

# Accessory Valves and Devices

Quick exhaust valve - inline, inch Quick Release  
Aluminum or polymer body



## Quick Release Valves

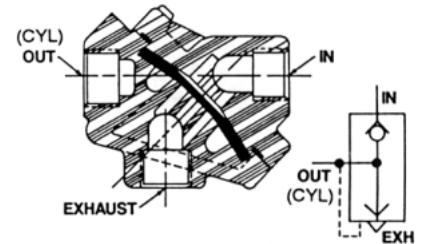
The Quick Release Valve speeds the exhausting of air cylinders, clutches or other pneumatic devices.

It vents air pressure close to the operated device instead of back through the control valve. Equipment cycling or release times are reduced for increased output.

### Features:

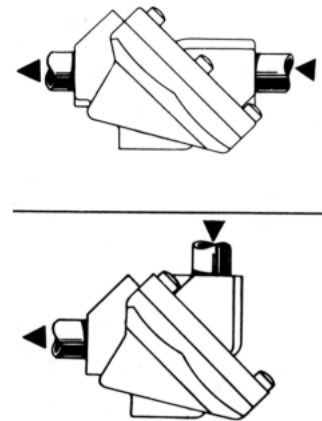
- Sensitivity: A few psi pressure differential across the diaphragm opens the exhaust.
- Large capacity: Large internal air passages exhaust air quickly for top speed of your operation.
- Quiet operation: Special diaphragm design eliminates chattering associated with exhaust valves.
- Long operating life: Corrosion resistant body has only one wearing part - a rugged, oil-resistant diaphragm.
- Reduced weight: Built of aluminum or polymer, they are light enough to be supported by piping alone (mounting brackets are optional on smaller sizes).

► For instant response in Air Circuits



## Mounting Flexibility - For in-line or right-angle piping

A desirable feature is that the inlet port may be assembled on the valve in one of two positions. This allows both ports to be mounted on the same center line, or at right angles to each other. The added flexibility simplifies many mounting problems. Field changeout is made by rotating the cover 180°.



## Operating Characteristics

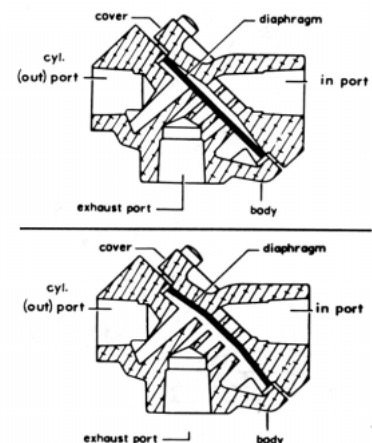
Air pressure entering the inlet port forces the diaphragm against the exhaust port, closing it. Air pressure also deflects against the rim of the diaphragm to open a direct passage around the diaphragm to the outlet port.

When air pressure at the inlet port is reduced, a differential in the pressure acting on the diaphragm is created. This differential in pressure lifts the diaphragm from the exhaust port and seats it on the inlet port. This opens the exhaust port, allows air to flow freely from the outlet port to atmosphere, and closes the inlet port.

Should outlet air pressure drop below inlet pressure, the differential in pressure seats the diaphragm on the exhaust port, stopping further exhaust.

## ► MOUNTING

The 1/4" and 3/8" models are normally mounted directly in the piping. A mounting bracket is available as an accessory, if required. The 1/2", 3/4" and 1" models have an integral mounting bracket.



