



Untangling  
solutions  
**More than  
Motion.**

Yesterday. Today. Tomorrow.



## Application example

Electrical industry ›

### Process requirement:

- › Space-saving solution for process-safe untangling and providing of compression springs

### Solution:

- › Drum conveyor with electronic spring separator

### Advantages of the solution:

- › Bad part detection and automatic ejection guarantee high process reliability
- › Integrated control for high autonomy and space saving
- › Complete reproducibility and fast availability due to high level of standardization



## Application example

Electrical industry ›

### Process requirement:

- › Continuous feeding of circlips

### Solution:

- › Feeding bowl with untangling drum

### Advantages of the solution:

- › Process reliability
- › Easy troubleshooting of the rings
- › Parts-friendly solution



# Untangling in feeding technology

The feeding of springs or similarly complicated parts represents a great challenge in assembly. Delivered as bulk material, the parts are intertwined and difficult to separate for the subsequent process.

With Afag untangling solutions, such feeding tasks can be solved economically and reliably. The separated, sorted parts can then be used for the next processing steps.

## Your advantages:

- › Compact solutions for small installation spaces
- › Simple integration
- › High availabilities
- › Reliable overall solutions
- › High reproducibility due to Afag engineering
- › Intuitive operation
- › Many years of experience in developing individual untangling applications (also for difficult part geometries)
- › Wide range of additions (spring separations, troubleshooting...)





# Untangling solutions

## Spring untangling in the bowl

As a classic feeding solution, spring untangling in the conveyor bowl offers an automatic supply of previously filled bulk material that is exactly adapted to your application. In addition to springs, bent wire parts or other parts that are intertwined can also be fed into the bowl.

The separated bulk material is then transported further by a linear conveyor and, for example, picked up by a handling system.

### Technical details

<b>Bowl diameter</b>	200–500 mm
<b>Mains connection</b> (mains voltage/mains frequency)	230 V/50 Hz or 115 V/60 Hz
<b>Material</b>	Polyamide with FDA approval
<b>Accessories</b>	Non-contact filling level check, pendulum

### Your advantages:

- › Many years of experience in the development of individual untangling applications
- › Innovative solution approaches for difficult part geometries
- › Very high reliability and accuracy due to automated troubleshooting mechanisms
- › Higher feeding performance due to multi-lane bowls (part-dependent)
- › Automatic replenishing of the parts saves manual work
- › Many design options for troubleshooting



## Spring untangling device FEG

The spring untangling device is specially designed for the automatic untangling and feeding of spiral springs.

The springs are untangled by turbulence in the parts container. It holds about 0.5 liters of springs and has 1 to 6 outlets. A specifically adapted air flow blows the springs through the nozzles into the feed hose. A delivery rate of up to 60 springs per minute can be achieved per output.

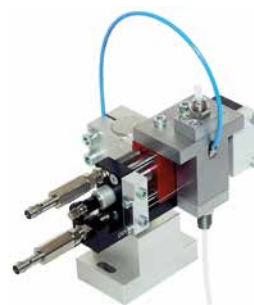
The device consists of the spring untangling head, the control box, and a support profile with base plate. The feeding rate depends on the type and size of the spring and can be determined by tests with approx. 1 liter of springs.

### Technical details

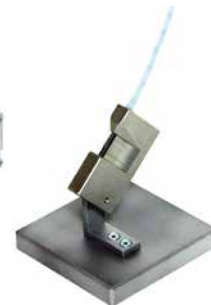
<b>Feedable springs</b>	
Diameter:	1.5 - 6 mm
Spring length:	1.5-6 d
<b>outputs</b>	1-6
<b>Mains connection</b> (mains voltage/mains frequency)	
	230 V/50 Hz
<b>compressed air</b>	5-6 bar
<b>Air consumption at 100 % switch-on duration and 5 bar</b>	
	0.55 m <sup>3</sup> /minute

### Your advantages:

- › Simple operation via small control unit
- › Reduced assembly costs
- › Suitable for manual workstations and for integration in fully automatic assembly processes
- › Simple and flexible operation via Easy control relay
- › Continuously variable pause, blow-out and swirl times



FEG-AV



FEG-HE



FEG-PEN

### Accessories:

- › Automatic separation for pneumatically operated output of springs at up to 6 outputs
- › Manual removal unit supports ergonomically designed workstations
- › Manual separation and feeding device enables the safe and efficient positioning of springs in hard-to-reach places

# Drum conveyor

The compact drum conveyor is used to untangle and separate springs and other bulk materials. The integrated control enables autonomous operation and also supplies additional peripherals, e.g:

- › Automatic troubleshooting
- › Ionizing bar
- › Automatic locking of the filling chute
- › Electric spring separation

The basic device can be extended by a variety of customer-specific solutions.

The rotational speed of the drum can be continuously varied, just like the conveying speed, from the linear section.



## Technical details

### Feedable compression springs

Diameter:	2.5 - 10 mm
Spring length:	7 - 30 mm
Length/diameter ratio:	>1.5

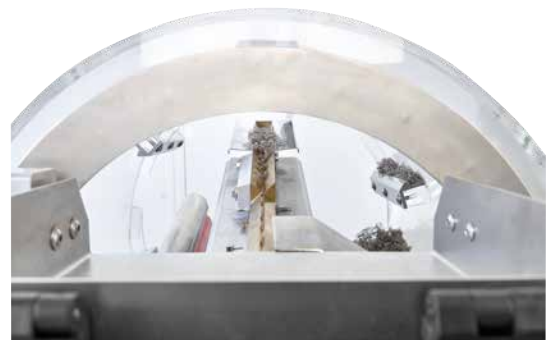
Drum diameter	300 mm
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Dimensions of drum conveyor (WxHxD)	370x510x485 mm
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Protection type	IP54
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## Your advantages:

- › Very compact solution with integrated control
- › Reliable untangling and separating of springs and other entangled parts
- › Innovative solutions for difficult-to-feed part geometries
- › High reliability due to automated troubleshooting mechanisms



## Expansions:

- › Filling chute with cover (on request inductively queried, pneumatically locked)
- › Transverse blow-out and ejection of bad parts
- › Ionizing bar in the drum for compensation of electrostatic charge (24 V)

## Electrical spring separation

After untangling, the springs are separated. The electric spring separation ensures that springs which have already been separated are passed on individually.

This part buffer increases the process reliability of the subsequent applications in the system.

Technical details	
Partial output	Spring-dependent up to 100 parts/minute
Voltage supply	24V DC
Mains fuse	2 A per linear motor
Max. rated current	4 A
Signal type	Digital I/O
Temperature range	0–40 °C
Protection type	IP54

### Your advantages:

- › Automatic reject part ejection in combination with the drum conveyor
- › Despite standardized solution, high flexibility due to controllable stroke
- › Simple manual troubleshooting possible via lever
- › Antimagnetic alloy



› Scan the QR code and watch the video of the drum conveyor with electric spring separation



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