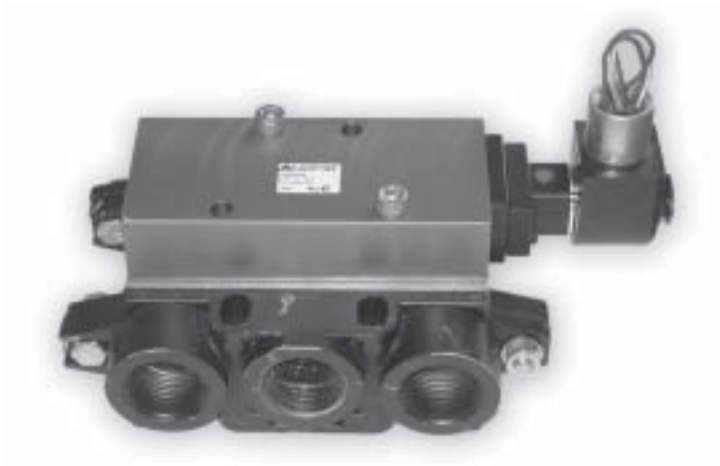
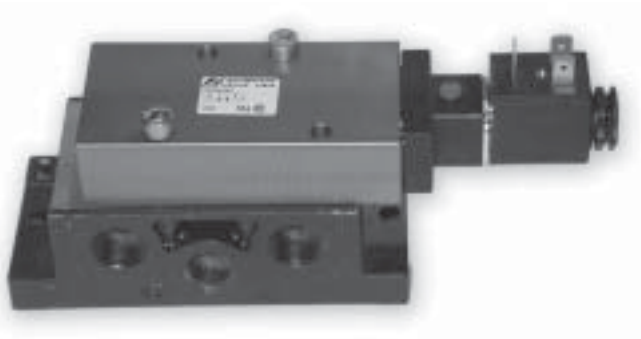


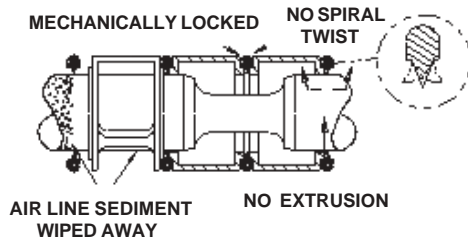
ISO 9001  
**AV** **AUTOMATIC**  
**VALVE**



**ISO SPOOL VALVES**

## DESIGN FEATURES

### VALVES



- Conform to ISO 5599\1 specifications for size 1, 2 and 3.
- Complete range of operators available.

### TAPERED TEE-SEAL ..... Eats Dirt

- Bi-directional tapered Tee-Seal flexes to clean spool. Eliminates Monday morning sticking problems.
- Tested tough and proven reliable according to SAE specifications: Rust and water injected every 864,000 cycles for 20 million cycles.

### SOLENOID ... Guaranteed Against Burnout

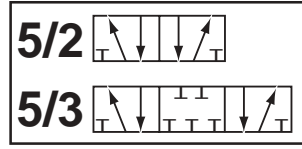
- Three-way pilot uses full air line pressure to shift the valve.
- Pilot is internally supplied when the pressure at port one is 35 to 150 PSIG (240 to 1030 kPa).
- Coil is hermetically sealed as an integral watertight molded unit.
- Intrinsically-safe and explosion-proof versions available.
- Push non-locking override. (Extended turn and turn lock available)

### PRODUCTS CERTIFIED TO INCLUDE

- CSA - (C22.2)
- UL - (STD 429)
- ATEX - (2018x)
- PTB - (EExmIIT5) (EExialICT6)
- CE - (73/23/EEC), (89/336/EEC)

## INDEX

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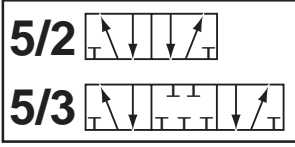


# SPECIFICATIONS

VALVE OPERATION			
<p><b>I 15</b>      <b>I 20</b>      <b>I 45</b></p>		<p><b>5/3 BLOCK</b> - 4 way 3 position blocked center valves operate like 5/2 double valves except shift when a maintained signal is applied to either 1-2 or 1-4. Valves reset to center position when signal is removed with all ports blocked.</p>	
<p><b>5/2 SINGLE</b> - 4 way 2 position single operator valves shift, apply pressure from port 1 to 4, and exhaust pressure from port 2 to 3 when a maintained signal is applied to operator 1-4. Valves reset, apply pressure from port 1 to 2, exhaust pressure from port 4 to 5 when the signal is removed.</p>		<p><b>5/3 EXHAUST</b> - 4 way 3 position exhaust center valves operate like 5/2 double valves except shift when a maintained signal is applied to either 1-2 or 1-4. Valves reset to center position when signal is removed with port 2 open to 3, port 4 open to 5, and port 1 blocked.</p>	
<p><b>5/2 DOUBLE</b> - 4 way 2 position double operator valves shift, apply pressure from port 1 to 4, and exhaust pressure from 2 to 3 when a momentary signal is applied to operator 1-4. Valves shift, apply pressure from port 1 to 2, and exhaust pressure from 4 to 5 when a momentary signal is applied to operator 1-2.</p>		<p><b>5/3 PRESURE</b> - 4 way 3 position pressure center valves operate like 5/2 double valves except shift when a maintained signal is applied to either 1-2 or 1-4. Valves reset to center position when signal is removed with port 1 open to ports 2 and 4, and ports 3 and 5 are blocked.</p>	
<b>OPERATING TEMPERATURES</b> 	<b>SOLENOID PILOT OPERATED</b>	<b>TREATED BUNA-N SEALS (TREATED NBR, Standard)</b>	<b>FLUOROELASTOMER SEALS (FPM (FKM), Option A)</b>
	Standard High Temp Coil (Option T)	-18°C to +52°C (0°F to +125°F) -18°C to +82°C (0°F to +180°F)	-18°C to +52°C (0°F to +125°F) -18°C to +82°C (0°F to +180°F)
<b>OPERATING PRESSURES</b> 	<b>SOLENOID PILOT OPERATED</b>	<b>INLET PORT</b>	<b>EXTERNAL PILOT PORT</b>
	Standard 2 Position Standard 3 Position External Pilot (Option B)	240 - 1030 kPa (35 - 150 PSIG) 345 - 1030 kPa (50 - 150 PSIG) Vacuum - 240 kPa (Vacuum - 35 PSIG)	Not Required Not Required 240 - 1030 kPa (35 - 150 PSIG)
	<b>FILTRATION AND LUBRICATION</b> 	<b>MEDIA - AIR OR INERT GAS</b>	
Lubrication of Automatic Valve products is not required but is recommended to maximize service life. Oils should be compatible with seal material, have an ISO 32 or lighter viscosity, and have an aniline range of 82°C (180°F) to 99°C (210°F). Refer to Maintenance section of catalog for recommended lubricants.  Filter to 50 microns or better. For temperatures below 40°F, air must be dry to prevent formation of ice.			

