ISEO Serrature SpA

Via S Girolamo 13 – IT 25055 - Pisogne (BS)

Tel: +3903648821 Fax: +390364882263 web:wwwiseocom e-mail:iseo@iseocom

EN12209:2003

Mechanically operated locks and locking plates

Example of classification:

3	X	8	1	0	G	6	M	C	2	0
1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°

Category of use (first digit)

grade 1: for use by people with a high incentive to exercise care and with a small chance of misuse (e.g. residential doors)

grade 2: for use by people with some incentive to exercise care but where there is some chance of misuse (e.g. office doors)

grade 3: for use by the public where there is little incentive to exercise care and where there is a high chance of misuse (e.g. doors in public buildings)

(1)	Return force on the latch F2	Resistance to side load on the latch F2	Torque to operate the deadbolt by key M3	Torque to operate the deadbolt by handle M4	Strength of normal latch action and stops M	Rim lock with lockable handle/knob M10
grade 1:	≥ 2,5 N	≥ 2 kN	≤ 1,5 Nm	≤ 3,0 Nm	≥ 20 Nm	0,4 [kN] x max radius [mm]
grade 2:	≥ 2,5 N	≥ 3 kN	≤ 1,5 Nm	≤ 3,0 Nm	≥ 40 Nm	
grade 3:	≥ 2,5 N	≥ 3 kN	≤ 0,5 Nm	≤ 3,0 Nm	≥ 60 Nm	

Durability (second digit)

	Latch bolt		Deadbolt	
	Latch by handle	Load on latch	Manually operated	Automatically operated (self-locking)
grade A:	50 000 cycles	0 N	10.000 cycles	50 000 cycles
grade B:	100 000 cycles	0 N	25.000 cycles	100 000 cycles
grade C:	200 000 cycles	0 N	50.000 cycles	200 000 cycles
grade G:	100 000 cycles	10 N	25.000 cycles	100 000 cycles
grade H:	200 000 cycles	10 N	50.000 cycles	200 000 cycles
grade L:	100 000 cycles	25 N	25.000 cycles	100 000 cycles
grade M:	200 000 cycles	25 N	50.000 cycles	200 000 cycles
grade R:	100 000 cycles	50 N	25.000 cycles	100 000 cycles
grade S:	200 000 cycles	50 N	50.000 cycles	200 000 cycles
grade W:	100 000 cycles	120 N	25.000 cycles	100 000 cycles
grade X:	200 000 cycles	120 N	50.000 cycles	200 000 cycles

Door mass and closing force (third digit)

	Door mass	Closing force
grade 1:	up to 100 kg door mass	50 N maximum closing force
grade 2:	up to 200 kg door mass	50 N maximum closing force
grade 3:	above 200 kg door mass as specified by the manufacturer	50 N maximum closing force
grade 4:	up to 100 kg door mass	25 N maximum closing force
grade 5:	up to 200 kg door mass	25 N maximum closing force
grade 6:	above 200 kg door mass as specified by the manufacturer	25 N maximum closing force
grade 7:	up to 100 kg door mass	15 N maximum closing force
grade 8:	up to 200 kg door mass	15 N maximum closing force
grade 9:	above 200 kg door mass as specified by the manufacturer	15 N maximum closing force.

(1) main requirement related to the classification grade (indicative)

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Suitability for use on fire/smoke doors (fourth digit)

grade 0: not approved for use on fire/smoke resisting door assemblies

grade 1: suitable for use on fire/smoke resisting door assemblies subject to satisfactory assessment of the contribution of the lock or latch to the fire resistance of specified fire/smoke resisting door assemblies Such assessment is beyond the scope of this European Standard

Safety (fifth digit)

grade 0: No safety requirements

Corrosion resistance and temperature (sixth digit)

	Corrosion resistance		Temperature range
grade 0:	no defined corrosion resistance		no temperature requirement
grade A:	low corrosion resistance	(24h NSS)	no temperature requirement
grade C:	high corrosion resistance	(96h NSS)	no temperature requirement
grade D:	very high corrosion resistance	(240h NSS)	no temperature requirement
grade F:	high corrosion resistance	(96h NSS)	from –20 °C to +80 °C
grade G:	very high corrosion resistance	(240h NSS)	from –20 °C to +80 °C

