



# Prodigy/Prodigy XP ICP Spectrometer Pre-Installation Guide



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Due to design changes and product improvements, the information in this document is subject to change without notice. Teledyne Leeman Labs reserves the right to change hardware and/or software design that may subsequently affect the contents of this Pre-installation Guide.

**\*\*\*WARNING\*\*\***

The methods and analytical procedures described in this guide are designed to be carried out by properly trained personnel in a suitably equipped laboratory. In common with many laboratory procedures, the methods described may involve hazardous materials or substances of unknown toxicity. For the correct and safe execution of the methods, it is essential that laboratory personnel follow standard safety procedures for the handling of hazardous materials.

While the greatest care has been exercised in the preparation of this information, Teledyne Leeman Labs expressly disclaims any liability to users of these procedures for consequential damages of any kind arising out of or connected with the use of these procedures.

There are many sources of safety information available. Consult your chemical and laboratory supply catalogs. You may also refer to the CRC Handbook of Laboratory Safety, published by CRC Press, Inc., Boca Raton, Florida.

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# INTRODUCTION

This Pre-Installation information is designed to help you prepare your laboratory for the installation of the Prodigy Series of ICP Spectrometers which include both the Prodigy and Prodigy XP models. Detailed information on each required item is provided. If anything is unclear with the information that is provided, please contact your local Service Representative or contact our Customer Support Department at 1-800-LEEMANS (1-800-533-6267), (603) 886 - 8400 or by email at [service@teledyne.com](mailto:service@teledyne.com).

Since revisions to instrument design may affect laboratory requirements, please ascertain from your Teledyne Leeman Labs representative that you are referring to the most recent edition of this guide, and that there have been no changes to the contents of this document.

The Field Service Representative is a skilled professional who will install your equipment, verify that it is operating to specifications, and train your personnel in its basic operation. Your preparation enables you to use his/her visit to the best advantage. Field Service Representatives reserve the right to decline installation if the facility's preparation does not meet the physical requirements described in this guide.

The on-site training provided by our Field Service Representatives to your personnel is extremely valuable and may save days or weeks of experimentation. Therefore, your personnel should be available full-time and free from all other duties during his/her visit.

Our Field Service Representative is qualified to instruct the operator on the Teledyne Leeman Labs software program and basic instrument operation. If special requirements, such as in-depth training in EPA protocols, assistance with chemistry problems or method development are required, Teledyne Leeman Labs offer a variety of support services. Your Teledyne Leeman Labs Sales Engineer is trained to be an information resource in this regard. Please feel free to discuss your specific needs with him or her, and to request appropriate information from Customer Support Department.

The installation of your new spectrometer is included in the system purchase price. A successful installation requires that you meet all the site preparation requirements. **Please note** in the event that the Field Service Representative arrives on-site and the laboratory has not met the pre-installation pre-requisite, the additional time and travel costs will be billed at the prevailing service rates.

**Note:** The connection of the Prodigy Series of ICP Spectrometers to your company's internal communication network/server is not part of the normal installation process and is best left to a trained IT professional.



## **RECEIPT OF THE INSTRUMENT**

Leeman Labs ICP Spectrometers have successfully passed stringent Quality Control and Performance Specifications prior to shipment. The spectrometer is carefully packed to ensure safe travel to your lab, but occasionally damage occurs during shipping.

A visual inspection of the shipping container and boxes should be done before signing the shipper's document. If any box is visibly damaged or shows excessive shifting, make a note of this on the shipper's document, then notify the shipping company **immediately**. Be assured Teledyne Leeman Labs will work with you to correct any problems. However, if damage has occurred, correction of that damage will be at the expense of the responsible party as defined by the purchase order.

Do not unpack any boxes without consulting the Teledyne Leeman Labs Customer Support Department. The Teledyne Leeman Labs Field Service Representative is responsible for the checkout of the shipment against the packing list. He or she cannot be responsible for this task, nor can Teledyne Leeman Labs be responsible for any missing items, if boxes have been opened or removed before the arrival of the Field Service Representative.

# PRE-INSTALLATION PLANNING AND PREPARATION

The Prodigy is a Laboratory bench top ICP Spectrometer housed in single cabinet, optional accessories includes a stand-alone autosampler, water recirculator and computer system. The minimum surface area required to accommodate the spectrometer is 59" x 21.7" (97.8cm x 550mm). This area doesn't include space for the accessories. The computer and printer require a surface area of approximately 36" x 30" (92cm x 76cm) and 16.5" x 18" (420mm x 457mm) for the autosampler. The back of the spectrometer should be kept a minimum of 5" from the wall. The ideal location for the autosampler is to the right of the spectrometer or on a moveable cart that can be positioned near the peristaltic pump. The weight of the spectrometer is 290 lb. (127kg).

