Section 19

Check Valves and Strainers

Edition 3

Check Valves and Strainers

Swing Check Valves

Swing Check valves are used where the flow moves through the valve in approximately a straight line similar to that in a gate valve, is commonly used in pipe line conveying liquids by gravity or pumping. The check mechanism of the design incorporates a disc which swings on a hinge.

Ball Check Valves

This valve is used where full uninterrupted flow is required. The design of the valve incorporates a compartment for when the fluid is pumped through the valves the EPDM incapsulated steel ball is pushed into this compartment and held there whilst the up steam pressure is applied. When the pump is turned off the ball falls from its compartment and with backpressure assists drops back into the flow path and blocks any return of fluid back to the pump.

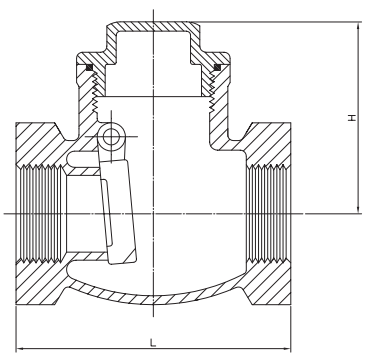
Lift Check Valves

A lift-check valve in which the disc, sometimes called a lift, can be lifted up off its seat by higher pressure of inlet or upstream fluid to allow flow to the outlet or downstream side. A guide keeps motion of the disc on a vertical line, so the valve can later reseat properly. When the pressure is no longer higher, gravity or higher downstream pressure will cause the disc to lower onto its seat, shutting the valve to stop reverse flow. Both wafer and piston checks are examples of a Lift Check Valve.

'Y' Type Strainers

Y type strainers are designed for inline protection of control equipment, instruments, pumps and regulators. There function is simplistic with fluid passing through the perforated stainless steel sheet, or wire mesh basket which is housed in a Y shaped body made of various materials, brass, steel, cast iron, stainless steel etc. The basket traps the fines and the solids which fall into the leg of the housing. They can be flushed out while the plant is in operation with a ball valve fitted to the leg of the housing, or the basket can be removed completely for cleaning whilst the plant is not operational.

Brass Swing Check Valve



Materials	
PART	**MATERIAL**
Body	Brass
Bonnet	Brass
Hinge Pin- Nut	Brass

Specifications	
Thread	AS 1722.1
Cold Working Pressure	1380kPa
MAX Working Temperature	200°C

Applications- Oil, Water

Brass Swing Check Valve				
AAP CODE	**IMPERIAL SIZE**	**H**	**L**	**APPROX. KG/PC**
VBCS15	1/2	34	52	0.18
VBCS20	3/4	37	60	0.26
VBCS25	1	45	74	0.39
VBCS32	1 1/4	50	82	0.59
VBCS40	1 1/2	60	95	0.91
VBCS50	2	70	107	1.22
VBCS65	2 1/2	85	143	2.21
VBCS80	3	100	155	3.59
VBCS94	4	110	178	5.29

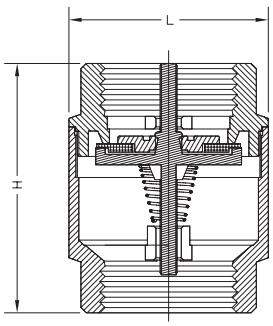
'Y' type Check Valve

Materials	
PART	MATERIAL
Body	Brass CW 617N
Stem Seat	Nylon 6
Seat	NBR 60 SH/A
Spring	Stainless Steel AISI 302

Working Temperatures		
	MIN	MAX
Air	-20°C	110°C
Water	0°C	90°C
Gas	-20°C	60°C

Applications - Can be fitted in horizontal, vertical or oblique position. Suitable for Hot/Cold water, Compressed Air, Oils

'Y' type Check Valve					
AAP CODE	IMPERIAL SIZE	H	L	APPROX. KG/PC	kPa
VBCY10	3⁄8	46.5	34.5	0.12	1172
VBCY15	1/2	47	34.5	0.14	1172
VBCY20	3/4	53	42	0.2	1172
VBCY25	1	58	47.5	0.27	1172
VBCY32	1 1/4	66.5	59.5	0.36	965
VBCY40	1 1/2	68	68	0.57	965
VBCY50	2	77	86.5	0.77	965
VBCY65	2 1/2	93	102	1.55	758
VBCY80	3	97	111	2.02	758
VBCY94	4	110	140	2.98	758



