

The topics

Listed below are suggested topic headings. This list is by no means comprehensive but has been prepared as a guide for potential authors.

DRIVES AND CONTROLS

1.0 Motors – Electrical

- 1.1 AC induction motors
- 1.2 DC brushed motors
- 1.3 PM brushless motors
- 1.4 PM & hybrid step motors
- 1.5 Switched reluctance motors
- 1.6 Synchronous reluctance motors
- 1.7 Piezo ultrasonic motors
- 1.8 Torque motors/servo motors
- 1.9 Micro motors
- 1.10 Limited rotation motors
- 1.11 Linear d.d motors
- 1.12 Integrated motor drives
- 1.13 Special geometry motors
- 1.14 Gear motors
- 1.15 Synchronous motors
- 1.16 Design software
- 1.17 Servomotors; servosystems
- 1.18 Very low-speed motors
- 1.19 Solving cogging torque problems
- 1.20 Solving torsional vibration & resonance problems
- 1.21 Linear motors
- 1.22 Motor protection
- 1.23 Solenoids
- 1.24 Actuators
- 1.25 Prevention of dV/dt failure
- 1.26 Diagnostic monitoring
- 1.27 Finite-element analysis
- 1.28 Optimization
- 1.29 Steppers and servos
- 1.30 Special induction machines
- 1.31 Energy efficiency
- 1.32 Acoustic noise reduction
- 1.33 Bearing currents
- 1.34 Standards

2.0 Drives - Electrical

- 2.1 Inverters
- 2.2 Variable speed drives
- 2.3 Converters
- 2.4 PWM & linear servo amplifiers
- 2.5 Vector AC sensor & sensorless drives
- 2.6 Sensorless velocity drives
- 2.7 Torque controlled drives (DTC)
- 2.8 DSP, FPGA & Micro controller drives
- 2.9 Servo & positioning ICs
- 2.10 Microstepping & indexing drives
- 2.11 Soft switching drives
- 2.12 Battery operated systems
- 2.13 Drive protection
- 2.14 Soft starters
- 2.15 Marine drives
- 2.16 Tram drives
- 2.17 Motion control systems
- 2.18 Linear positioning systems
- 2.19 Field-oriented control
- 2.20 Sensorless control
- 2.21 Intelligent drives
- 2.22 Cycloconverter drives
- 2.23 Ship propulsion
- 2.24 High speed drives
- 2.25 High power drives
- 2.26 Running costs – how to reduce

3.0 Controls

- 3.1 PLCs
- 3.2 PC based controls
- 3.3 Multi-axis motion controllers
- 3.4 Motion control model observers
- 3.5 Distributed control systems (DCS)
- 3.6 Power factor correction
- 3.7 Embedded controls
- 3.8 Neural networks
- 3.9 Fuzzy logic
- 3.10 Artificial intelligence
- 3.11 Motion software programs
- 3.12 Servo tuning and compensation
- 3.13 Field oriented controls
- 3.14 Observer based controls
- 3.15 Multi-axis positioning
- 3.16 New integrated circuits for drives
- 3.17 Microcontrollers

4.0 Sensor & Feedback Devices

- 4.1 Encoders (incremental & absolute)
- 4.2 Resolvers
- 4.3 Tachometers
- 4.4 Interferometers
- 4.5 Current sensors
- 4.6 RVDT's & LVDTs
- 4.7 Accelerometers
- 4.8 Pressure & proximity sensors
- 4.9 Potentiometers
- 4.10 Precision tachometers
- 4.11 Remote diagnosis

5.0 Motor Components

- 5.1 New magnetic materials
- 5.2 Hard & soft magnets
- 5.3 Insulation systems
- 5.4 Cooling systems
- 5.5 Thermal designs
- 5.6 Commutation systems (Mec)
- 5.7 Bearing systems
- 5.8 Powdered core materials
- 5.9 Magnetic composite materials
- 5.10 Permanent magnet materials
- 5.11 New insulation materials