When the spectrometer is delivered it should be stored inside and protected against the weather. Damage to the instrumentation because of poor storage practice may void the warranty.

Figure 1 shows the dimensions and utility input requirements and other site planning information for the Prodigy ICP spectrometer:

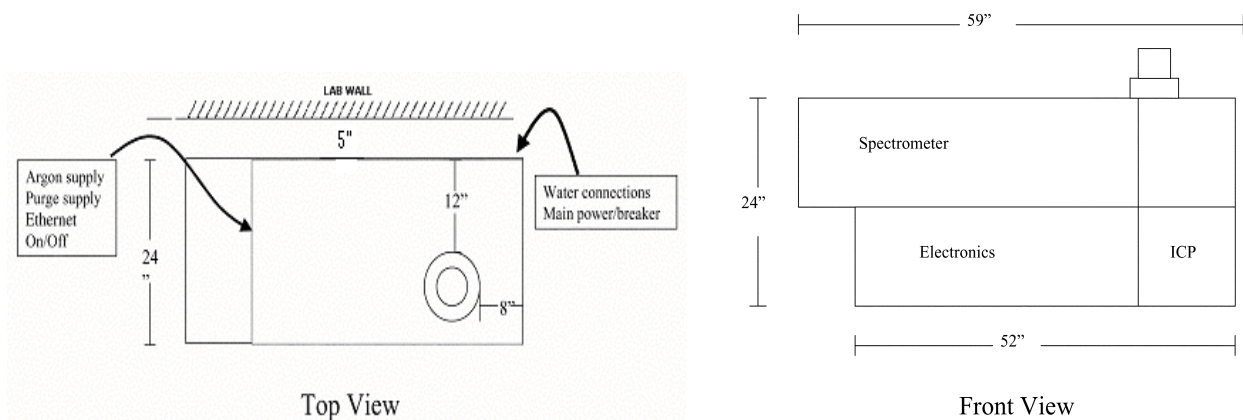


Figure 1: Prodigy Site Planning Information

# SITE PLANNING INFORMATION

## Spectrometer/ICP Source

(Mounted in a single base chassis on 1" (25 mm) rubber feet)

Length:	Base 52.2" (1326 mm) Upper 59"
Depth:	Base 21.7" (550 mm)
Height (to the top of the chimney):	29" (735 mm)
Diameter of the chimney:	6" (152 mm)
Weight:	290 lb. (127 kg)

## Electrical Requirements:

Grounded single-phase Power supply:	195-245V, 30A, 50/60Hz
Outlet type, standard for USA:	Hubbell Twist-Lock (NEMA L6-30R)
Outside the USA the power supply plug will be provided by the distributor in accordance with local electrical codes.	
Additional Outlets: (for computer, monitor & printer)	115V, 15A, 60Hz or 220V, 10A, 50Hz

## Accessories

### Water Recirculator

Length:	15" (380 mm)
Height:	24" (610 mm)
Depth:	21" (533 mm)
Weight:	50 lb. (23 kg)

### Exhaust

Exhaust draw:	100 ft <sup>3</sup> /min (2.83 m <sup>3</sup> /min)
Vent diameter:	6-8" (152 - 203 mm)
Vent height:	3-4" above chimney (76-102mm)

### Stand-Alone Autosampler

Length:	16.5" (420 mm)
Height:	12.5" (317 mm)
Depth:	18" (457 mm)
Weight:	26 lb. (12 kg)

### Argon

Purity:	Industrial grade, 99.995% minimum
Delivery pressure:	80 - 90 psi (560-630kPa)
Consumption:	
Coolant	14 - 20 L/min
Nebulizer	1 L/min
Auxillary	1 L/min
Camera	0.4 L/min
Optics Purge Low:	1 L/min
Optics Purge High:	14 L/min

### Environmental Conditions:

Temperature:	59 – 86°F (15-30°C)
Maximum Temperature Variation:	2°C/h, 10°C/day
Relative Humidity:	20-80% (non-condensing)

