CSIRO Verification Services
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http://www.activfire.gov.au/

Certificate of Conformity

Certificate num.	Registration date	Version Number	Issue date	Valid until	
afp - 2762	10-May-2012	6	28-Apr-2017	30-Apr-2018	Page **1** of **7**

Product designation

VDAS, Loss Of Pressure (LOP) and Rise of Pressure (ROP), pre-engineered foam water spray vehicular fire extinguishing system

(Refer to the Schedule/enclosures for further specified details)

Agent/distributor

QTEC Fire Services Pty Ltd
5 Buttonwood Place, WILLAWONG, QLD, AUSTRALIA, 4110

Registrant

QTEC Fire Services Pty Ltd
5 Buttonwood Place, WILLAWONG, QLD, AUSTRALIA, 4110

Producer

QTEC Fire Services Pty Ltd
5 Buttonwood Place, WILLAWONG, QLD, AUSTRALIA, 4110

Conformance criteria and evaluation

The VDAS, Loss Of Pressure (LOP) and Rise of Pressure (ROP), pre-engineered foam water spray vehicular fire extinguishing system has been evaluated and verified as conforming with the relevant requirements of the following criteria.

1. Australian Standard AS 5062-2006, 'Fire protection for mobile and transportable equipment'.

Limitations/conditions of conformance

Limitations/conditions of conformance, where identified on this certificate, are derived from qualifications from evaluation(s) for conformity and/or other related technical documentation. All details with respect to design, assembly and installation instructions and restrictions should be checked against the producer's current technical manual/data sheets and the requirements of the Authority having Jurisdiction.

Specified limitations/conditions, determined from the evaluation for conformity, include the following.

i. The system is designed, installed, operated, and maintained, in accordance with the Qtec Fire Services Pty Ltd, VDAS LOP Design, Installation, and Commissioning Manual Edition 6, Part Number QTB953/F.

ii. The fire suppression system is to be only operated between 2°C – 60°C.

iii. LOP valve operating pressure range: min 1,350 kPa—max. 1,500 kPa.

iv. Hoses are to be SAE 100R1AT rated and meets MSHA 2G flame resistance requirements.

v. 1/2” O.D. X 20 Ga (0.89 wt) AS316 Annealed Stainless Steel tubes must be used.

(Limitations/conditions of conformance continue)

Issued by

David Whittaker
Executive Officer – ActivFire Scheme

This certification is issued within the scope of CSIRO Verification Services – Rules governing ActivFire Scheme and is valid only for the product(s) as submitted for evaluation and verification of conformity, subject to the following conditions.

- Reference to details, limitations and requirements, where documented as a schedule/enclosure with this certificate.
- The Registrant is responsible for their attestation of conformity and ensuring that on-going production complies with the conformance criteria defined in this certificate.
- This certificate will not be valid if any changes or modifications are made to the product which have not been notified and validated by CSIRO Verification Services.
- This certificate is subject to periodical re-validation upon verification that all requirements, as determined by the conformity assessment body, continue to be satisfactorily met by the Registrant.
- This certificate may only be reproduced in its published form, without modification and inclusive of all schedules/enclosures.
- Any changes, errors or omissions, must be submitted in writing and if necessary or requested, substantiated with relevant evidence.
- Any representations, such as advertising or other marketing related activities or articles shall reflect the correct contents of this certificate and conform with all relevant trade practices .and consumer protection legislation and regulations.
- Any terms or conditions of use as applicable to content and documentation as published or accessed through web sites administered by the CSIRO Verification Services.

vi. Foam agent is FIREADE 2000 Fire fighting Foam.

vii. Nozzle design and selection, foam filling quantities and cylinder selection must be in accordance with the information and limitations as outlined in this document.

viii. For this activation system, special LOP hose is required.

ix. VDAS ROP Systems must be designed to operate under the following conditions and limitations:

x. The system is designed, installed, operated, and maintained, in accordance with the Qtec Fire Services Pty Ltd, VDAS ROP Design, Installation, and Commissioning Manual Edition 6, Part Number QTB954/F.

xi. The fire suppression system is to be only operated between 2°C – 60°C.

