Precision Pneumatic - BR Series Regulators

NITRA® BR Series Precision Regulators are designed for use in systems that require clean, accurate instrument air. They are constructed of durable materials ideal for industrial environments.

BR-323

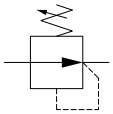
BR-341

Features

- Diecast aluminum alloy, irridite and baked epoxy finish body
- Nitrile elastomer and nylon fabric diaphragm
- Nitrile elastomer valve seat
- Additional build materials include: brass, zinc plated steel and acetal
- Mounting by pipe, bracket or through body direct
- 1/4" and 1/2" NPT ports available
- 3 pressure ranges available
- Made in the USA

See www.AutomationDirect.com for a wide variety of fitting options

Mounting bracket not included.



Air Regulator

Precision Pneumatic BR Series Regulators

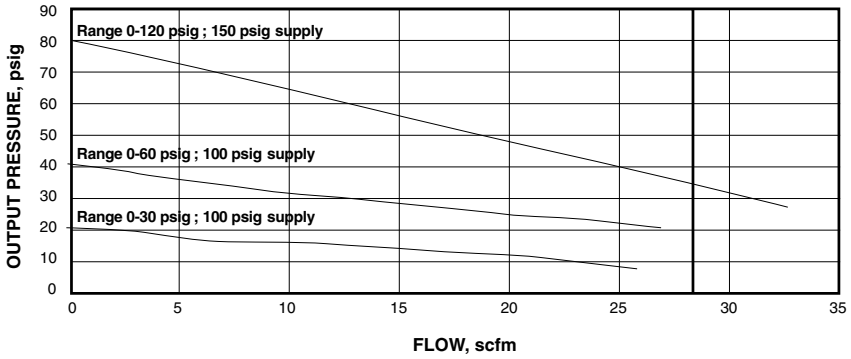
Part No.	Price	Weight (lbs)	Port Size (FNPT)	Fluid	Temperature	Operating Pressure	Maximum Supply Pressure	Cv	Exhaust Capacity	Sensitivity	Air Consumption	Effect of Supply Pressure Variation
BR-321	$55.00	0.4	1/4"	Air & Inert gases	0~160°F (-18~71°C)	0-30 psi (0-0.21 MPa) (0-2 bar)	250psi (1.72 MPa) (17bar)	0.5 @ 150 psig suppy and 80 psig setpoint	0.1 scfm (2.83 Nl/min) with downstream pressure 5 psig (0.3 bar) above set point	1" of water	Less than 5 scfh (2.5 Nl/min)	Less than 0.25 psig (0.017 bar) for 25 psig (1.7 bar) change
BR-322	$55.00	0.4	1/4"			0-60 psi (0-0.41 MPa) (0-4 bar)						
BR-323	$55.00	0.4	1/4"			0-120 psi (0-0.83 MPa) (0-8 bar)						
BR-341	$101.00	0.4	1/2"			0-30 psi (0-0.21 MPa) (0-2 bar)		2.5 @ 150 psig supply and 80 psig setpoint				Less than 0.5 psig (0.035 bar) for 25 psig (1.7 bar) change
BR-342	$101.00	0.4	1/2"			0-60 psi (0-0.41 MPa) (0-4 bar)						
BR-343	$101.00	0.4	1/2"			0-120 psi (0-0.83 MPa) (0-8 bar)						

Note: A filter (40 micron or less) is recommended ahead of regulator. If lubricator is used, it should be downstream of regulator.

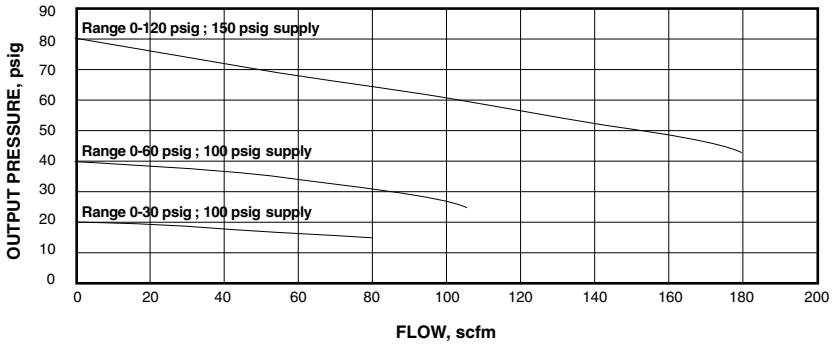
Precision Pneumatic - BR Series Regulators

