RigDeluge®

Reducing Bush with In-Flow Segregator
Data Sheet RD16T + RD16E
1 Inch x 0.5 Inch Variation

The RigDeluge® Reducing Bush with In-Flow Segregator has been independently reviewed and witnessed by BUREAU VERITAS to the following design and performance criteria.

Available in the following sizes

RD15T/E 0.5” Npt x 0.75” Npt

RD16T/E 0.5” Npt x 1.0” Npt

RD17T/E 0.5” Npt x 1.25” Npt

RD18T/E 0.5” Npt x 1.25” Npt

RD19T/E 0.5” Npt x 2.0” Npt

Note:
Additional Thread Fittings can be manufactured on request. (E.G. BSPTT – BSPP)

Design Review Certificate No:	**17ABD10063 Rev. 0**
Maximum design working pressure:	**16 Bar**
Design working pressure:	**1 – 16 Bar**
Design test pressure:	**24 Bar**
Service temperature range:	**-10° to +200°C**
Service:	**Standard (Sea Water)**
K-Factors	**142.4 metric RD16E (10.2 imperial)** **137.5 METRIC RD16T (9.6 imperial)**
Material:	**(1) ASTM A105** **(2) ST.ST.304** **(3) Gun Metal (LG2)** **(4) CW602N**
Note: Titanium and other exotic materials can be manufactured on request.	
Design References:	**ASME B31.3:2016** **API RP 14G: 41h Edition: 2007**

The design certificate **17ABD10063 Rev.0** is considered to contribute towards a duty holder's obligation for the verification of the equipment's design under the requirements of the following regulations and I or associated guidance:

SI-913 (1996) Offshore Installations and Wells, Design and Construction Regulations
SI-2306 (1998) Provision and Use of Work Equipment Regulations (PUWER)

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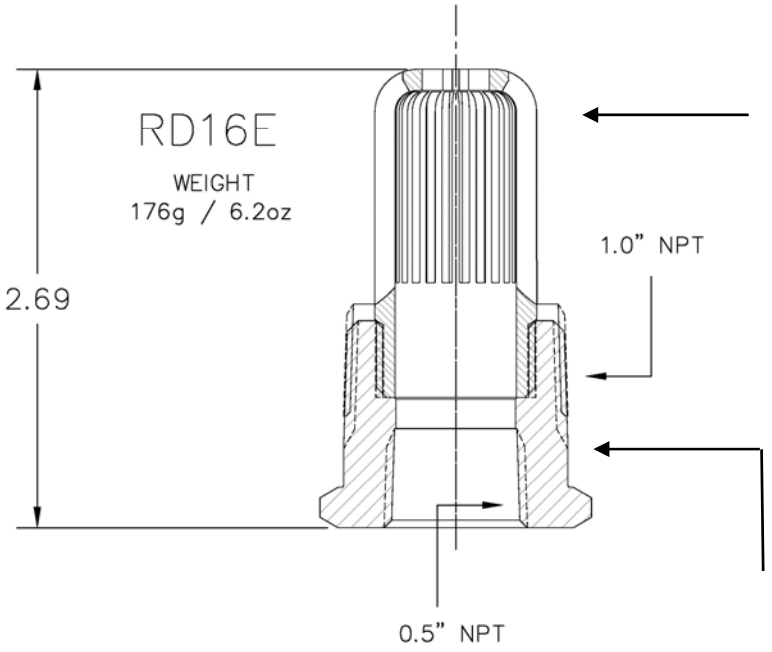
RD16E Variation



CW602N Marine Grade
ST.ST 304
Gun Metal (LG2)

