AS 2941—2013

Australian Standard®

Fixed fire protection installations—Pumpset systems

This Australian Standard® was prepared by Committee FP-008, Fire Service Pumps. It was approved on behalf of the Council of Standards Australia on 11 October 2013.
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The following are represented on Committee FP-008:

- Association of Hydraulic Services Consultants Australia
- Australasian Fire and Emergency Service Authorities Council
- Australian Chamber of Commerce and Industry
- Fire Protection Association Australia
- Insurance Council of Australia
- Pump Industry Australia

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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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Fixed fire protection installations—Pumpset systems

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PREFACE

This Standard was prepared by the Standards Australia Committee FP-008, Fire Service Pumps, to supersede AS 2941—2008.

Maintenance requirements for fire pumpsets are given in AS 1851, *Routine service of fire protection systems and equipment*.

The symbols used in this Standard comply with those given in HB 20, *Graphical symbols for fire protection drawings*, and have been developed from ISO Standards. The typical illustrations are in diagrammatic form only.

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.

The use of Notes in this Standard is of an advisory nature only. They provide explanations and guidance on recommended design considerations or technical procedures, as well as informative cross-references to other documents or publications.

This Standard incorporates a commentary on some of the clauses. The commentary directly follows the relevant clause, is designated by ‘C’ preceding the clause number, and is printed in italics in a box. The commentary is for information and guidance.

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FOREWORD

This Standard sets out requirements for pumpset systems to suit various types of fire protection systems such that a reasonable degree of protection for life and property from fire may be achieved. These requirements are based on sound engineering principles, test data and field experience.

The performance characteristics for pumpsets have been aligned to be the same for hydrant systems, sprinkler systems and combined sprinkler and hydrant systems. The committee considered the use of pressure-relief valves and concluded that these are not an acceptable way to limit system pressures in cases where substantial variations to suction pressures are encountered. The use of variable speed drives is preferred where pressure-relief valves are installed as a fail-safe measure. Bore pumps are no longer considered acceptable as primary fire fighting water supplies; however, they are still acceptable water sources for suction tanks. The maximum water velocity in pipework has been aligned with other fire protection standards.

The electrical feed requirements for all fire system pumpsets have been revised in conjunction with the AS/NZS 3000 (Wiring Rules) committee, and will be aligned when the next revision is published. The main switch/circuit breaker for electric driver fire pumpsets is now required to be located in the electric fire pump controller. The requirements for batteries (starting, control and back up) and their respective battery chargers have been revised to ensure appropriate compatibility. Jockey and jacking pumps are now required to have their own independent limited functionality controllers. Specific requirements have been included for cases where a diesel-driven hose reel pumpset is provided as the sole source of fire protection for a building.

The emergency dual manual start solenoids for compression-ignition driven pumpsets are no longer required to be located on the diesel engine. Provision has been made for new technology LCD and plasma screens and indicators for pumpset controllers. The requirement for dual ECMs for electronically managed compression-ignition engines has been relaxed. The cooling system components and arrangement on compression-ignition engines has been clarified, along with fuel line and fuel tank requirements. As air-powered starting arrangements are very rarely required, reference to them has been removed from the Standard.

The conditions and procedures for shop testing and commissioning testing of pumpsets have been clarified, and additional examples of performance test data sheets provided.

NOTE: See Appendix F.

The section on siting and location of pumpsets (Section 11) has been enhanced to take into consideration health and safety requirements. For installations that require a pump house or pump room, a normative appendix (Appendix D) has been provided, with requirements that satisfy the Australasian Fire and Emergency Service Authorities Council (AFAC).

STANDARDS AUSTRALIA

Australian Standard
Fixed fire protection installations—Pumpset systems

S E C T I O N 1 S C O P E A N D G E N E R A L

1.1 SCOPE

This Standard specifies requirements for totally independent pumpset systems for use with fixed fire protection installations, such as sprinkler, hydrant, water spray, and hose reel systems. It covers water supplies, pumps, drivers, fire pump controllers, and auxiliary equipment. Requirements for siting, installation and commissioning testing, including acceptance testing of electrical and compression-ignition drivers, are also included.

NOTES:

1 Some special fire pump installations (e.g. at petrochemical and petroleum plants and small rural installations) may require variations from the requirements of this Standard.

2 Examples of typical pumps covered by this Standard are shown in Figure 3.5.

1.2 OBJECTIVE

The objective of this Standard is to provide designers, manufacturers, installers and testers with minimum requirements for the design, manufacture, installation and commissioning testing of fire pumpsets.

1.3 NORMATIVE REFERENCES

The following are the normative documents referenced in this Standard.

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

AS

1319 Safety signs for the occupational environment

1345 Identification of the contents of pipes, conduits and ducts

1349 Bourdon tube pressure and vacuum gauges

1359 Rotating electrical machines—General requirements
1359.30 Part 30: Preferred outputs and frame sizes
1359.101 Part 101: Rating and performance

1692 Steel tanks for flammable and combustible liquids

1722 Pipe threads of Whitworth form
1722.2 Part 2: Fastening pipe threads

2118 Automatic fire sprinkler systems (series)

2129 Flanges for pipes, valves and fittings

2293 Emergency escape lighting and exit signs for buildings
2293.1 Part 1: System design, installation and operation

2304 Water storage tanks for fire protection systems

2417 Rotodynamic pumps—Hydraulic performance acceptance tests—Grades 1 and 2