6.0 Motion Applications

- 6.1 Laboratory & medical equipment
- 6.2 Industrial drives
- 6.3 Office equipment
- 6.4 Computer peripherals
- 6.5 Aerospace & defence
- 6.6 Automotive auxiliaries
- 6.7 Robotics & transfer machines
- 6.8 Machine tools
- 6.9 Materials handling (AGVs, lift trucks, etc)
- 6.10 Semiconductor equipment
- 6.11 Printing & Publishing equipment
- 6.12 Textiles
- 6.13 Metal forming equipment
- 6.14 Transportation – prime movers
- 6.15 Appliances (white goods, floor care, etc)
- 6.16 Conveyors & assembly machines
- 6.17 Electric bicycles & scooters (mopeds)
- 6.18 Drives for high velocity machining
- 6.19 Printing, weaving

- 6.20 Electric vehicle drives
- 6.21 Air moving
- 6.22 Motors and drives for semiconductor processing
- 6.23 System simulation
- 6.24 New or unusual applications
- 6.25 Robot drives
- 6.26 Choosing the right drive
- 6.27 Commissioning
- 6.28 System effects on gearboxes
- 6.29 Hazardous areas
- 6.30 Crane drives

FLUID POWER

1.0 Hydraulic Pump Controls

- 1.1 Hydraulic pump controls
- 1.2 Displacement
- 1.3 Pressure
- 1.4 Torque or power limiting
- 1.5 Automotive control
- 1.6 Load sensing

2.0 Hydraulic Motor Controls

- 2.2 Displacement
- 2.3 Speed (secondary control)

3.0 Linear & Rotary Transmissions

- 3.1 Performance of hydraulic, pneumatic or electric drives and components
- 3.2 Comparison of drive solutions

4.0 Proportional & Servo Valves

- 4.1 Direct acting
- 4.2 Two stage
- 4.3 Feedback
- 4.4 Integrated electronics
- 4.5 Electronic interfacing

5.0 System Design

- 5.1 Software
- 5.2 Simulation
- 5.3 Hydraulic fluids
- 5.4 Fluid conditioning
- 5.5 Condition monitoring
- 5.6 Servo systems
- 5.7 Fault analysis

6.0 Control Techniques

- 6.1 Machine automation
- 6.2 Servo systems
- 6.3 Software
- 6.4 Robotics
- 6.5 Advanced methods

7.0 Integrated Actuator Systems

8.0 Compressors

- 8.1 Power control
- 8.2 Air condition and filtration

9.0 Application Areas

- 9.1 Industrial drives
- 9.2 Automotive systems
- 9.3 Offshore
- 9.4 Marine
- 9.5 Leisure

MECHANICAL POWER TRANSMISSION

- 1.1 Belts
- 1.2 Brakes
- 1.3 Chains
- 1.4 Coatings
- 1.5 Condition Monitoring
- 1.6 CVTs
- 1.7 Oil Coolers
- 1.8 Mechanical and fluid Couplings
- 1.9 Controls systems
- 1.10 Design and implementation
- 1.11 Design aids
- 1.12 Efficiency
- 1.13 Harmonic drives
- 1.14 Inspection techniques
- 1.15 Keys and Keyways
- 1.16 Lubrication
- 1.17 Machine tools
- 1.18 Magnetic bearings
- 1.19 Materials
- 1.20 Measurement
- 1.21 Mechatronics
- 1.22 Modelling
- 1.23 Mountings
- 1.24 Noise and vibrations
- 1.25 Plain bearings
- 1.26 Research and development
- 1.27 Roller and ball bearings
- 1.28 Seals
- 1.29 Shafts
- 1.30 Software tools
- 1.31 Testing
- 1.32 Thrust bearings
- 1.33 Torque limiters
- 1.34 Tribology
- 1.35 Universal joints
- 1.36 Variators

BRITISH GEAR ASSOCIATION (BGA) ANNUAL CONGRESS

1.0 Gear Types

- 1.1 Bevel gears
- 1.2 Cast gears
- 1.3 Cylindrical gears
- 1.4 Forged gears
- 1.5 Geared pumps
- 1.6 Helical gears
- 1.7 Hypoid gears
- 1.8 Internal gears
- 1.9 Planetary gears
- 1.10 Plastic gears
- 1.11 Powder metal gears
- 1.12 Spiral bevel gears
- 1.13 Splines
- 1.14 Spur gears
- 1.15 Worm gears

2.0 Design

- 2.1 Application factors
- 2.2 Directives
- 2.3 Profile modifications
- 2.4 Research and development
- 2.5 Standards
- 2.6 Transmission efficiency

