

Utfärdare Issued by Aussteller Bertil Nyström	Datum Date Datum 2005-01-11 Rev. 1	Produkt Product Produkt Construction hoists and work platforms
Från maskin nr. From machine No. Von Maschine Nr.	Till To Zu	Berör/Concerns/Betrifft Recommendation – supervision on ALIMAK-manufactured mast sections

Recommendation regarding the overhaul of Alimak manufactured mast sections for construction hoists and work platforms

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General:

Alimak has manufactured Scando mast sections (cc 650*650, L = 1508 mm) since 1962 and Scando Super mast sections (cc 650*900, L = 1508 mm) since 1983.

The mast sections' performance has throughout the years been constructively improved and higher steel qualities have been introduced. This has meant that permitted loads have been increased (longer tie in distances and higher mast overhangs).

From 1988 hot dip galvanizing of the mast sections started to be introduced as standard surface treatment of the mast sections in order to improve the protection against corrosion.

The mast section is to be treated as a vitally carrying structure. It is, apart from the normal loadings, also exposed to transport damages and corrosion damages, which can vary very much depending on handling and storage. After a long time's use wearing of mast tubes arises and the risk for fatigue failure in welding joints increases.

The wearing of rack also increases with the increased use and above all if the lubrication has not been satisfactory. This means that the wearing of the cog pinions increases and the driving comfort of the hoist/work platform deteriorates.

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Form approved by Anders Nilsson, After Sales Manager. Date: 2004-11-24

The previous service message MS 24/85 regarding the repair of carrying structures is replaced by this message when it comes to the overhaul of mast sections. The changes, which are now introduced, are that cutting and welding of damaged structural elements is not allowed. It is not allowed that broken welding joints are re-welded, as very big demands are put on licensed welding competence and the fact that detailed demands for welding type, welding goods and suitable welding fixtures are not available in the field.

A comprehensive, visual inspection of all mast sections should be undertaken ten years after manufacture, and then at intervals of five years after that. Records of such inspections should be kept. Where such an inspection highlights potential wear, damage or corrosion, then further investigation should be undertaken prior to the mast section being returned to service.

IMPORTANT!

Depending on the fact that the outer dimension of the mast sections and the design of the racks are the same, it is possible to use old and worn mast sections with new hoists and work platforms.

The new equipment might have considerably higher capacities and weights and thus might cause that the old mast sections become overloaded.

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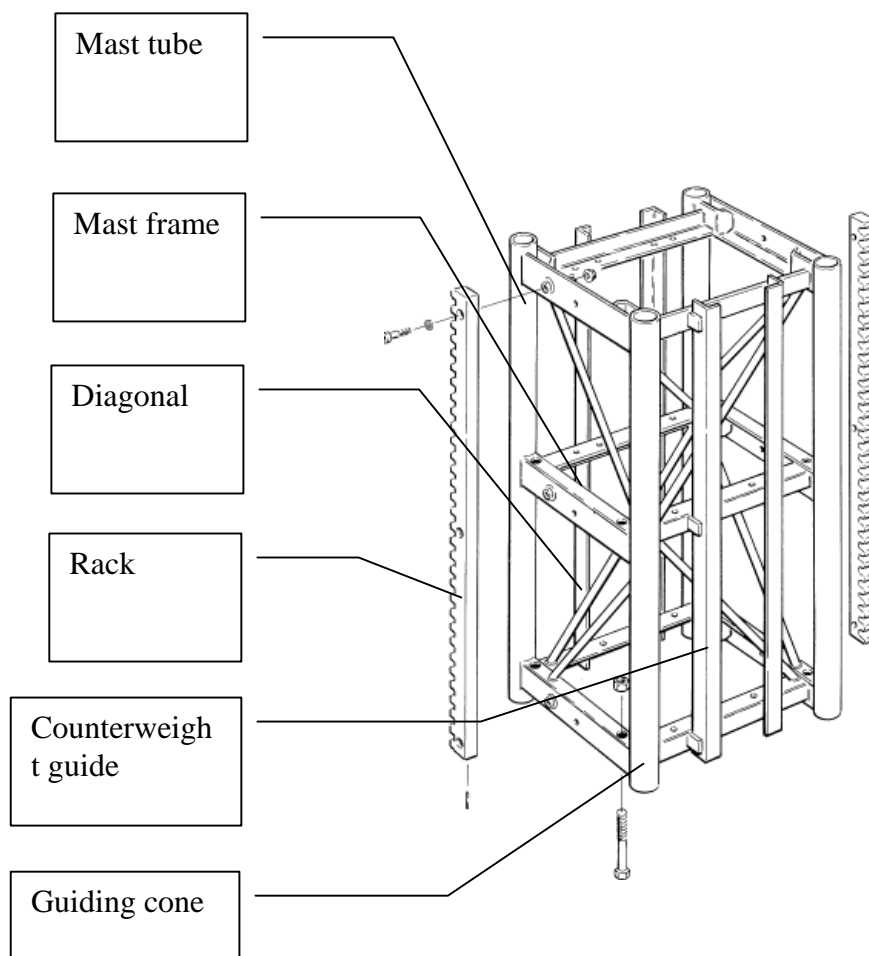
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The recommendation comprises the following mast types and variants of these with reinforced mast tubes, transition mast sections etc.:

