AS 5047—2005

Australian Standard™

Hydraulic shoring and trench lining equipment

STANDARDS AUSTRALIA

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Australian Industry Group
Civil Contractors Federation
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PREFACE

This Standard was prepared by the Standards Australia Committee ME-082, Shoring and Trench Lining.

The objective of this Standard is to provide a specification for hydraulic shoring and trench lining equipment that achieves an acceptable level of safety, for reference by manufacturers, suppliers, users and regulators.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

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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FOREWORD

Hydraulically operated shoring systems comprise prefabricated equipment to provide primary support to the side of excavations. This Standard covers three types of equipment whose resistance and adjustment is hydraulic or by a combination of hydraulic and mechanical means, as follows:

(a) Hydraulic bracing frames.

(b) Hydraulic waler frames.

(c) Hydraulic soldier sets.

A variety of components when assembled form a full system. The prefabricated components are used to make assemblies of different dimensions and structural capacities.

Hydraulically operated shoring equipment has a limitation in use in that it is dependent on a competent person relating soil conditions to the use of the equipment.

This Standard gives specific requirements on the main characteristics of hydraulically operated pumps, hoses and associated equipment, but does not provide requirements for their specification or assessment.

Hydraulically operated shoring equipment is frequently used in conjunction with supplementary equipment, e.g., sheet piling, trench sheeting, knee braces and intermediate bracing struts. Such supplementary equipment is not covered in the Scope of this Standard.

The characteristic resistance values specified in this Standard form a reference level.

Appendix A gives information about the values of partial safety factors for materials (γ_M) and partial safety factor for actions (γ_F). Appendix B gives information on the application of characteristic resistance values to a safe working value.

Hydraulic bracing frames have a restriction limiting the length of a single leg to 20 m. Longer lengths of hydraulic frame legs are possible, but these may require an engineering design input that is not covered in this Australian Standard.

Statements expressed in mandatory terms in notes to Tables and Figures are deemed to be requirements of this Standard.

STANDARDS AUSTRALIA

Australian Standard
Hydraulic shoring and trench lining equipment

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 constructional and structural requirements for hydraulically operated shoring systems made from steel and aluminium for groundwork support. It also specifies methods of calculation and test to assess compliance with this Standard. It specifies minimum characteristic resistance for equipment and is limited to assemblies with components having hydraulic rams (see Note 1).

Materials other than steel and aluminium are not precluded; however, this Standard does not specify methods of assessment for equipment made of these materials.

This Standard also provides information on some of the main characteristics of hydraulically operated pumps, hoses and associated equipment, but does not cover assessment of these items.

NOTES:

1 Assemblies without hydraulic rams may be designed in accordance with AS 4100.

2 Information on the values of partial safety factors is given in Appendix A.

3 Information on the application of characteristic resistance values is given in Appendix B.

1.2 NEW DESIGNS, INNOVATIONS AND DESIGN METHODS

This Standard does not preclude the use of materials, designs, methods of assembly, procedures and the like which do not comply with a specific requirement of this Standard, or are not mentioned in it, but which can be shown to give equivalent or superior results to those specified.

1.3 NORMATIVE REFERENCES

The following documents are referred to in this Standard.

AS	
1180	Methods of test for hose made from elastomeric materials
1391	Methods for tensile testing of metals
1554	Structural steel welding (all parts)
1665	Welding of aluminium structures
1815	Metallic materials—Rockwell hardness test
1816	Metallic materials—Brinell hardness test
1817	Metallic materials—Vickers hardness test
2019	Fluid power—Hydraulic and pneumatic cylinders—Bore and rod dimensions
2074	Cast steels
2321	Short-link chains for lifting purposes

