MACKAY
INDUSTRIAL

VIBRATION ISOLATORS CATALOGUE

MARINE ▸ RAIL ▸ MINING ▸ AUTOMOTIVE ▸ CONSTRUCTION ▸ DEFENCE ▸ INDUSTRIAL

MACKAY
INDUSTRIAL

Since 1932 Mackay Consolidated Industries has made a unique and valuable contribution to Australian industry. It's a success story of expertise in engineering and manufacturing; of adaptability to changing demands and diverse markets; of growth through research, technology and development.

The company has been singularly successful in the specialised field of developing effective noise and vibration control products.

Mackay Consolidated Industries proudly represents and holds sole regional distributor agencies for Paulstra and Continental vibration control products.

By combining selections from the ranges of each of these leading international companies with our Australian developed and manufactured products, we are able to offer a most comprehensive program of engineered isolators.

For applications requiring special design or isolation characteristics, we have in Australia an experienced engineering team who, with the assistance of CAD 3-D modelling and finite element analysis, back our custom isolator manufacturing service.

Our laboratory is NATA accredited and utilises state-of-the-art technology and systems.

At Mackay we are committed to attaining the highest standards possible from the purchase of raw materials to the final product. Our quality system has been certified by BSI to ISO 9001 and AS/NZS ISO 14001: 2022.

Our vast product range includes dock fenders, bridge bearings, EPDM foam seals, moulded hoses, marine engine mounts, seals for whitegoods, rolling stock components, sheet rubber and products for many construction applications.

We at Mackay Consolidated Industries are committed to excellence.

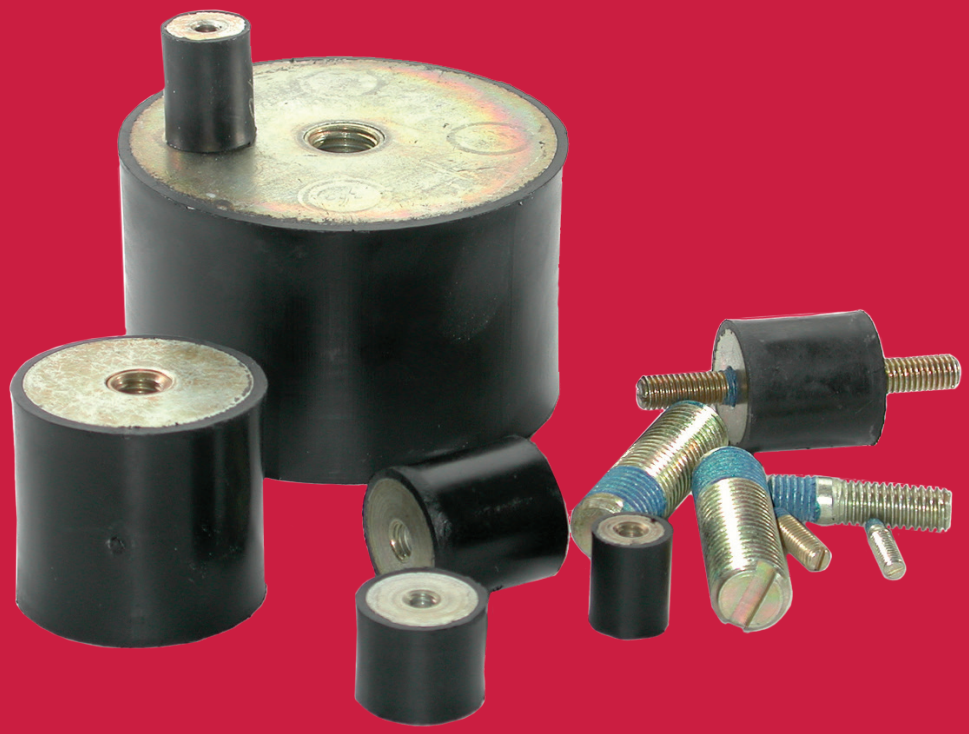
bsi
ISO 9001
Quality
Management
Systems
CERTIFIED

ISO 14001
Environmental
Management
CERTIFIED

Contents

Multicushion

section 1



MULTICUSHION

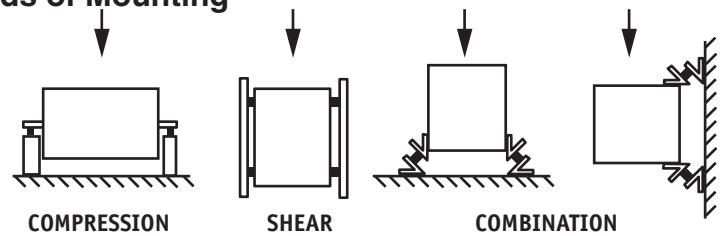
The MULTICUSHION system is a new approach to isolator selection. The large range of sizes and durometers combined with interchangeable metric and imperial studs allows selection of the most appropriate cushion isolator for the application

First choose the best cushion for the application and then choose the desired stud combination.

MULTICUSHION isolators are made from high-grade natural rubber and all metal surfaces are passivated to automotive OEM standards. The interchangeable studs are easily inserted with a screw driver whilst the microBOND™ 'fastener adhesive system' provides secure thread locking.

Note! ***Multicushions are not recommended for use under permanent tension loading. Ensure load is applied to full face and not just on the thread.***

Suggested Methods of Mounting



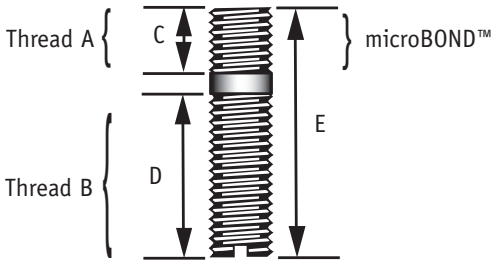
STUD DETAILS

MULTICUSHION Stud Part No.	THREADS		DIMENSIONS		
	A mm	B mm	C mm	D mm	E mm
M6M6	M6 x 1.0	M6 x 1.0	6	15	21 *
M6M8	M6 x 1.0	M8 x 1.25	6	20	28
M8M8	M8 x 1.25	M8 x 1.25	8	20	28 *
M8M10	M8 x 1.25	M10 x 1.5	8	25	35
M10M10	M10 x 1.5	M10 x 1.5	10	25	37 *
M10M12	M10 x 1.5	M12 x 1.75	10	35	49

* Denotes continuos thread

MICROBOND™ THREAD SECURITY

Thread	Prevailing on-torque (max) Nm	Breakaway off-torque (min) Nm	Prevailing off-torque (min) Nm
M4	-	-	-
M6	1.8	1.5	0.8
M8	2.8	4	2
M10	5.5	11	4
M16	14	33	16



microBOND™ is atrade mark of W.A Deutsher Pty Ltd

All properties nominal, contact Mackay for Technical advice

All Dimensions in Millimetres

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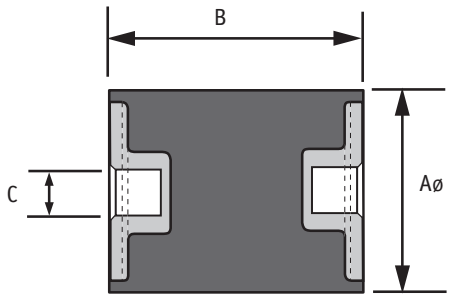
MACKAY INDUSTRIAL

CUSHION DETAILS

Part No.	Dimensions		Duro	C metric	Compression		Shear		Weight Kg
	Diameter A mm	Height B mm			Maximum Load Kg	Maximum Deflection mm	Maximum Load Kg	Maximum Deflection mm	
M10162040	16	20	40	M6	20.5	3	4.5	4	
M10162055	16	20	55	M6	42.5	3	9	4	0.01
M10162070	16	20	70	M6	53.5	3	12	4	
M10202540	20	25	40	M6	30.5	6	5	6	
M10202555	20	25	55	M6	65	6	11	6	0.02
M10202570	20	25	70	M6	89.5	6	15	6	
M10252040	25	20	40	M6	36	2.5	7	3	
M10252055	25	20	55	M6	54	2.5	12	3	0.02
M10252070	25	20	70	M6	66	2.5	15	3	
M10253040	25	30	40	M6	55	8	10.5	8	
M10253055	25	30	55	M6	98	8	19	8	0.03
M10253070	25	30	70	M6	120	8	26.5	8	
M10302040	30	20	40	M6	42	2.5	8	3	
M10302055	30	20	55	M6	62	2.5	13	3	0.03
M10302070	30	20	70	M6	82	2.5	16	3	
M10303040	30	30	40	M8	44	4	10	5	
M10303055	30	30	55	M8	77	4	18	5	0.05
M10303070	30	30	70	M8	108	4	33	5	
M10304055	30	40	55	M8	86	8	17.5	10	0.06
M10304070	30	40	70	M8	131	8	35	10	
M10403040	40	30	40	M8	60.5	4	17.5	5	
M10403055	40	30	55	M8	114	4	28.5	5	0.08
M10403070	40	30	70	M8	195	4	49.5	5	
M10404040	40	40	40	M8	78	8	20	10	
M10404055	40	40	55	M8	148	8	34	10	0.09
M10404070	40	40	70	M8	233	8	53.5	10	
M10503540	50	35	40	M10	139.5	6	21.5	6	
M10503555	50	35	55	M10	264	6	40.5	6	0.14
M10503570	50	35	70	M10	363	6	59	6	
M10504540	50	45	40	M10	111.5	8	25	10	
M10504555	50	45	55	M10	195	8	44.5	10	0.16
M10504570	50	45	70	M10	244	8	62	10	
M101507555	150	75	55	M16	3200	18	525	20	2.2
M101507570	150	75	70	M16	4500	18	760	20	

COLOUR CODE

DURO	COLOUR
40	RED
55	YELLOW
70	Marked 70



All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

MACKAY INDUSTRIAL

STAINLESS STEEL MULTICUSHION

Stainless steel Multicushion isolators are manufactured in the most popular sizes from high grade natural rubber and stainless steel (type 304) metal components.

