Producing quotations: a real challenge to problem-solvers

Like everybody else, I’m always happy to be offered things free of charge. And our users seem to take for granted that MC® – as a problem-solver – will always offer them an optimal contact configuration. That’s why we try to offer the customer fast, personal advice on the spot – another very costly exercise.

But as soon as we have to submit a proposal for a customized solution, our back office costs start to explode. A design specification has to be drawn up, our engineers have to lay out the electrical contact to suit the ambient conditions, and the drawing office has to develop a customized application (at expensive CAD workstations).

In many cases it’s necessary to fabricate prototypes and test them. The sales office has to work out the figures and obtain prices on any buyouts. All for the sake of filling what may turn out to be a fairly small order.

Can we really afford to do all of this free of charge? Where do we draw the line at providing free consulting services?

These kinds of problems are faced by any company trying to produce and deliver manufactured goods. Of course there are plenty of service firms that contract for design and development work, but usually the hardware producer is expected to carry it out free in advance – without any assurance that the products will eventually be ordered.

There’s a need here for some users to do a bit of rethinking. They need to think about what they can logically expect – also in their own interest – as free service, and which advance development work really deserves to be paid for.

With the foregoing in mind, we have started proposing development contracts to users in cases involving an excessive amount of work before we can submit an optimal quotation. The fee is set on the basis of the estimated engineering manhours and prototype fabrication; it is possible to credit the customer with part of this outlay against an eventual order.

Sincerely

Dr. Peter Duss,
Managing Director
The following examples illustrate how much work can be involved in conducting contact tests for quotations or orders.

Two main objectives have to be reconciled:

1. The need to pin down all technical relations, risk factors and safety margins.
2. The desire to keep the costs of such technical/scientific analyses, which can easily skyrocket, within commercially justifiable bounds.

1st example
Contacts in insulating oil

It was necessary to test a standard product (socket BL45A), with its long track record of outstanding electrical and mechanical transmission characteristics, under very special conditions.

Specifically, high-current contacts were required for a high-voltage bulkhead bushing built by H.A. Weidmann AG using the bellows principle in an oil-insulated, single-phase converter transformer (234MVA, 400kV HVDC) of GEC Alsthom T&D.

The contact configuration was expected to meet the following main electrical transmission requirements:

- assurance of constant transmission conditions
- continuous availability without any additional maintenance

are absolutely compulsory for electrical machinery of this size (unit price of several million Swiss francs) and service lives of two decades or more.

Only facts count

To meet this extremely demanding set of requirements, it was necessary for the companies involved to work closely together on an interdisciplinary basis. This began right in the conception and development phase, when an initial design configuration was established on the basis of thermal simulation calculations.

Next the joint engineering effort was intensified in the course of preparation work and contact testing of the entire high voltage bushing.

Tension ran high on the acceptance day with all partners present, because this was the moment when only facts count.

To everyone’s relief, the results confirmed the performance and reserve capabilities of MC® contact configurations even under extremely demanding installation and application conditions.

This marked one more milestone in the series of successes enjoyed over the past few decades with high-current contacts for oil-immersed applications.

Teamwork essential to success

This triumph came as no real surprise, built as it was on the experience of all of the partners involved.

We wish to thank our partners for the excellent teamwork exhibited during this exceptional project, and look forward to future project partnerships with our customers under the motto “continued success working together”.

For the technical departments:
Multi-Contact AG Basel
Dr. P. Springmann (Techn. Manager)
J. Fankhauser (A.L. Design)
2nd example

Development contract

Our second example of a cost-intensive proposal illustrates a development contract that covers the preliminary work, project costs, specification of assignments, and mutual agreements.

The contract parties were a leading German manufacturer of floor maintenance machines on the one hand and Multi-Contact Deutschland GmbH on the other.

