

NDV BALL VALVES



NIPPON DAIYA VALVE Co., Ltd.

1. 2-Way Ball Valve

Fire Safe Type Ball Valve: F100NB
High Pressure / Large Bore Ball Valve: E(K)100S
Jacketed Ball Valve: E100JNC
Extension Stem Ball Valve: FEX100NB

2-Way Ball Valve

2. 3-Way Ball Valve

2 Seats 3-Way Ball Valve: E300NB-L2
4 Seats 3-Way Ball Valve: E300NB-T4/L4
3 Seats 3-Way Ball Valve: E300N-T3/L3

3-Way Ball Valve

3. V-Port Valve

V100ND(NC)

V-Port Valve

4. Pneumatically Operated Valve

Pneumatically Operated 2-Way Ball Valve
Pneumatically Operated 3-Way Ball Valve
Pneumatically Operated V-Port Valve

Pneumatically Operated Valve

5. Electrically Operated Valve

Electrically Operated 2-Way Ball Valve
Electrically Operated 3-Way Ball Valve
Electrically Operated V-Port Valve

Electrically Operated Valve

6. Special Purpose Ball Valve

High Temperature Ball Valve
Y-Shaped 3-Way Ball Valve
Ball Valve for Shield Tunneling Method
Top Entry Ball Valve

Special Purpose Ball Valve

7. Safety Instructions

Safety Instructions

For further technical details and specifications, Please contact NDV or local representative.

V-Port Valve



Lever Operated Valve
V100ND (NC)



Pneumatically Operated ON-OFF Valve
VPN1100ND (NC)



Pneumatically Operated ON-OFF Valve
VPN3100ND (NC)



Electrically Operated Valve
VMS4100ND (NC)

Special Purpose Ball Valve

High Temperature Ball Valve



Metal Seat Ball Valve
F(H)100NB-ST

Y-Shaped 3 Way Ball Valve



Pneumatically Operated ON-OFF Ball Valve
YWN1300

Ball Valve for Shield Tunneling Method



Hydraulically Operated Ball Valve
EKTON1100N

Top Entry Ball Valve



Lever Operated Ball Valve
T100S

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Electrically Operated Valve

Models and Features of Electrically Operated Valve

- SRH Type
- SRJ Type
- SHA Type, SD# Type
- PMK Type

5-1. Electrically Operated 2-Way Ball Valve

- Fire Safe Ball Valve: F□4100NB

5-2. Electrically Operated 3-Way Ball Valve

- 2 Seats 3-Way Ball Valve: E□4300NB-L2
- 4 Seats 3-Way Ball Valve: E□4300NB-T4/L4
- 3 Seats 3-Way Ball Valve: E□4300N-T3/L3

5-3. Electrically Operated V-Port Valve: V□4100ND(NC)

Models and Features of Electrically Operated Valve

Applicable Models

Manufacturer	Type	Nominal Size			
		F100NB	E300NB-L2/T4/L4	E300N-T3/L3	V100ND (NC)
Seibu Electric & Machinery	SRH	DN 15 to 150	DN 15 to 150	DN125 to 150	DN 25 to 200
	SRJ	DN 15 to 200	DN 15 to 200	DN125 to 150	DN 25 to 200
	SHA, SD#	DN125 to 200	DN125 to 200	DN125 to 200	—
Kawaden	PMK	DN 15 to 200	DN 15 to 200	DN125 to 200	DN 25 to 200

The products other than above are also available upon request.

SRH Type (Seibu Electric and Machinery made)

Features

- Compact and lightweight actuator using aluminum alloy and engineering plastic.
- Applicable to single-phase AC power.
- No built-in torque switch.
- Motor is protected by built-in thermal protector.
- Manual operation can be done by a spanner. (Interlock switch is not built in.)
- Usable as regulating valve if a seitrroller (electrical positioner) is installed.