Available in two rubber hardnesses the cushions are supplied without fixing studs. Mackay recommends fixing with appropriate stainless steel hexagonal socket set screws used with an appropriate locking compound

**** Consult with Mackay Technical staff to ensure natural rubber is suitable for use in corrosive environments or solvents.***

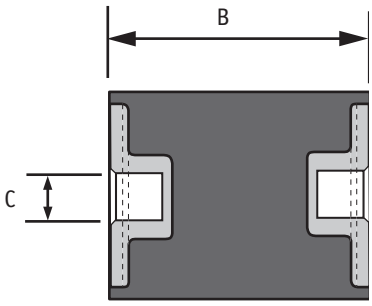
Note! Multicushions are not recommended for use under permanent tension loading. Ensure load is applied to full face and not just on the thread.

CUSHION DETAILS

Part No.	Dimensions		Duro	C metric	Compression		Shear		Weight Kg
	Diameter A mm	Height B mm			Maximum Load Kg	Maximum Deflection mm	Maximum Load Kg	Maximum Deflection mm	
M11202540	20	25	40	M6	30.5	6	5	6	0.02
M11202555	20	25	55	M6	65	6	11	6	0.02

COLOUR CODE

DURO	COLOUR
40	RED
55	YELLOW



All properties nominal, contact Mackay for Technical advice

All Dimensions in Millimetres

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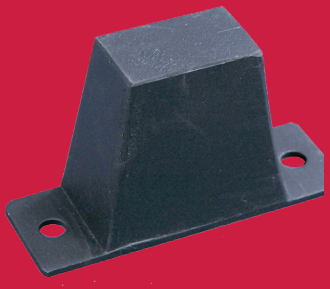
MACKAY INDUSTRIAL

Buffers

section 2

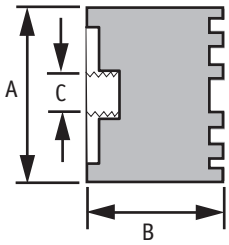


MULTIBUFFERS

Including Multibuffer stainless

Multibuffers are designed for inexpensive and effective control of vibration shock and acoustic noise and are equally adaptable in controlling impact or for use as simple machine feet.

The Multibuffer face profile has been designed to provide a simple slip resistant surface whilst maintaining optimum impact and static properties



Uses Optional Stud System. Refer to Multicushion Page 5
(Stainless Steel Studs Not available)

Standard Part No.	A (mm)	B (mm)	C metric	Duro	Static		Buffing		Weight Kg
					Load Kg	Def mm	Load Kg	Def mm	
M12201855	20	18	M6	55	26	2.5	57	5	0.01
M12252555	25	25	M6	55	25	3	53	6	0.02
M12402055	40	20	M8	55	78	2.5	184	5	0.05
M12403055	40	30	M8	55	78	3.5	162	7	0.06

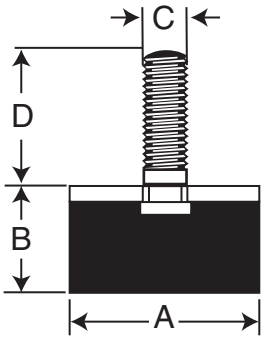
CYLINDRICAL BUFFERS

These buffers are equally adaptable when controlling impact or when used as machine feet; they also may be used as snub¬bing rubbers when excessive shock loads are encountered in resiliently mounted equipment.

A rugged rubber bonded to metal unit ensures simplicity of application and ease of installation.

M175

M174



Standard Part No.	A (mm)	B (mm)	C	Duro	D (mm)	Static		Buffing		Weight Kg
						Load Kg	Def mm	Load Kg	Def wmm	
M175	63	36	1/2 W	45	33	115	5	400	12	0.21
M174	50	50	3/8 UNF	60	16	125	6	600	20	0.15

Load must be placed on the metal surface and not on the stud.

All properties nominal, contact Mackay for Technical advice

All Dimensions in Millimetres

www.mackayrubber.com.au

MACKAY INDUSTRIAL

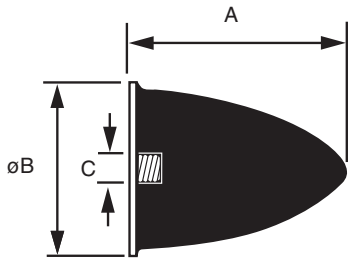
CONICAL BUFFER

For **inexpensive** and **effective contro**l of machinery **vibration**, **shock** and **acoustic noise**.

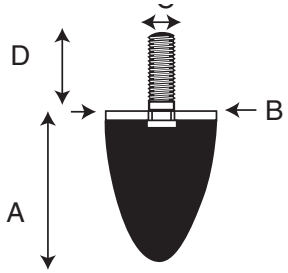
These buffers are used for controlling impact and may be used as snubbing rubbers when excessive shock loads are encountered in resiliently mounted equipment.

FEATURES
Designed specifically to control impact and torque reaction loads.

Uses Optional Stud System. Refer to Multicushion Page 5
(Stainless Steel Studs Not available)



PART No.	A	B	C	Max Dynamic Load Kg	Max Dynamic Deflection mm	Max Energy Absorption Joules
M172M8	50	42	M8	220	24	16
M173M10	65	51	M10	1200	29	110



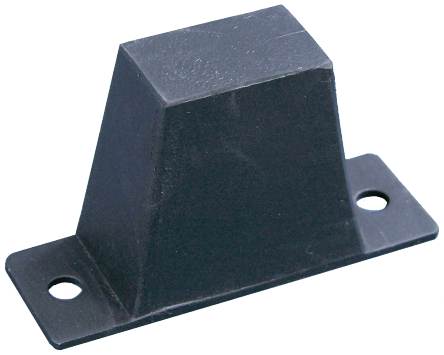
PART No.	A	B	C	D	Max Dynamic Load Kg	Max Dynamic Deflection mm	Max Energy Absorption Joules
M172	50	42	3/8 UNF	16	220	24	16
M173	65	51	3/8 UNF	16	1200	29	110

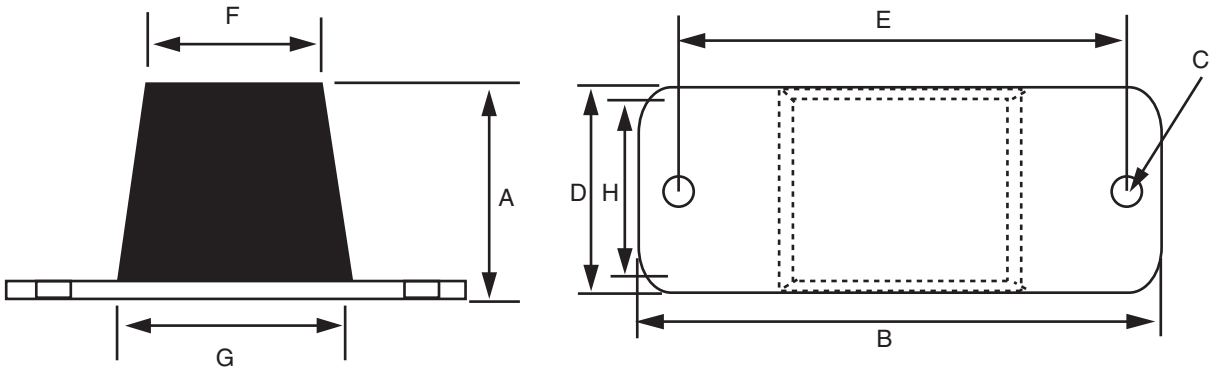
Load must be placed on the metal surface and not on the stud.

All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

MACKAY INDUSTRIAL

BONDED BUFFERS





Part No.	A	B	C	D	E	F	G	H	STATIC LOAD Kg	DEF mm	BUFFING LOAD Kg	DEF mm	Weight Kg
M176	73	127	10	44	101	51	76	32	87	10	200	20	0.3

All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

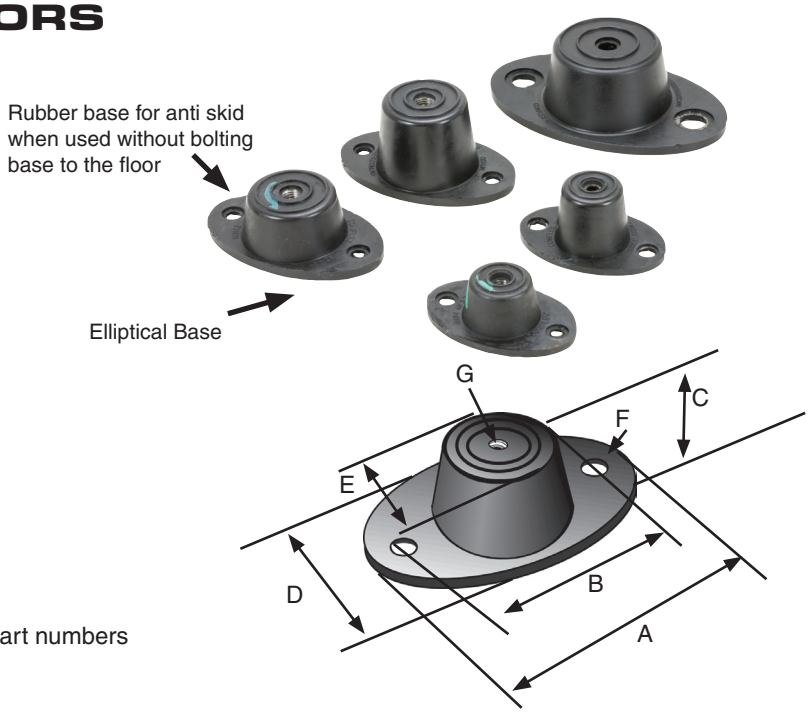
MACKAY INDUSTRIAL

Flanged Isolators Non interlocked

section 3

CONFLEX ISOLATORS

Conflex isolators are designed to meet almost all machinery installations within the load range. available in four rubber hardnesses they are the versatile answer to your mobile or static vibration problems.



