AS 2419.3—2012
(Incorporating Amendment No. 1)

Australian Standard®

Fire hydrant installations

Part 3: Fire brigade booster connections

This Australian Standard® was prepared by Committee FP-009, Fire Hydrant Installations. It was approved on behalf of the Council of Standards Australia on 4 May 2012.
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- Australasian Fire and Emergency Service Authorities Council
- Australian Building Codes Board
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- Department of Defence (Australia)
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- Fire Protection Association Australia
- Insurance Council of Australia
- Plastics Industry Pipe Association of Australia
- Property Council of Australia
- Water Services Association of Australia

This Standard was issued in draft form for comment as DR AS 2419.3.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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AS 2419.3—2012
(Incorporating Amendment No. 1)

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Fire hydrant installations

Part 3: Fire brigade booster connections

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PREFACE

This Standard was prepared by the Standards Australia Committee FP-009, Fire Hydrant Installations, to supersede AS 2419.3—1996.

*This Standard incorporates Amendment No. 1 (*August 2013*). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.*

The objective of this Standard is to provide manufacturers with requirements for the design, manufacture, performance and testing of booster connections suitable for installation in fire hydrant systems and sprinkler systems.

The objective of this revision is to—

(a) clarify the intent of the Standard and make it user friendly;

(b) align the Standard with current manufacturing practices and the performance requirements of AS 2419.1, *Fire hydrant installations*, Part 1: *System design, installation and commissioning*;

(c) review component materials considered fit for purpose;

(d) align the Standard with Australian best practice for water conservation;

(e) align the Standard with International Standards for construction and materials;

(f) remove the requirement for product suitability for contact with potable water; and

(g) introduce new provisions for product certification to promote quality and reliability of product.

This Standard is Part 3 of the following series:

AS
2419 Fire hydrant installations
2419.1 Part 1: System design, installation and commissioning
2419.2 Part 2: Fire hydrant valves
2419.3 Part 3: Fire brigade booster connections

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for design, construction, performance and testing of fire brigade booster connection(s) suitable for installations as part of fire hydrant systems and sprinkler systems.

NOTES:

1 Information on types of fire hose couplings is given in Appendix B.

2 Information on purchasing guidelines is given in Appendix C.

1.2 APPLICATION

This Standard applies to fire brigade booster connection(s) intended for installation in accordance with AS 2419.1 or AS 2118.1 or AS 2118.6, which have screwed, flanged, roll grooved or shouldered outlets. The booster inlet(s) shall have hose connection of 65 mm nominal size, and shall comply with the local fire brigade requirements. Boosters may be single, dual, quadruple or sextuple inlet.

Compliance with this Standard shall be demonstrated in accordance with Appendix A.

NOTE: Fire brigade booster connection(s) is generally referred to in this Standard as a ‘booster’ or ‘the booster’.

1.3 NEW DESIGNS AND INNOVATIONS

Any alternative materials, designs, methods of assembly and procedures that do not comply with specific requirements of this Standard, or are not mentioned in it, but give equivalent results to those specified, are not necessarily prohibited; however, the specified approval remains the prerogative of the relevant authority.

If an alternative system or innovation is intended for use in a hydrant system, the design drawings with supporting documentation including material certificates with performance reports and product certification details, where applicable, shall be submitted to the relevant authority for approval. The alternative system or innovation shall comply with performance requirements of AS 2118.1, AS 2118.6, AS 2419.1, AS 2419.2 and this Standard.

1.4 NORMATIVE REFERENCES

The following are the normative documents referenced in this Standard.

NOTE: Documents referenced for informative purposes are listed in the Bibliography.

AS

1074 Steel tube and tubulars for ordinary service

1349 Bourdon tube pressure and vacuum gauges

1565 Copper and copper alloys—Ingots and castings

AS
1627 Metal finishing—Preparation and pretreatment of surfaces
1627.1 Part 1: Removal of oil, grease and related contamination

1646 Elastomeric seals for waterworks purposes

1683 Methods of test for elastomers
1683.15.2 Part 15.2: Durometer hardness

1830 Grey cast iron

1831 Ductile cast iron

1874 Aluminium and aluminium alloys—Ingots and castings

2074 Cast steels

2118 Automatic fire sprinkler system
2118.1 Part 1: General systems
2118.6 Part 6: Combined sprinkler and hydrant

2129 Flanges for valves, pipes and fittings

2345 Dezincification resistance of copper alloys

2419 Fire hydrant installations
2419.1 Part 1: System design, installation and commissioning
2419.2 Part 2: Fire hydrant valves

2484 Fire—Glossary of terms
2484.2 Part 2: Fire protection and firefighting equipment

2700 Colour standards for general purposes

4041 Pressure piping

AS/NZS
1567 Copper and copper alloys—Wrought rods, bars and sections

1568 Copper and copper alloys—Forging stock and forgings

4158 Thermal-bonded polymeric coatings on valves and fittings for water industry purposes

4680 Hot-dip galvanized (zinc) coatings on fabricated ferrous articles

AS ISO
7 Pipe threads where pressure-tight joints are made on the threads
7.1 Part 1: Dimensions, tolerances and designation (ISO 7-1: 1994, ISO 7-1/Cor 1:2007)

ANSI/AWWA
C606 Grooved and Shouldered Joints

ASTM
A312 Standard Specification for Seamless, Welded and Heavily Cold Worked Austenitic Stainless Steel Pipes

A313 Standard Specification for Stainless Steel Spring Wire

A743 Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application

NEN
3374 Fire Fighting Equipment—Fire Hose Couplings and Ancillary Equipment

ASME
B36.19M Stainless Steel Pipe

1.5 DEFINITIONS

For the purpose of this Standard, the definitions given in AS 2484.2 and those below apply.

1.5.1 Allowable operating pressure

The allowable internal hydrostatic pressure, excluding surge, that a component may be subjected to in normal service conditions.

NOTE: The allowable operating pressures are given in Table 1.1.

1.5.2 Batch release tests

Tests performed by a manufacturer on samples from a batch of products, which have to be satisfactorily completed before the batch can be released.

1.5.3 Cast-bodied booster

A booster with the outer casing manufactured from cast material.

1.5.4 Distortion

Any visible permanent deformation of a booster or component.

1.5.5 Nominal size (DN)

An alphanumeric designation of size for components of a pipeline, which is used for reference purposes. It comprises the letters DN followed by a whole number.

1.5.6 Inlet insert

A sub-assembly comprising a spring-operated non-return valve, a fire hose coupling and a roll grooved, screwed or flanged connection for fitting to a booster body.

1.5.7 Maximum allowable on-site test pressure

The maximum internal test pressure that can be applied on site to a booster in a newly installed pipeline.

NOTE: The maximum allowable on-site test pressures are given in Table 1.1.

1.5.8 Maximum allowable operating pressure

The maximum internal hydrostatic pressure, including surge, that a component may be subjected to in service.

NOTE: The maximum allowable operating pressures are given in Table 1.1.

1.5.9 Pipe-bodied booster

A booster with the outer casing fabricated from pipes.

1.5.10 Pressure classification (PN)

A classification of products by a PN number, based on the allowable operating pressure, expressed in hundreds of kilopascals.

1.5.11 Product batch

A schedule of products of the same type, identical dimensional characteristics, all the same DN and manufactured from identical components.

NOTE: The product batch is defined by the manufacturer.

1.5.12 Relevant authority

An independent agency authorized by legislation or regulation to issue determinations, orders, or other instructions in respect of any subject covered by this Standard.

1.5.13 Sample

One or more units of product drawn from a batch, selected at random without regard to quality.

1.5.14 Sampling plan

A specific plan that indicates the number of units of components or products to be inspected.

1.5.15 Type tests

A series of tests and inspections conducted on typical samples of products to prove materials and performance.

1.6 ALLOWABLE PRESSURES

The allowable pressures shall be as specified in Table 1.1.

