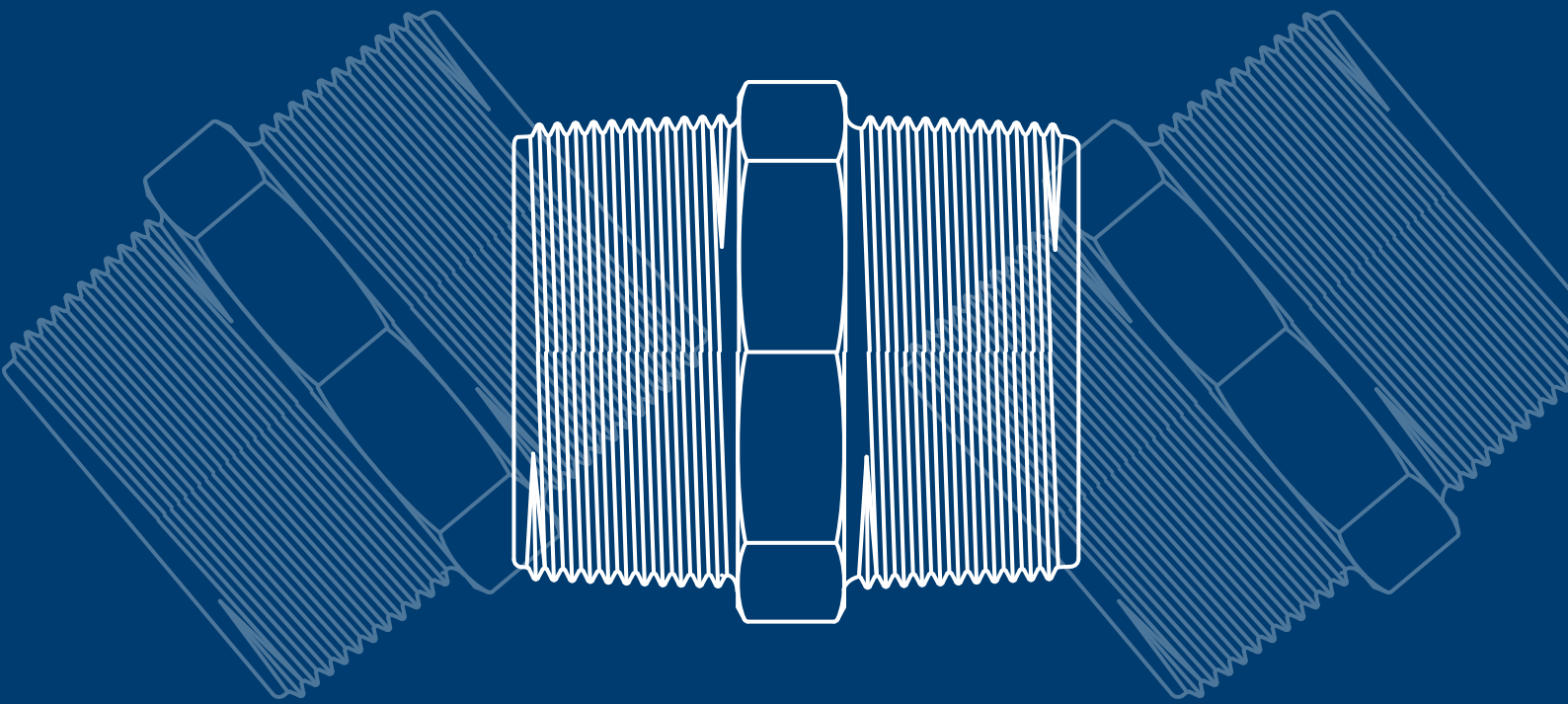


Threaded Fittings



Philmac[®]

The connection you can trust:



Committed to sustainable development, Philmac is well renowned for quality products and services. Philmac manufactures pipe fittings and valves under a Quality Assurance System assessed and approved to ISO 9001-2000 and has obtained the prestigious environmental management certification ISO 14000. Philmac has a NATA accredited laboratory and tests fittings and valves to international and national standards. Third party accreditation is carried out by SAI Global.

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Reference Number: TMTF001-0608

Disclaimer

Please note that the information, opinions, recommendations and advice given in this manual are supplied only to provide an improved understanding of the technical aspects of fitting systems.

