CE
0086

BS EN ISO 9001
FM 00707

FLOWSERVE®

Worcester Controls

NR44

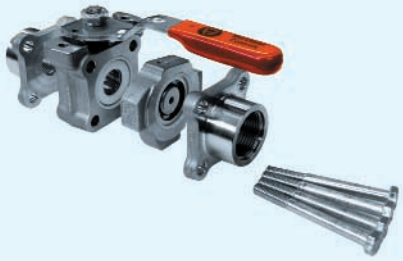
Non-Return 3-Piece Ball Valves

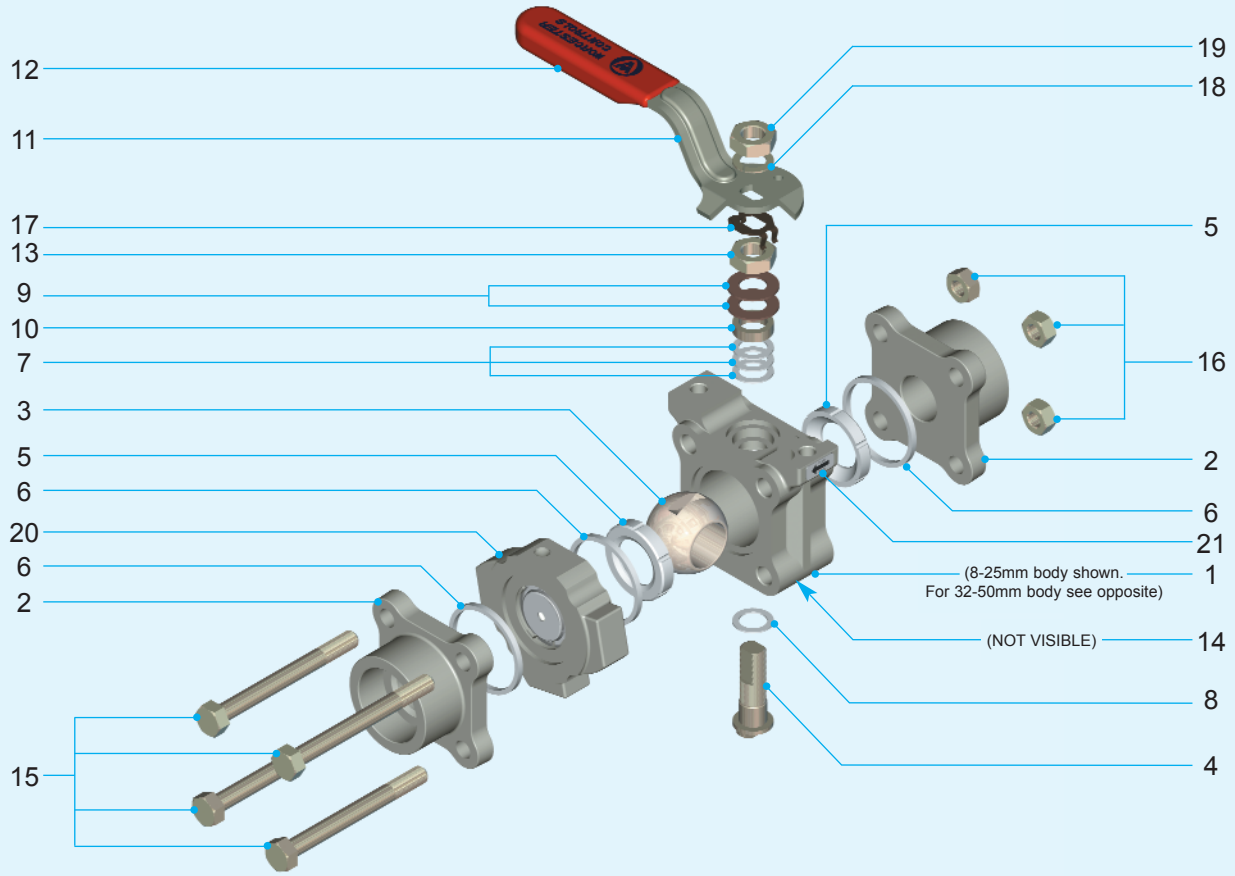
It is common practice for most steam and process lines to have both an isolation valve and a non-return valve fitted.

