



July 2019 PRODUCTION PROCESSES

BLUE ENGINEERING	SRS	SPI	MASSUCCO INDUSTRIE	COMUTENSILI	LMB	MEPIT	SMF	TTN	LICAT	ROSFER	AERONDI	FLEXIDER	LABORMET DUE	OUTSOURCING
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MACHINING	ROUGH MACHINING				A	A	A	A						
	FINISH MACHINING				A	A	A	A						
	MILLING				A	A	A	A		A				
	4-AXIS BORING				A	A	A							
	5-AXIS BORING						A							
	BROACHES PRODUCTION AND PERIODIC CONTROL				A									
	BROACHES DESIGN				A									
	DRILLING						A		A		A			
	DEEP DRILLING						A		A					
	STATOR-ROTOR BLADES DRILLING				A		A							
	STRAIGHT-TOOTH CUTTING									A				
	CUTTING TOOTH AFTER COPPER PLATING									A				
	VERTICAL MILLING					A	A							
	AUTOMATIC DEBURRING									A				
	MANUAL DEBURRING						A			A				
	TUMBLING DEBURRING									A				
	AUTOMATIC CHAMFERING						A			A				
	4-AXIS WORKING CENTER OPERATIONS				A	A	A	A						
	5-AXIS WORKING CENTER OPERATIONS						A	A						
	MACHINE AIRFOIL				A									
	TOOLING DESIGN	A		A			A	A			A			
	SMALL ROTORS BALANCING							A						
	TOOLING MANUFACTURING (HWD)					A	A	A			A			
	MARKING						A			A				
GRINDING	JIG GRINDING												A	
	HIGH-SPEED GRINDING			A	A									
	OUTER SPUR GEARS									A				
	INNER SPUR GEARS/SPLINES									A				
	INNER/OUTER DIAMETER GRINDING			A									A	
	FLAT GRINDING			A	A								A	
	HONING			A			A		A					
	PLANETARY GRINDING						A						A	
	TOOLING DESIGN			A			A						A	
	STOCK REMOVAL				A									
SPECIAL PROCESSES	NITAL			A							A			
	SANDBLASTING			A				A	A					
	WETBLASTING								A					
	GAS NITRIDING									A				
	ION NITRIDING								A					
	PHOSPHATING			A										
	SPOT WELDING							A						
	OVEN BRAZING							A						
	TOOLING DESIGN			A				A						
	TOOLING MANUFACTURING (HWD)							A					A	

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WELDING	TOOLING DESIGN		A			A	A							
	TIG						A							
	MIG						A							
	MICRO SPOT WELDING						A							
	INERTIA WELDING													A
	TOOLING MANUFACTURING (HWD)					A	A			A				
LASER	BLADE AND VANE ECM				A									
	TOOLING DESIGN				A					A				
	TOOLING MANUFACTURING (HWD)									A				
HEAT TREATMENTS	CARBURIZING			A					A					
	LOW-PRESSURE CARBURIZING								A					
	SOLUBILIZATION						A	A						
	AGEING/PRECIPIATION HARDENING						A	A						
	NORMALIZING			A			A	A						
	QUENCHING AND TEMPERING						A	A						
	ANNEALING			A			A	A						
	STRESS RELIEVING						A	A						
	CRYOGENIC TREATMENT			A				A						
	VACUUM BRAZING							A						
	BRAZING TOOLING DESIGN						A	A						
	BRAZING TOOLING MANUFACTURING (HWD)						A	A						
	QUENCHING AND STRESS RELIEVE			A				A	A					
	INDUCTION HARDENING								A					
	PRESS QUENCHING TOOLING DESIGN			A				A			A			
PRESS QUENCHING MANUFACTURING FIXTURE (HWD)							A			A				
EDM	DIE-SINK				A	A		A						
	WIRE				A			A	A					
	TOOLING DESIGN			A				A	A			A		
	TOOLING MANUFACTURING (HWD)							A	A					
MANUFACTURING ENGINEERING	MANUFACTURING PROCESS SHEET			A				A						
	INSPECTION PROCESS SHEET			A				A						
	CNC PROGRAMMING			A				A						
	CMM PROGRAMMING			A				A						
	ASSEMBLY PROCESS SHEET			A				A						
	TOOL PATH SIMULATION			A				A						
	PART PROGRAM PRODUCTION VALIDATION			A				A						
	PART PROGRAM CMM VALIDATION			A				A						
	CAE SIMULATION		A					A						
PAINTING	SPRAY PAINT - ELECTROSTATIC PAINT													A
	TOOLING DESIGN	A		A				A						
	TOOLING MANUFACTURING (HWD)							A						
INSPECTIONS	AUTOMATIC CLEANING													A
	NITAL ETCHING				A				A					
	DIMENSIONAL /GEOMETRY CMM							A	A		A		A	
	DIMENSIONAL /GEOMETRY CHECKS										A		A	
	TOOLING AND SPECIAL GAUGES DESIGN			A				A	A		A			
	TOOLING AND SPECIAL GAUGES PRODUCTION							A	A		A			
	SURFACE ROUGHNESS							A	A		A		A	
	TECHNICAL VALIDATION AND Cp/Cpk INDICATORS							A	A					

