

QH Series Quarter Turn Air Actuator

Features

- 1.Imported technology, applicable for ball valve, butterfly valve, etc. quarter turn valve
- 2.Applicable medium: non-corrosive neutral gas
- 3.Air source pressure: 3~8bar
- 4.Ambient temp: Normal type -20~80 °C (code: C)
High temp -20~180°C (code: G)
Low temp -40~60°C (code: D)
5. With visible valve position indicator
6. Valve body material: ASTM6005 extruded aluminum alloy
- 7.Seal material: Normal --- Butyronitrile Rubber (NBR, code: N)
Special high temp --- Fluoro Rubber (VITON, code: V)
Special low temp --- Silicon Rubber (code: G)
or Hydrogenated Nitrile Rubber (HNBR, code: h)
- 8.Control mode: QHS --- Double Acting
AHD --- Single Acting
QHD,QHS-☆--- with positioner (adjusting type)
- 9.Signal output: QHD,QHS-◆--- with valve location sensor (position limit switch, valve position signal output)



QHS Series Double Acting



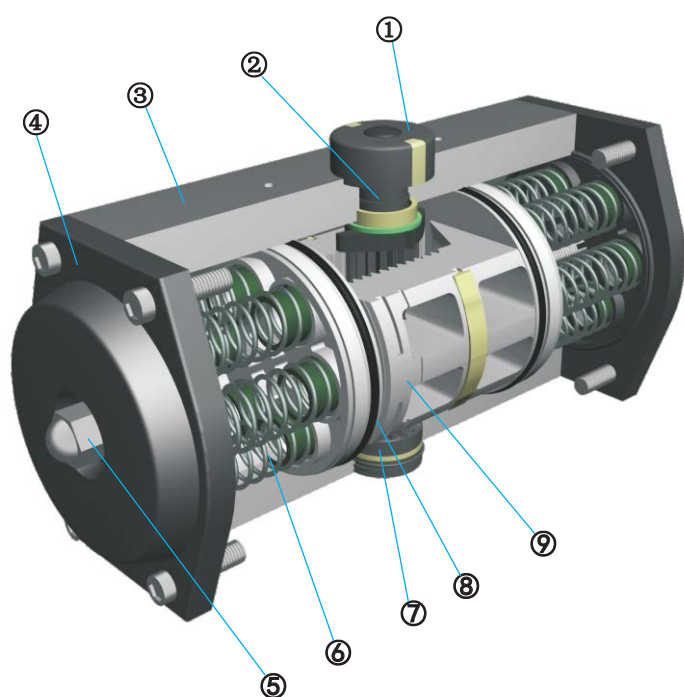
QHD Series Single Acting

Air Actuator Design Structure

Brief introduction:

QA series new air structure is the quintessence of Euro-American classic tech and modern industrial aesthetic design, embody the characteristics of design science, reliable quality, long life, etc. Widely used as the drive of 1/4 quarter turn plug valve, e.g. ball valve, butterfly valve, plug valve, etc.

1. NAMUR standard indicator is convenient for installing position switch, positioner, etc. accessory.



2. Output bearing:

Nickel alloy, high accuracy all-in-one output bearing comply with standard like NAMUR, ISO5211, DIN3337. Can custom dimension according to customers' requirement, body material stainless steel also can be customized.

3. Cylinder:

ASTM6005 extruded aluminum alloy cylinder adopts with hard anodized, epoxy resin protective coating (blue spray, orange spray, yellow spray, etc. are available). In addition, PTFE coating or nickel plating meet different requirement.

4. End cap:

Golden powder coating, PTFE coating or nickel plating is available for extruded aluminum alloy.

5. Travel modulating : [Adjust open only]

Two independent travel modulating bolts adjust open/close position in ± 5 degree

6. High performance spring:

Adopts outstanding material, coating process, prefabricated configuration, embodies corrosion resistant and longer life.