TABLE 1.1

ALLOWABLE PRESSURES

PN	Allowable operating pressure kPa	Maximum allowable operating pressure kPa	Maximum allowable on-site test pressure kPa
14	1400	1750	2100
21	2100	2625	3150
35	3500	4375	5250

SECTION 2 MATERIALS

2.1 BOOSTER

Basic materials for the manufacture of boosters shall be as specified in Table 2.1.

Alternative materials may be used provided it can be demonstrated that they have equivalent performance and corrosion resistance.

2.2 DEZINCIFICATION RESISTANCE

Copper alloys in contact with water shall be dezincification resistant (DR) in accordance with AS 2345. Dezincification resistance shall be reassessed on the components after all manufacturing processes are completed but prior to assembly.

2.3 ALL COMPONENTS

All components shall be made of materials that are not adversely affected by the fluid, pressure or service temperature ranges specified.

TABLE 2.1

BOOSTER MATERIALS

Component	Material	Reference Standards	Minimum grade designation
Body—Castings	Ductile cast iron	AS 1831	500/7, 400/15, 370/17
	Copper alloy	AS 1565	C85210, C83600 or C92610
	Stainless steel	AS 2074 ASTM A743	H5A (304 equivalent) CF8 (304 equivalent)
Body—Pipes	Steel	AS 1074	Medium black
	Stainless steel	ASTM A312 ASME B36.19M	304 Schedule 10S 304 Schedule 10S
Inlet connections—General	Copper alloy	AS 1565	C85210, C83600 or C92610
	Stainless steel	AS 2074 ASTM A743	H5A (304 equivalent) CF8 (304 equivalent)
Inlet connections—Storz	Copper alloy	—	EN 1982
	Aluminium	NEN 3374	EN 1706
Seating disc	Copper alloy	AS 1565	C85210, C83600 or C92610
	Copper alloy	AS/NZS 1567, AS/NZS 1568	C48600 C48600
	Stainless steel	AS 2074 ASTM A743	H5A (304 equivalent) CF8 (304 equivalent)
Disc facing	Synthetic rubber	AS 1646	NBR, EPDM or Neoprene
	Polyurethane	—	—

(*continued*)

TABLE 2.1 (*continued*)

Component	Material	Reference Standards	Minimum grade designation
Blank cap or plug	Copper alloy	AS 1565	C85210, C83600 or C92610
	Grey cast iron	AS 1830	T-220
	Ductile cast iron	AS 1831	500/7, 400/15 or 370/17
	Aluminium	AS 1874	—
	Stainless steel	AS 2074 ASTM A743	H5A (304 equivalent) CF8 (304 equivalent)
	Plastics and rubber	—	U/V Stabilized
Spring			
—Non wetted	Stainless steel	ASTM A313	304
—Wetted	Stainless steel	ASTM A313	316
Drain valve	Copper alloy	AS 1565	C85210, C83600 or C92610
	Copper alloy	AS/NSZ 1568	C48600
	Stainless steel	AS 2074 ASTM A743	H5A (304 equivalent) CF8 (304 equivalent)
Coupling washers	Synthetic rubber	AS 1646	NBR, EPDM or Neoprene
O-rings	Synthetic rubber	AS 1646	NBR or EPDM
Pressure gauge	—	AS 1349	Corrosion resistant

SECTION 3 DESIGN AND MANUFACTURE

3.1 TYPICAL DESIGNS

3.1.1 Cast-bodied boosters

Typical cast-bodied booster designs are shown in Figure 3.1.

3.1.2 Pipe-bodied boosters

Typical pipe-bodied booster designs are shown in Figure 3.2.

3.2 GENERAL

Boosters shall be designed to satisfy the following requirements:

(a) The characteristics of materials shall be suitable for use at the required pressure ratings over a temperature range of 0°C to 85°C ambient.

(b) The design shall ensure that the pressure loss through the booster (via all the booster inlets) and designated lengths of hose(s) and pipework does not exceed 30 kPa when tested in accordance with Paragraph D6.2 and Figure D1 of Appendix D.

(c) The form and construction shall be such that it is practicable to install and maintain the booster in a serviceable condition.

(d) Each component shall be made from compatible materials, as specified in Table 2.1.

(e) All components of the same model of booster from the same manufacturer shall be interchangeable.

(f) The booster shall be suitable for installation with the inlets in the horizontal plane.

(g) The booster inlets shall incorporate a spring-operated non-return valve. The design of the spring-operated non-return valve shall conform to the requirements of Clause 3.7. The spring tension shall be sufficient to ensure closure of the valve when the booster is not in operation without back-pressure from the hydrant or sprinkler system.

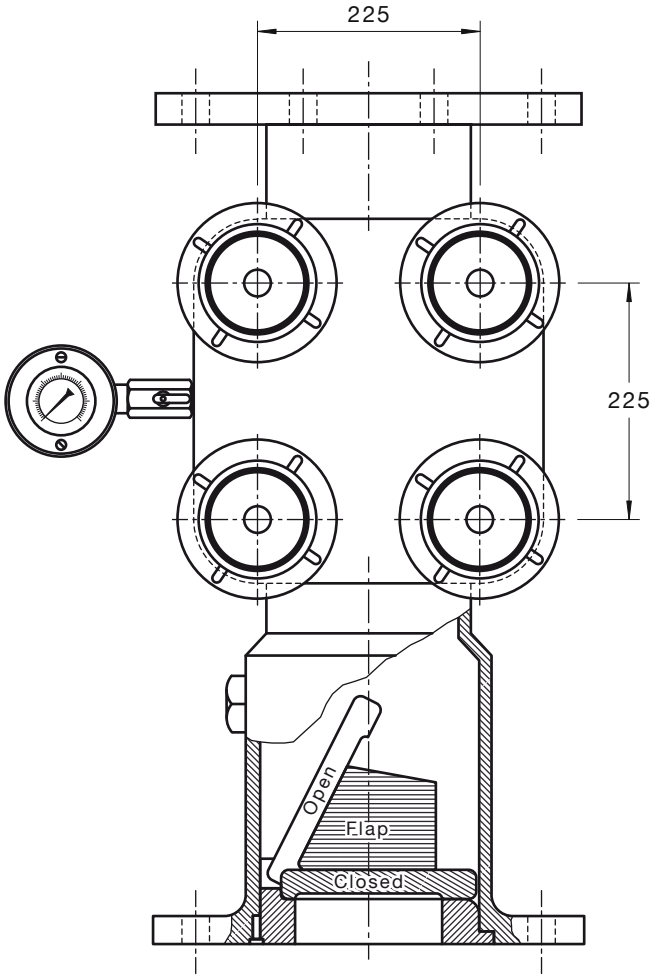
The use of flap type non-return valves in the booster inlets shall not be permitted.

(h) The booster design shall provide inlets positioned at 225 mm between centres to allow the fire brigade unhindered hose connection using appropriate spanners. Inlets shall be forward facing or each shall be offset horizontally at maximum 22.5° from forward facing. The method for measuring between inlet centres shall be as shown in Figure 3.3.

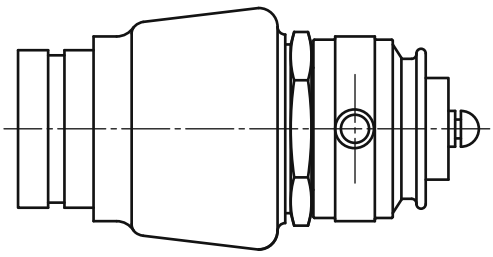
(i) Where used in the design, inlet insert connection to a booster body shall be minimum 65 mm screwed, minimum 80 mm roll grooved, or flanged.

(j) Booster bodies cast from ferrous materials (excluding stainless steels) shall be internally lined with a corrosion-resistant coating. Hot-dip galvanizing to AS/NZS 4680 or polymeric coating to AS 4158 shall be deemed acceptable methods. Alternative coatings of similar corrosion resistance and durability shall be acceptable.

(k) Boosters shall be externally coated approximating signal red R13 of AS 2700.



