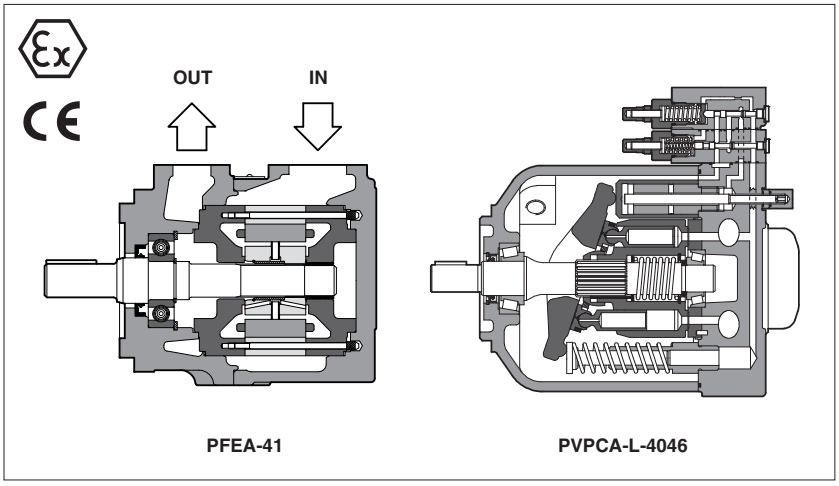
PFEA vane and PVPCA piston pumps - for potentially explosive atmospheres

according to 94/9/CE Atex directive



PFEA vane and PVPCA piston pumps are certified for application in potentially explosive atmospheres according to ATEX 94/9/CE, protection mode Ex II 2/2 GD cbk IIC T6/T5/T4 (group II for surface plants with gas, vapours and dust environment, category 2, zone 1, 2, 21 and 22).
The external surface temperature of the pump is in accordance with the certified class, to avoid the self ignition of the explosive mixture present in the environment.

- **PFEA** are fixed displacement-twelve-vane pumps available in three different body sizes and with following executions:
  PFEA-*1 max pressure 210 bar
  PFEA-*2 max pressure 300 bar
  Displacements up to 150 cm³/rev.
  SAE J744 mounting flange and shaft.
  Optional through output shaft execution.

- **PVPCA** are variable displacement axial piston pumps for high pressure operation, and low noise level, available in a wide range of hydraulic and proportional controls.
  PVPCA max working pressure 280 bar
  max peak pressure 350 bar
  Displacement: 29-46-73-88 cm³/rev.
  SAE J744 mounting flange and shaft.
  Optional through output shaft execution.

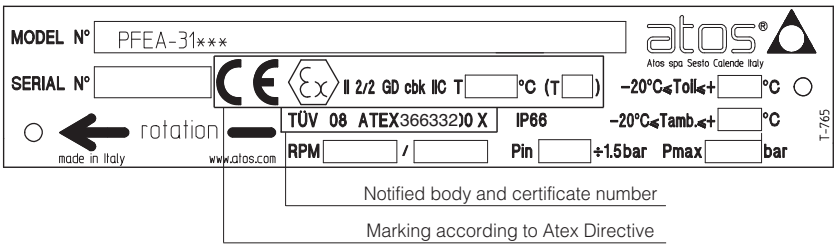
1 EXPLOSION PROOF CERTIFICATION MAIN DATA

ATEX certification	**Ex II 2/2 GD cbk IIC Tx**					
Reference Norm	**UNI EN 13463**					
PUMP TYPE	**PFEA***			**PVPCA***		
	(**std** and **/PE**)	**water glycol**	**/7 /PE**	(**std** and **/PE**)	**water glycol**	**/7 /PE**
Temperature class	**T6**	**T6**	**T5**	**T5**	**T5**	**T4**
Surface temperature	≤ 85 °C	≤ 85 °C	≤ 100 °C	≤ 100 °C	≤ 100 °C	≤ 135 °C
Ambient temperature	-20 ÷ +60 °C	-20 ÷ +60 °C	-20 ÷ +70 °C	-20 ÷ +60 °C	-20 ÷ +60 °C	-20 ÷ +70 °C
Max inlet fluid temperature	+60 °C	+50 °C	+80 °C	+60 °C	+50 °C	+80 °C
Protection degree	IP 66					

2 CERTIFICATION

2.1 EXAMPLE OF PFEA NAMEPLATE MARKING

At side are resumed the pumps marking according to Atex certification



2.2 GROUP II, Atex

Ex = Equipment for explosive atmospheres
II = Group II for surfaces plants
2/2 = Pump category
GD = For gas, vapours and dust
c = Protection by constructional safety
b = Protection by control of ignition source
k = Protection by liquid immersion
IIC = Gas group (acetylene, hydrogen)
T6/T5/T4 = Temperature class
Zone 1 (gas) **and 21** (dust) = Possibility of explosive atmosphere during normal functioning
Zone 2 (gas) **and 22** (dust) = Low probability of explosive atmosphere

3 TECHNICAL CHARACTERISTICS and OVERALL DIMENSIONS

PFEA-*1, see tab. A005
PFEA-*2, see tab. A007
PVPCA (with hydraulic controls), see tab. A160
PVPCA (with proportional controls), see tab. A170

4 INSTALLATION NOTES

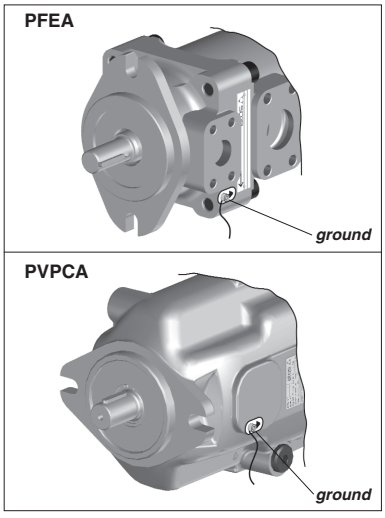
Before installation and start-up please consult tab. A600