7. Bearing, Piston guide:

Adopt low friction, long life time composite material, avoid direct contact between metal and metal, make maintenance more convenient.

8. Seal:

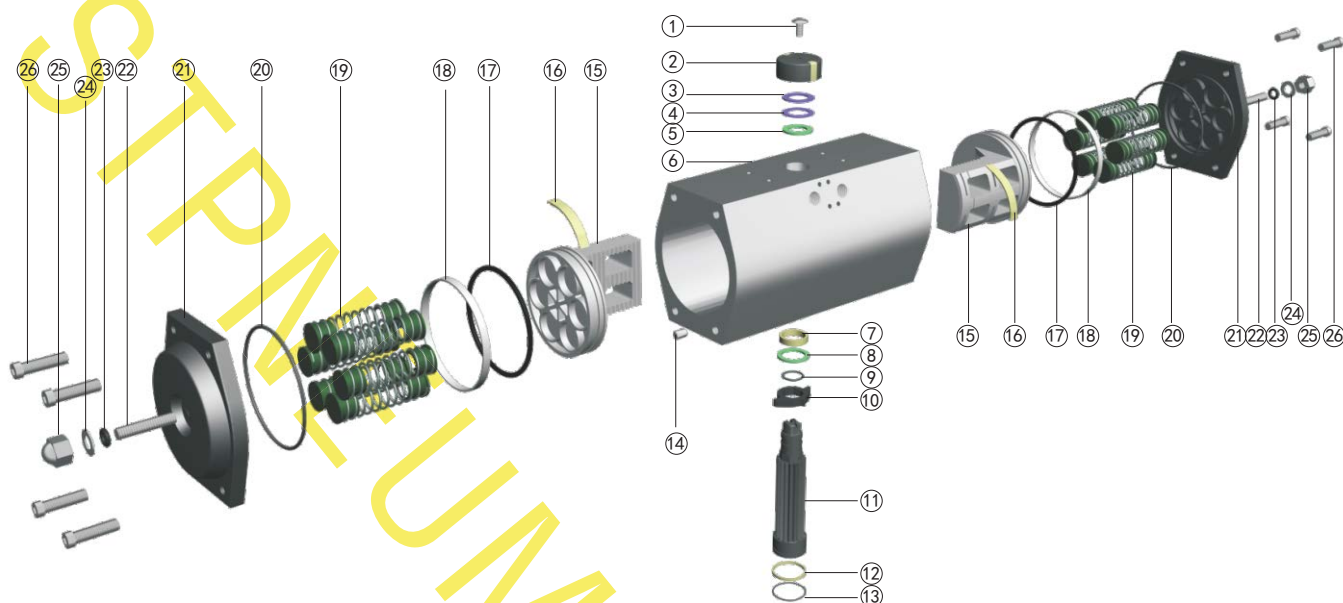
Ambient temp type adopts NBR seal, high temp type adopts fluoro rubber seal, low temp type adopts silicon rubber or Hydrogenated nitrile seal.

9. Piston :

Double Piston Pinion adopts Cast Aluminum hard anodized or nickel plated, symmetrical mounting position, quick action, long life span.

