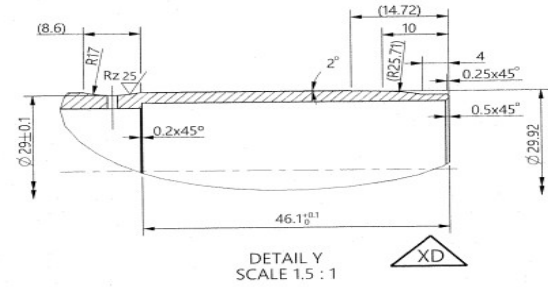
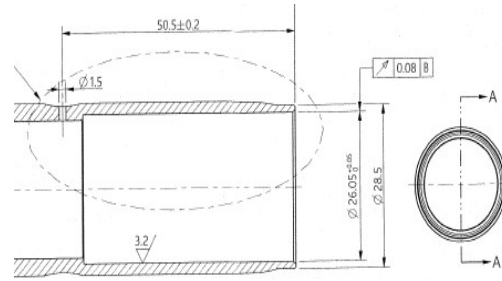
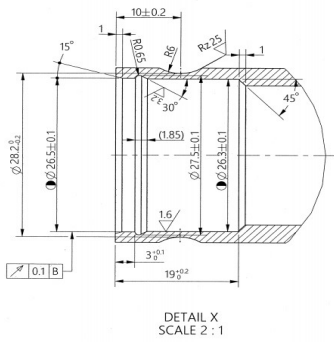


CONTROL PLAN



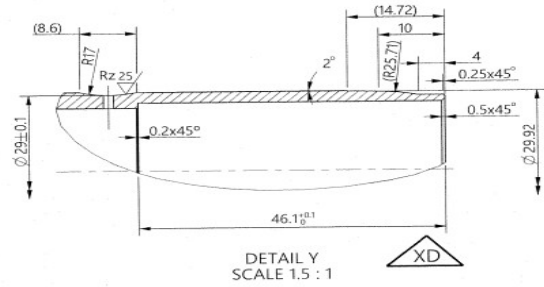
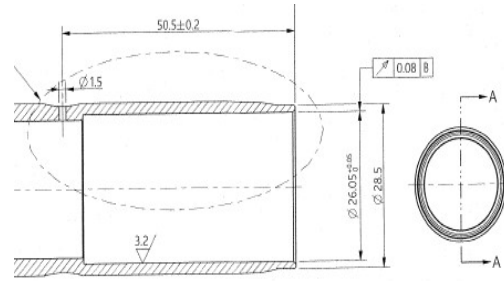
Prototype <input type="checkbox"/>	Pre - Launch <input type="checkbox"/>	Production <input checked="" type="checkbox"/>	Key Contact / Phone: Mr. Palak Shah/ Mr. Anand Nagare	Date(Orig.) 22-07-2022	Rev Date: 17.02.2024 (Location change)
Control Plan Number : TPIGE/CP/03			Core Team: Palak/Piyush/ Bhupendra/ Anand	Customer Engineering Approval / Date (if Reqd.):	
Part Number : F2FA190330 REV:XD			Supplier / Plant Approval Date	Customer Quantity Approval / Date (if Reqd.)	
Part Name/Description: Fork pipe plated (KOPG)			Other Approval Date (if reqd.)	Other Approval Date (if reqd.)	
Supplier/Plant: TUBE PRODUCTS OF INDIA LTD, SANAND Supplier Code: 101109					

