



GYR-71800

Three-dimensional Eccentricity Butterfly Valve

ZHEJIANG BEIER CONTROL VALVE CO.,LTD.
[Http://www.Controlvalves.cn](http://www.Controlvalves.cn)

Three-dimensional Eccentricity Butterfly Valve

GYR-71800 Three-dimensional Eccentricity Butterfly Valve

GYR-71800 Three-dimensional Eccentricity Butterfly Valve is suitable to control and shut off the fluid in each kind of operating mode. For example, in transmitting coal gas, natural gas, the refinery oil thick liquid system, the torch system cut-off function, the sewage treatment system, the steel factory furnace gas shut-off system, the paper pulp and the papermaking return to original state craft system and so on.

Plentiful Experience & High Quality

Wide Applicability & High Cost Performance

High Quality & High Performance Control Valve Technology

GYR-71800 SERIES BUTTERFLY VALVES

Trim type: High performance type Three-dimensional Eccentricity structure
Three-dimensional Eccentricity structure
GYR-71800 adopts multilayered seat seal surface and adjust floated seat

Size range: 4" ~ 32"

Body type: GYR-71800

Pressure level range: ANSI 100# 150# 300#
0.6Mpa 1.0Mpa 1.6Mpa 4.0Mpa

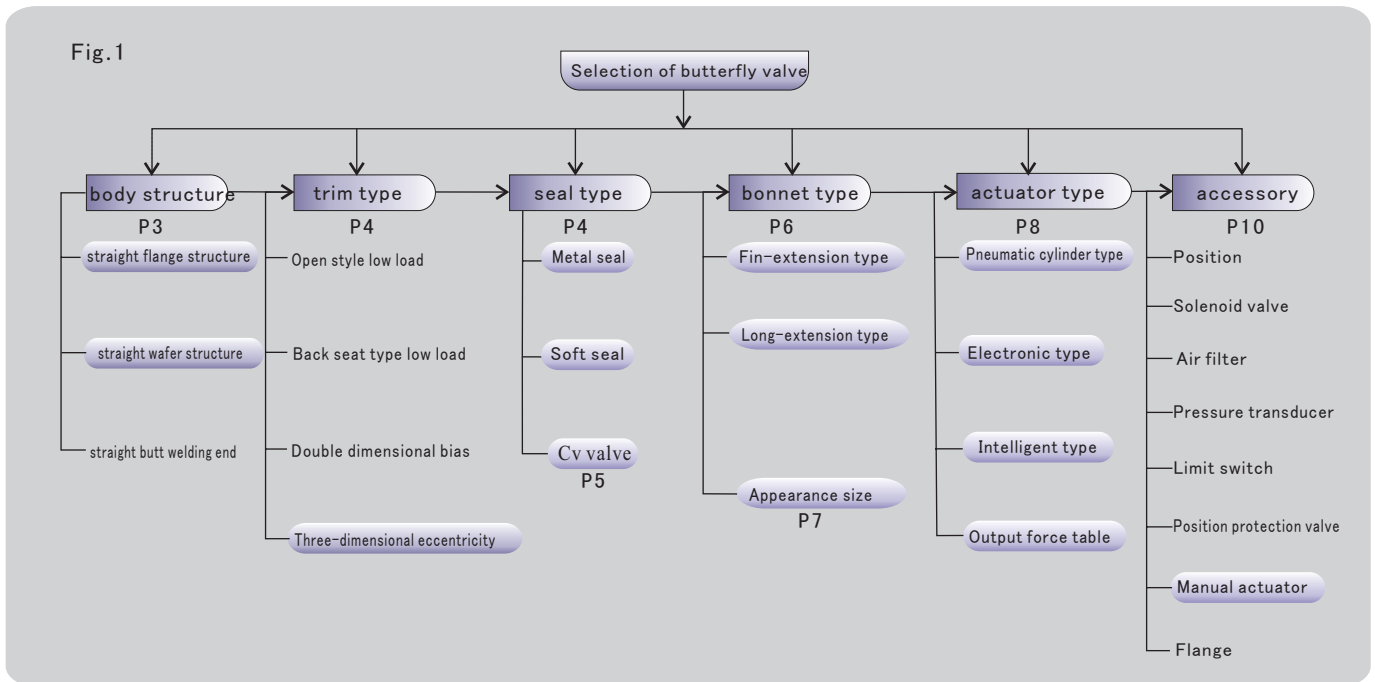
Standard close level: CLASS VI (Standard type Metal seal)

Actuator: Pneumatic type: Pneumatic cylinder actuator R6000 series
Electronic type: Electronic type 3810R series
Intelligent type: IQ series

Application situation: Used in transmitting coal gas, natural gas, the refinery oil thick liquid system, the torch system cut-off function, the sewage treatment system, the steel factory furnace gas shut-off system, etc. Suitable temperature range is -196~+425°C.

