Multi-Purpose/Chemical Resistant Hose For customers who transfer UV inks, UV-based paints which become harden inside the tube or who have trouble in changing ink viscosity.

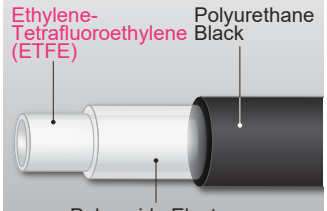
Flexible Fluorine (ETFE) Resin Tubing Black

[Model Number : E-SJ-(I.D.×O.D.)-BK]

Chemical Solvent UV Ink UV Paint

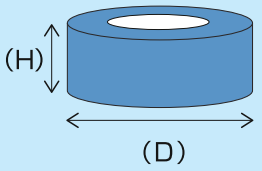
Applications • Fluids

〔Materials / Structure〕



- For Industrial Ink-Jet Printers (For UV Ink Supplying Pipes)
- For Transferring UV-based Paints and Solvents of the Painting Equipment
- For Transferring Chemicals used in Laboratory Equipment
- For Transferring Chemicals used in Semiconductor-Related Devices and Flat-Panel Display (FPD) Manufacturing Devices
- For Filling Line of UV Paints and UV-based Adhesives

〔Packing Dimension〕



Standard • Packing Information

Model Number	Inch (Inside Diamater) (*1)	I.D. × O.D.	Working Pressure MPa		Minimum Bend Radius at 20℃	Temperature Range	Standard Length	Product Weight	Color	Packing Dimension(*2)			
										Packing	Diameter (D)	Height (H)	Weight/roll
		mm	at 20℃	at 80℃	mm	℃	m	kg/roll			cm	cm	kg/roll
E-SJ-2×4-BK	5/64"	2 × 4	0 ~ 0.6	0 ~ 0.2	15	−20 ~ 80	20	0.24	Black	Plastic Bag	23.5	5	0.24
							100	1.19		Cardboard Box	38.5	15	1.71
E-SJ-3×5-BK	1/8"	3 × 5			20		20	0.32		Plastic Bag	25.5	5	0.32
							100	1.60		Cardboard Box	38.5	15	2.12
E-SJ-4×6-BK	5/32"	4 × 6			25		20	0.40		Plastic Bag	26	5	0.40
							100	2.00		Cardboard Box	38.5	15	2.52
E-SJ-4.3×6.4-BK	11/64"	4.3 × 6.4			30		20	0.46		Plastic Bag	26	5	0.70
							100	2.30		Cardboard Box	38.5	15	3.00
E-SJ-5×7-BK	13/64"	5 × 7	0 ~ 0.5		40		20	0.48		Plastic Bag	38.5	5.5	0.73
							100	2.41		Paper Bobbin	38.5	15	2.93
E-SJ-6×8-BK	1/4"	6 × 8	0 ~ 0.4		50		20	0.56		Plastic Bag	30	5.5	0.56
							100	2.82		Paper Bobbin	38.5	15	3.74
E-SJ-8×10-BK	5/16"	8 × 10		0 ~ 0.15	90		20	0.75		Plastic Bag	34	5	0.75
							100	3.70		Cardboard Box	46	26	5.00
E-SJ-8×12-BK	5/16"	8 × 12	0 ~ 0.6	0 ~ 0.2	50		20	1.54		Plastic Bag	35.5	8	1.54
							100	7.69		Paper Bobbin	46	16	8.86

*1: Please note that inch size is approximate, which is not equal to milliunit.
*2: "Diameter (D)" × "Height (H)" means "External Dimensions of Cardboard Box (D)" × "Height (H)."

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ISO 9001: 2015
ISO 14001: 2015

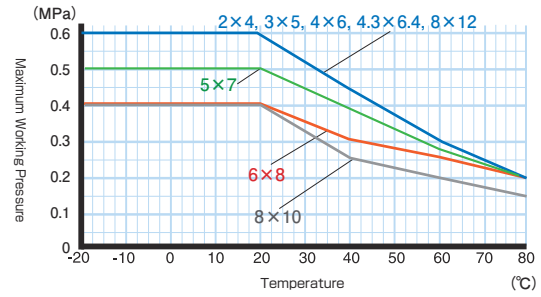
Characteristics and Functions

Non-PVC | Non-Adhesiveness | Chemical Resistance | Solvent Resistance | Low Elution | Flexibility | UV Cut | Oil-Proof | Alcohol Resistant | Cold Resistance

- **UV Cut**···By cutting ultraviolet, E-SJ-BK is suitable for transferring UV-based paints, adhesives, and inks.
- **Chemical Resistance**···Since the inner layer is made of ETFE fluorine resin, E-SJ-BK is resistant to most of the chemical substances. For more information on chemical resistance data, please refer to our corporate website.
- **Flexibility**···Due to the laminated structure, compared with the conventional single-layer fluorine tubing, E-SJ-BK is superior in flexibility. This improves your work efficiency.
- **Hard to Break**···Unlike the conventional single-layer fluorine tubing, E-SJ-BK 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.
- **Plasticizer-Free**···E-SJ-BK does not contain plasticizer (an elution material) at all. E-SJ-BK is an oil-free tubing.
- **Non-PVC**···E-SJ-BK is made of a non-PVC material.
- **High Purity**···Fluorine resin does not contain any additives such as plasticizer, so this tubing is suitable for transferring high purity chemical fluids
- **Easy to Cut**···Since we print the cut mark on the tubing every meter, it is easy to cut the length you would like to.
- **Green Procurement**···E-SJ-BK is compliant with RoHS2 requirements.
- **Original Fittings**···By using our original fittings, you can avoid accidents which are caused by incorrect choices of hose and fittings.

