

# Check Valves

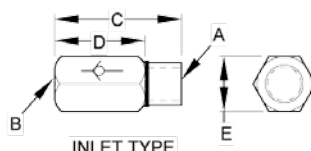
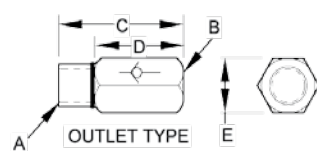
## SINGLE BALL STEEL CHECK VALVES

Single Ball Steel Check Valves are designed for use in hydraulic or lubrication systems with pressures up to 5000 PSI. Available in two models for use as inlet or outlet check valves. A symbol stamped on the body indicates flow direction. The standard type ball and spring principle is used.

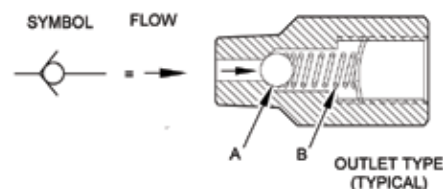


### Features

- Positive seal prevents leakage and backflow
- Compact and easy to install



**NOTE:** STRAIGHT THREAD CHECK VALVES INCLUDED O-RING AT BASE OF MALE THREADS



### SPECIFICATIONS

Maximum Temperature	Pipe 500°F (206°C) SAE 250°F (121°C)
Lubricant (Mineral Based and Synthetic)	Oil and Grease
Net Weight (approximate)	28g (1oz)

See table below for dimensions specifications and materials

### Operation

The check valve is installed with the symbol on the body facing in the direction of flow. Incoming flow pushes ball (A) from the valve seat, compressing spring (B), permitting lubricant to flow through the check valve to the lube points. When flow stops, spring (B) expands, re-seating ball (A) creating a positive seal.

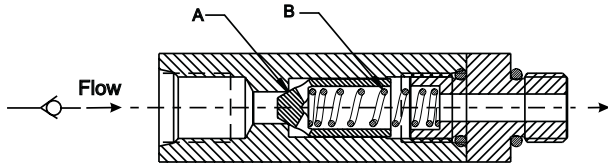
## Single Ball Check Valve Dimensions and Ordering Information

