

## DMM International Recall on the Dragon Camming Device in size 6

DMM International has identified a raw material problem that may affect the strength of certain units of the Dragon Cam in size 6 (Product Code A7056A).

This recall only involves the Dragon Cam in size 6 and no other sizes of Dragon Cam are involved.

The problem originates from a structural defect in a raw material that is uniquely used to make a single component on the size 6 Dragon.

The raw material involved is used to make the aluminium axle boss on the Dragon Cam in size 6. DMM International has discovered that the components made out of this defective material can develop cracks and that these cracks can grow and propagate with time. This could cause the units to fail below their rated strength.

Fig 1 Affected area



Fig 2 Affected serial numbers

Serial Number	to Serial Number
100410391B	100410495B
100530326B	100530430B
101160512B	101160601B
101310001B	101310100B
101400101B	101400200B
101400001B	101400100B
101440201B	101440300B
101440101B	101440200B
101440001B	101440100B
101670001B	101670085B
101681214A	101681298A
101800219B	101800318B

The units affected were made between the 28th April and the 30th June and there are 604 units in the market that could be affected.

If you own a Dragon Cam 6 with a serial number listed above then you should immediately discontinue all use of this product.

We would also ask that any affected Dragon Cam 6 be returned to the point of purchase or to DMM International so that it can be replaced or credited.

We predict we will have replacement units available for despatch by the middle of September. We fully understand that customers may not wish to wait this long and we will honour all requests for credit. If you would like a credit please return the Dragon 6 via the retail outlet where it was bought.

We will provide more information and updates as our investigations progress.

Instructions for returning the cams to DMM International can be found at [www.dmmclimbing.com/dragonrecall.asp](http://www.dmmclimbing.com/dragonrecall.asp) or by contacting DMM international at [d6@dmmwales.com](mailto:d6@dmmwales.com)

DMM International would like to sincerely apologise for the inconvenience that this recall will cause. We take enormous pride in our products and make every effort to ensure that all our products are of the highest quality. We will do our very best to work with the climbing community to resolve this issue as quickly as possible.

## Addendum – Full Background on the Dragon 6 Recall

On Tuesday the 20th July DMM International received a phone call from a retailer in the UK. The retailer had received a Dragon Cam 6 from a customer which had a severe crack in the axle boss. On receiving a photograph of the cracked axle boss we immediately started an internal investigation looking at possible causes for how the crack had occurred. We looked at all aspects of the product; material, design and processes.

The aluminum axle boss on the Dragon 6 is a unique component that is CNCed from 50mm 7075-T6 aluminum bar. DMM only use 50mm bar for this unique product component.

We have made 1148 size 6 Dragons to date. The axle bosses on these cams have been made from two separate deliveries of 50mm bar. The axle bosses made from the initial delivery of bar are structurally sound, do not develop cracks and are built to our normal high standards.

However it seems that the most recent delivery of 50mm bar contains sections of bar that have an irregular grain structure and irregular grain boundaries. It is these serious internal grain irregularities that are causing cracks to appear and grow over time. We are currently not certain what proportion of the bar that was delivered is defective, but the raw material, all components made from it and all finished units have been isolated and quarantined. Samples of the bar have gone for independent analysis and we are talking to the mill that supplied the bar about the material.

There are 304 size 6 Dragons with bosses made from the second batch of poor material in the market worldwide. We are however issuing a full recall of all 604 units that have been shipped from our warehouse in case of any cross-contamination of components and to avoid confusion amongst consumers.

We believe the mechanism that is causing the cracks to appear in the axle boss is as follows:

- The axle boss is machined from the defective 50mm aluminum bar and are then rumbled, heat treated and anodised. These bosses can contain serious grain irregularities and irregular grain boundaries, but visually seem perfect. Thus they pass pre-assembly inspection and go into pre-assembly stores. The axle bosses are tested by trying to pull them apart with the axle rods inserted – all bosses tested have made over 22kN.
- The cam stem is then press fitted into the axle boss – at this time and from now on the boss is under stress as the stem is a compression fit.
- If the internal structure of the aluminum material used to make the axle boss contains areas of weakness then it may be unable to resist the expansion forces generated by the stem being in compression and cracks can gradually initiate. These cracks are initially microscopic and not visible, but then over time grow and propagate until they are easily visible.
- Every safety critical product we manufacture is 100% inspected after final assembly, however because this problem develops over a period of time the units appeared perfect and were passed into the finished goods warehouse. The completed sub-assemblies were tested to failure at over 16kN
- We are still investigating the factors and timelines involved in cracking process, but it seems to take a period of between 3-4 weeks for cracks become visible.

We have checked stock sitting in the WH and can see very small cracks have started to appear in about 15% of units that are about 1 month old. Units with very small cracks like this are still making over 14kn in destruction testing, however we anticipate that units with larger cracks will break well below their rated strength.

We have received back the unit with the full crack in the boss and will destruction test this once we have concluded the non-destructive testing.

We will, of course, continue to investigate this further and implement all and any procedures necessary to stop this type of incident happening again in the future.