Three-dimensional eccentricity butterfly valve

GYR-71800 Three-dimensional Butterfly Valve



※ Note:

You may configure the 71800 series valve according to the arrow to show by the Fig.1 of guidance chart.

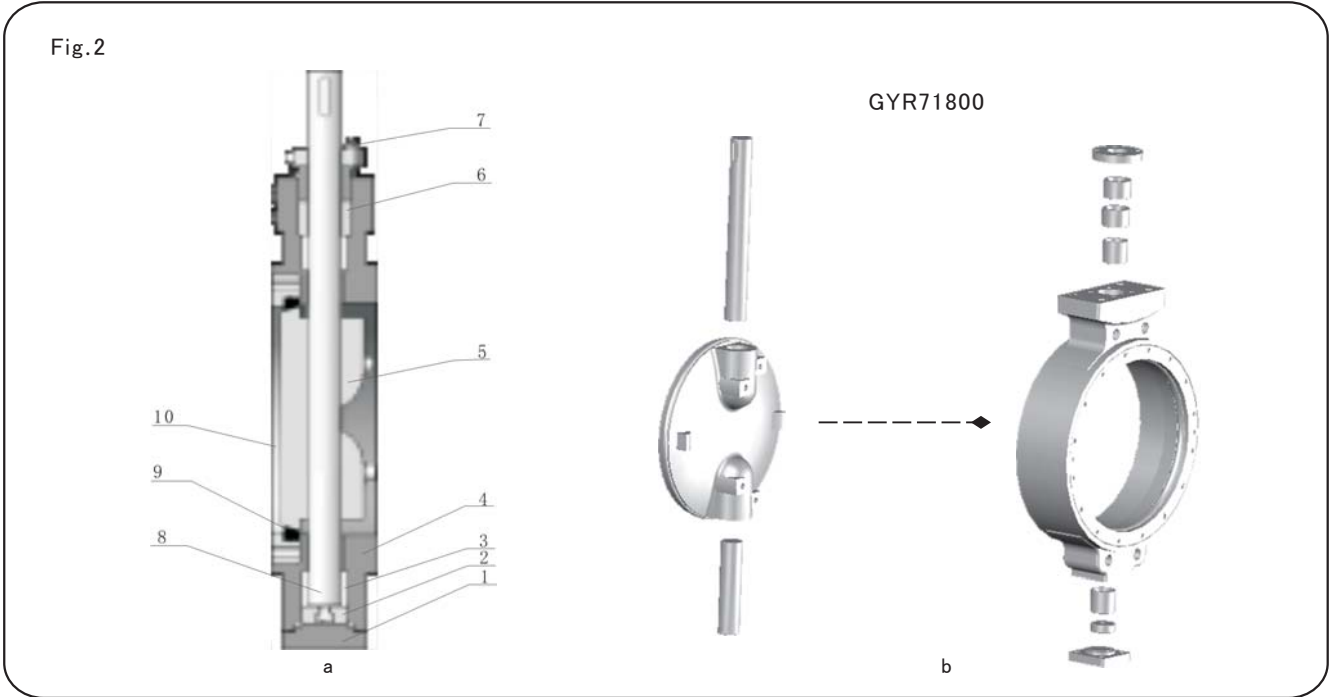
The shadowed content is addressed in this manual.

Please see the corresponding page for the content you concern.

Some parts such as bonnet, actuator and accessory component are optional according to different operation conditions and specific requirements of customers, please consult BEIER engineers for detailed parameters.

The max pressure difference allowed when configuring actuators for control valves is not listed in this manual, and if necessary, please consult your BEIER engineers or calculate it with the control valve software of BEIER.

GYR-71800 Trim type



- ◆ Fig.2 (a) is the Sectional drawing of GYR-71800 series, the (b) is Detonation chart
- ◆ The integral-type casting valve body, wafer type flange structure, is convenient to install the big nominal diameter valve, and the connection of valve and pipeline is reliable, the performance is stable.
- ◆ The flinty bearing, the structure is ultra long, adds on the enhancement flexible graphite bearing guard ring to increase the valve movement reliability.
- ◆ The all metallic construction and no leakage performance, enable the valve to have the fire-proof characteristic, and is suitable to the continues temperature change form the low temperature to the high temperature.

