

# rotork<sup>®</sup>

Keeping the World Flowing

## Poppet Valves

1750 Series



**MIDLAND-ACS**  
A rotork<sup>®</sup> Brand

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We strive always for technical excellence, innovation and the highest quality standards in everything we do. As a result, our people and products remain at the forefront of flow control technology.

Uncompromising reliability is a feature of our entire product range, from our flagship electric actuator range through to our pneumatic, hydraulic and electro-hydraulic actuators, as well as instruments, gearboxes and valve accessories.

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**Rotork. Keeping the world flowing.**



## Introduction

A range of 3/2 pilot operated poppet valves in stainless steel 316L for use on gases. Specifically designed for harsh environments, designed for actuator control.

Rotork Midlands' 1750 series is available in 1/4" to 3" NPT port sizes. 316L construction makes this valve range ideal for severe service / hazardous environments.

3/2 function for cylinder or actuator control incorporating:

- Low power consumption
- Low temperature options
- High flow rates
- Relevant industry approvals including SIL
- Sweet (natural) and sour gases as well as low pressure hydraulic, mineral or water
- Hazardous protection concepts



## 1750 Series Poppet Valve – Pilot operated

A range of 3/2 pilot operated poppet valves in stainless steel 316L for use on gases.

### Features and Benefits

- Specifically designed for severe environments
- 316L stainless steel construction
- Designed for actuator control
- Large flow paths (up to 110 Cv)
- NACE capability option available

### Media & Ambient Temperature Range

- 1/4" to 1 1/2" -20 to +180 °C (-4 to +356 °F)
- 2 & 3" -20 to + 80 °C (-4 to +176 °F)
- Low temperature version (all sizes up to and including 2") -50 to +80 °C (-58 to +176 °F)

Note: When product is ordered as /ATEX ambient temperature is limited to +40 °C (104 °F) Ex II2Gc T6.

### Working Pressure

- Up to 12 bar (174 psi) maximum inlet pressure
- Minimum pilot pressure valve size dependent.

### Ports NPT (BSP option available)

- 1/4" to 3" NPT
- Pilot ports 1/8" or 1/4" (valve size dependent)



### Operating Media

- Gases – filtered lubricated or non lubricated air, inert gas, sweet (natural) and sour gases
- Liquids – low pressure hydraulic, mineral oil or water (please consult factory)

NOTE: To prevent freezing of the condensate within the product, the media dew point must be at least 10 °C below the lowest ambient temperature the product will be exposed to.

### Construction Materials

- Body & trim: 316L stainless steel
- Springs: 316 stainless steel
- Seals: 1/4" to 1/2" fluoroelastomer (standard option)  
3/4" to 3" nitrile (standard option)  
1/4" to 3" EPDM<sup>1</sup> (low temperature version)

<sup>1</sup> The use of lubrication upstream of the product is not recommended for low temperature applications.

Drawings and 3D models for all valves and solenoid options available on request

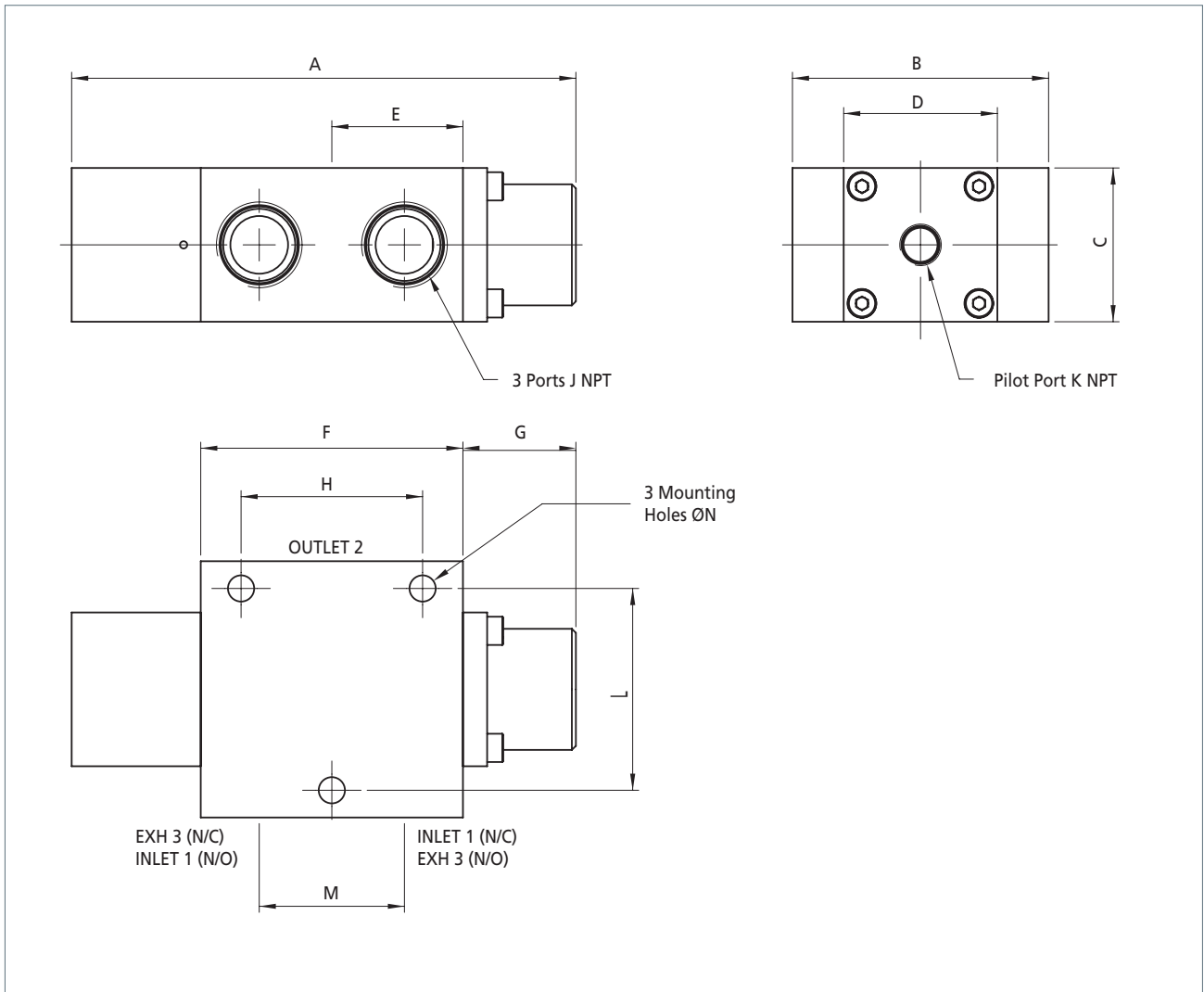
Size	Mass (kg)	Max. Flow L/Min	Max. Flow SCFM	Min. Pilot Pressure	Cv
1/4"	0.65	1216	43	4.0 bar	1.2
3/8"	0.9	1809	64	4.0 bar	1.8
1/2"	1.5	3518	124	4.0 bar	3.5
3/4"	5	8041	284	4.0 bar	8
1"	5	12866	454	4.0 bar	13
1 1/4"	11	17650	624	4.0 bar	18
1 1/2"	11	22767	804	4.0 bar	22
2"	18.7	50861	1797	4.0 bar	50

