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

# CONTROL PLAN

| PREV. OPN. | NEXT. OPN. | SURFACE FINISH : | DOC. NO. : |
|---|---|---|---|
| 50 - PRE HT INSPECTION | 70 - TEETH CHAMFERING | | AP04 : 160 : 20 |

CONTROL PLAN NO : 2445 / 60

LOCATION → REST →→ CLAMP —N→ SPL.CHAR. ( CRITICAL DIMN. ) Ⓑ EECD ◇ CUSTOMER.

REVISION

| EFF DATE | 18.08.14 | EFF DATE | 04.01.15 | EFF DATE | 16.12.15 |
|---|---|---|---|---|---|
| PROTOTYPE | ✓ | PRELAUNCH | ✓ | PRODN | ✓ |

| O.E. | ✓ | EXPORT | |
|---|---|---|---|
| PART NO. | ED 2445 ( 574233 ) | | |
| PART NAME | GEAR, 5TH DRIVE | OPN. NO. | 60 (A) |
| CUSTOMER | ROYAL ENFIELD | | |
| OPERATION | * HEAT - TREATMENT | | |

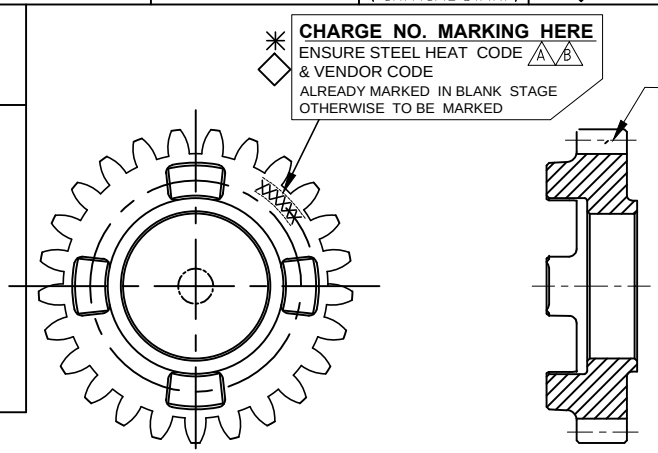
| CELL [ OPTIONAL ] | M./C. | M / C NO. [ OPTIONAL ] |
|---|---|---|
| | S.Q.F. | |

| FIXTURE | FIX. NO. | TOOL | NO. |
|---|---|---|---|
| | | | |

**MATERIAL - : 16MnCr5**
**COMP. WT - :** 0.167 Kg.

*** HEAT-TREATMENT- :**

✳ MARKING ;
PRE-WASHING ;
PRE-HEATING ;
CARBURISING ;
HARDENING ;
POST-WASHING ;
TEETH CHAMFERING ;
SHOT BLASTING ;




| SURFACE HARDNESS | CORE HARDNESS | EFFECTIVE CASE DEPTH | MICROSTRUCTURE | |
|---|---|---|---|---|
| ALL AREA | AT RCD (MIDDLE OF TEETH) | AT PCD | CASE | CORE |
| 80-83 HRA | 300-450 HV1 | 0.6-0.9 mm CUT OFF 513 HV1 | FINE TEMPERED MARTENSITE + RA <10% AND FREE FROM CARBIDES GBO<20 micron | LOW CARBON MARTENSITE + BAINITE |

NOTE:- 1) GROUND SURFACE : HARDNESS @ 0.1mm SHALL BE 650 HV MIN.

| SR. NO. | CHARACTERISTICS PRODUCT | CHARACTERISTICS PROCESS | SPL CHAR CLASS | PRODUCT SPECIFICATIONS | EVALUATION MEASUREMENT TECHNIQUE INSTRUMENT | NO. | SAMPLING SIZE | SAMPLING FREQ | CONTROL METHOD | CORRECTIVE ACTION / REACTION PLAN |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. | EFF. CASE DEPTH | | Ⓑ | REFER ABOVE TABLE | MICRO-HARDNESS TESTER | --- | 1 PC | PER CHARGE | TESTING | CHECK FURNACE SETTING DATA & CONFIRM FOR CORRECTNESS |
| 2. | SURFACE HARDNESS | | | | HARDNESS TESTER | --- | 1 PC | PER CHARGE | | |
| 3. | CORE HARDNESS | | | | | --- | 1 PC | PER CHARGE | | |
| 4. | MICROSTRUCTURE | | | | MICROSCOPE | --- | 1 PC | PER CHARGE | | |
| | | | | | | --- | 1 PC | PER CHARGE | | |
| 5. | SHOT BLAST | | | FREE FROM RUST & SCALE | VISUAL | --- | 100% | | | |

FOR REFERENCE ONLY

| REVISION | | |
|---|---|---|
| A | B | C |
| D | E | F |
| (A) ADDED MARKING DETAILS & OPN. NO. 60 WAS 70. MW 23.04.15 | (B) REMOVED PART NO. MARKING, CHANGED AS PER BLANK DRG. REV-C. (M.W. 25.07.15) | (C) TEMPERING TEMPRATURE RELATED NOTE, REMOVED AS PER CUST'S LATEST PART DRG REV. (e). (MUKESH 21.12.15) |

| DRN BY | MUKESH | CHKD BY | R.PATHAK | APRD BY | B.LEVA | PAGE 01 / 02 |
|---|---|---|---|---|---|---|

UNSPECIFIED TOLERANCES AS PER IS : 2102 (PART-1) : 1993 MEDIUM CLASS. | ALL DIMENSIONS ARE IN MILLIMETERS. | DO NOT SCALE, IF IN DOUBT, PLEASE ASK. | BREAK SHARP CORNERS.