

# UE FAQ's

If you are reading this, you probably have a few more questions about Digital Wave Corporation's (DWC) Ultrasonic Examination (UE) machines. DWC has compiled the most common questions we get about our machines in this document; hopefully this will help to answer your questions. If not, feel free to contact us at any time with your specific question.

## What cylinders can I inspect with a Digital Wave Corporation

**(DWC) UE machine?** The basic answer is DOT 3A, 3AA and 3AL high

pressure gas cylinders. Both the UE1™ and UE23™ can do the same types and sizes. For a more in depth answer to this question please read the DOT Special Permits (SP 14149 and SP 14206) that have been issued for the use of our UE machines in lieu of hydro testing. These permits provide a wealth of information to answer this question and are a great starting point in answering most other questions that come up. The DOT Special Permits can be found on our web page on the "Documents" link or by going to the following address: [www.digitalwavecorp.com/brochures-dwc.html](http://www.digitalwavecorp.com/brochures-dwc.html) Another good source of information is to read the specific brochure on the UE machine you are interested in. These are also found on our web page on the specific UE machine pages. SCUBA tanks can also be done on both machines. The composite overwrapped SCBA (fireman type) cylinders are not authorized as of yet.

## What calibration cylinders do I need to purchase with my UE machine?

The diameter of the cylinder to be tested is required to be -10%/+50% of the calibration cylinder (e.g., a 7 inch diameter calibration cylinder can be used for test cylinders from 6.3" to 10.5" in diameter). The second requirement is that the minimal wall thickness machined into the calibration cylinder must be less than or equal to the minimum wall thickness of the cylinder under test. Thus, a cal piece machined to the min wall thickness of a SP9001 cylinder can be used to inspect all of the steel SP cylinders except the SP9791, which has a min wall of 0.179", and the SP11692 (diameter and min wall differences).

As for Aluminum cylinders, the M6 cal cylinder allows you to do M6's, A, B, C, D, E's, and 5.25" diameter cylinders. If you are going to do larger aluminum cylinders, you would need to do calibrations from a 20 lb CO2 sized aluminum cylinder.

Our typical recommendation for calibration cylinders to have on hand for a testing facility are:

- 1) Aluminum M6 (3.2" OD)
- 2) Aluminum (7.25" OD)
- 3) Steel Medical E (4.2" OD)
- 3) Steel M (7" OD)

These four cylinders will cover the entire range of 3AL, 3A and 3AA cylinders and are included during the quotation phase. We can provide all of these standard calibration cylinders with your purchase. Should you not need all of these calibration cylinders, we can modify your quote as needed. Should you have specific cylinders that need to be tested that are outside of these specs (such as Special Permit cylinders E9001, E9370, etc), we can make a cal cylinder for you out of your sample cylinders. You just need to send them to us and we will machine them for you.

**Do I need to remove the cylinder valve to inspect cylinders with your UE machines?** No, this is the one of the *greatest benefits* of using UE technology over traditional hydro. A cylinder that is either full or empty, with valve, is placed into either UE machine and is then inspected. As you can imagine, there is also no lengthy additional time for drying and revalving as you would have with hydro.



**Must I lube the screw drives on my UE machines?** NO!! These screw drives are a special nylon-coated drives that have been specially designed so as not to require lubrication. *Lubricating them can damage them*, so please refrain from applying any lubrication!

**Can I use CO2 instead of shop air to drive my UE machine?** NO!! When CO2 mixes with water it can form carbonic acid (H<sub>2</sub>CO<sub>3</sub>).

**Can I use Nitrogen instead of shop air to drive my UE machine?** Yes, this could be a viable source of system pressure in the event that your shop compressor goes down. Just make sure that it provides 90 – 95 psi to the system.

**Should I have an oiler for the compressed air?** No, the components used in the pneumatic system are designed to run oil free. Adding oil will *shorten the life* of the components.

**How long are the power cords that come with the UE machines?** The UE machine power cords come standard at 20 feet long. They are designed to be hard wired into a junction box and do not come with plugs. They can be made longer if needed. Please be sure to specify this additional length requirement during the quotation stage so that we can be sure to give you proper length and pricing.

**Do you provide special collars that can fit over CO2 or fire extinguisher handles?** Yes, we have special collars that fit onto the headstock assemblies of the UE machines. They fit securely over the handles, allowing you to inspect cylinders without removing the handles. This greatly increases the inspection rate for your company. If you see a need for this, please let us know and we can include collars at the quotation stage.

**Is HazMat training required for my employees to inspect cylinders with my new UE machine?** Yes, your techs will need HazMat training and your company will need to have proper documentation for this. Hazmat certifications are required to be updated every 3 years.