So far as the law allows, Philmac Pty Ltd will not accept liability in respect of any loss or damage of any kind claimed to arise as a result of reliance upon any information claimed in this manual.

Please refer to our Terms and Conditions of sale.

INTRODUCTION

Philmac's robust threaded fittings are manufactured from high performance UV resistant polypropylene to provide long life in high pressure systems. Polypropylene also provide solutions for many chemical applications

The threads are engineered to maximise sealing performance, while providing quick, simple and reliable every time.

Philmac threaded fittings are manufactured in accordance to the company's ISO9001 quality endorsed standard and are an example of Philmac's unrelenting commitment to continuous improvement and a culture based on innovation and ingenuity.

A full range of sizes and an extensive range of fitting types provide a solution for almost every application

Philmac's versatile range of durable barbed hose fittings provide a cost effective solution for joining flexible hoses together or for connecting to BSP threaded fittings.

BENEFITS

Complete Flexibility

Universal Design: The versatile range is made from high performance, UV resistant polypropylene material that prevents moisture absorption, ensuring installation is quick, simple and reliable every time.

Philmac's threaded fittings provide maximum versatility, delivering a high performance connection across a wide range of pressure ratings and chemical combinations. Philmac's robust threaded fittings provide precision BSP tapered threads that have been engineered to maximise sealing performance.

Fast and Easy Installation

The hexagonal body makes them extremely simple to install.

Philmac's robust threaded fittings provide precision BSP tapered threads that have been engineered to maximise sealing performance.

Tools: No special tools are required to install Philmac Threaded Fittings.

Threads: Philmac Threaded Fittings incorporate a "Wide Throat" making thread connection easier. Specifically designed to assist in overcoming the well known problem of connecting parallel (metal) male threads to tapered female thread.

Complete Coverage

Threaded Fittings: The Philmac Threaded Fitting range is comprehensive: Plugs, bushes, nipples, sockets, tees, elbows, Male x Female elbows and caps.

Pipe Risers: The range includes ½" to 2" sized pipe risers with Male x Male threads and Male x Female threads. Available in lengths from 600 mm to 1800 mm there is a pipe riser for most applications.

Hose Fittings: Philmac's versatile range of durable barbed hose fittings provide a cost effective solution for joining flexible hoses together or for connecting to BSP threads

Approvals: The Philmac Threaded fittings holds a number of potable water approvals – BS6920 and AS4020 (Australia). The fittings are also manufactured to the highest standards in accordance with the company's ISO 9001:2000 Quality Endorsed status.

High Performance Materials

Made from advanced thermoplastic materials: The Philmac Thread Fitting range are manufactured from lightweight high performance thermoplastic materials with outstanding impact, UV, chemical and corrosion resistance.

Pressure Rating: The Philmac threaded fittings are suitable for mains water and pump systems. For designers Philmac provides a full set of pressure ratings for the complete range of fittings. The fittings meet the needs of pressurised rainwater systems, rural and industrial applications.

50 year + design life: Built to withstand the toughest conditions to ensure longevity and durability, Philmac Threaded Fittings have a 50 year+ design life at 23°C or 73°F.



STANDARDS

Philmac range of Threaded Fittings hold certificates for the following standards:

AS/NZS 4020 Products for use in contact with water intended for human consumption with regards to their effect on the quality of water.

BS6920 Fitting materials approved for use in potable water applications.

Philmac Thread Fittings comply with the requirements of the following standards:

AS 1722.1-1975: Pipe threads of Whitworth form - Sealing pipe threads (superseded by ISO7.1)

BS21: Specification for pipe threads for tubes and fittings where pressure-tight joints are made on the threads.

ISO 7.1 Pipe threads where pressure joints are made on the threads. Part 1 Dimensions, tolerances and designations.

Product Body Material Accreditation

Philmac Threaded fittings are manufactured from the same materials as used in Philmac's high performance compression fittings. These materials exceed the requirements of the following international standards:

ISO 14236: Performance verification shall be according to the material test parameters outlined in ISO14236 – Verification of long term behaviour:

ISO 15853: Thermoplastics materials -- Preparation of tubular test pieces for the determination of the hydrostatic strength of materials used for injection moulding

ISO 12092: Fittings, valves and other piping system components, Resistance to internal pressure — Test method.

