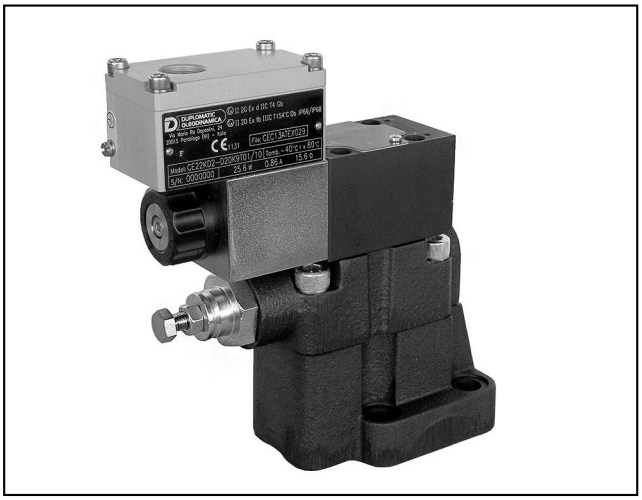


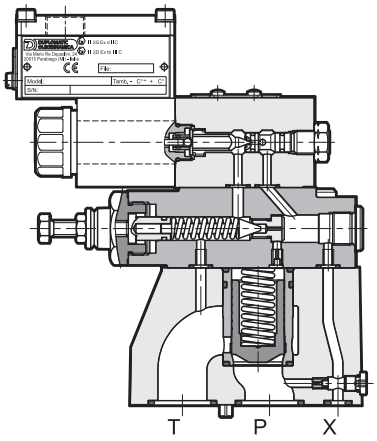
PRE(D)*KD2

EXPLOSION-PROOF PROPORTIONAL PRESSURE RELIEF VALVE, PILOT OPERATED in compliance with ATEX 94/9/EC

SERIES 10

PRED3KD2 **ISO 4401-03** (CETOP 03)
PRE3KD2 **ISO 4401-03** (CETOP 03)
PRE10KD2 **ISO 6264-06** (CETOP R06)
PRE25KD2 **ISO 6264-08** (CETOP R08)
PRE32KD2 **ISO 6264-10** (CETOP R10)

OPERATING PRINCIPLE



TYPE EXAMINATION CERTIFICATE No: CEC 13 ATEX 030-REV.1

— The explosion-proof pressure relief valves with proportional control are in compliance with ATEX 94/9/EC standards and are suitable for the use in potentially explosive atmospheres, that fall within the ATEX II 2GD either for gas or for dust classification. See par. 5 for ATEX classification, operating temperatures and electrical characteristics.

— The statement of conformity to the up mentioned standards is always supplied with the valve.

— Upon request, PRE(D)*KD2 valves can be supplied with a finishing surface treatment (zinc-nickel) suitable to ensure a salt spray resistance up to 600 h (test operated according to UNI EN ISO 9227 standards and test evaluation operated according to UNI EN ISO 10289 standards).

— Pressure can be modulated continuously in proportion to the current supplied to the solenoid.

— These valves can be controlled directly by a current control supply unit or by means of the relevant electronic control units to exploit valve performance to the full (see par. 20).

PERFORMANCES (obtained with mineral oil with viscosity of 36 cSt at 50°C and electronic control cards)		**PRED3KD2**	**PRE3KD2**	**PRE10KD2**	**PRE25KD2**	**PRE32KD2**
Maximum operating pressure - P port - T port	bar	350 2				
Minimum controlled pressure		see p min = f(Q) diagram				
Minimum flow Nominal flow Maximum flow	l/min	- 1 5	2 10 40	- - 200	- - 400	- - 500
Step response		see paragraph 10				
Hysteresis	% of p nom	< 5%				
Repeatability	% of p nom	< ±1,5%				
Electrical characteristic		see paragraph 5.4				
Ambient temperature range	°C	-20 / +80 (NBR and FPM) -40 / +80 (NL)				
Fluid temperature range	°C	-20 / +80 (NBR and FPM) -40 / +80 (NL)				
Fluid viscosity range	cSt	10 ÷ 400				
Fluid contamination degree	According to ISO 4406:1999 class 18/16/13					
Recommended viscosity	cSt	25				
Mass	kg	1,8	3,8	5,3	6,1	8,3

1 - IDENTIFICATION CODE OF DIRECT OPERATED PROPORTIONAL VALVE PRED3KD2

P	R	E	D	3	KD2	-		/	10		-		K9			

Pressure control valve

Electrical proportional control

Direct operated

Size ISO 4401-03 (CETOP 03)

Explosion-proof version, according to ATEX - II 2GD for gas or for dust (protection type of the coil: “d”)

Pressure control range
070 = 0,7 - 70 bar
140 = 1,1 - 140 bar
210 = 1,8 - 210 bar
350 = 2,8 - 350 bar

Series No.
(the overall and mounting dimensions remain unchanged from 10 to 19)

Seals:
For temperature range -20 / +80 °C
N = NBR seals for mineral oil (standard)
V = FPM seals for special fluids
For temperature range -40 / +80 °C
NL = seal for low temperatures (for mineral oil)

Nominal solenoid voltage:
D12 = 12V DC
D24 = 24V DC

Coil electrical connection:
electrical connection by terminal block

Connection type for cable gland
for upper connection:
T01 = M20x1.5 - ISO 261
T02 = Gk 1/2 - UNI EN 10226-2
T03 = 1/2” NPT - ANSI B1.20.1 (ex ANSI B2.1)
for side connection:
S04 = M16x1.5 - ISO 261 (only for D24 coils)
S01 = M20x1.5 - ISO 261 (available upon request only)

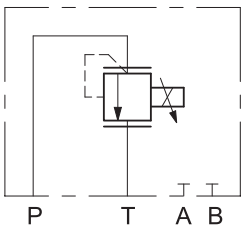
Option: **/T5**
version in T5 temperature class.
See at par. 5.4
Omit if not required.

Option:
surface treatment not standard.
Omit if not required
(see **NOTE 1**)

NOTE 1: the valve is supplied with standard surface treatment of phosphating black. Upon request we can supply these valves with zinc-nickel surface treatment.

For this option add the suffix **/W7** at the end of the identification code.

2 - HYDRAULIC SYMBOL



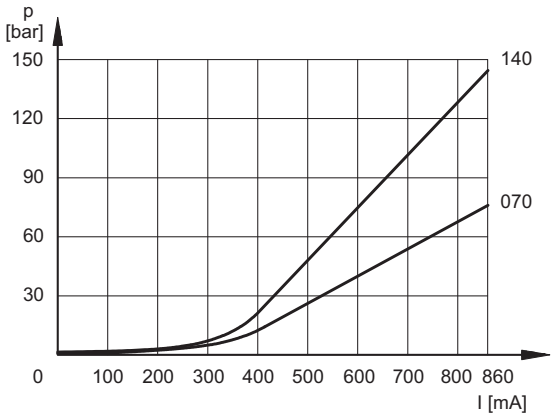
3 - CHARACTERISTIC CURVES OF DIRECT OPERATED PROPORTIONAL VALVE PRED3KD2

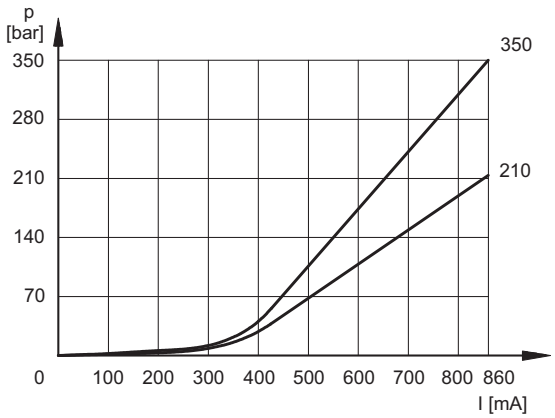
(measured with viscosity of 36 cSt at 50°C)

Typical control curves according to the current supplied to the solenoid for pressure control ranges: 070, 140, 210, 350, measured with input flow rate Q =1 l/min.