Performance Charts

BR 1/4" NPT



BR 1/2" NPT



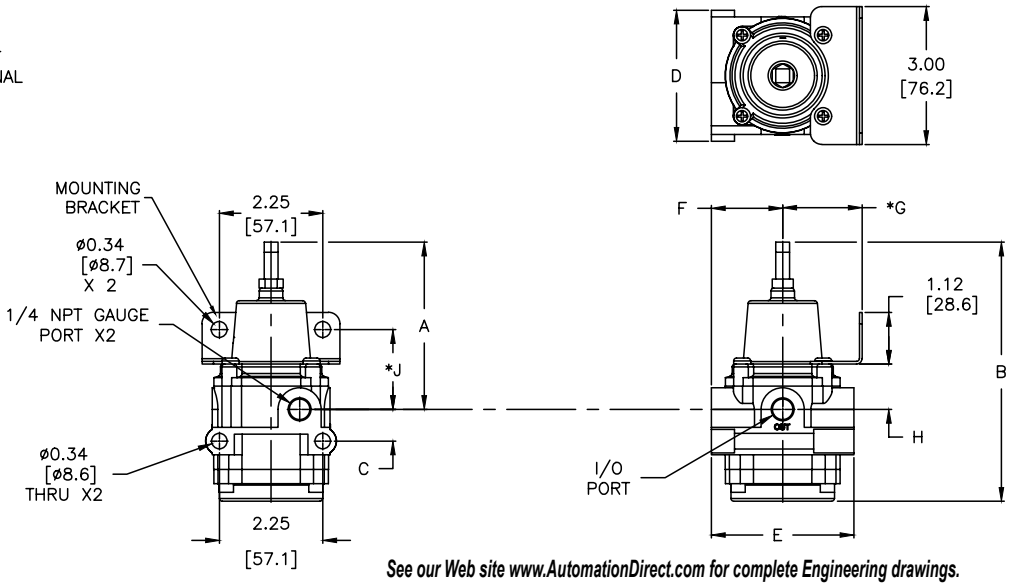
Dimensions

Inches [mm]

BR-X

PART NUMBER	A	B	C	D	E	F	G	H	J	I/O PORT	PSI RANGE
BR-321	3.64 [92.4]	5.64 [143.2]	.69 [17.5]	2.84 [72.2]	3.10 [78.7]	1.55 [39.4]	1.73 [43.9]	.98 [25.0]	1.73 [44.1]	1/4	0-30
BR-322											0-60
BR-323											0-120
BR-341	3.72 [94.6]	5.83 [148.2]	.70 [17.8]	2.87 [73.0]	3.00 [76.2]	1.50 [38.0]	1.73 [44.1]	1.15 [29.2]	1.90 [48.3]	1/2	0-30
BR-342											0-60
BR-343											0-120

*MOUNTING BRACKET INSTALLATION OPTIONAL



See our Web site www.AutomationDirect.com for complete Engineering drawings.

Precision Pneumatic BR Series Accessories

Part No.	Price	Description	Material	Weight (lbs)
BBKT-3	$8.75	NITRA mounting bracket. For use with BFR-3 and BR-3 series air prep components.	Plated Steel	0.1

Precision Pneumatic - CR Series Regulators

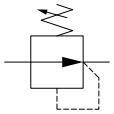
CR-735

NITRA® CR Series Precision Regulators are designed for applications that require high flow capacity and accurate process control. A poppet valve balanced by a rolling diaphragm insures a constant output pressure even during wide supply pressure variations. Stability of regulated pressure is maintained under varying flow conditions through the use of an aspirator tube which adjusts the air supply in accordance with the flow velocity.

Features

- Diecast aluminum alloy body
- Stainless steel, brass, plated steel, and acetal internal components
- Buna-N elastomer, polyester fabric diaphragm
- Mounting by pipe or bracket
- High flow capacity
- High relief capacity
- 1/4", 3/8", and 1/2" NPT ports
- 2 pressure ranges available
- Made in the USA

Mounting bracket not included.



Air Regulator

See www.AutomationDirect.com for a wide variety of fitting options

Precision Pneumatic CR Series Regulators

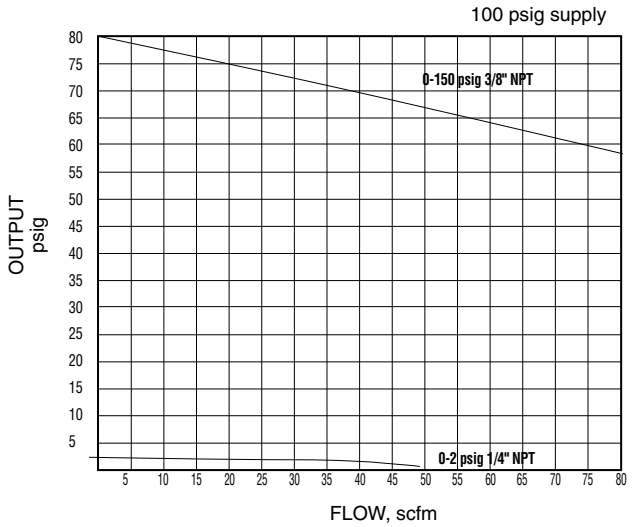
Part No.	Price	Weight (lbs)	Port Size (FNPT)	Fluid	Temperature	Operating Pressure	Maximum Supply Pressure	Exhaust Capacity	Sensitivity	Air Consumption	Effect of Supply Pressure Variation
CR-724	$100.00	1.5	1/4"	Air & Inert gases	-40~160°F (-40~71°C)	0-2 psi (0-0.14 MPa) (0-0.15 bar)	250psi (1.72 MPa) (17bar)	4 scfm (120 Nl/min) with downstream pressure 5 psig (0.3 bar) above set point	1/8" [3.2mm] of water	Steady State: From 1.0 to 12.5 scfh (30 to 375 Nl/min), depending on output pressure range	Less than 0.1 psi (0.007 bar) for 100 psi (6.7 bar) change
CR-725	$94.00	1.5	1/4"			0-150 psi (0-1.03 MPa) (0-10 bar)					
CR-734	$100.00	1.5	3/8"			0-2 psi (0-0.14 MPa) (0-0.15 bar)					
CR-735	$94.00	1.5	3/8"			0-150 psi (0-1.03 MPa) (0-10 bar)					
CR-744	$117.00	1.5	1/2"			0-2 psi (0-0.14 MPa) (0-0.15 bar)					
CR-745	$112.00	1.5	1/2"			0-150 psi (0-1.03 MPa) (0-10 bar)					