Specification

SRH Torque Actuator

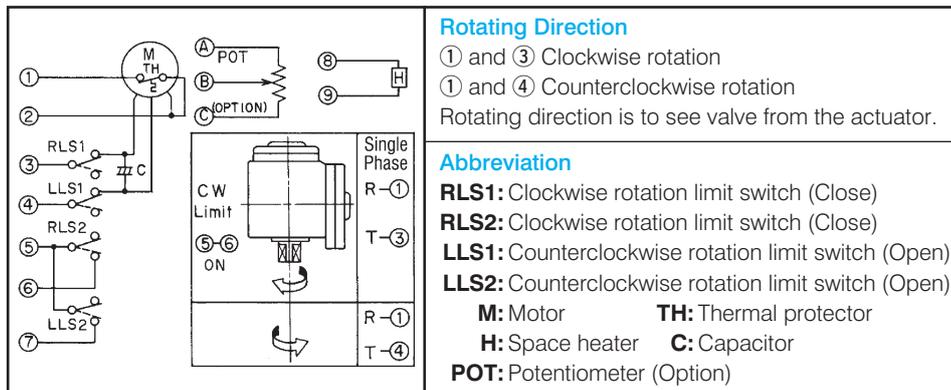
Type	SRH-007	SRH-020	SRH-060	
Maximum Output Torque $N \cdot m$	70	200	600	
Open/Close Time (50/60Hz) $sec./90^\circ$	12/10	12/10	18/15	
Power Supply (50/60Hz) V	Single-phase 100/110, 200/220			
Motor	Output W	10	40	100
	Thermal Class	Class E		
	Thermal Protector	Incorporated		
Torque Limit Switch	Not incorporated			
Space Heater W	5			
Microswitch Contact Capacity	AC250V-5A, DC125V-0.4A (Inductive load)			
Lead Inlet	2-G1/2			
Ambient Temperature	-10°C to 50°C			
Protection Structure	IP55/JPW55 (Outdoor waterproof)			
Terminal	Screw size M3.5 × 12P			
Manual Operation	Manually operable using spanner			

Option: Potentiometer, Seimitter, Seitrroller



Installed Image

Connecting Diagram



SRJ Type (Seibu Electric and Machinery made)

Features

- Compact and lightweight actuator using aluminum alloy. Protection structure is IP68 (Submersible).
- Accommodate either single phase or three phase AC power. (Single phase three wire is not applicable to SRJ1 and 2.)
- Motor is protected by built-in torque switch and thermal protector. Damage by excessive valve torque is also prevented by the torque switch.
- Valve can be operated manually by handwheel and be automatically recovered after power input.
- Explosion proof type (conforming to Ex d II BT4/IEC) is also available.
- Usable as regulating valve if seitrroller (electrical positioner) is installed. (Seitrroller includes Seimitter function.)



Installed Image

Specification

SRJ Torque Actuator

Type		SRJ-010-7	SRJ-010	SRJ-020	SRJ-060	SRJ-1	SRJ-2	
Maximum Output Torque	$N \cdot m$	70	125	250	600	1000	2000	
Open/Close Time (50/60Hz)	sec./90°	18/15					36/30	
Power Supply (50/60Hz)	V	Single-phase 100/110, 200/220 • 3-phase 200/220, 400/440				*		
Motor	Output	40			100		200	
	Thermal Class	Class B						
	Brake	Permanent brake included						
	Thermal Protector	Incorporated						
Torque Limit Switch		Incorporated						
Space Heater	W	5 to 8						
Microswitch Contact Capacity		AC250V-2A, DC125V-0.4A (Inductive load)						
Lead Inlet		3-G1						
Ambient Temperature		-10°C to 50°C						
Protection Structure		IP68 (Submersible)						
Terminal		Screw size M4 × 32P, Motor M4 × 3P						
Manual Operation		With handwheel Automatically recoverable						

Option: Explosion proof (Ex d II BT4), Potentiometer, Seimitter, Seitrroller

*: Inapplicable to single phase three wire

Connecting Diagram

Rotating Direction
 Single-phase: **R-U, T-X** | 3-phase: **R-W, S-V, T-U** Clockwise rotation
 Single-phase: **R-V, T-X** | 3-phase: **R-U, S-V, T-W** Counterclockwise rotation
 Rotating direction is to see valve from the actuator.

Abbreviation
RLS1, RLS2: Clockwise rotation limit switch
LLS1, LLS2: Counterclockwise rotation limit switch
RTS1, RTS2: Clockwise rotation torque switch
LTS1, LTS2: Counterclockwise rotation torque switch
M: Motor **TH:** Thermal protector
H: Space heater **C:** Capacitor
POT: Potentiometer (Option)

	Terminal		
Switch	No.	CCW limit	CW limit
RLS 1	1-4	-----	-----
RLS 2	5-6	-----	-----
LLS 1	1-8	-----	-----
LLS 2	9-10	-----	-----

— : Contact ON ----- : Contact OFF

13-14: Overtorque at clockwise limit: ON
 1-4: Overtorque at clockwise limit: OFF
 17-18: Overtorque at counterclockwise limit: ON
 1-8: Overtorque at counterclockwise limit: OFF
 31-32: Heater power source terminal
 27, 28, 29: Potentiometer terminal

SHA Type and SD# Type (Seibu Electric and Machinery made)

Features

- Robust actuator with ductile cast iron primary and secondary gear.
- Applicable to 3-phase AC power.
- Motor is protected by built-in torque switch. Damage by excessive valve torque is also prevented by the torque switch. In order to protect motor completely, use of thermal relay at panel is advisable.
- Local control priority and Central control priority are available for manual/automatic changeover.
- Interlock switch is incorporated for local control priority.
- Many other options such as single phase motor, DC motor, regulating valve specification are available.



