



## CIRP UNIFIED KEYWORD LIST

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The use of keywords in the abstract of papers is fundamental for the documentation of papers and articles in the international scientific world. The CIRP community has always been aware of this requirement and, to this aim, the working group on UNIFICATION has prepared and continuously updated CIRP UNIFIED KEYWORD LIST, which must be used by all the authors of papers in the CIRP Annals and in any other publication under the CIRP heading. While preparing the abstract of your paper you have to identify your paper with **three** keywords from the list in the following order:

- one keyword identifying the general subject of the paper
- two keywords to detail particular aspects of the paper.

The keywords should be used in singular form, with the first letter in upper case, as they appear in the list.

Because the keywords represent the dynamic working area of the CIRP, authors may use one keyword free, taking into account new emerging areas. The free keyword should always be the last one.

The Technical Secretary

Abrasion	Boring	Computer automated process planning (CAPP)
Abrasive	Brittle	Computer numerical control (CNC)
Accuracy	Budgeting	Computerized
Acoustic	Burr	Conceptual
Acquisition	Calibration	Concurrent engineering
Actuator	Carbide	Condition
Adaptive control	Carbon	Conductor
Agent	Cast iron	Constraint
Agile	Casting	Contouring
Algorithm	Cellular	Control
Alignment	Cemented carbide	Conversion
Alloy	Centerless	Cooling
Aluminium	Ceramic	Co-operative
Analysis	Chatter	Coordinate measuring machine (CMM)
Angular measurement	Chemical	Coordination
Anisotropy	Chemical vapor deposition (CVD)	Corrosion
Application	Chip	Cost
Arc	Circuit	Cracking
Artificial intelligence	Cladding	Cubic boron nitride (CBN)
Aspheric optic	Classification	Customisation
Assembly	Coating	Cutter
Atomic force microscopy (AFM)	Cold	Cutting
Automated	Compensation	Cycle
Automatic	Compliance	
Automation	Composite	Damage
Axiom	Compression	Damping
Axiomatic	Computer	Datum
Ball	Computer aided design (CAD)	Decision making
Bearing	Computer aided manufacturing (CAM)	Deep drawing
Bending	Computer aided planning (CAP)	Defect
Biomedical		Deformation
Blanking		Deposition
Bonding		

Depth  
Design  
Deterioration  
Development  
Diagnostics  
Diamond  
Die  
Die forging  
Digital  
Dimension  
Dimensional  
Disassembly  
Distance  
Distributed  
Drawing  
Dressing  
Drilling  
Drive  
Ductile transition  
Dynamic  
3D printing

## Ecology

Edge  
Elastic  
Electrical  
Electrical discharge  
machining (EDM)  
Electro-  
Electro-chemical machining  
(ECM)  
Electrode  
Electron beam  
machining(EBM)  
Emission  
End milling  
Energy  
Engineering  
Environment  
Environmental  
Error  
Estimating  
Etching  
Evaluation  
Excimer laser  
Experimentation  
Expert system  
Extrusion

## Face milling

Factor  
Factory  
Failure  
Fatigue  
Feature  
Feed  
Feedback  
Fiber  
Finishing

Finite element method (FEM)  
Fixture  
Flatness  
Flexibility  
Flexible  
Flexible manufacturing  
system (FMS)  
Flow  
Fluid  
Force  
Forging  
Form  
Formation  
Forming  
Fracture  
Free  
Fresnel lens  
Frequency  
Friction  
Function  
Functional  
Fuzzy logic

## Gap

Gear  
Genetic  
Geometric modelling  
Geometry  
Glass  
Grain  
Grinding  
Gripper  
Grooving  
Group technology

## Handling

Hard  
Hardening  
Hardness  
Heat  
Heat treatment  
Hexapod  
High  
Hole  
Holography  
Holonic  
Honing  
Hot  
Human  
Hydro static

## Identification

Image  
Impact  
Improvement  
In-process  
Index  
Industrial  
Information

Injection  
Insert  
Inspection  
Instrument  
Integrated  
Integration  
Integrity  
Intelligent  
Interactive system  
Interface  
Interferometry  
Interpolator  
Investment casting  
Ion beam machining (IBM)  
Iron

