

NAVAL

Tecni Kabel

SPECIAL ELECTRICAL CABLES

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SPECIAL CABLES FOR
MARINE SHIP BOARD
TECNIKABEL. IT



TECNIKABEL is currently the only European company with such an enormous range of special cables for various applications.

The increasingly competitive globalisation of the world economy has given a new impulse to the maritime transport sector, including towards new emerging non-European countries.

In recent times we are witnessing an increasing electrical penetration in the marine field, resulting in an increase in the electrical power involved. The electrical marine system is autonomous and independent of the external world. Everything that is required for the functioning of the said system e.g. generation, transmission, distribution and utilisation organs can therefore be found aboard.

The **TKSEA** cables project, in addition to the search for materials that are self-extinguishing, focuses on research into specific atoxic mixtures.

Should a fire break out aboard ship it is vital to have cables that have been constructed with self-extinguishing and atoxic materials. In the development of such cables, particular attention has been devoted to fire response features with reference to toxicity and corrosive properties of any resultant smoke due to fire.

For example, atoxic cables play an essential role since a ship remains an environment that is absolutely isolated from the rest of the world. Escape and evacuation possibilities are therefore much more limited and hence it is necessary to have, should any fires break out due to, for example, short circuits, cables whose insulation and protective sheath materials do not generate toxic fumes.



RINA
n. ELE50607CS



PRODUCT LINES

AUTOMATION

Tecni Kabel

HEALTHCARE

Tecni Kabel

OIL & GAS

Tecni Kabel

TELECOMMUNICATION

Tecni Kabel

AUDIO-VIDEO

Tecni Kabel

SUN

Tecni Kabel

DEFENSE

Tecni Kabel

RAILWAYS

Tecni Kabel

OPTICAL

Tecni Kabel

NAVAL

Tecni Kabel

TECNIKABEL

is committed to constant product innovation to obtain a competitive advantage with ongoing dedication to research and development.



A TECHNICAL HEART BEATS WITHIN OUR COMPANY

PRODUCTION

Updated production systems, rigorous operational procedures and expert operators have made it possible for us to carry out our production both efficiently and flexibly. In 30 years of activity we have built more than 22,000 different types of cables.

FINAL INSPECTIONS

At the end of production processes each cable is examined to check its electrical specifications and complete compliance with customer specifications.

LABORATORY TESTS

We subject our cables to the most rigorous tests, simulating critical utilisation conditions. In addition to the classic tests required by current regulations, we have also built special machinery for various types of mechanical and electrical tests.

MATERIALS RESEARCH AND DEVELOPMENT

Our thirty year experience has committed us to continual research in new materials in order to optimise performances, costs and achieve the standards required by our customers.





Institutional

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Power and Control Cables

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Fire Resistant Power and Control Cables

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Control and Signal Cables

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Fire Resistant Control and Signal Cables

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Telecommunication, Control and Signal Cables

Specifications

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note:

Drawings in the catalogue are indicative and not always to scale.

LSOH

Economy of space and weight are vital for ship builders.

To satisfy these requirements, **TECNIKABEL** has developed cables that are easy to strip, work with and install.

All **TKSEA** cables are **LSOH** (Low smoke halogen free) in order to:

- ▶ guarantee good visibility should any fumes be generated
- ▶ avoid any generation of toxic gases should a fire break out
- ▶ not damage sophisticated equipment and instrumentation on board with corrosive acids
- ▶ avoid propagation of fire.

They are designed and built in compliance with IEC standards 60092-350, IEC 60092-351, IEC 60092-353, IEC 60092-359, IEC 60092-375, IEC 60092-376

They fully comply with safety prescriptions regarding fire and fumes as set out in standards IEC 60332-1, IEC 60331-21, IEC 60332-3-22, IEC 60754-1, IEC 60754-2, IEC 61034-1, IEC 61034-2.





TKSEA01

PRODUCT DESCRIPTION AND APPLICATION

Power and control cables 0.6/1 kV recommended for supply of equipment in fixed laying on ships bridges and in all interior areas.

The **TKSEA01®** series satisfies the requirements of Lloyd's Register and RINA standards and are designed and built in compliance with IEC standards.

The TKSEA01® series comprises:

- ▶ **TKSEA 01 PC** Power and control cables from 0.6/1 kV
- ▶ **TKSEA 01 PC A** Power and control cables from 0.6/1 kV armoured



SPECIAL CABLES FOR
TKSEA01®
MARINE SHIP BOARD

TKSEA01 PC POWER AND CONTROL CABLES 0.6/1 kV

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	XLPE
Identification of leads	see page 104
External sheath	Halogen Free ShF1
External sheath colour	Black or other colours on request
Mark	Teknikabel (TO) - ITALY - (week/year) - TKSEA01PC - formation- 0.6/1 kV -IEC 60332-3-22 - metric

TECHNICAL DATA

Operating voltage	0.6 ÷ 1 kV
Test voltage	3.5 kV AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 – 353 IEC 60092 – 359
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

**European Directive2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substances) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)**

Note:

Constructions other than those listed are available on request

TKSEA 01 PC POWER AND CONTROL CABLES 0.6/1 KV

TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
245SEA01001	1x	1.5	0.7	1	5	40	20
255SEA01001	1x	2.5	0.7	1	5.5	50	22
265SEA01001	1x	4	0.7	1	6	70	24
270SEA01001	1x	6	0.7	1	6.5	90	26
280SEA01001	1x	10	0.7	1.1	7.5	130	30
285SEA01001	1x	16	0.7	1.1	9	200	36
290SEA01001	1x	25	0.9	1.2	10.5	300	42
293SEA01001	1x	35	0.9	1.2	12	400	48
295SEA01001	1x	50	1	1.3	14	550	56
297SEA01001	1x	70	1.1	1.4	16.5	770	66
298SEA01001	1x	95	1.1	1.4	17.5	1000	70
299SEA01001	1x	120	1.2	1.5	20	1260	80
29DSEA01001	1x	150	1.4	1.6	22.5	1570	90
29FSEA01001	1x	185	1.6	1.8	25	1950	100
29ISEA01001	1x	240	1.7	1.8	27	2500	108

345SEA01001	2x	1.5	0.7	1.1	8.5	85	34
355SEA01001	2x	2.5	0.7	1.1	9	100	36
365SEA01001	2x	4	0.7	1.2	10.5	145	42
370SEA01001	2x	6	0.7	1.2	12	200	48
380SEA01001	2x	10	0.7	1.3	13.5	285	54
385SEA01001	2x	16	0.7	1.4	16	410	64
390SEA01001	2x	25	0.9	1.5	19.5	630	78
393SEA01001	2x	35	0.9	1.6	23	850	92
395SEA01001	2x	50	1	1.8	26	1150	104
397SEA01001	2x	70	1.1	2	31	1600	124
398SEA01001	2x	95	1.1	2	33	2080	132
399SEA01001	2x	120	1.2	2.2	38	2650	152
39DSEA01001	2x	150	1.4	2.4	43	3300	172
39FSEA01001	2x	185	1.6	2.7	49	4200	196
39ISEA01001	2x	240	1.7	2.7	52	5200	208

TKSEA 01 PC POWER AND CONTROL CABLES 0.6/1 KV

TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
345SEA01002	3x	1.5	0.7	1.1	8.5	95	34
355SEA01002	3x	2.5	0.7	1.2	10	140	40
365SEA01002	3x	4	0.7	1.2	11	190	44
370SEA01002	3x	6	0.7	1.2	12.5	265	50
380SEA01002	3x	10	0.7	1.3	14	380	56
385SEA01002	3x	16	0.7	1.4	17	570	68
390SEA01002	3x	25	0.9	1.6	21	900	84
393SEA01002	3x	35	0.9	1.7	24	1200	96
395SEA01002	3x	50	1	1.8	28	1650	112
397SEA01002	3x	70	1.1	2	33	2280	132
398SEA01002	3x	95	1.1	2.1	35	2980	140
399SEA01002	3x	120	1.2	2.3	40	3750	160
39DSEA01002	3x	150	1.4	2.5	45	4620	180
39FSEA01002	3x	185	1.6	2.7	52	5950	208
39ISEA01002	3x	240	1.7	2.9	56	7550	224

345SEA01003	4x	1.5	0.7	1.1	9.5	125	38
355SEA01003	4x	2.5	0.7	1.2	11	180	44
365SEA01003	4x	4	0.7	1.2	12	240	48
370SEA01003	4x	6	0.7	1.3	13.5	330	54
380SEA01003	4x	10	0.7	1.4	16	515	64
385SEA01003	4x	16	0.7	1.5	19	760	76
390SEA01003	4x	25	0.9	1.6	23	1160	92
393SEA01003	4x	35	0.9	1.8	27	1560	108
395SEA01003	4x	50	1	2	31	2180	124
397SEA01003	4x	70	1.1	2.2	37.5	3060	150
398SEA01003	4x	95	1.1	2.3	40	4020	160
399SEA01003	4x	120	1.2	2.5	45	5000	180
39DSEA01003	4x	150	1.4	2.7	52	6350	208
39FSEA01003	4x	185	1.6	2.9	58	7800	232
39ISEA01003	4x	240	1.7	3.1	62	9850	248

TKSEA 01 PC POWER AND CONTROL CABLES 0.6/1 KV

TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
340SEA01001	4x1	1	0.7	1.1	9	105	36
340SEA01002	5x1	1	0.7	1.1	9.5	115	38
340SEA01003	7x1	1	0.7	1.2	10.5	160	42
340SEA01004	10x1	1	0.7	1.3	13.5	220	54
340SEA01005	12x1	1	0.7	1.3	14	255	56
340SEA01006	14x1	1	0.7	1.3	14.5	280	58
340SEA01007	16x1	1	0.7	1.4	15.5	320	62
340SEA01008	19x1	1	0.7	1.4	16.5	380	66
340SEA01009	24x1	1	0.7	1.5	19	450	76
340SEA01010	27x1	1	0.7	1.5	19.5	500	78
340SEA01011	30x1	1	0.7	1.5	20.5	560	82
340SEA01012	37x1	1	0.7	1.6	22	670	88
345SEA01003	4x1.5	1.5	0.7	1.1	9.5	125	38
345SEA01004	5x1.5	1.5	0.7	1.2	11	160	44
345SEA01005	7x1.5	1.5	0.7	1.2	11.5	200	46
345SEA01006	10x1.5	1.5	0.7	1.3	14.5	270	58
345SEA01007	12x1.5	1.5	0.7	1.3	15	315	60
345SEA01008	14x1.5	1.5	0.7	1.4	16	370	64
345SEA01009	16x1.5	1.5	0.7	1.4	17	420	68
345SEA01010	19x1.5	1.5	0.7	1.4	18	490	72
345SEA01011	24x1.5	1.5	0.7	1.6	21	600	84
345SEA01012	27x1.5	1.5	0.7	1.6	22	680	88
345SEA01013	30x1.5	1.5	0.7	1.6	22.5	730	90
345SEA01014	37x1.5	1.5	0.7	1.7	24.5	880	98

TKSEA01 PCA POWER AND CONTROL CABLES 0.6/1 kV ARMoured

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	XLPE
Identification of leads	see page 104
Armoured	Plait of red copper covering ≥ 85% (Steel or Copper tin-plated on request)
External sheath	Halogen Free ShF1
External sheath colour	Black or other colours on request
Mark	Tecnikabel (TO) - ITALY - (week/year) - TKSEA01PCA - formation- 0.6/1 kV -IEC 60332-3-22 - metric

TECHNICAL DATA

Operating voltage	0.6 ÷ 1 kV
Test voltage	3.5 kV AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 – 359
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

European Directive2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substances) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)

Note:

Constructions other than those listed are available on request

TKSEA 01 PCA POWER AND CONTROL CABLES 0.6/1 KV ARMOURED

TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
545SEA01001	1x	1.5	0.7	1	6	65	24
555SEA01001	1x	2.5	0.7	1	6.5	80	26
565SEA01001	1x	4	0.7	1	7	95	28
570SEA01001	1x	6	0.7	1.1	7.5	120	30
580SEA01001	1x	10	0.7	1.1	8.5	175	34
585SEA01001	1x	16	0.7	1.1	10	250	40
590SEA01001	1x	25	0.9	1.2	11.5	360	46
593SEA01001	1x	35	0.9	1.3	13	480	52
595SEA01001	1x	50	1	1.4	15.5	680	62
597SEA01001	1x	70	1.1	1.4	18	900	72
598SEA01001	1x	95	1.1	1.5	19	1140	76
599SEA01001	1x	120	1.2	1.6	21	1400	84
59DSEA01001	1x	150	1.4	1.7	24	1780	96
59FSEA01001	1x	185	1.6	1.8	26.5	2150	106
59ISEA01001	1x	240	1.7	1.8	28	2700	112

545SEA01002	2x	1.5	0.7	1.1	9	120	36
555SEA01002	2x	2.5	0.7	1.2	10	160	40
565SEA01002	2x	4	0.7	1.2	11	200	44
570SEA01002	2x	6	0.7	1.2	12.5	265	50
580SEA01002	2x	10	0.7	1.3	14.5	380	58
585SEA01002	2x	16	0.7	1.4	17.5	550	70
590SEA01002	2x	25	0.9	1.5	21	800	84
593SEA01002	2x	35	0.9	1.7	24	1030	96
595SEA01002	2x	50	1	1.8	27.5	1380	110
597SEA01002	2x	70	1.1	2	32.5	1850	130
598SEA01002	2x	95	1.1	2.1	35	2400	140
599SEA01002	2x	120	1.2	2.3	40	3050	160
59DSEA01002	2x	150	1.4	2.5	45	3700	180
59FSEA01002	2x	185	1.6	2.6	50	4600	200
59ISEA01002	2x	240	1.7	2.8	54	5800	216

TKSEA 01 PCA POWER AND CONTROL CABLES 0.6/1 KV ARMoured

TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
545SEA01003	3x	1.5	0.7	1.1	9.5	150	38
555SEA01003	3x	2.5	0.7	1.2	11	210	44
565SEA01003	3x	4	0.7	1.2	12	270	48
570SEA01003	3x	6	0.7	1.3	13.5	360	54
580SEA01003	3x	10	0.7	1.4	15.5	540	62
585SEA01003	3x	16	0.7	1.5	18.5	760	74
590SEA01003	3x	25	0.9	1.6	22	1100	88
593SEA01003	3x	35	0.9	1.7	25.5	1460	102
595SEA01003	3x	50	1	1.9	30	2000	120
597SEA01003	3x	70	1.1	2.1	35	2680	140
598SEA01003	3x	95	1.1	2.2	37.5	3520	150
599SEA01003	3x	120	1.2	2.4	42.5	4400	170
59DSEA01003	3x	150	1.4	2.6	48	5400	192
59FSEA01003	3x	185	1.6	2.8	53.5	6680	214
59ISEA01003	3x	240	1.7	2.9	57.5	8400	230

545SEA01004	4x	1.5	0.7	1.1	9.5	175	38
555SEA01004	4x	2.5	0.7	1.2	11	240	44
565SEA01004	4x	4	0.7	1.3	12.5	320	50
570SEA01004	4x	6	0.7	1.3	14.5	420	54
580SEA01004	4x	10	0.7	1.4	16	620	64
585SEA01004	4x	16	0.7	1.5	19	890	76
590SEA01004	4x	25	0.9	1.7	23	1320	92
593SEA01004	4x	35	0.9	1.8	27	1800	108
595SEA01004	4x	50	1	2	31	2500	128
597SEA01004	4x	70	1.1	2.2	37.5	3380	150
598SEA01004	4x	95	1.1	2.3	40	4380	160
599SEA01004	4x	120	1.2	2.5	46	5520	184
59DSEA01004	4x	150	1.4	2.8	52	6820	208
59FSEA01004	4x	185	1.6	3	58	8400	232
59ISEA01004	4x	240	1.7	3.2	62.5	10600	250

TKSEA 01 PCA POWER AND CONTROL CABLES 0.6/1 KV ARMoured

TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
540SEA01001	4x1	1	0.7	1.1	9.5	160	38
540SEA01002	5x1	1	0.7	1.2	10.5	200	42
540SEA01003	7x1	1	0.7	1.2	11.5	250	46
540SEA01004	10x1	1	0.7	1.3	14.5	375	58
540SEA01005	12x1	1	0.7	1.3	15	400	60
540SEA01006	14x1	1	0.7	1.4	16	455	64
540SEA01007	16x1	1	0.7	1.4	16.5	480	66
540SEA01008	19x1	1	0.7	1.4	17.5	550	70
540SEA01009	24x1	1	0.7	1.5	20.5	680	82
540SEA01010	27x1	1	0.7	1.6	21	720	84
540SEA01011	30x1	1	0.7	1.6	21.5	760	86
540SEA01012	37x1	1	0.7	1.7	23.5	920	94
545SEA01004	4x1.5	1.5	0.7	1.1	9.5	175	38
545SEA01005	5x1.5	1.5	0.7	1.2	11	230	44
545SEA01006	7x1.5	1.5	0.7	1.2	11.5	280	46
545SEA01007	10x1.5	1.5	0.7	1.3	15	410	60
545SEA01008	12x1.5	1.5	0.7	1.3	15.5	450	62
545SEA01009	14x1.5	1.5	0.7	1.4	16	490	64
545SEA01010	16x1.5	1.5	0.7	1.4	17	550	68
545SEA01011	19x1.5	1.5	0.7	1.4	18	620	72
545SEA01012	24x1.5	1.5	0.7	1.6	21	750	84
545SEA01013	27x1.5	1.5	0.7	1.6	21.5	820	86
545SEA01014	30x1.5	1.5	0.7	1.6	22.5	910	90
545SEA01015	37x1.5	1.5	0.7	1.7	24.5	1100	98



FIRE RESISTANT

TKSEA02

PRODUCT DESCRIPTION AND APPLICATION

Recommended for supply of fixed laying equipment in internal and external safety areas where the cable has to continue to function, including during a fire.

The **TKSEA02®** series satisfies the requirements of Lloyd's Register and RINA standards and are designed and built in compliance with IEC standards.

The TKSEA02® series comprises:

- ▶ **TKSEA02 PCFR** Power and control cables 0.6/1 kV Fire Resistant
- ▶ **TKSEA02 PCFRA** Power and control cables 0.6/1 kV Fire Resistant Armoured



SPECIAL CABLES FOR
TKSEA02®
MARINE SHIP BOARD

TKSEA02 PCFR POWER AND CONTROL CABLES 0.6/1kV FIRE RESISTANT

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	Belt fire barrier + XLPE
Identification of leads	see page 104
External sheath	Halogen Free ShF1
External sheath colour	Orange or other colours on request
Mark	Teknikabel (TO) - ITALY - (week/year) - TKSEA02PCFR - formation- 0.6/1kV -IEC 60332-3-22 - IEC 60331-21 - metric

TECHNICAL DATA

Operating voltage	0.6 ÷ 1 kV
Test voltage	3.5 kV AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 – 359
Fire resistance	IEC 60331-21
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

European Directive 2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substance) and 2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)

Note:

Constructions other than those listed are available on request

TKSEA 02 PCFR POWER AND CONTROL CABLES 0.6/1 kV FIRE RESISTANT

TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
245SEA02001	1x	1.5	0.7	1	5.5	45	22
255SEA02001	1x	2.5	0.7	1	6	60	24
265SEA02001	1x	4	0.7	1	6.5	80	26
270SEA02001	1x	6	0.7	1	7.5	105	30
280SEA02001	1x	10	0.7	1.1	8	140	32
285SEA02001	1x	16	0.7	1.1	9.5	205	38
290SEA02001	1x	25	0.9	1.2	11	305	44
293SEA02001	1x	35	0.9	1.3	13	420	52
295SEA02001	1x	50	1	1.3	14.5	570	58
297SEA02001	1x	70	1.1	1.4	17	780	68
298SEA02001	1x	95	1.1	1.5	18.5	1040	74
299SEA02001	1x	120	1.2	1.5	20.5	1300	82
29DSEA02001	1x	150	1.4	1.6	23	1600	92
29FSEA02001	1x	185	1.6	1.8	25	1940	100
29ISEA02001	1x	240	1.7	1.8	27	2500	108

345SEA02001	2x	1.5	0.7	1.1	9.5	95	38
355SEA02001	2x	2.5	0.7	1.2	10.5	120	42
365SEA02001	2x	4	0.7	1.2	11.5	160	46
370SEA02001	2x	6	0.7	1.3	13	215	52
380SEA02001	2x	10	0.7	1.3	14.5	295	58
385SEA02001	2x	16	0.7	1.4	17.5	440	70
390SEA02001	2x	25	0.9	1.5	21	680	84
393SEA02001	2x	35	0.9	1.7	24	870	96
395SEA02001	2x	50	1	1.8	27.5	1200	110
397SEA02001	2x	70	1.1	2	32	1620	128
398SEA02001	2x	95	1.1	2.1	35	2200	140
399SEA02001	2x	120	1.2	2.2	39	2700	156
39DSEA02001	2x	150	1.4	2.4	44.5	3380	178
39FSEA02001	2x	185	1.6	2.6	49.5	4130	198
39ISEA02001	2x	240	1.7	2.7	53	5200	212

FIRE RESISTANT

TKSEA 02 PCFR POWER AND CONTROL CABLES 0.6/1 kV FIRE RESISTANT

TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
345SEA02002	3x	1.5	0.7	1.1	10	120	40
355SEA02002	3x	2.5	0.7	1.2	11	155	44
365SEA02002	3x	4	0.7	1.2	12.5	220	50
370SEA02002	3x	6	0.7	1.3	14	295	56
380SEA02002	3x	10	0.7	1.4	15.5	410	62
385SEA02002	3x	16	0.7	1.5	18.5	615	74
390SEA02002	3x	25	0.9	1.6	22	920	88
393SEA02002	3x	35	0.9	1.7	25.5	1240	102
395SEA02002	3x	50	1	1.9	29.5	1710	118
397SEA02002	3x	70	1.1	2.1	35	2380	140
398SEA02002	3x	95	1.1	2.2	37	3080	148
399SEA02002	3x	120	1.2	2.4	42	3880	168
39DSEA02002	3x	150	1.4	2.6	47.5	4820	190
39FSEA02002	3x	185	1.6	2.8	53	5950	212
39ISEA02002	3x	240	1.7	2.9	57	7590	228