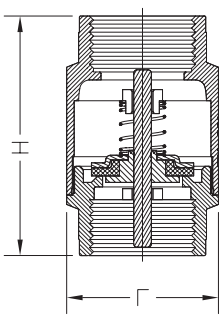
'E' type Check Valve

Materials	
PART	MATERIAL
Body	Brass CW 617N
Internal Seat	Stainless Steel plate AISI 304 fitted with NBR 60 SH/A, Cover plate and rod in brass CW 614N
Spring	STAINLESS STEEL AISI 302

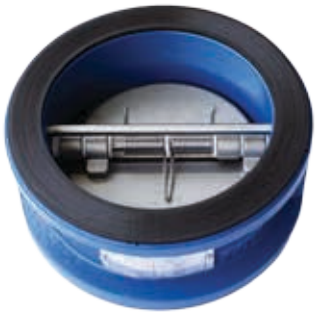
Working Temperatures		
	MIN	MAX
Air	-20°C	110°C
Water	0°C	90°C
Gas	-20°C	60°C

Applications - Can be fitted in horizontal, vertical or oblique position. Suitable for Hot/Cold water, Compressed Air, Oils

'E' type Check Valve					
AAP CODE	IMPERIAL SIZE	H	L	APPROX. KG/PC	kPa
VBCE10	3⁄8	55	34.5	0.17	2482
VBCE15	1/2	58.5	34.5	0.19	2482
VBCE20	3/4	63	42	0.27	2482
VBCE25	1	74	48	0.43	2482
VBCE32	1 1/4	83	60.5	0.54	1793
VBCE40	1 1/2	93	71	0.87	1793
VBCE50	2	101	87	1.32	1793
VBCE65	2 1/2	120	118	2.62	1172
VBCE80	3	139	139	4.21	1172
VBCE94	4	158.5	154	6.13	1172



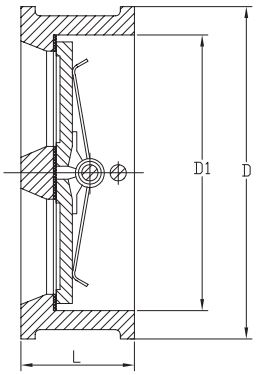
Wafer Check Valves (Dual Disc)



Materials	
PART	**MATERIAL**
Body	Cast Iron
Spring	316 Stainless Steel
Disc	316 Stainless Steel
Seat	NBR
Shaft 1	316 Stainless Steel
Shaft 2	316 Stainless Steel
Flange Gasket	NBR

Specifications	
Flange	AS2129 T/E
Cold Working Pressure	1600kPa
MAX Working Temperature	80°C

Applications - Water Oil, Gas



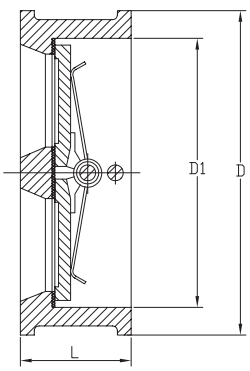
Wafer Check Valve (Dual Disc)					
AAP CODE	**IMPERIAL SIZE**	**D**	**D1**	**L**	**APPROX. KG/PC**
VWC50	2	96	65	43	1.5
VWC65	2 1/2	109	80	48	2
VWC80	3	128	94	64	2.8
VWC94	4	160	117	64	4.1
VWC95	5	191	145	70	6.4
VWC96	6	213	170	76	8.5
VWC98	8	270	224	89	13.5
VWCX25	10	333	265	114	22
VWCx30	12	381	312	114	30
VWCX35	14	445	360	127	48
VWCX40	16	496	410	140	65
VWCX45	18	555	450	152	78
VWCX50	20	610	500	154	110
VWCX60	24	720	624	178	157

Wafer Check Valve ‘Dual Disc’ ANSI 150 (Viton Seat)

