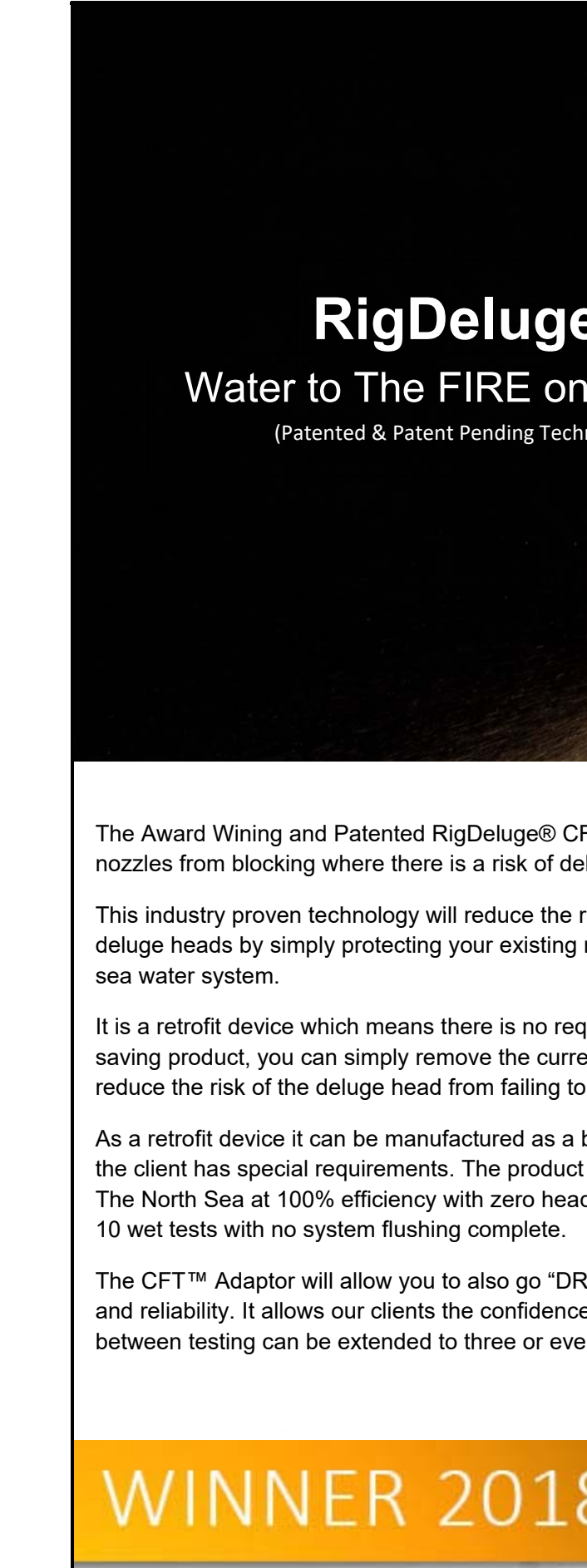




RigDeluge®

Water to The FIRE on Demand

(Patented & Patent Pending Technologies)

The Award Winning and Patented RigDeluge® CFT™ Adaptor was innovated to protect industry standard nozzles from blocking where there is a risk of delivery line contamination.

This industry proven technology will reduce the risk of your deluge system from failing through blocked deluge heads by simply protecting your existing nozzles from the forever present hazards produced by a sea water system.

It is a retrofit device which means there is no requirement for your system to be shut down to install this life saving product, you can simply remove the current head, install the CFT™ Adaptor and this will instantly reduce the risk of the deluge head from failing to as low as reasonably practicable.

As a retrofit device it can be manufactured as a bespoke product to compliment our standard sizes where the client has special requirements. The product has been proven to operate in a 40-Year Old System in The North Sea at 100% efficiency with zero heads blocked, notably this was recorded for 4 years through 10 wet tests with no system flushing complete.

