

Marley Metric

Product catalogue



0800 MARLEY

 **MARLEY**
METRIC
POLYETHYLENE FITTINGS

www.marley.co.nz



Total Management Policy Statement

The Total Management System of Philmac Pty Ltd ensures that the Company's products and activities meet the quality expected by our customers and are generated in a safe and healthy workplace with proper regard to environmental considerations.

This policy is founded on a philosophy of continuous improvement in every aspect of the business, always with the aim to enhance customer satisfaction.

Continuous improvement initiatives are the responsibility of all employees and the policies and procedures that guide their actions will support this aim. The Company's Total Management Systems conforms to statutory health and safety requirements and international quality and environmental standards.

The commitment to the Total Management philosophy stated in this policy is essential for the long term benefit of our customers, employees and business and is totally supported by company management.

A handwritten signature in black ink that reads "P.G. Haysman".

P.G. Haysman
Managing Director



Philmac is an exempt employer under the
Occupational Health, Safety & Welfare Act, South Australia, 1986.

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Introduction

For over half a century, polyethylene (PE) has been used widely as a material for pipe manufacture. The rapid growth of PE in pipe systems is primarily due to its benefits over metal systems, in terms of lightness and freedom from corrosion, and the availability of several different advanced jointing techniques compared to other plastic pipe systems.

Today, PE pipes in New Zealand and Australia are used in a vast number of industries including mining, plumbing, utilities, agriculture, horticulture and manufacturing.

Philmac has developed a complete and new generation of mechanical fittings, engineered with precision of high pressure conveyance of water, gaseous fuels, compressed air, chemical solutions and slurries. Fluids are reliably conveyed with no compromise for safety, convenience, quality and systems life.

This technical catalogue manual details the products, and the design and installation practices recommended to achieve the ultimate in reliable PE pipe systems using Marley Metric.

Marley Metric

Marley Metric is a complete and new generation of mechanical fittings designed to make connections simple when joining metric PE pipes or metric PE pipe to another pipe made of a different material such as copper, PVC or steel.

Marley Metric's innovative and patented design comprises the following product mix;

Product Description	Size(mm)	Maximum Operating pressure (kPa)
Compression fittings (PE x PE/F1 BSP/M1 BSP)	20-110	1600
Tapping saddles	32-63	1600
Universal transition couplings (PE x Copper/PVC/Steel)	20/25/32- 15-43	1250
Accessories - Spanners	20-63	

Benefits

Quick and Easy to Install

Marley Metric is the fastest fitting to install. No pipe chamfering, lubrication or nut removal is required. This advantage becomes even more significant in the larger sizes due to the cumbersome handling of large diameter pipes.

Complete Security

Marley Metric is fully integrated with no loose components. There is no need for individual assembly of split ring, sealing ring and nut. All that is required is the insertion of the pipe and tightening of the nut. Marley Metric is quick, easy and error free to assemble.

Internal Pipe Lock

Tapered wedges inhibit the pipe from twisting in many circumstances.*

*Not applicable to slip couplings.

Dynamic Sealing Method and Positive Grip

Marley Metric uses the mechanical advantage of the nut thread to place the seal into a compressed position. This means no resistance* when inserting the pipe into the fitting, thus eliminating damage or displacement to the seal during installation.

*Minimum resistance in the case of inserting large size non-PE pipes into universal transition couplings.

High Performance Materials

Long and trouble free service life due to materials with outstanding resistance to impact, many chemicals, corrosion, weathering and abrasion.

Contoured Nut and Body Design

Makes insertion of the pipe and tightening of the nut easy.

Flexibility

Marley Metric range is made up of a wide configuration of mechanical fittings from 20mm to 110mm in size, to suit operating pressures up to 1600kPa allowing flexibility in pipe system designs.

Technical Support

From manufacture to usage, Marley Metric is supported by the technical experience gained over decades of thermoplastics pressure pipe system research. The requirements of customers have always been a high priority. Marley Metric is supported by a highly motivated team of engineers based at Philmac in Adelaide, South Australia who are readily available to give expert advice on any aspect of the product group.

Standards

Marley Metric is designed to comply with the requirements of the following standards.

AS4129 (2000)

Fittings for polyethylene pressure pipe systems.

AS3855 and AS/NZS 4020-2000

Products for use in contact with water intended for human consumption with regards to their effect on the quality of water.

AS3688

Water supply – copper and copper alloy body compression and capillary fittings and threaded-end connectors.

AS1722.1

Pipe threads of Whitworth form – Sealing pipe threads.

AS2129 Table E (Drill Pattern)

Flanges for pipes, valves and fittings. Marley Metric is suitable for use with pipes manufactured to the dimensions specified in the following standards.

PE Pipes – AS4130

Polyethylene pipes for pressure applications.

Copper Pipes – AS1432

Copper tubes for plumbing, gas fitting and drainage applications.

PVC Pipes – AS1477

PVC pipes and fittings for pressure applications.

Steel Pipes – AS1074

Steel tubes and tubulars for ordinary service

Note:

Marley Metric is also suitable for use with pipes manufactured according to various overseas and international standards. Please consult Marley Technical Services for information.

Component Description

COMPRESSION FITTINGS

Body and Nut

Black, high performance polypropylene (PP). Bracket bodies are made from brass. Stainless Steel (316) reinforcement ring on all FI BSP threads except 1/2", 3/4" and 1".

Split Ring

Black, acetal (POM).

Spacer

Black, nylon (PA).

Seal

Black, nitrile rubber (NBR).

Lubricant

Silicone Oil.

Flange

Black corrosion resistance epoxy coated steel.

TAPPING SADDLES

Body

Black, high performance polypropylene (PP). Stainless steel(304) reinforcement ring on all FI BSP threads.

Bolts and Nuts

Stainless steel(316).

Seal

Black, nitrite rubber(NBR).

UNIVERSAL TRANSITION COUPLINGS (non-PE side)

Body and Nut

Black, high performance polypropylene (PP).