### Dimensions: mm (inches)

PART NUMBER	DIMENSIONS						PRESSURE		MATERIAL		
	STYLE	THREAD "A"	THREAD "B"	LENGTH "C"	LENGTH "D"	HEX "E"	NOMINAL CRACKING PSI (bar)	MAXIMUM OPERATING PSI (bar)	BODY	SPRING	BALL
563195	OUTLET	1/8 NPTF	1/8 NPSF	1.28 (32.5)	.906 (23.0)	.56 (14.2)	10 (0.7)	5000 (345)	STEEL	STEEL	STEEL
563196	OUTLET	1/8 NPTF	1/8 NPSF	1.28 (32.5)	.906 (23.0)	.56 (14.2)	35 (2)	5000 (345)	STEEL	STEEL	STEEL
563197	OUTLET	1/8 NPTF	1/8 NPSF	1.28 (32.5)	.906 (23.0)	.56 (14.2)	130 (9)	5000 (345)	STEEL	STEEL	STEEL
563198	OUTLET	1/8 NPTF	1/8 NPSF	1.28 (32.5)	.906 (23.0)	.56 (14.2)	250 (17)	5000 (345)	STEEL	STEEL	STEEL
563051	OUTLET	1/8 NPTF	1/8 NPSF	1.28 (32.5)	.906 (23.0)	.56 (14.2)	360 (25)	5000 (345)	STEEL	STEEL	STEEL
563199	INLET	1/8 NPTF	1/8 NPSF	1.31 (33.3)	.937 (23.7)	.56 (14.2)	15 (1)	5000 (345)	STEEL	STEEL	STEEL
563200	INLET	1/8 NPTF	1/8 NPSF	1.31 (33.3)	.937 (23.7)	.56 (14.2)	35 (2)	5000 (345)	STEEL	STEEL	STEEL
563201	INLET	1/8 NPTF	1/8 NPSF	1.31 (33.3)	.937 (23.7)	.56 (14.2)	60 (4)	5000 (345)	STEEL	STEEL	STEEL
563202	INLET	1/8 NPTF	1/8 NPSF	1.31 (33.3)	.937 (23.7)	.56 (14.2)	250 (17)	5000 (345)	STEEL	STEEL	STEEL
563206	OUTLET	1/4 NPTF	1/4 NPSF	1.63 (41.4)	1.13 (28.7)	.69 (17.5)	10 (0.7)	5000 (345)	STEEL	STEEL	STEEL
563207	OUTLET	1/4 NPTF	1/4 NPSF	1.63 (41.4)	1.13 (28.7)	.69 (17.5)	35 (2)	5000 (345)	STEEL	STEEL	STEEL
563208	OUTLET	1/4 NPTF	1/4 NPSF	1.63 (41.4)	1.13 (28.7)	.69 (17.5)	100 (6.9)	5000 (345)	STEEL	STEEL	STEEL
563209	OUTLET	1/4 NPTF	1/4 NPSF	1.63 (41.4)	1.13 (28.7)	.69 (17.5)	250 (17)	5000 (345)	STEEL	STEEL	STEEL
STRAIGHT THREAD CHECK VALVES, SAE											
563210	INLET	1/4 SAE	1/4 NPSF	1.75 (44.5)	1.25 (31.8)	.69 (17.5)	10 (0.7)	5000 (345)	STEEL	STEEL	STEEL
563211	INLET	1/4 SAE	1/4 NPSF	1.75 (44.5)	1.25 (31.8)	.69 (17.5)	35 (2)	5000 (345)	STEEL	STEEL	STEEL
563054	OUTLET	7/16-20 SAE	7/16-20 SAE	1.56 (39.7)	1.20 (30.5)	.63 (16.0)	35 (2)	3500 (242)	SST	STEEL	STEEL
563055	OUTLET	9/16-18 SAE	9/16-18 SAE	1.69 (42.8)	1.30 (33.0)	.75 (19.1)	35 (2)	3500 (242)	SST	STEEL	STEEL
563056	INLET	9/16-18 SAE	9/16-18 SAE	1.75 (44.5)	1.36 (34.5)	.75 (19.1)	35 (2)	5000 (345)	SST	STEEL	STEEL
STRAIGHT THREAD CHECK VALVES, BSPP, "G"											
258299	OUTLET	1/8-28 BSPP	1/8-28 BSPP	1.27 (32.3)	.97 (24.6)	.63 (16.0)	35 (2)	5000 (345)	STEEL	STEEL	STEEL
563057	INLET	1/4-19 BSPP	1/4-19 BSPP	1.79 (45.5)	1.35 (34.3)	1.0 (25.4)	35 (2)	5000 (345)	STEEL	STEEL	STEEL
STRAIGHT THREAD CHECK VALVE, METRIC ISO 6149											
564328	INLET	M12 X 1.5	M12 X 1.5	1.84 (47.0)	1.31 (33.4)	.79 (20.0)	35 (2)	5000 (345)	STEEL	STEEL	STEEL

### HI SHOCK STEEL CHECK VALVES

Hi Shock Steel Check Valves are a poppet type designed specifically for the harsh operating conditions encountered in the circulating oil systems found on modern high speed metal forming presses.



### Features

- Hardened poppet provides long life
- Available with SAE straight, or pipe threads

### High Shock Check Valve Dimensions and Ordering Information

Dimensions: mm (inches)

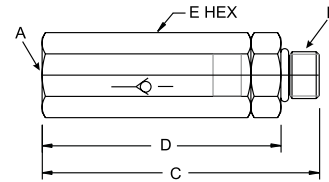
PART NUMBER	DIMENSIONS					PRESSURE		MATERIAL			
	THREAD "A"	THREAD "B"	LENGTH "C"	LENGTH "D"	HEX "E"	NOMINAL CRACKING PSI (bar)	MAXIMUM OPERATING PSI (bar)	BODY	SPRING	POPPET	O-RING
564333	7/16-20 SAE	7/16-20 SAE	2.59 (36.8)	2.23 (56.6)	.69 (17.5)	200 (13.8)	3500 (242)	STEEL	STEEL	HS	BUNA-N 90

