

QuadGuard®

Crash Cushions

Visual Parts List

MASH TL2 COMPLIANT

MASH TL3 COMPLIANT



Release 09/21

www.ingalcivil.co.nz

1.0 QuadGuard Parts Overview

COMPONENT	PN
Tension Strut Backup 24"	10102304
Concrete Backup 24"	10102301
Diaphragm 24"	10102113
Flat Screw $\frac{5}{8}$ x 5, G8	10102520
Spring, Die, $\frac{5}{8}$ x 1 $\frac{1}{2}$	10102523
Rail Nut, Hex, $\frac{5}{8}$	10102501
Mushroom Washer	10102536
Rail Bolt $\frac{5}{8}$ x 2	10102503
Bracket, Hold Down, MASH	10102211
Bkt, Cart Supp, Nose, MASH	10102212
Washer, 10ga x 2 x 14, Slots, MASH	10102210
Dia Bracket, Cartridge Support	10102400
Bolt, Hex $\frac{5}{8}$ x 2 $\frac{1}{2}$, G5	10103420
Bolt, Hex, $\frac{1}{4}$ x $\frac{3}{4}$, G5	10102508
Bolt, Rail $\frac{5}{8}$ -11 x 5	004441
Bolt, Hex, $\frac{5}{8}$ x 2, G5	10102531
Nut, Hex, $\frac{1}{4}$	10102515
Pipe, $\frac{3}{4}$ " Sch 80 x 3	627537
Washer, Lock, 1/4	10102527
Washer, Flat, $\frac{5}{8}$ x 1 $\frac{3}{4}$	10102500
Washer, Lock, $\frac{5}{8}$	10102530
Bracket, Angle, 2 x 1, W/Holes	10102213
Washer, Flat $\frac{3}{8}$ x 1t	10102526
Nut, Hex, $\frac{3}{8}$	10102516
Bolt, Hex, $\frac{5}{8}$ x 1, G5	10103462
Washer, Flat, $\frac{3}{8}$ x 2, G	10102566
Nut, Hex $\frac{5}{8}$	10102502
Bracket, Pull-Out	10102411
Shim, $\frac{1}{8}$ x 3 $\frac{5}{8}$ x 8	10102906
Washer, Lock, 3/4	10102528
Bolt, Hex, $\frac{3}{4}$ x 2, G8	10103462
Monorail Guide	10102534
Nut, Heavy Hex, $\frac{3}{4}$	10102504
Panel, Side, QG	10102004
Bracket, Cartridge Support TS B/U	10102406
Locking Bar, Cartridge Support	10102419
Cartridge Assy, Type 1	10102903
Cartridge Assy, Type 2	10102904
Bolt, Hex, $\frac{5}{8}$ x 3 $\frac{1}{2}$, G5	10102552
Monorail, One Bay, QG, G	10102310
Monorail, Two Bays, QG, G	10102311
Monorail, Three Bays, QG, G	10102312
Stud, M20 x 165mm, Gr 8.8	10102549
Stud, M20 x 180mm, Gr 8.8	10102547

