

Questions & Answers

1. Who/what is the website www.intl-trade.eu?

This website is the Internet presence of a German company called Rafael Wunsch. It provides importers and retailers with the ability to look up information, order and pay for products, and communicate with Rafael Wunsch. It also provides consumers with information, the ability to order and pay for spare parts or repair services.

2. Who/what is Rafael Wunsch – International Trade?

Rafael Wunsch is a real person (with a background in the Airbrush Industry). The person Rafael Wunsch is the former Director of International Relations for the Badger Air-Brush Co. and knows all points of contact within Badger and is also very familiar with the product line. Rafael Wunsch – International Trade is a company in Germany founded by Rafael Wunsch in 2007 (see Imprint). The company is independent of the Badger Air-Brush Co. but can be viewed as Badger's European Center. The intent of the company Rafael Wunsch is to provide information, easy and fast access to Badger products and repair services for importers and retailers on the other side of the globe (Europe & Middle East).

3. Who/what is the Badger Air-Brush Co.

The Badger Air-Brush Co. is the largest manufacturer of airbrushes in the world. The company is a family-owned business and only manufactures airbrushes. The company is located in Franklin Park, Illinois (next to Chicago) and employs approx. 70 employees. Initially the company founder manufactured screw-machine parts for another airbrush company and made some suggestions for improvements. That other airbrush company felt that a screw-machine business did not know about airbrushes and decided to ignore the suggestions. The company founder proceeded to establish the Badger Air-Brush Co. in the 1960s and manufactured his own airbrush. Very quickly this superior product became a sought after item in the market place. Within a relatively short period of time Badger became the largest airbrush manufacturer in the world. The company ships products directly to over 60 countries.

4. Who or what is the Sotar Airbrush Co.?

The Sotar Airbrush Co. Is an informal subsidiary of the Badger Air-Brush Co. This subsidiary was formed in the mid 90s for the purpose of developing a high-end airbrush named Sotar.

5. Who/what is Thayer & Chandler

Thayer & Chandler is an airbrush company that was acquired by the Badger Air-Brush Co. in the mid 1990s. The Thayer & Chandler products are made using the same machinery and quality control standards as with Badger Air-Brush products.

6. What is an airbrush?

It is a miniaturized paint spray gun that sprays paint in a controllable manner using compressed air. Also read the document called Fundamental Airbrush Information.

7. Why should I get a Badger or Thayer & Chandler Air-Brush? I saw an offer at a discount store for a similar “no-name” item for a lot less money...

The short answer: reliability, precision, quality!

If the intent is to use the airbrush only once or twice, the item from the discount store might be sufficient. The problems arise when the airbrush does not spray properly or accessories or spare parts are needed. Within the warranty period an airbrush can generally be returned, even at a discount store. Eventually a

different (longer/shorter or replacement) air hose, a replacement needle, nozzle, or seal, or other items might be required. What is the thread size of the hose connector on the airbrush? Where do you find a hose that fits on this “no-name” airbrush? Are such hoses even available? What if a spare part is needed, are they available? Discount stores generally do not carry spare parts or accessories. The result is that you will need to throw away the initial airbrush and purchase another from the discount store. The Badger Air-Brush Co. has been manufacturing airbrushes since the late 1960s. Badger makes available every part for every airbrush ever made. In cases where this is not feasible or economical Badger offers replacement parts or conversion kits. Occasionally even 1960s airbrushes arrive for service and customers are always surprised to get their item serviced/repaired. Try that at a discount store...

8. What can I do with an airbrush?

An airbrush is suitable to apply thin liquids (e.g. paint) to all sorts of surfaces. That means one can decorate or modify all sorts of items with an airbrush.

A few examples are:

- Custom color decoration of appliances or other devices/items (coffee makers, vacuum cleaners, toilet lids, computer cases, skis, surf boards, cellular phones, etc.)
- Painting of ship/aviation/car/motorcycle models
- Custom painting of real cars, motorcycles, trucks, etc.
- Touch-up/repair of minor damage of the paint (spot repair) on real cars, motorcycles, boats, airplanes, etc.
- Applying food coloring to cookies, cakes, pastries, etc.
- Weathering of models (e.g. rust and mud on model railway cars).
- Weathering of model buildings (e.g. soot on a chimney)
- Applying body paint on people (Body-Painting, temporary Tattoos)
- Applying liquid make-up on actors
- Applying liquid make-up for carnivals, Halloween, weddings, etc.
- Finger nail design
- Applying tanning solution
- Taxidermy – applying paint to obtain a natural „live“ look
- Applying paint to ceramics/pottery and applying glazes
- Painting/designing T-Shirts and other fabrics
- Painting/designing walls
- Illustrations
- Touch-up on pictures or photographs

Also read the document called Fundamental Airbrush Information.

