

Multi-Purpose/Chemical Resistant Hose | Single-layer teflon tubing is hard and easy to break. Our Flexible Fluorine (PVDF) Resin Yarn Reinforced Hose is an alternative hose for a teflon hose.

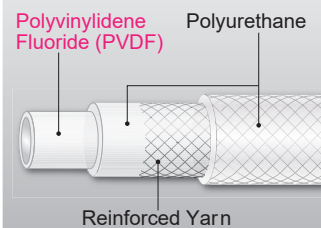
Flexible Fluorine (PVDF) Resin Yarn Reinforced Hose

[Model Number: E-PDB-(I.D.)]

Applications • Fluids

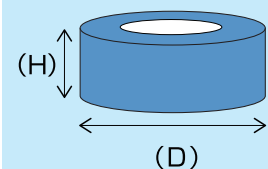


(Materials / Structure)



- For Transferring Chemicals used in Laboratory Equipment
- For Transferring Chemicals used in Semiconductor-Related Devices and Flat-Panel Display (FPD) Manufacturing Devices
- For Transferring Beverage and Food
- For Transferring Alcohol, Cosmetics, and Chemicals
- For Transferring Chemicals used in Medical Equipment, Endoscope, and so on
- For Transferring Chemicals used in Manufacturing Fuel Cell and Pure Water
- For Air Supplying Pipes at Clean Room
- For Transferring Screw, Metal Powder, and Solids

(Packing Dimension)



Standard • Packing Information

Model Number	Inch (Inside Diameter) (*1)	I.D. × O.D. mm	Working Pressure MPa		Minimum Bend Radius at 20°C mm	Temperature Range °C	Standard Length m	Product Weight kg/roll	Color	Packing Dimension(*2)			
			at 20°C	at 80°C						Packing	Diameter (D) cm	Height (H) cm	Weight/roll kg/roll
E-PDB-9	3/8	9 × 15	0 ~ 1.0	0 ~ 0.5	65	-20 ~ 80	20	2.88	Clear	Cardboard Box	46	16	3.60
E-PDB-12	1/2	12 × 18			85						46	16	4.32
E-PDB-15	5/8	15 × 22			105						52	17	6.36
E-PDB-19	3/4	19 × 26	0 ~ 0.5	0 ~ 0.25	135	-20 ~ 80	20	Clear	Cardboard Box	52	17	7.48	
E-PDB-25	1	25 × 33			175					64	21	10.73	
E-PDB-32	1 1/4	32 × 41	0 ~ 0.5	0 ~ 0.25	225	-20 ~ 80	20	Clear	Cardboard Box	83	24	15.50	
E-PDB-38	1 1/2	38 × 48			265					83	24	19.27	
E-PDB-50	2	50 × 62	0 ~ 0.4	0 ~ 0.2	500	-20 ~ 80	20	Clear	Film Wrapping	161	28	25.48	

*1: Please note that inch size is approximate, which is not equal to millimeter.

*2: "Diameter (D)" × "Height (H)" means "External Dimensions of Cardboard Box (D)" × "Height (H)."

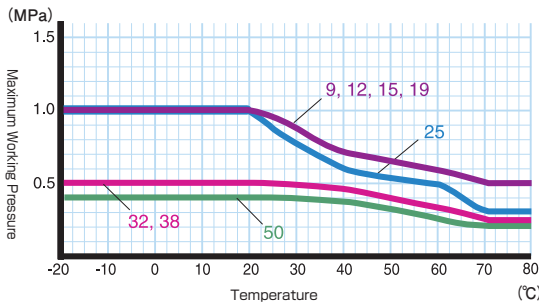
Characteristics and Functions

- Non-PVC
- Non-Adhesiveness
- Gas Barrier
- Chemical Resistance
- Low Elution
- Food-Sanitation
- Transparency
- Pressure-Proof
- Oil-Proof
- Alcohol Resistant
- Cold Resistance

- Chemical Resistance**...Since the inner layer is made of PVDF fluorine resin, E-PDB is resistant to most of the chemical substances. (Please note that E-PDB does not stand proof against organic solvents such as Amine and Ketones, so we recommend you to use E-SJB.) For more information, please refer to chemical resistance data.
- Flexibility**...Due to the laminated structure, compared with the conventional single-layer fluorine tubing, E-PDB is superior in flexibility. This improves your work efficiency.
- Gas Barrier Property**...PVDF fluorine resin shows great impermeability to all kinds of fluids and gas.
- Hard to Break**...Unlike the conventional single-layer fluorine tubing, E-PDB is hard to break. (Even if it breaks, you can restore its shape to some extent.)
- Non-Adhesiveness**...Since fluorine resin is superior in water-proof and non-adhesiveness, you can wash out the fluids very easily.
- Abrasion Resistance**...Fluorine resin (inner layer) shows higher levels of abrasion resistance. Thus, you can transfer chemical slurry.
- Plasticizer-Free**...E-PDB does not contain plasticizer (an elution material) at all. E-PDB is an oil-free hose.
- Non-PVC**...E-PDB is made of a non-PVC material.
- Low Elution and Low Odor**...Since this tubing contains very low levels of elution and odor, it is recommended for use in transfers of food, beverage, and cosmetics.
- High Purity**...Fluorine resin does not contain any additives such as plasticizer, so E-PDB is suitable for transferring high purity chemical fluids.
- Easy to Cut**...Since we print the cut mark on the hose every meter, it is easy to cut the length you would like to.
- Transparency**...E-PDB enables you to check the fluid very easily.
- Green Procurement Law Certified**...E-PDB is compliant with RoHS2 requirements (directive 2011/65/EU:RoHS2). (RoHS 2 free products mean that they do not contain or below the threshold of 10 substances.)
- Original Fittings**...By using our original fittings, you can avoid accidents which are caused by incorrect choices of hose and fittings.
- Food Sanitation Law Certified**...E-PDB conforms to the Food Sanitation Standard No.370 (The Ministry of Health and Welfare for Food Sanitation, No.370, 1959). (Conformity to N-Heptane). Please contact us regarding the conformity of "Partial Revision of the Food Sanitation Law"(Effective on June 1, 2020) and Positive List System (PL).