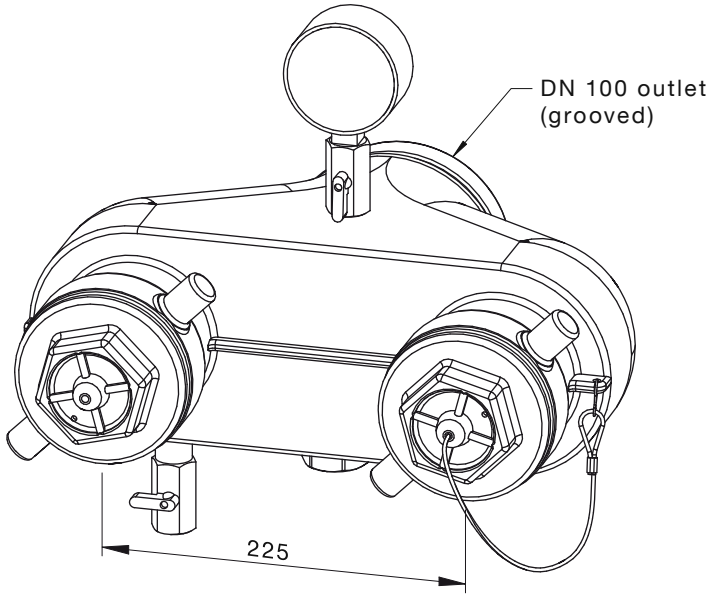
(a) Inline booster—Quadruple inlet



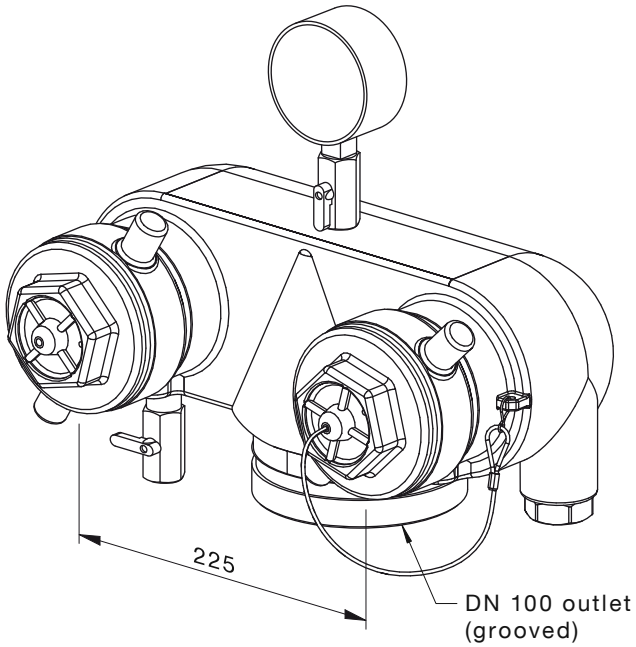
(b) Single booster

DIMENSIONS IN MILLIMETRES

FIGURE 3.1 (in part) TYPICAL CAST-BODIED BOOSTERS



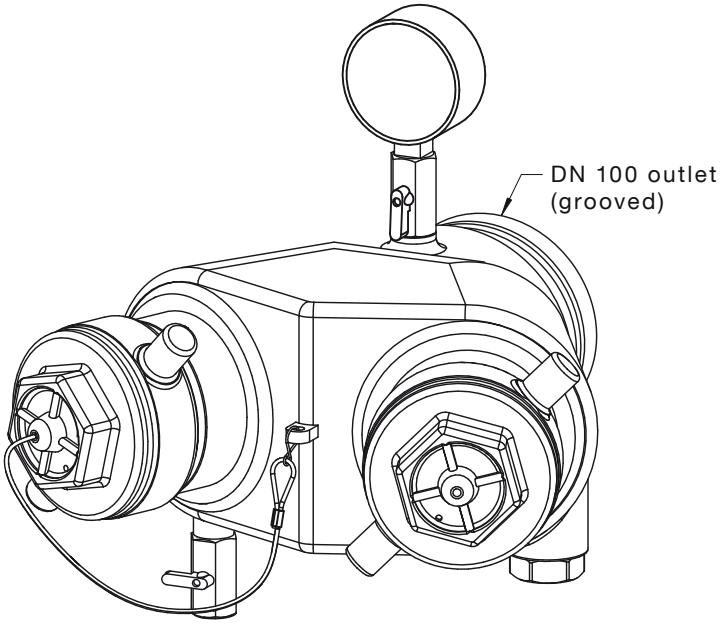
(c) Dual booster—Rear outlet



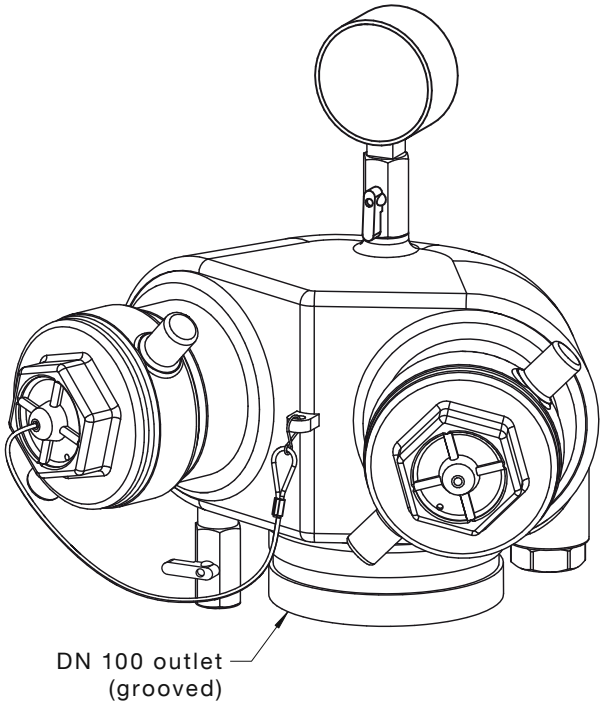
(d) Dual booster—Bottom outlet

DIMENSIONS IN MILLIMETRES

FIGURE 3.1 (in part) TYPICAL CAST-BODIED BOOSTERS



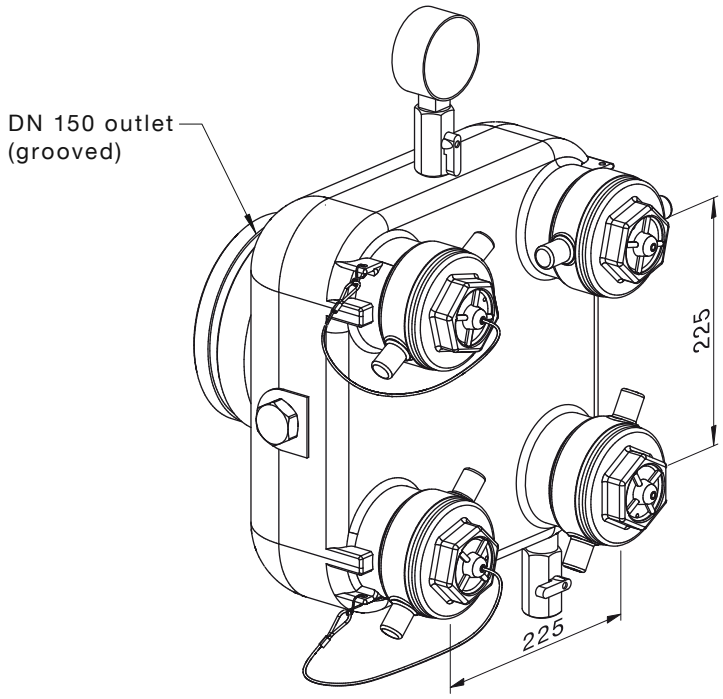
(e) Dual booster—Rear outlet with offset inlets



