RDS - Rotary throughfeed shot peening systems
Shot peening systems

Shot peening systems RDS for suspension, valve and leaf springs

Modern manufacturing technology for innovative products
Shot peening is an established technology which is optimally designed to enhance the fatigue strength of components which are subject to high alternating stress. Shot peening makes for lighter components which, optimised with respect to weight and cost / benefit, can be loaded up to the limits of their properties. Shot peening is cost effective and reliable. It is often the sole treatment method or substitutes complicated, cost-intensive procedures and can be applied practically, regardless of shape and size of the workpieces – thus permitting a wide field of application.

Wheelabrator shot peening systems offer all prerequisites for the reliable process-safe treatment of workpieces of all geometries, sizes and qualities.

Systems made by Wheelabrator are flexible, in particular if process or production requirements change and thus offer long-term investment security.

The program comprises systems for:
- Springs (suspension, valve and leaf springs, disc and clutch springs)
- Components for the automotive, machinery and aircraft industries
- Components for the mining industry
- Special parts
- Small parts in batches (without defined process reliability)
Process-safe shot peening

Fully automatic operation for consistent quality

The working principle

With RDS Shot Peening Systems, coil springs (axial and valve springs) of 20 – 250 mm in diameter and lengths of 30 – 600 mm are shot peened in longitudinal, rotary throughput principle. Flowrate: up to 1200 axial springs and up to 5800 valve springs per hour. Wheelabrator also offers systems for shot and stress peening of leaf springs. Coil springs are fed through the blasting zone on horizontally rotating carrier rollers. The axial shift is implemented via carriers which are attached to an endless transport chain. The transport speed is variable within certain limits. The blast parameters (quantity of abrasive, throwing and blast wheel speed, workpiece movements and dwell time) are adjusted according to the specific part being processed.

Advantages

• Blasting in throughput operation is simple and safe. It allows process-safe shot peening with part tracking and is ideally suitable for automatic production lines with continuous flow of parts without intermediate buffering
• Adjustable dwell times and throughput speeds ensure process safe defined peening in uniform quality
• Automatic systems with high performance and manufacturing consistency reduce production costs

RDS Shot Peening Systems comprise the following components:

• Machine housing with inlet and outlet shot barriers
• Carrier rollers, transport system (drives)
• Blast wheel units
• Abrasive circuit and separation system
• Exhaust system, sound insulation (optional)

Individual peripheral equipment for loading and unloading supplement the systems and ensure a high performance and cost efficiency
Wheelabrator Blast Wheels
The blast wheels are arranged in such a way that the parts are always processed evenly in the ’Hot Spot’ of the blast stream, at a position where the effect is optimal. The discharge speed of the steel shot can be set by means of a frequency converter (optional) via the blast wheel speed.

High blasting performance
Wheelabrator blast wheels utilise the energy applied to the maximum capacity and transform it into blasting effect. The steel shot is mechanically pre-accelerated and delivered to the blast wheel in a continuous stream. This ensures optimal utilisation of the power from the drive motors. The amount of steel shot can be adjusted from the operator’s panel by means of remote control (optional) depending on the respective programme in operation. Blast wheels in various power ratings ensure a high degree of flexibility. High wear resistant materials ensure maximum service life of the blast wheel, and unique design features allow for rapid and simple replacement of the wear parts.

Efficient and profitable

Shot peening of axial and valve springs in longitudinal, single or double strand operation principle in through-feed operation. On horizontal rotating rollers the springs are fed past the blast zone in a continuously rotating operation.
Always the right shot

Use of the right shot is essential for proper shot peening: undersized shot reduces the blasting effect, oversized shot impairs the degree of coverage. The consequence: dust and undersized shot have to be removed. These requirements are met reliably by the Wheelabrator separation system. It ensures that the mixture used always lies in the desired grain size to ensure optimum results. New shot is fed into the cycle according to the volume of shot removed from the system via an electronically controlled replenisher.

The almentest reveals: RDS shot peening machines keep our promises

In the shot peening process, reliability is crucial. Each part will undergo a defined treatment. The blasting intensity can be controlled by determining the Almen value and coverage. Due to the fact that all parameters (throughput speed, blasting time, discharge speed, shot size and distribution) in RDS Shot Peening Systems are defined exactly, it is possible to adjust and examine the Almen intensity and coverage.

Reliable in a multitude of applications

- Blasting zone
- Valve springs before shot peening
- Valve springs after shot peening

1. Wheel body
2. Control cage
3. Impeller
4. Blade
Maintenance-friendly, safe and reliable

Wheelabrator shot peening machines have a compact design and require only minimal space. They can therefore be easily integrated into existing production lines. Once integrated into automatic procedures the installation only requires periodical inspection, and operating expenses can be reduced. The components within the blasting zone (housing, blast wheels) are made of high wear resistant material or protected against the abrasive effect of steel shot, thus extending the operating life and reducing costs.

Simple but efficient sealing elements prevent stray abrasive. Specific design measures and close tolerances enable easy replacement of wear parts. One aspect that applies in particular in this respect: The original part fits and has been tuned carefully to the field of application with regard to material selection and design. Maintenance operations can be executed conveniently and quickly thanks to integrated platforms and optimum accessibility via large maintenance doors.

Adaptable peripheral equipment

The concept of peripheral equipment corresponds to the various requirements: Loading and unloading can be either manual, via feed modules, manipulators or with industrial robots. Automatic rotating of parts is also possible.

Performance made-to-measure: RDS shot peening systems can be equipped in single-strand or double-strand design with 2 or 4 roof mounted blast wheels.
## Technical data

<table>
<thead>
<tr>
<th>Application</th>
<th>RDS-2</th>
<th>RDS-4</th>
</tr>
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<tbody>
<tr>
<td>Outer workpiece diameter</td>
<td>mm</td>
<td>80 - 250</td>
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<tr>
<td>Workpiece length</td>
<td>mm</td>
<td>max. 600</td>
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<tr>
<td>Blast wheels</td>
<td></td>
<td>2</td>
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<tr>
<td>Power per wheel</td>
<td>kW</td>
<td>45</td>
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<tr>
<td>Blast wheel speed</td>
<td>rpm</td>
<td>max. 2600</td>
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<tr>
<td>Throwing speed</td>
<td>m/sec</td>
<td>max. 90</td>
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<tr>
<td>Length L</td>
<td>mm</td>
<td>9050</td>
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<tr>
<td>Width B</td>
<td>mm</td>
<td>5250</td>
</tr>
<tr>
<td>Heigth H</td>
<td>mm</td>
<td>6450</td>
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<tr>
<td>Input / output height</td>
<td>mm</td>
<td>1800</td>
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<tr>
<td>Transport rollers number/Ø</td>
<td>mm</td>
<td>2 / 165</td>
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<tr>
<td>Speed of rollers max.</td>
<td>rpm</td>
<td>25 - 60</td>
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<tr>
<td>Feed system</td>
<td>drives</td>
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<td>Feed speed</td>
<td>m/min</td>
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<td>Power requirement</td>
<td>kW</td>
<td>110</td>
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<td>Dust collecting capacity</td>
<td>Nm³/h</td>
<td>7500</td>
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![Diagram of the technical data](image-url)
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