### Nitrogen alternative Gas for Optic Purge (required for Halogen Option, optional on Prodigy Non Halogen model)

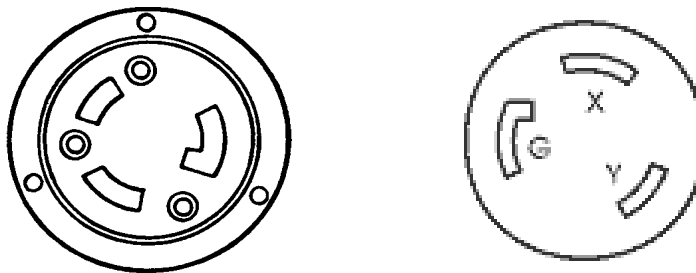
Purity:	Industrial grade, 99.995% minimum
Delivery pressure:	80-90 psi (560-630kPa)
Consumption:	
Camera	0.4 L/min
Optics Purge Low:	1 L/min
Optics Purge High:	14 L/min

# UTILITIES

## ELECTRICAL POWER REQUIREMENTS

The basic ICP spectrometer requires one grounded single-phase power supply rated at 220 Vac (195-245Vac, three wire, single phase, 50/60 Hz, EMI free) input with available demand of 30 amperes for the ICP source. We recommend the power line be protected with a 30A circuit breaker and the circuit breaker located near the spectrometer.

The basic ICP spectrometer is provided with a 9 foot (2.75 meter) long power cord that includes a NEMA L6-30P Twist-lock type plug. The mating outlet receptacle is NEMA L6-30R.



*Figure 2: NEMA L6-30R 30A Three Wire Receptacle and Wiring Connections*

For locations outside of North America where the NEMA L6-30R plug is not common or desired, the L6-30P plug can be replaced with a suitable three connection 30A connector. With reference to Figure 2 above, please note that the following wiring connections are to be used:

- X = Line 1, brown wire
- Y = Line 2 (referred to as Neutral outside the USA), blue wire
- G = Ground, green wire with a yellow strip

**NOTE:** the small black wire is a protective shield and should be connected to Ground (green wire with a yellow strip) at the L6-30P connector)

The Prodigy ICP spectrometer does not normally require an external voltage regulator, however, in certain locations power problems may dictate the use of an external voltage regulator. Before selecting an external voltage regulator contact your local Service Representative or contact Teledyne Leeman Labs Customer Support Department.

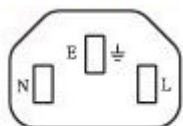
Avoid placement of the ICP on the same transformer line with other equipment (graphite furnace AA or electrical melt furnaces) that draw significant current. This may cause power fluctuations that will adversely affect the instrument data.



Additional outlets required: 4 additional power outlets are required for the computer, monitor, printer and water recirculator. These items can be powered by 115V, 15A, 60 Hz, or 220V, 10A, 50 Hz.



The computer, monitor and water recirculator are provided with a 7.5 foot (2.29 meters) power cord with a NEMA 5-15P connector and an IEC 320 C13 connector as shown in the photo on the left. The printer is provided with a 2 non polarized prong connector.



IEC 320 C13

For locations outside of North America where this NEMA 5-15P connector is not common or desired, the power cord can be replaced locally or the male connector could be replaced with a suitable more common connector. Please note the wiring connections to the left.

- Where N = Neutral, Blue wire
- E = Earth ground, Green wire with yellow strip
- L = Line, Brown wire

**NOTE:** Clean incoming power for the spectrometer is very important. If line voltage sags, spikes, or brown spots have been experienced in the past, or, if you are uncertain that the quality of the incoming power may not meet our requirements, please notify your local Service Representative or the Teledyne Leeman Labs Customer Support Department for assistance.

### **GROUNDING REQUIREMENTS**

In accordance with the U.S. National Electrical Code, the power line ground is connected to the spectrometer frame to prevent possible electrical shocks to operating personnel.

Grounding is necessary for the spectrometer unit. The safety/logic ground (green wire or green with yellow strip) of the power system is an acceptable ground for the spectrometer/computer system, provided the green wire (or green with yellow strip) is **not** terminated anywhere into the main power line or into questionably grounded media.

The ground (green) wire should be a non-current carrying equipment ground.

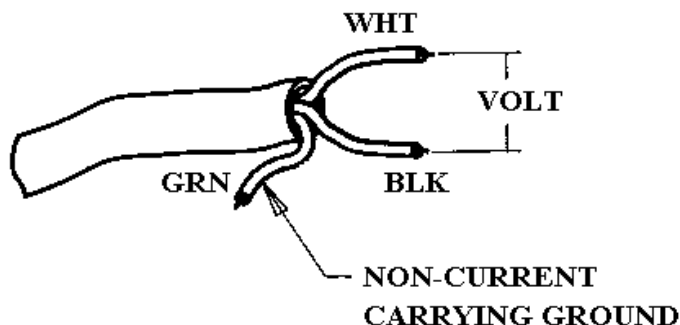


Figure 3: Power Cable

## **ARGON GAS REQUIREMENTS**

Argon of 99.995 percent purity (industrial grade) or better is required. Use either gaseous or liquid argon (liquid is more economical for large sample loads). Argon is an inert gas and not toxic. However, always follow the safety information provided by your gas supplier.

