

# ISO 21299:2009-04 (E)

## Powered ride-on turf care equipment - Roll-over protective structures (ROPS) - Test procedures and acceptance criteria

---

<b>Contents</b>		<b>Page</b>
Foreword .....		iv
Introduction .....		v
1	Scope .....	1
2	Normative references .....	1
3	Terms, definitions and symbols .....	1
4	Test apparatus and equipment .....	3
4.1	Test equipment for horizontal loading .....	3
4.2	Test equipment for vertical crush loading .....	3
4.3	Other measuring apparatus .....	3
5	Preparation for strength testing .....	4
5.1	Purpose .....	4
5.2	Preparation rules for governing testing .....	4
6	Test procedures .....	4
6.1	Test sequence .....	4
6.2	Horizontal loading .....	5
6.3	Vertical crushing test .....	9
6.4	Observations during testing .....	10
7	Deflection-limiting volume (DLV) .....	10
8	Tolerances .....	12
9	Acceptance conditions .....	12
9.1	General requirements .....	12
9.2	Deflection-limiting volume/ground plane .....	12
9.3	Horizontal overload test for energy-absorbing ROPS .....	13
9.4	Vertical crush overload test .....	14
9.5	Cold weather embrittlement .....	14
10	Extension to other machines .....	16
11	Labelling .....	16
12	Test report .....	16
Annex A (normative) Requirements for providing resistance to brittle fracture of ROPS at reduced operating temperature .....		17
Annex B (informative) ROPS standards judged to provide operator protection comparable to this International Standard .....		19
Annex C (informative) Test report for roll-over protective structure .....		20
Bibliography .....		22