FSB 35 Fire-Safe Direct Mount 3-Piece

Full Port Ball Valves

¼" – 4" (DN8 – DN100)
2000 psi (PN140)



FIRE-SAFE ANTI-STATIC 2014/68/EU SAFETY

Strong & Reliable

With the increasing demand of fire-safe ball valves, DIE ERSTE is proud to introduce the new Series FSB 35 Ball Valves. FSB 35 ball valves are most suitable where operational perfection is needed, especially in the event of a fire. DIE ERSTE FSB 35 ball valves assure bubble tight sealing and zero leakage in high pressure and fire conditions.

Series FSB 35 has been approved to API 607 4th Edition, with the combination of graphite sealing, secondary fire-safe contact, anti-static stem, and strong body bolts, Series FSB 35 ball valves offer secondary sealing for superior sealing effects. In high pressure condition, two sets of sealing rings are used to prevent leakage. In fire condition, the secondary sealing rings become the main sealing elements after the PTFE seats have been burnt away.

Anti-static devices are also installed on the stem. During the ball valve operation, static charge wight build up between ball and seat, andcan be potentially dangerous with inflammable fluids. To solve the problem, small metal ball and spring are used to discharge the static and maintain the electric continuity.

Instead of four long body bolts in the conventional three piece ball valves, FSB 35 ball valves use eight strong body bolts to secure connections between center piece and two side caps. For larger sizes, twelve body bolts are used. The tensile body bolts are screwed into the center piece for maximum closure, and also prevent expansion of the bolts.

(A) ISO5211 Actuator Direct Mount
Square stem and twin ISO 5211 pattern mounting pad allow for easy actuator installation without bracket and adaptor.

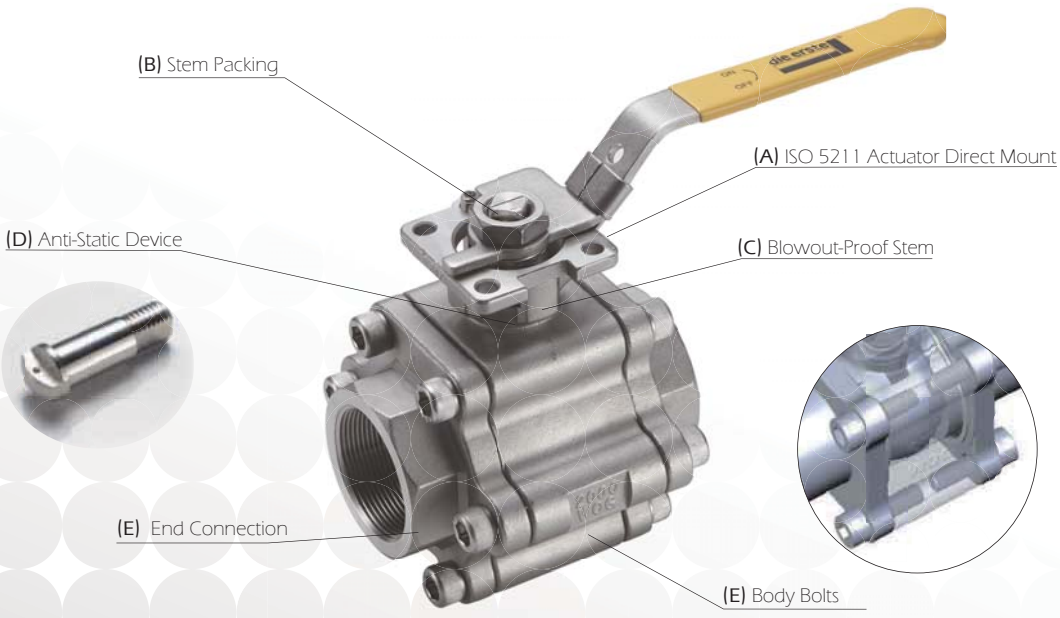
(B) Stem Packing
Self-adjusting stem packing assembly with Belleville washers for temperature variation, vibration, and security. In FSB ball valves, graphite stem packing is used to prevent leakage through stem.

(C) Blowout-Proof Stem
The stem is inserted from inside the body bore. This particular design prevents the stem from shooting out when there is excess pressure in the bore caused by high temperature heat.

(D) Anti-Static Device
All FSB ball valves are equipped with Anti-static Device in the ball bore. This device provides a grounding path between the valve body and the ball for static electric charges.

(E) Body Bolts
The hinge on the central body provides the alignment of body to the end connection. In FSB ball valves, eight body bolts are screwed into the body to secure the valve structure in high pressure environment. Twelve bolts are used for larger sizes of Series FSB 35 ball valves.

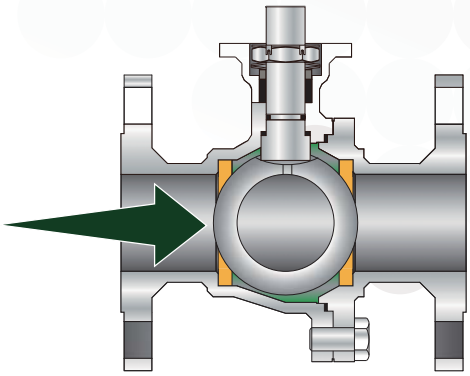
(F) End Connection
The Series FSB 35 ball valve is available with threaded end, butt-welding, socket-welding. Other connection type is available upon request.



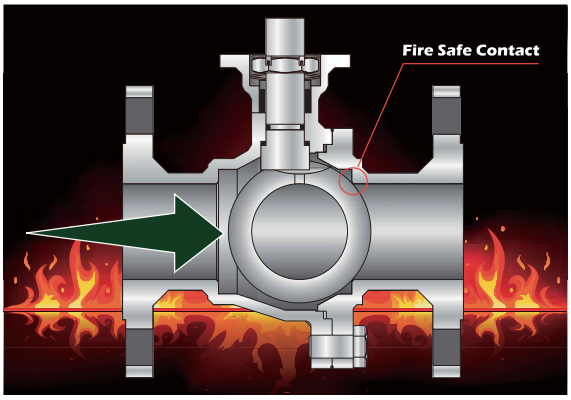
Fire-Safe Design

Fire-Safe Contact Surface

The end cap is specially designed and machined precisely to fit with the valve ball surface. During the event of fire, the soft ball seat may disintegrate in high temperature due to the nature of the material. Thus, the valve ball comes into contact with the fire-safe contact surface and forms a secondary metal-to-metal seal. The downstream flow pushes the floating ball to the side, and effectively seals the bore.



Before a fire



After a fire



Seals and Packings

Graphite Stem Seals and Packing

With the high temperature resistance property, graphite becomes the perfect material of choice for sealing parts. The graphite sealing rings are enclosed in a compartment and will not be in touch with the fluid. Therefore, regardless of the temperature and pressure, graphite seals stay immobile and continuously prevent leakage from or into the joined parts while under compression.

Dual Body Seal

Series FSB 35 ball valves utilize two sets of body seals to prevent leakage. The inner body seal which are made with PTFE, for the purposes of avoiding graphite contamination in the fluid, though the chances are rare. The outer body seal is made with graphite material for fire-safe reason. Both seals are securely placed in the groove to avoid movements.

Direct Mounting Pad

The dual ISO direct mounting pad allows precise and flexible mounting of actuator. Usually two sets of mounting holes are drilled for different actuator sizes. With the integrally cast top mounting platform, machined flat surface and square stem, the design ensures correct alignment of the actuator to effectively minimize the side-loading during high cycle or continuous duty applications. The well-supplied (air or electric power) actuation equipments can be removed safely and easily while the valve is under the line pressure.





Direct Mount with Actuators

CE Marking CE 0035

The whole series of ball valves is approved according to European Directive 2014/68/EU.

Vacuum

Standard Series 35 ball valves, can be rated to hold in part of the "Medium Vacuum" range to 52 TORR (mm of Hg) or 52000 microns in temperature ratings from -4°F to 350°F (-20°C to 180°C). Here only PTFE seats and seals are highly recommended for this vacuum service. Please consult with us for a customizing solution.

Size Range

1/4"~4" (DN8~DN100)

Standards

ASME B16.34, B16.25, B1.20.1
API 607, API6D, API 598
ISO 5211, ISO 5209, ISO 228-1, ISO 7-1, ISO 261, ISO 10497
DIN EN 10204, DIN 259/2999, DIN EN 10226
MSS SP-25, MSS SP-72
BS 5351

Marine Application

Casting from Lloyd's or DNV approved foundry available upon request.

