# ENCODER & RESOLVER CABLE

These cables specifically designed for application on machine tools. With small diameters, more flexible conductive formations, special materials in the insulation and outer sheaths, these cables are optimized to operate in cable chains and automation systems which require special services.The entire range compliesincludes power cables, control and hybrids.In this line you will find cables for:

- OCT (One Cable Technology) solutions for digital systems (DSL, EnDat 2.2).
- Cables for servo-drives.
- Feedback, encoder, resolver, speed sensor, signal system cables,shielded.
- Fieldbus systems cables.
- Drag chain cables for harsh operating conditions.
- For fixed, flexible and highly flexible use in power and drag chains.
- Fully compatible with the most common systems as for example: Siemens, Bosch Rexroth Indramat, SEW, Lenze, Schneider Elau, B&R, Omron, Parker, Rockwell, Yaskawa, Control Techniques, Heidenhain, SICK, Fanuc...

# OUR ADVANTAGES

### EASY SOLUTIONS

ADAPTABILITY IS ONE OF OUR BEST QUALITESIT PERMIT US TO COPE WITH YOUR REQUESTON A SHORT NOTICE AND EFFEC TIVELY.

### NO PRICE FIGHTS

WE ESCAPED THE OLASSICAL REBATE UNTILYOU DROP " POLICY . WE ARE PRICE WISE SINCETHE BEGINNING

### HIGH LEVEL EXPERIENCE

QUR TECHNLAL CAPABILITIES HAVE BEENTESTED FOR MORE THAN 30 YEARS ANDINDRECT CONNECTION WITH END USERS . SO TOSAY

### ENDLESS INVESTIGATION

WE CONTINUOUSY MEASURE EVERYTHINGTEST . TEST AND TESTAGAIN . THIS HELPS NUNDERSTAND RISKS AND REWARDS . ANDBEPREPARED

### NO FORTUNE TELLER

WE BASE OUR DECISIONS ON CLEAR BUSIESSPLANS , THINKING BEFORE MAKING OUR STEPSAND KEEPIN-GA'NOTTODO LISTFOR EVERY-OVE OF THEM

### TEAM BUILDING

OUR TEAMIS MADE NOT ONLY BY OUR STAFFBUTIT INCLUDES ALSO ALL OUR CUSTOMERSWEACT LIKEA TEAM WEGROW LKEA TEAMWE WINLIKE A TEAM

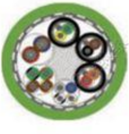
# ENCODER & RESOLVER CABLE

## ENCODER & RESOLVER CABLE

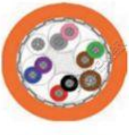
is a series of cables developed for all units used in operational environments.All necessary data - software and programming, positioning axes, actuators and servo - are provided through these cables optimized for this application.Use of highly flexible conductors and high performance plastic materials for products suitable for use in standard cable chain and high speed ones.

# PRODUCT MIX

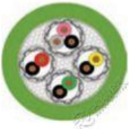
**ENCODER SIEMENS®**
Eq.to SIEMENS® standard



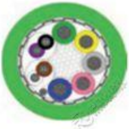
**ENCODER INDRAMAT®**
Eq.to BOSCH REXROTH® standard