### SPECIFICATIONS

Maximum Operating Pressure	3500 psi (241 bar)
Maximum Operating Temperature	250°F (121°C)
Lubricant (mineral base and synthetic)	Oil

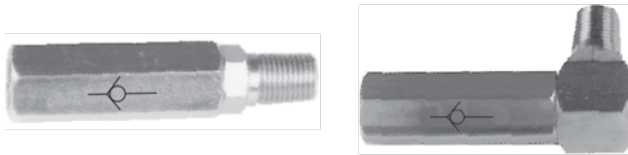
### Operation

The check valve is installed with the arrow on the body facing in the direction of flow. Incoming flow pushes poppet (A) from the valve seat, compressing spring (B), permitting lubricant to flow through the check valve. When flow stops, spring (B) expands, re-seating poppet (A) thus preventing back flow.



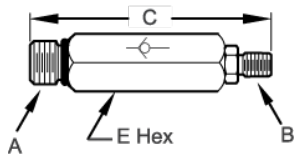
**DOUBLE BALL CHECK VALVES**

Double Ball Check Valves are designed for high pressure applications where reverse leakage must be kept to a minimum. Typical applications include engine and compressor cylinder lubrication, and hydraulic systems. Check valves can be used to isolate parts of circuits and to prevent fluid drainage due to gravity. A relatively stiff bias spring in these valves serves to increase the reliability of circuits designed to detect a blockage or reduction in lubricant flow. This bias spring also can provide a controlled pressure in hydraulic circuits. The right angle configuration allows convenient installation in a wide variety of plumbing configurations. Application is similar to straight body double ball check valves.

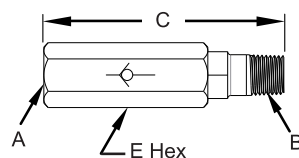


**Features**

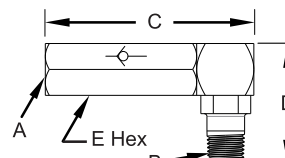
- Various inlet and outlet sizes and configurations
- Positive sealing check valve



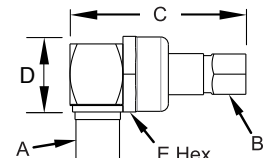
Style A



Style B



Style C



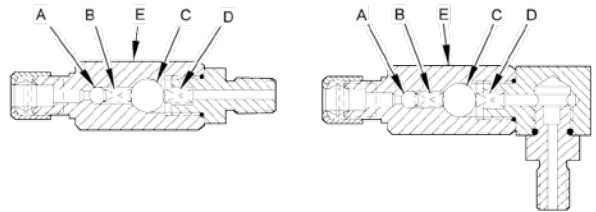
Style D

SPECIFICATIONS	
Lubricant (mineral based and synthetic)	Oil and Grease
Max Operating Temperature	400°F (204.5°C)

See table below for dimensions specifications and materials

**Operation**

Fluid flow entering the check valve creates a pressure on the smaller ball (A). If the pressure created is higher than the opposing force of the bias spring (B), the smaller ball is moved off its seat inside the valve body (E). This allows flow to create a similar pressure and action on the larger ball (C) and spring (D). Flow then continues on to the outlet of the check valve. If flow is reversed in the circuit, flow force and spring (D) cause ball (C) to be re-seated. Any leakage around ball (C) is blocked by ball (A) that is firmly seated by bias spring (B).