QH Series Quarter Turn Air Actuator

Exploded Diagram

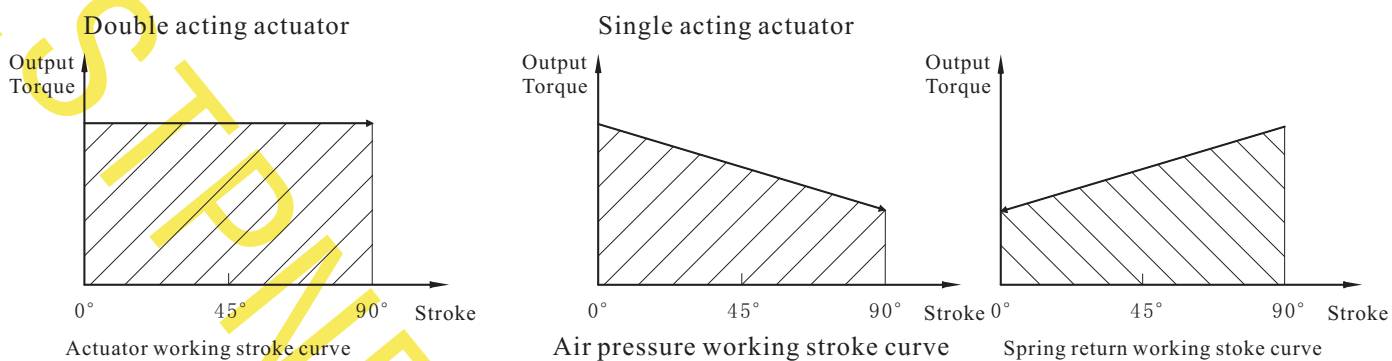


Components and Material

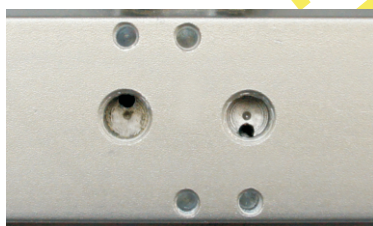
No.	Name	Quantity	Material	Corrosion resistant Process	Material selectable
1	Indicator Bolt	1	Plastic		
2	Indicator	1	Plastic		
3	Snap Spring	1	Stainless Steel		
4	Washer	1	Stainless Steel		
5	Outer Gasket	1	Engineering Plastic		
6	Cylinder	1	Cast Aluminum	Hard Anodized	
7	Upper Bearing	1	Engineering Plastic		
8	Inner Gasket	1	Engineering Plastic		
9	Upper Bearing O-Ring	1	NBR(nitrile butadiene rubber)		Fluoro/silicon rubber
10	Cam	1	Alloy Steel		
11	Pinion	1	Alloy Steel	Nickel Plated	Stainless Steel
12	Bottom Bearing	1	Engineering Plastic		
13	Bottom Bearing O-Ring	1	NBR(nitrile butadiene rubber)		Fluoro/silicon rubber
14	Plug	2	NBR(nitrile butadiene rubber)		Fluoro/silicon rubber
15	Piston	2	Cast Aluminum Cast Steel	Oxidized /Galvanized	Stainless Steel
16	Piston Rack	2	Engineering Plastic		
17	Piston O-Ring	2	NBR(nitrile butadiene rubber)		Fluoro/silicon rubber
18	Piston Bearing	2	Engineering Plastic		
19	Spring	5~12	Spring Steel	Dip Coating	
20	End Cap O-Ring	2	NBR(nitrile butadiene rubber)		Fluoro/silicon rubber
21	End Cap	2	Cast Aluminum	Powder Coating, etc.	
22	Modulating Bolt	2	Stainless Steel		
23	Modulating Screw O-Ring	2	NBR(nitrile butadiene rubber)		Fluoro/silicon rubber
24	End cap Flat Gasket	2	Stainless Steel		
25	Hex Nut	2	Stainless Steel		
26	Hex Bolt	2	Stainless Steel		

QH Series Quarter Turn Air Actuator

Torque Diagram



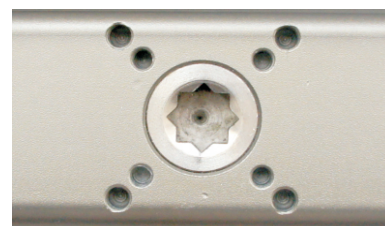
Connections and Standards



Side connection dimension in compliance with VDI/VED3845 standard, plate pattern solenoid valve mountable.
QH-40~90 needs adaptor board.
QH-90 above can be mounted directly.

