

# EASYCALC™

## A STEP-BY-STEP GUIDE



# Using EASYCALC

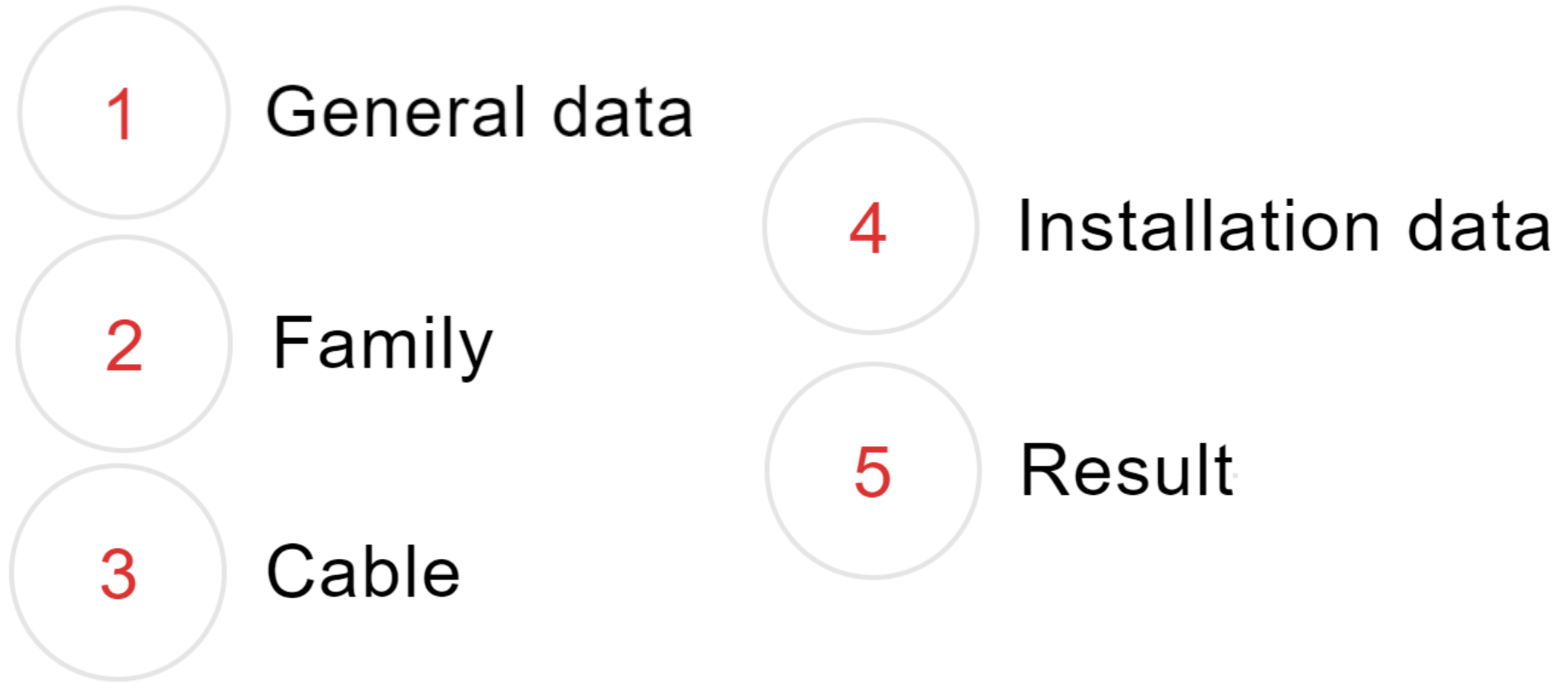
## Given:

Ampacity (A) or Power (kW / kVA)..... 20 A  
Voltage..... 120/208 V  
Allowable voltage drop: ..... 5%  
Number of Phases: ..... 3  
Length of run: ..... 10 m  
Cable Type: ..... RW90 Copper  
Installation Method: ..... Underground Conduit

## Required:

Cable/conductor size

## 5 STAGES OF EASYCALC



1

General data

2

Family

3

Cable

4

Installation data

5

Result

Calculation by \*

☒ Intensity ☐ Power

Intensity (A) \*

20

Length (m) \*

10

Voltage(Three phase) \*

120-208 Volts (3-Ph) ▾

Current type \*

AC

Power Factor (cos  $\phi$ ) \*

0.8

Voltage Drop (%) \*

3

Choose to calculate by  
your known Intensity  
(Ampacity) or Power

Set Intensity (Amperage)  
or Power (kVA or kW)

Input length of run (m)

Select voltage  
level in volts

Current  
Type

Select Power Factor

Set Voltage  
Drop as a %

Calculation by \*

☐ Intensity ☒ Power

Power (kVA) \*

Enter value

Power unit \*

☒ kVA ☐ kW

Voltage levels are defined at the country and system level. EASYCALC can handle the most common building voltage levels. Select the dropdown for a list. Make note of the number of phases and ensure you select the correct voltage level and # of phases that you require as this will affect your results.