Certifications of Series FSB 35:

API 607 Fire Test or Soft Seated Quarter Turn Valves

Canadian Registration Number

ATEX Directive 2014/34/EU Explosive Prevention

Low Emmision Certificated
TA-Luft 2002, Sec. 5.2.6.4
VDI 2440 2000, Sec. 3.3.1.3
Please inquire

SIL3 Capable
Please inquire



Pressure Rating:

2000 psi WOG (PN140)
150 psi (10 bar) with saturation steam

Temperature Range:

- -4°F to 392°F (-20°C to 200°C) with Cabon Filled Seat
- -4°F to 350°F (-20°C to 180°C) with RPTFE seat
- -4°F to 350°F (-20°C to 180°C) with PTFE seat

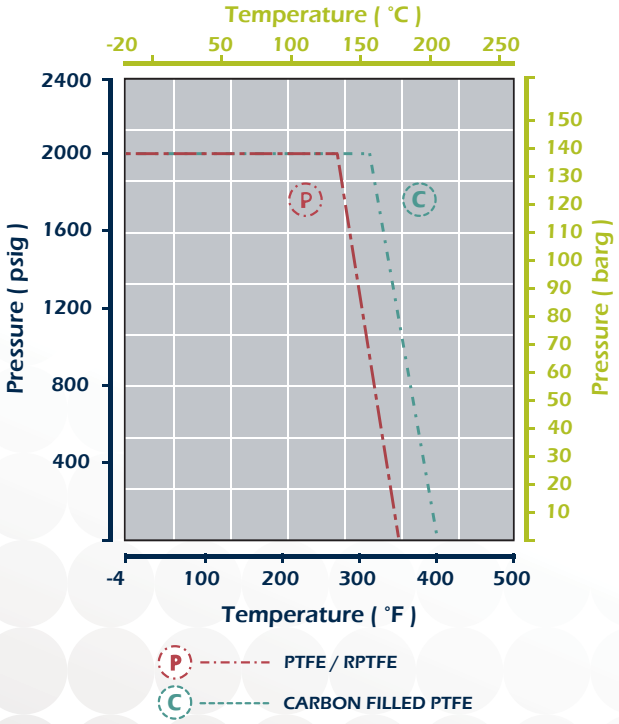
End Connection:

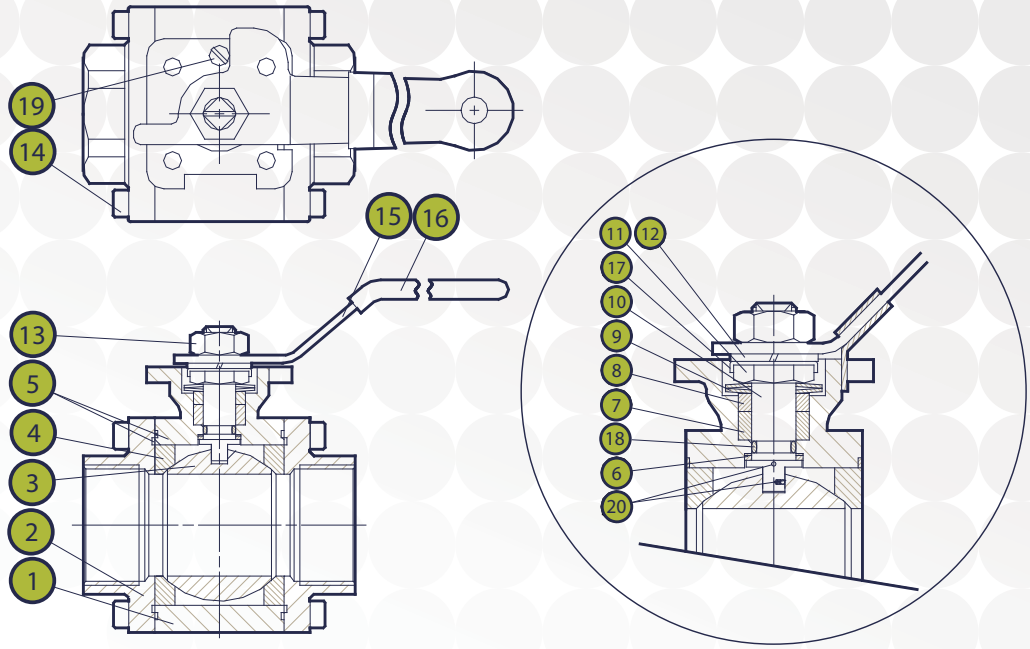
- Female threaded to NPT, DIN 259/2999, and BS standards
- Butt-welding ends Sch80
- Socket-welding ends

Body Material:

ASTM CF8M, CF8, WCB
DIN 1.4408. 1.4308, 1.0619

Pressrue and Temperature Rating





NO	PART NAME	MATERIAL
1	BODY	CF8M / WCB
2	CAP	CF8M / WCB
3	BALL	CF8M / CF8
4	BALL SEAT	TFM 1600 RPTFE 15% RPTFE 25% PTFE
5	BODY SEAL	PTFE & GRAPHITE
6	THRUST WASHER	PTFE & GRAPHITE
7	STEM PACKING	GRAPHITE
8	GLAND	SS 304
9	BELLEVILLE SPRING	SS 301
10	STEM	SS 316 / SS 304

NO	PART NAME	MATERIAL
11	NUT	SS 304
12	SPRING WASHER	SS 304
13	NUT	SS 304
14	BOLT	A2-70 / ISO 898-1 12.9
15*	HANDLE	SS 304 / Zinc PLATED STEEL
16	HANDLE SLEEVE	VINYL
17	LOCK SADDLE	SS 304
18	O-RING	VITON
19	STOP PIN	SS 304 / ISO 898-1 12.9
20	ANTI-STATIC	SS 316

***Round bar handle is provided for size 4" (DN100)**

Size		Cv	Kv
inch	DN		
1/4"	8	6.3	5.4
3/8"	10	6.2	5.4
1/2"	15	20.9	18.1
3/4"	20	49.4	42.7
1"	25	81	70.1
1¼"	32	127.9	110.6
1½"	40	191.5	165.7
2"	50	376	325.2
2½"	65	642	555.3
3"	80	901	779.4
4"	100	1588	1373.6

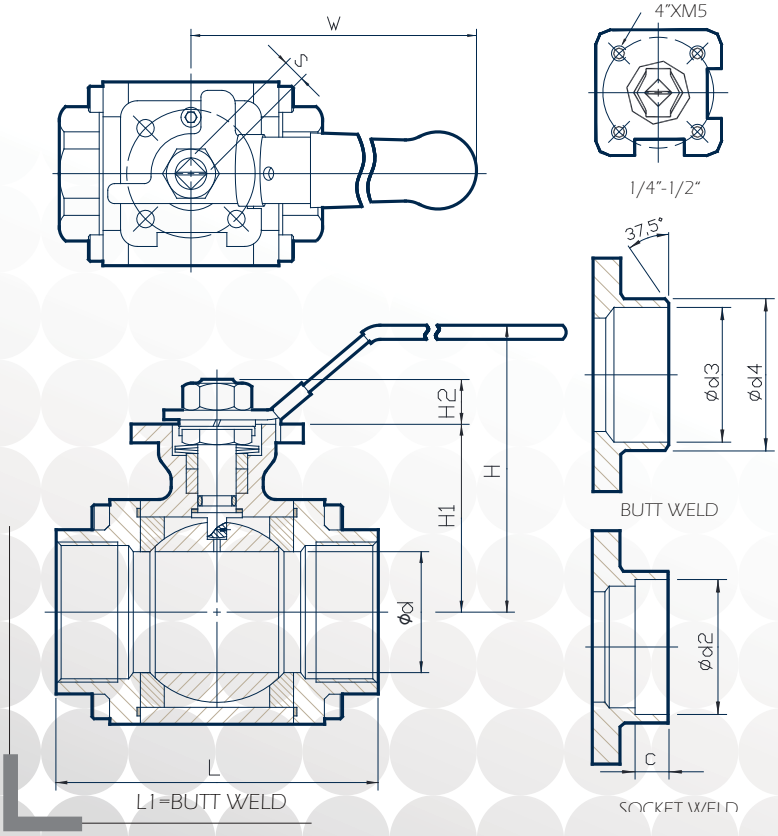
The left table represents the Flow Coefficients (CV) and Flow Factor (Kv) for DIE ERSTE Series FSB 35 ball valves. This number represents the volume of water at 60°F that will flow in US gallon per minute through a valve with a 1 lb/in^2 pressure drop across in the full open position. For Kv, it is the flow of water with temperature from 5°C - 30°C in cubic meters per hour (m^3/h) with a pressure drop of 1 bar.

$$Cv = F\sqrt{\frac{SG}{\Delta P}}$$

The Cv value is dependent on flow rate, pressure drop, specific gravity. The larger the Cv value, the easier the fluid will flow within the valve. However, Cv value is easily affected by various factors, such as fluid type, fluid viscosity, saturated steam pressure.