Note: A filter (40 micron or less) is recommended ahead of regulator. If lubricator is used, it should be downstream of regulator.

Precision Pneumatic - CR Series Regulators

Performance Chart

CR-X



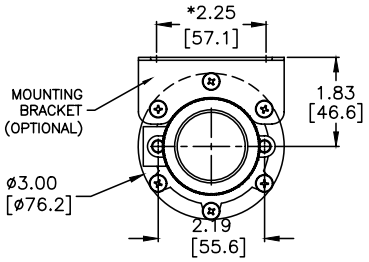
Dimensions

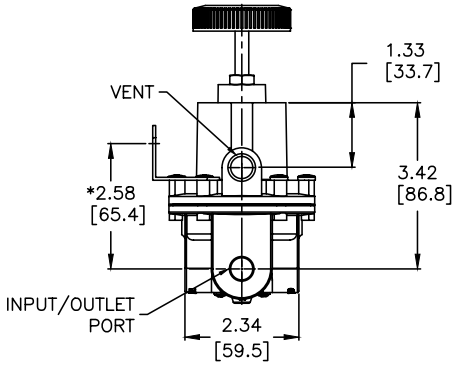
Inches [mm]

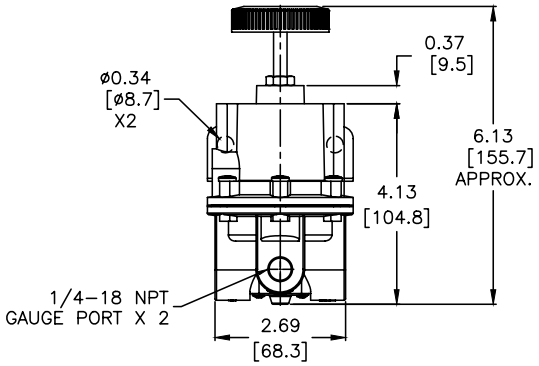
CR-X

PART NUMBER	PRESSURE RANGE PSI	INLET/OUTLET PORT SIZE
CR-724	0-2	1/4
CR-725	0-150	1/4
CR-734	0-2	3/8
CR-735	0-150	3/8
CR-744	0-2	1/2
CR-745	0-150	1/2

*DIMENSIONS TO MOUNTING HOLES FOR OPTIONAL BRACKET







See our Web site www.AutomationDirect.com for complete Engineering drawings.

Precision Pneumatic CR Series Accessories				
Part No.	***Price***	***Description***	***Material***	***Weight (lbs)***
CBKT-7	$8.75	NITRA mounting bracket. For use with CR-7 series air prep components.	Plated Steel	0.1

Precision Pneumatic - DR Series Regulators

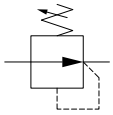
DR-126

NITRA® DR Series Precision Regulators are well suited for processes that require precise regulation of air pressure in pipes and vessels. The DR Series is often used for: precision fluid control, air gauging, gas mixing, calibration standards, gate actuators, cylinder loading, and web tensioning.

Features

- Diecast zinc alloy body
- Stainless steel, brass, plated steel, and acetal internal components
- Buna-N elastomer, polyester fabric diaphragm
- Mounting by pipe or bracket
- (2) 1/4" NPT gauge ports
- 1/4" and 3/8" NPT ports
- Made in the USA

Mounting bracket not included.



Air Regulator

See www.AutomationDirect.com for a wide variety of fitting options

Precision Pneumatic DR Series Regulators

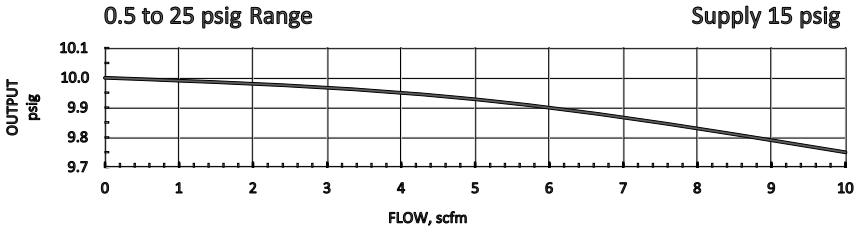
Part No.	Price	Weight (lbs)	Port Size (FNPT)	Fluid	Temperature	Operating Pressure	Maximum Supply Pressure	Pilot Pressure Chamber Bleed Rate	Exhaust Capacity	Sensitivity	Air Consumption	Effect of Supply Pressure Variation
DR-123	$116.00	1.4	1/4"	Air & Inert gases	-20~160°F (-29~71°C)	2-120 psi (0.014-0.83 MPa) (0.138-8.27 bar)	150psi (1.03 MPa) (10.5 bar)	less than 0.08 scfm (2.4 Nl/min)	3 scfm (90 Nl/min) with downstream pressure 5 psig (0.3 bar) above set point	1/8" [3.2mm] of water	6 scfh (3 Nl/min)	Less than 0.005 psi (0.003 bar) for 25 psig (1.7 bar) change
DR-126	$138.00	1.4	1/4"			0.5-25 psi (0.003-0.17 MPa) (0.03-1.72 bar)	50psi (0.34 MPa) (3.4 bar)					
DR-133	$116.00	1.4	3/8"			2-120 psi (0.014-0.83 MPa) (0.138-8.27 bar)	150psi (1.03 MPa) (10.5 bar)					