The CFT™ Adaptor will allow you to also go “DRY” and reduce your wet test regime due to its performance and reliability. It allows our clients the confidence the system will work first time every time and the time line between testing can be extended to three or even five years as the client sees fit.

WINNER 2018



OFFSHORE
SAFETY AWARDS

SELECTION:

The CFT™ Adaptor comes in four standard sizes to meet industry standard nozzle variations to match industry standard deluge head sizes. They have a noted K-Factor which should always be greater than the K-Factor of the nozzle it is used to protect.

Please Reference the 0.5" x 0.5" Table on Page 3, you will see 4 Standard Codes with associated K-Factors and a 1.0" x 0.5" Reducing Bush for any 0.5" Nozzle that has a K-Factor Greater than K-83 (5.8) which has a K-Factor of up to K-142.4 (10.2).

The fittings shown are industry standard and where Reducing Tee, Reducing Elbow, Tee with Reducing Bush, Elbow with Reducing Bush, Down Pipe and Down Pipe with Reducing Bush.

For bespoke sizes you can contact RigDeluge® Direct and they will where applicable manufacture as required.

The 0.75" x 0.75" CFT™ Adaptor along with the 1.0" x 1.0" CFT™ Adaptor follows the same selection process. The 1.5" x 1.5" CFT™ Adaptor comes in 1 variation due to its bespoke nature and high K-Factor and can be used with any traditional Deluge Nozzle if the K-Factor is higher.

For reference only within any hydraulic modelling we suggest a 5% pressure reduction be shown at the node point just to show that the product is present in the system.

It is the duty of the purchaser to ensure that the systems where the adaptors are utilised are operated, serviced and maintained in line with API 14G / NFPA standards at all times and recorded as such.

If there is any doubt regarding the installation and operation of the Adaptors the client should contact RigDeluge® directly for instruction as required.

NOTE:

The RigDeluge® adaptors are not guaranteed to stop systems from failing but are designed specifically to reduce the risk to as low as reasonably practicable of deluge heads from blocking through delivery line contamination.

If high levels of contamination are present in the system and delivery lines are also blocking, we would suggest that the RigDeluge® Draw Down Filters be installed and a predictive service and maintenance plan implemented.

We would suggest a "DRY" compliance test regime with wet testing only being complete once every three years or maximum once a year which will reduce the problems related to extensive wet testing and the damage it causes to the infrastructure the system is designed to protect.

For new builds or replacement systems we would suggest that the RigDeluge® Reducing Bush or Free Flow Nozzles™ be installed along with the Debris Draw Down Filters to ensue long term system reliability which follows a "DRY" predictive and maintenance regime.



REDUCE HAZARDS | REDUCE RISKS | REDUCE ENVIRONMENTAL IMPACT | REDUCE COSTS

PRODUCT INSTALLATION

After preparing and flushing the system, we would suggest the following pipe fitting guidelines be followed for the NPT threaded fittings.

STEP 1: Inspect port and fitting to ensure that both are free of contaminants and excessive burrs and nicks, we recommend all thread connection be re-dressed on ageing assets.

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 to prevent contamination. Never allow tape on slots.

STEP 3: Screw finger tight into the port ensuring no distortion on the slotted section of the adaptor.

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	-
WEIGHTS				
RDL-101 132g	RDL-201 157g	RDL-301 288g	RDL-401 546g	
RDL-102 132g	RDL-202 177g	RDL-302 312g		
RDL-103 142g	RDL-203 187g	RDL-303 330g		
RDL-104 148g	RDL-204 157g	RDL-304 328g		

Higher levels of torque may distort the fitting and cause leakage and damage.