As part of Worcester's drive to provide simple but effective solutions to process problems, we now introduce a non-return isolation valve - the NR44 - a design which neatly combines both elements in one unique package.

The new NR44 is ideal for handling steam and aggressive media up to 40 Bar pressure. The non-return valve is the Gestra RK86(A), a spring check (self-acting) design which makes the installation orientation of the valve irrelevant.

Other advantages include space and weight reduction, low total cost of installation and ownership. And, being based on the Worcester A44/AW44 design, end connectors can be screwed, socket weld or butt weld.





PARTS/MATERIALS LIST

ITEM	DESCRIPTION	MATERIAL
1.	Body	Carbon Steel ASTM A105 Stainless Steel A351 CF8M
2.	Body Connector	Carbon Steel ASTM A105 Stainless Steel A351 CF8M / CF3M
3.	Ball (See Note 7)	Stainless Steel 316
4.	Stem	Stainless Steel 316
5.*	Seat Ring (See Note 5)	Fluorofill / PEEK
6.*	Body Connector Seal	Stainless Steel PTFE Coated
7.*	Gland Packing	PTFE 35% Carbon Filled
8.*	Stem Thrust Seal	PTFE 35% Carbon Filled
9.*	Disc Spring	Stainless Steel
10.	Gland	Stainless Steel 316

ITEM	DESCRIPTION	MATERIAL
11.	Wrench	Carbon Steel Rustproofed / Stainless Steel 304
12.	Wrench Sleeve	Vinyl Plastisol
13.	Gland Nut	Stainless Steel 316
14.	Identification Plate	Stainless Steel 304
15.	Body Connector Bolt	Carbon Steel / Stainless Steel
16.	Body Connector Nut	Carbon Steel / Stainless Steel
17.	Gland Nut Locking Clip	Coated Spring Steel
18.	Spring Washer	Stainless Steel 316
19.	Wrench Nut	Stainless Steel 316
20.	Non Return Valve	Martensitic Stainless 1.4317 Austenitic Stainless 1.4552
21.	Flow Arrow	Stainless Steel

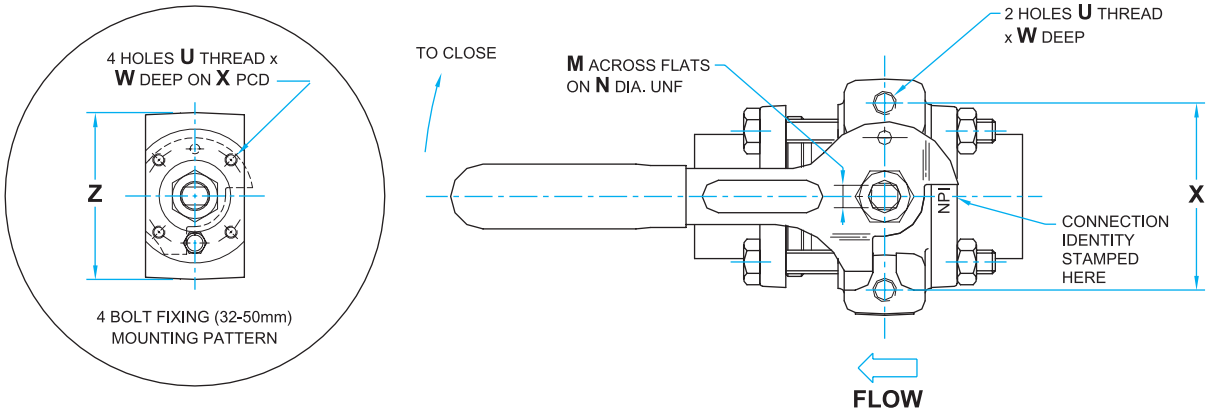
* Items marked thus denote component supplied in repair kit

