

# Angle Seat Control Valve 7020

## with integrated positioner

### 1/4" up to 3"



Type 7020  
with digital positioner Type 8049

Control valve with integrated digital positioner for the control of neutral through to aggressive media in process engineering, chemical industry and for plant equipment.



- Space saving design and low weight
- No steady-state air consumption
- Operation independent of mounting position and supply pressure variations
- Not sensitive to vibration
- Instrument grade air not essential
- Software configurable flow characteristics
- Protection Class IP65
- For temperatures from -148°F up to +428°F

Type 7020  
with i/p-positioner Type 8047

Pneumatically operated control valves for neutral through highly aggressive media. Ideal for steam, gas and liquids.



- Integrated positioner
- Compact design
- All wetted parts made from stainless steel
- Temperatures up to 392°F
- Wide range of Cv's
- For temperatures from -148°F up to +428°F

### Technical Information

Body material	Stainless steel CF8M	Bronze CC491K
Nominal sizes	1/4" up to 3"	1/2" up to 2"
Connections		
NPT thread	1/4" up to 3"	1/2" up to 2"
Tri Clamp	1/2" up to 3"	-
Tube ends	1/2" up to 3"	-
Socket weld	1/2" up to 3"	-
Nominal pressure	580 psi	230 psi
Fluid temperature*	-22°F up to +392°F	
Ambient temperature**	digital positioner +14°F up to +167°F analog positioner +5°F up to +140°F	
Packing leakage	tested according to TA-Luft as defined in DIN EN ISO 15848-1 and VDI 2440	

\*: Please consider further temperature versions and limits in technical bulletin 32

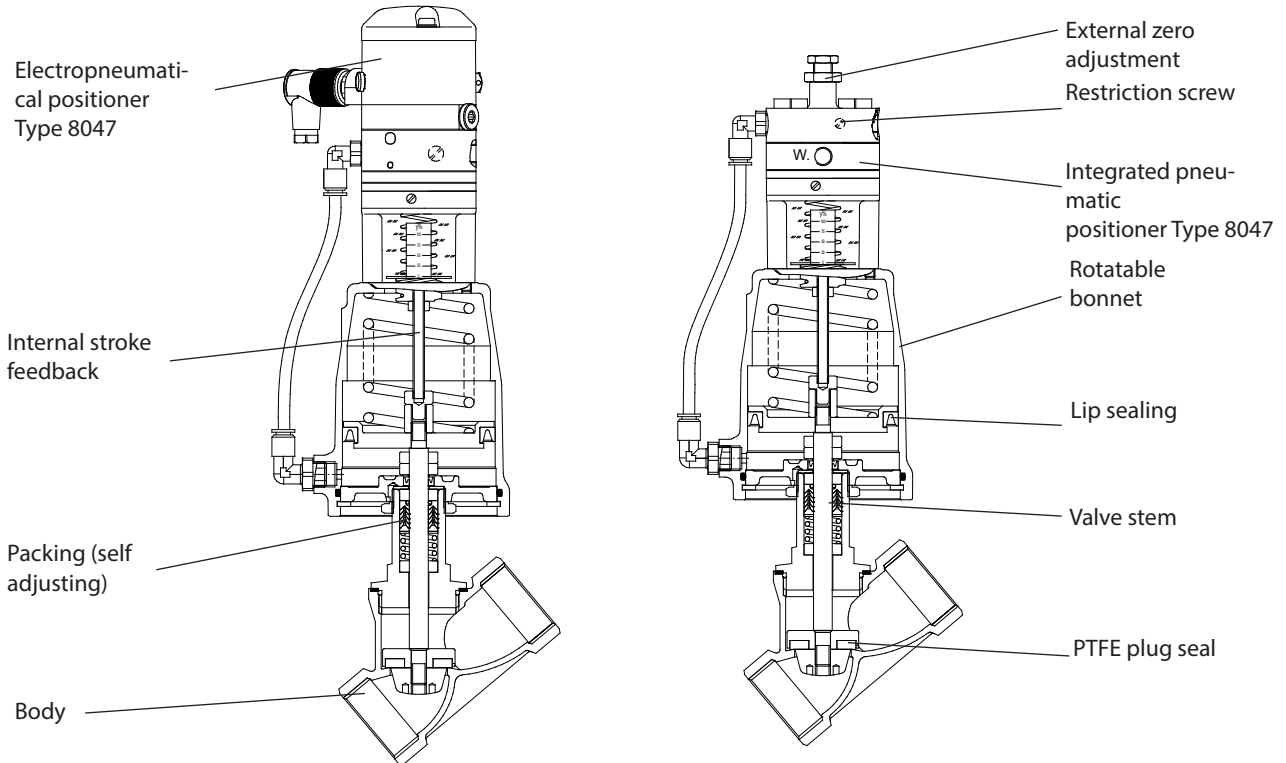
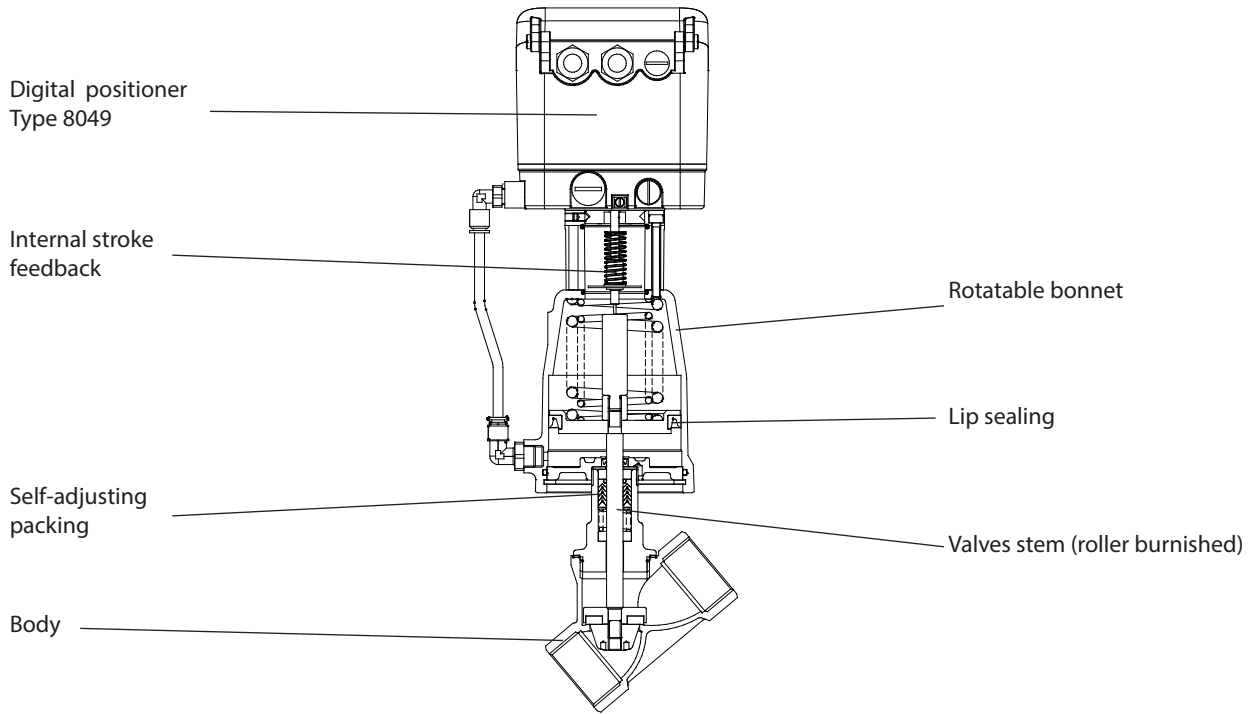
\*\*.: Please consider the limitation of use of the positioner