## MODEL NUMBER CHART

SERIES	BODY TYPE	PORT SIZE	FUNCTION	BODY DESIGN	OPERATOR 1	CENTER OPERATOR	OPERATOR 2	VOLTAGE	OPTIONS
I 15	0 BASE	0 0	A 4 WAY 2 POSITION	A SINGLE	A AIR PILOT	D 3 POSITION SOLENOID/AIR	A AIR PILOT	AA 110/50,	A FLUROELASTOMER SEALS
			B 4 WAY 2 POSITION	B DOUBLE	F HAND LEVER - LINE		C 3 POSITION SPRING MANUAL	120/60	B EXTERNAL PILOT CONNECTION
			C 4 WAY 3 POSITION BLOCK		I PALM BUTTON		M 2 POSITION DETENT MANUAL	220/50,	C CONDUIT COIL
I 20			D 4 WAY 3 POSITION EXHAUST		V INTRINSICALLY-SAFE SOLENOID		N 3 POSITION DETENT MANUAL	240/60,	CT CONDUIT COIL HIGH TEMPERATURE
			E 4 WAY 3 POSITION PRESSURE		X STANDARD SOLENOID		R 2 POSITION SPRING	12V/50,	D DUSTPROOF
							V INTRINSICALLY-SAFE SOLENOID	24/60,	G 18" FLYING LEADS
I 45							X STANDARD SOLENOID	12VDC	W G THREADS
								24VDC	Y EXPLOSION-PROOF COIL
									Z EXPLOSION-PROOF COIL
								1 PUSH TURN LOCKING OVERRIDE	
								2 EXTENDED TURN LOCKING OVERRIDE	



## STANDARD SOLENOID MODELS



I 15



I 20



I 45

**SINGLE SOLENOID**



I 15



I 20



I 45

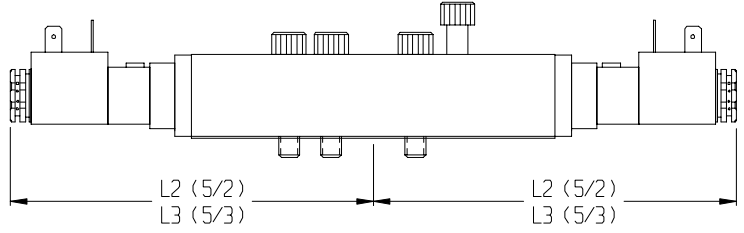
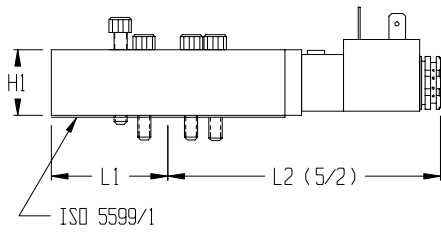
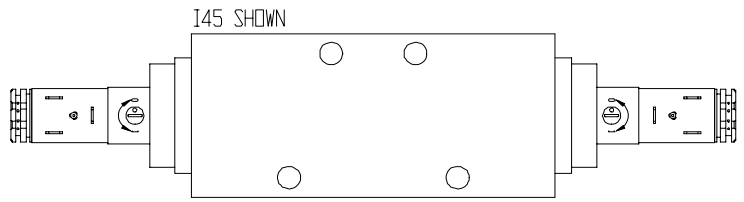
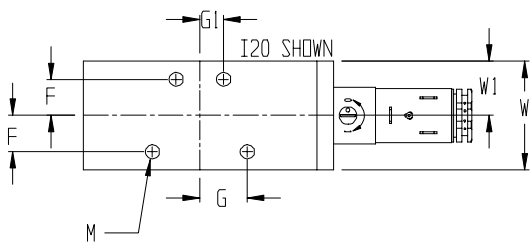
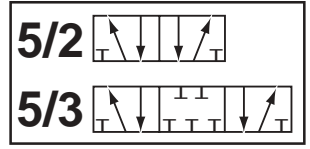
**DOUBLE SOLENOID**

## MODEL NUMBERS

SERIES	ISO SIZE	PORT LOC.	Cv (l/min)	5/2		5/3			BODY MATERIAL	SEAL MATERIAL	Kg (LB)
				SINGLE	DOUBLE	BLOCK	EXHAUST	PRESSURE			
I 15	1	BASE	1.5 (1480)	I1500AAXR*	I1500ABXX*	I1500CBXDX*	I1500DBXDX*	I1500EBXDX*	ALUMINUM	NBR	,4 (.9)
I 20	2	BASE	2.0 (1970)	I2000AAXR*	I2000ABXX*	I2000CBXDX*	I2000DBXDX*	I2000EBXDX*	ALUMINUM	NBR	,7 (1.5)
I 45	3	BASE	4.5 (4430)	I4500AAXR*	I4500ABXX*	I4500CBXDX*	I4500DBXDX*	I4500EBXDX*	ALUMINUM	NBR	,9 (2.0)

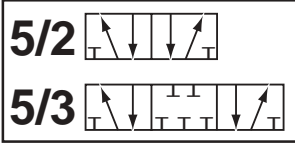
\*Coils sold separately. Refer to Electrical Section for selection.