ISO 9080: Plastics piping and ducting systems - Determination of the long-term hydrostatic strength of thermoplastics materials in pipe form by extrapolation

ISO 12162: Thermoplastics materials for pipes and fittings for pressure applications - Classification and designation - Overall service (design) coefficient

SYSTEM DESIGN CONSIDERATIONS

Projected life of Compression Fittings

Whilst the Philmac Threaded Fittings conform to institutionalized specifications written to have a minimum life of 50 years, its fittings are intentionally developed to exceed the expectations of these specifications.

Abrasion Resistance

Philmac threaded fittings are suitable for the transportation of abrasive slurries and will withstand normal conditions found in urban, mining, industrial, rural water and waste water systems.

Weathering

The materials used contain pigments to provide excellent protection against degradation from ultra-violet radiation. However, long term continuous use above ground does require fittings to be protected from direct sunlight

Electrolytic Corrosion

The plastic body provides an effective means of isolation against electrolytic action when connecting two metal pipes.

Materials:

Threaded fittings are manufactured from high quality Polypropylene that prevents moisture adsorption.

Threaded Risers are manufactured from Polypropylene or Polyethylene

Barb fittings are manufactured from Polyester except for the Nut & Hose Tail which are manufactured from Nylon Nuts and Polyester barbs

Thread Tape:

Philmac recommends the use of PTFE tape or a sealant approved for plastic materials on all threaded connections.

Thermal Insulation.

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

Light Transmission

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

Effect on Water.

Philmac Threaded Fittings do not impart to the water any odour, taste, colour, or any constituents that could be injurious to health.

Pressure Ratings:

Threaded Fittings

- 2" and smaller PN16 (1600 kPa, 235 psi)
- 2-1/2" PN12 (1200kPa, 175 psi)
- 3" and 4" PN10 (1000 kPa, 145 psi)

Risers, Nut and Barb Fittings

- All sizes PN6 (600kPa, 90psi)

Threaded Fittings meet the needs of high pressure systems.

Supports

All pipe work must be adequately supported

Conversions

1/2" BSP	=	15mm
3/4" BSP	=	20mm
1" BSP	=	25mm
1 1/4" BSP	=	32mm
1 1/2" BSP	=	40mm
2" BSP	=	50mm
2 1/2" BSP	=	65mm
3" BSP	=	80mm
4" BSP	=	100mm

Chemical Resistance

Fluids other than Water

Philmac threaded fittings and hose connections may convey a wide variety of fluids.

Many factors can affect the chemical resistance of plastics. Some of these include temperature, pressure, exposure time, continuous or cyclic expose and the type of mechanical stress applied. The fact that certain combinations of chemicals and mechanical load can induce stress cracking in many otherwise chemically resistant materials, both metallic and non-metallic, is of particular significance.

Mixtures of chemicals can result in a performance quite different than that of each individual chemical. Equally vapours and corrosive liquids can often be combinations of chemicals.

Evaluation method

To evaluate the performance of Philmac Threaded Fittings consider each material used in the fittings and evaluate its performance using readily available material chemical performance tables.

Normally only the wetted area needs to be evaluated. For immersed applications the materials on the outside of the fitting also need evaluation. (eg Nut on Nut and Hose Tails)

Due to the number of parameters that influence the performance of metals and plastics in the presence of chemicals the performance can differ from a laboratory test. Philmac strongly recommends that the final decision be based on the results of a trial installation evaluated under actual service conditions.

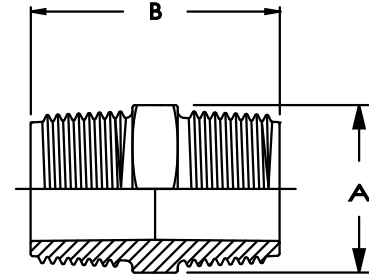
Contact Philmac Technical Services for assistance.

