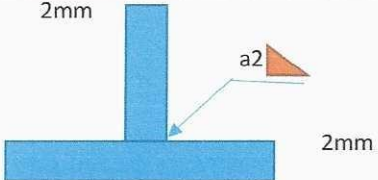
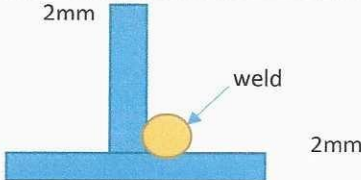


WELDING PROCEDURE SPECIFICATION (WPS)

As per ISO 15609-1:2019

Welding procedure specification	JP/WPS/04	Method of preparation and cleaning:	Wire brushing/Grinding
WPQR No.:	JP/WPQR/04	Parent material specification:	ISO TR 15608: Gr 7.1 (SS409M)
Manufacturer:	Jayam Precision No.19, Vijayalakshmi layout, Manancherri, Pallavaram Main Road, Kundrathur, Chennai- 600069	Material thickness (mm):	2+2
Mode of metal transfer	-	Outside pipe diameter (mm):	-
Joint type and weld type:	Tee Joint and Fillet weld	Welding Position:	PB

Weld preparation details (Sketch)*:

Joint design	Welding sequences
	

Welding details

Run	Welding process	Size of filler material	Current A	Voltage V	Type of current / polarity	Wire feed speed, IPM	Run out length/ Travels speed mm/sec	Heat input*KJ/mm
1	TIG-141	1.6mm	80-90	12 - 13	DCEN	-	2.18	0.32
Filler material designation and make:			EN ISO 14343-A, AWS A 5.9 : ER 308L and make: ARC- ONE					
Any special baking or drying:			-			Other information, *e.g.:		-
Designation Gas/flux:		Shielding	ISO 14175- 1 1 (100%Ar)			Weaving(maximum width of run):		2-3 mm
		Backing	-			,		-
Gas flow rate:		Shielding	10-15 LPM					
		Backing	-					
Tungsten electrode type/size:			WT-20/2.5mm			Pulse welding details:		-
Details of back gauging/backing:			-			Distance contact tube/workpiece:		5-8mm
Preheat temperature:			Room Temperature			Plasma welding details:		-
Interpass Temperature:			-			Torch angle:		40°-50°
Post heating			-					
Pre-heat maintenance temperature:			-					
Post-weld heat treatment and or Ageing::			-					
(Time, temperature, method:								
heating and cooling rates*):								

Manufacturer
(Name,date and signature)
*If required

Date :10-08-2022

Examiner
Ajay kumar

International Welding Technologist (IWT), ISO 9712- L2(VT,PT)

Ajay Kumar
 B.E (Metallurgy), M.Tech (NDT)
 IIW Certified-International Welding Technologist
 (Diploma No: IN/IWT/51500785)
ASNT Level-II (RT,UT,MT,PT&VT)
ISO 9712 Level-II (PT)

WELDING PROCEDURE QUALIFICATION RECORD (WPQR)

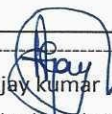
Welding procedure qualification- Test certificate (ISO 15614-1:2019)

Manufacturer's WPQR no.:	JP/WPQR/04	Examiner
Manufacturer:	Jayam Precision	
Address:	No.19, Vijayalakshmi layout, Manancherri, Pallavaram Main Road, Kundrathur, Chennai- 600069	Ajay Kumar
Code /testing standard:	EN ISO 15614 -1:2019	International Welding Technologist-IWT,ISO 9712-L2(VT,PT)
Level:	2	
Date of welding	02-07-2022	



