

# DIN EN 12209:2016-10 (E)

## Building hardware - Mechanically operated locks and locking plates - Requirements and test methods

---

<b>Contents</b>		<b>Page</b>
European foreword .....		6
Introduction .....		8
<b>1</b>	<b>Scope .....</b>	<b>9</b>
<b>2</b>	<b>Normative references .....</b>	<b>9</b>
<b>3</b>	<b>Terms and definitions .....</b>	<b>10</b>
<b>4</b>	<b>Requirements .....</b>	<b>12</b>
4.1	General .....	12
4.1.1	Essential characteristics .....	12
4.1.2	Dangerous substances .....	12
4.1.3	Return force of latch bolt .....	13
4.1.4	Product information requirements .....	13
4.1.5	Strength of lever lock key .....	13
4.1.6	Strength of bolt actions .....	14
4.1.7	Minimum follower restoring torque .....	14
4.1.8	Protection against removal from door .....	14
4.2	Category of use (first digit) .....	14
4.2.1	Resistance to side force on latch bolt .....	14
4.2.2	Torque to operate the lock .....	15
4.2.3	Strength of follower stops .....	16
4.2.4	Torque resistance for lockable deadbolt operation by handle/knob .....	16
4.3	Durability requirements (second digit) .....	18
4.3.1	Durability of latch action .....	18
4.3.2	Durability of deadbolt mechanism .....	18
4.3.3	Durability of locking snib mechanism .....	18
4.4	Door mass and door closing force (third digit) .....	18
4.4.1	Door mass .....	18
4.4.2	Door closing force .....	18
4.5	Suitability for use on fire resistance and/or smoke control doorset (fourth digit) .....	19
4.6	Safety (fifth digit) .....	19
4.7	Corrosion resistance and temperature (sixth digit) .....	19
4.7.1	Corrosion resistance .....	19
4.7.2	Operation at extreme temperatures .....	19
4.8	Security (seventh digit) .....	19
4.8.1	General .....	19
4.8.2	Locking .....	19
4.8.3	Manual deadlocking .....	19
4.8.4	Torque resistance of knob of tubular lock .....	20
4.8.5	Requirements for side force .....	20
4.8.6	Deadbolt projection .....	21
4.8.7	Resistance to force in the unlocking direction (disengaging force) .....	22
4.8.8	Requirements for pulling of anti-separation bolt .....	23
4.8.9	Requirements for anti-lifting devices in sliding door locks .....	24
4.8.10	Requirement for torque resistance of lockable followers .....	25
4.8.11	Strong key attack on lever locks .....	26
4.8.12	Resistance to force on box protected locking plates .....	26
4.8.13	Resistance to side force on locking plates .....	27