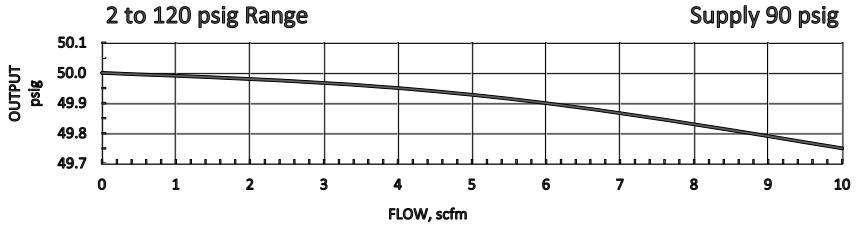
Note: A filter (40 micron or less) is recommended ahead of regulator. If lubricator is used, it should be downstream of regulator.

Precision Pneumatic - DR Series Regulators

Performance Charts

DR-X





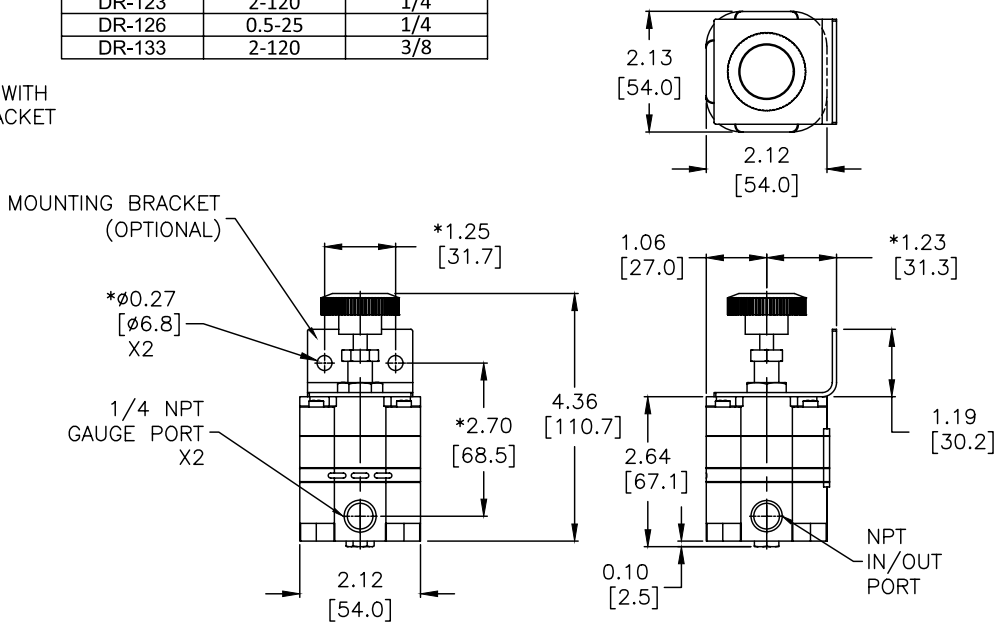
Dimensions

Inches [mm]

PART NUMBER	PRESSURE RANGE PSI	INLET/OUTLET PORT SIZE NPT
DR-123	2-120	1/4
DR-126	0.5-25	1/4
DR-133	2-120	3/8

DR-X

*DIMENSIONS WITH OPTIONAL BRACKET INSTALLED



See our Web site www.AutomationDirect.com for complete Engineering drawings.

Precision Pneumatic DR Series Accessories				
Part No.	***Price***	***Description***	***Material***	***Weight (lbs)***
DBKT-1	$12.50	NITRA mounting bracket. For use with DR-1 series air prep components.	Plated Steel	0.1

Precision Pneumatic - ER Series Regulators

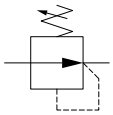
ER-913

NITRA® ER Series Precision Regulators are miniature regulators that are designed to provide the highest level of regulation accuracy and repeatability available in a compact, lightweight housing. A force balanced pilot control maintains output pressure to within 0.05 psig (3.44 millibar) with minimal drift over time. They are ideal for applications that require exact pressure control and substantial flow capacity under variable operating conditions with limited space.

Features

- Diecast aluminum alloy, chromate and epoxy paint housing
- Nitrile elastomers
- Brass, aluminum, stainless steel and zinc plated internals
- Mounting by pipe or bracket
- (2) 1/8" NPT gauge ports
- Made in the USA

Mounting bracket not included.