Maximum flow at 6 bar, with 1 bar differential  
Minimum pilot pressure at 6.3 bar body pressure

### Certification Options Available

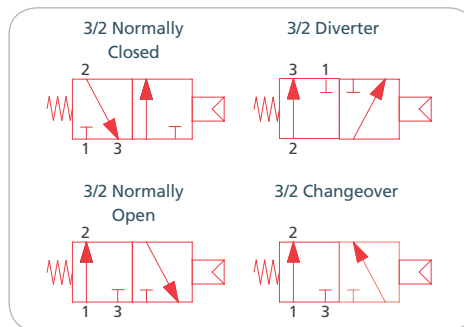


# 1750 Series Poppet Valve – 1/4" to 1/2" Pilot operated

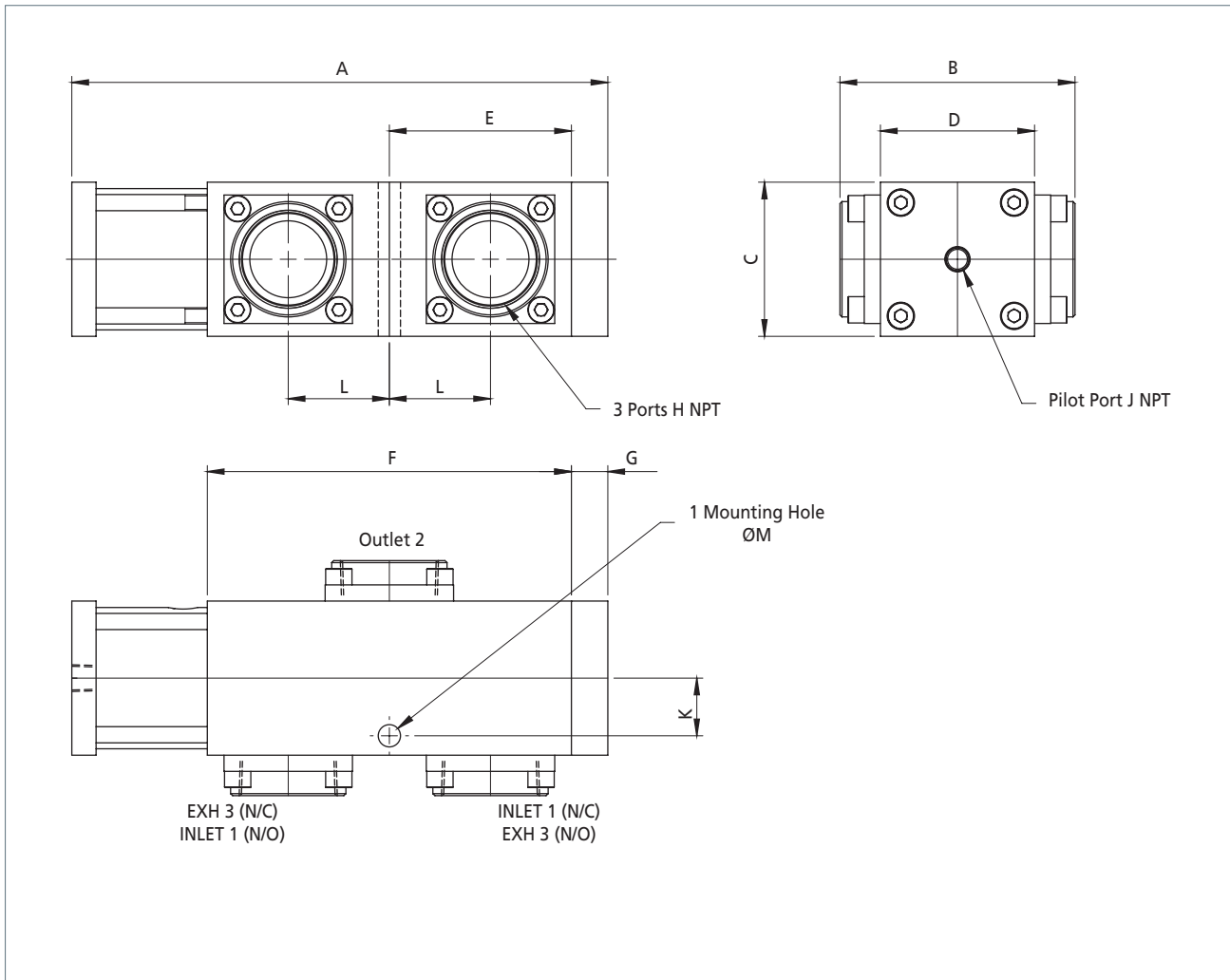


## Dimensions (mm)

Size	A	B	C	D	E	F	G	H	J	K	L	M	N
1/4"	92	44.5	32	32	27	54	10	26	1/4"	1/8"	35	28	5.5
3/8"	92	51	32	32	27	54	10	38	3/8"	1/8"	40	28	6.5
1/2"	125	63.5	38	38	32.5	65	28	45	1/2"	1/8"	50	36	6.5