REDUCE HAZARDS | REDUCE RISKS | REDUCE ENVIRONMENTAL IMPACT | REDUCE COSTS



BV Job No.: 18ABD10658346



Cert No.: 14ABD00137 Rev. C

Page 1 of 1

INDEPENDENT REVIEW CERTIFICATE

Manufacturer: RigDeluge Ltd.
Unit 4, Cothill Fintray, Dyce, Aberdeen AB21 0JD

Description: Concentric Flow Technology 1/2" Adaptor Details

Equipment Ref.: GTN-RDL-0179 Rev. F

Performance criteria

Design working pressure	: 16 Barg (1 - 16 barg)
Design test pressure	: 30 Barg
Service temperature range	: -10°C to +200°C
Service	: Standard (Sea Water)

Material:

(1) ST.ST.304 (S30400)	: Yield: ≥ 210 MPa; Tensile: ≥ 520 MPa
(2) Gun Metal (LG2) (BS 1400:1985)	: Yield: ≥ 100 MPa; Tensile: ≥ 200 MPa
(3) CW602N	: Yield: ≥ 120 MPa; Tensile: ≥ 280 MPa

Notes:

(1) The scope of this design review only covers the mechanical integrity of the assembly to the above mentioned performance criteria. Installation and operational criteria should comply with the requirements of API RP 14G and be proven by testing.

(2) Material properties to meet the requirements of ASME B31.3: 2016.

Drawings and design data:

Drawing No.	Description	Material Type
GTN-RDL-0179 Rev. F	1/2" Adaptor Details	(1)/(2)/(3)

Design references: ASME B31.3:2016
API RP 14G: 4th Edition: 2007

The above design has been reviewed against the specified design references. As a result, BUREAU VERITAS considers that equipment manufactured to this design will satisfy the specified performance criteria.

Consequently, this certificate 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 / or associated guidance:

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

Certificate Revision History

Revision	Reason for Revision
C	Drawings and design data section updated

Date
11th October 2018

Engineer
Charles Stewart

Validator
Hemalkumar Chovatiya

Charles Stewart

Hemalkumar Chovatiya

Note: The above certificate is not valid until the Engineer and the Validator have signed the certificate

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Registered Office: Suite 308 Fort Dunlop, Fort Parkway, Birmingham, B24 9FD. Company No. 1758622

M&O - 1843, Rev 5. Next Review Date 19/09/2020



BV Job No.: 17ABD10198398



Cert No.: 17ABD10063 Rev. 0

Page 1 of 1

INDEPENDENT REVIEW CERTIFICATE

Manufacturer: RigDeluge Ltd.
Unit 4, Cothill Fintray, Dyce, Aberdeen AB21 0JD

Description: 1/2" x 1" Reducing Bush with Filter

Equipment Ref.: GTN-RDL-0591 Rev. D

Performance criteria
Maximum design working pressure : 16 Bar
Design working pressure : 1 - 16 Bar
Design test pressure : 24 Bar
Service temperature range : -10°C to +200°C
Service : Standard (Sea Water)

Material:
(1) ASTM A105 : Yield: ≥ 250 MPa; Tensile: ≥ 485 MPa
(2) ST.ST.304 (S30400) : Yield: ≥ 210 MPa; Tensile: ≥ 520 MPa
(3) Gun Metal (LG2) (BS 1400:1985) : Yield: ≥ 100 MPa; Tensile: ≥ 200 MPa
(4) CW602N : Yield: ≥ 120 MPa; Tensile: ≥ 280 MPa

Notes:
(1) The scope of this design review only covers the mechanical integrity of the assembly to the above mentioned performance criteria. Installation and operational criteria should comply with the requirements of API RP 14G and be proven by testing.
(2) Material properties to meet the requirements of ASME B31.3: 2016.

Drawings and design data:

Drawing No.	Description	Material Type
GTN-RDL-0591 Rev. D	General Assembly	N/A
GTN-RDL-0332 Rev. D	Modified Bush	(1)/(2)
GTN-RDL-0373 Rev. E	Filter	(2)/(3)/(4)

Design references: ASME B31.3:2016
API RP 14G: 4th Edition: 2007

The above design has been reviewed against the specified design references. As a result, BUREAU VERITAS considers that equipment manufactured to this design will satisfy the specified performance criteria.

