



## Medical Gas Solutions

### Keeping Track of Cylinders

Medical Gas Solutions is a supplier of gases like oxygen and nitronox. Together with their cylinders and valves, MGS provides ambulance services, NHS trusts and fire services with equipment essential to preserving life and reducing pain in a wide range of emergency, pre-operative and post-operative situations. MGS pride themselves on their innovation. One area of innovation for the company has been in the development of better systems to keep track of the cylinders that their customers are using. This innovation helps to save costs for customers by reducing cylinder loss and optimising cylinder usage.

When MGS approached CoreRFID with their plans for electronically tagging cylinders as part of this plan, CoreRFID responded by helping MGS to select the most appropriate tagging mechanisms and then designed the system that keeps track of tagged cylinders and makes it possible for MGS's customers to see information on cylinder location and usage.

The solution was developed and provided by CoreRFID.

### Emergency Services: Rapid Response

Medical Gas Solutions was set up in 2003 to provide a UK wide supply of medical gases for emergency use. Since then the company has worked with a broad range of healthcare professionals including the Ambulance Service, Fire Service, Police Service, Hazardous Area Response Teams (HART), St John Ambulance, Doctors, Dentists, Nurses, and Midwives, delivering analgesic and resuscitation kits. The company has a track record in innovative products. They were the first to introduce an ultra-lightweight 1 litre high pressure medical gas cylinder for use by rapid response units, and paramedics and they developed the multi-patient unit, a system that can deliver gas to multiple casualties, helping the emergency services to cope with major incidents.



Multi-patient units for administering gas are among the products tagged with the system.

MGS offer their products for sale and as part of a managed service in which cylinders are returned for refill as required and are inspected and serviced as needed.

To track and manage the return of cylinders for their managed services, MGS decided on an approach using RFID tags to identify each individual cylinder and valve. This approach was selected by MGS because it allowed cylinders to be tracked to delivery locations and it allowed cylinders and valves being returned to them to be immediately identified. From the data collected in this way, MGS expected to pass on a number of benefits to their customers including usage information that would help better planning and budgeting, information on each customer's stock holding of different types of gases at different sites, and reduced losses of cylinders.

The company had already trialled a system but had experienced a number of problems including duplicated data, and other database problems, a lack of real time data, difficulties reading tags, accessing data and providing the correct information to customers.

To overcome these problems MGS asked CoreRFID to create a new system that would allow MGS to achieve their original objectives. CoreRFID provided a solution based on the Checked OK safety inspection monitoring system.



*“The CoreRFID system has overcome the problems we had in the past. Now our RFID tagged cylinders are tracked accurately and we can deliver the service we planned for our customers.”*

Dave Donlan, Operations Manager, Medical Gas Solutions.

## The CheckedOK System

The CoreRFID solution was designed to support three main activities with the cylinders; filling distribution and service. For filling, the batch details, cylinder serial number owner and date of filling and expiry are recorded in a database and linked to the cylinder using the RFID tag data. In distribution, data about the customer name, location and cylinder are collected as well as allowing for an audit of all the cylinders held at a particular location. For service, a cylinder failing an inspection is given an out-of-service status which has to be over-ridden by service staff after a successful service before it can be put back into use.

Fill Batch	Batch #	Fill Process	Owner	# of Cyls	# of Reports	Expiry Date
17 MAY 11	0200000	300	SCOTT ALEXANDER	26	13	18 MAY 14
18 MAY 11	0200000	300	REINHOLD WEGE	26	6	17 MAY 14
17 MAY 11	0200000	300	SCOTT ALEXANDER	25	7	18 MAY 14
17 MAY 11	0200000	300	SCOTT ALEXANDER	12	6	18 MAY 14
18 MAY 11	0200000	300	REINHOLD WEGE	26	5	18 MAY 14
17 MAY 11	0200000	300	SCOTT ALEXANDER	29	5	18 MAY 14
18 MAY 11	0200000	300	REINHOLD WEGE	11	2	18 MAY 14
17 MAY 11	0200000	300	SCOTT ALEXANDER	17	4	18 MAY 14
18 MAY 11	0200000	300	SCOTT ALEXANDER	18	2	18 MAY 14
18 MAY 11	0200000	300	JOHN JONES	18	2	21 APR 14

The reporting system provides up to date details of any cylinders failing fill tests.

To overcome previous problems with the reliability of data an update system was devised that would automatically synchronise data from the various handheld computer units used to collect data from tags. Information is synchronised over a GPRS data network when a signal is available or using the MGS network by plugging the handheld devices into a cradle at the end of day. The system also allows for the use of bar coded items so that any cylinders without a tag can also be managed by the system.

Information is delivered to customers and to MGS staff using a web portal operated on behalf of MGS by CoreRFID. The web portal provides a wide range of reports and enquiries on the status and availability of cylinders. The MGS RFID system is based on CoreRFID’s CheckedOK solution. CheckedOK is already widely used by companies using and servicing safety and survival equipment such as life rafts and fire extinguishers. CheckedOK uses portable handheld computers with integral RFID readers. These run Windows Mobile and the CheckedOK software. The application displays details of the cylinder being checked and the actions that need to be taken with it. So far almost 3500 cylinders and valves have been tagged for the system.

## The Benefits

The Medical Gas Solutions system provides:

- Accurate data on cylinder locations and status for MGS staff and customers.
- Data for customer usage planning.
- Warnings where cylinders, valves or gas fillings have passed their expiry date.
- Easily implemented audits to keep track of the location of cylinders., saving costs and reducing the risks of out-of-date cylinders or gases being used.

A simple user interface allows data about collections, deliveries, fillings, inspections and other tasks to be easily entered. By making it easy to follow the right actions and simple to enter the data required, the system improves the overall accuracy of the processes. The same is true of the web interface for users of the data portal which offers users flexibility in the layout and content of reports as well as allowing data to be filtered for particular locations or companies.

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