The project started with the customer’s need for a high-quality MC® contact capable of withstanding an exceptionally high number of plugging cycles. After preliminary tests with our standard plug connectors had yielded encouraging results, our field sales people conducted initial negotiations with the customer. These soon led to the conclusion that, in view of the plugging cycle requirement, other special features and the large number of units involved, Multi-Contact would have to propose a special design.

A development contract was then agreed upon with the following content:

- Development of an MC® contact meeting a pre-established design specification
- Reliability tests to verify performance capability
- Cost targets of end product as a function of order quantities
- Development schedule
- Samples / pilot production run
- Production equipment and its separate cost
- Patent rights
- Validations / miscellaneous etc.

After the contract had been signed, our MC® back office got moving with a project manager coordinating everything. The resulting product was an exceptionally low-priced MC® plug connector based on our MC® Multilams, with the following main data:

- Small plug connector of Ø 2mm for control and power currents
- Rated amperages: control current 500mA / 230V, power current 3.5A / 115V
- Plugging cycles to specific., with or without load up to 10'000 operations
- Max. contact resistance following prescribed cycle count (10'000) ≤ 2mΩ
- Maintenance of plugging and unplugging force as a function of plugging cycles (2N)
- Automatically attachable flexible lead (with tape)

Surely this will surprise some MC® customers, who will wonder: “Is Multi-Contact now making mass-produced contacts?” To which we can reply loud and clear: “large quantities yes, but only contacts for very special requirements”, just as we’ve done in the past.

But don’t get us wrong - the signing of development contracts has not suddenly become Multi-Contact’s primary objective. The hope that the work will result in long-term repeat orders still has number one priority.

כוכב Multi-Contact Deutschland GmbH
Ph. Grünenberger, Department Head

3rd example

Battery charger connector

The third example of a costly development comes from MC® France, which has an enviable habit of launching new products successfully. This one involves a battery charger connector for electric cars.

France’s two big car makers, Renault and Peugeot, are already producing electric vehicles in small production runs.

There are two charging methods:

- **Slow charging**
  - with 16A / 230V taking about 6 – 8 hours from an ordinary household outlet, with 3-core cable

- **Fast charging**
  - with 200A / 100V at service stations equipped specially for the purpose; charging capacity is 1 – 2km per min.

The MC® female coupling, mounted on the car where the petrol filling cap used to be, has the advantage of being suitable for either slow or fast charging.

The mating plug, which looks a lot like a petrol filling nozzle, is mounted on the charging station.

It satisfies a long list of safety criteria.

- Both coupling halves are cleverly and effectively protected against accidental contact
- Security is provided against inadvertent interruption of charging
- In the case of fast charging, the battery’s charge level is indicated on the pump via the pilot contacts

The electric car is here to stay, and it’s certain to play an increasingly important role in urban traffic and for special applications. The car’s market potential can’t help but grow in future as the batteries and the electric motors are steadily improved.

The plug connector from Multi-Contact France S.A. embodies all of MC®’s know-how with regard to contact technology.

We’re very pleased to be working together with two world-class car manufacturers and French Electricity Board (EDF) on this contribution to fashioning the future.

✲ Multi-Contact France
C. Rey, Président Directeur Général
With the MC® rapid connection system FSA 20 K-K and FSA 20 K-L, we've developed a practical tool for power companies to achieve fast, dependable contacting of flat busbars in power distribution systems, power generating equipment, mobile transformers and standby generating units.

The system has already proven effective in service, also in dual clamp form for currents >400A.

Installation:
Type ISA 2000, Starkstromanlagenbau Magdeburg

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**Time-saver junction box**

The man on the roof is going to need less time to mount the photovoltaic module. Thanks to the new MC®-PV panel junction box.

Because they'll be preassembled with the new box, the solar modules will just have to be fastened in place and plugged in. Various types of connectors are available for the purpose - sockets, plugs and cable couplings can be combined as desired. And the bypass diode circuits of standard modules can be installed in the MC®-PV panel junction box.

**Key data:**
- rated voltage 600VDC
- rated current 10A
- temperature range -40°C to +90°C
- IP 64 protection for long-term outdoor duty.

