

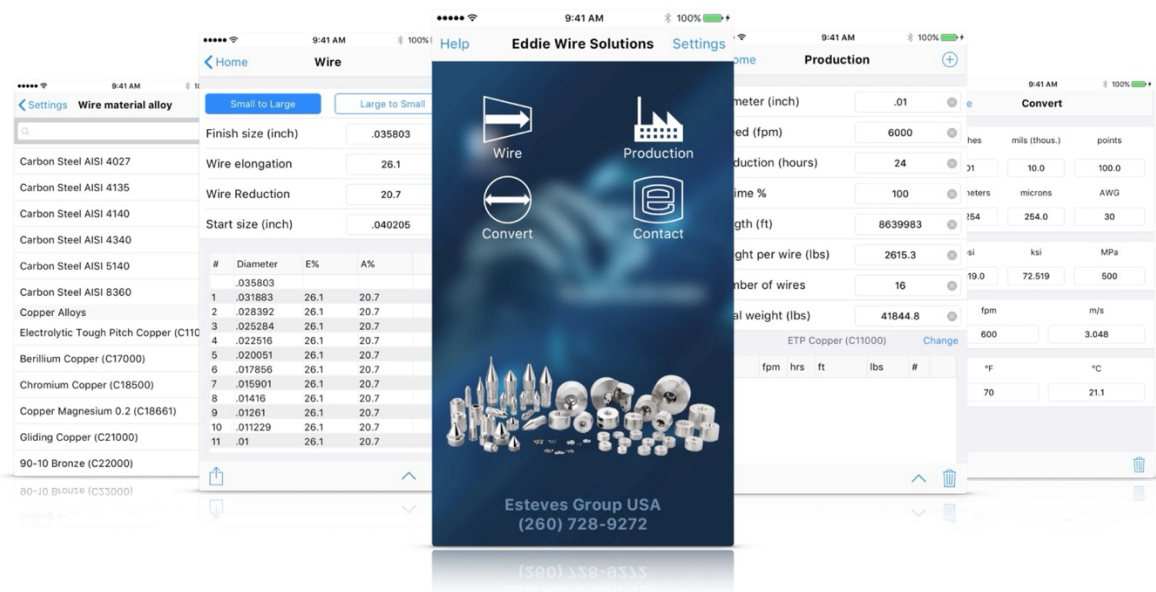
Eddie Wire Solutions

A Comprehensive Tool for the Wire and Cable Industry

Presented by: Esteves Group

Availability: Free on all major app stores

Operating System Requirements: iOS, Android, MacOS, Microsoft Windows 10 or later



Introduction

Eddie Wire Solutions is a powerful and user-friendly mobile application designed specifically for professionals in the wire and cable industry. With over 10,000 installs and more than 2,500 active users across iOS, Android, Windows, and MacOS platforms, the app has become a trusted tool for wire calculations and production planning worldwide. It enhances productivity by providing precise wire calculations and production optimizations, available entirely offline, making it ideal for use in remote factory locations or on the go.

This white paper provides an in-depth look at the capabilities of Eddie Wire Solutions, outlining its features, benefits, and the value it offers to users. It also explores the app's offline usability, customization options, and ongoing development based on industry feedback.

Key Features and Functionalities

Eddie Wire Solutions boasts a variety of built-in calculators and tools, each tailored to address common industry challenges. Below is a summary of the core features:

1. **Wire Calculator**

The Wire Calculator is used to determine drawing die sizes and sequences for non-constant draft machines. Users can create custom drawing die strings by manually inputting wire elongation, area reduction, or the next size. The app allows easy adjustments, ensuring that even the most complex wire calculations are accessible and manageable.

2. **String Calculator**

This feature enables the automatic creation of constant-elongation die sets for machines with constant draft requirements. By inputting the starting and final wire sizes along with the desired elongation, Eddie generates an entire die string within seconds, helping optimize the production process.

3. **Production Calculator**

Estimating production volume is crucial for planning and efficiency. The Production Calculator allows users to determine the length or weight of wire produced in a given timeframe. Users can also perform reverse calculations to estimate the time required to produce a specific amount of wire, making it an indispensable tool for production management.

Customer Feedback: Many of our customers report that they use this calculator frequently to determine production times for various wire and cable projects, and they have recommended the app to their colleagues for its ease of use and reliability in production planning.

4. **Unit Converter**

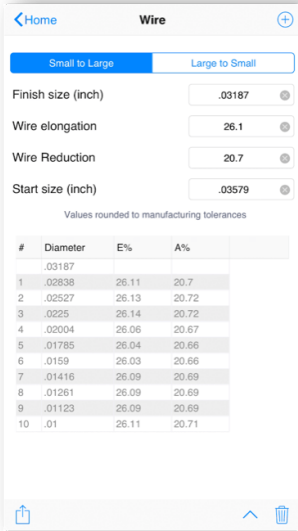
The Unit Converter simplifies conversions between wire dimensions (e.g., inches, millimeters, AWG) and tensile strengths. It also includes temperature and speed conversions, making it an essential tool for wire and cable production settings where precision is key.