In-Flow Segregator

Material Variation

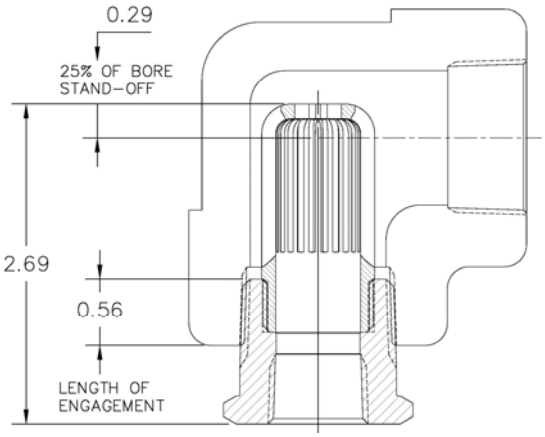
Weight Will Vary on Variation
Specification by Client

CW602N Marine Grade
ST.ST 304
Gun Metal (LG2)

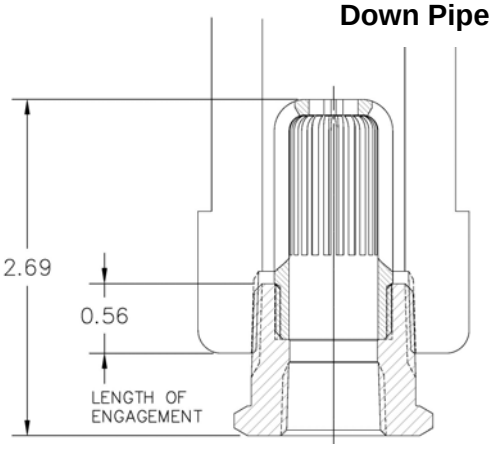
RD Reducing Bush

The RD16E Variation is to be used on all pie sizes and locations above a 1" Tee, the RD16T is required to be utilised to mitigate the risk of pipe line blockage. The RD16E is to be installed as below for a 1" Pipe with the (make-up) to be mimicked for all other pipe variations as shown in both the ELBOW and DOWN PIPE below.

End of Line



Down Pipe



1.0" - Pipe Fittings Shown, all other variants are free install and have no restrictions with the In-Flow segregator positioned well below the concentric flow point. This has been enabled due to the high level of flow and protection given by the In-Flow Segregator which can protect a 3mm exit orifice to 17.8mm without affecting the K-Factor exit of the sprinkler head, an industry first.

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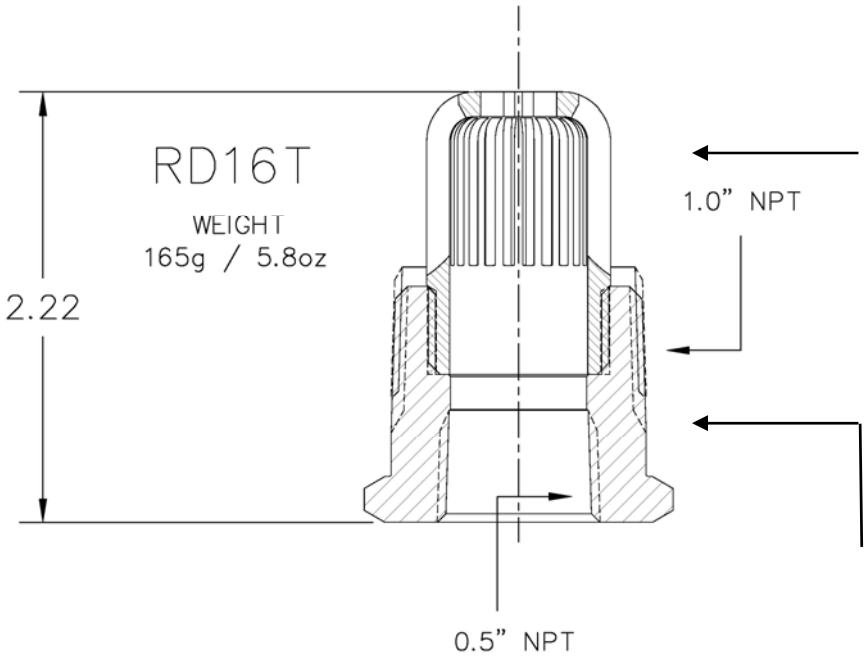
RD16E Variation