#### Options:

- Optical position indicator
- External I/P-converter Type 8045
- Ex -i/p- positioner (Ex) 2 G EEx ib IIC T6)

# Angle Seat Control Valve 7020

with integrated positioner standard design



# Angle Seat Control Valve 7020



with integrated positioner standard design

## Materials

Body	Stainless steel CF8M / Bronze CC491K
Seating seal	PTFE
Bonnet	Brass chrome plated (actuator Ø 2", 3") Aluminium corrosion protected (actuator Ø 5")
Diaphragm actuator	Stainless steel ASTM A313 304
Actuator springs	Stainless steel ASTM A313 302 (actuator Ø 2", 3", diaph. act.) Spring steel wire C, zinc coated (actuator Ø 5")
Packing	PTFE (carbon filled), spring ASTM A313 302
Valve stem	Stainless steel 316 Ti, roller burnished
Position indicator	PA Trogamid (clear)

## Positioner

For technical information of our positioners please refer to the corresponding data sheets.

## Admissible Pressures

### digital positioner

Size	Differential pressure 1) psi	Supply pressure range psi	Piston Ø inch	Spring configuration Number
1/4"	250	60 - 90	3"	2 *
1/2"	250	60 - 90	3"	2
3/4"	250	60 - 90	3"	2
1"	250	60 - 90	3"	1
1"	250	45 - 90	5"	2
1"	250	45 - 90	10"	4
1 1/4"	145	60 - 90	3"	1
1 1/4"	250	45 - 90	5"	2
1 1/4"	250	45 - 90	10"	4
1 1/2"	87	60 - 90	3"	1
1 1/2"	250	60 - 90	5"	3
1 1/2"	250	45 - 90	10"	6

1) Maximum 230 bar for bronze case

\* special springs

### i/p-positioner p/p-positioner

Size	Pressure 1) psi	Supply pressure Range psi	Piston Ø inch	Spring configuration Number
1/4"	250	60 - 90	3"	2 *
1/2"	250	60 - 90	3"	2
3/4"	250	60 - 90	3"	2
1"	174	60 - 90	3"	1
1"	160	40 - 90	10"	4
1 1/4"	102	60 - 90	3"	1
1 1/4"	189	45 - 90	5"	2
1 1/4"	250	40 - 90	10"	6
1 1/2"	58	60 - 90	3"	1
1 1/2"	160	60 - 90	5"	3
1 1/2"	218	50 - 90	10"	8

1) Maximum 230 bar for bronze case

\* special springs

## Diaphragm actuator direct pressure range

Size	Max. pressure NC (psi) 1)		Max. pressure NO (psi) 1)		Supply air (psi)		Diaphragm area inch
	spring range		spring range		spring range		
	3 - 15 psi	6 - 29 psi	3 - 15 psi	6 - 29 psi	3 - 15 psi	6 - 29 psi	
1/2"	250	250	250	250	18	35	10"
3/4"	245	250	250	250	18	35	10"
1"	130	250	175	230	18	35	10"
1 1/4"	75	215	100	200	18	35	10"
1 1/2"	45	145	40	75	18	35	10"
2"	30	90	15	30	18	35	10"

