

ENGINEERING: ENGINEERING SYSTEMS ENABLEMENT

QUALITY MANAGEMENT SYSTEM

CUTTING AND FETTLING

OF

BRAKE SHOES FOR KOEDOESPOORT FOUNDRY

TECHNICAL SPECIFICATION

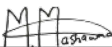
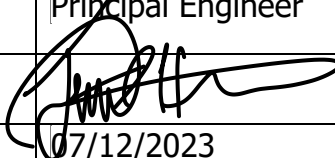
Specification number	EF_KDS_SPEC_2001
Version number	00
Compiler name	Engineer
Signature	
Date	07/12/2023
Approver name	Principal Engineer
Signature	
Date	07/12/2023

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1 DOCUMENT VERSION

This specification supersedes all previous specifications for the cutting and fettling of Brake shoes for the Koedoespoort (KDS) Foundry. |

2 PURPOSE

The purpose of this document is to provide the potential supplier with the minimum technical requirements for the cutting and fettling of Brake shoes for the KDS Foundry. Cutting and fettling of Brake shoes is a KDS Foundry process that is conducted for the removal of unwanted excess metal and any unnecessary metal projections on the surface of a casting. |

3 SCOPE OF SPECIFICATION

This specification applies to the cutting and fettling of the different types of Brake shoe castings produced at KDS Foundry. The cut and fettle do not include the welding repair of the components. Weld repair by the contractor is prohibited unless granted written permission Transnet Engineering's Materials and Manufacturing Principal Engineer

Table 1: Types of Brake shoes produced at the KDS Foundry.

No	Component Description	Material grade	Drawing no	Item no
1	Brake shoe CS 270B310/15	M201 AAR Grade B	CME_68_083872_337_	846850005
2	Brake shoe CS 270B310/16	M201 AAR Grade B	CME_68_083847_337_	846850126
3	Brake shoe CS 270B310/17	M201 AAR Grade B	CME_68_083912_337_	868010001
4	Brake shoe CS 270B310/18	M201 AAR Grade B	CME_68_083924_337_	868010002
5	Brake shoe CS 270B310/19	M201 AAR Grade B	CME_68_083859_337_	068083860
6	Brake shoe CS 270B310/20	M201 AAR Grade B	CME_68_083860_337_	068083859

4 REFERENCE DOCUMENTATION

Technical drawings of the Brake shoe castings referenced in Table 1 above.

5 DEFINITIONS AND ABBREVIATIONS

Cutting refers to the removal of risers, gating system, vents, and sprue to remain with the cast component.

Fettling refers to the trimming or clean the rough edges of the excess cast metals within geometrical requirements.

6 TECHNICAL REQUIREMENTS

The supplier shall receive the castings as sets of Brake shoes (refer to Figure 1-2 on Appendix 1).

6.1 Brake Shoe cutting:

Cutting off larger components into smaller parts (i.e., set of 4 brake shoes into individuals).

Removal of unnecessary and unwanted material from a casting.

Client requirements:

The supplier shall be required to cut off the runners, risers, gating system, metal flow offs possible flesh, and all the other excess material on the Brake shoes (see appendix 2).

Proposed equipment:

Lancing tube, Plasma cutter, cutting torch.

6.2 Brake Shoe Grinding:

Removal of undesired material from the surface of a casting through abrasive action.

Client requirements:

The supplier shall be required to grind off the excess material projections mainly on the sections previously cut. This should be done to a required level as per the prescribed component drawing.

The supplier must ensure that castings are not overly ground (see Appendix 3).

Proposed equipment:

Grinding big wheel, cup stone grinder, surface and baby grinder, small and big angle grinder, pencil grinders.

6.3 Brake Shoe dress to gauge:

The surface finish maintenance technique is done slightly to trim and clean the steel casting surface (see Appendix 4).

Supplier requirements:

The supplier is expected to dress (grind) the samples in accordance with the expected gauge fitment.

Proposed equipment:

Baby grinder, calibrated gauges.

NB: Any work done on the casting must be conducted as prescribed and depicted in this technical specification and respective drawing, this is to ensure the maintenance of castings overall quality, structural and dimensional accuracy. Suppliers are prohibited from performing any form of welding on the castings. Damaged castings will be rejected pending an NCR and cost of the component will be recovered from the service provider. The agreement of penalties between parties will be reached during contractual stage.