Particulars	Test piece	Range of Qualification
Test piece		
Product form:	Plate	Plate
Welding process(es):	TIG -141	
	Welding processes used	
	No.1	No.2
Process	TIG -141	-
Deposited metal thickness(mm):		
Type of joint and weld:	Tee Joint and Fillet weld	Tee Joint and Fillet weld
Parent material group(s) and sub-group(s):	ISO TR 15608: Gr 7.1 (SS409M)	ISO TR 15608: Gr 7.1 (SS409M)
Parent material thickness (mm):	2.0	1.4 - 4.0
Throat thickness(mm)	a2	1.50 - 3.0
Single layer/multi-run	Single layer	Single layer
Outside pipe diameter (mm)	-	-
Filler material designation :	EN ISO 14343-A, AWS A5.9 : ER308L	EN ISO 14343-A, AWS A5.9 : ER308L
Filler material make:	ARC- ONE	Compatible
Filler material size:	1.6	Compatible
Designation of shielding gas/flux:	ISO 14175-I1 (Ar-100%)	ISO 14175-I1 (Ar-100%)
Designation of backing gas:	-	-
Type of welding current and polarity:	DCEN	DCEN
Transfer mode:	-	-
Heat input: Kj/mm	0.32	0.32±25%
Welding positions:	PB	All positions except PG and JL045
Preheat temperature:	Room Temperature	Compatible
Interpass Temperature:	-	-
Post heating	-	-
Post-weld heat treatment:	-	-
Other information	-	-

We confirm that the statements in this record are correct and that the test pieces were prepared, welded, tested and have fulfilled the requirements in accordance with ISO 15614-1:2019

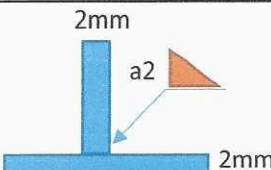
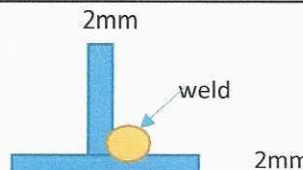
Location	Date of issue	
Chennai	Date :10-08-2022	Ajay Kumar
		International Welding Technologist (IWT), ISO 9712- L2(VT,PT)

Ajay Kumar
 B.E (Metallurgy), M Tech (NDT)
 IWT Certified-International Welding Technologist
 (Diploma No: IN/IWT/51500785)
 ASNT Level-II (RT,UT,MT,PT&VT)
 ISO 9712 Level-II (PT)

RECORD OF WELD TEST

Location:	Chennai	Examiner	
Manufacturer's WPS no.:	JP/WPS/04	Ajay Kumar	
Manufacturer's WPQR no.:	JP/WPQR/04	International Welding Technologist (IWT)	
Manufacturer:	Jayam Precision No.19, Vijayalakshmi layout, Manancherri, Pallavaram Main Road, Kundrathur, Chennai- 600069	Method of preparation and cleaning:	Wire brushing/Grinding
Welder's/operator's name:	VENKATESH	Parent material specification:	ISO TR 15608: Gr 7.1 (SS409M)
Joint type and weld:	Tee Joint and Fillet weld	Material thickness (mm):	2.0+2.0
		Outside pipe diameter (mm):	-
		Welding Position:	PB

Weld preparation details (Sketch)*:

Joint design	Welding sequences
	

Welding details

Run	Welding process	Size of filler material	Current A	Voltage V	Type of current / polarity	Wire feed speed, metre/min	Run out length/ Travels speed mm/sec	Heat input*, KJ/mm
1	TIG-141	1.6mm	90	13	DCEN	-	2.18	0.32

Filler material designation and make:	EN ISO 14343-A, AWS A 5.9 : ER 308L and make: ARC- ONE		
Any special baking or drying:	-	Other information, *e.g.:	-
Gas/flux- shielding	ISO 14175- I 1 (100%Ar)	Weaving(maximum width of run):	3 mm
Backing:	-	Oscillation: amplitude, frequency, dwell time	-
Gas flow rate- shielding	18 LPM	Pulse welding details:	-
Backing:	-	Distance contact tube/workpiece:	5 mm
Tungsten electrode type/size:	WT-20/2.5mm	Plasma welding details:	-
Details of back gauging/backing:	-	Torch angle:	45°
Preheat temperature:	ambient shop floor temperature		
Interpass Temperature:	-		
Post heating	-		
Post-weld heat treatment(PWHT):	-		
(Time, temperature, method:	-		
heating and cooling rates*):	-		