Materials	
PART	**MATERIAL**
Body	WCB
Seat	Viton
Disc	304 Stainless Steel

Specifications	
Flange	ANSI B16.5
Cold Working Pressure	1965kPa
MAX Working Temperature	150°C

Applications - Water, Oil, Gas, High Pressure Liquids



Wafer Check Valve ‘Dual Disc’ ANSI 150 (Viton Seat)					
AAP CODE	**IMPERIAL SIZE**	**D**	**D1**	**L**	**APPROX. KG/PC**
VWCCS15050	2	103	65	42	1.5
VWCCS15080	3	134	95	64	3.5
VWCCS15094	4	164	118	64	4.8

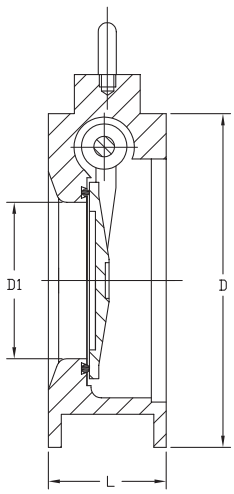
Wafer Check Valve (Single Disc)

Materials	
PART	**MATERIAL**
Body	Cast Iron
Spring	316 Stainless Steel
Disc	316 Stainless Steel
Seat	EPDM
Flange Gasket	NBR
Axle	2Cr13

Specifications	
Flange	AS2129 T/E
Cold Working Pressure	1000kPa
MAX Working Temperature	120°C

Applications - Water Oil, Gas

Wafer Check Valve (Single Disc)					
AAP CODE	**IMPERIAL SIZE**	**D1**	**D**	**L**	**APPROX. KG/PC**
VWSC50	2	33.3	96	44.5	1.4
VWSC65	2 1/2	42.9	109	47.6	1.9
VWSC80	3	52.4	128	50.8	2.7
VWSC94	4	76.2	160	57.2	4.5
VWSC95	5	95.3	191	63.5	6.5
VWSC96	6	120.7	213	69.9	8.5
VWSC98	8	163.5	270	73	11.5
VWSCX25	10	193.7	333	79.4	20
VWSCX30	12	241.3	380.8	85.7	27
VWSCX35	14	266.3	447.7	108.0	50
VWSCX40	16	317.5	498.5	108.0	60



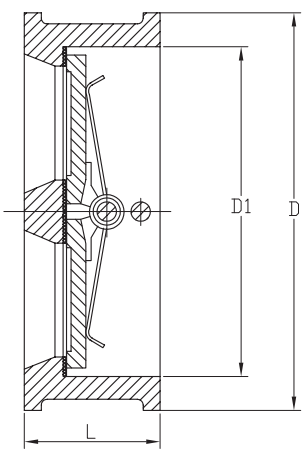
316 Stainless Steel Wafer Check Valve 'Dual Disc' ANSI 150 (Viton Seat)

Material List	
PART	**MATERIAL**
Body	CF8M
Spring	316 Stainless Steel
Disc	CF8M
Seat	Viton
Shaft 1	316 Stainless Steel
Shaft 2	316 Stainless Steel
Gasket	PTFE

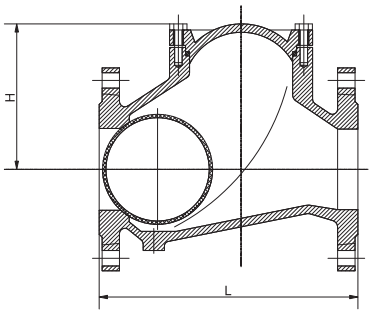
Specifications	
Flange	ANSI B16.5
Cold Working Pressure	2000KPa
MAX Working Temperature	-20 ~ 135°C

Applications - Water, Oil, Gas,
High Pressure Liquids

316 Stainless Steel Wafer Check Valve 'Dual Disc' ANSI 150 (Viton Seat)					
AAP CODE	**IMPERIAL SIZE**	**D**	**D1**	**L**	**APPROX. KG/PC**
VWCSS50A	2	101	65	54	1.5
VWCSS80A	3	133	94	57	2.8
VWCSS94A	4	168	117	64	4.1
VWCSS96A	6	219	170	76	8.5