345SEA02003	4x	1.5	0.7	1.2	11	150	44
355SEA02003	4x	2.5	0.7	1.2	12	185	48
365SEA02003	4x	4	0.7	1.3	13.5	270	54
370SEA02003	4x	6	0.7	1.3	15	350	60
380SEA02003	4x	10	0.7	1.4	17	520	68
385SEA02003	4x	16	0.7	1.5	20.5	790	82
390SEA02003	4x	25	0.9	1.7	24.5	1200	98
393SEA02003	4x	35	0.9	1.8	28	1580	112
395SEA02003	4x	50	1	2	33	2250	132
397SEA02003	4x	70	1.1	2.2	39	3120	156
398SEA02003	4x	95	1.1	2.3	41	4050	164
399SEA02003	4x	120	1.2	2.5	47	5120	188
39DSEA02003	4x	150	1.4	2.7	53	6380	212
39FSEA02003	4x	185	1.6	3	59	7820	236
39ISEA02003	4x	240	1.7	3.2	64	10050	256

TKSEA 02 PCFR POWER AND CONTROL CABLES 0.6/1 kV FIRE RESISTANT

TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
340SEA02001	4x1	1	0.7	1.2	10.5	125	42
340SEA02002	5x1	1	0.7	1.2	11.5	140	46
340SEA02003	7x1	1	0.7	1.2	12.5	185	50
340SEA02004	10x1	1	0.7	1.4	16	260	64
340SEA02005	12x1	1	0.7	1.4	16.5	300	66
340SEA02006	14x1	1	0.7	1.4	17.5	340	70
340SEA02007	16x1	1	0.7	1.5	18.5	385	74
340SEA02008	19x1	1	0.7	1.5	19.5	440	78
340SEA02009	24x1	1	0.7	1.6	23	550	92
340SEA02010	27x1	1	0.7	1.7	23.5	600	94
340SEA02011	30x1	1	0.7	1.7	24.5	650	98
340SEA02012	37x1	1	0.7	1.8	26.5	795	106
345SEA02003	4x1.5	1.5	0.7	1.2	11	150	44
345SEA02004	5x1.5	1.5	0.7	1.2	12.5	180	50
345SEA02005	7x1.5	1.5	0.7	1.3	13.5	230	54
345SEA02006	10x1.5	1.5	0.7	1.4	17	315	68
345SEA02007	12x1.5	1.5	0.7	1.4	18	380	72
345SEA02008	14x1.5	1.5	0.7	1.5	19	440	76
345SEA02009	16x1.5	1.5	0.7	1.5	20	470	80
345SEA02010	19x1.5	1.5	0.7	1.6	21	550	84
345SEA02011	24x1.5	1.5	0.7	1.7	25	680	100
345SEA02012	27x1.5	1.5	0.7	1.7	25.5	755	102
345SEA02013	30x1.5	1.5	0.7	1.8	26.5	840	106
345SEA02014	37x1.5	1.5	0.7	1.9	29	1060	116

FIRE RESISTANT

TKSEA02 PCFRA POWER AND CONTROL CABLES 0.6/1 KV FIRE RESISTANT ARMOURED

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	Belt fire barrier + XLPE
Identification of leads	see page 104
Armour	Red copper plait covering ≥ 85% (Steel or Copper tin-plated on request)
External sheath	Halogen Free ShF1
External sheath colour	Orange or other colours on request
Mark	Tecnikabel (TO) - ITALY - (week/year) - TKSEA02PCFRA - formation- 0.6/1kV - IEC 60332-3-22 - IEC 60331-21 - metric

TECHNICAL DATA

Operating voltage	0.6 ÷ 1 kV
Test voltage	3.5 kV AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 – 353 IEC 60092 - 359
Fire resistance	IEC 60331-21
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

European Directive 2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substance) and 2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)

Note:

Constructions other than those listed are available on request

TKSEA 02 PCFRA POWER AND CONTROL CABLES 0.6/1 kV FIRE RESISTANT ARMOURED

TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
545SEA02001	1x	1.5	0.7	1	6.5	75	26
555SEA02001	1x	2.5	0.7	1	7	90	28
565SEA02001	1x	4	0.7	1.1	7.5	105	30
570SEA02001	1x	6	0.7	1.1	8.5	150	34
580SEA02001	1x	10	0.7	1.1	9	190	36
585SEA02001	1x	16	0.7	1.2	10.5	260	42
590SEA02001	1x	25	0.9	1.2	12	370	48
593SEA02001	1x	35	0.9	1.3	14	510	56
595SEA02001	1x	50	1	1.4	16	700	64
597SEA02001	1x	70	1.1	1.5	18.5	920	74
598SEA02001	1x	95	1.1	1.5	19.5	1160	78
599SEA02001	1x	120	1.2	1.6	22	1480	88
59DSEA02001	1x	150	1.4	1.7	24.5	1800	98
59FSEA02001	1x	185	1.6	1.8	27	2200	108
59ISEA02001	1x	240	1.7	1.9	29	2730	116

545SEA02002	2x	1.5	0.7	1.1	10.5	150	42
555SEA02002	2x	2.5	0.7	1.2	11.5	180	46
565SEA02002	2x	4	0.7	1.2	12.5	230	50
570SEA02002	2x	6	0.7	1.3	14	280	56
580SEA02002	2x	10	0.7	1.4	16	420	64
585SEA02002	2x	16	0.7	1.5	19	580	76
590SEA02002	2x	25	0.9	1.6	22	805	88
593SEA02002	2x	35	0.9	1.7	25.5	1065	102
595SEA02002	2x	50	1	1.9	29	1420	116
597SEA02002	2x	70	1.1	2	34	1900	136
598SEA02002	2x	95	1.1	2.1	36	2500	144
599SEA02002	2x	120	1.2	2.3	41	3100	164
59DSEA02002	2x	150	1.4	2.5	46.5	3850	186
59FSEA02002	2x	185	1.6	2.7	51.5	4700	206
59ISEA02002	2x	240	1.7	3	59.5	5900	238

TKSEA 02 PCFRA POWER AND CONTROL CABLES 0.6/1 kV FIRE RESISTANT ARMoured

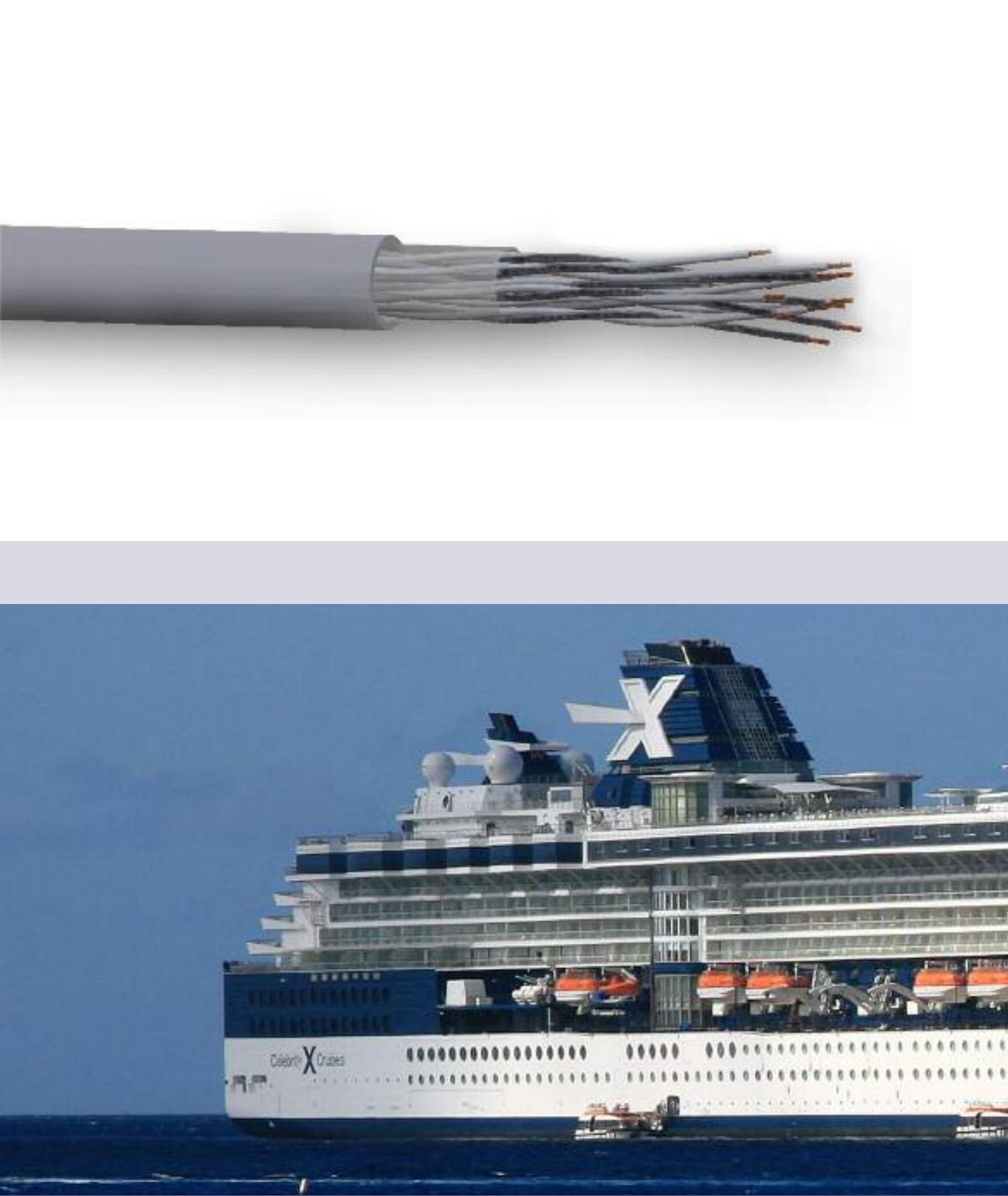
TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
545SEA02003	3x	1.5	0.7	1.2	11	190	44
555SEA02003	3x	2.5	0.7	1.2	12	230	48
565SEA02003	3x	4	0.7	1.3	13.5	315	54
570SEA02003	3x	6	0.7	1.3	15	410	60
580SEA02003	3x	10	0.7	1.4	17	575	68
585SEA02003	3x	16	0.7	1.5	20	800	80
590SEA02003	3x	25	0.9	1.6	23.5	1150	94
593SEA02003	3x	35	0.9	1.8	27	1520	108
595SEA02003	3x	50	1	1.9	31	2030	124
597SEA02003	3x	70	1.1	2.1	36.5	2840	146
598SEA02003	3x	95	1.1	2.2	39	3580	156
599SEA02003	3x	120	1.2	2.4	44	4450	176
59DSEA02003	3x	150	1.4	2.6	49.5	5500	198
59FSEA02003	3x	185	1.6	2.8	55	6750	220
59ISEA02003	3x	240	1.7	3	59	8400	236

545SEA02004	4x	1.5	0.7	1.2	11	205	44
555SEA02004	4x	2.5	0.7	1.3	13	220	52
565SEA02004	4x	4	0.7	1.3	14	300	56
570SEA02004	4x	6	0.7	1.4	16	420	64
580SEA02004	4x	10	0.7	1.5	18	570	72
585SEA02004	4x	16	0.7	1.6	21.5	870	86
590SEA02004	4x	25	0.9	1.7	25	1250	100
593SEA02004	4x	35	0.9	1.9	29	1700	116
595SEA02004	4x	50	1	2	33.5	2350	134
597SEA02004	4x	70	1.1	2.3	40	3300	160
598SEA02004	4x	95	1.1	2.4	42.5	4200	170
599SEA02004	4x	120	1.2	2.6	48	5300	192
59DSEA02004	4x	150	1.4	2.8	54	6580	216
59FSEA02004	4x	185	1.6	3	60	8050	240
59ISEA02004	4x	240	1.7	3.2	65	10300	260

TKSEA 02 PCFRA POWER AND CONTROL CABLES 0.6/1 kV FIRE RESISTANT ARMoured

TECNIKABEL CODE	FORMATION SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm	
540SEA02001	4x1	1	0.7	1.2	11	180	44
540SEA02002	5x1	1	0.7	1.2	12.5	240	50
540SEA02003	7x1	1	0.7	1.2	13	280	52
540SEA02004	10x1	1	0.7	1.4	17	415	68
540SEA02005	12x1	1	0.7	1.4	17.5	465	70
540SEA02006	14x1	1	0.7	1.4	18.5	510	74
540SEA02007	16x1	1	0.7	1.5	19	530	76
540SEA02008	19x1	1	0.7	1.5	20.5	610	82
540SEA02009	24x1	1	0.7	1.6	24	760	96
540SEA02010	27x1	1	0.7	1.6	25	850	100
540SEA02011	30x1	1	0.7	1.7	25.5	900	102
540SEA02012	37x1	1	0.7	1.7	28	1100	112
545SEA02003	4x1.5	1.5	0.7	1.2	11	190	44
545SEA02004	5x1.5	1.5	0.7	1.3	12.5	250	50
545SEA02005	7x1.5	1.5	0.7	1.3	13.5	320	54
545SEA02006	10x1.5	1.5	0.7	1.5	17.5	450	70
545SEA02007	12x1.5	1.5	0.7	1.5	18	490	72
545SEA02008	14x1.5	1.5	0.7	1.5	19	560	76
545SEA02009	16x1.5	1.5	0.7	1.6	20	615	80
545SEA02010	19x1.5	1.5	0.7	1.6	21	680	84
545SEA02011	24x1.5	1.5	0.7	1.8	25	870	100
545SEA02012	27x1.5	1.5	0.7	1.8	26	950	104
545SEA02013	30x1.5	1.5	0.7	1.8	26.5	1010	106
545SEA02014	37x1.5	1.5	0.7	1.9	29	1240	116

FIRE RESISTANT



TKSEA03

PRODUCT DESCRIPTION AND APPLICATION

Recommended for instrumentation and control with protection against external disturbances on ship bridges and in all interior areas.

The **TKSEA03®** series satisfies the requirements of Lloyd's Register and RINA standards and are designed and built in compliance with IEC standards.

The TKSEA03® series comprises:

- ▶ **TKSEA 03 I** - Control and Signal Cables (Instrumentation) 150/250V
- ▶ **TKSEA 03 ISO** - Control and Signal Cables (Instrumentation) 150/250V Shielded out of Total (Overall)
- ▶ **TKSEA 03 ISS** - Control and Signal Cables (Instrumentation) Individually Shielded
- ▶ **TKSEA 03 ISOS** - Control and Signal Cables (Instrumentation) Shielded out of Total (Overall) and individually Shielded
- ▶ **TKSEA 03 IA** - Control and Signal Cables (Instrumentation) Armoured
- ▶ **TKSEA 03 IASO** - Control and Signal Cables (Instrumentation) Armoured and Shielded out of total (Overall)
- ▶ **TKSEA 03 IASS** - Control and Signal Cables (Instrumentation) Armoured and Individually Shielded
- ▶ **TKSEA 03 IASOS** - Control and Signal Cables (Instrumentation) Armoured and Shielded out of total (Overall) and Individually Shielded



SPECIAL CABLES FOR
TKSEA03®
M A R I N E S H I P B O A R D

TKSEA 03 | CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	XLPE
Identification of leads	see page 104
Sheath	Halogen Free ShF1
External sheath colour	Grey or other colours on request
Mark	Tecnikabel (TO) - ITALY - (week/year) - TKSEA03I - formation- 150/250 V - -IEC 60332-3-22 - metric

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

**European Directive 2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substances) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)**

Note:

Constructions other than those listed are available on request

TKSEA 03 I CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
330SEA03001	1x2	0.5	0.5	1	6	45	24
330SEA03002	2x2	0.5	0.5	1.1	9.5	85	38
330SEA03003	4x2	0.5	0.5	1.2	1.1	120	44
330SEA03004	7x2	0.5	0.5	1.3	1.3	185	52
330SEA03005	10x2	0.5	0.5	1.4	17	275	68
330SEA03006	12x2	0.5	0.5	1.4	17.5	315	70
330SEA03007	14x2	0.5	0.5	1.5	18.5	350	74
330SEA03008	19x2	0.5	0.5	1.5	20.2	400	81
330SEA03009	24x2	0.5	0.5	1.7	24.2	550	98
330SEA03010	27x2	0.5	0.5	1.7	25	600	100
330SEA03011	30x2	0.5	0.5	1.7	26	650	104
335SEA03001	1x2	0.75	0.6	1	7	60	28
335SEA03002	2x2	0.75	0.6	1.2	11	115	44
335SEA03003	4x2	0.75	0.6	1.3	13	175	52
335SEA03004	7x2	0.75	0.6	1.4	16	270	64
335SEA03005	10x2	0.75	0.6	1.5	19.5	330	78
335SEA03006	12x2	0.75	0.6	1.6	21	430	84
335SEA03007	14x2	0.75	0.6	1.6	22	475	88
335SEA03008	19x2	0.75	0.6	1.7	25	620	100
335SEA03009	24x2	0.75	0.6	1.9	29.5	780	118
335SEA03010	27x2	0.75	0.6	1.9	30	830	120
335SEA03011	30x2	0.75	0.6	1.9	31	900	124
340SEA03001	1x2	1	0.6	1	7	60	28
340SEA03002	2x2	1	0.6	1.2	11.5	125	46
340SEA03003	4x2	1	0.6	1.3	13.5	205	54
340SEA03004	7x2	1	0.6	1.4	16.5	310	66
340SEA03005	10x2	1	0.6	1.6	21	425	84
340SEA03006	12x2	1	0.6	1.6	22	500	88
340SEA03007	14x2	1	0.6	1.6	23	560	92
340SEA03008	19x2	1	0.6	1.7	26	725	104
340SEA03009	24x2	1	0.6	1.9	31	950	124
340SEA03010	27x2	1	0.6	1.9	31.5	1000	126
340SEA03011	30x2	1	0.6	2	33	1150	132

TKSEA 03 I CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
345SEA03001	1x2	1.5	0.6	1.1	8	85	32
345SEA03002	2x2	1.5	0.6	1.2	12.5	160	50
345SEA03003	4x2	1.5	0.6	1.3	14.5	250	58
345SEA03004	7x2	1.5	0.6	1.4	18	395	72
345SEA03005	10x2	1.5	0.6	1.6	23.5	570	94
345SEA03006	12x2	1.5	0.6	1.7	24	650	96
345SEA03007	14x2	1.5	0.6	1.7	25.5	730	102
345SEA03008	19x2	1.5	0.6	1.9	29	970	116
345SEA03009	24x2	1.5	0.6	2	34	1200	136
345SEA03010	27x2	1.5	0.6	2.1	35	1320	140
345SEA03011	30x2	1.5	0.6	2.1	36.5	1490	146

355SEA03001	1x2	2.5	0.6	1.1	9	110	36
355SEA03002	2x2	2.5	0.6	1.3	14.5	215	58
355SEA03003	4x2	2.5	0.6	1.4	17	345	68
355SEA03004	7x2	2.5	0.6	1.6	21	575	84
355SEA03005	10x2	2.5	0.6	1.8	27.5	815	110
355SEA03006	12x2	2.5	0.6	1.8	28	910	112
355SEA03007	14x2	2.5	0.6	1.9	30	1060	120
355SEA03008	19x2	2.5	0.6	2	33.5	1380	134
355SEA03009	24x2	2.5	0.6	2.3	40	1760	160
355SEA03010	27x2	2.5	0.6	2.3	41	1960	164
355SEA03011	30x2	2.5	0.6	2.4	42.5	2150	170

330SEA03012	1x3	0.5	0.5	1	6.5	60	26
330SEA03013	3x3	0.5	0.5	1.2	11	130	44
330SEA03014	7x3	0.5	0.5	1.3	14.5	250	58
330SEA03015	12x3	0.5	0.5	1.5	19	400	76
330SEA03016	19x3	0.5	0.5	1.6	22.5	570	90

TKSEA 03 I CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
335SEA03012	1x3	0.75	0.6	1	7	70	28
335SEA03013	3x3	0.75	0.6	1.3	13	180	52
335SEA03014	7x3	0.75	0.6	1.4	17	325	68
335SEA03015	12x3	0.75	0.6	1.6	23	550	92
335SEA03016	19x3	0.75	0.6	1.8	28	890	112
345SEA03012	1x3	1.5	0.6	1.1	8	95	32
345SEA03013	3x3	1.5	0.6	1.3	14.5	250	58
345SEA03014	7x3	1.5	0.6	1.5	20	530	80
345SEA03015	12x3	1.5	0.6	1.8	27	890	108
345SEA03016	19x3	1.5	0.6	2	32	1350	128
330SEA03017	1x4	0.5	0.5	1	7	70	28
330SEA03018	3x4	0.5	0.5	1.2	11	150	44
330SEA03019	7x4	0.5	0.5	1.3	15	300	60
330SEA03020	12x4	0.5	0.5	1.5	20	490	80
330SEA03021	19x4	0.5	0.5	1.7	24	740	96
335SEA03017	1x4	0.75	0.6	1.1	8	85	32
335SEA03018	3x4	0.75	0.6	1.3	13.5	220	54
335SEA03019	7x4	0.75	0.6	1.5	18	450	72
335SEA03020	12x4	0.75	0.6	1.7	24.5	705	98
335SEA03021	19x4	0.75	0.6	1.9	29	1060	116
340SEA03017	1x4	1.5	0.6	1.1	9	125	36
340SEA03018	3x4	1.5	0.6	1.4	15.5	340	62
340SEA03019	7x4	1.5	0.6	1.6	20.5	685	82
340SEA03020	12x4	1.5	0.6	1.8	28	641	112
340SEA03021	19x4	1.5	0.6	2	33.5	1770	134