Split Ring

Black, acetal(POM)

Stainless steel 304 grippers.

Spacer

Black, high performance polypropylene (PP).

Seal

Black, nitrite rubber(NBR).

ACCESSORIES

Spanner

Blue powder coated, aluminium.

Lubricant

Silicone Oil.

Application

Marley Metric is designed to serve a vast number of industries. The following are only some examples of its uses.

Mining

Conveyance of water, compressed air, chemical solutions and slurries in mines and processing plants.

Plumbing

House connections

Municipal Water Supply

Water treatment plants, golf course irrigation and mains-to-meter lines.

Agriculture/Horticulture

Mains pressure irrigation systems and pump manifolds.

Manufacturing

Conveyance of compressed air, water and chemical solutions.

Landfill

Conveyance of gaseous fuels.

MARLEY METRIC FITTINGS FOR PE METRIC PIPE

Marley Metric Fittings are rated to PN16



REFERENCE NO.	SIZE METRIC	SIZE IMPERIAL	STANDARD PACK	CARTON QUANTITY
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JOINERS Pol x Pol

MM301.20	20X20	1/2"	10	150
MM301.25	25X25	3/4"	10	90
MM301.32	32X32	1"	5	50
MM301.40	40X40	1 1/4"	1	30
MM301.50	50X50	1 1/2"	1	18
MM301.63	63X63	2"	1	12

REDUCING JOINERS Pol x Pol

MM304.25.20	25x20	3/4"x1/2"	10	100
MM304.32.20	32x20	1"x1/2"	5	50
MM304.32.25	32x25	x3/4"	5	50
MM304.40.25	40x25	1 1/4"x3/4"	1	35
MM304.40.32	40x32	1 1/4"x1"	1	35
MM304.50.25	50x25	1 1/2"x3/4"	1	30
MM304.50.32	50x32	1 1/2"x1"	1	25
MM304.50.40	50x40	1 1/2"x1 1/4"	1	20
MM304.63.32	63x32	2"x1"	1	15
MM304.63.40	63x40	2"x1 1/4"	1	15
MM304.63.50	63x50	2"x1 1/2"	1	14



MARLEY METRIC FITTINGS FOR PE METRIC PIPE

Marley Metric Fittings are rated to PN16

REFERENCE NO.	SIZE METRIC	SIZE IMPERIAL	STANDARD PACK	CARTON QUANTITY
MALE ADAPTOR Pol x MI BSP				
MM302.20.15	20x $\frac{1}{2}$ "	$\frac{1}{2}$ "x $\frac{1}{2}$ "	10	250
MM302.20.20	20x $\frac{3}{4}$ "	$\frac{1}{2}$ "x $\frac{3}{4}$ "	10	250
MM302.20.25	20x1"	$\frac{1}{2}$ "x1"	10	250
MM302.25.15	25x $\frac{1}{2}$ "	$\frac{3}{4}$ "x $\frac{1}{2}$ "	10	150
MM302.25.20	25x $\frac{3}{4}$ "	$\frac{3}{4}$ "x $\frac{3}{4}$ "	10	150
MM302.25.25	25x1"	$\frac{3}{4}$ "x1"	10	120
MM302.32.20	32x $\frac{3}{4}$ "	1"x $\frac{3}{4}$ "	5	90
MM302.32.25	32x1"	1"x1"	5	90
MM302.32.32	32x1 $\frac{1}{4}$ "	1"x1 $\frac{1}{4}$ "	5	90
MM302.32.40	32x1 $\frac{1}{2}$ "	1"x1 $\frac{1}{2}$ "	5	60
MM302.40.25	40x1"	1 $\frac{1}{4}$ "x1"	1	55
MM302.40.32	40x1 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "x1 $\frac{1}{4}$ "	1	50
MM302.40.40	40x1 $\frac{1}{2}$ "	1 $\frac{1}{4}$ "x1 $\frac{1}{2}$ "	1	50
MM302.40.50	40x2"	1 $\frac{1}{4}$ "x2"	1	50
MM302.50.40	50x1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "x1 $\frac{1}{2}$ "	1	35
MM302.50.50	50x2"	1 $\frac{1}{2}$ "x2"	1	35
MM302.63.40	63x1 $\frac{1}{2}$ "	2"x1 $\frac{1}{2}$ "	1	20
MM302.63.50	63x2"	2"x2"	1	20

FEMALE ADAPTOR Pol x FI BSP

MM303.20.15	20x $\frac{1}{2}$ "	$\frac{1}{2}$ "x $\frac{1}{2}$ "	10	230
MM303.20.20	20x $\frac{3}{4}$ "	$\frac{1}{2}$ "x $\frac{3}{4}$ "	10	230
MM303.20.25	20x1"	$\frac{1}{2}$ "x1"	10	200
MM303.25.15	25x $\frac{1}{2}$ "	$\frac{3}{4}$ "x $\frac{1}{2}$ "	10	150
MM303.25.20	25x $\frac{3}{4}$ "	$\frac{3}{4}$ "x $\frac{3}{4}$ "	10	150
MM303.25.25	25x1"	$\frac{3}{4}$ "x1"	10	120
MM303.32.25	32x1"	1"x1"	5	90
MM303.40.32	40x1 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "x1 $\frac{1}{4}$ "	1	50
MM302.40.40	40x1 $\frac{1}{2}$ "	1 $\frac{1}{4}$ "x1 $\frac{1}{2}$ "	1	50
MM302.50.40	50x1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "x1 $\frac{1}{2}$ "	1	30
MM302.50.50	50x2"	1 $\frac{1}{2}$ "x2"	1	25
MM302.63.50	63x2"	2"x2"	1	20



Marley Metric Fittings for PE Metric Pipe

Marley Metric Fittings are rated to PN16

REFERENCE NO.	SIZE METRIC	SIZE IMPERIAL	STANDARD PACK	CARTON QUANTITY
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TEES AND REDUCING TEES Pol x Pol x Pol

