SSB ENGINEERS PVT. LTD.

MANUFACTURING / PROCESS FLOW CHART

Doc No.: F/01/06
Issued Date : 20/01/2010
Rev No : 01,01.07.2018

Part Name : Guide Ring		**Key Contact : Mr. Vinod Kuntal**	**Code No:**
Part no. : 0.F3400711,3 Tor		**Drg. no. : 1324-332-008,3 Tor**	**APQP Ref. No:**
Customer : DANA fair Field		**Drg. Rev no. - I**	**Orign Date ;-25.11.2024**

PFD Rev. no. - 00

Process No.	Process Description	Process Flow Symbols	Incoming Source of Variation	Process Characteristics	Product Characteristics	Risk Assessment Level
10	Raw Material Incoming & Inspection	If material found not ok → RM send to sulier; Ok PART; Move to next opn	Incoming Size & Material	Check Heat No. & Material Grade etc with documents	Bar Size : Dia : Ø 80 MM Material Grade : 20MnCr5 + HH	High
20	Billet Cutting	If part found NG → Rework; If part found Not OK → REJECT; Ok PART; Move to next opn	Weight Variation	Digital Weighing Scale	Cut Wt.: 7150 ± 10 Grms	Medium
30	Billet Heating	If part found NG → Rework; If part found Not OK → REJECT; Ok PART; Move to next opn	Over Heating / Under Heating	Infrared Pyrometer	Temp. = 1150˚C To 1220˚C	Medium
40	Forging	If material found not ok → Reject; Ok PART; Move to next opn	Crack, Mismatch, Dimensions Variation	Die Setting / Tool Wear & Tear	Dimension as per forging drawing	High
50	ISO thermal Annealing	If part found NG → Rework; If part found Not OK → REJECT; Ok PART; Move to next opn	Different heat variation	As Per SOP for Hardening & Tempering	Hardness and Microstructure Study	High
60	Shot Blasting	If part found NG → Rework; Ok PART; Move to next opn	Heavy Scaling on Part Shot Size / Grade	loading, cycle time & Shot flow	free from scaling	Medium
70	Coining	If part found NG → Rework; If part found Not OK → REJECT; Ok PART; Move to next opn	More Flatness From Forging Process	Flatness inspection By HG	Minimum Flatness	High
80	Pre Machining	If part found NG → Rework; If part found Not OK → REJECT; Ok PART; Move to next opn	Dimensions Variation	Cutting Speed : 450 RPM Feed : Manual Feed	Dim. As Per Pre M/c Drawing	Medium
90	CNC First	If part found NG → Rework; If part found Not OK → REJECT; Move to next opn; Ok PART	Dimensions Variation from Pre M/C Hardness Variation	**For Bore ,OD & Height** Spindle Speed:2000rpm Cutting Speed: 280 rpm Feed:0.15mm	Dim. As Per CNC M/c Drawing	High
100	CNC Second	If part found NG → Rework; If part found Not OK → REJECT; Move to next opn; Ok PART	Dimensions Variation from Pre M/C, Hardness Variation	**For FACE:** Spindle Speed:2200rpm Cutting Speed: 280 rpm Feed:0.15mm **For Bore & Height** Spindle Speed:2000rpm Cutting Speed: 280 rpm Feed:0.15mm	Dim. As Per CNC M/c Drawing	High

110	VMC						If part found NG → Rework → If part found Not OK → REJECT Move to next opn → Ok PART	Dimensions Variation from Pre M/C, Hardness Variation	**For FACE:** Spindle Speed:2200rpm Cutting Speed: 280 rpm Feed:0.15mm **For Bore & Height** Spindle Speed:2000rpm Cutting Speed: 280 rpm Feed:0.15mm	Dim. As Per CNC M/c Drawing	High
120	MPI						If material found not ok → Rejest Move to next opn → Ok PART	Powder con. Liquid, Light-UV, Holding time, Amp.	UV-1000, MPI Liquid con. - 4/5 %, Amp.	Crack on Face and OD	High
130	Marking						Rework → REJECT Ok PART	Heat code Year & Week of production GT Logo N CNH Part No. vender logo.	As Per SOP for Marking	Marking Should be free from Burr & Marking Depth	High
140	Visual Insp.						If part found NG → Rework → If part found Not OK → REJECT Move to next opn → Ok PART	Un proper Finish Turned Parts from CNC, Crack , tool marks and etc.	Visual inspection not proper	free from Burr and Rust & Scaling	
150	Final inspection						If part found NG → Rework → If part found Not OK → REJECT Move to next opn → Ok PART	Inadequate Inspection of All perameter as per Drawing	Trained Inspectors & Calibrated Measuring Instruments	Dim as per final Inspection Drawing	High
160	Apply Rust Preventive (As per customer required)							Rust Handling Damage, Dipping Time Rust Preventive Type Concentration	Rust Dents	Material Handling Dipping & Stacking Bath Concentration Discarding of Rust Preventive	Medium
170	Packing							Packing Methodology Packing Material	Packing Method Packing Standard Material Handling Sticker	No. of Pcs / Box with Part no., Heat No.	Medium
180	PDI						If part found NG → Rework → If part found Not OK → REJECT Move to next opn → Ok PART	Inadequate Inspection of All perameter as per Drawing	Trained Inspectors & Calibrated Measuring Instruments	Dim as per Customer Drawing	High
190	Dispatch							Un identified Part Boxes	Proper Transportation	Wrong Material Dispatch	High

Process Type — Transport — Storage — Loading / Unloading — Inspection — **Operation**

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