3.0 In-service Support & Monitoring/Failure Investigation

- 3.1 Alignment
- 3.2 Environment
- 3.3 Gear failure
- 3.4 Gear noise
- 3.5 Gear wear
- 3.6 Inspection
- 3.7 Lubrication
- 3.8 Macro pitting
- 3.9 Metrology
- 3.10 Micro pitting
- 3.11 Scuffing
- 3.12 Surface topography
- 3.13 Testing transmission error

4.0 Gear Manufacture

- 4.1 Broaching
- 4.2 Carbursing
- 4.3 CNC control
- 4.4 Coatings
- 4.5 Cutting Coolants
- 4.6 Cutting Fluids
- 4.7 Cutting Tools
- 4.8 Deburring
- 4.9 Fastenings
- 4.10 Finishing
- 4.11 Flame hardening
- 4.12 Gas Nitriding
- 4.13 Gear Casing
- 4.14 Gear Metrology
- 4.15 Grinding
- 4.16 Heat treating
- 4.17 Hobbing
- 4.18 Honing
- 4.19 Induction hardening
- 4.20 Laser cutting
- 4.21 Materials (steels and others)
- 4.22 Nitriding
- 4.23 Rolling
- 4.24 Shaping
- 4.25 Shaving
- 4.26 Shot peening
- 4.27 Skiving
- 4.28 Through hardening

INDUSTRIAL NETWORKS & COMMS PROTOCOLS

- 1.1 Sensor based networks (Asi, DeviceNet, LonWorks)
- 1.2 Device or control networks (ControlNet, Profibus, Sercos, etc)
- 1.3 Supervisory (Ethernet, Firewire, etc)
- 1.4 Input/output devices
- 1.5 Internet for field monitoring
- 1.6 Open communication systems
- 1.7 Proprietary communication systems
- 1.8 Network Topologies – (ring, tree, multi –drop, trunk line, star, bus, or combination)
- 1.9 Applications – (discrete control, process control, batch control, etc)
- 1.10 Wireless networks
- 1.11 Special networks

POWER ELECTRONICS

1.0 Power Semiconductors

- 1.1 Bipolar transistors, thyristors, GTOs
- 1.2 IGBTs
- 1.3 MOSFETs
- 1.4 MCTs, MOSGTOs
- 1.5 Smart Power ICs
- 1.6 Power hybrids
- 1.7 Fast rectifiers

2.0 Passive Power Components

- 2.1 Power capacitors
- 2.2 Inductors and transformers
- 2.3 Power resistors

3.0 Magnetic Materials

- 3.1 Transformer core materials
- 3.2 Non-linear magnetic devices
- 3.3 Technologies for Magnetics

4.0 Power Conversion Systems DC-DC, AC-DC, AC-AC, UPS

- 4.1 Resonant converters and soft switching
- 4.2 Zero voltage and current voltage sources
- 4.3 Soft communication with PWM control
- 4.4 High voltage supply technologies
- 4.5 UPS - SMPS
- 4.6 Battery operated systems
- 4.7 Transportation systems
- 4.8 High frequency and induction heating
- 4.9 Power pulsed equipment
- 4.10 Aerospace equipments
- 4.11 Marine equipment
- 4.12 Power equipment

5.0 Control & Measurement in Power Electronics

- 5.1 Control ICs
- 5.2 Control and drive strategies
- 5.3 Specific measurement in power
- 5.4 ASIC for power control

6.0 Optimal Design & Reliability

- 6.1 Thermal fatigue
- 6.2 Mounting procedure - layout
- 6.3 Packaging
- 6.4 Optimal design and trade-off-safety margin
- 6.5 Fault propagation in converters - efficiency
- 6.6 Cost reduction methods
- 6.7 Short circuit protection
- 6.8 Cooling - thermal pipes
- 6.9 Simulation

7.0 Advanced Technologies

- 7.1 New converter topologies
- 7.2 New control methods
- 7.3 Fuzzy logic for power conversion
- 7.4 Next generation CAD and engineering
- 7.5 New components
- 7.6 Design software and simulation

Yes I would like to offer a paper

Which subject area is this paper intended for:

☐ Drives and Controls ☐ Fluid Power ☐ Mechanical Power Transmission

☐ British Gear Association ☐ Industrial Networks & Comms Protocols ☐ Power Electronics

Title of paper offered

Author(s)

Company or organisation

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Offers of papers are now invited

Papers are sought from designers, developers, researchers, manufacturers, installers and users.