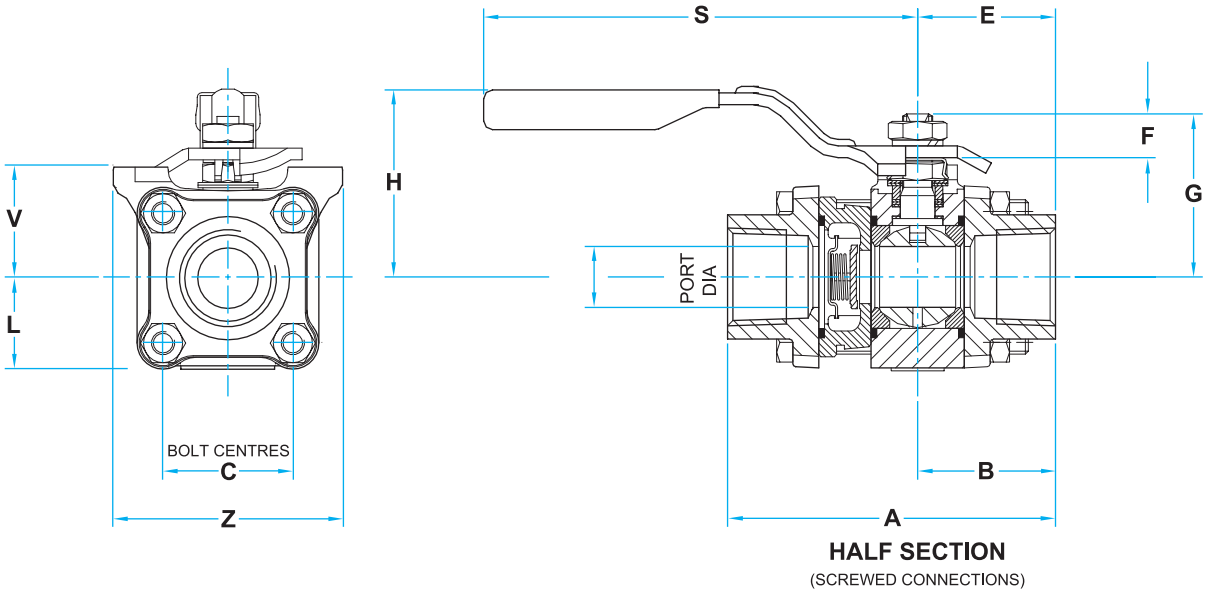
FEATURES

- Combines on/off and non-return valve into a single compact unit.
- Non-return valve fits between 44 Series end connector.
- Only two pipe connections.
- Wide variety of end connections.
- Recognised manufacturer of on/off valve.
- Recognised manufacturer of non-return valve.
- Single source.
- Available in carbon and stainless steel for liquid and steam applications.

BENEFITS

- Space saving and reduces installation space.
- Cost saving of pipe flanges, gaskets and bolting.
- Reduced installation costs.
- Suitable for all pipework.
- Confidence in Worcester products performance.
- Confidence in Gestra products performance.
- One purchase order for on/off and non-return valve.
- Valve available for most product applications.





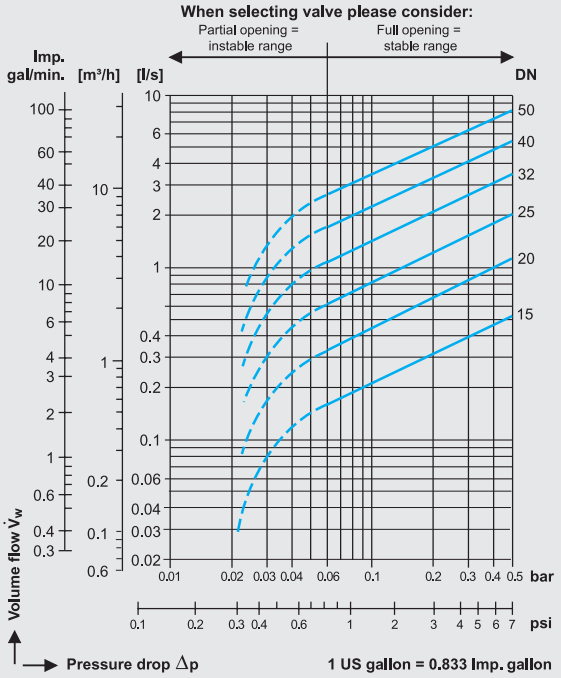
VALVE DIMENSIONS (mm)