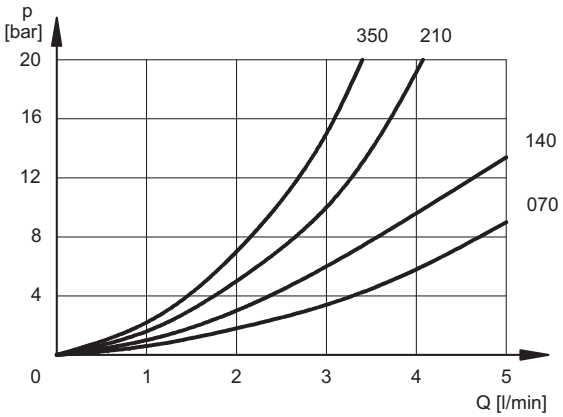
The curves are obtained without any hysteresis and linearity compensation and they are measured without any backpressure in T. The full scale pressure is set in factory with a flow rate of 1 l/min. In case of higher flow rate, the full scale pressure will increase considerably (see diagram pmax = f (Q)).

PRESSURE CONTROL p = f(I)

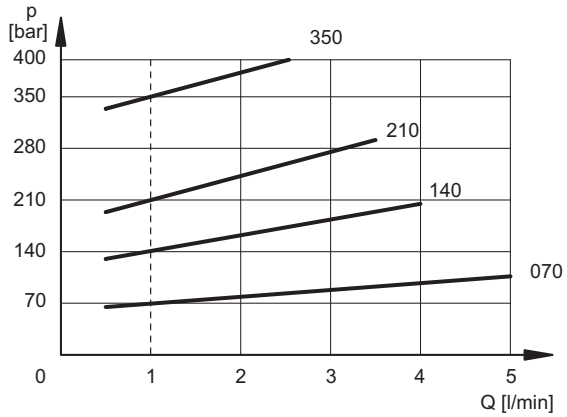




MINIMUM CONTROLLED PRESSURE p min = f (Q)

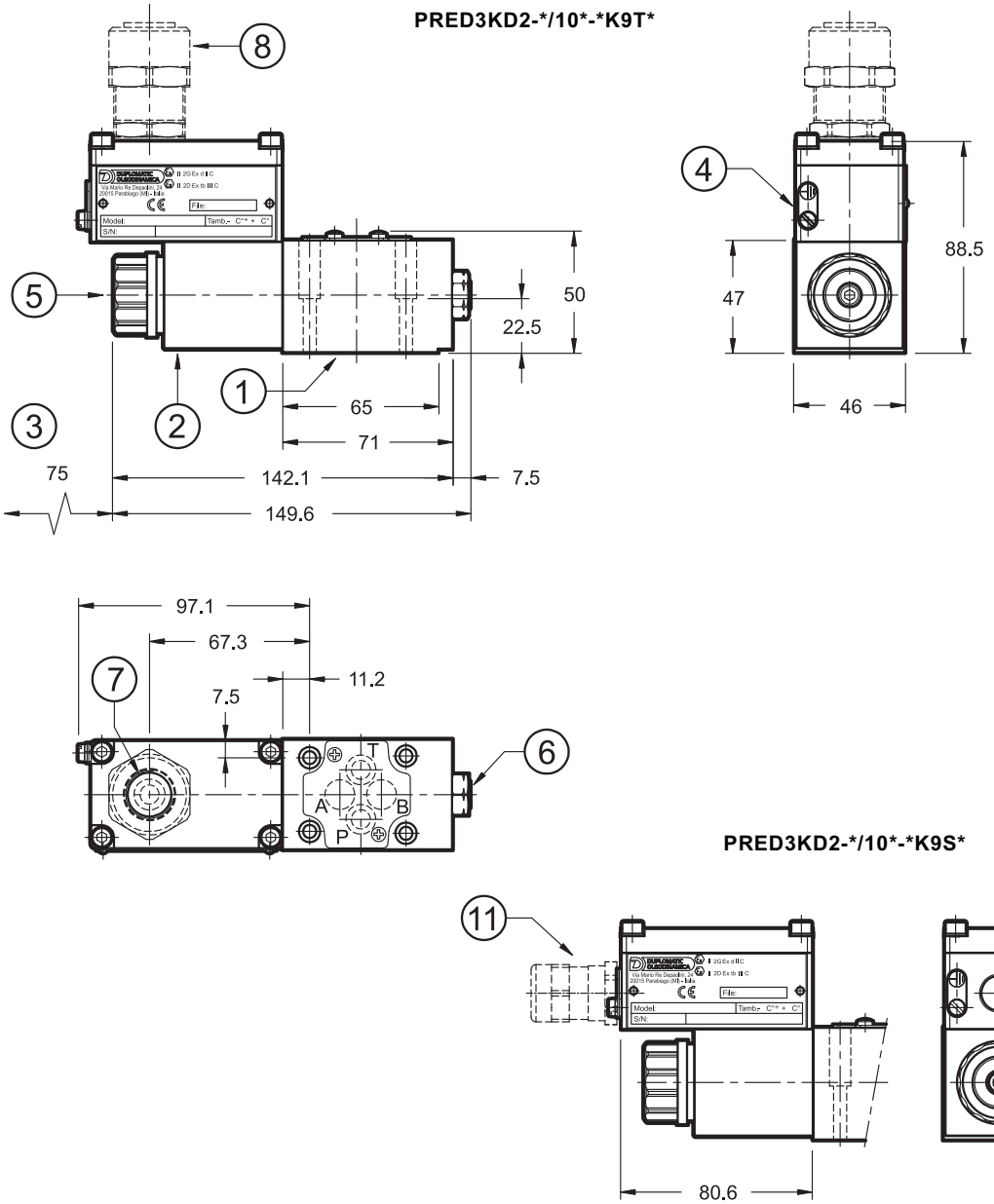


PRESSURE VARIATION p max = f (Q)



4 - PRED3KD2 OVERALL AND MOUNTING DIMENSIONS

PRED3KD2-*/10*-*K9T*



PRED3KD2-*/10*-*K9S*

dimensions in mm

1	Mounting surface with sealing rings
2	Explosion-proof coil
3	Coil removal space
4	Terminal for supplementary earth connection
5	Breather (Allen key 4)
6	Factory setting sealing (we recommend not unscrewing the nut)
7	Upper port for cable gland
8	Cable gland (upper port shown). To be ordered separately, see paragraph 16

Side port type	Dimension A
S01	60.5
S04	61.5

NOTE: at the first start up, or after a long period of no use, it is necessary to vent the air through the breather (5) placed at the end of the solenoid tube.

Fastening of single valve: 4 SHC screws M5x30 - ISO 4762
Tightening torque: 5 Nm (A 8.8 screws)
Threads of mounting holes: M5x10
Sealing rings: N. 4 OR type 2037 (9.25 x 1.78) - 90 shore

5 - ATEX CLASSIFICATION, OPERATING TEMPERATURES AND ELECTRICAL CHARACTERISTICS

For valves suitable for application and installation in potentially explosive atmospheres, according to ATEX directive prescriptions, Duplomatic certificates the combination valve-coil; **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.

5.1 - Valve ATEX classification

The valves can be used for applications and installations in potentially explosive atmospheres that fall within either the ATEX II 2G or the ATEX II 2D classification, with the follow marking:

MARKING FOR GASES, VAPOURS, MISTS

for N and V seals:

Ex II 2G IIC T4 Gb (-20°C Ta +80°C)

for NL seals:

Ex II 2G IIC T4 Gb (-40°C Ta +80°C)

EX Specific marking of explosion protection as ATEX 94/9/EC directive and related technical specification requests.

II: Group II for surface plants

2: Category 2 high protection, eligible for zone 1 (therefore also eligible for category 3 zone 2)

G: Type of atmosphere with gases, vapours, mists

IIC: Gas group (therefore also eligible for group IIA and IIB)

T4: Temperature class (max surface temperature)

Gb EPL protection level for electrical devices

-20°C Ta +80°C: Ambient temperature range for valves with both N and V seals

-40°C Ta +80°C: Ambient temperature range for valves with NL seals

MARKING FOR DUSTS

for N and V seals:

Ex II 2D IIIC T154°C Db IP66/IP68 (-20°C Ta +80°C)

for NL seals:

Ex II 2D IIIC T154°C Db IP66/IP68 (-40°C Ta +80°C)

EX Specific marking of explosion protection as ATEX 94/9/EC directive and related technical specification requests.

II: Group II for surface plants

2: Category 2 high protection, eligible for zone 21 (therefore also eligible for category 3 zone 22)

D: Type of atmosphere with dusts

IIIC: Dusts group (therefore also eligible for group IIIA and IIIB)

T154°C: Temperature class (max surface temperature)

Db EPL protection level for electrical devices

IP66/IP68: Protection degree from atmospheric agents according to IEC EN 60529

-20°C Ta +80°C: Ambient temperature range for valves with both N and V seals

-40°C Ta +80°C: Ambient temperature range for valves with NL seals

5.2 - Coils ATEX classification

The coil of the explosion-proof valves is identified with its own tag, which 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 d" type protection (explosion-proof coil).**

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

Here below you find the coils marking:

MARKING FOR GASES, VAPOURS, MISTS

Ex II 2G Ex d IIC T4 Gb (-40°C Ta +80°C)

EX: Specific marking of explosion protection as ATEX 94/9/EC directive and related technical specification requests.