1) Maximum 16 bar for bronze case

## Cv- Values

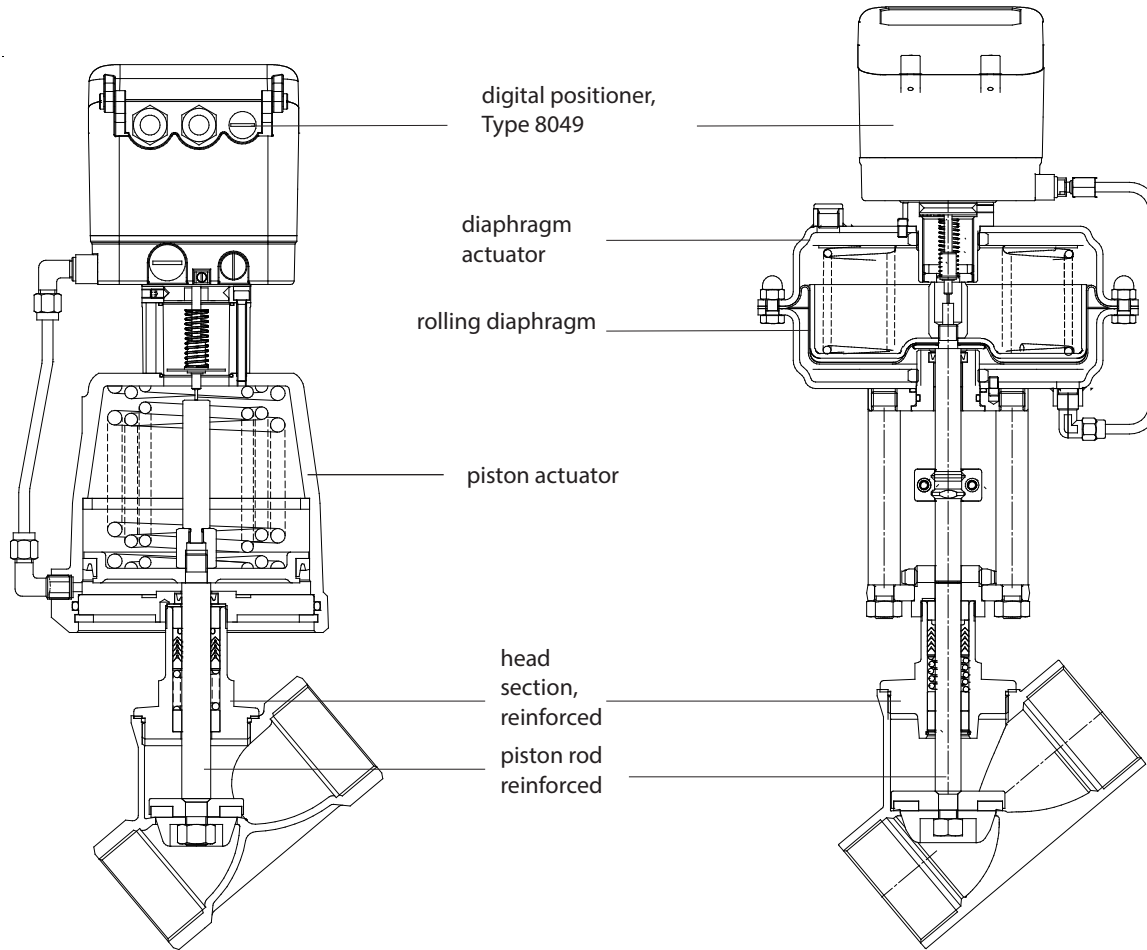
Size	linear						equal percentage					
	1/4"	1/2"	3/4"	1"	1 1/4"	1 1/2"	1/4"	1/2"	3/4"	1"	1 1/4"	1 1/2"
100%	0.7	4.4	10.2	16.2	23.2	31.3	0.7	3.5	7	11.6	18.6	29
40%	0.28	1.7	4.1	6.7	9.3	12.8	-	1.4	2.8	4.6	7	11.6
25%	0.17	1.1*	2.6	4.2	-	-	-	0.93*	1.7	3	-	-
15%	-	-	-	-	-	-	-	0.53*	-	-	-	-
10%	-	0.46*	-	-	-	-	-	-	-	-	-	-
7.5%	-	-	-	-	-	-	-	0.27*	-	-	-	-

\*Cvs-values not possible with bronze housing

# Angle Seat Control Valve 7020

with integrated positioner reinforced design

2" up to 3", 580 psi



## Admissible Pressures

### digital positioner

DN	differential pressure (psi 1)		Supply pressure range (psi)	Piston-Ø	Springs configuration (number)
	PTFE	PEEK			
2"	45	-	60 - 90	3"	1
2"	160	45	60 - 90	5"	3
2"	175	75	45 - 90	10"	6 *
2"	250	145	60 - 90	10"	8
2"	250	250	60 - 90	10"	12 *
2 1/2"	85	-	60 - 90	5"	3
2 1/2"	190	115	60 - 90	10"	12
3"	45	-	60 - 90	5"	3
3"	130	75	60 - 90	10"	12

1) Maximum 16 bar for bronze case

\* special spring configuration

### p/p- and i/p-positioner

DN	differential pressure (psi 1)	Supply pressure range (psi)	Piston-Ø	Springs configuration (number)
	PTFE			
2"	25	60 - 90	3"	1
2"	85	60 - 90	5"	3
2"	185	60 - 90	10"	10*
2"	245	60 - 90	10"	12
2 1/2"	130	60 - 90	10"	12
3"	90	60 - 90	10"	12

## Cv- Values

Size	linear			equal percentage		
	2"	2 1/2"	3"	2"	2 1/2"	3"
100%	49.9	60.3	80	39.4	51	68.4
63%	30.2	37.1	-	26.7	33.6	-

