Annexure-A

Plates & Rods

Sr. #	Description	Material	Qty. (Nos.)	Wt.(Kg.) (Approx.)
1	Plate 20 x 1220 x 2440 (mm)	**SA-240 304L** as per attached specification No. DNT010-PP001-MS-01/ 203 (Rev.0) (Annexure-D)	1	472
2	Plate 10 x 1220 x 2440 (mm)		1	236
3	Plate 5 x 1500 x 6000 (mm)		2	714
4	Rod Dia 22, L = 6000 (mm)	**SA 479 304L** as per attached Specification No. DNT010-PP001-MS-03/ 203 (Rev.0) (Annexure-E)	5	90
5	Rod Dia 25, L = 6000 (mm)		5	117

Notes:

Total Weight= 1512

1. Mill Test Certificates having Chemical & Mechanical properties have to be supplied with items as per attached Specifications.
2. Heat Number, Material Grade, Size and manufacturer's stamp should be marked / stenciled on the items. Heat No. should match with relevant MTC.
3. Items shall be accepted after testing at our works, if required.
4. ±5% variation in weight is allowed.
5. Please submit check list **(Annexure-C)** along with your quotation, after encircling either "Yes" or "No"

Annexure-B

Pipes, Pipe Caps, Elbows & Flanges

Sr.#	Description	Material	Qty. (Nos.
1	Pipe DN 500, Sch. 10s, L = 6000 mm	**SA-312 TP304L** as per attached Specification No.DNT010-PP001-MS-02/ 203 (Annexure-G)	5
2	Pipe DN 350, Sch. 10s, L = 6000 mm		5
3	Pipe DN150, Sch. 10s, L = 6000 mm		1
4	Pipe DN100, Sch. 80, L = 6000 mm		1
5	Pipe DN 50, Sch. 80, L = 6000 mm		1
6	Pipe Cap DN500, Sch. 10s	**SA-403 304L** as per attached Specification No.DNT010-PP001-MS-05/ 203 (Annexure-H)	5
7	Elbow (SR) 90° DN500, Sch. 10s (ASME B 16.9)		4
8	Elbow (SR) 90° DN350, Sch. 10s (ASME B 16.9)		25
9	Elbow (SR) 90° DN150, Sch. 10s (ASME B 16.9)		3
10	Flange (SORF) DN 500, 150 lbs, (ASME B 16.5)	**SA-182 F304L** as per attached Specification No.DNT010-PP001-MS-04/203 (Annexure-I)	28
11	Flange (SORF) DN 350, 150 lbs, (ASME B 16.5)		25
12	Flange (SORF) DN 150, 150 lbs, (ASME B 16.5)		4

Note:

Please submit check list **(Annexure-F)** along with your quotation, after encircling either "Yes" or "No"

Annexure-C

(Check list all times of Annexure-A)

Technical Check List

1. All the technical details i-e chemical composition, mechanical properties and testing requirements given in applicable specification have been carefully read and understood.	Yes	Nc
2. Mill Test Certificates fulfilling all the requirements of applicable material specifications will be provided along with supply.	Yes	No
3.All the contents / results of MTCs i-e chemical composition, mechanical properties and testing requirements will be carefully checked and corrected, for complete compliance to applicable specification.	Yes	No
4. Manufacturer's name/logo, Heat Number, Material Grade and Size as per identification/marking requirements of applicable specifications, will be present on the items	Yes	No
5. Marking contents mentioned at point no. 4 above will also be given in relevant MTCs and Heat Numbers marked on items and MTC will essentially match	Yes	No
6. All the items to be supplied will be qualified in Inter granular Corrosion Testing (IGC) in accordance with ASTM specification A-262 Practice E.	Yes	No
7- The items shall be uniform in quality and temper, smooth, commercially straight and free of injurious imperfections. No repair welding will be done	Yes	No
8. The dimension and quantity of offered items is according to requirement, in case of alternate size/variation, same has been mentioned in quotation	Yes	No
9. We agree that the materials grade will be examined /tested for final acceptance and verification at Purchaser's laboratory. In case of rejection of material, we are bound to replace the stores at our own end.	Yes	No
10. We confirm that we/material manufacturer have sufficient QA/QC understanding for fulfilling all the essential requirements of applicable material specification regarding MTCs and overall quality of the items to be supplied.	Yes	No

Note:

This check list must be submitted along with your quotation, after encircling either "Yes" or "No", otherwise the offer may not be entertained.

(Specification for item Nos. 1 to 3 of Annexure-A)

Material Specification	No. DNT010-PP001-MS-01/ 203 Date: 22/05/2019 Rev. No. 0 Page 5 of 1

Product : Stainless Steel Plates
Material : SA-240/SA-240M garde 304L

Condition : Solution annealed, pickled and passivated, with No. 1 finish

Technical Requirement : The material furnished under SA-240/SA-240M grade 304L shall meet the requirements of ASME B&PV Code Section II Part A and specification SA-480/SA480M-2010 including following,

Chemical Composition : As per Table below;

Chemical Composition (%)							
C	Mn	P	S	Si	Cr	Ni	N
≤ 0.030	≤ 2.00	≤ 0.045	≤ 0.030	≤ 0.75	18.0-20.0	8.0-12.0	≤ 0.10

Mechanical Properties : As per Table below;

Tensile Strength MPa (min)	Yield Strength MPa (min)	Elongation in 50 mm,% (min)	Hardness (max.)
485	170	40	92 HRB or 201 HB

Inter-granular corrosion test:
Test in accordance with ASTM specification A 262 Practice E shall be submitted. No inter-granular corrosion is allowed.