Dimensions inch/mm

SIZE inch DN	d	L	L_1	H	W	H1	H2	S	d2	d3	d4	C	ISO 5211	Weight lbs Kg
1/4 "	0.4	2.55	2.75	2.75	5.51	1.47	0.31	0.35	0.56	0.31	0.54	0.39	F04	2.2
8	11	65	70	70	140	37.5	8	9	14.2	7.8	13.8	10		1
3/8 "	0.43	2.55	2.75	2.75	5.51	1.47	0.31	0.35	0.69	0.43	0.68	0.39	F04	2.2
10	11	65	70	70	140	37.5	8	9	17.6	10.8	17.3	10		1
1/2 "	0.55	2.95	2.95	2.75	5.51	1.47	0.31	0.35	0.86	0.56	0.85	0.51	F04	2.43
15	14	75	75	70	140	37.5	8	9	21.8	14.3	21.7	13		1.1
3/4 "	0.81	3.14	3.54	3.54	7.08	1.97	0.43	0.43	1.07	0.78	1.07	0.59	F04 F05	2.65
20	20.5	80	90	90	180	50	11	11	27.2	19.7	27.2	15		1.2
1 "	1.00	3.54	3.93	3.93	7.08	2.36	0.43	0.43	1.33	0.98	1.34	0.59	F04 F05	4.63
25	25	90	100	100	180	60	11	11	33.9	25	34	15		2.1
1¼ "	1.24	4.33	4.33	4.40	8.46	2.83	0.63	0.55	1.68	1.30	1.68	0.59	F07	7.28
32	31.5	110	110	112	215	72	16	14	42.7	32.9	42.7	15		3.3
1½ "	1.46	4.72	4.92	4.52	8.46	2.99	0.63	0.55	1.92	1.51	1.91	0.63	F07	9.92
40	37	120	125	115	215	76	16	14	48.8	38.4	48.6	16		4.5
2 "	1.97	5.51	5.90	5.23	8.46	3.66	0.63	0.55	2.41	1.95	2.38	0.67	F07	15.87
50	50	140	150	133	215	93	16	14	61.2	49.5	60.5	17		7.2
2½"	2.56	7.28	7.48	6.81	12.99	4.58	0.94	0.86	2.91	2.32	2.87	0.67	F07 F10	29.54
65	65	185	190	173	330	116.5	24	22	73.9	58.9	73	17		13.4
3"	3.15	8.07	8.66	7.24	12.99	5.00	0.94	0.86	3.53	2.90	3.50	0.67	F07 F10	46.3
80	80	205	220	184	330	127	24	22	89.8	73.6	89	17		21
4"	3.94	9.45	10.63	9.53	23.62	6.26	1.14	1.06	4.54	3.82	4.50	0.79	F10	75.84
100	100	240	270	242	600	159	29	27	115.2	97.1	114.3	20		34.4

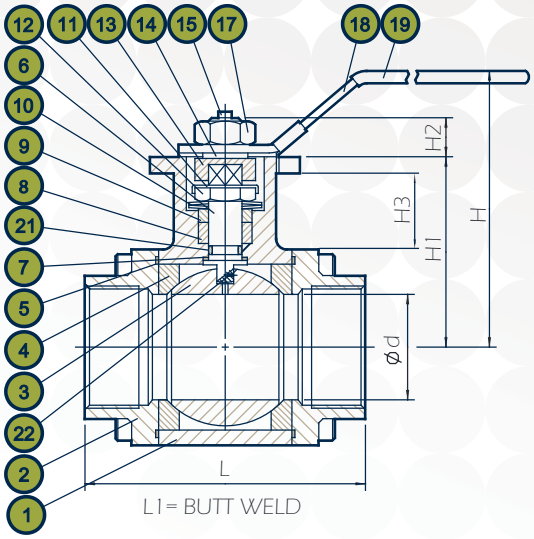


Valve Size		Torque (N.m)	Torque (lbs.in)
inch	DN		
1/4	8	8	70.8
3/8	10	8	70.8
1/2	15	8	70.8
3/4	20	11	97.4
1	25	16	142
1¼	32	23	204
1½	40	33	292
2	50	40	354
2½	65	72	637
3	80	85	752
4	100	160	1416

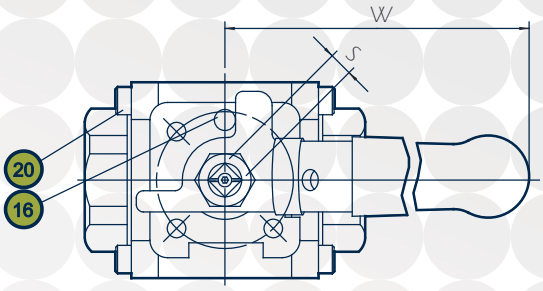
Note: Torque measured at ambient temperature with no loading; safety factor is not included.

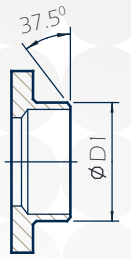
FSB 35-EXT (optional)

To increase ease of actuator mounting for small-sized ball valves, FSB 35-EXT option has been created with extended length between body and mounting pad.

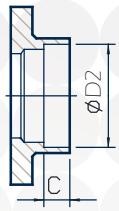


L1= BUTT WELD





BUTT WELD



SOCKET WELD

NO	PART NAME	MATERIAL
1	BODY	CF8M / WCB
2	CAP	CF8M / WCB
3	BALL	CF8M / WCB
4	BALL SEAT	TFM 1600 RPTFE 15% RPTFE 25% PTFE
5	BODY SEAL	PTFE / GRAPHITE
6	STEM	SS 316 / SS 304
7	THRUST WASHER	PTFE / GRAPHITE
8	STEM PACKING	GRAPHITE
9	GLAND	SS 304
10	BELLEVILLE WASHER	SS 301

NO	PART NAME	MATERIAL
11	LOCK SADDLE	SS 304
12	GLAND NUT	SS 304
13	COUPLER	CF8
14	COUPLER WASHER	SS 304
15	COUPLER BOLT	SS 304
16	STOP PIN	A2-70 / ISO 898-1 12.9
17	HANDLE NUT	SS 304
18	HANDLE	SS304 / ZINC PLATED STEEL
19	HANDLE SLEEVE	VINYL PLASTISOL
20	BODY BOLT	A2-70 / ISO 898-1 12.9
21	O-RING	VITON
22	ANTI-STATIC DEVICE	SUS 316

Dimensions inch/mm

SIZE inch DN	d	L	L_1	H	W	H1	H2	S	d2	d3	d4	C	ISO 5211	Torque lbs.in N.m
1/4 " 8	0.4 11	2.55 65	2.75 70	3.31 84	5.51 140	2.03 51.5	0.35 9	0.35 9	0.56 14.2	0.31 7.8	0.54 13.8	0.39 10	F04	115 13
3/8 " 10	0.43 11	2.55 65	2.75 70	3.31 84	5.51 140	2.03 51.5	0.35 9	0.35 9	0.69 17.6	0.43 10.8	0.68 17.3	0.39 10	F04	115 13
1/2 " 15	0.55 14	2.95 75	2.95 75	3.31 84	5.51 140	2.03 51.5	0.35 9	0.35 9	0.86 21.8	0.56 14.3	0.85 21.7	0.51 13	F04	115 13
3/4" 20	0.81 20.5	3.14 80	3.54 90	4.09 104	7.08 180	2.52 64	0.43 11	0.43 11	1.07 27.2	0.76 19.4	1.07 27.2	0.59 15	F04 F05	168 19

Note: Torque measured at ambient temperature with no loading;safety factor is not included.



UHMWPE – Ultra High Molecular Weight Polyethylene

Valve Seat Selection

Please contact your sales for more properties of materials



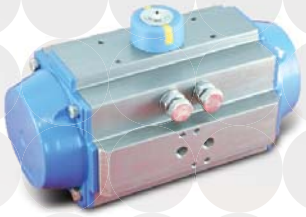
Valve Seat Selection Guide

Seat Code	Description	Temprature Range
VIRGIN PTFE	The most common material of seat ring. With excellent chemical resistance, PTFE can be used almost in all media.	-20°C to 180°C (-4°F to 350°F)
RPTFE (15% GLASS FILLED PTFE)	Similar to PTFE, but offers higher pressure capacity while temperature is increasing. The material itself is harder than conventional PTFE. Please specify the application due to confusion with PTFE.	-20°C to 180°C (-4°F to 350°F)
CARBON FILLED PTFE	Specially used for steam and thermal oil, with low coefficient of friction. The chemical resistance is similar to PTFE and RPTFE. 15% carbon and 25% carbon are provided.	-20°C to 200°C (-4°F to 392°F)
S/S POWDER FILLED PTFE	Combined with the strength of stainless steel and lubricity of PTFE, 50% SS316 powder is added to 50% PTFE. Abrasion resistance of metal and higher pressure rating than RPTFE.	-20°C to 200°C (-4°F to 392°F)
TFM1600	TFM is a modified PTFE which reduces permeation to provide advantages for corrosive applications or those applications where PTFE is used as a barrier to protect against or contain aggressive chemicals.	-40°C to 180°C (-40°F to 350°F)
DELRIN	High pressure seat material. Delrin material is able to sustain pressure up to 5000 psig. However, it is not recommended to use in oxygen applications.	-20°C to 80°C (-4°F to 180°F)
PEEK	Highest pressure resistance. Excellent in recovery from deformation, and high degree of dimensional stability. High mechanical strength.	-20°C to 240°C (-4°F to 464°F)

Automation Accessories

Pneumatic Actuators
VT Series – Rack & Pinion Type

The VT Series rack & pinion actuators are reliable quality products, which can be relied on to perform faultlessly under any difficult circumstances.. For double-acting mode, the actuator is available in 11 sizes. Under the provision of common power supply (80 psi), the output torque ranges from 8.02 to 2877 Nm (71 to 25469 in-lbs). For single-active, also known as spring return type, 10 sizes are available.



