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Duplomatic: 02 500/121 ED

Continental: 1027865

EXPLOSION-PROOF CLASSIFICATION

SOLENOID AND PROPORTIONAL VALVES

ref. catalogues:

pressure control v	alves	
PR*SPUHL	RQM*K*-P	21 515
	P*E*K*	81 316
	ZDE3K*	81 515
VER*HL	DZCE*K*	81 606
flow control valve	S	
	QDE3K*	82 225
directional valves		
VSD*HL	D*K*	41 515
	DT3K*	42 215
VED*HL	DS(P)E*K*	83 510

GENERAL INFO

This informative technical datasheet displays information about classification and marking of Duplomatic explosion-proof valves range.

Duplomatic MS offers valves with the following certifications:

ATEX	II 2G	II 2D	I M2
IECEx	Gb	Db	Mb
INMETRO	Gb	Db	Mb
PESO	Gb		

Instructions for use and maintenance can be found in the related manuals, always supplied toghether with valves.



1 - ATEX CLASSIFICATION AND TEMPERATURES

Duplomatic certificates the combination valve-coil for the valves suitable for application and installation in potentially explosive atmospheres, according to ATEX directive; the supply always includes the declaration of conformity to the directive and the operating and maintenance manual, that contains all the information needed for a correct use of the valve in potentially explosive environments.

Coils assembled on these valves have been separately certified according to ATEX directive and so they are suitable for use in potentially explosive atmospheres.

1.1 - ATEX classification for valves

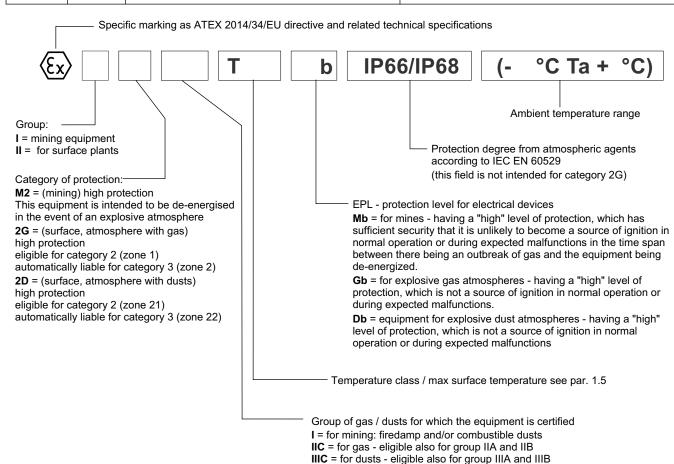
Type examination certificate: AR18ATEX055

The valves are suitable for applications and installations in potentially explosive atmospheres that fall within:

ATEX II 2G ATEX II 2D	*KD2	equipment intended for use in areas in which explosive atmospheres caused by gases, vapours, mists air/dust mixtures are likely to occur occasionally. The means of protection relating to equipment in this category ensure the requisite level of protection, even in the event of frequently occurring disturbances equipment faults which normally have to be taken into account.	
ATEX I M2 *KDM2 such mines likely to be endangered by firedamp and/or co		equipment intended for use in underground parts of mines as well as those parts of surface installations of such mines likely to be endangered by firedamp and/or combustible dust. This equipment is intended to be de-energised in the event of an explosive atmosphere.	

1.2 - ATEX marking for valves

valve code		N and V seals	NL seals
*KD2	for gas	⟨Ex⟩ 2G C T4 Gb (-20°C Ta +80°C)	⟨Ex⟩ 2G C T4 Gb (-40°C Ta +80°C)
KD2	for dusts	(Ex) 2D	(£x) 2D C T154°C Db
*KD2 /T5	for gas	⟨Ex⟩ 2G C T5 Gb (-20°C Ta +55°C)	(Ex) II 2G IIC T5 Gb (-40°C Ta +55°C)
KDZ /13	for dusts	(Ex) 1 2D 1 1 1 2D 20°C Ta +55°C	(£x) 2D C T129°C Db P66/ P68 (-40°C Ta +55°C)
*KDM2	mining	(£x) I M2 I T150°C Mb IP66/68 (-20°C Ta +75°C)	(ξx) I M2 I T150°C Mb IP66/68 (-40°C Ta +75°C)