# Accessory Valves and Devices

Quick exhaust valves - inline, inch Quick Release  
Aluminum body version, 1/4" - 1" NPTF



## Technical Data

Type	Aluminum Body, for inline or right-angle piping
Working Pressure	200 psi (13.8 bar) max. on 1/4" and 3/8"
	150 psi (10.3 bar) max. on 1/2" thru 1" sizes
Temperature Range	-40°F to 160°F, 200°F intermittent (-40° to 71°C, 93°C intermittent)
Media	Air or inert gas
Port Size	1/4" to 1" NPTF



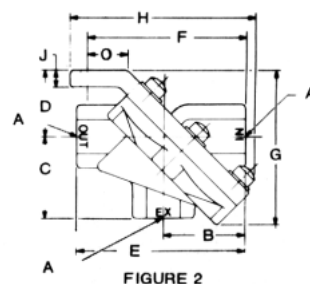
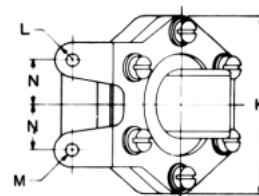
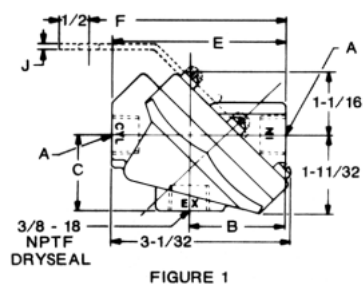
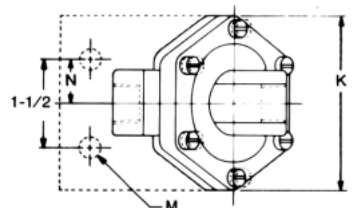
Port (NPT)	Piping	Valve Part No.	Old Part No.	Weight lbs. (kg)	C <sub>v</sub> in to out	C <sub>v</sub> out to exh.	Repair Kit	Old Repair Kit
1/4"	Inline	R431003038	P -052935-00002	0.64 (0.29)	1.77	2.50	R431005410	P -060213-00002
1/4"	Right angle	R431003043	P -052935-00021	0.64 (0.29)	1.77	2.50	R431005410	P -060213-00002
3/8"	Inline	R431003039	P -052935-00003	0.64 (0.29)	2.73	3.08	R431005410	P -060213-00002
3/8"	Right angle	R431003044	P -052935-00031	0.64 (0.29)	2.73	3.08	R431005410	P -060213-00002
1/2"	Inline	R431003040	P -052935-00004	1.44 (0.46)	5.00	5.50	R431005412	P -060214-00002
3/4"	Inline	R431003041	P -052935-00006	2.88 (1.31)	9.70	10.55	R431005414	P -060215-00001
1"	Inline	R431003042	P -052935-00008	3.32 (1.51)	11.95	13.45	R431005414	P -060215-00001

Mounting bracket for 1/4" and 3/8" models: Part no. R431003093 (old part no. P -053067-00000).

Sizes 1/2" through 1" have integral mounting brackets.

Repair kits include diaphragm and gasket.

## Inch dimensions: QRV-Aluminum (in-line configuration shown)



## Inch dimensions: QRV-Aluminum

Fig. No.	A NPTF Dryseal	B	C	D	E	F	G	H	J	K	L	M (2 Holes)	N	O
Fig. 1	1/4-18	1 3/4	1 11/32	—	3	3 3/8	—	—	1/16	3	—	11/32 Ø	3/4	—
Fig. 1	3/8-14	1 3/4	1 11/32	—	3	3 3/8	—	—	1/16	3	—	11/32 Ø	3/4	—
Fig. 2	1/2-14	1 3/4	1 11/32	1 1/2	3 11/16	3 7/16	3 15/32	4 1/8	3/8	3 15/16	3/8 R.	9/32 Ø	1	7/8
Fig. 2	3/4-14	2 11/16	2 21/32	2 1/16	5 1/4	5	4 13/16	5 1/2	7/16	6 1/2	1/2 R.	13/32 Ø	1 1/2	1 1/8
Fig. 2	1"-11 1/2	2 11/16	2 21/32	2 1/16	5 1/4	5	4 13/16	5 1/2	7/16	6 1/2	1/2 R.	13/32 Ø	1 1/2	1 1/8

# Accessory Valves and Devices

Quick exhaust valves - inline, inch Quick Release  
 Polymer body version, 1/4" - 3/8" NPT



## Technical Data

Type	Polymer Body, for inline or right angle piping
Working Pressure	150 psi (10.3 bar) maximum
Temperature Range	-20°F to 160°F, 200°F intermittent (-29°C to 71°C, 93°C inter.)
Media	Air
Port Size	1/4" and 3/8" NPT
Material-Body	Glass filled, acetal co-polymer



### Note - Torque Values:

Maximum Pipe Thread Torque: 120 in.-lbs.  
 Maximum Body Screw Torque: 18 in.-lbs.