Air Regulator

See www.AutomationDirect.com for a wide variety of fitting options

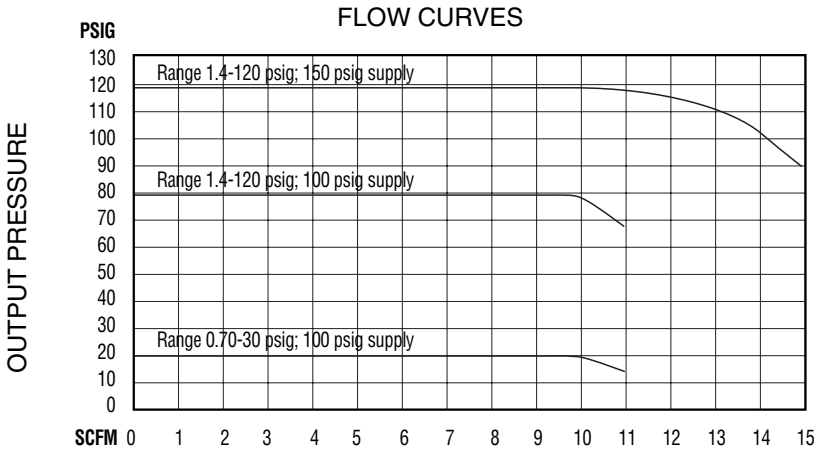
Precision Pneumatic ER Series Regulators												
Part No.	*Price*	*Weight (lbs)*	*Port Size (FNPT)*	*Fluid*	*Temperature*	*Operating Pressure*	*Supply Pressure Sensitivity*	*Maximum Supply Pressure*	*Exhaust Capacity*	*Sensitivity*	*Air Consumption*	*Repeatability*
ER-911	$87.00	0.4	1/8"	Air & Inert gases	0~160°F (-18~71°C)	0.7-30 psig (0.005-0.21 MPa) (0.048-2.07 bar)	0.5 psig (0.034 bar) for a 100 psig (6.9 bar) change	150psi (1.03 MPa) (10.5 bar)	7 scfm (199 Nl/min)	1/4" [6.4mm] of water	6 scfh (170 Nl/hr) @ 150psig (10 bar) supply	±0.3% of span
ER-913	$87.00	0.4	1/8"			1.4-120 psig (0.010-0.83 MPa) (0.138-8.27 bar)						

Note: A filter (40 micron or less) is recommended ahead of regulator. If lubricator is used, it should be downstream of regulator.

Precision Pneumatic - ER Series Regulators

Performance Charts

ER-X

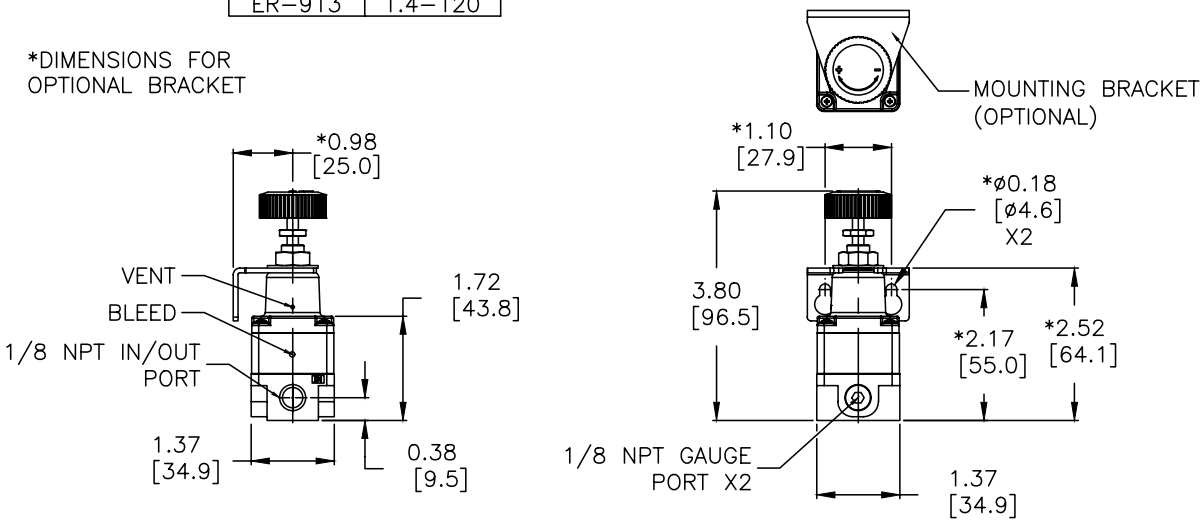


Dimensions

Inches [mm]

ER-X

PART NUMBER	PRESSURE RANGE PSI
ER–911	0.7–30
ER–913	1.4–120



See our Web site www.AutomationDirect.com for complete Engineering drawings.