**Connection alternatives**

![Connection alternatives](image)

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**Safety Medical Plug**

The Ø 1.5mm safety medical plug is used for connecting electrodes designed to pick up body activity potentials on patients and electrical medical apparatus. The plug’s shape prevents it from being contacted inadvertently with other electric sockets or plugs. After various accidents had occurred, especially with infants, standards were drawn up in this area to ensure safe handling in the medical environment. For this duty, MC®/HCK® produces the following components in compliance with standards DIN 42802, DIN IEC 601 Part 1 / VDE 0750 Part 1. The components are reusable and sterilizable.

**Safety connecting lead MLK 1.5-B**

**Safety press-in socket MEB 1.5**

**Safety screw-in socket MLB 1.5-R**
Multi-Contact in Australia from the City to the Outback.

2400km northwest of Sydney, at the remote „Top End“ of Queensland, is the dusty outback town of Mount Isa. Beneath its great chimney, 1.5km underground, you’ll find Australia’s largest copper mine, where in rough, hot and dangerous conditions, the miners rely on connectors from Multi-Contact Switzerland.

These are used in their underground battery chargers, and are sold to them by Multi-Contact Australia (MCA).

Meanwhile, in Sydney’s glistening Darling Harbour precinct, a space age monorail has been built to carry spectators to the venues of 2000 Olympics. The elevated rail runs across the Pyrmont bridge, the oldest electrically operated swing bridge in the world. There, MCA has installed a box to disconnect and reconnect the monorail every time the bridge is opened. It is an 800 amp butt connector, designed especially for the project by MCA, using MC®-Heavy Current components. MCA has been selling the high quality products of MC®-Switzerland and adapting them to unique Australian projects such as these since 1975. Although we are a 100% Australian owned company, MC®-Basle was our first exclusive agency, so our relationship has always been close. 30% of MCA’s sales are dedicated products, made to our Own Designs, primarily involving High Voltage Switches produced in our own workshop. The core element that makes the product unique in Australia is often High Current Parts from MC®-Basle.

In order to be close to our customers, who are spread over 7'050'000 sq. km of Australasia, we have several branch offices. These are in Sydney (established 1975), Melbourne (est. 1976), Perth (est. 1984), Brisbane (est. 1986) and now New Zealand (est. 1994). In Singapore, MCA shared ownership of MC®-South East Asia with MC®-Basle during its first three years of operation. MC®-Basle has...
always been the best supplier that MCA has had due to its prompt responses to technical queries, its speed of response with confirmations of orders and excellent delivery times. The quality of products and literature are second to none.

In twenty years we have never had a complaint about product quality. The people of MC®-Basle are always cheerful, helpful and prompt when asked for help.

20 Years of Solton — MC®

In April 1974, a man named Takekazu Banno started a company faraway in Japan. He named it Solton. By rights it should have been Solothurn, because he had taken on a sales agency for a company in that northwest Swiss canton. But when a Japanese says “Solothurn” it simply comes out “Solton”, so that’s the way the name stayed.

Only a year later the agency agreement with Multi-Contact was signed, to take effect on 1.1.76. Solton was based in Tokyo at first, and moved to Yokohama in 1981. A success-ful manufacturer of high-value plug connectors and machine-ery parts, the company expanded steadily and built its own building in 1985.

Sales subsidiaries were established, first in Seoul (Korea) in 1987 and then the office in Stuttgart in 1988 to coordinate the company’s European reps. Today the latter is called Solton Deutschland GmbH. Solton currently has 65 employees and capital of 100 million yen. Sales offices are established in all of Japan’s impor-tant regions. Thanks to its effective selling strategy and highly competent consulting team, Solton has been our best overseas agent for many years.

The whole Multi-Contact team thanks all of Solton’s people for the excellent collaboration and looks forward to 20 more years of the same.

We welcome our new representatives

Rumania

Starting on January 1, 1995, the company ARC BRASOV SRL became our Rumanian sales representative for instrumentation accessories.