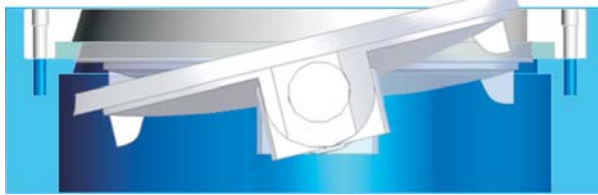
Table. 1

No	Part name	Material	Temperature range(°C)
1	Back cover	A216-WCB	-5~425
		A351-CF8	-196~538
		A351-CF8M	-196~538
2	Limited piece	316SS	-196~538
3	Bushing	SF-1	-195~280
		H62	-195~280
		17-4PHAlloy	-40~425
4	Body	A216-WCB	-5~425
		A351-CF8	-196~538
		A351-CF8M	-196~538
5	Disc	A216-WCB	-5~425
		A351-CF8	-196~538
		A351-CF8M	-196~538
6	Front shaft	A351-CF8M	-196~538
7	Packing	Reinforced Teflon	-40~232
		Flexible graphite	-196~538
8	Gland	A216-WCB	-5~425
9	Shaft	A351-CF8M	-196~538
10	Gasket ring (redeem ring)	Fluorine rubber gasket ring	-20~250
		SUS316VGasket ring	-196~538
11	Soft seat	Reinforced Teflon +Carbon Fiber	-40~250
		molybdenum bisulfide reinforced Teflon	-10~160
12	Clamp	A216-WCB	-5~425
		A351-CF8	-196~538
		A351-CF8M	-196~538

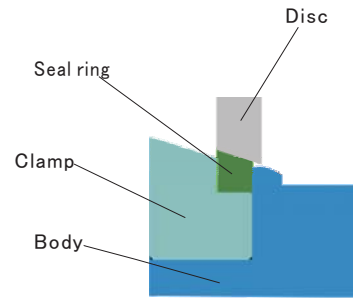
GYR-71800 Trim type, Seal type

Fig.3

GYR-71800 control valve body



GYR-71800 series seal ring structure



Disc treatment: Surface treated hard chrome
Seat leakage: ANSI Class VI

Body characteristic

- ◆ The air tight seal completely to conform to the ANSI VI level of seals standards
- ◆ Guarantees the precise adjustment by low shut off torque (even if in small open degree)
- ◆ Expedite valve seat structural design
- ◆ Easy to disconnect and replacing
- ◆ The disc can leave the seat immediately when opening, prevent attrition to seat.
- ◆ As a result of the disc ideal outline, may adjust the flow rate precisely when the disc is apart from the seat very recently
- ◆ Can reduce the movement between axes and actuator
- ◆ the multilayered compound of stainless steel, graphite, PTFE
- ◆ Easy to maintenance
- ◆ Reduces the cost --- only need to replace the part, does not need to replace the entire equipment

Three-dimensional eccentricity structure

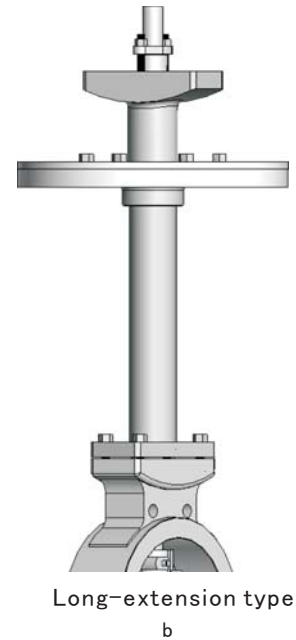
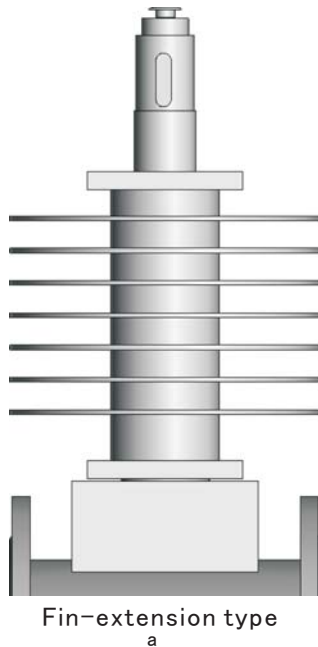
The characteristic which the torque seal guarantees which the valve to continue bidirectional no leakage The multilayered compound seal ring is made of stellite alloy surfacing seat and the double-phase stainless steel graphite, avoids cooling distortion and is washed out by the solid particle, has long services life and little maintenance characteristic.

Metal seal (nickel chrome alloy) can bear the highest temperature is 550 °C。

If needs higher temperature product, please conduct you BEIER engineer.

