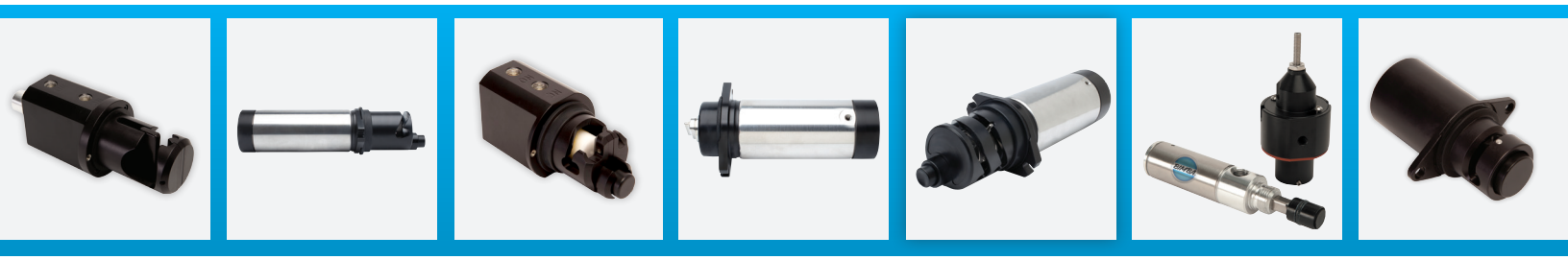
Catalog

BIMBA | ACRO

Pinch Valves



Delivering Innovative Pinch Valves & Fluid Control Components



BIMBA | ACRO

DEDICATED TO SMARTER DEVICE DESIGN

With more than 40 years of experience, Acro Associates, Inc. continues to lead the industry in providing innovative fluidic products and engineering design services to the medical device and bioprocessing communities.

From solenoid and pneumatic pinch valves, to fluidic fittings and accessories, the Acro team of experts is dedicated to helping design engineers satisfy regulatory requirements with only the most efficient solutions.

Industry-Leading Quality

As a certified California Department of Public Health medical device manufacturer, as well as a ISO 9001:2008 and ISO 13485:2003 compliant company, Acro consistently delivers high-quality solutions.

- QUALITY MANAGEMENT SYSTEM

  Acro's Quality Management Program employs Lean-Six Sigma best practices to ensure that customer, vendor and partner standards of quality are met.

Product Assurance

All products are rigorously inspected, tested and validated to guarantee that they meet manufacturer specifications and requirements for reliability and performance.

- COMMITMENT TO GROWTH

  Metrics, including vendor certification/performance, manufacturing yields/failures and customer satisfaction are continually monitored to empower product and service improvement.

- TRAINING

  Acro supports ongoing training and skill development for all employees—ensuring that customers experience superior service.



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600-SERIES PNEUMATIC PINCH VALVES

SOLVE IT WITH PINCH VALVES

WHY PINCH VALVES ARE REPLACING WETTED VALVES

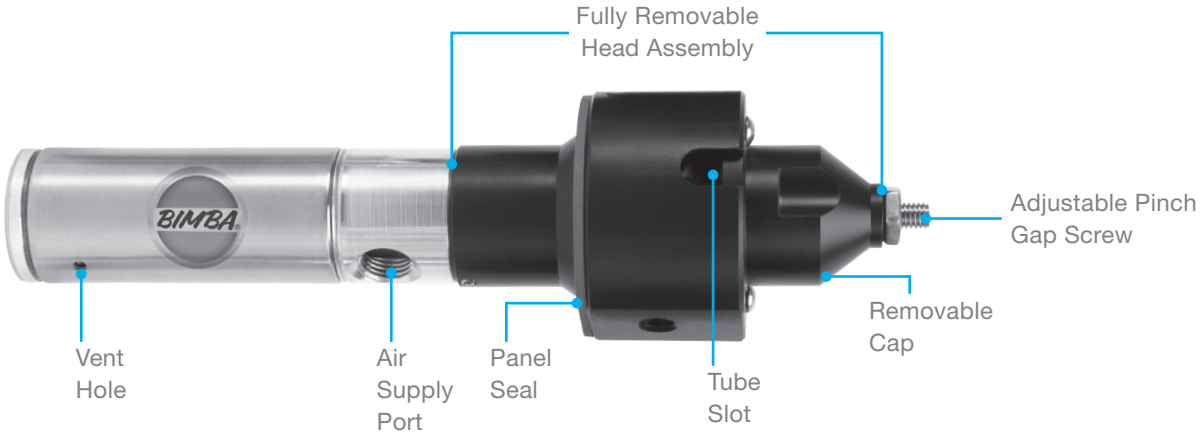


The new **600 Series** Pneumatic Pinch Valves are designed to deliver compactness and affordability without compromising performance. Choose from three models that accommodate a wide array of tube sizes, ranging from 0.187" to 0.375" OD, and pressures up to 70 Shore A and 60 psi*.

FEATURES & BENEFITS:

- **Compact, lightweight design**
- **Easy cleaning eliminates media contamination**
- **Fast installation and replacement**
- **Adjustable pinch gap that supports multiple tube sizes**
- **Normally Open or Normally Closed default formats available**

*Some polyurethane tube sizes can use up to 80 psi media pressure



How to Order

Acro Part # Key: For Reference Purposes

MODEL - TUBE SLOT SIZE	SENSOR OUTPUT	MATERIAL - COLOR	SPRING FORCE - LBS	CYLINDER STROKE
603 — 0.187" 604 — 0.250" 606 — 0.375"	S - NPN N - NONE	DB Delrin - Black	2-6 lbs. (for NO) 5-25 lbs. (for NC)	Units - XXX Thousands of an inch

603CN - SDBP5 - 020 - 0375

NORMAL STATE	TUBE SLOT QTY	PINCH PAD	PINCH GAP SETTING
C - Normally Closed Q - Normally Open	S - Single	P - Yes N - No	Units - XXX Thousands of an inch

Stocked Part Numbers

MODEL 603	MODEL 604	MODEL 606
603CS-SDBN5-045-0375	604CS-SDBN5-090-0375	606CS-SDBN5-090-0375
603CN-SDBN5-045-0375	604CN-SDBN5-090-0375	606CN-SDBN5-090-0375
603QS-SDBN2-045-0375	604QS-SDBN2-090-0375	606QS-SDBN2-090-0375
603QN-SDBN2-045-0375	604QN-SDBN2-090-0375	606QN-SDBN2-090-0375
603CS-SDBP5-020-0375		
603CN-SDBP5-020-0375		
603QS-SDBP2-020-0375		
603QN-SDBP2-020-0375		

Accessories

Pneumatic Controller (Shelving)	Part Number	List Price	Pneumatic Controller - Standard (Non-Shelving)	Part Number	List Price
3-way 24 VDC Controller	K1003-24	$50.00	3-way 12 VDC Controller	K1003-12	$50.00
3-way 110/120 VAC Controller	K1003-110	50.00	3-way 220 VAC Controller	K1003-230	50.00
4-way 24 VDC Controller	K1004-24	50.00	4-way 12 VDC Controller	K1004-12	50.00
4-way 120 VAC Controller	K1004-110	50.00	4-way 220 VAC Controller	K1004-230	50.00

Controller Kit Parts -- Selected Controller, Push-In Fittings; 2 pcs. 10-31 to 1/4" Tube O.D., 4 pcs. 1/8 NPT to 1/4" Tube O.D., 2 pcs. 1/4" O.D. Tubing 18" Length, 1 pc. Brass Fitting 1/8 NPT

Product Selection Guide

Valve Model	Tube OD Range (in)	Recommended Tube and Media Pressures for Normally Closed Valves at 70° F for Different Tubing and Media Pressures, Complimentary Tube Testing Available						
		Tube OD (in)	Tube ID (in)	Material	Durometer (Shore A)	Manufacturer's Working Pressure (PSI)	Maximum Tested Pressure (PSI)	Valve Part Number
603	5/32 - 3/16	.150	.100	Polyurethane	~90	60	60	603CN-SDBP5-020-0375 603CS-SDBP5-020-0375
				Polyurethane	~90	60	60	
603	5/32 - 3/16	3/16	1/8	Silicone STHT-C	50	10	20	603CN-SDBN5-045-0375 603CS-SDBN5-045-0375
				Tygon 3350	50	9	18	
				C-Flex	62	25	50	
				Pharmed BPT	64	24	48	
				Tygon ND-100-065	65	55	90	
604	3/16 - 1/4	1/4	1/8	Silicone STHT-C	50	10	20	604CN-SDBN5-090-0375 604CS-SDBN5-090-0375
				Tygon 3350	50	14	28	
				C-Flex	62	35	70	
				Pharmed BPT	64	24	48	
				Tygon ND-100-065	65	55	90	
606	1/4 - 3/8	3/8	1/4	Silicone STHT-C	50	6	12	606CN-SDBN5-090-0375 606CS-SDBN5-090-0375
				Tygon 3350	50	9	18	
				C-Flex	62	20	40	
				Pharmed BPT	64	13	26	
				Tygon ND-100-065	65	30	30	

Specifications

600CN Models

MECHANICAL
MEDIA PRESSURE: 30 PSI MAXIMUM RECOMMENDED
STATE: NORMALLY CLOSED
RECOMMENDED PANEL: 3/16" TO 1/4" THICK
TUBE LOADING: FRONT LOADING (REMOVABLE COVER)
PINCHING FORCE: 24 LB NOMINAL
MAXIMUM ON-TIME: INDEFINITE
MAXIMUM CYCLE RATE: 1 CYCLE PER 3 SECONDS
REC. DUTY CYCLE: 50% DUTY
REC. AMBIENT TEMPERATURE: 50°C MAXIMUM

PNEUMATIC
RECOMMENDED SUPPLY: 70 PSI MIN. TO 125 PSI MAX.
AIR CONSUMPTION: APPROX 0.25 CUBIC INCHES/CYCLE
ACTUATION: 3 WAY CONTROL VALVE REQUIRED
STATE FEEBACK: NONE

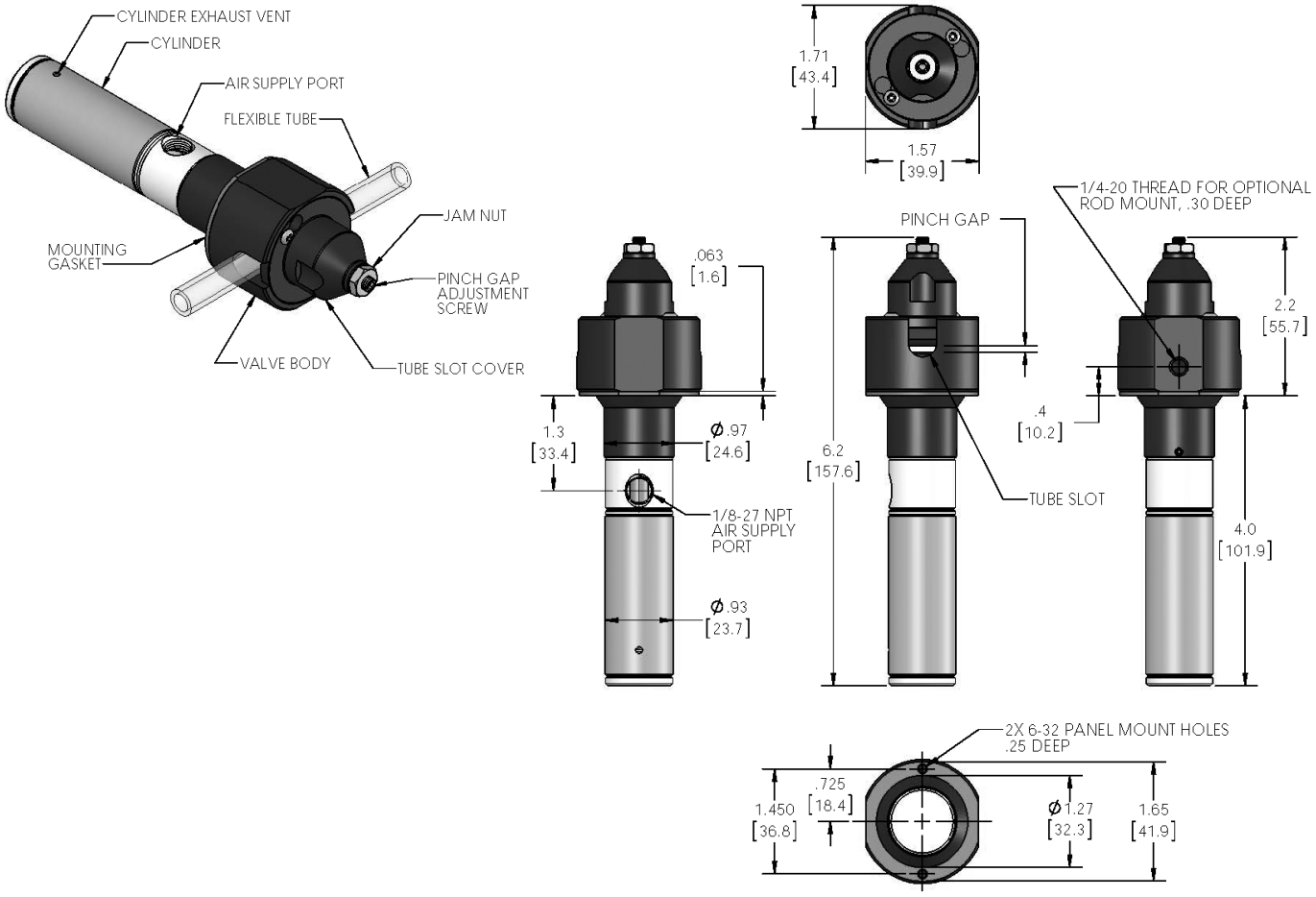
MATERIAL
WEIGHT/MASS: 185g [6.5 oz]
CYLINDER: ALUMINUM/STAINLESS STEEL
BODY: BLACK ACETAL
COVER: BLACK ACETAL
PINCH RIDGE: BLACK ACETAL
PINCH HEAD: BLACK ACETAL
O-RINGS: BUNA-N
HARDWARE: STAINLESS STEEL
MOUNTING GASKET: SILICONE
PINCH PAD (optional): NEOPRENE

COMPLIANCE
RoHS 2 (Directive 2011/65/EU) COMPLIANT

*See Product Selection Guide for specific tubing materials

Dimensional Details: Inch (mm)

600CN



Specifications

600CS Models

MECHANICAL
MEDIA PRESSURE: 30 PSI MAXIMUM RECOMMENDED
STATE: NORMALLY CLOSED
RECOMMENDED PANEL: 3/16" TO 1/4" THICK
TUBE LOADING: FRONT LOADING (REMOVABLE COVER)
PINCHING FORCE: 24 LB NOMINAL
MAXIMUM ON-TIME: INDEFINITE
MAXIMUM CYCLE RATE: 1 CYCLE PER 3 SECONDS
REC. DUTY CYCLE: 50% DUTY
REC. AMBIENT TEMPERATURE: 50°C MAXIMUM

PNEUMATIC
RECOMMENDED SUPPLY: 70 PSI MIN. TO 125 PSI MAX.
AIR CONSUMPTION: APPROX 0.25 CUBIC INCHES/CYCLE
ACTUATION: 3 WAY CONTROL VALVE REQUIRED
STATE FEEDBACK: DIGITAL HALL SWITCH, NPN, 24" LEADS
DETECTS OPEN END OF STROKE

