

DISSENTANGLING TECHNOLOGY

MAFU
THE BLUE WAY OF SOLUTION.

WE START, WHERE OTHERS STOP...

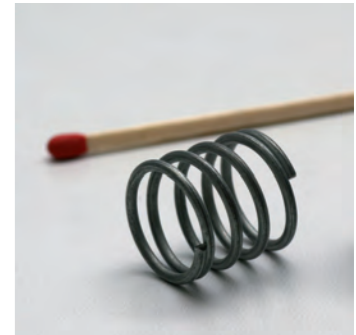
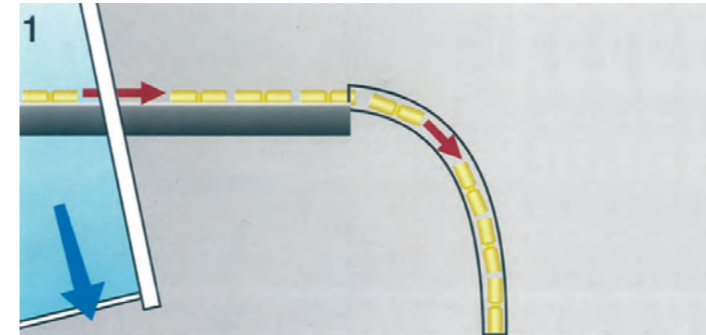
DISENTANGLING AND FEEDING TECHNOLOGY

Bulk goods are fed via a funnel into the drum. By means of the drums rotational motion, the parts are then gently disentangled and brought to one or several feeding rails. The linear motion of the feeding rail and its special baffles align the parts into the desired position before they are separated and presented. The number and type of feedings and separations are individually adapted to the geometry of the parts and the specific requirements of the customer.



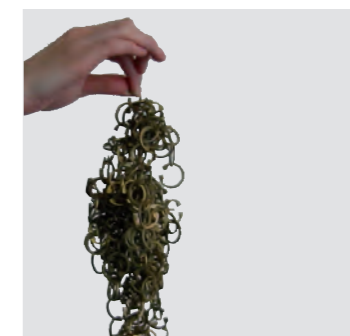
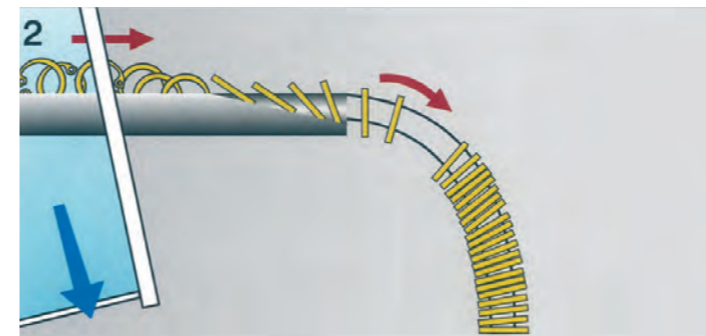
FEEDING THROUGH RAILS (BLOWING THROUGH TUBES):

Small parts, as for example springs, pins, sleeves, and all parts whose geometric form allows end-to-end ordering in feeding tubes. Upon request, the feeding rails can be controlled individually.



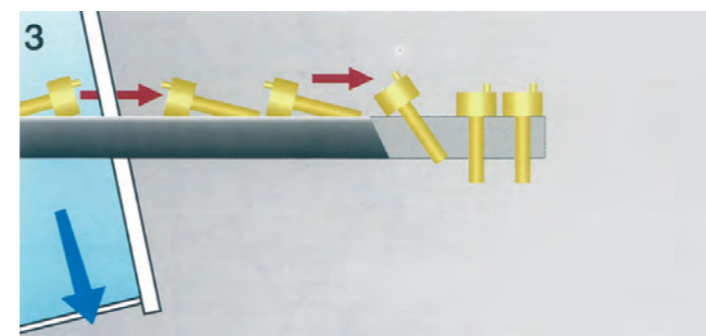
THREADING ON RAILS:

Small parts, for example circlips, wire snap rings, and various bent-wire parts whose geometric form allows threading on a rail. Can be presented vertically or horizontally.