Bonnet type

Fig.4



◆ Fin-extension type Bonnet

Fig.5.c chart is a fin-extension bonnet type, design for high temperature service, chooses special material, the maximum temperature can bear 750°C.

BEIER high temperature butterfly valve characteristic

- ◆ The long stem can keep the packing cooling effectively.
- ◆ The trim after the surface carburizing, strengthen the intensity in very heavy duty services.
- ◆ To prevent movement and guarantee no leakage, uses welding in high temperature.
- ◆ Outstanding achievement about high temperature duty services.

◆ Long-extension type Bonnet

Fig.5.b chart is a long-extension bonnet type, design for cryogenic service, which suitable temperature is $-196\sim 538^{\circ}\text{C}$, according to the different of the valve size, the strengthen range is 400mm~900mm, this kind bonnet can protect the packing and actuator effectively, adopts the low temperature material which can bear impact and suitable for different temperature requirement.

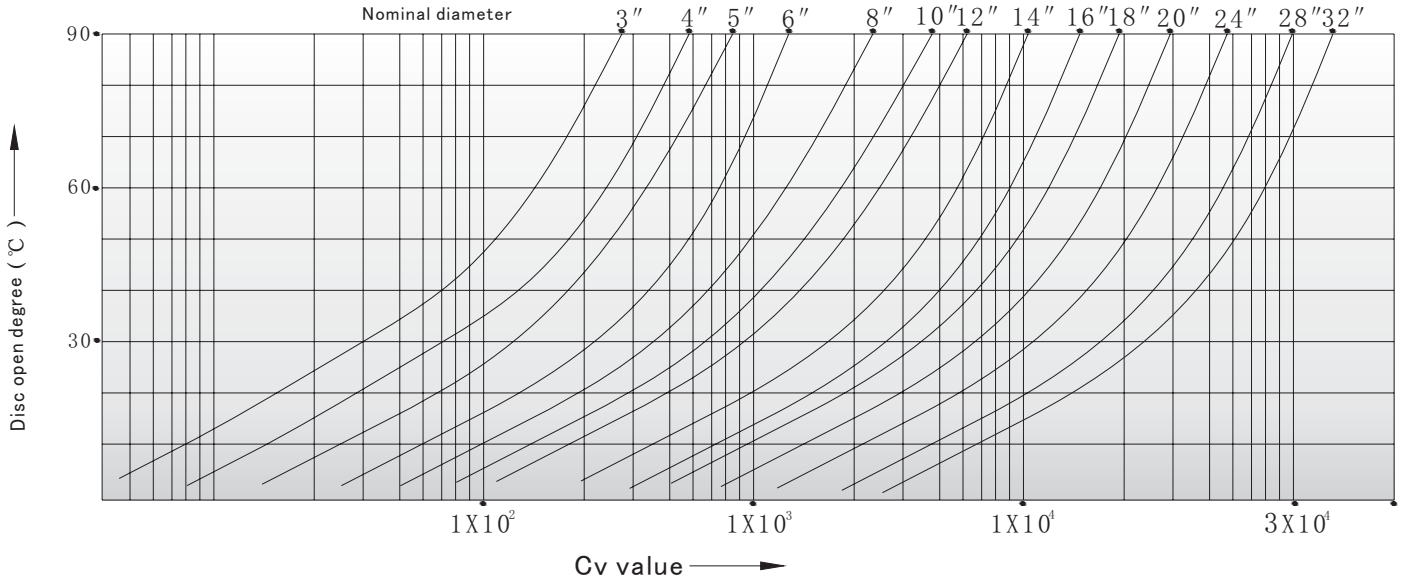
BEIER low temperature butterfly valve characteristic:

- ◆ Air bubble strict level seal under low temperature;
- ◆ The Smallest hotly consumes;
- ◆ The smallest cooling gathers;
- ◆ Change structure quickly;
- ◆ Simple structure;
- ◆ The material can bear the appropriate impact intensity under the low temperature and has the different temperature contraction coefficient.

Cv Value

Flow rate characteristic

Table.2



The conversion of Kv and Cv as follows: $Cv = 1.167 Kv$

◆ The Cv definition is: when the valve all opens, with the 40–60° F water, keep valve beginnings and ends differential pressure is 1 psi, under this condition has flowed the flux(unit: gallon) of the water per minute. (A gallon is a unit of measure for liquid.1 US gallon=3.785 liter)

◆ The Cv value, is an important parameter of control valve, it reflected that the ability the fluid passes the control valve, also is the control valve capacity. According to the control valve circulation ability Cv value computation, may determine the diameter of the control valve, in order to choose the size of the control valve correctly, must calculate the rated flow rate coefficient Cv value of the control valve accurately.