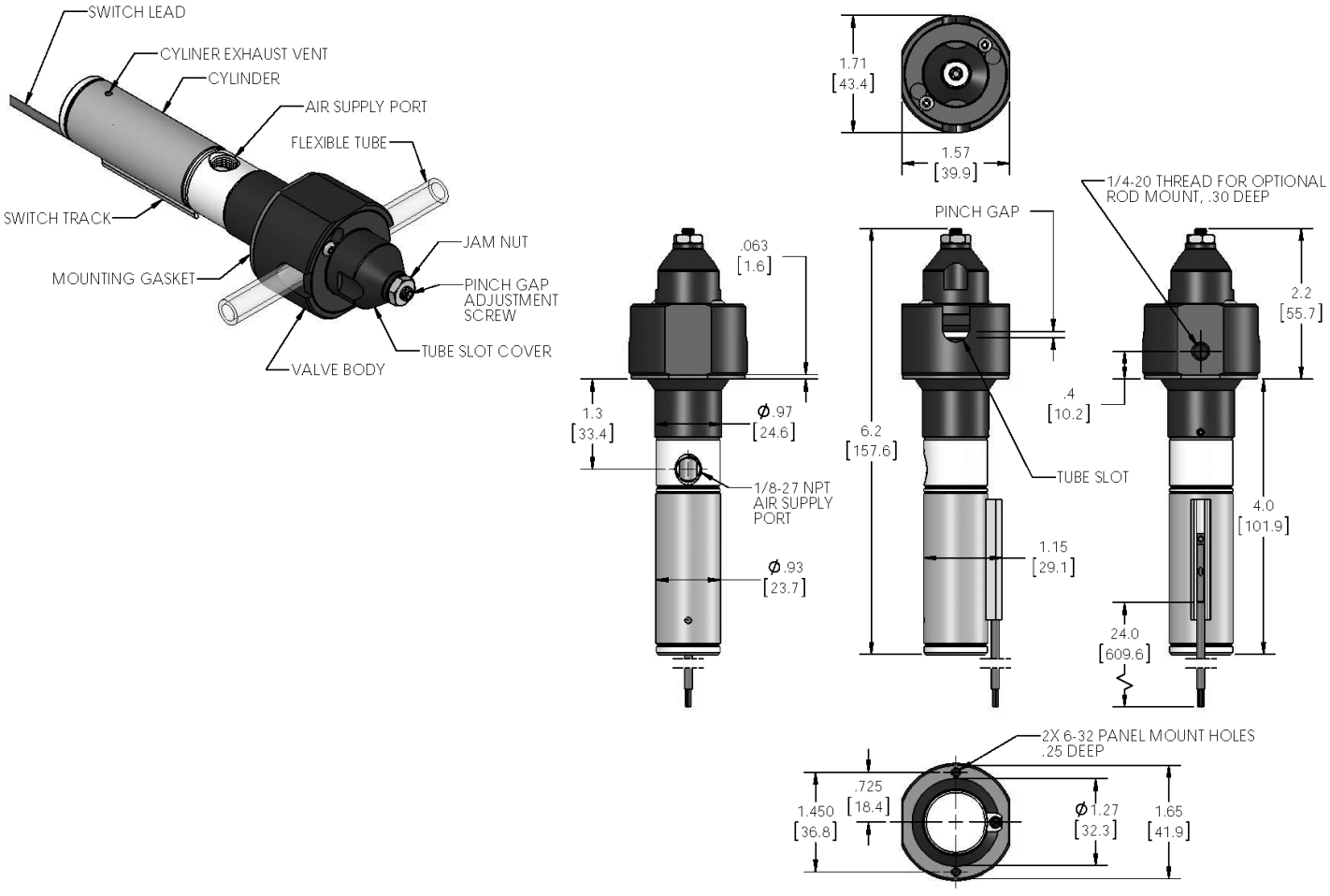
MATERIAL
WEIGHT/MASS: 200g [7 oz]
CYLINDER: ALUMINUM/STAINLESS STEEL
BODY: BLACK ACETAL
COVER: BLACK ACETAL
PINCH RIDGE: BLACK ACETAL
PINCH HEAD: BLACK ACETAL
O-RINGS: BUNA-N
HARDWARE: STAINLESS STEEL
MOUNTING GASKET: SILICONE
SWITCH TRACK: ALUMINUM
PINCH PAD (optional): NEOPRENE

COMPLIANCE
RoHS 2 (Directive 2011/65/EU) COMPLIANT

*See Product Selection Guide for specific tubing materials

Dimensional Details: Inch (mm)

600CS



Specifications

600QN Models

MECHANICAL
MEDIA PRESSURE: 30 PSI MAXIMUM RECOMMENDED
STATE: NORMALLY OPEN
RECOMMENDED PANEL: 3/16" TO 1/4" THICK
TUBE LOADING: FRONT LOADING (REMOVABLE COVER)
PINCHING FORCE: DEPENDENT ON SUPPLY PRESSURE
FORCE = SUPPLY PRESSURE * 0.6 - 6LBF
MAXIMUM ON-TIME: INDEFINITE
MAXIMUM CYCLE RATE: 1 CYCLE PER 3 SECONDS
REC. DUTY CYCLE: 50% DUTY
REC. AMBIENT TEMPERATURE: 50°C MAXIMUM

PNEUMATIC
RECOMMENDED SUPPLY: 50 PSI MIN. TO 125 PSI MAX.
AIR CONSUMPTION: APPROX 0.25 CUBIC INCHES/CYCLE
ACTUATION: 3 WAY CONTROL VALVE REQUIRED
STATE FEEDBACK: NONE

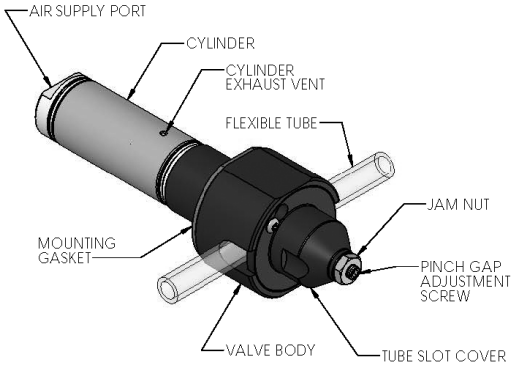
MATERIAL
WEIGHT/MASS: 170g [6 oz]
CYLINDER: ALUMINUM/STAINLESS STEEL
BODY: BLACK ACETAL
COVER: BLACK ACETAL
PINCH RIDGE: BLACK ACETAL
PINCH HEAD: BLACK ACETAL
O-RINGS: BUNA-N
HARDWARE: STAINLESS STEEL
MOUNTING GASKET: SILICONE
PINCH PAD (optional): NEOPRENE

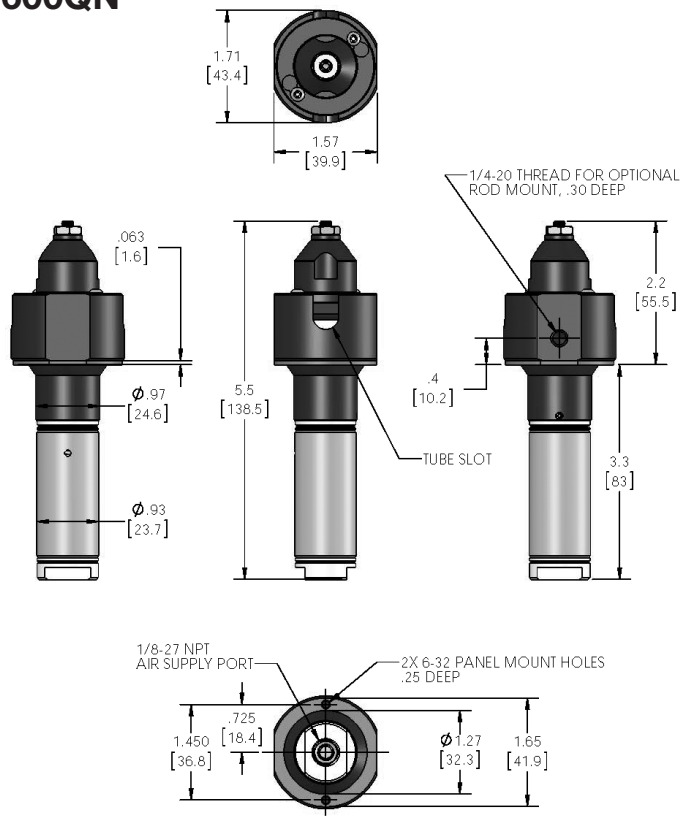
COMPLIANCE
RoHS 2 (Directive 2011/65/EU) COMPLIANT

*See Product Selection Guide for specific tubing materials

Dimensional Details: Inch (mm)

600QN





Specifications

600QS Models

MECHANICAL
MEDIA PRESSURE: 30 PSI MAXIMUM RECOMMENDED
STATE: NORMALLY OPEN
RECOMMENDED PANEL: 3/16" TO 1/4" THICK
TUBE LOADING: FRONT LOADING (REMOVABLE COVER)
PINCHING FORCE: DEPENDENT ON SUPPLY PRESSURE
FORCE = SUPPLY PRESSURE * 0.6 - 6LBF
MAXIMUM ON-TIME: INDEFINITE
MAXIMUM CYCLE RATE: 1 CYCLE PER 3 SECONDS
REC. DUTY CYCLE: 50% DUTY
REC. AMBIENT TEMPERATURE: 50°C MAXIMUM

PNEUMATIC
RECOMMENDED SUPPLY: 50 PSI MIN. TO 125 PSI MAX.
AIR CONSUMPTION: APPROX 0.25 CUBIC INCHES/CYCLE
ACTUATION: 3 WAY CONTROL VALVE REQUIRED
STATE FEEDBACK: DIGITAL HALL SWITCH, NPN, 24" LEADS
DETECTS OPEN END OF STROKE

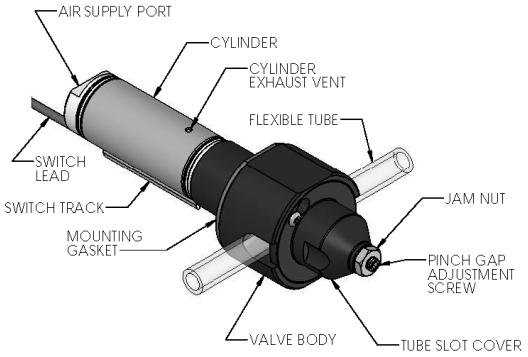
MATERIAL
WEIGHT/MASS: 185g [6.5 oz]
CYLINDER: ALUMINUM/STAINLESS STEEL
BODY: BLACK ACETAL
COVER: BLACK ACETAL
PINCH RIDGE: BLACK ACETAL
PINCH HEAD: BLACK ACETAL
O-RINGS: BUNA-N
HARDWARE: STAINLESS STEEL
MOUNTING GASKET: SILICONE
SWITCH TRACK: ALUMINUM
PINCH PAD (optional): NEOPRENE

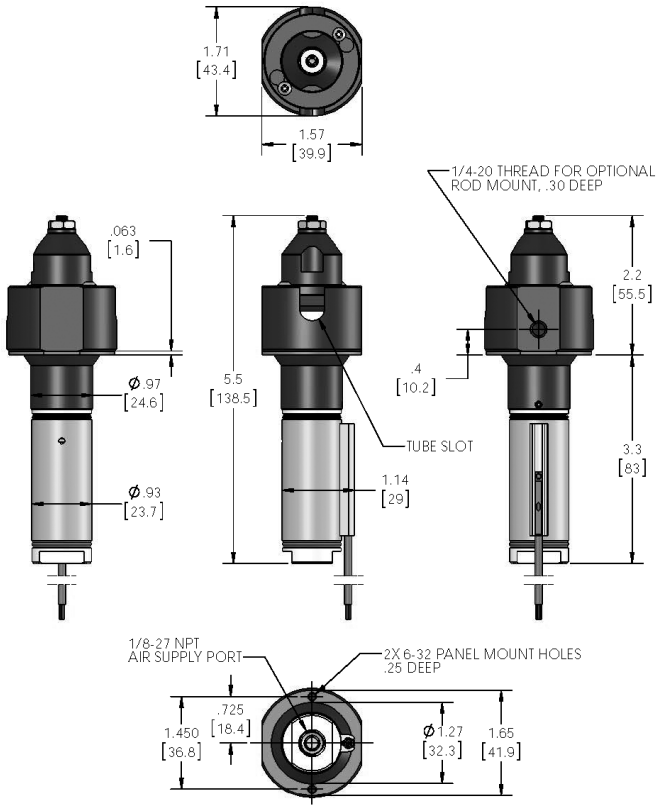
COMPLIANCE
RoHS 2 (Directive 2011/65/EU) COMPLIANT

*See Product Selection Guide for specific tubing materials

Dimensional Details: Inch (mm)

600QS





900-SERIES PNEUMATIC PINCH VALVES

Robust Pneumatic Pinch Valves for Fluid Control

Pneumatic Pinch Valves are designed for biopharmaceutical processing, food and beverage, and industrial applications where sterility and wash down procedures are needed. These robust units offer reliability and performance—especially when working with harder or larger diameter tubing that requires stronger pinch forces.

Designed for disposable tubing, each model contains an easy snap-in tube slot for quick loading and unloading procedures. Panel or base mountable units can also be configured with optional state sensors, controllers, or setup in normally-open or normally-closed default states. Optional safety caps on certain models are also available to address operational hazards.







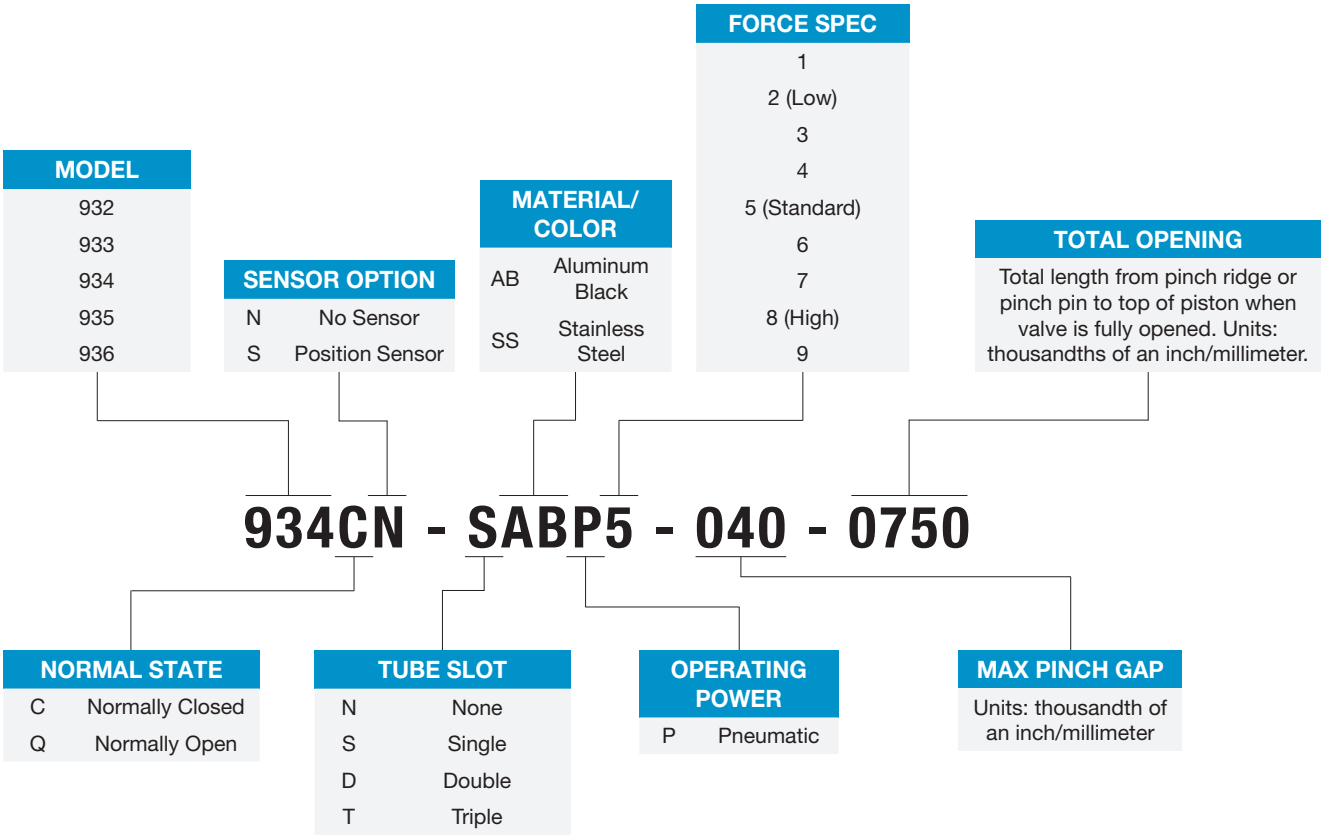
Experience the Difference

- Compact design that allows the customer to select preferred tubing within recommended guidelines
- Base or Panel mount ready with snap-in tubing slot
- Optional valve state detection sensors
- Optional 3- or 4-way controllers for pressure venting between states
- Panel splash seals for wash down procedures
- Manual overrides on model 932 and 933
- Offered in Black Anodized Aluminum or 316L stainless steel
- Warranted for 18 months

Each product is also calibrated for pinch force, pinch gap and stroke to ensure optimal performance.