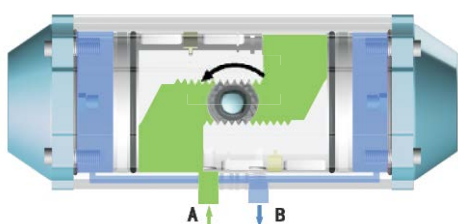


Top connection dimension in compliance with VDI/VDE3845NAMUR standard, limit switch box and positioner, etc. accessories mountable.

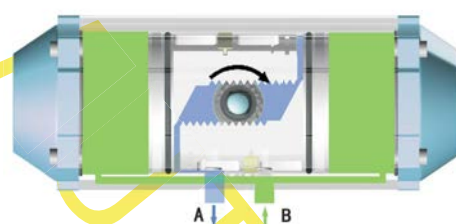


Bottom connection dimension in compliance with ISO5211 and DIN3337 standard, can connect with valve directly.

QHS Double Acting Actuator Working Diagram

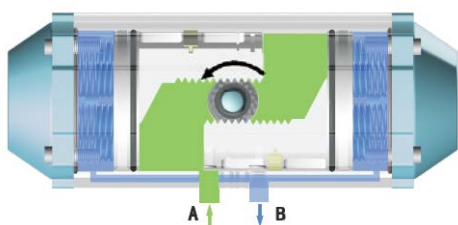


Air Drive inputs from port A, pinion counterclockwise rotates, valve is open.

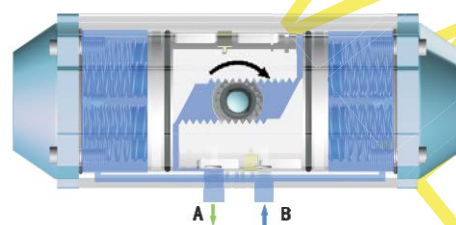


Air Drive inputs from port B, pinion clockwise rotates, valve is closed.

QHD Single Acting Actuator Working Diagram



Air Drive inputs from port A, pinion counterclockwise rotates, valve open.



Stop air supply, air discharges from port A, spring return drive pinion clockwise rotates, valve closed.

QH Series Quarter Turn Air Actuator

QHD Single Acting Actuator output torque
(Torque in shadow is standard selection for preferred)

Unit:N·m

Model	Stoke Degree Sp. Torque Qnty	Aire Source Pressure						Return Spring	
		3bar		4bar		5bar			
		0° Start	90° Stop	0° Start	90° Stop	0° Start	90° Stop	0° Start	90° Stop
QHD-52	10			9.7	0.8	13.9	5.2	15.8	6.9
	12					12.2	1.9	18.9	8.2
QHD-63	10			14.2	1.3	20.3	7.4	23.1	10.2
	12					18.1	2.7	27.8	12.4
QHD-75	10			28.8	7.5	40.5	15.8	34.6	22.1
	12					36.1	12.4	41.5	26.5
QHD-83	10			33.8	8.6	48.6	23.4	50.6	25.4
	12					44.1	13.8	60.2	29.9
QHD-90	10			45.7	12.3	64.5	49.7	44.4	29.6
	12					58.6	40.8	53.3	35.5
QHD-110	10			89.7	13.5	126.2	50.2	136	60.1
	12					114.2	18.2	168	72.5
QHD-127	10			139.9	31.7	199.4	91.2	206	98.1
	12					182.5	52.5	245	115
QHD-160	10			299	86	418	205	386	173
	12			266	72	385	126	465	206
QHD-190	10	362	59	584	281	806	503	608	305
	12			529	168	751	390	721	360
QHD-210	10	368	147	612	391	857	636	686	365
	12	301	29	545	273	790	518	704	432
QHD-255	10	732	171	1271	713	1813	1253	1449	889
	12			1095	423	1635	963	1739	1067
QHD-300	10	1093	53	1926	886	2756	1716	2440	1400
	12			1646	397	2476	1227	2929	1680
QHD-350	10			3057	1232	4377	2552	4048	2223
	12			2612	422	3932	1742	4858	2668