Resilient Seat PN10 Flanged Ball Check Valve (Table E)



Material List	
PART	MATERIAL
Body	Ductile Iron
Cover	Ductile Iron
Ball	Metal + EPDM
Gasket	EPDM

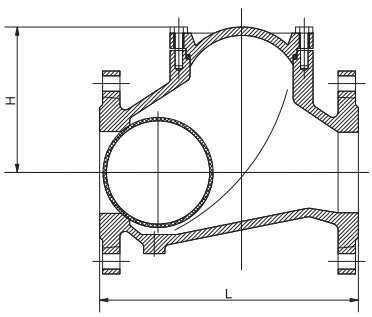
Specifications	
Cold Working Pressure	1000kPa
MAX Working Temperature	120°C
Flanges	AS2129 T/E
Face to Face	DIN3202

Applications - Water Treatment Plants

Resilient Seat PN10 Flanged Ball Check Valve (Table E)

AAP CODE	IMPERIAL SIZE	L	H	HOLE DIAMETER	NO. HOLES	APPROX. KG/PC
VFBC50	2	200	126	18	4	7.7
VFBC65	2 1/2	240	145	18	4	11.2
VFBC80	3	260	168	18	4	15.4
VFBC94	4	300	186	18	8	21.7
VFBC98	8	500	350	22	8	90
VFBCX25	10	600	443.7	22	8	163

Resilient Seat PN10 Flanged Ball Check Valve (Table D)



Material List	
PART	MATERIAL
Body	Ductile Iron
Cover	Ductile Iron
Ball	Metal + EPDM
Gasket	EPDM

Specifications	
Cold Working Pressure	1000kPa
MAX Working Temperature	120°C
Flanges	AS2129 T/D
Face to Face	DIN3202

Applications - Water Treatment Plants

Resilient Seat PN10 Flanged Ball Check Valve (Table D)

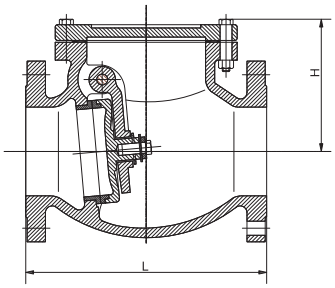
AAP CODE	IMPERIAL SIZE	L	H	HOLE DIAMETER	NO. HOLES	APPROX. KG/PC
VFBC94D	4	300	186	18	4	21.7
VFBC96D	6	400	250	18	8	45.3
VFBCX25D	10	600	443.7	22	8	163

Resilient Seat Flanged Swing Check Valve (Table E)

Material List	
PART	**MATERIAL**
Body	Cast Iron
Cover	Cast Iron
Side Plug	Brass
Hanger Pin	Stainless Steel
Hanger	Ductile Iron
Disc	Cast Iron
Disc Trim	EPDM
Body Trim	Bronze
Gasket	Graphite

Specifications	
Flange	AS2129 T/E
Cold Working Pressure	1600kPa
MAX Working Temperature	120°C

Applications - Water Treatment Plants, can be fitted with counter lever and weight



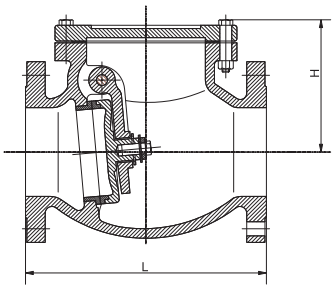
Resilient Seat Flanged Swing Check Valve Table E						
AAP CODE	**IMPERIAL SIZE**	**L**	**H**	**HOLE DIAMETER**	**NO. HOLES**	**APPROX. KG/PC**
VRSSC50	2	203	121	18	4	14
VRSSC65	2 1/2	216	135	18	4	14
VRSSC80	3	241	141	18	4	22
VRSSC94	4	292	168	18	8	35
VRSSC95	5	330	182	18	8	40
VRSSC96	6	356	215	22	8	61.5
VRSSC98	8	495	267	22	8	85
VRSSCX25	10	622	305	22	12	140
VRSSCX30	12	699	343	26	12	200

Resilient Seat Flanged Swing Check Valve (Table D)

