…… another JONOCO Customer Focused, Quality Solution.

Portable Dosing Units
PDU

…… go anywhere dosing plants.

servicing the water industry

…… another JONOCO Customer Focused, Quality Solution.

Thank you for your interest in JONOCOs' Portable Dosing Units, PDU.

JONOCO has been *Servicing the Water Industry* for well over 30 years and is proud of its reputation and the relationships that it has developed with its clients.

JONOCO has always listened carefully to the needs of the industry and from this has developed several products that have been well received by the industry. Quality products that have contributed to better, easier and safer work practices.

The PDU is one of JONOCO most successful products with many having been successfully produced in the past for various clients and for a range of chemicals, not just sodium hypochlorite.

The PDU can be designed to be a simple manually operable system or it can be a fully automatic operating system. The options in design are many and for this reason we work with our client to establish exactly what their requirements are to ensure we design and deliver a product that meets our clients' exact needs.

For further information relating to this product or any of the other products or services that JONOCO can offer please contact either Paul, Noel or Peter. They would be more than happy to speak to you about how JONOCO can work with you in delivery *Customer Focused, Quality Solutions*.

Thank you

Paul Dick,
Mechanical Manager
0425 768 991

Noel McKay,
General Manager
0418 592 754

Peter Smith.
Commercial Manager
0412 885 561

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Concept Introduction
…… the PDU

The *PDU* comprises a specifically designed and rated trailer that is suited to the client's application. The internal surfaces of the trailer can be appropriately protected (coated) in consideration of possible contact with a corrosive chemical. The trailer also comprises a chemical bund that lines the inside of the trailer to ensure that any chemical spill within the trailer itself is contained.

The *PDU* can be designed to store and dose up to two chemicals. Where two are used, the compatibility of the chemicals will need to be considered in the design. In some cases, the ability to have both chemicals in one trailer may not be possible.

The *PDU* can be designed to be a simple manually operable system where the user manually controls the amount of chemical being dosed. Alternatively, the PDU can be designed having a fully automatic control system allowing the PDU to start and stop dosing on command and deliver chemical in either a flow paced control or in compound control mode, as is done with most fixed type plants.

The PDU can be designed to deliver chemical directly into the process or a recirculation system can be provided to circulate water which is then injected with chemical.

The PDU can be monitored remotely via SCADA and a local Human-machine interface (HMI) can also be provided to assist the operator with any onsite control and monitoring.

Instrumentation that is provided on each PDU is subject to the design requirements of each dosing system as well as the requirements of the client. Preferred client equipment is always an option.

All necessary safety equipment is provided as part of the PDU. This may a comprise face/eyewash unit, safety signage as well as lighting, both internally and externally. A spill containment kit may also be provided. The PDU may also be provided with a water tank, booster pump and hose reel for the purposes of washdown.

A diesel generator may be provided to power up the PDU at sites where an electrical supply is not readily available, alternatively, the *PDU* can be powered up from a 240Vac source via an appliance plug.

All service connections to the *PDU* are made by way of the service connections that are ported to the outside of the trailer allowing the trailer to remain connected and in operation with all doors closed and locked guaranteeing the security of the system.

Figure 1 - PDU example of ported connection allowing doors to remain closed and locked when system is operational

Each chemical system on a PDU will comprise as a minimum a chemical storage tank and one dosing pump along with all the necessary pipework, valving and fittings. Furthermore, the dosing line may be provided in the form of a retractable hose reel if space is available.

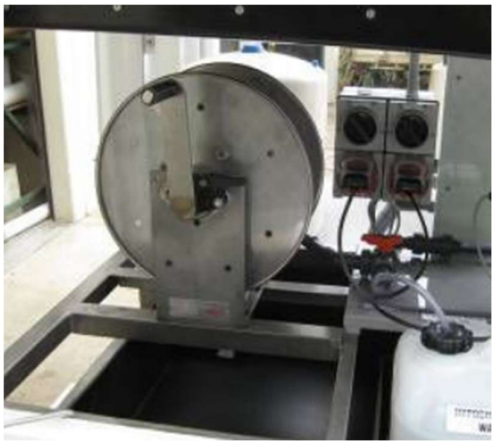

Figure 2 - PDU dosing line hose reel (option)

The PDU may also comprise two dosing pumps of the same capacity that can be arranged in duty/ standby configuration. Alternatively, two pumps that are sized differently to provide a much wider flexible range of dosing operation can be provided.

Analyser equipment that may be used for post dose analysis can be provided. This may be used to operate the PDU's dosing system in Compound Control Mode or simply to monitor and ensure the dose is maintained within the required band. Sample water that can be returned to drain or alternatively sample water can be collected and then returned safely to process via a sample water return system.