TKSEA 03 ISO

CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V SHIELDED OUT OF TOTAL

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	XLPE
Identification of leads	see page 104
Shielding on total	Aluminium/mylar Belt + continuity cord
Sheath	Halogen Free ShF1
External sheath colour	Grey or other colours on request
Mark	Teknikabel (TO) - ITALY - (week/year) - TKSEA03ISO - formation- 150/250 V - - IEC 60332-3-22 - metric

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

**European Directive 2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substances) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)**

Note:

Constructions other than those listed are available on request

TKSEA 03 ISO CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V SHIELDED OUT OF TOTAL (OVERALL)

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
430SEA03001	1x2	0.5	0.5	1	6	45	24
430SEA03002	2x2	0.5	0.5	1.1	9.5	85	38
430SEA03003	4x2	0.5	0.5	1.2	11	120	44
430SEA03004	7x2	0.5	0.5	1.3	13	185	52
430SEA03005	10x2	0.5	0.5	1.4	17	280	68
430SEA03006	12x2	0.5	0.5	1.4	17.5	320	70
430SEA03007	14x2	0.5	0.5	1.5	18.5	355	74
430SEA03008	19x2	0.5	0.5	1.5	20.2	405	81
430SEA03009	24x2	0.5	0.5	1.7	24.2	560	98
430SEA03010	27x2	0.5	0.5	1.7	25	610	100
430SEA03011	30x2	0.5	0.5	1.7	26	665	104
435SEA03001	1x2	0.75	0.6	1	7	60	28
435SEA03002	2x2	0.75	0.6	1.2	11	115	44
435SEA03003	4x2	0.75	0.6	1.3	13	175	52
435SEA03004	7x2	0.75	0.6	1.4	16	270	64
435SEA03005	10x2	0.75	0.6	1.5	19.5	335	78
435SEA03006	12x2	0.75	0.6	1.6	21	435	84
435SEA03007	14x2	0.75	0.6	1.6	22	480	88
435SEA03008	19x2	0.75	0.6	1.7	25	630	100
435SEA03009	24x2	0.75	0.6	1.9	29.5	790	118
435SEA03010	27x2	0.75	0.6	1.9	30	840	120
435SEA03011	30x2	0.75	0.6	1.9	31	920	124
440SEA03001	1x2	1	0.6	1	7	60	28
440SEA03002	2x2	1	0.6	1.2	11.5	125	46
440SEA03003	4x2	1	0.6	1.3	13.5	205	54
440SEA03004	7x2	1	0.6	1.4	16.5	315	66
440SEA03005	10x2	1	0.6	1.6	21	430	84
440SEA03006	12x2	1	0.6	1.6	22	510	88
440SEA03007	14x2	1	0.6	1.6	23	570	92
440SEA03008	19x2	1	0.6	1.7	26	740	104
440SEA03009	24x2	1	0.6	1.9	31	965	124
440SEA03010	27x2	1	0.6	1.9	31.5	1020	126
440SEA03011	30x2	1	0.6	2	33	1170	132

TKSEA 03 ISO CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V SHIELDED OUT OF TOTAL (OVERALL)

TECNIKABEL	FORMATION	SECTION	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
CODE		mm²					
445SEA03001	1 x 2	1.5	0.6	1.1	8	85	32
445SEA03002	2x2	1.5	0.6	1.2	12.5	160	50
445SEA03003	4x2	1.5	0.6	1.3	14.5	250	58
445SEA03004	7x2	1.5	0.6	1.4	18	400	72
445SEA03005	10x2	1.5	0.6	1.6	23.5	575	94
445SEA03006	12x2	1.5	0.6	1.7	24	660	96
445SEA03007	14x2	1.5	0.6	1.7	25.5	740	102
445SEA03008	19x2	1.5	0.6	1.9	29	985	116
445SEA03009	24x2	1.5	0.6	2	34	1215	136
445SEA03010	27x2	1.5	0.6	2.1	35	1340	140
445SEA03011	30x2	1.5	0.6	2.1	36.5	1520	146

455SEA03001	1 x 2	2.5	0.6	1.1	9	110	36
455SEA03002	2x2	2.5	0.6	1.3	14.5	215	58
455SEA03003	4x2	2.5	0.6	1.4	17	345	68
455SEA03004	7x2	2.5	0.6	1.6	21	580	84
455SEA03005	10x2	2.5	0.6	1.8	27.5	820	110
455SEA03006	12x2	2.5	0.6	1.8	28	915	112
455SEA03007	14x2	2.5	0.6	1.9	30	1075	120
455SEA03008	19x2	2.5	0.6	2	33.5	1390	134
455SEA03009	24x2	2.5	0.6	2.3	40	1770	160
455SEA03010	27x2	2.5	0.6	2.3	41	1980	164
455SEA03011	30x2	2.5	0.6	2.4	42.5	2180	170

430SEA03012	1x3	0.5	0.5	1	6.5	60	26
430SEA03013	3x3	0.5	0.5	1.2	11	130	44
430SEA03014	7x3	0.5	0.5	1.3	14.5	255	58
430SEA03015	12x3	0.5	0.5	1.5	19	405	76
430SEA03016	19x3	0.5	0.5	1.6	22.5	580	90

TKSEA 03 ISO CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V SHIELDED OUT OF TOTAL (OVERALL)

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
435SEA03012	1x3	0.75	0.6	1	7	70	28
435SEA03013	3x3	0.75	0.6	1.3	13	180	52
435SEA03014	7x3	0.75	0.6	1.4	17	340	68
435SEA03015	12x3	0.75	0.6	1.6	23	560	92
435SEA03016	19x3	0.75	0.6	1.8	28	905	112
455SEA03012	1x3	1.5	0.6	1.1	8	95	32
455SEA03013	3x3	1.5	0.6	1.3	14.5	255	58
455SEA03014	7x3	1.5	0.6	1.5	20	540	80
455SEA03015	12x3	1.5	0.6	1.8	27	905	108
455SEA03016	19x3	1.5	0.6	2	32	1380	128
430SEA03017	1x4	0.5	0.5	1	7	70	28
430SEA03018	3x4	0.5	0.5	1.2	11	150	44
430SEA03019	7x4	0.5	0.5	1.3	15	305	60
430SEA03020	12x4	0.5	0.5	1.5	20	500	80
430SEA03021	19x4	0.5	0.5	1.7	24	760	96
435SEA03017	1x4	0.75	0.6	1.1	8	85	32
435SEA03018	3x4	0.75	0.6	1.3	13.5	220	54
435SEA03019	7x4	0.75	0.6	1.5	18	455	72
435SEA03020	12x4	0.75	0.6	1.7	24.5	715	98
435SEA03021	19x4	0.75	0.6	1.9	29	1080	116
455SEA03017	1x4	1.5	0.6	1.1	9	125	36
455SEA03018	3x4	1.5	0.6	1.4	15.5	340	62
455SEA03019	7x4	1.5	0.6	1.6	21	690	84
455SEA03020	12x4	1.5	0.6	1.8	28	1160	112
455SEA03021	19x4	1.5	0.6	2	33.5	1790	134

TKSEA 03 ISS

CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V INDIVIDUALLY SHIELDED

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	XLPE
Identification of leads	see page 104
Shielding on individual couple	
third or fourth	Al/mylar Belt + continuity cord
Sheath	Halogen Free ShF1
External sheath	colour Grey or other colours on request
Mark	Tecnikabel (TO) - ITALY - (week/year) - TKSEA03ISS - formation- 150/250 V- -IEC 60332-3-22 - metric

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

**European Directive 2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substances) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)**

Note:

Constructions other than those listed are available on request

TKSEA 03 ISS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V INDIVIDUALLY SHIELDED

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
430SEA03022	1x2	0.5	0.5	1	6	45	24
430SEA03023	2x2	0.5	0.5	1.1	9	90	45
430SEA03024	4x2	0.5	0.5	1.2	11	135	55
430SEA03025	7x2	0.5	0.5	1.3	13.5	200	68
430SEA03026	10x2	0.5	0.5	1.4	17.5	300	88
430SEA03027	12x2	0.5	0.5	1.4	18	340	90
430SEA03028	14x2	0.5	0.5	1.5	19	380	95
430SEA03029	19x2	0.5	0.5	1.5	21	450	105
430SEA03030	24x2	0.5	0.5	1.7	25	590	125
430SEA03031	27x2	0.5	0.5	1.7	25.5	650	128
430SEA03032	30x2	0.5	0.5	1.7	26.5	700	133
435SEA03022	1x2	0.75	0.6	1	7	60	35
435SEA03023	2x2	0.75	0.6	1.2	11.5	120	58
435SEA03024	4x2	0.75	0.6	1.3	13.5	180	68
435SEA03025	7x2	0.75	0.6	1.4	16.5	280	83
435SEA03026	10x2	0.75	0.6	1.5	20.5	350	103
435SEA03027	12x2	0.75	0.6	1.6	21.5	445	108
435SEA03028	14x2	0.75	0.6	1.6	22.5	495	113
435SEA03029	19x2	0.75	0.6	1.7	25.5	650	128
435SEA03030	24x2	0.75	0.6	1.9	30	810	150
435SEA03031	27x2	0.75	0.6	1.9	31	870	155
435SEA03032	30x2	0.75	0.6	2	32	960	160
440SEA03022	1x2	1	0.6	1	7	60	35
440SEA03023	2x2	1	0.6	1.2	11.5	125	58
440SEA03024	4x2	1	0.6	1.3	14	210	70
440SEA03025	7x2	1	0.6	1.4	17	320	85
440SEA03026	10x2	1	0.6	1.6	21.5	435	108
440SEA03027	12x2	1	0.6	1.6	22.5	525	113
440SEA03028	14x2	1	0.6	1.6	24	600	120
440SEA03029	19x2	1	0.6	1.7	26.5	760	133
440SEA03030	24x2	1	0.6	1.9	31.5	980	158
440SEA03031	27x2	1	0.6	2	32	1050	160
440SEA03032	30x2	1	0.6	2	33.5	1210	168

TKSEA 03 ISS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V INDIVIDUALLY SHIELDED

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
445SEA03022	1x2	1.5	0.6	1.1	8	85	32
445SEA03023	2x2	1.5	0.6	1.3	13	160	65
445SEA03024	4x2	1.5	0.6	1.3	15	250	75
445SEA03025	7x2	1.5	0.6	1.5	18.5	400	93
445SEA03026	10x2	1.5	0.6	1.7	24	580	120
445SEA03027	12x2	1.5	0.6	1.7	24.5	675	123
445SEA03028	14x2	1.5	0.6	1.7	26	755	130
445SEA03029	19x2	1.5	0.6	1.9	29.5	1000	148
445SEA03030	24x2	1.5	0.6	2.1	35	1250	175
445SEA03031	27x2	1.5	0.6	2.2	35.5	1370	178
445SEA03032	30x2	1.5	0.6	2.1	37	1550	185

455SEA03022	1x2	2.5	0.6	1.1	9	110	45
455SEA03023	2x2	2.5	0.6	1.3	15	220	75
455SEA03024	4x2	2.5	0.6	1.4	17.5	355	88
455SEA03025	7x2	2.5	0.6	1.6	21.5	590	108
455SEA03026	10x2	2.5	0.6	1.8	28	840	140
455SEA03027	12x2	2.5	0.6	1.9	29	950	145
455SEA03028	14x2	2.5	0.6	1.9	30.5	1090	153
455SEA03029	19x2	2.5	0.6	2	34	1415	170
455SEA03030	24x2	2.5	0.6	2.3	40.5	1790	203
455SEA03031	27x2	2.5	0.6	2.3	41.5	2000	208
455SEA03032	30x2	2.5	0.6	2.4	43	2200	215

430SEA03033	1x3	0.5	0.5	1	6.5	60	33
430SEA03034	3x3	0.5	0.5	1.2	11	135	55
430SEA03035	7x3	0.5	0.5	1.3	15	270	75
430SEA03036	12x3	0.5	0.5	1.5	20	420	100
430SEA03037	19x3	0.5	0.5	1.6	23	600	115

TKSEA 03 ISS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V INDIVIDUALLY SHIELDED

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
435SEA03033	1x3	0.75	0.6	1	7	70	35
435SEA03034	3x3	0.75	0.6	1.3	13.5	190	68
435SEA03035	7x3	0.75	0.6	1.4	17.5	350	88
435SEA03036	12x3	0.75	0.6	1.6	24	580	120
435SEA03037	19x3	0.75	0.6	1.8	28.5	915	143
445SEA03033	1x3	1.5	0.6	1.1	8	95	40
445SEA03034	3x3	1.5	0.6	1.3	15	260	75
445SEA03035	7x3	1.5	0.6	1.5	20.5	550	103
445SEA03036	12x3	1.5	0.6	1.8	27.5	915	138
445SEA03037	19x3	1.5	0.6	2	32.5	1400	163
430SEA03038	1x4	0.5	0.5	1	7	70	35
430SEA03039	3x4	0.5	0.5	1.2	11.5	155	58
430SEA03040	7x4	0.5	0.5	1.3	15.5	310	78
430SEA03041	12x4	0.5	0.5	1.5	20.5	510	103
430SEA03042	19x4	0.5	0.5	1.7	24.5	780	123
435SEA03038	1x4	0.75	0.6	1.1	8	85	40
435SEA03039	3x4	0.75	0.6	1.3	14	225	70
435SEA03040	7x4	0.75	0.6	1.5	18.5	460	93
435SEA03041	12x4	0.75	0.6	1.7	24.5	725	123
435SEA03042	19x4	0.75	0.6	1.9	29.5	1095	148
445SEA03038	1x4	1.5	0.6	1.1	9	125	45
445SEA03039	3x4	1.5	0.6	1.4	16	350	80
445SEA03040	7x4	1.5	0.6	1.6	21	700	105
445SEA03041	12x4	1.5	0.6	1.8	28.5	1180	143
445SEA03042	19x4	1.5	0.6	2	34	1820	170

TKSEA 03 ISOS

CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V
SHIELDED OUT OF TOTAL AND INDIVIDUALLY SHIELDED

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	XLPE
Identification of leads	see page 104
Shielding on the individual couple	Al/mylar Belt + continuity cord
Third or fourth	Al/mylar Belt + continuity cord
Shielding on total	Halogen Free ShF1
Sheath	Grey or other colours on request
External sheath colour	Teknikabel (TO) - ITALY - (week/year) - TKSEA03ISOS - formation- 150/250 V -
Mark	- IEC 60332-3-22 - metric

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

European Directive 2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substances) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)

Note:

Constructions other than those listed are available on request

TKSEA 03 ISOS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V SHIELDED OUT OF TOTAL AND INDIVIDUALLY SHIELDED

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
430SEA03043	1x2	0.5	0.5	1	6	45	30
430SEA03044	2x2	0.5	0.5	1.1	9	90	45
430SEA03045	4x2	0.5	0.5	1.2	11	135	55
430SEA03046	7x2	0.5	0.5	1.3	13.5	200	68
430SEA03047	10x2	0.5	0.5	1.4	17.5	300	88
430SEA03048	12x2	0.5	0.5	1.4	18	340	90
430SEA03049	14x2	0.5	0.5	1.5	19	385	95
430SEA03050	19x2	0.5	0.5	1.6	21	455	105
430SEA03051	24x2	0.5	0.5	1.7	25	595	125
430SEA03052	27x2	0.5	0.5	1.7	25.5	660	128
430SEA03053	30x2	0.5	0.5	1.8	26.5	710	133
435SEA03043	1x2	0.75	0.6	1	7	60	35
435SEA03044	2x2	0.75	0.6	1.2	11.5	120	58
435SEA03045	4x2	0.75	0.6	1.3	13.5	180	68
435SEA03046	7x2	0.75	0.6	1.4	16.5	280	83
435SEA03047	10x2	0.75	0.6	1.5	20.5	355	103
435SEA03048	12x2	0.75	0.6	1.6	21.5	450	108
435SEA03049	14x2	0.75	0.6	1.6	22.5	500	113
435SEA03050	19x2	0.75	0.6	1.7	25.5	660	128
435SEA03051	24x2	0.75	0.6	1.9	30	820	150
435SEA03052	27x2	0.75	0.6	1.9	31	885	155
435SEA03053	30x2	0.75	0.6	2	32	980	160
440SEA03043	1x2	1	0.6	1	7	60	35
440SEA03044	2x2	1	0.6	1.2	11.5	125	58
440SEA03045	4x2	1	0.6	1.3	14	210	70
440SEA03046	7x2	1	0.6	1.4	17	325	85
440SEA03047	10x2	1	0.6	1.6	21.5	440	108
440SEA03048	12x2	1	0.6	1.6	22.5	530	113
440SEA03049	14x2	1	0.6	1.6	24	605	120
440SEA03050	19x2	1	0.6	1.7	26.5	770	133
440SEA03051	24x2	1	0.6	1.9	31.5	990	158
440SEA03052	27x2	1	0.6	2	32	1065	160
440SEA03053	30x2	1	0.6	2	33.5	1230	168

TKSEA 03 ISOS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V SHIELDED OUT OF TOTAL AND INDIVIDUALLY SHIELDED

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
445SEA03043	1x2	1.5	0.6	1.1	8	85	34
445SEA03044	2x2	1.5	0.6	1.3	13	160	65
445SEA03045	4x2	1.5	0.6	1.3	15	250	75
445SEA03046	7x2	1.5	0.6	1.5	18.5	405	93
445SEA03047	10x2	1.5	0.6	1.7	24	585	120
445SEA03048	12x2	1.5	0.6	1.7	24.5	680	123
445SEA03049	14x2	1.5	0.6	1.7	26	765	130
445SEA03050	19x2	1.5	0.6	1.9	29.5	1015	148
445SEA03051	24x2	1.5	0.6	2.1	35	1260	175
445SEA03052	27x2	1.5	0.6	2.2	35.5	1390	178
445SEA03053	30x2	1.5	0.6	2.1	37	1570	185

455SEA03043	1x2	2.5	0.6	1.1	9	110	45
455SEA03044	2x2	2.5	0.6	1.3	15	220	75
455SEA03045	4x2	2.5	0.6	1.4	17.5	355	88
455SEA03046	7x2	2.5	0.6	1.6	21.5	595	108
455SEA03047	10x2	2.5	0.6	1.8	28	845	140
455SEA03048	12x2	2.5	0.6	1.9	29	955	145
455SEA03049	14x2	2.5	0.6	1.9	30.5	1100	153
455SEA03050	19x2	2.5	0.6	2	34	1425	170
455SEA03051	24x2	2.5	0.6	2.3	40.5	1800	203
455SEA03052	27x2	2.5	0.6	2.3	41.5	2025	208
455SEA03053	30x2	2.5	0.6	2.4	43	2225	215

430SEA03054	1x3	0.5	0.5	1	6.5	60	33
430SEA03055	3x3	0.5	0.5	1.2	11	135	55
430SEA03056	7x3	0.5	0.5	1.3	15	275	75
430SEA03057	12x3	0.5	0.5	1.5	20	425	100
430SEA03058	19x3	0.5	0.5	1.6	23	610	115

TKSEA 03 ISOS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V SHIELDED OUT OF TOTAL AND INDIVIDUALLY SHIELDED

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
435SEA03054	1x3	0.75	0.6	1	7	70	35
435SEA03055	3x3	0.75	0.6	1.3	13.5	195	68
435SEA03056	7x3	0.75	0.6	1.4	17.5	360	88
435SEA03057	12x3	0.75	0.6	1.6	24	595	120
435SEA03058	19x3	0.75	0.6	1.8	28.5	930	143
440SEA03054	1x3	1.5	0.6	1.1	8	95	40
440SEA03055	3x3	1.5	0.6	1.3	15	265	75
440SEA03056	7x3	1.5	0.6	1.5	20.5	560	103
440SEA03057	12x3	1.5	0.6	1.8	27.5	925	138
440SEA03058	19x3	1.5	0.6	2	32.5	1420	163
430SEA03059	1x4	0.5	0.5	1	7	70	35
430SEA03060	3x4	0.5	0.5	1.2	11.5	155	58
430SEA03061	7x4	0.5	0.5	1.3	15.5	315	78
430SEA03062	12x4	0.5	0.5	1.5	20.5	515	103
430SEA03063	19x4	0.5	0.5	1.7	24.5	790	123
435SEA03059	1x4	0.75	0.6	1.1	8	85	40
435SEA03060	3x4	0.75	0.6	1.3	14	225	70
435SEA03061	7x4	0.75	0.6	1.5	18.5	465	93
435SEA03062	12x4	0.75	0.6	1.7	25	730	123
435SEA03063	19x4	0.75	0.6	1.9	29.5	1110	148
440SEA03059	1x4	1.5	0.6	1.1	9	125	45
440SEA03060	3x4	1.5	0.6	1.4	16	355	80
440SEA03061	7x4	1.5	0.6	1.6	21	710	105
440SEA03062	12x4	1.5	0.6	1.8	28.5	1195	143
440SEA03063	19x4	1.5	0.6	2	34	1840	170

TKSEA 03 IA CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V ARMoured

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	XLPE
Identification of leads	see page 104
Armour	Red copper braid covering ≥ 85% (<i>Steel or Copper tin-plated on request</i>)
Sheath	Halogen Free ShF1
External sheath colour	Grey or other colours on request
Mark	Teknikabel (TO) - ITALY - (week/year) - TKSEA03IA - formation- 150/250 V - -IEC 60332-3-22 - metric