# DIMENSIONAL INFORMATION

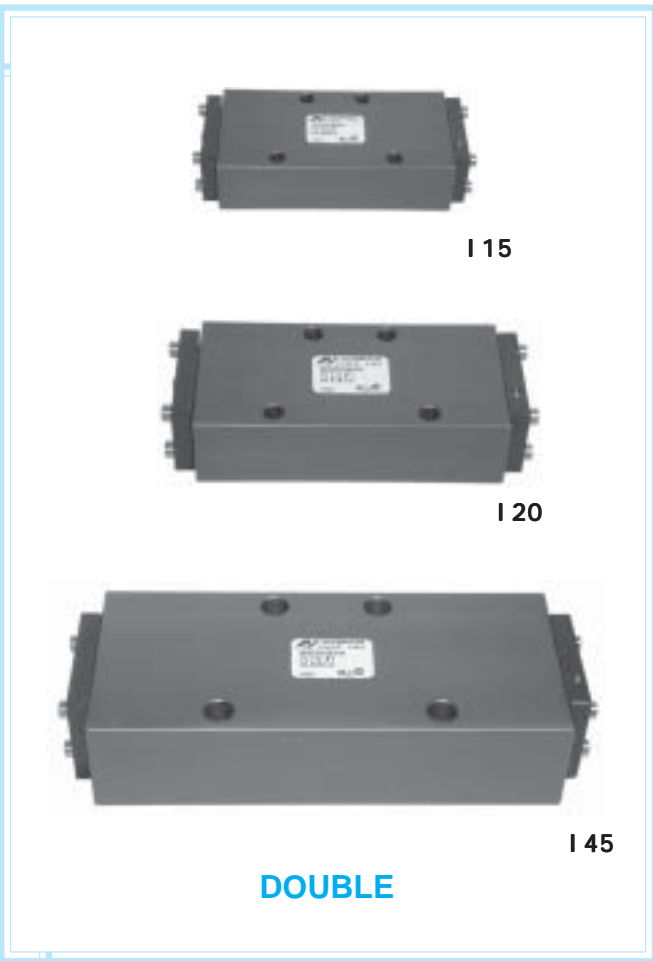
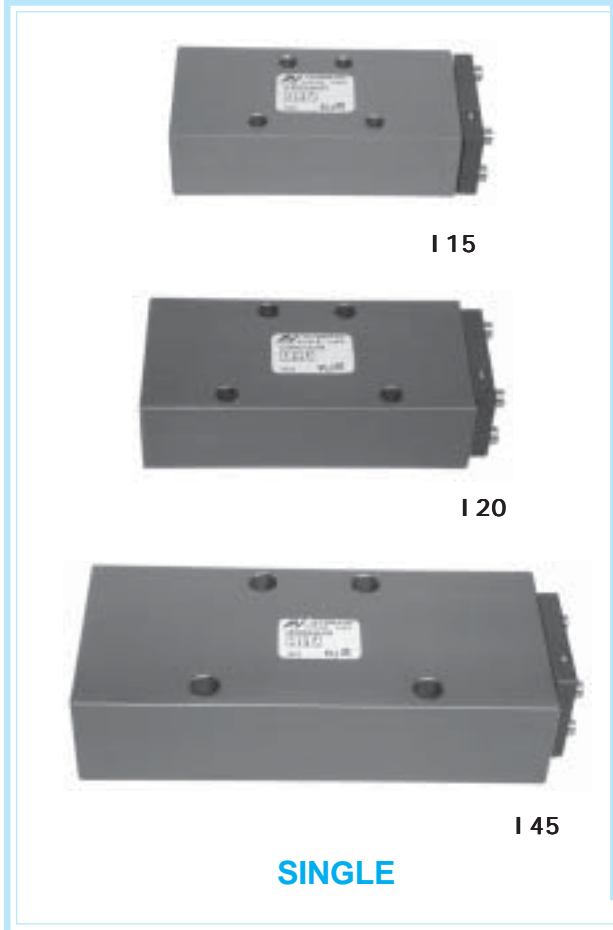


SERIES	ISO SIZE	F	G	G1	H1	L1	L2	L3	M	W	W1
<b>I 15</b>	1	14,0 .55	18,0 .71	9,0 .35	25,4 1.00	44,3 1.74	103 4.07	103 4.07	5,4 .21	41,9 1.65	21,0 .83
<b>I 20</b>	2	19,0 .75	24,0 .95	12,0 .47	25,4 1.00	48,2 1.90	107 4.23	107 4.23	6,4 .25	49,2 1.94	24,6 .97
<b>I 45</b>	3	24,0 .95	32,0 1.26	16,0 .63	31,8 1.25	69,0 2.72	138 5.43	138 5.43	8,7 .34	63,5 2.50	31,8 1.25

Units of Measure: Top - mm, Bottom - inches



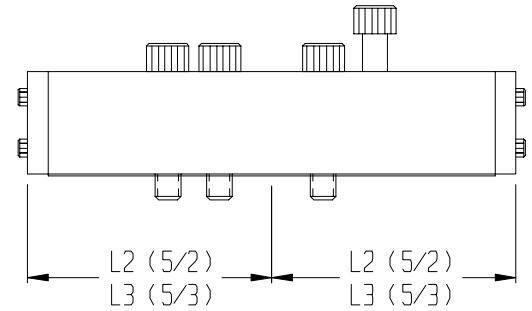
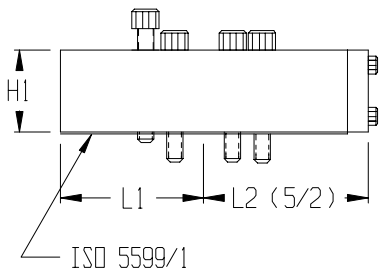
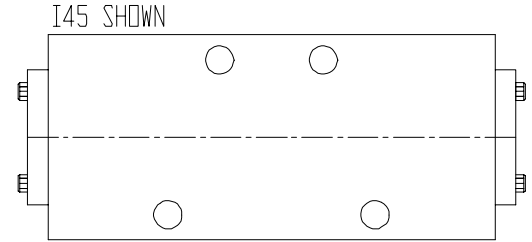
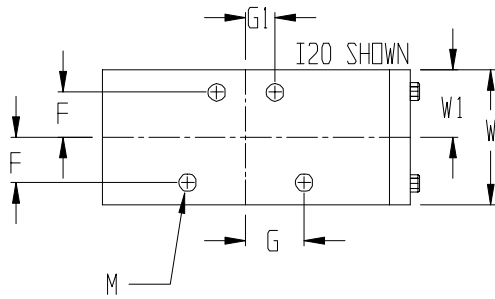
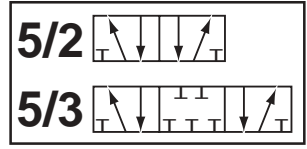
## AIR PILOT MODELS