# Angle Seat Control Valve 7020



with integrated positioner pressure balanced design

2" up to 3", 580 psi; with stainless steel case

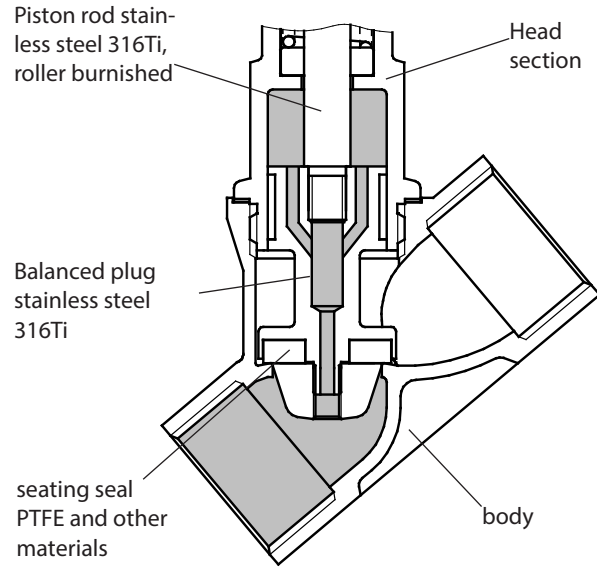
## Admissible Differential Pressures

digital positioner

Size	Pressure (PTFE)	Supply pressure range	Piston Ø	Spring configuration
	psi	psi	inch	Number
2"	250	60 - 90	5"	3
2 1/2"	250	60 - 90	5"	3
3"	250	60 - 90	5"	3

p/p- and i/p-positioner

Size	Differential pressure (PTFE)	Supply pressure range	Piston Ø	Springs
	psi	psi	inch	number
2"	250	60 - 90	5"	3
2 1/2"	250	60 - 90	5"	3
3"	250	60 - 90	5"	3

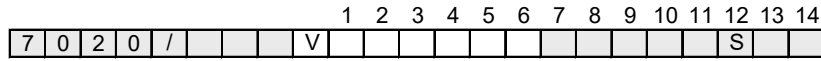


# Angle Seat Control Valve 7020

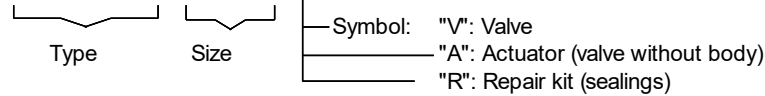


with integrated positioner

## Ordering Number System



1 - 6 : Please quote all 6 sections.  
7 - 14: Quote only if required.



1.	Body type	2.	Connection	3.	Body materials	4.	Seat material	5.	Positioner	6.	Actuator	7.	Springs
1	angle body control valve Type 7020	0	pipe thread acc. ISO 228-1	1	bronze CC491K	0	PTFE (Teflon)	6	p/p positioner, Type 8047	8	piston 3" (NPT)	-	without significance
		2	Socket welding	2	stainless steel CF8M			7	i/p positioner, Type 8047	9	piston 5" (NPT)	1	spring to open (only with digital positioner)
		5	NPT thread					8	i/p positioner with plug connection M12x1, Type 8047	D	diaphragm D 10" (NPT)	P	spring set
		Z	Tri clamp					9	i/p positioner ex-proof (II 2 G Eex ib IIC T6), plug connection M12x1, Type 8047			T	3-15 psi (D 10")
		*	others upon request					C	digital positioner, Type 8049 4 wire			W	6 springs (D 10")
								R	digital positioner Type 8049 2 wire			Y	8 springs (D 10")
								W	digital positioner Type 8049-ExPro, ATEX, IECEX				12 springs (D 10")
								K	digital positioner type 8049 ExPro-FM with base plate in stainless steel; Ta = +14°F to +167°F; IS Class I Division 1, Groups A, B, C, D; T4 Entity; Class I Zone 0 AEx ia IIC T4 Entity, IP65				
								N	digital positioner Type 8049 IO-Link version				
								Y	digital positioner type 8049 ExPro-FM with base plate in stainless steel; Ta = +14°F to +167°F; NI Class I Division 2, Groups A, B, C, D; T4 NIFW, IP65				

8.	Characteristic	9.	Packing	10.	Cv-value	11.	Accessories	12.	Special versions	13.	Seal	14.	Position indicator
-	linear	-	standard	-	full Cv-value	-	without	5	to state if some stations are quoted!	-	standard	-	standard
1	equal percentage	2	packing underneath (vacuum)	1	red. to 40%								
				2	red. to 25%								
				3	red. to 15%								
				4	red. to 7,5%								
				5	red. to 22,5%								
				6	red. to 10%								

Ordering Example: 7020/020V152067-1---S-0  
Angle Seat Control Valve, nominal size 3/4", NPT-thread, stainless steel, PTFE seat material, N.C., with pneumatic positioner, piston Ø 2" with NPT connection, equal percentage characteristic 100 %, with position indicator

reinforced design (from 2"):

Ordering Example: 7020/050V1520CD-----S-----K  
Angle Seat Control Valve, nominal size 2", NPT thread, stainless steel, PTFE seat material, N.C., digital positioner Typ 8049, 4-wire, with position indicator, piston Ø 10" with NPT connection, linear characteristic, Cv-value = 49,9, reinforced design