Installed Image

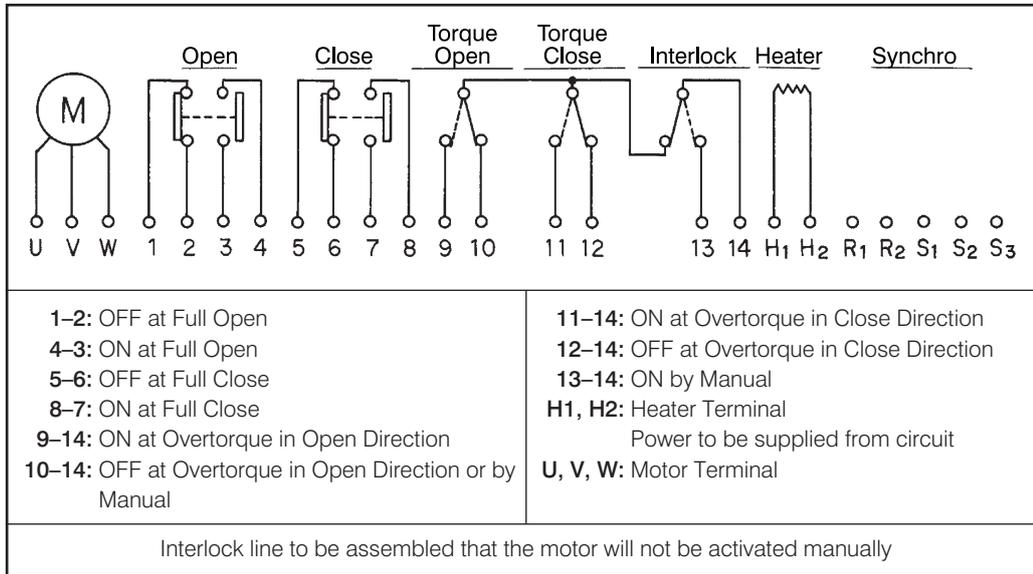
Specification

SHA and SD# Torque Actuator

Type		SHA-01	SHA-02	SHA-04	SDB-075	SDE-15	SDG-22	
Maximum Output Torque	<i>N · m</i>	Settle according to the specification						
Open/Close Time (50/60Hz)	<i>sec./90°</i>	35/29	35/29	35/29	35/30	35/30	35/30	
Power Supply (50/60Hz)	<i>V</i>	3-phase 200/220, 400/440						
Motor	Output	<i>W</i>	0.1	0.2	0.4	0.75	1.5	2.2
	Thermal Class		Class B					
	Brake		Not incorporated					
Torque Limit Switch			Incorporated					
Space Heater	<i>W</i>		10			30		
Microswitch Contact Capacity			AC250V-5A, DC125V-0.5A (Inductive load)					
Lead Inlet			2-G1, 1-G3/4 (for motor)					
Ambient Temperature			-25°C to 50°C					
Protection Structure			IP55/JPW55 (Outdoor waterproof)					
Terminal			Screw size M4 × 24P, Motor M4 × 3P			Screw size M4 × 24P		
Manual Operation			With manual/electrical changeover lever					

Option: Potentiometer, Seimitter, Motor with brake, Thermal motor

Connecting Diagram



PMK Type (Kawaden made)**Features**

- Compact and lightweight actuator using aluminum alloy.
- Applicable to single phase AC power
- Torque switch is not incorporated.
- Motor is protected by built-in thermal protector.