ARC BRASOV started importing computers in September 1990, but then changed course and specialized in importing electronic measuring instruments. It now represents leading instrument makers such as Hameg, Gossen Metrawatt Camille Bauer, Metrix, etc.

The company now employs 11 people. We met with the management at the TIB trade show in Bucharest. Our picture shows Catalin Popescu, Jean-Pi-erre Kritter (MC® AG), Dan Georgia and Codruta Georgia.

Domiciled in Brasov, ARC BRASOV is planning to set up a sales office in Bucharest.

The address:
ARC BRASOV SRL
Str. Gradinarilor 22
RO-2200 Brasov
Tel. ++40/68/150 569
Fax ++40/68/150 569

Poland

Unfortunately we had to change our Polish representatives. We’d like to thank the Polmej company for it valuable assistance.

Our line of instrumentation accessories is now being handled by SEMICON in Warsaw. The company is specialized in the importation and sale of electronic instruments and components.

Our picture shows Mrs. M. Wierzbicka (2nd from right), SEMICON’s marketing manager, with her staff.

The address:
SEMICON
ul. Piekna 3a
PL-00-539 Warsaw
Tel. ++48/22/621 50 21 or 625 08 65
Fax ++48/22/621 50 21 or 625 08 65
**as passport**

Although lots of products already bear the CE mark, there is still a great deal of confusion and uncertainty about its significance. Some users interpret the mark as a quality seal, while others confuse it with a certification mark or even an indication of successful testing by an independent laboratory.

Actually the European Union (EU) introduced the CE mark in order to reduce existing technical barriers to trade in an increasingly unified Europe, which means that it is “merely” a kind of passport for crossing borders.

To implement this goal, a system of harmonized European standards has been put into force. The idea is to make sure that health and safety requirements are identical all across Europe.

**for whom?**

For administrative purposes, the socket CE mark is put on for the market supervisory authorities.

When the manufacturer applies the mark, it confirms that the product in question conforms to the applicable European directives.

Thus the product has received its “passport” to move freely throughout Europe.

To make sure the protection goals are actually achieved, the time will come (after a certain transition period) after which only products will be allowed that have been developed and produced in accordance with the directives.

**on MC® and HCK® products**

At present, one or more of the following European directives - and their transition periods (TP) - are applicable to ready-to-use MC® and HCK® products:

- EMC directives 89/336/EEC, 92/31/EEC and 93/68/EEC.

For electromechanical plug connector components intended for installation in equipment, machinery or installations, none of the above-specified European directives calls for the CE mark at the present time.

In view of these circumstances, we will successively (i.e., within the transition periods) start indicating in our product documentation just which products require a CE mark.

Because manufacturers are free to decide whether they will apply the CE mark to the product itself or to its packaging and accompanying documentation, we at MC®-HCK® have decided to apply the CE mark only to the packaging and the documentation.

We are not going to mark the products themselves.

**and product safety**

Because product safety has always been one of the outstanding characteristics of MC® and HCK® development and sales, introduction of the CE-mark will not require any basic changes.

What is new is that this feature of our products, which we have always taken virtually for granted, will now be made visible to everyone by the CE-mark and that all manufacturers will be forced to follow suit.

Right from the beginning, MC® and HCK® plug connectors have been developed based on the applicable safety and component standards and on the required type testing.

Whenever the relevant standards have been modified and tightened, we have had to modify and adapt our products. MC® and HCK® have always played an intensive role in the international and national work on these standards.

Thus the fundamental goals of protecting health and ensuring safety are already met.

Not new though is the risk evaluation involved in connection with the CE-mark, which is intended to help clarify in detail the questions of “who, what, when, and with what?” It constitutes part of the input for the assembly and operating instructions for the plug connector components we produce for installation or preassembly. In future we are going to have to work together to establish these procedures jointly and systematically.

**and quality assurance**

Besides technically sound, application-related development, another important factor contributing to product safety is the continuity of the design and fabrication procedures.

