

ばね下ケーブル屈曲疲労解析 (EPB・EMBハーネス等)

Development of cables to be routed near automobile wheels using bending durability simulation

EPB: Electric Parking Brake harness

EMB: Electric Mechanical Brake harness

ケーブル屈曲疲労解析技術により、お客様のニーズに合わせた様々なバネ下ハーネス製品(WSS+EPB、EMB、IWMなど)を開発。

A variety of unsprung harness products (WSS+EPB, EMB, IWM, etc.) tailored to customers' needs have been developed, using advanced bending simulation and bending durability prediction.



モノづくりを支える材料技術コーナー

概要

- ✓ 顧客・車種毎で異なる様々な条件でのケーブル屈曲疲労寿命の予測が可能
It is possible to predict the cable bending fatigue life based various conditions depending on customers and vehicle models.
- ✓ 各条件に応じた最適なケーブル設計により信頼性とコストの両立が可能
Optimal cable design for each condition enables both reliability and cost
- ✓ 時間を要する耐久試験のやり直しを解消しリードタイムを短縮化
Shorter lead times by eliminating rework of endurance tests that take a long time

用途

電動パーキングブレーキハーネス、電動ブレーキ用ハーネス、インホイールモータ用ハーネス等

Electric Parking Brake harness.
Electric Mechanical Brake harness.
In-Wheel Motor harness ,etc.

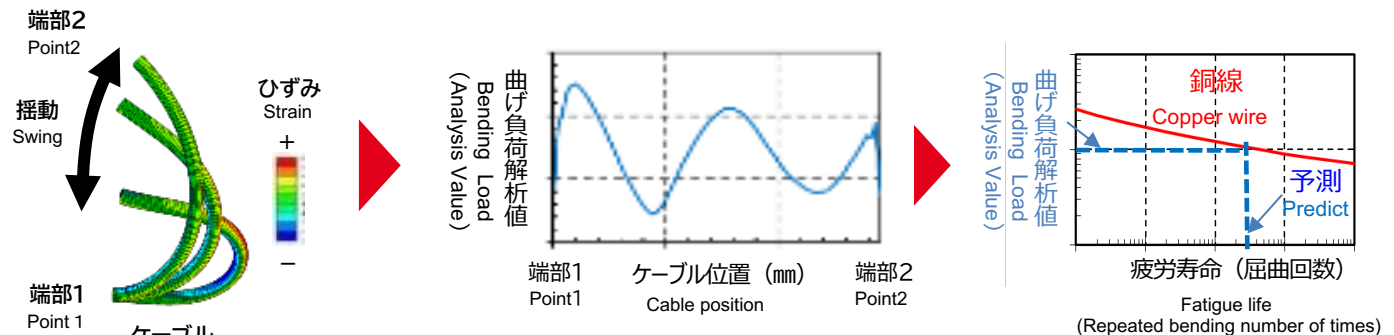


図1 実車揺動条件でのケーブル疲労予測解析の概要

Fig.10 Overview of cable fatigue prediction analysis flow under actual vehicle conditions.

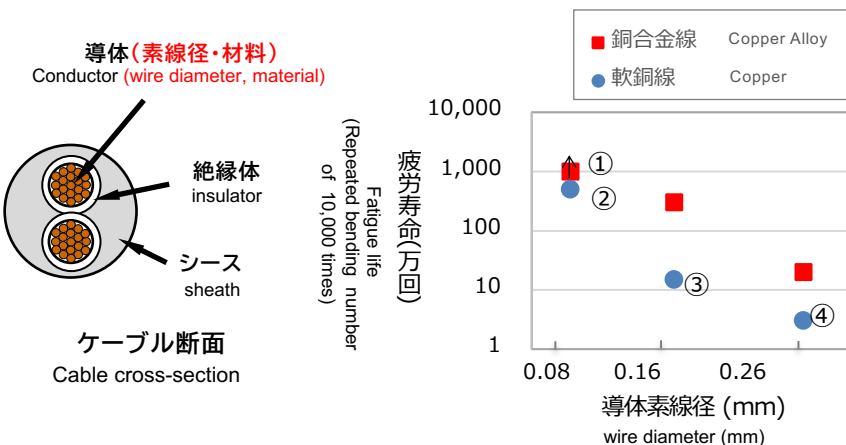


図2 種々導体における疲労寿命予測例

Fig.2 Example of fatigue life prediction for various conductors

表1.各仕様の疲労寿命とコスト例

Table 1: Examples of fatigue life and cost t for each specification

素線仕様 element wire spec	疲労寿命 Fatigue life	低コスト順位 Rank from Lowest to highest of cost
① 合金 Copper Alloy φ0.08mm	1000万回以上 More than 10 million times	4
② 軟銅 Copper φ0.08mm	500万回 5 million times	3
③ 軟銅 Copper φ0.16mm	15万回 150,000 times	2
④ 軟銅 Copper φ0.26mm	3万回 30,000 times	1