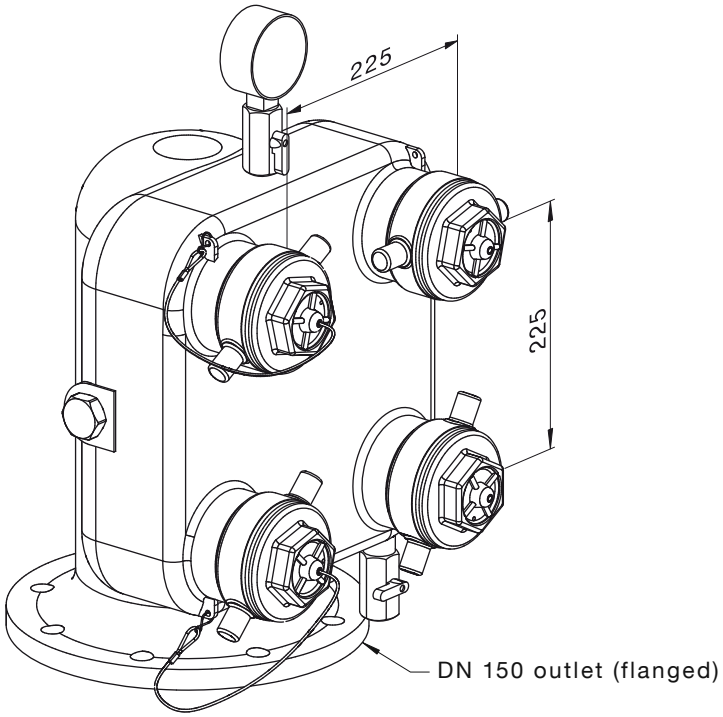
(f) Dual booster—Bottom outlet with offset inlets

DIMENSIONS IN MILLIMETRES

FIGURE 3.1 (in part) TYPICAL CAST-BODIED BOOSTERS



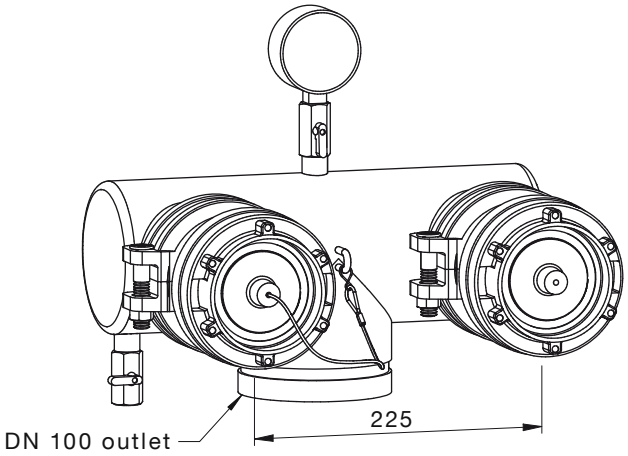
(g) Quadruple booster—Rear outlet



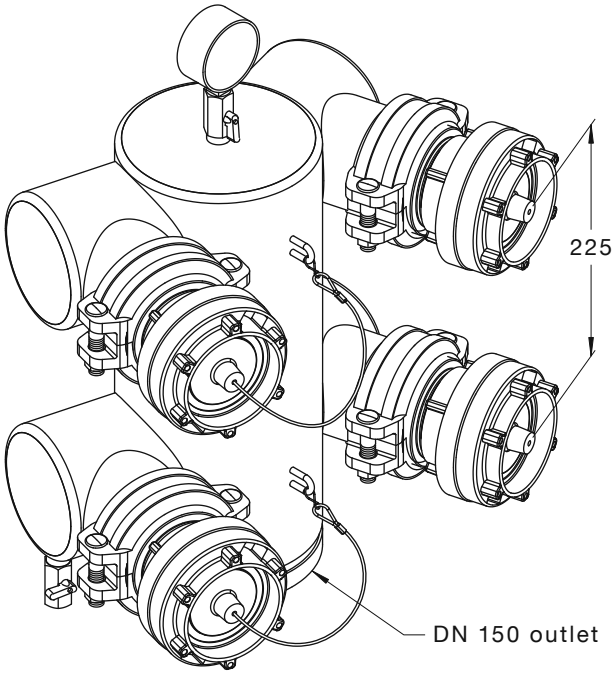
(h) Quadruple booster—Bottom outlet

DIMENSIONS IN MILLIMETRES

FIGURE 3.1 (in part) TYPICAL CAST-BODIED BOOSTERS



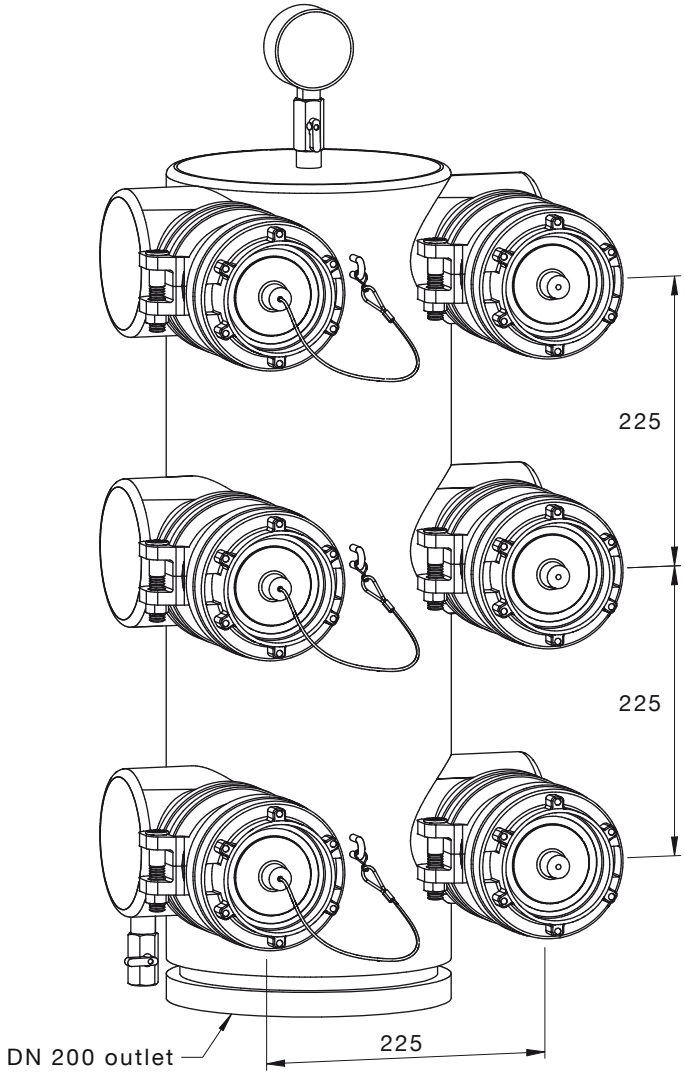
(a) Dual booster



(b) Quadruple booster—Offset inlets

DIMENSIONS IN MILLIMETRES

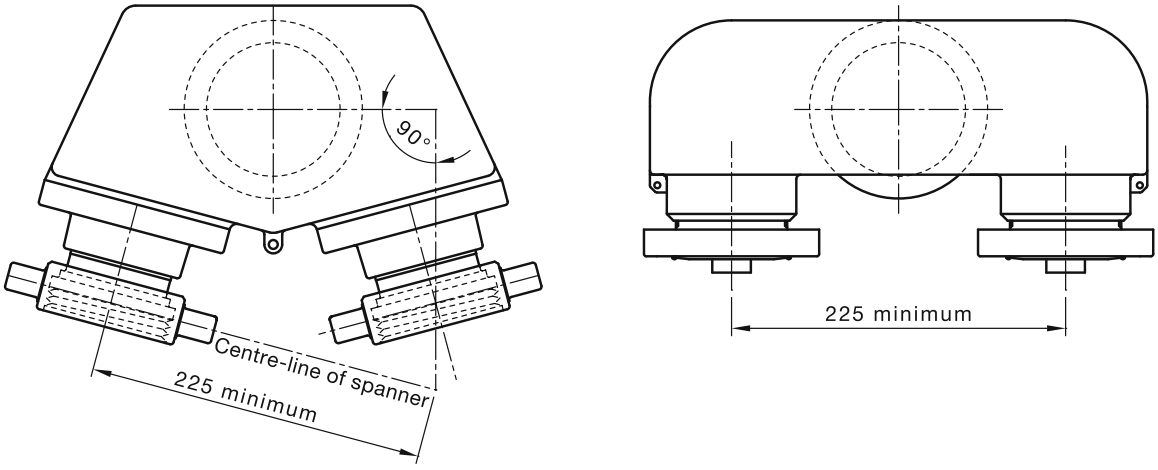
FIGURE 3.2 (in part) TYPICAL PIPE-BODIED BOOSTERS



(c) Sextuple booster

DIMENSIONS IN MILLIMETRES

FIGURE 3.2 (in part) TYPICAL PIPE-BODIED BOOSTERS



DIMENSIONS IN MILLIMETRES

FIGURE 3.3 MEASUREMENT BETWEEN INLET CENTRES

3.3 BOOSTER BODY

3.3.1 Cast body

Castings shall be sound, of smooth surface finish and free from burrs and other imperfections. Stainless steel castings shall be solution heat-treated as appropriate.