Table.3 Cv value

Nominal diameter h(cm)	150#									
	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
3(80)	34.45	60.07	85.68	111.3	136.92	162.53	188.15	213.77	139.38	265
4(100)	62.4	108.8	155.2	201.6	248	294.4	340.8	387.2	433.6	480
5(125)	97.5	170	242.5	315	387.5	460	532.5	605	677.5	750
6(150)	152.1	265.2	378.3	491.4	604.5	717.6	830.7	943.8	1056.9	1170
8(200)	300.3	523.6	746.9	970.2	1193.5	1416.8	1640.1	1863.4	2086.7	2310
10(250)	448.5	782	1115.5	1449	1782.5	2116	2449.5	2783	3116.5	3450
12(300)	764.4	1332.8	1901.2	2469.6	3038	3606.4	4174.8	4743.2	5311.6	5880
14(350)	989.3	1724.9	2460.6	3196.2	3931.8	4667.5	5403.1	6138.7	6874.4	7610
16(400)	1399	2334.7	3330.3	4326	5321.7	6317.3	7313	8308.7	9304.3	10300
18(450)	1781	3105.3	4429.3	5754	7078.3	8402.7	9227	11051.3	12375.7	13700
20(500)	2288	3989.3	5690.7	7392	9093.3	10794.7	12496	14197.3	15898.7	17600
24(600)	3393	5916	8439	10962	13485	16008	18531	21054	23577	26100
28(700)	4953	8636	12319	16002	19685	23368	27051	30734	34417	38100
32(800)	6266	10925.3	15584.7	20244	24903.3	29562.7	34222	38881.3	43540.7	48200
36(900)	6890	12013.3	17136.7	22260	27383.3	32506.7	37630	42753.3	47876.7	53000
40(1000)	7436	12965.3	18494.7	24024	29553.3	35082.7	40612	46141.3	51670.7	57200

GYL-71800 Appearance size

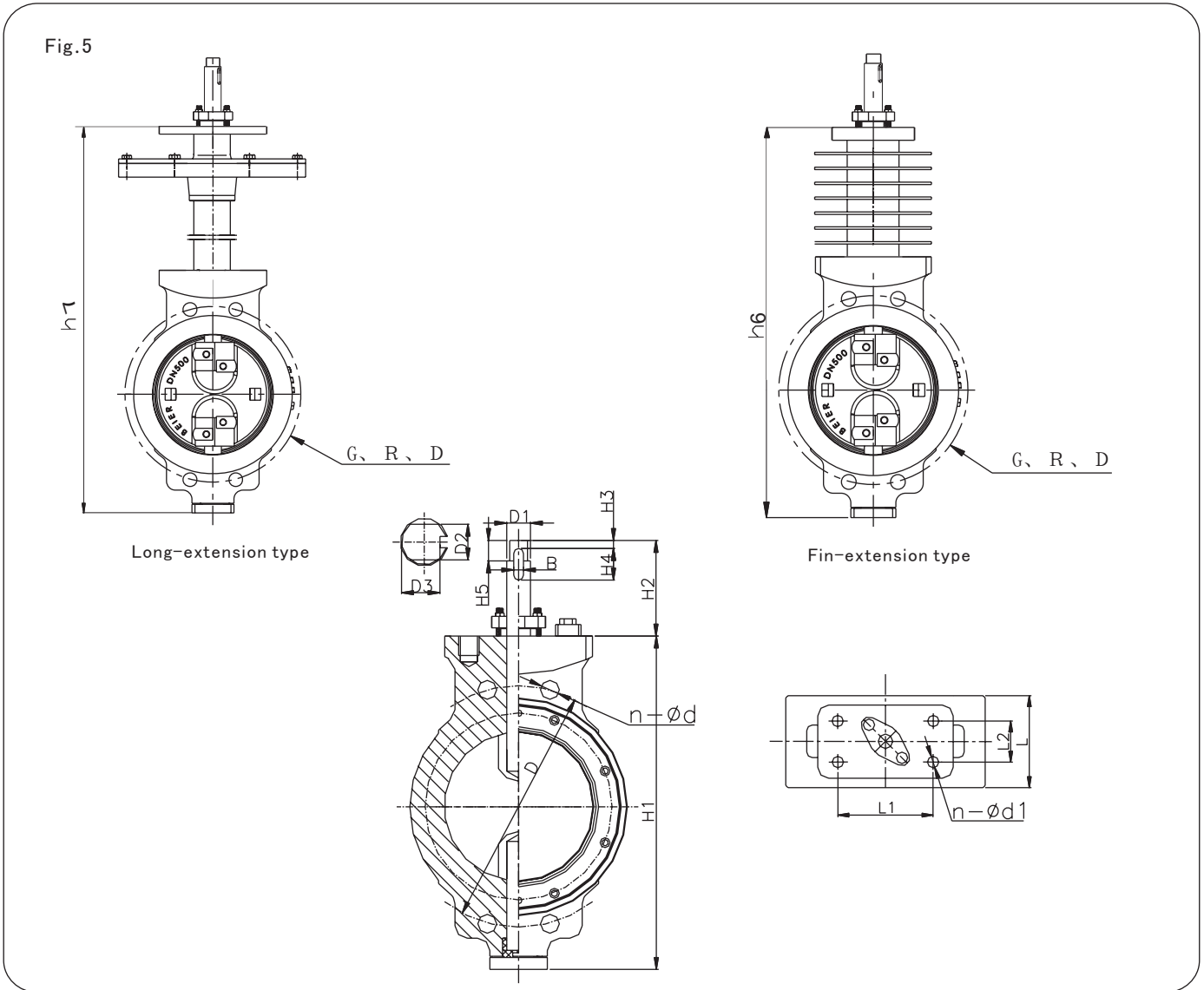
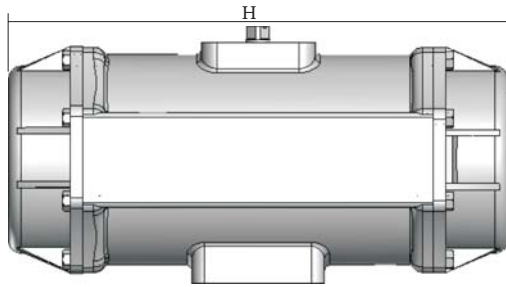