xii. ROP valve operating pressure range: min 1,350 kPa—max. 1,500 kPa.

xiii. LPRM operating pressure range: min 1,000 kPa—max 1,200 kPa.

xiv. Hoses are to be SAE 100R1AT rated and meets MSHA 2G flame resistance requirements.

xv. 1/2” O.D. X 20 Ga (0.89 wt) AS316 Annealed Stainless Steel tubes must be used.

xvi. Foam agent is 6% FIREADE 2000 Fire Fighting Agent.

xvii. Nozzle design and selection, foam filling quantities and cylinder selection must be in accordance with the information and limitations as outlined in this document.

xviii. For this activation system, special LOP hose is required.

Producer's description

The VDAS, Loss Of Pressure (LOP) and Rise of Pressure (ROP), pre-engineered foam water spray vehicular fire extinguishing system is a fixed nozzle installation for protection of "off road" vehicles. Mining, Off-Road, Forestry and Construction equipment operating in harsh outdoor environments can be subjected at any time to the threat of fire, which may spread rapidly through the equipment endangering life and resulting in damage to major capital equipment and loss of production. The installation of a fire detection and suppression system is essential to minimize the risk to both operator and equipment.

The VDAS, Loss Of Pressure (LOP) and Rise of Pressure (ROP), pre-engineered foam water spray vehicular fire extinguishing system designed specifically to cope with the harsh operating conditions experienced by mobile and transportable equipment. VDAS, Loss Of Pressure (LOP) and Rise of Pressure (ROP), pre-engineered foam water spray vehicular fire extinguishing systems consist of pressurized cylinders containing foam solution, actuation devices to initiate discharge and a discharge network containing nozzles to direct the foam spray on the hazard.

Actuation of the extinguishing agent in the VDAS LOP system occurs when there is a loss of pressure in its actuation circuit. In the VDAS ROP system, the release of the AFFF solution is caused by a rise in pressure in its actuation network. However, the automated detection method in both systems utilizes a loss of pressure in their detection circuits.

The VDAS, Loss Of Pressure (LOP) and Rise of Pressure (ROP), pre-engineered foam water spray vehicular fire extinguishing system offers impressive fire suppression capabilities through the combination of FOAM discharged in the form of a finely atomized SPRAY. Strategically positioned nozzles direct the high velocity foam spray and provide “three dimensional” fire fighting properties, allowing the system to suppress pressure fires such as might occur from a ruptured fuel or hydraulic line. The small droplets of foam are extremely efficient at absorbing large amounts of heat and turn to steam which further enhances the three dimensional fire fighting properties of the VDAS, Loss Of Pressure (LOP) and Rise of Pressure (ROP), pre-engineered foam water spray vehicular fire extinguishing system. Once discharged, the foam is also effective in suppressing spill or pool fires which may result from the collection or leakage of fuel. The resulting foam blanket provides post fire securement.

Fire suppression systems are primarily intended to suppress fires by eliminating the supply of oxygen, Category A fuel sources, Category B flammable substances, and isolating ignition sources such as chemical reactions, heat, electrical and mechanical energies. It is not their intended purpose to function as the primary fire extinguishing system.

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Technical specification

The following details are a representative extract of the technical specification for the VDAS, Loss Of Pressure (LOP) and Rise of Pressure (ROP), pre-engineered foam water spray vehicular fire extinguishing system and may be subject to change. Complete and current details should be determined from the designated producer's technical manual/data sheets.