Electric Actuators
JS Series

The JS Series electric actuators are made in new sizes from 34.3 to 597.8 Nm (303.6 to 5290.8 in-lbs), which are generally applied for ball valves with maximum size 6", and butterfly valves with maximum size 12", and are available in on-off or modulating versions, with a choice of duty cycles. All models include standard manual override, visual position indicator, torque limiter and adjustable-position switches.



VSII™ Namur Type Solenoid Valves for Valve Actuator

VSII™ namur type solenoid valve is specifically engineered to pilot pneumatic process valve actuators. Using enhanced materials, VSII™ has an operating temperature range from -20°C up to 50°C (-4°F up to 140°F). The most notable improvement is the patened rotary sealing plate. It features in the field conversion form 3/2 to 5/2 action without the need for tools or additional parts, and incorporates exhaust feedback to increase actuator spring life span.



Other Fire-safe Products				
FSB 2D	FSB 26	FSB 23	FSB 1D	FSB 22
				
CLASS150 (PN16/40) DN15 - DN200	6000 psi (420 bar) DN8 - DN50	3000 psi (210 bar) DN8 - DN50	PN16/PN40 DN15 - DN100	2000 psi (140bar) DN8 - DN50

How to order

VALVE TYPE	PORT	BODY MATERIAL	SEAT	TRIM	TYPE OF CONNECTION	PRESSURE RATING	SPECIAL REQUEST	SIZE OF CONNECTION	OTHERS
A	B	C	D	E	F	G	H	I	J

die erste®

Taiwan
5F-1, No. 936,
Sec. 4, Wen-Sin Road
Taichung City 406, Taiwan
T +886 (4) 2231 0059
F +886 (4) 2236 0236

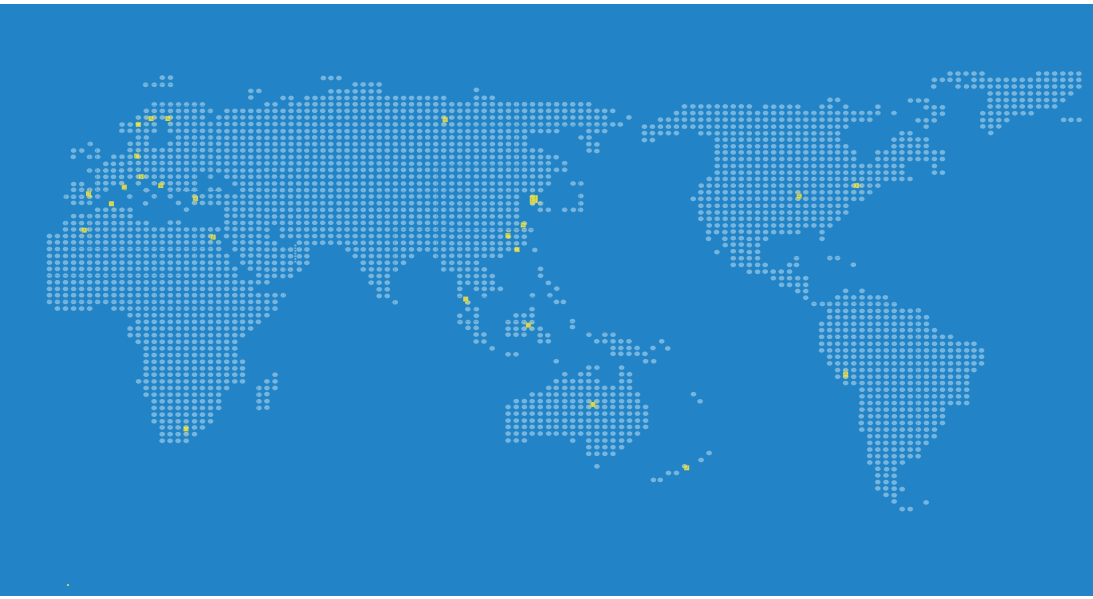
Shanghai
Rm. 1803-A, No.
678, Gu-Bei Rd.,
Shanghai, China
T +86 (21) 5777 3810
F +86 (21) 5777 3819

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www.die-erste.com | sales@die-erste.ocm

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Due to continuous development of the products, DIE ERSTE reserves the right to alter the dimension and information contained in the document as required without notice. For specific performance data and proper material selection, please consult with your DIE ERSTE representatives.

NOAH
Actuation

Part-turn Actuator





NOAH ACTUATION CO., LTD

Unit 47, 425 Gilju-ro(70-1, Chunui-dong), Bucheon-si, Gyeonggi-do, Korea

TEL +82-2-806-4263 / FAX +82-2-806-4266

Overseas Sales: noah@emico.co.kr

Domestic Sales: actuator@emico.co.kr

www.emico.co.kr

N2 BS C E – Ver.A



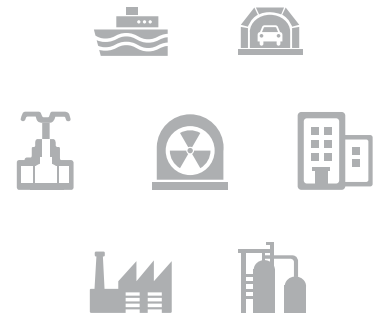
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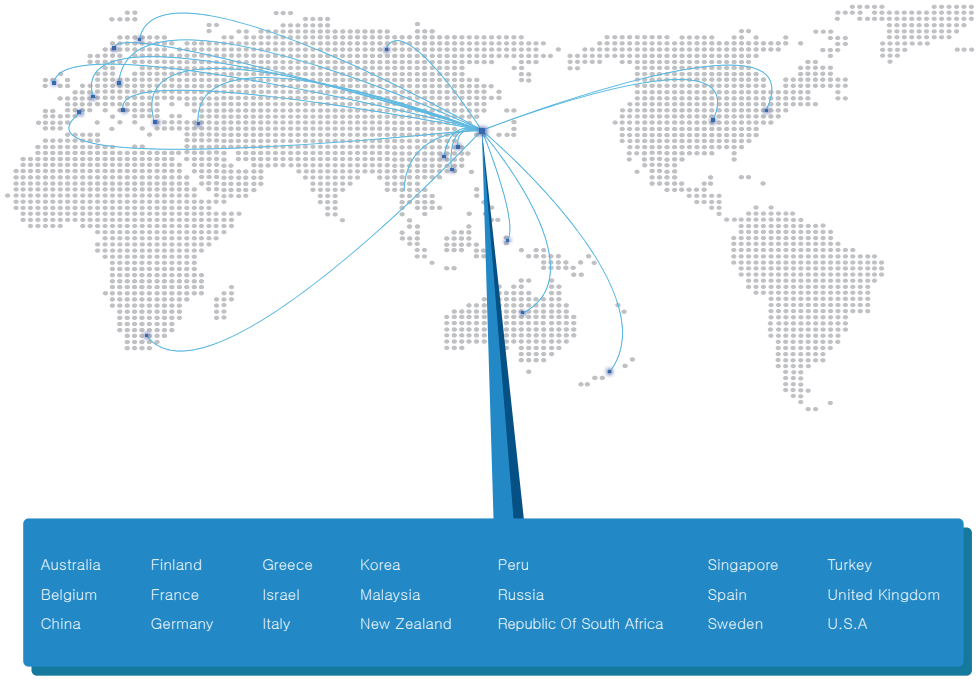
Section	Page
Configuration	4
Performance	6
Standa rd Specification	6
Optional Specification	6
Dimension	7
Option	8
NA Integral Standard Specification	9
NA Integral Optional Specification	9

NOAH, founded in 1977, is the leading manufacturer of electric actuators in Korea and provides the best quality products with high technology and satisfactory services.