4.8.14	Resistance to pulling on locking plates .....	27
4.8.15	Resistance to lifting force on locking plates .....	27
4.9	Key identification requirements of lever locks (eight digit) .....	30
4.9.1	Minimum number of detaining elements .....	30
4.9.2	Minimum number of effective differs .....	30
4.9.3	Differing steps height on key .....	30
4.9.4	Non-interpassing of keys with just one interval differ .....	30
4.9.5	Coding protection .....	30
5	Test, assessment and sampling methods .....	31
5.1	General .....	31
5.2	Test apparatus .....	32
5.2.1	Test door .....	32
5.2.2	Drill machine .....	32
5.2.3	Test fixtures .....	32
5.3	Test procedure - Drilling procedure .....	32
5.4	Test methods - general .....	33
5.4.1	Dangerous substances verification .....	33
5.4.2	Return force of latch bolt .....	33
5.4.3	Product information requirements verification .....	33
5.4.4	Strength of lever lock key .....	33
5.4.5	Strength of bolt action .....	33
5.4.6	Minimum follower restoring torque .....	34
5.4.7	Protection against removal from door .....	34
5.5	Test methods - Category of use .....	34
5.5.1	Resistance to side force on latch bolt .....	34
5.5.2	Torque to operate the lock .....	36
5.5.3	Strength of follower stops .....	36
5.5.4	Torque resistance for lockable deadbolt operation by handle/knob .....	36
5.6	Test methods - durability .....	37
5.6.1	Durability of latch action without force applied .....	37
5.6.2	Durability of latch action with force applied .....	38
5.6.3	Durability of deadbolt mechanism .....	40
5.6.4	Durability of locking snib mechanism .....	41
5.7	Door mass and closing force .....	41
5.7.1	Door mass verification .....	41
5.7.2	Door closing force .....	41
5.8	Suitability for use on fire resistance and/or smoke control doorset .....	42
5.9	Safety .....	42
5.10	Corrosion resistance and temperature .....	42
5.10.1	Corrosion resistance .....	42
5.10.2	Operation at extremes of temperature .....	42
5.11	Security .....	43
5.11.1	Key operation and locking .....	43
5.11.2	Torque resistance of knob of tubular lock test .....	44
5.11.3	Resistance to side force .....	44
5.11.4	Deadbolt projection measure .....	47
5.11.5	Resistance to forcing in the unlocking direction (disengaging force) test .....	47
5.11.6	Resistance to pulling of anti-separation bolt test .....	49
5.11.7	Resistance to forcing of locating device in sliding door locks .....	50
5.11.8	Torque resistance for lockable deadbolt operation by handle/knob test .....	50
5.11.9	Strong key attack on locks with internal blocking elements .....	51
5.11.10	Resistance to end force on box protected locking plate test .....	51
5.11.11	Resistance to side force on locking plate test .....	51
5.11.12	Resistance to pulling on locking plate .....	52
5.11.13	Resistance to lifting force on locking plate .....	52
5.12	Key related security for lever locks .....	53
5.12.1	Detaining elements verification .....	53
5.12.2	Effective differs verification .....	53
5.12.3	Differing step heights on key .....	53
5.12.4	Non-interpassing of keys with just one interval differ .....	53
5.12.5	Coding protection .....	53

<b>6</b>	<b>Assessment and verification of constancy of performance - AVCP</b>	<b>53</b>
6.1	General	53
6.2	Type testing	54
6.2.1	General	54
6.2.2	Test samples, testing and compliance criteria	55
6.2.3	Test reports	55
6.2.4	Shared other party results	55
6.2.5	Cascading determination of the product type results	56
6.3	Factory production control (FPC)	57
6.3.1	General	57
6.3.2	Requirements	57
6.3.3	Product specific requirements	60
6.3.4	Initial inspection of factory and of FPC	60
6.3.5	Continuous surveillance of FPC	61
6.3.6	Procedure for modifications	61
<b>7</b>	<b>Classification</b>	<b>61</b>
7.1	Coding system	61
7.2	Classification for mechanically operated locks and locking plates	61
7.2.1	Category of use (first digit)	61
7.2.2	Durability (second digit)	62
7.2.3	Door mass and closing force (third digit)	62
7.2.4	Suitability for use on fire resisting and/or smoke control doorset (fourth digit)	62
7.2.5	Safety (fifth digit)	63
7.2.6	Corrosion resistance and temperature (sixth digit)	63
7.2.7	Security and drill resistance (seventh digit)	63
7.2.8	Key identification of lever locks (eight digit)	64
7.3	Example for classification of locks, latches and their locking plates	64
<b>8</b>	<b>Marking, labelling and packaging</b>	<b>64</b>
8.1	On the product	64
8.2	On the packaging	65
8.3	On the installation instruction	65
<b>Annex A (normative)</b>	<b>Locks and locking plates for use on fire resisting and/or smoke control doorset</b>	<b>66</b>
A.1	Grade A	66
A.2	Grade B	66
A.3	Grade N	66
<b>Annex B (normative)</b>	<b>Test sampling and sequencing for locks and latches</b>	<b>68</b>
<b>Annex C (informative)</b>	<b>Product information</b>	<b>71</b>
<b>Annex ZA (informative)</b>	<b>Clauses of this European Standard addressing the provisions of the EU Construction Products Regulation (305/2011)</b>	<b>73</b>
ZA.1	Scope and relevant characteristics	73
ZA.2	Procedure for AVCP of locks and locking plates	74
ZA.2.1	System(s) of AVCP	74
ZA.2.2	Declaration of performance (DoP)	75
General		75ZA221
Content		75ZA222
Example of DoP		77ZA223

<b>ZA.3 CE marking and labelling .....</b>	<b>78</b>
<b>Bibliography .....</b>	<b>81</b>