Manufacturer	Examiner
(Name,date and signature)	Ajay Kumar 
Date: 02-07-2022	International Welding Technologist (IWT), ISO 9712- L2(VT,PT)
*If required	

Ajay Kumar
 B.E (Metallurgy), M.Tech (NDT)
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 ASNT Level-II (RT,UT,MT,PT&VT)
 ISO 9712 Level-II (PT)

TEST RESULTS



Manufacturer's WPQR no.:	JP/WPQR/04	Examiner
Visual:	JP/VT-PT - 04	
Penetrant/magnetic particle testing*:	JP/VT-PT - 04	Ajay Kumar
Radiographic testing*	NA	International Welding Technologist-IWT,ISO 9712-L2(PT)
Ultrasonic testing*	NA	
Teperature :	NA	

Tensile Tests: NA

Type/no.	Re (Mpa)	Rm(Mpa)	A % on	Z %	Fracture location	Remarks

Bend Test: NA

			Former diameter : 4T			
Type/no.	Bend angle	Elongation*	Results			

Macroscopic examination	Satisfactory					

Impact test*: NA

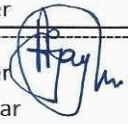
Type:	Size:	Requirements:			
Notch ocation/direction	Temp ° C	Values			Remarks
		1	2	3	

Hardness Test*(type/load): HV-10	Satisfactory
Parent metal:	142, 148, 144
HAZ:	180, 174 , 188
Weld metal:	214, 208, 210

Other tests:	---
Remarks:	---

Tests carried out in accordance with the requirements of	ISO 15614-1: 2019
Laboratory report reference no.:	Mentioned in respective place
Test results were acceptable/not acceptable	Acceptable
Test carried out in the presence of	Examiner

* If required

Examiner 
Ajay kumar

International Welding Technologist (IWT), ISO 9712- L2(VT, PT)

Ajay Kumar
B.E (Metallurgy), M.Tech (NDT)
IIW Certified-International Welding Technologist
(Diploma No: IN/IWT/51500785)
ASNT Level-II (RT,UT,MT,PT&VT)
ISO 9712 Level-II (PT)

WELDER'S QUALIFICATION TEST CERTIFICATE

WELDER'S CERTIFICATE (As per ISO 9606-1:2017)

Designation (s):	ISO 9606-1 141 P FW FM5 S t2.0 PB sl		
WPS - Reference :	JP/WPS/04	Examiner	
Welder's name:	VENKATESH		
Identification	JP/WPQ/04	Ajay Kumar	
Method of identification:	ID Card	International Welding Technologist	
Employer:	Jayam Precision No.19, Vijayalakshmi layout, Manancherri, Pallavaram Main Road, Kundrathur, Chennai- 600069		
Code /testing standard:	ISO 9606-1 :2017	Ajay Kumar B.E (Metallurgy), M.Tech (NDT) IIW Certified-International Welding Technologist (Diploma No: IN/IWT/51500785) ASNT Level-II (RT,UT,MT,PT&VT) ISO 9712 Level-II (PT)	
Job knowledge:	Acceptable		
Date of welding	02-07-2022		



	Test Piece	Range of Qualification
Welding process(es):	TIG-141	TIG-141
Transfer mode	-	-
Product type (plate or pipe)	Plate- P	Plate- P
Type of weld:	Tee Joint- Fillet Weld	Tee Joint- Fillet Weld
Parent material group(s)	ISO/ TR 15608: Gr 7.1 (SS409M)	Equivalent
Filler material group(s)	FM5	FM5
Filler material (Designation)	EN ISO 14343-A, AWS A 5.9 : E 308L	EN ISO 14343-A, AWS A 5.9 : E 308L
Shielding gas	ISO 14175- I 1 (100%Ar)	ISO 14175- I 1 (100%Ar)
Auxiliaries	-	-
Type of current and polarity	DCEN	DCEN
Material thickness (mm)	2.0	2.0 - 4.0
Deposited thickness (mm)	-	-
Outside pipe diameter (mm)	-	-
Welding position	PB	PA,PB
Weld details	-	-
Multi layer / single layer	sl	sl