Material Test Reports:

i. Mechanical test report for each lot of plates.
ii. Chemical analyses report of each lot of plates.
iii. Hardness Test.
iv. IGC as per A-262 Practice E.

Quality:
The furnished plates shall be free of injurious defects and shall have workman like finish. No repair welding is allowed.

Marking:
The name or brand of the manufacturer, heat and slab number and grade shall be legibly steel die stamped / stenciled on each finished plate

Certification:
Material test reports, showing that plates have been made to the requirements as mentioned above and as given in relevant section of ASME and ASTM standard, shall be submitted. Certificates shall be traceable to the supplied plates.

Note: All certificates must be in English language

Annexure-E

(Specification for item No. 4 & 5 of Annexure-A)

Material Specification	No. DNT010-PP001-MS-03/ 203 Date: 22/05/2019 Rev. No. 0 Page 6 of 1

Product : Austenitic Stainless Steel Rods

Material : SA-479/SA-479M, type 304L

Condition : Solution annealed, pickled and passivated

Technical Requirement : The material furnished under SA-479/SA-479M, type 304L shall meet the requirements of ASME B & PV Code Section II Part A, SA-484/SA-484M-2010 including following,

Chemical Composition : As per Table below;

Chemical Composition (%)						
C	Mn	P	S	Si	Cr	Ni
≤ 0.030	≤ 2.00	≤ 0.045	≤ 0.030	≤ 1.00	18.0-20.0	8.0-12.0

Mechanical Properties : As per Table below;

Tensile Strength MPa (min)	Yield Strength MPa (min)	Elongation in 50 mm, min.,%	Reduction of Area, min %
485	170	30	40

Inter-granular corrosion test:

Test in accordance with ASTM specification A 262 Practice E shall be submitted. No inter-granular corrosion is allowed.

Material Test Reports:

1. Mechanical test report for each lot of rods.
2. Chemical analyses report of each lot of rods from a specific heat.

Quality:

The furnished rods shall be free of injurious defects and shall have workman like finish. Straightening is permitted to meet the straightening requirements.

Marking:

The name or brand of the manufacturer, heat and slab number and grade shall be legibly steel die stamped on each finished rod.

Certification:

Material test reports, showing that rods have been made to the requirements as mentioned above and as given in relevant section of ASME and ASTM standard, shall be submitted. Certificates shall be traceable to the supplied rods.

Note:

All certificates must be in English language

Annexure-F

(Check list all times of Annexure-B)

Technical Check List

1. All the technical details i-e chemical composition, mechanical properties and testing requirements given in applicable specification have been carefully read and understood.	Yes	No
2. Mill Test Certificates fulfilling all the requirements of applicable material specifications will be provided along with supply.	Yes	No
3.All the contents / results of MTCs i-e chemical composition, mechanical properties and testing requirements will be carefully checked and corrected, for complete compliance to applicable specifications.	Yes	No
4. Manufacturer's name/logo, Heat Number, Material Grade and Size as per identification/marking requirements of applicable specifications, will be present on the items	Yes	No
5. Marking contents mentioned at point no. 4 above will also be given in relevant MTCs and Heat Numbers marked on items and MTC will essentially match	Yes	No
6. All the items to be supplied will be qualified in Inter granular Corrosion Testing (IGC) in accordance with ASTM specification A-262 Practice E.	Yes	No
7. Identification/Marking contents present on actual pipes to be supplied will also contain Hydrostatic test pressure (as given in MTC).	Yes	No
8. The items shall be uniform in quality and temper, smooth, commercially straight and free of injurious imperfections. No repair welding will be done	Yes	No
9. The dimension and quantity of offered items is according to requirement, in case of alternate size/variation, same has been mentioned in quotation	Yes	No
10. We agree that the materials grade will be examined /tested for final acceptance and verification at Purchaser's laboratory. In case of rejection of material, we are bound to replace the stores at our own end.	Yes	No
11. We confirm that we/material manufacturer have sufficient QA/QC understanding for fulfilling all the essential requirements of applicable material specification regarding MTCs and overall quality of the items to be supplied.	Yes	No

Annexure-G

Specification for item No.1 to 5 of Annexure-B

Material Specification	No. DNT010-PP001-MS-02/ 203 Date: 22/05/2019 Rev. No. 0 Page 8 of 1

Product : Seamless Austenitic Stainless Steel Pipes

Material : SA-312/SA-312M, type 304L

Condition : Seamless Process, Solution annealed and quenched, pickled and passivated

Technical Requirement : The material furnished under SA-312/SA-312M, type 304L shall meet the requirements of ASME B & PV Code Section II Part A, SA-999/SA-999M-2010 including following,

Chemical Composition : As per Table below;

Chemical Composition (%)						
C	Mn	P	S	Si	Cr	Ni
≤ 0.035	≤ 2.00	≤ 0.045	≤ 0.030	≤ 1.00	18.0-20.0	8.0-13.0

Mechanical Properties : As per Table below;

Tensile Strength MPa (min)	Yield Strength MPa (min)	Elongation in 50 mm, min.,%	
		Longitudinal Dir.	Transverse Dir.
485	170	35	25

Inter-granular corrosion test:

Test in accordance with ASTM specification A 262 Practice E shall be submitted. No inter-granular corrosion is allowed.

