

Knowing the rules helps deliver results

Using the Ingot Master Kit and correct spruing for optimal press technology results.

By Jörg Müller, MDT, CEO of Aesthetic-Press

WHILE MANY different spruing instructions available for use state that there are rules users "must comply" to regarding spruing techniques, this may not actually always be the case.

According to my experience some of the complied rules regarding spruing objects are good, but

not absolutely necessary.

INTRODUCTION

With this article I will use products from Aesthetic Press (San Francisco, Calif) and will illustrate how some of the "rules" applied when spruing objects are not absolutely necessary.

When spruing objects, there are basically the following parameters, which should be considered and discussed:

- Length
- Diameter
- Angle
- Shape



Ingot Master Kit

Features

- The Ingot Master Kit consists of 8 different ingot colors. The different color and opacities offer a range of ingots for the press & stain technique as well as the press & layering technique.
- The unique feature of the AP Press porcelain is that no glaze paste is needed to obtain a beautiful natural glaze. It is possible to re-press the ingots as well as to press on to, in case of a miss press.

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Fig. 1 In this example, 6 x 2.5 g pink pellets are pressed together.



Fig. 2 In the second step, white portions are pressed.



Fig. 3 Recommended single crown angle



Fig. 4 One can also use arched bars to press.



Fig. 5 Large arches from 12 - 14 units



Fig. 6 Another extreme example of thin single crown walls.



Fig. 7 Example of a bridge with molars: good clean spruing allows a good pressing result.

THE LENGTH OF THE SPRUE

Figures 1 and 2 show examples of which one can already see at first glance the press result from the long sprues which may well be longer than expected. Thus the length of sprues during pressing, using pink ingots (Aesthetic-Press) are several centimeters long. Also subsequent pressing of the white portions illustrate the dynamic possibilities.

After years of experience, I choose to use 0.3 cm to 3 cm sprue length to obtain these possibilities.

THE SPRUE DIAMETER

To put it in a nut shell, the diameter here should be 3 mm. One can say that there is no compulsory fixed angle rule. Figure 1 pressed in pink ceramic illustrates the sprues going up and down rapping around the object justifying the particularly good pressing properties of the AP-pressed ceramic enabling difficult cases possible.

In general, one can maintain the length of the sprues as short as possible for minimal material usage. Since there

is no minimal sprue length required however connects with a safety distance of 2 mm onto the edge, this avoids excessive heat in cuspal regions which can cause cracks.

The most important fundamental rule is to keep the sprues clean and smooth. Poorly unfinished waxed up areas increase the risk of investment embedding into the ceramic. Spruing angles can easily from 30- 90 degrees

The sprues should be placed at the edge of the main plunger channel stand. This enables the object to be in the warmer region of the muffle. Sprued objects in the middle of the plunger stand are more prone to a faulty pressing, since the temperature in this area is cooler.

The distance of the crown to the mould bottom or the walls should be at least 0.75 cm (Fig. 3).

SPRUE SHAPE

This varies depending on the case, which can be direct single units, up to arched bar connected large span bridges.

For spruing large span bridges, we use bar connectors to reduce less connector length.

Short sprues of 3 mm diameter lead to the cross connector, which also a 3 mm diameter. The arched bar connector is waxed directly on the plunger stand. It is not to be treated the same way as casting processes, such as in a V shaped gradient (Fig. 4).

OTHER EXAMPLES

In an implant-supported occlusal screwed bridge with small screw channels running through the crown, it is recommended due to thin cervical regions to use 2 pressing sprues per crown. Around 30 grams of press ceramic would be needed for this particular case. By using less sprues and less press material you would increase the chances of failure.

For 14-unit bridges, if a technician goes with less material there is a much greater risk of ending up with some flaws in the press result.

In this example (Fig. 5), the screw channels run right through the crowns. Thus, the crowns were incisally and lingually sprued (below the screw channels) and posterior region buccally and palatally.

Experience shows with large bridges that have been sprued only in palatall areas, that the last third of the buccal cervical wall regions of the two last molars did not fully press (Fig. 5 and 6).

The pressing temperature can be raised by 20° C with such large objects. Ideally, the press time should be set if possible up to 20 minutes. The muffle should not be heated with speed process, and always must be placed in a cold burn out oven.

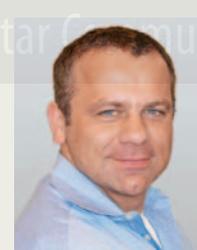
Figure 7 shows a bridge with molars. In such a case you should make sure that the molars are provided with two sprues.

One last tip, which can be improved here, is to donate sprues to the buccal cusps and not to the cusps in contact preserving the intercuspal anatomy.

CONCLUSION

Correct spruing justifies good homogeneous results in the press technology. Many believed rules as previously mentioned i.e. sprue angles, are rules that are not a compulsory necessity. Other spruing criteria when put into practice can provide a predictable and constant result. **lab**

ABOUT THE AUTHOR



After receiving his masters degree in 1993, Jörg Müller opened his dental laboratory in Düsseldorf, Germany. In 1999 he moved to San Francisco

where he opened his second dental laboratory, European Dental, and developed the Aesthetic-Press System. Aesthetic-Press was founded in 2006 and now sells the AP System to many countries around the world. Müller is teaching technicians how to apply a proven system to streamline production and add a higher standard to their quality. The company's motto is "Efficiency Through Simplicity." Aesthetic-Press is not only selling a porcelain, but a completely integrated system that is unique in all its features. Aesthetic-Press has created a standard that ensures a reproducible and consistent high-end result, producing crowns and bridges that are amazingly beautiful.