Type of test	Performed and accepted	Not Tested	Name of examiner
Visual testing	Yes	-	Ajay Kumar B.E (Metallurgy), M.Tech (NDT) IIW Certified-International Welding Technologist (Diploma No: IN/IWT/51500785) ASNT Level-II (RT,UT,MT,PT&VT) ISO 9712 Level-II (PT)
Radiography testing	-	Yes	
Fracture test	-	Yes	
Bend test	-	Yes	
Notch tensile testing	-	Yes	
Macroscopic examination	Yes	-	
Place :	Chennai	Date of issue:	10.08.2022
Revalidation	Valid until	Revalidation	Valid until
		9.3 b)	11-05-2024
		9.2	11-11-2022

WELDER'S QUALIFICATION TEST CERTIFICATE

WELDER'S CERTIFICATE (As per ISO 9606-1:2017)

Designation (s):	ISO 9606-1 141 P FW FM5 S t2.0 PB sl	
WPS - Reference :	JP/WPS/04	Examiner
Welder's name:	VENKATESH	
Identification	JP/WPQ/04	Ajay Kumar
Method of identification:	ID Card	International Welding Technologist
Employer:	Jayam Precision No.19, Vijayalakshmi layout, Manancherri, Pallavaram Main Road, Kundrathur, Chennai- 600069	Ajay Kumar B.E (Metallurgy), M.Tech (NDT) IIW Certified-International Welding Technologist (Diploma No: IN/IWT/51500785) ASNT Level-II (RT,UT,MT,PT&VT) ISO 9712 Level-II (PT)
Code /testing standard:	ISO 9606-1 :2017	
Job knowledge:	Acceptable	
Date of welding	02-07-2022	



Revalidation for qualification by examiner for the following 2 years (refer 9.3b)

Confirmation of the validity by examiner for the following 6 months [refer 9.2]

Date	Signature	Position or title
02-01-2023	Ajay kumar	Examiner
02-07-2023	Ajay kumar	Examiner
02-01-2024	Ajay kumar	Examiner
02-07-2024	Ajay kumar	Examiner



Ajay Kumar
B.E (Metallurgy), M.Tech (NDT)
IIW Certified-International Welding Technologist
(Diploma No: IN/IWT/51500785)
ASNT Level-II (RT,UT,MT,PT&VT)
ISO 9712 Level-II (PT)