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

**European Directive 2002/95/CE and 2005/618/CE (RoHS – Reduction of Hazardous Substances) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)**

Note:

Constructions other than those listed are available on request

TKSEA 03 IA CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V ARMoured

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
530SEA03001	1x2	0.5	0.5	1	7	60	28
530SEA03002	2x2	0.5	0.5	1.1	10	100	40
530SEA03003	4x2	0.5	0.5	1.2	11.5	150	46
530SEA03004	7x2	0.5	0.5	1.3	14	240	56
530SEA03005	10x2	0.5	0.5	1.4	18	340	72
530SEA03006	12x2	0.5	0.5	1.4	18.5	410	74
530SEA03007	14x2	0.5	0.5	1.5	19.5	430	78
530SEA03008	19x2	0.5	0.5	1.6	22	550	88
530SEA03009	24x2	0.5	0.5	1.7	25.5	660	102
530SEA03010	27x2	0.5	0.5	1.7	26	720	104
530SEA03011	30x2	0.5	0.5	1.8	27	800	108
535SEA03001	1x2	0.75	0.6	1	7.5	75	30
535SEA03002	2x2	0.75	0.6	1.2	12	140	48
535SEA03003	4x2	0.75	0.6	1.3	13.5	250	54
535SEA03004	7x2	0.75	0.6	1.4	17	350	68
535SEA03005	10x2	0.75	0.6	1.5	20.5	400	82
535SEA03006	12x2	0.75	0.6	1.6	22.5	500	90
535SEA03007	14x2	0.75	0.6	1.6	23	550	92
535SEA03008	19x2	0.75	0.6	1.7	26	700	104
535SEA03009	24x2	0.75	0.6	1.9	31	850	124
535SEA03010	27x2	0.75	0.6	1.9	31.5	990	126
535SEA03011	30x2	0.75	0.6	2	32.5	1050	130
540SEA03001	1x2	1	0.6	1	8	80	32
540SEA03002	2x2	1	0.6	1.2	12	150	48
540SEA03003	4x2	1	0.6	1.3	14	260	56
540SEA03004	7x2	1	0.6	1.4	17	360	68
540SEA03005	10x2	1	0.6	1.6	22	460	88
540SEA03006	12x2	1	0.6	1.6	23	580	92
540SEA03007	14x2	1	0.6	1.7	24	650	96
540SEA03008	19x2	1	0.6	1.8	27	800	108
540SEA03009	24x2	1	0.6	2	32	1050	128
540SEA03010	27x2	1	0.6	2	33	1150	132
540SEA03011	30x2	1	0.6	2	34	1300	136

TKSEA 03 IA CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V ARMoured

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
545SEA03001	1x2	1.5	0.6	1.1	8.5	110	34
545SEA03002	2x2	1.5	0.6	1.2	13.5	190	54
545SEA03003	4x2	1.5	0.6	1.4	16	340	64
545SEA03004	7x2	1.5	0.6	1.5	19.5	500	78
545SEA03005	10x2	1.5	0.6	1.7	25	720	100
545SEA03006	12x2	1.5	0.6	1.7	25.5	780	102
545SEA03007	14x2	1.5	0.6	1.8	27	900	108
545SEA03008	19x2	1.5	0.6	1.9	30	1150	120
545SEA03009	24x2	1.5	0.6	2.1	36	1500	144
545SEA03010	27x2	1.5	0.6	2.2	37	1650	148
545SEA03011	30x2	1.5	0.6	2.2	38	1800	152

555SEA03001	1x2	2.5	0.6	1.1	9.5	150	38
555SEA03002	2x2	2.5	0.6	1.4	16	280	64
555SEA03003	4x2	2.5	0.6	1.5	18.5	470	74
555SEA03004	7x2	2.5	0.6	1.6	22	670	88
555SEA03005	10x2	2.5	0.6	1.8	28.5	955	114
555SEA03006	12x2	2.5	0.6	1.9	29.5	1100	118
555SEA03007	14x2	2.5	0.6	1.9	31	1230	124
555SEA03008	19x2	2.5	0.6	2	35	1600	140
555SEA03009	24x2	2.5	0.6	2.3	42	2120	168
555SEA03010	27x2	2.5	0.6	2.4	43	2300	172
555SEA03011	30x2	2.5	0.6	2.4	44.5	2550	178

530SEA03012	1x3	0.5	0.5	1	7	80	35
530SEA03013	3x3	0.5	0.5	1.2	11.5	170	58
530SEA03014	7x3	0.5	0.5	1.4	15.5	320	78
530SEA03015	12x3	0.5	0.5	1.5	20.5	510	103
530SEA03016	19x3	0.5	0.5	1.7	24	710	120

TKSEA 03 IA CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V ARMOURED

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
535SEA03012	1x3	0.75	0.6	1	8	100	40
535SEA03013	3x3	0.75	0.6	1.3	14	260	70
535SEA03014	7x3	0.75	0.6	1.5	18.5	440	93
535SEA03015	12x3	0.75	0.6	1.7	24.5	700	123
535SEA03016	19x3	0.75	0.6	1.8	29	1000	145
545SEA03012	1x3	1.5	0.6	1.1	9	150	45
545SEA03013	3x3	1.5	0.6	1.4	16	360	80
545SEA03014	7x3	1.5	0.6	1.6	21	650	105
545SEA03015	12x3	1.5	0.6	1.8	28	1050	140
545SEA03016	19x3	1.5	0.6	2	33	1500	165
530SEA03017	1x4	0.5	0.5	1	7.5	90	30
530SEA03018	3x4	0.5	0.5	1.2	12	215	48
530SEA03019	7x4	0.5	0.5	1.3	16	380	64
530SEA03020	12x4	0.5	0.5	1.5	21.5	620	86
530SEA03021	19x4	0.5	0.5	1.7	25	860	100
535SEA03017	1x4	0.75	0.6	1.1	9	125	36
535SEA03018	3x4	0.75	0.6	1.3	15	290	60
535SEA03019	7x4	0.75	0.6	1.5	19.5	520	78
535SEA03020	12x4	0.75	0.6	1.7	25.5	830	102
535SEA03021	19x4	0.75	0.6	1.9	30.5	1200	122
545SEA03017	1x4	1.5	0.6	1.1	10	180	40
545SEA03018	3x4	1.5	0.6	1.4	16.5	440	66
545SEA03019	7x4	1.5	0.6	1.6	22	820	88
545SEA03020	12x4	1.5	0.6	1.8	29.5	1340	118
545SEA03021	19x4	1.5	0.6	2	35	2050	140

TKSEA 03 IASO

CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V
ARMOURED AND SHIELDED OUT OF TOTAL (OVERALL)

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	XLPE
Identification of leads	see page 104
Shielding on total	Al/mylar Belt + continuity cord
Armour	Red copper plait covering ≥ 85% (<i>Steel or Copper tin-plated on request</i>)
Sheath	Halogen Free ShF1
External sheath colour	Grey or other colours on request
Mark	Teknikabel (TO) - ITALY - (week/year) - TKSEA03IASO - formation- 150/250 V - -IEC 60332-3-22 – metric

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

**European Directive 2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substances) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)**

Note:

Constructions other than those listed are available on request

TKSEA 03 IASO CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V ARMOURED AND SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
530SEA03022	1x2	0.5	0.5	1	7	60	28
530SEA03023	2x2	0.5	0.5	1.1	10	100	40
530SEA03024	4x2	0.5	0.5	1.2	11.5	150	46
530SEA03025	7x2	0.5	0.5	1.3	14	240	56
530SEA03026	10x2	0.5	0.5	1.4	18	340	72
530SEA03027	12x2	0.5	0.5	1.4	19	415	76
530SEA03028	14x2	0.5	0.5	1.5	19.5	435	78
530SEA03029	19x2	0.5	0.5	1.6	22	555	88
530SEA03030	24x2	0.5	0.5	1.7	25.5	665	102
530SEA03031	27x2	0.5	0.5	1.7	26.5	725	106
530SEA03032	30x2	0.5	0.5	1.8	27	805	108
535SEA03022	1x2	0.75	0.6	1	7.5	75	30
535SEA03023	2x2	0.75	0.6	1.2	12	140	48
535SEA03024	4x2	0.75	0.6	1.3	13.5	250	54
535SEA03025	7x2	0.75	0.6	1.4	17	355	68
535SEA03026	10x2	0.75	0.6	1.5	20.5	405	82
535SEA03027	12x2	0.75	0.6	1.6	22.5	505	90
535SEA03028	14x2	0.75	0.6	1.6	23	555	92
535SEA03029	19x2	0.75	0.6	1.7	26	710	104
535SEA03030	24x2	0.75	0.6	1.9	31	860	124
535SEA03031	27x2	0.75	0.6	1.9	31.5	995	126
535SEA03032	30x2	0.75	0.6	2	32.5	1068	130
540SEA03022	1x2	1	0.6	1	8	80	32
540SEA03023	2x2	1	0.6	1.2	12	150	48
540SEA03024	4x2	1	0.6	1.3	14	260	56
540SEA03025	7x2	1	0.6	1.4	17	365	68
540SEA03026	10x2	1	0.6	1.6	22	470	88
540SEA03027	12x2	1	0.6	1.6	23	590	92
540SEA03028	14x2	1	0.6	1.7	24	665	96
540SEA03029	19x2	1	0.6	1.8	27	815	108
540SEA03030	24x2	1	0.6	2	32	1065	128
540SEA03031	27x2	1	0.6	2	33	1170	132
540SEA03032	30x2	1	0.6	2	34	1320	136

TKSEA 03 IASO CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V ARMoured AND SHIELDED OUT OF TOTAL

TECNIKABEL	FORMATION	SECTION	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
CODE		mm²					
545SEA03022	1x2	1.5	0.6	1.1	8.5	110	34
545SEA03023	2x2	1.5	0.6	1.2	13.5	190	54
545SEA03024	4x2	1.5	0.6	1.4	16	340	64
545SEA03025	7x2	1.5	0.6	1.5	19.5	505	78
545SEA03026	10x2	1.5	0.6	1.7	25	725	100
545SEA03027	12x2	1.5	0.6	1.7	25.5	785	102
545SEA03028	14x2	1.5	0.6	1.8	27	910	108
545SEA03029	19x2	1.5	0.6	1.9	30	1160	120
545SEA03030	24x2	1.5	0.6	2.1	36	1510	144
545SEA03031	27x2	1.5	0.6	2.2	37	1670	148
545SEA03032	30x2	1.5	0.6	2.2	38	1825	152

555SEA03022	1x2	2.5	0.6	1.1	9.5	150	38
555SEA03023	2x2	2.5	0.6	1.4	16	285	64
555SEA03024	4x2	2.5	0.6	1.5	18.5	475	74
555SEA03025	7x2	2.5	0.6	1.6	22	680	88
555SEA03026	10x2	2.5	0.6	1.8	28.5	970	114
555SEA03027	12x2	2.5	0.6	1.9	29.5	1120	118
555SEA03028	14x2	2.5	0.6	1.9	31	1250	124
555SEA03029	19x2	2.5	0.6	2	35	1620	140
555SEA03030	24x2	2.5	0.6	2.3	42	2145	168
555SEA03031	27x2	2.5	0.6	2.4	43	2330	172
555SEA03032	30x2	2.5	0.6	2.4	44.5	2585	178

530SEA03033	1x3	0.5	0.5	1	7	80	28
530SEA03034	3x3	0.5	0.5	1.2	11.5	175	46
530SEA03035	7x3	0.5	0.5	1.4	15.5	330	62
530SEA03036	12x3	0.5	0.5	1.5	20.5	515	82
530SEA03037	19x3	0.5	0.5	1.7	24	725	96

TKSEA 03 IASO CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V ARMOURED AND SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
535SEA03033	1x3	0.75	0.6	1	8	105	32
535SEA03034	3x3	0.75	0.6	1.3	14	270	56
535SEA03035	7x3	0.75	0.6	1.5	18.5	450	74
535SEA03036	12x3	0.75	0.6	1.7	24.5	720	98
535SEA03037	19x3	0.75	0.6	1.8	29	1025	116
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545SEA03033	1x3	1.5	0.6	1.1	9	155	36
545SEA03034	3x3	1.5	0.6	1.4	16	370	64
545SEA03035	7x3	1.5	0.6	1.6	21	660	84
545SEA03036	12x3	1.5	0.6	1.8	28	1025	112
545SEA03037	19x3	1.5	0.6	2	33	1530	132
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530SEA03038	1x4	0.5	0.5	1	7.5	90	30
530SEA03039	3x4	0.5	0.5	1.2	12	220	48
530SEA03040	7x4	0.5	0.5	1.4	16	390	64
530SEA03041	12x4	0.5	0.5	1.5	21.5	635	86
530SEA03042	19x4	0.5	0.5	1.6	25	880	100
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535SEA03038	1x4	0.75	0.6	1.1	9	125	36
535SEA03039	3x4	0.75	0.6	1.3	15	295	60
535SEA03040	7x4	0.75	0.6	1.5	19.5	530	78
535SEA03041	12x4	0.75	0.6	1.7	25.5	840	102
535SEA03042	19x4	0.75	0.6	1.9	30.5	1225	122
<hr/>							
545SEA03038	1x4	1.5	0.6	1.1	10	185	40
545SEA03039	3x4	1.5	0.6	1.5	16.5	445	66
545SEA03040	7x4	1.5	0.6	1.7	22	830	88
545SEA03041	12x4	1.5	0.6	1.8	29.5	1355	118
545SEA03042	19x4	1.5	0.6	2	35	2070	140

TKSEA 03 IASS

CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V
ARMOURED AND INDIVIDUALLY SHIELDED

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	XLPE
Identification of leads	see page 104
Shielding on individual couple, third or fourth	Al/mylar Belt + continuity cord
Armour	Red copper braid cover ≥ 85% (<i>Steel or Copper tin-plated on request</i>)
Sheath	Halogen Free ShF1
External sheath colour	Grey or other colours on request
Mark	Teknikabel (TO) - ITALY - (week/year) - TKSEA03IASS - formation- 150/250 V - -IEC 60332-3-22 - metric

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

European Directive 2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substances) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)

Note:

Constructions other than those listed are available on request

TKSEA 03 IASS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V ARMOURED INDIVIDUALLY SHIELDED

TECNIKABEL CODE	FORMATION	SECTION mm²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
530SEA03043	1x2	0.5	0.5	1	7	60	35
530SEA03044	2x2	0.5	0.5	1.1	10	105	50
530SEA03045	4x2	0.5	0.5	1.2	12	155	60
530SEA03046	7x2	0.5	0.5	1.3	14	250	70
530SEA03047	10x2	0.5	0.5	1.5	18.5	350	93
530SEA03048	12x2	0.5	0.5	1.5	19.5	425	98
530SEA03049	14x2	0.5	0.5	1.5	20	450	100
530SEA03050	19x2	0.5	0.5	1.6	22.5	570	113
530SEA03051	24x2	0.5	0.5	1.8	26.5	685	133
530SEA03052	27x2	0.5	0.5	1.8	27	745	135
530SEA03053	30x2	0.5	0.5	1.8	28	840	140
535SEA03043	1x2	0.75	0.6	1	8	75	40
535SEA03044	2x2	0.75	0.6	1.2	12	145	60
535SEA03045	4x2	0.75	0.6	1.3	14	255	70
535SEA03046	7x2	0.75	0.6	1.4	17	365	85
535SEA03047	10x2	0.75	0.6	1.6	22	415	110
535SEA03048	12x2	0.75	0.6	1.6	22.5	520	113
535SEA03049	14x2	0.75	0.6	1.7	24	570	120
535SEA03050	19x2	0.75	0.6	1.8	27	730	135
535SEA03051	24x2	0.75	0.6	1.9	31.5	890	158
535SEA03052	27x2	0.75	0.6	2	32.5	1025	163
535SEA03053	30x2	0.75	0.6	2	33.5	1110	168
540SEA03043	1x2	1	0.6	1	8	80	40
540SEA03044	2x2	1	0.6	1.2	12.5	150	63
540SEA03045	4x2	1	0.6	1.3	15	265	75
540SEA03046	7x2	1	0.6	1.4	18	375	90
540SEA03047	10x2	1	0.6	1.6	23	485	115
540SEA03048	12x2	1	0.6	1.7	23.5	605	118
540SEA03049	14x2	1	0.6	1.7	25	675	125
540SEA03050	19x2	1	0.6	1.8	28	830	140
540SEA03051	24x2	1	0.6	2	33	1080	165
540SEA03052	27x2	1	0.6	2	33.5	1200	168
540SEA03053	30x2	1	0.6	2	34.5	1260	173

TKSEA 03 IASS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V ARMOURED INDIVIDUALLY SHIELDED

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
545SEA03043	1x2	1.5	0.6	1.1	9	110	45
545SEA03044	2x2	1.5	0.6	1.3	14	195	70
545SEA03045	4x2	1.5	0.6	1.4	16.5	350	83
545SEA03046	7x2	1.5	0.6	1.5	20	515	100
545SEA03047	10x2	1.5	0.6	1.7	25.5	735	128
545SEA03048	12x2	1.5	0.6	1.8	26.5	800	133
545SEA03049	14x2	1.5	0.6	1.8	28	925	140
545SEA03050	19x2	1.5	0.6	1.9	31	1180	155
545SEA03051	24x2	1.5	0.6	2.1	37	1535	185
545SEA03052	27x2	1.5	0.6	2.2	38.5	1700	193
545SEA03053	30x2	1.5	0.6	2.5	39.5	1860	198

555SEA03043	1x2	2.5	0.6	1.1	9.5	150	48
555SEA03044	2x2	2.5	0.6	1.4	16	295	80
555SEA03046	4x2	2.5	0.6	1.5	19	495	95
555SEA03047	7x2	2.5	0.6	1.6	22.5	705	113
555SEA03048	10x2	2.5	0.6	1.9	29	1000	145
555SEA03049	12x2	2.5	0.6	1.9	31	1140	155
555SEA03050	14x2	2.5	0.6	2	32	1270	160
555SEA03051	19x2	2.5	0.6	2.1	36	1650	180
555SEA03052	24x2	2.5	0.6	2.4	43	2170	215
555SEA03053	27x2	2.5	0.6	2.4	43.5	2360	218
555SEA03054	30x2	2.5	0.6	2.5	45.5	2620	228

530SEA03055	1x3	0.5	0.5	1	7	80	35
530SEA03056	3x3	0.5	0.5	1.2	12	180	60
530SEA03057	7x3	0.5	0.5	1.4	16	340	80
530SEA03058	12x3	0.5	0.5	1.6	21	525	105
530SEA03059	19x3	0.5	0.5	1.7	24.5	750	123

TKSEA 03 IASS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V ARMOURED INDIVIDUALLY SHIELDED

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
535SEA03054	1x3	0.75	0.6	1	8	105	40
535SEA03055	3x3	0.75	0.6	1.3	14	280	70
535SEA03056	7x3	0.75	0.6	1.5	19	460	95
535SEA03057	12x3	0.75	0.6	1.7	25	740	125
535SEA03058	19x3	0.75	0.6	1.9	29.5	1080	148
545SEA03054	1x3	1.5	0.6	1.1	9	155	45
545SEA03055	3x3	1.5	0.6	1.4	16.5	380	83
545SEA03056	7x3	1.5	0.6	1.6	21.5	690	108
545SEA03057	12x3	1.5	0.6	1.8	28.5	1060	143
545SEA03058	19x3	1.5	0.6	2	34	1580	170
530SEA03059	1x4	0.5	0.5	1	7.5	90	38
530SEA03060	3x4	0.5	0.5	1.2	12.5	230	63
530SEA03061	7x4	0.5	0.5	1.4	16.5	410	83
530SEA03062	12x4	0.5	0.5	1.6	22	650	110
530SEA03063	19x4	0.5	0.5	1.7	25.5	920	128
535SEA03059	1x4	0.75	0.6	1.1	9	125	45
535SEA03060	3x4	0.75	0.6	1.3	15	305	75
535SEA03061	7x4	0.75	0.6	1.5	20	560	100
535SEA03062	12x4	0.75	0.6	1.7	26	880	130
535SEA03063	19x4	0.75	0.6	1.9	31	1270	155
545SEA03059	1x4	1.5	0.6	1.1	10	185	50
545SEA03060	3x4	1.5	0.6	1.4	17	455	85
545SEA03061	7x4	1.5	0.6	1.6	22.5	850	113
545SEA03062	12x4	1.5	0.6	1.9	30	1370	150
545SEA03063	19x4	1.5	0.6	2.1	36	2120	180

TKSEA 03 IASOS

CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V
ARMOURED, SHIELDED OUT OF TOTAL (OVERALL) AND INDIVIDUALLY SHIELDED

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	XLPE
Identification of leads	see page 104
Shielding on individual couple, third or fourth	Al/mylar Belt + continuity cord
Shielding on total	Al/mylar Belt + continuity cord
Armour	Red copper braid cover ≥ 85% (<i>Steel or Copper tin-plated on request</i>)
Sheath	Halogen Free ShF1
External sheath colour	Grey or other colours on request
Marking	Tecnikabel (TO) - ITALY - (week/year) - TKSEA03IASOS - formation- 150/250 V -
-IEC 60332-3-22 – metric	

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

**European Directive 2002/95/CE and 2005/618/CE (RoHS – Reduction of Hazardous Substances) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)**

Note:

Constructions other than those listed are available on request

TKSEA 03 IASOS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V ARMoured. INDIVIDUALLY SHIELDED. SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
530SEA03064	1x2	0.5	0.5	1	7	60	35
530SEA03065	2x2	0.5	0.5	1.1	10	105	50
530SEA03066	4x2	0.5	0.5	1.2	12	155	60
530SEA03067	7x2	0.5	0.5	1.3	14	255	70
530SEA03068	10x2	0.5	0.5	1.5	18.5	355	93
530SEA03069	12x2	0.5	0.5	1.5	19.5	440	98
530SEA03070	14x2	0.5	0.5	1.5	20	455	100
530SEA03071	19x2	0.5	0.5	1.6	22.5	575	113
530SEA03072	24x2	0.5	0.5	1.8	26.5	695	133
530SEA03073	27x2	0.5	0.5	1.8	27	755	135
530SEA03074	30x2	0.5	0.5	1.8	28	860	140
535SEA03064	1x2	0.75	0.6	1	8	75	40
535SEA03065	2x2	0.75	0.6	1.2	12	145	60
535SEA03066	4x2	0.75	0.6	1.3	14	255	70
535SEA03067	7x2	0.75	0.6	1.4	17	370	85
535SEA03068	10x2	0.75	0.6	1.6	22	420	110
535SEA03069	12x2	0.75	0.6	1.6	22.5	525	113
535SEA03070	14x2	0.75	0.6	1.7	24	575	120
535SEA03071	19x2	0.75	0.6	1.8	27	740	135
535SEA03072	24x2	0.75	0.6	1.9	31.5	900	158
535SEA03073	27x2	0.75	0.6	2	32.5	1035	163
535SEA03074	30x2	0.75	0.6	2	33.5	1125	168
540SEA03064	1x2	1	0.6	1	8	80	40
540SEA03065	2x2	1	0.6	1.2	12.5	150	63
540SEA03066	4x2	1	0.6	1.3	15	265	75
540SEA03067	7x2	1	0.6	1.4	18	380	90
540SEA03068	10x2	1	0.6	1.6	23	490	115
540SEA03069	12x2	1	0.6	1.7	23.5	610	118
540SEA03070	14x2	1	0.6	1.7	25	685	125
540SEA03071	19x2	1	0.6	1.8	28	840	140
540SEA03072	24x2	1	0.6	2	33	1090	165
540SEA03073	27x2	1	0.6	2	33.5	1210	168
540SEA03074	30x2	1	0.6	2	34.5	1280	173

TKSEA 03 IASOS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V ARMoured. INDIVIDUALLY SHIELDED. SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
545SEA03064	1x2	1.5	0.6	1.1	9	110	45
545SEA03065	2x2	1.5	0.6	1.3	14	195	70
545SEA03066	4x2	1.5	0.6	1.4	16.5	355	83
545SEA03067	7x2	1.5	0.6	1.5	20	520	100
545SEA03068	10x2	1.5	0.6	1.7	25.5	745	128
545SEA03069	12x2	1.5	0.6	1.8	26.5	810	133
545SEA03070	14x2	1.5	0.6	1.8	28	930	140
545SEA03071	19x2	1.5	0.6	1.9	31	1200	155
545SEA03072	24x2	1.5	0.6	2.1	37	1550	185
545SEA03073	27x2	1.5	0.6	2.2	38.5	1725	193
545SEA03074	30x2	1.5	0.6	2.5	39.5	1890	198
555SEA03064	1x2	2.5	0.6	1.1	9.5	150	48
555SEA03065	2x2	2.5	0.6	1.4	16	300	80
555SEA03066	4x2	2.5	0.6	1.5	19	500	95
555SEA03067	7x2	2.5	0.6	1.6	22.5	715	113
555SEA03068	10x2	2.5	0.6	1.9	29	1010	145
555SEA03069	12x2	2.5	0.6	1.9	31	1150	155
555SEA03070	14x2	2.5	0.6	2	32	1285	160
555SEA03071	19x2	2.5	0.6	2.1	36	1665	180
555SEA03072	24x2	2.5	0.6	2.4	43	2190	215
555SEA03073	27x2	2.5	0.6	2.4	43.5	2380	218
555SEA03074	30x2	2.5	0.6	2.5	45.5	2645	228
530SEA03075	1x3	0.5	0.5	1	7	80	35
530SEA03076	3x3	0.5	0.5	1.2	12	185	60
530SEA03077	7x3	0.5	0.5	1.4	16	350	80
530SEA03078	12x3	0.5	0.5	1.6	21	535	105
530SEA03079	19x3	0.5	0.5	1.7	24.5	770	123

TKSEA 03 IASOS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V ARMoured. INDIVIDUALLY SHIELDED. SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
535SEA03075	1x3	0.75	0.6	1	8	105	40
535SEA03076	3x3	0.75	0.6	1.3	14	290	70
535SEA03077	7x3	0.75	0.6	1.5	19	470	95
535SEA03078	12x3	0.75	0.6	1.7	25	755	125
535SEA03079	19x3	0.75	0.6	1.9	29.5	1100	148
545SEA03075	1x3	1.5	0.6	1.1	9	160	45
545SEA03076	3x3	1.5	0.6	1.4	16.5	390	83
545SEA03077	7x3	1.5	0.6	1.6	21.5	695	108
545SEA03078	12x3	1.5	0.6	1.8	28.5	1075	143
545SEA03079	19x3	1.5	0.6	2	34	1600	170
530SEA03080	1x4	0.5	0.5	1	7.5	90	38
530SEA03081	3x4	0.5	0.5	1.2	12.5	235	63
530SEA03082	7x4	0.5	0.5	1.4	16.5	415	83
530SEA03083	12x4	0.5	0.5	1.6	22	660	110
530SEA03084	19x4	0.5	0.5	1.7	25.5	935	128
535SEA03080	1x4	0.75	0.6	1.1	9	125	45
535SEA03081	3x4	0.75	0.6	1.3	15	310	75
535SEA03082	7x4	0.75	0.6	1.5	20	570	100
535SEA03083	12x4	0.75	0.6	1.7	26	890	130
535SEA03084	19x4	0.75	0.6	1.9	31	1290	155
545SEA03080	1x4	1.5	0.6	1.1	10	190	50
545SEA03081	3x4	1.5	0.6	1.4	17	460	85
545SEA03082	7x4	1.5	0.6	1.6	22.5	860	113
545SEA03083	12x4	1.5	0.6	1.9	30	1390	150
545SEA03084	19x4	1.5	0.6	2.1	36	2125	180



FIRE RESISTANT

TKSEA04

PRODUCT DESCRIPTION AND APPLICATION

Recommended for instrumentation and control with protection against external disturbances where cables have to continue to function, including during a fire.

The **TKSEA04®** series satisfies the requirements of Lloyd's Register and RINA standards and are designed and built in compliance with IEC standards.

The TKSEA04® series comprises:

- ▶ **TKSEA04 IFR** Control and Signal Cable (Instrumentation)
150/250 V Fire Resistant
- ▶ **TKSEA04 IFRSO** Control and Signal Cable (Instrumentation)
150/250 V Fire Resistant Shielded out of total (Overall)
- ▶ **TKSEA04 IFRSS** Control and Signal Cable (Instrumentation)
150/250 V Fire Resistant Individually Shielded
- ▶ **TKSEA04 IFRASOS** Control and Signal Cable (Instrumentation)
150/250 V Fire Resistant Shielded out of total (Overall) and Individually Shielded
- ▶ **TKSEA04 IFRA** Control and Signal Cable (Instrumentation)
150/250 V Fire Resistant Armoured
- ▶ **TKSEA04 IFRASO** Control and Signal Cable (Instrumentation)
150/250 V Fire Resistant Armoured and Shielded out of total (Overall)
- ▶ **TKSEA04 IFRASS** Control and Signal Cable (Instrumentation)
150/250 V Fire Resistant Armoured and Individually Shielded
- ▶ **TKSEA04 IFRASOS** Control and Signal Cable (Instrumentation)
150/250 V Fire Resistant Armoured, Shielded out of total (Overall) and Individually Shielded



SPECIAL CABLES FOR
TKSEA04®
MARINE SHIP BOARD

TKSEA04 IFR

CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	Belt fire barrier + XLPE
Identification of leads	see page 104
Sheath	Halogen Free ShF1
External sheath colour	Orange or other colours on request
Mark	Teknikabel (TO) - ITALY - (week/year) - TKSEA04IFR - formation- 150/250 V - -IEC 60332-3-22 - IEC 60331-21 – metric

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Fire resistance	IEC 60331-21
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

European Directive 2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substance) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)

Note:

Constructions other than those listed are available on request

TKSEA 04 IFR CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
330SEA04001	1x2	0.5	0.5	1	6.5	50	26
330SEA04002	2x2	0.5	0.5	1.2	10.5	85	42
330SEA04003	4x2	0.5	0.5	1.2	12	135	48
330SEA04004	7x2	0.5	0.5	1.3	15	200	60
330SEA04005	10x2	0.5	0.5	1.5	19	300	76
330SEA04006	12x2	0.5	0.5	1.5	20	340	80
330SEA04007	14x2	0.5	0.5	1.6	21	390	84
330SEA04008	19x2	0.5	0.5	1.7	23.5	490	94
330SEA04009	24x2	0.5	0.5	1.8	28	620	112
330SEA04010	27x2	0.5	0.5	1.8	28.5	680	114
330SEA04011	30x2	0.5	0.5	1.9	30	720	120
335SEA04001	1x2	0.75	0.6	1	7.5	70	30
335SEA04002	2x2	0.75	0.6	1.2	12	130	48
335SEA04003	4x2	0.75	0.6	1.3	14	190	56
335SEA04004	7x2	0.75	0.6	1.4	17.5	310	70
335SEA04005	10x2	0.75	0.6	1.6	22.5	385	90
335SEA04006	12x2	0.75	0.6	1.6	23.5	495	94
335SEA04007	14x2	0.75	0.6	1.7	24.5	530	98
335SEA04008	19x2	0.75	0.6	1.8	28	720	112
335SEA04009	24x2	0.75	0.6	2	33	850	132
335SEA04010	27x2	0.75	0.6	2	34	980	136
335SEA04011	30x2	0.75	0.6	2.1	35	1000	140
340SEA04001	1x2	1	0.6	1.1	8	70	30
340SEA04002	2x2	1	0.6	1.2	12.5	140	50
340SEA04003	4x2	1	0.6	1.3	14.5	230	58
340SEA04004	7x2	1	0.6	1.4	18	350	72
340SEA04005	10x2	1	0.6	1.6	23.5	490	94
340SEA04006	12x2	1	0.6	1.6	24	550	96
340SEA04007	14x2	1	0.6	1.7	25.5	600	102
340SEA04008	19x2	1	0.6	1.8	29	850	116
340SEA04009	24x2	1	0.6	2	34	1050	136
340SEA04010	27x2	1	0.6	2	35	1100	140
340SEA04011	30x2	1	0.6	2	36	1290	144

FIRE RESISTANT

TKSEA 04 IFR CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
345SEA04001	1x2	1.5	0.6	1.1	8.5	90	34
345SEA04002	2x2	1.5	0.6	1.3	13.5	175	54
345SEA04003	4x2	1.5	0.6	1.4	16	280	64
345SEA04004	7x2	1.5	0.6	1.5	20	480	80
345SEA04005	10x2	1.5	0.6	1.7	25	590	100
345SEA04006	12x2	1.5	0.6	1.8	27	715	108
345SEA04007	14x2	1.5	0.6	1.8	28	810	112
345SEA04008	19x2	1.5	0.6	2	32	1020	128
345SEA04009	24x2	1.5	0.6	2.1	37.5	1320	150
345SEA04010	27x2	1.5	0.6	2.2	39	1480	156
345SEA04011	30x2	1.5	0.6	2.3	40	1590	160

355SEA04001	1x2	2.5	0.6	1.1	9.5	120	38
355SEA04002	2x2	2.5	0.6	1.4	15.5	230	62
355SEA04003	4x2	2.5	0.6	1.5	18.5	360	74
355SEA04004	7x2	2.5	0.6	1.6	22.5	600	90
355SEA04005	10x2	2.5	0.6	1.9	30	890	120
355SEA04006	12x2	2.5	0.6	1.9	31	1010	124
355SEA04007	14x2	2.5	0.6	2	32.5	1150	130
355SEA04008	19x2	2.5	0.6	2.1	36.5	1500	146
355SEA04009	24x2	2.5	0.6	2.4	43.5	1920	174
355SEA04010	27x2	2.5	0.6	2.4	44.5	2090	178
355SEA04011	30x2	2.5	0.6	2.5	46.5	2350	186

330SEA04012	1x3	0.5	0.5	1	7	65	28
330SEA04013	3x3	0.5	0.5	1.2	12	145	48
330SEA04014	7x3	0.5	0.5	1.4	16	270	64
330SEA04015	12x3	0.5	0.5	1.6	21.5	450	86
330SEA04016	19x3	0.5	0.5	1.7	26	700	104

SPECIAL CABLES FOR
TKSEA04®
 MARINE SHIP BOARD

TKSEA 04 IFR CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
335SEA04012	1x3	0.75	0.6	1	8	75	32
335SEA04013	3x3	0.75	0.6	1.3	14	195	56
335SEA04014	7x3	0.75	0.6	1.5	19	360	76
335SEA04015	12x3	0.75	0.6	1.7	25	650	104
335SEA04016	19x3	0.75	0.6	1.9	31	950	124
345SEA04012	1x3	1.5	0.6	1.1	9	105	36
345SEA04013	3x3	1.5	0.6	1.4	16	275	64
345SEA04014	7x3	1.5	0.6	1.6	22	580	88
345SEA04015	12x3	1.5	0.6	1.8	29.5	950	118
345SEA04016	19x3	1.5	0.6	2	35	1450	140
330SEA04017	1x4	0.5	0.5	1	7.5	70	30
330SEA04018	3x4	0.5	0.5	1.2	12.5	160	50
330SEA04019	7x4	0.5	0.5	1.4	17	320	68
330SEA04020	12x4	0.5	0.5	1.6	23	550	92
330SEA04021	19x4	0.5	0.5	1.8	27	810	108
335SEA04017	1x4	0.75	0.6	1.1	9	95	36
335SEA04018	3x4	0.75	0.6	1.3	15	250	60
335SEA04019	7x4	0.75	0.6	1.5	20	500	80
335SEA04020	12x4	0.75	0.6	1.8	27	820	108
335SEA04021	19x4	0.75	0.6	2	32.5	1300	130
345SEA04017	1x4	1.5	0.6	1.1	9.5	130	38
345SEA04018	3x4	1.5	0.6	1.4	17	380	68
345SEA04019	7x4	1.5	0.6	1.6	22.5	700	90
345SEA04020	12x4	1.5	0.6	1.9	31	1200	124
345SEA04021	19x4	1.5	0.6	2.1	36.5	1900	146

FIRE RESISTANT

TKSEA04 IFRSO

CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V
FIRE RESISTANT SHIELDED OUT OF TOTAL (OVERALL)

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	Belt fire barrier + XLPE
Identification of leads	see page 104
Shielding on total	Belt Al/mylar + continuity cord
Sheath	Halogen Free ShF1
External sheath colour	Orange or other colours on request
Marking	Tecnikabel (TO) - ITALY - (week/year) - TKSEA04IFRSO - formation- 150/250 V - - IEC 60332-3-22 - IEC 60331-21 – metric

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Fire resistance	IEC 60331-21
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

European Directive 2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substance) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)

Note:

Constructions other than those listed are available on request

TKSEA 04 IFRSO CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
430SEA04001	1x2	0.5	0.5	1	6.5	50	26
430SEA04002	2x2	0.5	0.5	1.2	10.5	85	42
430SEA04003	4x2	0.5	0.5	1.2	12	135	48
430SEA04004	7x2	0.5	0.5	1.3	15	205	60
430SEA04005	10x2	0.5	0.5	1.5	19	305	76
430SEA04006	12x2	0.5	0.5	1.5	20	345	80
430SEA04007	14x2	0.5	0.5	1.6	21	395	84
430SEA04008	19x2	0.5	0.5	1.7	23.5	500	94
430SEA04009	24x2	0.5	0.5	1.8	28	635	112
430SEA04010	27x2	0.5	0.5	1.8	28.5	695	114
430SEA04011	30x2	0.5	0.5	1.9	30	740	120
435SEA04001	1x2	0.75	0.6	1	7.5	70	30
435SEA04002	2x2	0.75	0.6	1.2	12	130	48
435SEA04003	4x2	0.75	0.6	1.3	14	195	56
435SEA04004	7x2	0.75	0.6	1.4	17.5	315	70
435SEA04005	10x2	0.75	0.6	1.6	22.5	395	90
435SEA04006	12x2	0.75	0.6	1.6	23.5	505	94
435SEA04007	14x2	0.75	0.6	1.7	24.5	540	98
435SEA04008	19x2	0.75	0.6	1.8	28	730	112
435SEA04009	24x2	0.75	0.6	2	33	965	132
435SEA04010	27x2	0.75	0.6	2	34	1000	136
435SEA04011	30x2	0.75	0.6	2.1	35	1025	140
440SEA04001	1x2	1	0.6	1.1	8	70	32
440SEA04002	2x2	1	0.6	1.2	12.5	140	50
440SEA04003	4x2	1	0.6	1.3	14.5	235	58
440SEA04004	7x2	1	0.6	1.4	18	360	72
440SEA04005	10x2	1	0.6	1.6	23.5	495	94
440SEA04006	12x2	1	0.6	1.6	24	560	96
440SEA04007	14x2	1	0.6	1.7	25.5	610	102
440SEA04008	19x2	1	0.6	1.8	29	865	116
440SEA04009	24x2	1	0.6	2	34	1070	136
440SEA04010	27x2	1	0.6	2	35	1125	140
440SEA04011	30x2	1	0.6	2	36	1305	144

FIRE RESISTANT

TKSEA 04 IFRSO CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
445SEA04001	1x2	1.5	0.6	1.1	8.5	90	34
445SEA04002	2x2	1.5	0.6	1.3	13.5	180	54
445SEA04003	4x2	1.5	0.6	1.4	16	285	64
445SEA04004	7x2	1.5	0.6	1.5	20	490	80
445SEA04005	10x2	1.5	0.6	1.7	25	600	100
445SEA04006	12x2	1.5	0.6	1.8	27	730	108
445SEA04007	14x2	1.5	0.6	1.8	28	825	112
445SEA04008	19x2	1.5	0.6	2	32	1040	128
445SEA04009	24x2	1.5	0.6	2.1	37.5	1340	150
445SEA04010	27x2	1.5	0.6	2.2	39	1505	156
445SEA04011	30x2	1.5	0.6	2.3	40	1630	160

455SEA04001	1x2	2.5	0.6	1.1	9.5	125	38
455SEA04002	2x2	2.5	0.6	1.4	15.5	235	62
455SEA04003	4x2	2.5	0.6	1.5	18.5	365	74
455SEA04004	7x2	2.5	0.6	1.6	22.5	610	90
455SEA04005	10x2	2.5	0.6	1.9	30	900	120
455SEA04006	12x2	2.5	0.6	1.9	31	1015	124
455SEA04007	14x2	2.5	0.6	2	32.5	1170	130
455SEA04008	19x2	2.5	0.6	2.1	36.5	1520	146
455SEA04009	24x2	2.5	0.6	2.4	43.5	1940	174
455SEA04010	27x2	2.5	0.6	2.4	44.5	2140	178
455SEA04011	30x2	2.5	0.6	2.5	46.5	2390	186

430SEA04012	1x3	0.5	0.5	1	7	65	28
430SEA04013	3x3	0.5	0.5	1.2	12	145	48
430SEA04014	7x3	0.5	0.5	1.4	16	275	64
430SEA04015	12x3	0.5	0.5	1.6	21.5	460	86
430SEA04016	19x3	0.5	0.5	1.7	26	720	104

TKSEA 04 IFRSO CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
435SEA04012	1x3	0.75	0.6	1	8	75	32
435SEA04013	3x3	0.75	0.6	1.3	14	200	56
435SEA04014	7x3	0.75	0.6	1.5	19	370	76
435SEA04015	12x3	0.75	0.6	1.7	25	670	104
435SEA04016	19x3	0.75	0.6	1.9	31	970	124
445SEA04012	1x3	1.5	0.6	1.1	9	105	36
445SEA04013	3x3	1.5	0.6	1.4	16	280	64
445SEA04014	7x3	1.5	0.6	1.6	22	590	88
445SEA04015	12x3	1.5	0.6	1.8	29.5	975	118
445SEA04016	19x3	1.5	0.6	2	35	1480	140
430SEA04017	1x4	0.5	0.5	1	7.5	70	30
430SEA04018	3x4	0.5	0.5	1.2	12.5	165	50
430SEA04019	7x4	0.5	0.5	1.4	17	325	68
430SEA04020	12x4	0.5	0.5	1.6	23	560	92
430SEA04021	19x4	0.5	0.5	1.8	27	820	108
435SEA04017	1x4	0.75	0.6	1.1	9	95	36
435SEA04018	3x4	0.75	0.6	1.3	15	250	60
435SEA04019	7x4	0.75	0.6	1.5	20	500	80
435SEA04020	12x4	0.75	0.6	1.8	27	820	108
435SEA04021	19x4	0.75	0.6	2	32.5	1300	130
445SEA04017	1x4	1.5	0.6	1.1	9.5	135	38
445SEA04018	3x4	1.5	0.6	1.4	17	390	68
445SEA04019	7x4	1.5	0.6	1.6	22.5	715	90
445SEA04020	12x4	1.5	0.6	1.9	31	1220	124
445SEA04021	19x4	1.5	0.6	2.1	36.5	1930	146

TKSEA04 IFRSS

CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V
FIRE RESISTANT INDIVIDUALLY SHIELDED

