

Checked Orifices

ECONOMY LINE

Description

These checked orifices consist of a precision orifice in series with a ball check valve. The flow rate of the restricted flow is set by the orifice size. Reverse flow is checked by the ball. The assembly provides a selectable flow rate in one direction and checked flow in the opposite direction.

General Specifications

Materials of Construction

- Body – Brass or 303 SS
- Ball Stop – Brass or 303 SS
- Ball – Buna-N or 302 SS
- Gasket (Type FMCR) – Viton

Maximum Temperature

- Buna-N Ball – 180°F
- SS Ball – 300°F

Maximum Operating Pressure

- Type FMCR – 125 psig max
- Type ZCR – 125 psig max

Seat Leakage

- SS Ball**
20 sccm (max) air flow at 25 psid
- Buna-N Ball**
0 sccm air flow @ 50 psid
Minor leakage at lower differential

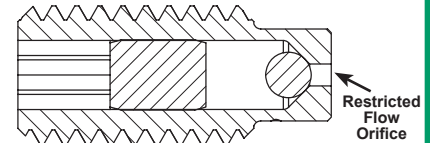
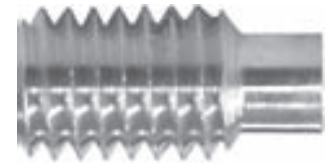
Thread Sealant

For 10-32 straight thread on Type ZCR, use Loctite 542 thread sealant or equal.

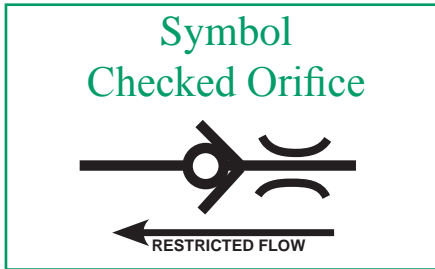
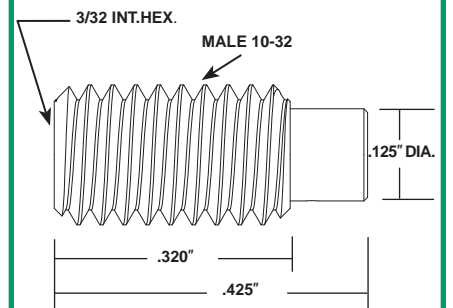
Cracking Pressure – 0 psid

Capacity–Cv (see chart)

Type ZCR



← RESTRICTED FLOW



Symbol
Checked Orifice

Part Numbers

Metering Orifice

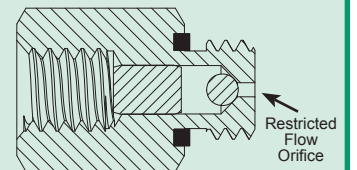
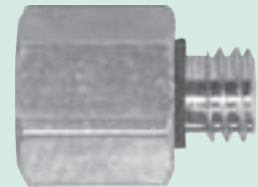
Size Number	Orifice Diameter	C _v
10	0.010	0.0025
11	0.011	0.0028
12	0.012	0.0034
13	0.013	0.0038
14	0.014	0.0043
15	0.015	0.0050
16	0.016	0.0055
17	0.017	0.0067
18	0.018	0.0073
19	0.019	0.0080
20	0.020	0.0090
21	0.021	0.0100
22	0.022	0.011
23	0.023	0.012
24	0.024	0.013
25	0.025	0.014
26	0.026	0.016
27	0.027	0.017
28	0.028	0.018
29	0.029	0.019
30	0.030	0.020

Type	Description
ZCR	10/32 Set Screw
FMCR	10/32 Male/Female

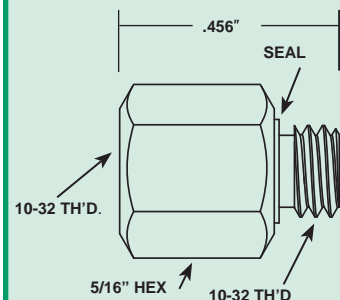
Designation	Body Material
BR	Brass
SS	303 Stainless Steel

Designation	Ball Material
SS	302 Stainless Steel
BN	Buna-N

Type FMCR



← RESTRICTED FLOW



Part Number Examples

Type Select	Orifice Size No. Select	Cracking Pressure 0	Thread Size 10/32	Body Material Select	Ball Material Select
eg. ZCR	10 (.010")	0	10/32	BR (Brass)	BN (Buna-N)
FMCR	20 (.020")	0	10/32	SS (Stainless Steel)	SS (Stainless Steel)

BALL TYPE

Description

Checked orifices are a series arrangement of a precision orifice, a ball check valve and an optional screen. The all metal assemblies are made of brass or stainless steel. Gas or liquid can flow in one direction only, at a rate established by the metering orifice. Reverse pressure differential does not result in reverse flow. Standard sizes are 10-32, 1/8" NPT and 1/4" NPT. Custom requirements will be reviewed for large quantity applications.