II: Group II for surface plants

2: Category 2 high protection, eligible for zone 1 (therefore also eligible for category 3 zone 2)

G: Type of atmosphere with gases, vapours, mists

Ex d: "d" protection type, explosion-proof case

IIC: Gas group (therefore also eligible for group IIA and IIB)

T4: Temperature class (max surface temperature)

Gb: EPL protection level for electrical devices

-40°C Ta +80°C: Ambient temperature range

MARKING FOR DUSTS

Ex II 2D Ex tb IIIC T154°C Db IP66/IP68 (-40°C Ta +80°C)

EX Specific marking of explosion protection as ATEX 94/9/EC directive and related technical specification requests.

II: Group II for surface plants

2: Category 2 high protection, eligible for zone 21 (therefore also eligible for category 3 zone 22)

D: Type of atmosphere with dusts

Ex tb: 'tb' protection type

IIIC: Dusts group (therefore also eligible for group IIIA and IIIB)

T154°C: Temperature class (max surface temperature)

Db: EPL protection level for electrical devices

IP66/IP68: Protection degree from atmospheric agents according to IEC EN 60529

-40°C Ta +80°C: Ambient temperature range

5.3 - Operating temperatures

The operating ambient temperature must be between -20 / +80 °C, for valves with both N and V seals and -40 / +80 °C, for valves with NL seals. The fluid temperature must be between -20 / +80 °C, for valves with both N and V seals and -40 / +80 °C, for valves with NL seals.

The valves are classified in T4 temperature class (T154 °C), therefore they are eligible for operation also at higher class temperature (T3, T2, T1 for gas and T200 °C for dust).

5.4 - /T5 Option: Version for T5 temperature class

The valves classified for T5 temperature class are suitable for operation in potentially explosive atmospheres with ambient temperatures between -20 / +55 °C, for both valves with N and V seals and -40 / +55 °C, for valves with NL seals.

The fluid temperature must be between -20 / +60 °C, for both valves with N and V seals and -40 / +55 °C, for valves with NL seals.

The valves are classified in T5 temperature class (T129 °C), therefore they are eligible for operation also at higher class temperature (T4, T3, T2, T1 for gas and T135 °C for dusts).

The marking for T5 class temperature versions are:

VALVES MARKING FOR GASES, VAPOURS, MISTS

for N and V seals:

Ⓔx II 2G IIC T5 Gb (-20°C Ta +55°C)

for NL seals:

Ⓔx II 2G IIC T5 Gb (-40°C Ta +55°C)

VALVES MARKING FOR DUSTS

for N and V seals:

Ⓔx II 2D IIIC T129°C Db IP66/IP68 (-20°C Ta +55°C)

for NL seals:

Ⓔx II 2D IIIC T129°C Db IP66/IP68 (-40°C Ta +55°C)

COIL MARKING FOR GASES, VAPOURS, MISTS

Ⓔx II 2G Ex d IIC T5 Gb (-40°C Ta +55°C)

COIL MARKING FOR DUSTS

Ⓔx II 2D Ex tb IIIC T129°C Db IP66/IP68 (-40°C Ta +55°C)

5.5 - Electrical characteristics (values ± 5%)

NOMINAL VOLTAGE	V DC	**12**	**24**
RESISTANCE (AT 20°C)	Ω	3,4	15,6
NOMINAL CURRENT	A	1,88	0,86

DUTY CYCLE	100%
EXPLOSION-PROOF VERSION	According to ATEX 94/9/CE
ELECTROMAGNETIC COMPATIBILITY (EMC)	According to 2004/108/CE
CLASS OF PROTECTION: Atmospheric agents Coil insulation (VDE 0580)	 IP66 / IP68 class H

6 - ELECTRICAL CONNECTION

6.1 - Wiring

In order to realise the electrical connection of the coil, it is necessary to access the terminal block (1) unscrewing the 4 screws (2) that fasten the cover (3) with the box (4) that contains the terminal block.

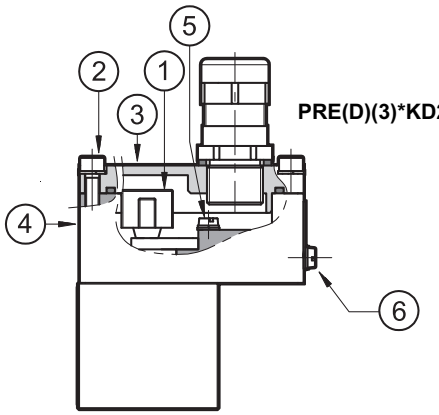
The electrical connection is polarity-independent.

By doing electrical connection it is important to connect also the grounding point (5) in the terminal block box (M4 screws), through suitable conductors with the general grounding line of the system.

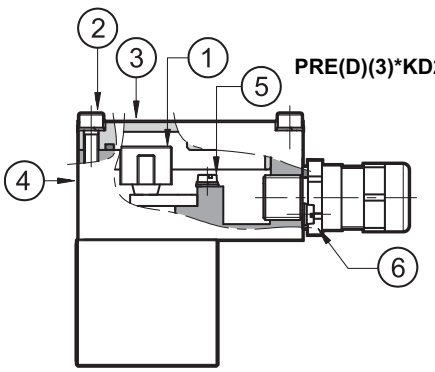
On the external body of the coil there is a grounding point (6) (M4 screw) that allow to ensure equipotentiality between the valve and the general grounding line of the system; connecting this point the regulation of the EN 13463-1 standard, that impose to verify the equipotentiality of the elements included in a potentially explosive environment (the maximum resistance between the elements must be 100 Ω), is guaranteed.

At the end of the electrical wiring, it is necessary to reassemble the cover (3) on the box (4), checking the correct positioning of the seal located in the cover seat and fastening the 4 M5 screws with a torque of 4.9 ÷ 6 Nm.

Electrical wiring must be done following the instructions of the rules in compliance with ATEX standards.



PRE(D)(3)*KD2-*/10*-*K9T*



PRE(D)(3)*KD2-*/10*-*K9S*

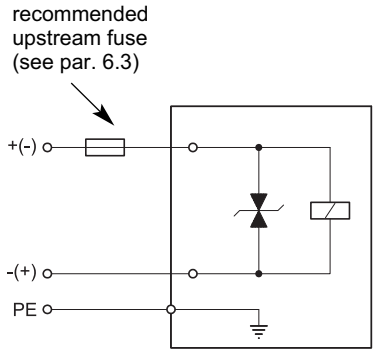
Characteristics of the cables connectable for wiring are indicated in the table below:

Function	Cable section
Operating voltage cables connection	max 2.5 mm²
Connection for internal grounding point	max 2.5 mm²
Connection for external equipotential grounding point	max 6 mm²

Cables for wiring must be non-armoured cables, with external covering sheath and must be suitable for use in environments with temperatures from - 20 °C to +110 °C (for valves either with N or V seals) or from - 40 °C to +110 °C (for valves with NL seals).

Cable glands (which must be ordered separately, see paragraph 16) allow to use cables with external diameter between 8 and 10 mm.

6.2 - Electrical diagrams



6.3 - Overcurrent fuse and switch-off voltage peak

Upstream of each valve, an appropriate fuse (max 3 x In according to IEC 60127) or a protective motor switch with short-circuit and thermal instantaneous tripping, as short-circuit protection, must be connected. The cut-off power of the fuse must correspond or exceed the short circuit current of the supply source. The fuse or the protective motor must be placed outside the dangerous area or they must be protected with an explosion-proof covering.

In order to safeguard the electronic device to which the valve is connected, there is a protection circuit in the coil, that reduces voltage peaks, which can occur when inductances are switched off.

The table shows the type of fuse recommended according to the nominal voltage of the valve and to the value of the voltage peaks reduction.

