

EN 16864:2017

Mechatronic Padlocks and padlock fittings



Example of classification:

1	1	4	4	6	D	3	3
1°	2°	3°	4°	5°	6°	7°	8°

Category of use (first digit)

- grade 0:** For use by people with a high incentive to exercise care and with a small chance of misuse.
- grade 1:** For use by people with a high incentive to exercise care and with a small chance of misuse only if the MP passes the testing in accordance with EN16864 § 4.2 (Category of use), it shall be classified as grade 1.

Durability (second digit)

- grade 0:** no requirements
- grade 1:** 10 000 test cycles

Corrosion resistance (third digit)

- grade 0:** no defined corrosion resistance
- grade 1:** low corrosion resistance (24h NSS)
- grade 2:** moderate corrosion resistance (48h NSS)
- grade 3:** high corrosion resistance (96h NSS)
- grade 4:** very high corrosion resistance (240h NSS)
- grade 5:** ultra-high corrosion resistance (480h NSS)

Environmental resistance (fourth digit)

	Mechatronic cylinder				Mechatronic key			
	Water protection EN15684 § 5.7.2	Dry heat EN15684 § 5.7.3	Cold EN15684 § 5.7.4	Dump heat EN15684 § 5.7.5	Water protection EN15684 § 5.7.6	Dry heat EN15684 § 5.7.3	Cold EN15684 § 5.7.4	Dump heat EN15684 § 5.7.5
grade 0:	-	-	-	-	-	-	-	-
grade 1:	-	+55°C 16h	+5°C 16h	-	-	+55°C 16h	+5°C 16h	-
grade 2:	IP X4	+55°C 16h	+5°C 16h	-	10 cm deep /10s	+55°C 16h	+5°C 16h	-
grade 3:	IP X5	+55°C 16h	-10°C 16h	+55°C 6 cycles	10 cm deep /10s	+55°C 16h	-10°C 16h	-
grade 4:	IP X6	+65°C 16h	-25°C 16h	+55°C 6 cycles	10 cm deep /10s	+65°C 16h	-25°C 16h	+55°C 6 cycles

Mechanical key related security (5th character)

	Key retaining	Min. nr. effective differs	Non interpassing of keys
grade 1:	No	300	1,0 Nm
grade 2:	No	1.000	1,0 Nm
grade 3:	No	2.500	1,5 Nm
grade 4:	Yes	5.000	1,5 Nm
grade 5:	Yes	10.000	1,5 Nm
grade 6:	Yes	20.000	1,5 Nm

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Electronic key related security (6th character)

	Mean time to compromise	Spoofing protection
grade 0:	-	-
grade A:	6 h	-
grade B:	12 h	-
grade C:	24 h	Yes
grade D:	48 h	Yes

System management (7th character)

grade 0:	No requirement
grade 1:	Time zone without audit trail
grade 2:	Audit trail capability of at least 50 events without time zone
grade 3:	Audit trail capability of at least 50 events with time zone

Attack resistance (8th character)

(1)

Drilling resistance (body, staple, shackle)

Twisting of shackle

Resistance to force on cylinder plug

Torque resistance with electronic dummy key

Resistance to torque on cylinder plug

Resistance to pulling of shackle

Sawing resistance (body, staple, shackle)

Resistance to cutting of shackle

Resistance to impact at low temperatures

Manual attack

Magnetic field attack

Attack by vibrations

Increased voltage attack

Electrostatic discharge attack test

grade 0	grade 1	grade 2	grade 3	grade 4	grade 5	grade 6
-	-	-	-	2 [min]	4 [min]	8 [min]
-	40 [Nm]	100 [Nm]	200 [Nm]	600 [Nm]	1200 [Nm]	2500 [Nm]
-	-	-	4 [kN]	5 [kN]	10 [kN]	15 [kN]
-	-	-	4 [Nm]	5 [Nm]	7 [Nm]	7 [Nm]
-	-	2,5 [Nm]	5 [Nm]	15 [Nm]	20 [Nm]	30 [Nm]
-	3 [kN]	5 [kN]	15 [kN]	30 [kN]	70 [kN]	100 [kN]
-	-	-	-	2 [min]	4 [min]	8 [min]
-	6 [kN]	15 [kN]	25 [kN]	45 [kN]	70 [kN]	100 [kN]
-	-	-	-20 [°C] 1,25 [kg] 800 [mm]	-20 [°C] 3,05 [kg] 1000 [mm]	-40 [°C] 6,55 [kg] 1400 [mm]	-40 [°C] 7,15 [kg] 1400 [mm]
-	-	-	-	3 [min]	5 [min]	10 [min]
-	-	-	2 [min]	2 [min]	2 [min]	2 [min]
-	-	-	3 [min]	3 [min]	5 [min]	5 [min]
-	-	-	Nominal + 6 [V] Maximum 600 [mA]		Nominal + 48 [V] Maximum 600 [mA]	
-	8 [kV] in contact 15 [kV] in air		8 [kV] in contact 21 [kV] in air			