Consequently, this certificate 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 / 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)

Certificate Revision History

Revision	Reason for Revision
0	Initial issue

Date
7th February 2017

Engineer
Charles Stewart

Validator
Rizwan Mohammed




Note: The above certificate is not valid until the Engineer and the Validator have signed the certificate

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M&O - 1843, Rev 4. Next Review Date 28/09/2018



BV Job No.: 18ABD10658346



Cert No.: 14ABD00138 Rev. B

Page 1 of 1

INDEPENDENT REVIEW CERTIFICATE

Manufacturer: RigDeluge Ltd.
Unit 4, Cothill Fintray, Dyce, Aberdeen AB21 0JD

Description: Concentric Flow Technology 3/4" Adaptor Details

Equipment Ref.: GTN-RDL-0180 Rev. F

Performance criteria

Design working pressure	: 16 Barg (1-16 Barg)
Design test pressure	: 30 Barg
Service temperature range	: -10°C to +200°C
Service	: Standard (Sea Water)

Material:

(1) ST.ST.304 (S30400)	: Yield: ≥ 210 MPa; Tensile: ≥ 520 MPa
(2) Gun Metal (LG2) (BS 1400:1985)	: Yield: ≥ 100 MPa; Tensile: ≥ 200 MPa
(3) CW602N	: Yield: ≥ 120 MPa; Tensile: ≥ 280 MPa

Notes:

(1) The scope of this design review only covers the mechanical integrity of the assembly to the above mentioned performance criteria. Installation and operational criteria should comply with the requirements of API RP 14G and be proven by testing.

(2) Material properties to meet the requirements of ASME B31.3: 2016.

Drawings and design data:

<u>Drawing No.</u>	<u>Description</u>	<u>Material Type</u>
GTN-RDL-0180 Rev. F	3/4" Adaptor Details	(1)/(2)/(3)

Design references: ASME B31.3:2016
API RP 14G: 4th Edition: 2007

The above design has been reviewed against the specified design references. As a result, BUREAU VERITAS considers that equipment manufactured to this design will satisfy the specified performance criteria.

Consequently, this certificate 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 / or associated guidance:

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

Certificate Revision History

<u>Revision</u>	<u>Reason for Revision</u>
B	Drawings and design data section updated

Date
11th October 2018

Engineer
Charles Stewart

Validator
Hemalkumar Chovatiya

Charles Stewart

Hemalkumar Chovatiya

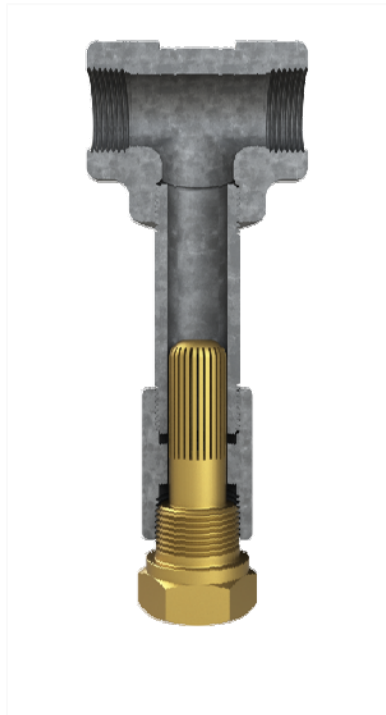
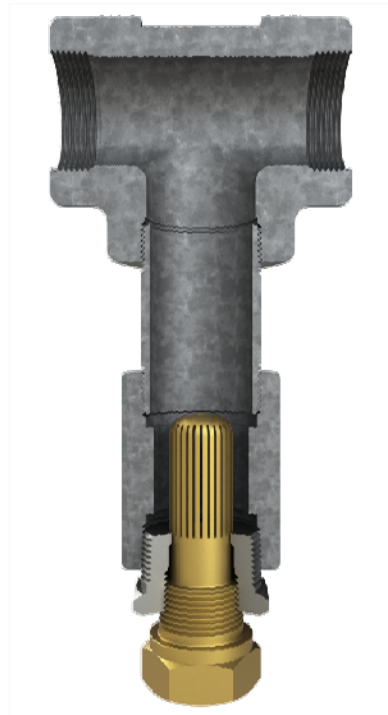
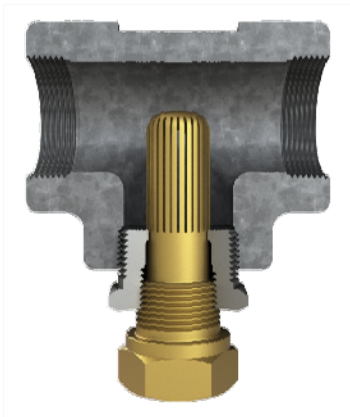
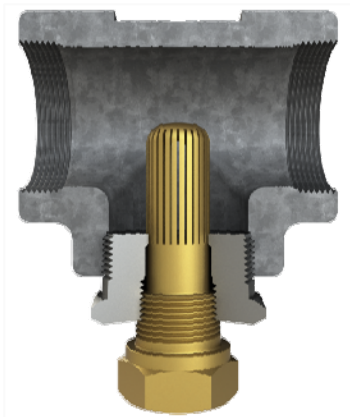
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Registered Office: Suite 308 Fort Dunlop, Fort Parkway, Birmingham, B24 9FD. Company No. 1758622