MM305.20	20x20x20	1/2"x1/2"x1/2"	10	80
MM305.25.20	25x25x20	3/4"x3/4"x1/2"	5	50
MM305.25	25x25x25	3/4"x3/4"x3/4"	5	40
MM305.25.32	25x25x32	3/4"x3/4"x1"	5	35
MM305.32.25	32x32x25	1"x1"x3/4"	5	25
MM305.32	32x32x32	1"x1"x1"	5	20
MM305.40	40x40x40	1 1/4"x1 1/4"x1 1/4"	1	15
MM305.50.40	50x50x40	1 1/2"x1 1/2"x1 1/4"	1	10
MM305.50	50x50x50	1 1/2"x1 1/2"x1 1/2"	1	10
MM305.63.50	63x63x50	2"x2"x1 1/2"	1	6
MM305.63	63x63x63	2"x2"x2"	1	6

TEE FEMALE THREAD Pol x Pol x FI BSP

MM306.20.15	20x20x1 1/2"	1/2"x1 1/2"x1 1/2"	10	100
MM306.20.20	20x20x3/4"	1/2"x1 1/2"x1 1/2"	10	100
MM306.25.15	25x25x1 1/2"	3/4"x3/4"x1 1/2"	5	60
MM306.25.20	25x25x3/4"	3/4"x3/4"x3/4"	5	60
MM306.25.25	25x25x1"	3/4"x3/4"x1"	5	60
MM306.32.20	32x32x3/4"	1"x1"x3/4"	5	40
MM306.32.25	32x32x1"	1"x1"x1"	5	30
MM306.32.32	32x32x1 1/4"	1"x1"x3/4"	5	30
MM306.40.32	40x40x1 1/4"	1 1/4"x1 1/4"x1 1/4"	1	15
MM306.40.40	40x40x1 1/2"	1 1/4"x1 1/4"x1 1/4"	1	15
MM306.50.40	50x50x1 1/2"	1 1/2"x1 1/2"x1 1/4"	1	14
MM306.50.50	50x50x2"	1 1/2"x1 1/2"x1 1/2"	1	13
MM306.63.50	63x63x2"	2"x2"x2"	1	10



Marley Metric Fittings for PE Metric Pipe

Marley Metric Fittings are rated to PN16

REFERENCE NO.	SIZE METRIC	SIZE IMPERIAL	STANDARD PACK	CARTON QUANTITY
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90° ELBOWS Pol x Pol

MM308.20	20x20	1/2" x 1/2"	10	120
MM308.25	25x25	3/4" x 3/4"	10	80
MM308.32	32x32	1" x 1"	5	40
MM308.40	40x40	1 1/4" x 1 1/4"	1	25
MM308.50	50x50	1 1/2" x 1 1/2"	1	15
MM308.63	63x63	2" x 2"	1	10

ELBOW FEMALE THREAD Pol x FI BSP

MM307.20.15	20x1/2"	1/2" x 1/2"	10	230
MM307.20.20	20x3/4"	1/2" x 3/4"	10	180
MM307.25.15	25x1/2"	3/4" x 1/2"	10	130
MM307.25.20	25x3/4"	3/4" x 3/4"	10	130
MM307.25.25	25x1"	3/4" x 1"	10	120
MM307.32.25	32x1"	1" x 1"	5	75
MM307.32.32	32x1 1/4"	1" x 1 1/4"	5	65
MM307.40.32	40x1 1/4"	1 1/4" x 1 1/4"	1	50
MM307.40.40	40x1 1/2"	1 1/4" x 1 1/2"	1	35
MM307.50.40	50x1 1/2"	1 1/2" x 1 1/2"	1	30
MM307.50.50	50x2"	1 1/2" x 2"	1	20
MM307.63.50	63x2"	2" x 2"	1	16

ELBOW MALE THREAD Pol x MI BSP

MM309.25	25x3/4"	3/4" x 3/4"	10	130
MM309.32	32x1"	1" x 1"	5	60



Marley Metric Fittings for PE Metric Pipe

Marley Metric Fittings are rated to PN16

Marley Metric Saddles are available in either PN10 or PN16 ratings

REFERENCE NO.	SIZE METRIC	SIZE IMPERIAL	STANDARD PACK	CARTON QUANTITY
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END CAPS

MM310.20	20	1/2"	10	250
MM310.25	25	3/4"	10	150
MM310.32	32	1"	5	90
MM310.40	40	1 1/4"	1	60
MM310.50	50	1 1/2"	1	40
MM310.63	63	2"	1	20

PIPE LINER MDPE

MM342.20.	20	-	100	-
MM342.25	25	-	100	-
MM342.32	32	-	50	-
MM342.50	50	-	25	-
MM342.63	63	-	20	-

TAPPING SADDLES METRIC PE x FI BSP - with stainless steel nuts and bolts

MM325.25.20	25x3/4"	-	1	100
MM325.32.20	32x3/4"	-	1	75
MM325.32.25	32x1"	-	1	75
MM325.40.20	40x3/4"	-	1	60
MM325.40.25	40x1"	-	1	60
MM325.50.20	50x3/4"	-	1	40
MM325.50.25	50x1"	-	1	40
MM325.63.20	63x3/4"	-	1	30
MM325.63.25	63x1"	-	1	30
MM325.63.40	63x1 1/2"	-	1	30



Marley Metric Fittings for PE Metric Pipe

Marley Metric Fittings are rated to PN16

REFERENCE NO.	SIZE METRIC	SIZE IMPERIAL	STANDARD PACK	CARTON QUANTITY
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SLIP COUPLING

MM301.20S	20	1/2"	1	150
MM301.25S	25	3/4"	1	80
MM301.32S	32	1"	1	45
MM301.40S	40	1 1/4"	1	30
MM301.50S	50	1 1/2"	1	20
MM301.63S	63	2"	1	12