RANGE DIMENSIONS & WEIGHTS

NIPPLES

(Material: Polypropylene)

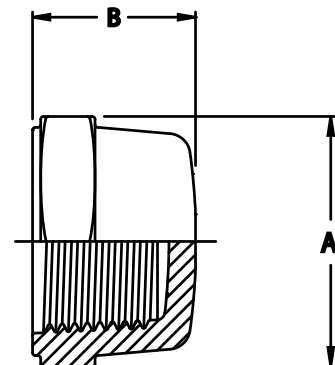
Size (OD)	Ref No	Dimensions (mm)		Weight (kg)
		A	B	
Nipple 1/2"	90421100	24	48	0.0107
Nipple Reducing 3/4" x 1/2"	90422100	30	50	0.0123
Nipple 3/4"	90422200	30	52	0.0131
Nipple Reducing 1" x 1/2"	90423100	37	51.5	0.0171
Nipple Reducing 1" x 3/4"	90423200	37	53.5	0.0187
Nipple 1"	90423300	37	55	0.0217
Nipple Reducing 1 1/4" x 1/2"	90424100	46	54.5	0.0258
Nipple Reducing 1 1/4" x 3/4"	90424200	46	56.5	0.0261
Nipple Reducing 1 1/4" x 1"	90424300	46	56.5	0.0292
Nipple 1 1/4"	90424400	46	61	0.0329
Nipple Reducing 1 1/2" x 1/2"	90425100	52	56.5	0.0367
Nipple Reducing 1 1/2" x 3/4"	90425200	52	58.5	0.0369
Nipple Reducing 1 1/2" x 1"	90425300	52	60	0.0382
Nipple Reducing 1 1/2" x 1 1/4"	90425400	52	63	0.0424
Nipple 1 1/2"	90425500	52	63	0.0463
Nipple Reducing 2" x 1/2"	90426100	63	61.6	0.0609
Nipple Reducing 2" x 3/4"	90426200	63	63.6	0.0603
Nipple Reducing 2" x 1"	90426300	63	65.1	0.0623
Nipple Reducing 2" x 1 1/4"	90426400	63	68.1	0.0646
Nipple Reducing 2" x 1 1/2"	90426500	63	68.1	0.0683
Nipple 2"	90426600	63	71.6	0.0827
Nipple 2 1/2"	90427700	81	75.4	0.131
Nipple Reducing 3" x 2"	90428600	93	75.2	0.151
Nipple Reducing 3" x 2 1/2"	90428700	93	78.5	0.170
Nipple 3"	90428800	93	81.6	0.131
Nipple Reducing 4" x 3"	90420800	118	87.6	0.242
Nipple 4"	90420000	118	93.6	0.260



CAPS

(Material: Polypropylene)

Size (OD)	Ref No	Dimensions (mm)		Weight (kg)
		A	B	
Cap 1/2"	90490100	32	25	0.0131
Cap 3/4"	90490200	38	28	0.0135
Cap 1"	90490300	46	30	0.0203
Cap 1 1/4"	90490400	57	35	0.0324
Cap 1 1/2"	90490500	64	38	0.0451
Cap 2"	90490600	78	41.2	0.0749



Hexagon Dimensions

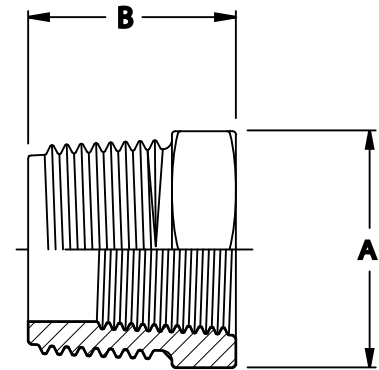
Dimension A is measured 'Across the Flats' (spanner sizing), to calculate the 'Across the Corner' dimension (overall diameter) multiple dimension A by 1.154

RANGE DIMENSIONS & WEIGHTS

BUSHES

(Material: Polypropylene)

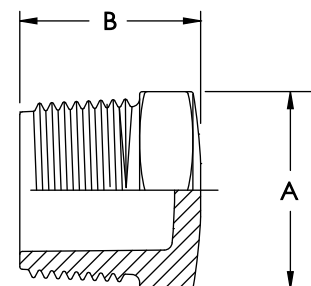
Size (OD)	Ref No	Dimensions (mm)		Weight
		A	B	(kg)
Bush 3/4" x 1/2"	90412100	30	31	0.009
Bush 1" x 1/2"	90413100	37	32.5	0.019
Bush 1" x 3/4"	90413200	37	32.5	0.013
Bush 1 1/4" x 1/2"	90414100	46	35.5	0.025
Bush 1 1/4" x 3/4"	90414200	46	35.5	0.025
Bush 1 1/4" x 1"	90414300	46	35.5	0.026
Bush 1 1/2" x 1/2"	90415100	52	37.5	0.036
Bush 1 1/2" x 3/4"	90415200	52	37.5	0.035
Bush 1 1/2" x 1"	90415300	52	37.5	0.031
Bush 1 1/2" x 1 1/4"	90415400	52	37.5	0.020
Bush 2" x 1/2"	90416100	63	42.6	0.060
Bush 2" x 3/4"	90416200	63	42.6	0.061
Bush 2" x 1"	90416300	63	42.6	0.058
Bush 2" x 1 1/4"	90416400	63	42.6	0.053
Bush 2" x 1 1/2"	90416500	63	42.6	0.045
Bush 3" x 2"	90418600	93	48.3	0.128
Bush 3" x 2 1/2"	90418700	93	48.3	0.101
Bush 4" x 2"	90410600	118	54.3	0.224
Bush 4" x 3"	90410800	118	54.3	0.213