## J

Kinematic  
Knowledge  
Knowledge based system

## Laminate

Lapping  
Laser  
Laser beam machining (LBM)  
Laser cutting  
Laser micro machining  
Layout  
Lead  
Learning  
Lens  
Life  
Limit  
Linear  
Load  
Lubrication

## Machinability

Machine  
Machined  
Machining  
Magnesium  
Maintenance  
Man-machine system  
Management  
Management information  
system (MIS)  
Manipulator  
Manufacturing  
Material  
Mathematical  
Measurement  
Measuring instrument  
Mechanical  
Mechanism  
Mechatronic  
Metal

Method  
 Methodology  
 Metrology  
 Micro machining  
 Microscope  
 Milling  
 Miniaturization  
 Mirror  
 Model  
 Modelling  
 Module  
 Mold (or Mould)  
 Molding (or Moulding)  
 Monitoring  
 Motion  
 Mounting  
 Multi-  
  
**N**ano fabrication  
 Nano technology  
 Nd:YAG laser  
 Near net shape  
 Neural network  
 Nickel  
 Noise  
 Nonlinear  
 Numerical  
 Numerical control (NC)  
  
**O**bject oriented  
 programming  
 Object recognition  
 On-line  
 Open-  
 Operation  
 Optical  
 Optimisation  
 Opto-electronic  
 Oxidation  
  
**P**arallel  
 Parameter  
 Part  
 Pattern  
 Performance  
 Petri net  
 Physical vapor deposition  
 (PVD)  
 Piezo-electric  
 Plan  
 Planning  
 Plasma  
 Plastic  
 Plasticity  
 Plating  
 Platform  
 Pneumatic  
 Point  
 Polishing  
  
 Polygon  
 Polymer  
 Positioning  
 Powder  
 Precision  
 Prediction  
 Predictive  
 Press  
 Pressure  
 Probe  
 Process  
 Processing  
 Product  
 Production  
 Productivity  
 Profile  
 Programming  
 Project  
 Property  
 Prototyping  
 Punching  
  
**Q**uality  
 Quality assurance  
  
**R**adius  
 Rapid  
 Rate  
 Real time  
 Recognition  
 Reconfigurable  
 Reconstruction  
 Reduction  
 Refraction  
 Reinforced  
 Reliability  
 Removal  
 Requirement  
 Residual  
 Resistance  
 Resolution  
 Reuse  
 Reverse  
 Robot  
 Robotic  
 Roll  
 Roller  
 Rolling  
 Roughness  
 Roundness  
  
**S**afety  
 Scanning  
 Scanning electron microscope  
 (SEM)  
 Scanning probe microscopy  
 (SPM)  
 Scanning tunnelling  
 microscopy (STM)  
  
 Scatter  
 Scheduling  
 Sealing  
 Selection  
 Selective laser sintering (SLS)  
 Semi-  
 Sensitivity  
 Sensor  
 Sequencing  
 Servomechanism  
 Shaping  
 Sheet  
 Sheet metal  
 Shot peening  
 Silicon  
 Simulation  
 Single crystal  
 Sinking  
 Sintering  
 Software  
 Soldering  
 Solid  
 Spark  
 Specific energy  
 Speed  
 Spindle  
 Spinning  
 Spline  
 Spray  
 Springback  
 Stability  
 Standardization  
 Statistical  
 Steel  
 Stereolithography  
 Stiffness  
 Strain  
 Strength  
 Stress  
 Structural  
 Structure  
 Stylus  
 Super abrasive  
 Superfinishing  
 Support  
 Surface  
 Suspension system  
 Sustainable  
 Synthesis  
 System  
  
**T**able  
 Tapping  
 Technique  
 Technology  
 Temperature  
 Tensile  
 Test  
 Texture  
 Theory

Thermal  
Titanium  
Tolerancing  
Tool  
Tooling  
Topography  
Transfer  
Transformation  
Treatment  
Tribology  
Tube  
Turning

Ultra-precision  
Ultrasonic  
Uncertainty

Vacuum  
Vapour phase coating (VPC)  
Vibration  
Vickers hardness  
Virtual  
Viscoplasticity  
Visual

Wafer  
Warm  
Water  
Waviness  
Wear  
Welding  
Wheel  
White layer  
Wire  
Wire EDM  
Work  
Workpiece  
Wrinkling

X-ray

Yield

Zone