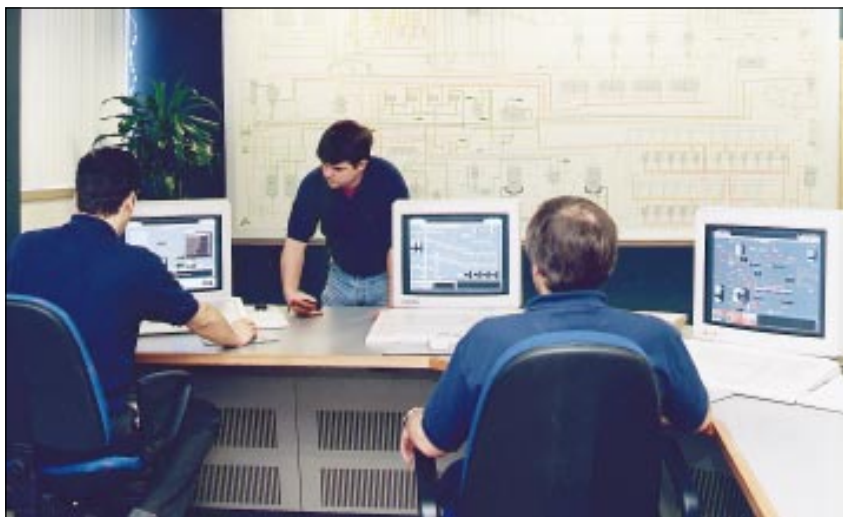


Advant OCS helps tighten control at Scottish Whisky Distillery



United Distillers, established in 1987 as the spirits company of the Guinness Group, employs today 11,000 people worldwide and has an annual turnover of £4,860 million (1995). Its product portfolio includes a number of leading brands of Scotch whisky (Johnnie Walker, Bell's, Dewar's) as well as Bourbon and Canadian whiskies, gin (Gordon's, Tanqueray), brandy and rum.

United Distillers, with 27 malt and two grain distilleries, is responsible for nearly a third of Scotland's total output of malt and grain whisky. At any one time 6.5 million casks of Scotch whisky are maturing in the company's bonded warehouses in Scotland.



Advant OCS at Port Dundas Distillery, Glasgow

At one of these distilleries, Port Dundas Distillery, Glasgow, United Distillers is now applying the latest automation systems technology from ABB to control the cooking and mashing processes and the dark grains plant.

An Advant OCS from ABB has been installed as part of a multi-million pound modernization of the distillery, which produces grain spirit for United Distillers' major brands of Scotch whisky. Mash tuns and brewing tanks have been replaced and a

Above: The Advant OCS installed at United Distillers' Port Dundas Distillery provides fully automatic control for all cooking and mashing operations in the mash house and dark grains plant.

Below: Port Dundas Distillery produces grain spirit for leading brands of Scotch whisky.

Remote I/O blocks are located close to the plant equipment to eliminate marshalling racks and cabling costs.



central processing area has been created, where all the pre-distillation processes, such as grain handling, cooking, malt slurring, mashing, wort transfer and yeast cream addition, are carried out.

Replacement of earlier pneumatic control system

The Advant OCS with MOD 300 software replaces an earlier pneumatic control system and provides operators in the new mash house and dark grains plant control rooms with fully automatic control sequences for all the cooking, mashing and other operations. These extend from the allocation and transfer of raw grain material through to fermentation.

Under control of the Advant OCS, grain is taken from storage, cleaned, mixed with water and loaded into the cookers. The cooking sequences are initiated and the cooked grain slurry is cooled and transferred to the mash tuns, where it mixes with malt. Further cooling is carried out, yeast is added and the completed batch is then transported to the fermenters. The control system for the mash house accommodates 900 input and output signals. It includes seven Advant Controllers plus a back-up, two Advant Station 515 Operator Stations, a dual-function Advant Station 515 Operator/Engineering Station and an Advant Station 500 Information Management Station.



Operators control the plant with the aid of 3D colour graphics, all of which are easy to build or modify in line with plant alterations.

The new control console with Advant nodes in the dark grains plant control room similarly has two Advant Station 515 OS and a dual-function Advant Station 515 OS/ES, which are linked to the mash house via a Thicknet DCN.

The Advant workstations have introduced high-resolution graphics and comprehensive windowing facilities for increased flexibility in controlling the cooking, mashing and other processes. They also provide a platform for interfacing with plantwide management information computer facilities through TCP/IP networking.