NOAH supplies electric actuators especially to buildings, plant, steelworks, power plants over 40 countries as well as domestic sales.
NOAH has launched spring return actuator for the first time in Korea and accelerated to expand market and to satisfy customers' need by specialized products.
We have made concerted efforts with expertise in electric actuators and continuous investment in R&D to be the world best in the market.

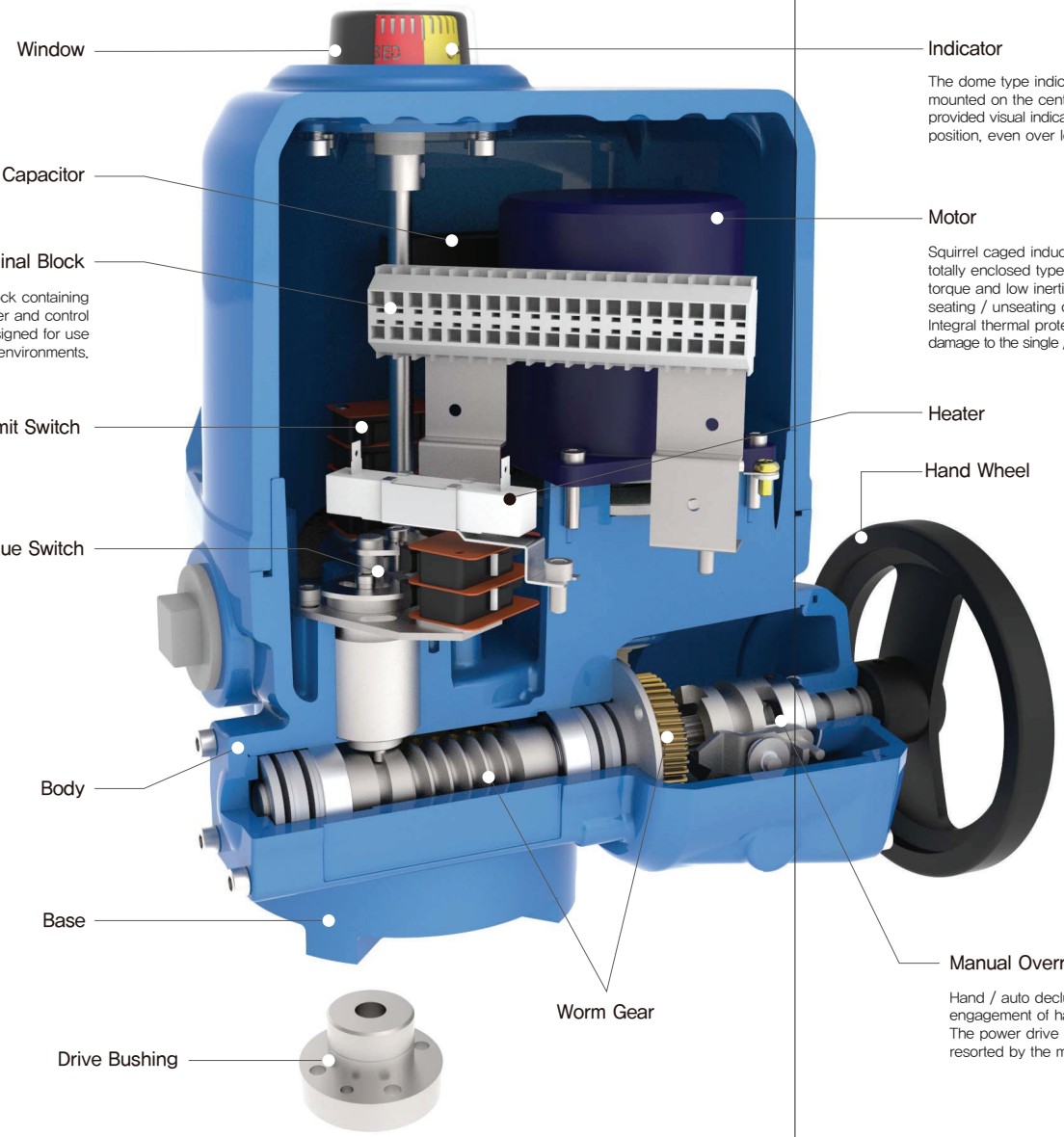
We promise we do everything we can to supply the reliable products and competent services.





Australia	Finland	Greece	Korea	Peru	Singapore	Turkey
Belgium	France	Israel	Malaysia	Russia	Spain	United Kingdom
China	Germany	Italy	New Zealand	Republic Of South Africa	Sweden	U.S.A

Configuration



- **SEALING**

Standard enclosure with o-ring sealing is watertight to IEC IP67, NEMA 6. The actuator is available with optional explosion proof enclosure.

- **WIRING**

Electric wiring of control circuit is standardized for single and three phase power supply in a single module. Multiple terminal contacts sufficiently cover additional requirements such as auxiliary contacts for interlocking and other options.

- **COMPONENT ARRANGEMENT**

Mechanical and electrical module can be separated easily to improve assembling, maintenance and alteration of electrical requirements. Actuator has enough internal space for optional accessories.

- **HAND WHEEL**

Size of hand wheel is designed for safe and efficient emergency manual operation.

- **MANUAL OVERRIDE**

Hand / auto declutching lever for hand wheel engagement. The power drive is automatically restored by motor start.

- **ADAPTION**

Base mounting is standard to ISO5211.
Drive bushing is removable for maching to valve stem requirement. The actuator position on the valve can be selected for 4 positions by means of 4 bolt holes in the drive bushing.

- **HEATER**

A space heater inside the actuator prevents condensation due to temperature and weather changes. Standard heater keeps all electrical components in the actuator clean and dry.

- **LIMIT SWITCHES**

The limit switch is activated by means of a simple and yet reliable cam mechanism mounted and driven by the center column. The valve position can be accurately and easily set with the simple adjustable switch mechanism. The set position is permanent and is not affected by over-travel resulting form manual operation.

- **TORQUE SWITCHES**

Cam activated torque switches are easily adjustable to provide over-load protection.

- **SELF LOCKING**

Rolled steel wormgear on aluminium bronze wormwheel self-locks to prevent valve back drive on control signal or power failure.

- **WORM GEAR**

The precision worm and worm wheel mechanism transfers high torque with high efficiency and low sound level (Max 50db), even though small in size. Additional benefits include low backlash and longer life. Various output torques (60N.m~3,500N.m) cater for valves from 2" to 24"

Performance

Type	Max Output Torque		Operating Time (90°/sec)		Rated Current (A) 60Hz							Motor			Duty Cycle	Max Stem Dia	Handle Turns	Weight
	Kg.m	N.m	50Hz	60Hz	DC 12V	DC 24V	AC 110V	AC 220V	AC 230V	AC 380V	AC 440V	DC (W)	AC (W)	Class	S4 (%)	mm		kg
NA006	6	60	18	16	7.3	3.0	0.85	0.42	0.42	0.15	0.15	15	15	F	50	22	8.5	11
NA009	9	90	20	17	8.2	4.3	1.35	0.55	0.55	0.19	0.19	25	25	F	50	22	8.5	11
NA015	15	150	23	20	10.2	4.3	1.75	1.0	1.0	0.3	0.33	40	40	F	50	22	10	14
NA019	19	190	23	20	12	5.0	1.9	1.05	1.05	0.31	0.33	40	40	F	50	22	10	14
NA028	28	280	29	25	14	7.0	2.0	1.05	1.05	0.35	0.32	40	40	F	50	32	13.3	17
NA038	38	380	29	25	19.8	13.5	2.1	1.3	1.3	0.4	0.37	120	60	F	30	32	13.3	17
NA050	50	500	29	25	24.5	14.5	3.8	1.45	1.45	0.51	0.5	120	90	F	25	32	13.3	17
NA060	60	600	38	31	24.7	15.0	2.4	1.6	1.6	0.47	0.48	120	90	F	25	42	15	24
NA080	80	800	38	31	–	16.0	3.15	2.0	2.0	0.62	0.62	120	180	F	25	42	15	25
NA100	100	1000	38	31	–	–	3.5	2.1	2.1	0.7	0.7	–	180	F	25	42	15	25
NA120	120	1200	36	30	–	–	4.0	2.4	2.4	0.9	0.75	–	180	F	25	42	15	25
NA150	150	1500	111	93	–	–	2.4	1.6	1.6	0.47	0.48	–	90	F	25	75	45	65
NA200	200	2000	114	93	–	–	3.15	2.1	2.1	0.62	0.62	–	180	F	25	75	45	65
NA250	250	2500	114	93	–	–	3.5	2.2	2.2	0.7	0.7	–	180	F	25	75	45	65
NA300	300	3000	144	120	–	–	3.15	2.1	2.1	0.62	0.62	–	180	F	25	75	60	65
NA350	350	3500	144	120	–	–	3.5	2.2	2.2	0.7	0.7	–	180	F	25	75	60	65