Note: The QNTY of springs in the table above are total numbers of both sides, normal configure 10 pcs. Under normal operating conditions, air source pressure is 5bar, safety coefficient of single acting actuator is between 1.3~1.5.
e.g. valve torque = 80N.m, safe torque = 80x1.3=104N.m, air source pressure = 5bar, refer to single acting torque table, we could figure out the torque of QHD-125-10: air stroke 0°=418N·m, air stroke 90°=205N·m, spring stoke 0°=386N·m, spring stroke 90°=173N·m, all output torque are large enough to meet our requirement, so the smallest and most suitable actuator model is QHD-160-10.

QHS Double Acting Actuator output torque
[Torque in shadow is standard selection for preferred]

Unit: N · m

Model	Air Source Pressure						
	2bar	3bar	4bar	5bar	6bar	7bar	8bar
QHS-40	3.9	5.8	7.7	9.6	11.5	13.3	15.2
QHS-52	8.32	12.48	16.64	20.8	24.96	29.1	33.2
QHS-63	12.2	18.3	24.4	30.5	36.3	42.8	48.9
QHS-75	24.1	35.1	46.5	58.2	70.1	81.9	93.1
QHS-83	29.6	44.4	59.2	74	88.8	103.6	118.4
QHS-90	37.6	56.5	75.3	94.1	112	131	150
QHS-110	74.5	111.7	149	186.2	223.5	260.5	298
QHS-127	119	178.5	238	297.9	357	416.5	476.5
QHS-160	236	354.6	472	591	709	827	945
QHS-190	444	667	889	1111	1334	1556	1778
QHS-210	488	733	977	1222	1466	1710	1955
QHS-255	1081	1621	2162	2702	3243	3783	4324
QHS-300	1662	2493	3326	4156	4987	5818	6650
QHS-350	2640	3960	5280	6600	7620	9240	10560

Note: Under normal operating conditions, air source pressure is 5bar, the safety coefficient of double acting actuator is between 1.2~1.3.

e.g. Valve torque = 100N.m, safe torque =100x1.3=130N.m, air pressure = 5bar, refer to the table above to select double acting actuator, the proper model is QAS-110.

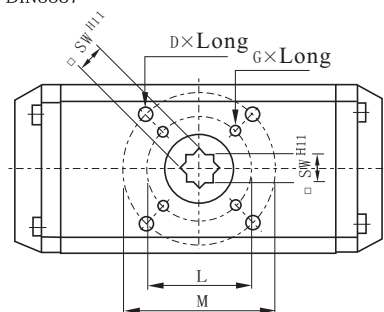
QH Series Quarter Turn Air Actuator

QH Series Actuator Volume/Weight/Open & Close Time

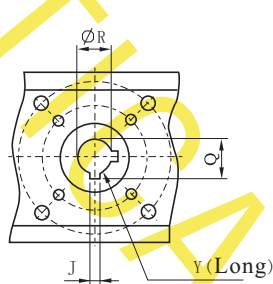
Double Acting	Volume(L)	Weight(KG)	Single Acting	Volume(L)	Weight(KG)	Open/Close(S)
QHS-40	0.13	0.69	QHD-40	0.07	1.2	≤0.5
QHS-52	0.23	0.90	QHD-52	0.12	1.6	≤0.5
QHS-63	0.44	1.51	QHD-63	0.22	2.3	≤0.5
QHS-75	0.68	2.45	QHD-75	0.35	3.2	≤0.5
QHS-83	0.88	2.61	QHD-83	0.41	4.1	≤1.5
QHS-90	1.11	4.50	QHD-90	0.51	8.1	≤1.5
QHS-110	1.98	6.11	QHD-110	0.92	9.3	≤2.0
QHS-127	3.13	9.20	QHD-127	1.51	13.9	≤2.5
QHS-160	6.20	16.7	QHD-160	3.10	24.8	≤4.0
QHS-190	11.8	27.1	QHD-190	5.70	40.8	≤5.0
QHS-210	16.5	32.2	QHD-210	8.10	46.9	≤7.0
QHS-255	31.3	69.3	QHD-255	15.4	102.6	≤10
QHS-300	43.9	98.9	QHD-300	21.5	145.3	≤10
QHS-350	65.4	148.1	QHD-350	31.9	216.6	≤10