The objective of the conference is to create a forum in which to advance the science of drives, motion engineering, machine control, power conversion and related disciplines. Those wishing to have a paper considered for presentation by the selection committee should send a 150-400 word synopsis and two key diagrams to the organisers by 15th September 2000.

Authors selected for the conference will be notified by 1st November 2000. Completed papers must be with the organisers by 5th January 2001.

The Drives and Controls / Power Electronics / Hydraulics & Pneumatics Conference 2001 will focus on the technologies of **power transmission, motion control, power electronics and fluid power**. The latest technical developments will be presented and open for discussion; legal changes will be assessed; ground breaking applications will be reviewed. As such, the event will help advance the state of the art in these vital areas of engineering.

Speakers are provided with accommodation in a **four star hotel close to the conference centre** the night before their presentation. There is also a speakers' dinner the night before each session.

It is tempting to think of motors as a mature technology with little new development from year to year. **But the liveliness of our sessions** on both industrial and precision drives shows how much there is going on.

As last year, the **British Gear Association** will run its annual congress as one of the eight sessions. This is recognised as one of the world's premier gearing forums, and is sponsored by Mobil Oil who present a £250 prize for the best paper at the congress.

Other areas of mechanical conversion such as **linear systems, bearing advances, clutches and couplings** are covered in a separate session. This is run the preceding day so that delegates can attend both in a high impact period of study.

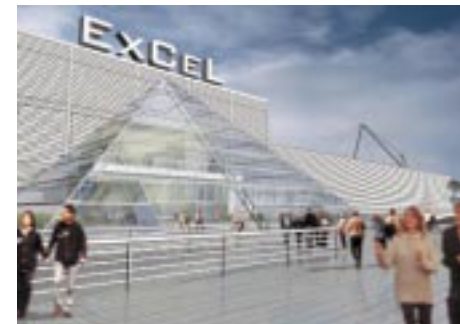
With field-based control architecture now establishing itself as a mainstream option for machine and process control, our session on **fieldbuses and communications** is growing in popularity from year to year.

Fluid Power remains one of the best ways of achieving high powered and/or high speed actuation in a compact system and with the manufacturers of components rapidly globalising, the role of independent local systems integrators **is coming to the fore**.

A new venue for an international conference

The Drives and Controls / Power Electronics / Hydraulics & Pneumatics Conference is run integrally with the international exhibitions of the same name. This is now recognised as a major event for drives engineers, with visitors attending from all continents and with over 230 displays from manufacturers and suppliers. Speakers and delegates have free entry to the exhibitions.

And this year the conference has moved to a new venue - **ExCeL** - in London - a location commensurate with the structure of an international conference and exhibition.



Drives and Controls
Kamtech Publishing Ltd
144 Sandy Lane, Farnborough
Hampshire GU14 9JQ UK

Telephone +44 (0) 1252 370109
Fax +44 (0) 1252 370106
Email carol@kamtech.co.uk

Easy to get to...

by train. There are three Docklands Light Railway (DLR) stations on site, with Custom House for ExCeL giving direct access via a covered walkway to the main entrance. The DLR in turn provides access to London's Underground network and from there to all of London's mainline stations, the national network and the Eurostar to Europe.

by car. ExCeL is 20 minutes away from London's M25 motorway via either the M11 or A13.

by air. The centre is less than 5 minutes from London City Airport with over 200 flights a day to major UK and European cities. And visitors flying into London's other airports - Stansted, Gatwick or Heathrow, will find connections to ExCeL easy.

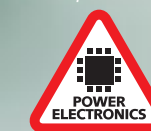


**DRIVES AND
CONTROLS 2001
EXHIBITION
& CONFERENCE**

13-15 MARCH 2001

ExCeL London

Incorporating:



Call for papers

The 8th annual Drives and Controls Conference is now international and located at the new ExCeL Exhibition Centre in London. In addition to the usual subject areas of the conference, for the first time in 2001, there will be two major sessions on Power Electronics.

Power in Motion