Mast section (cc 650*650, L = 1508 mm)	Item No. 0279911-SUB	Year of manufacture 1962-1979
	0293165-SUB	
Mast section (cc 650*650, L = 1508 mm)	Item No. 9005066-SUB	Year of manufacture 1979-1988
	9006541-SUB	
Mast section (cc 650*650, L = 1508 mm)	Item No. 9029708-SUB	Year of manufacture 1988-2003
	9029710-SUB	
Mast section (cc 650*900, L = 1508 mm)	Item No. 9021500-SUB	Year of manufacture 1983-1988
	9021501-SUB	
Mast section (cc 650*900, L = 1508 mm)	Item No. 9029715-SUB	Year of manufacture 1988-2003
	9029717-SUB	

Note!

The mentioned item No. is for a mast section without rack and for performance with/without welded counterweight guide. Only the item No. for mast sections with the min. goods thickness in the main tubes is shown.

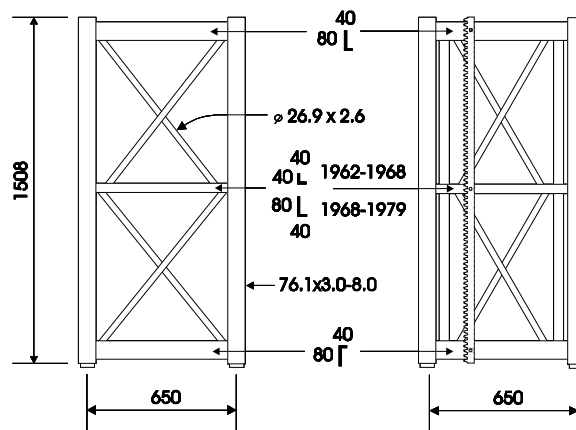


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Scando Mast section

Item No. 0279911-SUB and 0293165-SUB with variants
Year of manufacture 1962-1979



Marks of identification:

The main tubes have a diameter of 76.1 mm and the min. tube thickness is 3.0 mm between 1962-1968. Between 1968-1975 the min. tube thickness is 4.0 mm and between 1975-1979 the min. tube thickness is 4.2 and up to 8.0 mm on reinforced mast sections.

The mast frames are of angle-iron 80*40*6 mm with the exception of the middle frame, which is of angle-iron 40*40*6 mm during the years 1962-1968.

The diagonals are of tube diameter 26.9*2.6 mm.

The rack is bolted in threaded holes on the mast frames.

The mast section is normally painted.

