

# Special Focus

## Remote Diagnostic Access – coming down hard on downtime

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Moulding machines are becoming increasingly advanced, making it difficult for even experienced operators to retain a complete overview of all the different processes during a busy working day. The difference between smooth production and costly downtime often lies in the operator's ability to interpret an error message on the operator panel and take timely and correct action.



*Explaining a problem clearly over the phone is not easy.*

The first thing most foundries do when their moulding machine develops a problem without an immediately apparent cause is to call the manufacturer's customer service department. Here they can talk to an expert who knows all about the equipment and who would probably be able to diagnose the problem immediately if he was standing in front of the operating panel. The trouble is, he isn't.

Explaining a problem clearly over the phone is not easy. It is not easy for a service engineer at the other end to get the overview he needs to quickly identify the problem. And it is not easy for him to explain over the phone what the operator or maintenance engineer needs to do. The manufacturer probably doesn't have anyone within even a few hours of travelling distance from the foundry, and those few hours of downtime can cost a lot of money.

"Just" a phone call away can be a very long way away.

### Advanced technology can be hard to explain

A moulding machine is an advanced piece of equipment involving a large number of processes all running at the same time. An unscheduled stoppage is the result of one or more of these processes coming to a halt for some reason and generating one or more error messages on the visual display unit. The problem is how to find the single root cause of the stoppage and what to do about it.

Remote Diagnostic Access (RDA) is a technology that enables a service engineer to actually see the visual display unit for himself on his own computer screen as well as talk directly to the operator. Seeing in addition to listening significantly increases the chances of fast success



### The necessary overview

In addition to the top-level error message the service engineer can examine all the lower level screens in order to gain an overview of the entire system and all of its processes. This means that he can diagnose the root cause of the problem without the need for any explanation by the operator, and then guide the operator through the necessary steps while monitoring progress on his own screen, maybe even on the other side of the world.

RDA uses a simple dedicated modem to communicate securely between the visual display unit and the service engineer's own computer. All it requires is an operating system on the visual display unit that enables remote access to the necessary information, and a telephone line to the operating panel. Via a separate telephone the service engineer can tell the operator exactly what to do.

### RDA on DISA New Generation Moulding Machines

The DISA New Generation Moulding Machines (DISA 230, DISA 240, DISA 250, DISA 270 and DISA 280) come with a built-in operating system and internal modem that enable RDA from the beginning. All the customer has to do is make sure there is a telephone line to the modem and sign an RDA agreement.

Basic information contained in the moulding machine operating comprises data such as machine settings and pattern plate data. These parameters enable pre-programming of pattern data to enable rapid pattern change with a minimum of risk of manual error. They also provide valuable process information for troubleshooting if there is a problem.

The high-level screen on the visual display unit contains information about sequence timing, the current pattern and the next

pattern. This screen also contains status messages and is where any error message will appear.

DISA does everything it can to make the process as straightforward as possible by providing error messages in clear text. The error message is also preceded by a unique code, enabling the operator to reference it in the user documentation.

While the error message indicates the nature of the error, it may be necessary to look up additional information in order to find the root cause. This, however, is a rare occurrence as the renowned reliability of DISA moulding machines means that operators rarely have reason to familiarize themselves with diagnostic procedures.

Many experienced operators will be able to find the cause and rectify it before the error becomes a problem. In the event that it does become a problem, however, minimizing resulting downtime depends on clear and unambiguous communication with a DISA service engineer.

### Online view of the entire system

The operator can use the RDA function at any time to get help from a DISA service engineer literally anywhere in the world. This means that there will always be a service engineer available with the necessary knowledge and experience to help.

The service engineer can display all necessary information from the visual display unit on his own computer and gain a complete system overview by accessing lower-level screens to check underlying parameters such as pressure, positioning, temperature, mould speed and component signal sources. The service engineer can also download the error log to examine trends and determine whether the foundry should ensure that it has particular spare parts that are showing signs of wear in stock.

*Get help from a DISA service engineer literally anywhere in the world*



### Online guidance

Once the root cause of the error has been determined, the service engineer can help the operator or maintenance manager as if he was standing beside them. He can uniquely identify any required spare parts and then guide the operator through the process of resetting the necessary parameters and restarting the moulding machine.