Coil type	Nominal voltage [V]	Rated current [A]	**Recommended pre-fuse characteristics medium time-lag according to DIN 41571 [A]**	Maximum voltage value upon switch off [V]	Suppressor circuit
D12	12	1,88	2,5	- 49	Transient voltage suppressor bidirectional
D24	24	0,86	1,25	- 49	

7 - IDENTIFICATION CODE OF PILOT OPERATED PROPORTIONAL VALVES PRE*KD2

P	R	E		KD2	-		/	10		-		K9			

Pilot operated pressure relief valve

Electric proportional control

Size:
3 = ISO 4401-03 (CETOP 03)
10 = ISO 6264-06 (CETOP R06)
25 = ISO 6264-08 (CETOP R08)
32 = ISO 6264-10 (CETOP R10)

Explosion-proof version, according to ATEX - II 2GD for gas or for dust (protection type of the coil: “d”)

Pressure control range:

PRE3KD2:
070 = 7 - 70 bar
140 = 7 - 140 bar
210 = 8 - 210 bar
350 = 10 - 350 bar

PRE10KD2, PRE25KD2 and PRE32KD2
070 = up to 70 bar
140 = up to 140 bar
210 = up to 210 bar
350 = up to 350 bar

Series No.
(the overall and mounting dimensions remain unchanged from 10 to 19)

Seals:
For temperature range -20 / +80 °C
N = NBR seals for mineral oil (standard)
V = FPM seals for special fluids
For temperature range -40 / +80 °C
NL = seal for low temperatures (for mineral oil)

Nominal solenoid voltage:
D12 = 12V DC
D24 = 24V DC

Coil electrical connection:
electrical connection by terminal block

Connection type for cable gland
for upper connection:
T01 = M20x1.5 - ISO 261
T02 = Gk 1/2 - UNI EN 10226-2
T03 = 1/2” NPT - ANSI B1.20.1 (ex ANSI B2.1)
for side connection:
S04 = M16x1.5 - ISO 261 (only for D24 coils)
S01 = M20x1.5 - ISO 261 (available upon request only)

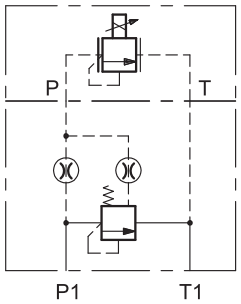
Option: **/T5** version in T5 temperature class. See at par. 5.4 Omit if not required.

Option: surface treatment not standard. Omit if not required (see **NOTE 1**)

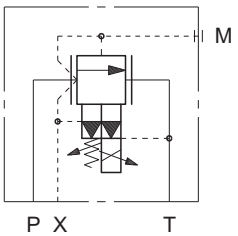
NOTE 1: the valve is supplied with standard surface treatment of phosphating black. Upon request we can supply these valves with zinc-nickel surface treatment.
For this option add the suffix **/W7** at the end of the identification code.

8 - HYDRAULIC SYMBOLS

PRE3KD2



PRE10KD2, PRE25KD2 and PRE32KD2

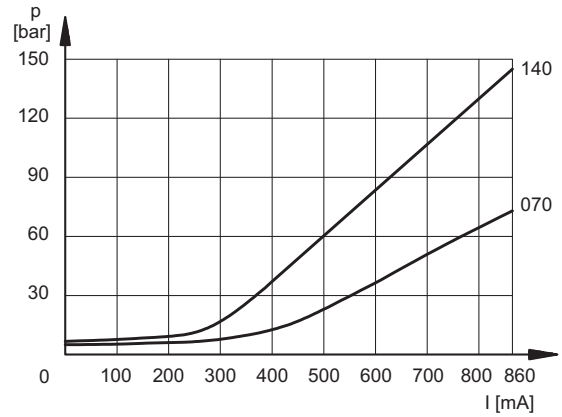


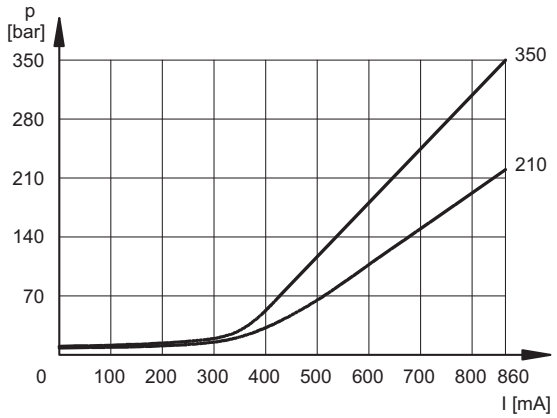
9 - CHARACTERISTIC CURVES OF PILOT OPERATED PROPORTIONAL VALVES

(measured with viscosity of 36 cSt at 50°C)

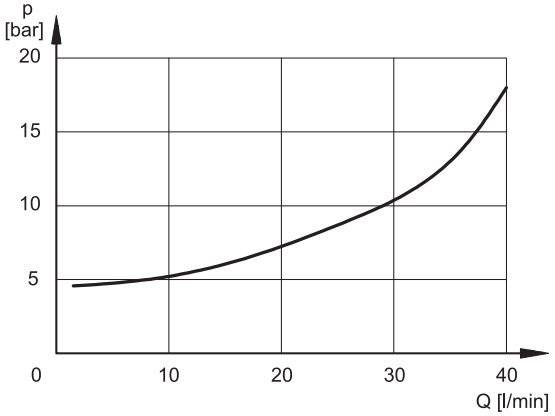
9.1 - PRE3KD2

PRESSURE CONTROL p=f (I)

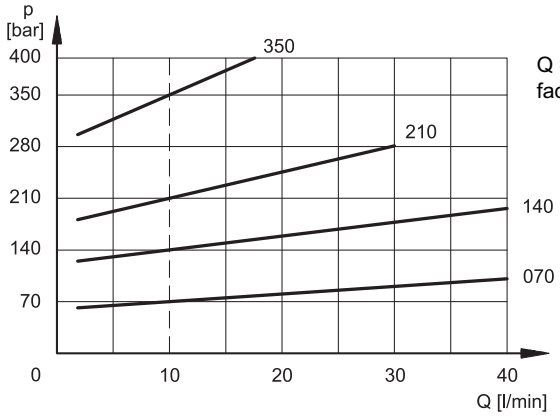




MINIMUM CONTROLLED PRESSURE pmin = f (Q)



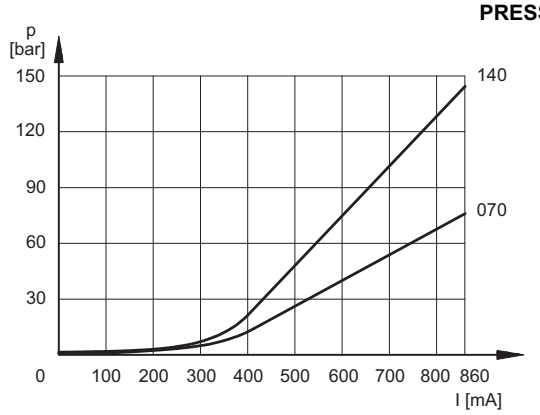
PRESSURE VARIATION pmax = f (Q)

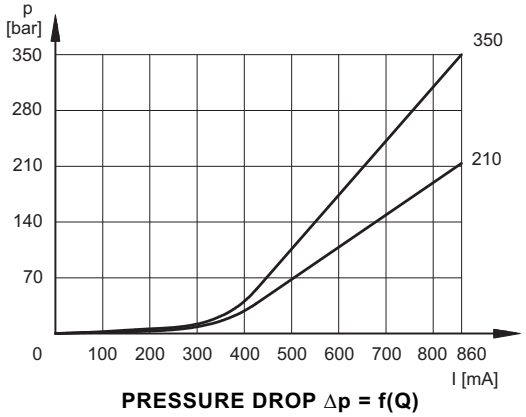


Q = 10 lt/min
factory setting

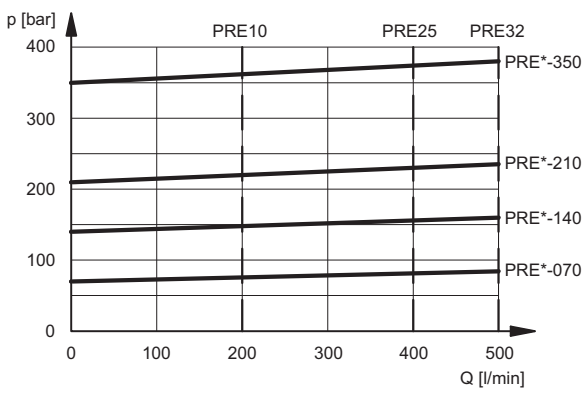
9.2 - PRE10KD2, PRE25KD2 and PRE32KD2

PRESSURE CONTROL p=f (I)