VISUAL TEST (VT) AND PENETRANT TEST (PT) REPORT

JAYAM PRECISION		VT/PT Report No.:		JP/VT-PT/04				
Company Name No.19, Vijayalakshmi layout, Manacherri, Pallavaram Main Road, Kundarthur, Chennai- 600069								
Job Description/Weld Tee joint - Fillet weld		Welder's Name :		VENKATESH				
Coupon details Date of Inspection		WPS NO.		Welder's Id				
04-07-2022		JP/WPS/04		JP/WPQ/04				
VT:ACCEPTANCE STANDARD ISO 5817; Level -B ; Quality Levels for Imperfections; PT: Prepared according to - ISO 3452-1								
Sl.No	Imperfection	Ref No.	NDT Inspections remarks	Sl.no	Imperfection	Ref No.	NDT Inspections remarks	
1	Crack surface	ISO 6520-1 1.1 100	OK	OK	27	Shrinkage Groove	1.8 5013	VT --
2	Crater Crack	1.2 104	OK	OK	28	Shrinkage Cavity	2.7 202	--
3	Internal Crack	2.1 100	--	--	29	Excess weld Metal	1.9 502	OK
4	Macro Cracks	2.2 1001	--	--	30	Excessive convexity Fillet weld	1.10 503	OK
5	Haz Crack	1.1 100	--	--	31	Excess Penetration	1.11 504	--
6	Toe Crack	1.1 100	OK	OK	32	Incorrect weld Toe	1.12 505	--
7	Surface Porosity	1.3 2017	OK	OK	33	Overlap	1.13 506	--
8	Root Porosity	1.18 516	--	--	34	Sagging	1.14 509	--
9	Gas Pore Internal	2.3 2011	--	--	35	Incompletely Fillet Groove-Underfill	1.14 511	OK
10	Internal Uniformly Porosity	2.3 2012	--	--	36	Burn through	1.15 510	OK
11	Internal Clustered	2.4 2013	--	--	37	Unequal Leg Length	1.16 512	--
12	Linear Porosity	2.5 2014	OK	OK	38	Root Concavity	1.17 515	--
13	Elongated Cavity	2.6 2015	--	--	39	Poor restart	1.19 517	OK
14	Worm Holes	2.6 2016	--	--	40	Insufficient Throat	1.20 5213	OK
15	End Crater	1.4 2025	OK	OK	41	Excessive Throat	1.21 5214	OK
16	Crater Pipe Internal	2.8 2024	--	--	42	Stray Arc	1.22 601	--
17	Lack of Fusion	1.5 401	--	--	43	Spatter	1.23 602	OK
18	Micro Lack of Fusion	1.5 401	--	--	44	Solid Inclusions	2.9 300	--
19	Incomplete Fusion	2.12 401	--	--	a	Copper Inclusions	2.11 3042	--
20	Lack of Side Wall Fusion	2.12 4011	--	--	b	Metallic Inclusions other than copper	2.10 304	--
21	Lack of Inter run Fusion	2.12 4012	--	--	45	Slag Inclusions	2.9 301	--
22	Lack of Root Fusion	2.12 4013	--	--	46	Flux Inclusions	2.9 302	--
23	Incomplete Root Penetration	1.6 4021	--	--	47	Oxide Inclusions	2.9 303	--
24	Lack of Penetration	2.13 402	--	--	48	Linear Misalignment	3.1 507	--
25	Continuous Undercut	1.7 5011	OK	OK	49	Angular Misalignment	3.2 508	--
26	Intermittent Undercut	1.7 5012	OK	OK	50	Incorrect root Gap (fillet)	3.3 617	OK
Test Result:- Acceptable ☒ Not Acceptable ☐				Inspected By 				
				Inspected By Ajay Kumar				



BUREAU VERITAS
Certification No.
Ind18.7533U/Q



Chemical & Metallurgical Services

T.S.No.63,A SIDCO Industrial Estate, Ekkaduthangal, Chennai - 600 032, Tamilnadu, INDIA.
Phone : 91-44-2225 3863, 044 - 2225 2944, Mobile : 9445067918
E-Mail : cmslab81@gmail.com / Website : www.cmslab.org



TC-5039

TEST CERTIFICATE

Page: 1 of 2

Test Report No. : CMS/ULR-TC503922000002362F Report Date : 03-08-2022
Party's Name & Address : M/s. Jayam Precision
No. 19, Vijayalakshmi Layout, Manancherri, Pallavaram Main Road,
Kundrathur, Chennai-600069.
Party's Ref : Letter Dated. 02-08-2022.
No. of Samples : 1No Date of Receipt of Sample : 03-08-2022
Nature of Test : Mechanical Test Date of Testing : 03-08-2022
Test Method : ISO 9015-Pt-1
Enclosures : Nil

TEST RESULTS

Sample Details

Welding Test
Material Grade: SS 409-M

Welding Process	Thickness	Type of Joint	Welding Position	WPS No.	Welder ID.	Welder Name
TIG-141	2 mm	FW	PB	JP/WPS/04	JP/WPQ/04	Venkatesh

Hardness test

Hardness HV 10 kg	At weld metal	At HAZ	At Bare metal	Requirement
	214, 208, 210 = 210.6 Average	180, 174, 188 = 180.6 Average	142, 148, 144 = 144.6 Average	380 HV max

Remarks:- The above sample conforms to EN ISO 15614-1-2019 grade in respect to the tested Mechanical Properties.