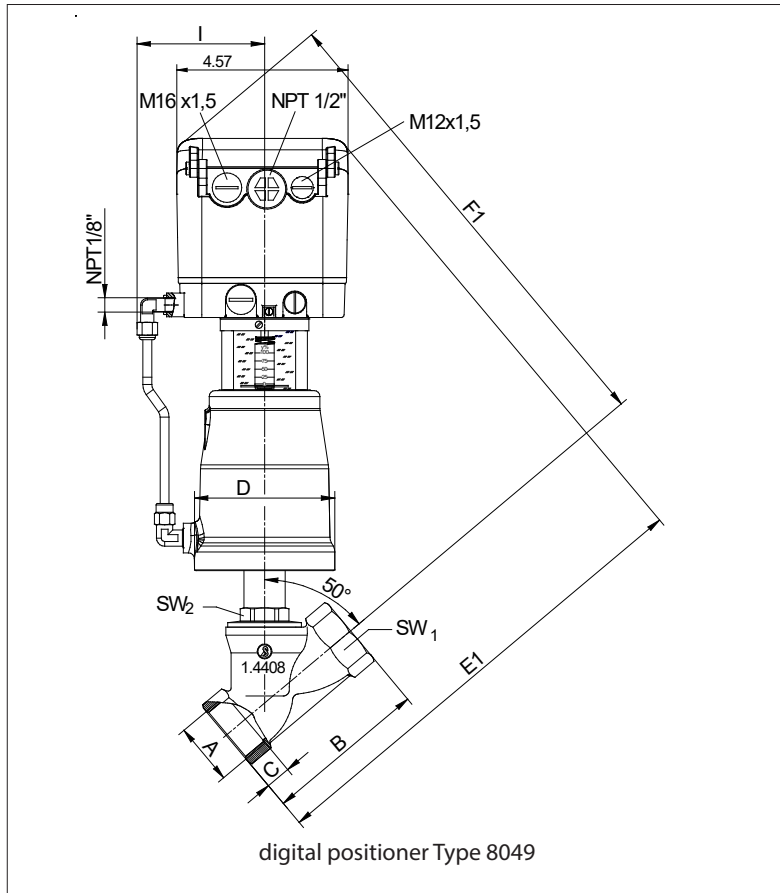
„K“ reinforced design

# Angle Seat Control Valve 7020



with integrated positioner piston actuator

## Dimensions and Weights



Size	Actuator	A G/NPT	B	C	D	E	F	I	SW1	SW2	Weight (lbs)
3/8"	3"	3/8"	2.36	0.47	3.78	11.3	11.97	3.15	0.79	1.18	9.2
1/2"	3"	1/2"	2.56	0.47	3.78	12.17	11.85	3.15	0.98	1.18	9.7
3/4"	3"	3/4"	2.95	0.51	3.78	12.36	12.05	3.15	1.22	1.18	9.9
1"	3"	1"	3.54	0.59	3.78	12.76	12.24	3.15	1.54	1.18	10.3
1 1/4"	3"	1 1/4"	4.33	0.67	3.78	13.35	12.83	3.15	1.89	1.18	11
1 1/4"	5"	1 1/4"	4.33	0.67	5.75	14.53	14.02	4.13	1.89	1.18	16.7
1 1/2"	3"	1 1/2"	4.72	0.75	3.78	13.54	13.03	3.15	2.17	1.18	11.7
1 1/2"	5"	1 1/2"	4.72	0.75	5.75	14.72	14.21	4.13	2.17	1.18	17.4

reinforced design:

2"	3"	2"	5.91	1.01	3.78	13.78	13.78	3.15	2.68	1.26	13
2"	5"	2"	5.91	1.01	5.75	14.37	14.37	4.13	2.68	1.26	18.7
2 1/2"	5"	2 1/2"	7.09	1.18	5.75	15.16	14.96	4.13	3.35	1.42	19.6
3"	5"	3"	8.43	1.32	5.75	17.13	14.96	4.13	3.94	1.61	25.1

