



TENUGHAT VIDYUT NIGAM LIMITED

2x210 MW Tenughat Thermal Power Station
Jharkhand
Dry Fly Ash Collection & Disposal System



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PART IV (DIMENSIONAL TOLERANCE)

GENERAL

The materials used in construction shall, besides conforming to the specifications and standards mentioned, be the best of the existing kinds obtainable. Where a particular 'Brand' or 'Make' of material is specified such 'Brand' or 'Make' of material alone shall be used.

A high standard of workmanship and accuracy shall be achieved in all sections and parts of the work. The workmanship shall be in accordance with the latest and the best civil engineering practice.

The Bidder shall ensure that all sections of the work are carried out with utmost care to achieve the dimensions shown in drawings or specifications. Where special and close tolerances are required in any particular section of work, these will be shown in the drawing and such tolerances shall be met. In the absence of such specific mention in drawings the following dimensional deviations may be tolerated, provided they do not impair the appearance or render the particular section of work unacceptable to the purpose for which it is intended. Tolerance for materials and workmanship not covered in this part as mentioned hereinafter will be in accordance with the relevant IS code.

| Description | Permissible tolerance |
|---|---------------------------------------|
| Building bricks , in length width and height | : As per IS 1077 |
| Laterite stone , in length, width & height | : Plus or minus 5 mm |
| <u>Natural building stone</u> | |
| a) For stones required in ashlar masonry : | |
| Length & Breadth | : Plus or minus 5mm |
| Height | : Plus or minus 3mm |
| b) For stones required other than in ashlar masonry : | |
| Length & Breadth | : Plus 5mm, minus 10mm |
| Height | : Plus 5mm, minus 5mm |
| Concrete and reinforced concrete pipes : | |
| Length | : Plus or minus 1% of standard length |
| Internal diameter, upto 300 mm | : Plus 3 mm Minus 1.5 mm |



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Description Permissible tolerance

Cast iron spigot & socket pipes and fittings

:

Length of fittings : Plus or minus 10mm

Length of pipe : Plus or minus 20mm

Thickness : minus 1 mm

Internal dia of socket : Plus or minus 3 mm

Depth of socket : Plus or minus 10mm

External dia, upto 75 mm : Plus or minus 3mm

100 mm : Plus or minus 3.5mm

150 mm : Plus or minus 4mm

Stoneware pipes, in length

upto 75 cm : Plus or minus 10mm

Upto 90 cm : Plus or minus 15mm

In thickness of barrel and socket not exceeding 450mm : Plus or minus 2mm

In thickness of barrel and socket between 500 to 600mm : Plus or minus 3mm

Glazed tiles, length of all 4 sides : Plus or minus 0.8mm

Individual dimensions and thickness : Plus or minus 0.5 mm

Metal doors, windows and ventilators - In overall dimension : Plus or minus 1.5 mm

Wooden doors, windows, ventilators Overall : Plus or minus 3 mm



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| Description | Permissible tolerance |
|--|-----------------------|
| dimension of door, window, ventilators | |
| All components of shutter except glazing bar | |
| Width | : Plus or minus 3 mm |
| Thickness | : Plus or minus 1 mm |
| Glazing bar, width & thickness | : Plus or minus 1 mm |

Mild steel tubes, tubulars and other wrought steel fittings

| | |
|--|--------------------------------|
| a) Thickness | |
| i) butt welded light tubes | : Plus not limited minus 8% |
| medium and heavy tubes | : plus not limited minus 10% |
| ii) seamless tubes | : plus not limited minus 12.5% |
| b) Weight | |
| i) single tube (irrespective of the quantity) | : + 10% , - 8% |
| ii) for quantity of less than 150m of one size | : + 10% , - 8% |
| iii) for quantity of 150m and over of one size | : + 4% , - 4% |

Earth work

| | |
|---|------------------------|
| Finished level of site levelling in hard rock | : Plus or minus 50mm |
| Finished level of site levelling except for hard rock | : Plus or minus 100 mm |
| Level of pits, trenches foundations | : Plus or minus 50mm |



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Concrete & Reinforced concrete

Footings, plan dimension : Plus 50 mm Minus 12 mm

Eccentricity : 0.02 times the dimension of footing in the direction limited to 50 mm

Thickness : Plus or minus 0.05 times the specified thickness

Foundations

Deviation of planes and lines of their intersection from vertical or inclination along full height : Plus or minus 20 mm

Deviation of horizontal plane from horizontal line

for 1 m of the plane in any direction : Plus or minus 5mm

for the whole plane : Plus or minus 20mm

Sizes of cross section : Plus or minus 8mm

Surfaces of inserts to support loads : Plus or minus 5mm

Length of elements : Plus or minus 20 mm

Equipment foundations :