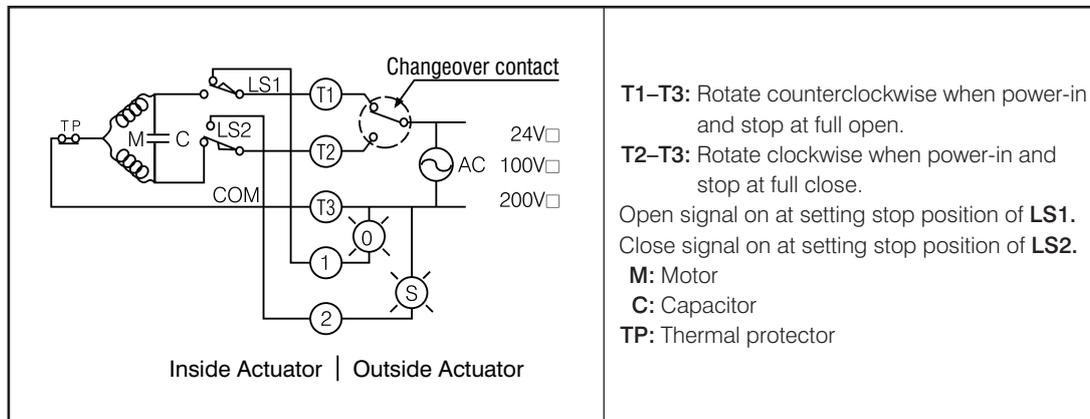


Installed Image

Specification**PMK Torque Actuator**

Type		PMK-300YS	PMK-600YS	PMK-600YSP	PMK-010SS	PMK-030SS	PMK-060SS	PMK-080SS
Maximum Output Torque	$N \cdot m$	29.4	58.8	68.6	147.1	313.8	588.4	784.5
Open/Close Time (50/60Hz)	sec./90°	8.5/7	8.5/7	12/10	24.5/20	38.5/31.5	57/47	71.5/58.5
Power Supply (50/60Hz)	V	Single Phase 100/110, 200/220						
Motor	Output	20W	25W				40W	
	Thermal Class	Class E	Class B	Class E	Class B			
	Brake	Not incorporated						
Torque Limit Switch		Not incorporated						
Space Heater	W	10						
Lead Inlet		1-G1/2			2-G3/4			
Ambient Temperature		-10°C to 50°C						
Protection Structure		IP54 (rainproof)						
Terminal		Screw Size M3 × 8P						
Manual Operation		Actuator bottom axis can be manipulated						

Options: Potentiometer, Intermediate switch, Space heater, Limit switch, Torque Limiter

Connection Diagram

5-2 Electrically Operated 3-Way Ball Valve 2 Seats 3-Way Ball Valve: E□4300NB-L2
 4 Seats 3-Way Ball Valve: E□4300NB-T4/L4
 3 Seats 3-Way Ball Valve: E□4300N-T3/L3

Valve Codes

Valve Code for F□4300NB(N)

ESR4307NB-L2-NTF-050-()-J10KRF**1 Actuator** (Electrically Operated Valve)

SR	SRH Type	Seibu Electric
MSJ	SRJ Type	and Machinery
SH	SHA, SD# Type	
PMK	PMK Type	Kawaden

2 4

Electrically Operated Valve

3 Body Material

04	FCD400
07	SCS13A
12	SCS14A
13	SCS16A

4 Seat Mechanism

	Port Shape	Seat Number
L2	L-Port	2
L3		3
L4		4
T3	T-Port	3
T4		4

5 Seat Material (refer to P10)

NTF, NCF, NGR, CFM, CFMR

6 Nominal Size (DN or A)

Conforming to ISO 6708 and JIS B 2001

7 Actuator Code

According to the required actuator specification, 8 numbers code will be applied.

8 Connection

J10KRF	JIS 10KRF
J20KRF	JIS 20KRF
A150RF	ASME CL150
A300RF	ASME CL300

*** Improvement Identification Code**

None	Original Design
N	First Improvement
NB	Second Improvement
NC	Third Improvement
ND	Fourth Improvement

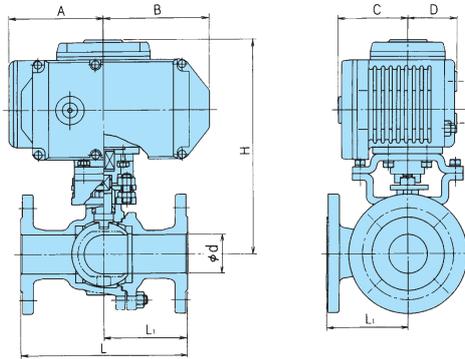
ESR4300NB-L2-15/150, ESR4300NB-T4(L4)-15/100, ESR4300N-T3(L3)-125/150 (SRH Type Actuator)

Actuator Selection Table

Refer to P37 for selecting rank according to operating condition.

DN	Rank	L2										T4(L4), T3(L3)										Rank	DN
		Shutoff Deferential Pressure: MPa										Shutoff Deferential Pressure: MPa											
		0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0		
15	A																				A	15	
	B																				B		
	C																				C		
20	A																				A	20	
	B																				B		
	C																				C		
25	A																				A	25	
	B																				B		
	C																				C		
40	A																				A	40	
	B																				B		
	C																				C		
50	A																				A	50	
	B																				B		
	C																				C		
65	A																				A	65	
	B																				B		
	C																				C		
80	A																				A	80	
	B																				B		
	C																				C		
100	A																				A	100	
	B																				B		
	C																				C		
125	A																				A	125	
	B																				B		
	C																				C		
150	A																				A	150	
	B																				B		
	C																				C		