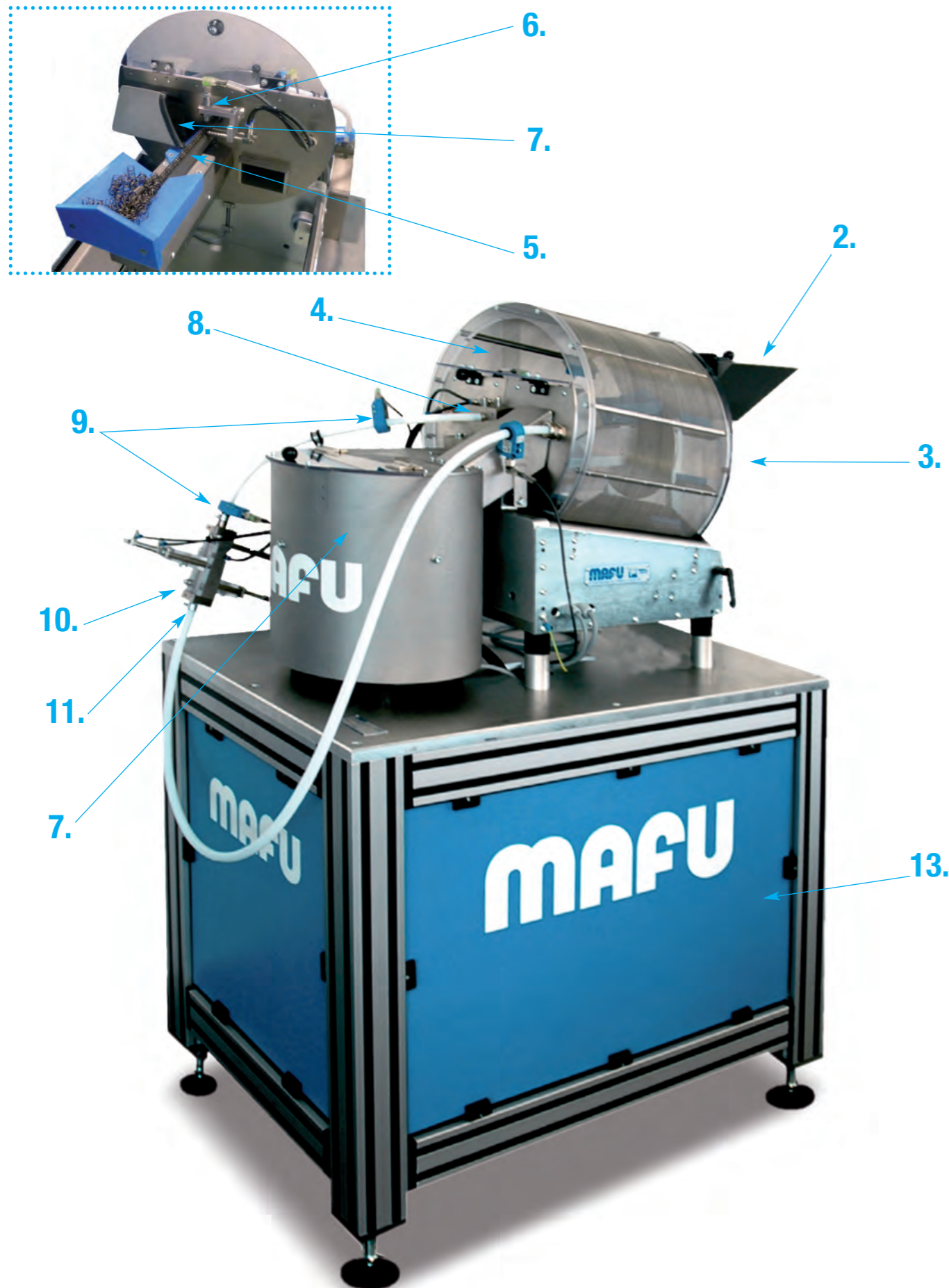


HANGING ON RAILS:

Small parts, for example screws, rivets, nails and other parts whose geometric form and centre of gravity allow hanging, can either be disentangled for removal by the customer or they can be blown into tubes.