## MODEL NUMBERS

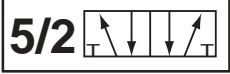
SERIES	ISO SIZE	PORT LOC.	Cv (l/min)	5/2		5/3			BODY MATERIAL	SEAL MATERIAL	Kg (LB)
				SINGLE	DOUBLE	BLOCK	EXHAUST	PRESSURE			
I 15	1	BASE	1.5 (1480)	I1500AAAR	I1500ABAA	I1500CBADA	I1500DBADA	I1500EBADA	ALUMINUM	NBR	.4 (.9)
I 20	2	BASE	2.0 (1970)	I2000AAAR	I2000ABAA	I2000CBADA	I2000DBADA	I2000EBADA	ALUMINUM	NBR	.7 (1.5)
I 45	3	BASE	4.5 (4430)	I4500AAAR	I4500ABAA	I4500CBADA	I4500DBADA	I4500EBADA	ALUMINUM	NBR	.9 (2.0)

# DIMENSIONAL INFORMATION

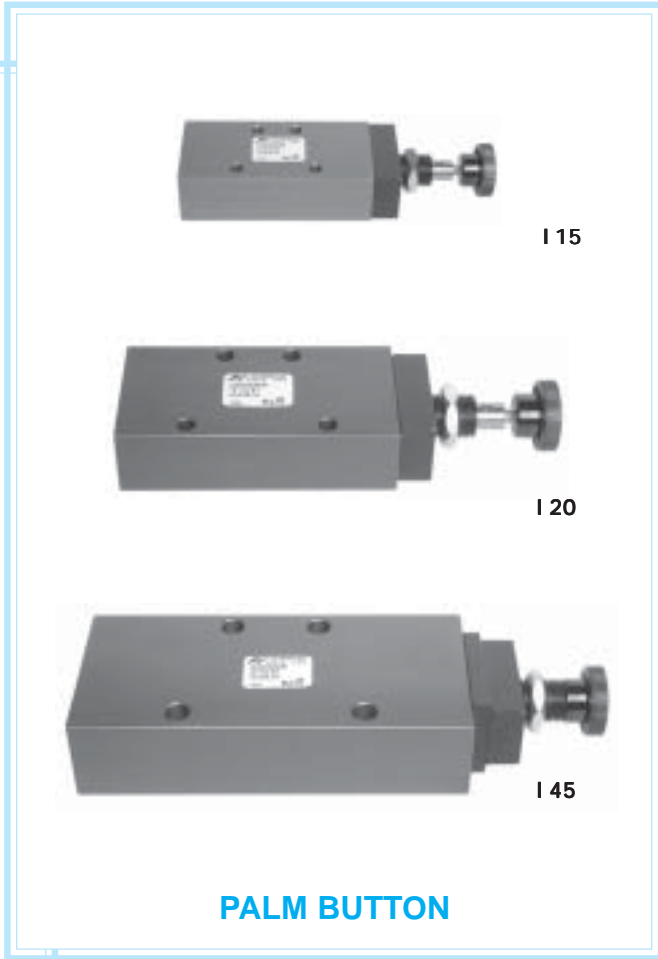


SERIES	ISO SIZE	F	G	G1	H1	L1	L2	L3	M	W	W1
I 15	1	14,0 .55	18,0 .71	9,0 .35	25,4 1.00	44,3 1.74	50,5 1.99	50,5 1.99	5,4 .21	41,9 1.65	21,0 .83
I 20	2	19,0 .75	24,0 .95	12,0 .47	25,4 1.00	48,2 1.90	54,6 2.15	54,6 2.15	6,4 .25	49,2 1.94	24,6 .97
I 45	3	24,0 .95	32,0 1.26	16,0 .63	31,8 1.25	69,0 2.72	75,4 2.97	75,4 2.97	8,7 .34	63,5 2.50	31,8 1.25

Units of Measure: Top - mm, Bottom - inches



# MANUAL MODELS



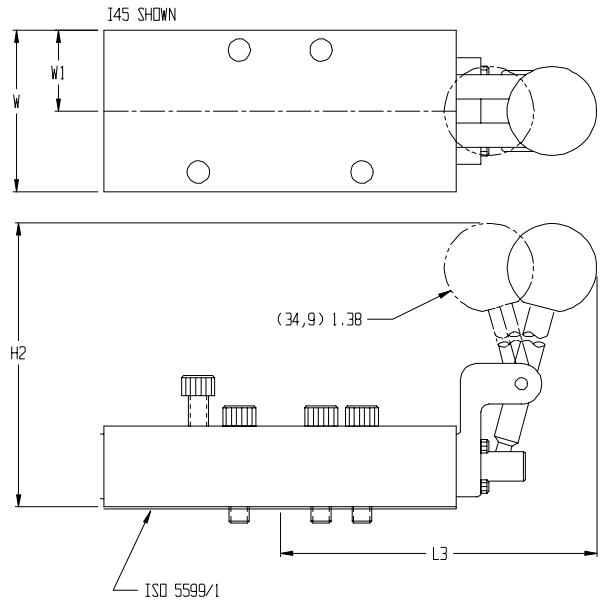
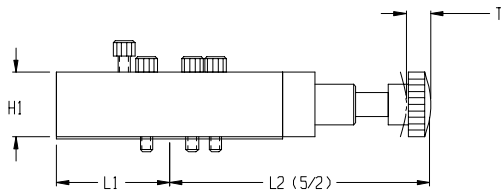
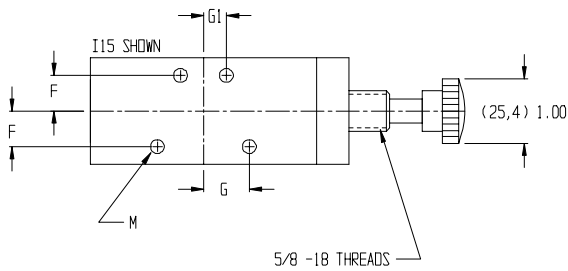
## MODEL NUMBERS