Table.4

Body size	L	L1	L2	H1	H2	H3	H4	H5	H6	H7 (L=800)	B	D1	D2	D3	D		n-φd		G、R、 D	n-φd1
															PN10	PN16	PN10	PN16		
100	70	120	45	292	100	5	35	14	429	1192	6	φ20	16	16.5	φ180	φ180	4-φ18	4-φ18	200	4-M16
150	76	120	45	347	100	5	35	14	547	1247	8	φ26	20	22	φ180	φ240	4-φ23	4-φ23	240	4-M16
200	89	120	45	404	100	5	40	14	654	1304	8	φ28	22	24	φ295	φ295	4-φ23	4-φ23	295	4-M16
250	114	140	70	477	100	5	40	14	727	1377	10	φ32	25	27.5	φ350	φ355	4-φ23	4-φ25	355	4-M16
300	114	140	70	527	100	5	45	14	777	1427	10	φ35	28	30.5	φ400	φ410	4-φ23	4-φ25	410	4-M20
350	127	165	80	595	120	5	50	14	875	1495	12	φ38	31	33.5	φ460	φ470	4-M20	4-M22	470	4-M20
400	140	165	80	663	120	5	45	14	943	1563	12	φ45	38	40	φ515	φ525	4-M22	4-M27	525	4-M20
450	152	180	97	742	130	5	50	14	1042	1642	16	φ50	40	45	φ565	φ585	4-M22	4-M27	585	4-M24
500	152	180	97	812	130	5	50	15	1112	1712	16	φ50	40	45	φ620	φ650	4-M22	4-M30	650	4-M24
600	178	180	97	922	130	5	58	20	1222	1822	18	φ65	55	59.5	φ725	/	4-M27	/	770	4-M24
700	199	210	105	998	155	5	60	20	1348	1898	20	φ75	65	69	φ840	/	4-M27	/	840	4-M27
800	211	210	105	1123	155	8	64	20	1473	2023	24	φ85	75	78	φ950	/	4-M30	/	950	4-M27

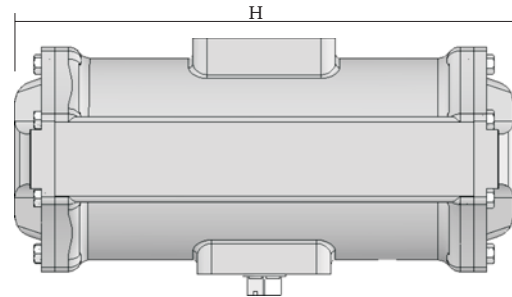
Actuator type

Fig.6



R6000 Single action cylinder actuator

a



R6000 Double action cylinder actuator

b

- ◆ Model R6900 Double action type
R6500 R6600 Single action type

- ◆ This series is one kind of the small size, high performance actuator, divides into the double action and single action, combination with the angle stroke control valve, adjusts and shuts off the valve.