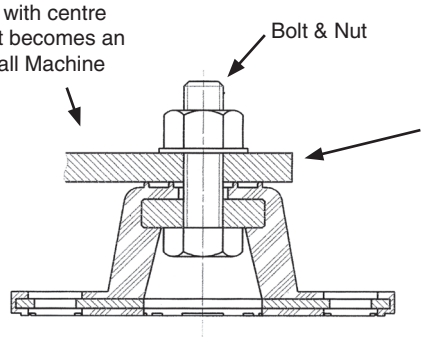
Available in Neoprene for “NM12” suffix part numbers

Type	Nominal Hardness - Shore A				Max. Deflection mm	Weight g	A mm	B mm	C mm	D mm	E mm	F mm	G
	35	45	55	65									
	Maximum Load kg												
M1111##	30	40	50	75	6	80	80	60	28	50	31	8.5	M8
M1112##	90	110	160	250	6	150	100	76	32	60	46	8.5	M10
M1112##NM12	90	110	160	250	6	150	100	76	32	60	46	8.5	M12
M1114##	115	170	240	390	6	430	140	104	44	85	60	14	M12

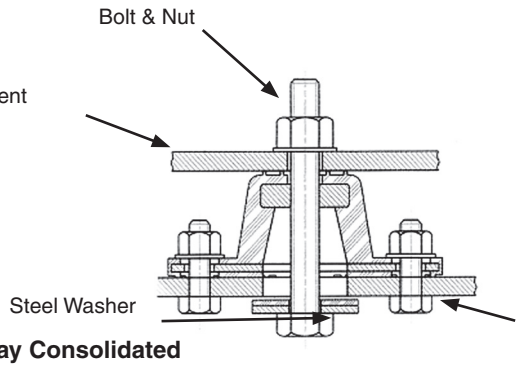
= hardness (35,45,55,65)

STATIONARY APPLICATION

When used with centre nut & bolt, It becomes an easy to install Machine Footing



MOBILE APPLICATION



Note: Rubber & Steel washer not supplied by Mackay Consolidated

Al properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

MACKAY INDUSTRIAL

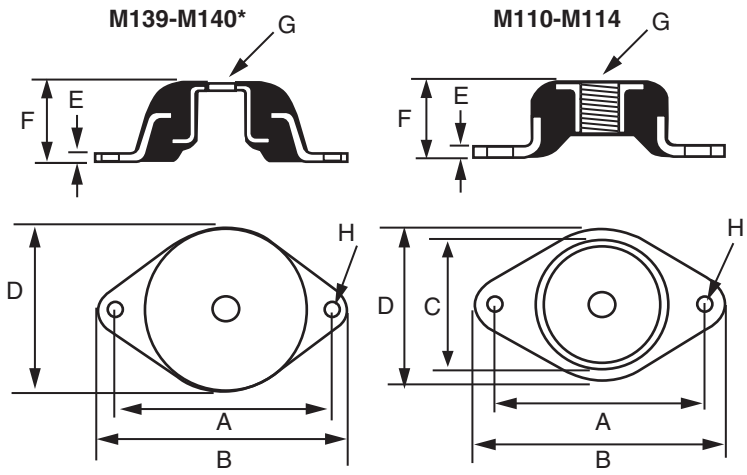
FLANGE ISOLATORS

These special isolators were developed to meet almost every type of machinery installation within the loading range, with telescopic metal inserts providing considerable stability in all directions. The two light duty isolators, M110 and M114 are equipped with upper metal inserts, tapped to receive standard bolts or set screws. The isolators can be fastened to the floor or other base, with bolts through the two lugs of the lower metal stamping. When using the heavy duty isolators M139 and M140, loads can be suspended as well as supported.

Interlocking flanges incorporated in M139 and M140 isolators ensure suspension even if the rubber is completely destroyed by fire, etc.

M139-M140*

M110-M114

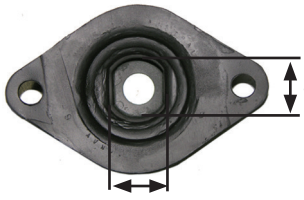


Part No.	A	B	C	D	E	F	G	H	Weight Kg
M110##	60.3	76	41	48	3	22	7/16”-20UNF	8.7	0.1
M114##	76.1	92	57	60	3	29	1/2”-20UNF	8.7	0.2
M140##	110.0	141	--	83	3	41	17/32”	13.5	0.4
M139##	127.0	157	--	102	3	48	13/16”	14.2	0.6

Note ! *## denotes duro refer to the load deflection chart for complete Part Number*

BOLT HEAD RECESS DETAILS

M139



3/4” Whit A/F=32mm

M140

Hex (19.2mm) A/F

Part Nos. M114 and M140 are available with a shield (Part No. M189) to protect the isolators from mechanical and chemical attack. Order if required. M189 = 0.06Kg

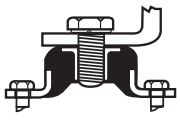
COLOUR CODE

DURO	COLOUR
40	Red
50	Yellow
60	White
70	Marked 70

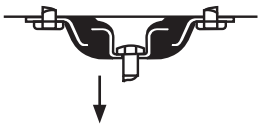
SUGGESTED METHODS OF MOUNTING

Tandem Series

Compression Series



Tension



Shear

All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

MACKAY INDUSTRIAL

Flanged Isolators Non interlocked

To assist the isolation system designer we have provided the approximate deflections of Mackay isolators at various static loadings. It therefore becomes a simple matter to obtain the isolation efficiency by referring to the Mackay graph on "disturbing frequencies/deflections" (Shown in our current Flexible Isolator Catalogue). If you require any further technical data on Mackay isolators, please contact the Mackay Technical Department.

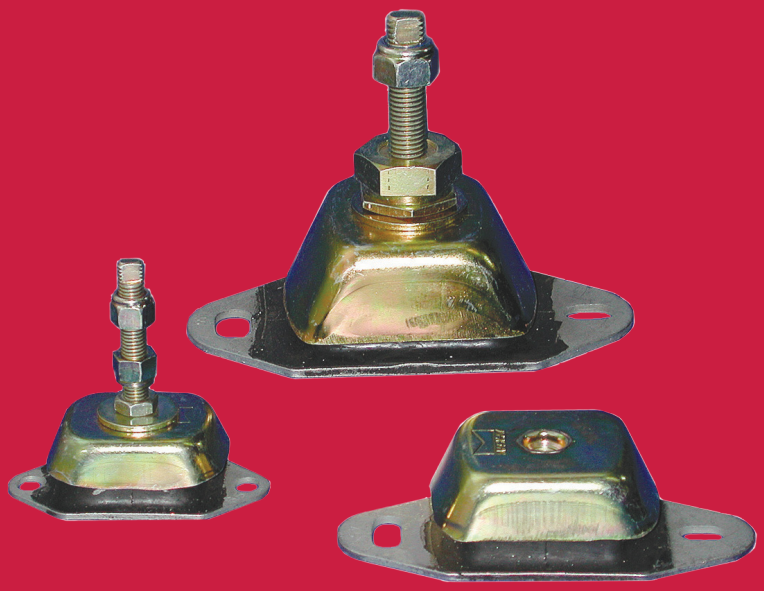
LOAD / DEFLECTION CHART

Part No.	Compression		Shear		Part No.	Compression		Shear	
	Load Kg	DEF mm	Load Kg	DEF mm		Load Kg	DEF mm	Load Kg	DEF mm
M11040	25	2.3	20	2.2	**M13960**	725	3.6	400	3.4
	30	2.8	25	2.7		750	3.7	425	3.6
	35	3.2	30	3.3		775	3.8	450	3.8
	40	3.7	35	3.8		800	3.9	475	4.0
						825	4.1	500	4.2
M11050	40	2.5	35	2.5		850	4.2	525	4.4
	45	2.8	40	2.8		875	4.3	550	4.6
	50	3.2	45	3.2		900	4.4		
	55	3.5	50	3.5					
					M13970	1100	3.5	550	3.1
M11060	31	1.0	21	1.0		1125	3.6	575	3.3
	60	2.0	54	2.0		1150	3.7	600	3.5
	85	3.0				1175	3.8	625	3.7
						1200	3.9	650	4.0
M11440	40	2.4	25	2.3		1225	4.0	675	4.2
	45	2.7	30	2.8		1250	4.1	700	4.4
	50	3.0	35	3.2		1275	4.2	725	4.5
	55	3.3	40	3.7					
	60	3.6							
M11450	60	2.4	40	2.4	**M14050**	280	3.6	120	3.2
	65	2.6	45	2.7		290	3.7	130	3.5
	70	2.8	50	3.0		300	3.8	140	3.7
	75	3.0	55	3.3		310	3.9	150	4.0
	80	3.2	60	3.6		320	4.1	160	4.3
	85	3.4				330	4.2	170	4.5
						340	4.3	180	4.8
M11460	90	2.4	60	2.6		350	4.4		
	95	2.6	65	2.8					
	100	2.7	70	3.0					
	105	2.8	75	3.2					
	110	3.0	80	3.4					
	115	3.1							
	120	3.2							
	125	3.4							
	130	3.5			**M14060**	350	3.3	160	3.6
						375	3.5	170	3.8
M13940	400	3.4	150	3.0		400	3.8	180	4.0
	425	3.6	175	3.5		425	4.0	190	4.2
	450	3.8	200	4.0		450	4.2	200	4.4
	475	4.0	225	4.5		475	4.5		
	500	4.2	250	5.0		500	4.7		
	525	4.4							
	550	4.6			**M14080**	650	3.4	200	3.3
						675	3.5	210	3.5
M13950	550	3.5	250	3.1		700	3.7	220	3.7
	575	3.6	275	3.4		725	3.8	230	3.8
	600	3.8	300	3.7		750	3.9	240	4.0
	625	3.9	325	4.0		775	4.1	250	4.2
	650	4.1	350	4.3		800	4.2	260	4.3
	675	4.2	375	4.6		825	4.3	270	4.5
	700	4.4	400	4.9		850	4.5	280	4.7
	725	4.5				880	4.6		

All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

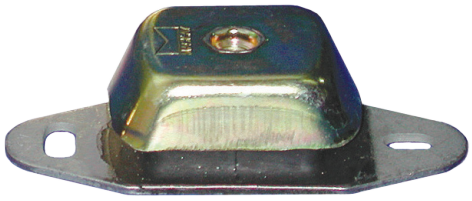
Flanged Isolators Safety Interlocked

section 4



ISOMOUNT ISOLATORS

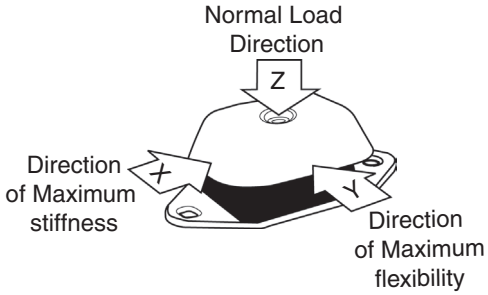
SUITABLE FOR MARINE APPLICATIONS



Isomounts are general purpose vibration isolators suitable for equipment installations.