Part / Process Number	Process Name / Operation Description	Machine, Device, Jig, Tools for Mfg.	Characteristics				Spec Char. Class	Methods						Reaction plan	Corrective Action	
			No.	Ballon diagram Seial NO.	Product	Process		Product / Process specification / Tolerance	Evaluation Measurement Technique	Sample		Control Method/Error Proofing				
										Size	Freq.	Record / Error Proofing	Resp.			
10	INWARD INSPECTION	Inspection Table	1		Recive Material From TI Plant/WH	----	----	----	----	----	----	----	----	----	----	----
			2		Outer Diameter (mm)	----	30.10 (+0.08/0.0)	OD Micrometer	5 No's	Every Lot	Inward Inspection Report TI/GE/QA/RI/03	QA	Reject the Lot	inform to QA Incharge		
			3		Inner Diameter (mm)	----	24 (+0.0/-0.15)	Vernier Caliper	5 No's	Every Lot		QA	Reject the Lot	inform to QA Incharge		
			4		Total Length	----	290.5 (+/-0)	Height Guage	5 No's	Every Lot		QA	Hold the Lot	inform to QA Incharge		
			5		UTS (MPA)	----	863 Min	As Per RMTc	----	Every Lot		QA	Hold the Lot	inform to QA Incharge		
			6		YS (MPA)	----	715 Min	As Per RMTc	----	Every Lot		QA	Hold the Lot	inform to QA Incharge		
			7		ELONGATION%	----	15% MIN	As Per RMTc	----	Every Lot		QA	Hold the Lot	inform to QA Incharge		
			8		Hardness HRC	----	24-32	As Per RMTc	----	Every Lot		QA	Hold the Lot	inform to QA Incharge		
			9		Straightness	----	0.08/500	As Per RMTc	----	Every Lot		QA	Hold the Lot	inform to QA Incharge		
			10		Surface Roughness ID	----	0.80 Ra	As Per RMTc	----	Every Lot		QA	Hold the Lot	inform to QA Incharge		
			11		Free From Rust, Burr, Dent & Scratches & ID Fin Line	----	Visual	Visual	5 No's	Every Lot		QA	Hold the Lot	inform to QA Incharge		
			12		Material Storage	----	Refer to W/IRM/00	NA	NA	NA		Inventory report/ERP system	Store Incharge	Quantity varyify	Inform to store incharge	



DETAIL X
SCALE 2 : 1

CONTROL PLAN

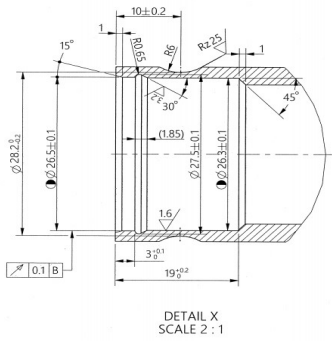


DETAIL Y
SCALE 1.5 : 1

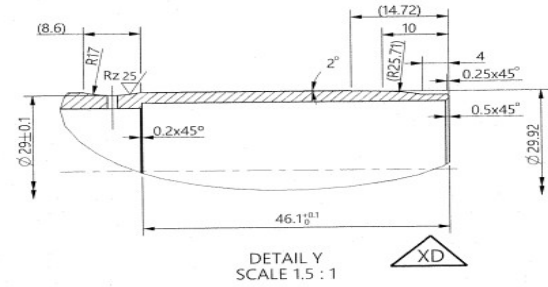
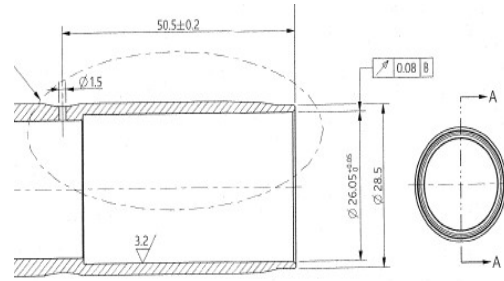


Prototype <input type="checkbox"/>	Pre - Launch <input type="checkbox"/>	Production <input checked="" type="checkbox"/>	Key Contact / Phone: Mr. Palak Shah/ Mr. Anand Nagare	Date(Orig.) 22-07-2022	Rev Date: 17.02.2024 (Location change)
Control Plan Number : TPIGE/CP/03			Core Team: Palak/Piyush/ Bhupendra/ Anand	Customer Engineering Approval / Date (if Reqd.):	
Part Number : F2FA190330 REV:XD			Supplier / Plant Approval Date	Customer Quantity Approval / Date (if Reqd.)	
Part Name/Description: Fork pipe plated (KOPG)			Other Approval Date (if reqd.)	Other Approval Date (if reqd.)	
Supplier/Plant: TUBE PRODUCTS OF INDIA LTD, SANAND Supplier Code: 101109					