How to Order

Acro Part # Key: For Reference Purposes



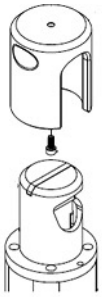
SHELVING MODELS
932CN-SABP5-040-0188
932QN-SABP5-040-0188
932CN-SABP5-060-0188
932QN-SABP5-060-0188
933CN-SABP5-040-0375
933QN-SABP5-040-0375
934CN-SABP5-094-0750
934CN-SABP5-160-0750
934QN-SABP5-094-0750
934QN-SABP5-160-0750
935CN-SABP5-160-1000
935CN-SABP8-160-1000
935QN-SABP5-160-1000

STANDARD NON-SHELVING MODELS
932CS-SABP5-040-0188
932QS-SABP5-040-0188
932CS-SABP5-060-0188
932QS-SABP5-060-0188
933CS-SABP5-040-0375
934CS-SABP5-094-0750
934CS-SABP5-160-0750
935CS-SABP5-160-1000
935CS-SABP8-160-1000
936CS-SABP5-250-1500
936CS-SABP8-250-1500
936QS-SABP5-250-1500

Accessories

Pneumatic Controller (Shelving)	Part Number	Pneumatic Controller - Standard (Non-Shelving)	Part Number
3-way 24 VDC Controller	K1003-24	3-way 12 VDC Controller	K1003-12
3-way 110/120 VAC Controller	K1003-110	3-way 220 VAC Controller	K1003-230
4-way 24 VDC Controller	K1004-24	4-way 12 VDC Controller	K1004-12
4-way 120 VAC Controller	K1004-110	4-way 220 VAC Controller	K1004-230

Controller Kit Parts -- Selected Controller, Push-In Fittings; 2 pcs. 10-31 to 1/4" Tube O.D., 4 pcs. 1/8 NPT to 1/4" Tube O.D., 2 pcs. 1/4" O.D. Tubing 18" Length, 1 pc. Brass Fitting 1/8 NPT



Safety Cap	Part Number	Inventory
Model 934 - 0.5" Tube Slot	A5650	Non-Shelving
Model 934 - 0.75" Tube Slot	A5651	Shelving
Model 935 - 0.75" Tube Slot	A5652	Shelving
Model 935 - 1.0" Tube Slot	A5653	Shelving
Model 934/935 - No Tube Slot	A5654	Shelving

**935 HF comes standard with safety cap and mounting leash provided*

Product Selection Guide

SIMPLE AND AFFORDABLE SERIES PNEUMATIC PINCH VALVES

THE THREE TUBING LISTED BELOW ARE RECOMMENDED FOR ALL VALVE MODELS, NORMALLY CLOSED AND NORMALLY OPEN, AT THEIR RESPECTIVE TUBING RANGE AND MIN. WALL THICKNESS AT 70°F

VALVE MODEL	TUBING O.D. RANGE [in./mm]	MIN. WALL THICKNESS [in./mm]	No.	TUBING O.D. [in./mm]	TUBING I.D. [in./mm]	MATERIAL	DUROMETER [SHORE A]	MANUFACTURER MAX PRESSURE [PSI / Bar]†	MAX TESTED MEDIA PRESSURE [PSI / Bar]†	VALVE PART NUMBER
ALL	DEPENDENT ON VALVE MODEL SEE CHART BELOW	SEE CHART BELOW	1	SEE CHART BELOW	SEE CHART BELOW	C-FLEX	50 - 60	9 - 15 / .6 - 1.0	9 - 15 / .6 - 1.0	SEE CHART BELOW DEPENDENT ON TUBING O.D.
			2			PHARMED BPT	64	9 - 30 / .6 - 2.1	9 - 30 / .6 - 2.1	
			3			SILICONE	50 - 60	9 - 15 / .6 - 1.0	9 - 15 / .6 - 1.0	

SIMPLE AND AFFORDABLE SERIES PNEUMATIC PINCH VALVES - NORMALLY CLOSED CONFIGURATION

VALVE MODEL	VALVE MODEL ACCOMMODATES TUBING OUTER DIAMTER RANGE [in./mm]	MIN. TUBING WALL THICKNESS REQUIRED [in./mm]**	RECOMMENDED TUBING AND MEDIA PRESSURES FOR NORMALLY CLOSED VALVES AT 70°F FOR DIFFERENT TUBING AND MEDIA PRESSURES, COMPLIMENTARY TUBING TESTS AVAILABLE††							
			No.	TUBING O.D. [in./mm]	TUBING I.D. [in./mm]	MATERIAL	DUROMETER [SHORE A]	MANUFACTURER MAX PRESSURE [PSI / Bar]†	MAX TESTED MEDIA PRESSURE [PSI / Bar]†	VALVE PART NUMBER [recommend supply pressure, PSI / Bar]
932	.125 - .177 / 3.2 - 4.5 (1/8 - .177)	.032 / .8 (1/32)	1	.125 3.2	.063 1.6	POLYURETHANE	70 - 85	105 / 7.2	50 / 3.4	932CN-SABP5-040-0188 932CS-SABP5-040-0188* [50 - 125 / 3.4 - 8.6]
			2			PVC	60 - 70	65 / 4.5	50 / 3.4	
			3			TYGON B-44-4X	65	60 / 4.1	50 / 3.4	
932	.188 - .250 / 4.8 - 6.4 (3/16 - 1/4)	.063 / 1.6 (1/16)	1	.250 6.4	.125 3.2	PHARMA 80	80	249 / 17.2	50 / 3.4	932CN-SABP5-060-0188 932CS-SABP5-060-0188* [50 - 125 / 3.4 - 8.6]
			2			POLYURETHANE	70 - 80	110 / 7.6	50 / 3.4	
			3			PVC	60 - 70	65 / 4.5	50 / 3.4	
			4			TYGON B-44-4X	65	60 / 4.1	50 / 3.4	
933	.250 - .375 / 6.4 - 9.5 (1/4 - 3/8)	.063 / 1.6 (1/16)	1	.375 / 9.5	.125 / 3.2	SILICONE, BRAID REINFORCED	60 - 65	175 / 12.1	50 / 3.4	933CN-SABP5-040-0375 933CS-SABP5-040-0375* [50 - 125 / 3.4 - 8.6]
			2	.375 / 9.5	.188 / 4.8	PHARMA 65	65	15 / 1.0	15 / 1.0	
			3	.375 9.5	.250 6.4	PHARMA 80	80	249 / 17.2	30 / 2.1	
			4			PVC	60 - 70	45 / 3.1	45 / 3.1	
			5			TYGON B-44-4X	65	34 / 2.3	34 / 2.3	
934	.500 - .750 / 12.7 - 19.1 (1/2 - 3/4)	.063 / 1.6 (1/16)	1	.500 12.7	.375 9.5	PHARMA 50	50	10 / .7	10 / .7	934CN-SABP5-094-0750 934CS-SABP5-094-0750* [60 - 125 / 4.1 - 8.6]
			2			POLYURETHANE	70 - 85	55	30 / 2.1‡	
			3			PVC	60 - 70	30 / 2.1	30 / 2.1	
			4			TYGON B-44-4X	65	25 / 1.7	25 / 1.7	
934	.500 - .750 / 12.7 - 19.1 (1/2 - 3/4)	.125 / 3.2 (1/8)	1	.500 12.7	.250 6.4	PHARMA 50	50	17 / 1.2	17 / 1.2	934CN-SABP5-160-0750 934CS-SABP5-160-0750* [60 - 125 / 4.1 - 8.6]
			2			SILICONE, BRAID REINFORCED	60 - 65	160 / 11.0	50 / 3.4	
			3			TYGON B-44-4X	65	60 / 4.1	30 / 2.1‡	
			4	.750 / 19.1	.500 / 12.7	PHARMA 65	65	11 / .8	11 / .8	
935	.750 - 1.000 / 19.1 - 25.4 (3/4 - 1)	.125 / 3.2 (1/8)	1	1.000 / 25.4	.750 / 19.1	PHARMA 50	50	9 / .6	9 / .6	935CN-SABP5-160-1000 935CS-SABP5-160-1000* [60 - 125 / 4.1 - 8.6]
935	.750 - 1.000 / 19.1 - 25.4 (3/4 - 1)	.125 / 3.2 (1/8)	1	0.938 / 23.8	.625 / 15.9	TYGON B-44-4X	65	35 / 2.4	20 / 1.4 ‡	935CN-SABP8-160-1000 935CS-SABP8-160-1000* [80 - 125 / 5.5 - 8.6] (High Force)
			2	1.000 / 25.4	.625 / 15.9	SILICONE, BRAID REINFORCED	60 - 65	100 / 6.9	40 / 2.8	
			3	1.000 25.4	.750 19.1	PHARMA 65	65	7 / .5	7 / .5	
			4			PVC	60 - 70	30 / 2.1	20 / 1.4‡	
936	1.125 - 1.625 / 28.6 - 41.3 (1 1/8 - 1 5/8)	.188 / 4.8 (3/16)	1	1.360 / 34.5	1.000 / 25.4	SILICONE, BRAID REINFORCED	60	65 / 4.5	30 / 2.1‡	936CS-SABP5-250-1500* [70 - 125 / 4.8 - 8.6]
			2	1.375 / 34.9	1.000 / 25.4	NORPRENE, BRAID REINFORCED	60	75 / 5.2	30 / 2.1	
			3	1.485 / 37.7	1.125 / 28.6	SILICONE, BRAID REINFORCED	60	55 / 3.8	30 / 2.1‡	
			4	1.625 / 41.3	1.250 / 31.8	PVC	60	20 / 1.4	10 / 1.4	
936	1.125 - 1.625 / 28.6 - 41.3 (1 1/8 - 1 5/8)	.188 / 4.8 (3/16)	1	1.360 / 34.5	1.000 / 25.4	SILICONE, BRAID REINFORCED	60	65 / 4.5	65 / 4.5	936CS-SABP8-250-1500* [90 - 125 / 6.2 - 8.6] (High Force)
			2	1.375 / 34.9	1.000 / 25.4	NORPRENE, BRAID REINFORCED	60	75 / 5.2	75 / 5.2	
			3	1.485 / 37.7	1.125 / 28.6	SILICONE, BRAID REINFORCED	60	55 / 3.8	55 / 3.8	
			4	1.625 / 41.3	1.250 / 31.8	PVC	60	20 / 1.4	20 / 1.4	
			5			PVC, BRAID REINFORCED	66	85 / 5.9	20 / 2.1‡	

*Valve model with position sensor.
†Maximum media pressure for reference only. User to verify performance. Shown manufacturer maximum rated pressure is for reference only and may change over time. Please consult tubing manufacturer for maximum rated working pressure and temperature.
‡Tubing may require conditioning for an instant seal. Conditioning consists of tubing being pinched by the valve for approximately 15 seconds without media pressure. Various factors can affect tubing seal rate that require conditioning.
**Tubing wall thickness can be calculated by the formula: wall thickness = (outer diameter - inner diameter)/2
††For any conditions not stated in the above Tubing Recommendation table please contact Acro Associates and we will gladly determine valve suitability with a complimentary tubing test.

SIMPLE AND AFFORDABLE SERIES PNEUMATIC PINCH VALVES - NORMALLY OPEN CONFIGURATION

VALVE MODEL	VALVE MODEL ACCOMMODATES TUBING OUTER DIAMTER RANGE [in./mm]	MIN. TUBING WALL THICKNESS REQUIRED [in./mm]**	RECOMMENDED TUBING AND MEDIA PRESSURES FOR NORMALLY OPEN VALVES AT 70°F FOR DIFFERENT TUBING AND MEDIA PRESSURES, COMPLIMENTARY TUBING TESTS AVAILABLE††							
			No.	TUBING O.D. [in./mm]	TUBING I.D. [in./mm]	MATERIAL	DUROMETER [SHORE A]	MANUFACTURER MAX PRESSURE [PSI / Bar]†	MAX TESTED MEDIA PRESSURE [PSI / Bar]†	VALVE PART NUMBER [recommend supply pressure, PSI / Bar]
932	.125 - .177 / 3.2 - 4.5 (1/8 - .177)	.032 / .8 (1/32)	1	.125 3.2	.063 1.6	POLYURETHANE	70 - 85	105 / 7.2	50 / 3.4	932QN-SABP5-040-0188 932QS-SABP5-040-0188* [80 - 125 / 3.4 - 8.6]
			2			PVC	60 - 70	65 / 4.5	50 / 3.4	
			3			TYGON B-44-4X	65	60 / 4.1	50 / 3.4	
932	.188 - .250 / 4.8 - 6.4 (3/16 - 1/4)	.063 / 1.6 (1/16)	1	.250 6.4	.125 3.2	PHARMA 80	80	249 / 17.2	50 / 3.4	932QN-SABP5-060-0188 932QS-SABP5-060-0188* [80 - 125 / 3.4 - 8.6]
			2			POLYURETHANE	70 - 80	110 / 7.6	50 / 3.4	
			3			PVC	60 - 70	65 / 4.5	50 / 3.4	
			4			TYGON B-44-4X	65	60 / 4.1	50 / 3.4	
933	.250 - .375 / 6.4 - 9.5 (1/4 - 3/8)	.063 / 1.6 (1/16)	1	.375 / 9.5	.125 / 3.2	SILICONE, BRAID REINFORCED	60 - 65	175 / 12.1	50 / 3.4	933QN-SABP5-040-0375 [80 - 125 / 5.5 - 8.6]
			2	.375 / 9.5	.188 / 4.8	PHARMA 65	65	15 / 1.0	15 / 1.0	
			3	.375 9.5	.250 6.4	PHARMA 80	80	249 / 17.2	30 / 2.1	
			4			PVC	60 - 70	45 / 3.1	45 / 3.1	
			5			TYGON B-44-4X	65	34 / 2.3	34 / 2.3	
934	.500 - .750 / 12.7 - 19.1 (1/2 - 3/4)	.063 / 1.6 (1/16)	1	.500 12.7	.375 9.5	PHARMA 50	50	10 / .7	10 / .7	934QN-SABP5-094-0750 [80 - 125 / 5.5 - 8.6]
			2			POLYURETHANE	70 - 85	55 / 3.8	50 / 3.4	
			3			PVC	60 - 70	30 / 2.1	30 / 2.1	
			4			TYGON B-44-4X	65	25 / 1.7	25 / 1.7	
934	.500 - .750 / 12.7 - 19.1 (1/2 - 3/4)	.125 / 3.2 (1/8)	1	.500 12.7	.250 6.4	PHARMA 50	50	17 / 1.2	17 / 1.2	934QN-SABP5-160-0750 [80 - 125 / 5.5 - 8.6]
			2			SILICONE, BRAID REINFORCED	60 - 65	160 / 11.0	50 / 3.4	
			3			TYGON B-44-4X	65	60 / 4.1	50 / 3.4	
			4	.750 / 19.1	.500 / 12.7	PHARMA 65	65	11 / .8	11 / .8	
			5			PHARMA 80	80	200 / 13.8	50 / 3.4	
			6			PVC	60 - 70	40 / 2.8	40 / 2.8	
935	.750 - 1.000 / 19.1 - 25.4 (3/4 - 1)	.125 / 3.2 (1/8)	1	0.938 / 23.8	.625 / 15.9	TYGON B-44-4X	65	35 / 2.4	35 / 2.4	935QN-SABP5-160-1000 [80 - 125 / 5.5 - 8.6]
			2	1.000 / 25.4	.625 / 15.9	SILICONE, BRAID REINFORCED	60 - 65	100 / 6.9	50 / 3.4	
			3	1.000 25.4	.750 19.1	PHARMA 65	65	7 / .5	7 / .5	
			4			PVC	60 - 70	30 / 2.1	30 / 2.1	
936	1.125 - 1.625 / 28.6 - 41.3 (1 1/8 - 1 5/8)	.188 / 4.8 (3/16)	1	1.360 / 34.5	1.000 / 25.4	SILICONE, BRAID REINFORCED	60	65 / 4.5	65 / 4.5	936QS-SABP5-250-1500* [80 - 125 / 5.5 - 8.6]
			2	1.375 / 34.9	1.000 / 25.4	NORPRENE, BRAID REINFORCED	60	75 / 5.2	75 / 5.2	
			3	1.485 / 37.7	1.125 / 28.6	SILICONE, BRAID REINFORCED	60	55 / 3.8	55 / 3.8	
			4	1.625 / 41.3	1.250 / 31.8	PVC	60	20 / 1.4	20 / 1.4	
			5			PVC, BRAID REINFORCED	66	85 / 5.9	50 / 3.4	

*Valve model with position sensor.

