

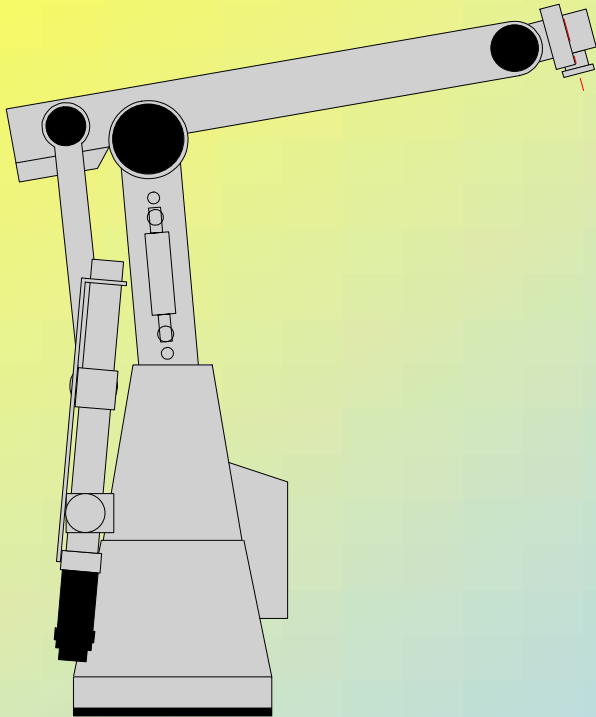
HITACHI

High-Flexible Cable

for Industrial Robot

&

Factory Automation



Hitachi Cable, Ltd.

~ Content ~

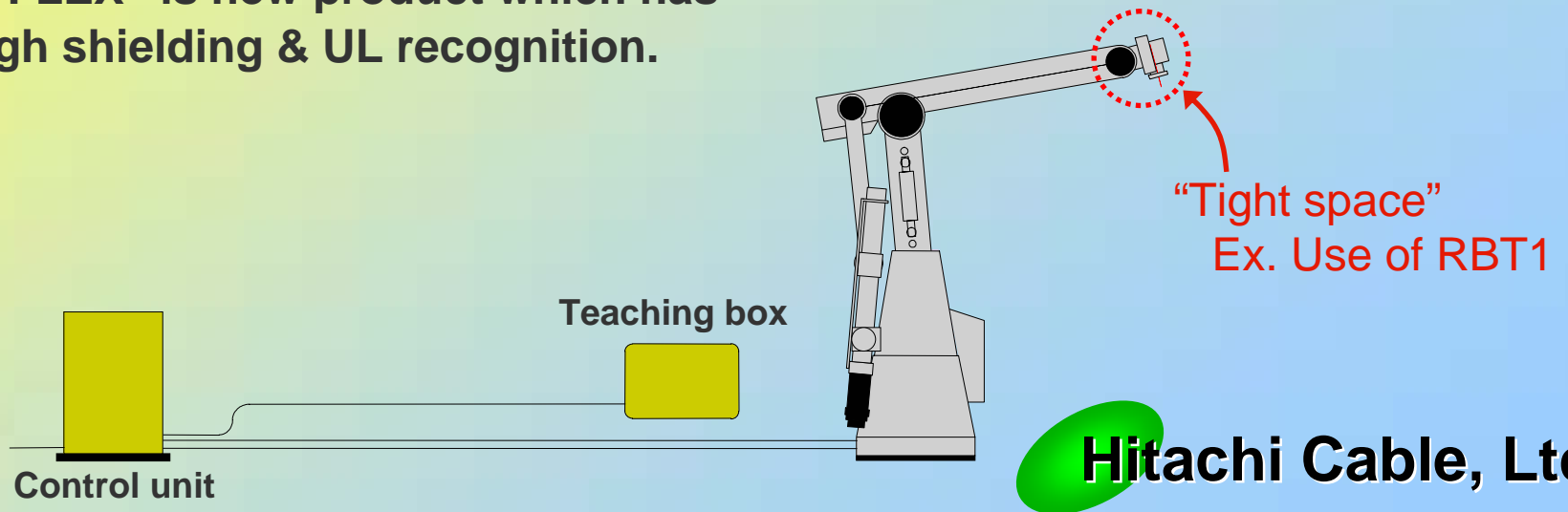
1. Out line
2. Feature
3. Flexibility performance
4. Line up of standard cables