**Is HazMat training included as part of my purchase of a UE machine?** No. However, should you need such training at your facility, we can direct you where to get it.

**Is eddy current testing needed if I use UE?** Yes, but only for aluminum cylinders with the alloy 6351. Eddy current testing is still required for these specific Aluminum alloy cylinder neck and threads.

**Is eddy current testing equipment included as part of my purchase of a DWC UE machine?** No, this is not included, but should you need it, we can direct you where to purchase this equipment or include it in the quotation phase.

**What other inspections will I need to provide (in addition to UE, eddy current, visual inspections and having my hazmat training)?** You will also be required to have the CGA Pamphlets C5, C6 and C6.1 on file at your facility. You can purchase these documents from the following CGA web page: [www.cganet.com](http://www.cganet.com) Here you can either download them or have a hard copy mailed to you. You will need to have these documents on file in case of an audit by the DOT. You will also need to provide for the inspections as called out in these documents.

**Is sand blasting and/or painting equipment included in the purchase of UE machine equipment we purchase from DWC?** No, this equipment is not included, but should you need such we can direct you where to purchase it or we can include it in the quotation phase.

**Is training or literature offered in alternative languages?** Only English is offered at this time, however we have begun to translate them into Spanish. At some point in the future we may elect to provide these services in other languages. Technicians running these UE machines must speak fluent English as well so that we can train them.

**What data back-up is required on the cylinders we inspect with DWC's UE machines?** It is recommended that you back-up (to an external hard drive, thumb drive, other) the data you collect on the cylinders you inspect on a daily basis. DWC requires that you send us this information monthly as we must provide this information to DOT. You must keep a hard copy of data collected on failed cylinders. DOT requires the provision of this data on a yearly basis.

**What documentation must I supply to my customer?** You must supply a written copy of all failed cylinders to your customer.

**What if I am not sure about a specific feature of my new UE machine?** CALL US!!! We pride ourselves on our customer service and availability. If you are unsure of any aspect of the operation of the UE machine, feel free to give us a call. We would be more than happy to help you with any question you may have.

**What if a component on my machine stops working or I damage it?** All of our UE machines come with a 1-year manufacturer's warranty (as outlined for you in the quote). Should a component break during this time, we will fix it. Should something go wrong outside of warranty, we are still here to help you. We carry most parts on stock, but not all. Be sure to take advantage of the DWC maintenance program that helps to keep your system running and identifies components that may need servicing in the near future. This allows you to keep potentially failing components on stock for a quick change out.

**Do the UE machines require maintenance?** Yes, just like oil or air filter maintenance checks on a car, the UE machines need maintenance quarterly or every 500 hours of service life. We provide these maintenance visits as a service to our customers. Keep in mind: a lack of maintenance on your part does not necessitate an emergency on our part. So **help us to help you**—by conducting the DWC specified maintenance!

**Can I install my UE machine on an uneven or an unlevel floor?** No, there are a number of reasons that the UE machine requires an even surface, primarily having to deal with water and gravity in the machines. Therefore, prior to installation, identify a location at your facility that has a level and even floor footprint for the installation of your new machine. If you need information on the footprint on the machines, we can provide you with an "Installation Requirements" document.

**Why do I need a LAN internet connection for my UE machine?** We are able to access your machine remotely to upgrade software, review test data, help with cal in/out or help you to evaluate a specific test. This can only be done if your machine has a LAN internet connection.

**Why do I need to be able to hook the computer in my new UE machine to a printer?** You will need to have access to a network or direct access printer for your UE machine at your site. You will need to print the results from any failed cylinder test and keep those results on file for the next span of the recertification (5 or 10 years, depending on the cylinder specifications) as per the DOT requirements. DWC machines do not come with printers, but we can include them in the quotation phase if you wish.

**How many of my staff will DWC train to a level II UE technician as part of my UE machine purchase?** DWC includes training of up to 4 individuals with the purchase of one of our machines. This includes level I and level II UE training, as well as hands-on production training if requested. Should you require additional techs to be trained or require training in the future for new employees, this can be provided at a nominal fee.

**Do I need to hire a new employee who already has experience in UE and has a Level II UE certification to run my new UE machine?** No, we prefer your hydrotesters who are already experienced with cylinders. DWC will then do the necessary training to certify your employees to become level I and level II UE technicians. If you would like to hire for the new position, we do have sample job postings that you can use. When hiring, we stress two important features of a new technician, that they 1) pay attention to detail and 2) are computer literate. With these attributes, most new employees can be easily sculpted into a proficient UE tech.