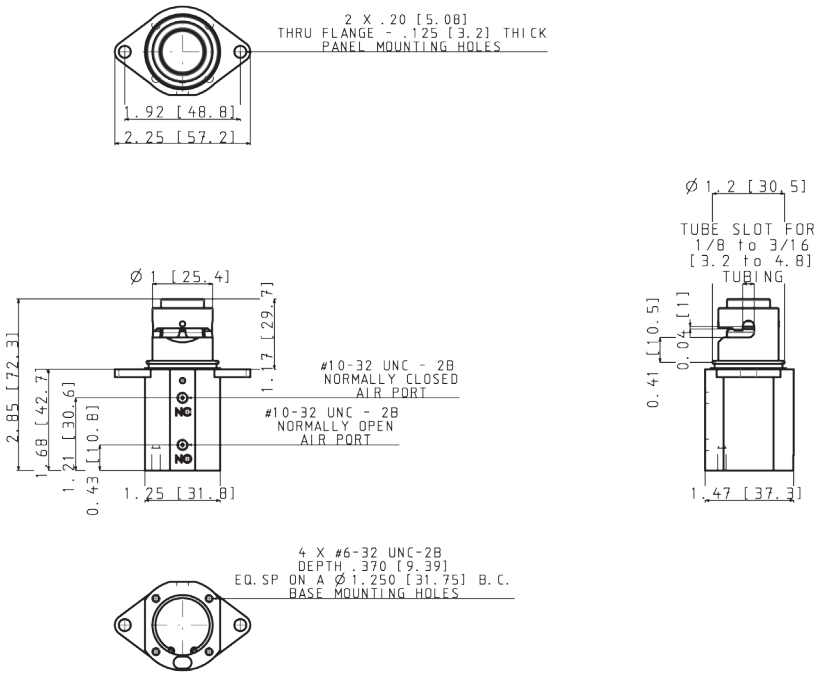
†Maximum media pressure for reference only. User to verify performance. Shown manufacturer maximum rated pressure is for reference only and may change over time. Please consult tubing manufacturer for maximum rated working pressure and temperature.

**Tubing wall thickness can be calculated by the formula: wall thickness = (outer diameter - inner diameter)/2

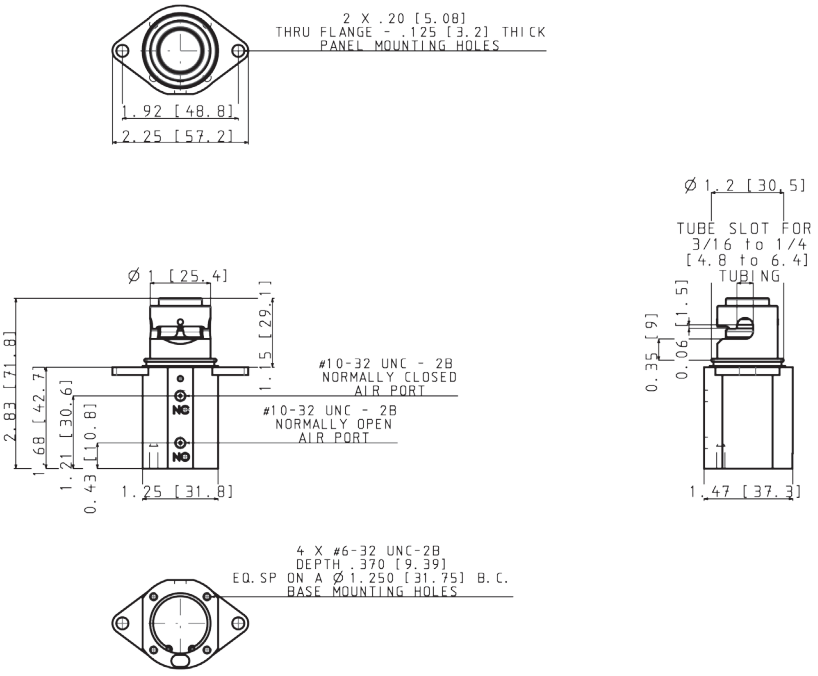
††For any conditions not stated in the above Tubing Recommendation table please contact Acro Associates and we will gladly determine valve suitability with a complimentary tubing test.

Dimensional Details: Inch (mm)

932CN-SABP5-040-0188

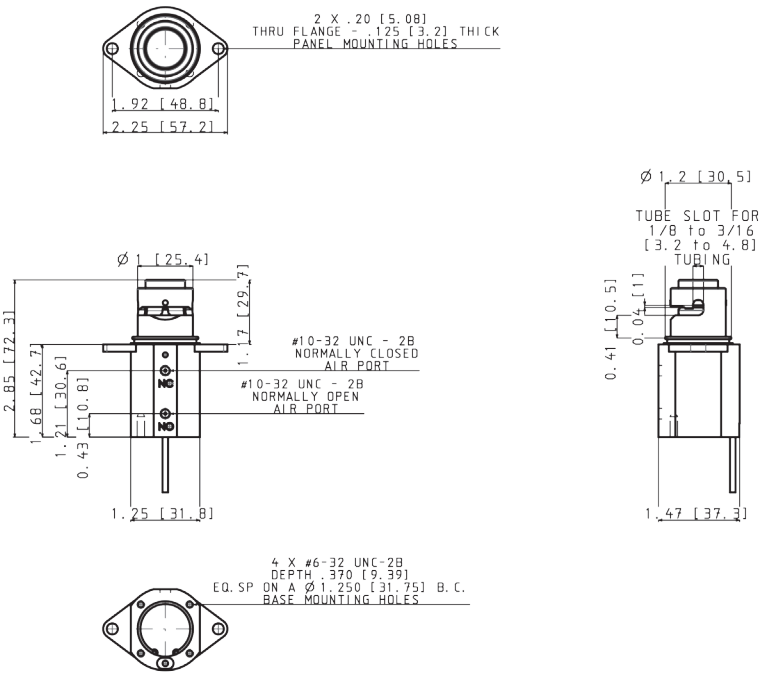


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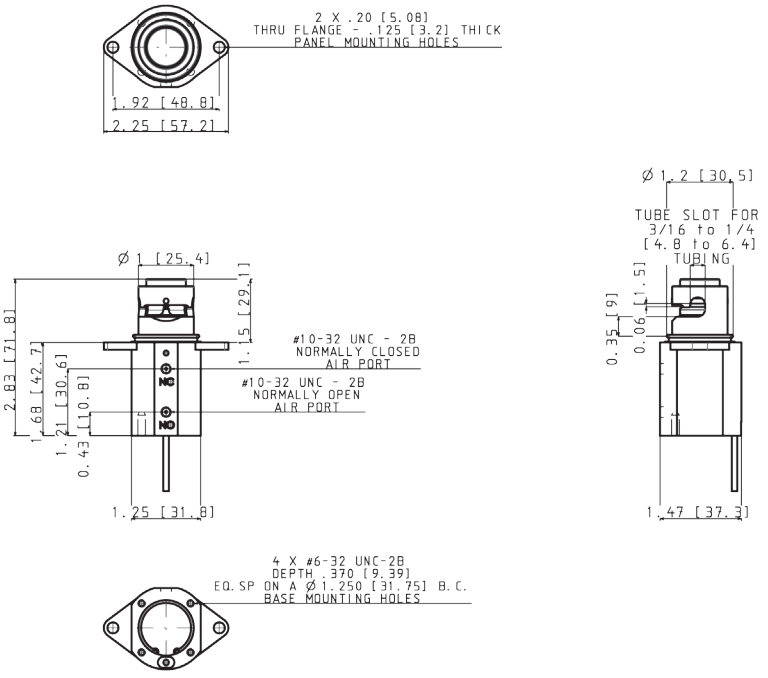


Dimensional Details: Inch (mm)

932CS-SABP5-040-0188

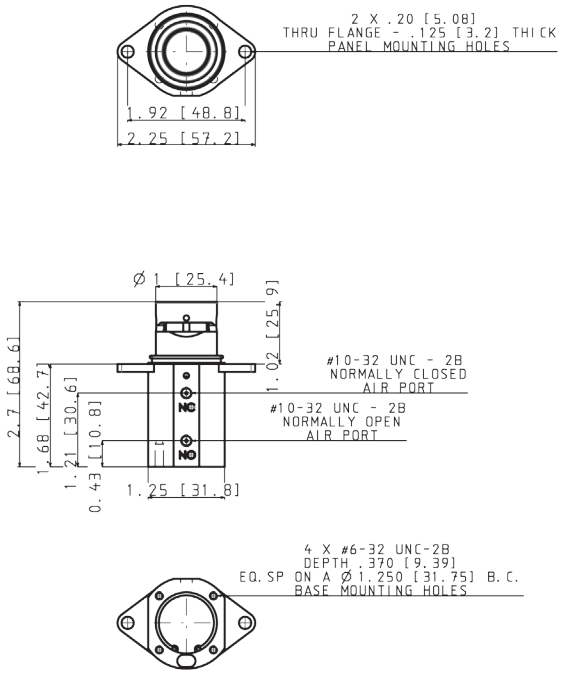


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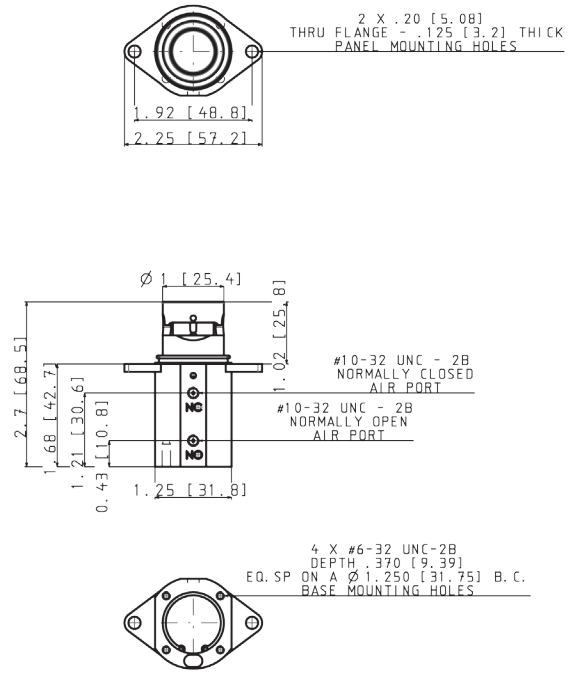


Dimensional Details: Inch (mm)

932QN-SABP5-040-0188

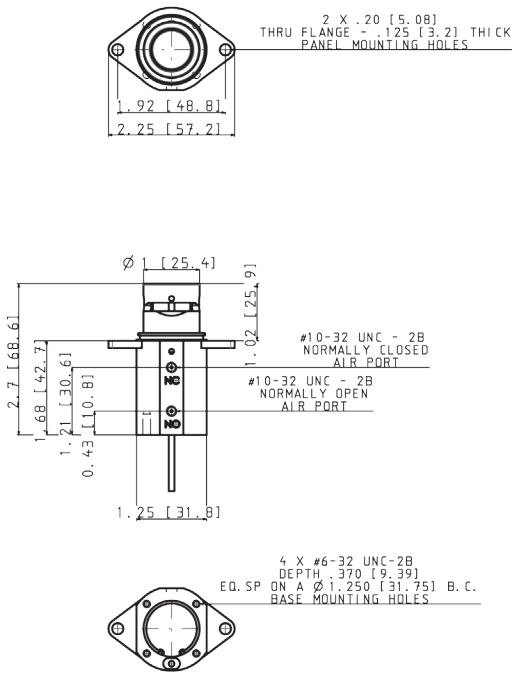


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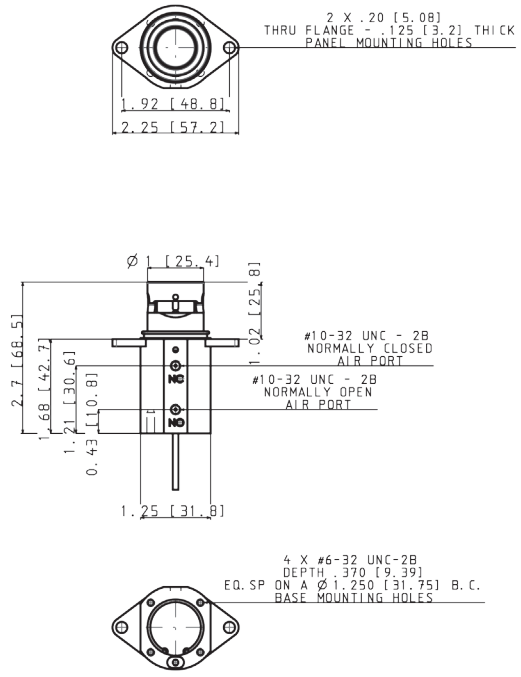


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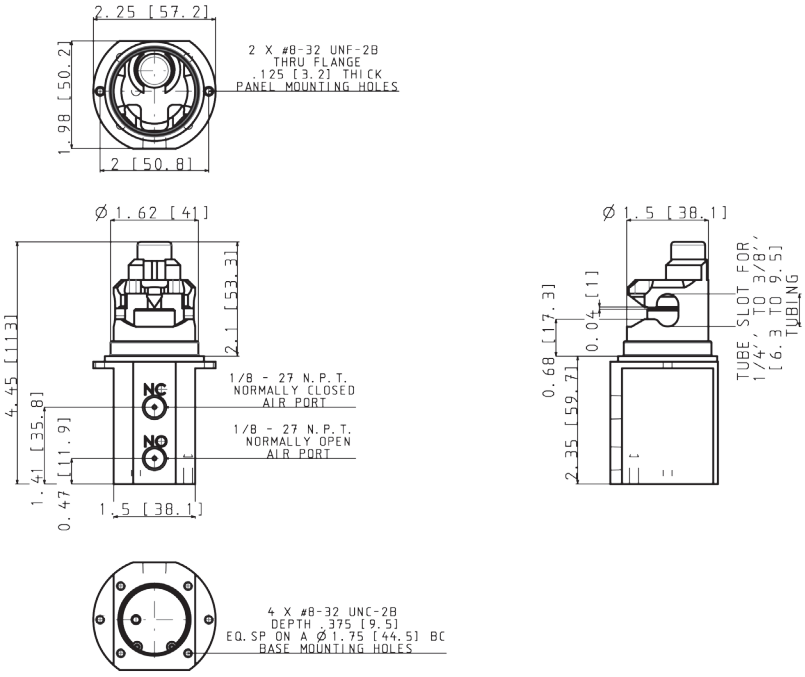