1. Outline of Hitachi high-flexible cables

Model	Use for	Note
RBT 1	Extra high flexure part	Special cond. used
RBT 2 (or FA-FLEX)	* High flexure part (General purpose)	Standard type

*“FA-FLEX” is new product which has tough shielding & UL recognition.

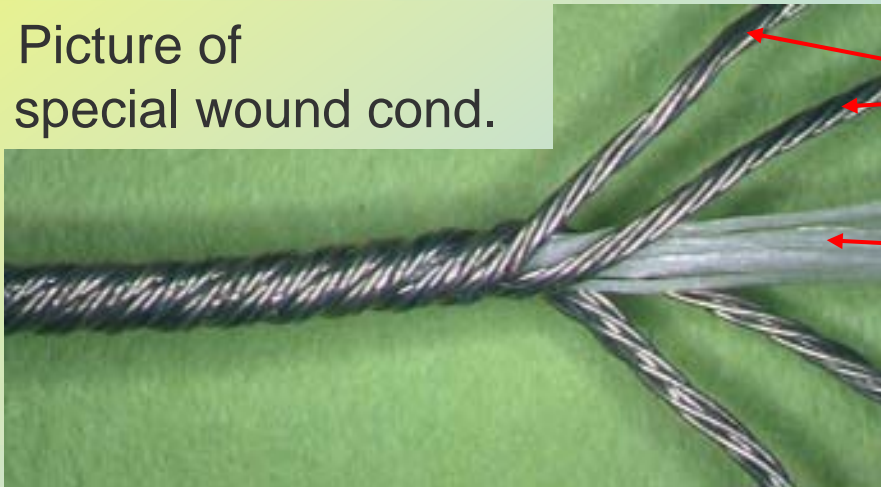


2. Feature

2.1 Conductor

Model	Material	Strand
RBT 1	Special wound cond. consisting of copper*	7strand of 0.08-0.16mm
RBT 2 (or FA-FLEX)	Copper	0.08mm

Picture of special wound cond.