Security and drill resistance (seventh digit)

grade 0: No security requirement

grade 1: Minimum security and no drill resistance

grade 2: Low security and no drill resistance

grade 3: Medium security and no drill resistance

grade 4: High security and no drill resistance

grade 5: High security with drill resistance

grade 6: Very high security and no drill resistance

grade 7: Very high security with drill resistance

(1)	Forcing torque on lever handles M9	Torque resistance of knob or lever handle on Rim night latches M10	side load on deadbolt and net drilling time F4	Minimum deadbolt projection before F5 d	End load and net drilling time F5	Resulting projection after F5 application d1	Resistance to pulling of hook/claw bolt F6	Resistance to disengaging of of hook/claw bolt F7	Resistance to forcing of locating devices in sliding door lock F8	Resistance to pulling off of knob on bored lock and latch sets F9
grade 1:	20 Nm	-	1 kN	10 mm	1 kN	8 mm	1 kN	1 kN	1 kN	1 kN
grade 2:	30 Nm	-	3 kN	12 mm	2 kN	10 mm	3 kN	2 kN	3 kN	1,5 kN
grade 3:	-	1 kN	5 kN	14 mm	4 kN	11 mm	5 kN	4 kN	4 kN	-
grade 4:	-	1 kN	7 kN	20 mm	5 kN	17 mm	7 kN	5 kN	5 kN	-
grade 5:	-	1 kN	7 kN /3 min.	20 mm	5 kN / 3 min.	17 mm	7 kN	5 kN	5 kN	-
grade 6:	-	1 kN	10 kN	20 mm	6 kN	17 mm	10 kN	6 kN	6 kN	-
grade 7:	-	1 kN	10 kN /5 min.	20 mm	6 kN / 5 min.	17 mm	10 kN	6 kN	6 kN	-

(1) main requirement related to the classification grade (indicative)

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Field of door application (eighth digit)

	Type	Application 1	Application 2	Application 3
grade A:	Mortice	Unrestricted application	-	-
grade B:	Mortice	Hinged door	-	-
grade C:	Mortice	Sliding door	-	-
grade D:	Rim	Unrestricted application	-	-
grade E:	Rim	Hinged door	-	-
grade F:	Rim	Sliding door	-	-
grade H:	Mortice	Hinged door	supported	-
grade J:	Rim	Hinged door	Inward opening	-
grade K:	Mortice	Hinged door	-	-
grade L:	Mortice	Sliding door	-	-
grade M:	Rim	Hinged door	-	-
grade N:	Rim	Sliding door	-	-
grade P:	Mortice	Hinged door	Supported	-
grade R:	Rim	Hinged door	Inward opening	-

Type of key operation and locking (ninth digit)

	Type	Locking
grade 0:	Not applicable	
grade A:	cylinder lock or latch	manually locking
grade B:	cylinder lock or latch	automatically locking
grade C:	cylinder lock or latch	manually locking with intermediate locking
grade D:	lever lock or latch	manually locking
grade E:	lever lock or latch	automatically locking
grade F:	lever lock or latch	manually locking with intermediate locking
grade G:	lock or latch without key operation	manually locking
grade H:	lock without key operation	automatically locking

Type of spindle operation (tenth digit)

grade 0: lock or latch without follower

grade 1: lock or latch for knob or sprung lever handle operation

grade 2: lock or latch for unsprung lever handle operation

grade 3: lock or latch for heavy duty unsprung lever handle operation

grade 4: lock or latch for heavy duty unsprung lever handle operation specified by the manufacturer

	Torque to withdraw the latch bolt	Strength of bolt actions		Minimum follower restoring torque
([1])	**by handle - M2**	**Deadbolt components**	**Latch bolt components**	**M8**
grade 1:	≤ 0,5 Nm	≥ 30 Nm	≥ 20 Nm	0 Nm
grade 2:	≤ 3,0 Nm	≥ 30 Nm	≥ 20 Nm	≥ 0,6 Nm – 5°
grade 3:	≤ 5,0 Nm	≥ 30 Nm	≥ 20 Nm	≥ 0,6 Nm – 5°
grade 4:	Manuf. Spec.	≥ 30 Nm	≥ 20 Nm	≥ 0,6 Nm – 5°

(1) main requirement related to the classification grade (indicative)

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Key identification requirement (eleventh digit)

grade 0: No requirements (e.g. lock operated by cylinder according to EN1303 or EN15684)

grade A: Minimum three detaining elements

grade B: Minimum five detaining elements

grade C: Minimum five detaining elements extended number of effective differs

grade D: Minimum six detaining elements

grade E: Minimum six detaining elements extended number of effective differs

grade F: Minimum seven detaining elements

grade G: Minimum seven detaining g elements extended number of effective differs

grade H: Minimum eight detaining elements extended number of effective differs

(1)	Min. nr. of detaining elements	Min. nr. of effective differs	Min. nr. of differing steps height on key	Non interpassing of keys	Coding protection
grade 0:	No requirements (e.g. lock operated by cylinder according to EN1303 or EN15684)				
grade A:	3	100	2	YES	NO
grade B:	5	1.000	3	YES	YES
grade C:	5	10.000	3	YES	YES
grade D:	6	4.000	3	YES	YES
grade E:	6	20.000	3	YES	YES
grade F:	7	6.000	4	YES	YES
grade G:	7	50.000	4	YES	YES
grade H:	8	100.000	4	YES	YES

(1) main requirement related to the classification grade (indicative)