

Public Works (1898) Department.

G.O., No. 2526 *hr*

DATED 1<sup>st</sup> Oct 98

*2/10/98*

[Despatch Abstract.]

Tool Steel

Letter from the Govt of India circulating  
an amended classification of ——— to be  
observed in the preparation of orders, by all  
branches of the P.W.D., Communicated to officers  
of the Department.

*24/15*

*2.*



## GOVERNMENT OF MADRAS.

## PUBLIC WORKS DEPARTMENT.

General.  
Account.

READ—the following paper:—

From the Officiating Under Secretary to the Government of India, Public Works Department (Railway Stores), to the Secretary to the Government of Madras, Public Works Department, dated Simla, 23rd August 1898, Circular No. 5, Railway.

[Amended classification of tool steel to be observed in the preparation of indents, by all branches of the Public Works Department.]

In continuation of Government of India Circular No. 5 Ry., dated the 2nd June 1897, I am directed to forward herewith a copy of a report by the Director-General of Stores, dated the 31st January 1898, together with a copy of the amended specification therein referred to regarding the classification of tool steel to be observed in the preparation of indents.

2. The new classification has been accepted by the Government of India, and I am accordingly to request that it may be adopted in future by all branches of the Public Works Department when submitting indents on England for ordinary tool steel.

## ENCLOSURES.

*Report by the Director-General of Stores, dated 31st January 1898.*

In my report, dated 26th October 1896, proposals were made for the classification of tool steel into three grades, for convenience in the preparation of indents.

It has been found in practice desirable to somewhat further sub-divide this classification, and with this view, a specification has been drawn up showing six "tempers" (the term "grade" has been dropped as being liable to misinterpretation by contractors) suitable for various purposes.

It is suggested that this specification be brought to the notice of the Public Works and Railway Departments in India in order that, if there be no objection, the new classification may be adopted when demands for ordinary tool steel are preferred.

## SPECIFICATION OF STEEL.

(Crucible Cast, Shear, Blister, and Ferrule.)

## Sizes and Quantities.

The sizes specified must be strictly adhered to, and the weights given in the schedule must in no case be exceeded. To make up the schedule weights, one shorter bar, &c., of each description will be accepted, unless the number and dimensions of the bars, &c., are specified, in addition to the weight. The schedule weights in such cases include an allowance of 5 per cent. above "book" weights, and show the maximum weight of any particular size for which payment will be made. Payment will not, however, be made for more than the actual weights.

2. The cast steel is to be in lengths of about 8 feet, and the shear, blister, and ferrule steel in commercial lengths, unless otherwise specified.

## Materials.

3. All the materials comprised in the specification are to be the very best of their respective kinds, and free from defects and imperfection of every description. The name of the maker and the mark given in the schedule to be stamped on every piece.

## Crucible Cast Steel.

4. The cast steel is to be of the very best description, warranted from blister steel made of Swedish iron of well selected brands, of suitable temper for the purpose intended, and very carefully cast in small crucibles. Every bar is to be perfectly sound, free from defects, and is to have stamped on it "Warranted Crucible Cast Steel," and the letter indicating the temper as detailed in the following table:—

- A.—Suitable for turning very hard surfaces, such as chilled rolls, special steel castings, &c.
- B.—For ordinary turning, planing, shaping tools, &c.
- C.—Cutters, milling tools, rimers, gauges, drills, taps, &c.
- D.—Screwing dies, chisels, springs, small punches, &c.
- E.—Cold sets, punches, dies and stamps, shear blades, dies, &c.
- F.—Large dies, cup tools, snaps, hammers, &c.

## Shear Steel.

5. The shear steel is to be the best warranted "single" or "double" shear as specified in the schedule, made from blister steel; every bar must be carefully made, so that it may be perfectly sound from end to end, and is to be stamped "Warranted Single or Double Shear," as the case may be.

## Blister Steel.

6. The brand of the Swedish iron from which the blister steel will be made is to be stated in the tender.

## Ferrule Steel.

7. The ferrule steel is to be of the sizes specified, and made from Swedish Bessemer of the best quality. It is to weld easily, and to be capable of being hardened.

## Testing.

8. Samples of each kind of steel will be taken from the bulk for testing. The samples taken from the crucible cast steel will be made into tools and tested in such a manner as the Superintendent, India Store Depot, shall direct, and no steel will be accepted which, in the opinion of the Superintendent, India Store Depot, falls short of the tests and requirements of this specification.

The manufacture of the tools, and the testing of all other descriptions of the steel are to be carried out at the contractor's works at his expense, and the tools and tested samples are to be forwarded free of charge to the Superintendent, India Store Depot.