OPTIONS...



1. BULK FEED SYSTEMS

(not shown)

To increase the autonomy time.

- > Hopper
- > Vibration bulk hopper
- > Oblique bulk hopper
- > Special bulk hopper

2. FUNNEL / DESIGN

- > With cap
- > With removable inspection cover
- > With coating

3. DRUM / DESIGN

- > Acrylic glass drum
- > Single cut drum (antistatic)
- > Bihexagonal drum (antistatic)
- > Sieve drum
- > Coated drum

4. DIMENSIONS OF THE DEVICE

The dimensions of the device depend on the diameter of the drum.

- > B200 LC short
- > B300 LC short
- > B300 LC long
- > B450 LC short
- > B450 LC long
- > B650 LC short
- > B650 LC long

5. FEEDING TRACKS / CONVEYOR BELTS

Depending on the geometry of the parts, they are available in different designs and with various drives. A major advantage of the MAFU technology is the multiple track system, i. e. multiple feeding tracks within one device. Up to 40 tracks have already been realised in one device.

6. PART RECOGNITION

Part recognition on the feeding track for the detection of doubled or interlocked parts. Available with additional sensors and / or image processing for position detection.

7. ADDITIONAL DISENTANGLING PERFORMANCES

To increase the disentangling ratio, and to minimize the residual amount of parts.

- > Air blast disentangling
- > Flapper
- > Centrifuge

8. INJECTOR

For flexible conversion to different part sizes / - geometries.

- > height-adjustable
- > movable

9. MIN / MAX CONTROL

To control the drive of the drum and thus treat the parts gently, as well as to reduce noise and to save energy.

10. DISENTANGLING DEVICES

- > MAFU standard disentangling device
- > MAFU disentangling device including service cover for manual interference elimination without tool
- > MAFU disentangling device for fully automatically elimination of interferences without manual intervention
- > MAFU disentangling device for fully automatically elimination of interferences with image processing system for quality control of parts
- > MAFU cascade disentangling device for parts that can not be accumulated (volumes)

11. TRANSFER SYSTEMS

For automatic or manual transfer to allow insertion of parts into the work piece.

- > Docking system using height-lifting
- > Fill-in module
- > Y-piece with resqueeze-piston
- > Adapter for extraction by hand

12. LEVEL CONTROL

(not shown)

Is used to ensure a maximum efficiency and availability of the system, and to control a storage container / bulk feeder system or output signals in the form of indication lamps.

13. ASSEMBLY ARRANGEMENTS

(not shown)

- > base plate
- > base frame
- > safety enclosure
- > complete cell

14. SUPPLEMENTARY INJECTOR

The supplementary injector is used to speed up the parts and transfer the parts over long distances and to physically decouple the disentangling device and the transfer position.

15. INSPECTION SYSTEMS

(not shown)

Generally serve for quality control and 100 % control of the parts to be plugged.

- > image processing
- > optical sensor system
- > sensor system
- > force-displacement measurements
- > mechanical tests

16. CONTROL SYSTEM

(not shown)

- > Prepared for client-side control that can be installed on modules, clamping box or cable-less design
- > Fully installed control systems, e.g. Siemens Logo, Siemens PLC, Bosch and Beckhoff control systems
- > Control panel for visualisation and setup

MORE DISENTANGLING TECHNOLOGIES...

