

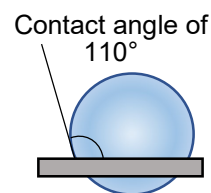
Fluorine Coating on the Inner Surface of a Nozzle

1. Fluorine coating

Fluorine coating is suitable for medical- or analysis-use nozzles requiring abrasion resistance and stick-free property, spring materials requiring a high adhesive coating, and products requiring electric non-conductive. FUTA-Q is equipped with the coating facility and keeps coating agents in stock for fluorine coating of the inner surface of small-diameter pipes. Volume production is available as well as prototype production.

2. Properties of fluorine coating

- High water repellency: This property is represented as a contact angle of which the larger value means better repellency, resulting in less contaminant adhesion.
- High abrasion resistance: This is evaluated based on the abrasion resistance test standard in JIS.
- Low friction coefficient: The lower a surface friction is, the more hardly the surface is to be scratched, resulting in the longer service life the product has.



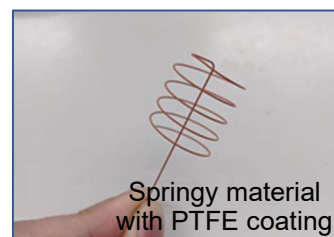
Inner surface coating with 5 μm



Inner surface coating with 1 μm or less



PTFE-coated products



Springy material with PTFE coating

3. Standard fluorine coatings in FUTA-Q

Coating name (color)	Characteristics	Contact angle with water at 25°C	Abrasion resistance CS-17, 1 kg	Friction coefficient with iron ball load of 1 kg	Maximum service temperature (°C)	Coating thickness (μm)
PTFE (red)	Having good water repellency for preventing contamination	102 - 106	12 - 20	0.04 - 0.07	220	5 - 30
PTFE (black)	Only difference in color from the above	102 - 106	12 - 20	0.04 - 0.07	220	5 - 30
PTFE (black and thick)	Having excellent slidability, abrasion resistance, and insulation	92 - 96	25 - 35	0.04 - 0.08	160	10 - 40
PTFE (silver)	Having excellent abrasion resistance and chemical resistance as well as high service temperature	104 - 108	30 - 50	0.04 - 0.07	250	5 - 30
FC180 (clear)	Thin coating having excellent chemical resistance, water repellency, and peeling performance	≒ 110	Relatively weak in attrition	—	—	< 1

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