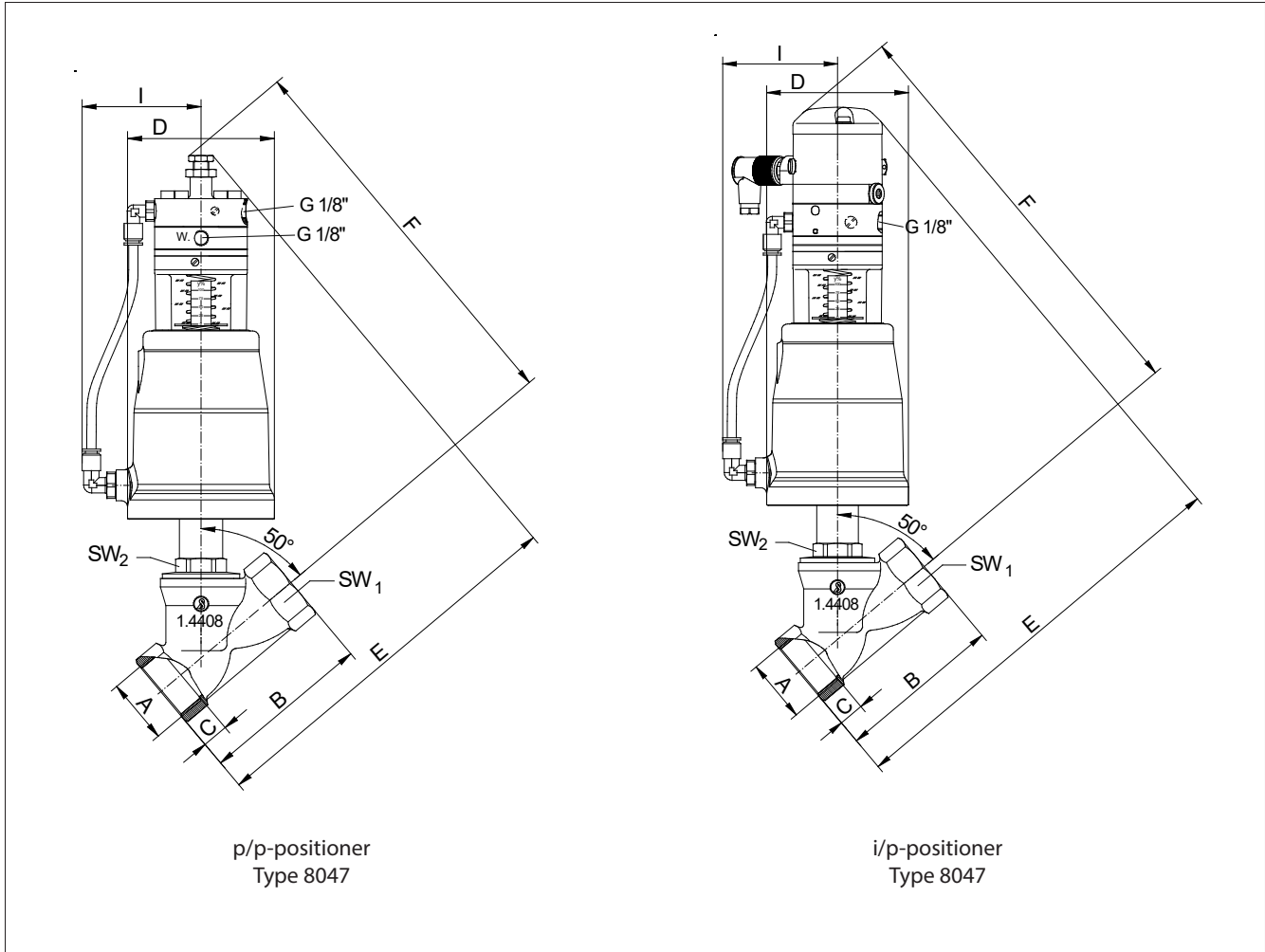
Dimensions in inch

# Angle Seat Control Valve 7020



with integrated positioner piston actuator

## Dimensions and Weights



Size	Actuator	A G/NPT	B	C	D	E		F		I	SW1	SW2	Weight (lbs)	
						Positioner		Positioner					p/p	i/p
						p/p	i/p	p/p	i/p					
1/4"	3"	1/4"	2.36	0.47	3.78	8.66	9.84	9.06	10.24	3.15	0.79	1.18	8	9
1/2"	3"	1/2"	2.56	0.59	3.78	8.66	9.84	9.06	10.24	3.15	0.98	1.18	8	9
3/4"	3"	3/4"	2.95	0.64	3.78	8.86	10.04	9.25	10.43	3.15	1.22	1.18	8.5	9
1"	3"	1"	3.54	0.75	3.78	9.25	10.43	9.45	10.63	3.15	1.54	1.18	9	9.5
1 1/4"	3"	1 1/4"	4.33	0.84	3.78	9.84	11.02	10.04	11.22	3.15	1.89	1.18	9.5	10
1 1/4"	5"	1 1/4"	4.33	0.84	5.75	10.43	11.61	10.83	12.01	4.13	1.89	1.18	15	16
1 1/2"	3"	1 1/2"	4.72	0.84	3.78	10.04	11.22	10.24	11.42	3.15	2.17	1.18	10	11
1 1/2"	5"	1 1/2"	4.72	0.84	5.75	10.63	11.81	11.02	12.2	4.13	2.17	1.18	16	16.5

reinforced design:

2"	3"	2"	5.91	0.83	3.78	10.83	12.01	10.63	11.81	3.15	2.68	1.26	11.5	12
2"	5"	2"	5.91	1.01	5.75	11.22	12.4	11.22	12.4	4.13	2.68	1.26	17	18

