BHARAT HEAVY ELECTRICALS LIMITED

TIRUCHIRAPPALLI-620 014

Fuel Systems/PE (FB)

Title Sheet

SPECIFICATION FOR ZIP TYPE
FEEDER BELT (36" Belt Type Feeder)
FS_ZIP_GFB001

01. DESCRIPTION:

Zip type flat belt (Vulcanised spliced) with integrally moulded curbs at sides and integrally moulded 'V' guide at the bottom (pulley side) as shown in the sketch in pages 05 & 06

02. APPLICATION:

The belt has to continuously move between the drive and driven pulleys of raw coal feeder which handles crushed coal of 30 mm maximum size.

03. CONSTRUCTION:

The belt shall consist of 2 or 3 plies of woven fabric suitably impregnated with rubber and having rubber covers. The whole being vulcanized together in a uniform manner. Ends joining shall have locking arrangement suitable for continuous operation. Zipping and unzipping operation shall be simple and should be performed by a single personal. Joining arrangement of ZIP shall withstand not less than 1000 cycles of locking/unlocking operation.

04. MATERIAL:

The carcass must be made out of plain Nylon – Nylon fabric suitably impregnated with natural rubber compound. The top and bottom covers are made out of natural rubber compound of 3 ± 0.2 mm & 2 ± 0.2 mm thick respectively. The cover grade shall be M24 as per IS: 1891 – Part I / 1994.

Vendor to select proper ZIP material and design to meet the operational life as per specification requirement.

05. THICKNESS	8.4 **±** 0.4 mm. The thickness of the belt shall be uniform through out the length of the belt i.e, the top and bottom surfaces of the belt shall be parallel to each other(including the zip portion).
06. WIDTH	1168 **±** 4 mm. The width of the belt shall be uniform through out the length of the belt i.e, the parallelism between the sides of the belt shall be maintained (including the zip portion)
07. BELT STRENGTH (Including ZIP)	Min. 400 Kilo Newtons / Metre width (In the warp direction)

08. BELT JOINT STRENGTH /ZIP STRENGTH : a) Min. 50% of belt strength. (In case of spliced belt)
b) Zip strength shall not be less than the belt strength.

09. ADHESION STRENGTH BETWEEN PLIES : Min. 4.5 KN / Metre width.

10. ADHESION STRENGTH BETWEEN COVER & PLY : Min. 3.5 KN / Metre width.

11. SURFACE HARDNESS IN RUBBER COVER SPECIMEN AS PER IS: 3400 – PART 2 : 65 ± 5 shore 'A'

12. ABRASION RESISTANT (BELT & ZIP) : a) The abrasion loss must be maximum 150 mm3 when the abrasion test is conducted as per IS: 3400 Part 3.

b) ZIP portion shall be designed such a way that there is no direct contact between ZIP material and rollers.

13. RUNNING SPEED : Max. 12 Metres / Minute.

14. DUTY CYCLE : Continuous

15. WORKING TEMPERATURE : 80° ± 1° C

16. MAXIMUM INSTANTANEOUS TEMPERATURE : 200° C

17. SHELF LIFE REQUIRED : Min. 2 years

18. LENGTH

Refer table below with respect to part number. (Please note that length and weight only change with respect to part number and all other dimensions remain same.)

SL. No.	Belt part no.	Feeder size	Inside length of Belt (mm) *		Weight (Kgs) $	Max. Length at the end of service life (mm)
			Min.	Max.		
01	GF – 009 - 2134	36" Gr. / Vol. Feeder 7' C.D	5450	5505	71 ± 5	5670

* Deviation between left and right sides, inside length is to be within 5 mm

19. WEIGHT : Approx. 13 Kgs / Metre ($)
(Refer point 20.3)

20. NOTES:

20.1 Straightness of 'V' guide must be maintained within a maximum camber of 3 mm in 1800 mm length.

20.2 Length of belt is to be measured on the inside surface. Measure at locations 25 mm away from the 'V' guide on either side. The length variation between left and right Side shall be within 5 mm.

20.3 Belt must have uniform weight per unit area including at the ZIP joining portion.

20.4 Nylon tire chord breaker of 100 mm width is to be placed between bottom cover and carcass above 'V' guide of the belt.

20.5 V' guide and curbing must be as shown in the sketches in this specification.

20.6 All manufacturing repairs to either top or bottom cover to be buffed level with adjoining area so that the thickness in the repaired area does not vary from the adjacent area by more than ± 0.5 mm.

20.7 Outer surface of the belt shall be knurled.

20.8 Surface blemishes that are in the top or bottom cover of the belt will be a cause for rejection if they are through the covers and allow the carcass to show.

20.9 No other identification marks except the following must be marked on the belt by the vendor.

a) BHEL P.O. number & date. b)
Serial number of the belt.
c) Part number. d)
Feeder size.
e) Date of manufacture. f)
Weight of belt.
g) Arrow mark.
h) Vendor code.