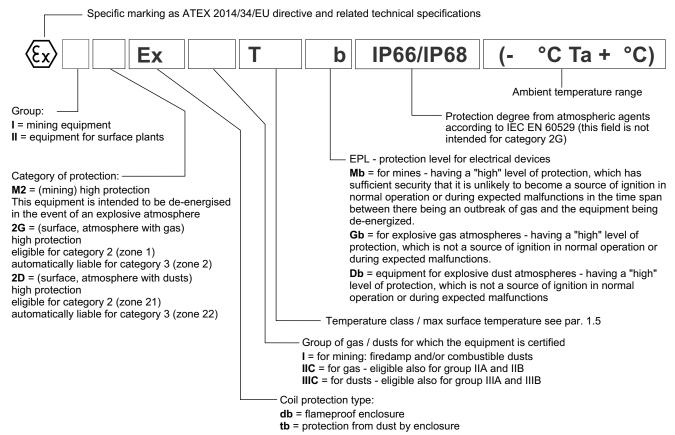
1.3 - ATEX classification of the coils

The coil of the explosion-proof valves is ATEX certified itself an as such is identified with its own tag, carries the relative ATEX marking. The mechanical construction of the coil housing is made in order to ensure its resistance to possible internal explosion and to avoid any explosion propagation to the outside environment, matching an "Ex db" type protection (explosion-proof coil).

Moreover, the solenoid is designed to maintain its surface temperature below the limits specified to the relevant class.

1.4 - ATEX marking on coils

for valve type	for gas	⟨Ex⟩ II 2G Ex db IIC T4 Gb (-40°C Ta +80°C)
*KD2	for dusts	Ex II 2D Ex tb IIIC T154°C Db IP66/IP68 (-40°C Ta +80°C)
for valve type	for gas	(€x) II 2G Ex db IIC T5 Gb (-40°C Ta +55°C)
*KD2 /T5	for dusts	Ex II 2D Ex tb IIIC T129°C Db IP66/IP68 (-40°C Ta +55°C)
for valve type *KDM2	mining	⟨Ex⟩ I M2 Ex db I T150°C Mb IP66/IP68 (-40°C Ta +75°C)



1.5 - Operating temperatures

These valves are classified according to their maximum surface temperature (EN 13463-1), which must be lower than the ignition temperature of the gases, vapors and dusts for which the area in which they will be used is classified.

The valves in group II can also be used for less limiting temperature classes (surface temperature allowed higher).

		temperature range	N and V seals	NL seals	Temperature class	eligible also for
ATEX II 2G ATEX II 2D	* KD2	of ambient	-20 / +80 °C	40 / : 00 %0	T4 (gas)	T3, T2, T1
		of fluid	-207+60 C	-40 / +80 °C	T154°C (dusts)	T200°C and higher
	*KD2 /T5	of ambient	-20 / +55 °C	-40 / +55 °C	T5 (gas)	T4, T3, T2, T1
	KD2 /13	of fluid	-20 / +60 °C	-40 / +60 °C	T129°C (dusts)	T135°C and higher
	*KDM2	of ambient	-20 / +75 °C	-40 / +75 °C	T150°C	
	KDIVIZ	of fluid	-207775 C	-40/+75 C	1130 C	-









2 - IECEX CLASSIFICATION AND TEMPERATURES

The IECEx certification requires the classification of the electrical equipment only.

Duplomatic supplies valves with IECEx certified coils, suitable for application and installation in potentially explosive atmospheres. The mechanical construction of the coil housing is made in order to ensure its resistance to possible internal explosion and to avoid any explosion propagation to the outside environment, matching an "Ex db" type protection (explosion-proof coil).

Moreover, the solenoid is designed to maintain its surface temperature below the limits specified to the relevant class.

The supply always includes the operating and maintenance manual, that contains all the information needed for a correct use of the valve in potentially explosive environment.

2.1 - IECEx classification

Certificate of conformity (CoC): IECEx TUN 15.0028X

The valves are suitable for applications and installations in potentially explosive atmospheres that fall within:

1800-OILSOL

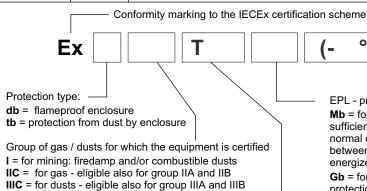
1800-645765

IECEx Gb IECEx Db	*KXD2	equipment intended for use in areas in which explosive atmospheres caused by gases, vapours, mists or air/dust mixtures are likely to occur occasionally. The means of protection relating to equipment in this category ensure the requisite level of protection, even in the event of frequently occurring disturbances or equipment faults which normally have to be taken into account.
IECEx Mb *KXDM2 equipr		equipment intended for use in underground parts of mines as well as those parts of surface installations of such mines likely to be endangered by firedamp and/or combustible dust. This equipment is intended to be de-energised in the event of an explosive atmosphere.