Dimensions in inch

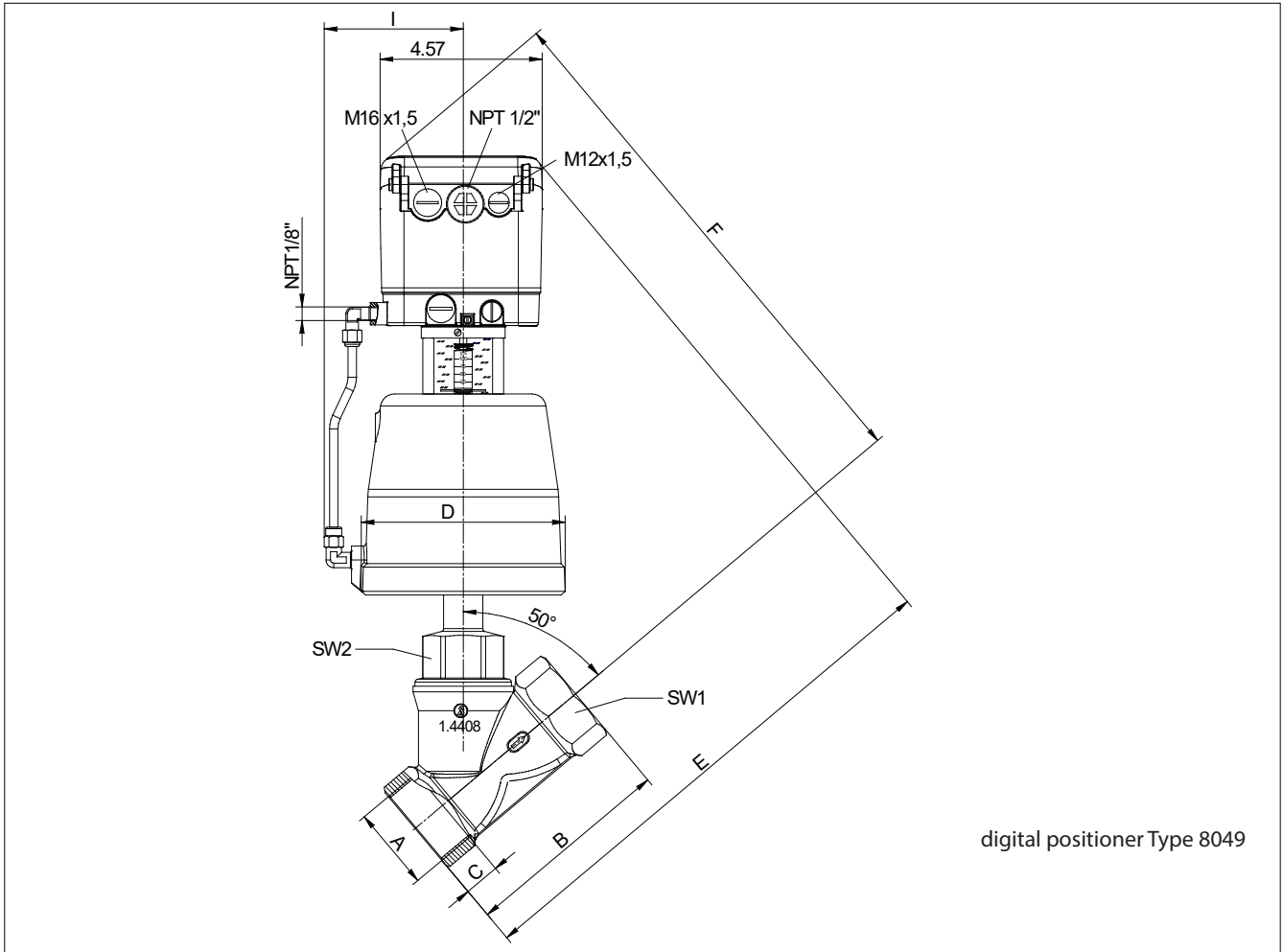


# Angle Seat Control Valve 7020



with integrated positioner pressure balanced design

## Dimensions and Weights



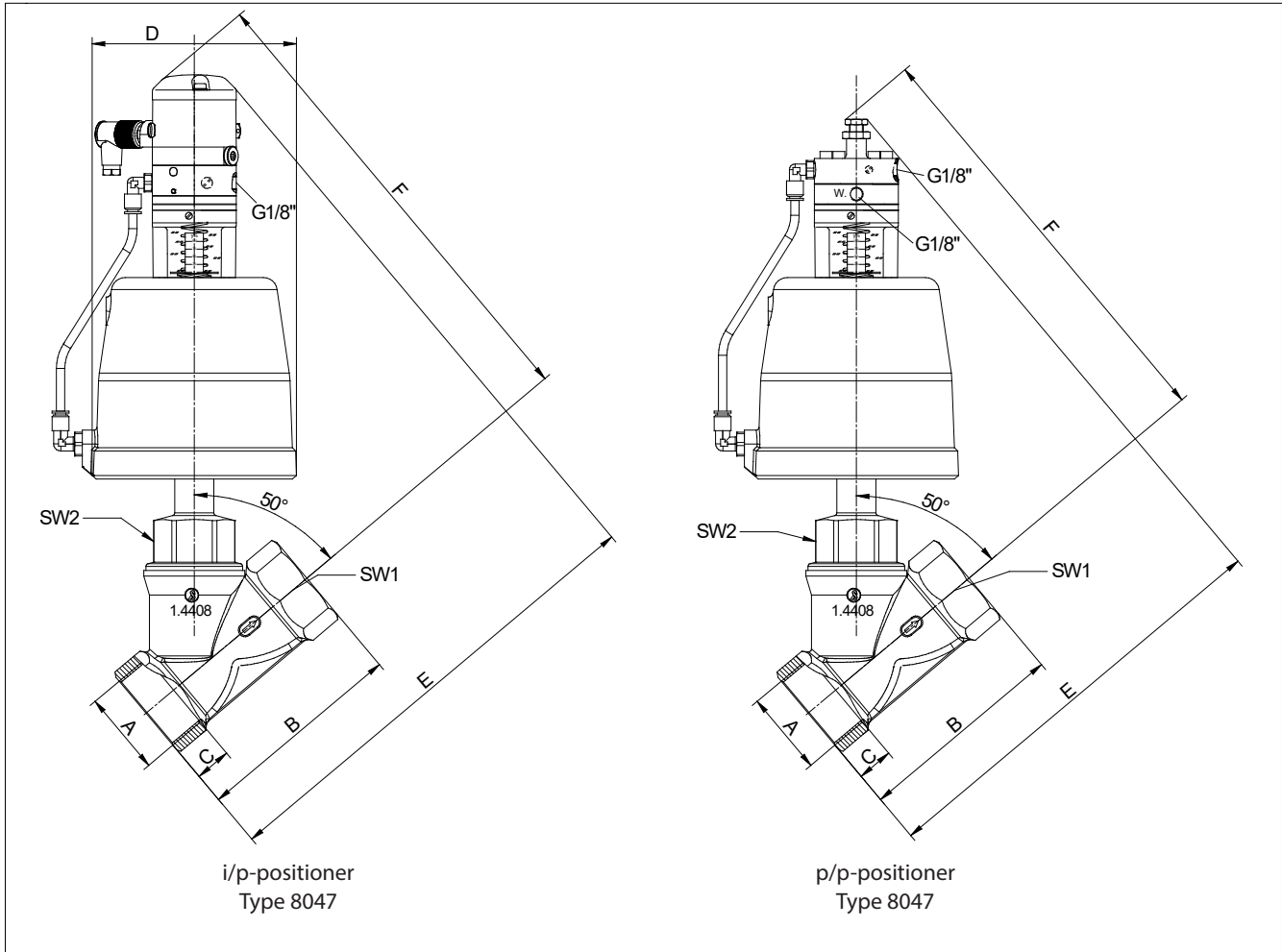
Size	Actuator	A	B	C	D	E	F	I	SW1	SW2	Weight (lbs)
		G/NPT									
2"	5"	2"	5.91	1.01	5.75	14.76	15	4.13	2.68	2.05	14.5
2 1/2"	5"	2 1/2"	7.09	1.19	5.75	15.75	15.75	4.13	3.35	1.42	19.4
3"	5"	3"	8.43	1.31	5.75	18.31	17.13	4.13	3.94	1.81	28.2