(4 WAY 2 POSITION)

SERIES	ISO SIZE	PORT LOC.	Cv (l/min)	OPERATOR	5/2		BODY MATERIAL	SEAL MATERIAL	Kg (LB)
					DETENTED	SPRING RETURN			
I 15	1	BASE	1.5 (1480)	HAND LEVER	I 1500BAFM	I 1500BAFR	ALUMINUM	NBR	.4 (.9)
				PALM BUTTON	I 1500BAIM	I 1500BAIR			
I 20	2	BASE	2.0 (1970)	HAND LEVER	I 200BAFM	I 200BAFR	ALUMINUM	NBR	.7 (1.5)
				PALM BUTTON	I 200BAIM	I 200BAIR			
I 45	3	BASE	4.5 (4430)	HAND LEVER	I 4500BAFM	I 4500BAFR	ALUMINUM	NBR	.9 (2.0)
				PALM BUTTON	I 4500BAIM	I 4500BAIR			

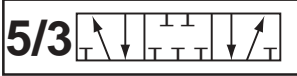


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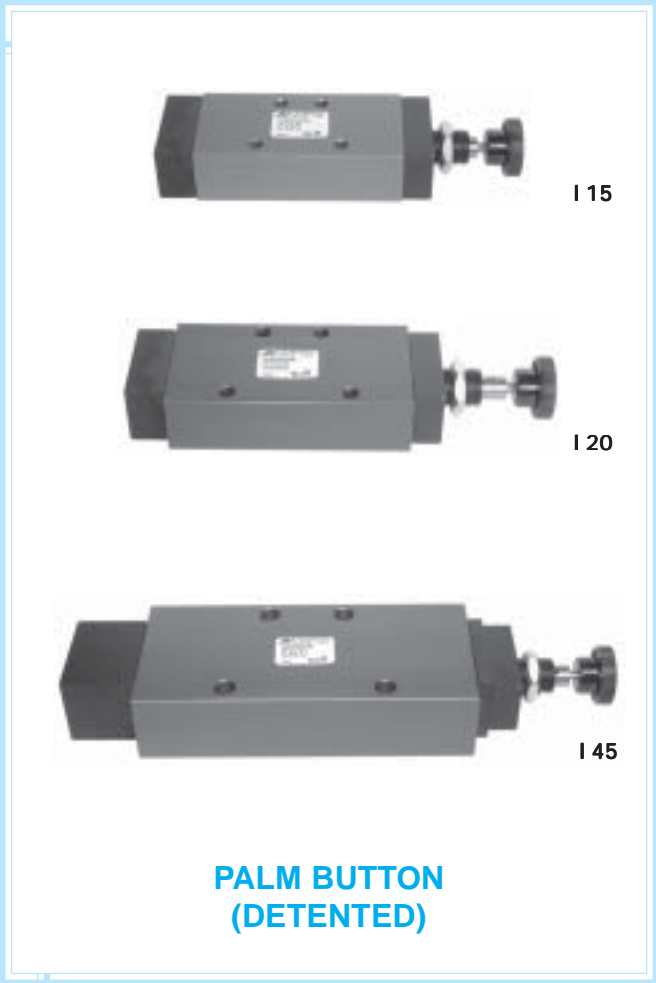


SERIES	ISO SIZE	F	G	G1	H1	H2	L1	L2	L3	L4	M	T	W	W1
I 15	1	14,0 .55	18,0 .71	9,0 .35	25,4 1.00	136 5.35	44,3 1.74	102 4.00	101 3.98	60,1 2.37	5,4 .21	6,4 .38	41,9 1.65	21,0 .83
I 20	2	19,0 .75	24,0 .95	12,0 .47	25,4 1.00	136 5.35	48,2 1.90	106 4.16	105 4.14	64,1 2.52	6,4 .25	9,5 .38	49,2 1.94	24,6 .97
I 45	3	24,0 .95	32,0 1.26	16,0 .63	31,8 1.25	155 5.47	69,0 2.72	26,5 4.98	126 4.96	99,2 3.91	8,7 .34	12,7 .50	63,5 2.50	31,8 1.25

Units of Measure: Top - mm, Bottom - inches



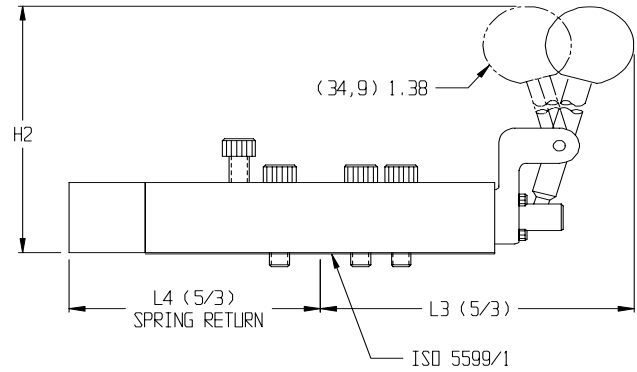
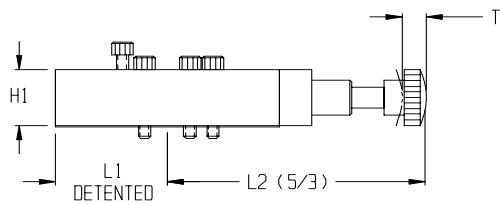
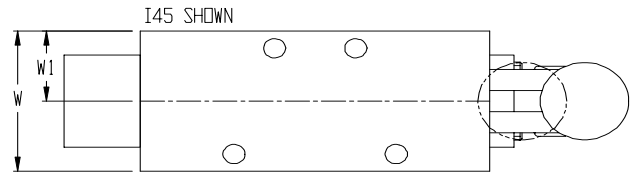
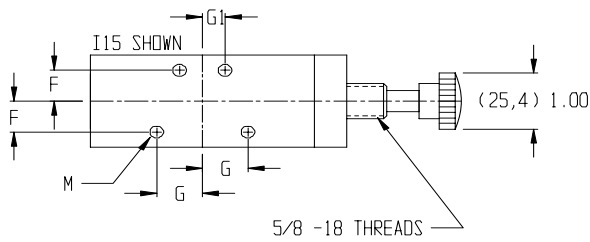
# MANUAL MODELS



