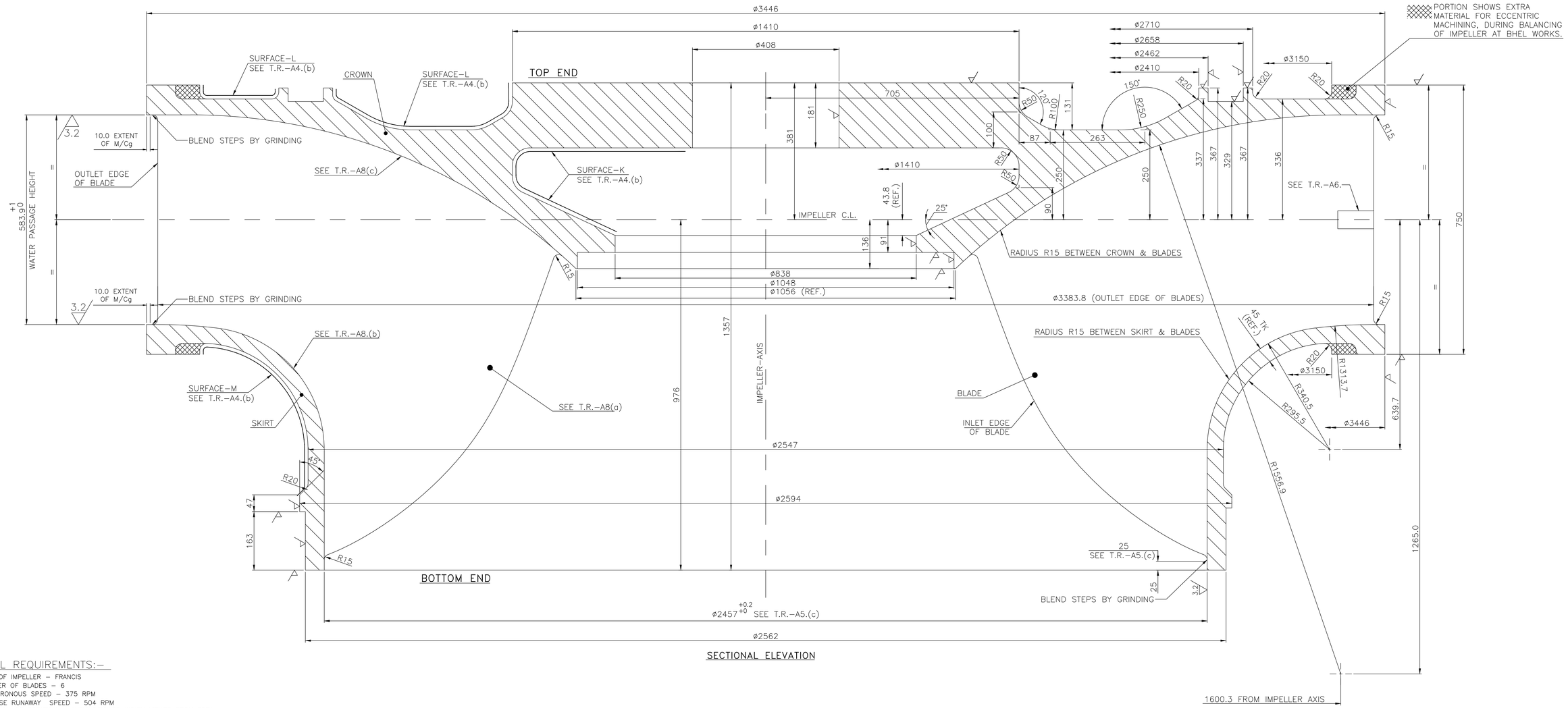
FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 0 204 07 21603



SECTIONAL ELEVATION

TECHNICAL REQUIREMENTS:–

A1. a) TYPE OF IMPELLER – FRANCIS
b) NUMBER OF BLADES – 6
c) SYNCHRONOUS SPEED – 375 RPM
d) REVERSE RUNAWAY SPEED – 504 RPM
e) DIRECTION OF ROTATION – ANTICLOCKWISE (WHEN VIEWED FROM TOP)

A2. MATERIAL – 13% Cr 4% Ni STAINLESS STEEL CASTING TO ASTM A743 Gr. CA 6 NM. FOR ADDITIONAL REQUIREMENTS, REFER PRODUCT STANDARD HT00261 (REV.02).

A3. SUPPLY CONDITION FOR INTEGRALLY CAST IMPELLER :–
a) SEMIFINISHED GROUND, ROUGH MACHINED CONDITION AS PER ANNEXURE II CLAUSE 2 OF STANDARD HT00261 (REV.02).
b) CASTING MUST CONFORM IN ALL RESPECTS (INCLUDING N.D.T., LOCATION OF TEST PIECES) TO STANDARD HT00261 (REV.02).