Control:

- Deformation of diagonals, mast frames, main tubes, guiding cones, and, where appropriate, counterweight guide (Ruler, sliding calliper, measuring tape)
- Corrosion and wearing of main tubes (Ultrasound)
- Cracks in welds (Visually or magnet powder testing)
- Wearing of rack (Gauge or other measuring equipm.)
- Fastening of rack (Torque key)

Acceptance criteria:

See sep. enclosure

Recommendation:

All mast sections manufactured between 1962-1968 to be scrapped.

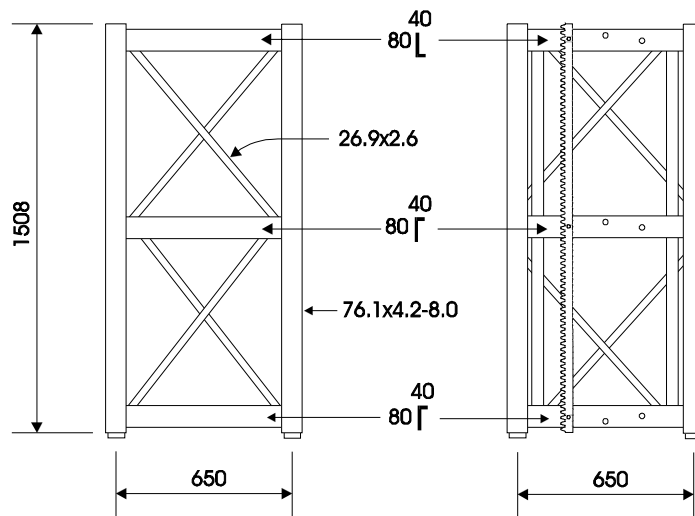
For mast sections manufactured between 1968-1979 an improved control with regard to the acceptance criteria ought to take place. If these are not fulfilled, the mast sections to be scrapped.

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Scando Mast section

Item No. 9005 066-SUB and 9006 541--SUB with variants
Year of manufacture 1979-1988



Marks of identification:

The main tubes have a diameter of 76.1 mm and the min. goods thickness is 4.2 to 8.0 mm.

These mast sections have mast frames, which around consist of angle-irons 80*40*6 mm. The mast frame side, where the rack is mounted, has 2 extra holes.

The diagonals are of tubes diameter 26.9*2.6 mm.

The rack is bolted in threaded holes on the mast frames.

The mast section is normally painted.

Control:

- Deformation of diagonals, mast frames, main tubes, (Ruler, sliding calliper, measuring guiding cones, and, where appropriate, cwt guide tape)
- Corrosion and wearing of main tubes (Ultrasound)
- Cracks in welds (Visually or magnet powder testing)
- Wearing of rack (Gauge or other measuring equipment)
- Fastening of rack (Torque key)

Acceptance criteria:

See sep. enclosure

Recommendation:

Exchange of worn rack (incl. securing screws) and exchange of damaged guiding cone can be carried out.

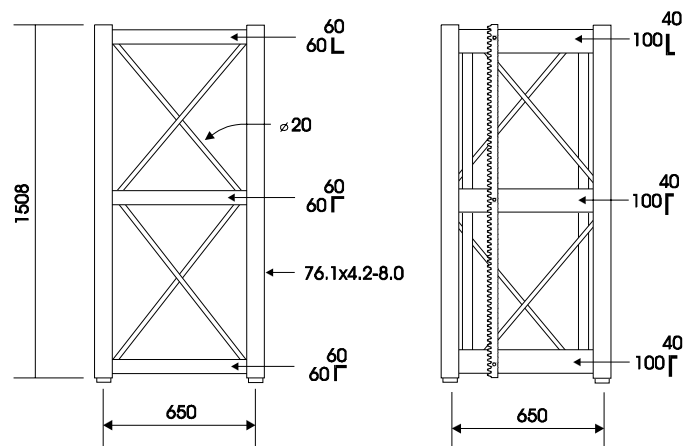
If the acceptance criteria on other items are not fulfilled, the mast section is to be scrapped.

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Scando Mast section

Item No. 9029 708-SUB and 9029 710-SUB with variants
Year of manufacture 1988-2003



Marks of identification:

The main tubes have a diameter of 76.1 mm and a min. goods thickness of 4.2 to 8.0 mm.