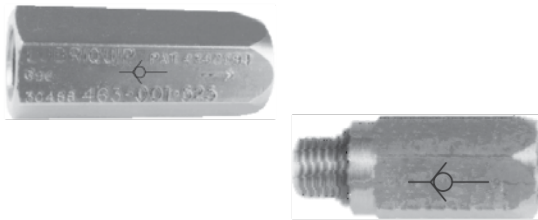
**Double Ball Check Valve Dimensions and Ordering Information**  
**Dimensions: mm (inches)**

PART NUMBER	DIMENSIONS						PRESSURE		MATERIAL		
	STYLE	THREAD "A"	THREAD "B"	LENGTH "C"	LENGTH "D"	HEX "E"	NOMINAL CRACKING PSI (bar)	MAXIMUM OPERATING PSI (bar)	BODY	SPRINGS	BALLS
STRAIGHT											
562639	A	1/4T	1/8-27 NPTF	3.0 (76.2)	-	.75 (19.1)	90 (6.2)	6000 (414)	STEEL	SST	SST
562640	A	1/4T	1/4-18 NPTF	3.2 (81.5)	-	.75 (19.1)	90 (6.2)	6000 (414)	STEEL	SST	SST
564247	B	1/4-18 NPTF	1/4-18 NPTF	3.0 (76.2)	-	.75 (19.1)	90 (6.2)	8000 (552)	STEEL	SST	SST
562642	B	1/8-27 NPTF	1/8-27 NPTF	3.0 (76.2)	-	.75 (19.1)	90 (6.2)	8000 (552)	STEEL	SST	SST
562646	B	1/4-18 NPTF	1/4-18 NPTF	3.2 (81.5)	-	.75 (19.1)	110 (7.6)	8000 (552)	STEEL	SST	SST
562647	B	1/8-27 NPTF	1/8-27 NPTF	3.0 (76.2)	-	.75 (19.1)	110 (7.6)	8000 (552)	SST	SST	SST
562648	B	1/8-27 NPTF	1/4-18 NPTF	3.0 (76.2)	-	.75 (19.1)	110 (7.6)	8000 (552)	SST	SST	SST
562649	B	1/4-18 NPTF	1/4-18 NPTF	3.2 (81.5)	-	.75 (19.1)	110 (7.6)	8000 (552)	SST	SST	SST
ANGLE											
562641	C	1/4T	1/8-27 NPTF	3.2 (81.5)	1.77 (45.0)	.75 (19.1)	90 (6.2)	8000 (552)	STEEL	SST	SST
562644	C	1/8-27 NPTF	1/4-18 NPTF	3.0 (76.2)	1.77 (45.0)	.75 (19.1)	90 (6.2)	8000 (552)	STEEL	SST	SST
562643	C	1/8-27 NPTF	1/8-27 NPTF	3.0 (76.2)	1.77 (45.0)	.75 (19.1)	90 (6.2)	8000 (552)	STEEL	SST	SST
562650	C	1/8-27 NPTF	1/4-18 NPTF	3.0 (76.2)	1.77 (45.0)	.75 (19.1)	90 (6.2)	8000 (552)	SST	SST	SST
564231	D	1/4-18 NPTF	1/4T	2 (50.8)	1.5 (38.1)	.94 (23.9)	140 (9.7)	8000 (552)	STEEL	SST	SST

**SOFT SEAT CHECK VALVES**

Soft Seat Check Valves are designed for use in hydraulic or lubrication systems with pressures up to 7500 PSI. A poppet and soft ball check design improves check valve reliability. This check valve is available in single and “double ball” versions. The “double ball” check valve contains a poppet and soft ball check, as well as a conventional steel ball back-up for added protection. An arrow stamped on the body indicates flow direction.

Available in a wide range of pipe thread and tube size inlet/outlet fitting combinations, this unit can be used in a variety of applications.



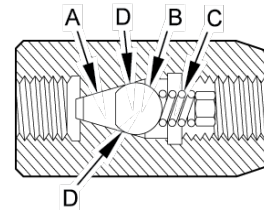
**Features**

- Provides optimum sealing against reverse flow
- Tapered at outlet end to help identify flow direction

