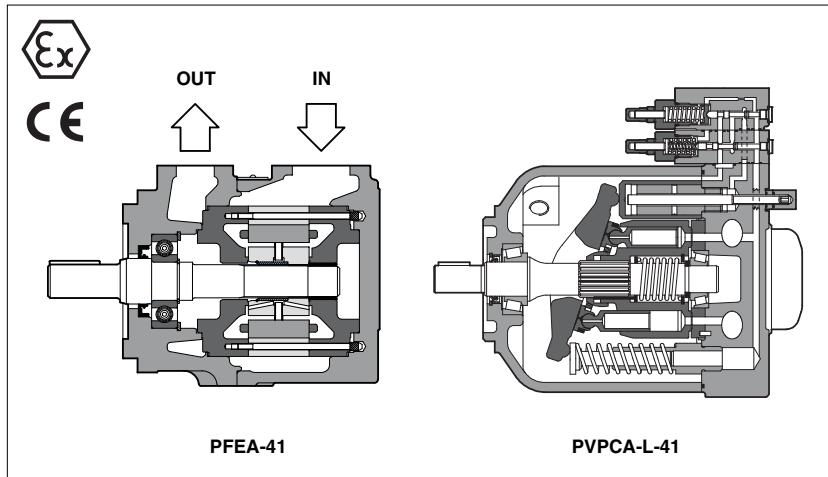


# PFEA vane and PVPCA piston pumps - for potentially explosive atmospheres according to 94/9/CE Atex directive



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 (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 cm<sup>3</sup>/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 cm<sup>3</sup>/rev.  
 SAE J744 mounting flange and shaft.  
 Optional through output shaft execution.

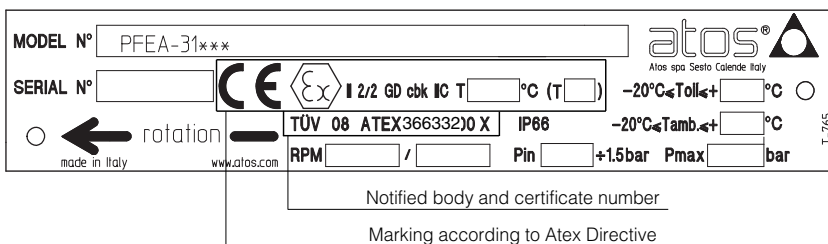
## 1 EXPLOSION PROOF CERTIFICATION MAIN DATA

ATEX certification	Ex II 2/2 GD cbk IIC Tx IP66		
Reference Norm	UNI EN 13463		
PUMP TYPE	PFEA*, PVPCA* (standard and /PE)	PFEA* /WG, PVPCA* /WG	PFEA* /7 /PE PVPCA* /7 /PE
Temperature class	T6	T6	T5
Surface temperature	≤ 85 °C	≤ 85 °C	≤ 100 °C
Ambient temperature	-20 ÷ +60 °C	-20 ÷ +60 °C	-20 ÷ +70 °C
Max inlet fluid temperature	+60 °C	+50 °C	+80 °C
Protection degree	IP 66		

## 2 CERTIFICATION

### 2.1 EXAMPLE OF 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** = 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

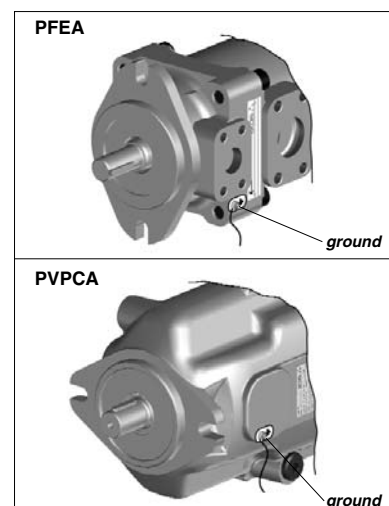
### Before installation and start-up please consult tab. A600