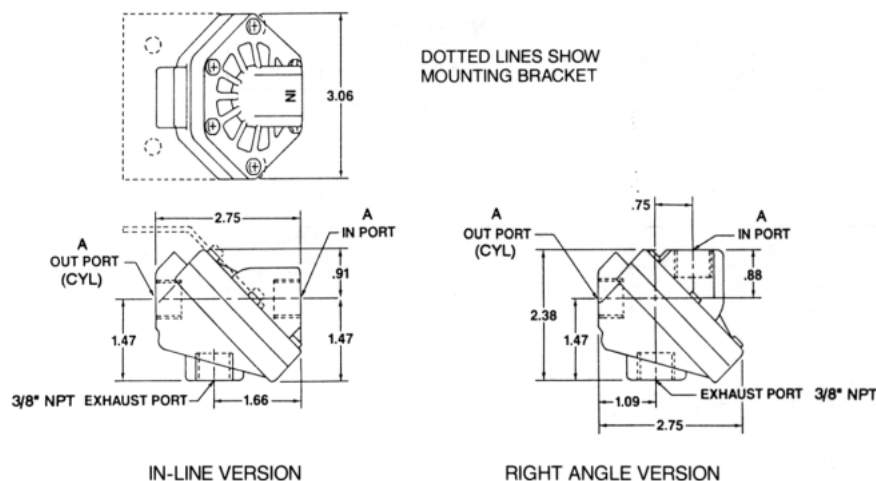
### Features:

- High exhaust flow capacity
- Light weight for mounting in piping system
- Polymer body for corrosion resistance
- Ideal for industrial and mobile/oilfield applications
- Special corrosion resistant version with stainless steel hardware available

Port (NPT)	Piping	Valve Part No.	Old Part No.	Weight oz. (kg)	C <sub>v</sub> in to out	C <sub>v</sub> out to exh.	Repair Kit	Mounting Bracket <sup>1</sup>
1/4"	Inline	R431007444	P -069324-00002	7 (0.20)	1.54	1.84	R431005410	R431003093
1/4"	Right angle	R431007446	P -069324-00021	7 (0.20)	1.54	1.84	R431005410	R431003093
1/4"	Inline <sup>2</sup>	R434001677	P -031961-00002	7 (0.20)	2.30	2.76	R431005410	R431003093
3/8"	Inline	R431007445	P -069324-00003	7 (0.20)	2.30	2.76	R431005410	R431003093
3/8"	Right angle	R431007447	P -069324-00031	7 (0.20)	2.30	2.76	R431005410	R431003093

- The polymer Quick Exhaust Valve is normally mounted directly in the piping. A mounting bracket (part no. R431003093) is as an accessory if required.
  - R434001677 is an extra corrosion resistant version due to stainless steel hardware.
- Repair kit includes diaphragm and gasket.

## Inch dimensions: QRV-Polymer



If needed, a mounting bracket may be ordered separately.