1. Schedule of designated system components

Description	QTEC Part Number
9 ltr Cylinder assembly complete-LOP	QTA9/12-L
19 ltr Cylinder assembly complete-LOP	QTA19/25-L
35 ltr Cylinder assembly complete-LOP	QTA26/35-L
34 ltr Cylinder assembly complete-LOP	QTA34/45-L
50 ltr Cylinder assembly complete-LOP	QTA50/65-L
66 ltr Cylinder assembly complete-LOP	QTA66/88-L
80 ltr Cylinder assembly complete-LOP	QTA80/106-L
19 ltr Cylinder assembly complete-ROP	QTA19/25-R
35 ltr cylinder assembly complete-ROP	QTA26/35-R
34 ltr cylinder assembly complete-ROP	QTA34/45-R
50 ltr Cylinder assembly complete-ROP	QTA50/65-R
66 ltr Cylinder assembly complete-ROP	QTA66/88-R
80 ltr Cylinder assembly complete-ROP	QTA80/106-R
9/12Cylinder	ES 912
19/25 Cylinder	QTC0325
35 Cylinder	QTC0235
34/45 Cylinder	QTC0145
50/65 Cylinder	QTC0165
66/88 Cylinder	QTC0188
80/106 Cylinder	QTC01106
9Lt Siphon tube 5/8	QTB460-9
25Lt Siphon tube 5/8	QTB460-25
30Lt Siphon tube 5/8 (Spare Parts Only)	QTB460-30
35Lt Siphon tube 5/8	QTB460-35
45Lt Siphon tube 5/8	QTB460-45
65Lt Siphon tube 5/8	QTB460-65
88Lt Siphon tube 5/8	QTB460-88
106Lt Siphon tube 5/8	QTB460-106
9Lt Siphon tube 3/4	QTB461-9
25Lt Siphon tube 3/4	QTB461-25
30Lt Siphon tube 3/4 (Spare Parts Only)	QTB461-30
35Lt Siphon tube 3/4	QTB461-35
45Lt Siphon tube 3/4	QTB461-45
65Lt Siphon tube 3/4	QTB461-65
88Lt Siphon tube 3/4	QTB461-88
106Lt Siphon tube 3/4	QTB461-106
Fill plug	QTB303
Relief Valve	QTB301
Cylinder Adaptor suit Wormald Tank	QTB600/W
Cylinder Adaptor suit Amerex	QTB600/A
Cylinder Label, Generic STD	QTB711
VDAS - Cylinder Label 106Lt	QTB705
VDAS - Cylinder Label 88Lt	QTB706
VDAS - Cylinder Label 65Lt	QTB707
VDAS - Cylinder Label 45Lt	QTB708
VDAS - Cylinder Label 35Lt	QTB709

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Description	QTEC Part Number
VDAS - Cylinder Label 25Lt	QTB710
Cylinder Band, Blue	QTB701
9lt LOP Valve	QTB950
LOP Valve	QTB900
LOP Valve Service Kit	QTB912
ROP Valve	QTB2000
ROP Valve Service Kit	QTB913
Nozzle assembly, single straight	QTB040
Nozzle assembly, single angled 90~	QTB041
Nozzle assembly, single end 90~	QTB042
Nozzle assembly, single end 180~	QTB043
Nozzle assembly, single end 45~	QTB044
Nozzle assembly, double angle 90/90	QTB045
Nozzle assembly, double angle 90/45	QTB046
Nozzle assembly, double angle 45/45	QTB047
Nozzle assembly, double end 90/90	QTB048
Nozzle assembly, double end 90/45	QTB049
Nozzle assembly, double end 45/45	QTB050
Nozzle assembly, compact 90/90	QTB053
Nozzle assembly, compact 90/45	QTB054
Nozzle assembly, compact end 90/90	QTB055
Nozzle assembly, compact end 90/45	QTB056
Nozzle bracket for hose conversion	QTB059
Nozzle/Bracket Tee Assembly Complete	QTB059/A
9.5 High Flow Nozzle Tips	QTB061
Silicon Dust Caps	QTB083
Brass Dust caps c/w wire retainer	QTB062
Plastic Dust caps- 100 in pack	QTB063
Tee, 3/4 JICm x 1/4 BSPf (Nozzle Tee)	QTB040/A
Elbow, 3/4 JICm x 1/4 BSPf (Nozzle Elbow)	QTB042/A
Tee, 3/4JICm x 1/2 BSPf (Nozzle Tee)	QTB059/B
Reducing Bush, 1/2BSPm x 1/4 BSPf	QTB059/C
Large 6 port manifold	QTB250
Small 4 port manifold	QTB251
Check valve input s/s jic 7.1/16x1/4 npt	QTB252
Pyrotube rubber grommet	QTB275
Std c/w bracket and cover (red)	QTB602
Std c/w bracket and cover (red)	QTB602/A
Co2 142gm cartridge	QTB277
Bulkhead complete	QTB603
Bulkhead complete	QTB603/A
LOP Remote 9lt External	QTB609
LOP Remote External Bulkhead	QTB611
External complete with cover	QTB613
Remote Bung and Cap	QTB614
9 litre	QTB448
L.P.R.M. Bracket	QTB449
19/25 litre	QTB450
35litre	QTB456
34/45-50/65 litre	QTB452
66/88-80/106litre heavy duty	QTB453
Weld on bracket lug 60mm x 12 mm	QTB400