Dimension



Unit: mm

Nominal size DN	Actuator				L2					T4 (L4), T3 (L3)								
	Code	A	B	C	D	d	L	L1	H	Mass (Approx. kg)		d	L	L1	H	Mass (Approx. kg)		
										Stainless Cast Steel						Stainless Cast Steel		
										10K, CL150						10K, CL150		
15						13	146	73	213	8.3		19	140	70	232	10.0		
20						19	150	75	217	9.6							10.5	
25	SRH-007	100	108	75	60	25	170	85	233	11.3		25	160	80	244	13.0		
40						38	200	100	251	15.2		38	180	90	258	15.0		
50						51	230	115	259	19.8		51	200	100	283	20.5		
	SRH-020	121	135	90	63				279	22.3					303	26.0		
65	SRH-007	100	108	75	60	64	260	130	287	28.0								
	SRH-020	121	135	90	63				307	32.0		64	240	120	337	39.0		
80						76	280	140	317	36.5		76	260	130	340	40.0		
	SRH-060	158	164	133	85										364	47.5		
100	SRH-020	121	135	90	63	102	340	170	351	51.0		102	330	165	355	47.0		
									375	56.0					379	54.5		
125	SRH-060	158	164	133	85	127	370	185	413	82.0		127	430	215	413	103.0		
150						152	430	215	433	103.0		152	500	250	425	126.0		

Please contact NDV or local representative if specific installing direction for actuator is required.

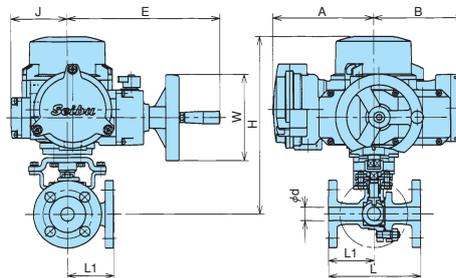
EMSJ4300NB-L2-15/150, EMSJ4300NB-T4(L4)-15/100, EMSJ4300N-T3(L3)-125/150 (SRJ Type Actuator)

Actuator Selection Table

Refer to P37 for selecting rank according to operating condition.

DN	Rank	L2										T4(4), T3(L3)										Rank	DN
		Shutoff Differential Pressure: MPa										Shutoff Differential Pressure: MPa											
		0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0		
15	A																				A	15	
	B																				B		
	C																				C		
20	A																				A	20	
	B																				B		
	C																				C		
25	A																				A	25	
	B																				B		
	C																				C		
40	A																				A	40	
	B																				B		
	C																				C		
50	A																				A	50	
	B																				B		
	C																				C		
65	A																				A	65	
	B																				B		
	C																				C		
80	A																				A	80	
	B																				B		
	C																				C		
100	A																				A	100	
	B																				B		
	C																				C		
125	A																				A	125	
	B																				B		
	C																				C		
150	A																				A	150	
	B																				B		
	C																				C		
200	A																				A	200	
	B																				B		
	C																				C		

Dimension



Unit: mm

Nominal size DN	Actuator						L2					T4 (L4), T3 (L3)										
	Code	A	B	E	J	W	d	L	L1	H	Mass (Approx. kg)		d	L	L1	H	Mass (Approx. kg)					
											Stainless Cast Steel						Stainless Cast Steel					
15	SRJ-010-7					160	13	146	73	328	19.3		19	140	70	344	22.5					
20							19	150	75	332	20.1										23.0	
25							25	170	85	345	22.2							25	160	80	356	24.0
40	SRJ-010	186	167	272	104	160	38	200	100	363	26.0		38	180	90	370	28.5					
50	SRJ-010-7						51	230	115	—	—	51	200	100	408	32.5						
65	SRJ-010						64	260	130	412	37.5		64	240	120	419	39.5					
80	SRJ-020	186	167	272	104	160	—	—	—	—	—		—	—	—	—	—					
80	SRJ-010						76	280	140	422	42.0		76	260	130	442	45.5					
100	SRJ-020						102	340	170	453	63.0		102	330	165	457	62.0					
100	SRJ-060	202	191	316	130	245	—	—	—	—	—		—	—	—	—	—					
125	SRJ-1	240	267	354	191		127	370	185	530	95.0		127	430	215	528	111.0					
125	SRJ-060	202	191	316	130		—	—	—	—	—		—	—	—	593	138.0					
150	SRJ-1	240	267	354	191	245	152	430	215	550	119.0		152	500	250	540	132.0					
150	SRJ-060	202	191	316	130		—	—	—	—	—		—	—	—	605	161.0					
150	SRJ-1	240	267	354	191		—	—	—	—	—		—	—	—	—	—					
200	SRJ-1	240	267	354	191	245	203	520	260	609	175.0		—	—	—	—	—					
200	SRJ-2	240	267	354	191		—	—	—	—	—		203	650	325	649	224.0					

Please contact NDV or local representative if specific installing direction for actuator is required.