9. Why should I use an airbrush instead of a regular paint brush?

The short answer: appearance, detail & precision

A regular paint brush serves its purpose and many airbrushers often use both (airbrush & paint brush). For some applications a paint brush is better suited for other applications it is the airbrush. Nobody would ever really want to paint a real car with a paint brush or a roller. The coating would not be even and streaks would be visible. A paint brush also often causes too thick of a coating. On small detailed items the detail is often lost/covered up by a thick coat of paint. If one looks at a typical model railway car or a model airplane, many rivets, screws, seams, grooves, etc. are visible. If that railway car or airplane is painted using a paint brush most details will be covered up by the thicker coat of paint. In addition one will be able to see brush strokes in the paint coating.

An airbrush provides for a very thin and even coating of paint, without drowning details in the paint. The paint coating looks like it does in real life. There are no brush strokes visible on a real vehicle because they are painted using spray guns. Why shouldn't the same technique be used on models? The goal of modeling is to recreate reality as accurate as possible. Also read the document called Fundamental Airbrush Information.

10. Can lacquers and other harsh materials be sprayed through an airbrush?

Yes, all Badger Airbrushes use a Teflon needle bearing and either a Teflon head seal or a self sealing tip design. Teflon is resilient to just about any substance. For that reason many automotive shops use

Badger airbrushes for spot or touch-up repair. What's good enough for commercial use ought to be good enough for model builders or other uses. See the answer below for more information.

11. What can I spray through an airbrush?

Any liquid material with a consistency approximating butter milk can be sprayed through our airbrushes. This includes automotive lacquers, solvent based paints, water color, varnishes, acrylics, food coloring, liquid make-up, body paint, etc.

12. Are water-based acrylic paints difficult to use? Some folks seem to prefer solvent-based paints.

No, using water-based acrylics is not difficult and since those paints are non-toxic (no solvents) they are better for your health. Using water-based acrylics is a little bit different from using the "old" solvent-based paints but not difficult. In the beginning of these paints not too many specific colors were available but this has changed over the years. In addition, users are always reluctant to change when something new comes along. Many specific colors are being manufactured and with heightened consciousness for health and the environment more and more users switch to water-based acrylics.

13. What is the minimum air pressure required?

That depends on the liquid/paint being sprayed and on the type of airbrush being used. With properly thinned paints, gravity feed airbrushes can be operated starting from around 0.5bars, siphon feed airbrushes are generally operated starting just under 1 bar. The average user will operate an airbrush somewhere between 1 and 2 bars.

14. What is the minimum air volume required?

That depends on the airbrush being used. Most Badger airbrushes will work with a volume of approx. 7 Liter/min. at 2.0 bar.

15. Can I use a regular shop or commercial compressor with an airbrush?

Yes, any compressor with a ¼ inch pipe-thread connector, that can be regulated down to the required/desired pressure of 1 to 2 bars can be used. True airbrush compressors are quieter than shop compressors, which makes them suitable for use inside an apartment.

16. What are the Badger/Thayer & Chandler nozzle sizes?

Badger Size Designation	F	M	L (H)
Thayer & Chandler Size Designation	1	3	5
Model 100/150/200(old)	0.26mm	0.53mm	0.77mm
Model 200-20 Detail	-	0.53mm	-
Model 155/360/3155, 200NH	0.52mm	0.77mm	-
Model 175 Crescendo	0.52mm	0.77mm	1.00mm
Sotar	0.20mm	0.45mm	0.70mm

17. Why does Badger/Thayer & Chandler not offer a 0.2mm or smaller nozzle?

Such a statement is not truly correct. Badger manufactures the Sotar airbrush (see question 4) with a nozzle size of 0.2mm. This tool was developed for the graphic artist or illustrator interested in the finest detail possible. The nozzle size starts at 0.18mm (see table in Question 16).