****END****



Sanjay Kumar Sahu
(Lab - Incharge)
Authorised Signatory

Recognised & Approved Laboratory by Airports Authority of India Ltd., • Steel Authority of India Ltd., • Rail India Technical & Economic Services Ltd.,
• Defence Establishments, • National & International Third Party Inspection Agencies & Many other State & Central Government Establishments.

Note:- This report relates only to the particular Sample submitted for test ♦ Any correction not attested shall invalidate this certificate ♦ Sample will be destroyed after 15 days from the date of issue of certificate unless instructed otherwise ♦ Any complaints about this report should be communicated in writing within 7 days of the issue of this report ♦ This report should not be reproduced wholly or in parts and cannot be used as evidence in a court of law and shall not be used in advertising media without prior permission in writing ♦ Sample descriptions is not verified in all case and is given as described by the customers Samples are not drawn by us unless otherwise stated. # Marks are not covered under NABL scope.

Scope of NABL Accreditation:- Chemical Analysis of Metals & alloys - spectro & Wet analysis. Metallography, Mechanical Tests, Corrosion Tests,
Paint testing, Compression test of Concrete cubes, Bricks, Springs, Physical Testing of Rubber, etc.,



BUREAU VERITAS
Certification No.
Ind18.7533U/Q



Chemical & Metallurgical Services

T.S.No.63,A SIDCO Industrial Estate, Ekkaduthangal, Chennai - 600 032, Tamilnadu, INDIA.
Phone : 91-44-2225 3863, 044 - 2225 2944, Mobile : 9445067918
E-Mail : cmslab81@gmail.com / Website : www.cmslab.org



TC-5039

TEST CERTIFICATE

Page: 2 of 2

Test Report No. : CMS/ULR-TC503922000002362F Report Date : 03-08-2022
Party's Name & Address : M/s. Jayam Precision
No. 19, Vijayalakshmi Layout, Manancherri, Pallavaram Main Road,
Kundrathur, Chennai-600069.
Party's Ref : Letter Dated. 02-07-2022.
No. of Samples : 2Nos. Date of Receipt of Sample : 03-08-2022
Nature of Test : Macro Test Date of Testing : 03-08-2022
Test Method : ISO 17639
Enclosures : Nil

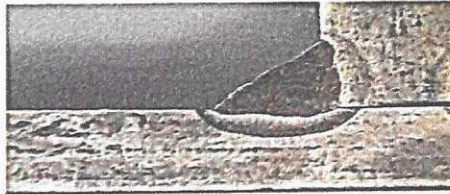
TEST RESULTS

Sample Details

Welding Test
Material Grade: SS409M

Welding Process	Thickness	Type of Joint	Welding Position	WPS No.	Welder ID.	Welder Name
TIG-141	2 mm	FW	PB	JP/WPS/04	JP/WPQ/04	VENKATESH

Macro Examination



Test	Result	Requirement as per EN ISO 15614-1-2019
Macro Examination:	The weld metal & HAZ surface shows free from cracks & complete fusion. Remarks:- Passes the test	Etchant: HCL+H2O Visual Examination of the cross section of the weld metal &HAZ shall show (i) Free from cracks (ii) Complete fusion

Remarks:- The above sample conforms to EN ISO 15614-1-2019 in respect to the tested Mechanical Properties.

****END****



Sanjay Kumar Sahu
(Lab - Incharge)
Authorised Signatory

Recognized & Approved Laboratory by Airports Authority of India Ltd., Steel Authority of India Ltd., Rail India Technical & Economic Services Ltd., Defence Establishments, National & International Third Party Inspection Agencies & Many other State & Central Government Establishments.

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