The body wall thickness at any point shall be sufficient to withstand the body pressure retention test of Paragraph D3 of Appendix D.

Production testing shall be in accordance with Appendix E.

3.3.2 Pipe-bodied booster

Pipe bodies shall be fabricated from new pipe. Welding shall be in accordance with AS 4041.

Completed steel pipe bodies shall be hot-dip galvanized in accordance with AS/NZS 4680. Excess galvanizing material shall be removed. Inlet branches shall be minimum DN 80 pipe.

Galvanized steel pipe bodies shall be surface pretreated to AS 1627.1, prior to finish coating.

The completed body fabrication shall withstand the body pressure retention test of Paragraph D3 of Appendix D.

Production testing shall be in accordance with Appendix E.

3.4 OUTLET CONNECTIONS AND THROUGH LINE INLET CONNECTION OF AN IN-LINE BOOSTER

Connections shall be as follows:

(a) Single booster—

(i) minimum DN 65 screwed connection in accordance with AS ISO 7.1 Series R or RC; or

(ii) minimum DN 80 roll grooved or shouldered joint coupling, in accordance with ANSI/AWWA C606.

(b) Dual booster (two inlets)—

(i) DN 100 screwed connection in accordance with AS ISO 7.1 Series R or RC; or

(ii) DN 100 flanged connection in accordance with AS 2129; or

(iii) DN 100 roll grooved or shouldered joint coupling, in accordance with ANSI/AWWA C606.

(c) Quadruple booster (four inlets)—

(i) DN 150 flanged connection in accordance with AS 2129; or

(ii) DN 150 roll grooved or shouldered joint coupling, in accordance with ANSI/AWWA C606.

(d) Sextuple booster (six inlets)—

(i) DN 200 flanged connection in accordance with AS 2129; or

(ii) DN 200 roll grooved or shouldered joint coupling, in accordance with ANSI/AWWA C606.

3.5 INLET CONNECTIONS

The following requirements apply to inlet connections of a booster:

(a) They shall be attached to the body by screwed or flanged ends or a roll groove coupling.

(b) They shall be forged or hot-pressed for storz connections. Cast storz connections shall not be permitted.

(c) They shall be fitted with a spring-operated non-return valve.

(d) They shall be fitted with DN 65 hose connections that comply with local fire brigade requirements.

(e) Where hose couplings with lugs are fitted, the diameter of the lugs shall be 19 ±0.5 mm.

(f) They shall be fitted with blank caps or plugs.

3.6 FLAP TYPE NON-RETURN VALVES (THROUGH LINE OF IN-LINE BOOSTERS ONLY)

Flap type non-return valves shall have the following features:

(a) The flap shall be top-hung when the booster is installed in a horizontal position.

(b) The valve design shall not allow the flap to open to a position where jamming could occur or where automatic closure is restricted.

(c) The opening of the flap shall have not less than 60° of movement.

3.7 SPRING-OPERATED NON-RETURN VALVES

Spring-operated non-return valves shall have the following features:

(a) The valve sealing seat shall be finish machined.

(b) The seating face of the disc shall be finish machined. The disc design shall incorporate a means of retaining the disc facing.

(c) When tested in accordance with AS 1638.15.2, the disc facing shall be resilient, with a minimum hardness of 70 IRHD.

(d) The facing, which may be renewable or bonded, shall have a minimum thickness of 5 mm and an outside diameter not less than that of the disc.

(e) The valve shall be fitted with a stainless steel spring.

The body seat shall withstand the body seat pressure retention test of Paragraph D4 of Appendix D.

Production testing shall be in accordance with Appendix E.

3.8 DRAIN VALVES

The booster shall be fitted with a minimum DN 8 valve or tap to—

(a) relieve internal pressure;

(b) drain the hydrant or sprinkler system when not in use; or

(c) facilitate maintenance and repair.

3.9 BLANK CAPS AND PLUGS

Blank caps or plugs that are compatible with the booster inlet connections shall be provided. Caps and plugs shall have a pressure relief hole of 3 mm min. diameter.

The caps and plugs shall be attached to the booster body by means of a suitable lug, S-hook and chain, S-hook and stainless steel cable, or stainless steel cable crimped with a ferrule.

3.10 PRESSURE GAUGES

The booster shall be fitted with a pressure gauge.

Pressure gauges fitted to the boosters shall—

(a) comply with AS 1349;

(b) have a full scale reading of not less than 125% of the class rating;

(c) be fitted with a gauge-isolation valve equivalent to or greater than the pressure rating of the booster, to permit removal, servicing or testing of the gauge;

(d) have a dial face of not less than 63 mm; and

(e) have a window made of glass.

3.11 MARKING

Each booster shall be marked with the following information, with letters not less than 10 mm high:

(a) The manufacturer’s name or trademark.

(b) PN (pressure classification).

(c) Top, where applicable.

(d) An arrow indicating direction of flow, where applicable (in-line booster only).

(e) Date code or year of manufacture.

(f) Certification licence number.

(g) Number of this Standard (i.e. AS 2419.3).

The permanent marking may be effected using embossing, casting, engraving or the installation of an affixed metal plate.

SECTION 4 PERFORMANCE REQUIREMENTS

4.1 GENERAL

Boosters shall satisfy the appropriate test requirements of this Section.

4.2 PRODUCTION TESTS

4.2.1 General

The tests specified in Clauses 4.2.2 and 4.2.3 are designed as part of production and batch release testing.

4.2.2 Pressure test—Booster assembly

The booster body shall be pressure-tested to the relevant classification in accordance with Paragraph E3 and Table E1 of Appendix E.

4.2.3 Pressure test—Non-return valve seat

The non-return valve seat shall be pressure-tested to the relevant classification in accordance with Paragraph E4 and Table E1 of Appendix E.

4.3 TYPE TESTS

4.3.1 General

The type test specified in Clauses 4.3.2 to 4.3.5 shall be conducted to confirm the design pressures, component strength, pressure loss characteristics and operational endurance for all booster configurations manufactured to this Standard.

4.3.2 Pressure retention test—Body

The booster body shall be pressure-tested in accordance with Paragraph D3 and the relevant pressures specified in Table D1 of Appendix D.

4.3.3 Pressure retention test—Seat

The non-return valve seat shall be pressure-tested in accordance with Paragraph D4 and the relevant pressures specified in Table D1 of Appendix D.

4.3.4 Sensitivity test—Seat

The non-return valve seat shall be sensitivity-tested in accordance with Paragraph D5 of Appendix D.

4.3.5 Pressure loss characteristics

Pressure loss through the booster shall be tested in accordance with Paragraph D6.2 of Appendix D. The pressure loss shall not exceed 30 kPa at a flow rate of 10 L/s through each and all inlets simultaneously.

4.3.6 Endurance test

The booster shall be endurance flow tested in accordance with Paragraph D6.3 of Appendix D with a flow rate of 15 L/s through each and all inlets simultaneously.

APPENDIX A

MEANS FOR DEMONSTRATING COMPLIANCE WITH THIS STANDARD

(Normative)

A1 SCOPE

This Appendix sets out means by which compliance with this Standard has to be demonstrated by a manufacturer:

(a) The use of a product certification scheme.