9. The Superintendent, India Store Depot, is to have full power to subject every bar to any test or tests to determine if the steel is suitable for the purpose intended, should he deem it advisable to do so.

## Weighing and Oiling.

10. Immediately after approval of the samples all the steel of every description is to be thoroughly cleansed, then weighed, and coated with the best boiled linseed oil, which is to be allowed to dry thoroughly before the packing and marking detailed below is carried out. In case the examining officer is unable to be present when the steel is weighed, the correctness of the weights entered in the packing account must be guaranteed in writing by the contractor.

## Packing and Marking.

11. The cast, shear, and blister steels are to be packed in cases made and addressed, &c., in accordance with the annexed specification and packing cases. No case, when full, to weigh more than 7 cwt.; these steels being in packing cases will not require any paint marks.

The ferrule steel is to be packed in bundles not exceeding 2 cwt. each, bound round with  $\frac{3}{4}$  inch steel wire put on hot, and the ends twisted and hammered down flat. Before bundling, both ends of every piece are to be painted for a length of 2 feet with the colour or colours specified in the schedule; when two colours are specified both ends of each piece are to be painted for a length of one foot with each of the colours named. The address (as given in the schedule) and such descriptive and shipping marks as may be required by the Superintendent, India Store Depot, are to be stencilled in white paint on each bundle; the stencil plates must be provided by the contractor. All the paint used for the ends and addresses is to be prepared as described in the annexed specification of paint for marking iron, &c., the address and description of marking, with colours, are to be clearly specified in the packing accounts (Form 214).

No. 2526 W., 1st OCTOBER 1898.

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Particular attention is directed to the instructions for oiling and marking; the oil, bands of paint, and address are to be perfectly dry before the steel is despatched from the contractor's works; oiling and marking must, therefore, be taken in hand immediately after any samples have been approved.

All samples sent to the India Store Depot, Belvedere road, Lambeth, S.E., are to be marked Iron Branch, and advised by a delivery note (Form 140) similarly marked.

ORDER—No. 2526 W., dated 1st October 1898.

Communicated to officers of the Public Works Department, for information and guidance, in continuation of G.O., No. 1724 W., dated 30th June 1897.

(True Extract.)

Under Secretary to Government.

To the Chief Engineer for Irrigation.  
" the Consulting Engineer for Railways.  
" Superintending Engineers.  
" the Consulting Architect to Government.  
" the Superintendent of Works, Lighthouse Division.

Exd. T. K. Narayana Aiyangar.

*Hoko*  
Public (1898) Department.

CURRENT No. 7751

Order

*No. 2526 W. 1.10.98*

*Communicated*

*to officers of the P.W.*

*Dept. for information*

*& guidance, in con-*

*tinuation of G.O. No.*

*1724 W. dated 30th*

*June 1897.*

*APK*

*26.9.98.*

*From the Govt. of India*

*Circular No. 5 Railway.*

*Dated 23<sup>rd</sup> August 1898.*

*Received*

*Registered*

*17<sup>th</sup> September 1898.*

*Enclosures*

*Spare copies 50.*

SUBJECT.

*Classification of tool steel.*

*Regarding the — in the*

*preparation of insents by all*

*offices of the P.W. Dept.*

*Ch. E. for Irrigation*

*C. E. for Railways*

*Superintending Engineers*

*Ch. Architect to Govt.*

*S. of W. Lighthouse Division*

*TH*

*23/9/98*

To. The Secy to the Govt of Madras.  
Public Works Dept<sup>th</sup>.

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Enclosure No. 1 to Government of India, Public Works Department,  
Circular No. 5 Railway, dated 23rd August 1898.

**Report by the Director General of Stores, dated 31st January  
1898.**

In my report, dated 26th October 1896, proposals were made for the classification of tool steel into three grades, for convenience in the preparation of indents.

It has been found in practice desirable to somewhat further sub-divide this classification, and with this view, a specification has been drawn up shewing six "tempers" (the term "grade" has been dropped as being liable to misinterpretation by contractors) suitable for various purposes.

It is suggested that this specification be brought to the notice of the Public Works and Railway Departments in India in order that, if there be no objection, the new classification may be adopted when demands for ordinary tool steel are preferred.

1898

to the...  
the...

728P  
Enclosure No. 2 to Government of India, Public Works Department, Circular  
No. 5 Railway, dated 23rd August 1898.

### Specification of Steel.

(Crucible Cast, Shear, Blister, and Ferrule.)