SLIP TEE

MM305.20S	20	1/2"	10	80
MM305.25S	25	3/4"	5	40
MM305.32S	32	1"	5	20
MM305.40S	40	1 1/4"	1	15
MM305.50S	50	1 1/2"	1	10
MM305.63S	63	2"	1	6

METRIC SPANNERS (for Marley Metric Fittings)

MM343.32	20-32	-	1	300
MM343.63	32-63	-	1	150



Marley Universal Transition Fittings

Connects PE Metric Pipe to Copper/GI/PVC/Lead

REFERENCE NO.	SIZE METRIC	SIZE IMPERIAL	STANDARD PACK	CARTON QUANTITY
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COUPLING Pol x Transition

MM331.20.15.21	20x15-21	1/2"x15-21	5	90
MM331.20.21.27	20x21-27	1/2"x21-27	5	90
MM331.25.15.21	25x15-21	3/4"x15-21	5	90
MM331.25.21.27	25x21-27	3/4"x21-27	5	90
MM331.25.27.34	25x27-34	3/4"x27-34	5	50
MM331.32.27.34	32x27-34	1"x27-34	5	50
MM331.32.39.43	32x39-43	1"x39-43	1	35

ELBOWS Pol x Transition

MM340.25.15.21	25x15-21	3/4"x15-21	5	80
MM340.25.21.27	25x21-27	3/4"x21-27	5	80
MM340.25.27.34	25x27-34	3/4"x27-34	5	40
MM340.32.27.34	32x27-34	1"x27-34	5	-

MALE CONNECTORS MI BSP x Transition

MM341.20.15.21	-	3/4"x15-21	5	200
MM341.20.21.27	-	3/4"x21-27	5	90
MM341.20.27.34	-	3/4"x27-34	5	60



Threaded Fittings

BSP Pattern

REFERENCE NO.	SIZE	STANDARD PACK	CARTON QUANTITY
BUSHES			
327.20.15	$\frac{3}{4}$ "x $\frac{1}{2}$ "	20	500
327.25.15	1"x $\frac{1}{2}$ "	20	360
327.25.20	1"x $\frac{3}{4}$ "	20	360
327.32.20	$1\frac{1}{4}$ "x $\frac{3}{4}$ "	10	300
327.32.25	$1\frac{1}{4}$ "x1"	10	200
327.40.20	$1\frac{1}{2}$ "x $\frac{3}{4}$ "	10	150
327.40.25	$1\frac{1}{2}$ "x1"	10	150
327.40.32	$1\frac{1}{2}$ "x $1\frac{1}{4}$ "	10	150
327.50.20	2"x $\frac{3}{4}$ "	10	100
327.50.25	2"x1"	10	100
327.50.32	2"x $1\frac{1}{4}$ "	10	100
327.50.40	2"x $1\frac{1}{2}$ "	10	100

NIPPLES AND REDUCING NIPPLES

328.15	$\frac{1}{2}$ "	20	500
328.20.15	$\frac{3}{4}$ "x $\frac{1}{2}$ "	20	400
328.20	$\frac{3}{4}$ "	20	400
328.25.15	1"x $\frac{1}{2}$ "	20	300
328.25.20	1"x $\frac{3}{4}$ "	20	240
328.25	1"	20	240
328.32.20	$1\frac{1}{4}$ "x $\frac{3}{4}$ "	10	150
328.32.25	$1\frac{1}{4}$ "x1"	10	120
328.32	$1\frac{1}{4}$ "	10	120
328.40.25	$1\frac{1}{2}$ "x1"	10	100
328.40.32	$1\frac{1}{2}$ "x $1\frac{1}{4}$ "	10	100
328.40	$1\frac{1}{2}$ "	10	100
328.50.25	2"x1"	10	80
328.50.32	2"x $1\frac{1}{4}$ "	10	90
328.50.40	2"x $1\frac{1}{2}$ "	10	60
328.50	2"	10	50



Threaded Fittings

BSP Pattern



REFERENCE NO.	SIZE	STANDARD PACK	CARTON QUANTITY
SOCKETS AND REDUCING SOCKETS			
329.15	1/2"	20	340
329.20.15	3/4" x 1/2"	20	240
329.20	3/4"	20	240
329.25.15	1" x 1/2"	20	220
329.25.20	1" x 3/4"	20	160
329.25	1"	20	160
329.32.20	1 1/4" x 3/4"	10	120
329.32.25	1 1/4" x 1"	10	100
329.32	1 1/4"	10	100
329.40.25	1 1/2" x 1"	10	100
329.40.32	1 1/2" x 1 1/4"	10	100
329.40	1 1/2"	10	80
329.50.25	2" x 1"	10	50
329.50.32	2" x 1 1/4"	10	50
329.50.40	2" x 1 1/2"	10	50
329.50	2"	10	50

TEES FI

332.15	1/2"	10	200
332.20	3/4"	10	110
332.25	1"	10	70
332.32	1 1/4"	5	45
332.40	1 1/2"	5	30
332.50	2"	2	20



Threaded Fittings

BSP Pattern

REFERENCE NO.	SIZE	STANDARD PACK	CARTON QUANTITY
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ELBOWS FI

333.15	1/2"	10	300
333.20	3/4"	10	180
333.25	1"	10	120
333.32	1 1/4"	5	80
333.40	1 1/2"	5	50
333.50	2"	2	24

ELBOWS MI x FI

336.15	1/2"	10	300
336.20	3/4"	10	180
336.25	1"	10	130

CAPS

335.15	1/2"	20	480
335.20	3/4"	20	400
335.25	1"	20	400
335.32	1 1/4"	10	250
335.40	1 1/2"	10	130
335.50	2"	10	80

PLUGS

334.15	1/2"	20	1000
334.20	3/4"	20	800
334.25	1"	20	500
334.32	1 1/4"	10	300
334.40	1 1/2"	10	200
334.50	2"	10	140