Delivery pressure to the ICP must be regulated, using a dual stage regulator, to a maximum of 90 psi (7 bar) and a minimum of 80 psi (6 bar). The use of a dual stage regulator will prevent input pressure sag when the instrument is in full operation.

For argon supplies close to the instrument, 10 ft (3m) of plastic clad aluminum tubing or copper tubing, terminating in a 1/4" NPT male fitting is provided. Do not use plastic tubing to feed argon gas to instrument, plastic tubing can cause contamination of the optics and camera. If remote location of argon requires longer tubing it can be ordered from Teledyne Leeman Labs.

## **ARGON GAS CYLINDERS**

A multiple cylinder manifold is a convenient way to avoid constant cylinder changes. A manifold should hold at least four 300 ft<sup>3</sup> (8500L) size high pressure cylinders. From the gas usage values below, your gas supplier can recommend the best manifold design for your needs.

Use a regulator capable of delivering from 80 psi (6 bar) to a maximum of 95 psi (8 bar) at consumption rate of maximum 30L/min

Attach retaining straps to all argon cylinders and exercise care in handling all compressed gas cylinders.

## **ARGON USAGE**

### **Usage of Argon:**

As of March 1, 2010, all new Prodigy/Prodigy XP ICP spectrometers are equipped with the ability to purge the optics and camera with either Nitrogen or Argon gas.

Coolant ~ 14-20 L/min  
Nebulizer ~ 1.0 L/min  
Auxiliary ~ 2.0 L/min

### **Argon for Optics Purge:**

Fast ~ 14 L/min  
Slow ~ 1.0 L/min (normal operating rate)

### **Argon for Camera Purge:**

Camera ~ 0.4 L/min (continuous 24hours a day)  
Delivery Pressure ~ to a minimum of 80 psi and a maximum of 90 psi (560-630 kpa)

## **NITROGEN GAS REQUIREMENTS**

A Nitrogen gas supply is required for the Prodigy-H (halogen) model instrument. The Nitrogen gas purity should be 99.995 or better. The input pressure will be 80 - 90 psi (560-630 kpa) and have a usage of less than 2 L/min.

Nitrogen of 99.995 percent purity (industrial grade) or better is required. Use either gaseous or liquid nitrogen (liquid is more economical for large sample loads). Nitrogen is an inert gas and not toxic. However, always follow the safety information provided by your gas supplier.

Delivery pressure to the ICP must be regulated, using a dual stage regulator, to a minimum of 80 psi and a maximum of 90 psi (560-630 kpa). The use of a dual stage regulator will prevent input pressure sag when the instrument is in full operation.

For Nitrogen supplies close to the instrument, use plastic clad aluminum tubing or copper tubing, terminating in a 1/4" NPT male fitting. Do not use plastic tubing to feed argon gas to instrument, plastic tubing can cause contamination of the optics and camera. If remote location of nitrogen requires longer tubing it can be ordered from Teledyne Leeman Labs.

## **NITROGEN GAS CYLINDERS**

A multiple cylinder manifold is a convenient way to avoid constant cylinder changes. A manifold should hold at least four 300 ft<sup>3</sup> (8500L) size high pressure cylinders. From the gas usage values below, your gas supplier can recommend the best manifold design for your needs.

Use a regulator capable of delivering to a minimum of 80 psi and a maximum of 90 psi (560-630 kpa).

Attach retaining straps to all Nitrogen cylinders and exercise care in handling all compressed gas cylinders.

## **NITROGEN USAGE**

### **Usage of Nitrogen:**

As of March 1, 2010, all new Prodigy/Prodigy XP ICP spectrometers are equipped with the ability to purge the optics and camera with either Nitrogen or Argon gas.

### **Nitrogen for Optics Purge:**

Fast ~ 14 L/min  
Slow ~ 1.0 L/min

### **Nitrogen for Camera Purge:**

Camera ~ 0.4 L/min (continuous - 24hours a day)  
Purged optical tube (3.4 L/min - only when plasma is on)  
Delivery Pressure ~ to a minimum of 80 psi and a maximum of 90 psi (560-630 kpa)

## **OPERATING ENVIRONMENT**

Place the instrument in a structurally sound work area, free from dust, vibration and corrosive vapor with sufficient space to accommodate the spectrometer and its accessories. Dimensions and weight for the Prodigy are shown in figure 1 on page 5.

