

Ultraviolet Lighting

About Long-Wave Ultraviolet Light
Also called U-V or black light, long-wave ultraviolet light is used for black lightening, magnetic particle and dye penetrant non-destructive testing and for curing photoresist and photocopying. Ultraviolet light is produced by mercury vapor lamps and fluorescent lamps.

High-Intensity Spot-Beam UV Lights
These lights have a powerful spot beam of UV light that can be used for a wide variety of applications. They are available in 100-watt and 200-watt models. The 100-watt model is ideal for use in confined spaces, while the 200-watt model is better suited for larger areas. Both models feature a built-in handle and a carrying case.

Rechargeable Broad-Beam UV Light
This light is ideal for use in confined spaces. It has a built-in handle and a carrying case. The light is rechargeable and can be used for up to 10 hours on a single charge.

Broad-Beam UV Lights
These lights have a powerful broad beam of UV light that can be used for a wide variety of applications. They are available in 100-watt and 200-watt models. The 100-watt model is ideal for use in confined spaces, while the 200-watt model is better suited for larger areas. Both models feature a built-in handle and a carrying case.

Retractable-Cord UV Lights
These lights have a powerful retractable cord that can be used for a wide variety of applications. They are available in 100-watt and 200-watt models. The 100-watt model is ideal for use in confined spaces, while the 200-watt model is better suited for larger areas. Both models feature a built-in handle and a carrying case.

UV Magnifying Lights
These lights have a powerful magnifying lens that can be used for a wide variety of applications. They are available in 100-watt and 200-watt models. The 100-watt model is ideal for use in confined spaces, while the 200-watt model is better suited for larger areas. Both models feature a built-in handle and a carrying case.

UV Detection Powder
This powder is used for detecting leaks in pipes and other applications. It is available in 100-watt and 200-watt models. The 100-watt model is ideal for use in confined spaces, while the 200-watt model is better suited for larger areas. Both models feature a built-in handle and a carrying case.

Magnetic-Powder Dispenser
This dispenser is used for dispensing magnetic powder. It is available in 100-watt and 200-watt models. The 100-watt model is ideal for use in confined spaces, while the 200-watt model is better suited for larger areas. Both models feature a built-in handle and a carrying case.

McMaster-Carr Online Catalog

The best way to describe McMaster is to say that they carry everything you need to build anything. Items that you could normally only order through factory distributors, or materials that could only be ordered in large quantities, are easily available in any size and quantity, no matter how small. (No minimum order, either!) Their prices are excellent and they tend to only carry good merchandise. Amazingly, when I order stuff at 5:30 P.M., it arrives the next morning with their normal shipping. Their catalog has long been difficult to get because you had to be a reasonably sized business with a Dun and Bradstreet number and established credit to have them mail it to you. But now that they have added an online service, everyone can easily order from them with a credit card.

—Alexander Rose

McMaster-Carr Online Catalog
www.mcmaster.com

Two random pages out of the 3,400 page catalog, containing 350,000 items.

eBay, Tinker's Paradise

I don't collect things. But I use eBay all the time to find stuff for building projects. I buy batteries, motors, and remote control gear for my robotic projects. For a flamethrowing project we bought all our Fire Proximity and Entry suits (for walking into fire) on eBay these \$2,000 suits go for a few hundred dollars. I even find a lot of new stuff there. I bought my brand-new generator there for about \$300 less than the cheapest online price. I can get international coded DVDs that can be played on any player, not just ones with the US code on them. I use eBay to buy obscure machine tools. For instance, for one project we bought a Mitutoyo 0-5 foot caliper that measures to .001" for \$250; these normally sell for about \$3,000.

—Alexander Rose

eBay
www.ebay.com

Pocket Ref

People who make things keep one of these little books in their truck, one in their tool box, and one in their office. Its tiny pages are crammed with dense tables, charts, lists, codes, conversion formulas—more than 500 pages of numbers, yet it fits into a real pocket. What is the friction rate of water in a one inch pipe? What's cubic feet per second in liters per minute? The country code for Turkey? The voltage drop of number 12 wire over 100 feet? The shear strength of Eastern White Pine? The insulation value of carpeting? You get the idea; it has the numbers for everything, and 95 percent of them found nowhere else.

—KK

Pocket Ref

Thomas J. Glover
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Sequoia Publishing
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303/ 972-4167
www.pocketref.com



Bent-Nose & Hemostat Pliers

Bent-Nose Pliers
These pliers have a bent nose to reach around obstructions. Made of forged steel with a polished finish, they have serrated jaws and cushion-grip handles.

Oral G. Bend	Jaw Lg.	Tip Thick. (in)	Each
6"	8"	1/8"	8338A28 • \$15.11
6"	8"	1/4"	8338A74 • 17.06
6"	8"	3/8"	8338A78 • 22.18
6"	8"	1/2"	8338A78 • 28.96
11 1/2"	15"	3/8"	8338A83 • 23.25

• Jaws are smooth. • Fits a side cutlet.

Clamping Pliers
These lightweight pliers have a bent nose for reaching around corners and a spring-action handle that clamps jaws down on parts. Just squeeze the handles to open the jaws, release the handles and the jaws snap close. Made of hardened steel, pliers have serrated jaws and cushion-grip handles.