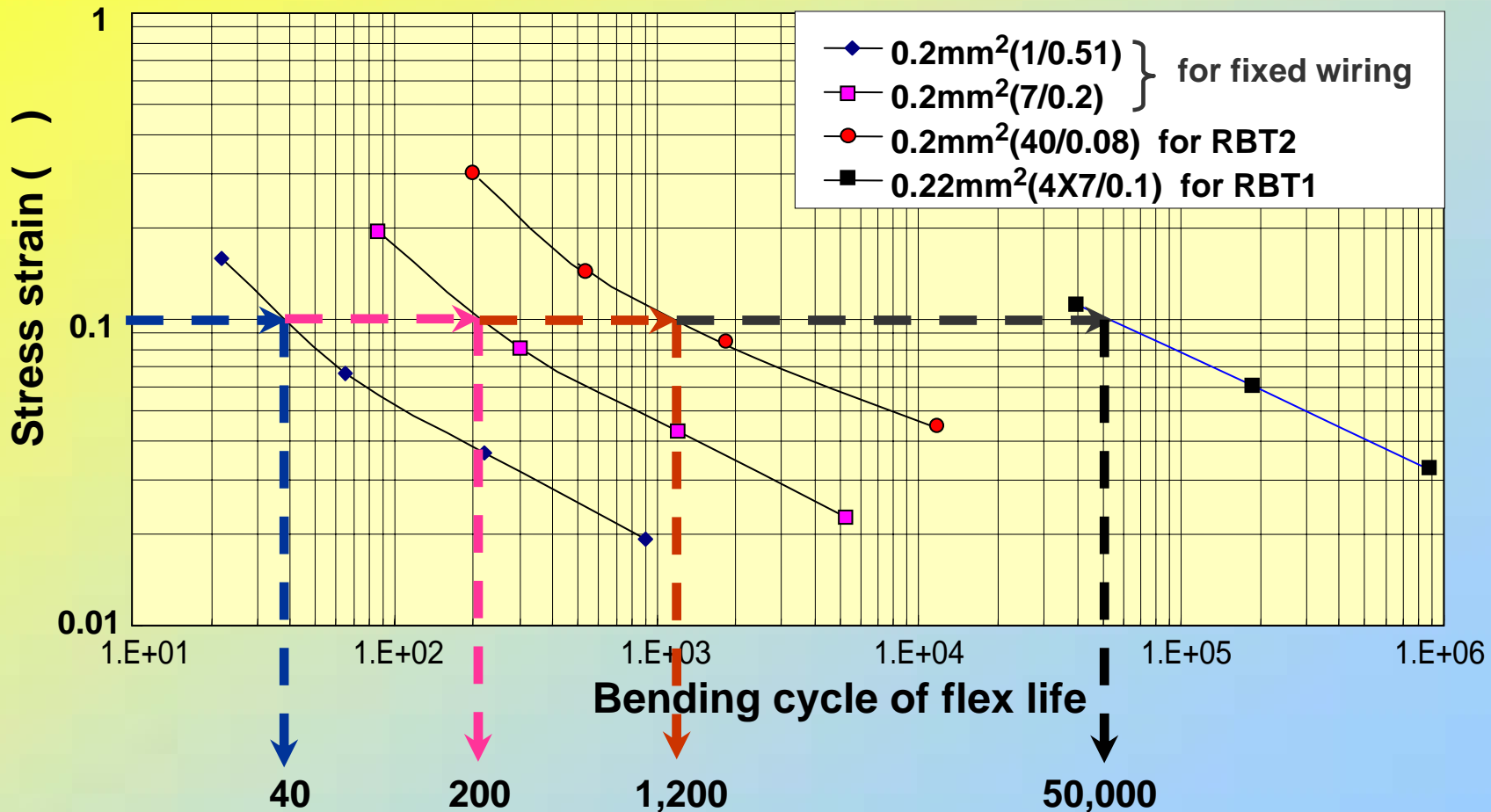


7 stranded copper wire

Polyester fiber
(High strength thread)

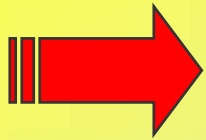
Hitachi Cable, Ltd

Comparison of Flex life for some conductor construction



2.2 Insulation

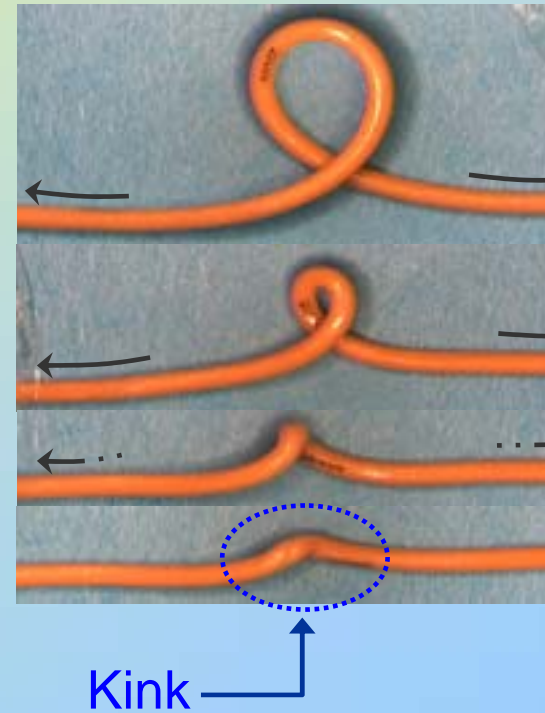
Why do we select “ETFE”?