- 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 temperature - 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											Synthetic fluids: <b>WG</b> = water-glycol <b>PE</b> = phosphosphate ester
Additional suffix for pumps with through shaft: <b>XA</b> = for coupling with PFEA-31 <b>XB</b> = for coupling with PFEA-41 (only for PFEA-4* and PFEA-5*) <b>XC</b> = for coupling with PFEA-51 (only for PFEA-5*) <b>XO</b> = with through shaft, without rear flange										Series number	
Size: <b>31, 41, 51</b> (standard) <b>32, 42, 52</b> (high pressure and low noise)										Option (only for /PE version): <b>/7</b> = for ambient temperature up to 70°C	
Displacement of <b>PFEA*-1</b> [cm <sup>3</sup> /rev] for PFEA-31: <b>016, 022, 028, 036, 044</b> for PFEA-41: <b>029, 037, 045, 056, 070, 085</b> for PFEA-51: <b>090, 110, 129, 150</b>										Port orientation, see table A005 section 5: <b>T</b> = standard <b>U, V, W</b> = on request	
Displacement of <b>PFEA*-2</b> [cm <sup>3</sup> /rev] for PFEA-32: <b>022, 028, 036</b> for PFEA-42: <b>045, 056, 070, 085</b> for PFEA-52: <b>090, 110, 129, 150</b>										Direction of rotation (viewed from the shaft end): <b>D</b> = clockwise <b>S</b> = counterclockwise Note: PFEA* are not reversible	
										Drive shaft: cylindrical, keyed (not for PFEA rear pumps to be coupled with PFEAX*) <b>1</b> = standard (only for PFEA*-1) <b>2</b> = long version (only for PFEA*-41 and PFEA*-51) <b>3</b> = for high torque applications splined <b>5</b> = standard (1) <b>6</b> = for high torque application (only for PFEA*-3* and PFEA*-4*, single and first pumps) with through output shaft	

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																	Synthetic fluids: <b>WG</b> = water-glycol <b>PE</b> = phosphosphate ester
Additional suffix for pumps with through shaft: <b>XA</b> = for coupling with PFEA-3* (only for PVPCA*-3*) <b>XB</b> = for coupling with PFEA-4* (only for PVPCA*-4*) <b>XC</b> = for coupling with PFEA-5* (only for PVPCA*-5*)																	Series number
Type of control (2): <b>C</b> = manual pressure compensator <b>CH</b> = manual pressure compensator with venting <b>R</b> = remote pressure compensator <b>L</b> = load sensing (pressure & flow) <b>LW</b> = constant power (combined pressure & flow) <b>For proportional controls see note (2)</b>																	Voltage code (see table E120)
Size: <b>3</b> = for displacement 029 <b>4</b> = for displacement 046 <b>5</b> = for displacement 073 and 090																	Option: <b>/7</b> = for ambient temperature up to 70°C (only for /PE) <b>/O</b> = horizontal cable entrance <b>/WP</b> = prolonged manual override protected by metallic cap
Max displacement of axial piston pump: <b>029</b> = 29 cm <sup>3</sup> /rev <b>046</b> = 46 cm <sup>3</sup> /rev <b>073</b> = 73 cm <sup>3</sup> /rev <b>090</b> = 88 cm <sup>3</sup> /rev																	Solenoid threaded connection (only for PA cable gland): <b>GK</b> = GK-1/2" ISO/UNI-6125 (tapered) <b>NPT</b> = 1/2" NPT ANSI B2.1 (tapered) <b>M</b> = M20x1,5 UNI-4535 (6H/6g)
Type of PVPCA (for double pumps), see tab. A160																	Cable gland: - = without cable gland <b>PA</b> = with threaded cable gland already installed
																	Direction of rotation (viewed at the shaft end): <b>D</b> = clockwise <b>S</b> = counterclockwise
																	Shaft (SAE Standard): <b>1</b> = keyed (7/8" for 029 - 1" for 046 - 1 1/4" for 073 and 090) <b>5</b> = splined (13 teeth for 029 - 15 for 046 - 14 for 073 and 090)

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