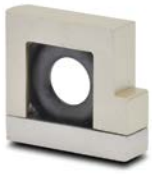
Precision Pneumatic ER Series Accessories				
Part No.	***Price***	***Description***	***Material***	***Weight (lbs)***
EBKT-9	$10.00	NITRA mounting bracket. For use with ER-9 series air prep components.	Plated Steel	0.1

Pneumatic Air Preparation Accessories

Part No. ADB-21

Part No. AB-4T

Part No. AB-4L



Part No. AB-4U

Pneumatic Air Preparation Accessories			
Part No.	Price	Description	Weight (lbs)
ADB-21	$19.00	NITRA pneumatic distribution block, 1/8in female NPT inlet(s), (3) 1/8in female NPT outlet(s). For use with Ax-21 series air prep components.	0.1
ADB-22	$19.00	NITRA pneumatic distribution block, 1/4in female NPT inlet(s), (3) 1/4in female NPT outlet(s). For use with Ax-22 series air prep components.	0.1
ADB-32	$26.50	NITRA pneumatic distribution block, 1/4in female NPT inlet(s), (3) 1/4in female NPT outlet(s). For use with Ax-32 series air prep components.	0.2
ADB-33	$26.50	NITRA pneumatic distribution block, 3/8in female NPT inlet(s), (3) 3/8in female NPT outlet(s). For use with Ax-33 series air prep components.	0.2
ADB-44	$28.50	NITRA pneumatic distribution block, 1/2in female NPT inlet(s), (3) 1/2in female NPT outlet(s). For use with Ax-44 series air prep components.	0.4
AB-2T	$17.50	NITRA modular T-bracket, for use with Ax-2 series air prep components.	0.2
AB-2L	$17.50	NITRA modular L-bracket, for use with Ax-2 series air prep components.	0.2
AB-2U	$17.50	NITRA modular U-bracket, for use with Ax-2 series air prep components.	0.1
AB-3T	$19.00	NITRA modular T-bracket, for use with Ax-3 series air prep components.	0.3
AB-3L	$19.00	NITRA modular L-bracket, for use with Ax-3 series air prep components.	0.3
AB-3U	$19.00	NITRA modular U-bracket, for use with Ax-3 series air prep components.	0.2
AB-4T	$23.00	NITRA modular T-bracket, for use with Ax-4 series air prep components.	0.5
AB-4L	$23.00	NITRA modular L-bracket, for use with Ax-4 series air prep components.	0.5
AB-4U	$23.00	NITRA modular U-bracket, for use with Ax-4 series air prep components.	0.4
AB-6T	$33.50	NITRA modular T-bracket, for use with Ax-6 series air prep components.	1.3
AB-6L	$31.50	NITRA modular L-bracket, for use with Ax-6 series air prep components.	1.2
AB-6U	$30.00	NITRA modular U-bracket, for use with Ax-6 series air prep components.	0.8

Pneumatic Air Preparation Accessories

Part No. AFE2-43

Part No. AFE2-41

Part No. AFE-24

Part No. AFE-35

Pneumatic Air Preparation Accessories			
Part No.	**Price**	**Description**	**Weight (lbs)**
NITRA Gen 2 Particulate Filters			
AFE2-23	$1.50	NITRA particulate filter element, replacement, 40 micron particles, high-density polyethylene (HDPE). For use with AF-2 series filters or AFR-2 series filter regulators.	0.01
AFE2-33	$3.25	NITRA particulate filter element, replacement, 40 micron particles, high-density polyethylene (HDPE). For use with AF-3 series filters or AFR-3 series filter regulators.	0.01
AFE2-43	$4.50	NITRA particulate filter element, replacement, 40 micron particles, high-density polyethylene (HDPE). For use with AF-4 series filters or AFR-4 series filter regulators.	0.01
AFE2-63	$11.50	NITRA particulate filter element, replacement, 40 micron particles, high-density polyethylene (HDPE). For use with AF-6 series filters or AFR-6 series filter regulators.	0.04
AFE2-21	$1.50	NITRA particulate filter element, replacement, 5 micron particles, high-density polyethylene (HDPE). For use with AF-2 series filters or AFR-2 series filter regulators.	0.01
AFE2-31	$3.25	NITRA particulate filter element, replacement, 5 micron particles, high-density polyethylene (HDPE). For use with AF-3 series filters or AFR-3 series filter regulators.	0.01
AFE2-41	$4.50	NITRA particulate filter element, replacement, 5 micron particles, high-density polyethylene (HDPE). For use with AF-4 series filters or AFR-4 series filter regulators.	0.01
AFE2-61	$11.50	NITRA particulate filter element, replacement, 5 micron particles, high-density polyethylene (HDPE). For use with AF-6 series filters or AFR-6 series filter regulators.	0.04
NITRA Coalescing Filters			
AFE-24	$21.50	NITRA coalescing oil removal filter element, replacement, 0.3 micron particles, borosilicate glass microfiber. For use with AC-2 series coalescing filters.	0.05
AFE-34	$26.50	NITRA coalescing oil removal filter element, replacement, 0.3 micron particles, borosilicate glass microfiber. For use with AC-3 series coalescing filters.	0.05
AFE-44	$42.50	NITRA coalescing oil removal filter element, replacement, 0.3 micron particles, borosilicate glass microfiber. For use with AC-4 series coalescing filters.	0.1
AFE-25	$21.50	NITRA coalescing oil removal filter element, replacement, 0.01 micron particles, borosilicate glass microfiber. For use with AC-2 series coalescing filters.	0.04
AFE-35	$26.50	NITRA coalescing oil removal filter element, replacement, 0.01 micron particles, borosilicate glass microfiber. For use with AC-3 series coalescing filters.	0.05
AFE-45	$42.50	NITRA coalescing oil removal filter element, replacement, 0.01 micron particles, borosilicate glass microfiber. For use with AC-4 series coalescing filters.	0.1