FIRST ARTICLE INSPECTION (AS 9102 FORM)							A	A		A				
FPI: FLUORESCENT PENETRANT INSPECTION								A		A		A		A

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INSPECTIONS	EDDY CURRENT										A			A
	CT SCAN INSPECTION												A	
	ULTRASONIC CONTROL								A		A			A
	RADIOGRAPHIC										A			A
	TAPPING TEST										A			A
	VISUAL INSPECTION					A	A				A			A
	RESIDUAL MAGNETISM										A			A
	DIMENSIONAL BENCH INSPECTION					A	A		A					
CONTACT PATTERN INSPECTION								A						
FUNCTIONAL TESTS	AIR FLOW				A		A							
	PRESSURE/LEAKS					A	A							
	OIL PRESSURE					A								
	WASH AND FLOW CORE PASSAGES + LIGHT BOROSCOPE													A
	MILLIPORE													A
	FLOW RATE				A									
	HRC HARDNESS						A	A			A		A	A
	HV HARDNESS							A			A		A	A
	HB HARDNESS							A			A		A	A
	TEST BENCH DESIGN	A		A			A				A			
	TEST BENCH MANUFACTURING (HWD)						A							
	TEST EQUIPMENT DESIGN	A		A			A				A			
TEST EQUIPMENT MANUFACTURING (HWD)						A								
QUALITY SYSTEM	NADCAP			A			A	A			A			A
	AS/EN 9100		A	A			A	A	A	A	A		A	A
	AGUSTA WESTLAND							A		A	A			A
	AVIO AERO	A			A		A	A			A		A	A
	GE AVIATION	A			A		A	A						
	LEONARDO	A					A		A	A			A	A
	PRATT & WHITNEY				A		A							
	ROLLS-ROYCE plc				A									
	GE ALSTOM					A								
	HITACHI RAIL				A									
	UTAS ITALY						A	A						
	ANSALDO ENERGIA					A		A		A			A	
	ISO 9001	A	A		A	A		A	A	A		A		A
COMPOSITES	AUTOMATIC SURFACES CUT													A
	CARBON FIBRE LAMINATION IN CLEAN ROOM													A
	AUTOCLAVE POLYMERIZATION													A
	THERMOPOLYMERIZATION													A
	BONDING													A
HOT FORGING	HOT FORGING			A										
	HOT ROLLING			A										
COLD FORMING	SHEARING						A							
	MANUFACTURING FIXTURE TOOLS AND DEVICE						A							
	BENDING						A							
	DIE DESING						A							
	DIE MANUFACTURING (HWD)						A							

KEY	
Third-party Approval Bodies	A
Customer Approvals	A
Active Processes	A
Outsourcing Processes	A