Current type, AC or DC, will be automatically set based on the voltage level and # of phases selected above.

Power factor (PF), or Cos phi, is only relevant for AC systems. It is critical for calculating the electrical power consumed by an electrical device. In an ideal system, PF is unity - or 1. Often, PF is between 0.8 and 0.98. EASYCALC default is 0.8.

Set VD % per code requirements or customer specific requirements. Refer to Section 8 in the Canadian Electrical Code, Part 1. EASYCALC default is 3%.

Next

1

General data

2

Family

3

Cable

4

Installation data

5

Result

Now we select the appropriate product family for our application.

Unsure where to start? Refer to our product datasheets on the web for a list of products and their applications.

Alternatively, reach out to the team and we can help set you in the right direction!

#### FAMILY LIST \*

**FIREX® TECK90 1 kV**  
(-40°C) XLPE



#### **FIREX® TECK90 600 Volts**

Nexans FIREX® TECK90 Cables are intended for use in various primary and secondary industries, including chemical processing plants, refineries and general factory environments.



#### **RW90 Aluminum**

(-40°C) EXELENE® XLPE Insulated Wire 90°C Service Entrance and Branch Circuit Wire



#### **RW90 Copper**

(-40°C) EXELENE® XLPE Insulated Wire 90°C Service Entrance and Branch Circuit Wire



#### **RWU90 Aluminum**

(-40°C) EXELENE® XLPE Insulated Wire 1 kV 90°C Underground Service Entrance and Branch Circuit Wire



#### **RWU90 Copper**

(-40°C) EXELENE® XLPE Insulated Wire 1 kV 90°C Underground Service Entrance and Branch Circuit Wire



#### **T90 Nylon / TWN75**

600 Volts 90°C Cu PVC Insulated Nylon Covered Cables



#### **CANADEx® NMD90 Copper**

300 VOLTS 90°C



1

General data

2

Family

3

Cable

4

Installation data

5

Result

## FAMILY LIST \*

FIREX® TECK90 1 kV  
(-40°C) XLPE



## FIREX® TECK90 600 Volts

Nexans FIREX® TECK90 Cables are intended for use in various primary and secondary industries, including chemical processing plants, refineries and general factory environments.



## RW90 Aluminum

(-40°C) EXELENE® XLPE Insulated Wire 90°C Service Entrance and Branch Circuit Wire



## RW90 Copper

(-40°C) EXELENE® XLPE Insulated Wire 90°C Service Entrance and Branch Circuit Wire



## RWU90 Aluminum

(-40°C) EXELENE® XLPE Insulated Wire 1 kV 90°C Underground Service Entrance and Branch Circuit Wire



## RWU90 Copper

(-40°C) EXELENE® XLPE Insulated Wire 1 kV 90°C Underground Service Entrance and Branch Circuit Wire



## T90 Nylon / TWN75

600 Volts 90°C Cu PVC Insulated Nylon Covered Cables



## CANADEx® NMD90 Copper

300 VOLTS 90°C



Following our example, we'll select the **RW90 Copper** product family.

1

General data

2

Family

3

Cable

4

Installation data

5

Result

Next, we select the cable specific information.

☐ Has PE Conductor

Select if cable has a potential earth (bonding) conductor



Conductor Type

Single core cables trefoil formation

Single core cables flat formation

Single core cables trefoil formation

☐ Has Neutral Conductor

Select if cable has a neutral (grounding) conductor

Select the configuration of your cable(s). Are they being laid flat or in a trefoil formation?



Next

1

General data

2

Family

3

Cable

4

Installation data

5

Result

Next, it is time to set the installation specific information. This page shows AIR installations. The following page will show GROUND installations.

Environment



Air



Ground

Laying option factor

Single conductor trefoil in air – spacing &gt;1

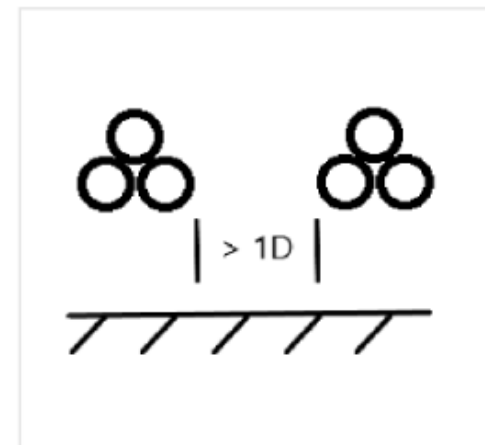


Single conductor trefoil in air – spacing &gt;100%

Single conductor trefoil in air– spacing between 25% and 100%

Single conductors trefoil in air – spaced less than 25% or touching

Single core trefoil in conduit / raceway



Ambient Temperature (°C)

30



Set the ambient temperature.