PLUGS

(Material: Polypropylene)

Size (OD)	Ref No	Dimensions (mm)		Weight
		A	B	(kg)
Plug 1/2"	90401100	24	29.8	0.0066
Plug 3/4"	90402200	30	32.1	0.0098
Plug 1"	90403300	37	34.0	0.0139
Plug 1 1/4"	90404400	46	37.8	0.0249
Plug 1 1/2"	90405500	52	40.1	0.0341
Plug 2"	90406600	63	46.5	0.0605



Hexagon Dimensions

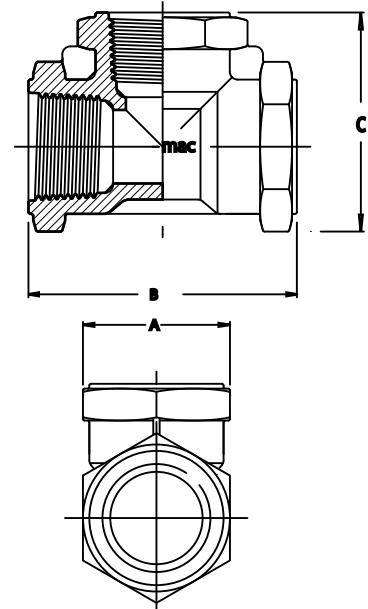
Dimension A is measured 'Across the Flats' (spanner sizing), to calculate the 'Across the Corner' dimension (overall diameter) multiple dimension A by 1.154

RANGE DIMENSIONS & WEIGHTS

TEES FI

(Material: Polypropylene)

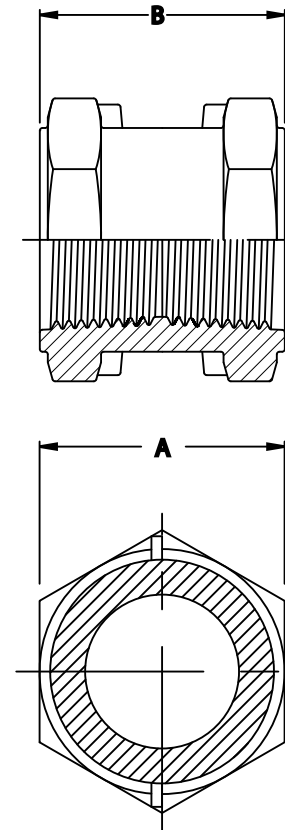
Size (OD)	Ref No	Dimensions (mm)			Weight (kg)
		A	B	C	
Tee 1/2"	90451100	32	63	50	0.028
Tee 3/4"	90452200	38	73	58.4	0.043
Tee 1"	90453300	46	84	68.6	0.065
Tee 1 1/4"	90454400	57	100	78.5	0.101
Tee 1 1/2"	90455500	64	108	86	0.138
Tee 2"	90456600	78	125	101.5	0.239



SOCKETS

(Material: Polypropylene)