6.4 Process requirements

- Visual inspection prior and post processes.
- Sort and categorize components.
- Use of certified and latest issued drawings.
- Use calibrated machinery and equipment.
- Use calibrated and certified gauges.
- Maintain Records of all calibrations.
- Typical Process flow, shown in Appendices.

7 QUANTITY

KDS Foundry produces an average of 1000 Brake shoes per month, however, quantities of Brake shoes that need to be cut and fettled shall be indicated as and when required.

8 POST PURCHASE SUPPORT

- Availability of supplier and his premises for any issues arising.
- Weigh or count, record and return the scrap resulting from the cut and fettling process. The returning consignment i.e. castings and scrap must not be less than 15 percent of the collected weight.

9 DOCUMENTATION REQUIRED

9.1 Procurement stage

- First article inspection components.]

9.2 On delivery

- Job completion and quality check sheet accompanied by a delivery note.]

10 DELIVERY

Upon delivery, the castings shall;

10.1 Be stacked and packed in an orderly sequence.

10.2 Be stored and transported in a moisture free and dry environment.

10.3 Branded with an identification logo on the casting. (i.e., spray painted with supplier's logo).

10.4 Brake shoe off cut scrap including risers, runners and gating system must be returned to the KDS Foundry.]

Delivery address:

Transnet Engineering: ESE Foundry office building A16

Mop Road

Opposite Foundry business

Koedoespoort

Pretoria

0186]

11 TIME FRAME

Expected lead times shall be as stipulated on the RFQ or tender document.

Supplier is expected to collect castings for cut and fettle on terms indicated on the RFQ or tender document.]

12 ACCEPTANCE CRITERIA

It is the responsibility of the supplier to ensure the understanding of the requirements/technical requirements of a required product or service. It is also the responsibility of the supplier to enquire and seek clarity on areas that may be unclear.

Upon the delivery of a product/service, the product/service shall be evaluated for conformance to specification requirements, using the acceptance criteria stipulated in the tender document.

13. Appendices

Appendix 1: As received brake shoes.



Figure 1: Top view of brake shoe casting set, as received by supplier.



Figure 2: Bottom view of brake shoe casting set as , received by supplier.

Appendix 2: Cutting



Figure 3: Illustrates a bottom view of brake shoe and relevant sections to be cut off.
(NB: Removal of flesh is necessary)

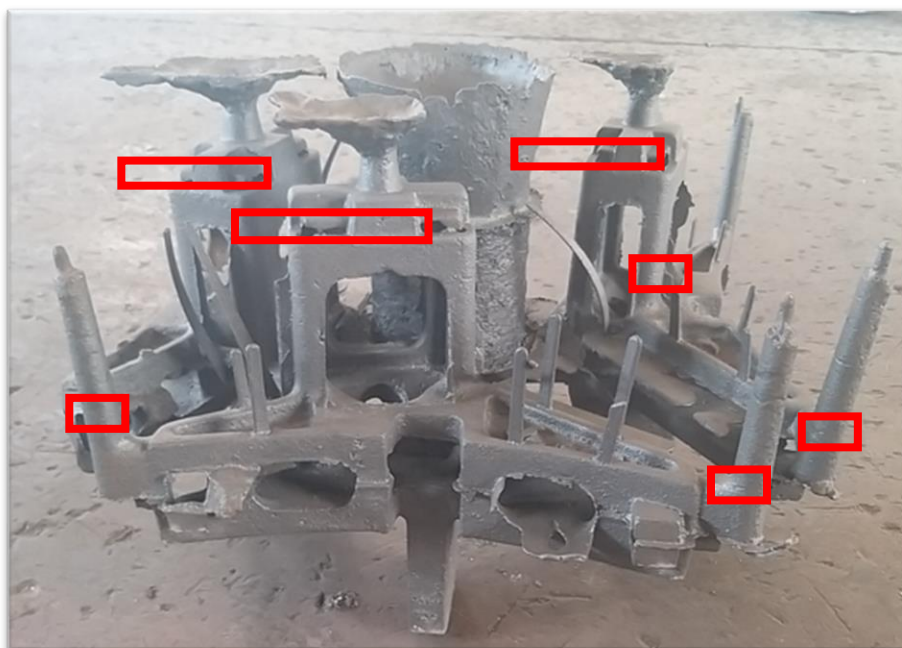
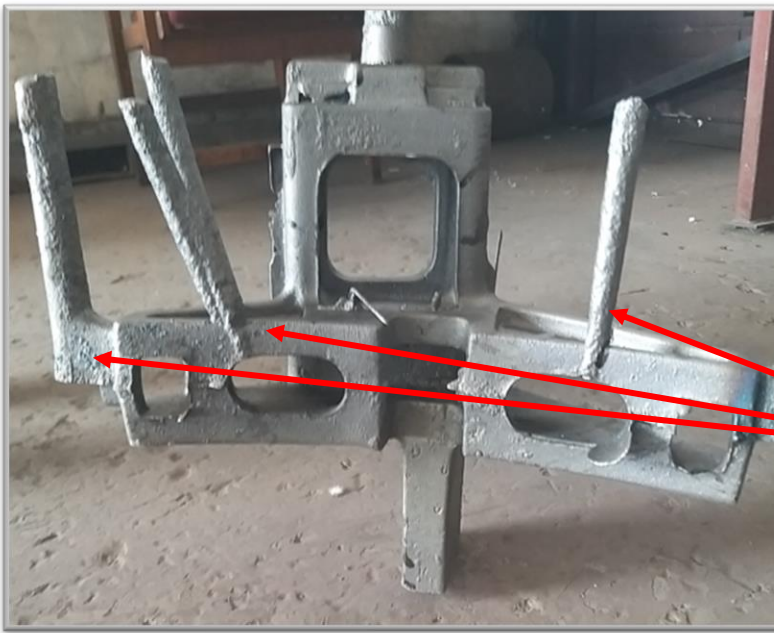


