

MANUFACTURING PROCESS

NON CONVENTIONAL PROCESS

- (a) CHEMICAL MACHINING (CM)
- (b) ELECTRO CHEMICAL MACHINING (ECM)
- (c) ELECTRO-CHEMICAL GRINDING (ECG)
- (d) ELECTRICAL DISCHARGE MACHINING (EDM)
- (e) WIRE ELECTRICAL DISCHARGE MACHINING (WEDM)
- (f) LASER BEAM MACHINING (LBM)
- (g) ELECTRON BEAM MACHINING (EBM)
- (h) WATER JET MACHINING (WJM)
- (i) ABRASIVE WATER JET MACHINING (AWJM)
- (j) ABRASIVE JET MACHINING (USING AIR (AJM)
SANDS, BEADS)

CHEMICAL M

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ELECTRO CHE

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(CM)

CHINING (ECM)

GRINDING (ECG)

E MACHINING (EDM)

DISCHARGE MACHINING (WEDM)

INING (LBM)

INING (EBM)

ING (WJM)

JET MACHINING (AWJM)

MACHINING (USING AIR (AJM)
SANDS, BEADS)

CHEMICAL MACHINING

THIS IS USED FOR REMOVING A LAYER OF METAL MATERIAL EITHER SHALLOW (OR) DEEP BY MEANS OF ETCHING USING CHEMICAL COMPOUNDS LIKE ACID, BASE ETC.

ELECTRO CHEMICAL MACHINING

THIS IS BASED ON DISSOLVING IONS OF THE PROCESSED MATERIALS (METAL) IN THE AREA AROUND THE TOOL WHICH IS THE ELECTRODE (-) OF DC SOURCE AND THE PROCESSED PART IS THE (+) THE IONS THUS BEING REMOVED FROM THE CONDUCTING ELECTROLYTE.

ELECTRO CHEMICAL GRINDING

COMBINATION OF ELECTRO CHEMICAL MACHINING & GRINDING

ELECTRICAL DISCHARGE MACHINING

THIS IS A WIDELY USED METHOD BASED ON THE REMOVAL OF MATERIAL CAUSED BY THE SPARKS BETWEEN ELECTRODE AND PART.

WIRE ELECTRICAL DISCHARGE MACHINING

THE ELECTRODE WHICH IS USED IS A WIRE OF MATERIAL SIMILAR TO THE PART USED FOR CUTTING. IT IS USED FOR CUTTING FLAT (OR) CURVED

CHEMICAL MACHINING

THIS IS USED FOR REMOVING A LAYER OF METAL MATERIAL EITHER SHALLOW (OR) DEEP BY MEANS OF ETCHING USING CHEMICAL COMPOUNDS LIKE ACID, BASE ETC.

ELECTRO CHEMICAL MACHINING

THIS IS BASED ON DISSOLVING IONS OF THE PROCESSED MATERIALS (METAL) IN THE AREA AROUND THE TOOL WHICH IS THE ELECTRODE (-) OF DC SOURCE AND THE PROCESSED PART IS THE (+) THE IONS THUS BEING REMOVED FROM THE CONDUCTING ELECTROLYTE.

ELECTRO CHEMICAL GRINDING

COMBINATION OF ELECTRO CHEMICAL MACHINING & CONVENTIONAL GRINDING.

ELECTRICAL DISCHARGE MACHINING

THIS IS A WIDELY APPLIED AND VERY USEFUL METHOD BASED ON THE EROSION OF METALS CAUSED BY THE DISCHARGE OCCURRING BETWEEN ELECTRODE AND THE PROCESSED PART.

WIRE ELECTRICAL DISCHARGE MACHINING

THE ELECTRODE IS A CONTINUOUS WIRE WHICH IS USED TO CUT THE METAL MATERIAL SIMILAR TO HAND SAW USED FOR CONTOUR CUTTING OF FLAT (OR) CURVED SURFACES.

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ELECTRICAL DISCHARGE GRINDING

A CONVENTIONAL INTERNAL GRINDING MACHINE IS USED FOR THE GRINDING STONE OF WHICH IS A CONDUCTOR MATERIAL PLAYING THE ROLE OF THE ELECTRODE AND THE PART BEING MACHINED.

LASER BEAM MACHINING

IS USED FOR CUTTING, DRILLING, MARKING, SURFACE MACHINING, WELDING OPERATIONS INVOLVING VARIOUS MATERIALS, METAL, CERAMICS

ELECTRON BEAM PLASMA MACHINING

IS USED FOR VACUUM SURROUNDING MEDIUM

WATER JET MACHINING

USED FOR DYNAMIC CUTTING AND MACHINING VARIOUS MATERIALS : PLASTIC, RUBBER, FOOD STUFFS, PAPER, LEATHER, INSULATION MATERIALS.

QUALITY COMPARISON

- SURFACE ROUGHNESS.
- DIMENSIONAL TOLERANCE
- STRUCTURE OF THE MATERIAL IN THE CUTTING AREA
- PROCESS EFFICIENCY
- TOOL WEAR
- ENVIRONMENTAL CONSIDERATION.
- PERSONNEL SKILLS.