COMPONENT	PN
Stud, M20 x 460mm, Gr 8.8	10102911
Washer, Flat, $\frac{3}{4}$ x 2	10102548
End Cap, Monorail, QG, G	10102313
Hilti HY200R 500mL	10102902
Single Hinge Plate, Fender	10102417
Bracket- Nose Attach- QG- Wide	10102409
Panel, Fender, QG	10102002
Narrow Diaphragm	10102113 (24" - 610mm) 10102114 (30" - 760mm) 10102115 (36" - 915mm)
Narrow Diaphragm Kit	10101100 (24" - 610mm) 10101101 (30" - 760mm) 10101114 (36" - 915mm)
Wide Diaphragm	10102100 (673mm) 10102101 (833mm) 10102124 (913mm) 10102116 (993mm) 10102125 (1073mm) 10102102 (1153mm) 10102103 (1233mm) 10102104 (1273mm) 10102105 (1313mm) 10102106 (1393mm) 10102117 (1473mm) 10102107 (1513mm) 10102108 (1533mm) 10102109 (1633mm) 10102110 (1729mm) 10102118 (1793mm) 10102111 (1873mm) 10102112 (1953mm)
Wide Diaphragm Kit	10101102 (673mm) 10101103 (833mm) 10101119 (913mm) 10101116 (993mm) 10101120 (1073mm) 10101104 (1153mm) 10101105 (1233mm) 10101106 (1273mm) 10101107 (1313mm) 10101108 (1393mm) 10101117 (1473mm) 10101109 (1513mm) 10101110 (1533mm) 10101111 (1633mm) 10101112 (1729mm) 10101121 (1793mm) 10101118 (1873mm) 10102112 (1953mm)
Fender Panel Narrow Assembly	10101000
Fender Panel Wide Assembly	10101021
Plastic Narrow Nose Assembly	10101202
Plastic Wide Nose Assembly	10101201
MASH Narrow Nose Assembly	10101204
MASH Wide Nose Assembly	10101206
Steel Nose QG2 Narrow Assembly	10101200
Steel Nose QG2 Wide Assembly	10101203

2.0 QuadGuard Visual Parts List



Tension Strut Backup 24"

PN: 10102304



Concrete Backup 24"

PN: 10102301



Diaphragm 24"

