

BETAjet® 400 Hz cables for supply unit of helicopters and aircrafts on board



The Quality Connection

LEONI

Cable Solutions

for Marine Technologies

A consistent focus on the market, in-depth sector and product knowledge, decades of manufacturing experience and innovative products – that's LEONI, one of world's largest producers of special cable solutions. The Marine Technologies business unit supplies the shipbuilding industry with LEONI Sea Line® cables.

What sets LEONI apart:

Research & Development

We invite you to benefit from the globally interlinked know-how of the LEONI Group and the work done by our Corporate Research & Development department. By conducting research projects that transcend individual sectors we tap synergies within the Group and thereby provide additional potential for innovation.

A high degree of vertical integration in cable production

This is something virtually no other cable manufacturer can boast: from ultra thin copper wire through to hybrid cable thick as an arm, everything is done in our own production plants. Optimized results are achieved by using components which are matching up.

Cable systems

We also offer ready-to-connect and ready-to-fit assembled cable systems and fully wired modules.

Global presence

We have our own production facilities in all of the world's key industrial regions and are therefore always in close proximity to you.



High Quality Performance

As a manufacturer of customized cables for marine technologies, LEONI offers a wide range of cables with application-optimized characteristics, such as:

- lack of halogen
- non corrosiveness of gases
- non toxicity of gases
- skydrol resistance
- low smoke density
- flame retardance
- non-flame propagation
- low fire load
- resistance to oil
- resistance to abrasion
- UV resistance

The special BETAjet® cables offer the supply of 400 Hz solutions for airport installations, both at landside airports, as well as at air craft carriers or helicopter platforms on board. Different types of BETAjet® cables are either suitable for use in mobile and stationary applications under extreme operational conditions of mechanical stress and climate, for in- and outdoors, as well as for use in high mobility applications or for static applications under normal environmental conditions and average mechanical stress.

Typical applications are for example in underground pits, mobile 400 Hz diesel generator units, suspended cables for passenger bridges etc. for civil and military applications. Retriever applications according to construction of retriever. Flexible wiring of UPS-units with IT-systems, radar substations and broadcasting equipment. EMC improved power cable from frequency converter to motor (0–400 Hz). Control cores in the phase conductors for voltage sense applications only.

In case of fixed installation, typical application is in cable trays, for cable clamps and for wall and ceiling fixations as well as in hangars, finger docks, service-ducts and other indoor installations for civil and military applications. Flexible wiring of UPS-units with IT-systems, radar substations and broadcasting equipment.

The BETAjet® cables are available with the previous and the new design. The minimum order quantity is 100 m.

LEONI also offers these cables in customized cable assemblies.

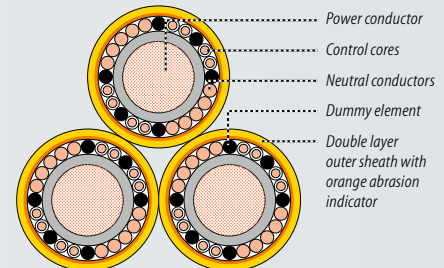


BETAjet® 400 FRNC-deltaflex

Twisted symmetrical flexible power cables with integrated control cores



Industrie Service



ADVANTAGES

- Symmetric voltage drop
- Best possible protection against electric shock owing to the concentric neutral conductor around each phase – TÜV tested
- Orange abrasion indicator facilitate maintenance service
- Redundancy in case one neutral conductor is damaged
- High flexibility – direct connection into the socket, no extra joint required

APPLICATION

Suitable for use in mobile and stationary applications under extreme operational conditions of mechanical stress and climate, for in- and outdoors. Typical applications are for example in underground pits, mobile 400 Hz diesel generator units, suspended cables for passenger bridges etc. for civil and military applications. Retriever applications according to construction of retriever. Flexible wiring of UPS-units with IT-systems, radar substations and broadcasting equipment. EMC improved power cable from frequency converter to motor (0 – 400 Hz).

CONSTRUCTION

- Power conductors: Tinned fine copper strands acc. to VDE 0295, IEC 60228 class 6
Insulation: Cross-linked Ethylene-Propylene-Rubber (EPR)
- Control cores: $3 \times (8 \times 1 \text{ mm}^2)$ tinned fine copper strands acc. to VDE 0295, IEC 60228 class 5
Insulation: Polyethylene cross-linked
Colour: White with numbers printed in black
- Control cores and neutral conductor: Concentric stranding around the phase conductors
- Outer sheath: Abrasion resistant polyurethane (PUR), 2 layers with abrasion indicators
- Colour of sheath: Yellow
- Abrasion warning: Orange

TECHNICAL DATA

- Nominal voltage: U_0 115 / 200 V
- Voltage rating: U_0/U 600 / 1000 V max.
- Testing voltage: 4000 VAC
- Temperature range: -40°C to $+90^\circ\text{C}$

STANDARDS / MATERIAL PROPERTIES

- Halogen free: IEC 60754-1, EN 50267-2-1 ($< 5 \text{ mg / g}$)
- No corrosive gases: IEC 60754-2, EN 50267-2-2 ($\text{pH} > 5$)
- Low toxic gases: NES 02-713, NFC 20-454
- Flame retardant: IEC 60332-1, EN 50265
- Resistance to oil: EN 60811-2-1 (24 h / 100°C)
- Good resistance to abrasion
- UV resistance

BETAjet® FRNC-flex SINGLE CORE

28 VDC, flexible single core power cable with integrated control cores



ADVANTAGES

- Easy feedback of sense voltage
- Double insulation of control cores

APPLICATION

Suitable for use in high mobility applications, under extreme operational conditions of mechanical stress and climate, for in- and outdoors. Typical applications are for example in grounded pits, mobile diesel generator units, suspended cables for passenger bridges, etc. for civil and military applications. Control cores in the phase conductors for voltage sense applications only.