Material List	
PART	**MATERIAL**
Body	Cast Iron
Cover	Cast Iron
Side Plug	Brass
Hanger Pin	Stainless Steel
Hanger	Ductile Iron
Disc	Cast Iron
Disc Trim	EPDM
Body Trim	Bronze
Gasket	Graphite

Specifications	
Flange	AS2129 T/D
Cold Working Pressure	1600kPa
MAX Working Temperature	120°C

Applications - Water Treatment Plants, can be fitted with counter lever and weight



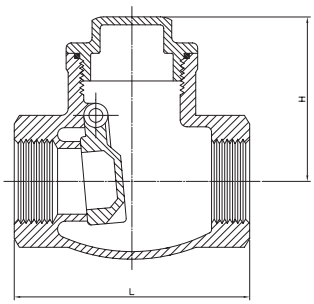
Resilient Seat Flanged Swing Check Valve Table D						
AAP CODE	**IMPERIAL SIZE**	**L**	**H**	**HOLE DIAMETER**	**NO. HOLES**	**APPROX. KG/PC**
VRSSC94D	4	292	168	18	4	35
VRSSCX25D	10	622	305	22	8	140

Stainless Steel Check Valve

Material List	
PART	MATERIAL
Body	CF8M
Bonnet	CF8M
Hanger Pin	316 Stainless Steel
Disc	CF8M
Plug	316 Stainless Steel
Plug Gasket	PTFE

Specifications	
Thread	AS1722.1
Cold Working Pressure	1400kPa
MAX Working Temperature	200°C

Applications - Water, Oil, Gas, Chemicals, Corrosive Environment and Liquids



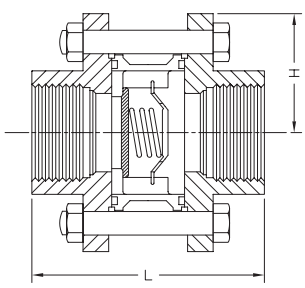
Stainless Steel Check Valve 316 BSP				
AAP CODE	IMPERIAL SIZE	H	L	APPROX. KG/PC
SSSC15	1/2	42	65	0.36
SSSC20	3/4	51	80	0.43
SSSC25	1	60	90	0.65
SSSC32	1 1/4	67	105	0.93
SSSC40	1 1/2	75	120	1.49
SSSC50	2	81	140	2.15
SSSC65	2 1/2	96	181	5.27
SSSC80	3	104	200	7.7

Stainless Steel 3 Piece Spring Check Valve

Material List	
PART	MATERIAL
Body	CF8M
Disc	CF8M
Spring	316 Stainless Steel
Spring Cap	CF8M
Cap	CF8M
Joint Gasket	PTFE

Specifications	
Thread	AS1722.1
Cold Working Pressure	6895kPa
MAX Working Temperature	200°C

Applications - Water, Oil, Gas, Chemicals, Corrosive Environment and Liquids



316 Stainless Steel 3 Piece Spring Check Valve				
AAP CODE	IMPERIAL SIZE	H	L	APPROX. KG/PC
SS3CV15	1/2	24	77	0.4
SS3CV20	3/4	26	80	0.5
SS3CV25	1	30	84	0.78
SS3CV32	1 1/4	36	96	1.13
SS3CV40	1 1/2	45	104	1.58
SS3CV50	2	50	115	2.19

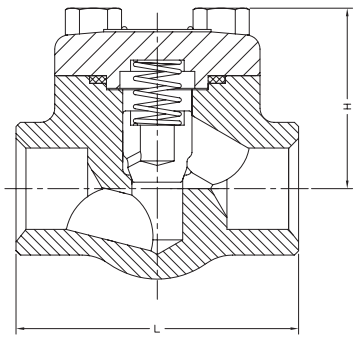
Forged Steel Piston Check Valve Class 800 (Socketweld)

Material List	
PART	**MATERIAL**
Body	ASTM A105
Bonnet	ASTM A105
Gasket	Graphite
Spring	316 Stainless Steel
Disc	SS410 (2Cr13)
Seat	H/F Stellite