Valve Size (mm)	Port Dia.	A	B	E	F	G	H	L	M Max.	N	S	U	V	W	X	Z	Weight (kg)
8, 10, 15	14.3	85.0	35.5	35.5	10.5	40.4	101.3	27.6	5.54	3/8 U.N.F.	136.0	M6	29.0	9.5	54.0	65.1	0.9
20	14.3	85.0	35.5	35.5	10.5	40.4	101.3	27.6	5.54	3/8 U.N.F.	136.0	M6	29.0	9.5	54.0	65.1	1.1
25	20.6	114.0	46.9	46.9	15.0	55.6	113.8	33.0	7.54	7/16 U.N.F.	149.0	M8	38.0	9.7	63.5	78.5	1.9
32	25.4	127.0	53.0	53.0	15.0	60.3	118.6	36.7	7.54	7/16 U.N.F.	149.0	M5	37.1	7.5	42.0	73.4	2.5
40	31.8	142.0	57.3	57.3	18.2	73.0	130.4	42.7	8.71	9/16 U.N.F.	181.0	M6	44.0	9.0	50.0	85.4	3.2
50	38.1	158.0	63.6	63.6	18.2	77.8	135.1	47.8	8.71	9/16 U.N.F.	181.0	M6	48.7	9.0	50.0	95.6	4.2

PRESSURE DROP CHART

The curves given in the chart are valid for water at 20°C.
To read the pressure drop for other fluids the equivalent water volume flowrate must be calculated and used in the graph.

The values indicated in the chart are applicable to spring-assisted valves with horizontal flow. With vertical flow insignificant deviations occur only within the range of partial opening.



$$\dot{V}_w = \dot{V} \cdot \sqrt{\frac{Q}{1000}}$$

$\dot{V}_w$ = Equivalent water volume flw in l/s etc.

Q = Density of fluid (operating condition) in kg/m³ etc.

$\dot{V}$ = Volume of fluid (operating condition) in l/s etc.

NOTE

1. The valve should not be used on compressors or where pulsating flow exists.
2. Special springs are available for alternative opening pressures.
3. Metal to metal sealing is standard. PTFE or soft seat, EPDM or FPM available.

OPENING PRESSURES

Differential pressures at zero volume flow

DN		Opening Pressures in mbar			
		Direction of Flow			
		Without Springs	With Springs		
mm	in	↑	↑	→	↓
15	½	2.5	25	22.5	20
20	¾	2.5	25	22.5	20
25	1	2.5	25	22.5	20
32	1¼	3.5	27	23.5	20
40	1½	4.0	28	24.0	20
50	2	4.5	29	24.5	20
65	2½	5.0	30	25.0	20
80	3	5.5	31	25.5	20
100	4	6.5	33	26.5	20

NOTES

1. Screwed ends shown for clarity. Butt weld and socket weld variations are available
2. When wrench not fitted flats on stem when parallel to pipeline axis, denotes ball open.
3. All weld end valves are assembled with Buna 'O' ring body connector seals with body seals attached loose. This provides for the valve to be tested by Worcester Controls, disassembled by the customer to weld in line, and reassembled-Instructions will be supplied for fitting body seals.
4. Installation, Operating and Maintenance Instructions are available on request.

STANDARDS OF COMPLIANCE

Threaded Connections	Body connector screwed female to the following thread specifications: NPT ANSI B1.20.1 (NPT) BSPT ISO R/7.BS 21 (Rc) BSPP ISO R/7.BS 2779.BS 21.
Socket Weld Connections	Body connectors bored suitable for accepting plain end pipe to the following specifications: BS 1600 API 5L BS 3600
Butt Weld Connections	Body connectors prepared in accordance with relevant material specification & ASME code section IX. For butt welding pipe to the following specifications: API 5L BS 1600 schedules 80/40/10/5
Pressure Test Specification	BS 6755 Part 1 and EN 17
Quality Assurance	BS EN ISO 900

How to order Worcester Valves and other Worcester products

Please order Worcester Valves and other products by description, not by part number.

We need a precise description of the valve you require. We will then translate this information into our own coding for order processing and production.

Please state the despatch address and desired date of delivery.

Steam 'AW' Version

Actuated Assembly

Flowserve Flow Control (UK) Ltd
Burrell Road, Haywards Heath, West Sussex RH16 1TL
T: +44 (0)1444 314400 F: +44 (0)1444 314401
E-mail: wvukinfo@flowserve.com
Website: www.worcestercontrols.co.uk

Flow Control Division

Published and Printed by Worcester Controls

PB10 REV 03/03 UK