A4. ALLOWANCES & SURFACE FINISH
a) SURFACE FINISH ON THE GROUND WATER PASSAGES TO BE IN ACCORDANCE WITH ANNEXURE–II OF PRODUCT STANDARD HT00261 (REV.02).
NO ALLOWANCE TO BE LEFT ON THE WATER PASSAGE OF CROWN, SKIRT & BLADE THICKNESS.
b) SURFACES MARKED 'K', 'L' & 'M' OF CROWN AND SKIRT TO BE FINISH MACHINED TO 6.3 MICRON FINISH OR BETTER. NO ALLOWANCE TO BE LEFT BY THE SUPPLIER ON THESE SURFACES.
c) FINISH FOR ALL ROUGH MACHINED SURFACES MARKED WITH ▽ TO BE 6.3 MICRONS OR BETTER. THESE DIMENSIONS INCLUDE MACHINING ALLOWANCE OF 6 mm ON FACES AND 12 mm ON DIAMETERS FOR FINAL MACHINING AT OUR WORKS, HENCE NO FURTHER ALLOWANCE TO BE LEFT BY THE SUPPLIER.

A5. PROFILE & DIMENSIONAL ACCURACIES
A) PROFILE OF BLADE SHALL BE AS PER IMPELLER BLADE PROFILE DRAWING (DRAWING NO. 02040071701) (SHALL BE FURNISHED ALONG WITH ORDER).
b) THE ALLOWABLE DEVIATION IN SEMI–FINISH GROUND WATER PASSAGE, FROM THE TEMPLATES MADE AS PER ABOVE PROFILE DRAWING SHALL BE IN ACCORDANCE WITH WATER PATH INSPECTION SHEETS. FOR SAMPLE COPY OF THESE INSPECTION SHEETS REFER PRODUCT STANDARD HT00261 (REV.02).
c) INLET DIAMETER $ø2457^{+0.2}_{+0}$ SHALL BE MACHINED TRUE WITH RESPECT TO THE BLADES, UPTO A HEIGHT OF 25 mm FROM BOTTOM, TO A SURFACE FINISH OF 3.2 MICRON & STEP, IF ANY AS A RESULT OF THIS MACHINING SHALL BE SUITABLY BLENDED. OVALITY AND TAPER OF THIS BORE SHALL NOT EXCEED 0.03 mm. ALL THE MACHINED DIAMETERS SHALL BE CONCENTRIC WITH THIS BORE WITHIN 0.5 mm.
d) ALL THE REMAINING ROUGH MACHINED DIMENSIONS TO BE MAINTAINED WITHIN AN ACCURACY OF ±1 mm.

A6. CENTRE OF IMPELLER TO BE CLEARLY PUNCH MARKED / SCRIBED ON A 50 mm WIDE BAND PAINTED WHITE AT IMPELLER OUTLET ON ALL THE BLADES.(SEE GRID C–14)

A7. REMOVE ALL BURRS AND SHARP EDGES.

A8. SURFACE AREAS IN WATER PATH :–
a) COMPLETE SURFACE AREA OF SINGLE BLADE = 4.306 M^2 (INCLUDING PRESSURE & SUCTION SIDES)
b) SURFACE AREA OF SKIRT = 7.28 M^2
c) SURFACE AREA OF CROWN = 7.71 M^2

A9. NO CHIPPING OR SLING MARKS TO BE LEFT ON IMPELLER.

A10. IMPELLER TO BE STATICALLY BALANCED WITH PERMISSIBLE OUT OF BALANCE AS 277 KG.CM.

A11. LIFTING DEVICE TO BE PROVIDED BY SUPPLIER WITH EACH IMPELLER FOR LOADING/UNLOADING DURING TRANSPORTATION. CENTRAL BORE ø408 MAY BE USED FOR DESIGNING LIFTING DEVICE.

BEFORE START OF MANUFACTURING VENDOR TO GET THE LATEST REVISION NO. OF DRAWING AND PRODUCT STANDARD CONFIRMED FROM HYDRO TURBINE ENGINEERING, BHEL, BHOPAL.

IN CASE OF SLIGHTEST DOUBT CONSULT HYDRO TURBINE ENGINEERING, BHEL, BHOPAL

VAR.OO	REMARKS	VAR NO.	ITEM NO.	DESCRIPTION	STD.	DRAWING NO.	IT.NO.	MATL. CODE	UNIT	UNIT WT.	QTY.	CD	ZONE
			001	IMPELLER CASTING		——		SEE T.R.A2		16,475	001		

28 — CARD TYPE–3 28 — CARD TYPE–1 28 — CARD TYPE–2

ADDITIONAL INFORMATION

STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS
HTE–2, WTM(S)–4
WTM(P)–1, THX–1

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: KALESHWARAM LINK–IV PKG2 STAGE–II (6X125 MW)

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

	NAME	SIGN	DATE
DRN	NEERAJ		09.04.21
CKD	ND		09.04.21
APPD	SK		09.04.21

NO. OF VAR. —

REV.	DATE	ALTERED / CHECKED / APPD.	ZONE

DEPT. H.T.E. CODE 402 | UNTOL. DIMS. GR. 32000049014 | SCALE 1:5 | WEIGHT(K.G.) 16,475 | REF.TO ASSY.DRG. 0 204 07 21602 | ITEM NO. 001 | NO.OF ITEM 001

TITLE: IMPELLER CASTING

DRAWING NO. 0 204 07 21603 | REV. 00

SHT. NO. 1 | NO. OF SHT. 1

A0 SIZE

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REF. DRG. NO. | SIGN. & DATE | INVENTORY NO.