CW602N Marine Grade
ST.ST 304
Gun Metal (LG2)

In-Flow Segregator

Material Variation

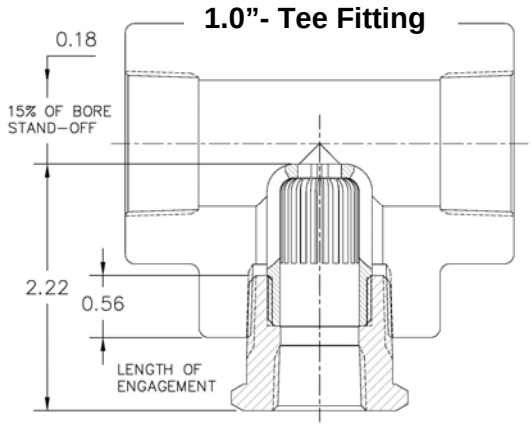
Weight Will Vary on Variation
Specification by Client

CW602N Marine Grade
ST.ST 304
Gun Metal (LG2)

RD Reducing Bush

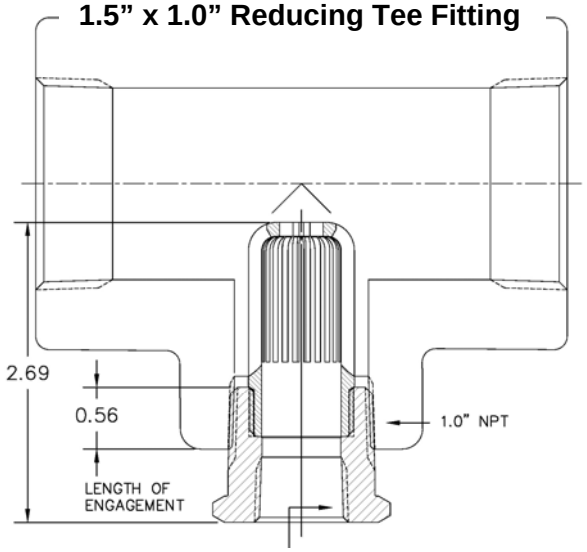
The RD16T Variation is to be used on a 1" Tee / Reducing Tee, the reduced length will allow to prevent any chance of delivery line blockages if contact is made with large quantities of debris. The reduced length and improved flow allows for the RigDeluge® Reducing Bush with In-Flow segregator to be positioned well below the concentric flow point of the delivery line. This reduces the risk of the pipe line blocking on straight runs where debris may be increased in size and quantity as it migrates through the system.

1.0"- Tee Fitting



RD16T Variation

1.5" x 1.0" Reducing Tee Fitting



RD16E Variation

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Product Summary

The RigDeluge® Reducing Bush with In-Flow segregator was designed to prevent sprinkler heads and delivery lines from blocking through scale and other bi-products produced by a sea water delivery fluid.

It has a larger fluid inlet area than it does exit which allows for a greater flow to pass through the bush enabling a high K-Factor sprinkler head or delivery line to be protected.

There are only two length variations for the 0.5” NPT exit orifice which enables the fluid and debris migration process to be maximized to the end of line position. This unique feature was implemented to allow for the utilisation of the RigDeluge® Draw Down Filter which draws and contain the loose debris from with-in the sea water system.

The unit has been designed to also maximize its protection of a sprinkler head while it is located on a down pipe. The device can either be positioned at the intersection point or at the end of the down pipe to suit the client’s requirements.

The product RD16E can be used with a sprinkler head or pipe with a K-Factor of **142.4 metric (10.2 imperial)** or below. The RD16T is restricted to **137.5 METRIC RD16T (9.6 imperial)** or below.

The RigDeluge® Reducing Bush with In-Flow Segregator will operate in systems with working pressures of 1 bar to 16 bar.

