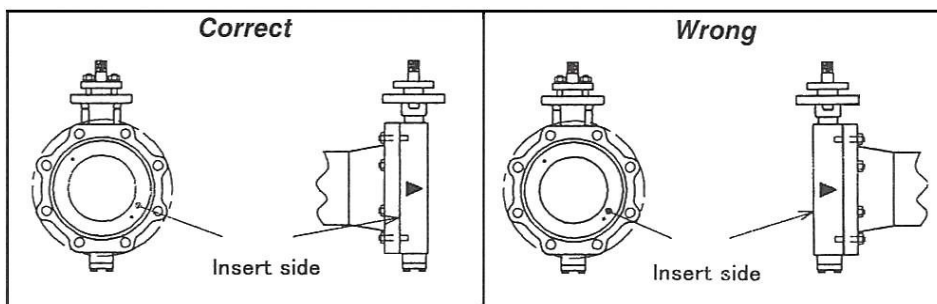
■ **Cautions before Installation**

- (1) Welding spatter and other foreign matters in the piping line may cause damage on the seat and resulting higher torque: they must be thoroughly flushed.
- (2) On the UNICON body there is an arrow mark ($\Rightarrow$) to indicate the recommended flow direction. The valve should be installed as follows:-



- (3) Wafer Type and Single Flange Type UNICON obtain correct sealing by tightening the flange bolts for piping of the Insert-ring side. If the piping flanges are not placed the fluid can not be shut off.

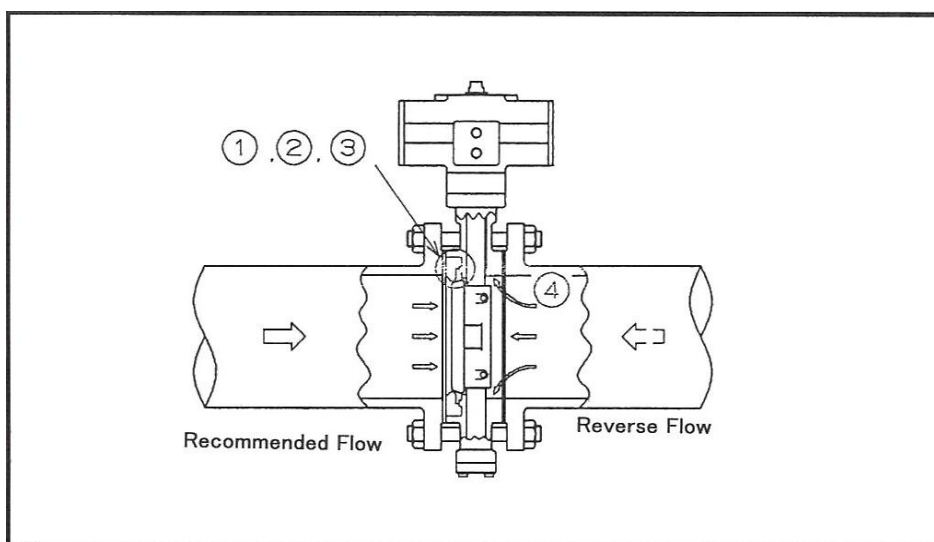
■ **Piping Orientation for Single Flange Type**



■ **Recommended Flow Direction**

UNICON seals the fluids bi-directionally, we however, recommend you to use in our recommended flow direction as illustrated hereunder, you will then have the following advantages:-

- ① Much less seat wear; meaning **Longer Sealing Life**.
- ② The fluid will not contact the sealing surface of the seat, also **Longer Seat Life**.
- ③ Lighter start-up torque; meaning **Lower in Cost** by selecting more economical(smaller) Actuators
- ④ As it seals the fluids at the seat, the fluid pressure will not affect the gland sealing part directly; meaning **Longer Sealing Life of the Gland packings**.



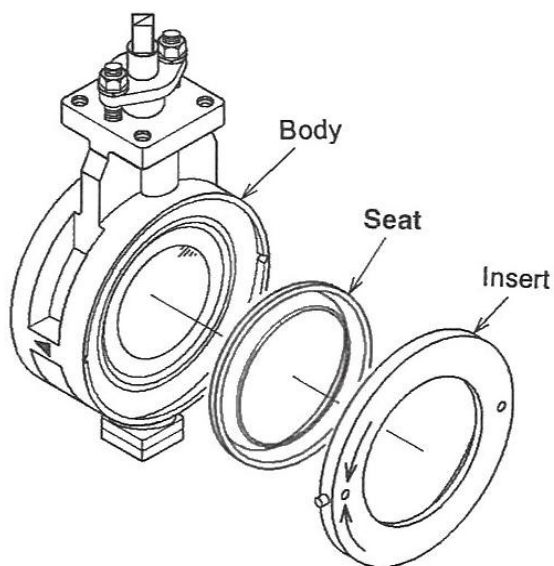
■ **Cautions for application of reverse flow pressure:**

In case of flow loading by reverse pressure, the valve opening torque becomes higher; the selection of proper actuator will then be different. Consult us.

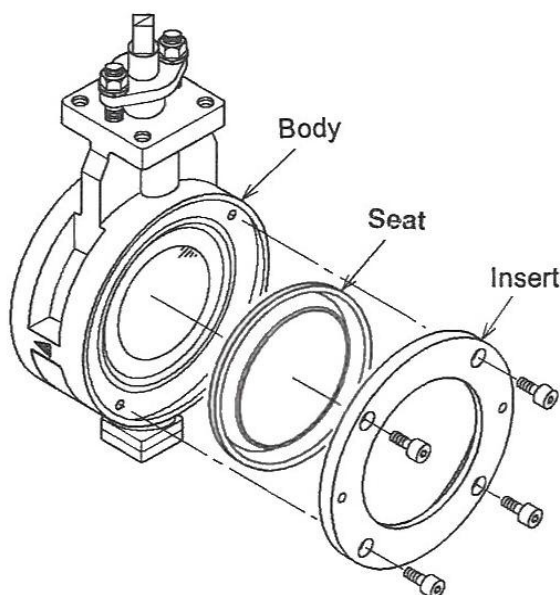
For details, consult us under Fax: +81 3 3443 6779, Tel: +81 3 3443 6778. E-mail address: nbstokyo@oak.ocn.ne.jp

■ Easy Replacement of Seat and Seal

Seat replacement can be done very easily and quickly without disassembling the shaft and disc.



Flat Face Insert - for sizes smaller than 12"(300mm)



Bolted Insert - for sizes larger than 14"(350mm)

■ Seal Kits

Parts Name	Soft Double Seat		Metal Seat
	Fire Safe Seat	Double Seat	
Seat			
Gland packing	Non-asbesto Grafoil (P#6528/P#6610 equiv.)	PTFE	Non-asbesto Grafoil (P#6528/P#6610 equiv.)
Bottom gasket	Grafoil (*) (P#6610 equiv.)	PTFE	Grafoil (*) (P#6610 equiv.)
Body gasket	Grafoil / 316SS (T#1804-GR)-- only for Double Flange Type (Gate A face to face)		

(*) All sizes for classes larger than ANSI 300 : Grafoil/316SS
Profiles of the seats here are roughly drawn.

MEMO

[illegible]



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