# 1750 Series Poppet Valve – 3/4" to 2" Pilot operated

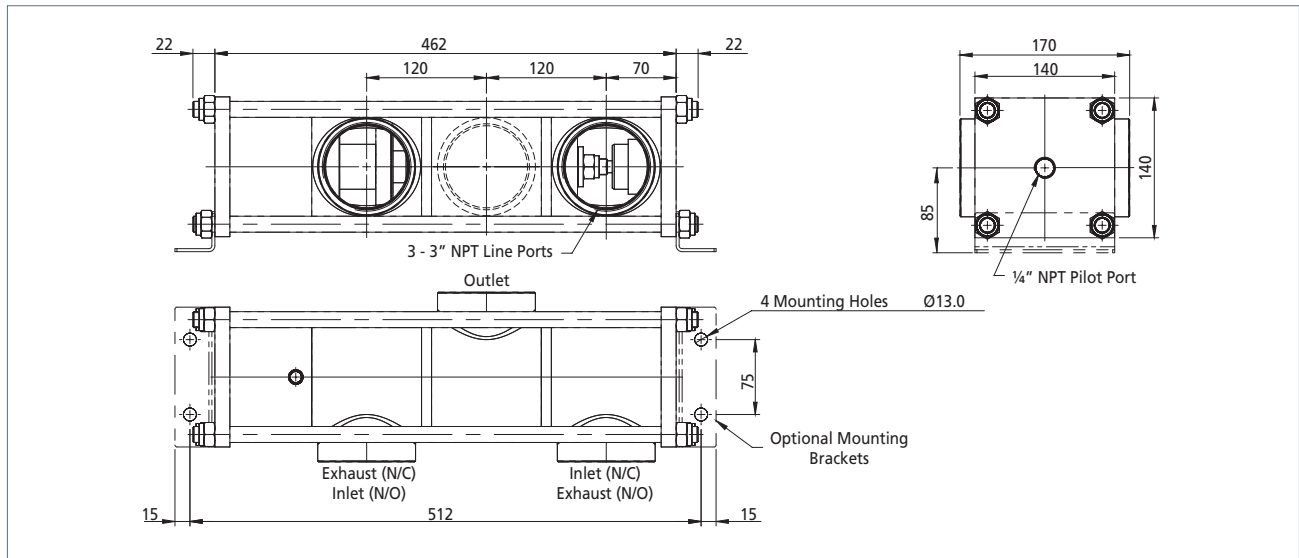


## Dimensions (mm)

Size	A	B	C	D	E	F	G	H	J	K	L	M
3/4"	202	96	63.5	63.5	53	106	22	3/4"	1/4"	23	30	11
1"	202	96	63.5	63.5	63	126	22	1"	1/4"	23	35	11
1 1/4"	265	116	76	76	90	180	18	1 1/4"	1/4"	28.5	50	11
1 1/2"	265	116	76	76	90	180	18	1 1/2"	1/4"	28.5	50	11
2"	339	140	102	102	120	240	13	2"	1/4"	38	62	13



# 1750 Series Poppet Valve – 3" Pilot operated



## Dimensions (mm)

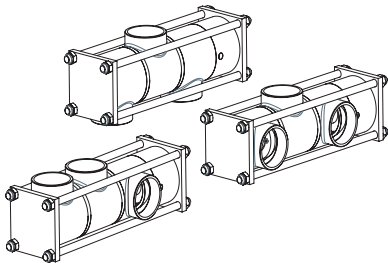
Drawings and 3D models for all valves and solenoid options available on request

Size	Mass (kg)	Max. Flow L/Min	Max. Flow SCFM	Min. Pilot Pressure	Cv
3"	30	111894	3954	See below	110 (90 offset ports)

Low temperature version not available in 3".

If alternative port positions are required consult factory. See examples below.

## Alternative Port Positions



## Pilot Pressures for 3" Poppet Valve

Line Pressure (bar)	Pilot Pressure (bar)	Line Pressure (bar)	Pilot Pressure (bar)
1	2	7	5
2	2.4	8	5.6
3	3.2	9	6.2
4	3.4	10	6.6
5	3.6	11	7.2
6	4.2	12	7.6



## Coding Chart

Size	Ports <sup>1</sup>	Positions	Type	Function	Operator L/H	Operator R/H	Body/Seal Material	Style	Port Type	Port Style	Approval	Approval	
2 3 4 6 8 5 7 9 C	1/4" 3/8" 1/2" 3/4" 1" 1 1/4" 1 1/2" 2" 3"	3	2	5 N/C & N/O	M Mono Stable	2 Spring	1 Air	E <sup>2</sup> Stainless Steel / Low Temp  S Stainless Steel / Nitrile  V Stainless Steel / FKM	C	1 BSP 2 NPT	B Body Ported	/ATEX <sup>3</sup> II 2G c T6 w/o option	/NACE NACE w/o option
•	3	2	5	M	2	1	•	C	•	B	•	•	

<sup>1</sup> Alternative port positions available for 3" option - consult Rotork Midland

<sup>2</sup> Low temperature option not available in 3"

<sup>3</sup> ATEX Directive 2014/34/EU (Non-electrical ATEX)

# 1750 Series Poppet Valve – 1/4" to 1/2" Pilot solenoid operated

A range of 3/2 pilot solenoid operated poppet valves in stainless steel 316L for use on gases.

*K-TYPE solenoid shown - see solenoid specification chart*

## Features and Benefits

- Specifically designed for severe environments
- 316L stainless steel construction
- Designed for actuator control
- Large flow paths (up to 110 Cv)
- NACE capability option available

## Media & Ambient Temperature Range

Please refer to solenoid selection chart on page 13.

