

# DIN EN 16031:2012-09 (E)

## Adjustable telescopic aluminium props - Product specifications, design and assessment by calculation and tests

---

<b>Contents</b>		<b>Page</b>
Foreword .....		4
Introduction .....		5
1	Scope .....	6
2	Normative references .....	6
3	Terms and definitions .....	6
4	Symbols .....	9
5	Classification .....	10
6	Designations .....	11
7	Materials .....	12
8	Requirements .....	12
8.1	Tubes .....	12
8.2	Welding .....	12
8.3	Length adjustment device .....	12
8.4	Permanent prevention against unintentional disengagement .....	12
8.5	Anti hand trap .....	13
8.6	Overlapping length .....	13
8.7	Endplates .....	14
9	Verification .....	14
9.1	General .....	14
9.2	Calculation of prop strength .....	15
9.2.1	General .....	15
9.2.2	Imperfections .....	15
9.2.3	Behaviours of inner and outer tube .....	17
9.2.4	Boundary conditions .....	17
9.2.5	Verification of prop strength .....	21
9.3	Verification of the strength of length adjustment device .....	22
9.4	Verification of the prevention against unintentional disengagement .....	22
9.5	Confirmation of the calculation results by testing .....	22
10	Tests .....	22
10.1	General .....	22
10.2	Detail tests .....	22
10.2.1	Compression tests on unthreaded tubes .....	22
10.2.2	Compression tests on threaded tube .....	23
10.2.3	Bending tests on threaded tube .....	25
10.2.4	Tests for the limit eccentricities of prop ends .....	27
10.2.5	Compression tests on length adjustment device .....	30
10.3	Test of the prevention against unintentional disengagement .....	30
10.3.1	Purpose of test .....	30
10.3.2	Test arrangement .....	31
10.3.3	Evaluation of test results .....	31

<b>10.4</b>	<b>Confirmation test for the prop strength .....</b>	<b>31</b>
<b>10.4.1</b>	<b>Material properties .....</b>	<b>31</b>
<b>10.4.2</b>	<b>Global test .....</b>	<b>32</b>
<b>11</b>	<b>Documentation of test results .....</b>	<b>32</b>
<b>12</b>	<b>Marking .....</b>	<b>32</b>
<b>13</b>	<b>Assessment .....</b>	<b>33</b>
<b>14</b>	<b>User manual .....</b>	<b>33</b>
	<b>Annex A (informative) Ongoing production control .....</b>	<b>34</b>
	<b>Bibliography .....</b>	<b>36</b>