5. **Wire Alloy Selector**

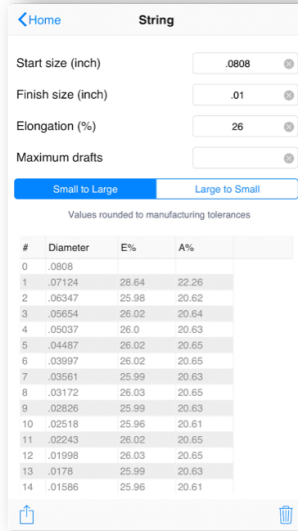
Eddie Wire Solutions includes an extensive database of over 90 different wire alloys. Users can easily find the specific alloy they are working with and calculate production volumes based on the wire's mass and properties.

6. **Contact Finder**

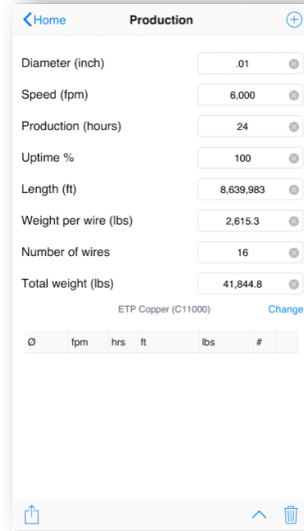
The app provides quick access to Esteves Group's global network of sales representatives. With built-in integration for calling, texting, and emailing, users can reach out directly for support, technical information, or service inquiries.



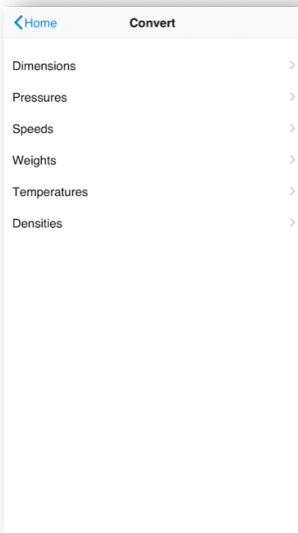
Wire



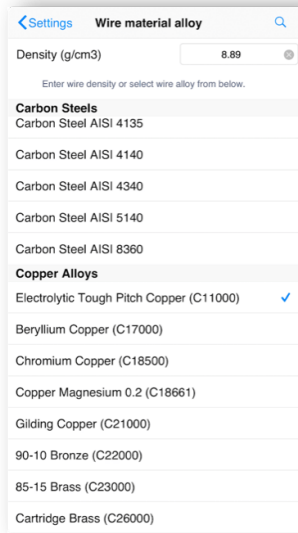
String



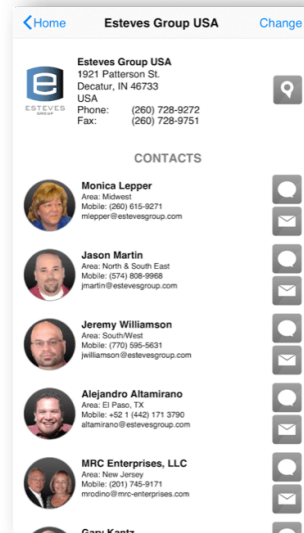
Production



Convert



Wire alloys



Contact

Formulas and Calculations

To assist users in understanding the underlying calculations used in the app, the following are some of the primary formulas incorporated:

1. Elongation Percentage

The incoming wire diameter is calculated from the drawn wire diameter for a given elongation by:

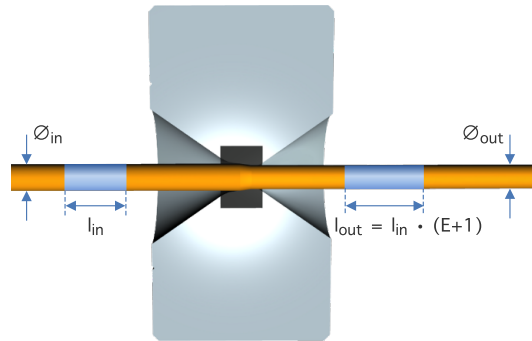
$$\phi_{in} = \phi_{out} \cdot \sqrt{\frac{E}{100\%} + 1}$$

Where:

ϕ_{in} : incoming wire diameter [mm, inch]

ϕ_{out} : drawn wire diameter [mm, inch]

E : wire elongation percentage [%]



Inversely, the drawn wire diameter is calculated from the incoming wire diameter with:

$$\phi_{out} = \frac{\phi_{in}}{\sqrt{\frac{E}{100\%} + 1}}$$

The elongation percentage can also be calculated from the incoming and drawn wire diameter using:

$$E = \left[\left(\frac{\phi_{in}}{\phi_{out}} \right)^2 - 1 \right] \cdot 100\%$$