**Do all my employees need a Level II UE certification to run DWC UE machines?** No, a Level I can run the UE machine. However, a Level II must be on-site at all times cylinders are being examined, is required to cal in/out the machine and to interpret cylinder test data. Because of these DOT Level II requirements (see DOT Special Permits), most employees that run UE machines are normally Level II UE techs.

**Why do I need a Level III?** The Level III oversight is required by the special permit issued to DWC by DOT. DWC is required to ensure that all aspects of the special permit are being followed by the “agent”. Agent status is granted to a company after the system is installed and a DOT third party auditor has verified that the system performs to the special permit requirements, and the facility has met the requirements stated in the special permit (training, documentation) and DWC has informed the DOT that they have accepted the company as an agent. The Level III also must submit a yearly report to the DOT of all cylinders examined by the company under the special permits.

**What is CFR 49?** This is the “Code of Federal Regulations(CFR)” that must be followed when submitting hazardous materials for transportation.

**Do I require a drain in the immediate area that I will be installing my new UE machine?** A drain comes in handy when changing the water in the UE1™ water tank. However, if not immediately available, DWC includes 25 feet of 2 inch drain line with the purchase of a UE1™. For the UE23™, only water in the sump bucket needs to be changed out occasionally.

**How often do I need to change the water in the water bath in my UE1?** We recommend every month or earlier if the water quality is questionable.

**Do I require any additives to the water in my UE machines?** For the UE1™ we recommend adding 2 Tbsp of “United 337 Algae, Bacteria and Fungi Controller” and ¼ cup of “United Multi Purpose Wetting Agent”. Even smaller amounts of the same can be used for the UE23™ water. These help to control algae, bacteria and fungal growth, as well adding wetting characteristics which aid the inspection. These are not mandatory, but are helpful. If you have hard water, Calgon water softener will keep deposits from building up on the bearings and rails. To remove chlorine (which will cause pitting of the aluminum parts), any aquarium chlorine neutralizer will work.

**Can I get a 10 year certification on my Aluminum cylinders if I test them with DWC’s UE Machines?** Yes, however you must also be able to fill the same cylinders at the same site they are tested and be able to carefully log data on the gases and cylinder usage throughout the 10 year inspection lifespan. This is an approval that we can assist you in getting from the DOT for inspections at your site. This is not an automatic approval, hence requiring special authorization from DOT.

**How much room do I need at my facility for a working footprint for my new UE machine?** We will provide you with an “Installation Requirements” document that outlines the footprint and all other related information. You will need approximately 10’ x 25’ for the UE1™, while the UE23™ requires about a 6’ x 12’ footprint.

**What type of power is required?** The UE1™ requires a three phase, 208-240 V, 50 amp circuit, as well as a single phase 110 V, 30 amp circuit. The UE23™ requires a single phase, 110 V, 30 amp circuit.

**How many other customers have purchased UE machines?** At DWC, we are very proud of our many customers throughout the world. We invite you to visit the “Industry Links” page on our web page to see a partial list of our satisfied UE customers. You can find this page at [www.digitalwavecorp.com/links-dwc.htm](http://www.digitalwavecorp.com/links-dwc.htm)

**Where are the DWC UE machines made?** All of our machines are made with pride in Colorado, USA. Should you ever be in the Denver area, we invite you to stop by and tour our facility.

**How do I install my new UE machine?** Once your machine has shipped from our factory, we will schedule the right time to perform both the installation and the DOT audit of this machine on site. Prior to our arrival at your site, it is very important that you are ready for the installation by having a clear site, air, water, electric and internet connections easily available to facilitate a speedy installation.

**How much do the DWC UE machines cost?** Price is dependent on a number of factors including the location of installation, amount of training needed, shipping costs, number of calibration cylinders needed, and other machine options. If you are interested in getting pricing, please contact DWC and we can provide you with a detailed quote that fits your application.

**Are UE machines your only specialty?** No, we also specialize in Modal Acoustic Emission (MAE). This technology is used for the inspection of most forms of pressure vessels (i.e. tube trailers, cylinders, spheroids, vertical vessels, horizontal vessels, etc). Should your company have applications in these fields that require inspection, we invite you to learn more about MAE testing. See the MAE tab on our web page.

**What if I have a question that you have not answered in this document?** Contact us! Feel free to contact us at anytime at:

Digital Wave Corporation  
6555 South Kenton, Suite #304  
Centennial, CO 80111 USA  
T#: 303-790-7559  
F#: 303-790-7567  
marka@digitalwavecorp.com  
[www.digitalwavecorp.com](http://www.digitalwavecorp.com)