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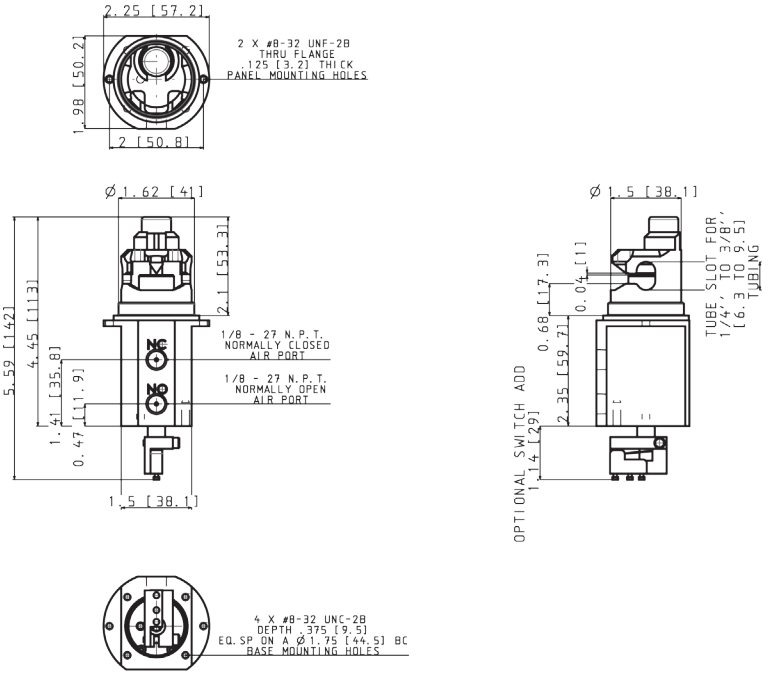


Dimensional Details: Inch (mm)

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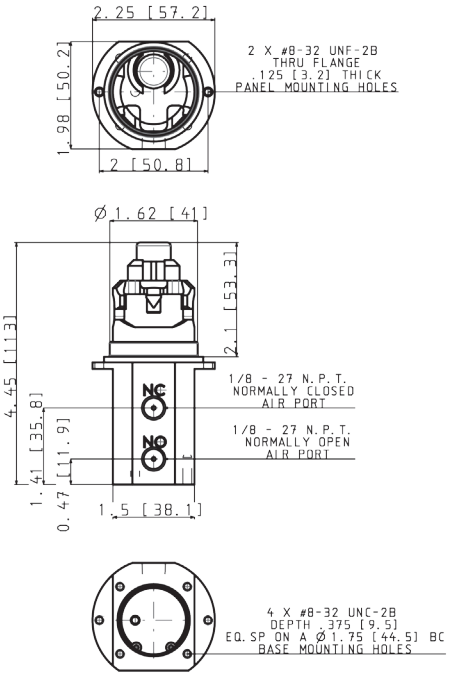


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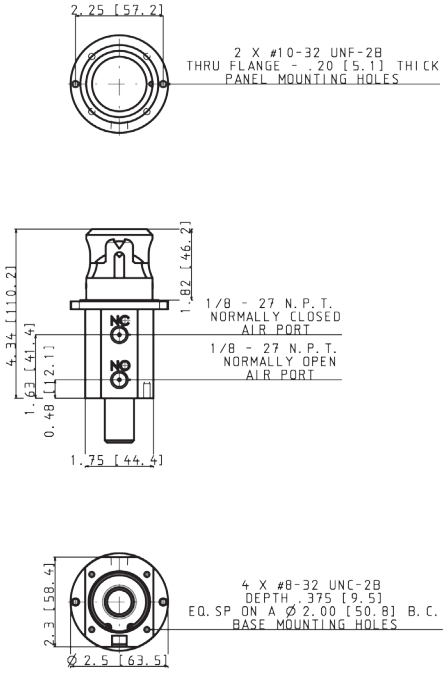


Dimensional Details: Inch (mm)

933QN-SABP5-040-0375

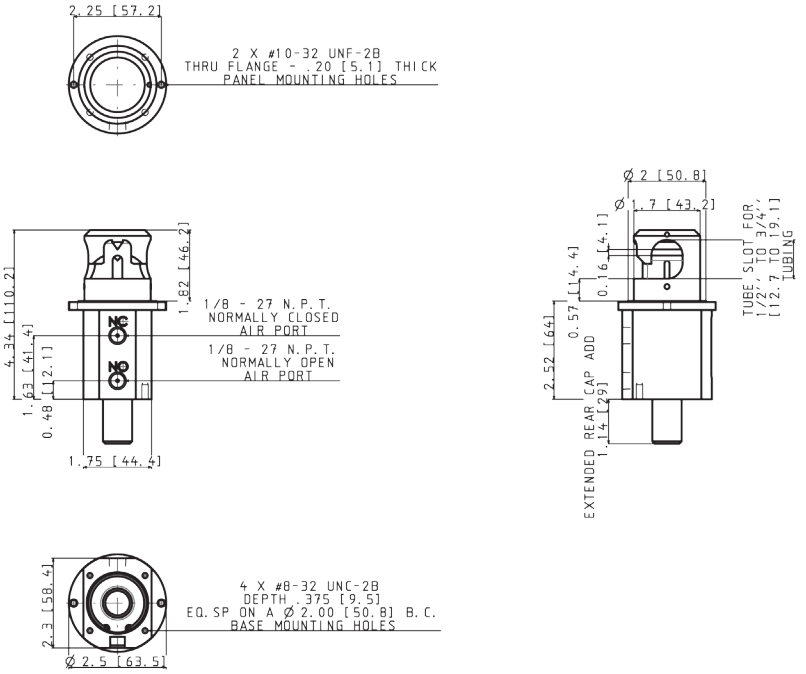


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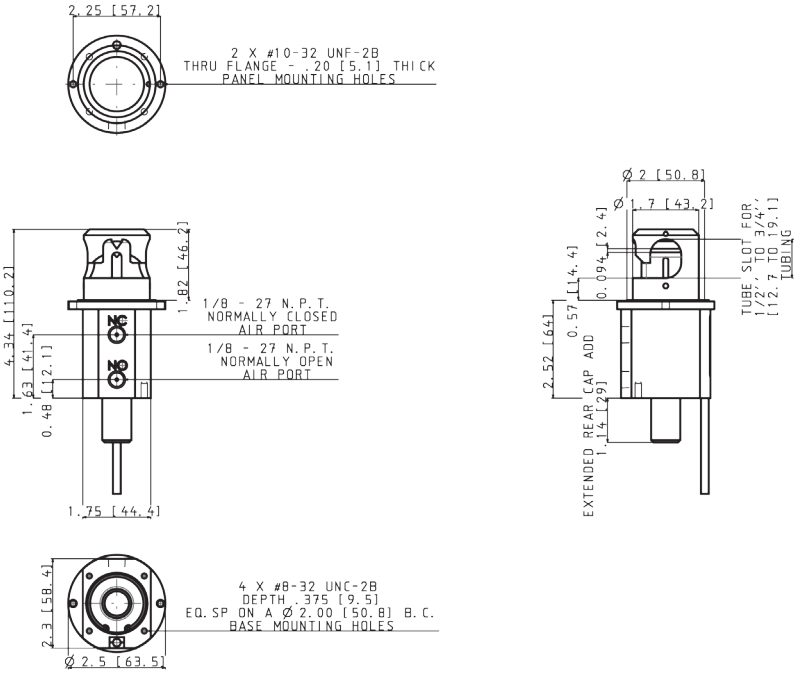


Dimensional Details: Inch (mm)

934CN-SABP5-160-0750

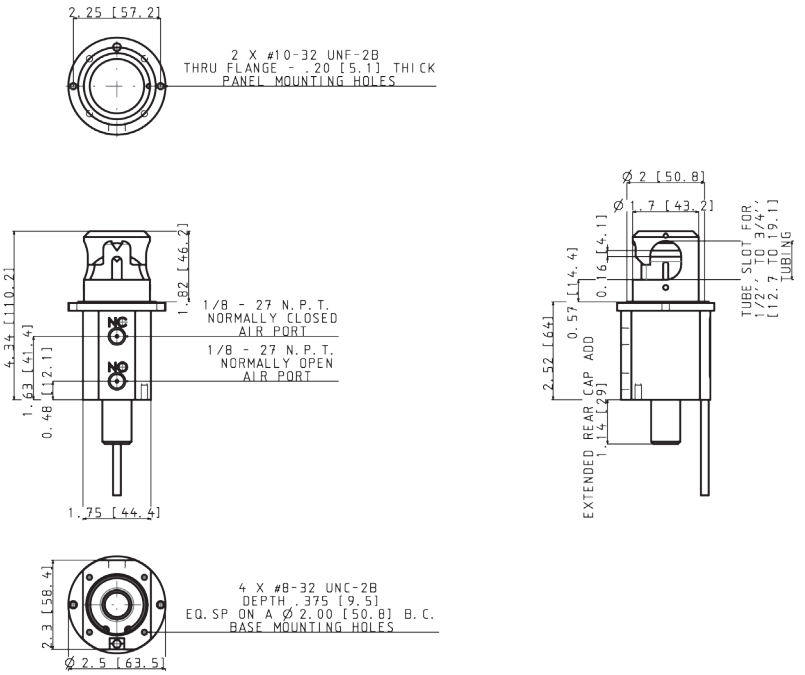


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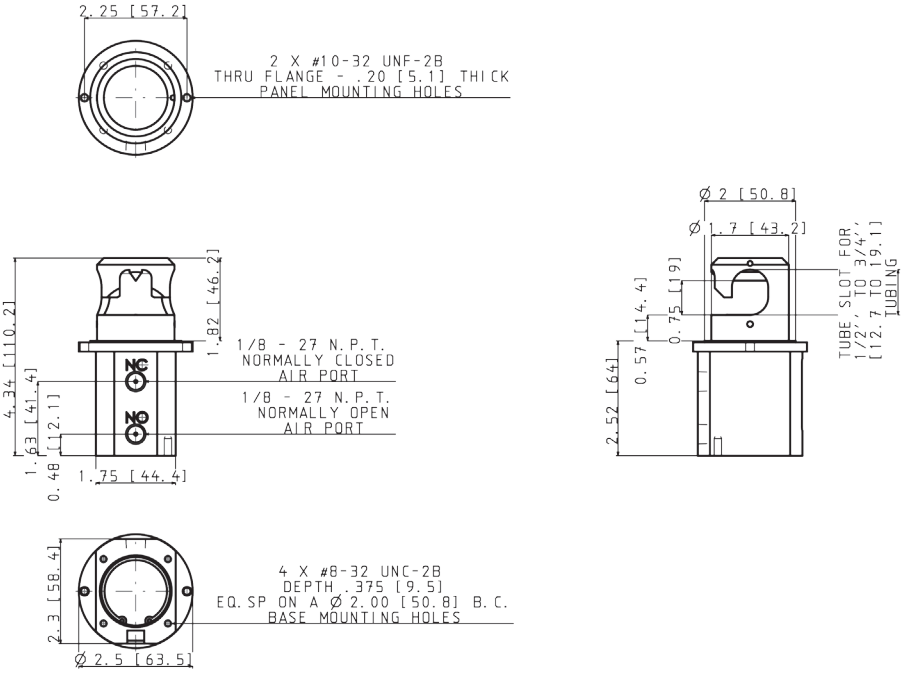


Dimensional Details: Inch (mm)

934CS-SABP5-160-0750

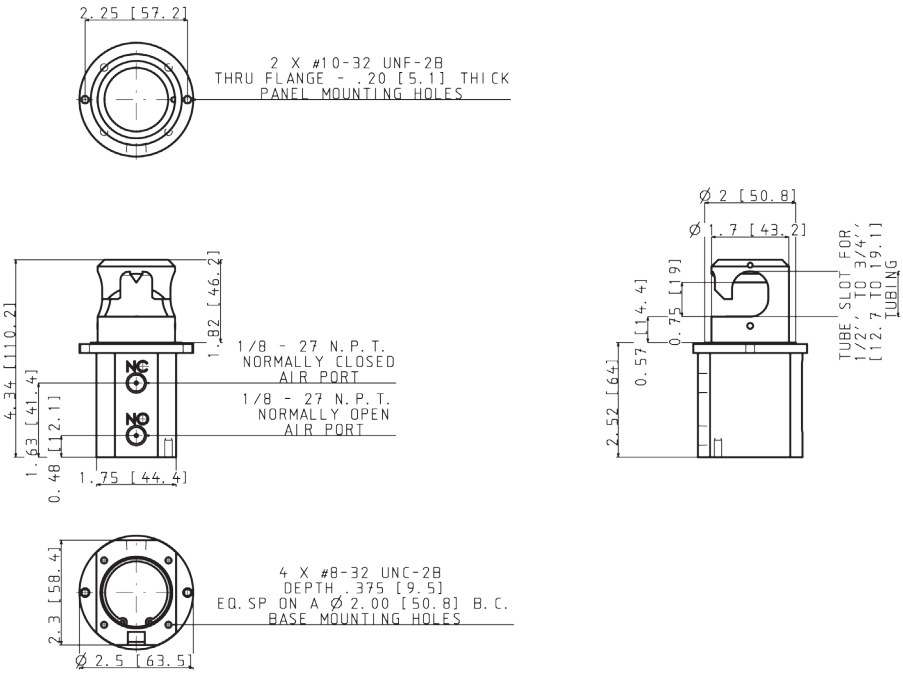


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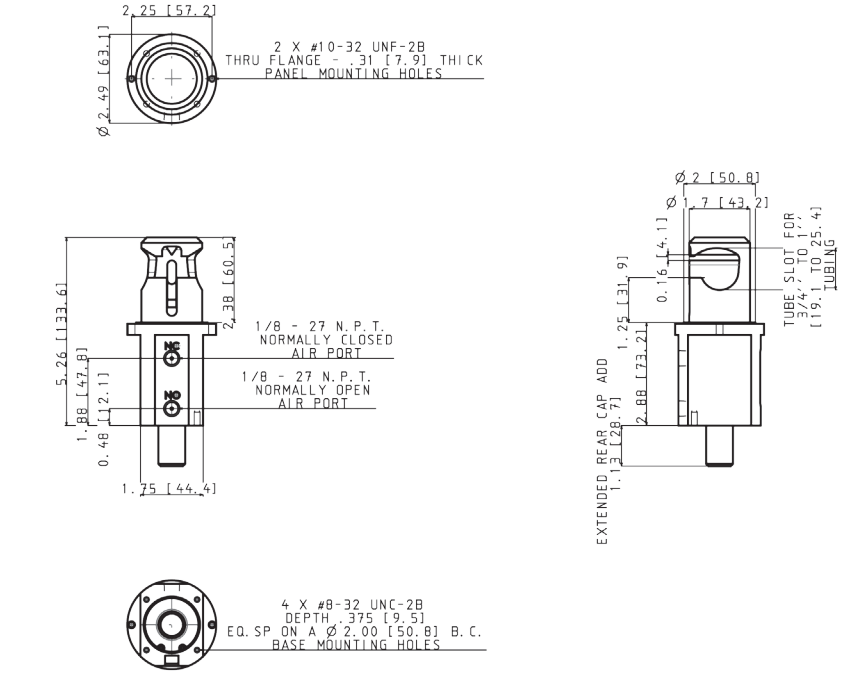


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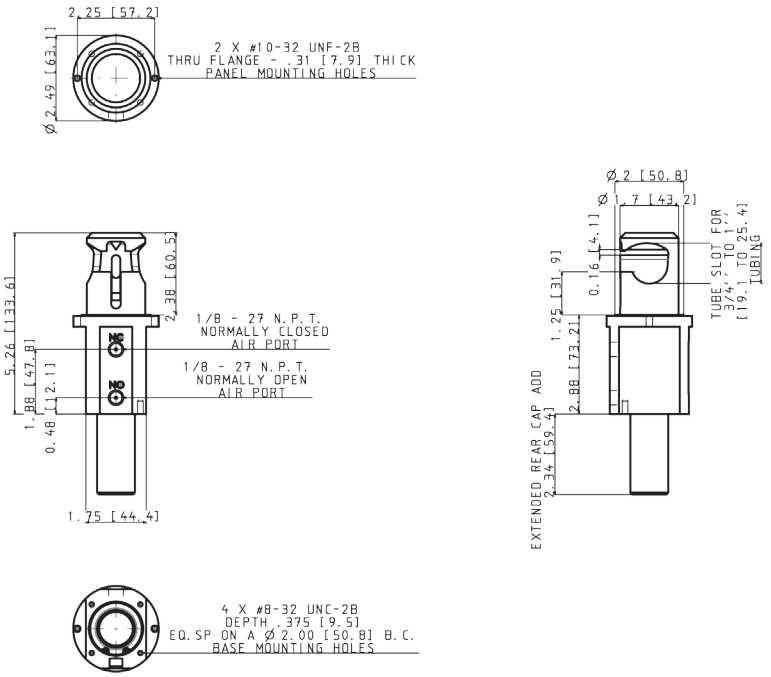