The Prodigy is designed for operation at ambient temperatures between 15°C (60°F) - 30°C (86°F) and relative humidity between 20 – 80% (non-condensing). Be sure to place the spectrometer where it will not be exposed to direct sunlight or direct airflow (hot or cold).

## **TEMPERATURE VARIATION**

The temperature rate of change in the laboratory should be limited to 2°C (3.6°F) per hour, with a maximum daily change 10°C (18°F). This temperature variation range allows for the most stable operation of the instrument. Avoid air drafts and air conditioning ducts. Greater temperature variations will affect instrument stability. Protection (such as blinds) from direct sunlight via windows is recommended.

Other causes of temperature shifts may include heat adjustments to the laboratory from morning to night, increase in room temperature due to direct sunlight, automatic air conditioner adjustments, and insufficient temperature control for instrument loading.

## **RELATIVE HUMIDITY**

Humidity plus heat plays a major role in operating stability. Humidity may vary between 20 and 80%, but must be a non-condensing environment. The laboratory humidity range should be monitored to determine if additional climate controls to prevent condensation on the oscillator coil are required.

**NOTE:** Condensation on the oscillator coil can cause arcing and possible damage to the spectrometer.

## **HEAT GENERATION and COOLING**

The more closely the temperature and humidity of the laboratory are controlled, the more stable your analytical measurements will be.

The plasma, ICP source, spectrometer electronics, and recirculating pump, generate heat. Below are estimates of the heat produced which will require removal during normal operation. These numbers are for 2 KW operation. At 1 KW total BTU output is about 2/3 of that at 2 KW.

**Heat Produced:**

ICP Source w/Power Supply	14,700 BTU/hour	(4.3kW)
Spectrometer Electronics	1,500 BTU/hour	(0.44 kW)
Water Recirculator	2,000 BTU/hour	(0.58kW)
<hr/>		
Total heat generated	18,200 BTU/hour	(5.27kW)

**Heat Removed**

Water Cooling	6,500 BTU/hour	(1.9 kW)
ICP Source Ventilation (100 ft <sup>3</sup> /min)	6,500 BTU/hour	(1.9 kW)
<hr/>		
Total heat removed	13,000 BTU/hour	(3.8 kW)

**Net to be removed by air conditioning**

With remote water recirculation	5,200 BTU/hour	(1.5 kW)
With water recirculation in the same room	11,700 BTU/hour	(3.4 kW)

NOTE: It is important that all parts of the spectrometer are ventilated properly.

**EXHAUST VENTING**

Installation of a 6-8" (150-200 mm) stainless steel or corrosion resistant flexible exhaust above the instrument chimney is required for proper ventilation. The exhaust opening must be 6-8" in diameter and reside 31.5-32.5" above the laboratory bench top (3-4" above the instrument's chimney). Refer to Figure 4 below.