## Working Pressure

- Up to 12 bar (174 psi) maximum inlet pressure
- Minimum pilot pressure valve size dependent

## Ports NPT (BSP option available)

- 1/4" to 1/2" NPT
- Pilot ports 1/8"

## Operating Media

- Gases – filtered lubricated or non-lubricated air, inert gas, sweet (natural) and sour gases - NACE
- Liquids – low pressure hydraulic, mineral oil or water (please consult factory)

NOTE: To prevent freezing of the condensate within the product, the media dew point must be at least 10 °C below the lowest ambient temperature the product will be exposed to.



## Construction Materials

- Body & trim: 316L stainless steel
- Springs: 316 stainless steel
- Seals: 1/4" to 1/2" fluoroelastomer EPDM<sup>1</sup> (low temperature version)
- 1/4", 3/8" and 1/2" pilot solenoid poppet valves have internal feed to solenoid, therefore can only be used 3/2 normally closed, if normally open or separate pilot supply is required please consult factory

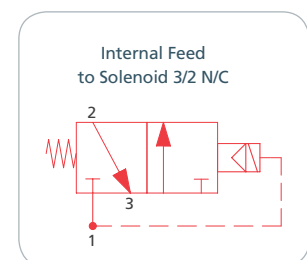
<sup>1</sup> The use of lubrication upstream of the product is not recommended for low temperature applications.

Drawings and 3D models for all valves and solenoid options available on request

Size	Mass (kg)	Max.Flow L/Min	Max.Flow SCFM	Operating Pressure	Cv
1/4"	0.65 +solenoid	1216	43	3 to 12 bar	1.2
3/8"	0.9 +solenoid	1809	64	3 to 12 bar	1.8
1/2"	1.5 +solenoid	4020	142	3 to 12 bar	3.5

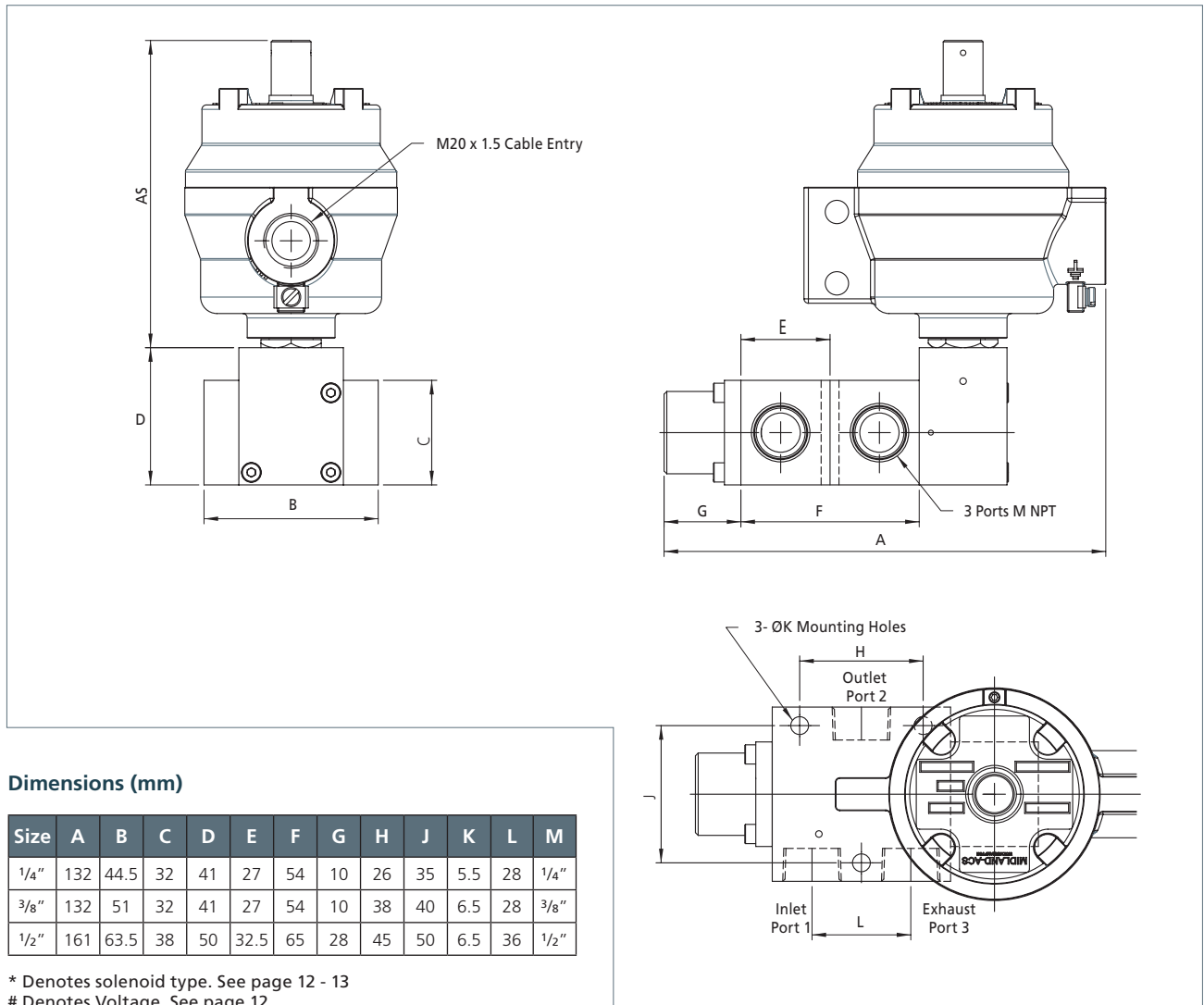
Maximum Flow at 6 bar, with 1 bar differential  
Minimum Pilot Pressure at 6.3 bar body pressure