Note – for installation under ground,  
ambient earth is set to 20C.

Select your specific installation information.  
Note – all installation configurations shown in  
this field come from the 2021 Canadian  
Electrical Code, Part 1.



Grouping

N/A in Canada

1

General data

2

Family

3

Cable

4

Installation data

5

Result

Environment

☐ Air ☒ Ground

Laying option factor

D11x-1 Single core trefoil in conduit or raceway ▾

Single core in conduit / raceway in ground (&lt; 3 conductors)

D11x-1 Single core trefoil in conduit or raceway – 1 cable per phase

CE Code,  
Diagram D11,  
Detail 1Refer to the CE Code  
for the installation  
diagram

Ambient Temperature (°C)

20 ▾

Set the ambient temperature.  
Note – for installation under ground,  
ambient earth is set to 20C.

Soil factor

Dry soil (thermal resistivity: 1 K.m/W)

Select your specific installation information. Note – all  
installation configurations shown in this field come  
from the 2021 Canadian Electrical Code, Part 1.  
D11X-1 refers to Appendix D, Diagram 11, Detail 1...  
and so on.

Dry soil thermal resistivity is  
automatically set to 1 Km/W

Next

1

General data

2

Family

3

Cable

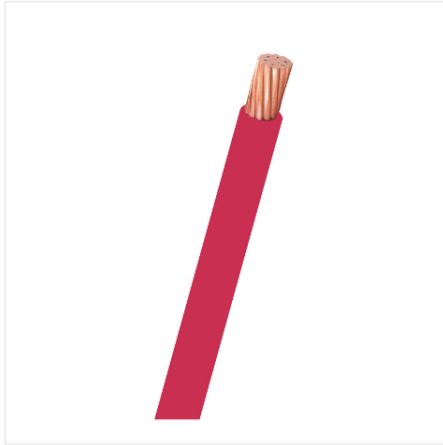
4

Installation data

5

Result

Let's review the results!

**14(7) RW90 CU RED**

Product description

Nexans reference: 12000259

Country reference: 202838

EAN13 Ref.: 622089101968

Product reference numbers



View Datasheet

PDF

Product datasheet

Packaging

14(7) RW90 CU RED Spool (300m)

14(7) RW90 CU RED Spool (300m)

14(7) RW90 CU BLU Spool (300m)

14(7) RW90 CU WHT Spool (300m)

14(7) RW90 CU GRN Spool (300m)

14(7) RW90 CU BLK Spool (300m)

Other product versions  
available including different  
packaging types.

1

General data

2

Family

3

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4

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5

Result

More information and summary of inputs / outputs are also provided on this page.

## Additional Information

VOLTAGE DROP

2.879 V

VOLTAGE DROP (%)

1.38 %

MAXIMUM PERMISSIBLE CURRENT

20 A

## Input summary

### 1. General data

CALCULATION BY

Intensity

INTENSITY (A)

20

LENGTH (M)

10

VOLTAGE(THREE PHASE)

208

CURRENT TYPE

AC

POWER FACTOR (COS  $\Phi$ )

0.8

VOLTAGE DROP (%)

5

### 2. Family

FAMILY LIST

RW90 Copper

... cont'd.

1

General data

2

Family

3

Cable

4

Installation data

5

Result

### 3. Cable

HAS PE CONDUCTOR

CONDUCTOR TYPE

Single core cables trefoil formation

HAS NEUTRAL CONDUCTOR

### 4. Installation data

ENVIRONMENT

Ground

LAYING OPTION FACTOR

D11x-1 Single core trefoil in conduit or raceway – 1 cable per phase

AMBIENT TEMPERATURE (°C)

20

SOIL FACTOR

Dry soil (thermal resistivity: 1 K.m/W)

Disclaimer - CA

# Troubleshooting

## No Result

There is no product corresponding to your request. Please contact Nexans for support / to get more information.

Back

Reset

If you get **No Result**, there are several things that may have happened.

1. Verify that the input parameters align with the installation method.
  - a. For example, the program will not allow you to model a single-phase system for 3-phase installation method. Another example is that you would get no result for a *multi-core cable*, if you select a *single-conductor* product.
2. The installation method you intend to model is not defined in the Canadian Electrical Code. Instead, you would need to calculate the allowable ampacity using the IEEE 835 calculation method.
3. There are no available Nexans standard products for this specific configuration.

Another common issue that may arise is getting a result that is oversized or much too large for your installation. This will happen for product families that are not as diversely stocked or standard.

If you ever find yourself stuck, reach out to the team for guidance!



# IF YOU HAVE ANY QUESTIONS PLEASE REACH OUT TO THE NEXANS TEAM FOR SUPPORT!



## Contact

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