Specifications	
Design	ANSI B16.34
Socket weld	ANSI B16.11
Cold Working Pressure	13800kPa
MAX Working Temperature	427°C

Applications - Steam Oil and Petro Chemical Industry

Forged Steel Piston Check Valve Class 800 (Socketweld)				
AAP CODE	**IMPERIAL SIZE**	**L**	**H**	**APPROX. KG/PC**
VCP800SW15	1/2	90	60	1.6
VCP800SW20	3/4	110	78	3
VCP800SW25	1	127	88	4.3
VCP800SW32	1 1/4	150	92	5.6
VCP800SW40	1 1/2	180	108	10
VCP800SW50	2	210	145	16



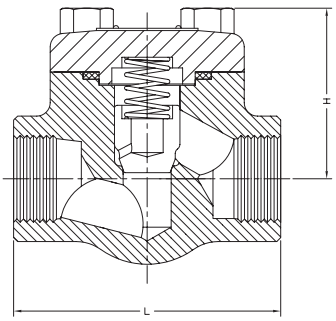
Forged Steel Piston Check Valve Class 800 NPT

Material List	
PART	**MATERIAL**
Body	ASTM A105
Bonnet	ASTM A105
Gasket	Graphite
Spring	316 Stainless Steel
Disc	SS410 (2Cr13)
Seat	H/F Stellite

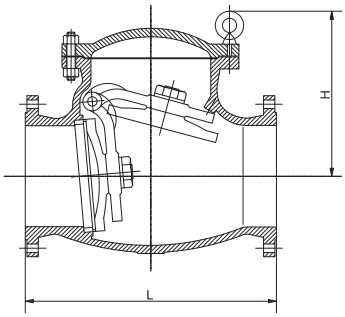
Specifications	
Design	ANSI B16.34
Thread (NPT)	ANSI B1.20.1
Cold Working Pressure	13800kPa
MAX Working Temperature	427°C

Applications - Steam Oil and Petro Chemical Industry

Forged Steel Piston Check Valve Class 800 NPT				
AAP CODE	**IMPERIAL SIZE**	**L**	**H**	**APPROX. KG/PC**
VCP80015	1/2	90	60	1.6
VCP80020	3/4	110	78	3
VCP80025	1	127	88	4.3
VCP80032	1 1/4	150	92	5.6
VCP80040	1 1/2	180	108	10
VCP80050	2	210	145	16



Cast Steel Flanged Check Valve ANSI 150



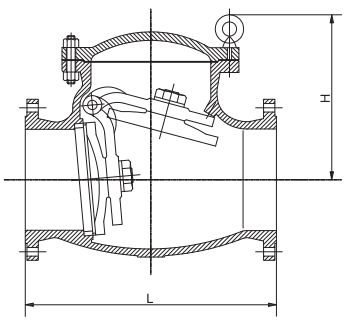
Material List	
PART	**MATERIAL**
Body	WCB (ASTM A216)
Bonnet	WCB (ASTM A216)
Disc	410 (2Cr13)
Seat	H/F Stellite
Gasket	Graphite

Specifications	
Design	ANSI B16.34
Flange	ANSI B16.5
MAX Working Temperature	300°C
Cold Working Pressure	1960kPa

Cast Steel Flanged Check Valve ANSI 150

AAP CODE	IMPERIAL SIZE	L	H	HOLE DIAMETER	NO. HOLES	APPROX. KG/PC
VSC15050	2	203.2	135	20	4	19
VSC15065	2 1/2	215.9	147	20	4	26
VSC15080	3	241.3	178	20	4	31
VSC15094	4	292.1	222	20	8	51
VSC15096	6	355.6	314	22	8	85
VSC15098	8	495.6	350	22	8	148
VSC150X25	10	622.3	406	26	12	218
VSC150X30	12	698.3	445	26	12	345

Cast Steel Flanged Check Valve ANSI 300



Material List	
PART	**MATERIAL**
Body	WCB (ASTM A216)
Bonnet	WCB (ASTM A216)
Disc	410 (2Cr13)
Seat	H/F Stellite
Gasket	Graphite

Specifications	
Design	ANSI B16.34
Flange	ANSI B16.5
MAX Working Temperature	440°C
Cold Working Pressure	5100kPa