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Description	QTEC Part Number
Vibration bottle mount assembly	QTB401
Cable 4 core/m	QTB511/4
Pressure Switch,n/o-n/c,duetz 1100 kPa	QTB517
Pressure Switch,n/o-n/c,duetz 800 kPa	QTB520
Pressure Switch, n/o-n/c,duetz 200 kPa	QTB518
MK3 Alarm Panel AS5062 Compliant	QTB519
Pressure Switch 800KPA	QTB520
Nipple, 3/4 bsp x 3/4 jic	QTB200
Bulkhead, jic ¾	QTB201
Nipple, 3/4 jic	QTB202
Tee, jic ¾	QTB203
Elbow, 3/4 jic m/f 90~	QTB204
Elbow, 3/4 jic m/f 45~	QTB205
Elbow, 3/4 jic m/m 90~	QTB206
Tee, 3/4 jic mmf	QTB207
Bulkhead tee jic 3/4	QTB208
Adaptor 1.1/16f x 3/4 jicm reducer	QTB209
Elbow 1.1/16jic x 3/4 bspf m/f 90~	QTB210
Nipple, 3/4 bsp x 1.1/16 jic	QTB212
Bulkhead, 1.1/16 jic	QTB213
Tee In Tee, 1/1/16 jicm x 3/4 jicm x 3/4jicm	QTB214
Tee, 1.1/16 jic m/m/m	QTB215
Elbow, 1.1/16 jic m/f 90~8	QTB216
Elbow, 1.1/16 jic m/f 45~	QTB217
Tee In Tee, 3/4jicf/3/4jicm/1 1/16jicm	QTB218
Clamp weld on 1/4 tube black hi temp	QTB001
Clamp weld on 1/4 hose black hi temp	QTB002
Clamp weld on 1/2 tube black hi temp	QTB003
Clamp weld on 1/2 hose black hi temp	QTB004
Clamp weld on 3/4 hose black hi temp	QTB005
Clamp bolt on 1/4 tube black hi temp	QTB006
Clamp bolt on 1/4 hose black hi temp	QTB007
Clamp bolt on 1/2 tube black hi temp	QTB008
Clamp bolt on 1/2 hose black hi temp	QTB009
Clamp bolt on 3/4 hose black hi temp	QTB010
P Clamp 3/16 Hose	QTB021
P Clamp 3/16 LOP Hose Spiral Gaurded	QTB028
P Clamp 1/4 Hose	QTB029
P Clamp 1/2 Hose/ Rubber Gommet	QTB022
P Clamp 3/4 Hose	QTB023
Nipple 1/8 npt x 7/16 jic	QTB253
Nipple 1/4 npt x 7/16 jic	QTB254
Elbow, 7/16 JICm/m	QTB255
Elbow m/f jic 7/16 90~	QTB256
Elbow m/f jic 7/16 45~	QTB257
Union jic 7/16	QTB258
Bulkhead jic 7/16	QTB259
Adaptor 1/8 npt x 7/16 jic fem	QTB260
Tee run m/m/m 7/16 jic	QTB261
Tee run m/m/f 7/16 jic	QTB262
Tee, m/f/m 7/16 jic	QTB289
Plug 1/8 npt	QTB263