M&O - 1843, Rev 5. Next Review Date 19/09/2020

NOZZLE SIZE		PIPE SIZE									
		1.5" R-PIPE, TEE & ELBOW		2.0" R-PIPE, TEE & ELBOW		1.0" DOWN PIPE		1.5" TEE & 1.5" DOWN PIPE			
		1" 3000#									
		1" 3000#						RDL-304 K-188 (13)		RDL-303 K-241 (17)	
		1" 3000#									
								1.0" CFT ADAPTOR DATA SHEET			
						RigDeluge®		RigDeluge Limited			
						Unit 4, Cothill Fintray Dyce		Unit 4, Cothill Fintray Dyce			
						ABERDEEN AB21 0JD		ABERDEEN AB21 0JD			
						www.rigdeluge.com		www.rigdeluge.com			
						UK Office: +44 (0) 1224 749420		UK Office: +44 (0) 1224 749420			
						THIS DRAWING MAY NOT BE REPRODUCED IN PART OR WHOLE		THIS DRAWING MAY NOT BE REPRODUCED IN PART OR WHOLE			
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						UNAUTHORISED MANUFACTURE PROHIBITED © 2018		UNAUTHORISED MANUFACTURE PROHIBITED © 2018			
								Third Angle Projection			
								Scale. NTS (A3)			
								Drawn By. GT.Nicoll			
								Date. 22/08/2014			
								Checked By. I.Garden			
								Date. 22/08/2014			
								Drg No. GTN-RDL-0245-Images			
								Rev. B			



BV Job No.: 18ABD10658346



Cert No.: 14ABD00136 Rev. B

Page 1 of 1

INDEPENDENT REVIEW CERTIFICATE

Manufacturer: RigDeluge Ltd.
Unit 4, Cothill Fintray, Dyce, Aberdeen AB21 0JD

Description: Concentric Flow Technology 1" Adaptor Details

Equipment Ref.: GTN-RDL-0181 Rev. G

Performance criteria

Design working pressure	: 16 Barg (1-16 Barg)
Design test pressure	: 30 Barg
Service temperature range	: -10°C to +200°C
Service	: Standard (Sea Water)

Material:

(1) ST.ST.304 (S30400)	: Yield: ≥ 210 MPa; Tensile: ≥ 520 MPa
(2) Gun Metal (LG2) (BS 1400:1985)	: Yield: ≥ 100 MPa; Tensile: ≥ 200 MPa
(3) CW602N	: Yield: ≥ 120 MPa; Tensile: ≥ 280 MPa

Notes:

(1) The scope of this design review only covers the mechanical integrity of the assembly to the above mentioned performance criteria. Installation and operational criteria should comply with the requirements of API RP 14G and be proven by testing.

