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1 Scope of application and purpose

This standard describes basic notes and expectations VON ARDENNE has for the implementation of surface finishing by abrasive blasting. The standard applies both to internal processing and processing by external suppliers.

All content of this standard is considered part of the order specification, must be adhered to by the supplier on a binding basis and must be already evaluated within the scope of the feasibility study. Notify VA immediately if you become aware of any discrepancies or if any deviations are unavoidable before or during commissioning.

Requests for approval of deviations must be submitted using the Application for Deviation/Change Approval form (available from VA Purchasing).

2 Terms and abbreviations

Term/abbreviation	Definition/description
VA	VON ARDENNE GmbH
R _z	Roughness parameter for maximum height of profile, defined in ISO 4287 (4.1.3)

3 Scope and general provisions

- (1) The purpose of carrying out surface finishing by abrasive blasting can be:
 - a. Achieving a specific surface roughness required by VA (roughening)
 - b. Achieving a state of cleanliness in accordance with AN3001 (blast cleaning)
 - c. Shot peening
- (2) The parts to be blasted, stating the blasting method, the blasting abrasive (if necessary), the roughness and the processing surface in the form of the drawing entry in the VA design documents shall be described as follows and identified for the supplier:

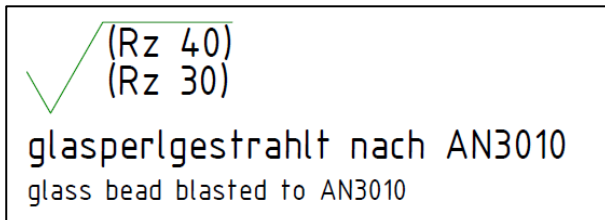
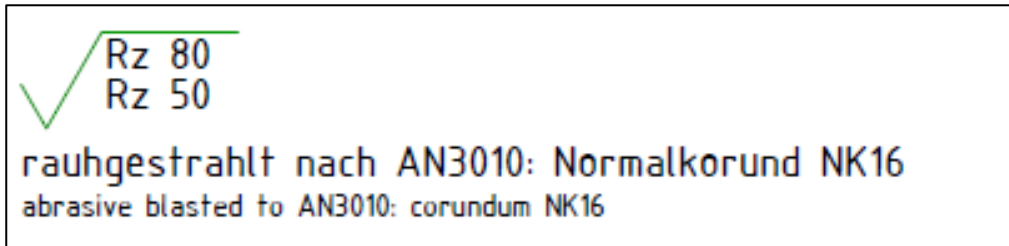


Illustration 1/2: Example drawing stamps according to AN3010

4 General requirements

- (1) It is assumed that the abrasive blasting system operator has specific knowledge so that parameters such as blasting pressure, radiation angle, blasting speed, and so on are the responsibility of the supplier and are not specified by VA.
- (2) Surface finishing by abrasive blasting can either relate to the entire part or to individual surfaces intended for it. A corresponding specification can be found on the drawing.

- (3) It must be ensured that no contaminated blasting abrasive gets onto vacuum parts (e.g., iron particles on stainless steel surfaces). The operator of the blasting abrasive system shall therefore ensure that they work with two qualities of blasting abrasive cleanliness for aluminium oxide abrasive blasting and that they use the blasting abrasives in a pure and separate manner in regard to the blasted parts.
- (4) The compressed air must be filtered and free of water and oil.

5 Preparation of surface finishes

- (1) The parts must be cleaned and degreased before abrasive blasting - also refer to AN3001 -
- (2) Sealing faces, screw-on surfaces, holes with specified tolerances and threaded holes are not blasted unless this is expressly required. They are to be covered or sealed in a suitable manner.

6 Blasting result

- (1) A homogeneous blasting pattern is expected on all surfaces concerned.
- (2) Blasting residues (blasting abrasive and/or removed dust and/or flaked off layers) must be removed completely (use lint-free cloths), vacuumed or blown off.
- (3) Any "smeared" scale or extraneous rust residues on the surface caused by blasting with too flat of a blasting angle must be removed by pickling.
- (4) After blasting, blasted surfaces can only be handled with lint-free and clean gloves.
- (5) Adhesive foils and adhesive residues must be removed with grease-free solvents.
- (6) Blasted parts must be stored and transported in sealed packaging which completely protects the parts.
- (7) Optical surfaces outside the vacuum must be preserved by suitable means (e.g., polystyrene protection PTX 100).

7 Checking the blasted result

7.1 Blast cleaning

- ➔ Compare purity testing according to AN3001.

The surface roughness to be achieved serves as a guide value and is used as an evaluation standard if there is insufficient homogeneity of the blasting result.

7.2 Glass bead blasting

The qualitative check of the blasting result during shot peening is done in a visual inspection. The goal is an homogenous blasting result.

7.3 Roughening

- (1) The qualitative testing of the blasting result in the case of roughening should take place in two steps:
 - a. First of all, a visual inspection for a uniform, homogeneous blasting pattern must be carried out.
 - b. At the most visually noticeable points, i.e. where a minimum or maximum roughness is expected, the required roughness must be demonstrated using a roughness measurement.
- (2) Calibrated roughness measuring devices of the manufacturer's choice are to be used for qualitative testing of the blasting result.
- (3) The roughness is measured over a measuring distance of 5 mm.

- (4) If there is a deviation from the required roughness, the procedure must be repeated 3 times within a circle diameter of 5.0 cm.
- (5) If all 3 determined roughness values are outside the required specification, there is a deviation from the specification.

8 Other applicable documents

ARDENNE Standard AN3001 – Requirements for the manufacturing of vacuum parts

9 Change index

Brief description of the change	Version	Valid from	Prepared by
Initial approval	1.0	10/2020	C. Heilmann