

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.



電動化社会に貢献する技術

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.

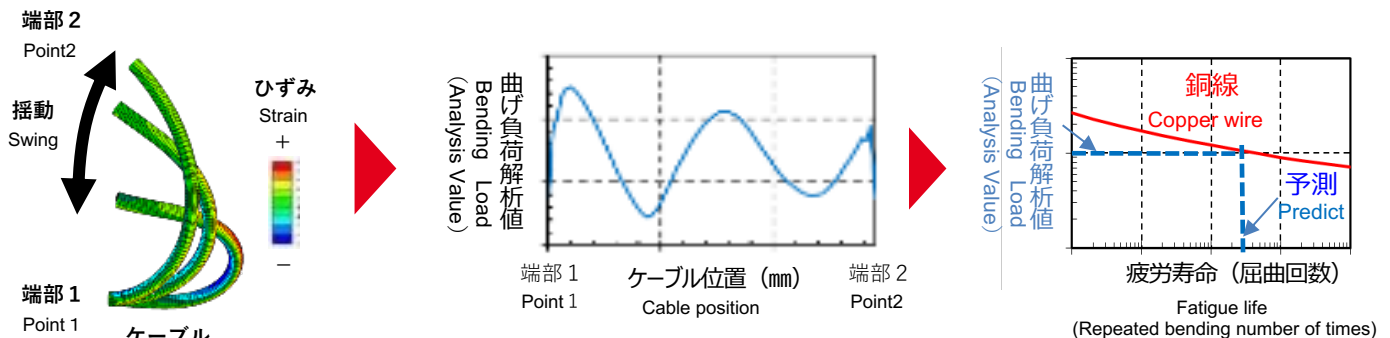


図1 実車揺動条件でのケーブル疲労予測解析の概要

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

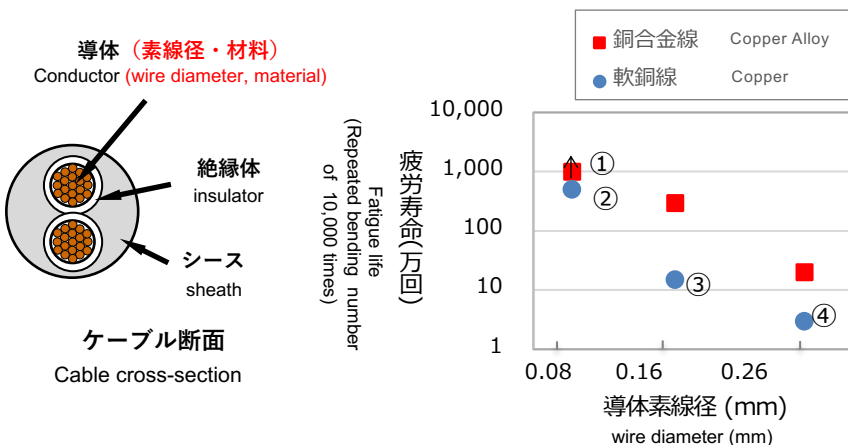


図2 種々導体における疲労寿命予測例

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