Standard Specification

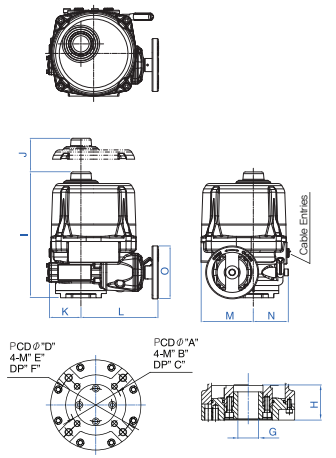
Enclosure	Watertight Ingress Protection 67 NEMA 6	
Ambient Temperation	–20℃ ~ +70℃ , 150℃ / 1hr (Option: –60℃, 400℃ / 1hr)	
Power Supply	110 ~ 230 VAC 50/60Hz , 380 / 440 VAC 50/60Hz (Option : AC 24V , DC 24V, DC 12V)	
Torque Switches	2 Open / Close (Except NA006, NA009)	
Limit Switches	2 Open / Close	
Stall Protection	Built – in Thermal Protection	
Travel Angle	90±5℃	
Indicator	Continuous Position Indicator	
Manual Override	Hand / Auto Declutching Mechanism	
Self Locking	Provided by means of Worm Gearing	
Mechanical Stops	External Adjustable Screws	
Space Heater	20W	
Conduit Entries	NA006~009	2–PF 3/4" (Option : PF 1", NPT 3/4", NPT 1", M20 Pitch1.5, M25 Pitch1.5)
	NA015~350	3–PF 3/4" (Option : PF 1", NPT 3/4", NPT 1", M20 Pitch1.5, M25 Pitch1.5)
Lubrication	Shell Gadus S2 V220 2	
External Material	Aluminium Alloy	
Surface Treatment	Anodizing	
External Coating	Polyester(TGIC–Free)	

Optional Specification

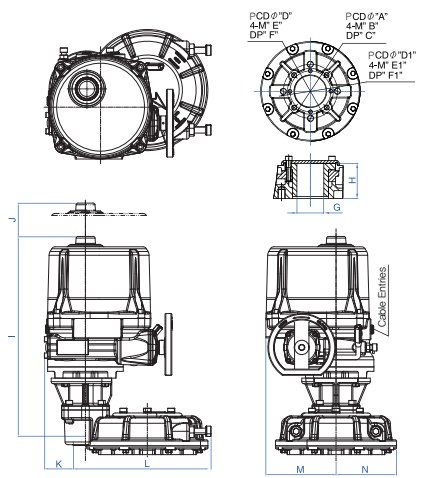
E X P	Explosion Proof / Ex d IIC T4 – S2 15min
IP68	Watertight Enclosure IP68 / NEMA 6P
A L S	Auxiliary Open, Close Limit Switches
A T S	Auxiliary Open, Close Torque Switches (Except NA006, NA009)
P I U	Potentiometer (1K–Ohm)
P C U	Proportional Control Unit Input : DC 4–20mA, 0–5VDC, 0–10VDC, 1–5VDC, 2–10VDC / Output : DC 4–20mA
C P T	Current Position Transmitter / Output : DC 4–20mA
L C U	Local Control Unit
I M S	Integral Motor Starter (On–Off Action)
E X T	Travel Angle (120 °, 135 °, 180 °, 270 °, 300 °)
D C M	Power Supply DC 24V (NA006 ~ NA080), DC 12V (NA006 ~ NA060)
Field–Bus	Profi–Bus, Mod–Bus, Can–Bus

Dimension

MODEL : NA006~NA120



MODEL : NA150~NA350



Type		NA006 NA009	NA015 NA019	NA028 NA038 NA050	NA060, NA080 NA100, NA120	NA150, NA200, NA250, NA300, NA350	
A		PCD70	PCD70	PCD102	PCD125	PCD125	
B		4–M8	4–M8	4–M10	4–M12	4–M12	
C		12	12	18	22	22	
Flange ISO5211		F07	F07	F10	F12	F12	
D	D1	–	PCD102	PCD125	PCD140	PCD140	PCD165
E	E1	–	4–M10	4–M12	4–M16	4–M16	4–M20
F	F1	–	15	18	22	22	25
Flange ISO5211		–	F10	F12	F14	F14	F16
Option		PCD82	PCD82	–	PCD102(F10)	–	
G(MAX)	Key	22	22	32	42	75	
	Square	20	20	26	34	65	
H		46	46	55	62	100	
I		269	298	307	336	547.5	
J		108	108	130	178	178	
K		51	81	83	103	103	
L		179	183	198	217	315	
M		103.5	124	142	176	176	
N		78.5	83	88	103	152	
O		102	102	125	155	170	
Cable Entries		2–PF3/4?	3–PF3/4?	3–PF3/4?	3–PF3/4?	3–PF3/4?	
		2–M20x1.5	3–M20x1.5	3–M20x1.5	3–M20x1.5	3–M20x1.5	
		2–M25x1.5	3–M25x1.5	3–M25x1.5	3–M25x1.5	3–M25x1.5	
		2–NPT1?	3–NPT1?	3–NPT1?	3–NPT1?	3–NPT1?	
		2–NPT3/4?	3–NPT3/4?	3–NPT3/4?	3–NPT3/4?	3–NPT3/4?	

NA Option Specification

Optional

ALS (Auxiliary Limit Switches)

Provide dry contact signal to check valve's positions (cam switches structure).

ATS (Auxiliary Torque Switches)

Provide dry contact signal send to customer's panel as fault signal (cam switches structure).

CPT (Current Position Transmitter)

Combined with P.I.U and transfer output signal (DC 4–20mA) from P.I.U's value of resistance.

- Output Signal : DC 4–20mA



PCU (Proportional Control Unit)

Combined with P.I.U and control the valve's position proportionally by input signal and provide valve's position as their output signal.

- Input signal : DC 4–20mA, 0–5VDC, 0–10VDC, 1–5VDC, 2–10VDC
- Output signal : DC 4–20mA



PIU (Position Indication Unit)

Provide resistance value (0~1KΩ) according to valve's position.

LCU (Local Control Unit)

LCU can be installed either on the actuator or distantly by cable. It can be controlled conveniently as it consists of Local / Remote Switch, Open / Stop / Close Switch and LED Lamp



Field–Bus

Field–Bus can control 126pcs of electric actuators at the same time using communication hardware system based on PC.

(Profi–Bus PROFIBUS, Mod–Bus Modbus, Can–Bus)
For more information please contact noah actuation.





NA Integral Standard Specification

Main Power	110/220 VAC 50/60Hz , 380/440 VAC 50/60Hz	
Internal Control Power	24 VDC	
External Control Power	110 VAC, 24 VDC	
Torque Switches	2 Open / Close (Except NA006, NA009)	
Limit Switches	2 Open / Close	
Control Unit	1. Non Instrusive Push Butttons [Open/ Stop/ Close] 2. Non Instrusive Selector Switch [Remote / Off / Local] 3. Reversing Contactor 4. Phase Discriminator	
Position Indicator	Digital Display (0~100%)	
Remote Dry Contact (Max 250VAC 5A)	1. Full Open / Close 2. Opening / Closing 3. Open / Close Over Torque 4. Monitor (Remote / Local)	
Conduit Entries	Standard	1–PF 1" , 2–PF 3/4"
	Option	1–NPT 1" , 2–NPT 3/4" 1–M25 Pitch 1.5 , 2–M20 Pitch 1.5
Potentiometer	0 ~ 1 KΩ	
Lubrication	Shell Gadus S2 V220 2	
External Materials	Aluminium Alloy	
Surface Treatment	Anodizing	
External Coating	Polyester(TGIC–Free)	

NA Integral Optional Specification

P C U	PCU enables the actuator to be controlled form a distance. Input: DC 4–20mA, DC 0–5VDC, 0–10VDC, 1–5VDC, 2–10VDC / Output: DC 4–20mA
C P T	CPT outputs signal by converting the actuator's place value to ampere. Output Signal: DC 4–20mA
Field Bus	FDB is used when controlling actuators using communication hardware system based on PC. Profi–Bus PROFIBUS, Mod–Bus Modbus, Can–Bus

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Keeping the World Flowing
for Future Generations