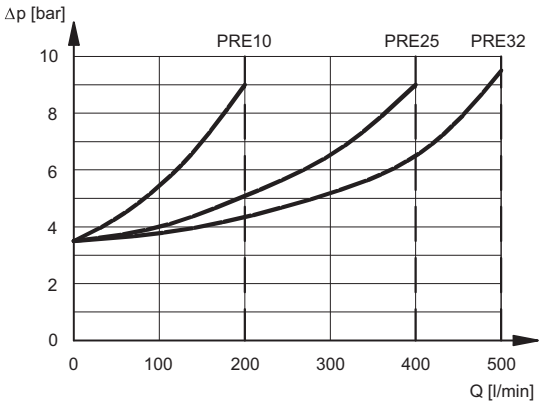




PRESSURE CONTROL p=f (Q)



PRESSURE DROP Δp = f(Q)



10 - STEP RESPONSE

(obtained with mineral oil with viscosity of 36 cSt at 50°C and electronic control cards)

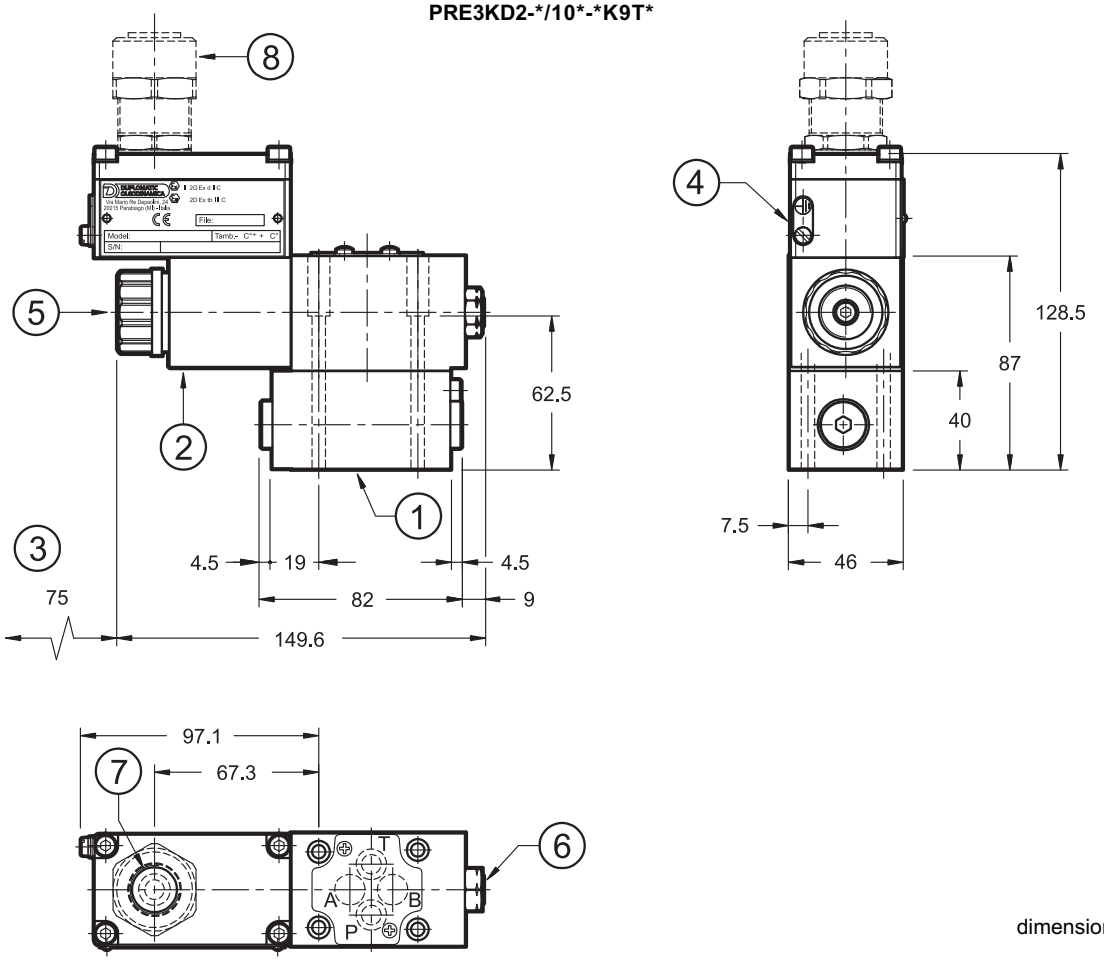
Step response is the time taken for the valve to reach 90% of the set pressure value following a step change of reference signal.

The table illustrates typical step response times measured with a valve of pressure range up to 140 bar and with input flow rate of Q = 2 l/min for PRED3KD2, Q = 10 l/min for PRE3KD2 and Q = 50 l/min for PRE10KD2, PRE25KD2 and PRE32KD2.

REFERENCE SIGNAL	0 → 100%	100 → 0%
	Step response [ms]	
PRED3KD2	80	40
PRE3KD2	80	40
PRE10KD2, PRE25KD2 and PRE32KD2	120	90

11 - PRE3KD2 OVERALL AND MOUNTING DIMENSIONS

PRE3KD2-*/10*-*K9T*



dimensions in mm

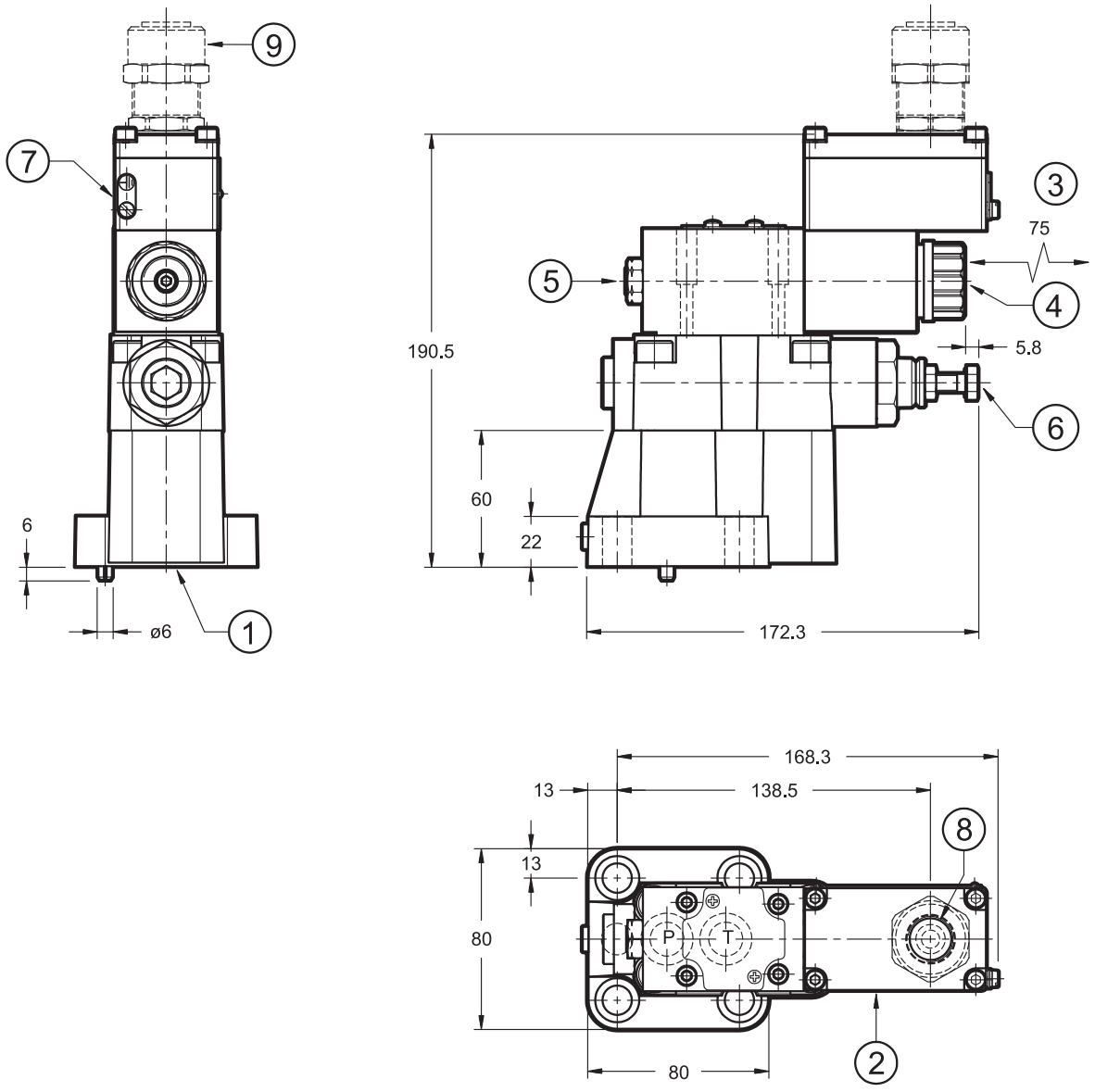
NOTE 1: at the first start up, or after a long period of no use, it is necessary to vent the air through the breather (5) placed at the end of the solenoid tube.
NOTE 2: for side port cable gland see paragraph 15.