So it is not surprising that the application of the CE-mark goes hand-in-hand with maintenance of a quality assurance system complying with ISO 9000. Quality planning and assurance according to ISO 9002 have been standard for our products for many years now.

They ensure a quality level for which our trademarks MC® and HCK® proudly stand now and will continue to stand in the future.

Dr. P. Springmann, Deputy Director of Multi-Contact AG and Ing. T. Clerkx, HCK® Measuring Equipment
In January 1993 MC®-AG Basel and MC® Deutschland GmbH received certification to the Standard ISO 9002 and have been successfully implementing this standard ever since.

Now a further step has been taken on this road with confirmation from the neutral organization, Bureau Veritas Quality International that MC® has fulfilled the requirements of the standard DIN EN ISO 9001. We are pleased to be able to pass on this news to our customers.

The following catalogues have been updated:

- **Lab 1**, Edition 9/95
  48-pages, miniature-connectors Ø 0.5mm up to Ø 2mm
- **Lab 2/3**, Edition 8/95
  52-pages, laboratory-connectors Ø 2mm, Ø 2.3mm, Ø 3mm, connecting leads and test leads
- **Lab 4**, Edition 8/95
  106-pages, laboratory-connectors, plugs, sockets, test accessories
- **Lab 4-S**, Edition 6/95
  72-pages, safety-connectors, safety, sockets, test accessories
- **Safe Test and Measurements**
  Edition 11/95, 8-pages
  2-pages, MC®-Rapid connection system/flat bar clamp
- **MC®-SEALConTACT**, Edition 12/95
  8-Pages, high current transmission with busbars and plates
- **Ho2**, Edition 8/95
  36-pages, round connectors Ø 6mm, single-pole, insulated
- **Ho15**, New Edition 4/95
  28-pages, examples of multilam technology from Multi-Contact

**New HCK®-Catalogues**

Also HCK® has lots of news:

- **HCK®-Delivery Programme**
  Edition 9/95, 2-pages
- **Protection BNC**, Edition 3/95
  8-Pages, high current transmission with busbars and plates
- **Test Accessories**, Edition 95
  more than 30-pages in languages D,GB,F,I
- **Stranded Leads**, Edition 11/95
  8-pages in languages D,GB,F,I
- **Test Equipment**, Edition 4/96
  4-pages, to be able to carry the European Conformity Sign “CE”, safety tests during production are necessary. This flyer summarizes the equipment required for these tests.
- **Power Meter**
  4-pages, with Scope-LCD HEME-ANALYST 2000P/2020P

**MC®-Multilam technology**

Anybody who’s fuzzy on the subject can now catch up with helpful explanations and illustrations of the practical aspects.

We’ve prepared a new series of application examples entitled MC®-Technical Applications that make this technology and its innovation potential clearly comprehensible. They’re also intended to stimulate new ideas for future developments.

**Exhibition**

- **National Design Engineering**
  Chicago (IL), 18.3 – 21.3.1996
- **Amper**
  Prag, 26.3. – 29.3.1996
- **Hannover Messe**
  Hannover, 22.4. – 27.4.1996
- **Electro**
  Somerset (NJ), 30.4. – 2.5.1996
- **Industria**
  Budapest 14.5. – 18.5.1996
- **NEC**
  Birmingham, 10.6. – 14. 6.1996
- **Southcon**
  Orlando, (FL), 25.6. – 27.6.1996
- **Elektrotechnik**
  Dortmund, 4.9. – 7.9.1996
- **Powersystems World**
  Las Vegas (NV), 12.9. – 14.9.1996
- **efa**
- **Matelec**
  Madrid, 21.10. – 25.10.1996
- **Wescon**
  Anaheim (CA), 22.10. – 24.10.1996
- **Contact**
  Frankfurt, 30.10. – 1.11.1996
- **electronica**
  München, 12.11. – 15.11.1996

If you’re nearby, come and see us at our show stand. Till then!