PN: 10102113



Flat Screw $\frac{5}{8}$ x 5, G8

PN: 10102520



Spring, Die, $\frac{5}{8}$ x 1 $\frac{1}{2}$

PN: 10102523



Rail Nut, Hex, $\frac{5}{8}$

PN: 10102501



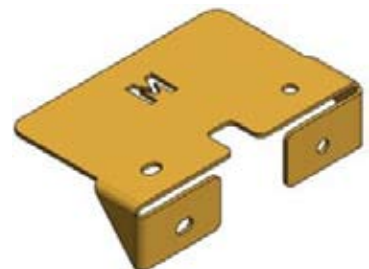
Mushroom Washer

PN: 10102536



Rail Bolt $\frac{5}{8}$ x 2

PN: 10102503



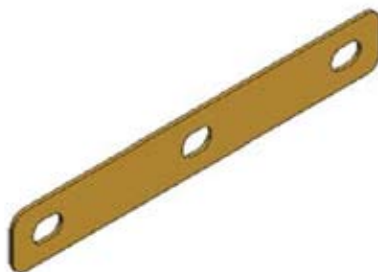
Bracket, Hold Down, MASH

PN: 10102211



Bkt, Cart Supp, Nose, MASH

PN: 10102212



Washer, 10ga x 2 x 14,
Slots, MASH

PN: 10102210



Dia Bracket, Cartridge Support

PN: 10102400



Bolt, Hex $\frac{5}{8}$ x $2 \frac{1}{2}$, G5

PN: 10103420



Bolt, Hex, $\frac{1}{4}$ x $\frac{3}{4}$, G5

PN: 10102508



Bolt, Rail $\frac{5}{8}$ -11 x 5

PN: 004441



Bolt, Hex, $\frac{5}{8}$ x 2, G5

PN: 10102531



Nut, Hex, $\frac{1}{4}$

PN: 10102515



Pipe, $\frac{3}{4}$ " Sch 80 x 3

PN: 627537



Washer, Lock, 1/4

PN: 10102527



Washer, Flat, 5/8 x 1 3/4

PN: 10102500



Washer, Lock, 5/8

PN: 10102530



Bracket, Angle, 2 x 1, W/Holes

PN: 10102213



Washer, Flat 3/8 x 1

PN: 10102526



Nut, Hex, 3/8

PN: 10102516



Bolt, Hex, 3/8 x 1, G5

PN: 10103462



Washer, Flat, 3/8 x 2

PN: 10102566



WNut, Hex, 5/8

PN: 10102502



Bracket, Pull-Out

PN: 10103462



Shim, 1/8 x 3 5/8 x 8

PN: 10102906



Washer, Lock, 3/4

PN: 10102528



Bolt, Hex, 3/4 x 2, G8

PN: 10102516



Monorail Guide

PN: 10102534



Nut, Heavy Hex, 3/4

PN: 10102504



Panel, Side, QG

PN: 10102004



Bracket, Cartridge Support
TS B/U

PN: 10102406



Locking Bar,
Cartridge Support

PN: 10102419



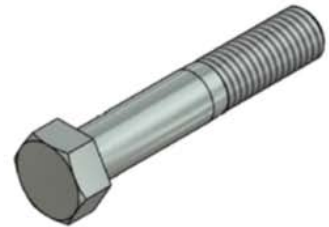
Cartridge Assy, Type 1

PN: 10102903



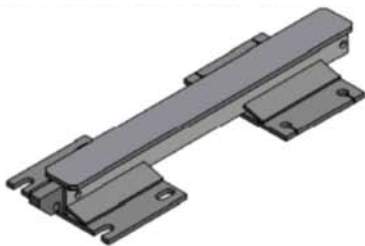
Cartridge Assy, Type 2

PN: 10102904



Bolt, Hex, 5/8 x 3 1/2, G5

PN: 10102552



Monorail, One Bay, QG, G

PN: 10102310



Monorail, Two Bays, QG, G

PN: 10102311



Monorail, Three Bays, QG, G

PN: 10102312



Stud, M20 x 165mm, Gr 8.8

PN: 10102549



Stud, M20 x 180mm, Gr 8.8

PN: 10102547



Stud, M20 x 460mm, Gr 8.8

PN: 10102911



Washer, Flat, $\frac{3}{4} \times 2$

PN: 10102548



End Cap, Monorail, QG, G

PN: 10102313



Hilti HY200R 500mL

PN: 10102902



Single Hinge Plate, Fender

PN: 10102417



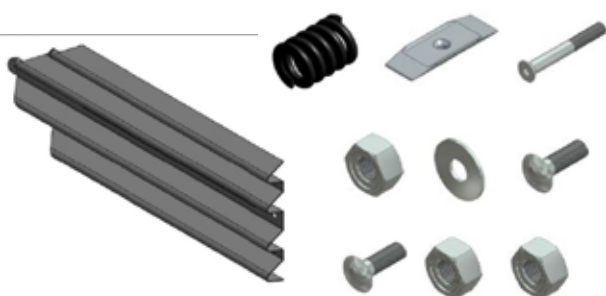
Bracket - Nose Attach -
QG- Wide

PN: 10102409



Panel, Fender, QG

PN: 10102002



Fender Panel Narrow Assembly

PN: 10101000 contains:

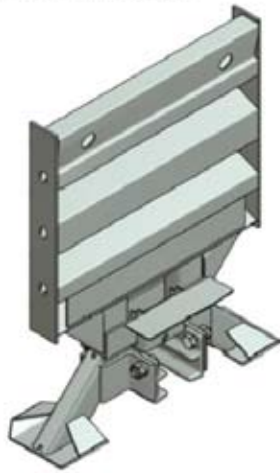
1 x 10102002 Fender Panel
1 x 10101606 Fender Panel Narrow Bolt Pack (Bolt 08)



Fender Panel Wide Assembly

PN: 10101021 contains:

1 x 10102002 Fender Panel
1 x 10101607 Fender Panel Wide Bolt Pack (Bolt 08)



Narrow Diaphragm

PN: 10102113 (24" - 610mm)

PN: 10102114 (30" - 760mm)

PN: 10102115 (36" - 915mm)

Narrow Diaphragm Kit

PN: 10101100 (24" - 610mm)

PN: 10101101 (30" - 760mm)

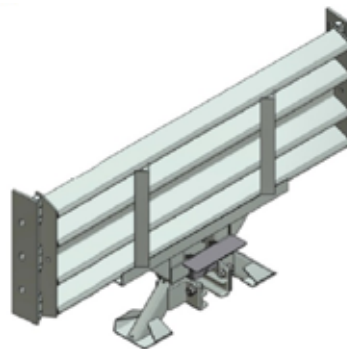
PN: 10101114 (36" - 915mm)