#### *Sizes and Quantities.*

1. The sizes specified must be strictly adhered to, and the weights given in the schedule must in no case be exceeded. To make up the schedule weights, one shorter bar, etc., of each description will be accepted, unless the number and dimensions of the bars, etc., are specified, in addition to the weight. The schedule weights in such cases, include an allowance of 5 per cent. above "book" weights, and show the maximum weight of any particular size for which payment will be made. Payment will not, however, be made for more than the actual weights.

2. The cast steel is to be in lengths of about 8 feet, and the shear, blister, and ferrule steel in commercial lengths, unless otherwise specified.

#### *Materials.*

3. All the materials comprised in the specification are to be the very best of their respective kinds, and free from defects and imperfection of every description. The name of the maker and the mark given in the schedule to be stamped on every piece.

#### *Crucible Cast Steel.*

4. The cast steel is to be of the very best description, warranted from blister steel made of Swedish iron of well selected brands, of suitable temper for the purpose intended, and very carefully cast in small crucibles. Every bar is to be perfectly sound, free from defects, and is to have stamped on it "Warranted Crucible Cast Steel," and the letter indicating the temper as detailed in the following table:—

- A.—Suitable for turning very hard surfaces, such as chilled rolls, special steel castings, etc.
- B.—For ordinary turning, planing, shaping tools, etc.
- C.—Cutters, milling tools, rimers, gauges, drills, taps, etc.
- D.—Screwing dies, chisels, springs, small punches, etc.
- E.—Cold sets, punches, dies and stamps, shear blades, dies, etc.
- F.—Large dies, cup tools, snaps, hammers, etc.

#### *Shear Steel.*

5. The shear steel is to be the best warranted "single" or "double" shear as specified in the Schedule, made from blister steel; every bar must be carefully made, so that it may be perfectly sound from end to end, and is to be stamped "Warranted Single or Double Shear" as the case may be.

#### *Blister Steel.*

6. The brand of the Swedish iron from which the blister steel will be made is to be stated in the Tender.

*Ferrule Steel.*

7. The ferrule steel is to be of the sizes specified, and made from Swedish Bessemer of the best quality. It is to weld easily, and to be capable of being hardened.

*Testing.*

8. Samples of each kind of steel will be taken from the bulk for testing. The samples taken from the crucible cast steel will be made into tools and tested in such a manner as the Superintendent, India Store Depôt, shall direct, and no steel will be accepted which, in the opinion of the Superintendent, India Store Depôt, falls short of the tests and requirements of this specification.

The manufacture of the tools, and the testing of all other descriptions of the steel are to be carried out at the Contractor's works at his expense, and the tools and tested samples are to be forwarded free of charge to the Superintendent, India Store Depôt.

9. The Superintendent, India Store Depôt, is to have full power to subject every bar to any test or tests to determine if the steel is suitable for the purpose intended, should he deem it advisable to do so.

*Weighing and Oiling.*

10. Immediately after approval of the samples all the steel of every description is to be thoroughly cleansed, then weighed, and coated with the best boiled linseed oil, which is to be allowed to dry thoroughly before the packing and marking detailed below is carried out. In case the examining officer is unable to be present when the steel is weighed, the correctness of the weights entered in the Packing Account must be guaranteed in writing by the Contractor.

*Packing and Marking.*

11. The cast, shear, and blister steels are to be packed in cases made and addressed, etc., in accordance with the annexed Specification of Packing Cases. No case when full, to weigh more than 7 cwt.; these steels being in packing cases will not require any paint marks.

The ferrule steel is to be packed in bundles not exceeding 2 cwt. each, bound round with  $\frac{3}{8}$  inch steel wire put on hot, and the ends twisted and hammered down flat. Before bundling, both ends of every piece are to be painted for a length of 2 feet with the colour or colours specified in the Schedule; when two colours are specified both ends of each piece are to be painted for a length of one foot with each of the colours named. The address (as given in the Schedule) and such descriptive and shipping marks as may be required by the Superintendent, India Store Depôt, are to be stencilled in white paint on each bundle; the stencil plates must be provided by the Contractor. All the paint used for the ends and addresses is to be prepared as described in the annexed Specification of Paint for marking Iron, etc. the address and description of marking, with colours, are to be clearly specified in the Packing Accounts (Form 214).

Particular attention is directed to the instructions for oiling and marking; the oil, bands of paint, and address are to be perfectly dry before the steel is despatched from the Contractor's works; oiling and marking must, therefore, be taken in hand immediately after any samples have been approved.

All samples sent to the India Store Depôt, Belvedere Road, Lambeth, S. E., are to be marked "Iron Branch," and advised by a Delivery Note (Form 140) similarly marked.