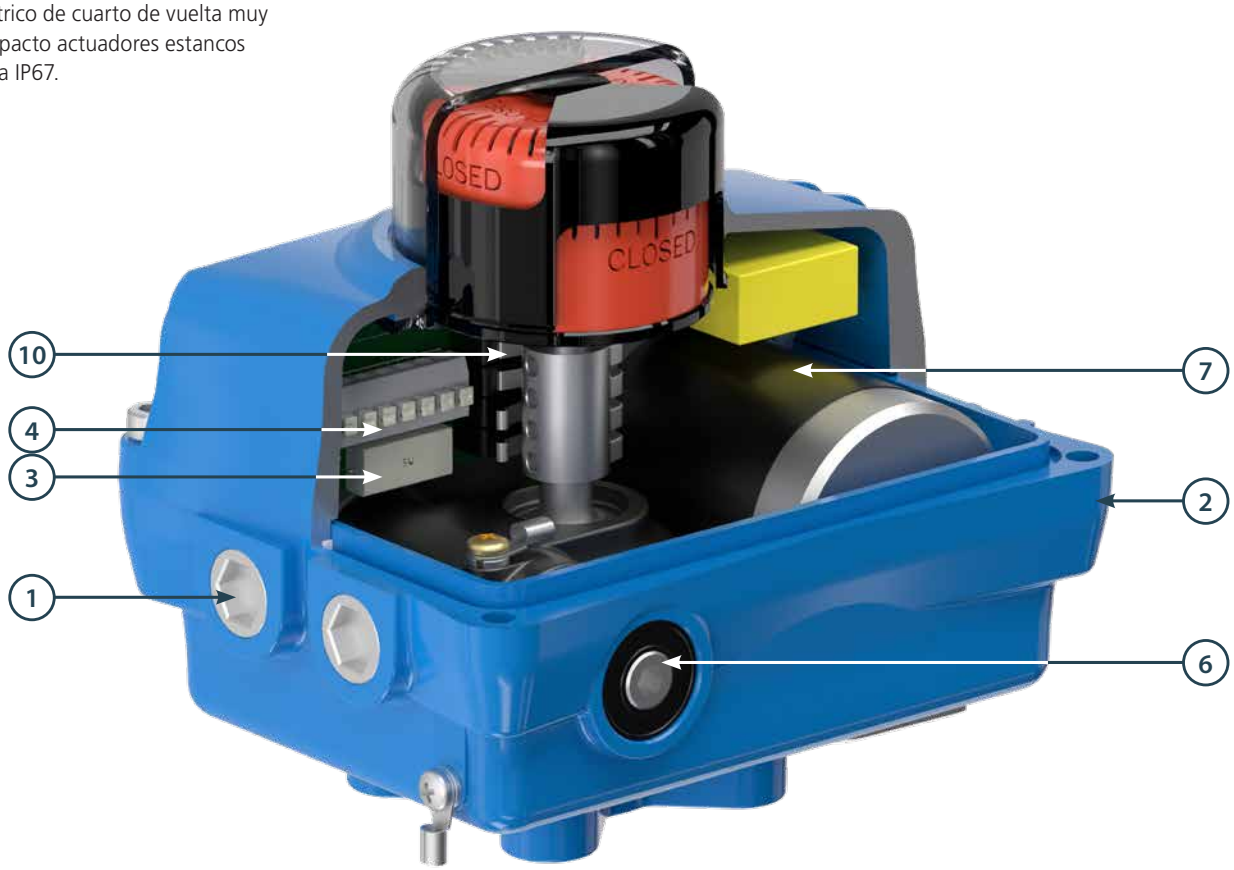
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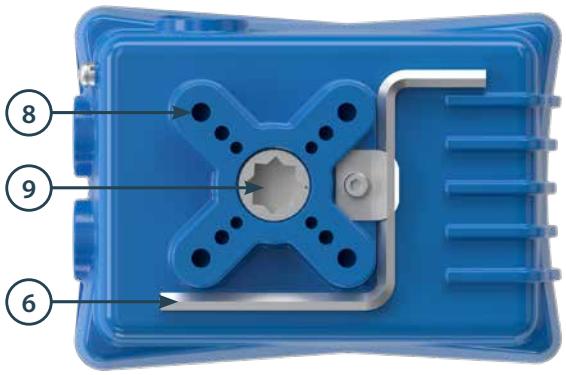
Gama Noah SA

Actuadores eléctricos compactos
de cuarto de vuelta

Noah SA

Eléctrico de cuarto de vuelta muy compacto actuadores estancos hasta IP67.







Interior del actuador Noah SA

1. Entrada de cables

Especificación estándar: 2-PF ½"

Opcional: M20 x Paso 1,5, NPT ½"

2. Caja exterior

La fundición de aleación de aluminio está tratada con película de óxido y luego recubierta de polvo (poliéster, sin TGIC) para proporcionar el mejor rendimiento de protección contra la corrosión en cualquier entorno.

Opcional - A prueba de explosiones: Exd IIB T4
(excepto modelo SA003)

3. Resistencia de caldeo interna

La resistencia interna incorporada evita la condensación y la formación de humedad en el interior del actuador para proteger los componentes internos.

4. Bloque de terminales

La regleta de bornes con estructura WAGO permite un cableado sencillo y es muy resistente a las vibraciones y a la corrosión.



5. Indicador de posición

Una lámpara LED dentro del indicador ilumina la tapa cuando se completan las operaciones de apertura total y cierre total.
El modelo SA estándar dispone de una cubierta abovedada para el indicador de posición, mientras que la versión antideflagrante utiliza un diseño plano muy robusto apto para la certificación antideflagrante.



6. Funcionamiento manual

La gama SA permite el accionamiento manual insertando la llave incluida (fijada en la base del actuador) en el lateral del actuador como se muestra a continuación y girando en sentido horario o antihorario para accionar manualmente el actuador.



7. Motor

Las tensiones de alimentación a elección del cliente incluyen monofásica (110/220 VAC) y 24 VDC. Los actuadores de la gama Noah SA incluyen un protector térmico integrado para proteger el motor en caso de sobrecarga.

8. Base

Dimensiones de montaje según la norma ISO5211, lo que facilita el montaje directo en válvulas y compuertas

Especificaciones estándar - F03, F05, F07

9. Conexión eje de salida / vástago de válvula

La gama SA incluye una conexión estándar de vástago de válvula con 14x14, con insertos opcionales de 11x11 y 9x9 disponibles.

Nota: SA003 : sólo 11x11, 9x9

10. Final de carrera

Se incluye un final de carrera mecánico tipo leva que controla con precisión la posición de las válvulas y los dispositivos giratorios. Su diseño y estructura sencillos permiten un ajuste fácil.

Especificaciones estándar



Grado de estanqueidad	Grado de protección IP67
Temperatura de funcionamiento	Tª amb -20 a +70 °C (-4 a +158 °F)
Alimentación	110 / 220 VAC 50/60 Hz / AC/DC 24 V
Indicador	Tipo cúpula (LED incorporado)
Final de carrera	2 uds Abrir/Cerrar + 2 uds Abrir/Cerrar (250 VAC) Contactos sin tensión
Ángulo de recorrido	90° ±5° (hasta 270° cuando está extendido)
Autobloqueante	Prevención de la rotación inversa mediante tornillo sin fin de dos etapas
Mando manual	Con una llave en L (hexagonal de 6 mm)
Entradas de cable	2-PF ½" (Opciones: 2-M20 x Paso 1,5, 2-NPT ½")
Resistencia de caldeo	5 W
Material de la carcasa	Aluminio
Lubricante	Shell Gadus S2 V220 2
Acabado de pintura estándar	Anodizado

Datos de rendimiento

Modelo	Opciones	Par de maniobra		Tiempo de funcionamiento (90°/seg		Potencia del motor (W)	Corriente nominal (A) 60 Hz				Ciclo de trabajo	Número de vueltas del volante	Peso		Rango de aplicación de la válvula (10K)
							1 fase (AC)			DC					
		Nm	lbf.ft	50 Hz	60 Hz	DC motor	24 V	110 V	220 V	24 V	S2 (min)		kg	lbs	
SA005L	PCU	50	37	17	14	25	1,8	0,35	0,23	1,8	15	6	3,2	7,1	Válvula de Mariposa: ~65A Válvulas de Bola: ~32A
	SCP	50	37	8	8	25	-	0,8	0,51	0,25		6	4,3	9,5	
SA009L	PCU	90	66	32	26	25	2,1	0,35	0,25	2,1	15	4,5	3,2	7,1	Válvula de Mariposa: ~100A Válvulas de Bola: ~50A
	SCP	90	66	13	15	25	-	0,8	0,51	2,25		4,5	4,3	9,5	

Extras opcionales

AC24V	Tarjeta de control para alimentación de 24 VAC
Unidad de potenciómetro (PIU)	Emite la posición del actuador como una señal de 0-1 kΩ
Unidad de control proporcional (PCU)	Se utiliza para controlar el actuador de forma que el grado de apertura/cierre de la válvula sea proporcional a la señal de entrada.
Transmisor de posición de corriente (CPT)	Se utiliza cuando se cambia el valor de resistencia de un potenciómetro conectado directamente al actuador a un valor de corriente y se utiliza la posición del actuador como valor de corriente.
Super capacitador (SCP)	Un dispositivo de super capacitador está incorporado en el actuador de modo que cuando se corta la corriente, funciona en la posición abierta/cerrada/parada establecida por el usuario.