**ENCODER LENZE®**
Eq.to LENZE® standard

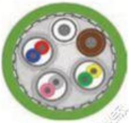


**ENCODER FANUC®**
Eq.to FANUC® standard



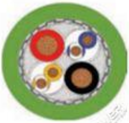
**ENCODER HEIDENHAIN®**

Eq. to HEIDENHAIN® Standard



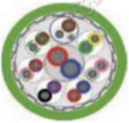
**ENCODER OMRON®**

Eq. to OMRON® Standard



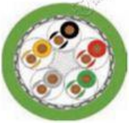
**ENCODER CONTROL-TECHNIQUES®**

Eq.to CONTROL TECHNIQUES® Standard



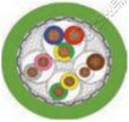
**ENCODER ROCKWELL®**

Eq.to ROCKWELL® Standard



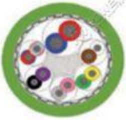
**ENCODER YASKAWA®**

Eq.to SEW® Standard



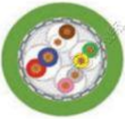
**ENCODER B&R®**

Eq.to B&R® Standard

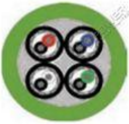


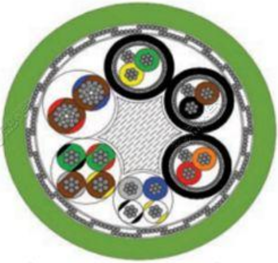
**ENCODER SCHNEIDER/ELAU®**

Eq.to SCHNEIDER/ELAU® Standard



**RESOLVER**





300ENCODER
DYNAMIC PERFORMANCE

## APPLICATIVE FEATURES

**5.000.000** cycles

**6,5** x O.D.

**300** m/min

**20** m/s²

## PVC

## TECHNICAL DATA

**OPERATING VOLTAGE**

30 V (VDE) / 300 V (UL/CSA)

**TEMPERATURE (operative)**

| | |
|---|---|
| STATIC | -40 °C / + 80 °C |
| DYNAMIC | -25 °C / + 80 °C |

**DIELECTRIC STRENGTH**

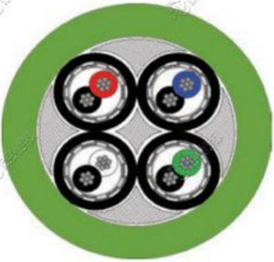
1.5 kV acc.to EN 50395 Part 6,7

**INSULATION RESISTANCE**

≥ 1 GΩ x km acc.to EN 50395 Part 8

## CONSTRUCTION FEATURES

| | |
|---|---|
| Conductor | Extra Flexible Bare Copper* |
| Insulation | Special Polypropylene |
| Shield | Tinned Copper Braid O.C. ≥ 85% |
| Separator | Easy Strip-Away Tape |
| Outer Sheath | PVC |
| Colour | Green RAL 6018 |



600RESOLVER
HIGH PERFORMANCE

## APPLICATIVE FEATURES

**10.000.000** cycles

**6,5** x O.D.

**600** m/min

**60** m/s²

## PUR

## TECHNICAL DATA

## CONSTRUCTION FEATURES

*OPERATING VOLTAGE*

300 V (UL/CSA)

*TEMPERATURE (operative)*

| | |
|---|---|
| *STATIC* | - 50 °C / + 80 °C |
| *DYNAMIC* | - 40 °C / + 80 °C |

*DIELECTRIC STRENGTH*

1,5 kV acc.to EN 50395 Part 6,7

*INSULATION RESISTANCE*

≥ 2500 MΩ x km acc.to EN 50395 Part 8

*ELECTRICAL RESISTANCE*

IEC 60228 Cl. 6 acc.to EN 50395 Part 5

| | |
|---|---|
| *Conductor* | *Extra Flexible Tinned Copper* |
| *Insulation (pair)* | *Special Polypropylene* |
| *Colore Code* | *Black/Red, Black/Blue, Black/Green, Black/White* |
| *Shield (pair)* | *Tinned Copper Braid O.C. ≥ 85%* |
| *Inner Sheath* | *Thermoplastic Compund* |
| *Separator* | *Easy Strip-Away Tape* |
| *Outer Sheath* | PUR |
| *Colour* | *Green RAL 6018* |