## Certification Options Available





# 1750 Series Poppet Valve – 1/4" to 1/2" Pilot solenoid operated



## Dimensions (mm)

Size	A	B	C	D	E	F	G	H	J	K	L	M
1/4"	132	44.5	32	41	27	54	10	26	35	5.5	28	1/4"
3/8"	132	51	32	41	27	54	10	38	40	6.5	28	3/8"
1/2"	161	63.5	38	50	32.5	65	28	45	50	6.5	36	1/2"

\* Denotes solenoid type. See page 12 - 13  
# Denotes Voltage. See page 12

## Coding Chart

Size	Ports <sup>1</sup>	Positions	Type	Function	Operator L/H	Operator R/H	Body/Seal Material	Style	Port Type	Port Style	Solenoid Type <sup>1</sup>	Voltage	Approval <sup>4</sup>	Approval		
2 1/4"	3	2	3 N/C	M Mono Stable	2 Spring	3 Solenoid	E Stainless Steel / Low Temp	C	1 BSP	B Body Ported	K Exd IIC T6	C 12 VDC	/ATEX	II 2G c T6		
4 N/O			4 Solenoid Separate Supply								S Stainless Steel / Nitrile	7 Exd IIC T4			D 24 VDC	w/o option
5 <sup>2</sup> N/C N/O			S Stainless Steel / FKM								CL Nema 7 & 9	F 48 VDC				
4 1/2"																
	3	2	•	M	2	•	•	C	•	B	•	•	•	•	•	•

<sup>1</sup> For solenoid details see page 13  
<sup>2</sup> "T" type solenoid only available in 28 VDC (Y)  
<sup>3</sup> When selecting Type "5" (NC, NO) the R/H Operator must be "4" - Solenoid Separate Supply  
<sup>4</sup> ATEX Directive 2014/34/EU (Non-electrical ATEX)  
 NOTE: The combination of the valve and the coil will determine maximum ambient i.e. always the lower of the two.

# 1750 Series Poppet Valve – ¾" to 3" Pilot solenoid operated

A range of 3/2 pilot solenoid operated poppet valves in stainless steel for use on gases.

*K-TYPE solenoid shown - see solenoid specification chart*

## Features and Benefits

- Specifically designed for severe environments
- 316L stainless steel construction
- Designed for actuator control
- Large flow paths (up to 110 Cv)
- NACE capability option available

## Media & Ambient Temperature Range

Please refer to solenoid selection chart on page 13.

## Working Pressure

- Up to 12 bar (174 psi) maximum inlet pressure
- Minimum pilot pressure via solenoid supply port (valve size dependent - see chart)

## Ports NPT (BSP option available)

- ¾" to 3" NPT
- Pilot Ports 1/8" or 1/4" (valve size dependent)

## Operating Media

- Gases – filtered lubricated or non-lubricated air, inert gas, sweet (natural) and sour gases - NACE
- Liquids – low pressure hydraulic, mineral oil or water (please consult factory)

NOTE: To prevent freezing of the condensate within the product, the media dew point must be at least 10 °C below the lowest ambient temperature the product will be exposed to.



## Construction Materials

- Body and trim: 316L stainless steel
- Springs: 316 stainless steel
- Seals: ¾" to 3" Nitrile EPDM<sup>1</sup> (low temperature version)

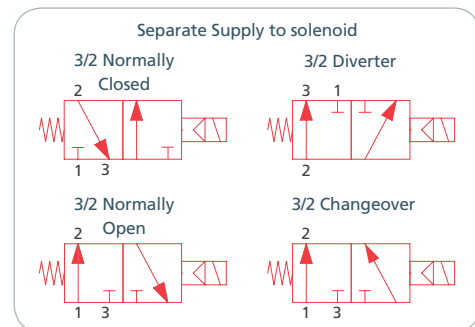
<sup>1</sup> The use of lubrication upstream of the product is not recommended for low temperature applications.

Drawings and 3D models for all valves and solenoid options available on request

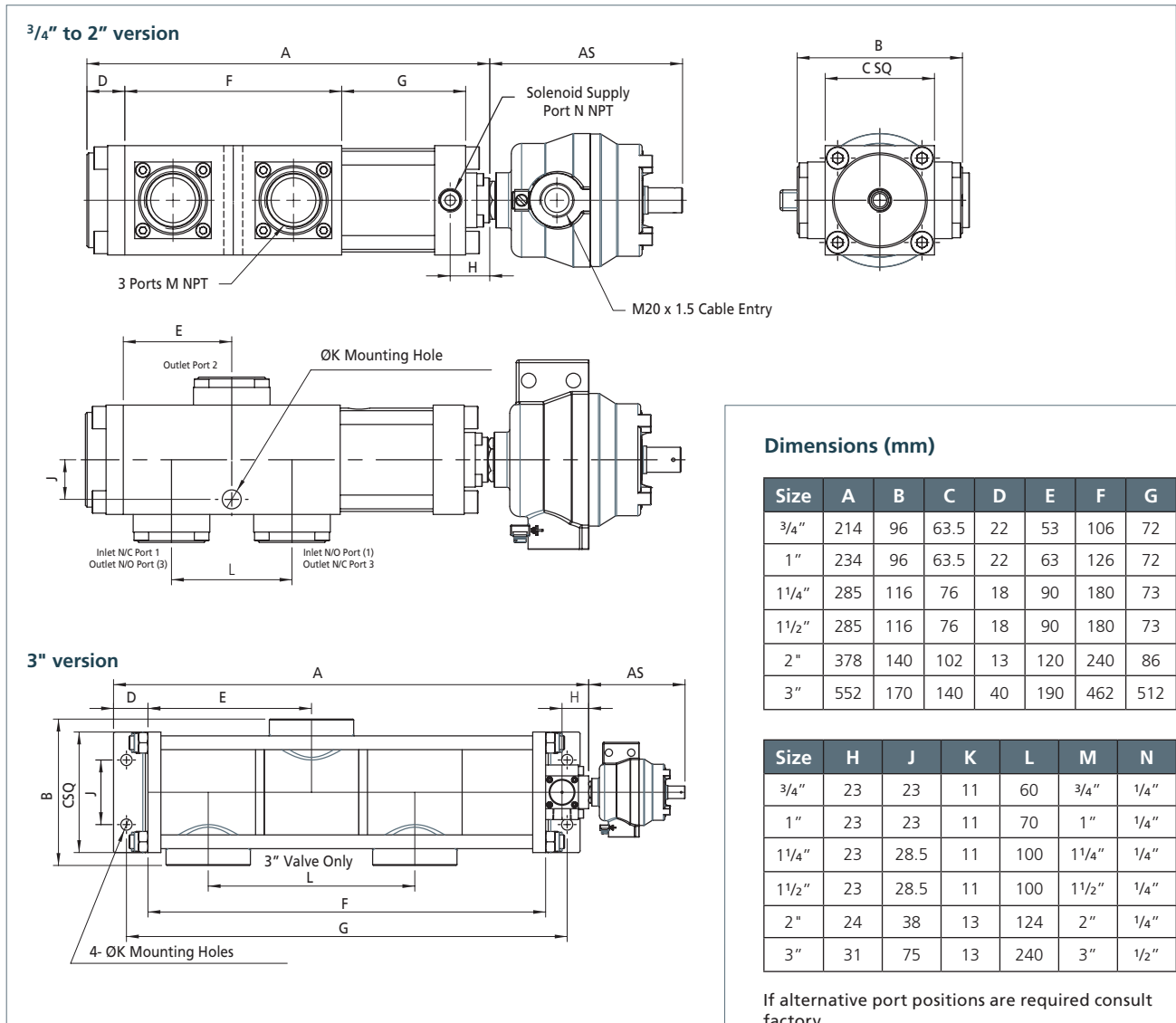
Size	Mass (kg)	Max.Flow L/Min	Max.Flow SCFM	Minimum Solenoid Supply Pressure	Cv
¾"	5 +solenoid	8041	284	4 bar	8
1"	5 +solenoid	12866	454	4 bar	13
1¼"	11 +solenoid	17650	624	4 bar	18
1½"	11 +solenoid	22379	791	4 bar	22
2"	18.7 +solenoid	50869	1798	4 bar	50
3"	30 +solenoid	111895	3955	See table on page 7	110