2. Area Reduction Percentage

The incoming wire diameter is calculated from the drawn wire diameter for a given area reduction by:

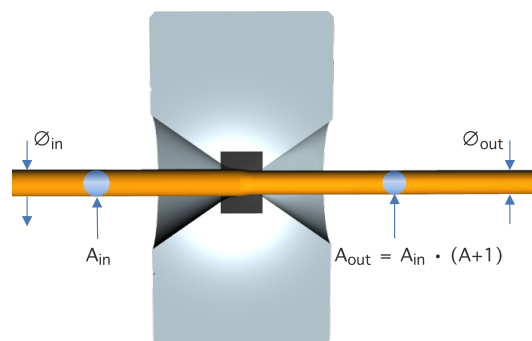
$$\phi_{in} = \frac{\phi_{out}}{\sqrt{1 - \frac{A}{100\%}}}$$

Where:

ϕ_{in} : incoming wire diameter [mm, inch]

ϕ_{out} : drawn wire diameter [mm, inch]

A : wire area reduction percentage [%]



Inversely, the drawn wire diameter is calculated from the incoming wire diameter with:

$$\phi_{out} = \phi_{in} \cdot \sqrt{1 - \frac{A}{100\%}}$$

The area reduction percentage can be calculated from the incoming and drawn wire diameter as follows:

$$A = \left[1 - \left(\frac{\phi_{out}}{\phi_{in}} \right)^2 \right] \cdot 100\%$$

3. Elongation vs. Area Reduction

The relationship between elongation percentage and area reduction percentage is:

$$E = \frac{A}{100\% - A} \quad \text{and} \quad A = \frac{E}{E + 100\%}$$

Where:

E : wire elongation percentage [%]

A : wire area reduction percentage [%]

4. Diameter vs. Wire Weight

The volume of a length of wire is calculated by:

$$V = \frac{1}{4} \cdot \pi \cdot \phi^2 \cdot L$$

Where:

V : wire volume [m³, in³]

∅ : wire diameter [mm, inch]

L : wire length [m, inch]

To determine the wire diameter for a given measured length and mass, use:

$$\phi = \sqrt{\frac{4 \cdot m}{\pi \cdot \rho \cdot L}}$$

Where:

m : wire mass [kg, lbs]

ρ : wire density [kg/m³, lbs/in³]

L : wire length [m, inch]

These formulas are integral to the app's calculations, helping users perform accurate and reliable wire measurements.

Offline Functionality and Customization

One of the standout benefits of Eddie Wire Solutions is its ability to operate completely offline. Once downloaded, all features and calculators are fully functional without requiring an internet connection. This makes it particularly valuable for factory environments or remote locations with limited connectivity.

The app's appearance is automatically adjusted based on the operating system's settings, toggling between light and dark themes without manual input. In addition, users can select their preferred units of measurement, wire materials, and factory locations to further tailor the experience.

User Experience and Usability

Eddie Wire Solutions was developed with the end-user in mind, focusing on intuitive design and ease of use. The app's interface allows users to quickly navigate between different calculators and tools, reducing the learning curve for new users. Its seamless flow between various calculations helps streamline wire and die sequence planning, ultimately boosting efficiency.

Additionally, the app is free from advertisements, and no data is collected or shared, ensuring a secure and distraction-free experience. Eddie is regularly updated based on user feedback, with new features and enhancements added to meet the evolving needs of wire professionals.

Practical Applications in the Wire and Cable Industry

Eddie Wire Solutions is ideal for:

- **Production Planning:** Simplifies the process of calculating die strings, production volumes, and elongation requirements.
- **Process Optimization:** Helps operators and engineers optimize production workflows, saving time and reducing costs.
- **Training and Education:** Serves as an educational tool for understanding the intricacies of wire drawing and related processes.
- **Field Support:** Provides immediate access to technical resources and contacts, aiding in troubleshooting and operational decisions.

Future Enhancements and Community Involvement

Esteves Group is committed to continuous improvement and regularly updates Eddie Wire Solutions based on industry feedback. Users are encouraged to share their suggestions and requests for additional functionalities. This collaborative approach ensures that the app remains at the forefront of wire calculation technology, evolving to meet new industry standards and requirements.

Conclusion

Eddie Wire Solutions is more than just an app; it is a comprehensive companion for professionals in the wire and cable industry. With its offline functionality, powerful calculators, and customization options, it simplifies complex calculations, optimizes production, and enhances communication. Esteves Group continues to develop Eddie Wire Solutions, ensuring that it remains an indispensable tool for the industry's top professionals.

For more information or to download the app, visit the Esteves Group website or search for "Eddie Wire Solutions" on the Apple App Store, Google Play Store, or Microsoft Store.