Cast Steel Flanged Check Valve ANSI 300

AAP CODE	IMPERIAL SIZE	L	H	HOLE DIAMETER	NO. HOLES	APPROX. KG/PC
VSC30050	2	266.7	160	8	20	25
VSC30080	3	317.5	189	8	22	44
VSC30094	4	355.6	210	8	22	68
VSC30098	8	533.4	418	12	26	197

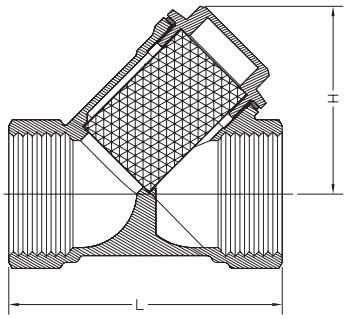
Brass 'Y' Strainer

Material List	
PART	**MATERIAL**
Body	Brass
Mesh	304 Stainless Steel

Specifications	
Thread	AS1722.2
MAX Working Temperature	100°C
Cold Working Pressure	1600kPa

Applications - Filtering Fluid to Protect inline valving

Brass 'Y' Strainer						
AAP CODE	**IMPERIAL SIZE**	**L**	**H**	**MESH DIAMETER**	**MESH CENTRE TO CENTRE**	**APPROX. KG/PC**
VBY10	3/8	47	31	0.8	1	0.07
VBY15	1/2	65	34	0.8	1	0.23
VBY20	3/4	80	42	0.8	1	0.35
VBY25	1	96	48	0.8	1	0.59
VBY32	1 1/4	104	55	0.8	1	0.83
VBY40	1 1/2	116	66	0.8	1	1.19
VBY50	2	140	74	0.8	1	1.95
VBY65	2 1/2	168	85	0.8	1	2.38

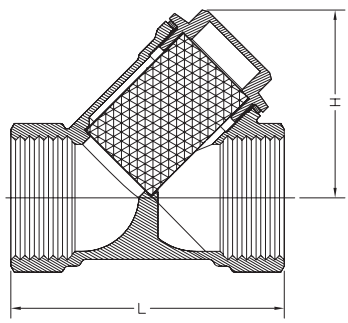


Stainless Steel 'Y' Strainer

Material List	
PART	**MATERIAL**
Body	CF8M
Cap	CF8M
Gasket	PTFE
Mesh	316 Stainless Steel

Specifications	
Thread	AS 1722.1
MAX Working Temperature	230°C
Cold Working Pressure	5500kPa

Stainless Steel 'Y' Strainer						
AAP CODE	**IMPERIAL SIZE**	**L**	**H**	**MESH CENTRE TO CENTRE**	**MESH DIAMETER**	**APPROX. KG/PC**
SSY15	1/2	65	51	2	1	0.2
SSY20	3/4	80	60	2	1	0.33
SSY25	1	90	72	2	1	0.7
SSY32	1 1/4	105	77	2	1	0.9
SSY40	1 1/2	120	87	2	1	1.4
SSY50	2	140	103	2	1	2.4
SSY65	2 1/2	170	112	2	1	4.7
SSY80	3	195	129	2	1	7.3



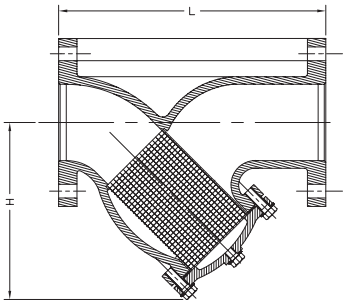
Cast Iron Flanged 'Y' Strainer Table E

Material List	
PART	MATERIAL
Body	Cast Iron (epoxy coated)
Screen	304 Stainless Steel
Gasket	Graphite
Cover	Cast Iron
Plug	Malleable Iron

Applications - Water, Oil, Air

Specifications	
Flange	AS2129 T/E
Max Working Temperature	120°C
Cold Working Pressure	1600kPa