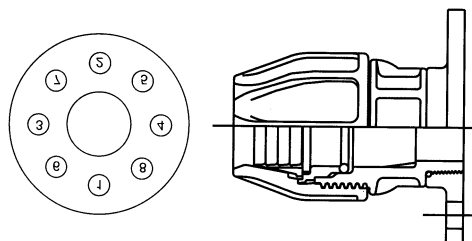
Installation

Description	Compression Fittings	Tapping Saddles	Universal transition couplings (non-PE side)
Use	Joins metric PE pipes to metric PE pipes, BSP threads or flanges.	For use with metric PE, metric PP or metric ABS pipes.	Joins metric PE pipes to copper, steel or PVC pipes.
Pre Assembly	Ensure sufficient pipe length to place assembly under compression to compensate for possible pipe shrinkage and soil movement. Cut pipe. Ensure end of connecting pipe is undamaged and clean. Also ensure the sealing ring and sealing chamber are free from grit or dirt. No chamfering or lubrication of pipe is necessary. Removal of nut assembly is not required. Ensure nut is at least 4 threads back from flange of body to allow pipe to pass freely.	Select branch off-take position, clean pipe, ensure access and mark hole. Place saddle upper body over pipe and align outlet branch with marked hole.	Use pipe measuring gauge if there are doubts on pipe size. Cut pipe to length using 'stop' marking located on central body as a guide. Ensure end of connecting pipe is undamaged and clean. Also ensure the sealing ring and sealing chamber are free from grit or dirt. No chamfering or lubrication of pipe is necessary. Removal of nut assembly is not required. Ensure nut is at least 4 threads back from flange of body to allow pipe to pass freely. Larger size pipe may require 5 threads allowance.
Assembly	Insert pipe gently until the first point of resistance is felt. Do not hold pipe in as you tighten nut but release prior to tightening. Tighten nut until it is butting body flange. Once this position is reached, there is no advantage from further tightening. There will be some torque resistance as the seal begins to lock into position. Do not stop tightening, but ensure that the nut is tightened until it butts the body flange.	Place saddle lower body over pipe. Tighten all bolts alternatively around saddle. Ensure saddle off-take hole stays in alignment with marked hole. Drill suitable sized hole through orifice of saddle with boring tool. Ensure not to damage threads and gasket.	Insert pipe into the body to depth indicated on markings. Tighten nut firmly. Nut will not butt body flange on large pipe sizes.
Disassembly	Unscrew nut until pipe withdraws freely from fitting.	Loosen and detach all bolts around saddle.	Unscrew nut until pipe withdraws freely from fitting.
Illustration	(refer to Fig 2 on Page 15)	(refer to Fig 3 on pag 16)	(refer to Fig 4 on pg 16)

Note:

1. Marley recommends the use of PTFE tape on BSP threads to ensure a positive seal.
2. Marley Metric includes ergonomically designed spanners for fittings from 20 to 110mm. While fittings of sizes 20 to 40mm can be comfortably installed by hand, these spanners offer a convenient alternative.
3. When assembling a flanged adaptor, position the gasket and loosely assemble the fitting. Tighten bolts gradually in sequence shown numerically in Fig 1, to ensure even compression around the flange. Ensure washers are used under bolt heads and nuts.

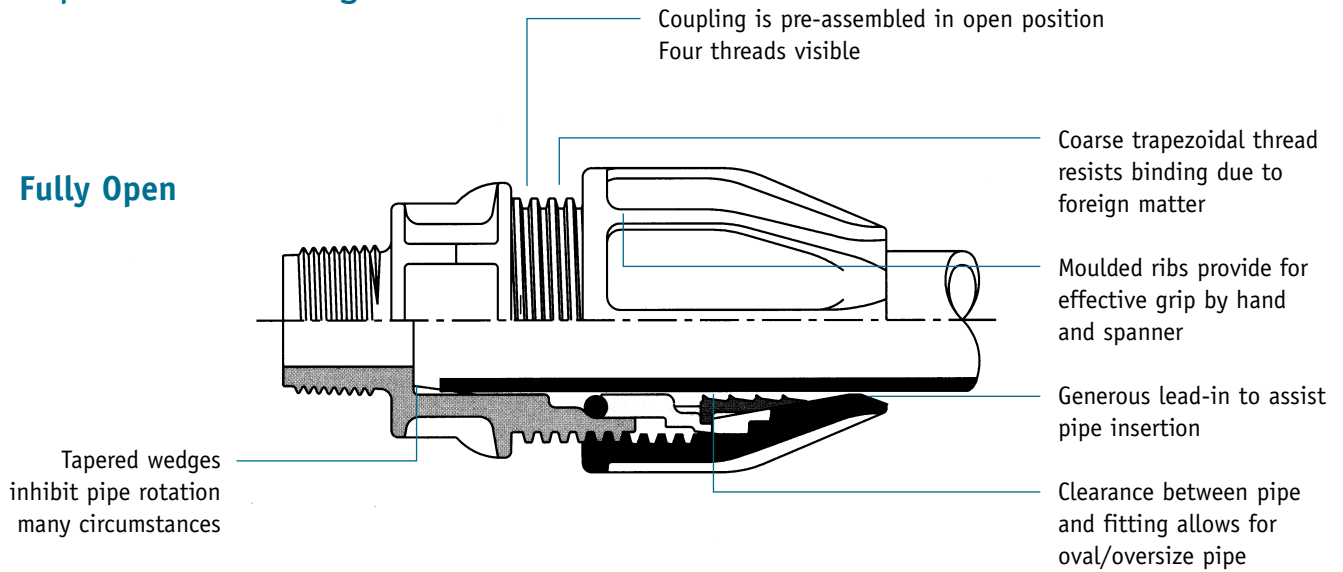
Figure 1.



