



caleva

OPTIONS

LABORATORY

CALEVA

VARIABLE DENSITY SCREW EXTRUSION AND SPHERONIZATION KIT

Enhance the utility of your equipment and increase your chance of success by considering these options

OPTIONS AND COMPANION EQUIPMENT



OPTIONS

Some options are available to enhance the utility of the Variable Density Extruder. These are shown below.

✓ EXTRUSION CONFIGURATIONS

○ Axial dies

Axial dies are the most flexible and the axial die configuration is the extrusion method of choice if sufficient capacity can be reached. A wider range of options are available for combinations of hole sizes and diameters with axial dies. Capacity can be at rates of about 1 kg of extrudate in 2.5 minutes (1 mm holes with 1 mm deep holes) and this is normally more than sufficient for an R&D development.



○ Hole diameters and depths

For axial extrusion we have made dies with hole diameters can range from 0.5 mm to 7.0 mm in diameter and with extrusion hole depths variable between 0.5 mm and 13.5 mm.

Note that Caleva only offers drilled holes. Dies from other suppliers can be laser cut or punched. Both these other options can lead to inferior and variable hole shapes and can lead to less consistent extrudate which can affect “usable yield”.



○ Radial screens

Radial screens offer more holes available for extrusion and therefore can sometimes offer greater capacity than axial screen configurations. Radial screens do not have the same flexibility as axial dies. Screens with 1 mm diameter and 1 mm deep holes are available.

○ Note that all configurations of hole depths and diameters are not available on all types of extrusion configurations. Contact us for advice.

Custom made dies and die hole designs can be offered if required. Please contact us for details.

CALEVA MULTI BOWL SPHERONIZER 250 OPTIONS

When supplied all Caleva machines are fully operational and there are no required options. Some options are available to enhance the utility of the bench top MBS Spheronizer. These are shown below.

✔ OPTIONS

- **Interchangeable bowls**
A range of interchangeable bowl and disc sizes can be purchased as and when required and the option to PTFE coat both discs and drums are amongst the unique features and advantages of the Caleva MBS-Spheronizer base unit.



- **Optional 120 mm bowl if the base and 250 mm bowl is supplied (or “visa versa”)**
It is possible to attach bowls of different sizes to the same base in the event that you wish to work with batches of different sizes using the same equipment. This possibility is unique to the Caleva MBS system. This additional unit includes a spheronizer disc and all necessary attachments including safety cover.

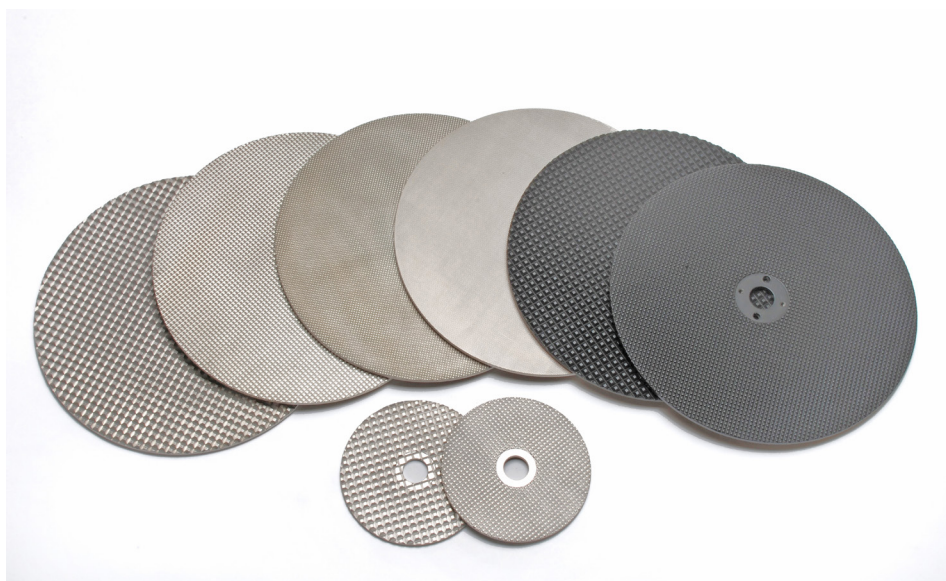


- **Optional insert kit for 120 mm bowl**
If the 120 mm diameter bowl is purchased then an insert kit to reduce bowl size is available. The additional bowl diameter can be 60 mm or 85 mm. This includes a complete kit for either an 85 mm diameter spheronizer or for a 60 mm spheronizer (customer choice). If both sets are required then the cost is separate for each. It is not normally necessary to have both the 60 mm and the 85 mm kit. One is normally sufficient. The insert kits will allow the spheronization of very small batch sizes.