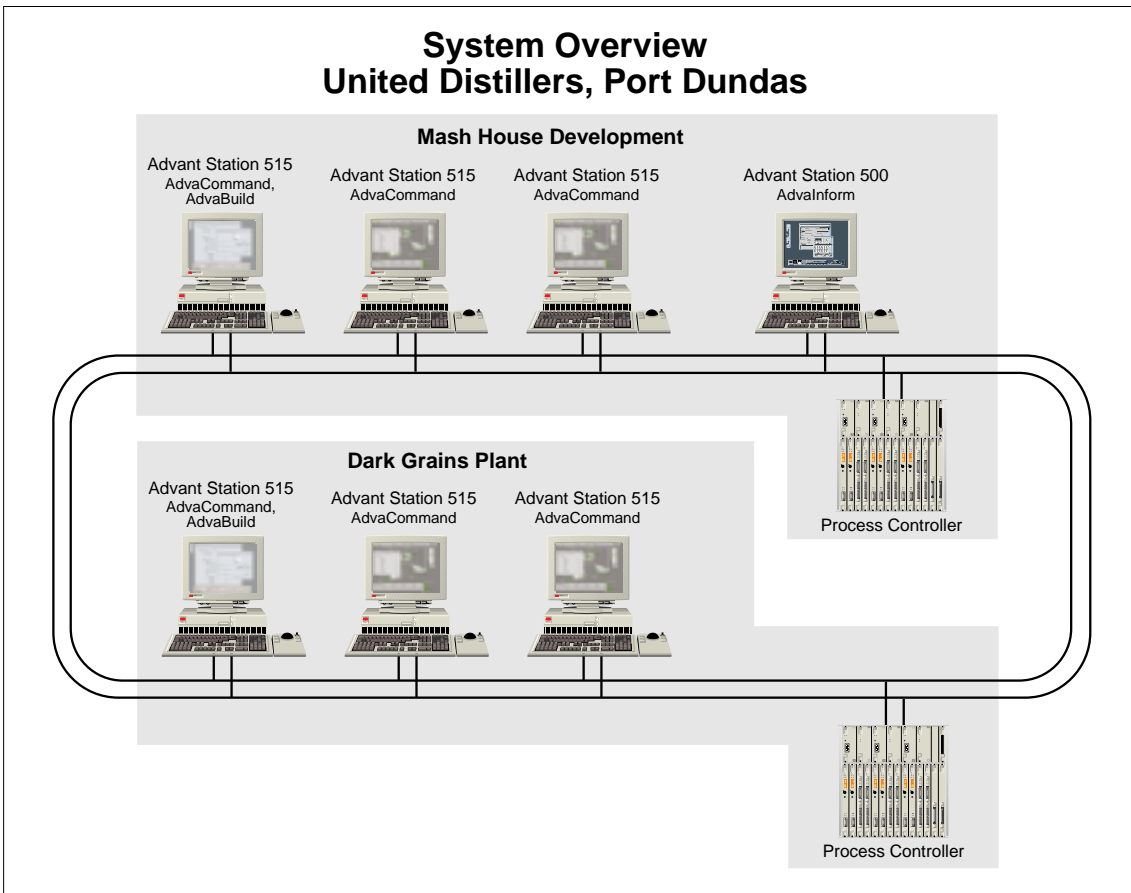
The I/O information is distributed via ABB TRIO Remote I/O blocks, which are located

close to the plant, thereby eliminating the cost of cabling to marshalling racks in the control room. There are also a few serial links to external plants and PLCs.

Port Dundas Distillery is currently installing a TCP/IP link from the Advant Station IMS to provide the Guinness WAN with process data as well as for use in connection with database applications from other vendors.

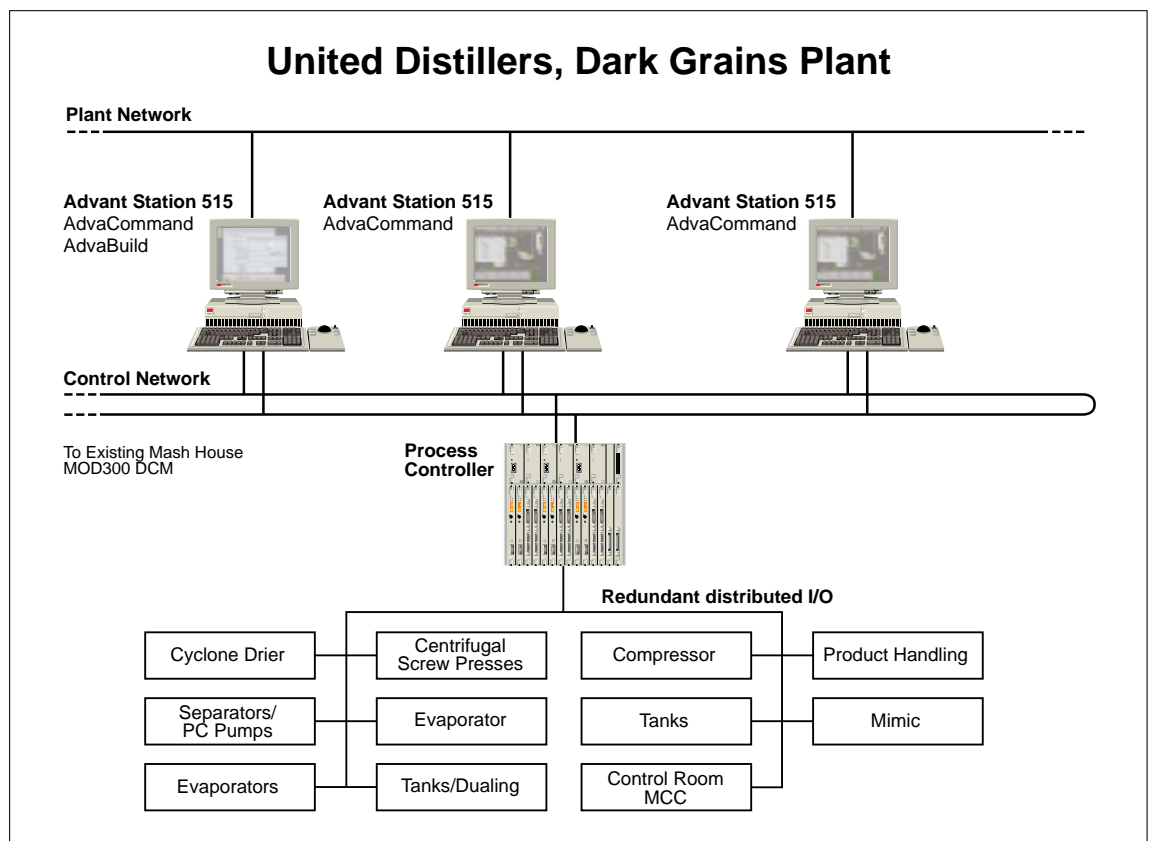
Advant OCS several generations in advance