Available in three different sizes Isomounts have a mechanically galvanized base and come with a choice of rubber hardnesses, they can also be supplied with two types of specialist height adjusters and a mechanically galvanised base.

Isomount isolators are suitable for operation under all types of engines. They offer 3-way control of engine movement with excellent isolation efficiency. Maximum use of this 3-way control when the isomount isolators are used as engine supports can be obtained by arranging the isolator with their maximum flexibility (Y) at right angles to the engine crankshaft and maximum stiffness (X) in line with the crankshaft. Using the isolators in this manner also has the advantage in marine applications of providing isolation against propeller thrust. The Isomount range also features bump and rebound control which prevents excessive movement under shock loads.



NOMINAL STIFFNESS RATIOS
X = 2.5
Y = 0.75
Z = 1.0

The static load figures shown in FIG 1. are offered as a reference to the maximum load acceptable for each rubber mix.

FIG 1 LOAD RANGE

Part No. TYPE 1	Maximum Load Without Thrust Kg	Maximum Load With Thrust Kg	Deflection mm	Duro
M200045	50	35	4	45
M200055	70	55	4	55
M200065	100	80	4	65
M220045	135	85	5	45
M220055	200	135	5	55
M220065	300	210	5	65
M220075	450	315	5	75
M240045	355	250	5	45
M240055	530	370	5	55
M240065	800	560	5	65
M240075	1000	700	5	75

Note : When used in marine engine applications with thrust forces, the maximum load capacity is substantially reduced. See table above

HEIGHT ADJUSTERS

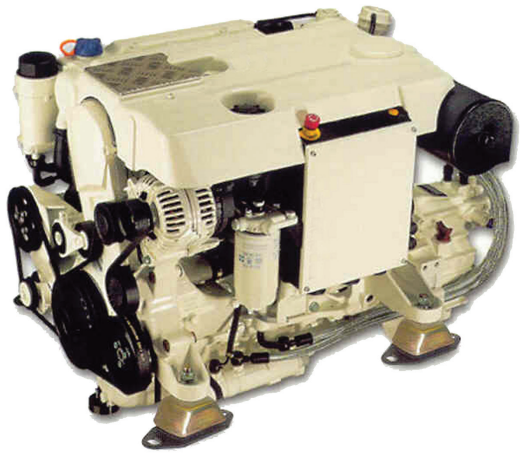
Two styles of height adjusters are available for each Isomount Isolator.

Type '1' Is supplied minus height adjuster.

Flanged Isolators Safety interlocked

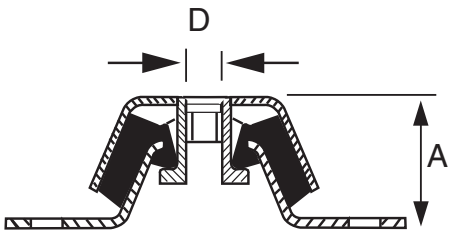
In the past fitment of inappropriate height adjusters has resulted in premature failure of the isolator by damage to the centre spindle.

Both types of height adjusters are available separately for each size Isomount,under the part numbers shown in Fig2.

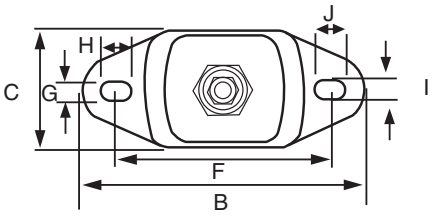


Type '1'

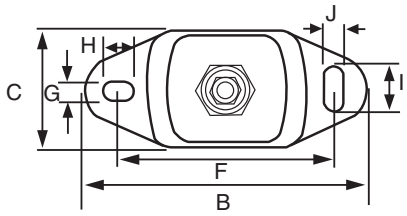
No Height Adjuster



M2000,1,2



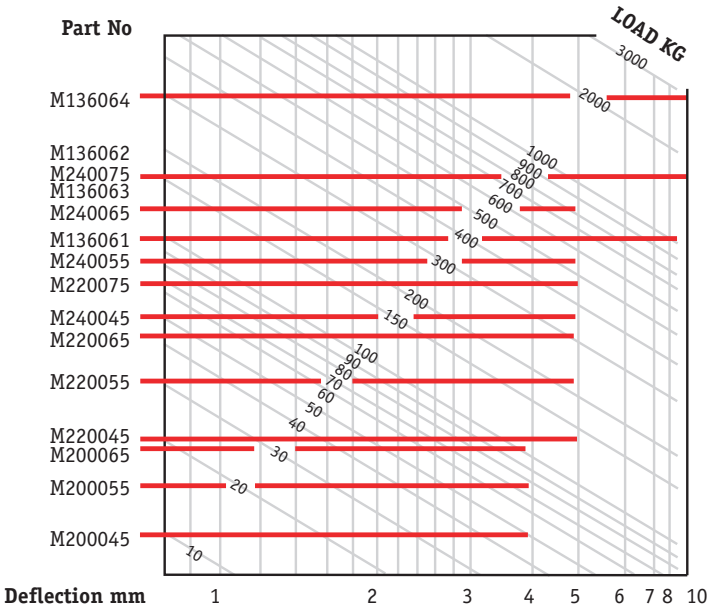
M2200,1,2 M2400,1,2



Part No.	Type	A	B	C	D	E		F	G	H	I	J	K	Weight kg
						Max	Min							
M2000	1	38.5	120	60	M12	-	-	100	14	11	14	11	-	0.4
M2200	1	50.0	183	75	M16	-	-	140	13	20	30	13	-	0.9
M2400	1	68.0	228	112	M20	-	-	182	18	26	34	18	-	2.2

All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

SELECTION CHART



*** Isomount isolators do not have a Duro colour coding, the Duro rating is stamped on the base plate.**

INSTALLATION INSTRUCTIONS

It is important that isolators of the correct size (weight carrying capacity) and rubber hardness are selected to suit the application. Details on load range and static deflections are shown in figure 1

INSTALLATION WITHOUT HEIGHT ADJUSTER

Ensure tightening torque values for the centre bolt fixing are followed as shown in figure 4.
Check that after tightening of the centre bolt fixing that there is not excessive distortion, misalignment and rotation of the top cap relative to the base.
Where alignment of the equipment is required packing pieces or shims should be employed either below the mounting base plate or above the isolator top cap. Alignment should be rechecked after centre fixing bolts have been tightened.

FIG 4

Part No.	Type	RECOMMENDED CENTRE BOLT/NUT TIGHTENING TORQUE Nm
M2000	1	45-50
M2200	1	100-110
M2400	1	150-170

INSTALLATION WITH HEIGHT ADJUSTER

When accurate alignment of equipment is required one of two types of adjusters (Type '2' or '3') should be employed.
Ensure that excessive bending forces are not imposed on the centre spindle.
When using height adjusters, ensure that the recommended washer is placed hard against the top cap and the height adjusting spindle is fully located into the isolator.
If height adjusters are insufficient to achieve desired height adjustment shims or packing pieces should be wemployed under the mounting base.
The isolators with the height adjusters in the mean position (dimension Fig3) should be fitted to the equipment which should then be lowered onto the support. Vertical and horizontal alignment should now be effected using the height adjuster and slotted holes in the mounting base. After tightening centre fixings to the values shown in fig 4 recheck alignment. If necessary coupling and shaft alignment should be undertaken in accordance with the coupling manufactures recommendations. Where possible coupling alignment procedures should be carried out after the power unit has settled on the mountings (preferably 2 days after installation). Should this action not be possible the power unit should be raised approximately 1mm after completion of the alignment procedure.

Plate Isolators

section 5

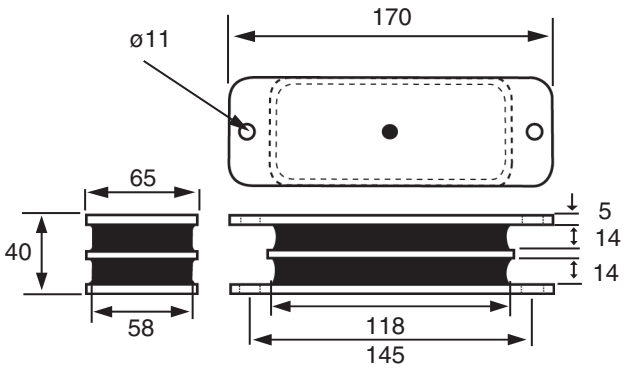
PLATE ISOLATORS

Where you require a isolator of straight forward design to provide an uncomplicated solution to controlling vibration and shock , the range of Mackay Plate Mountings provide the answer. These isolators are designed to protect equipment and machinery from damaging vibration and shock and have an excellent capacity for energy control.

APPLICATIONS: Printing presses , Road rollers ,
Vibratory feeders , Shipping containers ,
Crushers, Shaker units,Industrial machinery.