The mast frames (where the rack is attached) are of rolled angle-profile 100*40*5 mm and the other frames are of rolled angle-profile 60*60*5 mm.

The diagonals are of solid round bar diameter 20 mm.

The rack is attached with screws and locking nuts on the mast frames.

The mast section is painted or hot dip galvanized.

Control:

- Deformation of diagonals, mast frames, main tubes, guiding cones, and, where appropriate, cwt guide (Ruler, sliding calliper, measuring tape)
- Corrosion and wearing of main tubes (Ultrasound)
- Cracks in welds (Visually or magnet powder testing)
- Wearing of rack (Gauge or other measuring equipment)
- Fastening of rack (Torque key)

Acceptance criteria:

See sep. enclosure

Recommendation:

Exchange of worn rack (incl. securing screws and nuts) and exchange of damaged steering cone, as well as direction of the lightly damaged counterweight guide can be carried out.

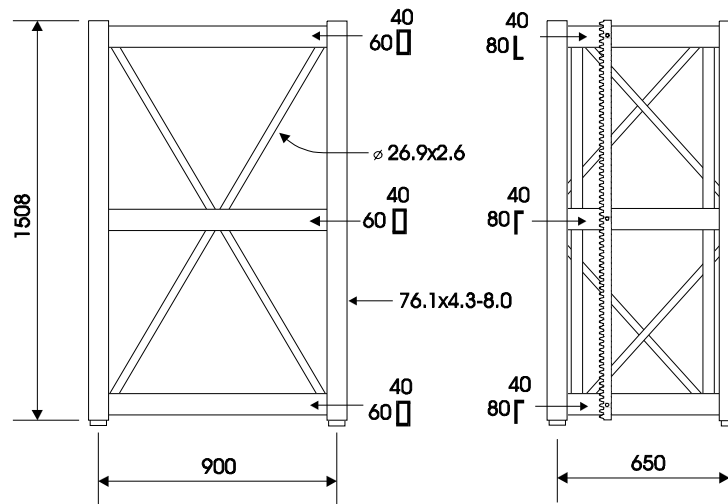
If the acceptance criteria on other items are not fulfilled, the mast section to be scrapped.

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Scando Super Mast section

Item No. 9021 500-SUB and 9021 501-SUB with variants
Year of manufacture 1983-1988



Marks of identification:

The main tubes have a diameter of 76.1 mm and a min. goods thickness of 6.3 to 11.0 mm.

The mast frames, where the rack is attached, are of angle-iron 80*40*6 mm.
 The other mast frames are of square tubes 60*40*4 mm.

The diagonals are of tubes diameter of 26.9*2.6 mm.

The rack is screwed in threaded holes on the mast frames.

The mast section is normally painted.

Control:

- Deformation of diagonals, mast frames, main tubes, (Ruler, sliding calliper, measuring guiding cones, and, where appropriate, cwt guide tape)
- Corrosion and wearing of main tubes (Ultrasound)
- Cracks in welds (Visually or magnet powder testing)
- Wearing of rack (Gauge or other measuring equipment)
- Fastening of rack (Torque key)

Acceptance criteria:

See sep. enclosure

Recommendation:

Exchange of worn rack (incl. securing screws), exchange of damaged guiding cone and direction of the lightly damaged counterweight guide can take place.

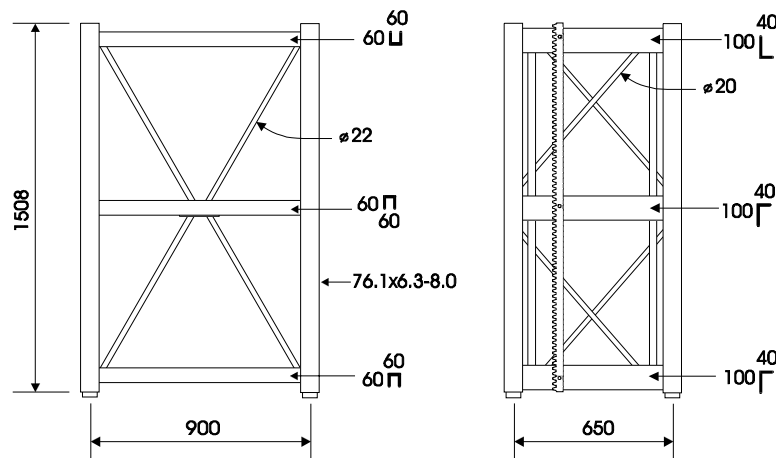
If the acceptance criteria are not fulfilled on the other items, the mast sections to be scrapped.