Size (OD)	Ref No	Dimensions (mm)		Weight (kg)
		A	B	
Socket 1/2"	90431100	32	38.5	0.015
Socket Reducing 3/4" x 1/2"	90432100	38	43	0.020
Socket 3/4"	90432200	38	43	0.022
Socket 1" x 1/2"	90433100	46	48.1	0.027
Socket Reducing 1" x 3/4"	90433200	46	47.7	0.029
Socket 1"	90433300	46	46	0.033
Socket Reducing 1 1/4" x 3/4"	90434200	57	54.9	0.041
Socket Reducing 1 1/4" x 1"	90434300	57	53.2	0.043
Socket 1 1/4"	90434400	57	52	0.049
Socket Reducing 1 1/2" x 3/4"	90435200	64	60	0.050
Socket Reducing 1 1/2" x 1"	90435300	64	58.1	0.055
Socket Reducing 1 1/2" x 1 1/4"	90435400	64	56.9	0.060
Socket 1 1/2"	90435500	64	56	0.092
Socket Reducing 2" x 1/2"	90436100	78	68	0.075
Socket Reducing 2" x 3/4"	90436200	78	68	0.076
Socket Reducing 2" x 1"	90436300	78	67	0.079
Socket Reducing 2" x 1 1/4"	90436400	78	64.1	0.084
Socket Reducing 2" x 1 1/2"	90436500	78	63.2	0.088
Socket 2"	90436600	78	58.5	0.105



Hexagon Dimensions

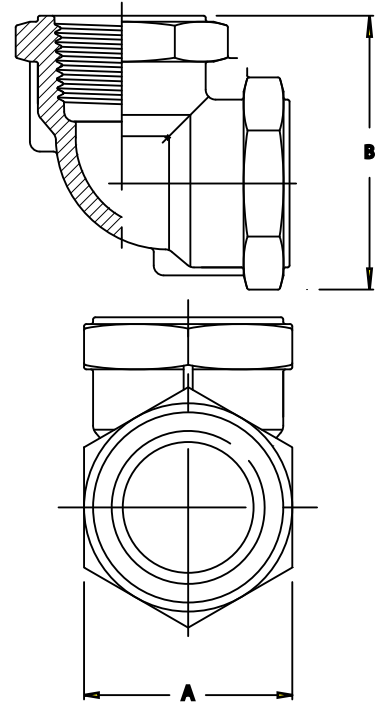
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RANGE DIMENSIONS & WEIGHTS

ELBOW FI

(Material: Polypropylene)

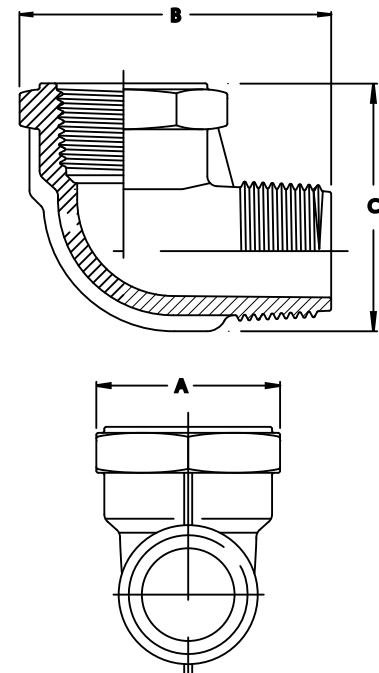
Size (OD)	Ref No	Dimensions (mm)		Weight (kg)
		A	B	
Elbow 1/2"	90461100	32	50	0.019
Elbow 3/4"	90462200	38	57.6	0.030
Elbow 1"	90463300	46	68.6	0.046
Elbow 1 1/4"	90464400	57	78.5	0.076
Elbow 1 1/2"	90465500	64	86	0.100
Elbow 2"	90466600	78	102	0.172



ELBOW MI X FI

(Material: Polypropylene)

Size (OD)	Ref No	Dimensions (mm)			Weight (kg)
		A	B	C	
Elbow MI x FI	90469100	32	57.5	43.2	0.015
Elbow MI x FI	90469200	38	66.94	51.42	0.023
Elbow MI x FI	90469300	46	78.6	63	0.039
Elbow MI x FI	90469400	57	86	78.1	0.066
Elbow MI x FI	90469500	64	94	81	0.087
Elbow MI x FI	90469600	78	114	96	0.151



Hexagon Dimensions

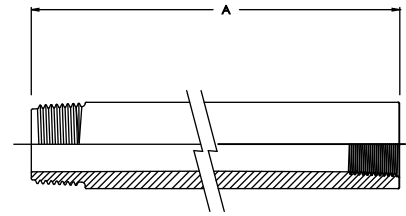
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RANGE DIMENSIONS & WEIGHTS

PIPE RISER MI X FI

(Material: Polypropylene / Polyethylene)