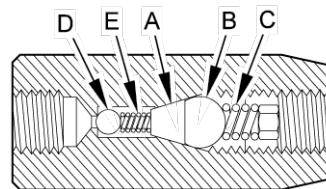
SPECIFICATIONS		
Material	Poppet	Steel
	Ball (large, soft seat)	See Table
	Ball (small)	Steel
Maximum Operating Temperature	Viton Ball	400°F (204.5°C)
	Buna-N Ball	250°F (121°C)
Lubricant	Mineral-based and synthetic	Oil and Grease, compatible with Viton or Buna-N Material
Net Weight	Single Ball	113g (4 oz)
	Double Ball	142g (5 oz)

**Operation**

**Single Ball Soft Seat Check Valve.** Lubricant flow entering the check valve moves poppet (A), and Viton ball (B) forward, allowing lubricant to move around the poppet and ball, through the check valve, and out to the lube point. During flow through the check valve, the poppet and Viton ball remain nested together. When flow stops, spring (C) returns poppet (A) and ball (B) to the check position. The poppet functions only as an alignment and anti-extrusion mechanism for the Viton ball. The Viton ball provides the seal when seated against the check valve body at point (D).



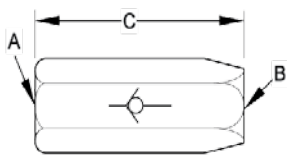
**Double Ball Soft Seat Check Valve.** In the “double ball” version, the function is basically the same. In a flow condition, steel ball (D) moves off its seat compressing spring (E), causing poppet (A) and ball (B) to move forward allowing lube to flow around ball (D), poppet (A), and ball (B), through the check valve and out to the lube point.



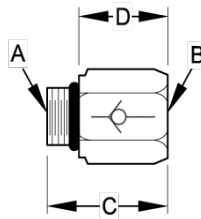
Soft Seat Check Valve Dimensions and Ordering Information

Dimensions: mm (inches)

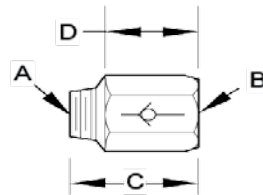
PART NUMBER	DIMENSIONS						PRESSURE		MATERIAL		
	STYLE	THREAD "A"	THREAD "B"	LENGTH "C"	LENGTH "D"	HEX "E"	NOMINAL CRACKING PSI (bar)	MAXIMUM OPERATING PSI (bar)	BODY	SPRING	BALL
SINGLE											
563046	A	1/4-18 NPSF	1/4-18 NPSF	1.94 (49.3)	-	.75 (19.1)	50 (3.5)	7500 (517)	SST	STEEL	VITON
563047	A	1/4-18 NPSF	1/4-18 NPSF	1.94 (49.3)	-	.75 (19.1)	45 (3.1)	7500 (517)	SST	STEEL	BUNA N
563048	C	1/8-27 NPTF	1/8-27 NPSF	1.13 (28.7)	.94 (23.9)	.56 (14.2)	35 (2)	100 (6.9)	STEEL	STEEL	VITON
563049	C	1/8-27 NPTF	1/8-27 NPSF	1.28 (32.5)	.91 (23.1)	.56 (14.2)	35 (2)	100 (6.9)	STEEL	STEEL	VITON
564325	B	1/8-27 NPTF	1/4-18 NPSF	1.56 (39.6)	1.11 (28.2)	.69 (17.5)	50 (3.5)	7500 (517)	SST	STEEL	VITON
563052	B	7/16-20 SAE	7/16-20 SAE	1.56 (39.6)	1.20 (30.4)	.63 (16.0)	35 (2)	7500 (517)	SST	STEEL	VITON
563053	B	9/16/20 SAE	9/16/20 SAE	1.69 (42.9)	1.29 (32.8)	.75 (19.1)	43 (3.0)	75 (5.2)	SST	STEEL	VITON
DOUBLE											
563060	A	1/4-18 NPSF	1/4-18 NPSF	2.41 (61.2)	-	.75 (19.1)	50 (3.5)	7500 (517)	SST	STEEL	BUNA N
563061	A	1/4-18 NPSF	1/4-18 NPSF	2.41 (61.2)	-	.75 (19.1)	50 (3.5)	7500 (517)	SST	STEEL	VITON
564331	A	1/8-27 NPSF	1/8-27 NPSF	2.41 (61.2)	-	.56 (14.2)	50 (3.5)	7500 (517)	SST	SST/STEEL	VITON/STEEL