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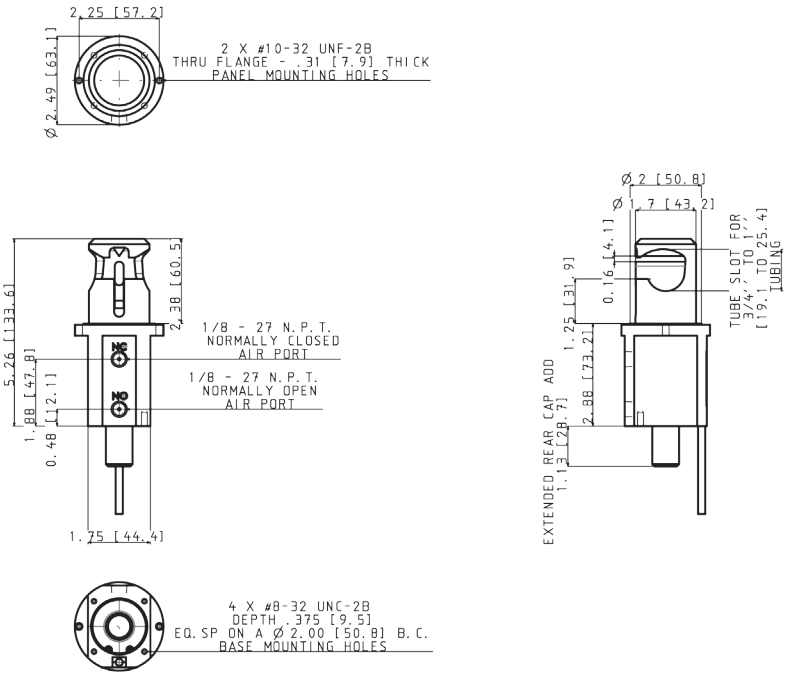


Dimensional Details: Inch (mm)

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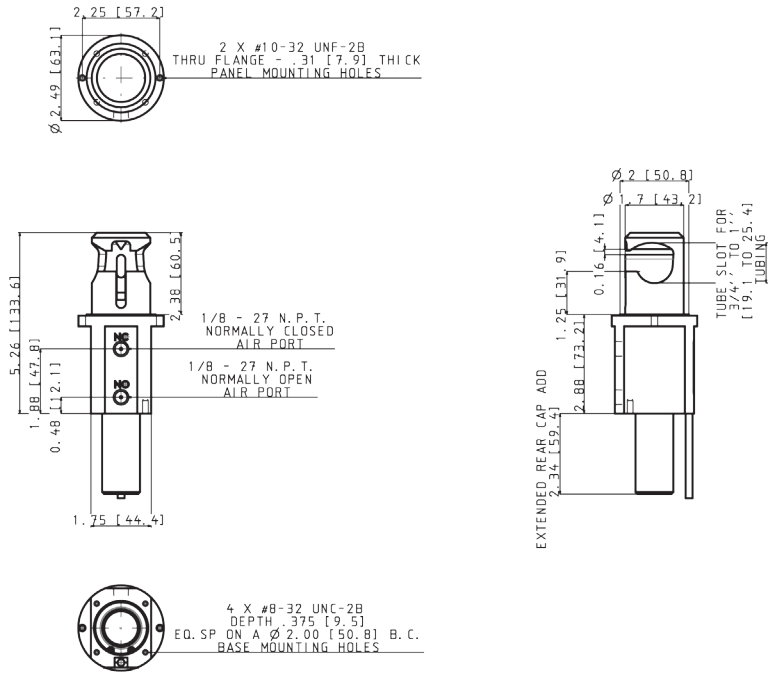


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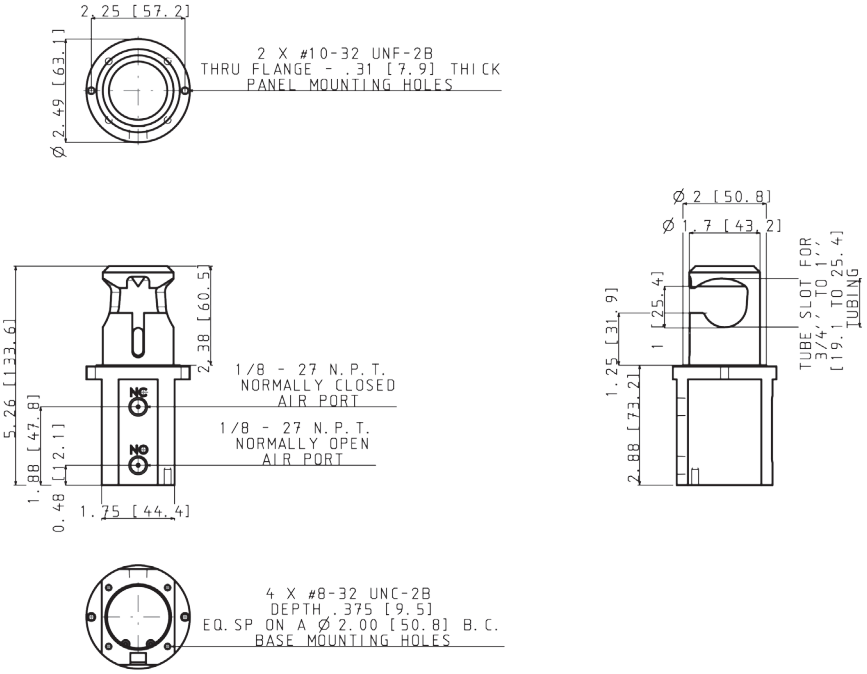


Dimensional Details: Inch (mm)

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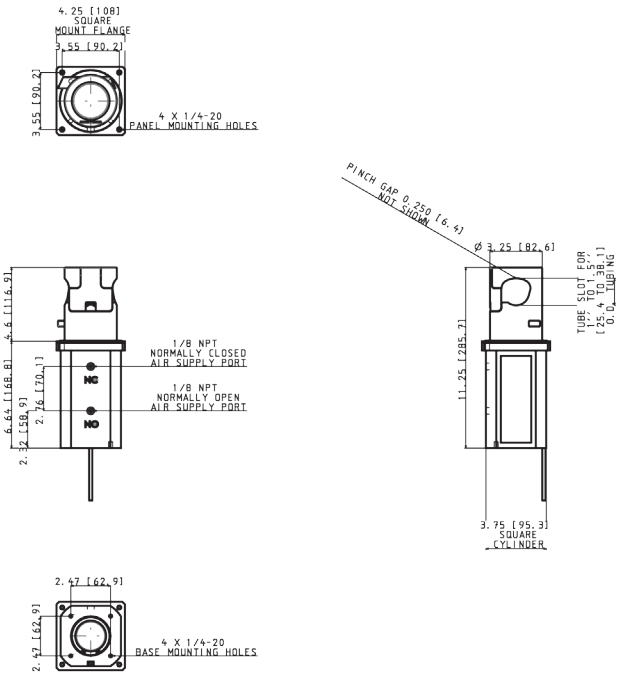


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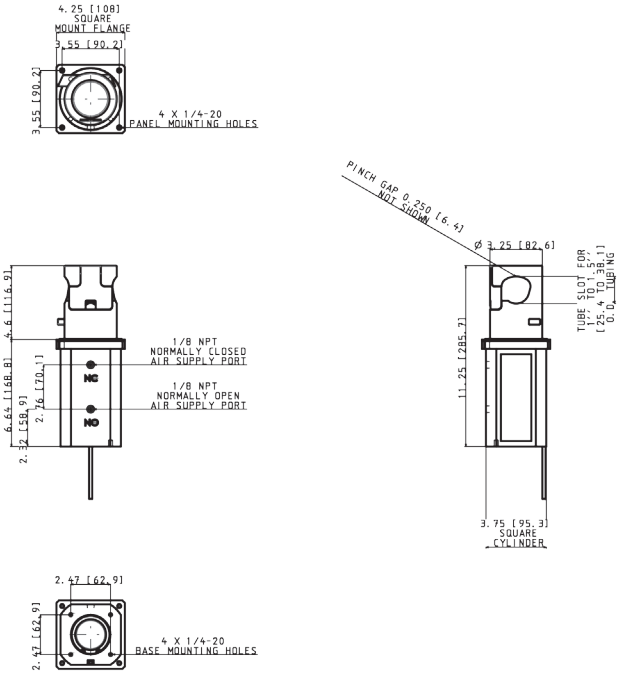


Dimensional Details: Inch (mm)

936CS-SABP5-250-1500

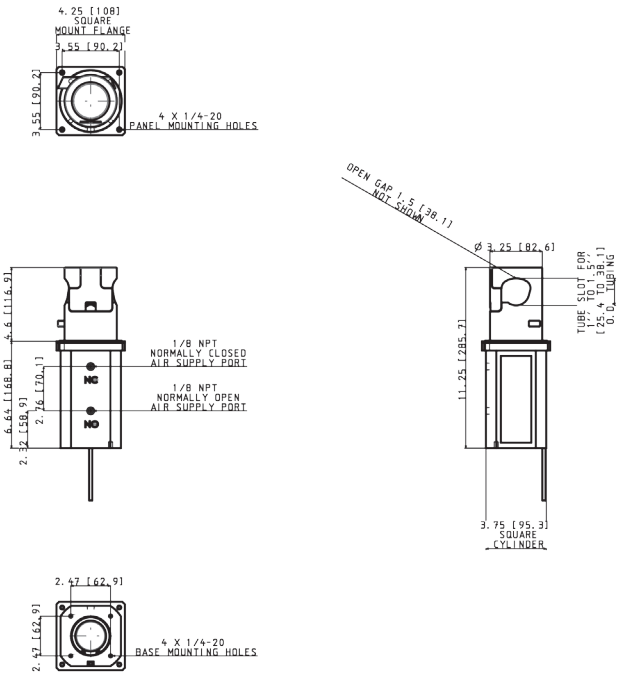


936CS-SABP8-250-1500



Dimensional Details: Inch (mm)

936QS-SABP5-250-1500



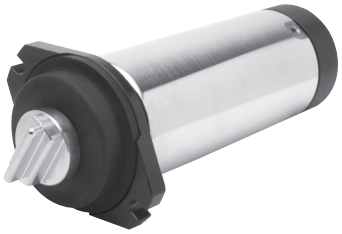
VERSAGRIP® SOLENOID PINCH VALVES

Flexibility and Affordability for Fluid Control

The Versagrip® Solenoid Pinch Valve product line supports tubing or disposable membrane bags ranging in the 0.063 – 0.375 inch OD or 1.6 – 9.5 mm sizing. 3 Models are orderable in 4 different configurations being single-tube normally open, single-tube normally closed, dual tubes toggling normally open and closed, or a headless cassette mountable options. All units are panel mount ready, and headed versions include a push button override for easy manual tube loading and unloading procedures. .

The housing and plunger are made from stainless steel and valve heads are come as black delrin plastic offering superior corrosive resistance. An optional 900R solenoid control board or optical position state sensors are also available.







Experience the Difference

- Standard formats support customer selectable average tubing hardness up to 60 Shore A and 15 psi/1 bar media pressure
- Compact design with low operational noise
- Average actuation speeds of 80 milliseconds or less without tube loaded
- Seals prevent liquid penetration supporting easy cleaning or sterilization procedures
- Warranted for 3 million MTBF* or 18 months
- ROHS2 compliant
- UL429, CSA139 and CE 60601-1 3rd Edition certifications

*MTBF based on 50% duty cycle testing carried out at 20 degrees ambient C using 60 Shore A tubing. Duty cycle is defined as On Time/(On Time + Off Time).

Each product is also calibrated for pinch force, pinch gap and stroke to ensure optimal performance.

How to Order

Generation 2 Solenoid Valve

Acro Part # Key: For Reference Purposes

MODEL
1100
1300
1400

SENSOR OPTION	
N	No Sensor
S	Position Sensor

MATERIAL/ COLOR	
DB	Delrin Black

FORCE SPEC
5 (Standard)

STROKE
Total plunger movement. Units: thousandths of an inch/millimeter.

1400S - CDBX5 - 040 - 0750

IP RATING	
00	IP60

TUBE SLOT AND NORMAL STATE	
N	Cassette Mount Style (Normally Closed)
C	Single Slot (Normally Closed)
Q	Single Slot (Normally Open)
D	Dual Slot

OPERATING POWER	
X	24 VDC

NOMINAL PINCH GAP OR PLUNGER EXTENSION
Units: thousandth of an inch/ millimeter

Product Selection Guide

Recommended tubing: Silicone Platinum Cured, Clear C-Flex, PharMed BPT up to 60 Durometer and up to 15 PSI media pressure. For higher Durometers or media pressures consult Acro Associates.

Model	Tubing OD [in./mm]	ID [in./mm]	Tubing Slots	Normal State	Includes Position Sensor	Valve Part Number	Shipment Lead Time [days]
1100	.125 / 3.2	.063 / 1.6	1	Normally Closed	N	1100N-CDBX5-040-0060	1 - 3
1100				Normally Open		1100N-QDBX5-040-0060	
1100			2	(1) N/C, (1) N/O		1100N-DDBX5-040-0060	
1100			1	Normally Closed	Y	1100S-CDBX5-040-0060	5 - 10
1100				Normally Open		1100S-QDBX5-040-0060	
1100			2	(1) N/C, (1) N/O		1100S-DDBX5-040-0060	
1100	.157 / 4.0 MAX		1	N/C, Cassette Style	N	1100N-NDBX5-510-0060	1 - 3
1100					Y	1100S-NDBX5-510-0060	5 - 10
1300	.188 / 4.8 or .250 / 6.4	.063 / 1.6 or .125 / 3.2	1	Normally Closed	N	1300N-CDBX5-080-0135	1 - 3
1300				Normally Open		1300N-QDBX5-080-0135	
1300			2	(1) N/C, (1) N/O		1300N-DDBX5-080-0135	
1300			1	Normally Closed	Y	1300S-CDBX5-080-0135	5 - 10
1300				Normally Open		1300S-QDBX5-080-0135	
1300			2	(1) N/C, (1) N/O		1300S-DDBX5-080-0135	
1300	.250 / 6.4 MAX		1	N/C, Cassette Style	N	1300N-NDBX5-810-0135	1 - 3
1300					Y	1300S-NDBX5-810-0135	5 - 10
1400	.250 / 6.4 or .375 / 9.5	.125 / 3.2 or .250 / 6.4	1	Normally Closed	N	1400N-CDBX5-080-0160	1 - 3
1400				Normally Open		1400N-QDBX5-080-0160	
1400			2	(1) N/C, (1) N/O		1400N-DDBX5-080-0160	
1400			1	Normally Closed	Y	1400S-CDBX5-080-0160	5 - 10
1400				Normally Open		1400S-QDBX5-080-0160	
1400			2	(1) N/C, (1) N/O		1400S-DDBX5-080-0160	
1400	.375 / 9.5 MAX		1	N/C, Cassette Style	N	1400N-NDBX5-910-0160	1 - 3
1400					Y	1400S-NDBX5-910-0160	5 - 10

900R PWM Solenoid Controller Options:

Part#	Powering Supply and Trigger Configuration
900RXV-1100	24VDC supply, 2-10VDC trigger
900RXX-1100	24VDC supply, 24VDC trigger
900RXV-1300	24VDC supply, 2-10VDC trigger
900RXX-1300	24VDC supply, 24VDC trigger
900RXV-1400	24VDC supply, 2-10VDC trigger
900RXX-1400	24VDC supply, 24VDC trigger

Specifications

1300N-CDBX5-080-0135

MECHANICAL
RECOMMENDED TUBING SIZE:* .187 - .250 INCH O.D. [4.8 - 6.4 MM O.D.]
MEDIA PRESSURE: 15 PSI MAXIMUM
STATE: NORMALLY CLOSED
SEALS: INTERNAL & PANEL
MOUNTING: PANEL MOUNT
REC. PANEL: 1/8" - 1/4" THK.
TUBE LOADING: SNAP-IN
PINCH GAP: .080" NOMINAL
TOTAL OPENING: .215" NOMINAL
PINCHING FORCE: 5.0LBF NOMINAL
MAXIMUM ON-TIME: DESIGNED FOR EXTENDED ON-TIME
MAX. CYCLE RATE: 1 CYCLE PER 5 SECONDS AT 50% DUTY CYCLE
AMBIENT TEMPERATURE: 40 C MAXIMUM

