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PRETORIA METAL PRESSINGS
a division of Denel (Pty) Ltd

SPECIFICATION FOR BAR ALUMINIUM Ø 19,5 mm BASED ON WN 3.1355 F44

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ISSUE **2**

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For original signature refer to issue 1

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Configuration Control1998-09-14
Date**Approved by**JA Smit
Product Manager1998-09-14
DateHJ van Eck
Acceptance Authority1998-09-14
Date**AMENDMENT HISTORY SHEET**

ISSUE	DETAILS	ECP No	DONE BY	DATE
1	Compile and implement specification.	E2/097/97QF	I.P.	1998-09-14
2	Add F44 and change UTS, proof stress and Elongation.	E2/042/02MC	I.P. 	2002-04-25

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1. SCOPE

- 1.1 This specification covers bar aluminum based on WN 3.1355 F44 (DIN 1725) or equivalent that conforms to this specification.

2. APPLICABLE DOCUMENTS

DIN 50145

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3. REQUIREMENTS

3.1 General material requirements

The material shall be supplied as extruded and drawn wrought alloy bars in the age hardened condition.

3.2 Product characteristics

3.2.1 The material shall be supplied as bars with plain ends in lengths of 2,8 - 3 meters.

3.2.2 The diameter shall be 19,5 mm +0,00 mm.
-0,130 mm.

3.2.3 The straightness deviation shall not exceed 2 mm / m.

3.3 Chemical, mechanical and metallurgical properties

3.3.1 Chemical composition (Cast analysis)

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ELEMENT	SPECIFICATION (%)
Silicon (Si)	0,50 maximum
Manganese (Mn)	0,30 - 0,9
Chromium (Cr)	0,10
Magnesium (Mg)	1,2 - 1,8
Copper (Cu)	3,8 - 4,9
Zinc (Zn)	0,25 maximum
Iron (Fe)	0,50 maximum
Titanium (Ti)	0,15 maximum
Titanium + Zirconium (Ti + Zr)	0,20 maximum
Impurities (each)	0,05 maximum
(total)	0,15 maximum
Aluminum (Al)	Balance



3.3.2 Mechanical properties

Ultimate tensile strength: 440 MPa minimum.

Proof stress (0,2%): 310 MPa minimum.

Elongation (A5)*: 10% minimum.

* A5 = $5,65 \sqrt{A}$ where A is the crosssectional area.

3.3.3 Metallurgical properties

The material must be in the age hardened condition.

3.4 Workmanship

3.4.1 The material must be free from cracks, inclusions and severe mechanical damage.

3.4.2 Grooves and draw marks due to the manufacturing process may not be deeper than 0,04 mm.

3.4.3 Surface defects for example laps may not exceed 0,3 mm.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection

4.1.1 Unless otherwise specified in the contract or order, the supplier is responsible for the performance of all inspection requirements as specified herein.

4.1.2 Except as otherwise specified, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements.

4.1.3 The purchaser or his representative reserves the right of inspection of Laboratory Certificates of raw materials and components used for the manufacture of the material.

4.1.4 The supplier shall be responsible for making available to the purchaser all facilities necessary if required, for inspection of the material.

4.1.5 The supplier will be responsible for the implementation of an applicable quality management system to assure the appropriate quality of the product. The purchaser reserves the right to audit the supplier's production facilities at all times to ascertain whether quality requirements are being met.

4.2 Special tests and examinations

Not applicable.

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4.3 Quality conformance inspection

4.3.1 Lot information

4.3.1.1 A lot shall consist of one or more batches of material produced by one manufacturer in accordance with the same specifications under one continuous set of operating conditions. All materials must be of the same cast or heat.

4.3.1.2 If the quantity is such that more than one cast is required, material of the same cast shall be grouped together. Each case or bundle shall be clearly identifiable as to the relevant cast number.

4.3.1.3 The supplier shall ensure that all deliveries to the end user are fully traceable by lot number and that identification records be supplied to the end user to match lot numbers with inspection records.

4.4 Test methods

Tensile test: In accordance with DIN 50145.

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5. PREPARATION FOR DELIVERY

5.1 Packing

5.1.1 To be strapped in bundles suitable for forklift handling using 4 evenly spaced steel straps. The mass shall not exceed 1 000 kg, unless otherwise agreed between the supplier and purchaser.

5.1.2 In the case of an overseas supplier, the bundles shall be packed in a seaworthy condition ensuring the quality of the product during transport.

5.1.3 If containers are used for transportation of the material, open top containers must be used. The material must be properly stacked in the container with spaces of ± 150 mm between them.

5.2 Package marking

All bundles, boxes and / or containers are to be legibly and durably marked with the following details on suitable labels:

5.2.1 Document and order number.

5.2.2 Name of supplier.

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5.3 **Documentation for delivery**

The following documents must be forwarded with each consignment of material:

- 5.3.1 The original specification which accompanied the order in the case of a single consignment or the final consignment of staggered deliveries.
- 5.3.2 A certificate of conformance / analysis stating all the results of the tests conducted by the supplier during manufacture and final acceptance.
- 5.3.3 Certificate of acceptance issued by the end user or his duly representative or a letter from the end user for the release of the consignment for shipment in the case of an overseas supplier.
- 5.3.4 The supplier's delivery note shall clearly state the relevant order and document number.

6. **NOTES**

If the supplier of the material is not the original manufacturer, the full name and address of the manufacturer must be supplied in writing prior to the dispatch of the consignment.

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