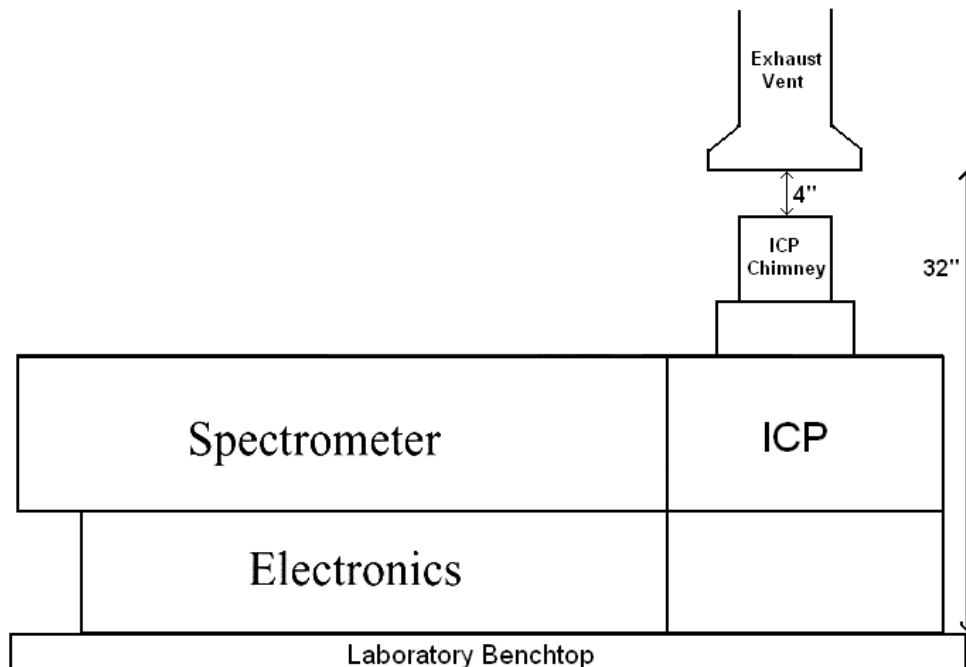
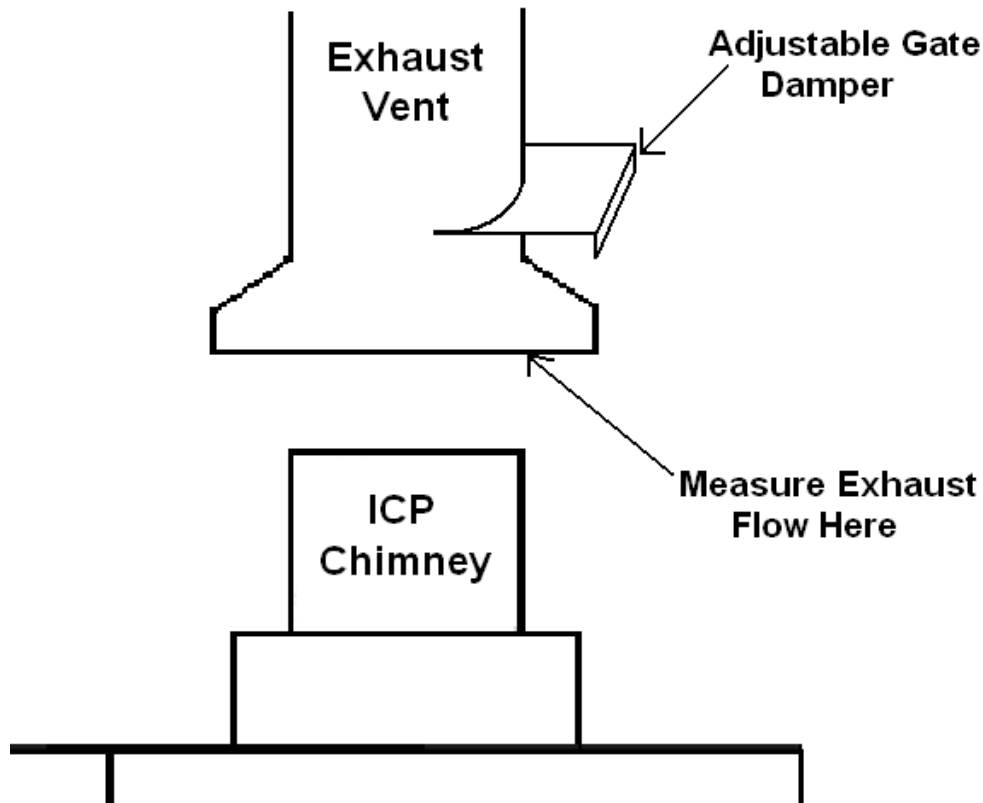


Figure 4: Schematic of Exhaust Placement

The extraction flow rate must be 100 ft<sup>3</sup>/min (2.83 m<sup>3</sup>/min) when measured in the center of the extraction opening. The extraction flow rate must be adjustable near the opening to allow the proper flow rate to be achieved during installation. This flow rate can be made adjustable with the installation of a butterfly valve, adjustable gate, or other similar devices (refer to Figure 5 below).

**NOTE:** The specifications required for a proper exhaust setup vary depending upon the layout of the exhaust plumbing and the length and diameter of the pipes used to plumb the exhaust system. Consult a qualified extraction specialist if there are questions or concerns about achieving the correct flow at the opening of the exhaust vent.



*Figure 5: Schematic of Exhaust Vent with Adjustable Draw*

Do not put elbow coupling above the chimney as output temperature of exhaust gas may reach more than 80°C. Do not attach the exhaust directly onto the spectrometer chimney; this will cause the plasma to become unstable. If other instruments share the same exhaust, the ICP exhaust source must meet the minimum requirement when all instruments are in operation.

## **OSCILLATOR COOLING WATER SUPPLY**

The quality of water used for cooling the ICP power tube and load coil is critical for trouble-free operation of the spectrometer. Instrument performance and reliability will be directly affected by the electrical conductivity of the water. Conductive water (<5000 ohm-cm) causes excessive current flow through the water, which reduces the power transfer to the plasma. The ideal source of cooling water is distilled water.