Nozzle sizes of 0.2mm or less are generally only used with inks or similar paints. Most other paints can have a tendency to clog with a nozzle size of less than 0.2mm. Inks or other similar paints are generally only used by graphic artists or illustrators. For that reason over 90% of the users will not have a use for the smallest nozzle sizes. In certain respects it is a fallacy to think the smallest nozzle will create the finest lines or detail. Other factors are more important when it comes to fine lines (type of paint, thinning, air pressure, etc.) and in many cases masking tape will be used. For that reason the smallest spray width is not that important. Also read the document called Fundamental Airbrush Information

18. What must I pay attention to when using airbrushes?

Proper air pressure, proper thinning of paints, cleanliness, and ventilation. The paint must be clean, the surface to be painted must be clean, and the airbrush itself must be clean. It is very important not to let paint settle inside the airbrush. Once paint dries up inside the airbrush you can experience clogs or irregular spray. Cleaning dried up paint out of an airbrush can be rather difficult and time consuming. It is highly advisable never to let paint dry by spraying cleaner, water or thinner (depending on the paint used) through the airbrush immediately after spraying a color. Also be cautious and only spray in well ventilated areas. The spray mist should not be breathed in by humans or animals.

19. How do I properly clean my airbrush?

It is highly advisable never to let paint dry by spraying cleaner, water, or thinner (depending on the paint used) through the airbrush immediately after spraying a color. With a gravity feed airbrush, pour out the paint and fill cleaner in the paint cup, then spray the cleaner until no more paint appears. With a siphon feed airbrush, remove the color jar and attach a different jar filled with cleaner. Spray the cleaner until no more paint comes out. Sometimes one might have to "backflush" the airbrush. This technique requires for a paper towel to be pressed against the spray regulator and spraying cleaner through the airbrush. Since the spray regulator is closed off with the paper towel, the cleaner will be forced back through the airbrush into the color cup. If it is done properly, air bubbles will appear in the paint cup or jar. If paint has already dried, soak the parts in the proper paint cleaner/thinner for a while and then try to remove the paint. Tooth picks and little cleaning brushes (for cleaning teeth) are excellent tools for this purpose. In some cases an ultrasonic cleaning bath might be required. Make sure the valve never comes in contact with harsh cleaners or solvents. See Question 23c.

20. Why does my Airbrush clog frequently?

Frequent clogging is **not** normal. Check and adjust the following: the nozzle size is too small or the paint is not thinned enough...(see question 11 and 17).

Most paints are made with ground pigments (longer grinding time = finer pigments = higher price). Pigments are small particles of different materials which are then mixed with a carrier liquid. This can be observed when paint sits for a few days. The pigments will settle similar to mud on the bottom of the paint bottle. If the nozzle does not have the appropriate/sufficient size clogging will occur. Pigments are of course much smaller than the nozzle opening and should always be able to pass through but...! In order to illustrate this one only has to imagine a funnel with an opening just large enough for a marble to fit through. If the funnel is filled to the top with marbles of all the same size, only a few will fall through and the rest will create a blockage.

With paint there is also the effect of drying. When the nozzle is not large enough for new liquid to follow the passing air will dry up the paint. The result is frustration because one cleans more often than one is able to spray.

21. Why do air bubbles appear in the color cup or jar?

There could be a clogged head, a cracked nozzle, a defective head seal, or a defective needle bearing. Some of the air going through the airbrush is being diverted back into the paint passages. Unscrew and clean the spray regulator, unscrew and clean the nozzle and head (especially the seating area and the tip opening), inspect the nozzle for damage (hairline fractures). If the airbrush is equipped with a head seal, inspect the seating area and the head seal (often times the seal wasn't re-installed during the last cleaning). Remove and inspect the needle. Paint should only be visible on the front of the needle (from the very tip back to the area where the needle bearing would sit). If the needle shows paint residue further back, the needle bearing needs replacement.

22. Why do I have paint appearing around the head? There seems to be a leak...

Apparently the nozzle or head is not sealing properly against the airbrush body. Check that the spray regulator and head are tightened finger-tight against the airbrush body. If that does not solve the problem, unscrew and clean the spray regulator, unscrew and clean the nozzle and head (especially the seating area and the tip opening), inspect the nozzle for damage (hairline fractures). If the airbrush is equipped with a head seal, inspect the seating area and the head seal (often times the seal wasn't re-installed during the last cleaning). Sometimes the head seal is damaged/worn (which may or may not be visible) and needs to be replaced. If the airbrush is equipped with a drop-in tip it will not have a head seal. In that case inspect and clean the seating area. Reassemble the airbrush and continue spraying.