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- **Additional spheronization discs with different patterns**
Cross hatch patterns from 1 mm to 6 mm are available to order. The cross hatch serrations are described by parallel cuts with a 90° included angle to a depth equal to 1/3rd of the pitch. Tolerance on pitch is ± 0.010 mm. Tolerance on depth of cut is ± 0.20 mm. Other alternatives and special designs may be available on request.



- **Radial groove disc**
A radial groove disc provides gentler processing and is generally easier to clean in case of products that stick to the crosshatch discs. Can be purchased later if needed for special products.
- **Non-Stick Coating on the Disc.**
A US-FDA food use approved PTFE/FEP coating on the discs can be provided if it is foreseen that sticky products might be used at some time in the future. For most products this is not essential but in Research & Development having the disc coated may allow more flexibility in use.
- **Non-Stick Coating on the Drum**
Specification as for disc above. It is sometimes recommended to have drums coated as well as the discs.

COMPANION EQUIPMENT

✓ LABORATORY BENCH-TOP EXTRUDER 20

A bench-top screen type extruder designed for R&D process development and small batch production work in the laboratory. You can work with a wide range of batch sizes using a single apparatus. Includes option of “reduced height” screens for use with smaller batch sizes or screens with very small holes to reduce the cost. Screens are interchangeable with production extruders minimising scale-up issues.



OPTIONS RELEVANT TO BOTH PARTS OF THE VARIABLE DENSITY EXTRUSION KIT

✓ CALEVA MIXER TORQUE RHEOMETER

As part of any formulation development program the ability to quantitatively measure the consistency of the granulation produced for extrusion and spheronization will offer significant advantages. Some potential advantages already demonstrated using the Caleva Mixer Torque Rheometer can be seen from a series of case studies available from Caleva. Contact us for more information.



VALIDATION AND TRAINING

INSTALLATION AND TRAINING AT THE CUSTOMER SITE

Training within the UK

Including one day installation and training and two days travelling.

Training in any other European country

Including one day installation and training and two days travelling. All travel and subsistence costs are included in the cost

Training outside Europe

Including one day installation and training and up to four days travelling depending on the location.

Includes installation, commissioning and training at customer site of up to one day, but does not include IQ/OQ which is separately chargeable. The customer will assist with local transport for the Caleva technician if required. The customer will supply the consumable products required. Trained electricians will be provided by the customer if required (generally not required). Installation does not include any alteration to the customer site and does not include installation or connection of any electrical (or other) services.

The customer will be responsible for the unpacking and location of the machines at the customer site. This is not included in any quotation or offer.

If more than one item is purchased then training can be done together for other equipment with considerable savings in cost. Contact us for details.

FACTORY ACCEPTANCE TEST AT THE CALEVA SITE

We make our own quality check before the equipment is shipped (a copy is supplied to the customer) and thus a separate FAT is not normally necessary but can be completed with the customer if required. The customer will be responsible for all his or her expenses incurred in getting to and from the Caleva site.

CUSTOMER TRAINING AT THE CALEVA SITE (OVERSEAS CUSTOMERS)

Training is recommended if extrusion and spheronization is a relatively new technique to the company or if new staff would benefit from it. Contact us for details.

Customers from outside the UK will be collected at any London main airport and transferred to suitable accommodation . All meals for one trainee whilst in the

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UK as well as transport to and from the Caleva site is included. Any extras (such as phone calls etc.) at hotel are for guest's account. One night bed & breakfast in London hotel before return flight to home country can be included if requested. Up to two days training (as required) at the Caleva site on customer's own equipment prior to shipment.

Transport to and from the customer's own country to London main airport is not included and is for the customer's account.

- If more than one item is purchased then training can be done together with considerable savings in cost. Contact us for details.**

VALIDATION AND IQ/OQ DOCUMENTATION PACKAGE

Recommended if required for regulatory purposes.

- At Caleva site**
The IQ/OQ package can be completed at the Caleva site by us. The customer can attend if he or she wishes to do so at their own cost. An additional set of blank documents will be provided to allow the customer to re-do the IQ/OQ in their own facility.
- At customer site**
IQ/OQ and installation completed as far as possible at the customer site at the same time as installation and training (training will be charged separately). The cost is an additional cost for the IQ/OQ in addition to the costs for installation and training.
- Note:** there may be additional country-specific charges depending on location. Contact us for details.

MATERIAL CERTIFICATES (INCLUDED IN IQ/OQ)

In line with current standards Caleva does not automatically supply copies of material certificates for product contact parts. Caleva can provide free of charge a certificate naming the product contact parts and confirming that we or our suppliers can provide full traceability to original certificates if this is requested.

- If certified copies of material certificates are required then these can be provided at an additional cost.**

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CONTACT CALEVA

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Certificate Number: 1503

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