Air supply: 500Kpa

Angle rotation: 90

Performance hysteretic: with position, within 1.5%FS

Ambient temperature: -20~80°C

Material: Cylinder WCB/ Aluminum alloy

Piston Lf2

Output shaft Stainless steel

Piston ring O-type ring

Cylinder cover WCB

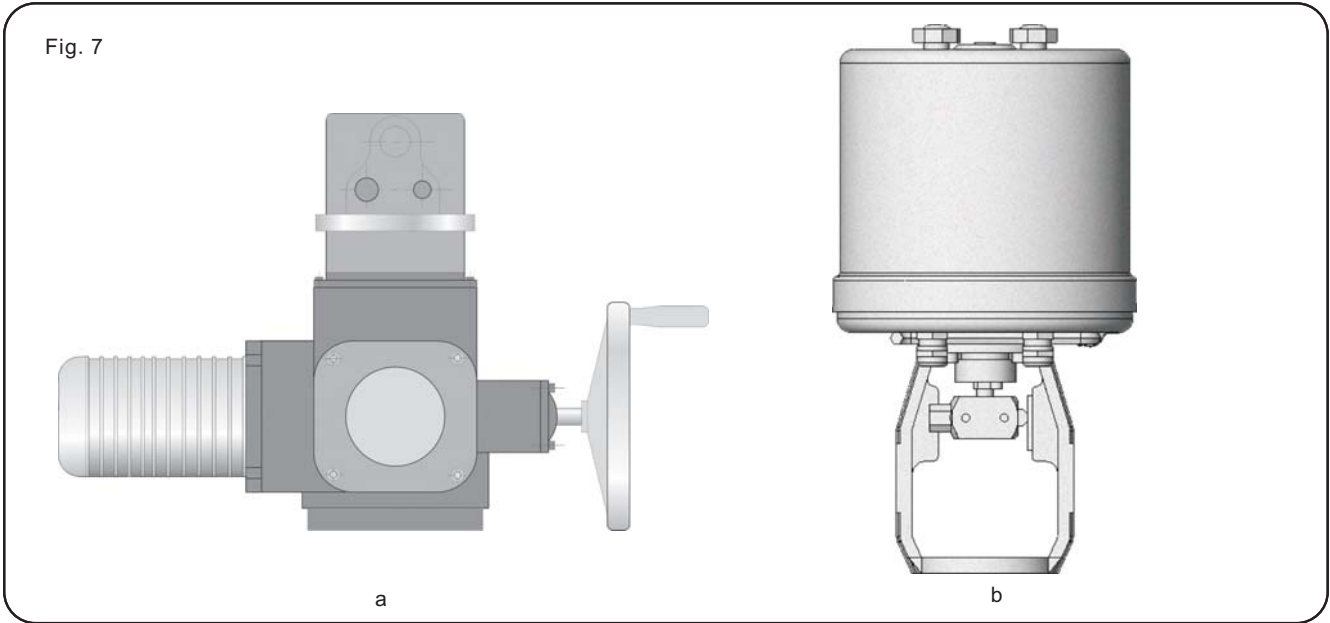
the diameter of cylinder: A(Φ)

Accessory: Position, Air filter, Speed increaser,
Air bells controlled valve, Limited switch,
Solenoid valve, Handwheel

Table.5

Actuator model and appearance	Output torque					
	Single action type			Double action type		
	H	A	Output forceN	H	A	Output forceN
R6030	175	364	130	175	472	180
R6040	215	466	206	215	568	346
R6050	255	540	300	255	640	600
R6060	315	616	604	315	770	1092
R6070	375	645	1116	375	805	2056
R6080	435	896	1607	435	1182	3140
R6090	490	990	2310	490	1314	6000

Electronic actuator



Intelligent type electric actuator (Fig. 10. a)

- ◆ The liquid crystal display(LCD),the liquid crystal screen can display the open degree of valve by digital lively, and can give an alarm according to the working condition, instructs the valve open or close by the high brightness LCD diode.
- ◆ The long-distance control, the switch signal can be controlled (optional 4~20mA current signal control), can regulate the valve position by change the input signal.
- ◆ Debugging without opening the cover
- ◆ High Intellectualization
- ◆ Aluminum alloy shell, high strength protection
- ◆ Effective and low noise
- ◆ The coupling can reset automatically
- ◆ Connection is convenient and fast
- ◆ Absolute code the position transducer

Intelligent type electric actuator is a main scene control device in automatic control system, is widely matched to ball valve, butterfly valve, plug valve and air door, etc. Used in pipeline, dumps pollutants, paper pulp, shipbuilding and so on and which is serviced for the power plant, metallurgy, petroleum, chemical industry, water conservation, machinery, light industry, fire prevention and environmental protection, it can also provides the most reasonable solution in the scope of output torque in 60NM~2500NM.