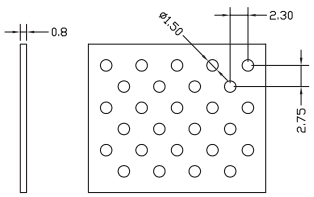
Effective Open Area		
Size	Screen Openings	(% of Inlet Pipe)
50mm - 150mm	1.5mm diam @ 4.5mm spacing	33%
200mm - 300mm	3mm diam @ 7.5mm spacing	44%



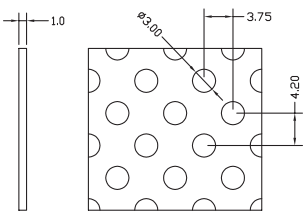
Cast Iron Flanged 'Y' Strainer Table E						
AAP CODE	IMPERIAL SIZE	L	H	HOLE DIAMETER	NO. HOLES	APPROX. KG/PC
VDIY50	2	225.4	144	18	4	10
VDIY65	2 1/2	273	176	18	4	14
VDIY80	3	292.1	195	18	4	19
VDIY94	4	352.4	246	18	8	33
VDIY95	5	416	300	18	8	50
VDIY96	6	470	320	22	8	55
VDIY98	8	543	397	22	8	99
VDIYX25	10	660.4	483	22	12	169
VDIYX30	12	762	560	26	12	245
VDIYX35	14	950	689	26	12	450

Cast Iron Flanged 'Y' Strainer (Table D)

50-150MM



200-300MM



Material List	
PART	MATERIAL
Body	Cast Iron (epoxy coated)
Screen	304 Stainless Steel
Gasket	Graphite
Cover	Cast Iron
Plug	Malleable Iron

Applications - Water, Oil, Air

Specifications	
Flange	AS2129 T/E
Max Working Temperature	120°C
Cold Working Pressure	1600kPa

Effective Open Area		
Size	Screen Openings	(% of Inlet Pipe)
50mm - 150mm	1.5mm diam @ 4.5mm spacing	33%
200mm - 300mm	3mm diam @ 7.5mm spacing	44%

Cast Iron Flanged 'Y' Strainer Table D						
AAP CODE	IMPERIAL SIZE	L	H	HOLE DIAMETER	NO. HOLES	APPROX. KG/PC
VDIY94D	4	352.4	246	18	4	33
VDIYX25D	10	660.4	483	22	8	169

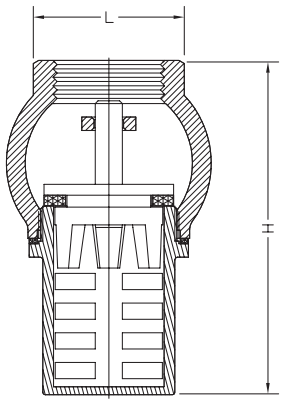
Brass Foot Valve

Material List	
PART	MATERIAL
Body	Brass
Gasket	NBR

Specifications	
Thread	AS1722.1
MAX Working Temperature	100°C
Cold Working Pressure	965kPa

Applications - General, Irrigation, Rural services

Brass Foot Valve				
AAP CODE	IMPERIAL SIZE	H	L	APPROX. KG/PC
VBF15	1/2	61.5	26	0.16
VBF20	3/4	68	31.5	0.2
VBF25	1	76	38	0.25
VBF32	1 1/4	93	47	0.42
VBF40	1 1/2	103	53	0.59
VBF50	2	114	65.6	0.92
VBF65	2 1/2	125	85	1.2
VBF80	3	140	95	1.59
VBF94	4	185	121	2.68



Stainless Filter

Material List	
PART	MATERIAL
Body	Nylon
Mesh	304 Stainless Steel

Specifications	
Thread	IS0 228

Stainless Filter				
AAP CODE	IMPERIAL SIZE	L	MESH SIZE	APPROX. KG/PC
VSS10	3/8	30	1200µm	0.01
VSS15	1/2	30	1200µm	0.01
VSS20	3/4	39	1200µm	0.01
VSS25	1	45	1200µm	0.01
VSS32	1 1/4	56	1200µm	0.02
VSS40	1 1/2	64	1200µm	0.03
VSS50	2	77	1200µm	0.05
VSS65	2 1/2	98	2000µm	0.09
VSS80	3	107	2000µm	0.11
VSS94	4	117	2000µm	0.13