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Scando Super Mast section

Item No. 9029 715-SUB and 9029 717-SUB with variants
Year of manufacture 1988-2003



Marks of identification:

The main tubes have a diameter of 76.1 mm and a min. goods thickness of 6.3 to 11.0 mm.

The mast frames (where the rack is attached) are of welded angle-profile 100*40*5 mm and the other frames are of rolled U-profile 60*60*5 mm.

The diagonals are of solid round bar diameter 20 mm on the front side and diameter 22 on the long side of the mast.

The rack is attached with screws and locking nuts on the mast frames.

The mast section is hot dip galvanized as standard.

Control:

- Deformation of diagonals, mast frames, main tubes, guiding cones, and, where appropriate, cwt guide (Ruler, sliding calliper, measuring tape)
- Corrosion and wearing of main tubes (Ultrasound)
- Cracks in welds (Visually or magnet powder testing)
- Wearing of rack (Gauge or other measuring equipment)
- Fastening of rack (Torque key)

Acceptance criteria:

See sep. enclosure

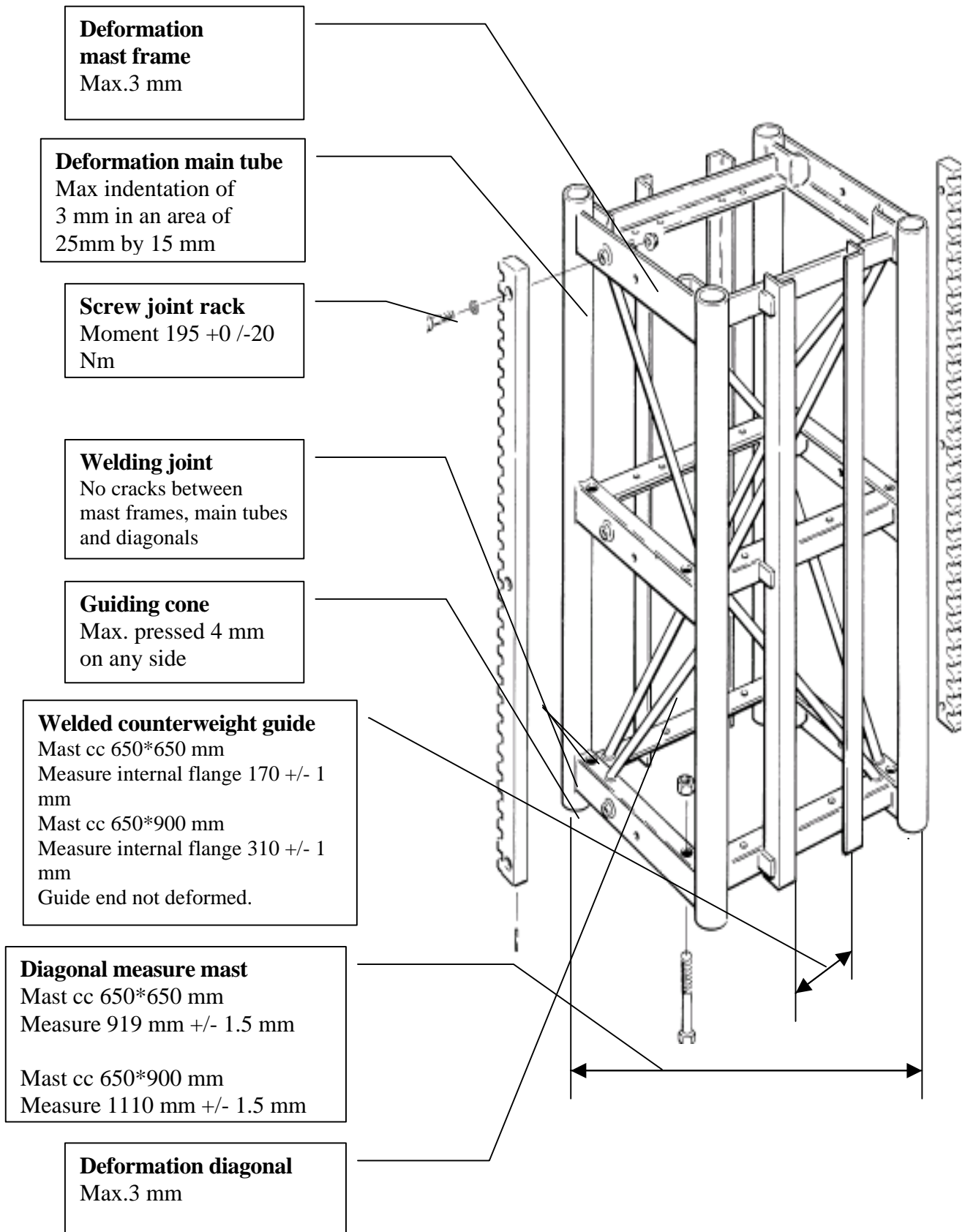
Recommendation:

Exchange of worn rack (incl. securing screws and nuts), exchange of damaged guiding cone and direction of the lightly damaged counterweight guide to be carried out.

If the acceptance criteria are not fulfilled on the other items, the mast sections to be scrapped.

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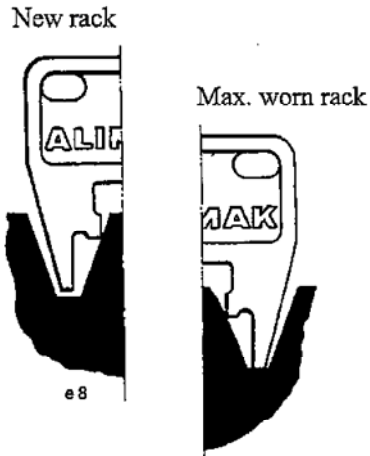
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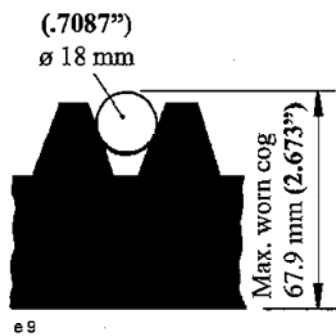
Wearing of rack – Module 8



Rack

Measure the wear with the ALIMAK rack gauge part No. 9019 645. If the gauge reaches the bottom, the rack must be replaced.

Note: Only for racks manufactured since Jan. 1987.



Alternative

Measure with a dia. 18 mm (.709 in.) gauge rod and sliding caliper.

Note: For racks manufactured before Jan. 1987, this method must be used.

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Wearing of mast tubes

Mast tubes

Checking of wear and corrosion on mast sections is carried out by means of Alimak testing equipment for ultrasonic sounding, Part No. 3001 991-301. The bottom mast section is thoroughly checked.

New mast tubes t mm (inches)	Max. worn out mast tubes t mm (inches)
4.2 (.165 in.)	3.1 (.122 in.)
6.3 (.248 in.)	4.7 (.185 in.)
8.0 (.315 in.)	6.0 (.236 in.)
approx. 25% reduction of wall thickness	

Note that wear/corrosion on the mast sections have an effect on max. overhang (free top) and max. allowed mast height as follows:

Reduction of original wall thickness in %	Reduction of overhang of the hoist mast in %	Reduction of mast height in %
10%	15%	20%
15%	20%	30%
20%	20%	40%
25%	25%	50%
more than 25%	Mast section should be scrapped	



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