## MODEL NUMBERS (4 WAY 3 POSITION)

SERIES	ISO SIZE	Cv (l/min)	OPERATOR	5/3						BODY MATERIAL	SEAL MATERIAL	Kg (LB)
				DETENTED 5/3			SPRING RETURN 5/3					
				BLOCK	EXHAUST	PRESSURE	BLOCK	EXHAUST	PRESSURE			
I 15	1	1.5 (1480)	HAND LEVER	I1500CAFN	I1500DAFN	I1500EAFN	I1500CBFC	I1500DBFC	I1500EBFC	ALUMINUM	NBR	,4 (.9)
			PALM BUTTON	I1500CAIN	I1500DAIN	I1500EAIN	I1500CBIC	I1500DBIC	I1500EBIC			
I 20	2	2.0 (1970)	HAND LEVER	I2000CAFN	I2000DAFN	I2000EAFN	I2000CBFC	I2000DBFC	I2000EBFC	ALUMINUM	NBR	,7 (1.5)
			PALM BUTTON	I2000CAIN	I2000DAIN	I2000EAIN	I2000CBIC	I2000DBIC	I2000EBIC			
I 45	3	4.5 (4430)	HAND LEVER	I4500CAFN	I4500DAFN	I4500EAFN	I4500CBFC	I4500DBFC	I4500EBFC	ALUMINUM	NBR	,9 (2.0)
			PALM BUTTON	I4500CAIN	I4500DAIN	I4500EAIN	I4500CBIC	I4500DBIC	I4500EBIC			

# DIMENSIONAL INFORMATION



SERIES	ISO SIZE	F	G	G1	H1	H2	L1	L2	L3	L4	M	T	W	W1
I 15	1	14,0 .55	18,0 .71	9,0 .35	25,4 1.00	136 5.35	44,3 1.74	102 4.00	101 3.98	60,1 2.37	5,4 .21	9,6 .38	41,9 1.65	21,0 .83
I 20	2	19,0 .75	24,0 .95	12,0 .47	25,4 1.00	136 5.35	48,2 1.90	106 4.16	105 4.14	64,1 2.52	6,4 .25	9,6 .38	49,2 1.94	24,6 .97
I 45	3	24,0 .95	32,0 1.26	16,0 .63	31,8 1.25	155 5.47	69,0 2.72	26,5 4.98	126 4.96	99,2 3.91	8,7 .34	12,7 .50	63,5 2.50	31,8 1.25

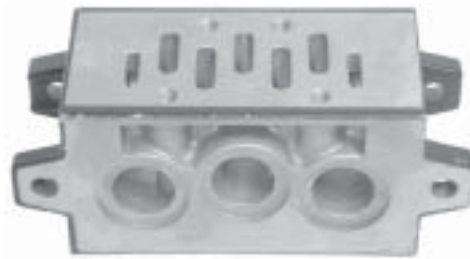
Units of Measure: Top - mm, Bottom - inches