Material Test Report:

i) Mechanical test report for each lot of pipes.
ii) Chemical analyses report of each lot of pipes from a specific heat.
iii) Flattening test report
iv) Hydrostatic test report of each and every pipe for a test pressure as per requirement of SA-999/SA-999M

Quality:

i) The furnished pipes shall be reasonably straight and having workman like finish.
ii) The pipe shall be furnished with plain ends. All burrs at the ends of the pipe shall be removed.

Marking:
The manufacturer's name or brand, the specification number and grade, heat number and size, schedule number, length and hydrostatic test pressure shall be legibly marked on each finished length.

Dimensions:
Nominal wall thickness shall be as per ANSI (ASME B 36.19-1985 (R 1994)).

Certification:
Material test reports, certifying that pipes have been made to the requirements as mentioned above and as given in relevant section of ASME and ASTM standard, shall be submitted. Certificates shall be traceable to the supplied pipes.

Note:
All certificates must be in English language.

Annexure-H

Specification for items No.6 to 9 of Annexure-B

Material Specification	No. DNT010-PP001-MS-05/ 203 Date: 22/05/2019 Rev. No. 0 Page 1 of 1

Product : Stainless Steel Welded Elbow
Material : SA-403 WP304L

Condition : Seamless process, solution annealed

Technical Requirement : The material furnished under SA-403 WP304 shall meet the requirements of ASME Sec. II Part A and ASTM specification SA-960-2010 including following,

Chemical Composition : As per Table below;

Chemical Composition (%)						
C	Mn	P	S	Si	Cr	Ni
≤ 0.030	≤ 2.00	≤ 0.045	≤ 0.030	≤ 1.00	18.0-20.0	8.0-12.0

Mechanical Properties : As per Table below;

Tensile Strength MPa (min)	Yield Strength MPa (min)	Elongation in 50 mm, min.,%	
		Longitudinal	Transverse
485	170	28	20

Inter-granular corrosion test: A report on inter-granular corrosion test in accordance with ASTM specification A 262 practice E shall be submitted. No inter-granular corrosion is allowed.

Material Test Reports:

1. Mechanical test report for each lot of Pipe Fitting
2. Chemical analyses report

Quality: The furnished Pipe Fitting shall be free of injurious defects, cracks, thermal ruptures etc and shall have workman like finish.

Dimensions: The sizes shall be in conformity to ASME Standard B16.11

Marking: The name or brand of the manufacturer, heat and slab number and grade shall be legibly steel die stamped / stenciled on each finished Pipe Fitting.

Note: All certificates must be in English language

Annexure-I

Specification for item Nos. 10 to 12 of Annexure-B

Material Specification	No. DNT010-PP001-MS-04/ 203 Date: 22/05/2019 Rev. No. 0 Page 1 of 1

Product : Stainless steel pipe flanges
Material : SA-182/SA-182M, F 304L

Condition : Forged, Solution treat and Quenched

Technical Requirement : The material furnished under SA-182/SA-182M, F 304L shall meet the requirements of ASME B & PV Code Section II Part A, SA-484/SA-484M-2010 including following,

Chemical Composition : As per Table below;

Chemical Composition (%)							
C	Mn	P	S	Si	Cr	Ni	N
≤ 0.03	≤ 2.00	≤ 0.045	≤ 0.030	≤ 1.00	18.0-20.0	8.0-13.0	≤ 0.1

Mechanical Properties : As per Table below;

Tensile Strength MPa (min)	Yield Strength MPa (min)	Elongation in 50 mm, min.,%	Reduction of Area min., %
485	170	30	50

Inter-granular corrosion test:
Test in accordance with ASTM specification A 262 Practice E shall be submitted. No inter-granular corrosion is allowed.

Material Test Reports:

i) Chemical analysis report
ii) Mechanical test report
iii) NDT report

Examination and testing:
All surface of each forging shall be inspected by liquid penetrant method in accordance with ASME code, Section V, Chapter 6.

Quality:
The material shall be of uniform quality consistent with good manufacturing and inspection practices. Imperfections that may be present shall be of such a nature or degree for the type and quality ordered, that they will not adversely affect the forming, machining, or fabrication of finished parts.

Dimensions:

The sizes shall be in conformity to ASME Standard B16.5.

Marking:
The manufacturer's name or brand, the specification number and grade, and heat number shall be marked on each flange.

Note: All certificates must be in English language