# Accessory Valves and Devices

Check valves - inline, inch  
Aluminum body, 1/8" - 1" NPTF

**Rexroth**  
Bosch Group

## ◆ Dryseal NPTF

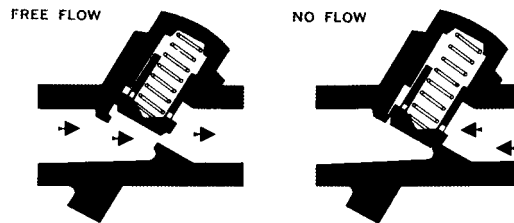
Type High Capacity  
Working Pressure 250 psi maximum  
Operating Temperature -40°F to +160°F (+200°F intermittent service)  
Media Air  
Port Size 1/8" to 1" NPTF

### ► Application

Check valves are installed in a pipeline to permit flow of air in one direction only. Less than 1/2 psi pressure is required to open the valve. The valve is spring loaded to close when no pressure differential exists.

Therefore, it may be mounted in any position.

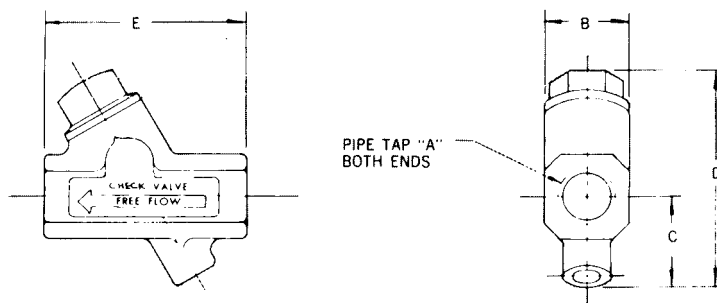
The body and cap are made of anodized die cast aluminum. A stainless steel valve, plated spring and Buna N Seal also contribute to trouble free service.



Symbol	Port Size NPTF	New Part No.	Old Part No.	Approx. Valve Weight (oz.)	C <sub>v</sub>	"A" Pipe Taps (Dryseal NPTF)
	1/8"	R431003553	P -055023-00000	2.8	1.19	1/8"-27
	1/4"	R431003554	P -055024-00000	2.5	1.34	1/4"-18
	3/8"	R431003556	P -055025-00000	3.8	3.03	3/8"-14
	1/2"	R431003557	P -055026-00000	6.5	3.50	1/2"-14
	3/4"	R431003558	P -055027-00000	26.0	10.00	3/4"-14
	1"	R431003559	P -055028-00000	24.0	13.80	1"-11 1/2

### Repair Kits:

1/8" - 1/4" R431007468, 3/8" R431007469, 1/2" R413007470, 3/4" - 1" R431007471



### Dimensions

"A" PIPE TAPS	B	C	D	E
1/8"-27 Dryseal NPTF	7/8"	15/16"	2 3/16"	2"
1/4"-18 Dryseal NPTF	7/8"	15/16"	2 3/16"	2"
3/8"-14 Dryseal NPTF	1"	1 1/16"	2 9/16"	2 3/8"
1/2"-14 Dryseal NPTF	1 1/4"	1 3/16"	2 13/16"	2 3/4"
3/4"-14 Dryseal NPTF	2"	1 3/4"	4 1/4"	4"
1"-11 1/2" Dryseal NPTF	2"	1 3/4"	4 1/4"	4"

# Accessory Valves and Devices

Shuttle valves - inch  
Aluminum body, 1/8" - 1/2" NPTF



## NPT Ports

Type  
Supply Pressure 200 psi max.  
Temperature range -40°F to 160°F; intermittent 200°F is permissible.  
Media Air or inert gas

### Application data

The Shuttle Valve automatically selects and directs the flow of air from one or the other of two controlling devices to a common outlet. It serves to connect two independent lines to a common line without destroying the segregation.



	Port (NPT)	Valve Part No.	Old Part No.	Weight lbs. (kg)	Flow C <sub>v</sub>	Repair Kit
	1/8"	R431003347	P -054350-00001	0.44 (0.20)	1.25	R431005614
	1/4"	R431003348	P -054350-00002	0.44 (0.20)	1.58	R431005614
	3/8"	R431003349	P -054350-00003	1.19 (0.54)	3.61	R431005615
	1/2"	R431003350	P -054350-00004	1.19 (0.54)	5.12	R431005615

Repair kits include diaphragm and gasket.