The temperature of the cooling water should be near room temperature. If the cooling water temperature is significantly below ambient and the relative humidity is high, condensation will occur on the cooling coils within the oscillator.

## **COOLING SYSTEM**

The use of a closed-loop system, such as a recirculator or chiller, is highly recommended. Closed-loop systems consistently provide cleaner, more thermally stable operation and far fewer problems than tap water. Cooling the oscillator with tap water is not recommended.

The resistance of the water used should not be less than 5000 ohm/cm. The minimum required delivery pressure is 30 psi (1.9 bar) at 2 liter/min. (0.5 gallons/min.). Maximum pressure is 50 psi (3.1 bar). This flow rate and pressure must be maintained at the instrument, or the flow sensor (switch) interlocks will activate, shutting down the ICP spectrometer.

## **WATER RE-CIRCULATORS VERSUS CHILLERS**

Both non-refrigerating re-circulators and chillers will function well as closed-loop cooling systems for the oscillator. There are two notes of caution when using either of these systems.

1. The BTU capacity of the system must be matched to the load of the oscillator (6,500 BTU/hour), (1,90kW).
2. If a chiller is used, the temperature set point of the chiller must be above the atmospheric dew point, or condensation will occur within the oscillator possibly resulting in arcing. For this reason, it is recommended that if a chiller is used, the chiller be set at a point slightly higher (approximately 5 °F) than ambient temperature.

Teledyne Leeman Labs can provide various re-circulator and chiller systems. If you have any questions please call 1-800-LEEMANS (533-6267), (603) 886 – 8400 or Email [service@teledyne.com](mailto:service@teledyne.com).

## **WATER RECIRCULATORS OR CHILLER CONNECTIONS AND LOCATION**

Two 10 ft (3 m) flexible tubes are provided with 3/8" female Swagelok fittings at the ICP Source end and 2 3/8" female Swagelok for connection to the recirculator.

Remote placement of the recirculator or chiller is recommended. In this case the inner ID of the water lines must be maintained all the way to the instrument, or pressure drops will occur. If a flow rate of a minimum of 2 liters/minute at 30 psi is not maintained, interlock failure will occur. The chiller should be placed in a non-freezing environment. Additional water line tubing can be ordered from Teledyne Leeman Labs.

## **WASTE DRAIN**

Provide a one gallon (4 liter) unbreakable, container resistant to the matrix of the samples being analyzed, or a free-flowing drain for excess solutions draining out of the ICP. Nalgene supplies a suitable carboy for waste.

Waste solutions from ICP analysis often contain HNO<sub>3</sub> and/or HCl (or other acids), and should be considered hazardous waste requiring disposal according to local regulations. Aqueous and organic materials should not be collected in the same container.

If an open container is used, the top of the container should be covered to minimize acid fumes, which can corrode electronics and computer disk drives. The addition of marble chips to the waste container will help to neutralize the excess acid and reduce the acid vapor risks.

## **STANDARDS**

All ICP spectrometers are comparative measuring systems, meaning that sample readings are compared with the response of known standards to make an analysis. The quality of standards used for calibration is a major determinant on the quality of the resulting sample analysis.

Standards for instrument checkout will be provided by Leeman Labs. After installation is completed you will need single element solutions for alignment of the analytical wavelengths and you will need calibration standards, these are the responsibility of the customer.

Many labs prefer to use standards specially prepared for their applications. These include calibration standards, check standards, QC standards, and blanks. If you would like to purchase standards, or discuss your application, please call our chemists in the Plasma-Pure Standards Laboratory at 1-800-ICPSTDS (427-7837) in the USA or 603-886-8400.

**NOTE:** AA standards are not suitable for use for analytical calibration on an ICP because they may contain significant concentrations of noncertified analytes.



## **CONSUMABLE SUPPLIES**

The instrument is shipped with a supply of pump tubing and printer paper sufficient for installation. Teledyne Leeman Labs offers several types of consumable kits. If you did not purchase a consumable kit with the instrument, you will need to order extra pump tubing, printer paper, torches, etc. Also, for convenience and to minimize downtime, an additional nebulizer, spray chamber, and torch are strongly recommended.

Consumable Parts Kits can be ordered through the Customer Support Department at 1-800-LEEMANS or 603-886-8400, (603) 886-8400. For additional consumable kits please visit the Teledyne Leeman Labs parts website at [www.TeledyneLeemanLabs.com](http://www.TeledyneLeemanLabs.com).