# SUB-BASES AND MANIFOLDS



I 15

**SUB-BASE**



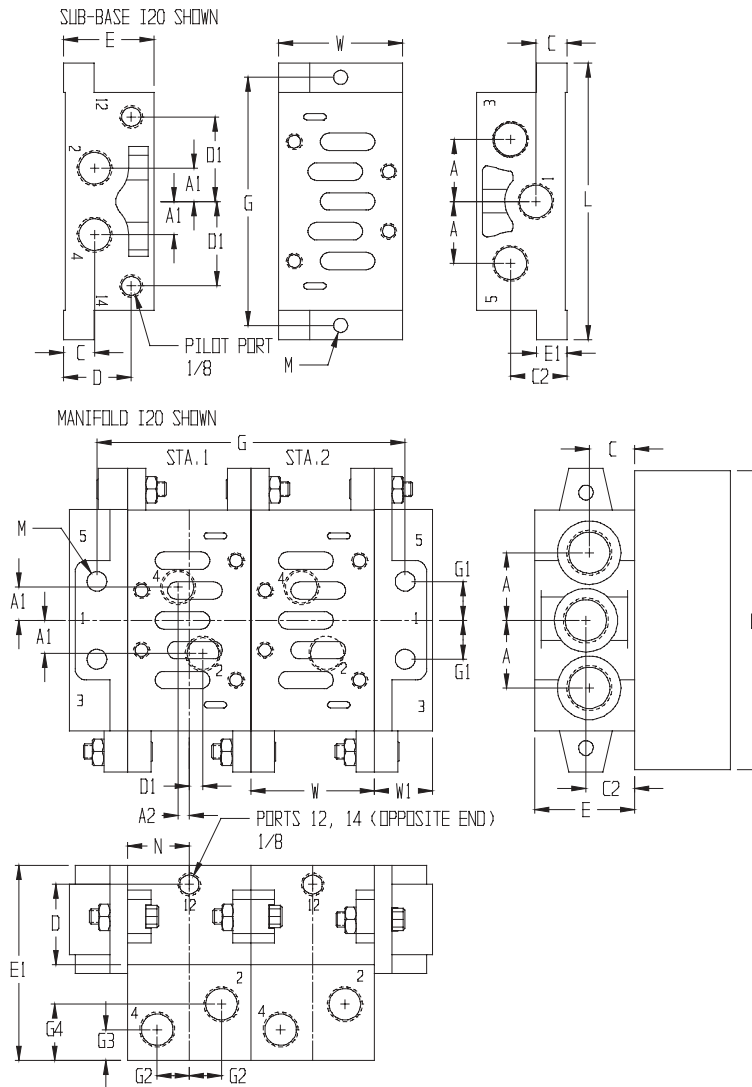
I 15

**MANIFOLD  
(BOTTOM PORTED SHOWN)**

SERIES	ISO SIZE	SUB-BASE				MANIFOLD					MANIFOLD ACCESSORIES		
		MODEL NUMBER	PORTS 2 & 4	PORTS 1, 3, & 5	WGT Kg (LB)	MODEL NUMBER		PORTS 2 & 4	PORTS 1, 3, & 5	WGT Kg (LB)	END PLATES	BLOCKING DISK	BLANK STATION COVER
						BOTTOM	SIDE						
I 15	1	7107-501	1/4	1/4	.5 1.0	A7107-503	A7108-008	1/4	3/8	.68 (1.5)	7107-504	A7002-010	A7107-506
		7107-502	3/8	3/8	.5 1.0								
I 20	2	7112-501	3/8	3/8	.5 1.0	A7113-046	A7113-046	3/8	3/8	.68 (1.5)	N/A	A7112-505	A7112-506
		7112-502	1/2	1/2	.5 1.0								
I 45	3	7129-501	1/2	1/2	.54 1.2	-	7130-021	1/2	1	.91 (2.0)	7129-504	A7129-505	A7129-506
		7129-502	3/4	3/4	.54 1.2								

G Threads: Add the letter "W" after the Model Number to indicate G Threads.

# DIMENSIONAL INFORMATION



SERIES	ISO SIZE	A	A1	A2	C	C2	D	D1	E	E1	G	G1	G2	G3	G4	L	M	N	W	W1
<b>SUB-BASE</b>																				
I15	1	21,5 .85	12 .47	-	10,5 .41	21,5 .85	23,5 .93	29 1.1	32 1.3	10 .39	98 3.9	-	-	-	-	110 4.3	5,6 .22	-	48 1.9	-
I20	2	28 1.1	15 .59	-	14 .55	25,9 1.02	30 1.18	37 1.46	40 1.57	13 .51	112 4.41	-	-	-	-	124 4.88	7 .26	-	57 2.24	-
I45	3	34 1.3	16 .63	-	17 .67	17 .67	22 .87	45 1.8	32 1.3	18 .71	136 5.4	-	-	-	-	149 5.9	7 .26	-	71 2.8	-
<b>MANIFOLD</b>																				
I15	1	24 .94	13 .51	1,5 .06	21 .83	24 .94	37 1.47	7,5 .30	46 1.8	81 3.2	108 4.3	14 .55	11 .43	12 .47	25 .98	110 4.3	7 .27	21,5 .85	43 1.69	22 .87
I20	2	35,5 1.40	17,8 .70	14,3 .56	27,4 1.08	27,4 1.08	42,8 1.68	14,3 .56	52,3 2.06	-	118 4.63	27,9 1.10	13,5 .53	12,2 .48	12,2 .48	133 5.25	7,1 .28	27,9 1.1	55,9 2.2	-
I45	3	48,2 1.9	19 .75	6 .24	30,4 1.2	33,0 1.3	45,9 1.81	7,8 .31	55,9 2.2	99 3.9	172 6.8	25,4 1.0	18 .71	17 .67	27,9 1.1	190 7.5	11,9 .47	35,5 1.4	71,1 2.8	30,5 1.2

Units of Measure: Top - mm, Bottom - inches

## OPTIONS

(LISTED AT THE END OF THE MODEL NUMBER IN ALPHA-NUMERIC ORDER)

### A - FLUOROELASTOMER SEALS

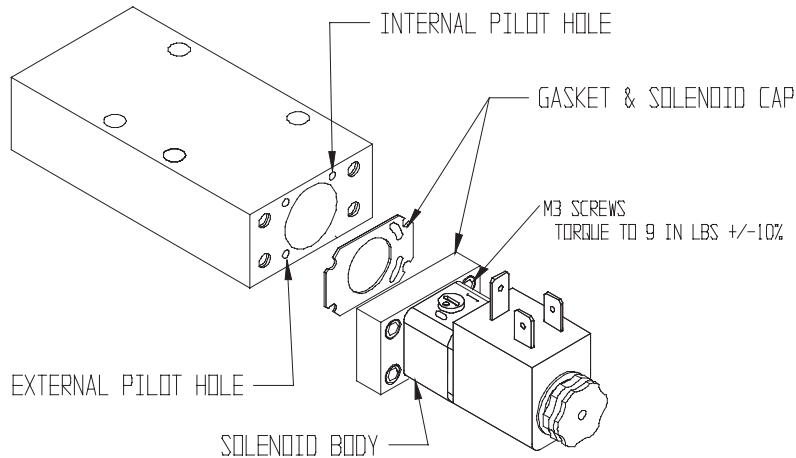
For applications where fluid media or ambient conditions are not compatible with nitrile seals. Note: Fluorocarbon seals do not increase the effective temperature range of the valve. For high temperature applications, consult the factory.

### B - EXTERNAL PILOT

For solenoid applications when the pressure to port one is less than 35 PSIG (2 BAR). See example below for field conversion.

#### FIELD CONVERSION

- Remove nut, then solenoid coil from stem.
- Remove screws from solenoid body.
- Rotate solenoid cap and gasket 180°.
- Verify that slots in gasket are in line with external pilot hole in body.
- Install Solenoid and Coil.
- External pilot connection through base now engaged.



### C - CONDUIT COIL

Refer to Electrical Section for details.

### CT - CONDUIT COIL HIGH TEMPERATURE

Refer to Electrical Section for details.

### D - DUSTPROOF

For applications in extremely dusty and contaminated environments. Standard vent ports are plugged. Operators breathe through the exhaust ports via flats on the end of the spools.

### G - COIL WITH 18" LEADS

Refer to Electrical Section for details.

### W - G THREADS

Sub-base and Manifold only.

### Y - COIL EXPLOSION PROOF (CSA, FM)

Refer to Electrical Section for details.

### Z - COIL EXPLOSION PROOF (ATEX, PTB)

Refer to Electrical Section for details.