(b) The use of a minimum sampling and testing frequency plan.

A2 RELEVANCE

The long-term performance of firefighting systems is critical to the durability of building infrastructure, protection of public health and safety, property and the environment.

A3 PRODUCT CERTIFICATION

The purpose of product certification is to provide independent assurance of the claim by the manufacturer that products comply with this Standard.

The certification scheme should meet the criteria described in HB 18.28 in that, as well as full type testing from independently sampled production and subsequent verification of conformance, it requires the manufacturer to maintain effective planning to control production.

The certification scheme serves to indicate that the products consistently conform to the requirements of this Standard.

Product certification shall be conducted by a certification body accredited by the Joint Accreditation System for Australia and New Zealand (JAS-ANZ) or by another accreditation body that is acceptable to JAS-ANZ.

The frequency of the sampling and testing plan, as detailed in Paragraph A4 and Table A1, shall be used by the certifying body for product compliance auditing. However, where the manufacturer can demonstrate adequate process control to the certifying body, the frequency of sampling and testing nominated in the manufacturer's quality plan and/or documented procedures shall take precedence for the purpose of product certification.

A4 TESTING

A4.1 General

Table A1 sets out the minimum sampling and testing frequency plan for a manufacturer to demonstrate compliance of product(s) to this Standard.

A4.2 Retesting

In the event of a test failure, the batch shall be quarantined. The products within the batch shall be 100% tested and only those items found to comply may be claimed and/or marked as complying with this Standard.

TABLE A1

MINIMUM SAMPLING AND TESTING FREQUENCY PLAN

Characteristic	Clause	Requirement	Test method	Frequency
Type tests				
Material properties	2.1	Materials	Review material parts list and compliance certificates	At any change in materials
	2.2	Dezincification resistance of copper alloys	AS 2345	At any change in materials
	2.3	Elastomers and polyurethanes—suitability for service conditions and hardness	AS 1646 Review data sheets AS1638.15.1	At any change in materials
Design and manufacturing	3.2	Standard critical dimensions	Design drawings	At any change in design
	3.4	Outlet connections		
		Screwed connections	AS ISO 7.1	At any change in design
		Flanged connections	AS 2129	At any change in design
		Roll grooved connections	ANSI/AWWA C606	At any change in design
		Shouldered connections	ANSI/AWWA C606	At any change in design
	3.5	Inlet connections	Review design drawings	At any change in design
	3.6	Flap position and movement	Review design drawings and inspect booster	At any change in design
	3.7	Seating disc and facing	Review design drawings	At any change in design
	3.8	Drain valve	Review design drawings	At any change in design
	3.9	Blank cap and plug	Review design drawings	At any change in design
	3.10	Pressure gauge and gauge cock	AS 1349 Review design drawings	At any change in design
	3.11	Marking	Review design drawings and inspect booster	At any change in design
Performance	4.3.2	Body pressure retention	Appendix D	At any change in design
	4.3.3	Seat pressure retention	Appendix D	At any change in design
	4.3.4	Seat sensitivity	Appendix D	At any change in design
	4.3.5	Pressure loss	Appendix D	At any change in design
	4.3.6	Endurance	Appendix D	At any change in design

(*continued*)

TABLE A1 (*continued*)

Characteristic	Clause	Requirement	Test method	Frequency
Batch release tests/Production tests				
Design	Standard critical dimensions		Design drawings	One booster per production batch
Production tests	4.2.2	Booster assembly pressure test	Appendix E	Each booster
	4.2.3	Non-return valve seat test	Appendix E	Each booster
Markings	3.11	Legibility	Visual inspection	One booster per production batch

APPENDIX B

FIRE HOSE COUPLINGS USED IN AUSTRALIA

(Informative)

B1 SCOPE

This Appendix gives guidance on the types of fire hose couplings and the fire brigades that use them.

B2 FIRE HOSE COUPLINGS

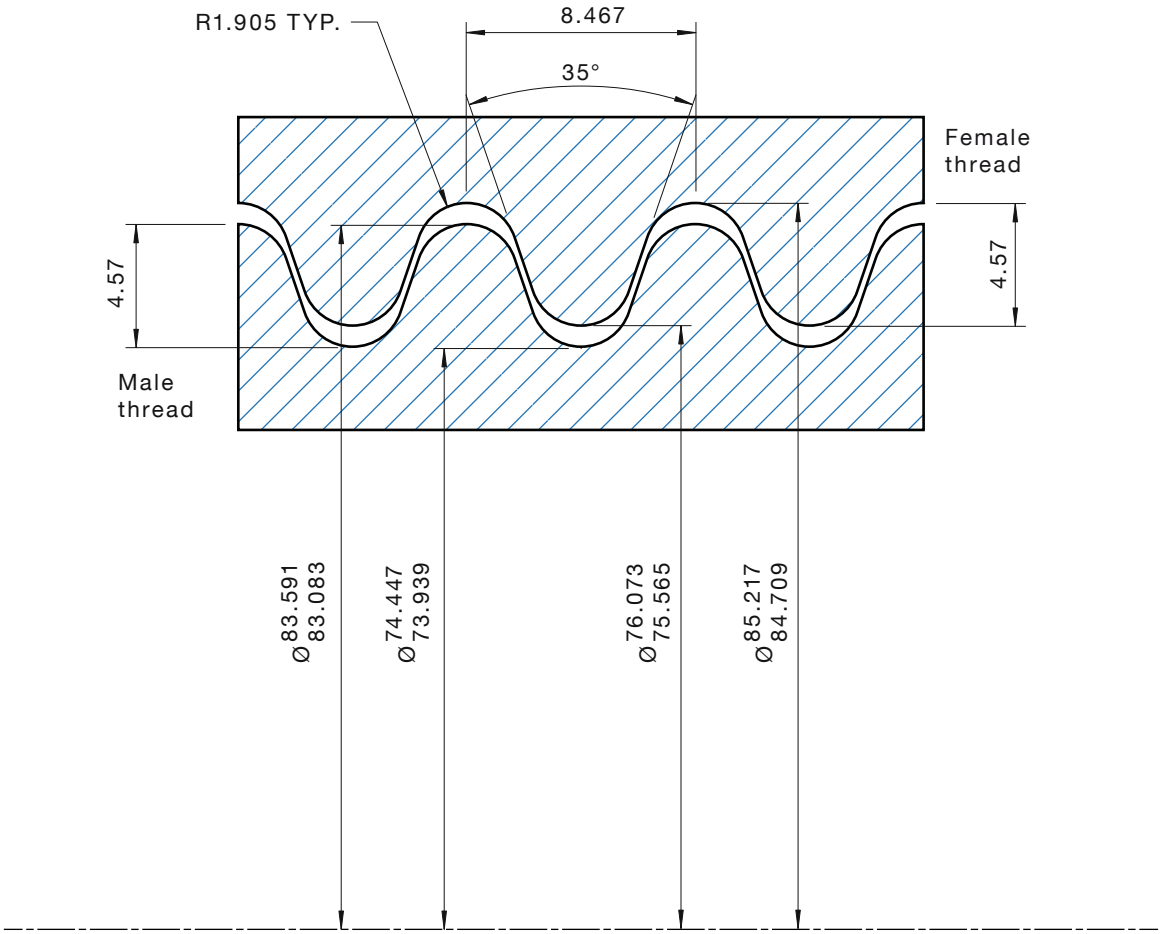
The following hose coupling types are in use in Australia:

TYPE	DESCRIPTION	AREAS IN USE/REGULATORY AUTHORITY
1	British Instantaneous to BS 336 (BIC)	Western Australia—Fire and Emergency Services Authority Northern Territory Fire and Rescue Service
2	Storz hermaphrodite to NEN 3374 (STORZ)	Victoria—Melbourne Fire and Emergency Services Board Fire and Rescue NSW NSW Rural Fire Service South Australian Country Fire Service Tasmania Fire Service ACT Fire and Rescue
3	63 mm × 8.47 mm pitch (CFA)	Victoria—Country Fire Authority
4	Queensland Round Thread (QRT)	Queensland Fire and Rescue Service
5	South Australian Round Thread (SART)	South Australia Metropolitan Fire Service

Other types may be used in some areas of Australia.