M2061##

WITH INTERMEDIATE PLATE



COLOUR CODE	
M206135	GREEN
M206145	RED
M206155	YELLOW
M206165	WHITE

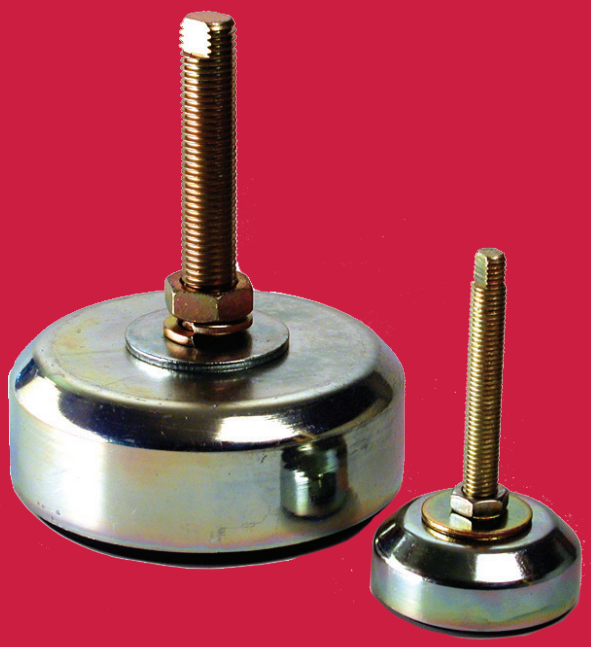
M206 Series (Supersedes M207,M208,M209,M210)
M206135 Substitute * for M207
M206145 Substitute * for M208
M206155 Substitute * for M209
M206165 Substitute * for M210
* Note: Some dimensions and properties have changed

PART No.	Compression Properties		Shear Properties		Durometer	Item Weight (kg)
	Compression Load (kg)	deflection (mm)	Shear Load (kg)	deflection (mm)		
M206135	970	4	70	7	35	1.2
M206145	1,410	4	110	7	45	1.2
M206155	1,840	4	140	7	55	1.2
M206165	2,640	4	190	7	65	1.2

All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

Free Standing Isolators

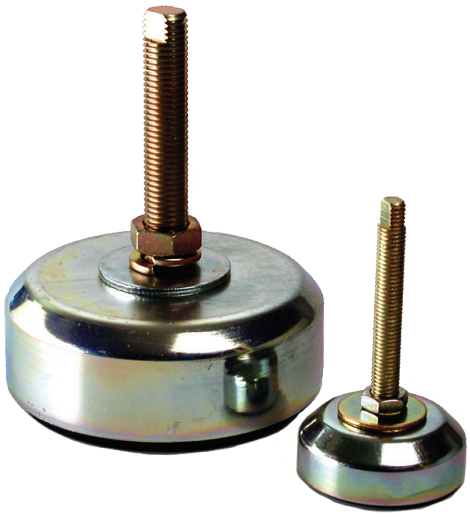
section 6

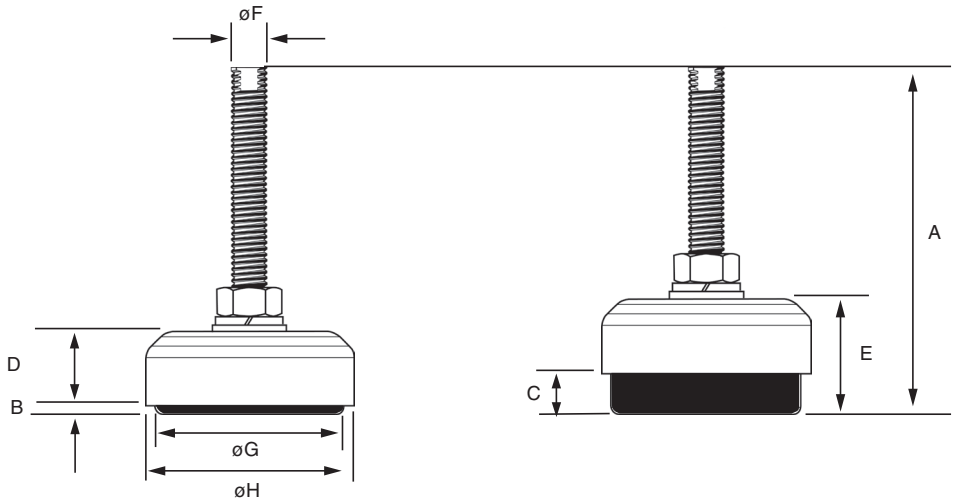


SURE FOOT ISOLATORS

Mackay Sure Foot Levelling Isolators are designed for cost-effective machine levelling for isolator loads up to 6000Kg. Sure Foot Levelling Isolators offer an effective and durable method for isolating free standing equipment and machinery on non-level surfaces.

Sure Foot standard range is made with electrolytically plated zinc applied to automotive standards. Where superior corrosion resistance is required Mackay recommends the Sure Foot stainless Steel alternative. Made using Nitrile rubber, Sure Foot offers superior chemical and oil resistance in comparison to natural rubber





DIMENSIONS

Part No.		OVERALL	EXPOSED BASE		ADJUSTMENT		DIAMETERS		
Standard	Stainless type 304	A mm	Min B mm	Max C mm	Min D mm	Max E mm	Thread F mm	Base G mm	Cap H mm
M400300	M410300	119	6.7	15	31.7.	40	(M12x1.75)	64	71
M401200	M411200	144	8.8	28	50.8	70	(M16x2.0)	91	101
M402500		177	11.9	32	61.9	82	(M20x2.5)	135	144
M404000		212	14.9	40	74.9	100	(M24x3.0)	180	192
M406000		218	14.9	46	80.9	112	(M24x3.0)	203	216

PROPERTIES

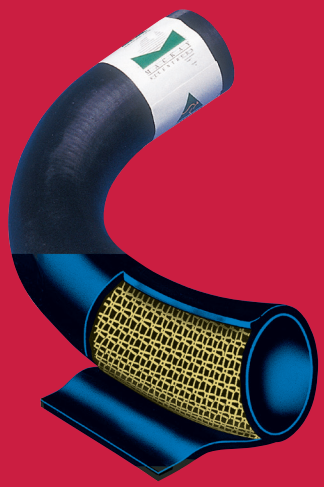
Part No.		LOAD RANGE		DEFLECTION AT MAX EXPOSED BASE		Weight kg
Standard	Stainless type 304	Min kg	Max kg	Min Load mm	Max Load mm	
M400300	M410300	30	300	0.2	2.3	0.4
M401200	M411200	300	1200	1.5	5.9	1.1
M402500		1200	2500	3.0	6.3	2.5
M404000		2500	4000	4.1	6.5	5.2
M406000		4000	6000	6.5	9.7	6.4

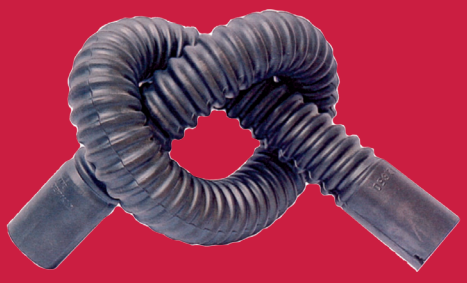
All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

MACKAY INDUSTRIAL

Universal Hoses

section 7



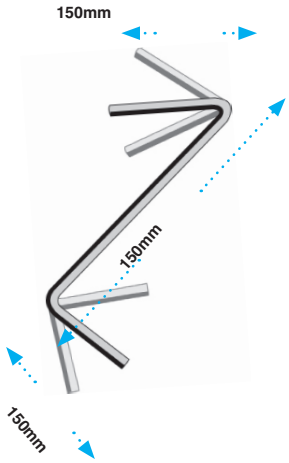


UNIVERSAL "Z" HOSE ™ BENDS

Universal Applications for Water Coolant, Low- Pressure Fuel & Oil and EFV & PCV
Covers majority of small-bore market, Reduced Inventory

Mackay Universal Small Bore "Z" hose ™ bends, are specially designed to provide the largest small-bore application coverage from a few part numbers.

Mackay Z Bend hoses are Flexible through a wide range of angles and planes, however
Warning: Do not bend hose to the point of kinking as this can cause premature failure.



Coolant Hose ZHB##

Suitable for plain water and automotive coolant applications.
Designed for long service life with resistance to heat, ozone and electrochemical degradation.
6mm to 19mm ID Exceed Heater Hose Specification SAE J20R3 Type EC Class D-1 and D-2
25mm ID Exceed Radiator Hose specification SAE J20R4 Type EC Class D-1 and Class D-2
CAUTION, DO NOT USE FOR: fuel, oil or brake fluid applications.

Low-Pressure Fuel & Oil Hose ZHB##F

Suitable for low pressure applications and compatible with leaded and unleaded petrol, ethanol blended fuels up to E85, diesel, lubricating oil as well as crankcase and fuel vapour applications.
Exceeds Fuel Hose Specifications SAE J30R6
CAUTION, DO NOT USE FOR: fuel injection feed, common rail diesel feed, transmission cooler, in-tank fuel submersion, marine applications, methanol, biodiesel, coolant or brake fluid applications.

Emission Control, Fuel Vapour and Vacuum ZHB##EFV

Suitable for emissions control, fuel vapour and vacuum applications, with resistance to the fuel and oil vapour found in PCV systems.
CAUTION, DO NOT USE FOR: fuel and oil transfer, coolant or brake fluid applications.

Flexible through a wide range of angles and planes.
Designed to give maximum application coverage

however do not kink hos as this can cause premature failure

UNIVERSAL "Z" HOSE ™ BENDS

Application & Specification	Part No.	Nominal ID		Maximum Working Pressure		SAE Burst Pressure Requirement		Working Temperature Range	
		mm	In.	psi	MPa	psi	MPa	Min	Max
Coolant SAE 20R3	ZHB6	6	¼	62	0.43	249	1.72	-40°C	+125°C
	ZHB8	8	5/16	62	0.43	249	1.72	-40°C	+125°C
	ZHB10	10	⅜	62	0.43	249	1.72	-40°C	+125°C
	ZHB12	12	15/32	62	0.43	249	1.72	-40°C	+125°C
	ZHB15	16	⅝	62	0.43	249	1.72	-40°C	+125°C
	ZHB19	19	¾	51	0.35	200	1.38	-40°C	+125°C
Coolant SAE 20R4	ZHB25	25	1	35	0.24	141	0.97	-40°C	+125°C
Low-Pressure Fuel & Oil Hose SAE 30R6	ZHB6F	6	¼	50	0.34	250	1.72	-34°C	+100°C
	ZHB8F	8	5/16	50	0.34	250	1.72	-34°C	+100°C
	ZHB10F	10	⅜	50	0.34	250	1.72	-34°C	+100°C
	ZHB12F	12	½	35	0.24	175	1.20	-34°C	+100°C
	ZHB16F	16	⅝	35	0.24	175	1.20	-34°C	+100°C
	ZHB19F	19	¾	35	0.24	175	1.20	-34°C	+100°C
	ZHB25F	25	1	5	0.24	175	1.20	34°C	+100°C
Emission Control, Fuel Vapour & PCV	ZHB6EFV	6	¼	Vacuum / Vent Hose				-34°C	+100°C
	ZHB8EFV	8	5/16	Vacuum / Vent Hose				-34°C	+100°C
	ZHB10EFV	10	⅜	Vacuum / Vent Hose				-34°C	+100°C
	ZHB12EFV	12	15/32	Vacuum / Vent Hose				-34°C	+100°C

All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

"Z" HOSE ™ TRADE PACKS

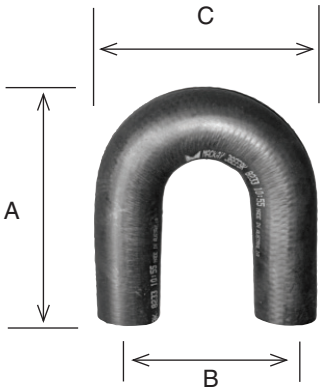
The revolutionary Mackay "Z" hoses ™ are now available in a two popular TRADE PACKS, Part Number ZBAG1 and ZBAG2.