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Description	QTEC Part Number
Plug 1/4 npt	QTB264
Nipple 1/8 NPTm	QTB280
LOP tube fitting kit x 5 mtrs	QTB281
LOP Tube per meter	QTB281/A
LOP fittings kit	QTB281/B
LOP Tube Tee	QTB284
LOP Tube Union	QTB285
Pyro Replacement Valve Assy, c/w bracket	QTB904/A
2Lt Pyro Replacement Valve Assy, c/w bracket	QTB904/B
Pyro Replacement L.P.R.M. Label	QTB904/L
Bracket,suit 1.1Cylinder	QT0127
1.1 Cylinder	QT-Q01
Re-use end fem jic 7/16 x ¼	QTB100
Re-use end fem jic 3/4 x ½	QTB104
Re-use end fem jic 3/4 x 90C~	QTB105
Re-use end fem jic 3/4 x 90 bend	QTB106
Re-use end male 3/4 jic x ½	QTB107
Re-use end fem jic 1.1/16	QTB110
Re-use end fem jic 1.1/16 x 90~	QTB111
Re-use end fem jic 1.1/16 x 90C bend	QTB112
Re-use end fem 7/16 jic x 3/16 (Brass)	QTB115
Crimp end fem jic 7/16 x ¼	QTB120
Crimp end fem jic 3/4	QTB124
Crimp end male jic ¾	QTB127
Crimp end fem jic 1.1/16	QTB128
Hose LOP 3/16 (NEW RED)	QTB134
Hose SAE 100R1T x 3/16 (Red)	QTB140
Hose SAE 100R1T x 1/4 (Red)	QTB138
Hose SAE 100R1T x 1/2 (red)	QTB132
Hose SAE 100R1T x 3/4 (Red)	QTB139
1/2 s/steel tube in 2mtr lengths	QTB141
Tube Nut/Sleeve for 1/2 S/S Tube	QTB211
weld on tapped block M6	QTB406
weld on tapped block M8	QTB408
Spiral Guard 16mm (3/16&1/4)	QTB410-16
Spiral Guard 20mm (1/2)	QTB410-20
Spiral Guard 25mm (3/4)	QTB410-25
Schrader Valve c/w Brass Cap 1/8	QTB411
Schrader Valve, 90 deg. c/w Brass cap	QTB411-90
Schrader Valve c/w Brass Cap ¼	QTB411-B
Pressure Indicator, 1350kPa	QT1350 A
Liquid Filled Gauge 900-1500 kPa	QTB412
FIREADE 2000, 19 ltr Pail of AFFF Foam	FA-AFFF19
QTEC VDAS Pre Engineered Automatic Fire Suppression System, Loss of Pressure, Design, Installation and Commissioning Manual, Edition 6 of December 20, 2011	QTB953/G
QTEC VDAS Pre Engineered Automatic Fire Suppression System, Rise of Pressure, Design, Installation and Commissioning Manual, Edition 6 of December 20, 2011	QTB954/F

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2. Schedule of relevant articles

Reference		Source	Title	Issue
Ident. type	**Ident.**			
Report No.	MF0001/R1	CSIRO, Materials Science and Engineering, Fire Systems, AU	Evaluation for conformity - QTEC, VDAS, Pre Engineered Automatic Fire Suppression System	29-Feb-2012
Report No.	20E-09-0034-TRP-464723-0	Vipac Engineers & Scientist Ltd, NSW, AU	Fire System Environmental tests C106 ROP Cylinder and LOP System	16-Aug-2011
AS 5062-2006 Test No.	2	QTec Fire Services P/L, AU and CSIRO, Materials Science and Engineering, Fire Systems, AU	Hydrostatic Test Report	7-May-2010
	2		Flow Distribution Test Report	14-Dec-2011
	2		Fuel Spill Extinguishment and Re-ignition Test (Direct & Indirect)	15-Dec-2011
	9		Operation Test Report	20-Sep-2010
	7		Testing for Conformity to AS5062-2006 500 Cyclic Operation Test Report	7-Jun-2010
	19		Burst Strength Test Report	7-Jun-2010
Manual	QTB953/G	QTec Fire Services P/L, AU	Vehicle Detection Actuation Suppression Loss of Pressure Design, Installation and Commissioning Manual Edition 6	20-Dec-2011
	QTB954/F		Vehicle Detection Actuation Suppression Rise of Pressure Design, Installation and Commissioning Manual Edition 6	20-Dec-2011