B3 FIRE HOSE COUPLING THREADS

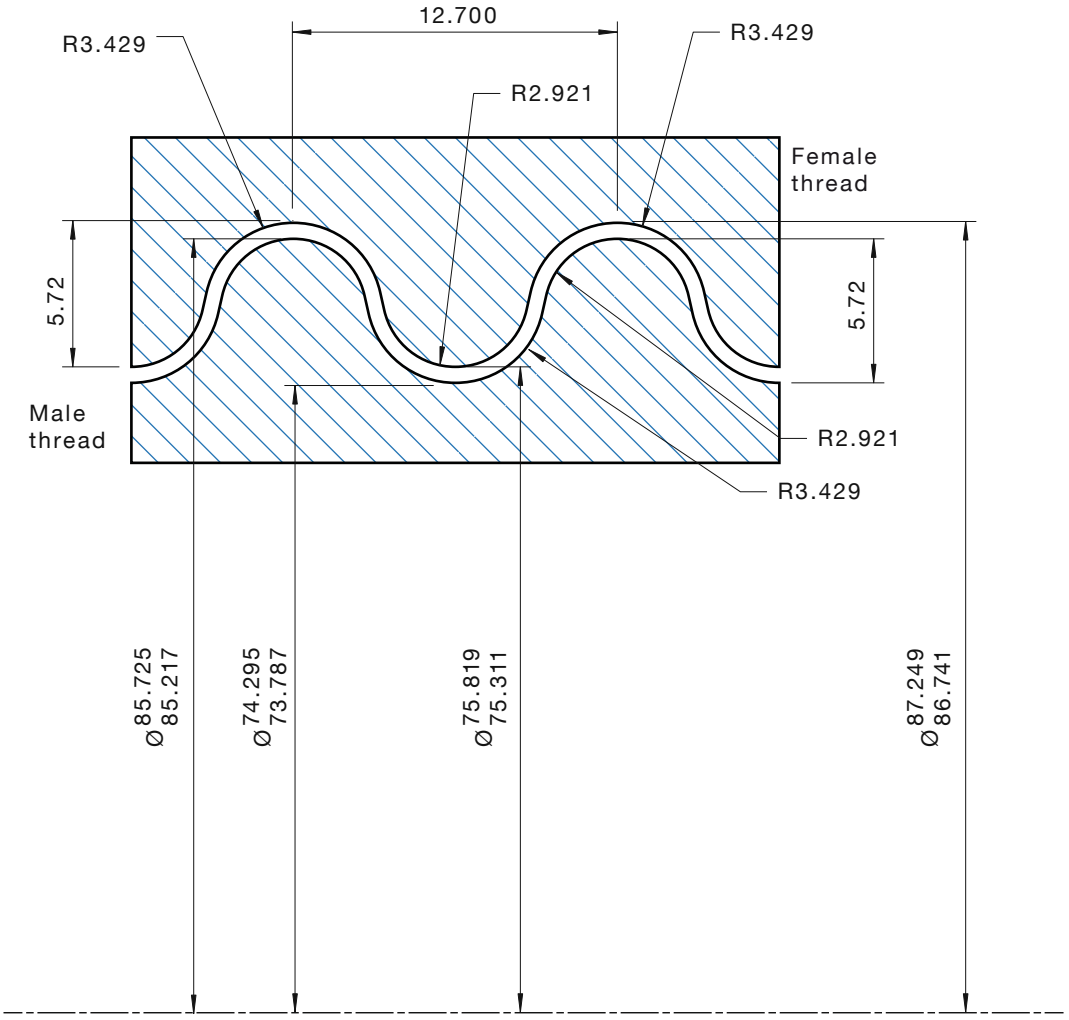
Dimensional details of coupling threads are shown in Figure B1.



(a) Type 3—CFA 63 × 8.47 pitch

DIMENSIONS IN MILLIMETRES

FIGURE B1 (in part) DIMENSION OF TYPICAL COUPLING THREAD

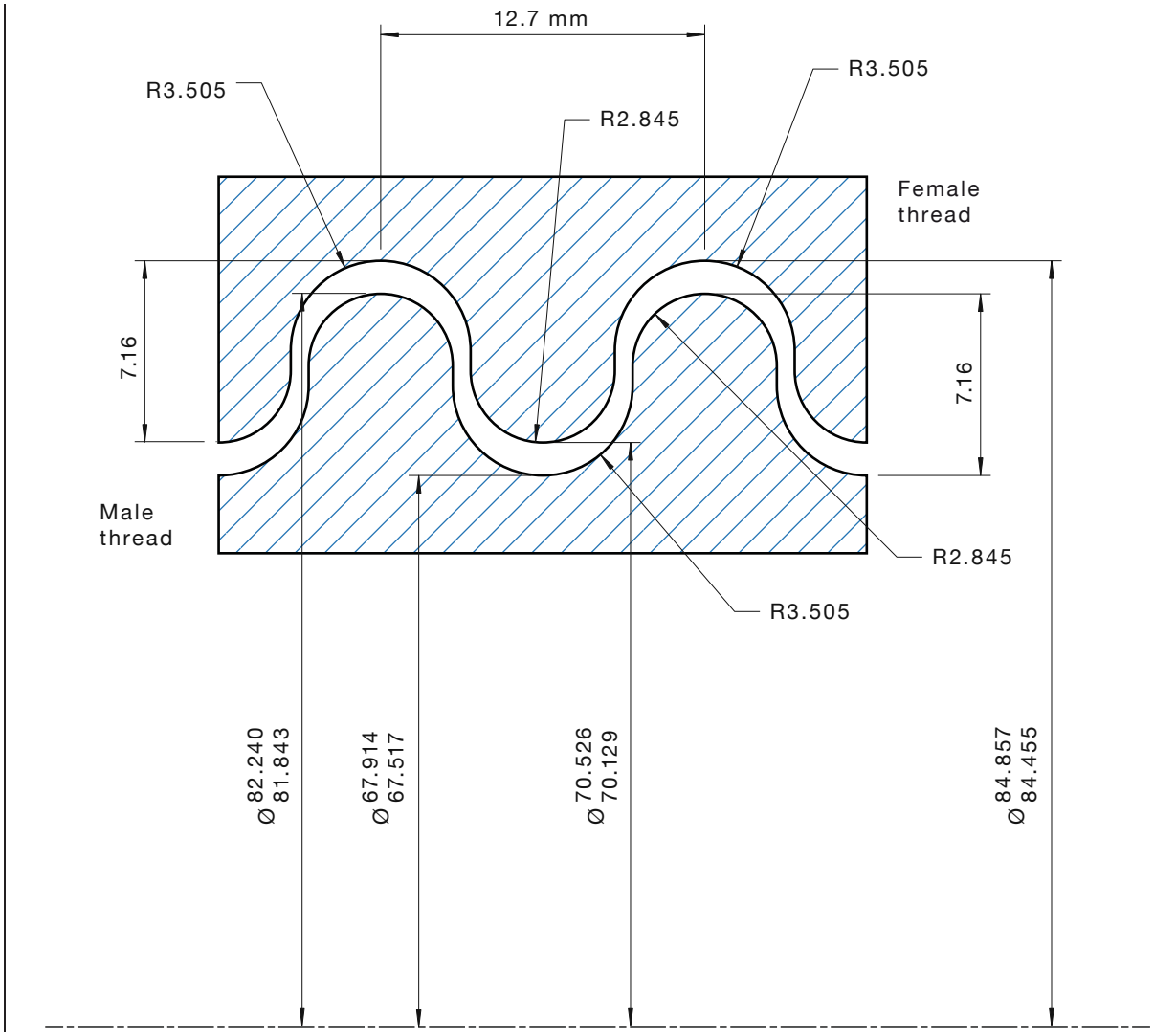


(b) Type 4—Queensland round thread

DIMENSIONS IN MILLIMETRES

FIGURE B1 (in part) DIMENSION OF TYPICAL COUPLING THREAD

A1



(c) Type 5—South Australian round thread

DIMENSIONS IN MILLIMETRES

FIGURE B1 (in part) DIMENSION OF TYPICAL COUPLING THREAD

APPENDIX C

PURCHASING GUIDELINES

(Informative)

C1 GENERAL

Australian Standards are written to include the technical requirements for relevant products, but do not purport to comprise all the necessary provisions of a contract. This Appendix provides advice on the information to be supplied by the purchaser at the time of enquiry or order.