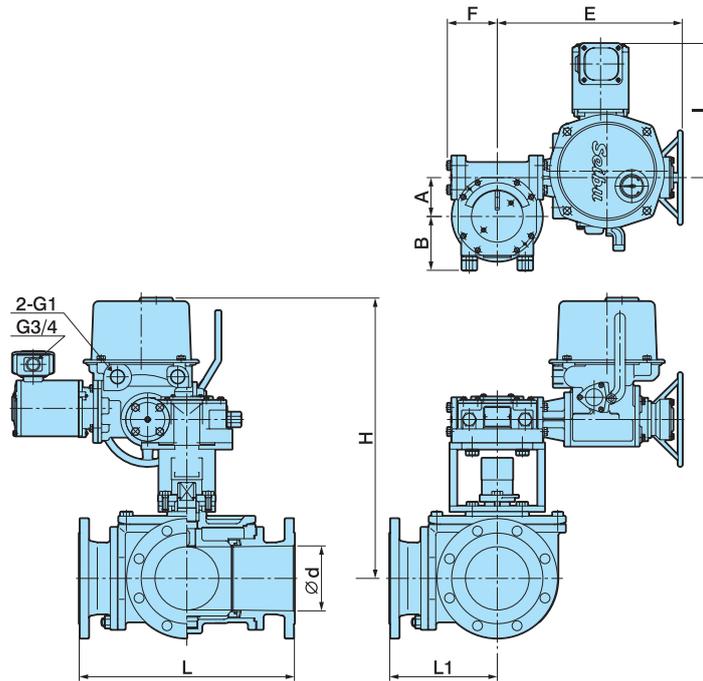
ESH4300NB-L2-125/200, ESH4300N-T3(L3)-125/200 (SHA Type Actuator)

Actuator Selection Table

Refer to P37 for selecting rank according to operating condition.

DN	Rank	L2			T3(L3)			Rank	DN
		Shutoff Differential Pressure: MPa			Shutoff Differential Pressure: MPa				
		0	0.5	1.0	0	0.5	1.0		
125	A							A	125
	B							B	
	C							C	
150	A		SHA-02			SHA-02		A	150
	B							B	
	C							C	
200	A					SHA-04		A	200
	B							B	
	C							C	

Dimension



Unit: mm

Nominal size DN	Actuator						L2				T3 (L3)							
	Code	A	B	E	F	I	d	L	L1	H	Mass (Approx. kg)		d	L	L1	H	Mass (Approx. kg)	
											Stainless Cast Steel						Stainless Cast Steel	
											10K, CL150						10K, CL150	
125	SHA-02					325	127	370	185	647	135.5	127	430	215	645	158.0		
150	SHA-04	91	126	430	116	318	152	430	215	667	154.5	152	500	250	657	179.5		
200	SHA-02					325	203	520	260	715	215.5	203	650	325	700	252.5		
	SHA-04					318												

Please contact NDV or local representative if specific installing direction for actuator is required.

EPMK4300NB-L2-15/200, EPMK4300NB-T4(L4)-15/100, EPMK4300N-T3(L3)-125/200 (PMK Type Actuator)

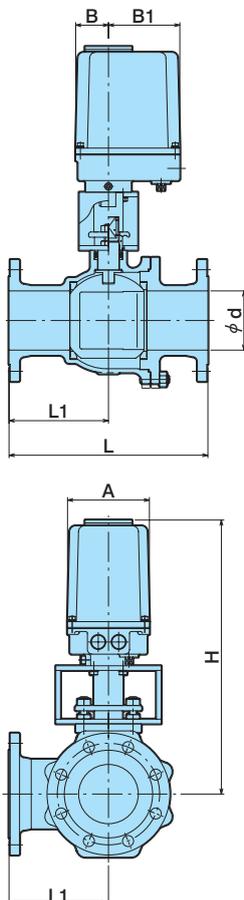
Actuator Selection Table

Refer to P37 for selecting rank according to operating condition.

DN	Rank	L2										T4(L4), T3(L3)										Rank	DN
		Shutoff Differential Pressure: MPa										Shutoff Differential Pressure: MPa											
		0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0		
15	A																				A	15	
	B																				B		
	C																				C		
20	A																				A	20	
	B																				B		
	C																				C		
25	A																				A	25	
	B																				B		
	C																				C		
40	A																				A	40	
	B																				B		
	C																				C		
50	A																				A	50	
	B																				B		
	C																				C		
65	A																				A	65	
	B																				B		
	C																				C		
80	A																				A	80	
	B																				B		
	C																				C		
100	A																				A	100	
	B																				B		
	C																				C		
125	A																				A	125	
	B																				B		
	C																				C		
150	A																				A	150	
	B																				B		
	C																				C		
200	A																				A	200	
	B																				B		
	C																				C		