20.10 PACKING:

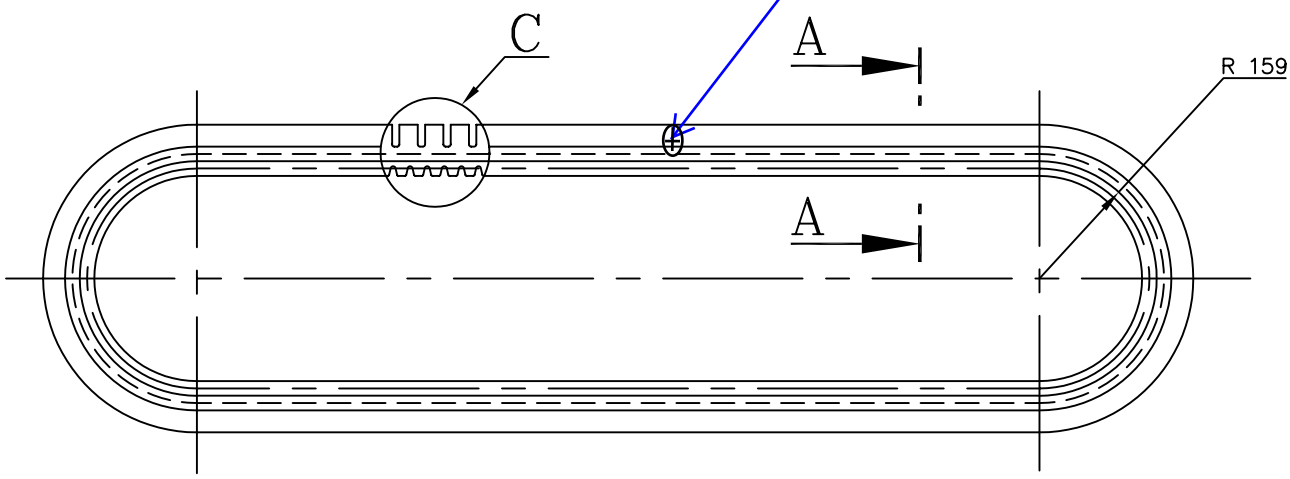
The belt surface must be profusely dusted with chalk powder and wrapped with polythene sheet and packed in wooden box

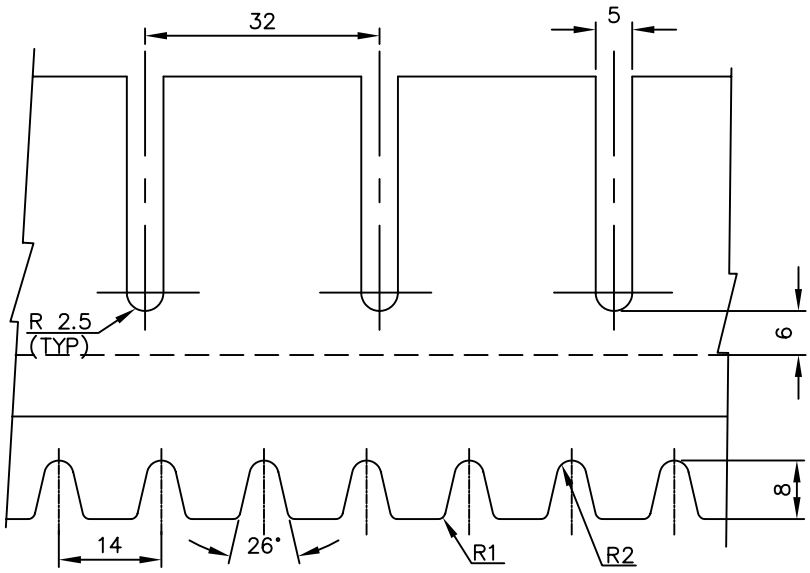
SPECIFICATION FOR

BELT

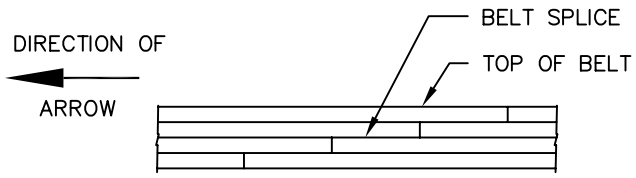
(36" BELT TYPE FEEDER)

ZIP SHALL BE LOCATED IN THE TRANSVERSE CROSS SECTION OF BELT.