(2) Material properties to meet the requirements of ASME B31.3: 2016.

Drawings and design data:

Drawing No.	Description	Material Type
GTN-RDL-0181 Rev. G	1" Adaptor Details	(1)/(2)/(3)

Design references: ASME B31.3:2016
API RP 14G: 4th Edition: 2007

The above design has been reviewed against the specified design references. As a result, BUREAU VERITAS considers that equipment manufactured to this design will satisfy the specified performance criteria.

Consequently, this certificate 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 / or associated guidance:

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

Certificate Revision History

Revision	Reason for Revision
B	Drawings and design data section updated

Date
11th October 2018

Engineer
Charles Stewart

Validator
Hemalkumar Chovatiya

Charles Stewart

Hemalkumar Chovatiya

Note: The above certificate is not valid until the Engineer and the Validator have signed the certificate

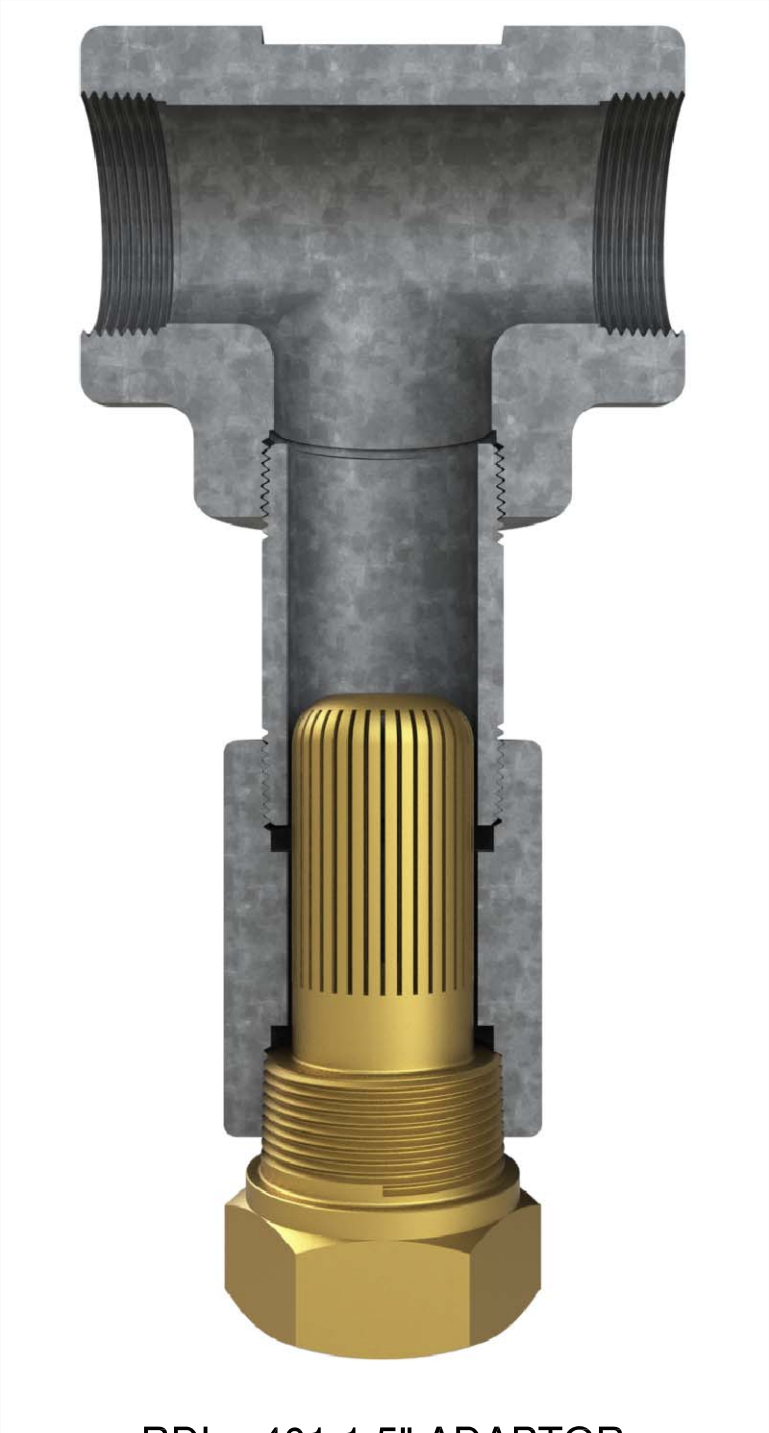
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M&O - 1843, Rev 5. Next Review Date 19/09/2020