From an Operational Technology standpoint, a control system that may be deployed may include a PLC/ RTU, modem and HMI all backed up on a 24Vdc system. Your Cyber Security needs (Refer to section on *Operational Technology* below) will all be taken into consideration when designing the control system.

Electrically the *PDU* provides its own supply distribution system along with internal and external lighting. Options for the provision of an Automatic Transfer Switch (ATS) or Basic Transfer Switch (BTS) along with generator connection can be considered.

Figure 2 – Example of PDU Generator housing located on A-Frame of trailer

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Flexibility in Design

…… *what the client needs*

JONOCO understands the importance of tailoring our products to your exact needs. For this reason, JONOCO has sort to provide *PDU* solutions that are very flexible and able to meet your design and operational needs.

Not only can the *PDU* be designed to meet the chemical dosing demands of your sites, but it can also be tailored in several ways to provide you with only the systems and equipment that you require. The systems and equipment selected are based on your operational requirements as well as your preferred equipment selection.

Configuration requirements (Options) that have been considered in the design of the PDU solution may include the following.

Operational (Control system) Technology (OT)

…… Understanding your Cyber Security requirements

Where an OT system is to be deployed, careful consideration is given to the Cyber Security requirements that we know you face today. We understand that you are now responsible for the security management of your OT systems. OT systems that also require you to carefully select and manage service providers engaged in the configuration and maintenance of these systems.

The OT systems of the *PDU* are delivered with your Cyber Security requirements in mind. You can nominate the OT systems and services providers that are to be used. You can place the management of this with us or alternatively, we can work with you in your management and delivery of all OT related works. For clients that are yet to implement their own Cyber Security requirements, we can offer the supply and configuration of OT systems for the *PDU* and will work closely with you in doing this.

Documentation provided with the *PDU* includes an operational control philosophy, detailing how the equipment may be controlled and monitored. This document will assist you in the development of any detailed operating methodologies that may be required to suit your site. We are happy to work with you in your development of the OT software/ systems to ensure applicable equipment warranties are maintained.

Water Quality Measurement

…… Provision and use of Analysers

The *PDU* may be provided with a single analyser for each dosing system. Where OT has not been considered, the analyser may be used instead in the control of the chemical dosing process.

Figure 4 – PDU Typical Analyser Systems Arrangement,

Water Conservation

…….. Provision of a Sample Water Return System

We understand that water conservation is important. If water conservation is a requirement for you then the *PDU* may be supplied with a sample water return system that will return sample water safely back to process.

The sample water return system comprises a small storage tank, a sample water return pump with a maximum capacity of 10 bar, and instrumentation used in the control and monitoring of this system.

Figure 5 – Sample Water Return System, comprising sample water storage tank and return pump.

Chemical Dosing

…… Dosing Pump Selection and Redundancy

The type of dosing pumps used can be nominated by you. Typically, two dosing pumps can be provided within the *PDU*. For each dosing system, subject to trailer design. Multiple pumps are something that can also be considered but is subject to other design conditions/ requirements.

Control valving is provided with each dosing system to ensure reliable and repeatable operation.

Figure 6 – Typical dosing pump arrangement for PDU

Chemical Storage

…… Capacity to store

A chemical storage tank will be sized taking into consideration the system demand and load capacity of the tailer.

The storage is typically provided with all the necessary instrumentation allowing its level (volume) to be monitored both locally and via SCADA, where SCADA has been selected as an option.

The storage tank is appropriately sealed with a single vent to the outside of the trailer, where needed. The overflow of the storage tank is ported back into the bund of the trailer to avoid any spill to the environment.

Figure 7 – PDU, Typical chemical storage tank arrangement

Mains Supply Reliability

…… Provision of automatic or manual backup supply systems

At locations where mains supply is unreliable, or simply if you desired to improve the reliability of your system, the *TDU* can be supplied with an ATS (Automatic Transfer System) and on-board generator. This will ensure that the system remains operational at times of power failure. Alternatively, a BTS (Basic Transfer Switch) along with appliance plug can be supplied. This allows the *PDU* to be supplied via a portable generator as you require.

Figure 8 – Emergency mains backup supply system located (on-board) on trailer in secure lockup.

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Selection in Design

……. customising your solution

As part of the design process of the *PDU* JONOCO and our suppliers will work with you in the determination of how to best satisfy your needs. Our objective is to provide a customised solution to suit your specific needs whether they are design based (i.e. equipment selection/ configuration) or just site considerations.

We will tailor a solution to your needs.

To assist us in the provision of a customised PDU solution, you may complete an application form. This can be done by completing the form provided via the link provided below. Alternatively, you may request an application form be emailed out to you. A member of the JONOCO team would be more than happy to work through the application with you.

If you require any assistance in completing this form, then please reach out to one of our team members who will be more than happy to provide support.

Use this link:

https://forms.office.com/r/m3d7bFgqBp