

**MATERIAL AVAILABILITY
BY PRODUCT LINE**

Note: This list represents materials available in at least some of the products in the lines listed. Not all products in a line are available in all the materials mentioned.

Fittings**Cheminert**

CTFE
PEEK
PFA
Polypropylene
Stainless steel, Type 316

Valco

300 series stainless steel
PEEK

Ferrules**Valco**

CTFE
FEP
Hastelloy C
Nickel
PFA
Polyimide, graphite
Polyimide, Valcon
Polyimide, virgin
PTFE, virgin
PTFE, glass-filled
Stainless, Type 303
Stainless, Type 316
Stainless, gold-plated
Titanium
Brass

Cheminert

PEEK

Tubing

Electroformed nickel
(EFNI)
ETFE
FEP
Hastelloy C
Nickel 200
PEEK
PTFE
Stainless steel, Type 316
Titanium

Valve rotors**Cheminert**

Valcon E
Valcon E2
Valcon E3
Valcon H
Valcon M
Valcon P
Valcon T
Valcon TF

Diaphragm

A specialized polyimide

Valco

Valcon E
Valcon E2
Valcon H
Valcon M
Valcon P
Valcon R
Valcon T
Valcon TF

**Valve
stators/ bodies****Cheminert**

CTFE
Hastelloy C
Nitronic 60 stainless
PAEK
PPS
PVDF
Stainless steel, Type 316
Titanium

Diaphragm

Hastelloy C
Nitronic 60
Stainless steel, Type 316

Valco

Hastelloy C
Inconel 600
Monel 400
Nickel 200
Nitronic 50
Nitronic 60
Stainless steel, Type 316
Titanium
Zirconium

Titanium

Although it is more difficult to machine than common alloys containing aluminum and vanadium, Valco uses Grade 2 pure titanium in order to avoid possible contamination of the sample stream with these metals.

Good for organic and inorganic salts except aluminum and calcium chlorides, and all alkalis except boiling concentrated potassium hydroxide. Good with dilute, low temperature formic, lactic, sulfuric, hydrochloric, and phosphoric acids, but rapidly attacked by hydrofluoric acid. Good with dilute nitric acid at low temperatures; corrodes at high concentrations and temperatures. Can ignite with fuming nitric acid. Attacked by oxalic acid, concentrated phosphoric acid, hot trichloroacetic acid, and zinc chloride.

Due to the nature of this metal, valves made of titanium typically have a shorter lifetime than HPLC grade stainless steel or Hastelloy C-22.

Zirconium

Excellent resistance to hydrochloric acid, good with hot sulfuric acid at concentrations up to 70% and boiling nitric acid at up to 90%. Attacked by hydrofluoric acid.

Brass

Used where a soft metal ferrule is desirable but no corrosive materials are present. Although Valco brass ferrules work as replacements in inexpensive commercial brass fittings, they are generally not recommended for chromatography applications.