| | MotionCables code | OEM ref | Cable formation | | Ø mm | Cu kg/km | Bending mm | Outer Sheath |
|---|---|---|---|---|---|---|---|---|
| **Eq. a standard SIEMENS®** | | | | | | | | |
| | **24X04UR-G** | **6FX2008-1DC00** | (2 x 2 x 0,22) | (static) | 9,1 | 83 | **60** | ● |
| | **22X06UR-VE** | **6FX5008-2DC00** | (2 x 2 x 0.22 + 1 x 2 x 0.34) | | 7,2 | 38 | **50** | 🟢 |
| | **25P08UR-VE** | **6FX5008-1BD11** | (8 x 2 x 0.18) | | 7,8 | 52 | **50** | 🟢 |
| | **21X12UR-VE** | **6FX5008-1BD21** | (4 x 2 x 0.38 + 4 x 0.50) | | 8,9 | 80 | **60** | 🟢 |
| | **121X12UR-VE** | **6FX5008-1BD41** | [3 x (2 x 0.14) + 4 x 0.14 + 2 x 0.50] | | 8,8 | 69 | **60** | 🟢 |
| | **1X16UR-VE** | **6FX5008-1BD51** | [3 x (2 x 0.14) + 4 x 0.14 + 2 x 0.50 + 4 x 0.22] | | 9,4 | 84 | **65** | 🟢 |
| | **25X08UR-VE** | **6FX5008-1BD61** | (4 x 2 x 0.18) | | 6,4 | 34 | **45** | 🟢 |
| | **25P02UR-VE** | **6FX5008-1BD71** | (2 x 2 x 0.18) | | 5,0 | 21 | **35** | 🟢 |
| | **24X12UR-VE** | **6FX5008-1BD81** | (12 x 0.22) | | 6,9 | 48 | **45** | 🟢 |
| **Eq. a standard BOSH REXROTH INDRAMAT®- Serie INK** | | | | | | | | |
| | **17X10UR-A** | **INK 0209** | (4 x 2 x 0.25 + 2 x 1.0) | | 8,8 | 74 | **60** | 🟠 🟢 |
| | **21X10UR-A** | **INK 0448** | (4 x 2 x 0.25 + 2 x 0.50) | | 8,5 | 70 | **55** | 🟠 🟢 |
| | **121X09UR-A** | **INK 0208** | (9 x 0.50) | | 8,8 | 75 | **60** | 🟠 🟢 |
| | **117X16UR-A** | **INK 0532** | [4 x 1.0 + 4 x 2 x 0.14 + (4 x 0.14)] | | 9,7 | 81 | **65** | 🟠 |
| **Eq. a standard LENZE®** | | | | | | | | |
| | **17Z10UR-VE** | **EYF 0018** | 4 x (2 x 0.14) + (2 x 1.0) | | 11,2 | 68 | **85** | 🟢 |
| | **26Z09UR-VE** | **EYF 0017** | 3 x (2 x 0.14) + (3 x 0.14) | | 9,2 | 42 | **60** | 🟢 |
| | **21Z14UR-VE** | **EYF 0021** | 3 x (2 x 0.14) + (4 x 0.14) + 2 x (2 x 0.50) | | 12,0 | 79 | **90** | 🟢 |
| **Eq. a standard FANUC®** | | | | | | | | |
| | **21X07UR-VE** | | (1 x 2 x 0.18 + 5 x 0.50) | | 7,8 | 45 | **50** | 🟢 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 21X09UR-VE | | (2 x 2 x 0.18 + 5 x 0.50) | 7,8 | 47 | 50 | ● | |
| 21X12UR-VE | | (3 x 2 x 0.18 + 6 x 0.50) | 8,7 | 77 | 60 | ● | |
| 17X12UR-VE | | (3 x 2 x 0.18 + 6 x 1.0) | 8,7 | 88 | 60 | ● | |
| 21X16UR-VE | | (5 x 2 x 0.18 + 6 x 0,50) | 8,7 | 84 | 60 | ● | |
| 21X10UR-VE | | (4 x 2 x 0.22 + 2 x 0.50) | 7,6 | 72 | 50 | ● | |
| 24P10UR-VE | | (10 x 2 x 0.22) | 9,0 | 60 | 60 | ● | |
| 28P10UR-VE | | (10 x 2 x 28 AWG) | 6,0 | 30 | 40 | ● | |

**Eq. a standard HEIDENHAIN®**

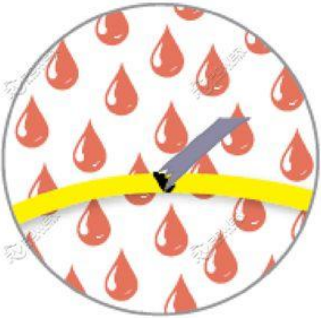
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 21X08UR-VE | | [3 x (2 x 0.14) + 2 x (1 x 0.50)] | 8,4 | 64 | 55 | ● | ● |
| H17X08UR-VE | | [3 x (2 x 0.14) + 2 x (1 x 1.0)] | 9,1 | 69 | 60 | ● | |
| 21X12UR-VE | 244 957-01 | (4 x 2 x 0.14 + 4 x 0.50) | 8,5 | 50 | 55 | ● | ● |
| 21X16UR-VE | 354 341-01 | [4 x 2 x 0.14 + (4 x 0.14) + 4 x 0.50] | 8,3 | 58 | 55 | ● | ● |

WHICH CABLE JACKET

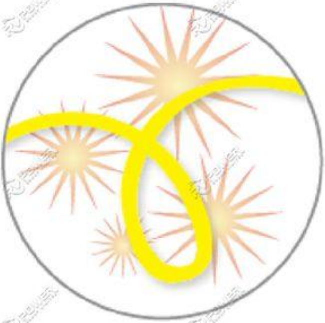
# WHICH CABLE JACKET IS BEST FOR YOUR APPLICATION?