Fastening of single valve: 4 screws SHC M5x70 - ISO 4762
Tightening torque: 5 Nm (A 8.8 screws)
Threads of mounting holes: M5x10
Sealing rings: 4 OR type 2037 (9.25x1.78) - 90 shore

1	Mounting surface with sealing rings
2	Explosion-proof coil
3	Coil removal space
4	Terminal for supplementary earth connection
5	Breather (Allen key 4)
6	Factory setting sealing (we recommend not unscrewing the nut)
7	Upper port for cable gland
8	Cable gland (upper port shown). To be ordered separately, see paragraph 16

12 - PRE10KD2 OVERALL AND MOUNTING DIMENSIONS

PRE10KD2-*/10*-*K9T*



dimensions in mm

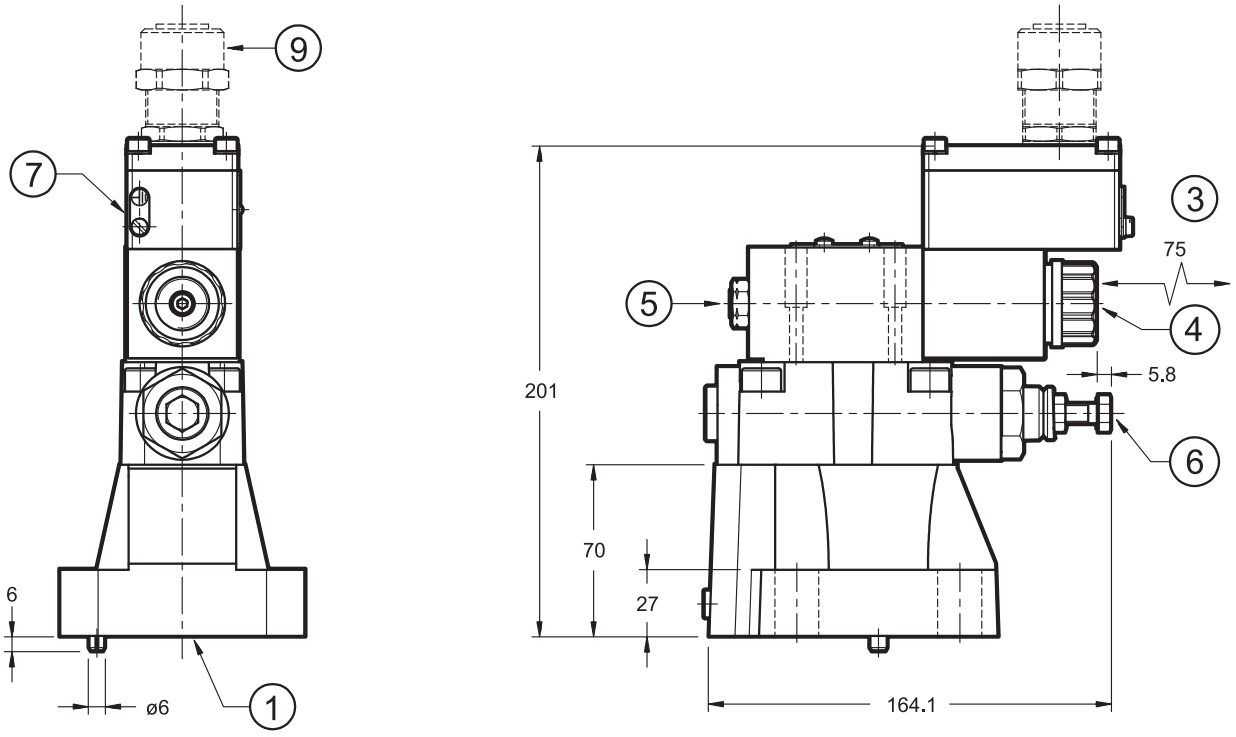
1	Mounting surface with sealing rings
2	Explosion-proof coil
3	Coil removal space
4	Breather (Allen key 4)
5	Factory setting sealing (we recommend not unscrewing the nut)
6	Pressure relief valve (factory set)
7	Terminal for supplementary earth connection
8	Upper port for cable gland
9	Cable gland (upper port shown). To be ordered separately, see paragraph 16

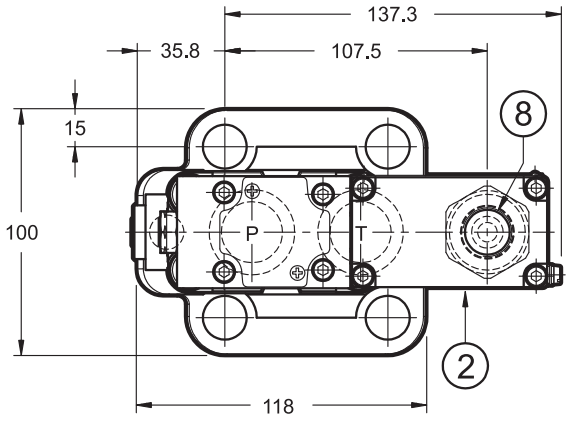
NOTE 1: at the first start up, or after a long period of no use, it is necessary to vent the air through the breather (4) placed at the end of the solenoid tube.
NOTE 2: for side port cable gland see paragraph 15.

Fastening of single valve: 4 screws M12x40 - ISO 4762
Tightening torque: 69 Nm (A 8.8 screws)
Threads of mounting holes: M12x20
Sealing rings: N. 2 OR type 123 (17.86 x 2.62) - 90 shore N. 1 OR type 109 (9.13 x 2.62) - 90 shore

13 - PRE25KD2 OVERALL AND MOUNTING DIMENSIONS

PRE25KD2-*/10*-*K9T*





dimensions in mm

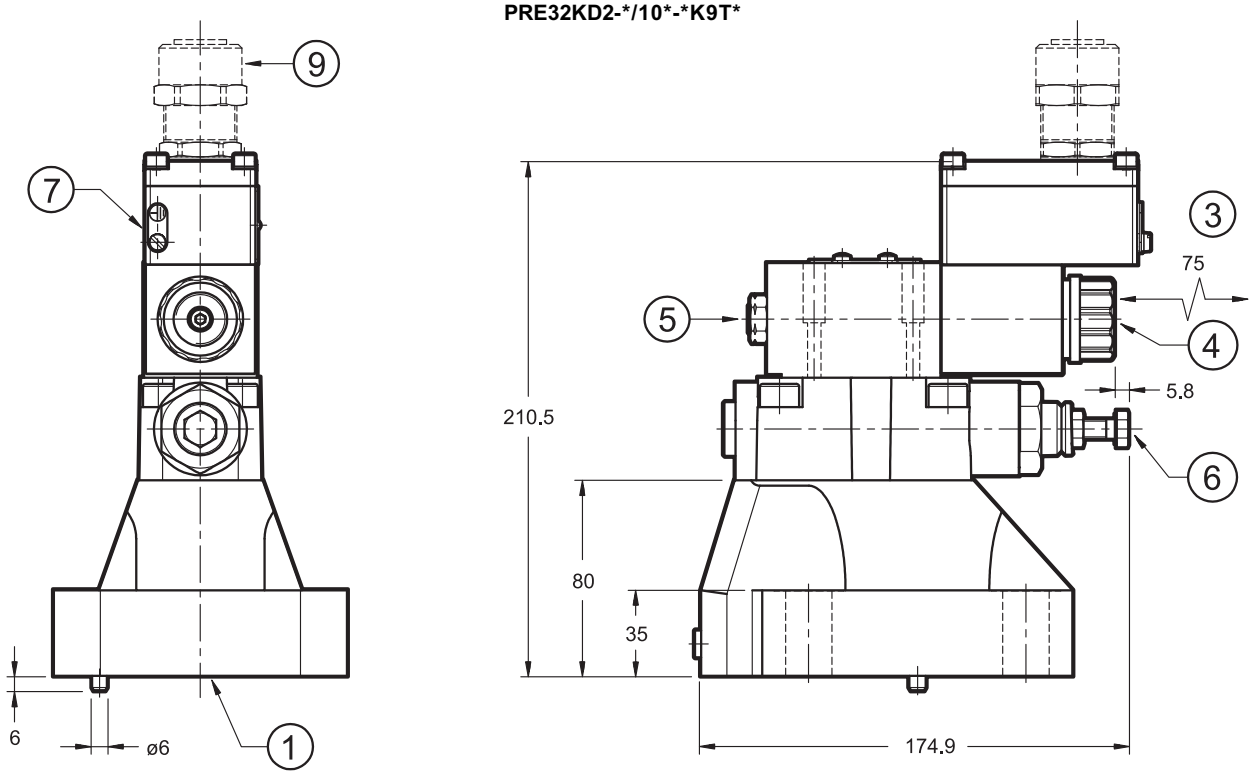
1	Mounting surface with sealing rings
2	Explosion-proof coil
3	Coil removal space
4	Breather (Allen key 4)
5	Factory setting sealing (we recommend not unscrewing the nut)
6	Pressure relief valve (factory set)
7	Terminal for supplementary earth connection
8	Upper port for cable gland
9	Cable gland (upper port shown). To be ordered separately, see paragraph 16