Technical Information

E-PDB: Relationship between Working Temperature and Maximum Working Pressure

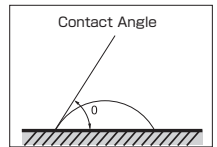


*The above graph is the value when our original E-FTS fittings are used.

Non-Adhesiveness Comparison Data

Non-adhesiveness and smoothness, which are peculiar to fluorine resin, make it easier to wash out the fluid. You can check the data about critical surface tension and contact angle against water.

Resins	Critical Surface Tension (dyne/cm)	Contact Angle for Water (θ)
Ethylene-Tetrafluoroethylene (ETFE)	22	96
Polyvinylidene Fluoride (PVDF)	25	82
High Density Polyethylene	31	73
Hard Vinyl Chloride	39	68
PET	43	-
Nylon	46	54



[Critical Surface] The surface Tension of the assumed liquid which has the contact angle of zero against solid.

Comparative Data on Gas Barrier Property

Type of Gas	Transmission Coefficient (cc/mm/sec · cm ² · cmHg)	
	Polyvinylidene Fluoride	Polyethylene
Oxygen	24 × 10 ⁻¹²	5,900 × 10 ⁻¹²
Nitrogen	5.5 × 10 ⁻¹²	330 × 10 ⁻¹²
Carbonic Acid Gas	9 × 10 ⁻¹²	28,000 × 10 ⁻¹²

HAKKO Original Fittings

Model	Features
EIGHTLOCK FERRULE (E-ELF)	<ul style="list-style-type: none"> • Material : Body, SCS16, Nut and Ring; SCS13 (Sleeve; POM) • You can replace a hose even though the hose needs replacement, since EIGHTLOCK Ferrule Fitting is a nut ferrule fitting. You can install and detach the fitting on site. • You can make use of a wide range of usages such as pipes for chemicals, food, beverage, and alcohol. • The nipple end is less likely to accumulate fluids, so you do not have to worry about contamination very much.
EIGHTLOCK S (E-ELS)	<ul style="list-style-type: none"> • Material : SUS304 • Our Nut Type Original Fittings • Since the inner layer of the fitting is flat and does not use the rubber packing, fluid accumulation is unlikely to occur. Thus, it is easy to wash out. • Since you do not need hose clamp and the controlling torque value, you can standardize how to install the fitting.
EIGHTLOCK B (E-ELB)	<ul style="list-style-type: none"> • Material: BSBM • Our Nut Type Original Fittings • Since the inner layer of the fitting is flat and does not use the rubber packing, fluid accumulation is unlikely to occur. Thus, it is easy to wash out. • Since you do not need hose clamp and the controlling torque value, you can standardize how to install the fitting.

*For EIGHTNIPPLE, please fasten with two clamps.

Model	Features
Ferrule Fitting	<ul style="list-style-type: none"> • Material : SUS 316L (Body) - SUS304 (Fitting Cover) • Due to the relatively flat structure between hose and nipple, it is possible to transfer fluids in a sanitary way. • You can make use of a wide range of usages such as pipes for chemicals, food, beverage, and alcohol. • The hose end is less likely to accumulate fluids, so you do not have to worry about contamination and the quantity of washing very much.
EIGHTNIPPLE S (E-FTS)	<ul style="list-style-type: none"> • Material : SUS316L • SUS 316L is superior in corrosion resistance, so you can transfer a wide range of fluids. • Two-stage flat nipple structure which maximizes hose pressure • Our Original Barb Nipple Fittings
EIGHTNIPPLE B (E-FTB)	<ul style="list-style-type: none"> • Material : BSBM • Compliant with RoHS2 requirement • Two-stage flat nipple structure which maximizes hose pressure • Our Original Barb Nipple Fittings
Protective Spring Guards (E-HSL)	<ul style="list-style-type: none"> • Material : SUS304 (Band, Spring, Fastener) • Spring guards prevent kinking, so you can transfer fluids safely. • Prevent kinking even if the bending radius is small due to the space-saving piping. • As a protection accessory for cleaning hose if its hose is easy to break at hand.

- ⚠ *Due to the laminated structure hose, please use the joints to seal an inner surface of the hose.
- *Please do not use the joints to seal an outer surface of the hose. This may result in the bursting or coming off from the hose.
- *When you use our products, please refer to "Precautions for Use" available on our webpage and product catalog.
- *In terms of chemical resistance, please refer to "Chemical Resistance Data" available on our webpage and product catalog.
- *Although the inner layer is made of fluorine, please make sure whether or not E-PDB is usable for high purity fluids before you use.
- *Although the inner layer is resistance to fluids, but depending on working environments, the fluids would be permeated through the inner layer, resulting in the danger of swelling and degradation of the middle or outer layer.

Contact us if you have any inquiries about HAKKO products.

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