Tarjeta PCU

La unidad de control proporcional (PCU) funciona hasta que el estado actual de apertura y cierre coincide con el valor establecido por el sistema de control externo. Proporciona la función de salida y transmisión de una señal de 4-20 mA en proporción al estado de posición actual (0-100%).

Banda muerta

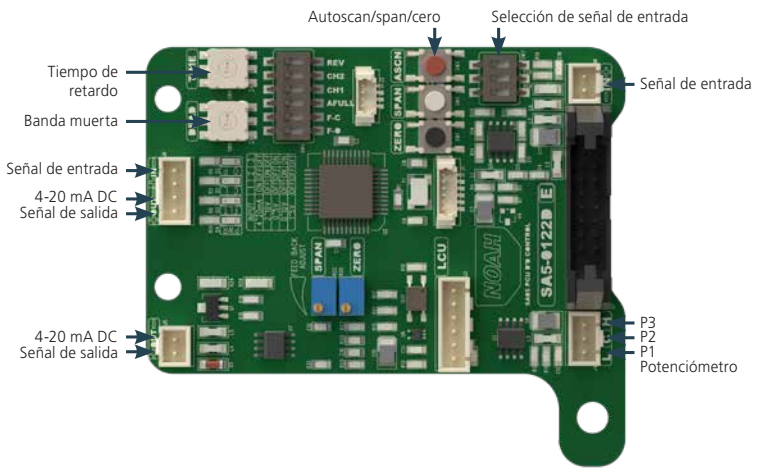
El actuador intenta detenerse en la posición exacta en función del valor ajustado, pero para evitar la caza, se establece un rango de zonas muertas que permiten al actuador abrir y cerrar repetidamente mientras intenta alcanzar la posición exacta debido a la inercia mecánica del motor o de la válvula. (±0,3 mA)

Tiempo de retardo

La señal de entrada puede verse afectada por ruidos momentáneos o frecuencias externas. El tiempo de retardo se ajusta (mín. 0,5 seg.) para evitar el fenómeno de caza causado por el funcionamiento con la misma entrada de señal durante un cierto periodo de tiempo.

Escaneo automático

La función de escaneo automático opera automáticamente desde la posición totalmente cerrada a la posición totalmente abierta con una pulsación de 2 segundos, y guarda cada posición.



Placa de alimentación

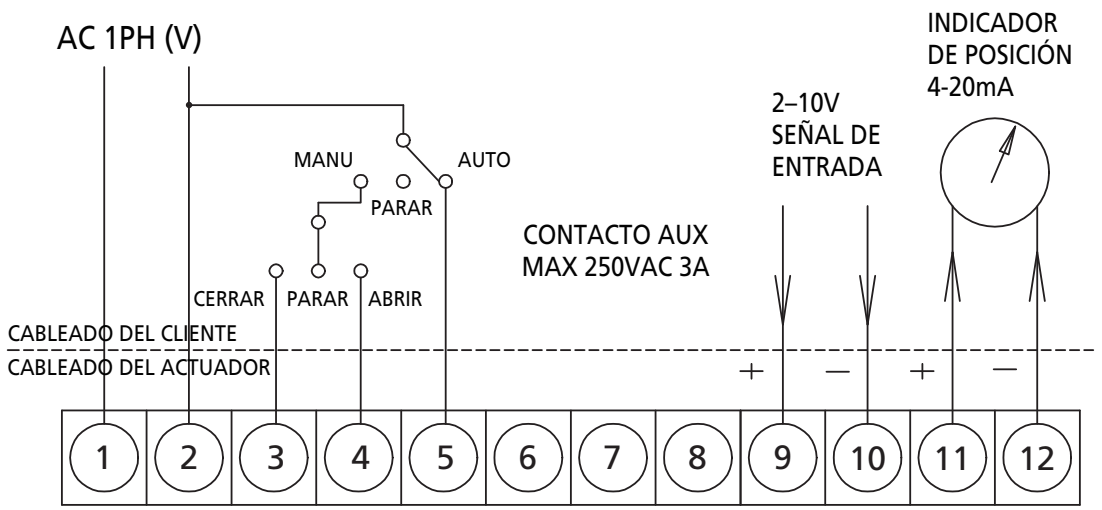
Esta tarjeta convierte la energía de una fuente externa para que el actuador la utilice para operar la tarjeta PCU.

Potenciómetro

Responsable de la resolución del actuador mediante el uso de 0-1 kΩ y desempeña un papel en el reconocimiento del valor de posición actual. (Opcional 135 Ω)

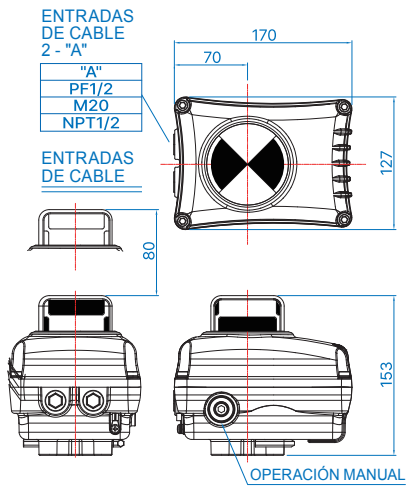
Esquema eléctrico estándar

Diagrama cableado estándar de tipo PCU

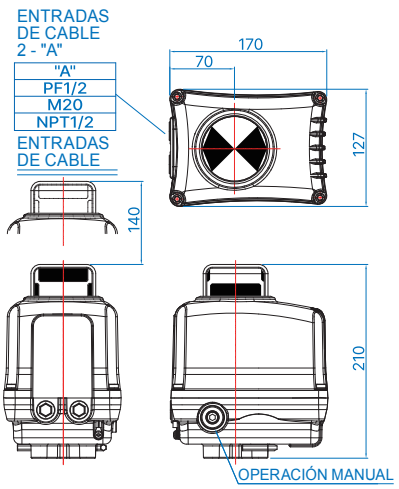


Datos dimensionales

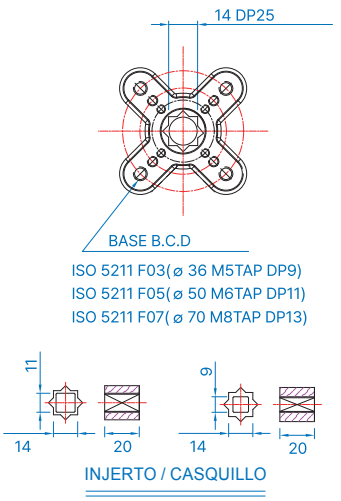
Noah SA005, SA009



Noah SA005L, SA009L

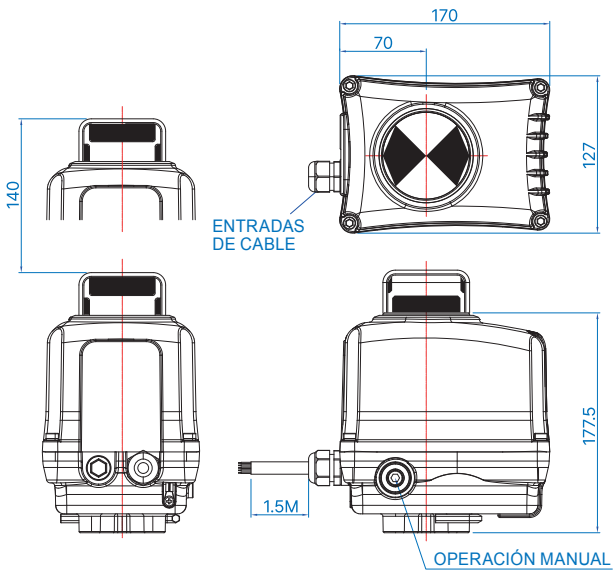


Base

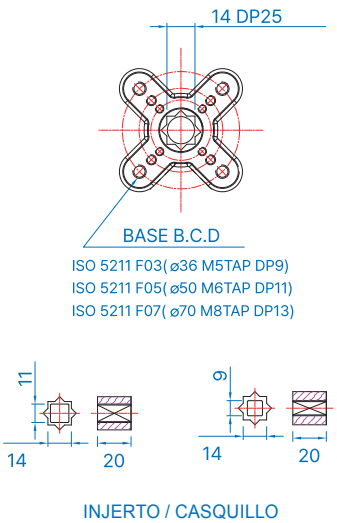


Todas las dimensiones en milímetros

Noah SCP



Base



Todas las dimensiones en milímetros