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	Belt flame barrier + XLPE
Identification of leads	see page 104
Shielding on individual couple	
Third or fourth	Belt Al/mylar + continuity cord
Sheath	Halogen Free ShF1
External sheath colour	Orange or other colours on request
Marking	Tecnikabel (TO) - ITALY - (week/year) - TKSEA04IFRSS - formation- 150/250 V - -IEC 60332-3-22 - IEC 60331-21 – metric

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Fire resistance	IEC 60331-21
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

European Directive 2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substance) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)

Note:

Constructions other than those listed are available on request

SPECIAL CABLES FOR
TKSEA04®
MARINE SHIP BOARD

TKSEA 04 IFRSS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT INDIVIDUALLY SHIELDED

TECNIKABEL CODE	FORMATION	SECTION mm²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
430SEA04022	1x2	0.5	0.5	1	6.5	50	33
430SEA04023	2x2	0.5	0.5	1.2	10.5	95	53
430SEA04024	4x2	0.5	0.5	1.2	12.5	160	63
430SEA04025	7x2	0.5	0.5	1.3	15	220	75
430SEA04026	10x2	0.5	0.5	1.5	19.5	340	98
430SEA04027	12x2	0.5	0.5	1.5	20	400	100
430SEA04028	14x2	0.5	0.5	1.6	21.5	420	108
430SEA04029	19x2	0.5	0.5	1.7	24	550	120
430SEA04030	24x2	0.5	0.5	1.8	28.5	680	143
430SEA04031	27x2	0.5	0.5	1.9	29.5	800	148
430SEA04032	30x2	0.5	0.5	1.9	30.5	840	153
435SEA04022	1x2	0.75	0.6	1	7.5	70	38
435SEA04023	2x2	0.75	0.6	1.2	12.5	135	63
435SEA04024	4x2	0.75	0.6	1.3	14.5	200	73
435SEA04025	7x2	0.75	0.6	1.4	17.5	320	88
435SEA04026	10x2	0.75	0.6	1.6	23	400	115
435SEA04027	12x2	0.75	0.6	1.7	24	510	120
435SEA04028	14x2	0.75	0.6	1.7	25.5	590	128
435SEA04029	19x2	0.75	0.6	1.8	28.5	750	143
435SEA04030	24x2	0.75	0.6	2	34	1000	170
435SEA04031	27x2	0.75	0.6	2	34.5	1070	173
435SEA04032	30x2	0.75	0.6	2.1	36	1100	180
440SEA04022	1x2	1	0.6	1.1	8	70	40
440SEA04023	2x2	1	0.6	1.2	13	140	65
440SEA04024	4x2	1	0.6	1.3	15	240	75
440SEA04025	7x2	1	0.6	1.5	18.5	380	93
440SEA04026	10x2	1	0.6	1.7	24	500	120
440SEA04027	12x2	1	0.6	1.7	25	620	125
440SEA04028	14x2	1	0.6	1.7	26	710	130
440SEA04029	19x2	1	0.6	1.9	29.5	900	148
440SEA04030	24x2	1	0.6	2	35	1100	175
440SEA04031	27x2	1	0.6	2.4	36.5	1200	183
440SEA04032	30x2	1	0.6	2.2	37	1350	185

TKSEA 04 IFRSS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT INDIVIDUALLY SHIELDED

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
445SEA04022	1x2	1.5	0.6	1.1	8.5	90	43
445SEA04023	2x2	1.5	0.6	1.3	14	170	70
445SEA04024	4x2	1.5	0.6	1.4	16.5	280	83
445SEA04025	7x2	1.5	0.6	1.5	20	430	100
445SEA04026	10x2	1.5	0.6	1.8	26.5	630	133
445SEA04027	12x2	1.5	0.6	1.8	27	750	135
445SEA04028	14x2	1.5	0.6	1.9	29	830	145
445SEA04029	19x2	1.5	0.6	2	32.5	1100	163
445SEA04030	24x2	1.5	0.6	2.2	38.5	1350	193
445SEA04031	27x2	1.5	0.6	2.2	39.5	1490	198
445SEA04032	30x2	1.5	0.6	2.3	41	1650	205

455SEA04022	1x2	2.5	0.6	1.1	9.5	115	48
455SEA04023	2x2	2.5	0.6	1.4	16	230	80
455SEA04024	4x2	2.5	0.6	1.5	19	380	95
455SEA04025	7x2	2.5	0.6	1.6	23	640	115
455SEA04026	10x2	2.5	0.6	1.9	30	900	50
455SEA04027	12x2	2.5	0.6	1.9	31	1040	155
455SEA04028	14x2	2.5	0.6	2	33	1180	165
455SEA04029	19x2	2.5	0.6	2.2	37.5	1600	188
455SEA04030	24x2	2.5	0.6	2.4	44.5	1950	223
455SEA04031	27x2	2.5	0.6	2.5	45.5	2200	228
455SEA04032	30x2	2.5	0.6	2.5	47.5	2450	238

430SEA04033	1x3	0.5	0.5	1	7	65	35
430SEA04034	3x3	0.5	0.5	1.2	12	150	60
430SEA04035	7x3	0.5	0.5	1.4	16.5	300	83
430SEA04036	12x3	0.5	0.5	1.6	22	460	110
430SEA04037	19x3	0.5	0.5	1.7	26.5	750	133

TKSEA 04 IFRSS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT INDIVIDUALLY SHIELDED

TECNIKABEL CODE	FORMATION	SECTION mm²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
435SEA04033	1x3	0.75	0.6	1	8	84	40
435SEA04034	3x3	0.75	0.6	1.3	14.5	200	73
435SEA04035	7x3	0.75	0.6	1.5	19.5	380	98
435SEA04036	12x3	0.75	0.6	1.8	26.5	700	133
435SEA04037	19x3	0.75	0.6	1.9	31	990	155
445SEA04033	1x3	1.5	0.6	1.1	9	100	45
445SEA04034	3x3	1.5	0.6	1.4	16.5	290	83
445SEA04035	7x3	1.5	0.6	1.6	22	590	110
445SEA04036	12x3	1.5	0.6	1.9	30	1000	150
445SEA04037	19x3	1.5	0.6	2.1	35.5	1580	178
430SEA04038	1x4	0.5	0.5	1	7.5	70	38
430SEA04039	3x4	0.5	0.5	1.2	13	170	65
430SEA04040	7x4	0.5	0.5	1.4	17.5	330	88
430SEA04041	12x4	0.5	0.5	1.6	23.5	570	118
430SEA04042	19x4	0.5	0.5	1.8	28	880	140
435SEA04038	1x4	0.75	0.6	1.1	9	95	45
435SEA04039	3x4	0.75	0.6	1.4	15.5	260	78
435SEA04040	7x4	0.75	0.6	1.6	21	550	105
435SEA04041	12x4	0.75	0.6	1.9	28	830	140
435SEA04042	19x4	0.75	0.6	2.1	33.5	1300	168
445SEA04038	1x4	1.5	0.6	1.1	10	140	50
445SEA04039	3x4	1.5	0.6	1.4	17.5	410	88
445SEA04040	7x4	1.5	0.6	1.7	23	740	115
445SEA04041	12x4	1.5	0.6	1.9	32	1250	160
445SEA04042	19x4	1.5	0.6	2.2	38	1980	190

FIRE RESISTANT

TKSEA04 IFRSOS

CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT
SHIELDED OUT OF TOTAL (OVERALL) AND INDIVIDUALLY SHIELDED

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	Belt fire barrier + XLPE
Identification of leads	see page 104
Shielding on individual couple,	
Third or fourth	Belt Al/mylar + continuity cord
Shielding on total	Belt Al/mylar + continuity cord
Sheath	Halogen Free ShF1
External sheath colour	Orange or other colours on request
Marking	Teknikabel (TO) - ITALY - (week/year) - TKSEA04IFRSOS - formation- 150/250 V - -IEC 60332-3-22 - IEC 60331-21 - metric

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Fire resistance	IEC 60331-21
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

European Directive 2002/95/CE and 2005/618/CE (RoHS – Reduction of Hazardous Substance) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)

Note:

Constructions other than those listed are available on request

TKSEA 04 IFRSOS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT. INDIVIDUALLY SHIELDED. SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
430SEA04043	1x2	0.5	0.5	1	6.5	50	33
430SEA04044	2x2	0.5	0.5	1.2	10.5	95	53
430SEA04045	4x2	0.5	0.5	1.2	12.5	160	63
430SEA04046	7x2	0.5	0.5	1.3	15	225	75
430SEA04047	10x2	0.5	0.5	1.5	19.5	345	98
430SEA04048	12x2	0.5	0.5	1.5	20	405	100
430SEA04049	14x2	0.5	0.5	1.6	21.5	425	108
430SEA04050	19x2	0.5	0.5	1.7	24	555	120
430SEA04051	24x2	0.5	0.5	1.8	28.5	690	143
430SEA04052	27x2	0.5	0.5	1.9	29.5	805	148
430SEA04053	30x2	0.5	0.5	1.9	30.5	850	153
435SEA04043	1x2	0.75	0.6	1	7.5	65	38
435SEA04044	2x2	0.75	0.6	1.2	12.5	130	63
435SEA04045	4x2	0.75	0.6	1.3	14.5	205	73
435SEA04046	7x2	0.75	0.6	1.4	17.5	315	88
435SEA04047	10x2	0.75	0.6	1.6	23	395	115
435SEA04048	12x2	0.75	0.6	1.7	24	520	120
435SEA04049	14x2	0.75	0.6	1.7	25.5	600	128
435SEA04050	19x2	0.75	0.6	1.8	28.5	760	143
435SEA04051	24x2	0.75	0.6	2	34	930	170
435SEA04052	27x2	0.75	0.6	2	34.5	1005	173
435SEA04053	30x2	0.75	0.6	2.1	36	1120	180
440SEA04043	1x2	1	0.6	1.1	8	70	40
440SEA04044	2x2	1	0.6	1.2	13	145	65
440SEA04045	4x2	1	0.6	1.3	15	245	75
440SEA04046	7x2	1	0.6	1.5	18.5	390	93
440SEA04047	10x2	1	0.6	1.7	24	500	120
440SEA04048	12x2	1	0.6	1.7	25	630	125
440SEA04049	14x2	1	0.6	1.7	26	715	130
440SEA04050	19x2	1	0.6	1.9	29.5	915	148
440SEA04051	24x2	1	0.6	2	35	1120	175
440SEA04052	27x2	1	0.6	2.4	36.5	1220	183
440SEA04053	30x2	1	0.6	2.2	37	1380	185

FIRE RESISTANT

TKSEA 04 IFRSOS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT, INDIVIDUALLY SHIELDED, SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
445SEA04043	1x2	1.5	0.6	1.1	8.5	90	43
445SEA04044	2x2	1.5	0.6	1.3	14	175	70
445SEA04045	4x2	1.5	0.6	1.4	16.5	285	83
445SEA04046	7x2	1.5	0.6	1.5	20	435	100
445SEA04047	10x2	1.5	0.6	1.8	26.5	640	133
445SEA04048	12x2	1.5	0.6	1.8	27	760	135
445SEA04049	14x2	1.5	0.6	1.9	29	840	145
445SEA04050	19x2	1.5	0.6	2	32.5	1115	163
445SEA04051	24x2	1.5	0.6	2.2	38.5	1370	193
445SEA04052	27x2	1.5	0.6	2.2	39.5	1510	198
445SEA04053	30x2	1.5	0.6	2.3	41	1680	205

455SEA04043	1x2	2.5	0.6	1.1	9.5	115	48
455SEA04044	2x2	2.5	0.6	1.4	16	235	80
455SEA04045	4x2	2.5	0.6	1.5	19	385	95
455SEA04046	7x2	2.5	0.6	1.6	23	650	115
455SEA04047	10x2	2.5	0.6	1.9	30	910	50
455SEA04048	12x2	2.5	0.6	1.9	31	1050	155
455SEA04049	14x2	2.5	0.6	2	33	1195	165
455SEA04050	19x2	2.5	0.6	2.2	37.5	1615	188
455SEA04051	24x2	2.5	0.6	2.4	44.5	1965	223
455SEA04052	27x2	2.5	0.6	2.5	45.5	2220	228
455SEA04053	30x2	2.5	0.6	2.5	47.5	2480	238

430SEA04054	1x3	0.5	0.5	1	7	65	35
430SEA04055	3x3	0.5	0.5	1.2	12	155	60
430SEA04056	7x3	0.5	0.5	1.4	16.5	310	83
430SEA04057	12x3	0.5	0.5	1.6	22	470	110
430SEA04058	19x3	0.5	0.5	1.7	26.5	780	133

TKSEA 04 IFRSOS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT. INDIVIDUALLY SHIELDED. SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
435SEA04054	1x3	0.75	0.6	1	8	85	40
435SEA04055	3x3	0.75	0.6	1.3	14.5	205	73
435SEA04056	7x3	0.75	0.6	1.5	19.5	3805	98
435SEA04057	12x3	0.75	0.6	1.8	26.5	700	133
435SEA04058	19x3	0.75	0.6	1.9	31	1020	155
445SEA04054	1x3	1.5	0.6	1.1	9	100	45
445SEA04055	3x3	1.5	0.6	1.4	16.5	295	83
445SEA04056	7x3	1.5	0.6	1.6	22	600	110
445SEA04057	12x3	1.5	0.6	1.9	30	1010	150
445SEA04058	19x3	1.5	0.6	2.1	35.5	1600	178
430SEA04059	1x4	0.5	0.5	1	7.5	70	38
430SEA04060	3x4	0.5	0.5	1.2	13	175	65
430SEA04061	7x4	0.5	0.5	1.4	17.5	340	88
430SEA04062	12x4	0.5	0.5	1.6	23.5	575	118
430SEA04063	19x4	0.5	0.5	1.8	28	900	140
435SEA04059	1x4	0.75	0.6	1.1	9	95	45
435SEA04060	3x4	0.75	0.6	1.4	15.5	270	78
435SEA04061	7x4	0.75	0.6	1.6	21	560	105
435SEA04062	12x4	0.75	0.6	1.9	28	840	140
435SEA04063	19x4	0.75	0.6	2.1	33.5	1320	168
445SEA04059	1x4	1.5	0.6	1.1	10	140	50
445SEA04060	3x4	1.5	0.6	1.4	17.5	415	88
445SEA04061	7x4	1.5	0.6	1.7	23	750	115
445SEA04062	12x4	1.5	0.6	1.9	32	1270	160
445SEA04063	19x4	1.5	0.6	2.2	38	2020	190

TKSEA04 IFRA CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT SHIELDED

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	Belt flame barrier + XLPE
Identification of leads	see page 104
Armour	Red copper braid covering ≥ 85% (<i>Steel or Copper tin-plated on request</i>)
Sheath	Halogen Free ShF1
External sheath colour	Orange or other colours on request
Marking	Tecnikabel (TO) - ITALY - (week/year) - TKSEA04IFRA - formation- 150/250 V - -IEC 60332-3-22 - IEC 60331-21 – metric

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Fire resistance	IEC 60331-21
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

European Directive 2002/95/CE and 2005/618/CE (RoHS – Reduction of Hazardous Substance) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)

Note:

Constructions other than those listed are available on request

TKSEA 04 IFRA CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT. ARMOURED

TECNIKABEL	FORMATION	SECTION	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
CODE		mm ²					
530SEA04001	1x2	0.5	0.5	1	7.5	65	30
530SEA04002	2x2	0.5	0.5	1.2	11.5	110	46
530SEA04003	4x2	0.5	0.5	1.3	13	180	52
530SEA04004	7x2	0.5	0.5	1.4	16	280	64
530SEA04005	10x2	0.5	0.5	1.5	20.5	400	82
530SEA04006	12x2	0.5	0.5	1.6	21	480	84
530SEA04007	14x2	0.5	0.5	1.6	22	520	88
530SEA04008	19x2	0.5	0.5	1.7	25	705	100
530SEA04009	24x2	0.5	0.5	1.9	29	800	116
530SEA04010	27x2	0.5	0.5	1.9	30	880	120
530SEA04011	30x2	0.5	0.5	1.9	31	950	124
535SEA04001	1x2	0.75	0.6	1	8	95	32
535SEA04002	2x2	0.75	0.6	1.3	13	170	52
535SEA04003	4x2	0.75	0.6	1.4	15.5	290	62
535SEA04004	7x2	0.75	0.6	1.5	18.5	430	74
535SEA04005	10x2	0.75	0.6	1.7	24	500	96
535SEA04006	12x2	0.75	0.6	1.7	25	620	100
535SEA04007	14x2	0.75	0.6	1.7	26	665	104
535SEA04008	19x2	0.75	0.6	1.8	29	880	116
535SEA04009	24x2	0.75	0.6	2	34.5	1010	138
535SEA04010	27x2	0.75	0.6	2.1	35.5	1250	142
535SEA04011	30x2	0.75	0.6	2.1	36.5	1270	146
540SEA04001	1x2	1	0.6	1	8.5	100	34
540SEA04002	2x2	1	0.6	1.3	14	180	56
540SEA04003	4x2	1	0.6	1.4	16	315	64
540SEA04004	7x2	1	0.6	1.5	19.5	440	78
540SEA04005	10x2	1	0.6	1.7	25	580	100
540SEA04006	12x2	1	0.6	1.7	25.5	695	102
540SEA04007	14x2	1	0.6	1.8	27	760	108
540SEA04008	19x2	1	0.6	1.9	30	1010	120
540SEA04009	24x2	1	0.6	2.1	36	1265	144
540SEA04010	27x2	1	0.6	2.2	37	1375	148
540SEA04011	30x2	1	0.6	2.2	38	1580	152

FIRE RESISTANT

TKSEA 04 IFRA CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT. ARMOURED

TECNIKABEL	FORMATION	SECTION	NOMINAL INSUL.	NOMINAL SHEATH	NOMINAL EXTERNAL	NOMINAL	MINIMUM BENDING
CODE		mm ²	THICKNESS mm	THICKNESS mm	DIAmmETER mm	WEIGHT kg/km	RADIUS mm
545SEA04001	1x2	1.5	0.6	1.1	9.5	125	38
545SEA04002	2x2	1.5	0.6	1.3	14.5	225	58
545SEA04003	4x2	1.5	0.6	1.4	17	400	68
545SEA04004	7x2	1.5	0.6	1.6	21.5	640	86
545SEA04005	10x2	1.5	0.6	1.8	27	810	108
545SEA04006	12x2	1.5	0.6	1.8	28	930	112
545SEA04007	14x2	1.5	0.6	1.9	29.5	1080	118
545SEA04008	19x2	1.5	0.6	2	33	1320	132
545SEA04009	24x2	1.5	0.6	2.2	39.5	1800	158
545SEA04010	27x2	1.5	0.6	2.3	40.5	1990	162
545SEA04011	30x2	1.5	0.6	2.3	42	2090	168

555SEA04001	1x2	2.5	0.6	1.2	10.5	170	42
555SEA04002	2x2	2.5	0.6	1.4	17	320	68
555SEA04003	4x2	2.5	0.6	1.5	20	530	80
555SEA04004	7x2	2.5	0.6	1.7	24	760	96
555SEA04005	10x2	2.5	0.6	1.9	31	1130	124
555SEA04006	12x2	2.5	0.6	2	32	1320	128
555SEA04007	14x2	2.5	0.6	2	34	1450	136
555SEA04008	19x2	2.5	0.6	2.2	38.5	1900	154
555SEA04009	24x2	2.5	0.6	2.5	45.5	2500	182
555SEA04010	27x2	2.5	0.6	2.5	46.5	2600	186
555SEA04011	30x2	2.5	0.6	2.6	48.5	3000	194

530SEA04012	1x3	0.5	0.5	1.1	8	90	32
530SEA04013	3x3	0.5	0.5	1.3	13	200	52
530SEA04014	7x3	0.5	0.5	1.4	17.5	350	70
530SEA04015	12x3	0.5	0.5	1.6	23	600	92
530SEA04016	19x3	0.5	0.5	1.8	27.5	900	110

SPECIAL CABLES FOR
TKSEA04®
M A R I N E S H I P B O A R D

TKSEA 04 IFRA CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT. ARMoured

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
535SEA04012	1x3	0.75	0.6	1.1	9	110	36
535SEA04013	3x3	0.75	0.6	1.4	15.5	280	62
535SEA04014	7x3	0.75	0.6	1.5	20.5	500	82
535SEA04015	12x3	0.75	0.6	1.8	27	800	108
535SEA04016	19x3	0.75	0.6	2	32.5	1160	130
545SEA04012	1x3	1.5	0.6	1.1	9.5	150	38
545SEA04013	3x3	1.5	0.6	1.4	17.5	400	70
545SEA04014	7x3	1.5	0.6	1.6	23	750	92
545SEA04015	12x3	1.5	0.6	1.9	31	1200	124
545SEA04016	19x3	1.5	0.6	2.1	37	1700	148
530SEA04017	1x4	0.5	0.5	1	8.5	100	34
530SEA04018	3x4	0.5	0.5	1.2	13.5	230	54
530SEA04019	7x4	0.5	0.5	1.4	18	440	72
530SEA04020	12x4	0.5	0.5	1.6	24.5	740	98
530SEA04021	19x4	0.5	0.5	1.8	28.5	1000	114
535SEA04017	1x4	0.75	0.6	1.1	10	150	40
535SEA04018	3x4	0.75	0.6	1.4	16	350	64
535SEA04019	7x4	0.75	0.6	1.6	21	600	84
535SEA04020	12x4	0.75	0.6	1.9	28.5	1050	114
535SEA04021	19x4	0.75	0.6	2.1	34	1580	136
545SEA04017	1x4	1.5	0.6	1.1	10.5	200	42
545SEA04018	3x4	1.5	0.6	1.5	18.5	500	74
545SEA04019	7x4	1.5	0.6	1.7	24	900	96
545SEA04020	12x4	1.5	0.6	2	33	1550	132
545SEA04021	19x4	1.5	0.6	2.2	38.5	2400	154