## **TRAINING SEMINARS**

Teledyne Leeman Labs offers extensive customer training programs several times a year, including ICP training seminars. The course is divided between classroom time and laboratory time, where theory, software, routine maintenance and hands-on operation are covered in detail. Teledyne Leeman Labs strongly recommends that at least one operator attend the training course, since it will prepare the attendee to operate the spectrometer more efficiently, obtain better analysis results, and avoid problems that can be incurred due to the user's unfamiliarity with the instrument. However, your operator should work with the new instrument for at least one month prior to attending a training course. For more information, or to enroll in a training course, please contact us at:

**Phone: (603) 886-8400**

# PRE-INSTALLATION COMPLETION FORM

This form ensures that you have satisfied all pre-installation requirements. Installation of your Teledyne Leeman Labs ICP spectrometer cannot be scheduled until this form has been completed and returned.

Failure to meet one or more of the pre-installation requirements may prevent your instrument from operating properly. During installation, if an installation engineer determines that one or more of the pre-installation requirements have not be met, the engineer reserves the right to delay installation until all requirements are satisfactorily met. Any time lost during installation, caused by failure to meet the pre-installation requirements, will be billed to your account. If you have any questions regarding these requirements, please contact the Teledyne Leeman Labs Customer Support Department at:

United States Customers (800) 533-6267 or Fax (603) 886 4322  
International Customers (603) 886-8400 or Fax (603) 886 4322

Please complete the form below as each requirement is met, sign your name and date each box. Mail, fax or email the completed form to:

Teledyne Leeman Labs  
Customer Support Department  
6 Wentworth Drive  
Hudson, NH 03051  
FAX (603) 886 - 4322  
Email : service@teledyne.com

**NOTE:** The installation of the ICP spectrometer will not be scheduled until the Pre-installation Completion Report has been completed and either FAXED or mailed to Teledyne Leeman Labs.

Operator's Name: \_\_\_\_\_  
(PLEASE PRINT)

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip \_\_\_\_\_

Telephone No.: \_\_\_\_\_ Extension: \_\_\_\_\_

Fax No.: \_\_\_\_\_

Email: \_\_\_\_\_

ITEM	OPERATOR'S SIGNATURE	DATE
<b>Electrical Power</b>		
One grounded single-phase power supply, 195-245V, 30A Circuit Breaker, 50/60 Hz		
Two 115V, 15A, 60 Hz (North America) or 220V, 10A, 50 Hz (Europe) double plug outlet for the computer and printer		
<b>ICP Exhaust</b>		
Exhaust placement 31.5-32.5" (788-826mm) above benchtop with 6-8" (150-203mm) diameter.		
<b>Water Cooling Source</b>		
115 or 220V, 15A line required for recirculator or chiller.		
115 or 220V, 15A line required for Camera chiller		
<b>Argon Supply - either compressed gas cylinders or liquid argon:</b>		
Cylinder Connections		
Cylinder Manifold Type: _____		
Regulator Type: _____		

ITEM	OPERATOR'S SIGNATURE	DATE
<b>Liquid Argon Tanks</b>		
Regulator Type: _____		
<b>Nitrogen gas supply</b>		
Regulator Type: _____		
<b>Waste Drain:</b>		
A one gallon (minimum Capacity) container meeting OSHA and/or any other regulations		

Environmental conditions that may affect the performance; please indicate if any exist at the installation site.

- Will the instrument be in direct sunlight?      Yes     No
- Will the instrument be near heat vents?            Yes     No
- Will the instrument be near air conditioning vents?    Yes     No
- Is there a direct source of dust?                    Yes     No
- Is there potential for condensation?                Yes     No
- Will the lab bench for the ICP be on a rug?        Yes     No

Your signature below indicates that all site requirements listed on the previous pages have been met.

Operator's Signature : \_\_\_\_\_ Date: \_\_\_\_\_

Install # \_\_\_\_\_

# READER'S COMMENT FORM

Guide Title: Prodigy/Prodigy XP ICP Spectrometer Pre-installation Guide

Part Number: 150-00233

Please use this form to communicate your views about this manual.

Please rate this Pre-installation guide:

	Excellent	Good	Fair	Poor
Clarity	_____	_____	_____	_____
Completeness	_____	_____	_____	_____
Ease of Use	_____	_____	_____	_____
Illustrations	_____	_____	_____	_____
Organization	_____	_____	_____	_____

If you have found errors in this installation guide, please list them with their appropriate page numbers:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Please provide us with the following information:

Your Name: \_\_\_\_\_

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Please FAX your comments to us at (603) 886-4322. Thank you for your assistance.