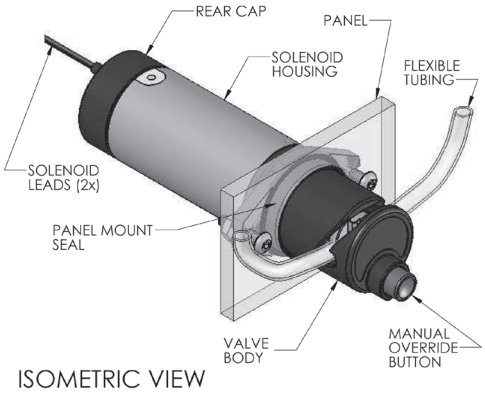
ELECTRICAL
RECOMMENDED SUPPLY: 72 WATTS: 24VDC/3A
POWER CONSUMPTION: (WITHOUT TUBING)
PULL- IN POWER (PULSE): 20 - 42 WATTS
HOLD-IN POWER (HOLD): 0.5 - 2.3 WATTS
ACTUATION: PULSE & HOLD DRIVER RECOMMENDED
POSITION SENSING: NONE
SOLENOID LEAD WIRES: 22 AWG UL1061, 12" LENGTH
CONNECTOR: MOLEX P/N 43640-0201

MATERIAL
WEIGHT/MASS: 16.5oz [470g]
BODY: BLACK ACETAL
HOUSING: 416 STAINLESS STEEL
PLUNGER HEAD: 316L STAINLESS STEEL
OVERRIDE: 303 STAINLESS STEEL
OVERRIDE BUTTON: BLACK ACETAL
OVERRIDE SPRING: STAINLESS STEEL
REAR CAP: BLACK ACETAL
SEALS: BLACK SILICONE
HARDWARE: 303 STAINLESS STEEL

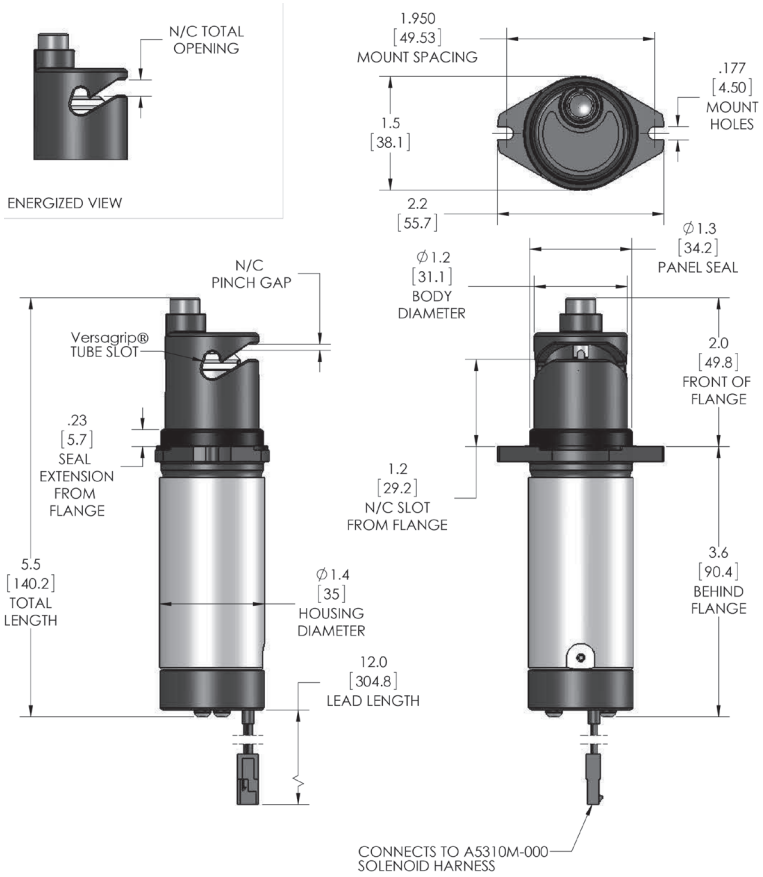
COMPLIANCE
RoHS 2 COMPLIANT
PENDING UL 429, CSA 139 & IEC 60601-1 3rd EDITION

*See Product Selection Guide for specific tubing materials

Dimensional Details: Inch (mm)



ISOMETRIC VIEW



Specifications

1300N-DDBX5-080-0135

MECHANICAL
RECOMMENDED TUBING SIZE:* .187 - .250 INCH O.D. [4.8 - 6.4 MM O.D.]
MEDIA PRESSURE: 15 PSI MAXIMUM
STATE: NORMALLY CLOSED & NORMALLY OPEN
SEALS: INTERNAL & PANEL
MOUNTING: PANEL MOUNT
REC. PANEL: 1/8" - 1/4" THK.
TUBE LOADING: SNAP-IN
PINCH GAP: .080" NOMINAL BOTH SLOTS
TOTAL OPENING: .215" NOMINAL BOTH SLOTS
PINCHING FORCE: 5.0LBF NOMINAL BOTH SLOTS
MAXIMUM ON-TIME: DESIGNED FOR EXTENDED ON-TIME
MAX. CYCLE RATE: 1 CYCLE PER 5 SECONDS AT 50% DUTY CYCLE
AMBIENT TEMPERATURE: 40 C MAXIMUM

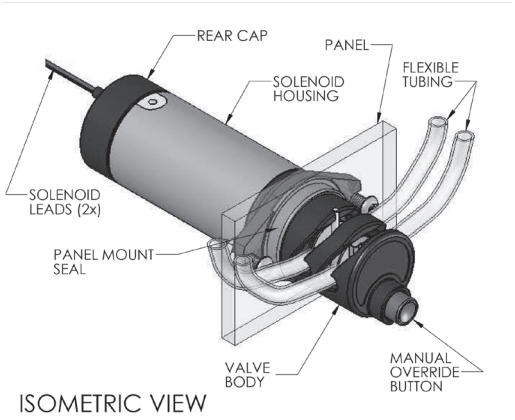
ELECTRICAL
RECOMMENDED SUPPLY: 72 WATTS: 24VDC/3A
POWER CONSUMPTION: (WITHOUT TUBING)
PULL- IN POWER (PULSE): 20 - 42 WATTS
HOLD-IN POWER (HOLD): 1.5 - 3.75 WATTS
ACTUATION: PULSE & HOLD DRIVER RECOMMENDED
POSITION SENSING: NONE
SOLENOID LEADS WIRES: 22 AWG UL1061, 12" LENGTH;
CONNECTOR: MOLEX P/N 43640-0201

MATERIAL
WEIGHT/MASS: 16.5oz [470g]
BODY: BLACK ACETAL
HOUSING: 416 STAINLESS STEEL
PLUNGER HEAD: 316L STAINLESS STEEL
OVERRIDE: 303 STAINLESS STEEL
OVERRIDE BUTTON: BLACK ACETAL
OVERRIDE SPRING: STAINLESS STEEL
PINCH PIN: 303 STAINLESS STEEL
REAR CAP: BLACK ACETAL
SEALS: BLACK SILICONE
HARDWARE: 303 STAINLESS STEEL

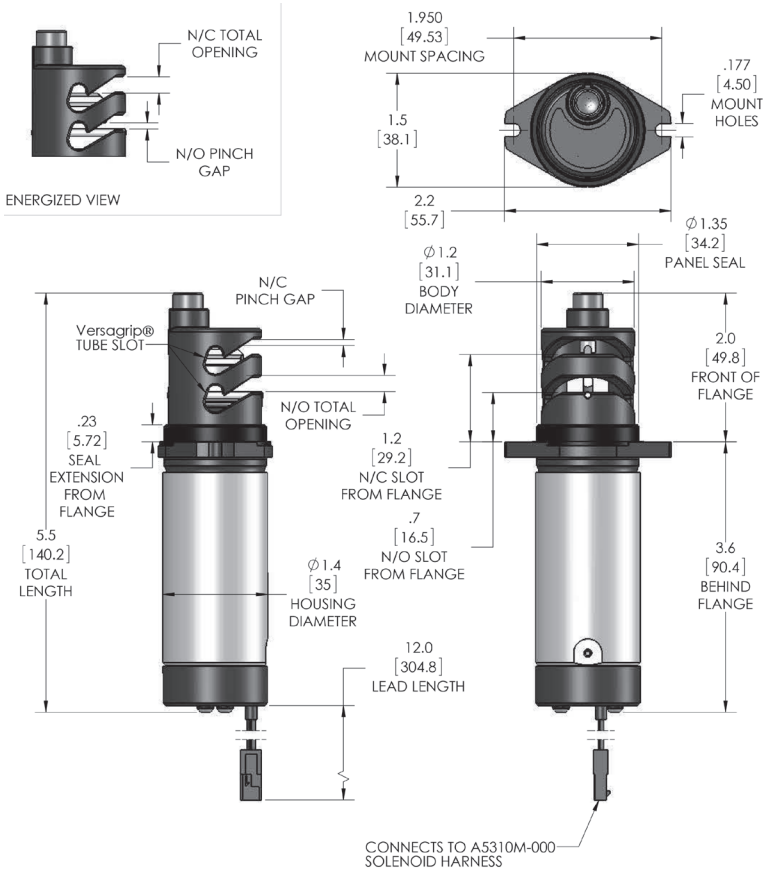
COMPLIANCE
RoHS 2 COMPLIANT
PENDING UL 429, CSA 139 & IEC 60601-1 3rd EDITION

*See Product Selection Guide for specific tubing materials

Dimensional Details: Inch (mm)



ISOMETRIC VIEW



Specifications

1300N-QDBX5-080-0135

MECHANICAL
RECOMMENDED TUBING SIZE:* .187 - .250 INCH O.D. [4.8 - 6.4 MM O.D.]
MEDIA PRESSURE: 15 PSI MAXIMUM
STATE: NORMALLY OPEN
SEALS: INTERNAL & PANEL
MOUNTING: PANEL MOUNT
REC. PANEL: 1/8" - 1/4" THK.
TUBE LOADING: SNAP-IN
PINCH GAP: .080" NOMINALS
TOTAL OPENING: .215" NOMINAL
PINCHING FORCE: 5.0LBF NOMINAL
MAXIMUM ON-TIME: DESIGNED FOR EXTENDED ON-TIME
MAX. CYCLE RATE: 1 CYCLE PER 5 SECONDS AT 50% DUTY CYCLE
AMBIENT TEMPERATURE: 40 C MAXIMUM

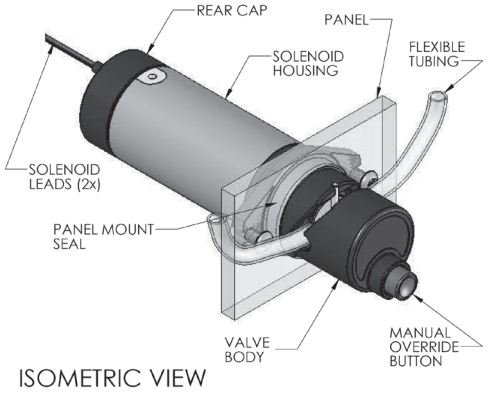
ELECTRICAL
RECOMMENDED SUPPLY: 72 WATTS: 24VDC/3A
POWER CONSUMPTION: (WITHOUT TUBING)
PULL- IN POWER (PULSE): 5 - 13 WATTS
HOLD-IN POWER (HOLD): 0.5 - 1.25 WATTS
ACTUATION: PULSE & HOLD DRIVER RECOMMENDED
POSITION SENSING: NONE
SOLENOID LEAD WIRES: 22 AWG UL1061, 12" LENGTH
CONNECTOR: MOLEX P/N 43640-0201

MATERIAL
WEIGHT/MASS: 16.5oz [470g]
BODY: BLACK ACETAL
HOUSING: 416 STAINLESS STEEL
PLUNGER HEAD: 316L STAINLESS STEEL
OVERRIDE: 303 STAINLESS STEEL
OVERRIDE BUTTON: BLACK ACETAL
OVERRIDE SPRING: STAINLESS STEEL
PINCH PIN: 303 STAINLESS STEEL
REAR CAP: BLACK ACETAL
SEALS: BLACK SILICONE
HARDWARE: 303 STAINLESS STEEL

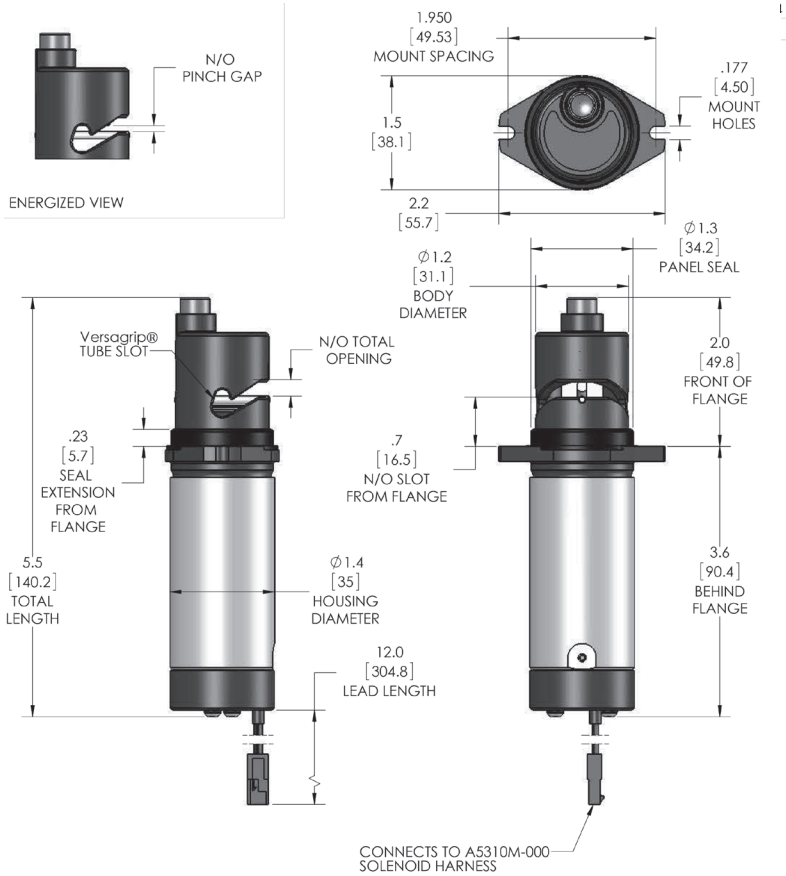
COMPLIANCE
RoHS 2 COMPLIANT
PENDING UL 429, CSA 139 & IEC 60601-1 3rd EDITION

*See Product Selection Guide for specific tubing materials

Dimensional Details: Inch (mm)



ISOMETRIC VIEW



Specifications

1300N-NDBX5-810-0135

MECHANICAL
RECOMMENDED TUBING SIZE:* .187 - .250 INCH O.D. [4.8 - 6.4 MM O.D.]
MEDIA PRESSURE: 15 PSI MAXIMUM
STATE: NORMALLY CLOSED
SEALS: PANEL
MOUNTING: PANEL MOUNT
REC. PANEL: 1/8" - 1/4" THK.
TUBE LOADING: CASSETTE
STROKE LENGTH: .135" NOMINAL
PINCHING FORCE: 5.0LBF NOMINAL
MAXIMUM ON-TIME: DESIGNED FOR EXTENDED ON-TIME
MAX. CYCLE RATE: 1 CYCLE PER 5 SECONDS AT 50% DUTY CYCLE
AMBIENT TEMPERATURE: 40 C MAXIMUM