Part / Process Number	Process Name / Operation Description	Machine, Device, Jig, Tools for Mfg.	Characteristics			Spec Char. Class	Methods						Reaction plan	Corrective Action	
			No.	Ballon diagram Seal NO.	Product		Process	Product / Process specification / Tolerance	Evaluation Measurement Technique	Sample		Control Method/Error Proofing			
										Size	Freq.	Record / Error Proofing			Resp.
30	MACHINING Clip Side	CNC Machine	1		Clip groove inner dia	Boring Tool - Spindle RPM -2200 to 2500, Hydraulic Pressure- 28 - 35 Bar, Clamping pressure - 15-20 kg/cm2 & Insert changing frequency 200 Nos/Corner.	Ø 27.5 ± 0.1mm	Profile Proj. / Program control	5nos	Sample Approval	Layout Report	QA	Reject the Lot		
			2		ID boring 1		Ø 26.5 ± 0.1mm	Vernier Caliper	Program Controlled Dimm With Ref to 26.3 ± 0.1	Every Lot	Set-up Approval /Inprocess Inspection Report	QA/Prod	Reject the Lot	Inform the Shift Incharge	
			3		ID Boring 2		Ø 26.3 ± 0.1mm	Pluge gauge / Vernier Caliper	100% Inspection with Plug gauge	Every Lot	Set-up Approval /Inprocess Inspection Report	QA/Prod	Reject the Lot	Check the offset and inform to Prod Incharge	
			4		Before Clip Depth		3 (0.1/0.0)mm	Vernier Caliper	First Piece/5 nos	Every Hour	Set-up Approval /Inprocess Inspection Report	QA/Prod	Reject the Lot	Check the offset and inform to Prod Incharge	
			5		Total Depth		19 (0.2/0.0)mm	Vernier Caliper	First Piece/5 nos	Every Hour	Set-up Approval /Inprocess Inspection Report	QA/Prod	Reject the Lot	Inform the Shift Incharge	
			6		Inner Chamfer Length and angle		1x45°	Program Control			NO record				
			7		Chamfer	1x15°	Program Control/Visual			NO record					
			8		Groove Dist	10±0.2mm	Program Control/Visual			NO record					
			9		Groove Diameter	Ø 28.2 (0.0/-0.2)mm	Vernier Caliper/Snap Gauge	First Piece/5 nos	Every Hour	Set-up Approval /Inprocess Inspection Report	QA/Prod	Reject	Check the offset and inform to Prod Incharge		
			10		Run Out clip side	0.1 mm	Dial	First Piece/5 nos	Every Hour	Set-up Approval /Inprocess Inspection Report	QA/Prod	Reject	Check the offset and inform to Prod Incharge		
			11		Roughness	1.6Ra	RA Tester	First Piece/5 nos	Every Hour	Set-up Approval /Inprocess Inspection Report	QA/Prod	Reject	Check the offset and inform to Prod Incharge		
			12		Clip width	1.85 mm	Program Control			NO record					
			13		Clip groove angle	30°	Program Control			NO record					
			14		Clip Radius	R0.65	Program Control			NO record					
			15		Groove Radius	R6	Program Control			NO record					
			16		Total Length	288.3 ± 0.2	PokaYoke at Drilling Oper. / Length Gauge	100%	Every Lot	Set-up Approval /Inprocess Inspection Report	QA/Prod	Reject	Check the offset and inform to Prod Incharge		



CONTROL PLAN



Prototype <input type="checkbox"/>	Pre - Launch <input type="checkbox"/>	Production <input checked="" type="checkbox"/>	Key Contact / Phone: Mr. Palak Shah/ Mr. Anand Nagare	Date(Orig.) 22-07-2022	Rev Date: 17.02.2024 (Location change)
Control Plan Number : TPIGE/CP/03			Core Team: Palak/Piyush/ Bhupendra/ Anand	Customer Engineering Approval / Date (if Reqd.):	
Part Number : F2FA190330 REV:XD			Supplier / Plant Approval Date	Customer Quantity Approval / Date (if Reqd.)	
Part Name/Description: Fork pipe plated (KOPG)			Other Approval Date (if reqd.)	Other Approval Date (if reqd.)	
Supplier/Plant: TUBE PRODUCTS OF INDIA LTD, SANAND Supplier Code: 101109					