# Angle Seat Control Valve 7020



with integrated positioner pressure balanced design

## Dimensions and Weights



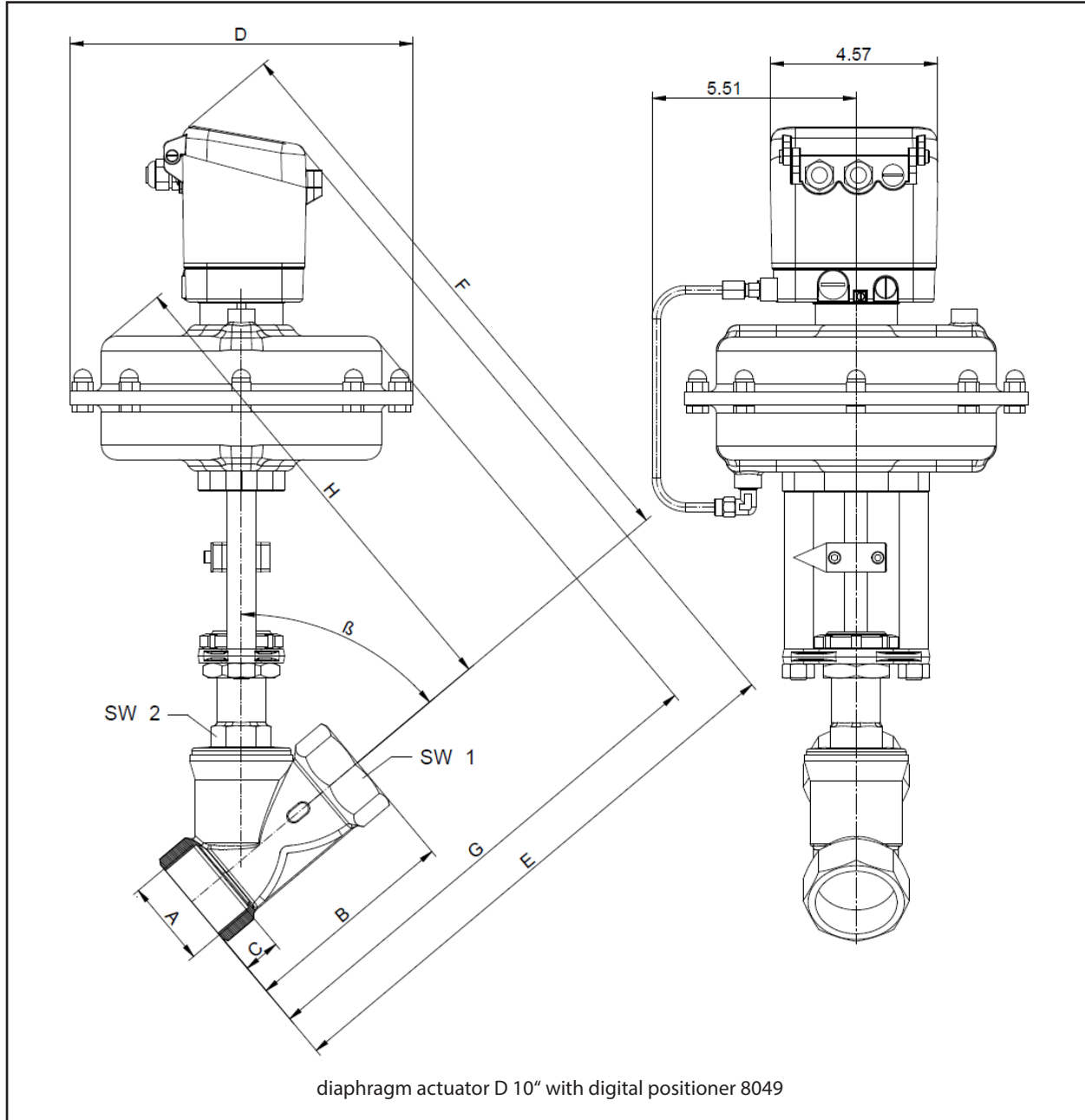
Size	Actuator	A G/NPT	B	C	D	E		F		I	SW1	SW2	Weight (lbs)	
						Positioner		Positioner					p/p	i/p
						p/p	i/p	p/p	i/p					
2"	5"	2"	5.91	1.01	5.75	12.01	13.23	12.13	13.39	4.13	2.68	2.05	13	13.5
2 1/2"	5"	2 1/2"	7.09	1.19	5.75	12.87	14.06	12.68	13.94	4.13	3.35	1.42	18	18.5
3"	5"	3"	8.43	1.31	5.75	15.87	17.13	13.66	14.88	4.13	3.94	1.81	26.5	27.5

# Angle Seat Control Valve 7020



with integrated positioner diaphragm actuator

## Dimensions and Weights



Size	A	B	C	D	E	F	G	H	SW1	SW2	Angle $\beta$	Weight lbs
1/2"	G 1/2"	2.56	0.59	9.37	13.39	13.78	11.22	11.02	0.98	1.18	50°	34.5
3/4"	G 3/4"	2.95	0.64	9.37	13.78	14.17	11.61	11.42	1.22	1.18	50°	34.5
1"	G 1"	3.54	0.75	9.37	14.17	14.57	12.01	11.81	1.54	1.18	50°	35
1 1/4"	G 1 1/4"	4.33	0.84	9.37	14.57	15.16	12.4	12.2	1.89	1.18	50°	35
1 1/2"	G 1 1/2"	4.72	0.84	9.37	14.96	15.55	12.8	12.6	2.17	1.18	50°	35.5
2"	G 2"	5.91	1.01	9.37	16.14	16.14	13.78	13.19	2.68	1.42	50°	36.5
2 1/2"	G 2 1/2"	7.09	1.19	9.37	16.73	16.54	14.57	13.78	3.35	1.42	50°	37
3"	G 3"	8.43	1.32	9.37	18.7	16.14	16.14	13.98	3.94	1.61	45°	42.5

Dimensions in inch