TKSEA04 IFRASO

CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V
FIRE RESISTANT ARMOURED AND SHIELDED OUT OF TOTAL (OVERALL)

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	Belt fire barrier + XLPE
Identification of leads	see page 104
Shielding on total	Belt Al/mylar + continuity cord
Armour	Red copper braid covering ≥ 85% (<i>Steel or Copper tin-plated on request</i>)
Sheath	Halogen Free ShF1
External sheath colour	Orange or other colours on request
Marking	Tecnikabel (TO) - ITALY - (week/year) - TKSEA04IFRS0 - formation- 150/250 V - -IEC 60332-3-22 - IEC 60331-21 – metric

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Fire resistance	IEC 60331-21
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

European Directive 2002/95/CE and 2005/618/CE (RoHS – Reduction of Hazardous Substance) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)

Note:

Constructions other than those listed are available on request

SPECIAL CABLES FOR
TKSEA04®
M A R I N E S H I P B O A R D

TKSEA 04 IFRASO CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT. ARMoured. SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
530SEA04022	1x2	0.5	0.5	1	6.5	50	26
530SEA04023	2x2	0.5	0.5	1.2	10.5	85	42
530SEA04024	4x2	0.5	0.5	1.2	12	135	48
530SEA04025	7x2	0.5	0.5	1.3	15	210	60
530SEA04026	10x2	0.5	0.5	1.5	19	310	76
530SEA04027	12x2	0.5	0.5	1.5	20	350	80
530SEA04028	14x2	0.5	0.5	1.6	21	400	84
530SEA04029	19x2	0.5	0.5	1.7	23.5	510	94
530SEA04030	24x2	0.5	0.5	1.8	28	645	112
530SEA04031	27x2	0.5	0.5	1.8	28.5	710	114
530SEA04032	30x2	0.5	0.5	1.9	30	755	120
535SEA04022	1x2	0.75	0.6	1	7.5	70	30
535SEA04023	2x2	0.75	0.6	1.2	12	130	48
535SEA04024	4x2	0.75	0.6	1.3	14	200	56
535SEA04025	7x2	0.75	0.6	1.4	17.5	320	70
535SEA04026	10x2	0.75	0.6	1.6	22.5	405	90
535SEA04027	12x2	0.75	0.6	1.6	23.5	515	94
535SEA04028	14x2	0.75	0.6	1.7	24.5	550	98
535SEA04029	19x2	0.75	0.6	1.8	28	750	112
535SEA04030	24x2	0.75	0.6	2	33	985	132
535SEA04031	27x2	0.75	0.6	2	34	1020	136
535SEA04032	30x2	0.75	0.6	2.1	35	1050	140
540SEA04022	1x2	1	0.6	1.1	8	70	32
540SEA04023	2x2	1	0.6	1.2	12.5	140	50
540SEA04024	4x2	1	0.6	1.3	14.5	240	58
540SEA04025	7x2	1	0.6	1.4	18	365	72
540SEA04026	10x2	1	0.6	1.6	23.5	505	94
540SEA04027	12x2	1	0.6	1.6	24	570	96
540SEA04028	14x2	1	0.6	1.7	25.5	620	102
540SEA04029	19x2	1	0.6	1.8	259	985	116
540SEA04030	24x2	1	0.6	2	34	1090	136
540SEA04031	27x2	1	0.6	2	35	1140	140
540SEA04032	30x2	1	0.6	2	36	1325	144

FIRE RESISTANT

TKSEA 04 IFRASO CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT. ARMoured. SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
545SEA04022	1x2	1.5	0.6	1.1	8.5	90	34
545SEA04023	2x2	1.5	0.6	1.3	13.5	180	54
545SEA04024	4x2	1.5	0.6	1.4	16	290	64
545SEA04025	7x2	1.5	0.6	1.5	20	495	80
545SEA04026	10x2	1.5	0.6	1.7	25	610	100
545SEA04027	12x2	1.5	0.6	1.8	27	740	108
545SEA04028	14x2	1.5	0.6	1.8	28	840	112
545SEA04029	19x2	1.5	0.6	2	32	1055	128
545SEA04030	24x2	1.5	0.6	2.1	37.5	1355	150
545SEA04031	27x2	1.5	0.6	2.2	39	1525	156
545SEA04032	30x2	1.5	0.6	2.3	40	1650	160
555SEA04022	1x2	2.5	0.6	1.1	9.5	125	38
555SEA04023	2x2	2.5	0.6	1.4	15.5	240	62
555SEA04024	4x2	2.5	0.6	1.5	18.5	370	74
555SEA04025	7x2	2.5	0.6	1.6	22.5	620	90
555SEA04026	10x2	2.5	0.6	1.9	30	910	120
555SEA04027	12x2	2.5	0.6	1.9	31	1025	124
555SEA04028	14x2	2.5	0.6	2	32.5	1190	130
555SEA04029	19x2	2.5	0.6	2.1	36.5	1540	146
555SEA04030	24x2	2.5	0.6	2.4	43.5	1960	174
555SEA04031	27x2	2.5	0.6	2.4	44.5	2165	178
555SEA04032	30x2	2.5	0.6	2.5	46.5	2420	186
530SEA04033	1x3	0.5	0.5	1	7	65	28
530SEA04034	3x3	0.5	0.5	1.2	12	150	48
530SEA04035	7x3	0.5	0.5	1.4	16	280	64
530SEA04036	12x3	0.5	0.5	1.6	21.5	470	86
530SEA04037	19x3	0.5	0.5	1.7	26	740	104

SPECIAL CABLES FOR
TKSEA04®
 MARINE SHIP BOARD

TKSEA 04 IFRASO CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT. ARMoured. SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
535SEA04033	1x3	0.75	0.6	1.1	8	75	32
535SEA04034	3x3	0.75	0.6	1.3	14	205	56
535SEA04035	7x3	0.75	0.6	1.5	19	375	76
535SEA04036	12x3	0.75	0.6	1.7	26	680	104
535SEA04037	19x3	0.75	0.6	1.9	31	990	124
545SEA04033	1x3	1.5	0.6	1.1	9	110	36
545SEA04034	3x3	1.5	0.6	1.4	16	285	64
545SEA04035	7x3	1.5	0.6	1.6	22	600	88
545SEA04036	12x3	1.5	0.6	1.9	29.5	1000	118
545SEA04037	19x3	1.5	0.6	2.1	35	1510	140
530SEA04038	1x4	0.5	0.5	1	8.5	70	34
530SEA04039	3x4	0.5	0.5	1.2	13.5	170	54
530SEA04040	7x4	0.5	0.5	1.4	18	330	72
530SEA04041	12x4	0.5	0.5	1.6	24.5	570	98
530SEA04042	19x4	0.5	0.5	1.8	28.5	840	114
535SEA04038	1x4	0.75	0.6	1.1	10	100	40
535SEA04039	3x4	0.75	0.6	1.4	16	260	64
535SEA04040	7x4	0.75	0.6	1.6	21	515	84
535SEA04041	12x4	0.75	0.6	1.9	28.5	840	114
535SEA04042	19x4	0.75	0.6	2.1	34	1320	136
545SEA04038	1x4	1.5	0.6	1.1	10.5	135	42
545SEA04039	3x4	1.5	0.6	1.5	18.5	400	74
545SEA04040	7x4	1.5	0.6	1.7	24	730	96
545SEA04041	12x4	1.5	0.6	2	33	1240	132
545SEA04042	19x4	1.5	0.6	2.2	38.5	1960	154

FIRE RESISTANT

TKSEA04 IFRASS

CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V
FIRE RESISTANT ARMOURED AND INDIVIDUALLY SHIELDED

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	Belt flame barrier + XLPE
Identification of leads	see page 104
Shielding on individual couple,	
Third or fourth	Belt Al/mylar + continuity cord
Armour	Red copper braid covering ≥ 85% (<i>Steel or Copper tin-plated on request</i>)
Sheath	Halogen Free ShF1
External sheath colour	Orange or other colours on request
Marking	Teknikabel (TO) - ITALY - (week/year) - TKSEA04IFRSS- formation- 150/250 V - -IEC 60332-3-22 - IEC 60331-21 – metric

TECHNICAL DATA

Operating voltage	150 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Fire resistance	IEC 60331-21
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

European Directive 2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substance) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)

Note:

Constructions other than those listed are available on request

TKSEA 04 IFRASS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT. ARMoured. INDIVIDUALLY SHIELDED

TECNIKABEL CODE	FORMATION	SECTION mm²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
530SEA04043	1x2	0.5	0.5	1	7.5	75	38
530SEA04044	2x2	0.5	0.5	1.1	11.5	120	58
530SEA04045	4x2	0.5	0.5	1.3	13.5	190	68
530SEA04046	7x2	0.5	0.5	1.4	16	280	80
530SEA04047	10x2	0.5	0.5	1.5	21	400	105
530SEA04048	12x2	0.5	0.5	1.6	21.5	440	108
530SEA04049	14x2	0.5	0.5	1.6	22.5	470	113
530SEA04050	19x2	0.5	0.5	1.7	25.5	630	128
530SEA04051	24x2	0.5	0.5	1.9	30	800	150
530SEA04052	27x2	0.5	0.5	1.9	30.5	850	153
530SEA04053	30x2	0.5	0.5	2	32	950	160
535SEA04043	1x2	0.75	0.6	1.1	8.5	95	43
535SEA04044	2x2	0.75	0.6	1.3	13.5	190	68
535SEA04045	4x2	0.75	0.6	1.3	15.5	260	78
535SEA04046	7x2	0.75	0.6	1.5	19	380	95
535SEA04047	10x2	0.75	0.6	1.7	24.5	550	123
535SEA04048	12x2	0.75	0.6	1.7	25	600	125
535SEA04049	14x2	0.75	0.6	1.8	26.5	680	133
535SEA04050	19x2	0.75	0.6	1.9	30	880	150
535SEA04051	24x2	0.75	0.6	2	35	1080	175
535SEA04052	27x2	0.75	0.6	2.1	36	1160	180
535SEA04053	30x2	0.75	0.6	2.2	37	1230	185
540SEA04043	1x2	1	0.6	1	8.5	95	43
540SEA04044	2x2	1	0.6	1.3	14	190	70
540SEA04045	4x2	1	0.6	1.4	16.5	290	83
540SEA04046	7x2	1	0.6	1.5	19.5	420	98
540SEA04047	10x2	1	0.6	1.7	25	590	125
540SEA04048	12x2	1	0.6	1.8	26	680	130
540SEA04049	14x2	1	0.6	1.8	27.5	770	138
540SEA04050	19x2	1	0.6	1.9	31	1050	155
540SEA04051	24x2	1	0.6	2.1	36	1200	180
540SEA04052	27x2	1	0.6	2.2	37	1300	185
540SEA04053	30x2	1	0.6	2.2	38.5	1450	193

FIRE RESISTANT

TKSEA 04 IFRASS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT. ARMoured. INDIVIDUALLY SHIELDED

TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
545SEA04043	1x2	1.5	0.6	1.1	9.5	120	48
545SEA04044	2x2	1.5	0.6	1.3	15	230	75
545SEA04045	4x2	1.5	0.6	1.4	17	325	85
545SEA04046	7x2	1.5	0.6	1.6	21.5	540	108
545SEA04047	10x2	1.5	0.6	1.8	27.5	760	138
545SEA04048	12x2	1.5	0.6	1.8	28.5	870	143
545SEA04049	14x2	1.5	0.6	1.9	30	960	150
545SEA04050	19x2	1.5	0.6	2	33.5	1210	168
545SEA04051	24x2	1.5	0.6	2.3	40.5	1650	203
545SEA04052	27x2	1.5	0.6	2.3	41	1750	205
545SEA04053	30x2	1.5	0.6	2.4	42.5	1900	213
555SEA04043	1x2	2.5	0.6	1.2	10.5	150	53
555SEA04044	2x2	2.5	0.6	1.4	17	300	85
555SEA04045	4x2	2.5	0.6	1.5	20	480	100
555SEA04046	7x2	2.5	0.6	1.7	24.5	750	123
555SEA04047	10x2	2.5	0.6	1.9	31.5	1040	158
555SEA04048	12x2	2.5	0.6	2	32.5	1160	163
555SEA04049	14x2	2.5	0.6	2.1	34.5	1360	173
555SEA04050	19x2	2.5	0.6	2.2	39	1810	195
555SEA04051	24x2	2.5	0.6	2.5	46	2280	230
555SEA04052	27x2	2.5	0.6	2.5	47	2450	235
555SEA04053	30x2	2.5	0.6	2.6	49	2800	245
530SEA04054	1x3	0.5	0.5	1	8	80	40
530SEA04055	3x3	0.5	0.5	1.3	13	190	65
530SEA04056	7x3	0.5	0.5	1.4	18	370	90
530SEA04057	12x3	0.5	0.5	1.7	23.5	580	118
530SEA04058	19x3	0.5	0.5	1.8	28	850	140

SPECIAL CABLES FOR
TKSEA04®
 MARINE SHIP BOARD

TKSEA 04 IFRASO CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT. ARMoured. INDIVIDUALLY SHIELDED

TECNIKABEL	FORMATION	SECTION	NOMINAL INSUL.	NOMINAL SHEATH	NOMINAL EXTERNAL	NOMINAL	MINIMUM BENDING
CODE		mm²	THICKNESS mm	THICKNESS mm	DIAMETER mm	WEIGHT kg/km	RADIUS mm
530SEA04054	1x3	0.75	0.6	1.4	9.5	120	48
530SEA04055	3x3	0.75	0.6	1.4	15.5	290	78
530SEA04056	7x3	0.75	0.6	1.6	21	550	105
530SEA04057	12x3	0.75	0.6	1.8	27.5	820	138
530SEA04058	19x3	0.75	0.6	2	32.5	1150	163
545SEA04054	1x3	1.5	0.6	1.1	9.5	140	48
545SEA04055	3x3	1.5	0.6	1.4	17.5	400	88
545SEA04056	7x3	1.5	0.6	1.6	23.5	740	118
545SEA04057	12x3	1.5	0.6	1.9	33	1300	165
545SEA04058	19x3	1.5	0.6	2.1	37	1680	185
530SEA04059	1x4	0.5	0.5	1.1	8.5	100	43
530SEA04060	3x4	0.5	0.5	1.3	14	240	70
530SEA04061	7x4	0.5	0.5	1.5	18.5	440	93
530SEA04062	12x4	0.5	0.5	1.7	25	740	125
530SEA04063	19x4	0.5	0.5	1.8	29.5	1050	148
535SEA04059	1x4	0.75	0.6	1.1	10	105	50
535SEA04060	3x4	0.75	0.6	1.4	16.5	350	83
535SEA04061	7x4	0.75	0.6	1.6	22	650	110
535SEA04062	12x4	0.75	0.6	1.9	29	980	145
535SEA04063	19x4	0.75	0.6	2.1	34.5	1450	173
545SEA04059	1x4	1.5	0.6	1.2	11	150	55
545SEA04060	3x4	1.5	0.6	1.5	19	500	95
545SEA04061	7x4	1.5	0.6	1.7	25	900	125
545SEA04062	12x4	1.5	0.6	2	34	1500	170
545SEA04063	19x4	1.5	0.6	2.2	39.5	2200	198

TKSEA04 IFRASOS

CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT
ARMOURED, INDIVIDUALLY SHIELDED AND SHIELDED OUT OF TOTAL

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	Belt flame barrier + XLPE
Identification of leads	see page 104
Shielding on individual couple,	
Third or fourth	Belt Al/mylar + continuity cord
Shielding on total	Belt Al/mylar + continuity cord
Armour	Red copper plait covering \geq 85% (<i>Steel or Copper tin-plated on request</i>)
Sheath	Halogen Free ShF1
External sheath colour	Orange or other colours on request
Marking	Tecnikabel (TO) - ITALY - (week/year) - TKSEA04IFRASOS - formation- 150/250 V -IEC 60332-3-22 - IEC 60331-21 - metric

TECHNICAL DATA

Operating voltage	150 \div 250 V
Test voltage	1500 V AC
Operating temperature	-40°C \div +90°C
Installation temperature	-5°C \div +60°C
Storage temperature	-40°C \div +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Fire resistance	IEC 60331-21
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

European Directive 2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substance) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)

Note:

Constructions other than those listed are available on request

TKSEA04 IFRASOS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT. ARMOURED. INDIVIDUALLY SHIELDED AND SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
530SEA04064	1x2	0.5	0.5	1	7.5	75	38
530SEA04065	2x2	0.5	0.5	1.1	11.5	120	58
530SEA04066	4x2	0.5	0.5	1.3	13.5	195	68
530SEA04067	7x2	0.5	0.5	1.4	16	285	80
530SEA04068	10x2	0.5	0.5	1.5	21	405	105
530SEA04069	12x2	0.5	0.5	1.6	21.5	450	108
530SEA04070	14x2	0.5	0.5	1.6	22.5	480	113
530SEA04071	19x2	0.5	0.5	1.7	25.5	640	128
530SEA04072	24x2	0.5	0.5	1.9	30	815	150
530SEA04073	27x2	0.5	0.5	1.9	30.5	865	153
530SEA04074	30x2	0.5	0.5	2	32	970	160
535SEA04064	1x2	0.75	0.6	1.1	8.5	95	43
535SEA04065	2x2	0.75	0.6	1.3	13.5	195	68
535SEA04066	4x2	0.75	0.6	1.3	15.5	265	78
535SEA04067	7x2	0.75	0.6	1.5	19	385	95
535SEA04068	10x2	0.75	0.6	1.7	24.5	560	123
535SEA04069	12x2	0.75	0.6	1.7	25	610	125
535SEA04070	14x2	0.75	0.6	1.8	26.5	690	133
535SEA04071	19x2	0.75	0.6	1.9	30	895	150
535SEA04072	24x2	0.75	0.6	2	35	1100	175
535SEA04073	27x2	0.75	0.6	2.1	36	1180	180
535SEA04074	30x2	0.75	0.6	2.2	37	1250	185
540SEA04064	1x2	1	0.6	1	8.5	95	43
540SEA04065	2x2	1	0.6	1.3	14	195	70
540SEA04066	4x2	1	0.6	1.4	16.5	295	83
540SEA04067	7x2	1	0.6	1.5	19.5	430	98
540SEA04068	10x2	1	0.6	1.7	25	600	125
540SEA04069	12x2	1	0.6	1.8	26	695	130
540SEA04070	14x2	1	0.6	1.8	27.5	785	138
540SEA04071	19x2	1	0.6	1.9	31	1070	155
540SEA04072	24x2	1	0.6	2.1	36	1220	180
540SEA04073	27x2	1	0.6	2.2	37	1325	185
540SEA04074	30x2	1	0.6	2.2	38.5	1475	193

FIRE RESISTANT

TKSEA04 IFRASOS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT. ARMOURED. INDIVIDUALLY SHIELDED AND SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
545SEA04064	1x2	1.5	0.6	1.1	9.5	120	48
545SEA04065	2x2	1.5	0.6	1.3	15	235	75
545SEA04066	4x2	1.5	0.6	1.4	17	330	85
545SEA04067	7x2	1.5	0.6	1.6	21.5	545	108
545SEA04068	10x2	1.5	0.6	1.8	27.5	770	138
545SEA04069	12x2	1.5	0.6	1.8	28.5	870	143
545SEA04070	14x2	1.5	0.6	1.9	30	970	150
545SEA04071	19x2	1.5	0.6	2	33.5	1215	168
545SEA04072	24x2	1.5	0.6	2.3	40.5	1670	203
545SEA04073	27x2	1.5	0.6	2.3	41	1770	205
545SEA04074	30x2	1.5	0.6	2.4	42.5	1930	213
555SEA04064	1x2	2.5	0.6	1.2	10.5	150	53
555SEA04065	2x2	2.5	0.6	1.4	17	305	85
555SEA04066	4x2	2.5	0.6	1.5	20	485	100
555SEA04067	7x2	2.5	0.6	1.7	24.5	755	123
555SEA04068	10x2	2.5	0.6	1.9	31.5	1050	158
555SEA04069	12x2	2.5	0.6	2	32.5	1170	163
555SEA04070	14x2	2.5	0.6	2.1	34.5	1375	173
555SEA04071	19x2	2.5	0.6	2.2	39	1825	195
555SEA04072	24x2	2.5	0.6	2.5	46	2310	230
555SEA04073	27x2	2.5	0.6	2.5	47	2360	235
555SEA04074	30x2	2.5	0.6	2.6	49	2480	245
530SEA04075	1x3	0.5	0.5	1	8	80	40
530SEA04076	3x3	0.5	0.5	1.3	13	195	65
530SEA04077	7x3	0.5	0.5	1.4	18	375	90
530SEA04078	12x3	0.5	0.5	1.7	23.5	590	118
530SEA04079	19x3	0.5	0.5	1.8	28	865	140

SPECIAL CABLES FOR
TKSEA04®
M A R I N E S H I P B O A R D

TKSEA04 IFRASOS CONTROL AND SIGNAL CABLES (INSTRUMENTATION) 150/250 V FIRE RESISTANT. ARMOURED. INDIVIDUALLY SHIELDED AND SHIELDED OUT OF TOTAL

TECNIKABEL CODE	FORMATION	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
535SEA04075	1x3	0.75	0.6	1.1	9.5	120	48
535SEA04076	3x3	0.75	0.6	1.4	15.5	295	78
535SEA04077	7x3	0.75	0.6	1.6	21	560	105
535SEA04078	12x3	0.75	0.6	1.8	27.5	830	138
535SEA04079	19x3	0.75	0.6	2	32.5	1160	163
545SEA04075	1x3	1.5	0.6	1.1	9.5	140	48
545SEA04076	3x3	1.5	0.6	1.4	17.5	245	88
545SEA04077	7x3	1.5	0.6	1.6	23.5	750	118
545SEA04078	12x3	1.5	0.6	1.9	33	1315	165
545SEA04079	19x3	1.5	0.6	2.1	37	1700	185
530SEA04075	1x4	0.5	0.5	1.1	8.5	100	43
530SEA04076	3x4	0.5	0.5	1.3	14	245	70
530SEA04077	7x4	0.5	0.5	1.5	18.5	450	93
530SEA04078	12x4	0.5	0.5	1.7	25	755	125
530SEA04079	19x4	0.5	0.5	1.8	29.5	1070	148
535SEA04075	1x4	0.75	0.6	1.1	10	105	50
535SEA04076	3x4	0.75	0.6	1.4	16.5	355	83
535SEA04077	7x4	0.75	0.6	1.6	22	655	110
535SEA04078	12x4	0.75	0.6	1.9	29	990	145
535SEA04079	19x4	0.75	0.6	2.1	34.5	1460	173
545SEA04075	1x4	1.5	0.6	1.2	11	150	55
545SEA04076	3x4	1.5	0.6	1.5	19	505	95
545SEA04077	7x4	1.5	0.6	1.7	25	910	125
545SEA04078	12x4	1.5	0.6	2	34	1515	170
545SEA04079	19x4	1.5	0.6	2.2	39.5	2220	198

FIRE RESISTANT



TKSEA05

PRODUCT DESCRIPTION AND APPLICATION

Recommended for telecommunications, instrumentation and control.

