PA□/PB Series
Applicable Fluids

Material and Fluid Compatibility Check List for Process Pumps

- The data below is prepared based on data provided by the material manufacturers.
- SMC assumes no responsibility for the accuracy of the data or for any damages arising from the data.
- The material and fluid compatibility check list provides reference values as a guide only; therefore SMC does not guarantee the application to our product.

⚠ Caution

1. Select the wetted parts materials according to the transfer liquid you use to determine the model.
   - For the liquid contact areas, aluminum is suitable for oils, and stainless steel is suitable for solvents and industrial water.
   - For the diaphragm material, NBR is suitable for inert liquids, and PTFE is suitable for non-permeating liquids.
   - Use fluids that will not corrode the wetted parts materials.
2. These products are not suitable for medical or food use.
3. The applicability may vary depending on additives. Take note also of additives.
4. The applicability may vary depending on impurities. Take note also of impurities.
5. Examples of transfer liquids are shown below. Since the applicability may vary depending on your operating conditions, be sure to check it by means of experimentation.
6. Compatibility is indicated for fluid temperatures specified for the respective products (60°C or less for PA3000/5000 series, 50°C or less for PB1000 series, and 90°C or less for PAF3000/5000 series).

PA3000, PA5000, PA(P)3000 and PAX1000 Series

Table symbols ○: Can be used. x: Cannot be used. —: Can be used under certain conditions.

Model			PA3110 / PA5110	PA3113 / PA5113	PA3120 / PA5120	PA3210 / PA5210	PA3213 / PA5213	PA3220 / PA5220	PA5010	PA5013	PA3310 / PAP3310	PA3313 / PAP3313	PAX1112	PAX1212
Body material			ADC12			SCS14			PP		New PFA		ADC12	SCS14
Diaphragm material			PTFE		NBR	PTFE		NBR	PTFE		PTFE		PTFE	
Examples of applicable liquids	Water	**Tap water**	×			○			○		○		×	○
		Pure water	×			—			—		○		×	—
	Oil	**Turbine oil**	○			○			○		○		○	
		Cutting oil	○		×	○		×	○		○		○	
		Brake oil	○		×	○		×	○		○		○	
	Solvent	**Flux**	×			○		×	—		○		×	○
		Toluene	○ Note 2)		×	○ Note 2)		×	—		○ Note 2, 3)		○ Note 2)	
		Methyl ethyl ketone	×			○ Note 2)		×	—		○ Note 2, 3)		×	○ Note 2)
		Acetone	×			○ Note 2)		×	—		○ Note 2, 3)		×	○ Note 2)
		Inert solvent	×			○			○ Note 2)		○		×	○
	Ethyl alcohol		○ Note 2)		×	○ Note 2)		×	—		○ Note 2, 3)		○ Note 2)	
	Isopropyl alcohol		○ Note 2)		×	○ Note 2)		×	—		○ Note 2, 3)		×	○ Note 2)
	Sodium hypochlorite		×			×			—		○ Note 2, 3)		×	
	Acids		×			×			○ Note 4)		×		×	
	Alkalis		×			×			○ Note 4)		×		×	
	Metal corrosive liquid		×			×			×		×		×	
	Highly permeating liquid		×			×			×		×		×	
	Highly penetrating liquid		×	○ Note 1)	×	×	○ Note 1)	×	×	○ Note 1)	×	○ Note 1)	×	

PAF3000 and PAF5000 Series

Model		PAF3410 / PAF5410	PAF3413 / PAF5413	PAF3410-X68
Body material		New PFA		New PFA
Diaphragm material		PTFE		PTFE
Chemical	**Acetone**	○ Note 2, 3)		○ Note 2, 3)
	Ammonium hydroxide	○ Note 3)		○ Note 3)
	Isobutyl alcohol	○ Note 2, 3)		○ Note 2, 3)
	Isopropyl alcohol	○ Note 2, 3)		○ Note 2, 3)
	Hydrochloric acid	○ Note 3)		×
	Ozone water	○		○
	Hydrogen peroxide Concentration 5% or less, 50°C or less	○		○
	Ethyl acetate	○ Note 2, 3)		×
	Butyl acetate	○ Note 2, 3)		×
	Nitric acid (except fuming nitric acid) Concentration 10% or less	○ Note 3)		×
	Pure water	○		○
	Sodium hydroxide Concentration 50% or less	○		×
	Super pure water	○		○
	Toluene	○ Note 2, 3)		○ Note 2, 3)
	Hydrofluoric acid	○ Note 3)		×
	Sulfuric acid (except fuming sulfuric acid)	○ Note 3)		×
	Phosphoric acid Concentration 80% or less	○		×

Note 1) The air operated types can also be used for highly penetrating liquids. However, they cannot be used if the penetrating components damage parts such as seals in the air circuit. In addition, since the exhaust air contains the gas components penetrating through the diaphragm, take measures to prevent the exhaust air from going to the solenoid valve.

Note 2) Static electricity may be generated. Take measures to prevent static electricity.

Note 3) These may be penetrated by fluids, and the penetrating fluids may affect parts of other materials.

Note 4) Strong acidic chemicals, strong basic chemicals, and hydrofluoric acid are not allowed.

PB10□□A Series

Model		PB1011A	PB1013A
Body material		PP, Stainless steel 316	
Diaphragm material		PTFE	
Examples of applicable liquids	Tap water	○	
	Neutral detergent	○	
	Kerosene	×	○ Note 1)
	Oils	×	○
	Ethyl alcohol	×	○ Note 1)
	Isopropyl alcohol	×	○ Note 1, 2)
	Thinners	×	
	Flammable liquids	×	—
	Acids	×	
	Alkalis	×	

PB1313A

Model			PB1313A
Body material			New PFA
Diaphragm material			PTFE
Examples of applicable liquids	Water	Municipal water	○
		DI water	○
	Oil	Turbine oil	○
		Cutting oil	○
		Brake oil	○
	Solvent	Flux	○
		Toluene	○ Note 1, 2)
		Methyl ethyl ketone	○ Note 1, 2)
		Acetone	○ Note 1, 2)
		Inert solvent	○
	Ethyl alcohol		○ Note 1, 2)
	Isopropyl alcohol		○ Note 1, 2)
	Sodium hypochlorite		○ Note 1, 2)
	Cleaning liquids		—
	Hydrochloric acid		×
	Hydrofluoric acid		×
	Sulfuric acid		×
	Hydrogen peroxide concentration (5%)		○
	Sodium hydroxide		×
	Potassium hydroxide		×
	Ammonia (20%)		○
	Metal corrosive liquid		×
	Highly permeating liquid		×
	Highly penetrating liquid		×

Note 1) Since static electricity may be generated, implement suitable countermeasures.
Note 2) These may be penetrated by fluids, and the penetrating fluids may affect parts of other materials.

⚠Caution

Caution for transferring highly penetrating liquids

Do not use liquids which are highly penetrating to fluorine resin. This may cause internal damage to the process pump or liquid leakage.