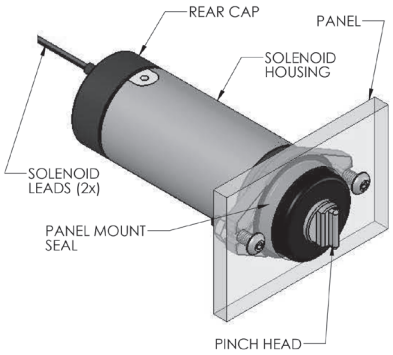
ELECTRICAL
RECOMMENDED SUPPLY: 72 WATTS: 24VDC/3A
POWER CONSUMPTION: (WITHOUT TUBING)
PULL- IN POWER (PULSE): 20 - 42 WATTS
HOLD-IN POWER (HOLD): 0.5 - 2.3 WATTS
ACTUATION: PULSE & HOLD DRIVER RECOMMENDED
POSITION SENSING: NONE
SOLENOID LEAD WIRES: 22 AWG UL1061, 12" LENGTH
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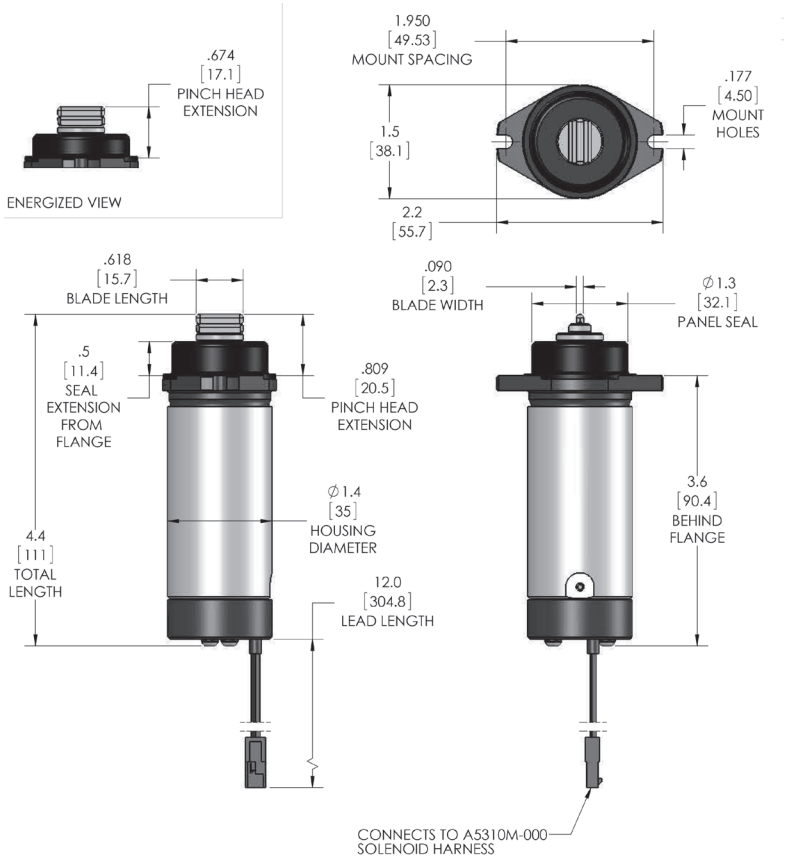
COMPLIANCE
RoHS 2 COMPLIANT
PENDING UL 429, CSA 139 & IEC 60601-1 3rd EDITION

*See Product Selection Guide for specific tubing materials

Dimensional Details: Inch (mm)



ISOMETRIC VIEW



Modular Solenoid Controller

Features

- High output drive: 5.0A
- 150 watt drive power
- Supply range: +8V to +32V
- Footprint: 64.8mm x 43.2mm x 24.8mm
- Weight: 25 grams
- PWM output: 25.0kHz
- Integrated current sensor
- Reverse voltage protection
- Internal flyback diode
- Opto-isolated trigger port
- Upgradable solenoidFX firmware
- Multi-color diagnostic LED
- Adaptive pulse and hold technology
- Packaging: Economical panel mount PCB

Description

The 900R is a control module designed for interfacing high-performance solenoid actuators to computer systems and digital logic. It operates from a single 8 to 32 volt DC supply. The user interface consists of an opto-isolated differential input port that can be directly wired to relays, transistor logic, digital I/O boards, and PLCs. The trigger port can be wired for either active-low or active-high operation, depending on the application. The 900R also provides a multicolor diagnostic LED.

The 900R contains a low-side FET power switch employing a pulse-width modulated (PWM) output. PWM operation conserves energy and reduces waste-heat production. This module is optimized for driving inductive electromechanical devices. The load is internally clamped; an external flyback diode is not required. An integrated microprocessor analyzes load current for additional power savings and short-circuit protection. The 900R is also protected against power reversal on its supply pins.

A factory-programmable socketed ROM stores the controller's configuration matrix. The solenoid manufacturer provides this data, which dictates pulse-and-hold levels, inrush current control parameters, and fault behavior. The ROM technique allows fast turn-around on small quantities, and provides for an upgrade path if the users' needs change.

Table 1: 900R Pinout Description

Pin#	Name	Description	Wire Code
J1-1	Trig-	Active Low Trigger Input.	White/Black
J1-2	Trig+	Active High Trigger Input; 2-10 Volts between Trig+ and Trig- activates the device.	White
J1-3	Vss	System ground pin.	Black
J1-4	Vcc	Positive supply pin. Operating range is +8V to +32V.	Red
J2-1	Load-	Connects negative side of load.	Blue/Black
J2-2	Load+	Connects positive side of load.	Blue

Application

High performance DC solenoids are generally operated with either 12 or 24 volt power supplies. Pin J1-4 should be connected to the positive post on the power supply. Pin J1-3 should be connected to the ground post. J2-1 should be connected to the negative lead of the solenoid and J2-2 to the positive. Note that most DC solenoids are not sensitive to polarity, so J2-1 and J2-2 may be reversed without consequence. To activate the solenoid, apply 2 to 10 volts between $Trig_+$ and $Trig_-$ ($10V > Trig_+ - Trig_- > 2V$). To deactivate the solenoid either prevent current from flowing into $Trig_+$ and out $Trig_-$ or let $Trig_+ = Trig_-$. Note that since the trigger port is optically isolated to 5kV, the signals into it need not be referenced to the 900R power supply.

Powering the trigger port initiates a pulse-and-hold cycle. This begins by supplying the load with an initial high-power pulse that is sufficient for activation. The pulse continues until it is either cut short by the adaptive logic, or T_{PULSE} elapses. At this point, the Hold State begins. In the Hold State, the controller operates the power switch in PWM mode and the reduced duty cycle, specified by the 900R's configuration matrix, maintains the solenoid's energize position. When power is removed from the trigger port, the power switch is shut off and the cycle ends.

Modular Solenoid Controller

Diagnostic Indicator

The diagnostic indicator LED is red when the 900R is powered up and inactive. It is orange during the initial high power pulse, and is green during the hold cycle. A flashing red LED indicates device shutdown and an alternating red/green LED indicates a cancelled hold cycle. See Table 2 for the configuration parameters.

Electrical Interface

The module's electrical interface consists of two 2.54mm pitch, gold-plated, 0.64mm square-pin headers with friction locks. The package has a total pin count of six, with four pins on J1 and two pins on J2. J1 (mating connector is AMP 641237-4) connects the unit to the power supply and trigger signal. J2 (mating connector is AMP 641237-2) connects the unit to the load. See Tables 1 and 3 for detailed pin assignments and electrical characteristics.

Packaging

The module is an OEM style printed circuit board, appropriate for panel mounting inside of an equipment enclosure. Four 12.7mm plastic hex standoffs, with #4-40 internal threads, are provided for mounting. Nylon washers and stainless-steel screws for attaching the standoffs to the board are included. The user must supply hardware for attaching the standoffs to their enclosure. See Figure 1 for a device footprint.

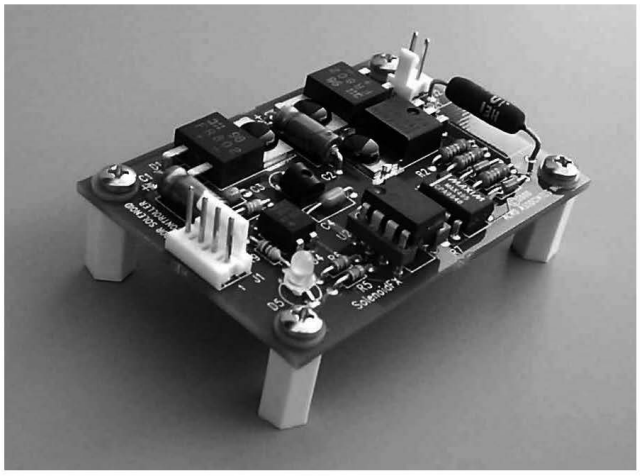
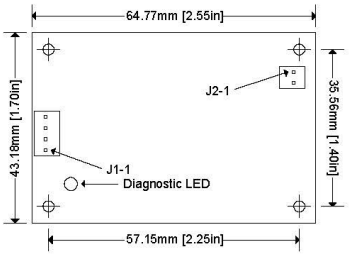


FIGURE 1: 900R FOOTPRINT



Modular Solenoid Controller

Table 2: Configuration Matrix

Name	Min	Typ	Max	Units	Description
T_{PULSE}	--	200	2000	ms	The maximum length of the initial high power pulse. This pulse may be shortened by the adaptive logic if the inrush current peaks and then decreases by at least I_{Δ}. Maximum pulse power in Watts is $P_{PULSE} = \frac{\left[\frac{(V_{CC} - 0.5) \times R_{LOAD}}{R_{LOAD} + 0.122}\right]^2}{R_{LOAD}}$ Where R_{LOAD} is the resistance of the load in Ohms. Typical values for P_{PULSE} are between 16 and 100 Watts.
X_{DUTY}	0.00	0.25	0.50	--	Duty cycle for the Hold State. Hold power is $P_{HOLD} = X_{DUTY}^2 \times P_{PULSE}$ Typical values for P_{HOLD} are between 2 and 7 Watts.
I_{Δ}	0.00	0.75	5.00	A	Current differential for adaptive pulse and hold algorithm.
I_{MAX}	0.00	3.00	5.00	A	Maximum instantaneous current. Load currents above this value will cause the device to shutdown.
I_{PWMLO}	0.00	0.20	5.00	A	Minimum hold current. If the PWM pulse amplitudes fall below this value, the hold cycle will be cancelled. At this point, the user must toggle the trigger port input to start another pulse and hold cycle.
I_{PWMHI}	0.00	1.00	5.00	A	Maximum hold current. If PWM pulse amplitudes exceed this value, the hold cycle will be cancelled.

Table 3: Electrical Characteristics

Sym	Min	Typ	Max	Units	Characteristic
T_{OP}	-35	--	60	oC	Operating temperature
T_{STG}	-50	--	100	oC	Storage temperature
V_{CC}	8	--	32	V	Operating voltage
I_{CC}	--	20	60	mA	Standby current (power switch off)
V_{TRIG}	-5	--	10	V	Trigger input voltage (Trig+ - Trig-)
I_{TRIG}	--	2	9	mA	Trigger input current
V_{ON}	2	--	10	V	Trigger Activation voltage
P_{PULSE}	--	72	150	W	Pulse mode output power
P_{HOLD}	--	5	37.5	W	Hold mode output power
I_{LOAD}	--	3	5	A	Load current
F_{OSC}	24.0	25.0	26.5	kHz	PWM output frequency
V_{RESET}	--	VSS	--	V	VCC start voltage to ensure error bit cleared and device reset
I_{FAULT}	--	--	100	A	Current during load fault (100ms max)

Modular Solenoid Controller

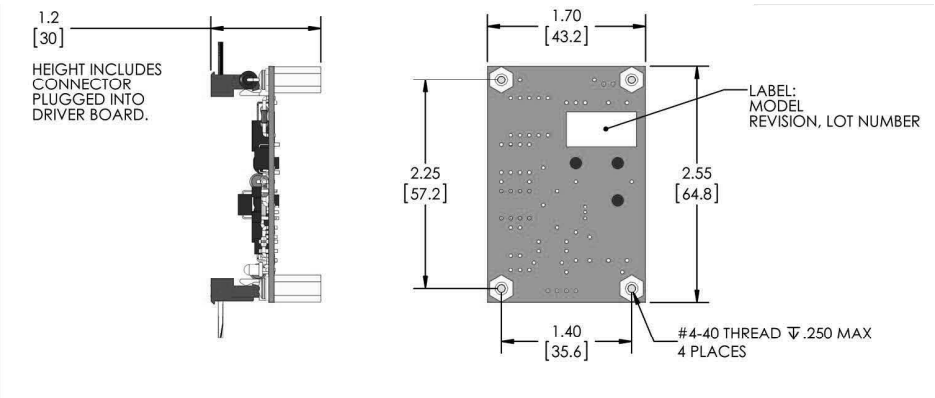
Specifications

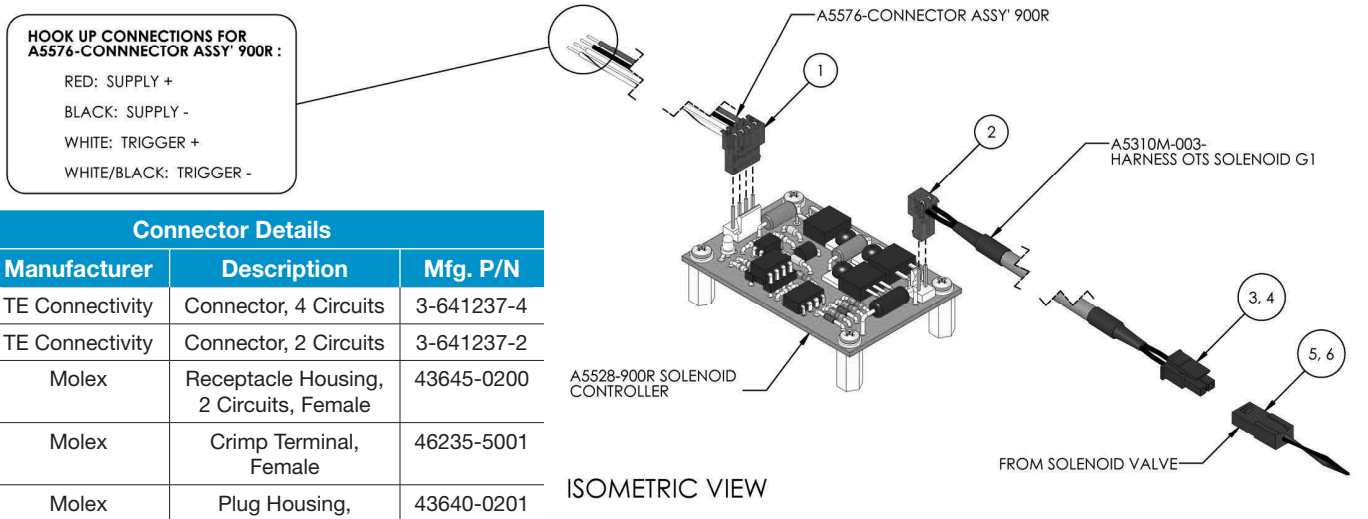
SUGGESTED SUPPLY POWER
- **Voltage:** 24VDC
- **Current:** 3amps

LED STATES
- **Red:** Valved Closed
- **Green:** Valve Open
- **Orange:** Valve in Transition
- **Alternating Red/Green:** Error
- **Red Flashing:** Under/Over Power

900R PWM Solenoid Controller Board is compatible with Legacy and Versagrip® Solenoid Pinch Valves

Dimensional Details: Inch (mm)





Connector Details			
No.	**Manufacturer**	**Description**	**Mfg. P/N**
1	TE Connectivity	Connector, 4 Circuits	3-641237-4
2	TE Connectivity	Connector, 2 Circuits	3-641237-2
3	Molex	Receptacle Housing, 2 Circuits, Female	43645-0200
4	Molex	Crimp Terminal, Female	46235-5001
5	Molex	Plug Housing, 2 Circuits, Male	43640-0201
6	Molex	Crimp Terminal, Male	43031-0008

About Acro and Bimba

Acro Associates is a leading innovator in pinch valves and fluid control components for medical, bioprocessing and industrial applications. As a wholly-owned subsidiary of Bimba Manufacturing, a global leader in actuation technologies, Acro is a part of a family of brands that includes Mead, MFD, Pneumadyne and TRD. Together, they provide industry-leading actuator based pneumatic, hydraulic, electric and automation solutions worldwide. Acro is based in Concord, CA and Bimba is headquartered in University Park, IL. For more information, visit **acroassociates.com** or **bimba.com**.

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