

Summary of Atos ex-proof components certified to

Atos MA certified ex-proof components are electrohydraulic equipment designed to operate in hazardous environments of chinese underground mines with presence of methane-air atmosphere or coal dust.

They are certified by an independent notified body in conformity to Chinese Mining Products Safety Approval and Certification Center - **MA Center**.

Official notification by MA Center states that the product under consideration meets the applicable Regulations for the Implementation of the Law of the People's Republic of China on Safety in Mines.

1 PRODUCTS RANGE

Atos MA certified ex-proof range includes on-off solenoid directional valves, direct type.

Atos Sh extended range includes on-off solenoid directional valves, direct & piloted type, plus pressure relief with solenoid pilot.

The MA certification is relevant to the on-off solenoids.

They are engineered and manufactured according to protection method **Ex d**, where internal parts are sealed inside a ruggedized **flameproof enclosure**, granting high protection to the risk of explosion, see section 2.

The mechanical parts likes body, spools, etc, are strictly derived from highly engineered standard components.

They are not involved in the certification since their functioning does not represent a potential risk for the explosive environment.

Product Category	Component	Environment	MA Certification		Marking
On-off valves	Directional valves, direct & piloted Pressure relief valves	Gas	Ex db I Mb		see sect. 4

2 FLAMEPROOF ENCLOSURE - Ex d

Technical characteristics

It is characterized by a strong mechanical construction, capable of withstanding the overpressure caused by a potential internal explosion and preventing the spread of flames to the external environment. It permits to dissipate the heat generated by the solenoid and driver power, in order to limit the surface temperature, to avoid the self-ignition of the surrounding flammable atmosphere.

The rugged design of the flameproof enclosure, makes the ex-proof valves suited for application in harsh environments.

Electrical wiring

The MA certified ex-proof solenoids are provided with a built-in cable gland for the electrical wiring to the terminal board.

3 NAMEPLATE MARKING

Atos MA certified ex-proof components are provided with a specific nameplate reporting the MA certificate number, the notified body and the classification according to the MA certification.

The classification identifies the protection method and the compatibility of the ex-proof component for mining hazardous environment.

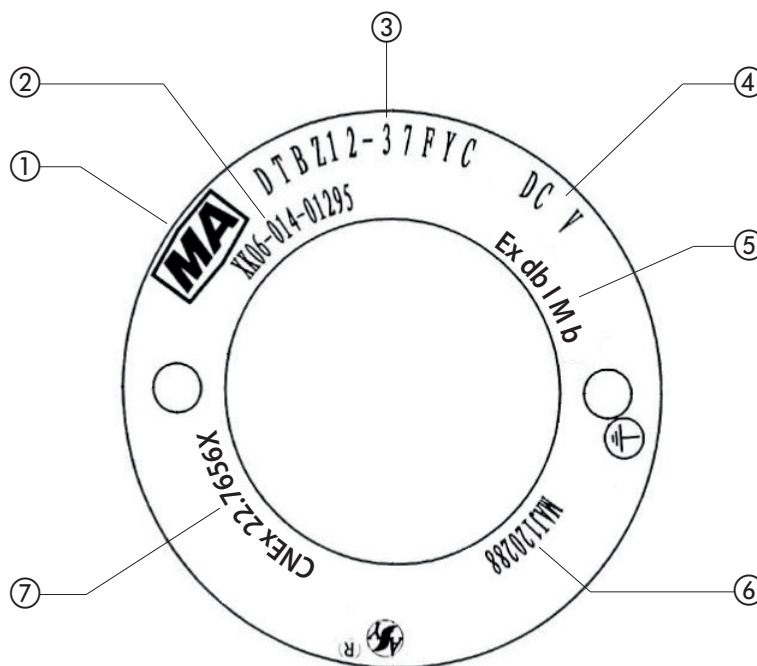
The following section provides a detailed description of the nameplate marking.

4 ON-OFF VALVES

Nameplate marking to MA

Gas - group I Mb - Mining

- ① MA logo
- ② License
- ③ Solenoid model code
- ④ Power supply characteristics
- ⑤ MA classification for Mining
- ⑥ Notified body and certificate number
- ⑦ MA certificate number



MA classification - for Gas group I - Mining

Ex	d	I	Mb
Mark of Explosion Proof	Protection Method d Flameproof enclosure	Gas Group I Methane	Equipment Protection Level Mb High protection

RELATED DOCUMENTATION

<p>Directional valves</p> <p>EX015 DHA/MA - DKA/MA direct, spool type</p> <p>Directional valves (1)</p> <p>SHX121 SDHA/MA, SDKA/MA - direct, spool type</p> <p>SHX121 DPHA/MA - piloted, spool type</p> <p>Pressure relief valves (1)</p> <p>SHX121 SAGAM/MA - piloted, with solenoid valve for venting</p>
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(1) Atos Sh products range, see www.atos.com