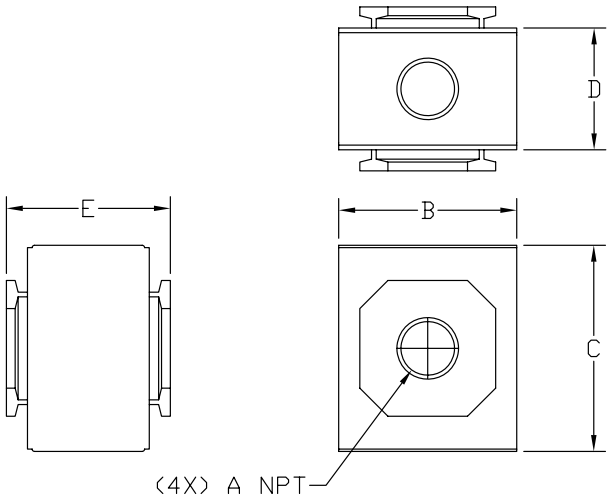
Pneumatic Air Preparation Accessories

Dimensions

mm [inches]

ADB-x

PART NO.	A NPT	DIM B	DIM C	DIM D	DIM E
ADB-21	1/8	30.0 [1.18]	36.0 [1.42]	19.5 [0.77]	28.5 [1.12]
ADB-22	1/4	30.0 [1.18]	36.0 [1.42]	19.5 [0.77]	28.5 [1.12]
ADB-32	1/4	38.0 [1.50]	44.0 [1.73]	26.0 [1.02]	35.0 [1.38]
ADB-33	3/8	38.0 [1.50]	44.0 [1.73]	26.0 [1.02]	35.0 [1.38]
ADB-44	1/2	52.0 [2.05]	52.0 [2.05]	30.0 [1.18]	42.0 [1.65]



See our Web site www.AutomationDirect.com for complete Engineering drawings.

Pneumatic Air Preparation Accessories

Dimensions

mm [inches]

AB-xT

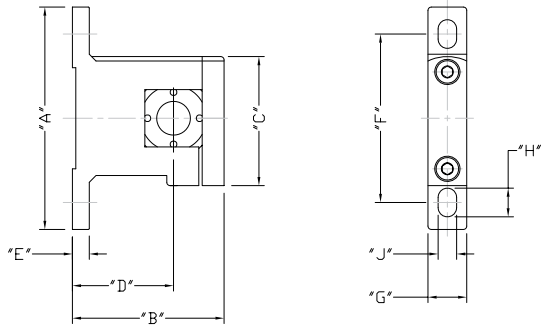


TABLE 1									
PART NUMBER	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"	DIM "F"	DIM "G"	DIM "H"	DIM "J"
AB-2T	66.0 [2.60]	45.0 [1.77]	38.3 [1.51]	30.0 [1.18]	5.0 [0.20]	50.0 [1.97]	11.5 [0.45]	8.5 [0.33]	5.5 [0.22]
AB-3T	88.0 [3.46]	60.5 [2.38]	49.3 [1.94]	41.5 [1.63]	7.0 [0.28]	70.0 [2.76]	12.5 [0.49]	9.0 [0.35]	6.5 [0.26]
AB-4T	104.0 [4.09]	76.0 [2.99]	58.5 [2.30]	50.0 [1.97]	7.0 [0.28]	80.0 [3.15]	15.5 [0.61]	12.0 [0.47]	8.6 [0.34]
AB-6T	128.0 [5.04]	104.0 [4.09]	79.5 [3.13]	70.0 [2.76]	10.0 [0.39]	100.0 [3.94]	19.5 [0.77]	16.0 [0.63]	11.0 [0.43]

AB-xL

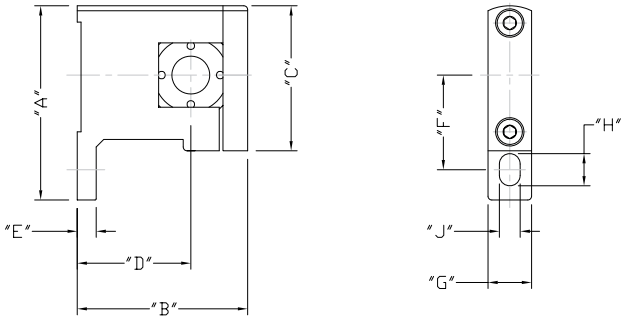


TABLE 1									
PART NUMBER	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"	DIM "F"	DIM "G"	DIM "H"	DIM "J"
AB-2L	51.3 [2.02]	45.0 [1.77]	38.3 [1.51]	30.0 [1.18]	5.0 [0.20]	25.0 [0.98]	11.5 [0.45]	8.5 [0.33]	5.5 [0.22]
AB-3L	68.6 [2.70]	60.5 [2.38]	49.3 [1.94]	41.5 [1.63]	7.0 [0.28]	35.0 [1.38]	12.5 [0.49]	9.0 [0.35]	6.5 [0.26]
AB-4L	79.5 [3.13]	76.0 [2.99]	58.5 [2.30]	50.0 [1.97]	7.0 [0.28]	40.0 [1.57]	15.5 [0.61]	12.0 [0.47]	8.6 [0.34]
AB-6L	103.5 [4.07]	104.0 [4.09]	79.5 [3.13]	70.0 [2.76]	10.0 [0.39]	50.0 [1.97]	19.5 [0.77]	16.0 [0.63]	11.0 [0.43]

See our Web site www.AutomationDirect.com for complete Engineering drawings.