Figure 4: Illustrates a side view of brake shoe and relevant sections to be cut off.



Flow offs

Figure 5: Illustrates sections to be cut off by supplier on individual brake shoes.

Appendix 3: Fettling (grinding)



Figure 6: Illustrates a typical KDS Foundry Brake shoe post fettling.

Appendix 4: Dress to gauge

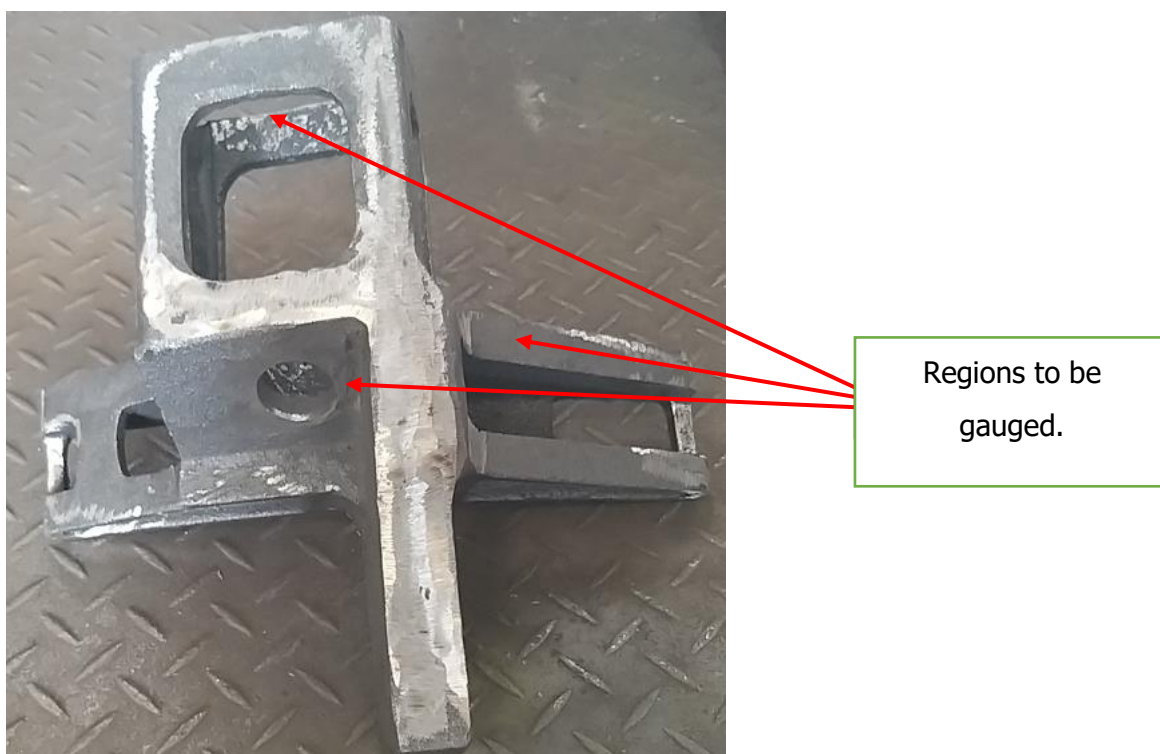


Figure 7: Illustrates the three (3) sections to be dressed for gauging.