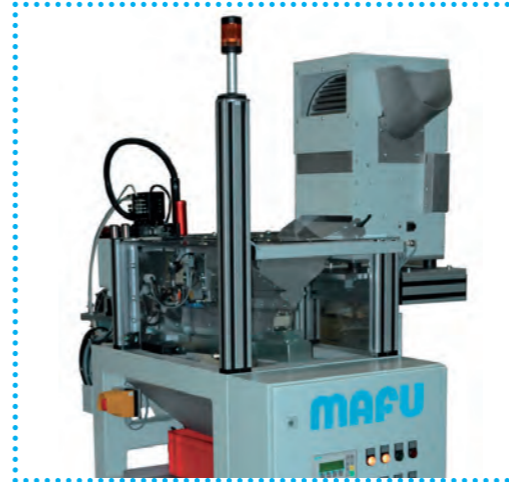
1. MAFU-EWT



METHOD OF FUNCTIONING:

Bulk goods are poured manually into the disentangling drum via the funnel. By means of variable spacing between bars fixed in positions corresponding to the circumference of the drum. The parts are then disentangled, fall through the outlet gap and, via a slide plate can be either transferred to a collection container or passed on to a further feeding unit. The conveyance performance can be adapted to meet customer requirements by adjusting the rotational speed of the drum and the distance between the drums bars.

EXAMPLE OF INTEGRATION: MAFU-EWT



TASK (HOOK SPRING):

- > Disentangling of strongly interlocked springs by means of the MAFU-EWT
- > Then, feeding and alignment of the spring in the correct position in two second intervals
- > Precise provision for acceptance by the customers handling
- > Field of application: medical technology / cleanroom
- > Final product: throw-away injector for taking of blood samples

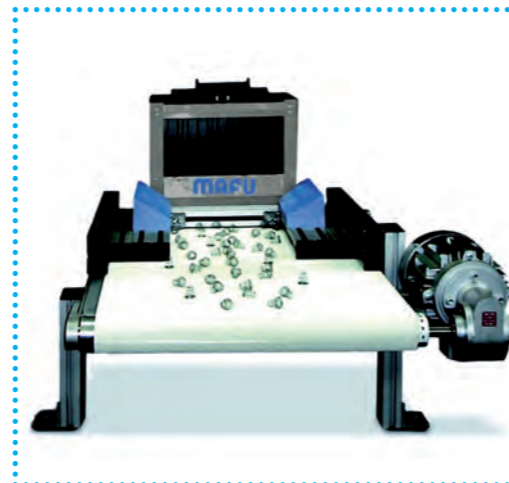
2. MAFU-SHAKER



METHOD OF FUNCTIONING:

The bulk parts / springs are filled manually or automatically through a funnel directly into the disentangling chamber of the MAFU-Shaker. Through the vertical stroke movement of the compressed air-driven piston vibrator and the slight incline of the chamber base plate towards the outlet, the bulk parts / springs are separated from each other and transported into the direction of the outlet. The individual bulk parts fall from the chamber outlet directly into a collection pan or on a conveyor rail and can be removed there.

EXAMPLE OF INTEGRATION: MAFU-SHAKER



TASK (CONICAL SPRING):

- > Disentangling of strongly interlocked springs by means of the MAFU-Shaker and transfer to a parts-specific conveyor-belt
- > Subsequent shape and position recognition by means of a vision system
- > Picking up, aligning and inserting the spring in the correct position by means of a SCARA robot in two second intervals
- > Final product: connecting element for locking

3. MAFU-TWISTER



METHOD OF FUNCTIONING:

The bulk parts / springs are poured manually or automatically directly through the filler cap into the centrifugal disentanglement drum of the MAFU-Twister. The bulk parts / springs are then separated from each other via centrifugal force. The lid is provided with a safety switch so that improper or inadvertent operation cannot occur. From the outlet of the cylinder, the disentangled parts fall directly into a collecting pan or can be integrated in other MAFU technologies.

EXAMPLE OF INTEGRATION: MAFU-TWISTER



TASK (CYLINDRICAL COMPRESSION SPRING):

- > Disentangling of strongly interlocked springs by means of the MAFU-Twister in combination with the MAFU-Drum
- > Discharge of the strongly entangled springs in the MAFU-Twister and then re-injection of the disentangled springs
- > Inflation of the disentangled springs over a part-specific feeding tube with a capacity of 50 units / minute
- > Final product: switches in the electronics sector

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