Maximum Flow at 6 bar, with 1 bar differential

## Certification Options Available



# 1750 Series Poppet Valve – 3/4" to 3" Pilot solenoid operated



## Coding Chart

Size	Ports	Positions	Type	Function	Operator L/H	Operator R/H	Body/Seal Material	Style	Port Type	Port Style	Solenoid Type <sup>1</sup>	Voltage	Approval <sup>3</sup>	Approval
6 3/4"	3	2	5 N/C & NO	M Mono Stable	2 Spring	4 Solenoid Separate Supply	E Stainless Steel / Low Temp	C	1 BSP	B Body Ported	K	C 12 VDC	/ATEX	II 2G c T6
8 1"											D	24 VDC		
5 1 1/4"											F	48 VDC		
7 1 1/2"											M	110 VAC 50/60Hz		
9 2"											S	220 VAC 50Hz		
C 3"	V	28 VDC												

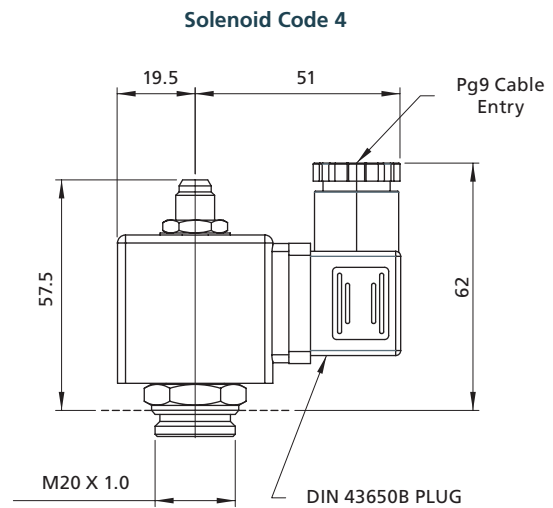
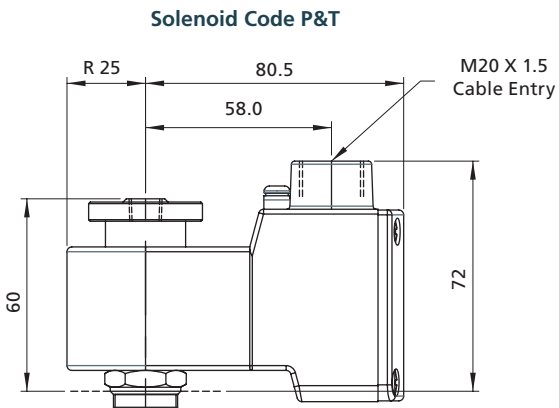
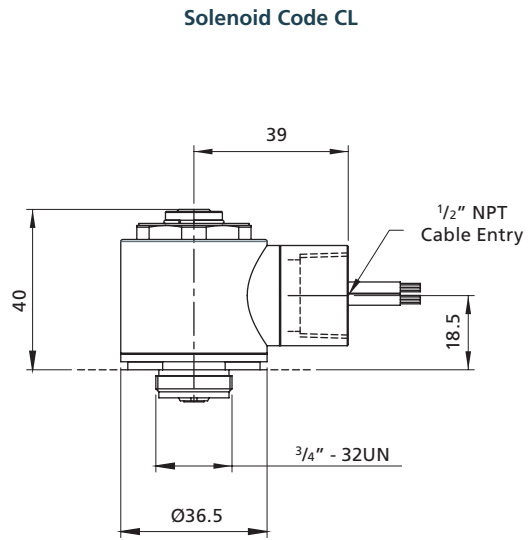
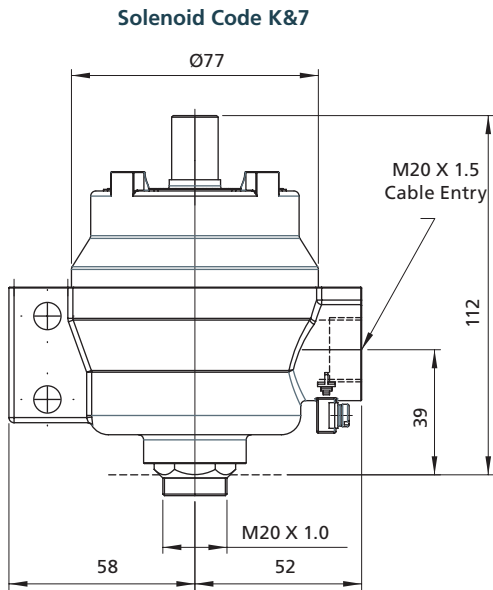
<sup>1</sup> For solenoid details see page 13