Dimension

Unit: mm



Nominal size DN	Actuator				L2					T4 (L4), T3 (L3)				
	Code	A	B	B1	d	L	L1	H	Mass	d	L	L1	H	Mass
									(Approx. kg)					(Approx. kg)
15					13	146	73	301	8.7	19	140	70	285	11.4
20	PMK-300YS				19	150	75	306	9.4	19	140	70	316	11.8
25	PMK-600YS	131	75.5	75.5	25	170	85	314	11.4	25	160	80	316	12.8
	PMK-300YS							—	—				—	13.0
40	PMK-600YS				38	200	100	333	14.6	38	180	90	—	—
	PMK-300YS							333	14.8				341	17.0
	PMK-600YS							—	—				—	—
50	PMK-600YSP				51	230	115	342	17.7	51	200	100	368	19.0
	PMK-010SS	140	56	122				404	20.6				422	23.0
	PMK-600YSP	131	75.5	75.5				368	25.1				—	—
65	PMK-010SS	140	56	122	64	260	130	425	27.5	64	240	120	432	29.5
	PMK-030SS	152	63	134				—	—				466	32.0
80	PMK-010SS	140	56	122	76	280	140	435	31.5	76	260	130	455	35.5
	PMK-030SS	152	63	134				—	—				485	38.0
100	PMK-010SS	140	56	122				467	46.0				—	—
	PMK-030SS	152	63	134	102	340	170	502	48.5	102	330	165	512	47.0
	PMK-060SS	200	73	199				—	—				634	65.5
	PMK-030SS	152	63	134				537	72.5				—	—
125	PMK-060SS	200	73	199	127	370	185	659	90.0	127	430	215	656	120.5
	PMK-080SS							—	—				—	—
	PMK-030SS	152	63	134				557	87.5				—	—
150	PMK-060SS				152	430	215	680	105.0	152	500	250	669	142.0
	PMK-080SS							—	—				—	—
	PMK-060SS	200	73	199				—	—				—	—
200	PMK-080SS				203	520	260	740	170.0	—	—	—	—	—

Please contact NDV or local representative if specific installing direction for actuator is required.

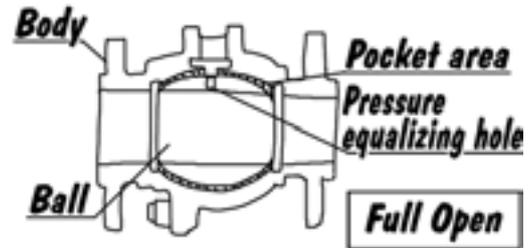
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Safety Instructions

Safety Instructions

1. Selection of Valves

- 1 Usable ranges for products described on this brochure are limited according to the domestic/international code and standard and NDV standard. Appropriate products must be selected after confirming the usage conditions (fluid, pressure, temperature etc.).
- 2 Materials for the main parts of valves must be selected properly considering working conditions (fluid, temperature etc.).
- 3 Please specify degrease or water proof when issuing order. (Some of the products may not be applicable for degrease or water proof.)
- 4 Soft seat floating ball valve must be used at full open/close position. Usage at intermediate position may cause damages of the surface of ball and/or seat.
- 5 Because of the structure of ball valve, abnormal pressure rise at pocket (*) occurs if the fluid is liquid and the temperature fluctuates. Ball top is provided with a hole to prevent this abnormal pressure rise. The alternative countermeasure should be taken in case the abnormal pressure rise happens by temperature rise at the pocket during valve full closing. Please consult with NDV or local representative if the case occurs.



* During valve full OPEN: Space between ball and shell

During valve full CLOSE: Space between ball and shell, Ball bore portion

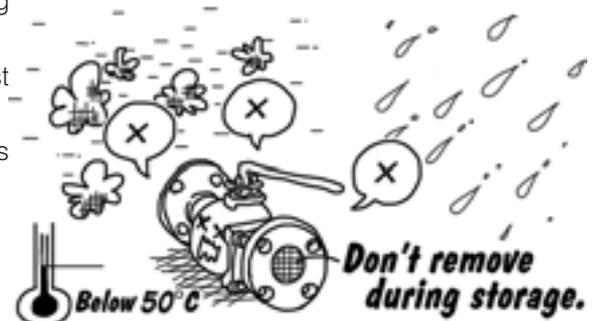
- 6 Floating ball valve has a mechanism to seal by pushing ball against the seat of the outlet side with fluid pressure. Please consult with NDV or local representative in case that the pressure change is large in operation condition because seat leakage may occur at low pressure operation.
- 7 Please consult with NDV or local representative in case that fluid includes abrasive matter because an abrasion may occur at seat, body or other parts of valve.