The ZBAG1 consists of one each of the top 5 "Z" water hoses and is especially suited as an introductory or replenishment stock pack for workshops. The ZBAG2 contains the additional larger ID 19mm and 25mm hoses.

"Z" Hose Trade Pack - 6mm to 15mm ID - Part Number ZBAG1				
Application	**Part No.**	**ID mm**	**ID Inches**	**QTY In Pack**
Coolant SAE 20R3	ZHB6	6mm	¼"	1
	ZHB8	8mm	5/16"	1
	ZHB10	10mm	⅜"	1
	ZHB12	12mm	15/32"	1
	ZHB15	16mm	⅝"	1

"Z" Hose Trade Pack - 6mm to 25mm ID - Part Number ZBAG2				
Application	**Part No.**	**ID mm**	**ID Inches**	**Qty In Pack**
Coolant SAE 20R3	ZHB6	6mm	¼"	1
	ZHB8	8mm	5/16"	1
	ZHB10	10mm	⅜"	1
	ZHB12	12mm	15/32"	1
	ZHB15	16mm	⅝"	1
	ZHB19	19mm	¾"	1
Coolant SAE 20R4	ZHB25	25mm	1"	1

U SHAPED - COOLANT HOSE									
Part No.	**ID**		**Centerline Arm Length**	**Centerline Width**	**Total Width**	**Maximum Working Pressure**		**SAE Burst Pressure Requirement**	
			A	**B**	**C**				
	mm	**In.**	**mm**	**mm**	**mm**	**psi**	**MPa**	**psi**	**MPa**
USH16-19	16 - 19	⅝ - ¾	62	80	107	62	0.43	249	1.72
USH25	25	1	140	106	130	35	0.24	141	0.97
USH38	38	1 ½	145	110	156	30	0.21	120	0.83



All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

MACKAY INDUSTRIAL

STRAIGHT HOSE

Mackay Universal Straight Hose is available in two specifications, one is suitable for water applications and the other is suitable for fuel and oil applications.

STRAIGHT HOSE – WATER
The straight moulded water hoses are suitable for use with plain water and automotive coolant applications.

Manufactured using an electrochemical degradation (ECD) resistant EPDM rubber tube,

lock-stitch knitted Rayon fibre reinforcement, with an EPDM rubber cover for heat, abrasion and ozone resistance.
The 19mm ID size Exceeds Heater Hose Specification SAE J20R3 Type EC Class D-1 and D-2

Sizes 22mm to 63mm ID Exceeds Radiator Hose Specification SAE J20R4 Type EC Class D-1 and Class D-2

Working Temperature Range: -40°C to 125°C (-40°F to 257°F)

CAUTION: Not suitable for fuel, oil transfer or brake fluid applications.

STRAIGHT HOSE - WATER

ID mm	ID Inches	Part No.	Length	Maximum Working Pressure		SAE Burst Pressure Requirement	
19mm	¾"	SHW19	1m	0.35 MPa	51 psi	1.38 MPa	200 psi
22mm	⅞"	SHW22	1m	0.24 MPa	35 psi	0.97 MPa	141 psi
25mm	1"	SHW25	1m				
28mm	1 ⅛"	SHW28	1m	0.23 MPa	33 psi	0.90 MPa	131 psi
32mm	1 ¼"	SHW32	1m				
35mm	1 ⅜"	SHW35	1m	0.21 MPa	30 psi	0.83 MPa	120 psi
38mm	1 ½"	SHW38	1m				
41mm	1 ⅝"	SHW41	1m	0.19 MPa	28 psi	0.76 MPa	110 psi
44mm	1 ¾"	SHW44	1m				
48mm	1 ⅞"	SHW48	1m	0.17 MPa	25 psi	0.69 MPa	100 psi
51mm	2"	SHW51	1m				
54mm	2 ⅛"	SHW54	1m				
57mm	2 ¼"	SHW57	1m	0.16 MPa	22 psi	0.62 MPa	90 psi
63mm	2 ½"	SHW63	1m	0.14 MPa	20 psi	0.55 MPa	80 psi

STRAIGHT HOSE - FUEL & OIL

The straight moulded fuel and oil hoses are suitable for fuel filler, turbo intercooler and low pressure fuel applications with leaded and Unleaded petrol, Ethanol blended fuels up to E85, Diesel, lubricating oil as well as crankcase and fuel vapour applications.

Manufactured using an OE developed Nitrile/PVC (NBR/PVC) blended rubber for the tube and cover chosen for its Fuel, Oil and ozone resistance, with a knitted high tensile strength Para-Aramid fibre reinforcement for maximum burst resistance.
Exceeds Fuel Hose Specification SAE J30R6

Working Temperature Range -34°C to 100°C (-29°F to 212°F)

ATTENTION: Some sizes are non-stocked and made to order, minimum order quantities may apply.
CAUTION: Not suitable for coolant transfer, brake fluid or marine applications.

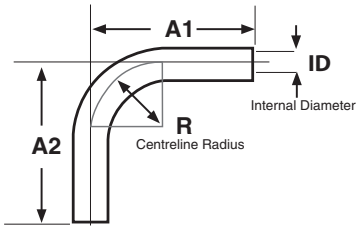
STRAIGHT HOSE - FUEL & OIL

ID mm	ID Inches	Part No.	Length	SAE 30R6 Maximum Working Pressure		SAE 30R6 Burst Pressure Requirement	
25mm	1"	SHF25	1m	0.24 Mpa	35 psi	1.20 Mpa	175 psi
28mm	1 ⅛"	SHF28	1m	0.11 MPa	16 psi	0.55 MPa	80 psi
38mm	1 ½"	SHF38	1m				
41mm	1 ⅝"	SHF41	1m				
51mm	2"	SHF51	1m				
54mm	2 ⅛"	SHF54	1m				
57mm	2 ¼"	SHF57	1m				
63mm	2 ½"	SHF63	1m				

All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

UNIVERSAL HOSE BENDS

Mackay 45° & 90° Universal Hose Bends are available in two specifications, one is suitable for water
applications and the other is suitable for fuel and oil applications.



45° & 90° UNIVERSAL HOSE BENDS - WATER

The 45° & 90° moulded water hoses are suitable for plain water and automotive coolant applications.

Manufactured using an electrochemical degradation (ECD) resistant EPDM rubber tube, lock-stitch knitted Rayon fibre reinforcement, with an EPDM rubber cover for heat and ozone resistance.

Sizes 8mm to 19mm ID Exceed Heater Hose Specification SAE J20R3 Type EC Class D-1 and D-2

Sizes 25mm to 63mm ID Exceed Radiator Hose specification SAE J20R4 Type EC Class D-1 and Class D-2

Working Temperature Range: -40°C to 125°C (-40°F to 257°F)

CAUTION: Not suitable for fuel, oil transfer or brake fluid applications.

45° UNIVERSAL HOSE BENDS - WATER

ID mm	ID Inches	Part No.	Arm 1 Centerline Length A1	Arm 2 Centerline Length A2	Maximum Working Pressure		SAE 20R4 Minimum Burst Pressure	
25mm	1”	UHB25-300/45	300mm	300mm	0.24 MPa	35 psi	0.97 MPa	141 psi
31mm	1 ¼”	UHB31-300/45	300mm	300mm	0.23 MPa	33 psi	0.90 MPa	131 psi
38mm	1 ½”	UHB38-300/45	300mm	300mm	0.21 MPa	30 psi	0.83 MPa	120 psi
44mm	1 ¾”	UHB44-300/45	300mm	300mm	0.19 MPa	28 psi	0.76 MPa	110 psi
50mm	2”	UHB50-300/45	300mm	300mm	0.17 MPa	25 psi	0.69 MPa	100 psi
57mm	2 ¼”	UHB57-300/45	300mm	300mm	0.16 MPa	22 psi	0.62 MPa	90 psi
63mm	2 ½”	UHB63-300/45	300mm	300mm	0.14 MPa	20 psi	0.55 MPa	80 psi