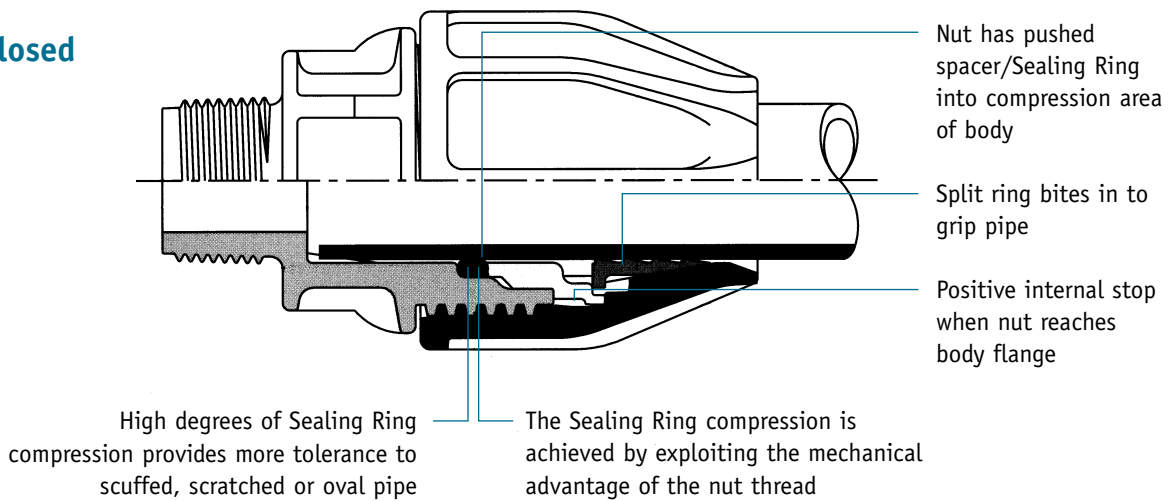
Operation

Compression Fittings

1 Fully Open



2 Fully Closed



3 Fully Closed and Loaded

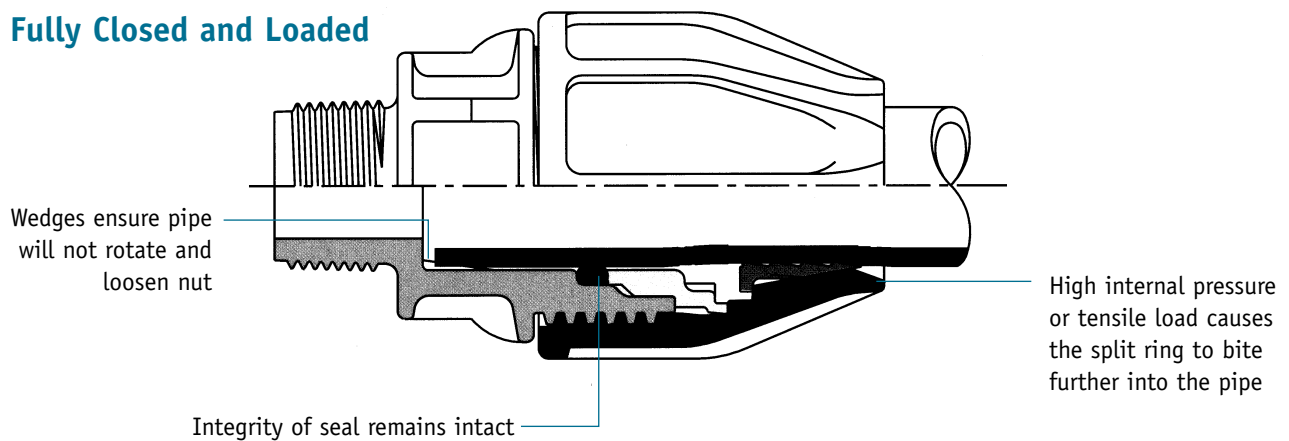


Figure 2.