Narrow Diaphragm Kits contain Diaphragm plus:

1 x 10101610 Monorail Guide Bolt Pack

2 x 10102400 Bracket, Cart, Support, Diaphragm

2 x 10102534 Monorail Guide



Wide Diaphragm

10102100 (673mm)

10102102 (1153mm)

10102117 (1473mm)

10102118 (1793mm)

10102101 (833mm)

10102103 (1233mm)

10102107 (1513mm)

10102111 (1873mm)

10102124 (913mm)

10102104 (1273mm)

10102108 (1533mm)

10102112 (1953mm)

10102116 (993mm)

10102105 (1313mm)

10102109 (1633mm)

10102125 (1073mm)

10102106 (1393mm)

10102110 (1729mm)

Wide Diaphragm Kits

10101102 (673mm)

10101104 (1153mm)

10101117 (1473mm)

10101121 (1793mm)

10101103 (833mm)

10101105 (1233mm)

10101109 (1513mm)

10101118 (1873mm)

10101119 (913mm)

10101106 (1273mm)

10101110 (1533mm)

10102112 (1953mm)

10101116 (993mm)

10101107 (1313mm)

10101111 (1633mm)

10101120 (1073mm)

10101108 (1393mm)

10101112 (1729mm)

Wide Diaphragm Kits contain Diaphragm Plus:

1 x 10101604 Hinge Bolt Pack

2 x 10102534 Monorail Guide

2 x 10102417 Single Hinge Plate

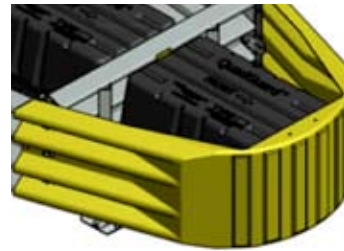
1 x 10101610 Monorail Guide Bolt Pack

2 x 10102400 Bracket, Cart, Support, Diaphragm



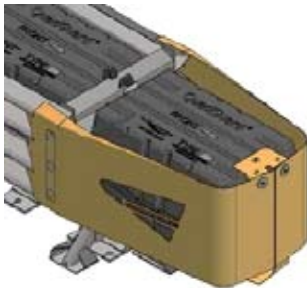
Plastic Narrow
Nose Assembly
(suits 610mm,
760mm, 915mm
Narrow System)

PN: 10101202 contains:
1 x 10102201 Nose with Adjustable Support Bracket
1 x 10101608 Nose Narrow Bolt Pack



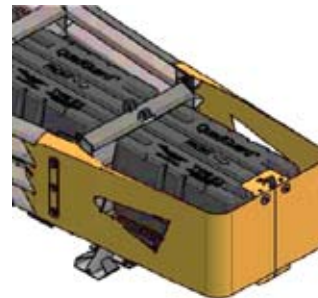
Plastic Wide
Nose Assembly
(suits 1755mm,
2285mm, 3200mm
Wide System)

PN: 10101201 contains:
1 x 10102201 Nose with Adjustable Support Bracket
2 x 10102409 Bracket, Nose Attach, Wide
1 x 10101609 Nose Wide Bolt Pack



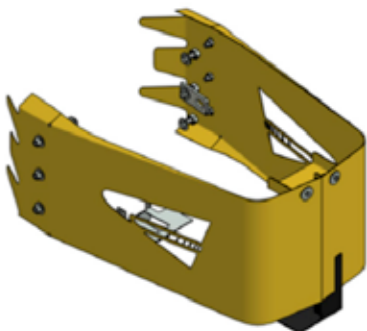
MASH Narrow
Nose Assembly
(suits 610mm
Narrow System)

PN: 10101204 contains:
1 x 10102202 Narrow Metal Nose (Left)
1 x 10102204 Narrow Metal Nose (Right)
2 x 10102213 Bracket 1x2, Inside Hold-Down, MASH, G
1 x 10102212 Bracket, Cart Suppt for Nose, QG, MASH
1 x 10102211 Bracket, Cart Hold-Down, Nose, MASH
2 x 10102210 Washer, 10GA x 2 x 14, Slots, Y
1 x 10101618 MASH Narrow Nose Bolt Pack