## Operating Characteristics

### FEATURES-

**SIMPLE**-Contains only one moving part-an easily replaceable fabric reinforced synthetic rubber diaphragm.

Two body segments, a gasket and four screws complete the assembly.

It has no spring; nothing can bind or stick. Its compact size presents no installation problems.

**LIGHTWEIGHT**-The Shuttle Valve can easily be supported by piping alone.

Mounting feet are included, however, for installations with vibration or long pipe runs.

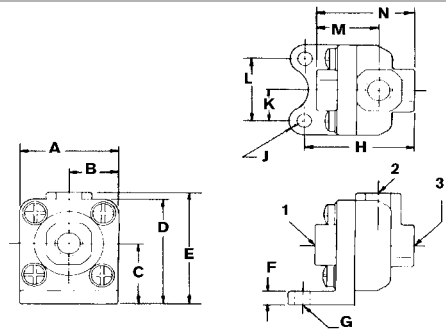
**SENSITIVE**-Will seal off the opposite inlet line with less than one psi pressure differential.

**LONG LIFE**-Tests have shown no diaphragm wear after hundreds of thousands of cycles.

To order, refer to port size and part number.

When a pressure differential of one psi or more exists at either inlet port, the higher pressure forces the diaphragm to seal against the opposite

The low (or zero) pressure inlet port is sealed from both the outlet and the opposite inlet port.



## DIMENSIONS

DRYSEAL NPTF Ports	1/8"-27 and 1/4"-18	3/8"-18 and 1/2"-14
ALL PORTS		
A	1 7/8"	2 1/2"
B	15/16"	1 1/4"
C	1 1/2"	1 7/8"
D	2 7/16"	3 1/8"
E	2 5/8"	3 3/4"
F	9/32"	5/16"
G dia.	9/32"	9/32"
H	2 1/8"	3 1/4"
J radius	9/32"	21/64"
K	21/32"	29/32"
L	1 5/16"	1 13/16"
M	1 7/32"	2 1/8"
N	1 29/32"	3 3/8"

## NOTICES TO PRODUCT USERS

### 1. WARNING: FLUID MEDIA

Bosch Rexroth pneumatic devices are designed and tested for use with filtered, clean, dry, chemical free air at pressures and temperatures within the specified limits of the device. For use with media other than air or for human life support systems, Bosch Rexroth must be consulted. Hydraulic cylinders are designed for operation with filtered, clean, petroleum based hydraulic fluid; operation using fire-resistant or other special types of fluids may require special packing and seals. Consult the factory.

### 2. WARNING: MATERIAL COMPATIBILITY

Damage to product seals or other parts caused by the use of non-compatible lubricants, oil additives or synthetic lubricants in the air system compressor or line lubrication devices voids Bosch Rexroth's warranty and can result in product failure or other malfunction. See lubrication recommendations below.

**AIR LINE LUBRICANTS!** In service higher than 18 cycles per minute or with continuous flow of air through the device, an air line lubricator is recommended. \* (Do not use line lubrication with vacuum products.) However, the lubricator must be maintained since the oil will wash out the grease, and lack of lubrication will greatly shorten the life expectancy. The oils used in the lubricator must be compatible with the elastomers in the device. The elastomers are normally BUNA-N, NEOPRENE, VITON, SILICONE and HYTREL. Bosch Rexroth recommends the use of only petroleum-based oils without synthetic additives, and with an aniline point between 180° and 210° F.

**COMPRESSOR LUBRICANTS!** All compressors (with the exception of special "oil free" units) pass oil mist or vapor from the internal crankcase lubricating system through to the compressed air. Since even small amounts of non-compatible lubricants can cause severe seal deterioration (which could result in component and system failure) special care should be taken in selecting compatible compressor lubricants. It is recommended that users review the National Fluid Power Association "Recommended Guide Lines For Use Of Synthetic Lubricants In Pneumatic Fluid Power Systems" (NFPA T1-1978).