Technical Information

E-SJ-BK : Relationship between Working Temperature and Maximum Working Pressure

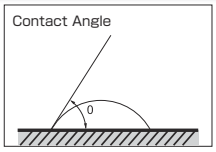


※ The above graph is the value when our original fittings are used.

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.

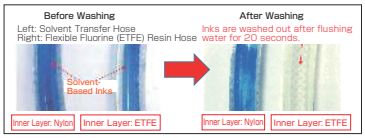
Resins	Critical Surface Tension (dyne/cm)	Contact Angle for Water (θ)
Ethylene-Tetrafluoroethylene (ETFE)	22	96
Polyvinylidene Fluoride (PVDF)	25	82
High Density Polyethylene	31	73
Hard Vinyl Chloride	39	68
PET	43	-
Nylon	46	54



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

Washing out the inks (by organic solvents) sticked inside the hose
Test Piece 1 : Inner Layer: Nylon···Solvent Transfer Hose (E-SV)
Test Piece 2 : Inner Layer: Ethylene-Tetrafluoroethylene···Flexible Fluorine (ETFE) Resin Yarn Reinforced Hose (E-SJB)

Test Conditions	Kind of Ink	Solvent-Based Inks
	Ink Inclusion Period	7 Days (at Room Temperature)
Washing Methods	Cleaning Solution	Ethyl Acetate
	Cleaning Period	20 Seconds
	Pressure	Less than 0.01MPa



Flexible Fluorine (ETFE) Resin Hose is excellent in non-adhesiveness of the inner layer, so you can reduce washing time and save cleaning solutions and labor costs.

(Flexibility Comparative Data)

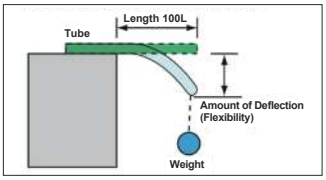
- This is one indication of flexibility. Flexibility varies depending on hose (tubing).
- The larger the amount of deflection is, the more flexible the hose (tubing) is.

※The lower the minimum bend radius value is, the harder the hose (tubing) is.

Test Method for Amount of Deflection (Flexiblity)
Add a 50 gram weight to the end of the tubing for one minute. Then, measure the amount of deflection. (The test piece goes through the annealing step in advance to make it straight.)
※③ PTFE Tubing and ④ PFA Tubing are not our products.

(Test Temperature:20℃)

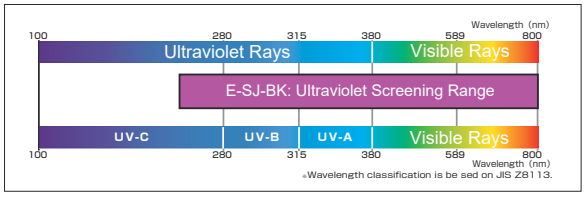
Test Sample	Minimum Bend Radius (mm)	Amount of Deflection (mm)
① E-PD-4 × 6	23 (Catalog Value : 25)	28
② E-SJ-4 × 6	23 (Catalog Value : 25)	31
③ PTFE Tubing (4 × 6)	20	7
④ PFA Tubing (4 × 6)	23	6



(UV Penetration Data)

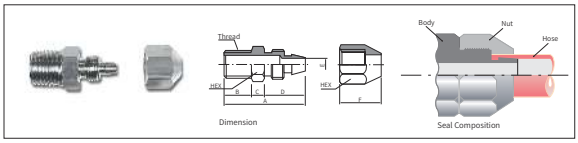
- Test Sample : E-SJ- 4 × 6-BK
- UV Wavelength Range : 240nm ~ 800nm
- Test Machine : Spectrophotometer U-4100 (Hitachi, Ltd)

Test Result : Ultraviolet Screening 99%



HAKKO Original Fittings

Model Number	Body							Nut		Weight	Applicable Hose
	A	B	C	D	E	Thread	HEX	F	HEX	Gram/Piece	
E-FTS-2 × 4-R1/8	24.5	10	4	10.5	1.7	R1/8	10	10.5	10	13	E-SJ-2 × 4-BK
E-FTS-3 × 5-R1/4	30	12	5	13	2.5	R1/4	14	13	12	26	E-SJ-3 × 5-BK
E-FTS-4 × 6-R1/4	31	12	5	14	3.5	R1/4	14	14	14	29	E-SJ-4 × 6-BK
E-FTS-5 × 7-R1/4	31	12	5	14	3.5	R1/4	14	14	14	29	E-SJ-5 × 7-BK
E-FTS-6 × 8-R1/4	33	12	5	16	5.5	R1/4	17	16	14	32	E-SJ-6 × 8-BK
E-FTS-8 × 12-R3/8	41	13	7	21	7	R3/8	19	21	19	61	E-SJ-8 × 12-BK



Material: 316 L Steel Use Stainless (Body) and 304 Steel Use Stainless (Nut)

⚠ *Due to the laminated structure tubing, please use the joints to seal an inner surface of the hose.
*There are no original fittings for E-SJ-4.3 × 6.4-BK and E-SJ-8 × 10-BK. 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-SJ-BK 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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