<sup>2</sup> "T" type solenoid only available in 28 VDC (Y)

<sup>3</sup> ATEX Directive 2014/34/EU (Non-electrical ATEX)

NOTE: The combination of the valve and the coil will determine maximum ambient i.e. always the lower of the two.

# 1750 Series Poppet Valve – Solenoid operators for use with pilot solenoid poppet valves



## Voltages

Code	Voltage
C	12 VDC
D	24 VDC
F	48 VDC
M	110 VAC 50/60 Hz
S	220 VAC 50 Hz
Y	28 VDC

# 1750 Series Poppet Valve – Pilot solenoid operated

## Solenoid specifications

Model Code	K	7	CL	P	T	4
<b>Type of Protection</b>	Exd IIC T6	Exd IIC T4	NEMA 7 & 9	Eex me II T4/T5	Eex ia IIC T6	Non-hazardous
<b>Approved Area</b>	Zones 1 and 2	Zones 1 and 2	Class I, Div 1, Group C & D. Class II, Div 1, Groups E, F, & G. Class II, Div 2, Groups C, D, E, F & G	Zones 1 and 2	Zones 0	None
<b>Degree of Protection</b>	IP67 (NEMA Equivalent: 6)	IP67 (NEMA Equivalent: 6)	NEMA 4 (IP55)	IP66 (NEMA Equivalent: 4X)	IP66 (NEMA Equivalent: 4X)	IP65 (NEMA Equivalent: 4)
<b>Housing</b>	316 Stainless Steel alt Aluminium Epoxy coated	316 Stainless Steel alt Aluminium Epoxy coated	Stainless Steel. Coil potted	Glass reinforced Polyamid (Stainless Steel conduit hub)	Glass reinforced Polyamid	Moulded plastic
<b>Cable Entry</b>	M20 x 1.5 (Optional 1/2" NPT consult factory for code)	M20 x 1.5 (Optional 1/2" NPT consult factory for code)	1/2" NPT or 24" flying lead	M20 x 1.5	M20 x 1.5	DIN plug
<b>Power Consumption AC/DC</b>	5W 22.4 VA (110 VAC) 23.4 VA (120 VAC)	5 W 22.4 VA (110 VAC) 23.4 VA (120 VAC)	1.8 W / 1.8 W	7.5 W (DC)	2.3 W (24 VDC)	9 W (DC) 9 W (Inrush 32 VA) (AC)
<b>Maximum Admissible Surface Temp</b>	85 °C (185 °F)	135 °C (275 °F)	160 °C (320 °F)	T4 135 °C (275 °F) T5 100 °C (212 °F)	85 °C (185 °F)	N/A
<b>Maximum Ambient Temperature</b>	40 °C (104 °F)	80 °C (176 °F)	40 °C (104 °F)	T4 75 °C (167 °F) T5 40 °C (104 °F)	65 °C (149 °F)	50 °C (122 °F)
<b>Maximum Fluid Temperature</b>	40 °C (104 °F)	80 °C (176 °F)	105 °C (221 °F)	T4 75 °C (167 °F) T5 40 °C (104 °F)	75 °C (167 °F)	75 °C (167 °F)
<b>Maximum Working Pressure (Bar)</b>	12	12	8.25	12	12	12
<b>Solenoid Weight (kg)</b>	1.62	1.62	0.29	0.63	0.53	0.20
<b>Approved Standard</b>	ATEX, CSA, UL, IECEx & EAC	ATEX, CSA, UL, IECEx & EAC	UL Listed / CSA Certified	ATEX, IECEx	ATEX, IECEx	

### NOTES:

'T' type solenoid only available with 28 VDC coil (Y).



# 1750 Series Poppet Valve – Plunger or roller lever operated

A range of 3/2 mechanically operated poppet valves for cylinder position detection in stainless steel 316L for use on gases.

### Features and Benefits

- Specifically designed for severe environments
- 316L stainless steel construction
- Mechanically operated
- Limit switch for end of actuator stroke detection
- NACE capability option available

### Media & Ambient Temperature Range

- -20 to + 80 °C (-4 to +176 °F)

Note: When product is ordered as /ATEX ambient temperature is limited to +40 °C (104 °F) Ex II2Gc T6.

### Working Pressure

- Up to 12 bar (145 psi) maximum inlet pressure

### Maximum Flow

- 402 l/min (14.2 SCFM)  
(at 6.0 bar with 1.0 bar differential)

### Ports NPT (BSP option available)

- 1/8" NPT



### Operating Media

- Gases – filtered lubricated or non-lubricated air, inert gas, sweet (natural) and sour gases
- Liquids – low pressure hydraulic, mineral oil or water (please consult factory)

NOTE: To prevent freezing of the condensate within the product, the media dew point must be at least 10 °C below the lowest ambient temperature the product will be exposed to.