1. Low friction
2. Hard and toughness
3. High kink resistant
4. High tensile strength

2.3 Sheath

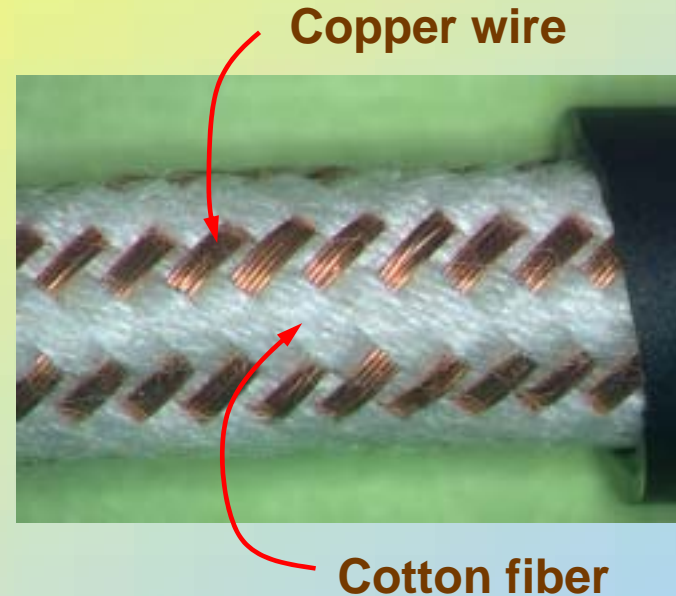
Soft-PVC rated 60 degree C.
(Standard grade)



2.4 Shielding

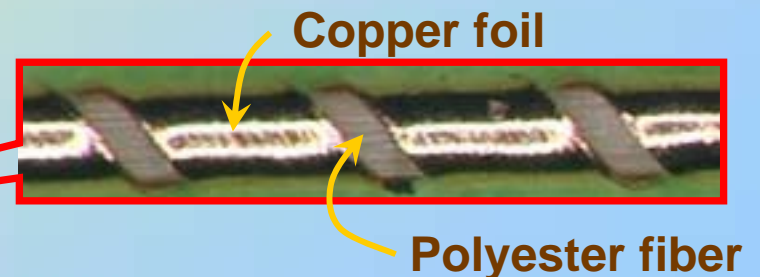
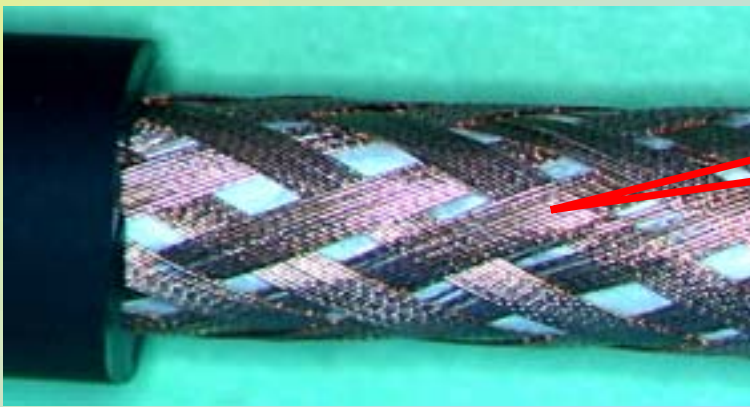
R B T ; Spiral wrapped by copper with staple fiber. (Interweave braid)

➡ Prevent the abrasion



FA-FLEX ; Tinsel copper braid

➡ Excellent flexibility & toughness for bending and twisting



Hitachi Cable, Ltd

3. Flexibility performance

Flex life is expected by following curve. Stress strain() can be calculated by following formula.