The In-Flow Segregator will protect sprinkler heads or pipe lines that have exit orifices of 3mm to 17.8mm, it will ensure that all small debris particles which are recorded as high risk compacting will pass through the In-Flow Segregator and out the exit orifice of the sprinkler head or pipe.

The RigDeluge® Reducing Bush has a Segregator which allows maximum flow of clear fluid to pass through its unique inlet positions around the body and from the top which ensures the down pipe risk of compacting is reduced.

With only two variations on sizing for connection type there is no complex variation table to be considered and no K-Factor restriction to be implemented. Larger sprinkler heads that have a connection of 0.75” and above can also be protected by their own compatible variations of RigDeluge® Reducing Bush with In-Flow Segregator.

The product should be installed by following the RigDeluge® guide lines and complete by competent personnel. It is the duty holder’s responsibility to ensure this is done and RigDeluge® cannot be held accountable for incorrect installation.

A limited warranty is applied and can be reviewed on request, this is specific to a trained and competent operator installing the product as per RigDeluge® guide lines.

RigDeluge®

Reducing Bush with In-Flow Segregator
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1 Inch x 0.5 Inch Variation

Product Installation

NPT Assembly Instructions

STEP 1: Inspect port and fitting to ensure that both are free of contaminants and excessive burrs and nicks.

STEP 2: Apply a stripe of an anaerobic liquid pipe sealant around the male threads leaving the first two threads uncovered. If no liquid sealant is available, wrap Teflon tape 1-1/2 turns in a clockwise direction, from the pipe end, leaving the first two threads uncovered.

CAUTION: Teflon tape and some pipe sealants are destructive to hydraulic components. Always use extreme caution and follow manufacturer's recommendations for proper application of any sealant in order to prevent contamination.

STEP 3: Screw finger tight into the port.

STEP 4: Wrench tighten the fitting to the correct Turns Past Finger Tight position (See following table). When installing elbows or tees, consider final orientation position as to not exceed the recommended TPFT. A properly assembled fittings total thread engagement should be 3.5 to 6 turns.

CAUTION: DO NOT OVER TIGHTEN
Never back of an installed pipe fitting to achieve proper alignment. Loosening installed pipe fittings will corrupt the seal and contribute to leakage and failure. Torque installation of pipe fittings is not a recommended practice. Thread taper and quality, different port and fitting materials, plating thickness and types, varying thread sealants, orientation, and other factors reduce the reliability of a torqued connection. If torque installation is required, refer to the following table for suggested torque values.

Fitting Size	Dash Size	Turns Past Finger Tight	Torque ft/lbs (Steel)	Torque ft/lbs (Brass)
0.5"-NPT	-08	1.5 - 3	54	7-14
0.75"-NPT	-12	1.5 - 3	78	10-20
1.0"-NPT	-16	1 - 2.5	112	20-30
1.5"-NPT	-24	1 - 2.5	211	-
2.0"-NPT	-32	1 - 2.5	300	-

Higher levels of torque may distort the fitting inlet and cause leakage or impairment of the fitting.

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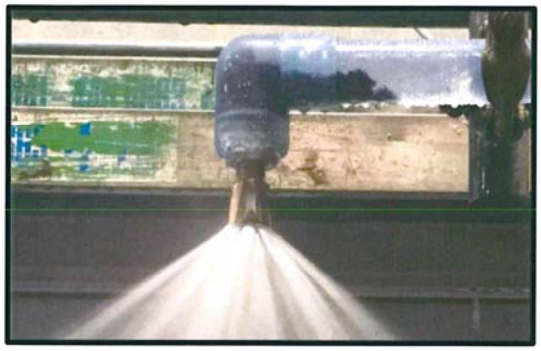
In-Flow Segregator Performance