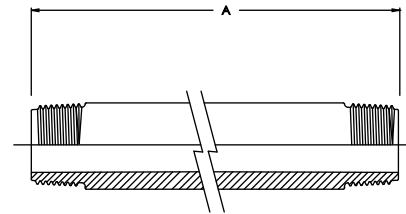
Size (OD)	Ref No	Weight	
		A	(kg)
Pipe Riser 150mm x 3/4" MI x 1/2" FI	90444200	150	
Pipe Riser 300mm x 3/4" MI x 1/2" FI	90444300	300	
Pipe Riser 450mm x 3/4" MI x 1/2" FI	90444400	450	
Pipe Riser 600mm x 3/4" MI x 1/2" FI	90444600	600	
Pipe Riser 750mm x 3/4" MI x 1/2" FI	90444700	750	
Pipe Riser 150mm x 1" MI x 3/4" FI	90445200	150	
Pipe Riser 300mm x 1" MI x 3/4" FI	90445300	300	
Pipe Riser 450mm x 1" MI x 3/4" FI	90445400	450	
Pipe Riser 600mm x 1" MI x 3/4" FI	90445600	600	



PIPE RISER MI X MI

(Material: Polypropylene / Polyethylene)

Size (OD)	Ref No	Weight	
		A	(kg)
Pipe Riser 150mm x 1/2" BSP MI x MI	90441200	150	
Pipe Riser 300mm x 1/2" BSP MI x MI	90441300	300	
Pipe Riser 450mm x 1/2" BSP MI x MI	90441400	450	
Pipe Riser 600mm x 1/2" BSP MI x MI	90441600	600	
Pipe Riser 900mm x 1/2" BSP MI x MI	90441800	900	
Pipe Riser 150mm x 3/4" BSP MI x MI	90442200	150	
Pipe Riser 300mm x 3/4" BSP MI x MI	90442300	300	
Pipe Riser 450mm x 3/4" BSP MI x MI	90442400	450	
Pipe Riser 600mm x 3/4" BSP MI x MI	90442600	600	
Pipe Riser 750mm x 3/4" BSP MI x MI	90442700	750	
Pipe Riser 900mm x 3/4" BSP MI x MI	90442800	900	
Pipe Riser 150mm x 1" BSP MI x MI	90443200	150	
Pipe Riser 300mm x 1" BSP MI x MI	90443300	300	
Pipe Riser 450mm x 1" BSP MI x MI	90443400	450	
Pipe Riser 600mm x 1" BSP MI x MI	90443600	600	
Pipe Riser 750mm x 1" BSP MI x MI	90443700	750	
Pipe Riser 900mm x 1" BSP MI x MI	90443800	900	
Pipe Riser 1800mm x 1" BSP MI x MI	90443900	1800	
Pipe Riser 450mm x 1 1/4" BSP MI x MI	90446400	450	
Pipe Riser 600mm x 1 1/4" BSP MI x MI	90446600	600	
Pipe Riser 300mm x 1 1/2" BSP MI x MI	90447300	300	
Pipe Riser 450mm x 1 1/2" BSP MI x MI	90447400	450	
Pipe Riser 600mm x 1 1/2" BSP MI x MI	90447600	600	
Pipe Riser 900mm x 1 1/2" BSP MI x MI	90447700	900	
Pipe Riser 300mm x 2" BSP MI x MI	90448300	300	
Pipe Riser 450mm x 2" BSP MI x MI	90448400	450	
Pipe Riser 600mm x 2" BSP MI x MI	90448600	600	
Pipe Riser 900mm x 2" BSP MI x MI	90448700	900	

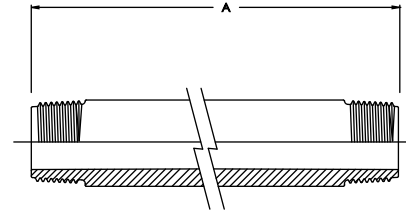


RANGE DIMENSIONS & WEIGHTS

TEMPORARY METER SPACERS (MI X MI)

(Material: Polypropylene / Polyethylene)