Operation

Tapping Saddles

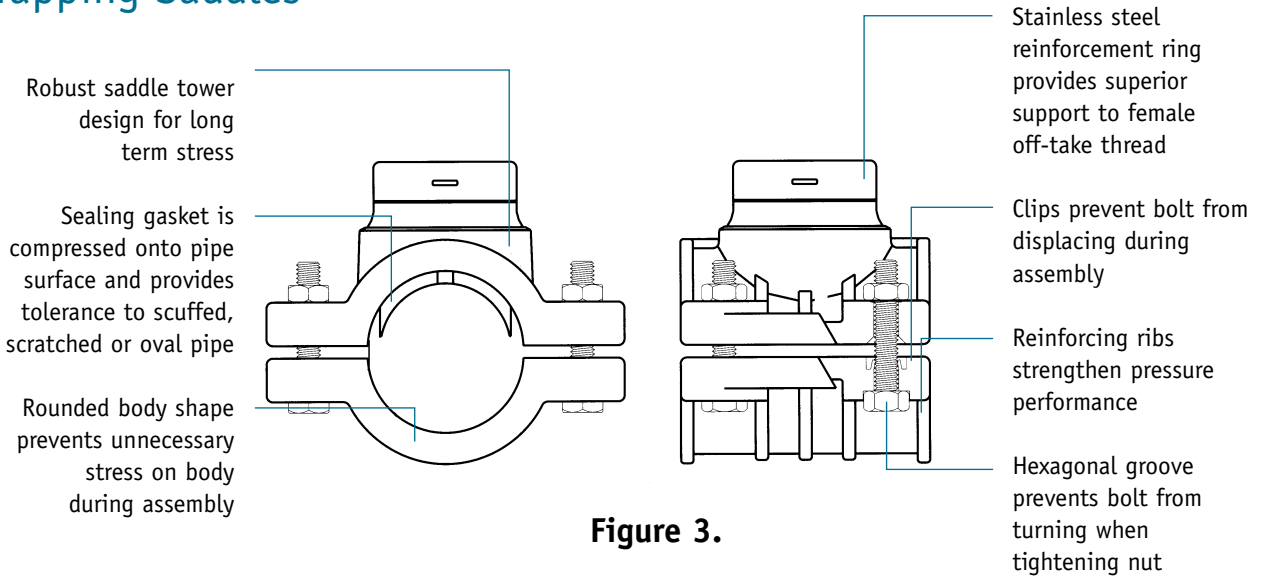
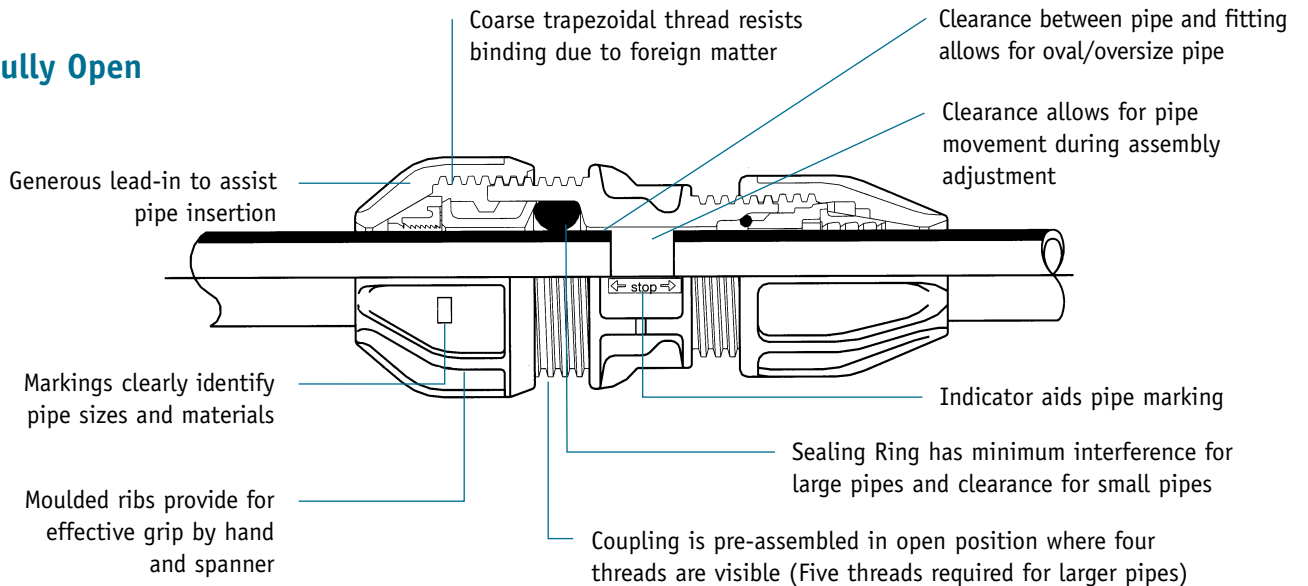


Figure 3.

Universal Transition Coupling

1 Fully Open



2 Fully Closed & Loaded

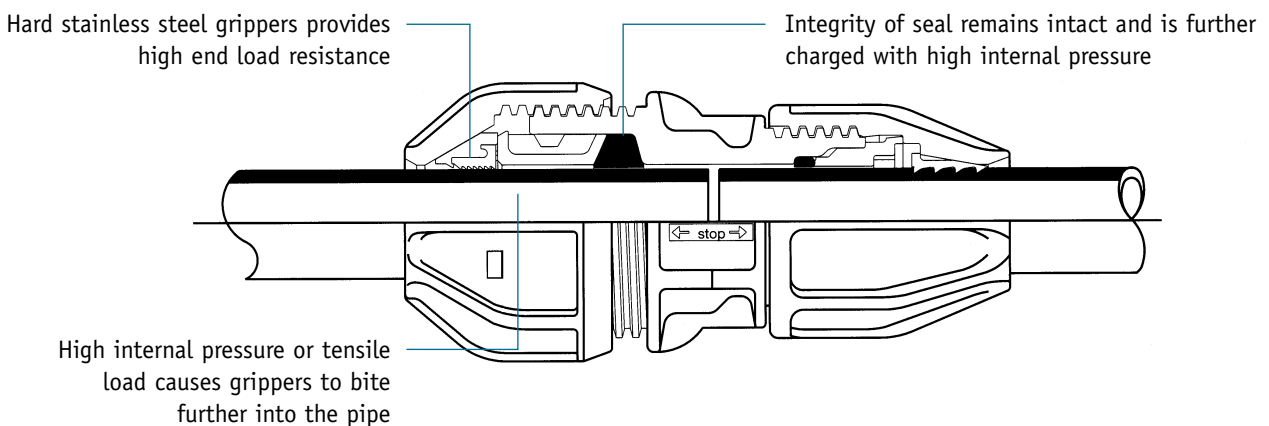


Figure 4.

System Design Considerations

There are generally two types of PE pipe fittings; mechanical and thermofusion. Marley Metric is a range of mechanical fittings that offers three distinct advantages over thermofusion fittings;

More economical

Quick and easy installation

Quick and easy revision to installation

This section highlights engineering considerations when designing a PE pipe system with Marley metric.

PROJECTED LIFE OF COMPRESSION FITTINGS

Whilst Marley Metric conforms to institutionalised specifications written to have a minimum life of 50 years, its compression fittings are intentionally developed to exceed the expectations of these specifications. Fig 5 in pg 18 depicts the projected life of the compression fittings over a range of temperatures and maximum operating pressures with a conservative safety factor.

HEAD LOSSES

The following table offers a guide in estimating head losses in PE pipe systems based on the conveyance of water. Use the following formula to estimate this head loss;

$$L = F \times D$$

Where F = fitting constant

D = pipe inner diameter (m)

L = head loss based on equivalent pipe length (m)

Fitting	Fitting Constant (F)
90° elbow	30
90° tee - straight through	12
90° tee - side branch	60

RESISTANCE TO IMPACT

Marley Metric's polypropylene body has excellent impact properties compared to other plastic materials.

ABRASION RESISTANCE

Marley Metric is suitable for the transportation of abrasive slurries and will withstand normal conditions found in urban, mining, industrial, rural water and waste water systems.