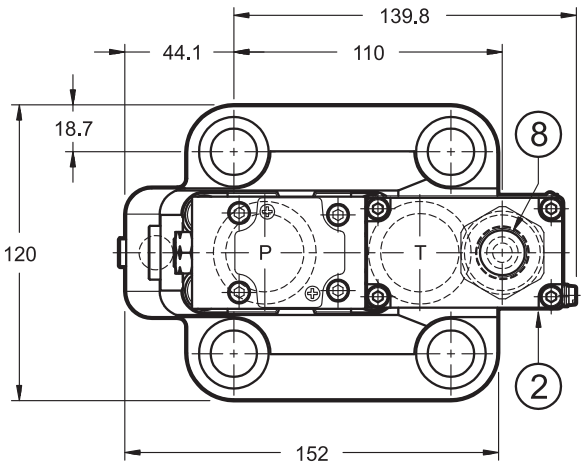
NOTE 1: at the first start up, or after a long period of no use, it is necessary to vent the air through the breather (4) placed at the end of the solenoid tube.
NOTE 2: for side port cable gland see paragraph 15.

Fastening of single valve: 4 SHC screws M16x50 - ISO 4762
Tightening torque: 170 Nm (A 8.8 screws)
Threads of mounting holes: M16x25
Sealing rings: N. 2 OR type 3118 (29.82 x 2.62) - 90 shore N. 1 OR type 109 (9.13 x 2.62) - 90 shore

14 - PRE32KD2 OVERALL AND MOUNTING DIMENSIONS

PRE32KD2-*/10*-*K9T*





dimensions in mm

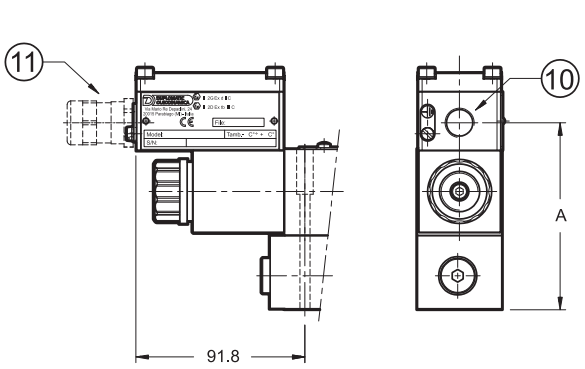
1	Mounting surface with sealing rings
2	Explosion-proof coil
3	Coil removal space
4	Breather (Allen key 4)
5	Factory setting sealing (we recommend not unscrewing the nut)
6	Pressure relief valve (factory set)
7	Terminal for supplementary earth connection
8	Upper port for cable gland
9	Cable gland (upper port shown). To be ordered separately, see paragraph 16

NOTE 1: at the first start up, or after a long period of no use, it is necessary to vent the air through the breather (4) placed at the end of the solenoid tube.
NOTE 2: for side port cable gland see paragraph 15.

Fastening of single valve: N. 4 SHC screws M18x60 - ISO 4762
Tightening torque: 235 Nm (A 8.8 screws)
Threads of mounting holes: M18x27
Sealing rings: N. 2 OR type 4137 (34.52 x 3.53) - 90 shore N. 1 OR type 109 (9.13 x 2.62) - 90 shore

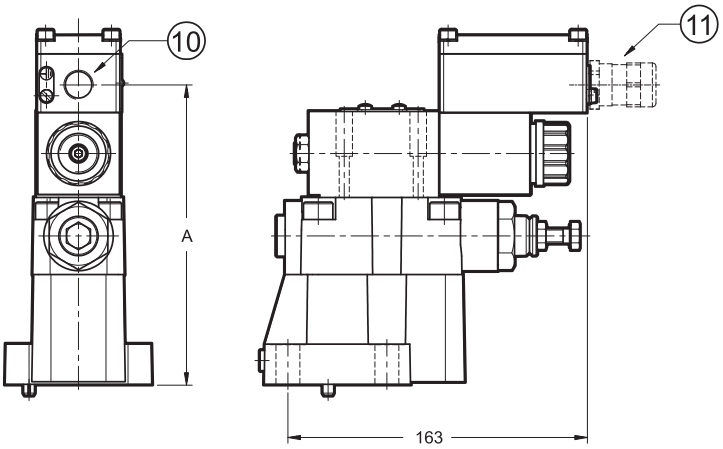
15 - PRE*KD2-*/10*-*K9S* (SIDE CONNECTION) OVERALL AND MOUNTING DIMENSIONS

PRE3KD2-*/10*-*K9S*



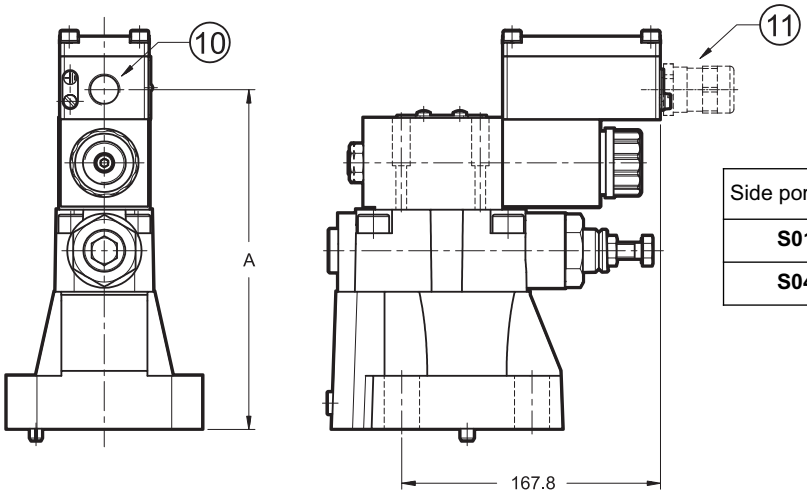
Side port type	Dimension A
S01	100.5
S04	101.5

PRE10KD2-*/10*-*K9S*



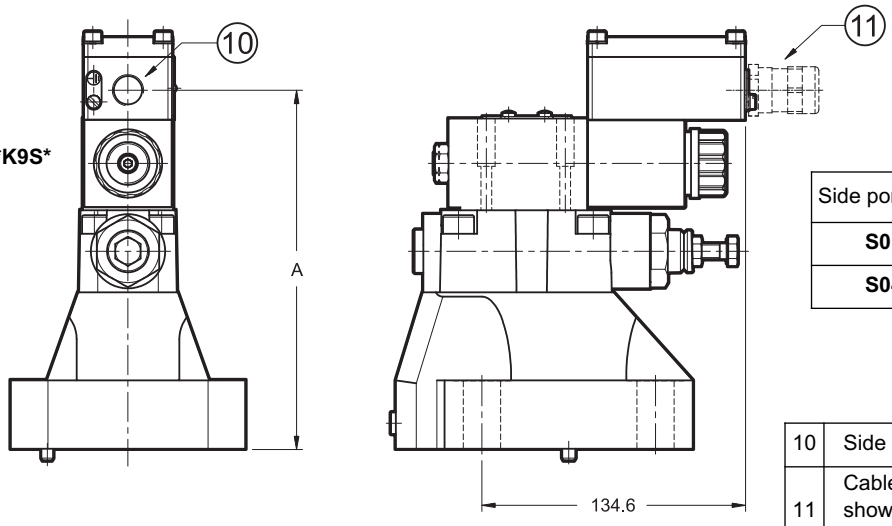
Side port type	Dimension A
S01	162.5
S04	163.5