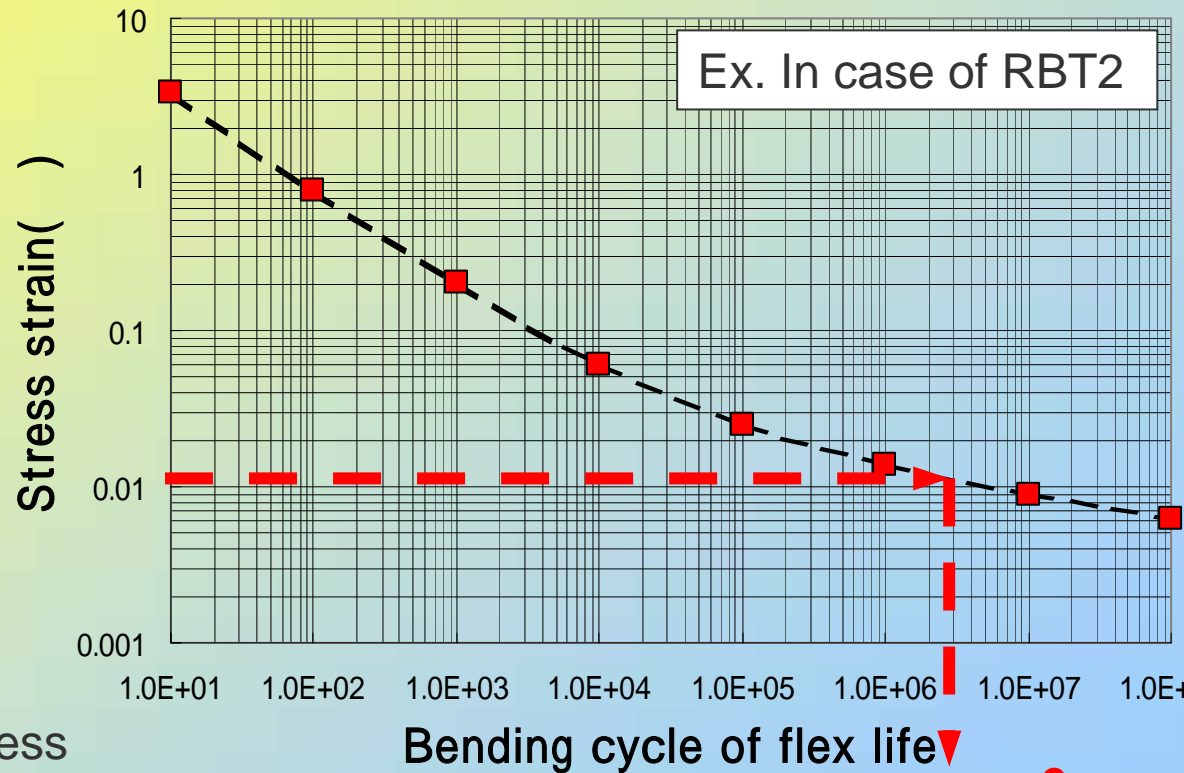
$$= \frac{\frac{d}{2}}{R + t + \frac{D}{2}}$$

d: Conductor diam.

R: Bending radius

t: Sheath + shield
+ bind tape thickness

D: Insulation diam.



Bending cycle of flex life

3x10⁶

Hitachi Cable, Ltd

4. Line up of standard cable

Model	Cond. size	No. of cond.	Rating
RBT1	0.14-0.56mm ²	2-20 cores, 2-20 pairs	60V*
RBT2	0.2-0.3mm ²	2-20 cores, 2-20 pairs	60V*
	0.5-2mm ²	2-20 cores, 2-20 pairs	600V**
FA-FLEX <i>"New"</i>	28-23AWG	2-20 cores, 2-20 pairs	300V
	18-14AWG	2-6 cores	600V

*In case of UL recognized type, rating is 30V.

** In case of UL recognized type, rating is 300V.

Thank you!

Hitachi Cable, Ltd.