The new Advant OCS is several generations in advance of the previous manual system



The ease with which Advant OCS can be expanded to accommodate additional plant areas and equipment has allowed United Distillers to link their second phase expansion dark grains plant, via a Thicknet DCN, to the original mash house development.

The dark grains expansion also utilizes the advanced features of ABB's Advant operator and engineering workstation technology.



and, understandably, the control room operators responsible for the cooking and mashing processes had some inhibitions about using the new technology. In the event, ABB's ease-of-use claim proved to be well founded.

After some initial training, operators at all skill levels were soon feeling comfortable with the new Advant workstations. Indeed, many have found that their flexibility, control and decision-making capabilities have been considerably broadened.

ABB was earlier responsible for the software programming, but this is now being done by Port Dundas personnel. Operator training is now also being conducted in house.

From the distillery management's viewpoint, the Advant OCS from ABB provides a firm platform from which to extend its automation capability in line with future growth.

Cameronbridge Distillery

This latest automation installation at the Port Dundas Distillery follows the successful application by United Distillers of a similar ABB control system at its Cameronbridge Distillery, near Leven, Fife. Here, the system controls what is believed to be the most advanced grain distillery in the world. It is distributed throughout the dry goods handling and cooking, mashing, distillation and the wet handling and by-products operations.



Argentina Asea Brown Boveri S.A. *Buenos Aires.* **Australia** ABB Industry Pty. *Melbourne.* **Austria** ABB Industrie Gesellschaft *Vienna.* **Bahrain** ABB ARESCON E.C. *Manama.* **Belgium** Asea Brown Boveri S.A. *Brussels.* **Brazil** Asea Brown Boveri Ltda. *Sao Paulo.* **Canada** Asea Brown Boveri Inc. *Toronto.* **Chile** Asea Brown Boveri S.A. *Santiago.* **China** Asea Brown Boveri China Ltd. *Beijing.* **Denmark** ABB Energi & Industri A/S *Skovlunde.* **Finland** ABB Industry OY *Helsinki.* **France** ABB Industrie *Décines Charpieu.* **Germany** ABB Industrietechnik A.G. *Mannheim.* **India** Asea Brown Boveri Ltd. *Bangalore.* **Italy** ABB Industria S.p.A. *Milan.* **Japan** ABB Gadelius Industry K.K. *Tokyo.* **Korea** ABB Woojin Co. Ltd. *Seoul.* **Malaysia** ABB Industry & Offshore *Kuala Lumpur.* **Mexico** ABB Equipos Y Sistemas *Estado de Mexico.* **The Netherlands** ABB Industrie B.V. *Rotterdam.* **New Zealand** ABB Industrial Group Ltd. *Auckland.* **Norway** ABB Industri AS *Oslo.* **Portugal** Asea Brown Boveri Lda. *Lisbon.* **Russia** Asea Brown Boveri Ltd. *Moscow.* **Saudi Arabia** ABB Saudi Arabia *Riyadh.* **Singapore** ABB Process Automation East Asia Pte. Ltd. *Singapore.* **South Africa** ABB Industry (Pty) Ltd. *Johannesburg.* **Spain** ABB Industria S.A. *Madrid.* **Sweden** ABB Industrial Systems AB *Västerås.* **Switzerland** ABB Industry Ltd. *Baden, Dättwil.* **Thailand** Asea Brown Boveri Ltd. *Bangkok.* **Turkey** ABB Elektrik A.S. *Istanbul.* **United Kingdom** ABB Industrial Systems Ltd. *Stevenage.* **U.S.A.** ABB Industrial Systems Inc. *Columbus, Ohio.* **Venezuela** Asea Brown Boveri S.A. *Caracas.*