PRE25KD2-*/10*-*K9S*



Side port type	Dimension A
S01	172.5
S04	173.5

PRE32KD2-*/10*-*K9S*



Side port type	Dimension A
S01	182.5
S04	183.5

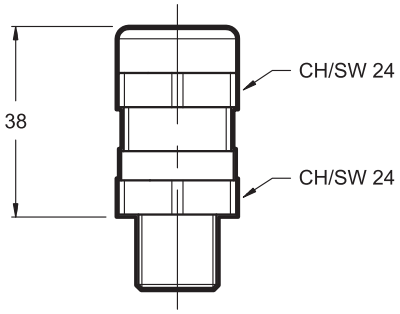
dimensions in mm

10	Side port for cable gland
11	Cable gland (side port shown). To be ordered separately, see par. 16

16 - CABLE GLANDS

Cable glands must be ordered separately; Duplomatic offers some types of cable glands with the following features:

- version for non-armoured cable, external seal on the cable (suitable for Ø 8 ÷ 10 mm cables);
- according to ATEX II 2GD directive certified
- cable gland material: nickel brass
- rubber tip material: silicone
- ambient temperature range: -70 ºC ÷ +220 ºC
- protection degree: IP66/IP68



To order, list the description and the code of the version chosen from among those listed below:

Description: CGK2/NB-01/10

Code: 3908108001

Version with M20x1.5 - ISO 261 male thread, suitable for coils with T01 and S01 connection types; it is supplied equipped with silicone seal, that must be assembled between the cable gland and the coil cover, so as to ensure IP66 / IP68 protection degree.

Description: CGK2/NB-02/10

Code: 3908108002

Version with Gk 1/2 - UNI EN 10226-2 male thread, suitable for coils with T02 connection type; in order to ensure IP66/IP68 protection degree. The customer must apply LOCTITE® 243™ threadlocker or similar between the cable gland connection thread and the coil cover.

Description: CGK2/NB-03/10

Code: 3908108003

Version with 1/2” NPT - ANSI B1.20.1 (ex ANSI B2.1), suitable for coils with T03 connection type; in order to ensure IP66/IP68 protection degree. The customer must apply LOCTITE® 243™ threadlocker or similar between the cable gland connection thread and the coil cover.

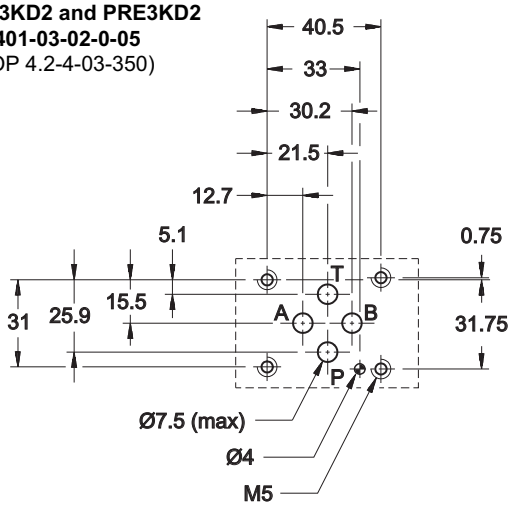
Description: CGK2/NB-04/10

Code: 3908108004

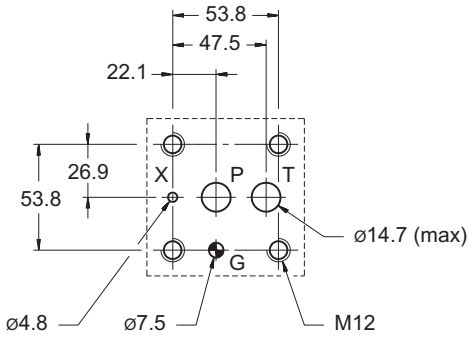
Version with M16x1.5 - ISO 261 male thread, suitable for coils with S04 connection type; it is supplied equipped with silicone seal, that must be assembled between the cable gland and the coil cover, so as to ensure IP66/IP68 protection degree.

17 - MOUNTING SURFACES

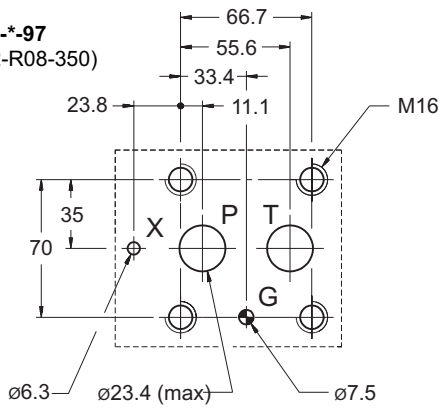
PRED3KD2 and PRE3KD2
ISO 4401-03-02-0-05
(CETOP 4.2-4-03-350)



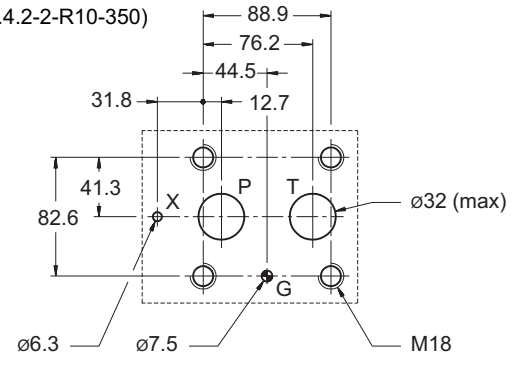
PRE10KD2
ISO 6264-06-09-*-97
(CETOP 4.4.2-2-R06-350)



PRE25KD2
ISO 6264-08-13-*-97
(CETOP 4.4.2-2-R08-350)



PRE32KD2
ISO 6264-10-17-*-97
(CETOP 4.4.2-2-R10-350)



18 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals (code N). For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our technical department. Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics.

The fluid must be preserved in its physical and chemical characteristics.

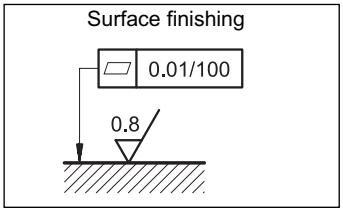
19 - INSTALLATION

We recommend to install the valves either in horizontal position, or vertical position with the solenoid downward. If the valve is installed in vertical position and with the solenoid upward, you must consider possible variations of the minimum controlled pressure, if compared to what is indicated in paragraphs 3 and 9.

Ensure that there is no air in the hydraulic circuit. In particular applications, it can be necessary to vent the air, by using the apposite drain screw in the solenoid tube. At the end of the operation, make sure of having correctly screwed the drain screw.

Connect the T port on the valve directly to the tank. Add any backpressure value detected in the T line to the controlled pressure value. Maximum admissible backpressure in the T line, under operational conditions, is 2 bar.

Valves are fixed by means of screws or tie rods on a flat surface with planarity and roughness equal to or better than those indicated in the relative symbols. If minimum values are not observed, fluid can easily leak between the valve and support surface.



20 - ELECTRONIC CONTROL UNITS

EDM-M112	for solenoid 24V DC	DIN EN 50022 rail mounting	see cat. 89 250
EDM-M142	for solenoid 12V DC		

NOTE: electronic control units offered are not certified according to ATEX 94/9/EC Directive; therefore, they must be installed outside the classified area.

21 - SUBPLATES (see catalogue 51 000)

	PRED3KD2	PRE3KD2	PRE10KD2	PRE25KD2	PRE32KD2
Type with rear ports	PMMD-AI3G	PMMD-AI3G	PMRQ3-AI4G	PMRQ5-AI5G	PMRQ7-AI7G
Type with side ports	PMMD-AL3G	PMMD-AL3G	-	-	-
P, T ports dimensions	3/8" BSP	3/8" BSP	P: 1/2" BSP T: 3/4" BSP	1" BSP	1" ¼ BSP
X port dimensions	-	-	1/4" BSP	1/4" BSP	1/4" BSP

NOTE: Subplates (to be ordered separately) do not contain neither aluminium nor magnesium at a higher rate than the value allowed by norms according to ATEX directive for category 2GD.

The user must take care and make a complete assessment of the ignition risk, that can occur from the relative use in potentially explosive environments.

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