Dimension and Connections

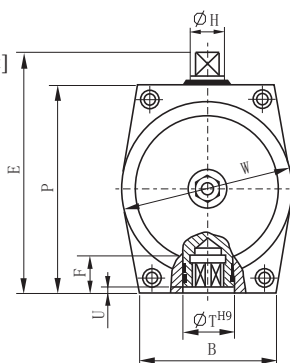
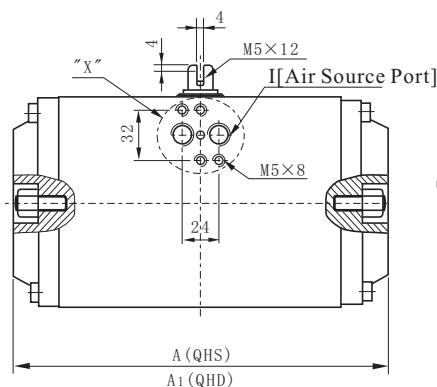
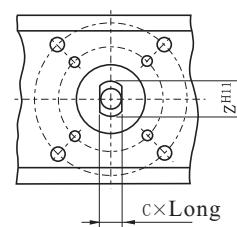
ISO5211
DIN3337 Standard 1



Option 2
Standard 2



Option 3
Standard 3



Connection board suitable for QHS/QHD-40~90

Details of "X"	
Adaptor Board (NAMUR standard)	No Adaptor Board
Suitable for QHD/QHS-90 and under	Suitable for QHD/QHS-110 and above
14 (Board Thickness)	22
40	48
60	M5×8

Note: 1. QHD/QHS-90 and under models, plate pattern solenoid valve needs adaptor board, QHD/QHS-110 and above models can be mounted directly.
2. Output bearing normally made in standard 1, also can custom standard 2 and standard 3.

QH Series Quarter Turn Air Actuator

Dimension and Connection Data Table

Unit: mm

Model	A	A1	B	C×Long	D×Long	E	F	G×Long	∅H	J	K	L
QHS/QHD-40	104	104	45	8×12	M6×10	82	14	—	12	—	80	—
QHS/QHD-52	130	130	50	8×12	M6×10	94	15	M5×8	12	3	80	F03/ ∅36
QHS/QHD-63	140	140	60	10×15	M8×12	108	15	M6×10	12	3	80	F05/ ∅50
QHS/QHD-75	186	186	60	10×16	M8×12	119	15	M6×10	18	5	80	F05/ ∅50
QHS/QHD-83	186	186	65	10×16	M8×12	128	17	M6×10	18	5	80	F05/ ∅50
QHS/QHD-90	210	246	74	10×16	M8×12	14	18	M6×10	18	5	80	F05/ ∅50
QHS/QHD-110	254	254	90	14×22	M10×16	160	25	M8×12	25	5	80	F07/ ∅70
QHS/QHD-127	296	296	103	20×24	M10×16	180	25	M8×12	30	5	80	F07/ ∅70
QHS/QHD-160	384	384	118	28×30	M12×20	228	30	M10×16	45	8	130	F10/ ∅102
QHS/QHD-190	501	501	128	28×30	M16×24	257	34	M10×16	50	8	130	F10/ ∅102
QHS/QHD-210	533	533	135	32×34	M16×24	285	34	—	45	8	130	—
QHS/QHD-255	589	722	159	40×40	M20×24	332	52	M20×24	65	10	130	F16/ ∅165
QHS/QHD-300	638	793	196	40×40	M20×28	380	52	—	75	12	150	—
QHS/QHD-350	721	931	220	50×50	M20×28	438	72	—	90	12	150	—