2.2 - IECEx marking

There is a plate with the IECEx mark on each coil.

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*KXD2 valves	for gas	Ex db IIC T4 Gb (-40°C Ta +80°C)				
	for dusts	Ex tb IIIC T135°C Db (-40°C Ta +80°C)				
*KXD2 /T5	for gas	Ex db IIC T5 Gb (-40°C Ta +55°C)				
valves	for dusts	Ex tb IIIC T100°C Db (-40°C Ta +55°C)				
*KDM2 valves	mining	Ex db I Mb (-40°C Ta +80°C)				



Temperature class/max surface temperature see par. 2.3

EPL - protection level for electrical devices

°C Ta +

Mb = for mines - having a "high" level of protection, which has sufficient security that it is unlikely to become a source of ignition in normal operation or during expected malfunctions in the time span between there being an outbreak of gas and the equipment being deenergized.

Ambient temperature range

Gb = for explosive gas atmospheres - having a "high" level of protection, which is not a source of ignition in normal operation or during expected malfunctions.

Db = equipment for explosive dust atmospheres - having a "high" level of protection, which is not a source of ignition in normal operation or during expected malfunctions

2.3 - Operating temperatures

These valves are classified according to their maximum surface temperature (EN 13463-1), which must be lower than the ignition temperature of the gases, vapors and dusts for which the area in which they will be used is classified.

Valves for surface plants can also be used for less limiting temperature classes (higher surface temperature allowed).

		temperature range	N and V seals	NL seals	Temperature class	eligible also for
	*KAD3	of ambient	20 / 190 °C	-40 / +80 °C	T4 (gas)	T3, T2, T1
IECEx Gb	*KXD2	of fluid	-20 / +80 °C	-40 / +80 °C	T135°C (dusts)	T200°C and higher
IECEx Db	*KXD2 /T5	of ambient	-20 / +55 °C	-40 / +55 °C	T5 (gas)	T4, T3, T2, T1
	KADZ /13	of fluid	-20 / +60 °C	-40 / +60 °C	T100°C (dusts)	T135°C and higher
	*KXDM2	of ambient	-20 / +80 °C	-40 / +80 °C		
	RADIVIZ	of fluid	-207 F00 C	-407 700 C	-	_

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3 - INMETRO CLASSIFICATION AND TEMPERATURES

The INMETRO certification requires the classification of the electrical equipment only.

1800-OILSOL

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Duplomatic supplies valves with INMETRO certified coils, suitable for application and installation in potentially explosive atmospheres. The mechanical construction of the coil housing is made in order to ensure its resistance to possible internal explosion and to avoid any explosion propagation to the outside environment, matching an "Ex db" type protection (explosion-proof coil).

Moreover, the solenoid is designed to maintain its surface temperature below the limits specified to the relevant class.

The supply always includes the operating and maintenance manual, that contains all the information needed for a correct use of the valve in potentially explosive environment.

3.1 - INMETRO classification

Certificate of conformity: DNV 15.0094 X

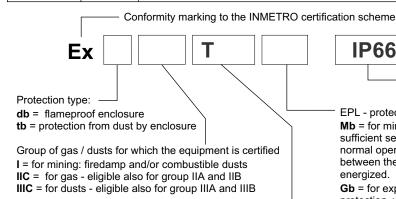
The valves are suitable for applications and installations in potentially explosive atmospheres that fall within:

INMETRO Gb *KRD2 air/		equipment intended for use in areas in which explosive atmospheres caused by gases, vapours, mists or air/dust mixtures are likely to occur occasionally. The means of protection relating to equipment in this category ensure the requisite level of protection, even in the event of frequently occurring disturbances or equipment faults which normally have to be taken into account.
INMETRO Mb	*KBDM2	equipment intended for use in underground parts of mines as well as those parts of surface installations of such mines likely to be endangered by firedamp and/or combustible dust. This equipment is intended to be de-energised in the event of an explosive atmosphere.

3.2 - INMETRO marking

There is a plate with the INMETRO mark on each coil.