Oral G.	Jaw Lg.	Tip Thick. (in)	Each
3 1/2"	5"	1/8"	8338A41 • 50.10

400 Series Stainless Steel Hemostat Pliers
For delicate work, an eight-ounce, choice three-precision tooth. They have a ratcheted lock in the handle which allows you to vary the clamping pressure. Made of highly polished 400 series stainless steel, pliers have serrated jaws that hold firmly without cutting.

Oral G.	Jaw Lg.	Tip Thick. (in)	No. of Locking Positions	Each
3 1/2"	5"	1/8"	3	8338A11 • 50.20
3 1/2"	5"	1/4"	3	8338A12 • 6.20
3 1/2"	5"	3/8"	3	8338A13 • 1.81
3 1/2"	5"	1/2"	3	8338A14 • 1.81
3 1/2"	5"	3/4"	3	8338A15 • 1.81
3 1/2"	5"	7/8"	3	8338A16 • 1.81
3 1/2"	5"	1"	3	8338A17 • 1.81
3 1/2"	5"	1 1/8"	3	8338A18 • 1.81
3 1/2"	5"	1 1/4"	3	8338A19 • 1.81
3 1/2"	5"	1 1/2"	3	8338A20 • 1.81
3 1/2"	5"	1 3/4"	3	8338A21 • 1.81
3 1/2"	5"	1 7/8"	3	8338A22 • 1.81
3 1/2"	5"	2"	3	8338A23 • 1.81
3 1/2"	5"	2 1/8"	3	8338A24 • 1.81
3 1/2"	5"	2 1/4"	3	8338A25 • 1.81
3 1/2"	5"	2 1/2"	3	8338A26 • 1.81
3 1/2"	5"	2 3/4"	3	8338A27 • 1.81
3 1/2"	5"	2 7/8"	3	8338A28 • 1.81
3 1/2"	5"	3"	3	8338A29 • 1.81
3 1/2"	5"	3 1/8"	3	8338A30 • 1.81
3 1/2"	5"	3 1/4"	3	8338A31 • 1.81
3 1/2"	5"	3 1/2"	3	8338A32 • 1.81
3 1/2"	5"	3 3/4"	3	8338A33 • 1.81
3 1/2"	5"	3 7/8"	3	8338A34 • 1.81
3 1/2"	5"	4"	3	8338A35 • 1.81
3 1/2"	5"	4 1/8"	3	8338A36 • 1.81
3 1/2"	5"	4 1/4"	3	8338A37 • 1.81
3 1/2"	5"	4 1/2"	3	8338A38 • 1.81
3 1/2"	5"	4 3/4"	3	8338A39 • 1.81
3 1/2"	5"	4 7/8"	3	8338A40 • 1.81

Round-Nose Pliers
Also known as jewelers' pliers, these pliers are used to form and long fine wire into loops, beads, points, and curls. Made of forged steel with a polished finish. Handles have carbon grips. Available in standard and insulated models. Standard model has serrated jaws and a polished finish. Insulated model has a polished finish and a built-in safety lock. Complies with IEC 60900 and ANSI Z39.1 standards. Maximum recommended use is 1800 volts.

Oral G. Bend	Jaw Lg.	Tip Thick. (in)	Each
6"	8"	1/8"	8338A81 • \$15.50
6"	8"	1/4"	8338A82 • 15.15
6"	8"	3/8"	8338A83 • 28.11

Precision Micro-Pliers
Use these micro-pliers when precision is a priority and space is limited. Ideal for working under a microscope or in any tight, confined area. Pliers are self-closing. Made of Type 440 stainless steel, they're suitable for working in a clean room or vacuum. Overall length is 5 1/2". Jaw length is 1 1/2".

Oral G.	Jaw Lg.	Tip Thick. (in)	Each
1 1/2"	1 1/2"	1/16"	8338A41 • \$21.70
1 1/2"	1 1/2"	1/8"	8338A42 • 21.70
1 1/2"	1 1/2"	1/4"	8338A43 • 21.70
1 1/2"	1 1/2"	3/8"	8338A44 • 21.70

Screw/Nail Extractor Plier/Wrench
A variety of grooves on the serrated jaws grip fasteners securely, making it easier to remove even the most stubborn screws and nails. Treat powerful, double-lever action and pressure-adjusting screw in the handle lock the jaws with a ratchet grip. An anti-rattle suspension spring into the quick-release lever (indicated by the colored grip) on the lower handle or pull the handles apart. Made of heat-treated steel.

Oral G.	Jaw Capacity	Jaw Lg.	Each
7"	1 1/2"	7 1/2"	8338A45 • \$20.50

WEIR DISCHARGE VOLUMES

Height of water flow H

Head (feet)	SPM for 100 ft. of Weir in Feet	Flow over 100 ft. width
1.5	20	100
2	28	140
2.5	36	180
3	44	220
3.5	52	260
4	60	300
4.5	68	340
5	76	380
5.5	84	420
6	92	460
6.5	100	500
7	108	540
7.5	116	580
8	124	620
8.5	132	660
9	140	700
9.5	148	740
10	156	780

Based on the Francis formula: $Q = 3.33 L W \sqrt{H^3}$ Where H=height in feet, W=width in feet and distance "L" should be at least 2 ft.

Water 421