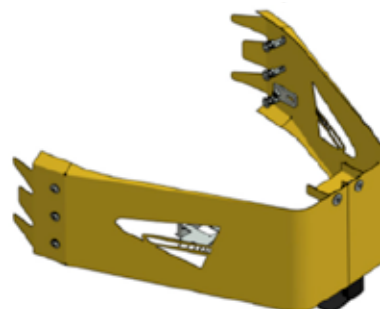
MASH Wide
Nose Assembly
(suits 1755mm
Wide System)

PN: 10101206 contains:
1 x 10102214 Steel Nose, QG MASH Wide, Y (Left)
1 x 10102215 Steel Nose, QG, MASH, Wide, Y, (Right)
2 x 10102213 Bracket 1 x 2, Inside Hold-Down, MASH, G
1 x 10102212 Bracket, Cart Suppt for Nose, QG, MASH
1 x 10102211 Bracket, Cart Hold-Down, Nose, MASH
2 x 10102210 Washer, 10GA x 2 x 14, Slots, Y
1 x 10101619 MASH Wide Nose Bolt Pack



Steel Nose
QG2 Narrow
Assembly
(suits 610mm,
760mm, 915mm
Narrow System)

PN: 10101200 contains:
1 x 10102202 Narrow Metal Nose (Left)
1 x 10102204 Narrow Metal Nose (Right)
1 x 10102405 Bracket, Cartridge Suppt Steel Nose
1 x 10102404 Bracket, Dia Cart Suppt, Steel Only
1 x 10101612 Nose Narrow Metal Bolt Pack



Steel Nose QG2
Wide Assembly
(suits 1755mm,
2285mm,
3200mm
Wide System)

PN: 10101203 contains:
1 x 10102203 Wide Metal Nose (Left)
1 x 10102205 Wide Metal Nose (Right)
1 x 10102405 Bracket, Cartridge Suppt Steel Nose
1 x 10102404 Bracket, Dia Cart Suppt, Steel Only
1 x 10101613 Nose Wide Metal Bolt Pack

3.0 QuadGuard Installation Checklist

Customer:

Project:

QuadGuard Serial Number:

Hazard Type:

QuadGuard Location:

Checked By:

Signed:

Date:

Footings

Is the footing designed in accordance with QuadGuard Manual?	☐ Yes	☐ No
Has the footing fully cured?	☐ Yes	☐ No
Is there an anchor in every hole in the monorails and backup?	☐ Yes	☐ No
Are all the QuadGuard anchors installed and tightened?	☐ Yes	☐ No
Is there less than 5mm thread protruding above the anchor bolts?	☐ Yes	☐ No

Transitions

Is a transition required?	☐ Yes	☐ No
Is a transition installed?	☐ Yes	☐ No
Are the transition bolts tightened?	☐ Yes	☐ No
Is the transition panel installed behind the last fender panel?	☐ Yes	☐ No

Cartridges

Are all cartridges installed in accordance with the QuadGuard manual?	☐ Yes	☐ No
Are all cartridges correctly oriented? (arrow facing forward)	☐ Yes	☐ No

Fasteners

Are all the mushroom washers firmly seated in the fender panel slots?	☐ Yes	☐ No
Are all the fender springs compressed 4mm?	☐ Yes	☐ No
Are all rail bolts & nuts tight?	☐ Yes	☐ No
Is the nose assembly installed correctly?	☐ Yes	☐ No

General

Number of bays
Posted speed
Design speed

Disclaimer:

Important Note: The conformity of the installation is the responsibility of the installation contractor, and Ingal Civil Products accepts no liability for or in connection with any installation that is outside of the specifications of this manual or the Road Controlling Authority. For more information, please refer to our Standard Terms and Conditions of Sale available on our website: www.ingalcivil.co.nz.



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