C2 INFORMATION

The following information should be supplied by the purchaser:

(a) The booster type and number of inlet connections.

(b) The type of hose connection required at inlet connections.

(c) The nominal internal diameters of booster outlets.

(d) Whether a screwed, flanged, roll grooved or shouldered booster outlet(s) is required.

(e) If a flanged outlet(s) is required, the flange(s) is to be supplied drilled as specified.

(f) Materials of construction.

APPENDIX D

TYPE TESTS

(Normative)

D1 SCOPE

This Appendix sets out the methods for verifying the design of boosters and booster manifolds.

D2 GENERAL REQUIREMENT

Type tests shall be conducted at ambient temperatures in accordance with Paragraphs D3 to D6 for one of each booster size and type. Specimens shall be selected randomly from boosters that have previously passed all production tests.

Where required, testing shall be conducted using clean cold water (for example from a town water supply or an on-site tank).

D3 PRESSURE RETENTION TEST—BODY

The procedure shall be as follows:

(a) Connect the booster outlet to a hydraulic pressure test rig.

(b) Secure the spring-operated non-return valves in an open or partially open position.

(c) Blank off the booster inlets.

(d) Fill the booster with water and vent to release any trapped air.

(e) Subject the booster to the relevant test pressure in accordance with Table D1 and hold for 15 min. The booster shall exhibit no sign of damage, distortion or leakage.

(f) Depressurize the booster.

D4 PRESSURE RETENTION TEST—SEAT

The procedure shall be as follows:

(a) Remove the blanking caps and permit the non-return valves to close.

(b) Fill the booster with water and vent to release any trapped air.

(c) Subject the booster to the relevant test pressure in accordance with Table D1 and hold for 15 min. The non-return valves shall not exhibit any sign of damage, distortion or leakage.

(d) Depressurize the booster.

TABLE D1

TEST PRESSURES

PN	Body test pressure kPa	Seat test pressure kPa
14	2800	2100
21	4200	3150
35	7000	5250

D5 SENSITIVITY TEST—SEAT

The procedure shall be as follows:

(a) Repeat Steps (a) and (b) of Paragraph D4.

(b) Subject the booster to a test pressure of 10 kPa maximum for 15 min. There shall be no leakage through the non-return valves.

(c) Depressurize the booster.

D6 PRESSURE LOSS TEST AND ENDURANCE TEST

D6.1 Apparatus

A hydraulic test rig assembly capable of supplying 20 L/s flow through each and all booster inlets at 600 kPa inlet pressure for 4 h.

NOTE: A typical assembly is shown in Figure D1.

D6.2 Pressure loss test procedure

The procedure shall be as follows:

(a) Install the booster on the test rig in its normal operating position.

(b) Introduce a flow of 15 L/s at an inlet pressure of 300 kPa through all booster inlets.

(c) Increase the back pressure at the pressure sustaining valve to reduce the flow rate to 10 +1, 0 L/s through each inlet. Measurement of total aggregate flow through the inlets shall be acceptable.

(d) Allow the flow to stabilize for 3 min then take readings from the upstream and downstream pressure sensors. The pressure differential shall not exceed 30 kPa.

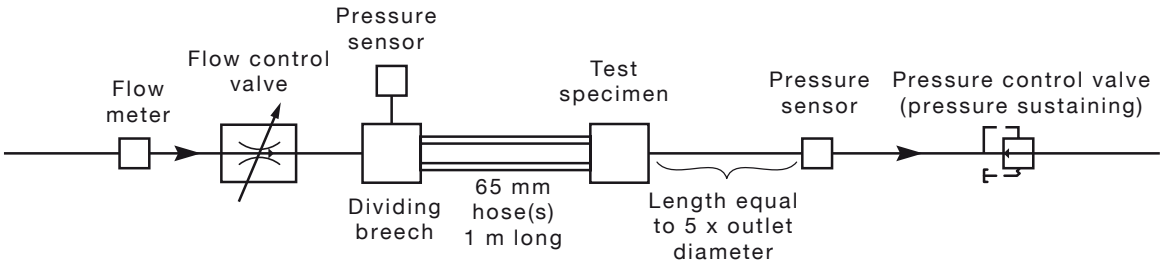


FIGURE D1 TYPICAL PRESSURE LOSS TEST/ENDURANCE TEST ASSEMBLY

D6.3 Endurance test procedure

The procedure shall be as follows:

(a) Install the booster on the test rig in its normal operating position.

(b) Introduce a flow of 20 L/s at an inlet pressure of 600 kPa through each booster inlet.

(c) Increase the back pressure at the pressure sustaining valve to reduce the flow to 15 +1, 0 L/s through each inlet. Measurement of total aggregate flow through the inlets shall be acceptable.

(d) Maintain the test conditions for a period of 4 h.

(e) Disassemble the booster and inspect all internal components for wear or damage.

D7 REPORTING OF RESULTS

The following shall be reported:

(a) Information identifying the booster.

(b) Whether the booster and inlet non-return valves passed or failed each relevant test.

(c) Any distortion or damage to the booster or inlet non-return valves.

(d) Any leakage from the assembly.

(e) Reference to this method of test, i.e. AS 2419.3, Appendix D.

APPENDIX E

PRODUCTION TESTS

(Normative)

E1 SCOPE

This Appendix sets out the method for testing the pressure retention of a booster assembly and the holding capacity of the booster inlet non-return valves.

E2 GENERAL REQUIREMENT

Production tests shall be conducted at ambient temperatures for each booster in accordance with Paragraphs E3 and E4.

Where required, testing shall be conducted using clean cold water (for example from a town water supply or an on-site tank).

E3 PRESSURE TEST—BOOSTER ASSEMBLY

The procedure shall be as follows:

(a) Connect the booster outlet to a hydraulic pressure test rig.

(b) Secure the spring-operated booster inlet non-return valves in an open or partially open position.

(c) Blank off the booster inlets.

(d) Fill the booster with water and vent to release any trapped air.

(e) Subject the booster to the relevant test pressure in accordance with Table E1 and hold for 2 min. The booster shall exhibit no sign of damage, distortion or leakage.

(f) Depressurize the booster.

E4 PRESSURE TEST—INLET NON-RETURN VALVE SEAT

The procedure shall be as follows:

(a) Remove the blanking caps and allow the inlet non-return valves to close.

(b) Fill the booster with water and vent to release any trapped air.

(c) Subject the booster to the relevant test pressure in accordance with Table E1 and hold for 2 min. The non-return valves shall not exhibit any sign of damage, distortion or leakage.

(d) Depressurize the booster.

TABLE E1

TEST PRESSURES

PN	Booster assembly test kPa	Inlet non-return valve seat test kPa
14	2100	1400
21	3150	2100
35	5250	3500

E5 REPORTING OF RESULTS

The following shall be reported:

(a) Information identifying the booster.

(b) Whether the booster and inlet non-return valves have passed or failed the test.

(c) Any distortion to booster or inlet non-return valves.

(d) Any leakage from the assembly.

(e) Reference to this method of test, i.e. AS 2419.3, Appendix E.

BIBLIOGRAPHY

BS 336 Specification for fire hose couplings and ancillary equipment

HB 18 Guidelines for third-party certification and accreditation
HB 18.28 Guide 28: General rules for a model third-party certification for products

AMENDMENT CONTROL SHEET

AS 2419.3—2012

Amendment No. 1 (2013)

CORRECTION

SUMMARY: This Amendment applies to Appendix B.

Published on 15 August 2013

NOTES

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