Part / Process Number	Process Name / Operation Description	Machine, Device, Jig, Tools for Mfg.	Characteristics			Spec Char. Class	Methods				Reaction plan	Corrective Action			
			No.	Ballon diagram Seial NO.	Product		Process	Product / Process specification / Tolerance	Evaluation Measurement Technique	Sample			Control Method/Error Proofing		
										Size			Freq.	Record / Error Proofing	Resp.
40	Drilling	Drill M/c	1		Drill Dist	Drill bit frequency change after every 500 Nos tubes,	50.5 ± 0.2	Vernier Caliper	First Piece/5 nos	Every Hour	Set-up Approval /Inprocess Inspection Report	QA/Prod	Reject the Lot	inform to Prod Incharge	
			2		Drill Dia		Ø 1.5	Pin Gauge	First Piece/5 nos	Every Hour	Set-up Approval /Inprocess Inspection Report	QA/Prod	Reject the Lot	inform to Prod Incharge	
			3		Total Length	Length Pokayoke	288.3 ± 0.2	Length Pokayoke	100%	Every Lot	POYA-YOKE daily monitoring sheet	QA/Prod	Stop / Quarantine	inform to Prod Incharge	
50	De-Burring	Deburring Fixture & brush	1		ID clean	Burr Clean	NA	Na	100%	Every Lot	NO Record	Prod	NA	NA	
60	OILING	Oiling	1		Surface Protection - Rust Preventive Oil	---	Free from Rust	Visual	100%	Every Lot	NO Record	Prod	Rework	inform to Prod Incharge	
70	FINAL INSPECTION	Inspection Table	1		Inspection as per Sampling Plan	---	As per Dwg.	Visual / Mic/Plug Gauge/ Thread Gauge	Sampling Plan	Every Lot	TIGE/QA/PDI/01	QA	Stop / Quarantine	inform to Prod Incharge	
80	Dispatch	Dispatch Area	1		Nil	Check for the Exact Qty of Tubes Packed	As per Packing Std	Manual	15 No's	Every Bin	---	---	---	inform to Prod Incharge	

Date:
05.07.2023
21.08.2023
18.09.2023
17.10.2023

Customer Complaint
Clip Side Dia. 28.2 -0.2 mm Oversize
ID oversize (Caulking side)
Caulking Depth Undersize
Tube Total Length Undersize