### 3. WARNING: INSTALLATION AND MOUNTING

The user of these devices must conform to all applicable electrical, mechanical, piping and other codes in the installation, operation or repair of these devices.

**INSTALLATION!** Do not attempt to install, operate or repair these devices without proper training in the technique of working on pneumatic or hydraulic systems and devices, unless under trained supervision. Compressed air and hydraulic systems contain high levels of stored energy. Do not attempt to connect, disconnect or repair these products when system is under pressure. Always exhaust or drain the pressure from system before performing any service work. Failure to do so can result in serious personal injury.

**MOUNTING!** Devices should be mounted and positioned in such manner that they cannot be accidentally operated.

### 4. WARNING: APPLICATION AND USE OF PRODUCTS

The possibility does exist for any device or accessory to fail to operate properly through misuse, wear or malfunction. The user must consider these possibilities and should provide appropriate safe guards in the application or system design to prevent personal injury or property damage in the event of malfunction.

### 5. WARNING: CONVERSION, MAINTENANCE AND REPAIR

When a device is disassembled for conversion to a different configuration, maintenance or repair, the device must be tested for leakage and proper operation after being reassembled and prior to installation.

**MAINTENANCE AND REPAIR!** Maintenance periods should be scheduled in accordance with frequency of use and working conditions. All Bosch Rexroth products should provide minimum of 1,000,000 cycles of maintenance free service when used and lubricated as recommended. However, these products should be visually inspected for defects and given an "in system" operating performance and leakage test once a year. Where devices require major repair as result of the one million cycles, one year, or routine inspection, the device must be disassembled, cleaned, inspected, parts replaced as required, rebuilt and tested for leakage and proper operation prior to installation. See individual catalogs for specific cycle life estimates.

### 6. PRODUCT CHANGES

Product changes including specifications, features, designs and availability are subject to change at any time without notice. For critical dimensions or specifications, contact factory.

\*Many Bosch Rexroth pneumatic components can operate with or without air line lubrication; see individual sales catalogs for details.

--Refer to the appropriate service catalog for parts and service information.

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Bosch Rexroth warrants its products sold by it to be free from defects in material and workmanship to the following:

For twelve months after shipment Bosch Rexroth will repair or replace (F.O.B. our works), at its option, any equipment which under normal conditions of use and service proves to be defective in material or workmanship at no charge to the purchaser. No charge will be made for labor with respect to defects covered by this Warranty, provided that the work is done by Bosch Rexroth or any of its authorized service facilities. However, this Warranty does not cover expenses incurred in the removal and reinstallation of any product, nor any downtime incurred, whether or not proved defective.

All repairs and replacement parts provided under this Warranty policy will assume the identity, for warranty purposes, of the part replaced, and the warranty on such replacement parts will expire when the warranty on the original part would have expired. Claims must be submitted within thirty days of the failure or be subject to rejection.

This Warranty is not transferable beyond the first using purchaser. Specifically, excluded from this Warranty are failures caused by misuse, neglect, abuse, improper operation or filtration, extreme temperatures, or unauthorized service or parts. This Warranty also excludes the use of lubricants, fluids or air line additives that are not compatible with seals or diaphragms used in the products. This Warranty sets out the purchaser's exclusive remedies with respect to products covered by it, whether for negligence or otherwise. Neither, Bosch Rexroth nor any of its affiliates will be liable for consequential or incidental damages or other losses or expenses incurred by reason of the use or sale of such products. Our liability (except as to title) arising out of the sale, use or operation of any product or parts, whether on warranty, contract or negligence (including claims for consequential or incidental damage) shall not in any event exceed the cost of replacing the defective products and, upon expiration of the warranted period as herein provided, all such liability is terminated. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHETHER FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE. No attempt to alter, amend or extend this Warranty shall be effective unless authorized in writing by an officer of Bosch Rexroth Corporation.

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