HERBOLD

Information Sheet 45

How to maintain, regrind and tighten blades

Rotor blade fastening by means of a torque wrench on a HERBOLD pipe granulator, type SMR 80/120

Selection and Lifetime of Blades

When selecting the cutting blades, take care to make the proper choice. This may influence the economy of your machine.
On principle, most products can be cut with unobjectionably sharp blades in standard execution. Exact figures concerning their lifetime cannot be stated, of course; they depend on the characteristics of the material to be treated on the one hand, and - on the other hand - on the mounting of the blades as laid down in the instructions. For hard and tough products or material with filling matter causing wear and tear, heavy-duty blades have proven well, in any case, owing to a longer lifetime. Standstills of the machine due to blade changes as well as regrinding costs are insignificant. A set of spare blades should always be acquired along with the basic equipment of the machine.

Storage of Spare Blades

Spare blades should be kept in wooden cases or similar suitable containers. This will save money and trouble, since

- **a)** the danger of accidents is excluded,
- **b)** the cutting edges will remain undamaged,
- **c)** the blade support will not get deformed, the blades themselves will not be bent,
- **d)** the blades will stay free from dirt

When is a blade blunt ?

Blunt blades will overcharge your granulator, the cut will become unclean, the throughput will rapidly drop. As soon as a blade fails to cut in a perfect manner, your machine will let you know by

- **a)** a higher power consumption of the drive motor
- **b)** a reduction of the throughput rate,
- **c)** an unclean cut,

excessive heat and the grinding stone will more intensively be cleaned from any particles of dirt prior to its contact with the blades. Moreover, the blades and the machine will be protected against rust without getting greasy or sticky. Good cooling oils combine with the water to form a milky or clear emulsion.**The cooling agent shall always be targeted in a continuous jet stream onto the stone at a short distance in front of the grinding position. Drop cooling is ineffective.**

Regrinding and Sanding

With regard to the grinding procedure we recommend the following settings:

circumferential speed:	**22 - 25 $^{m}/_{min}$**
cutting speed:	**approx. 1400 $^{1}/_{min}$**
grinding depths:	**0.01 - 0.03 mm**

The regrinding must always be performed with special care and attention. If you do not realize in time that the cooling agent pump has stopped or that the grinding disc has become blunt, the chatter mark will burn out; this is the very point where the devil hides in details: you will not always be able to detect such burnt cutting edges immediately. At times they will only break out after the second or third regrinding process. When carrying out the regrinding make sure that the grinding disc is moved towards the blade very slowly and that the position switching of the machine table will only be performed once the disc does not touch the blade any more. The regrinding process can be considered finished when the ground surface displays an even silvery shine and the back of the blade shows a fine bur. Grinding off even more material will not be necessary and will reduce the lifetime of the blade instead. In any case, the rotor blades must be ground down to an identical weight, in order to avoid any imbalance of the rotor. Please pay attention to the respective information in our operating instructions for your granulator. After regrinding, the edge of the blade must be sanded very carefully. The quality of the cut and the lifetime of the blades will considerabely be improved in this way. We recommend to use a silicon carbide stone for the preliminary sanding and an oil stone for the finish.

Some Words about Tightening

Our operating instructions describe very precisely how the tightening has to be performed properly. There is a thing, however, which should not be read through only, but really observed: **the torque**. Tightening the blade fastening bolts only according to your feeling? Every professional knows how uncertain and uneven such a torque will be in this way: at times the bolt will be too loose, at other times it will be too tight. In the latter case, the bolt may be over-tensioned and its head twisted off. The experienced mechanic will make the torque-meter wrench one of his indispensable tools. We recommend the automatically releasing torque wrench, type DSG 5, with a measuring range of 300 - 750 Nm (Saltus, Solingen).

Of course, this torque wrench may be obtained from us as well.

d) the blade cutting edges sticking together, darker colour at the edges;

- thus indicating that it is high-time to regrind the blades! A timely regrinding assures lower costs for regrinding and less consumption of the blades.

Appropriate Regrinding

1) Cutting angle: The cutting angle of the blade is tailored to the type and nature of the material to be treated, and varies with the different model ranges of our granulators. This angle may never be altered.
2) Grinding discs: For all-steel blades we recommend grinding discs which are ceramically or bakelite-bonded, grain size 36 -40, hardness G - J.

Due to the high share of chromium alloy all-steel blades are bad heat conductors. So, the development of heat during the cutting process must absolutely be avoided. Especially, we would like to draw your attention to our following recommendations:

Cooling Agents

Cooling with clear water only is in fact possible. However, it is better to add a cooling agent to it: thus, the chatter mark will be effectively protected from

Rotor blades and fastening bolts on a
HERBOLD profile granulator of the SMP series

Regrinding by Specialized Firms

Whenever a regrinding of cutting blades is required and it cannot be carried out at your site, this task should be entrusted to experienced specialists.

We recommend service workshops that will perform a conscientious job with the technical skill needed.

Our product range

- Granulators
- Pulverizers
- Shredders
- Plastcompactors
- Hammer mills
- Guillotines
- Washing systems

Herbold Meckesheim GmbH

Industriestrasse 33
D-74909 Meckesheim / Germany

P. O. Box 1218
D-74908 Meckesheim / Germany

Phone: +49 (0) 62 26 / 932-0
Fax: +49 (0) 62 26 / 932-495

E-Mail: Herbold@Herbold.com
Internet: www.Herbold.com

Our subsidiary in the USA:

Resource Recycling Systems Inc.
333 George Washington Highway,
Smithfield Rhode Island 02917

Phone: +1 401 232 3354
Fax: +1 401 232 5425

E-Mail: info@resourcerecycling.net
Internet: www.resourcerecycling.net

Our product range
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Herbold Meckesheim GmbH
Industriestr. 33
D-74909 Meckesheim
Postfach 1218
D-74908 Meckesheim
Tel.: + 49 (0) 6226/932-0
Fax: + 49 (0) 6226/932-495
E-Mail: Herbold@Herbold.com
Internet: www.Herbold.com

Our US-Subsidiary:
Herbold Meckesheim USA
Resource Recycling Systems Inc.
333 George Washington Highway,
USA-Smithfield,
Rhode Island 02917
Phone: + 1 401-232-3354
Fax: + 1 401-232-5425
info@HerboldUSA.net
www.HerboldUSA.net