- According to EN 1127-1:2008, the maximum surface temperature indicated in the nameplate must be lower than the following Tmax values:

  Gas - Tmax= max value (80% of gas ignition temperature)
  Dust - Tmax = dust ignition tempeature - 75K

- The fluid ignition temperature must be 50K greater than the maximum surface temperature indicated in the nameplate
- The maximum operating pressure and minimum inlet pressure are indicated on pump's nameplate.
- The pump must be connected to ground using the ground facility (threaded hole M3x7) provided on the pump body and evidenced with special nameplate. The pump's body and the electric motor, or other devices used to driving the pump, must be connected at the same electric potential.

⚠ **WARNING:** The pumps must not be operated in dry conditions or with oil ports blocked



5 MODEL CODE of VANE PUMPS type PFEA

PFEA XA – 31 036 / 1 D T / 7 ** /*

Fixed displacement vane pump with Ex-proof certification

Additional suffix for pumps with through shaft:
- **XA** = for coupling with PFEA-31
- **XB** = for coupling with PFEA-41 (only for PFEA-4* and PFEA-5*)
- **XC** = for coupling with PFEA-51 (only for PFEA-5*)
- **XO** = with through shaft, without rear flange

Size:
31, 41, 51 (standard)
32, 42, 52 (high pressure and low noise)

Displacement of **PFEA-*1** [cm³/rev]
for PFEA-31: **016, 022, 028, 036, 044**
for PFEA-41: **029, 037, 045, 056, 070, 085**
for PFEA-51: **090, 110, 129, 150**

Displacement of **PFEA-*2** [cm³/rev]
for PFEA-32: **022, 028, 036**
for PFEA-42: **045, 056, 070, 085**
for PFEA-52: **090, 110, 129, 150**

Drive shaft:
cylindrical, keyed (not for PFEA rear pumps to be coupled with PFEAX*)
- **1** = standard (only for PFEA*-*1)
- **2** = long version (only for PFEA*-41 and PFEA*-51)
- **3** = for high torque applications

splined
- **5** = standard (1)
- **6** = for high torque application (only for PFEA*-3* and PFEA*-4*, single and first pumps) with through output shaft

Direction of rotation (viewed from the shaft end):
- **D** = clockwise
- **S** = counterclockwise

Note: PFEA* are not reversible

Port orientation, see table A005 section [5]:
- **T** = standard
- **U, V, W** = on request

Option (only for /PE version):
- **/ 7** = for ambient temperature up to 70°C

Series number

Seals material:
omit for NBR (mineral oil & water glycol)
PE = FPM

1) Shaft type 5 has to be selected for PFEA rear pumps to be coupled with PFEAX* first pumps

6 MODEL CODE of PISTON PUMPS type PVPCA (with hydraulic controls)

PVPCA XA - C - 4 046 / 31044 / 1 D /PA -GK /7 24DC 10 /*

Variable displacement vane pump with Ex-proof certification

Additional suffix for pumps with through shaft:
- **XA** = for coupling with PFEA-3* (only for PVPCA*-3*)
- **XB** = for coupling with PFEA-4* (only for PVPCA*-4*)
- **XC** = for coupling with PFEA-5* (only for PVPCA*-5*)

Type of control (2):
- **C** = manual pressure compensator
- **CH** = manual pressure compensator with venting
- **R** = remote pressure compensator
- **L** = load sensing (pressure & flow)
- **LW** = constant power (combined pressure & flow)

For proportional controls see note (2)

Size:
- **3** = for displacement 029
- **4** = for displacement 046
- **5** = for displacement 073 and 090

Max displacement of axial piston pump:
- **029** = 29 cm³/rev
- **046** = 46 cm³/rev
- **073** = 73 cm³/rev
- **090** = 88 cm³/rev

Type of PVPCA (for double pumps), see tab. A160

Shaft (SAE Standard):
- **1** = keyed (7/8" for 029 - 1" for 046 - 1 1/4" for 073 and 090)
- **5** = splined (13 teeth for 029 - 15 for 046 - 14 for 073 and 090)

Direction of rotation (viewed at the shaft end):
- **D** = clockwise
- **S** = counterclockwise

Cable gland:
- **-** = without cable gland
- **PA** = with threaded cable gland arleady installed

Solenoid threaded connection (only for PA cable gland):
- **GK** = GK-1/2" ISO/UNI-6125 (tapered)
- **NPT** = 1/2" NPT ANSI B2.1 (tapered)
- **M** = M20x1,5 UNI-4535 (6H/6g)

Option:
- **/ 7** = for ambient temperature up to 70°C (only for /PE)
- **/ O** = horizontal cable entrance
- **/ WP** = prolongued manual override protected by metallic cap

Voltage code
(see table E120)

Series number

Seals material:
omit for NBR (mineral oil & water glycol)
PE = FPM

1) Pumps with ISO 3019/2 mounting flange and shaft (option /M) are available on request

2) Pumps with proportional controls type: CZ, LQZ, LZQZ, LZQZR, PES and PERS are available on request.
For the technical characteristics of PVPCA pumps with proportional controls, see table A170 and F600

7 OPERATING AND MAINTENANCE

Specific Operating and maintenance instructions are always enclosed with the delivered pumps together with the CE conformity declaration and the relevant catalogue technical tables.

For the operating and maintenance instructions, refer to the following documentations:
-PFEA and -PVPCA see table A600