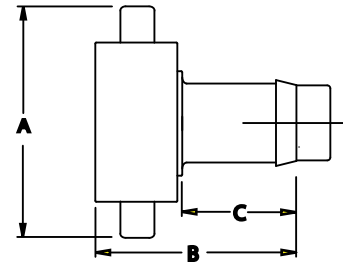
Size (OD)	Ref No	Dimensions (mm)		Weight (kg)
		A		
240mm x 3/4" BSP	90447000	240		
270mm x 1" BSP	90448000	270		
135mm x 1" BSP x 1" @ 14 TPI	90449900	135		



NUT & HOSE TAILS FI BSP X BARB

(Material: Nylon Nut & Barb, 2" Barb Polyester, Nitrile Seal)

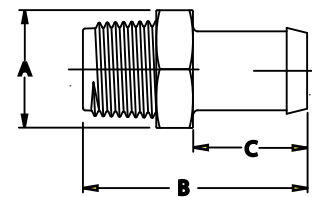
Size (OD)	Ref No	Dimensions (mm)			Weight (kg)
		A	B	C	
3/4" Nut x 1/2" Hose Barb	90105100				
3/4" Nut x 3/4" Hose Barb	90105200				
1" Nut x 1/2" Hose Barb	90105300				
1" Nut x 3/4" Hose Barb	90105400				
1" Nut x 1" Hose Barb	90105500				
1 1/4" Nut x 1 1/4" Hose Barb	90105600				
1 1/2" Nut x 1 1/2" Hose Barb	90105700				
2" Nut x 2" Hose Barb	90105800	109	88	54	0.124



MALE BARB HOSE CONNECTORS (MI BSP x Barb)

(Material: Polyester)

Size (OD)	Ref No	Dimensions (mm)			Weight (kg)
		A	B	C	
3/4" Male Thread x 3/4" Hose Barb	90106100	33.6	25	57.5	0.021
1" Male Thread x 3/4" Hose Barb	90106200				
1" Male Thread x 1" Hose Barb	90106300	34.4	30	63	0.0325
1" Male Thread x 1 1/4" Hose Barb	90106400				
1 1/4" Male Thread x 1" Hose Barb	90106500				
1 1/4" Male Thread x 1 1/4" Hose Barb	90106600	43.5	43.7	73.0	0.044
1 1/2" Male Thread x 1 1/2" Hose Barb	90106700	52.8	41.0	79.0	0.078
2" Male Thread x 2" Hose Barb	90106800				



Hexagon Dimensions

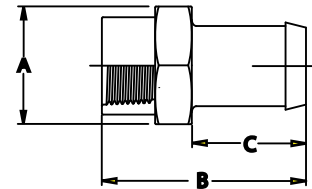
Dimension A is measured 'Across the Flats' (spanner sizing), to calculate the 'Across the Corner' dimension (overall diameter) multiple dimension A by 1.154

RANGE DIMENSIONS & WEIGHTS

FEMALE BARB HOSE CONNECTORS (FI BSP × Barb)

(Material: Polyester)

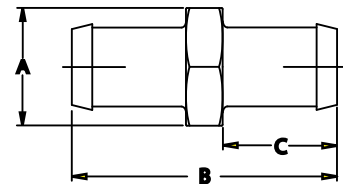
Size (OD)	Ref No	Dimensions (mm)			Weight (kg)
		A	B	C	
1" Female Thread x 1" Hose Barb	90107100	40.6	27.5	63.4	0.037
1 1/4" Female Thread x 1 1/4" Hose Barb	90107200				
1 1/2" Female Thread x 1 1/2" Hose Barb	90107300				



BARB HOSE CONNECTORS (Barb x Barb)

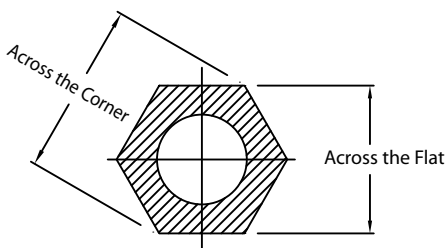
(Material: Polyester)

Size (OD)	Ref No	Dimensions (mm)			Weight (kg)
		A	B	C	
Hose Joiner 1 1/4"	90108100	49.5	42.3	99.0	0.055
Hose Joiner 1 1/2"	90108200				
Hose Joiner 2"	90108300				



Hexagon Dimensions

Dimension A is measured 'Across the Flats' (spanner sizing), to calculate the 'Across the Corner' dimension (overall diameter) multiple dimension A by 1.154



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