23. Why does the airbrush suddenly stop working? When I depress the trigger nothing comes out...

- a. If your air source is working (between 1 and 2 bar), you have a clog somewhere or your paint is too thick (see question 11). If the paint and air source are OK, either the head area, the air valve of the airbrush, or the hose is clogged.
- b. If no air comes out of the front of the airbrush, remove the head and depress the trigger briefly. If air flow is noticed, check your head/spray regulator/nozzle for clogging (and clean). If still no air flow is noticeable, turn off the air source, then unscrew the air hose from the airbrush. Briefly turn on the air source, if air comes out of the hose you seem to have a clog in your air valve.
- c. An air valve can clog if paint has gotten into it (which shouldn't happen but can due to carelessness or a worn needle bearing), it can also happen if solvent based paint or solvent-based cleaner has gotten into the valve. The O-Ring inside the valve swells up and despite depressing the trigger there is not enough room for air to pass through. Unscrew the valve (see Question 33). Screw the valve by itself onto the air hose and turn on the air source. If air flow is noticeable when depressing the valve pin your clog is inside the airbrush. Turn off the air source, remove the valve from the hose, inspect and clean the airbrush. If no air flow is noticeable your valve is clogged due to a swollen O-Ring or paint inside the valve. See Question 33.

24. Why is the airbrush spattering or pulsating? There is no continuous and uniform spray of paint...

This can occur if an unsuitable compressor is being used. If the RPMs (speed of compressor) is insufficient. This can also occur if the tip has a hairline fracture, the tip is not seated and sealing properly, the spray regulator is clogged, the head is not sealing properly, or if the needle bearing is defective. See Questions 20, 21, and 22.

25. Why does the airbrush "shoot" dirt/oil/water at my art work?

If the paint in the color cup or paint jar is not contaminated the culprit is usually the air source. Air almost always contains humidity and microscopic dust particles. When a compressor compresses the air, water droplets form and are transported into the air hose. From there the water droplets (and/or dust) are transported into the airbrush, from there this contamination is pushed out of the airbrush and "shot" at the art work. Another source of contamination can be the oil of a piston compressor. Very small amounts get from the compressor into the air hose and are then pushed up into the airbrush through the air hose. You can install a water/moisture/oil trap where the air hose connects to the compressor (or a cheaper in-line moisture trap into the air hose) to prevent the contamination reaching your airbrush.

26. Why is the spray pattern "off center"?

The needle guides the paint droplets to an imaginary central point just in front of the airbrush. If that needle is deformed, the spray will be guided somewhere other than this central point. Take a magnifying glass and inspect the very tip of the needle (the needle can be in or out of the airbrush). If there is the slightest bend or even a hook on the tip of the needle you should install a new needle. If the deformation is not too strong you might be able to fix the needle as follows: remove the needle, use your fingernails to straighten the very tip of the needle, then roll the needle at an angle on a hard surface. Install the needle and test.

27. Why does paint come out as soon as I depress the trigger, without pulling the needle back on my double-action airbrush? What about the same symptom on a single action airbrush?

On a double-action airbrush: Your needle is not seated properly. When the trigger is "full forward" the needle should completely seal the nozzle and only air should come out when depressing the trigger. On some models there is a needle set screw just in front of the trigger. Make sure the needle set screw is screwed out until it no longer touches the trigger. If that is not the case, loosen the needle chuck and gently push the needle forward until it stops. Re-tighten the needle chuck.

On a single-action airbrush: this type of airbrush is designed this way. The needle is adjusted with a screw-mechanism on the back of the airbrush. Once the needle is providing the desired spray width paint comes out as soon as the trigger is depressed. See the document on comparison of different airbrush types.

28. Why do I get paint spatter at the very start and/or very end of a stroke with the airbrush?

When first depressing the trigger or when releasing the trigger any airbrush (and even large spray guns) can potentially spit a bit. That is why you depress the trigger when your stroke (arm or hand movement) has already started, prior to pointing the airbrush at your model, once the spray comes out you start moving toward the surface to be painted. You continue your stroke beyond the area to be painted, then you release the trigger, then you stop your stroke.

On double-action airbrushes ensure to only depress the trigger, once it is depressed you gently pull back on the trigger to "turn on" the paint flow. If the trigger is first pulled back and then depressed your airbrush will spit.

29. Where can I get spare parts or complete airbrushes?

Any good model, hobby, or art supply store will either carry airbrushes or be able to obtain them for you on short notice. Also, there are numerous mail-order vendors on the Internet.

30. How can the head seal be changed?

Airbrushes with screw-in nozzles have a head seal made from Teflon. This seal is a small white and round disk with a hole in the middle. It seals the head and prevents paint from leaking out between the head and the airbrush body. This seal can be removed by simply unscrewing the head from the airbrush.