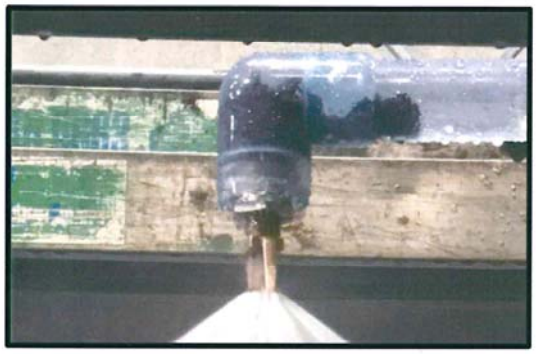
Clear Flow Values were recorded at: 42.5 lpm – 2 bar – 0 Debris



Test 1

Elbow Variation

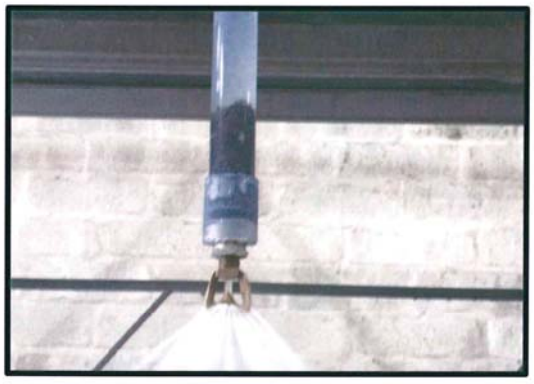
Flow:	**41.5 lpm**
Pressure:	**2 bar**
Debris:	**162g**
Profile Distortion:	**Zero**



Test 2

Tee Variation

Flow:	**40.6 lpm**
Pressure:	**2 bar**
Debris:	**263g**
Profile Distortion:	**Zero**



Test 3

Elbow Variation

Flow:	**37.6 lpm**
Pressure:	**2 bar**
Debris:	**242g**
Profile Distortion:	**Zero**

Witness Name Print: Saeed Zaman **Witness Name Signature:** S. Zaman

BUREAU VERITAS INSPECTOR AT ABERDEEN PARIS 1828 S ZAMAN UK LIMITED

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Product Ordering

The sizing chart below should be used to order the RigDeluge® Reducing Bush with In-Flow Segregator.

Fitting	RigDeluge® Reducing Bush	In-Flow Segregator	Bush
1" Tee	RD16T	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)
1" Elbow	RD16E	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)
1" x ¾" Tee	RD15T	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)
1" x ¾" Tee	RD15T	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)

Fitting	RigDeluge® Reducing Bush	In-Flow Segregator	Bush
1.5" Tee	RD17T	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)
1.5" Elbow	RD17E	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)
1.5" x 1" Tee	RD16E	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)
1.5" x 1" Elbow	RD16E	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)

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Fitting	RigDeluge® Reducing Bush	In-Flow Segregator	Bush
2" Tee	RD18T	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)
2" Elbow	RD18E	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)
2" x 1" Tee	RD16E	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)
2" x 1" Elbow	RD16E	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)	CW602N Marine Grade ST.ST 304 Gun Metal (LG2)

Note:

Titanium and other exotic materials can be ordered and manufactured on request along with bespoke sizes.

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Products Available

The sizing chart below should be used to order the RigDeluge® Reducing Bush with In-Flow Segregator.

RD15T	RD15E	RD16T	RD16E	RD17T	RD17E	RD18T	RD18E	RD19T	RD19E
0.75”x0.5”	0.75”x0.5”	1.0” 0.5”	1.0”x0.5”	1.25”x1.0”	1.25”x1.0”	1.5”x1.0”	1.5”x1.0”	2”x0.5”	2”x0.5”
		1.0”x0.75”	1.0”x0.75”	1.25”x0.75”	1.25”x0.75”	1.5”x0.75”	1.5”x0.75”	2”x0.75”	2”x0.75”
				1.25”x0.5”	1.25”x0.5”	1.5”x0.5”	1.5”x0.5”	2”x1”	2”x1”
								2”x1.25”	2”x1.25”
								2”x1.5”	2”x1.5”
								2”x1.75”	2”x1.75”

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