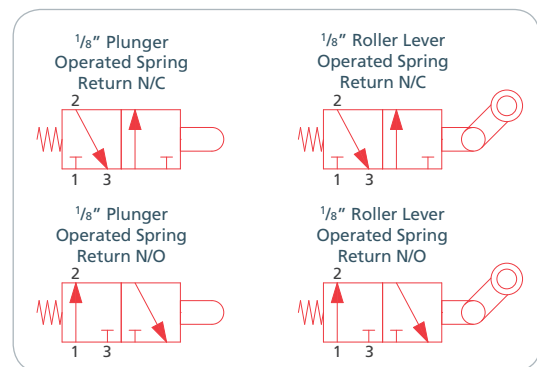
### Construction Materials

- Body and trim: 316L stainless steel
- Springs: 316 stainless steel
- Seals: Nitrile

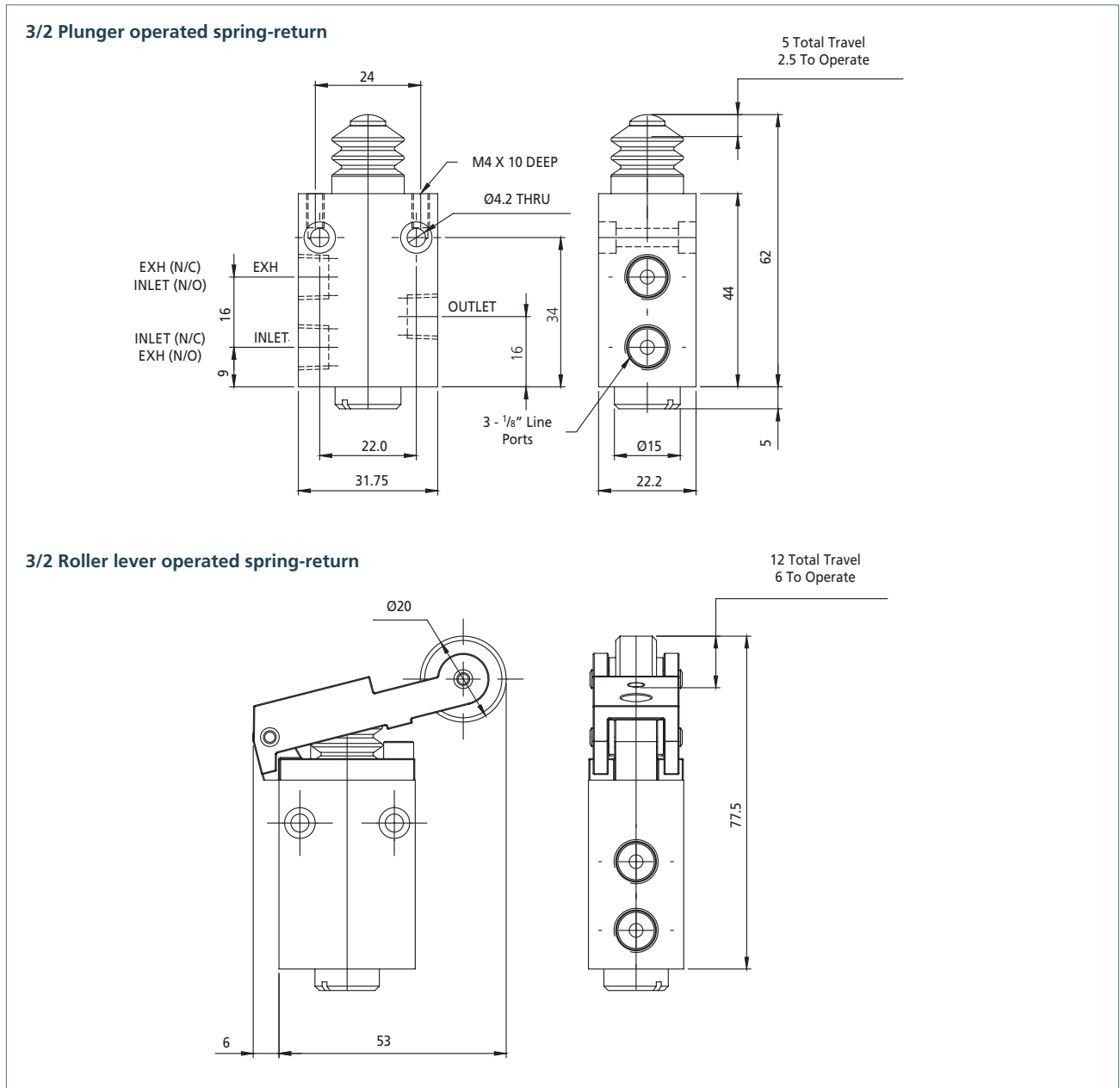
Drawings and 3D models for all valves and solenoid options available on request

Size	Description	Mass (kg)	Operating Force		Cv
			N	lbf	
1/8"	Plunger operated, spring-return, N/C	0.21	44	9.9	0.26
1/8"	Plunger operated, spring-return, N/O	0.22	80	18	0.26
1/8"	Lever roller operated, spring-return, N/C	0.28	20	4.5	0.26
1/8"	Lever roller operated, spring-return, N/O	0.29	36	8.1	0.26

Certification options available



# 1750 Series Poppet Valve – 3/2 Plunger operated spring-return



## Coding Chart

Size	Ports	Positions	Type	Function	Operator L/H	Operator R/H	Body/Seal Material	Style	Port Type	Port Style	Approval	Approval	
1	1/8"	3	2	3 N/C	M Mono Stable	6 Mechanical Plunger	2 Air	S Stainless Steel / Nitrile	M	1 BSP 2 NPT	B Body Ported	/ATEX © II 2G c T6 w/o option	/NACE NACE w/o option
			4 N/O		8 Lever Roller		V Stainless Steel / FKM						
<b>1</b>	<b>3</b>	<b>2</b>	<b>•</b>	<b>M</b>	<b>•</b>	<b>2</b>	<b>-</b>	<b>•</b>	<b>M</b>	<b>•</b>	<b>B</b>	<b>•</b>	<b>•</b>

## Additional Options

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Keeping the World Flowing

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A full listing of our worldwide sales and service network is available on our website.

Rotork Midland Ltd.  
Patrick Gregory Road  
Wolverhampton  
WV11 3DZ, UK  
tel +44 (0)1902 305 678  
email [sales.midland@rotork.com](mailto:sales.midland@rotork.com)

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PUB117-006-00  
Issue 02/19

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