31. How can a screw-in tip be removed/changed?

Loosen the needle chuck and pull the needle back a little bit. Unscrew the spray regulator and unscrew the head. Make sure not to lose or drop the white Teflon head seal. Insert the 3-cornered reamer from the back into the nozzle (as if it were an airbrush needle). Gently press the 3-cornered reamer into the head and unscrew the nozzle (turn the head, not the reamer or the nozzle). Caution – the nozzle is made from relatively soft material (nickel-silver), if the 3-cornered reamer is pressed in too hard the tip can crack or develop a hairline fracture. Installation of a nozzle is done in reverse order with a few additional steps. First the threads of the new nozzle must have a very small amount of bees wax applied (the outside only!). The 3 cornered reamer is inserted into the head, the nozzle is put on to the 3-cornered reamer, the head is screwed onto the nozzle (do not turn the nozzle or the reamer). Now the tip is heated up briefly with a lighter. This will cause the wax to melt and seal the threads. Inspect the head and the nozzle opening to ensure there is no excess bees wax causing a clog. You might also want to use the cleaning reamer to remove any potential wax residue inside the nozzle.

32. How can a drop-in tip be removed/changed?

On regular airbrush models unscrew the head and remove the tip. Installation is done in reverse order. On the Sotar airbrush, unscrew the nozzle hold-down ring to access the nozzle.

33. How does the valve come out and how is the valve disassembled?

The valve is actually a valve assembly inside the valve casing. The valve can be disassembled while the valve casing remains inside the airbrush or while the valve casing is removed from the airbrush.

Valve Casing: Use a cloth towel and wrap it around the valve casing (to protect from scratches), then use pliers to grab the valve casing and unscrew the valve casing out of the airbrush. Caution – do not grip or damage the tread of the air hose connector and do not grab the part where the valve screws in.

Valve assembly: Use a 1/16" hex wrench to unscrew the valve screw. Now the valve spring and the valve stem (with the O-Ring) can be pulled out of the valve casing. Assembly is in reverse order.

34. How can the needle bearing be changed?

The needle bearing sits inside the airbrush and can only be replaced with special removal and insertion tools. Further, a new needle bearing is too tight and needs to be widened to match the outer diameter of the needle. Again a special tool is required. Please send your Airbrush to the Badger Air-Brush Co. or to the company Rafael Wunsch (see Question 2, 36/37 and 40/41).

35. How do I convert the airbrush from one size to another (e.g. fine to medium)?

The airbrush uses matched parts to provide for a particular size. When changing the airbrush over from one size to another, multiple matched parts must be changed. These matched parts are the needle, nozzle, and spray regulator. On airbrushes with screw-in tips it would be too inconvenient to unscrew the tip every time and to re-seal it with bees wax. On such airbrushes, the head with the tip installed (and the spray regulator) is changed out in its entirety.

36. How long is the warranty?

Badger offers a 1 year warranty on their products. The Teflon needle bearing (if equipped) has a lifetime warranty. These warranty periods might be different in various countries due to legal requirements.

37. What do I do if the airbrush is broken?

If the airbrush is broken and you are not able to fix it, send it in to the Badger Air-Brush Co. in Franklin Park (near Chicago) or to Rafael Wunsch (this company) in Germany. Please provide a copy of the sales receipt in case of warranty repairs, return information (mailing address), and other contact information (phone/fax/email). You will be contacted with information on repair costs (if any), shipping costs, and instructions on how to pay. See Question 38.

38. Are parts lists/drawings available for my airbrush model?

Yes, see: <http://www.intl-trade.eu>

39. Are manuals available for download for my airbrush?

Yes, see <http://www.intl-trade.eu>

40. How do I pay for a repair or return shipping?

If the airbrush is being sent to Rafael Wunsch for repair, we will contact you and discuss the repair/shipping costs that are necessary. After you have the information use this online shop and select repairs from the menu of items for sale. You can select the appropriate options discussed with us and proceed to pay through the website. The repair payment options are:

- a) return shipping only – for needle bearing or warranty repairs
- b) shipping and minor repair (one item is replaced, e.g. one nozzle or one needle, or one valve)
- c) shipping and medium repair (two items are to be repaired, e.g. nozzle and needle)
- d) shipping and major overhaul (all required items are replaced to ensure airbrush is functioning)

After the airbrush is repaired and payment is received your airbrush will be sent back to you.

41. How long does a repair take?

Repairs are usually completed within 3 work days, not counting the day your defective airbrush is received. On the 3rd day your airbrush will be sent back. Unfortunately we have no control over shipping times but usually within Germany a small parcel is delivered in 1 to 2 days. All together you should expect to wait 5 working days in Germany and about 7 working days within the rest of Europe.

Please also take a look at the two documents explaining fundamental airbrush information and the different types of airbrushes and their advantages/disadvantages.