2. Receipt and Carriage

- 1 Wrapping and packing conditions, products condition and number of goods must be checked and confirmed at the time of the receipt.
- 2 Delivered goods may be heavy depending on the bore size. Unloading and carriage must be done using proper machines and tools according to the relevant law for safety and health. Do not go under lifted goods, do not insert hand or leg below goods and do not operate lifting machine under the lifted goods.
- 3 If packing is by corrugated board, the packing strength will become low when wetted. Handling must be carefully done if the corrugated board is wet.

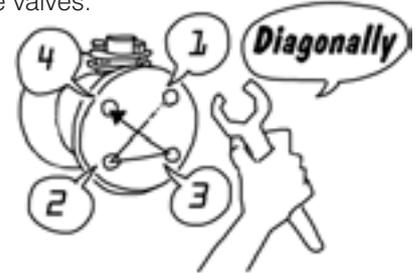
3. Storage

- 1 It is recommended to store products under packing condition until installing them to piping.
- 2 If products are stored for some time after unpacking, dust proof seal (cap) at flange face must not be removed.
- 3 Products must be stored under below mentioned conditions in order to avoid rust and/or degradation of materials.
 1. To protect from rain or water
 2. Ambient temperature must be below 50°C
(The temperature might be different by installed accessories.)
 3. To avoid high humidity and dust atmosphere



4. Installation to Piping

- 1 Remove dust proof seal (cap) at connection flange face and confirm that there are no dusts and/or deposits inside. Confirm also that there are no foreign materials inside of the piping after cleaning. Blow off by air or flush by fluid if necessary.
- 2 Ball valves have not a restriction for the flow direction. Install valves to piping considering the position of operation handle and the other necessary issues for safety operation. If flow direction is marked on the valve for some reason such as a protection of abnormal pressure rise, install as directed by the mark.
- 3 Keep a space for overhauling. The space needs necessary area for lifting a complete set of the valve.
- 4 Valves are delivered at full open position unless otherwise specified. Install valves keeping full open position.
- 5 Install valves avoiding strong tension, compression or bending stress to the valves.
- 6 When installing valves, bolts for installation must be tightened diagonally and equally. Unbalanced tightening may cause leakages from connection flanges.
- 7 Confirm that tightening bolts and nuts are not loosened. Retighten them if loosened.
- 8 After installing valves, blowing off by air or flushing by fluid at full open valve condition must be done to clean foreign materials in piping. (Do not close and open valve during blowing off or flushing.)



5. Operation

- 1 Do not operate valve with excessive torque by attaching a pipe or a wrench to the lever handle for opening or closing.
- 2 Never put fingers or hands into the inside of valve.
- 3 If there is any leakage from the gland, tighten further the gland bolt. If valve is used for fluid of large temperature change, degree of stress relief of packing is large and therefore, retightening must be done after the temperature once becomes high and falls to low.
- 4 Products may be damaged if remaining fluid in the valve is frozen. If there is a possibility of frozen, heat piping line or clean the inside of valves.

6. Pneumactical and Electrical Actuator

- 1 Air vent and electric wiring terminal are fitted with seals. Do not remove the seals until installation to the connections.
- 2 Actuators are delivered after adjustment. Do not disassemble or readjustment. Call NDV or local representative, if some adjustment seems necessary.
- 3 Use air dehumidified and cleaned by filtration.
- 4 Operating pressure and power source must be confirmed by the plate attached to the valve and/or the specification.
- 5 Take care that rain or water will not enter from air hole of the actuator.

7. Disassembling and assembling

- 1 Before remove a valve from piping, discharge the fluid in the piping and relieve the pressure. In this occasion, the valve must be opened and closed several times to relieve the pressure in the valve. Special attention must be given if the fluid is hazardous like poisonous or abrasive fluid.
- 2 Be careful not to damage the seal part of ball surface and flange face during disassembling and assembling.



- The ISO 9001 · 14001 certificate was awarded



CAUTION

Specifications and performance figures of products contained in this catalog are on the design calculations, in-house tests, actual records of product application, and the official standards and specifications. They are presented as the user guide on the use of product concerned under general service conditions. Users intending to use the product under a special condition are required to receive engineering advice from this company in advance or to make their own studies and evaluation to verify performance on their own responsibility. This company shall not be liable for any damages, material or human, that may arise without following this procedure. In as much as full care was taken in editing this catalog, users are kindly requested to make contact with this company for any questions or discrepancies found. This catalog is subject to change without notice for the purpose of correcting error, supplementing or improving insufficient content, updating the content to the improved product performance, design change, discontinuation of product and other reasons. Revised version automatically invalidates catalogs issued prior to the current version. Check the version with our Sales Dept. or local representative before you place orders.

WARNING

CAUTION

There are several points to be noticed for the use of ball valve based on the structural characteristics. When valve is delivered, a leaflet for Safety Instructions is in the package. Please read this instruction thoroughly before handling and use of products in order to use them safely and stably for a long time.

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