

EN15684:2012

Mechatronic cylinders



Example of classification:

1	6	B	4	F	F	3	2
1°	2°	3°	4°	5°	6°	7°	8°

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)

Durability (second digit)

grade 4: 25.000 test cycles – resistive torque on the plug 0,15Nm
grade 5: 50.000 test cycles – resistive torque on the plug 0,15Nm
grade 6: 100.000 test cycle. – resistive torque on the plug 0,15Nm

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

grade 0: not approved for use on fire/smoke door assemblies
grade A: suitable for use on smoke door assemblies (test according to EN1634-3 or material declaration)
grade B: for use on fire and smoke door assemblies. (test according to EN1634-1 or EN1634-2)

Environmental resistance (fourth digit)

	Mechatronic cylinder					Mechatronic key			
	Corrosion EN15684 § 5.7.1	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
⁽¹⁾ Grade 0	-	-	-	-	-	-	-	-	-
Grade 1	-	-	+55°C 16h	+5°C 16h	-	-	+55°C 16h	+5°C 16h	-
Grade 2	96 h NSS	IP X4	+55°C 16h	+5°C 16h	-	10 cm deep /10s	+55°C 16h	+5°C 16h	-
Grade 3	96 h NSS	IP X4	+55°C 16h	-10°C 16h	-	10 cm deep /10s	+55°C 16h	-10°C 16h	-
Grade 4	96 h NSS	IP X4	+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 (fifth digit)

	Mechanical codes			Movable retainers		Identical steps	
	Mechanical codes	Correlation with EN 1303:2005	Torque resistance of plug/cylinder	Min. number of movable retainers	Correlation with EN 1303:2005	Max numbers of identical steps	Correlation with EN 1303:2005
⁽¹⁾ Grade A	-	-	-	-	-	-	-
Grade B	≥ 100	Grade 1	25 Nm	2	Grade 1	100 %	Grade 1
Grade C	≥ 300	Grade 2	5 Nm	3	Grade 2	70 % max. 2 adjacent	Grade 2
Grade D	≥ 15.000	Grade 3	15 Nm	5	Grade 3	60 % max. 2 adjacent	Grade 3
Grade E	≥ 30.000	Grade 4 or 5	15 Nm	5	Grade 4 or 5	60 % max. 2 adjacent	Grade 4 or 5
Grade F	≥ 100.000	Grade 6	15 Nm	6	Grade 6	60 % max. 2 adjacent	Grade 6

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Electronic key related security (sixth digit)

	Electronic codes
Grade A	≥ 10.000
Grade B	≥ 100.000
Grade C	≥ 1.000.000
Grade D	≥ 10.000.000
Grade E	≥ 100.000.000 - Communication shall be protected
Grade F	≥ 1.000.000.000 - Communication shall be protected

System Management (seventh digit)

	Audit trail and time zone
Grade 0	No requirement
Grade 1	Time zone without audit trail
Grade 2	Audit trail capability without time zone
Grade 3	Audit trail capability and time zone

Attack resistance (eighth digit)

(1)	Security test									
	Drilling EN15684 §4.8.2	Chisel EN15684 §4.8.3	Twisting EN15684 §4.8.4	Plug extraction EN15684 §4.8.5	Torque of plug EN15684 §4.8.6	Hits EN15684 §4.8.7	Vibrations EN15684 §4.8.8	Voltage EN15684 §4.8.9	Electrostatic EN15684 §4.8.10	Magnetic field EN15684 §4.8.11
Grade 0	-	-	-	-	-	-	-	-	8 kV contact 15 kV in air	-
Grade 1	HSS drill bits 3 min net 5 min tot	30 blows 6 kg mass 700 mm falling height	20 twists 250 Nm clockwise anticlockwise	10 kN 3 min	20 Nm 5 Nm (key)	3 min	3 min	Normal supply voltage + 6 V by a max. 600 mA	8 kV contact 21 kV in air	2 min
Grade 2	HSS drill bits 5 min net 10 min tot	40 blows 6 kg mass 700 mm falling height	30 twists 250 Nm clockwise anticlockwise	15 kN 5 min	30 Nm 7 Nm (key)	5 min	5 min	Normal supply voltage + 48 V by a max. 600 mA	8 kV contact 21 kV in air	2 min