90° UNIVERSAL HOSE BENDS - WATER

ID mm	ID Inches	Part No.	Arm 1 Centerline Length A1	Arm 2 Centerline Length A2	Centreline Radius R	Maximum Working Pressure		SAE 20R3/R4 Minimum Burst Pressure	
8mm	5/16”	UHB8-300	300mm	300mm	50mm	0.43 MPa	62 psi	1.72 MPa	249 psi
		UHB8-300X500	300mm	500mm					
10mm	3/8”	UHB10-300	300mm	300mm	50mm				
		UHB10-300X500	300mm	500mm					
13mm	½”	UHB13	105mm	105mm	50mm	0.43 MPa	62 psi	1.72 MPa	249 psi
		UHB13-300	300mm	300mm					
		UHB13-300X500	300mm	500mm					
16mm	5/8”	UHB16	105mm	105mm	50mm	0.43 MPa	62 psi	1.72 MPa	249 psi
		UHB16-300	300mm	300mm					
		UHB16-300X500	300mm	500mm					
19mm	¾”	UHB19	105mm	105mm	50mm	0.35 MPa	51 psi	1.38 MPa	200 psi
		UHB19-300	300mm	300mm					
		UHB19-300X500	300mm	500mm					
25mm	1”	UHB25	105mm	105mm	50mm	0.24 MPa	35 psi	0.97 MPa	141 psi
		UHB25-300	300mm	300mm					
		UHB25-300X500	300mm	500mm					
31mm	1 ¼”	UHB31	120mm	120mm	60mm	0.23 MPa	33 psi	0.90 MPa	131 psi
		UHB31-300	300mm	300mm					
		UHB31-300X500	300mm	500mm					
38mm	1 ½”	UHB38	120mm	120mm	60mm	0.21 MPa	30 psi	0.83 MPa	120 psi
		UHB38-300	300mm	300mm					
		UHB38-300X500	300mm	500mm					
44mm	1 ¾”	UHB44	140mm	140mm	70mm	0.19 MPa	28 psi	0.76 MPa	110 psi
		UHB44-300	300mm	300mm					
		UHB44-300X500	300mm	500mm					
50mm	2”	UHB50	140mm	140mm	70mm	0.17 MPa	25 psi	0.69 MPa	100 psi
		UHB50-300	300mm	300mm					
		UHB50-300X500	300mm	500mm					
57mm	2 ¼”	UHB57	170mm	170mm	85mm	0.16 MPa	22 psi	0.62 MPa	90 psi
		UHB57-300	300mm	300mm					
		UHB57-300X500	300mm	500mm					
63mm	2 ½”	UHB63	170mm	170mm	95mm	0.14 MPa	20 psi	0.55 MPa	80 psi
		UHB63-300	300mm	300mm					
		UHB63-300X500	300mm	500mm					

All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

MACKAY INDUSTRIAL

45° & 90° UNIVERSAL HOSE BENDS - FUEL & OIL

The 45° & 90° moulded Fuel & Oil hoses use two constructions depending on size.

Sizes 8mm to 19mm ID are suitable for low pressure fuel applications and are manufactured using a Nitrile (NBR) rubber tube, lock-stitch knitted Polyester fibre reinforcement, with an oil resistant Hypalon® (CSM) rubber outer cover for maximum heat and ozone protection.

Sizes 25mm to 63mm ID are suitable for fuel filler and turbo intercooler applications and are manufactured with an OE Grade Nitrile/PVC (NBR/PVC) blended rubber tube and cover for Fuel, Oil and ozone resistance, with a knitted high tensile strength Para-Aramid fibre for maximum burst protection.
Both constructions are suitable for use with leaded and unleaded petrol, Ethanol blended fuels up to E85, Diesel & Biodiesel fuels, lubricating oil as well as crankcase and fuel vapour applications.

Exceeds Fuel Hose Specification SAE J30R6

Working Temperature Range -34°C to 100°C (-29°F to 212°F)

ATTENTION: Some sizes are non-stocked and made to order, minimum order quantities may apply.
CAUTION: This hose is not suitable for fuel injection, in-tank fuel submersion, coolant, brake fluid or marine applications.

45° UNIVERSAL HOSE BENDS - FUEL & OIL

ID mm	ID Inches	Part No.	Arm 1 Centerline Length A1	Arm 2 Centerline Length A2	SAE 30R6 Maximum Working Pressure		SAE 30R6 Minimum Burst Pressure	
25mm	1”	UHB25-300/45N	300mm	300mm	0.24 Mpa	35 psi	1.20 Mpa	175 psi
31mm	1 ¼”	UHB31-300/45N	300mm	300mm	0.11 MPa	16 psi	0.55 MPa	80 psi
38mm	1 ½”	UHB38-300/45N	300mm	300mm				
44mm	1 ¾”	UHB44-300/45N	300mm	300mm				
50mm	2”	UHB50-300/45N	300mm	300mm				
57mm	2 ¼”	UHB57-300/45N	300mm	300mm				
63mm	2 ½”	UHB63-300/45N	300mm	300mm				

90° UNIVERSAL HOSE BENDS - FUEL & OIL

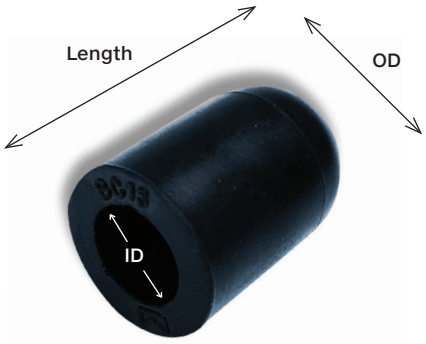
ID mm	ID Inches	Part No.	Arm 1 Centerline Length A1	Arm 2 Centerline Length A2	Centreline Radius R	SAE 30R6 Maximum Working Pressure		SAE 30R6 Minimum Burst Pressure	
8mm	5/16”	UHB8-300N	300mm	300mm	50mm	0.34 MPa	50 psi	1.72 MPa	250 psi
10mm	3/8”	UHB10-300N	300mm	300mm	50mm				
13mm	½”	UHB13N	105mm	105mm	50mm	0.24 MPa	35 psi	1.20 MPa	175 psi
		UHB13-300N	300mm	300mm					
16mm	5/8”	UHB16N	105mm	105mm	50mm				
		UHB16-300N	300mm	300mm					
19mm	¾”	UHB19N	105mm	105mm	50mm				
		UHB19-300N	300mm	300mm					
25mm	1”	UHB25N	105mm	105mm	50mm				
		UHB25-300N	300mm	300mm					
31mm	1 ¼”	UHB31N	120mm	120mm	60mm	0.11 MPa	16 psi	0.55 MPa	80 psi
		UHB31-300N	300mm	300mm					
38mm	1 ½”	UHB38N	120mm	120mm	60mm				
		UHB38-300N	300mm	300mm					
44mm	1 ¾”	UHB44N	140mm	140mm	70mm				
		UHB44-300N	300mm	300mm					
50mm	2”	UHB50N	140mm	140mm	70mm				
		UHB50-300N	300mm	300mm					
57mm	2 ¼”	UHB57N	170mm	170mm	85mm				
		UHB57-300N	300mm	300mm					
63mm	2 ½”	UHB63N	170mm	170mm	95mm				
		UHB63-300N	300mm	300mm					

All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

BLANKING CAPS

Application	Blocking off unnecessary ports of heater systems and other components in the engine coolant circulating systems of ground vehicles. Can also be used for vacuum applications where no oil or fuel vapour are present.
Compatible Fluid	Automotive coolants, corrosion Inhibitors, cooling water, water, air
Properties	Synthetic rubber with heat and ozone resistance
Temperature Range	-40°C to 125°C (-40°F to 257°F)
Material	Ethylene Propylene Diene Monomer Rubber (EPDM)
Warning	Not suitable for fuel, oil or hydralic applications

Part No.	Nominal Dimensions				Working Temperature Range		Application	Material
	ID		OD	Length				
	mm	In.	mm	mm	Min	Max		
BC10	10	⅜	17	29	-40°C	+125°C	Automotive Coolant Systems & Vacuum Applications	EPDM Rubber
BC13	13	½	21	32	-40°C	+125°C		
BC16	16	⅝	24	34	-40°C	+125°C		
BC19	19	¾	28	37	-40°C	+125°C		



All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

MACKAY INDUSTRIAL

HEATER HOSE - SAE J20R3

Application	Connecting heater systems and other components in the engine coolant circulating systems of ground vehicles
Compatible Fluid	Automotive coolants, corrosion Inhibitors, cooling water, water
Properties	Synthetic rubber tube resistant to water loss, electrochemical degradation and heat; Synthetic fibre reinforcement layer; Synthetic rubber cover with heat, abrasion and ozone resistance
SAE Specification	Heater Hose Specification SAE J20R3 Type EC Class D-1 and D-2, ECD resistance as defined by SAE J1684, Improved service D-1 rating for long service life
Temperature range	-40°C to 125°C (-40°F to 257°F)
Inner Tube	Ethylene Propylene Diene Monomer Rubber (EPDM)
Reinforcement	Spiral Polyester Fibre (PFY)
Outer Cover	Ethylene Propylene Diene Monomer Rubber (EPDM)

WARNING NOT SUITABLE FOR FUEL, OIL OR BRAKE FLUID APPLICATIONS

Part No.	Nominal Dimensions			Length		Maximum Working Pressure		SAE J20R3				Packaging
	ID		OD					Minimum Burst Pressure		Vacuum Rating (>80% of OD		
	mm	In.	mm	m	ft.	psi	MPa	psi	MPa	kPa	In. Hg	
HH08X15	7.9	5/16	15	15.25	50	62	0.43	249	1.72	33.8	10	Box
HH10TWX2	9.5	3/8	16.1	2	6.5	62	0.43	249	1.72	33.8	10	Plastic Bag
HH10TWX20	9.5	3/8	16.1	20	65.6	62	0.43	249	1.72	33.8	10	Box
HH010X15	9.5	3/8	17.5	15.25	50	62	0.43	249	1.72	33.8	10	Box
HH013X15	12.7	1/2	20.7	15.25	50	62	0.43	249	1.72	33.8	10	Box
HH016X15	15.9	5/8	23.9	15.25	50	62	0.43	249	1.72	27.0	8	Box
HH019X15	19	3/4	27	15.25	50	51	0.35	200	1.38	23.6	7	Box

All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

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FUEL & OIL HOSE - SAE J30R7

Application	Suitable for low pressure fuel and oil liquid transfer or fuel and oil vapor emissions use on mobile or stationary engines
Compatible Fluid	Leaded and unleaded petrol, ethanol blended fuels (E10, E20, E85), diesel fuel, LPG vapour, lubricating oil, crankcase fumes and fuel vapour
Properties	Synthetic rubber tube resistant to fuel and oil; Synthetic fibre reinforcement layer; Synthetic rubber cover with oil, heat, abrasion and ozone resistance
SAE Specification	Low Pressure Fuel and Oil Hose Specification SAE J30R7
Temperature Range	-34°C to 125°C (-29°F to 257°F)
Permeation Rate/24h	550 gm/m2 maximum with ASTM Fuel C (50% Toluene & 50% isooctane) expect significantly higher permeation rates if fuel contains >5% oxygenates, i.e. ethanol, methanol, or MTBE
Inner Tube	Acrylonitrile Butadiene Rubber (NBR)
Reinforcement	Spiral Polyester Fibre (PFY)
Outer Cover	Chloroprene Rubber (CR)