**There are many different types of cable jackets and each jacket works well in a specific application. The three main sensor cable jackets are PVC (Polyvinyl Chloride), PUR (polyurethane) and TPE (thermoplastic elastomer). Each jacket type has different benefits like washdown, abrasion resistant or high flexing applications. Finding the correct jacket type for your application can extend the life of the cable.**

PVC is a general purpose cable and is widely available. It is a common cable, and typically has the best price point. PVC has a high moisture resistance, which makes it a good choice for wash-down applications.



PUR is found mostly in Asia and Europe. This cable jacket type has good resistance against abrasion, oil and ozone. PUR is known for being Halogen free, not containing: chlorine, iodine, fluorine, bromine or astatine. This jacket type does have limited temperature range compared to the other jacket types, -40…80℃.



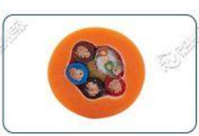
TPE is flexible, recyclable and has excellent cold temperature characteristics, -50…125☒C. This cable is resistant against aging in the sunlight, UV and ozone. TPE has a high-flex rating, typically 10 million.

The table below details the resistance to different conditions. Note that these relative ratings are based on average performance. Special selective compounding of the jacket can improve performance.

Choosing the right jacket type can help reduce failures in the field, reducing downtime and costs.

| **Resistance to:** | **PVC** | **PUR** | **TPE** |
|---|---|---|---|
| Oxidation | Excellent | Excellent | Outstanding |
| Heat | Good - Excellent | Excellent | Outstanding |
| Oil | Fair | Outstanding | Outstanding |
| Low Temperature Flexibility | Poor-Good | Exceltent | Outstanding |
| Weather, Sun | Good – Excellent | Excellent | Outstanding |
| Ozone | Exceltent | Exceltent | Excellent |
| Abrasion | Fair-Good | Exceltent | Excellent |
| Electrical Properties | Far-Good | Exceltent | Excellent |
| Flame | Excellent | Exceltent | Outstanding |
| Nuclear Radiation | Far | Exceltent | Poor |
| Water | Good - Exceltent | Good - Exceltent | Exceltent |
| Acid | Good - Exceltent | Excellent | Excellent |
| Alkali | Good - Excellent | Excellent | Excellent |
| Gasoline | Poor | Exceltent | Excellent |
| Benzol | Poor - Far | Excellent | Excellent |
| Degreaser Solvents | Poor - Far | Excellent | Excellent |
| Alcohol | Good - Excellent | Excellent | Excellent |
| Weld Slag | Fair | Excellent | Excellent |

# CONTROL SIGNAL CABLE



# DETAIL DISPLAY

ONE

## OXYGEN FREE PURE COPPER

Extra Flexible Bare Copper
Class 6 acc.to IEC 60228

**TWO**

## INSULATION

PUR/Special Rubber compound/on request

**THREE**

## REINFORCE

steel wire / Kevlar braid (optional) /on request Play the role of bearing gravity and super tensile for the cable, and make the cable life longer

**FOUR**

## LOW ECCENTRICITY

The outer skin is thin and uniform, effectively preventing current breakdown and ensuring power safety

2641
inch/mm
OFF
ON
ZERO
stainless steel

FIVE

## HIGH FLEXIBLE THREAD BODY

Special Thermoplastic Compound PUR/Special rubber compound based on NBR/others.Special Thermoplastic Compound PUR/Special rubber compound based on NBR/others

**OIL RESISTANT**

**FLAE RESISTANT**

**HALOGEN FREE**

**COLD RESISTANT**

**ABRASION RESISTANT**

**OZONE RESISTANT**

**UV RESISTANT**

**MICROBE RESISTANT**

**MUD RESISTANT**

**WATER RESISTANT**