Applications

- Unidirectional gas or liquid flow
- Backflow prevention in metering systems
- Fluid contamination reduction
- Isolation of fluid sources in mixers
- Fuel line metering with no reverse flow
- Medical metering of fluids

Ordering Information

Part Number System

Type	Orifice Size No.	Cracking Pressure psid*	Material
EXAMPLES			
BIFLC (Standard Pressure)	10 .010"	2 2 psig	BR Brass
FIFLCS (With Screen)	31 .031"	10 10 psig	BR Brass
EIJLCSH (High Pressure With Screen)	81 .081"	15 15 psig	SS Stainless Steel

Select – Type from illustrations in right column and from SPECIFICATIONS

Orifice Size No. from chart

Cracking Pressure from SPECIFICATIONS

Material - Brass or Stainless Steel

*psid – pounds per square inch differential

Specifications

Materials of Construction

Body - Brass or 303 SS

Ball Check Assembly - 304 SS

Flow Control Orifice -

Brass or 303 SS

Sealant - Loctite 609, 680

High pressure types only

Temperature - 300°F (max.)

Maximum Operating Pressure

Standard Pressure Type

NPT - 200 psig (max.)

10-32 - 125 psig (max.)

High Pressure Type (Suffix H)

NPT - 2000 psig (max.)

Seat Leakage - 20 sccm (max.)

air flow at 25 psi differential

Cracking Pressure

- 10-32 or 1/8" NPT

0, 2 or 10 psid

- 1/4" NPT

0, 2 or 15 psid

Flow Capacity - Cv and air flow shown in chart below

Orifice Size Number	Orifice Dia. In.	Orifice Cv	Air Flow-SCFH	
			25 psig	100 psig
10	0.0102	0.0025	3.37	9.81
11	0.0110	0.0028	3.62	10.5
*12	0.0122	0.0034	4.66	13.4
13	0.0130	0.0038	5.30	15.3
14	0.0142	0.0043	6.06	17.4
15	0.015	0.0050	6.95	20.0
*16	0.016	0.0055	7.25	21.8
17	0.017	0.0067	8.31	25.0
18	0.018	0.0073	9.43	28.4
19	0.019	0.0080	10.4	31.1
*20	0.020	0.0088	11.8	35.2
21	0.021	0.0096	12.7	38.1
22	0.022	0.011	15.5	44.7
23	0.023	0.012	16.8	48.7
24	0.024	0.013	18.3	53.2
25	0.025	0.014	19.9	58.1
*26	0.026	0.016	21.6	62.3
27	0.027	0.017	22.7	65.3
28	0.028	0.018	24.8	71.4
29	0.029	0.019	27.1	78.0
31	0.031	0.022	30.1	86.7
*32	0.032	0.024	32.6	94.5
33	0.033	0.025	34.5	101
35	0.035	0.028	37.5	114
37	0.037	0.031	41.5	126
38	0.038	0.032	44.1	135
39	0.039	0.033	47.9	146
*40	0.04	0.036	50.9	156
41	0.041	0.038	52.3	164
42	0.042	0.039	54.9	167
43	0.043	0.041	58.5	177
47	0.047	0.048	67.6	203
*52	0.052	0.059	85.4	254
55	0.055	0.068	94.5	282
60	0.060	0.081	112	331
63	0.063	0.088	122	362
67	0.067	0.10	141	415
70	0.070	0.11	158	468
73	0.073	0.12	168	496
76	0.076	0.13	183	540
*79	0.079	0.14	198	587
81	0.081	0.15	212	627
86	0.086	0.17	233	697
89	0.089	0.18	248	739
94	0.094	0.20	278	831

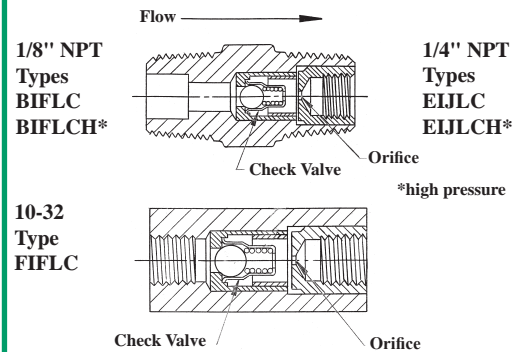
FOR 10-32, 1/8" NPT and 1/4" NPT

1/4" NPT ONLY

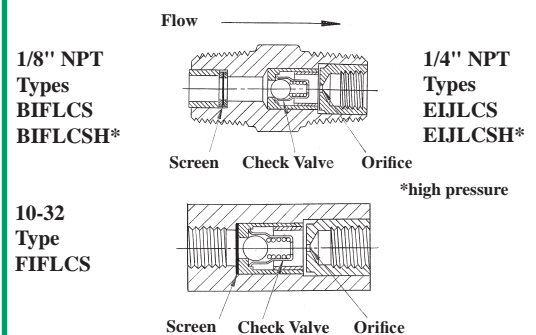
*These sizes are normally stocked with 2 psid cracking pressure.



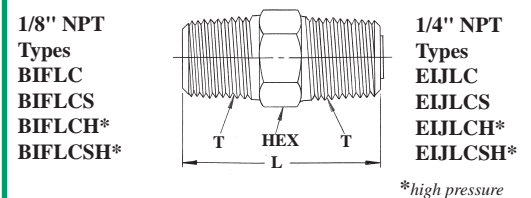
Check Valve/Orifice



Screen/Check Valve/Orifice



Dimensions



Thread (T)	HEX	L
1/8" NPT	7/16"	.970"
1/4" NPT	9/16"	1.38"