Pneumatic Air Preparation Accessories

Dimensions

mm [inches]

AB-xU

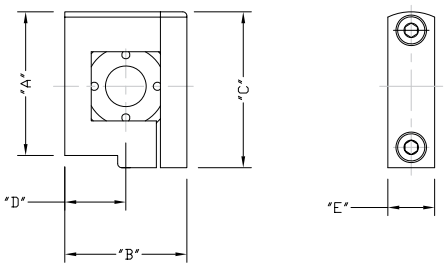


TABLE 1

PART NUMBER	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"
AB-2U	35.5 [1.39]	30.0 [1.18]	38.3 [1.51]	15.0 [0.59]	11.5 [0.45]
AB-3U	43.8 [1.72]	38.0 [1.50]	49.3 [1.94]	19.5 [0.75]	12.5 [0.49]
AB-4U	52.5 [2.07]	52.0 [2.05]	58.5 [2.30]	26.0 [1.02]	15.5 [0.61]
AB-6U	76.5 [3.01]	68.0 [2.68]	79.5 [3.13]	34.0 [1.34]	19.5 [0.77]

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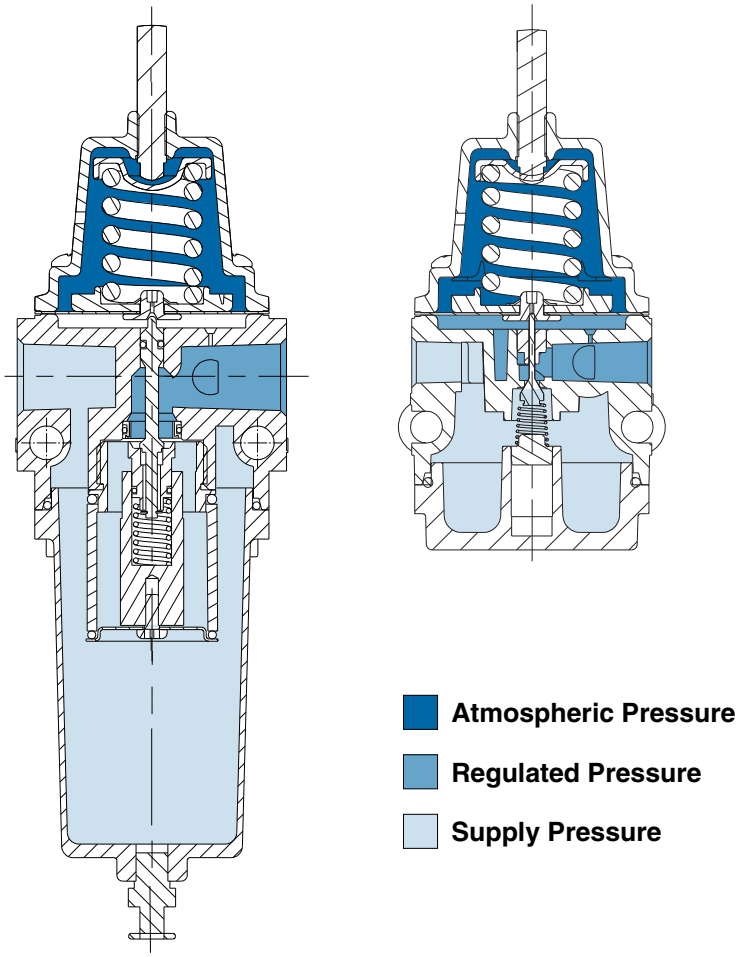
Pneumatic Regulators

Principles of Operation - Standard vs. Precision Regulators

Turning the adjusting screw changes the force exerted by the range spring on the diaphragm assembly. In equilibrium of set pressure, the force exerted by the range spring is balanced by the force from the output pressure acting underneath the diaphragm assembly. An unbalanced state between the output pressure and the set pressure causes a corresponding reaction in the diaphragm and supply valve assemblies. If the output pressure rises above the set pressure, an upward force is exerted on the diaphragm assembly causing the relief seat to lift and open. Excess pressure is vented to atmosphere until equilibrium is reached. If the output pressure drops below the set pressure the unbalanced force of the range spring causes a downward force on the diaphragm assembly. The supply valve then opens until the pressure builds up once more to the equilibrium condition. Under forward flow conditions, the range spring force is balanced by the diaphragm pressure force, with the supply valve open just enough to maintain the required equilibrium pressure. When high flow occurs, a specially designed aspirator helps maintain downstream pressure and compensates for droop.