



MALAYSIAN STANDARD

MS 1737:2004

PLASTICS PIPING SYSTEMS – GUIDANCE FOR THE INSTALLATION INSIDE BUILDINGS OF PRESSURE PIPING SYSTEMS FOR HOT AND COLD WATER INTENDED FOR HUMAN CONSUMPTION

ICS: 83.140.30, 91.140.60

Descriptors: plastics piping, installation, inside building, pressure piping, hot and cold water, human consumption

© Copyright

DEPARTMENT OF STANDARDS MALAYSIA

DEVELOPMENT OF MALAYSIAN STANDARDS

The **Department of Standards Malaysia (DSM)** is the national standardisation and accreditation body.

The main function of the Department is to foster and promote standards, standardisation and accreditation as a means of advancing the national economy, promoting industrial efficiency and development, benefiting the health and safety of the public, protecting the consumers, facilitating domestic and international trade and furthering international cooperation in relation to standards and standardisation.

Malaysian Standards are developed through consensus by committees which comprise of balanced representation of producers, users, consumers and others with relevant interests, as may be appropriate to the subject in hand. To the greatest extent possible, Malaysian Standards are aligned to or are adoption of international standards. Approval of a standard as a Malaysian Standard is governed by the Standards of Malaysia Act 1996 (Act 549). Malaysian Standards are reviewed periodically. The use of Malaysian Standards is voluntary except in so far as they are made mandatory by regulatory authorities by means of regulations, local by-laws or any other similar ways.

The Department of Standards appoints **SIRIM Berhad** as the agent to develop Malaysian Standards. The Department also appoints SIRIM Berhad as the agent for distribution and sale of Malaysian Standards.

For further information on Malaysian Standards, please contact:

Department of Standards Malaysia
Level 1 & 2, Block C4, Parcel C
Federal Government Administrative Centre
62502 Putrajaya
MALAYSIA

Tel: 60 3 88858000
Fax: 60 3 88885060

<http://www.dsm.gov.my>
E-mail: central@dsm.gov.my

OR **SIRIM Berhad**
(Company No. 367474 - V)
1, Persiaran Dato' Menteri
P.O. Box 7035, Section 2
40911 Shah Alam
Selangor D.E.

Tel: 60 3 5544 6000
Fax: 60 3 5510 8095

<http://www.sirim.my>

CONTENTS

	Page
Committee representation	iii
Foreword	iv
0 Introduction.....	1
1 Scope.....	1
2 Normative reference	1
3 Definitions and symbols.....	1
4 Storage, transport and handling	1
5 Design considerations	2
6 Installation	2
7 Jointing	15
8 Boiler and instantaneous water heaters connections.....	17
9 Painting.....	17
10 Filling and inspection.....	17
 Tables	
1 Reference values of thermal length variation	3
2 Value of C	6
3 Maximum recommended distance, L_1 , between supporting bracket (approximate values).....	8
4 Maximum recommended distance, L_2 , between bindings (approximate values)	9
5 Maximum recommended distance, L_1 , between supporting guide brackets (approximate values).....	10
6 Maximum recommended distance, L_1 , between supporting guide brackets (approximate values).....	12

CONTENTS (continued)

	Page
Figures	
1 Positioning of anchor points to guide the direction of thermal variation (installation with branches)	4
2 Compensation of thermal length variation, ΔL , by flexible arm, L_B	5
3 Compensation of thermal length variation, $\Delta L'$, arm, L_B'	5
4 Compensation of the thermal length variation by expansion loop	7
5 Continuous support with supporting guide bracket allowing thermal length variation	8
6 Supporting guide bracket allowing thermal length variation.....	9
7 Positioning of anchor points at branches.....	11
8 Continuous support with supporting guide brackets and anchor points not allowing thermal length variation	11
9 Installation of pipes between anchor points with supporting guide bracket not allowing thermal length variation.....	12
10 Pipes supported only by anchor points.....	13
11 Pipes hanging or looping free.....	14
12 Testing for water tightness – Test procedure A.....	18
13 Testing for water tightness – Test procedure B.....	19
A1 PVC-C	20
A2 PE-X and PP-R	21
A3 PB.....	22
Annex A Thermal length variation as a function of the pipe length and temperature difference for pipe materials	20
Bibliography	23

Committee representation

The Plastics and Plastics Products Industry Standards Committee (ISC J) under whose authority this Malaysian Standard was developed, comprises representatives from the following organisations:

Department of Standards Malaysia
Federation of Malaysian Manufacturers
Institut Kimia Malaysia
Jabatan Kerja Raya (Cawangan Bekalan Air)
Malaysian Petrochemical Association
Malaysian Plastics Manufacturers Association
Malaysian Rubber Board
Ministry of Domestic Trade and Consumer Affairs
Ministry of Health
Plastics and Rubber Institute of Malaysia
SIRIM Berhad (Plastics and Ceramic Program)
The Institution of Engineers, Malaysia
Universiti Kebangsaan Malaysia
Universiti Sains Malaysia
Universiti Teknologi Malaysia

The Technical Committee on Plastics Pipes and Fittings which supervised the development of this Malaysian Standard consists of representatives from the following organisations:

Industrial Resin Malaysia
Jabatan Kerja Raya (Cawangan Bekalan Air)
Malaysian Petrochemical Association
Malaysian Plastics Manufacturers Association
Paling Ind Sdn Bhd
Perbadanan Urus Air Selangor Bhd
SIRIM Berhad (Plastics and Ceramic Programme)
SIRIM Berhad (Secretariat)
The Institution of Engineers, Malaysia
The Malaysian Water Association
Universiti Kebangsaan Malaysia

The Working Group on PB Pipes and Fittings which developed this Malaysian Standard consists of representatives from the following organisations:

Buteline (M) Sdn Bhd
George Fischer Piping Systems Ltd
Jabatan Kerja Raya (Cawangan Bekalan Air)
Jabatan Kerja Raya Kedah Darul Aman
Lembaga Air Perak
Perbadanan Bekalan Air Pulau Pinang Sdn Bhd
SIRIM Berhad (Plastics and Ceramics Programme)
SIRIM Berhad (Secretariat)
SIRIM QAS International Sdn Bhd
Universiti Teknologi Malaysia

MS 1737:2004

FOREWORD

This Malaysian Standard was developed by the Working Group on PB Pipes and Fittings under the authority of the Plastics and Plastics Products Industry Standards Committee.

Compliance with a Malaysian Standard does not of itself confer immunity from legal obligations.