### 1 - PUSH TURN LOCKING OVERRIDE

### 2 - EXTENDED TURN LOCKING OVERRIDE

# ELECTRICAL INFORMATION

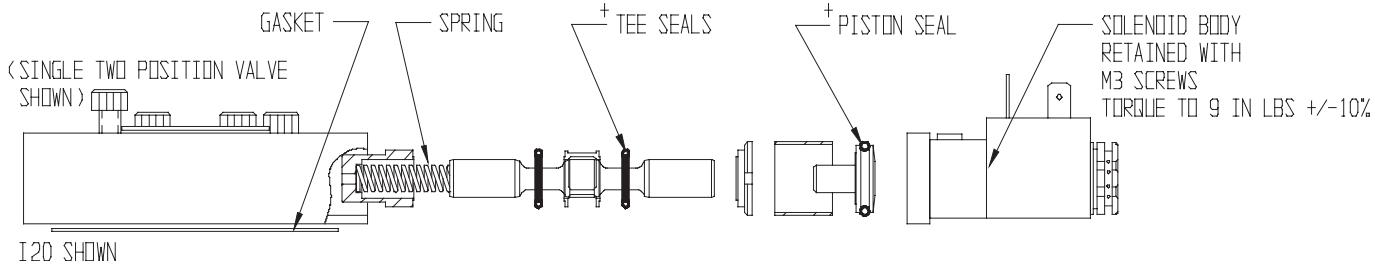
DESCRIPTION		WHEN THE 8TH CHARACTER OF MODEL NUMBER IS:	INSTRUCTIONS	COIL PART NUMBER ** = VOLTAGE
NEMA 4X WITH DIN 43650 CONNECTION		X	Order coil separately (specify voltage code from below)	7019-9**
NEMA 4X WITH 18" LEADS		X	Order coil separately (specify voltage code from below)	7019-9**G
NEMA 4X 1/2" CONDUIT WITH 30" LEADS		X	Order coil separately (specify voltage code from below)	7019-9**C 7019-9**CT (high temperature 82°C maximum)
EXPLOSION-PROOF 1/2" CONDUIT WITH 24" LEADS [ CSA 202633X FM APPROVED CL. I; ZONE1Ex m II T4; AEx m II CL. I; Div. 1; GR. A, B, C, D CL. II; GR. E, F, G CL. III T4 Ta= -20°C to +60°C NEMA: 4, 4X, 7C, 7D ]		X	Order coil separately (specify voltage code from below)	7019-9**Y
INTRINSICALLY-SAFE WITH STRAIN RELIEF (EEx ia IIC T6)		V	Coil and Connector included (24VDC only)	A7106-374
EXPLOSION-PROOF WITH 3m CABLE AND STRAIN RELIEF (Ex II 2G EExm II T - I EC Exm II T-)		Z	Order coil separately (specify voltage code from below)	7152-9**

L21, L45 VOLTAGE +/- 10 %	* * C O D E	CURRENT (AMPS)						RESISTANCE (OHMS @ 25° C)			POWER (AC = VA DC = WATTS)		
		INRUSH			HOLDING								
		NEMA											
		4	7	Z	4	7	Z	4	7	Z	4	7	Z
22/50 24/60	DA	.40	.55	-	.40	.32	-	31	19	-	4.8	4.5	-
110/50 120/60	AA	.08	.096	-	.06	.054	.029	840	530	1164	4.8	6.5	3.0
220/50 240/60	AB	.04	.048	-	.03	.027	.015	3400	2345	6730	6.0	6.5	3.0
12 VDC	DA	.40	-	-	.40	.375	.267	31	32	45	4.8	7	3.5
24 VDC	DB	.20	-	.136	.20	.187	.136	121	128	177	4.8	4.5	3.5
125 VDC	AB	.04	-	-	.04	.06	-	3400	2000	-	4.8	7	-

For alternative lower wattage options, please consult the factory.

DIN 43650 CONNECTORS							
TYPE	STRAIN RELIEF WITHOUT CORD	1/2" CONDUIT WITHOUT CORD	MOLDED WITH 6' CORD	STRAIN RELIEF WITH LIGHT		STRAIN RELIEF WITH LIGHT + 6' CORD	
				100-240 AC 48-120 DC	6-48 AC/DC	100-240 AC 48-120 DC	6-48 AC/DC
PART NUMBER	7020-001	7039-001	7020-006	7020-AA	7020-DB	7094-006	7094-007

# SERVICE KIT INFORMATION



## SERVICE KIT INSTALLATION

1. Remove screws from cap of operator.
2. Remove cap.
3. Remove existing serviceable components.
4. Replace with kit components. **+All seals must be lubricated with Magnalube-G or equivalent.**
5. Align pilot hole in body with pilot hole in cap.
6. Torque screws as shown above.

Lubrication of Automatic Valve products is not required but is recommended to maximize service life. Oils should be compatible with seal material, have an ISO 32 or lighter viscosity, and have an aniline point between 82°C (180°F) and 99°C (210°F). Refer to Maintenance section of catalog for recommended lubricants.

## MODEL NUMBERS

SERIES	FUNCTION			
	SINGLE		DOUBLE	
	PART NUMBER	DESCRIPTION	PART NUMBER	DESCRIPTION
I 15	K - I15 - SGL K - I15 - SGL - A (Fluoroelastomer)	Tee Seals (6) Gasket (1) Piston Seal (1) Spring (1)	K - I15 - DBL K - I15 - DBL - A (Fluoroelastomer)	Tee Seals (6) Gasket (1) Piston Seal (2)
I 20	K - I20 - SGL K - I20 - SGL - A (Fluoroelastomer)	Tee Seals (6) Gasket (1) Piston Seal (1) Spring (1)	K - I20 - DBL K - I20 - DBL - A (Fluoroelastomer)	Tee Seals (6) Gasket (1) Piston Seal (2)
I 45	K - I45 - SGL K - I45 - SGL - A (Fluoroelastomer)	Tee Seals (6) Gasket (1) Piston Seal Spring (1)	K - I45 - DBL K - I45 - DBL - A (Fluoroelastomer)	Tee Seals (6) Gasket (1) Piston Seal (2)