Prepared By :- Palak Shah

P. A. Shah

Anand Nagare

ved By : Anand Nagare



PROCESS FMEA



PART DESCRIPTION : Fork Pipe Machined Part No- F2FA190330 REV:XD		DATE (ORIGINATED) : 22.07.2022			REVISION NO. : 02		REV DATE : 17.02.2024		PAGE : 1 of 1								
CORE TEAM : Palak/Anand/Abishkh				PROCESS RESPONSIBILITY: Manufacturing				DOCUMENT NO. :									
		Run Out clip side 0.1 mm More	Causes Fitment Problem in assembly at Customer end	6	1. Collet Chuck Run Out 2. Burr in collet 3. Tube Bend	collect and collect chuck Air cleaning after every 2hr.	5	Set-up Approval /Inprocess Inspection Report 2. 100 % Inspection at Plant	4	120							
30 MACHINING Clip Side	Dimenision of Machined Tube as per the drawing specification Req.	1.Clip side Boring ID 26.3 mm U/s & O/s 2.Clip side Boring ID Ø 26.5 mm U/s & O/s 3.Clip groove inner dia Ø 27.5 ± 0.1mm U/s & O/s. 4.Before Clip Depth3 (0.1/0.0)mmU/s & O/s 5. Total Depth 19 (0.2/0.0)mm U/s & O/s	Causes Fitment Problem in assembly at Customer end	8	Wrong Offset/tool wareout	.1.Changing of Inserts as per Define frequency 2. .Wear offset limit changes from 0.3 micron to 0.1 micron in Fanicu bases control 3. Ø 26.5 mm Program Controlled Dimn With Ref to 26.3 4.dia Ø 27.5 ± 0.1mm Program Controlled Dimn With Ref to 26.3 mm	4	1. 100% Inspection with Plug gauge for Ø 26.3mm 2. for Depth 3 mm & 19 mm Set-up Approval /Inprocess Inspection Report	3	96							
		Caulking side ID Run Out 0.08mm More	Causes Fitment Problem in assembly at Customer end	6	1. Collet Chuck Run Out 2. Burr in collet 3. Tube Bend	collect and collect chuck Air cleaning after every 2hr.	5	Set-up Approval /Inprocess Inspection Report 2. 100 % Inspection at Plant	4	120							
		Groove Diameter Ø 28.2 (0.0/-0.2)mm O/s & U/s	Causes Fitment Problem in assembly at Customer end	8	Wrong Offset/tool wareout/Tool Break	.1.Changing of Inserts as per Define frequency 2. .Wear offset limit changes from 0.3 micron to 0.1 micron in Fanicu bases control	5	Set-up Approval /Inprocess Inspection Report	4	160	Clip Side Dia. 28.2 - 0.2 mm Oversize	Pala Shah 22.10.23	1. SOP made for inspection of produced part before insert broken (if insert broken before changing frequency) . 2. Monitoring sheet made to record the Inspection status.(15 Parts of Before insert Break) 3. 100 % part to checked with snap gauge for groove oversize.(Seprate Inspection stage added for next 3 Months)	8	3	2	48
		OD Chamfer 3x15°	Customer Dissatisfaction.	3	1. Collet Chuck Run Out 2. Burr in collet 3. Tube Bend	collect and collect chuck Air cleaning after every 2hr.	5	Set-up Approval /Inprocess Inspection Report 2. 100 % Inspection at Plant. 100 % Visual Inspection at final	4	60							
		Total Length 288.3 +/- 0.2 mm U/s & O/s	1) Functional Problem at customer End 2) Customer Dissatisfaction.	8	1. Improper Stoper resting. 2. Wrong Off set 3. Raw tube Length U/s.	1.Wear offset limit changes from 0.3 micron to 0.1 micron in Fanicu bases control	5	100% Inspection on Sensor Pokayoke on Drilling M/c	3	120	Tube Total Length Undersize	Mr. Palak Shah 19.10.2023	Seperate 100 % Inspection with Length Gauge at Final Inspection.	8	5	2	80
40 Drilling	Dimenision as per the drg specification	Drill Diameter U/S,O/S, Drill Missing	1) Functional Problem at customer End 2) Customer Dissatisfaction.	6	1) Tool Wear Out 2) Tool Runout	Drill change as per defined Frequency	2	1) Inprocess Inspection with Plug Gauge	3	36							
50 Deburring	Deburring ID	Burr IN ID	1) Functional Problem at customer End 2) Customer Dissatisfaction	6	*--	100% Deburring	2	No Recoed	3	36							



PROCESS FMEA



PART DESCRIPTION : Fork Pipe Machined Part No- F2FA190330 REV:XD				DATE (ORIGINATED) : 22.07.2022				REVISION NO. : 02		REV DATE : 17.02.2024		PAGE : 1 of 1					
CORE TEAM : Palak/Anand/Abishhek				PROCESS RESPONSIBILITY: Manufacturing				DOCUMENT NO. :									
60 Oiling	Oiling	Rust	Customer Dissatisfaction	3		*--	oiling 100%	2	No Recoed	3	36						
70 Final Inspection	All Dimensions As per drawing specification	Part Skipped from Final Inspection as per inspection aggrement	1) Rejection at customer end 2) Customer Dissatisfaction	6		1. Unskilled /New Inspector 2. Inspector negligence	1. Training to Inprocess Inspector 2. Tranning to the operator	2	1.Final Inspection Report.	3	36						
80 Packing	Other Model tube mixup	Wrong Material Packed	1) Wrong part to customer 2) Customer Dissatisfaction	3		1. Improper Material handling 2.Unskilled operator	1. Awareness training to the operator.	3	1.Modelwise Trolly Storage, Modelwise Final Inspection Identification Colour Marking & Tag Colour.	3	27						
	Packing & Dispatch as per standard	Qty Mismatch	1) Customer Dissatisfaction	3		1. Improper Material handling 2.Unskilled operator	1. Awareness training to the operator. 2. Partion Bins for Standerd Packing	3	1)Visual Inspection of Bin 2) Laoding Slip for packing	3	27						
Rev-01	Customer Complaint added																
Rev-02	Location Change																
Prepared By:- Mr. Palak Shah									Approved By: Mr. Anand Nagare								
<i>Palak Shah</i>									<i>Anand Nagare</i>								