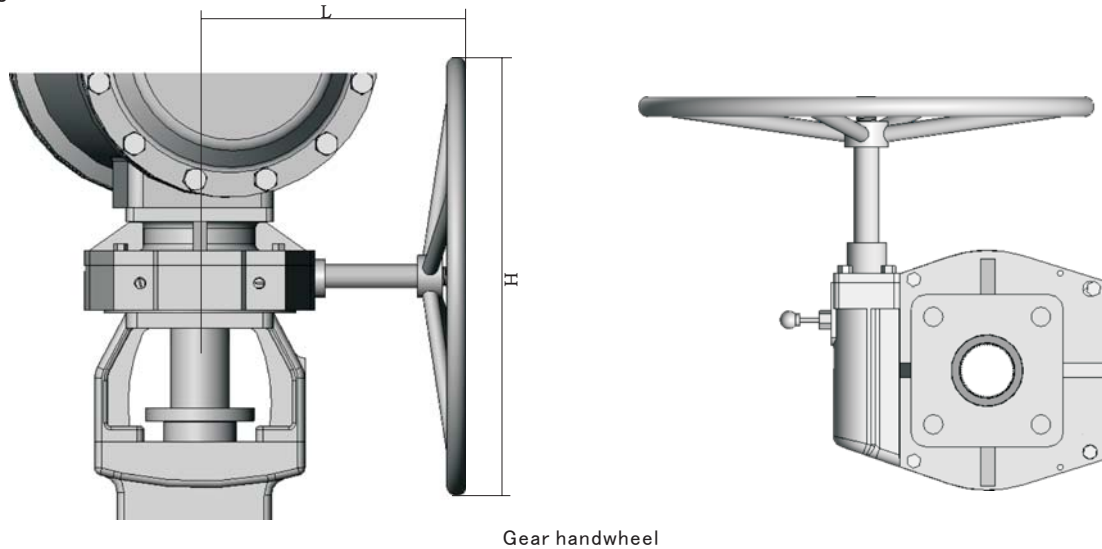
Electronic actuator (Fig. 10. b)

3810L Electric performer of straight stroke&Electric-type			Table. 6
Model specifications	Output force(N)	Operating Speed (mm/s)	MAX TRAVEL (mm)
381LSA-08	800	4.2	30
381LXA-08			
381LSA-20	2000	2.1	60
381LXA-20			
381LSB-30	3000	3.5	
381LXB-30			
381LSB-50	5000	1.7	100
381LXB-50			
381LSC-65	6500	2.8	
381LXC-65			
381LSC-99	10000	2.0	
381LXC-99			
381LSC-160	16000	1.0	
381LXC-160			
381LSC-260	26000		
381LXC-260			

Electronic actuator is divided into straight stroke and angle stroke series, GYL-71800 series control valve is matched to straight stroke electronic actuator, uses AC 220V as drive power, accepts the control single from the regulate (DC4~20mA or DC1~5V),realize scheduled to-and-for movement. This series actuator,nearly has all functions like movement transformation, valve open degree signal and the manual function, therefore is widely used in generate electricity, metallurgy, petrification, light industry and environmental protection.

GYR-71800 Valve accessory

Fig.8



◆ Handwheel

Action: Open or close the valve by handwheel

Type: Gear handwheel

◆ Position

Function: Control the valve according to input signal from regulator quickly and high accurately, and can change direct or reverse action, characteristic.

◆ Air filter

Function: adjust the air supply and filtrate pollutants.

◆ solenoid valve

Function: Open or close the valve by electrical signal provided by solenoid valve.

◆ Limited switch

Function: Transform the open or close position of control valve to electrical signal.

◆ Pneumatic accelerator

Function: Improves the control valve movement speed.

◆ keep position valve

Function: keep control valve open degree when the gas signal or air supply has the undulation.

Table.7

valve size inch (mm)	Handwheel	
	L	H(Φ)
4" (100)	225	250
6" (150)	225	250
8" (200)	225	250
10" (250)	233	300
12" (300)	233	300
14" (350)	233	300
16" (400)	277	400
18" (450)	277	400
20" (500)	277	400
24" (600)	271	400
28" (700)	277	400
32" (800)	277	400



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