*KBD2	for gas	Ex db IIC T4 Gb (-40°C Ta +80°C)
valves	for dusts	Ex tb IIIC T154°C Db IP66/IP68 (-40°C Ta +80°C)
*KBD2 /T5	for gas	Ex db IIC T5 Gb (-40°C Ta +55°C)
valves	for dusts	Ex tb IIIC T129°C Db IP66/IP68 (-40°C Ta +55°C)
*KBDM2 valves	mining	Ex db I T150° Mb IP66/IP68 (-40°C Ta +75°C)



Temperature class/max surface temperature see par. 3.3 -

EPL - protection level for electrical devices

IP66/IP68

Mb = for mines - having a "high" level of protection, which has sufficient security that it is unlikely to become a source of ignition in normal operation or during expected malfunctions in the time span between there being an outbreak of gas and the equipment being deenergized.

Ambient temperature range

°C Ta +

Protection degree from atmospheric agents according to IEC EN 60529 (this field is not intended for gases)

Gb = for explosive gas atmospheres - having a "high" level of protection, which is not a source of ignition in normal operation or during expected malfunctions.

Db = equipment for explosive dust atmospheres - having a "high" level of protection, which is not a source of ignition in normal operation or during expected malfunctions

3.3 - Operating temperatures

These valves are classified according to their maximum surface temperature (EN 13463-1), which must be lower than the ignition temperature of the gases, vapors and dusts for which the area in which they will be used is classified.

Valves for surface plants can also be used for less limiting temperature classes (higher surface temperature allowed).

		temperature range	N and V seals	NL seals	Temperature class	eligible also for
	*KBD2	of ambient	-20 / +80 °C	-40 / +80 °C	T4 (gas)	T3, T2, T1
INMETRO Gb		of fluid	-207+80 C	-407+80 C	T154°C (dusts)	T200°C and higher
INMETRO Db	*KBD2 /T5	of ambient	-20 / +55 °C	-40 / +55 °C	T5 (gas)	T4, T3, T2, T1
	KBD2 /13	of fluid	-20 / +60 °C	-40 / +60 °C	T129°C (dusts)	T135°C and higher
INMETRO Mb	*KBDM2	of ambient	-20 / +75 °C	-40 / +75 °C	T150°C	
	RBDIVIZ	of fluid	-207+73 C	-407+73 C	1130 C	-

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4 - PESO CLASSIFICATION AND TEMPERATURES

The PESO certification requires the classification of the electrical equipment only.

Duplomatic supplies valves with PESO certified coils, suitable for application and installation in potentially explosive atmospheres. The mechanical construction of the coil housing is made in order to ensure its resistance to possible internal explosion and to avoid any explosion propagation to the outside environment, matching an "Ex db" type protection (explosion-proof coil).

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Moreover, the solenoid is designed to maintain its surface temperature below the limits specified to the relevant class.

The supply always includes the operating and maintenance manual, that contains all the information needed for a correct use of the valve in potentially explosive environment.

4.1 - PESO classification

Certificate of conformity: P480801

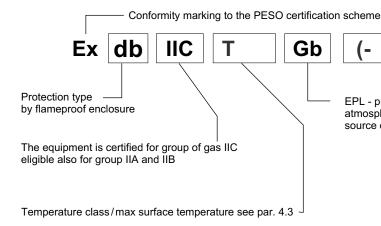
The valves are suitable for applications and installations in potentially explosive atmospheres that fall within:

PESO Gb	*KPD2	equipment intended for use in areas in which explosive atmospheres caused by gases, vapours, mists are likely to occur occasionally. The means of protection relating to equipment in this category ensure the requisite level of protection, even in the event of frequently occurring disturbances or equipment faults which normally have to be taken into account.
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4.2 - PESO marking

There is a plate with the PESO mark on each coil.

*KPD2 valves	for gas	Ex db IIC T4 Gb (-40°C Ta +80°C)
*KPD2 /T5 valves	for gas	Ex db IIC T5 Gb (-40°C Ta +55°C)





Ambient temperature range

EPL - protection level for electrical devices for explosive gas atmospheres - having a "high" level of protection, which is not a source of ignition in normal operation or during expected malfunctions.

4.3 - Operating temperatures

These valves are classified according to their maximum surface temperature (EN 13463-1), which must be lower than the ignition temperature of the gases, vapors and dusts for which the area in which they will be used is classified.

Valves for surface plants can also be used for less limiting temperature classes (higher surface temperature allowed).

		temperature range	N and V seals	NL seals	Temperature class	eligible also for
PESO Gb	*KPD2	of ambient	-20 / +80 °C	-40 / +80 °C	T4 (gas)	T3, T2, T1
		of fluid				
	*KPD2 /T5	of ambient	-20 / +55 °C	-40 / +55 °C	T5 (gas)	T4, T3, T2, T1
		of fluid	-20 / +60 °C	-40 / +60 °C		



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