WARNING NOT SUITABLE FOR FUEL INJECTION, TRANSMISSION COOLER, IN-TANK FUEL SUBMERSION, COOLANT TRANSFER, BRAKE FLUID OR MARINE APPLICATIONS

Part No.	Nominal Dimensions			Length		SAE J30R7						Packaging
	ID		OD			Maximum Working Pressure		Minimum Burst Pressure		Vacuum Rating (>80% of OD @)		
	mm	In.	mm	m	ft.	psi	MPa	psi	MPa	kPa	In. Hg	
FH05X15	4.8	3/16	10.32	15.25	50	50	0.34	250	1.72	81	24	Box
FH06X15	6.3	1/4	12.70	15.25	50	50	0.34	250	1.72	81	24	Box
FH08X15	7.9	5/16	14.29	15.25	50	50	0.34	250	1.72	81	24	Box
FH010X15	9.5	3/8	15.88	15.25	50	50	0.34	250	1.72	81	24	Box
FH013X15	12.7	1/2	19.84	15.25	50	35	0.24	175	1.2	34	10	Box
FH016X15	15.9	5/8	23.81	15.25	50	35	0.24	175	1.2	34	10	Box
FH019X15	19	3/4	28.58	15.25	50	35	0.24	175	1.2	34	10	Box



All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

MACKAY INDUSTRIAL

FUEL INJECTION HOSE - SAE J30R9

Application	Suitable to meet the demands of electronic fuel injection (EFI) systems, electronic fuel metering (EFM), throttle body injection (TBI) used on mobile or stationary engines and applications requiring high fuel permeation resistance.
Compatible Fluid	Leaded and unleaded petrol, ethanol blended fuels (E10, E20, E85), diesel fuel, oxidized sour gas, LPG vapour, lubricating oil, crankcase fumes and fuel vapour
Properties	Synthetic rubber tube resistant to chemical attack, swelling, heat and permeation; Synthetic fibre reinforcement layer; Synthetic rubber cover with oil, heat, abrasion and ozone resistance
SAE Specification	Fuel Injection Hose Specification SAE J30R9
Temperature Range	-34°C to 135°C (-29°F to 275°F) and intermittent use at 150°C (302°F)
Permeation Rate/24h	200 gm/m2 maximum with ASTM Fuel C (50% Toluene & 50% isooctane) expect significantly higher permeation rates if fuel contains >5% oxygenates, i.e. ethanol, methanol, or MTBE
Inner Tube	Fluoroelastomer Rubber (FKM)
Intermediate Layer	Epichlorohydrin Rubber (ECO)
Reinforcement	Braided Para-Aramid Fibre (PPTA)
Outer Cover	Epichlorohydrin Rubber (ECO)

WARNING NOT SUITABLE FOR METHANOL LEVELS >15%, BIODIESEL (B5, B10, B20), TRANSMISSION COOLER, IN-TANK FUEL SUBMERSION, COOLANT TRANSFER, BRAKE FLUID OR MARINE

Part No.	Nominal Dimensions			Length		SAE J30R9						Packaging
	ID		OD			Maximum Working Pressure		Minimum Burst Pressure		Vacuum Rating (>80% of OD @)		
	mm	In.		m	ft.	psi	MPa	psi	MPa	kPa	In.hg	
FIH06X1	6.3	1/4	12.7	1	3.2	100	0.69	900	6.2	81	24	Plastic Bag
FIH06X7.6	6.3	1/4	12.7	7.65	25	100	0.69	900	6.2	81	24	Box
FIH08X1	7.9	5/16	14.25	1	3.2	100	0.69	900	6.2	81	24	Plastic Bag
FIH08X7.6	7.9	5/16	14.25	7.65	25	100	0.69	900	6.2	81	24	Box



All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

EMISSIONS CONTROL, FUEL VAPOUR & VACUUM HOSE

Application	Suitable for emissions control, fuel vapour, vacuum applications and regulating turbo control valves
Compatible Fluid	Air, crankcase fumes and fuel vapour
Properties	Synthetic rubber tube resistant to vacuum collapse, fuel & oil vapour and ozone degradation
Specification	Mackay Specification H1111
Temperature Range	-34°C to 100°C (-29°F to 212°F)
Non-Reinforced Tube	Nitrile/PVC Rubber (NBR/PVC)

WARNING THIS HOSE IS NOT SUITABLE FOR FUEL, OIL, COOLANT, OR BRAKE FLUID APPLICATIONS

Part No.	Nominal Dimensions			Length		H1111						Packaging
	ID		OD			Maximum Working Pressure		Minimum Burst Pressure		Vacuum Rating (>70% of OD @)		
	mm	In.	mm	m	ft.	psi	MPa	psi	MPa	kPa	In.hg	
EFV03X15	2.8	1/8	7.2	15.25	50	50	0.17	101	0.7	81	24	Box
EFV04X15	4	5/32	8.4	15.25	50	50	0.17	101	0.7	81	24	Box
EFV06X15	6.3	1/4	10.7	15.25	50	50	0.17	101	0.7	81	24	Box



All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

MACKAY INDUSTRIAL

TRANSMISISON OIL COOLER - SAE J1532 & POWER STEERING RETURN HOSE - SAE

Application	Automatic transmission oil cooling (TOC) systems and power steering return (PSR) lines
Compatible Fluid	Automatic transmission and power steering fluids
Properties	Synthetic rubber oil resistant tube; Braided synthetic reinforcement layer for high Impulse resistance; Synthetic rubber cover with oil, heat, abrasion and ozone resistance
SAE Specification	Transmission Oil Cooler Hose Specification SAE J1532 Type A Class 1 & Power Steering Return Hose Specification SAE J189 (Type A impulse cycle rating for OE level service life)
Temperature Range	-40°C to 125°C (-40°F to 248°F) average and 135°C (275°F) maximum peaks
Inner Tube	Chlorinated Polyethylene Rubber (CPE)
Reinforcement	Braided Para-Aramid Fibre (PPTA)
Outer Cover	Chlorinated Polyethylene Rubber (CPE)

WARNING NOT SUITABLE FOR COOLANT, BRAKE FLUID OR HIGH PRESSURE POWER STEERING LINE APPLICATIONS.

Part No.	Nominal Dimensions			Length		SAE J189		SAE J1532 Type A		J189 & J1532 Type A		SAE J1532		Packaging
	ID		OD			PSR Maximum Working Pressure		TOC Maximum Working Pressure		Minimum Burst pressure		Vacuum Rating (>75% of OD @)		
	mm	In.	mm	m	ft.	psi	MPa	psi	MPa	psi	Mpa	KPa	In. Hg	
TPH08X2	7.9	5/16	15.1	2	6.5	100	0.69	250	246	1000	6.9	68	20	Plastic Bag
TPH08X10	7.9	5/16	15.1	10	32.8	100	0.69	250	246	1000	6.9	68	20	Box
TPH010X2	9.5	3/8	16.7	2	6.5	100	0.69	250	246	1000	6.9	68	20	Plastic Bag
TPH010X10	9.5	3/8	16.7	10	32.8	100	0.69	250	246	1000	6.9	68	20	Box

All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

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WINDSCREEN WASHER TUBING - SAE J1037

Application	Windscreen or headlight washer systems and vacuum applications
Compatible Fluid	Windscreen washer fluid, water, air
Properties	Synthetic rubber tube with heat and ozone resistance
SAE Specification	Windscreen Washer Tubing Specification SAE J1037
Temperature Range	-40°C to 125°C (-40°F to 257°F)
Non-Reinforced Tube	Ethylene Propylene Diene Monomer Rubber (EPDM)

WARNING NOT SUITABLE FOR FUEL, OIL OR BRAKE FLUID APPLICATIONS

Part No.	Nominal Dimensions			Length		Maximum Working Pressure		SAE J1037				Packaging
	ID		OD					Minimum Burst Pressure		Vacuum Rating (>70% of OD @)		
	mm	In.		m	ft.	psi	MPa	psi	MPa	kPa	In.hg	
WT3.2X2	3.2	1/8	8.3	2	6.5	25	0.17	101	0.7	81	24	Plastic Bag
WT3.2X10	3.2	1/8	8.3	10	32.8	25	0.17	101	0.7	81	24	Small Box
WT4.8X2	4.8	3/16	7.6	2	6.5	25	0.17	101	0.7	81	24	Plastic Bag
WT4.8X10	4.8	3/16	7.6	10	32.8	25	0.17	101	0.7	81	24	Small Box
WT6.3X2	6.3	1/4	9.6	2	6.5	25	0.17	101	0.7	81	24	Plastic Bag
WT6.3X10	6.3	1/4	9.6	10	32.8	25	0.17	101	0.7	81	24	Small Box

All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

MACKAY INDUSTRIAL

RADIATOR OVERFLOW HOSE

Application	Radiator overflow, header tanks and vacuum applications
Compatible Fluid	Automotive coolants, corrosion inhibitors, cooling water, water
Properties	Synthetic rubber tube resistant to water loss, electrochemical degradation, ozone and heat
Specification	Mackay Overflow Hose Specification E594X
Temperature Range	-40°C to 125°C (-40°F to 257°F)
Non-Reinforced Tube	Ethylene Propylene Diene Monomer Rubber (EPDM)

WARNING NOT SUITABLE FOR FUEL, OIL OR BRAKE FLUID APPLICATIONS

Part No.	Nominal Dimensions			Length		E594X						Packaging
	ID		OD			Maximum Working Pressure		Minimum Burst Pressure		Vacuum Rating (>70% of OD @)		
	mm	In.	mm	m	ft.	psi	MPa	psi	MPa	kPa	In.hg	
OFH08X15	7.9	5/16	13.1	15.25	50	25	0.17	101	0.7	81	24	Box
OFH08X50	7.9	5/16	13.1	50		25	0.17	101	0.7	81	24	Box



All properties nominal, contact Mackay for Technical advice *All Dimensions in Millimetres*

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FORWARD THINKING

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