

VE COMMERCIAL VEHICLES LIMITED.
(UNIT : EICHER ENGINEERING COMPONENTS; DEWAS)

CONTROL PLAN

SURFACE FINISH : EEC CUSTOMER'S
DOC. NO. : APO4 : 160 : 20

CONTROL PLAN NO : 5450 / 110

LOCATION

REST

CLAMP

SPL.CHAR.
(CRITICAL DIMN.)

EECD

CUSTOMER'S

REVISION

EFF DATE	19.09.15	EFF DATE		EFF DATE	
PROTOTYPE		PRELAUNCH		PRODN	
O.E.		EXPORT			
PART NO.	ED 5450 (YT 686 353 00 10)				
PART NAME	PINION		OPN. NO.	110	
CUSTOMER	FORCE MOTORS				
OPERATION	* HEAT TREATMENT				
CELL [OPTIONAL]	M/C. CGCF & SHOT BLASTING		M / C NO. [OPTIONAL] --		

MATERIAL : 25MoCr4E
MODULE : 6.114
WEIGHT : 2.1

* HEAT TREATMENT

PUNCHING ;
PRE-WASHING ;
PRE-HEATING ;
HEATING ;
CARBURISING ;
OIL QUENCHING ;
POST-WASHING ;
TEMPERING ;
SHOT BLASTING ;

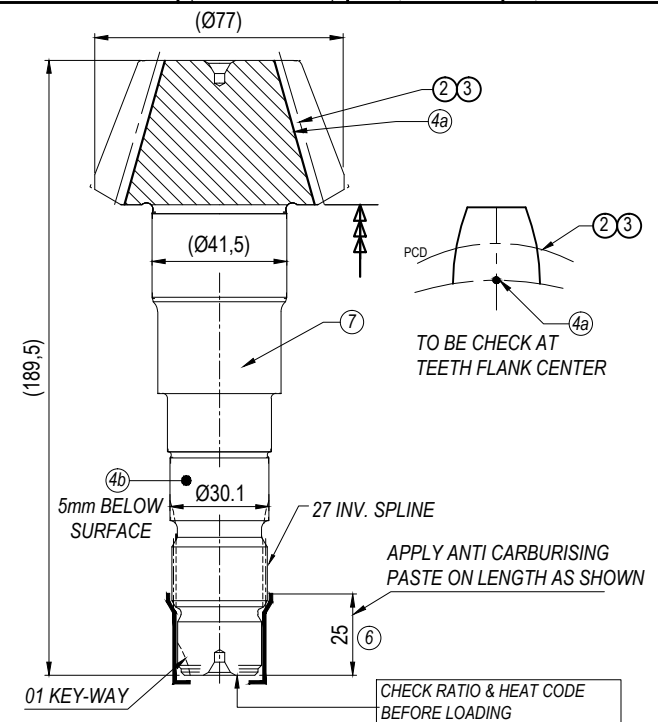
MICROSTRUCTURE

CASE -
FINE TEMPERED MARTENSITE,
FREE FROM CARBIDE NETWORK,
R.A. 5% MAX.
GBO 10µ MAX.

CORE -
BAINITE + TEMPERED MARTENSITE,
FREE FROM FERRITE

NOTE:-

- 1.HARDNESS SHOULD BE CHECKED, BOTH BEFORE & AFTER GRINDING
2. MAINTAIN RECORDS OF ALL H.T. PROCESS DONE.
3. FOR INITIAL DEVELOPMENT / LOTS. TEMP / TIME / CP GRAPH - DATA TO BE SUBMITTED.



A B C
D E F

SR. NO.	CHARACTERISTIC		SPL CHAR CLASS	PRODUCT / PROCESS SPECIFICATIONS	EVALUATION MEASUREMENT TECHNIQUE		SAMPLING		CONTROL METHOD	CORECTIVE ACTION / REACTION PLAN
	PRODUCT	PROCESS			INSTRUMENT	NO.	SIZE	FREQ.		
1.	SURFACE HARDNESS AT TEETH TOP			59 ~ 63 HRC	HARDNESS TESTER		5 PC	LOT	ON LINE AUTO CONTROL (CGCF)	CHECK FURNACE SETTING DATA & CONFIRM FOR CORRECTNESS
2.	SKIN HARDNESS AT FLANK AT 0.05mm BELOW SURFACE			700 Hv. MIN.	MICRO-HARDNESS TESTER		1 PC	LOT		
3.	CASE DEPTH AT PCD (CHECK AT FLANK CENTER)			0.8 ~ 1.1 mm AT 550 Hv 1						
4a	CORE AT R.C.D.			325 ~ 440 BHN (36 ~ 44 HRC)	HARDNESS TESTER	BHN ø2.5mm BALL 187.5 kg LOAD				
4b	HARDNESS AT Ø 30.1 (1/3 R mm BELOW)			280 BHN MIN.						
5.	MICROSTRUCTURE #			MENTIONED ABOVE	MICROSCOPE		1 PC	LOT		
6.	HARDNESS AT SOFTENING ZONE (25mm)			40 ~ 50 HRC	HARDNESS TESTER		5 PC	LOT		
7.	DOT PUNCHING			H.T. BATCH CODE	DOT PUNCHING M/C.			100%		
8.	SHOT BLAST			FREE FROM RUST & SCALE	VISUAL		1 PC	LOT		

DRN BY

MW

CHKD BY

SDP

APRD BY

B. LEVA

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