D.O. Reference: GTN-2018-0919C

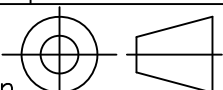
PIPE SIZE					
2" TEE		2" ELBOW		1.5" TEE x 1.5" DOWN PIPE	
					
RDL - 401 1.5" ADAPTOR K - 450 (31.25)		RDL - 401 1.5" ADAPTOR K - 450 (31.25)		RDL - 401 1.5" ADAPTOR	

A	03/10/2018	ISSUED FOR COMMENTS	GTN	I.G.	I.G.
REV	DATE	REASON	DRN.	CHK.	APP.

RigDeluge®
UK Office: +44 (0) 1224 749420

RigDeluge Limited
Unit 4, Cothill Fintray Dyce
ABERDEEN AB21 0JD
www.rigdeluge.com

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1.5" X 1.5" CFT ADAPTOR DATA SHEET				
Scale. NTS (A3)	Drawn By. GT.Nicoll	Date. 03/10/2018	Checked By. I.Garden	Date. 03/10/2018
Third Angle Projection		Drg No. GTN-RDL-0617		Rev. A



BV Job No.: 18ABD10658346



Cert No.: 18ABD11158 Rev. 0

Page 1 of 1

INDEPENDENT REVIEW CERTIFICATE

Manufacturer: RigDeluge Ltd.
Unit 4, Cothill Fintray, Dyce, Aberdeen AB21 0JD

Description: Concentric Flow Technology 1-1/2" Adaptor Details

Equipment Ref.: GTN-RDL-0182 Rev. B

Performance criteria

Design working pressure	: 16 Barg (1-16 Barg)
Design test pressure	: 30 Barg
Service temperature range	: -10°C to +200°C
Service	: Standard (Sea Water)

Material:

(1) ST.ST.304 (S30400)	: Yield: ≥ 210 MPa; Tensile: ≥ 520 MPa
(2) Gun Metal (LG2) (BS 1400:1985)	: Yield: ≥ 100 MPa; Tensile: ≥ 200 MPa
(3) CW602N	: Yield: ≥ 120 MPa; Tensile: ≥ 280 MPa

Notes:

(1) The scope of this design review only covers the mechanical integrity of the assembly to the above mentioned performance criteria. Installation and operational criteria should comply with the requirements of API RP 14G and be proven by testing.

(2) Material properties to meet the requirements of ASME B31.3: 2016.

Drawings and design data:

<u>Drawing No.</u>	<u>Description</u>	<u>Material Type</u>
GTN-RDL-0182 Rev. B	1-1/2" Adaptor Details	(1)/(2)/(3)

Design references: ASME B31.3:2016
API RP 14G: 4th Edition: 2007

The above design has been reviewed against the specified design references. As a result, BUREAU VERITAS considers that equipment manufactured to this design will satisfy the specified performance criteria.

Consequently, this certificate 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 / or associated guidance:

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

Certificate Revision History

Revision	Reason for Revision
0	Initial Issue

Date
11th October 2018

Engineer
Charles Stewart

Charles Stewart


Validator
Hemalkumar Chovatiya

Hemalkumar Chovatiya


Note: The above certificate is not valid until the Engineer and the Validator have signed the certificate

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