WEATHERING

Black polypropylene material contains pigments to provide excellent protection to degradation due to ultra-violet radiation. Continuous use of the all black Marley Metric in systems above ground is therefore permissible without additional protection.

ELECTROLYTIC CORROSION

Except for a very small proportion of metals used, Marley Metric is non magnetising and does not cause electrolytic deterioration.

THERMAL INSULATION

Polypropylene has natural thermal insulation of 2000 times over copper and 200 times over steel.

LIGHT TRANSMISSION

The all black Marley Metric does not transmit light, thus protecting the water quality in potable water pipelines from growth of micro organisms.

EFFECT ON WATER

Marley Metric does not impact to water any odour, taste, colour, or any constituents in concentrations that could be injurious to health.

FLUIDS OTHER THAN WATER

Marley Metric may convey a wide variety of fluids. The following table is provided as a guide only for the compatibility of various chemicals to Marley Metric. Contact Marley Technical Services for specific application.

CHEMICAL	Satisfactory	Not Satisfactory
Air	●	
Ammonium Hydroxide	●	
Alcohol	●	
Acetone		●
Auto Transmission Fluid	●	
Antifreeze	●	
Benzene		●
Butane	●	
Calcium Salts	●	
Caustic Soda (40% aqueous)	●	
Cresol		●
Citric Acid (10% aqueous)	●	
Copper Salts	●	
Ethylene Alcohol	●	
Ethyl Glycol	●	
Diesel	●	
Formic Acid		●
Gasoline		●
Hydrochloric Acid		●
Kerosene		●
Mineral Oils	●	
Methane	●	
Methylene Chloride		●
Nitric Acid		●
Petroleum Oils	●	
Sewerage	●	
Sodium Cyanide	●	
Sulphuric Acid		●
Toluene		●
Turpentine		●
Transformer Oil	●	
Zinc Salt Solution	●	
Note: Fluid Temperature = 20°C		

System Design Considerations

PROJECTED LIFE OF COMPRESSION FITTINGS

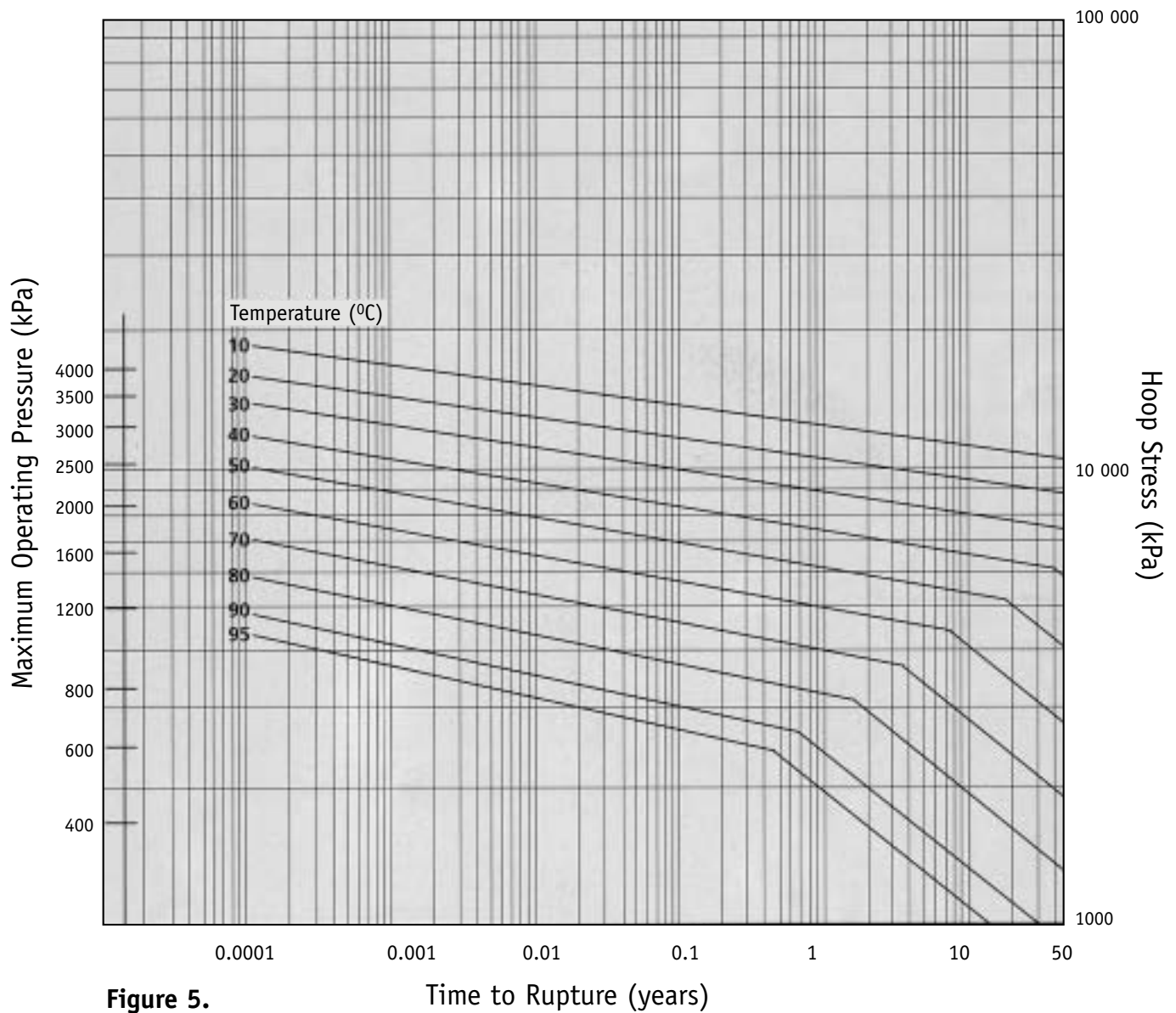


Figure 5. Time to Rupture (years)

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