DETAIL–C

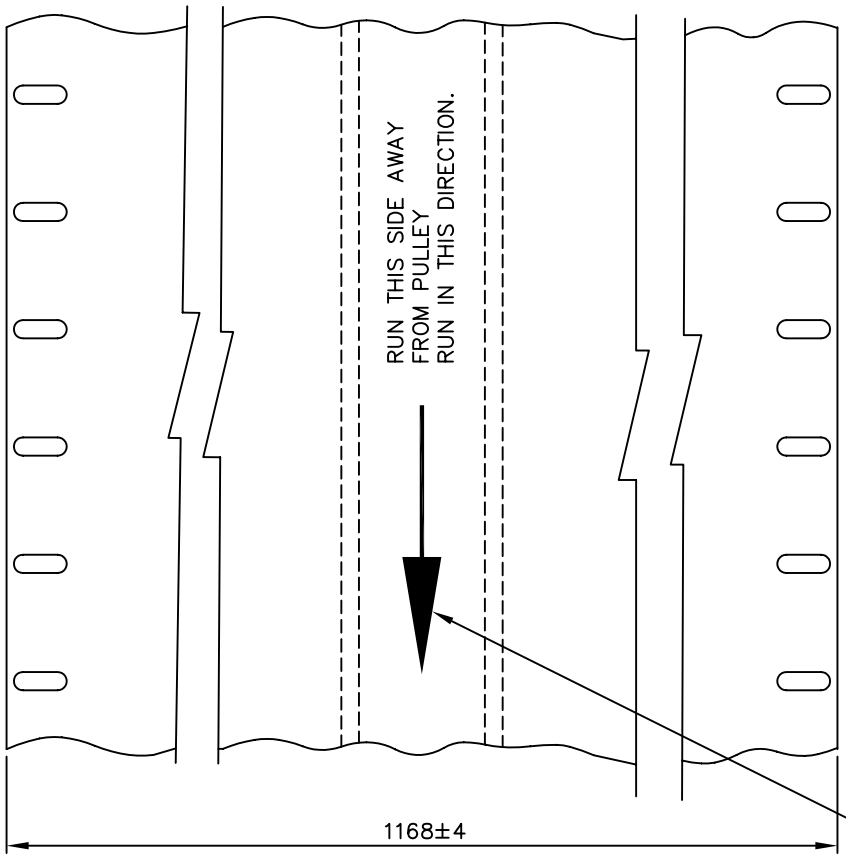


SECTION–BB

SPECIFICATION FOR

BELT

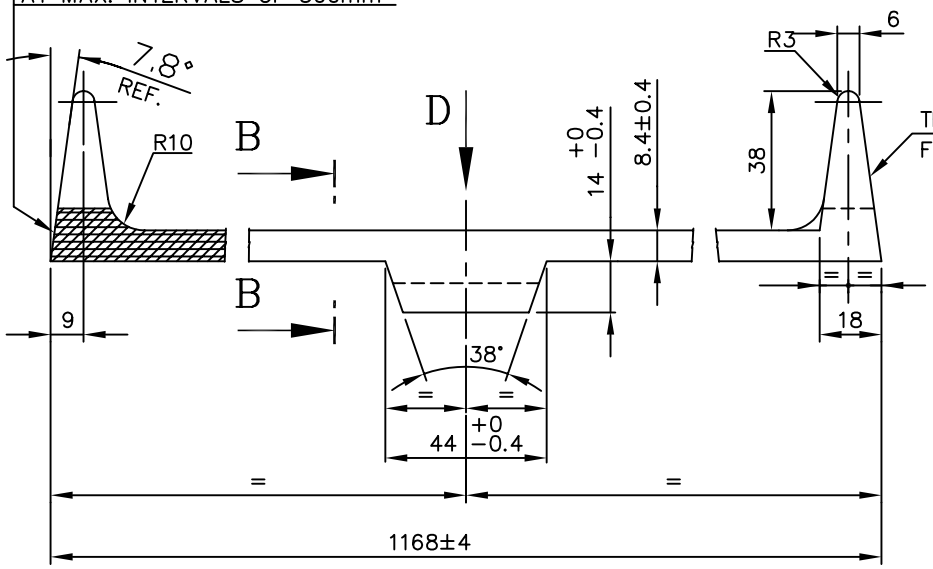
(36" BELT TYPE FEEDER)



YELLOW ARROWS EQUALLY SPACED
AT MAX. INTERVALS OF 3000mm
MIN. 2 YELLOW PAINT ARROWS
EQUALLY SPACED PER BELT.

VIEW–D

RAISED LETTERING 6x0.5
BHEL TRICHY & VENDOR CODE
AT MAX. INTERVALS OF 500mm



THIS SURFACE SHALL BE FREE
FROM ANY BURRS/STEPS.

UNTOLERANCED DIMENSIONS ARE
TO BE MAINTAINED AS PER
IS : 2102(MEDIUM)

ALL DIMENSIONS ARE IN MM.

SECTION–AA

Manufacturing Quality Plan for **ZIP Type Belt** for FEEDER -36”

Vendor to furnish their Manufacturing Quality Plan including the following:

1. Material of Construction – Rubber material – Grade used – Mechanical properties such as Tensile strength, Elongation, Abrasion loss, Heat ageing 72 Hrs at 70 Deg. C
2. Belt properties – Hardness, Adhesion test, Full Belt strength, Finished belt dimensions, Visual examination of the belt
3. Zip of the Belt – Material of construction of Zip, Number of open & close of Zip measured within a given span of time, Strength of Zip, protrusion of Zip from Belt profile, Effect of Zip during rolling along the Feeder roller, abrasion of zip material on roller.
4. Packing – Chalk powder dusted, wrapped for land worthy transit amidst varying climatic conditions.
5. Marking – Arrow mark, P.O number, Feeder Size, Serial number of Belt, Month & year of manufacturing, Shelf life period.