Model	M	I	P	Q	∅R	□ S×S	□ SW	∅T	U	V	W	Y (Long)	Z
QHS/QHD-40	F04/ ∅42	G1/8"	62	—	—	9×9	11×11	20	1	30	50	—	12
QHS/QHD-52	F05/ ∅50	G1/8"	74	14.2	∅12.7	10×10	11×11	24	1	30	59	32	12
QHS/QHD-63	F07/ ∅70	G1/8"	88	14.2	∅12.7	10×10	14×14	24	1	30	70	32	16
QHS/QHD-75	F07/ ∅70	G1/8"	99	14.2	∅12.7	10×10	14×14	24	1	30	70	32	16
QHS/QHD-83	F07/ ∅70	G1/8"	108	18.4	∅15.9	13×13	17×17	32	1	30	91	32	16
QHS/QHD-90	F07/ ∅70	G1/8"	108	18.4	∅15.9	13×13	17×17	38	1	30	101	32	16
QHS/QHD-110	F10/ ∅102	G1/4"	140	21.6	∅19.1	16×16	22×22	47	1	30	120	45	22
QHS/QHD-127	F10/ ∅102	G1/4"	160	24.8	∅22.3	19×19	22×22	53	1	30	137	45	30
QHS/QHD-160	F12/ ∅125	G1/4"	198	32.1	∅28.6	28×28	27×27	66	2	30	173	45	42
QHS/QHD-190	F12/ ∅125	G1/4"	227	32.1	∅28.6	28×28	36×36	89	2	30	208	45	42
QHS/QHD-210	F14/ ∅140	G1/4"	255	35.3	∅31.8	28×28	36×36	89	2	30	224	45	48
QHS/QHD-255	200×120	G3/8"	302	37.4	∅33.4	28×28	46×46	119	2	30	274	50	60
QHS/QHD-300	200×140	G1/2"	350	45.3	∅41.3	28×28	46×46	135	2	30	322	65	80
QHS/QHD-350	260×160	G1/2"	408	50.8	∅50.8	28×28	60×60	156	2	30	378	70	100

Actuator Data Table

Model	Soft Seal Ball Valve Diameter	Soft Seal Butterfly Valve Diameter	Model	Soft Seal Ball Valve Diameter	Soft Seal Butterfly Valve Diameter
QHS-52	DN10~15	DN40	QHD-52	—	—
QHS-63	DN20~25	DN50~65	QHD-63	DN10~15	—
QHS-75	DN32	DN80	QHD-75	DN20	DN40~50
QHS-83	DN40~50	DN80~100	QHD-83	DN25~32	DN50~65
QHS-90	DN50	DN125	QHD-90	DN40	DN80
QHS-110	DN65~80	DN125~150	QHD-110	DN40~50	DN80~100
QHS-127	DN100	DN200	QHD-127	DN65~80	DN125~150
QHS-160	DN125	DN250	QHD-160	DN100	DN200
QHS-190	DN150	DN300~350	QHD-190	DN125	DN250
QHS-210	DN200	DN350~400	QHD-210	DN150	DN300~350
QHS-255	DN250	DN450	QHD-255	DN200	DN400~450

Note:1. The configuration above in the table is for PN16bar valve and air supply pressure 5bar, for PN25bar actuator should be configured with one class larger size, for PN40bar, two class larger size and son forth.

2.Configuration of three way L type is the same as two way, three way T type is configured as one class larger size.

3. PPL seal, hard seal, F46 lining, PN25bar should be configured with one class larger size, if PN25bar with PPL seal, it should be two class larger size.

4.The configuration above is just for reference, for concrete and accurate configuration, please subject to the configuration principle.

5.QH-40~90 needs adaptor board, QH-90 and above can be mounted directly.