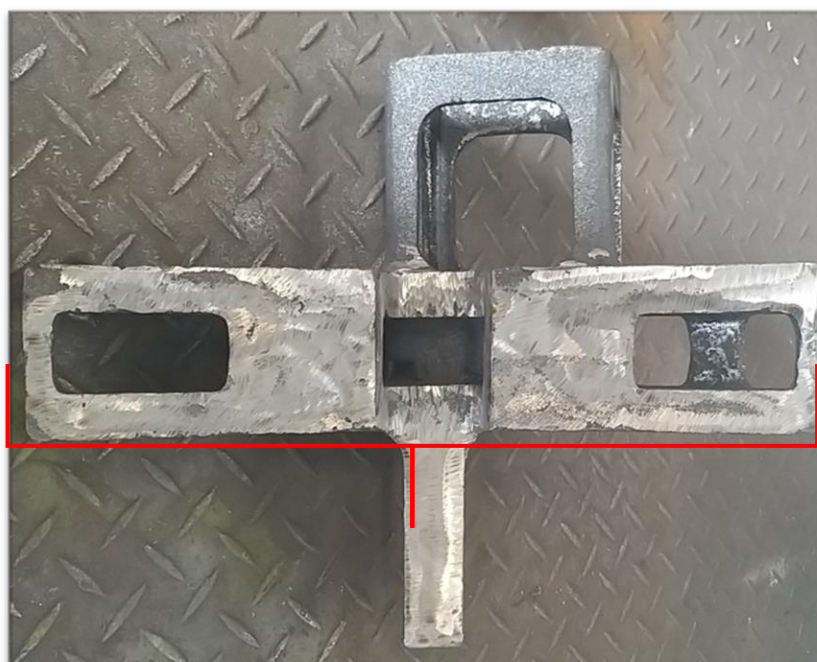


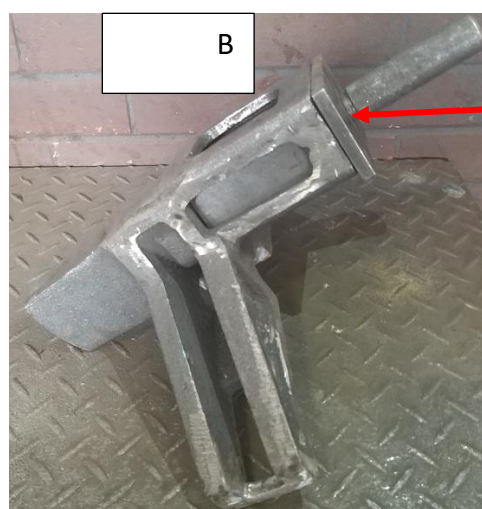
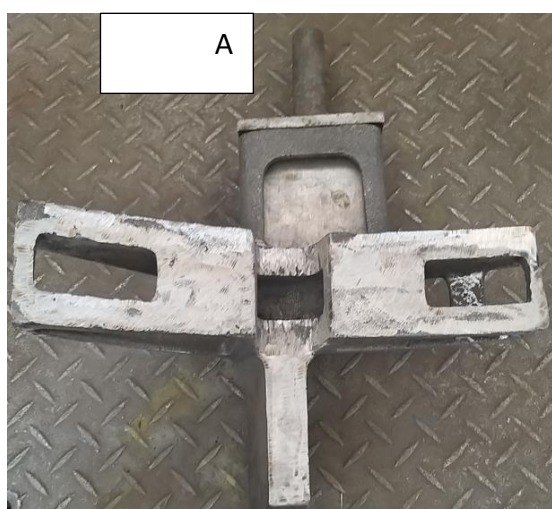
Figure 8: Illustrates a fettled and dressed surface of a Brake shoe.

Appendix 5: Gauging of Brake shoes



Gauge 1

Figure 9: Illustrates the actual first gauging of the Brake shoe.



Gauge 2

Figure 10 (A&B): Illustrates the second gauging of the Brake shoe.



Gauge 3

Figure 11: Illustrates the third gauging of the Brake shoe.