Most of the errors dealt with by the DISA RDA service require nothing more than resetting a parameter. If a spare part is required and the foundry has invested in the DISA recommended spare parts kit programme, the chances are that the foundry will have the spare part in stock. What might have developed into a longer stoppage can be limited to as little as a matter of a few minutes.

In the worst case where a spare part is needed that is not in stock, the DISA service engineer can order the part on the spot for express delivery. The benefit for the foundry is the certainty that all necessary spare parts will be flown out immediately and that they will be the right ones.

*Avoiding one morning of downtime can cover the annual costs of RDA.*

### Convincing return on investment

RDA readiness comes as an integrated feature of all New Generation moulding machines. It can also be retrofitted at low cost on the DISAMATIC 2013 MK5 as it is an integrated feature of the operating system and requires no more than an ordinary modem and a telephone line.

The RDA agreement with DISA for the first two years costs no more than the value of a few hours of production. This means that if the service helps the foundry to avoid just one morning's unscheduled downtime, the service has already paid for itself and more. Also it is available 24 hours a day, enabling help to be given and orders for spare parts to be placed outside normal hours, thus speeding the resolution of a problem even more.

# Special Focus

## REPORT



### How a wrong valve setting nearly cost a fortune

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Intercast & Forge is Australia's largest independent iron foundry group with plants in Adelaide and Seven Hills, Sydney. The group produces nearly 40,000 tonnes of castings a year, specializing in ductile iron, grey iron, and wear- and heat-resistant materials.

Bryce Beaver, Manufacturing Manager Casting, Intercast & Forge, Seven Hills Foundry



*DISA Customer Service in Denmark immediately hooked up to the DISA 240A operating panel via the built-in modem.*

The Seven Hills foundry operates a DISA 240A New Generation moulding machine that went online in January 2003. The DISA 240A with a mould size of 600mm x 750mm x (150-500) mm produces castings up to 25 kg, and features a completely new design of the mechanical and hydraulic system, including control of the whole process.

#### Online support

"There were two reasons why we decided to adopt remote diagnostics," says Bryce Beaver, Manufacturing Manager Casting. "Australia is a remote place compared to the rest of the world. We wanted to be able to get qualified support as fast as possible for a machine using new hydraulics and on which we depended during three, eight-hour shifts five or six days a week.

"The other reason is that after a while, components begin to wear. We considered that having a DISA expert available online would help us determine whether a problem was due to a particular part that we could simply replace. We look at the RDA as



a kind of insurance policy or backup in case of problems we can't handle ourselves."

#### Even small problems can cost big money

Some time ago the foundry suddenly needed this insurance policy. A problem with the core setter was intermittently bringing the



moulding line to a halt. The service staff managed to get it going again, but without determining the root cause of the problem, which continued to recur.

### Clear communication

Bryce Beaver thinks back to the time when the only contact was by telephone or fax. "If our only lifeline to DISA had been the phone or fax, it could have taken a long time for our operator to explain the problem. And it could have taken just as long for the DISA service engineer to isolate the cause and guide him through various solutions before they found the right one, especially because it was an intermittent problem. That could have been a very costly affair in terms of downtime. As it was they cleared things up very quickly due to the direct link between our DISA 240A in Australia and their computer in Denmark," he concludes.

## *DISA were able to follow the readings until the problem recurred*

"We got on to DISA Customer Service in Denmark and they immediately hooked up to the DISA 240A operating panel via the built-in modem," Bryce Beaver relates. "They were able to follow the readings until the problem recurred. After a very short time they were able to tell us that the malfunction was due to a bad servo valve setting. All we had to do was reset the card and production resumed perfectly normally."

### DISA 240A specifications

- Mould size 600 x 750 x (150-500) mm
- Production capacity: up to 450 moulds/hour (uncored)
- Mismatch of 0.15 mm or less
- VDU with text and graphics for operator supervision and easy troubleshooting
- Built-in dedicated modem for secure Remote Diagnostic Access
- Two-year warranty (excluding wear parts)
- Casting weight up to 25 kg