CONSTRUCTION

- Power conductors:
 - Conductors: Tinned fine copper strands
 - VDE 0295, IEC 60228, class 6
 - Insulation: Cross-linked Ethylene-Propylene-Rubber (EPR)
- Control cores:
 - Conductors: $4 \times 1 \text{ mm}^2$, tinned fine copper strands
 - VDE 0295, IEC 60228, class 5
 - Insulation: Polyolefin copolymer double insulation
 - Colour: Grey with numbers printed in black
- Outer sheath: Abrasion resistant polyurethan (PUR)
 - Sheath colour: Yellow
 - Abrasion warning: Orange

TECHNICAL DATA

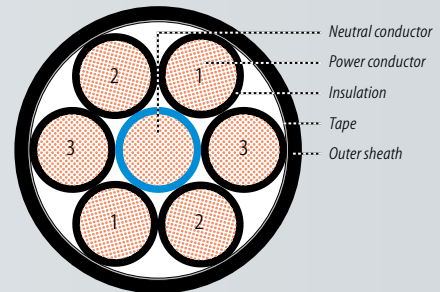
- Nominal voltage: Un 28 VDC
- Test voltage: 4000 VAC, 50 Hz
- Operation temperature: from $-40 \text{ }^\circ\text{C}$ to $+90 \text{ }^\circ\text{C}$

STANDARDS / MATERIAL PROPERTIES

- Halogen free: IEC 60754-1, EN 50267-2-1 ($< 5 \text{ mg/g}$)
- No corrosive gases: IEC 60754-2, EN 50267-2-2 ($\text{pH} < 5$)
- Low toxic gases: NES 02-713, NFC 20-454
- Resistance to oil: EN 60811-2-1 (24 h / $100 \text{ }^\circ\text{C}$)
- Good resistance to abrasion
- UV resistance
- Flame retardant: IEC 60332-1, EN 50265-1

BETAjet® 400 FRNC-flex

Feeder cables for indoor and outdoor



ADVANTAGES

- Flame retardant, skydrol resistant material for use in hangars, according to Lufthansa requirements
- Flexible conductors for skin effect and easy installation
- Very good aging behavior

APPLICATION

Suitable for static applications under normal environmental conditions and for average mechanical stress. The installation is in cable trays, for cable clamps and for wall and ceiling fixations. Typical applications are in hangars, finger docks, service-ducts as well as other indoor installations for civil and military applications. Flexible wiring of UPS-units with IT-systems, radar substations and broadcasting equipment.

CONSTRUCTION

- Conductors: Bare fine copper strands
VDE 0295, IEC 60228, class 5
- Insulation: Cross-linked Polyethylene (XLPE)
Colour: Black with numbers printed in white,
No 1–3, neutral blue
- Outer sheath: Polyolefin copolymer
- Sheath colour: Black

TECHNICAL DATA

- Rated voltage: U₀/U max. 600 / 1000 V
- Test voltage: 4000 VAC, 50 Hz
- Operation temperature: from –40 °C to +90 °C

STANDARDS / MATERIAL PROPERTIES

- Halogen free: IEC 60754-1, EN 50267-2-1 (< 5 mg/g)
- No corrosive gases: IEC 60754-2, EN 50267-2-2 (pH < 5)
- No toxic gases: NES 02-713, NFC 20-454
- Skydrol resistant: >1000 h / 50 °C
- Low smoke density: IEC 61034, EN 50268-2 (> 95 %)
- Flame retardant: IEC 60332-1, EN 50265
- Non-flame propagating: IEC 60332-3, EN 50266-2
- Low fire load: DIN 51900

SPECIALTIES (on request)

- Resistant to termites and rodents: without additional armoring and termite repellent

LEONI Marine Technologies – Worldwide

Proximity to the customer is a key element of our corporate philosophy. This is the reason why you will find LEONI close to you wherever you are. Please don't hesitate to make use of our strong distribution network.



Distribution network

Europe

- Germany
- France
- UK
- Switzerland
- Spain
- Turkey

North America

- USA
- Canada

Asia

- China
- India
- Korea
- Singapore
- Indonesia



LEONI Special Cables GmbH
Business Unit Marine Technologies

Eschstrasse 1
26169 Friesoythe
Germany
Telephone +49 (0)30-983-197-21
Fax +49 (0)30-983-197-22
E-mail marine-technologies@leoni.com
www.leoni-marine-technologies.com