

# DIN EN 16564:2021-01 (E)

## Machines and plants for mining and tooling of natural stone - Safety - Requirements for bridge type sawing /milling machines, included numerical control (NC/CNC) versions

---

<b>Contents</b>		<b>Page</b>
European foreword .....		4
Introduction .....		6
1	Scope .....	7
2	Normative references .....	7
3	Terms and definitions .....	10
4	Safety requirements and/or protective measures .....	16
4.1	General .....	16
4.2	Controls .....	17
4.2.1	Safety and reliability of control system .....	17
4.2.2	Position of controls .....	17
4.2.3	Starting .....	18
4.2.4	Normal stop .....	19
4.2.5	Emergency stop .....	19
4.2.6	Operational stop .....	20
4.2.7	Mode selection .....	20
4.2.8	Failure of any power supply .....	21
4.2.9	Failure of the control circuits .....	21
4.2.10	Teleservice .....	22
4.3	Protection against mechanical hazards .....	22
4.3.1	Transport and installation of machine .....	22
4.3.2	Stability .....	22
4.3.3	Tool changing .....	23
4.3.4	Braking tool spindle .....	23
4.3.5	Prevention of access to moving parts and safeguards to minimize the effect of ejection ..	24
4.4	Protection against no mechanical hazards .....	28
4.4.1	Fire .....	28
4.4.2	Noise .....	28
4.4.3	Electrical hazards .....	29
4.4.4	Ergonomics and handling .....	29
4.4.5	Hydraulic and pneumatic components .....	29
4.4.6	Electromagnetic compatibility .....	30
4.4.7	Laser radiation .....	30
4.4.8	Unintended movements .....	30
4.4.9	Isolation .....	30
4.4.10	Maintenance .....	31
5	Information for use .....	31
5.1	General .....	31
5.2	Signals and warning devices .....	31
5.3	Marking, signs and written warnings .....	31
5.4	Instruction handbook .....	32
5.4.1	General .....	32
5.4.2	Operator's manual .....	32
5.4.3	Maintenance manual .....	35

<b>Annex A (informative) List of significant hazards .....</b>	<b>37</b>
<b>Annex B (normative) Test for braking function .....</b>	<b>40</b>
<b>B.1 Conditions for all tests .....</b>	<b>40</b>
<b>B.2 Unbraked run-down time .....</b>	<b>40</b>
<b>B.3 Braked run-down time .....</b>	<b>40</b>
<b>Annex C (normative) Rigid guards on machines - Impact test method .....</b>	<b>41</b>
<b>C.1 General .....</b>	<b>41</b>
<b>C.2 Test method .....</b>	<b>41</b>
<b>C.2.1 Preliminary remarks .....</b>	<b>41</b>
<b>C.2.2 Testing equipment .....</b>	<b>41</b>
<b>C.2.2.1 General .....</b>	<b>41</b>
<b>C.2.2.2 Projectiles .....</b>	<b>41</b>
<b>C.2.2.3 Sampling and supporting the guard under test .....</b>	<b>42</b>
<b>C.2.3 Test procedure .....</b>	<b>42</b>
<b>C.3 Results .....</b>	<b>42</b>
<b>C.4 Assessment .....</b>	<b>43</b>
<b>C.5 Test report .....</b>	<b>43</b>
<b>C.6 Example of propulsion device for impact test .....</b>	<b>43</b>
<b>Annex D (normative) Noise test code .....</b>	<b>44</b>
<b>D.1 Introduction .....</b>	<b>44</b>
<b>D.2 Measurement of the A-weighted emission sound pressure level at the operator's positions or other specified positions .....</b>	<b>44</b>
<b>D.2.1 Basic standards .....</b>	<b>44</b>
<b>D.2.2 Measurement procedure and positions .....</b>	<b>44</b>
<b>D.2.3 Measurement uncertainty .....</b>	<b>45</b>
<b>D.3 Determination of sound power level .....</b>	<b>45</b>
<b>D.3.1 Measurement procedure and positions .....</b>	<b>45</b>
<b>D.3.2 Measurement uncertainty .....</b>	<b>45</b>
<b>D.4 Installation, mounting and operating conditions for noise emission measurement .....</b>	<b>46</b>
<b>D.5 Information to be recorded and reported .....</b>	<b>46</b>
<b>D.6 Declaration and verification of noise emission values .....</b>	<b>52</b>
<b>D.6.1 General .....</b>	<b>52</b>
<b>D.6.2 Examples of a declaration of noise emission values in the instruction handbook for a machine where the largest dimension does not exceed 6 m .....</b>	<b>53</b>
<b>D.6.3 Example of a declaration of noise emission values in the instruction handbook for a machine where at least one dimension exceeds 6 m .....</b>	<b>54</b>
<b>Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered .....</b>	<b>57</b>
<b>Bibliography .....</b>	<b>61</b>