Top level of bolt : Plus 20mm

Top level of foundation before grouting : Minus 20mm

Axes of anchor bolts in plan : Plus or minus 5mm

Axis of foundation in either direction : Plus or minus 10mm



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| | | |
|--|---|--------------------------------|
| Deviation in vertical line along height | : | Plus or minus 10mm |
| Sizes of pits in plan | : | Plus or minus 20 mm |
| Sizes of steps in plan | : | minus 20mm |
| Levels of steps, benches and pits | : | minus 20mm |
| Axes of inserts in plan | : | Plus or minus 10 mm |
| Basic dimensions in plan | : | Plus or minus 10mm |
| Deviation of horizontal plan from horizontal line for 1 m of plane in any direction | : | Plus or minus 5mm |
| for the whole plane | : | Plus or minus 20mm |
| Local deviations of top surface when checked with a 2 m long straight edge | : | Plus or minus 8mm |
| Buildings : | | |
| Surfaces when checked with a 2 m long straight edge | : | Plus or minus 8mm |
| Sizes of cross section | : | Plus 8mm Minus 0 mm |
| Length of elements | : | Plus or minus 20mm |
| Deviation from horizontal plane, for whole building | : | Plus or minus 10mm |
| Plumb in verticality | : | 1 in 1000 of height |
| for columns supporting floor beams | : | Plus or minus 10mm |
| for framed columns linked with crane girders and beams | : | Plus or minus 10mm |
| Reinforced concrete walls | : | Length : Plus or minus 20mm |



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| | | |
|--|---|--------------------|
| Flatness of surface when checked with a 2 m long straight edge | : | Plus or minus 8mm |
| Level of top surface to support assembled elements | : | Plus or minus 5mm |
| Deviation in planes and lines of intersection from vertical | : | Plus or minus 15mm |
| Size of cross section | : | Plus or minus 8mm |

Placing of reinforcement :

| | | |
|--|---|-----------------------|
| Length of bar upto 75 cm long (Other than straight bars) | : | Plus 3 mm Minus 5 mm |
| 75 - 150 cm long | : | Plus 5 mm Minus 10 mm |
| 150 - 250 cm long | : | Plus 6 mm Minus 15 mm |
| 250 cm long and above | : | Plus 7 mm Minus 25 mm |
| Straight bars, all lengths | : | Plus or minus 25 mm |
| Spacing of bars | : | Plus or minus 5 mm |

Anchor bolts :

| | | |
|--|---|--------------------|
| Shift in location in plan | : | Plus or minus 5 mm |
| Same, when bolts are located outside of structural columns | : | Plus or minus 10mm |
| Top level | : | Plus 20 mm |
| Threaded length | : | Plus 30 mm |

For Walls

For Pillars



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Masonry

| | | | |
|--|---|--------------------------|---------------------|
| Width | : | Plus or minus 10 mm | Plus or minus 10 mm |
| Shift in axes | : | Plus or minus 10 mm | --- |
| Deviation in row from horizontal line for every 10m length | : | Plus or minus 15 mm | --- |
| Flatness of surface when checked with a 2 m long straight edge | : | Plus or minus 10 mm | Plus or minus 5 mm |
| Deviation in lines separating storeys Deviation of surface from vertical and and at angles and corners | : | Plus or minus 15 mm | Plus or minus 15 mm |
| for 1 storey | : | Plus or minus 10 mm | Plus or minus 10 mm |
| for whole building | : | Plus or minus 30 mm | Plus or minus 30 mm |
| Dimensions of openings for doors, windows etc | : | Plus 15 mm Minus 0 mm | |
| Flooring, skirting, dado and plastering | : | | |
| Insitu concrete floor | : | 4 mm | |
| Concrete tile and mosaic, in any 3 m length | : | 3 mm | |



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| | | |
|--|---|--------------------|
| in large open area | : | 15 mm |
| wall tiling - surface should not vary from general plane by more than 1 in 200. Marble and such superior work, in any 2 m length | : | 1.5 mm |
| in any row | : | 3 mm |
| Plastered surfaces, flatness when checked with a 2 m long straight edge | : | 3 mm |
| Vertical surfaces, upto 1 storey | : | 5 mm |
| Over full heights | : | 10 mm |
| Metallic Inserts on assembled components length and width | : | Plus or minus 3 mm |

Road work

The levels of the sub-grade and different pavement courses should not vary from those calculated with reference to the longitudinal and cross-sections of the road as shown on the drawing beyond the tolerance given below :-

| | | |
|----------------|---|--------------------|
| Sub-grade | : | plus or minus 25mm |
| Sub-base | : | plus or minus 20mm |
| Base | : | plus or minus 15mm |
| Wearing course | : | plus or minus 6mm |