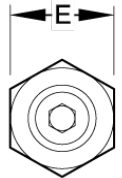
Style A



Style B

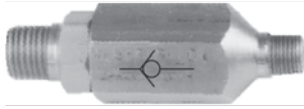


Style C



**TWIN TANDEM CHECK VALVE**

Twin Tandem Check Valves are designed for hydraulic or lubrication systems with pressures up to 10000 PSI. The Twin Tandem Check Valve incorporates both a garter type check valve and a standard ball and spring type check valve. The garter check valve has a soft seat elastic garter band that permits uninterrupted flow and seals unwanted back flow.



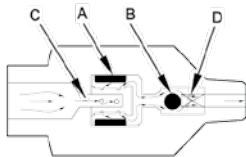
**Features**

- Positive seal prevents leakage and back flow
- Compact and easy to install

SPECIFICATIONS	
Material	All Stainless Steel
Viton Elastic Band	Suitable for most fluids
Maximum Operating Pressure	10000 psi (690 bar)
Maximum Operating Temperature	400°F (204.5°C)
Cracking Pressure	45 ± 10 psi (3 ± 0.7 bar)
Lubricant (mineral based and synthetic)	Oil and Grease, compatible with Viton
Net Weight (approximate)	142g (5 oz)

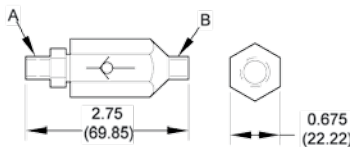
**Operation**

The Twin Tandem Check Valve is installed in a system with the arrow on the check valve towards the direction of flow. Under normal flow conditions, the soft seat Viton elastic garter band (A) is raised off the valve stem uncovering the flow holes and allowing flow through the valve stem (C). The lubricant flow pushes ball (B) from the valve seat compressing spring (D), and travels into the system. In case of back flow, the ball check (B) is blocking the flow, any leakage compresses the garter band (A) over the flow holes in the valve stem and forms a positive seal.



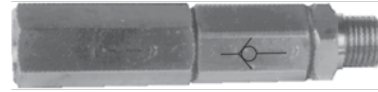
**Twin Tandem Check Valve Dimensions**

ORDERING INFORMATION	
Description	Part No.
1/4 NPTF(M) Inlet (A), 1/8 NPTF(M) Outlet (B)	563203
1/4 NPTF(M) Inlet (A), 1/4 NPTF(M) Outlet (B)	563205



**BRASS DOUBLE BALL CHECK VALVES**

Brass Double Ball Check Valves are for use in hydraulic or lubrication systems with pressures up to 3000 PSI. These check valves are typically used as inlet check valves. Two of the conventional spring & ball type checks are combined to provide maximum protection against system back flow/leakage. Flow direction is indicated by an arrow stamped on the check valve body.



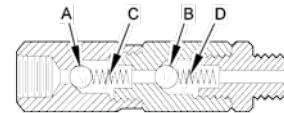
**Features**

- Positive seal prevents leakage and back flow
- Compact and easy to install

SPECIFICATIONS	
Material	All Brass with Stainless Steel Spring
Maximum Operating Pressure	3000 psi (207 bar)
Maximum Operating Temperature	500°F (260°C)
Cracking Pressure	35 ± 10 psi (2 ± 0.7 bar)
Lubricant (mineral based and synthetic)	Oil and Grease
Net Weight (approximate)	171g (6 oz)

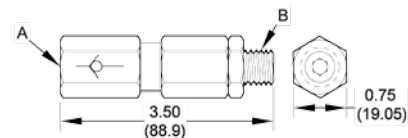
**Operation**

The check valve is installed with the arrow on the check valve towards the direction of flow. Incoming flow of lubricant moves check balls (A) and then (B), compressing springs (C) and (D). This allows lubricant to flow through the check valve and out to the lube points. When flow ceases, springs (C) and (D) re-seat the check balls, preventing back flow to the system.



**Brass Double Ball Check Valve Dimensions**

ORDERING INFORMATION	
Description	Part No.
1/4 NPT(FM) Inlet (A), 1/4 NPT(M) Outlet (B)	563058
1/8 NPT(FM) Inlet (A), 1/8 NPT(M) Outlet (B)	564329
1/4 in O.D. Tube Inlet (A), 1/4 NPT(M) Outlet (B)	563059



### BI-FLOW OUTLET CHECK VALVE

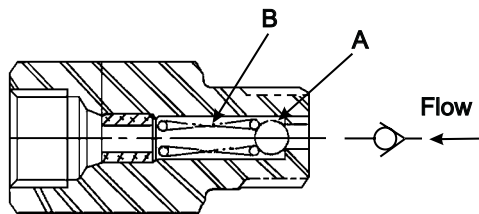
The Bi-Flow Outlet Check Valve is a conventional metal ball, hard seat type check valve. It is capable of using a special fitting in the outlet to accept either 3/16" or 1/4" tube.



SPECIFICATIONS	
Material	Steel
Maximum Operating Pressure	5000 psi (345 bar)
Cracking Pressure	35 ± 10 psi (2 ± 0.7 bar)
Lubricant (mineral based and synthetic)	Oil and Grease
Net Weight	113g (4 oz)

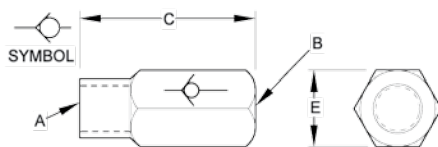
### Operation

The check valve is installed with the arrow on the check valve in the direction of flow. Incoming flow pushes ball (A) from the valve seat, compressing spring (B), permitting lubricant to flow through the check valve to the lube points. When flow stops, spring (B) expands, re-seating ball (A), creating a positive seal.



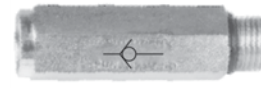
### Bi-Flow Outlet Check Valve Dimensions

ORDERING INFORMATION	
Description	Part No.
1/8-27 (M) Inlet (A), 1/8-27 (FM) Outlet (B), 38.1 (1.500) (C), 12.7 (0.500) (E)	564017
1/4-18 (M) Inlet (A), 1/4-18 (FM) Outlet (B), 40.5 (1.596) (C), 17.4 (0.687) (E)	564018



### CHECK VALVE WITH 90 MICRON FILTER

This check valve is a conventional metal ball, hard seat type with an integral 90 micron filter. It is designed to be used before a "zero-leak" solenoid inlet base. However, it can be used anywhere that a check valve and a filter would be used in series.



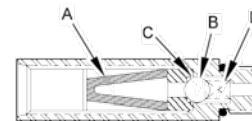
### Features

- One check/filter combination valve replaces two separate devices resulting in fewer leak paths.
- Protects downstream components from contamination.
- Compact and easy to install.

SPECIFICATIONS	
Body Material	Steel
Filter Material	Sintered Bronze (90 micron)
Maximum Operating Pressure	7500 psi (518 bar)
Cracking Pressure	35 ± 10 psi (2 ± 0.7 bar)
Lubricant (mineral based and synthetic)	Oil Only
Net Weight	85g (3 oz)

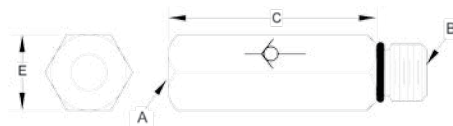
### Operation

The check valve is installed with the arrow on the check valve in the direction of flow. The oil first passes through the filter element (A). Then flow pushes the ball (B) from the valve seat (C), compressing the spring (D) and permitting oil to flow through the check valve. When flow stops, the spring (D) expands, re-seating the ball (B) and creating a positive seal.



### Check Valve with Filter Dimensions

ORDERING INFORMATION	
Description	Part No.
7/16-20 (FM) Inlet, (A), 7/16-20 (M) Outlet (B), 1.89 (C), 0.562 (E)	564326



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