The **TKSEA05®** series satisfies the requirements of Lloyd's Register and RINA standards and are designed and built in compliance with IEC standards.

The TKSEA05® series comprises:

- ▶ **TKSEA05 TI** Telecommunication, Control and Signal Cables (Telecommunication Instrumentation) 60/250 V



SPECIAL CABLES FOR
TKSEA05®
M A R I N E S H I P B O A R D

TKSEA05 TI

**TELECOMMUNICATION, CONTROL AND SIGNAL CABLES
(TELECOMMUNICATION INSTRUMENTATION) 60/250 V**

CABLE SPECIFICATIONS

Leads	Copper Red CEI 20-29 Class 2 - IEC 60228 Class 2 – VDE 0295 Class 2
Insulation	XLPE
Identification of leads	see page 104
Armour	Red copper plait covering ≥ 85% (<i>Steel or Copper tin-plated on request</i>)
Sheath	Halogen Free ShF1
External sheath colour	Grey or other colours on request
Marking	Tecnikabel (TO) - ITALY - (week/year) - TKSEA05TI - formation- 60/250 V - - IEC 60332-3-22 - metric

TECHNICAL DATA

Operating voltage	60 ÷ 250 V
Test voltage	1500 V AC
Operating temperature	-40°C ÷ +90°C
Installation temperature	-5°C ÷ +60°C
Storage temperature	-40°C ÷ +90°C

REFERENCE STANDARDS

Design and construction	IEC 60092 - 350 - IEC 60092-351 - IEC 60092 - 353 IEC 60092 - 359
Flame/fire propagation	IEC 60332 -1 - IEC 60332-3-22
Absence of halogens	IEC 60754-1 - IEC 60754-2
Low emission of fumes	IEC 61034-1 - IEC 61034-2

**European Directive 2002/95/CE and 2005/618/CE (RoHs – Reduction of Hazardous Substances) and
2002/96/CE and 2005/717/CE (WEEE – Waste from Electrical and Electronic Equipment)**

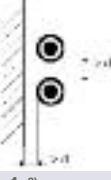
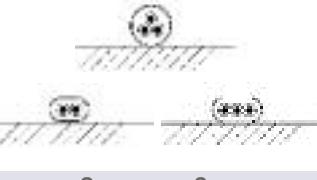
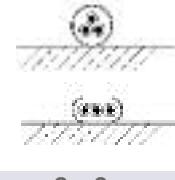
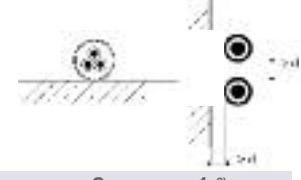
Note:

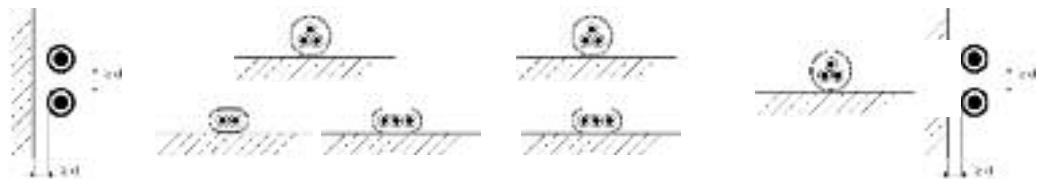
***Constructions other than those
listed are available on request***

TKSEA 05 TI COMMUNICATION, CONTROL AND SIGNAL CABLES (TELECOMMUNICATION INSTRUMENTATION) 60/250 V

TECNIKABEL CODE	FORMATION mm ²	SECTION mm ²	NOMINAL INSUL. THICKNESS mm	NOMINAL SHEATH THICKNESS mm	NOMINAL EXTERNAL DIAMETER mm	NOMINAL WEIGHT kg/km	MINIMUM BENDING RADIUS mm
530SEA05001	1x2	0.5	0.5	1	7	60	28
530SEA05002	2x2	0.5	0.5	1.1	10	100	40
530SEA05003	4x2	0.5	0.5	1.2	11.5	150	46
530SEA05004	7x2	0.5	0.5	1.3	14	240	56
530SEA05005	10x2	0.5	0.5	1.4	18	340	72
530SEA05006	14x2	0.5	0.5	1.5	19.5	430	78
530SEA05007	19x2	0.5	0.5	1.6	22	550	88
530SEA05008	24x2	0.5	0.5	1.7	25.5	660	102
530SEA05009	27x2	0.5	0.5	1.7	26	720	104
530SEA05010	30x2	0.5	0.5	1.7	27	800	108
530SEA05011	1x3	0.5	0.5	1	7	80	35
530SEA05012	1x4	0.5	0.5	1	7.5	90	30
530SEA05013	1x2	0.75	0.6	1	7.5	75	30
530SEA05014	2x2	0.75	0.6	1.2	12	140	48
530SEA05015	4x2	0.75	0.6	1.3	13.5	250	54
530SEA05016	7x2	0.75	0.6	1.4	17	350	68
530SEA05017	10x2	0.75	0.6	1.6	20.5	400	82
530SEA05018	14x2	0.75	0.6	1.6	23	550	92
530SEA05019	19x2	0.75	0.6	1.7	26	700	104
530SEA05020	24x2	0.75	0.6	1.9	31	850	124
530SEA05021	27x2	0.75	0.6	1.9	31.5	990	126
530SEA05022	30x2	0.75	0.6	2	32.5	1050	130

Cables and leads current capacity with nominal voltage up to 1000V

	A Unipolar cable insulation XLPE	B Multipolar cables and extensions for domestic and manual utilisation insulation XLPE	C Multipolar cables and extensions for domestic and manual utilisation insulation XLPE	D Multipolar cables in resistant rubber $\leq 0.6/1\text{ kV}$ Unipolar cables in special rubber 0.6/1 kV o 1.8/3 kV		
Installation method						
No. active leads	1 ³⁾	2	3	2 o 3	3	1 ³⁾
Nominal section mm ²	Capacity of current in A	Capacity of current in A	Capacity of current in A	Capacity of current in A	Capacity of current in A	Capacity of current in A
0.08 ¹⁾	1.5	-	-	1	-	-
0.14 ¹⁾	3	-	-	2	-	-
0.25 ¹⁾	5	-	-	4	-	-
0.34 ¹⁾	8	-	-	6	-	-
0.5	12 ²⁾	3	3	9 ²⁾	-	-
0.75	15	6	6	12	-	-
1.0	19	10	10	15	-	-
1.5	24	16	16	18	23	30
2.5	32	25	20	26	30	41
4	42	32	25	34	41	55
6	54	40	-	44	53	70
10	73	63	-	61	74	98



Installation method	No. active leads	1 ³⁾	2	3	2 + 3	3	1 ³⁾
Nominal section mm ²	Capacity of current in A						
16	98	-	-	82	99	132	
25	129	-	-	108	131	176	
35	158	-	-	135	162	218	
50	198	-	-	168	202	276	
70	245	-	-	207	250	347	
95	292	-	-	250	301	416	
120	344	-	-	292	-	488	
150	391	-	-	335	-	566	
185	448	-	-	382	-	644	
240	528	-	-	453	-	775	
300	608	-	-	523	-	898	
400	726	-	-	-	-	-	
500	830	-	-	-	-	-	

NOTES:

- 1) For smaller diameters (< 5 mm²) the current capacity values are in compliance with VDE 0891
 - 2) According to VDE 0298-4, 2003-08, table 11- column 2
 - 3) Positioning of unipolar cables in direct contact on a stratum or grouped together:
- Sections prior to proceeding with classification with subsequent tables, the currents in table 7 (column A or D), must be reduced in line with the following criteria:
 - 0.76 for monophase circuits in AC or DC
 - 0.67 for triphase circuits in AC
 - open to air or in raceway: prior to proceeding with classification with subsequent tables, the currents in table 7 (column A or D), must be reduced in line with the following criteria:
 - 0.8 for monophase circuits in AC or DC
 - 0.7 for triphase circuits in AC
 - Warning: for monoleads installed in pipes or ducts in/on walls see VDE 0298 table 3 or 5, column 2,3,6,7 or table 21.

Notes relative to the above table and following:
 Table 7, for some positions, sets out values marked as not referring to the VDE0298-4.
 The values in table 7 must be classed considering further conversion factors:
 Different environment temperature: see Table 8
 Groups of unipolar and multipolar cables in raceways and ducts laid in the floor and ceiling: see Table 9
 Groups of multipolar cables in raceway see Table 10

CURRENT CAPACITY- CLASSIFICATION TABLE
Conversion factors
Groups in walls. floors. ceilings. pipes or raceways
(According to DIN VDE 0298-4. 2003-08. Table 21)

Number of unipolar cables or alternating or triphase alternating current with unipolar leads (2 or 3 active leads)

Arrangement	1	2	3	4	5	6	7	8	9	10	12	14	16	18	20
Conversion factors. with current value in Table															
Grouping in pipes or raceways laid directly in contact with the wall or floor	1.00	0.80	0.70	0.65	0.60	0.57	0.54	0.52	0.50	0.48	0.45	0.43	0.41	0.39	0.38
Individual stratum in direct contact with wall or floor	1.00	0.85	0.79	0.75	0.73	0.72	0.72	0.71	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Individual stratum with space equal to the diameter of the cable between the wall or floor.	1.00	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Individual stratum positioned in direct contact under the ceiling.	1.00	0.81	0.72	0.68	0.66	0.64	0.63	0.62	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Individual stratum positioned under the ceiling with space equal to the diameter of the cable.	1.00	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85

Note: 0 = Unipolar or multipolar cable

The conversion factors are only applied to cables with electric loads sections.

Operating temperature permitted

Environment temperature C°	Conversion factors to be applied to the current capacity of table 7				
	60°	70°	80°	85°	90°
10	1.29	1.22	1.18	1.17	1.15
15	1.22	1.17	1.14	1.13	1.12
20	1.15	1.12	1.10	1.09	1.08
25	1.08	1.06	1.05	1.04	1.04
30	1.00	1.00	1.00	1.00	1.00
35	0.91	0.94	0.95	0.95	0.96
40	0.82	0.87	0.89	0.90	0.91
45	0.71	0.79	0.84	0.85	0.87
50	0.58	0.71	0.77	-	0.82
55	0.41	0.61	0.71	-	0.76
60	-	0.50	0.63	-	0.71
65	-	0.35	0.55	-	0.65
70	-	-	0.45	-	0.58
75	-	-	0.32	-	0.50
80	-	-	-	-	0.41
85	-	-	-	-	0.29

Conversion factors for multipolars

No. of active leads	Conversion factors Not beneath surface	Conversion factors	
		Beneath surface	Beneath surface
5	0.75	0.70	
7	0.65	0.60	
10	0.55	0.50	
14	0.50	0.45	
19	0.45	0.40	
24	0.40	0.35	
40	0.35	0.30	
61	0.30	0.25	

**TABLE 1 – CLASS 1
SINGLE WIRE LEADS
FOR UNIPOLAR AND MULTIPOLAR CABLES**

Nominal section	Max resistance of lead at 20 °C	
	Copper leads with circular cross-section	
mm ²	Naked Ω/km	Coated Ω/k
0.5	36.0	36.7
0.75	24.5	24.8
1.0	18.1	18.2
1.5	12.1	12.2
2.5	7.41	7.56
4	4.61	4.70
6	3.08	3.11
10	1.83	1.84
16	1.15	1.16
25	0.727	-
35	0.524	-
50	0.387	-
70	0.268	-
95	0.193	-
120	0.153	-
150	0.124	-
185	0.101	-
240	0.0775	-
300	0.0620	-
400	0.0465	-
500	-	-
630	-	-
800	-	-
1000	-	-

**TABLE 2 – CLASS 2
CORD LEADS FOR UNIPOLAR
AND MULTIPOLAR CABLES**

Nominal section	mm ²	Minimum number of wires in lead						Max resistance of lead at 20 °C		
		Circular	Compact	Sectorial	Cu	Al	Cu	Al	Naked Ω/km	Coated Ω/k
0.5	0.5	7	-	-	-	-	-	-	36.0	36.7
0.75	0.75	7	-	-	-	-	-	-	24.5	24.8
1.0	1.0	7	-	-	-	-	-	-	18.1	18.2
1.5	1.5	7	-	6	-	-	-	-	12.1	12.2
2.5	2.5	7	-	6	-	-	-	-	7.41	7.56
4	4	7	-	6	-	-	-	-	4.61	4.70
6	6	7	-	6	-	-	-	-	3.08	3.11
10	10	7	7	6	6	-	-	-	1.83	1.84
16	16	7	7	6	6	-	-	-	1.15	1.16
25	25	7	7	6	6	6	6	6	0.727	0.734
35	35	7	7	6	6	6	6	6	0.524	0.529
50	50	19	19	6	6	6	6	6	0.387	0.391
70	70	19	19	12	12	12	12	12	0.268	0.270
95	95	19	19	15	15	15	15	15	0.193	0.195
120	120	37	37	18	18	18	18	18	0.153	0.154
150	150	37	37	30	30	30	30	30	0.124	0.126
185	185	37	37	34	34	34	34	34	0.0754	0.0762
240	240	61	61	34	34	34	34	34	0.0601	0.0607
300	300	61	61	53	53	53	53	53	0.047	0.0475
400	400	61	61	53	53	53	53	53	0.0366	0.0369
500	500	91	91	53	53	53	53	53	0.0283	0.0286
630	630	91	91	53	53	-	-	-	0.0221	0.0224
800	800	91	91	53	53	-	-	-	0.0177	0.0291
1000	1000	91	91	53	53	-	-	-		

TABLE 3 – CLASS 5
COPPER FLEXIBLE LEADS
FOR UNIPOLAR AND MULTIPOLAR CABLES

Nominal section	Nominal section Max Diameter of wires in lead	Max resistance of lead at 20°C Copper leads with circular cross-section	
mm ²	mm	Naked Ω/km	Coated Ω/k
0.5	0.21	39.0	40.1
0.75	0.21	26.0	26.7
1.0	0.21	19.5	20.0
1.5	0.26	13.3	13.7
2.5	0.26	7.98	8.21
4	0.31	4.95	5.09
6	0.31	3.30	3.39
10	0.41	1.91	1.95
16	0.41	1.21	1.24
25	0.41	0.780	0.795
35	0.41	0.554	0.565
50	0.41	0.386	0.393
70	0.51	0.272	0.277
95	0.51	0.206	0.210
120	0.51	0.161	0.164
150	0.51	0.129	0.132
185	0.51	0.106	0.108
240	0.51	0.0801	0.0817
300	0.51	0.0641	0.0654
400	0.51	0.0486	0.0495
500	0.61	0.0384	0.0391
630	0.61	0.0287	0.0292

TABLE 4 – CLASS 6
COPPER FLEXIBLE LEADS
FOR UNIPOLAR AND MULTIPOLAR CABLES

Nominal section	Nominal section Max Diameter of wires in lead	Max resistance of lead at 20°C Copper leads with circular cross-section	
mm ²	mm	Naked Ω/km	Coated Ω/k
0.5	0.16	39.0	40.1
0.75	0.16	26.0	26.7
1.0	0.16	19.5	20.0
1.5	0.16	13.3	13.7
2.5	0.16	7.98	8.21
4	0.16	4.95	5.09
6	0.21	3.30	3.39
10	0.21	1.91	1.95
16	0.21	1.21	1.24
25	0.21	0.780	0.795
35	0.21	0.554	0.565
50	0.31	0.386	0.393
70	0.31	0.272	0.277
95	0.31	0.206	0.210
120	0.31	0.161	0.164
150	0.31	0.129	0.132
185	0.41	0.106	0.108
240	0.41	0.0801	0.0817
300	0.41	0.0641	0.0654
-	-	-	-
-	-	-	-
-	-	-	-

Identification

colour

		CABLE CONSTRUCTION	
	2x		
2 Leads		brown blue	3G
3 Leads	3x	black brown grey	brown blue yellow/green
4 Leads	4x	black brown blue grey	black brown yellow/green grey
5 Leads		yellow/green black blue brown grey	5G
Multileads		(2) (3) (7) (1) (4) (6) (5)	white numbered

COUPLED CABLES White/Black numbered

TRIPLE CABLES White/Black/Blue numbered

QUADRUPLE CABLES White/Black/Blue/Brown numbered

For all series of cables produced other colourations are available on request



NOTES

[REDACTED]

Lloyd's Register Certification

Lloyd's Register

Type Approval Certificate

This is to certify that the enclosed product, Anode live load and auxiliary static elevator with the listed reference, has been type approved.

The certificate is issued to:

PRODUCER: Tecnikaer S.r.l.
Via Villetta, 215
10088 Villetta (TO) Italy

DESCRIPTION: Anoden für live荷重と静的昇降機のための補助静的昇降機

TYPE: TKSEA 01, TKSEA 02, TKSEA 03, TKSEA 07

APPROVAL: This approval certifies that the above-mentioned product is acceptable for the intended operation.

SPECIFIED STANDARDS:

Classification	IEC 62209-100	IEC 62209-101	IEC 62209-102	IEC 62209-103	IEC 62209-104	IEC 62209-105	IEC 62209-106	IEC 62209-107	IEC 62209-108	IEC 62209-109	IEC 62209-110	IEC 62209-111	IEC 62209-112	IEC 62209-113	IEC 62209-114	IEC 62209-115	IEC 62209-116
Design standards	IEC 62209-100	IEC 62209-101	IEC 62209-102	IEC 62209-103	IEC 62209-104	IEC 62209-105	IEC 62209-106	IEC 62209-107	IEC 62209-108	IEC 62209-109	IEC 62209-110	IEC 62209-111	IEC 62209-112	IEC 62209-113	IEC 62209-114	IEC 62209-115	IEC 62209-116

Design drawings: IEC 62209-100
Test evidence: IEC 62209-101
Design review: IEC 62209-102
Manufacture: IEC 62209-103
Performance: IEC 62209-104
Performance test: IEC 62209-105
Final inspection: IEC 62209-106
Final test: IEC 62209-107
Final test report: IEC 62209-108
Final test results: IEC 62209-109
Final test report: IEC 62209-110
Final test results: IEC 62209-111
Final test report: IEC 62209-112
Final test results: IEC 62209-113
Final test report: IEC 62209-114
Final test results: IEC 62209-115
Final test report: IEC 62209-116
Final test results: IEC 62209-117
Final test report: IEC 62209-118

Certification No.: LR/08/02
Issue Date: 10 December 2009
Expiry Date: 10 December 2014
Model: Type 01

M. Maseri
M. Maseri
Landa Design Support Service - Landa Design Facility

Lloyd's Register EMEA
P. Pindar Road, Andover GU10 4RL

This document is issued subject to the Lloyd's Register EMEA Terms and Conditions of Business and the Lloyd's Register EMEA Privacy Notice, which are available at www.lloydsregister.com.

RINA Certification

RINA

TKSEA01 ELETRIC CABLES
No. ELE58460705/004

This is to certify that the product below is found to be in compliance with the applicable requirements of the RINA type approval criteria.

Description: ELETTRIC CABLES
Type: TK SEA01, SEA04
Producer: TECNIKAER S.R.L.
VIA GRANDIZZO, 215
10088 VILLETTA (TO)
ITALY
Manufacture/Place of manufacture:
TECNIKAER S.R.L.
VIA GRANDIZZO, 215
10088 VILLETTA (TO)
ITALY
Performance standard: IEC 60075-2-50; IEC 60093-3-75

Classification: ELETTRIC CABLES
Type: TK SEA01, SEA04
Producer: TECNIKAER S.R.L.
VIA GRANDIZZO, 215
10088 VILLETTA (TO)
ITALY
Manufacture/Place of manufacture:
TECNIKAER S.R.L.
VIA GRANDIZZO, 215
10088 VILLETTA (TO)
ITALY
Performance standard: IEC 60075-2-50; IEC 60093-3-75

Issue date: January 10, 2010. The Certificate is valid until: June 10, 2015
M. Maseri
M. Maseri

This certificate consists of 2 pages and 1 attached page.

TKSEA01 ELETRIC CABLES
No. ELE58460705/004

This is to certify that the product below is found to be in compliance with the applicable requirements of the RINA type approval criteria.

Description: ELETTRIC CABLES
Type: TK SEA01, SEA04
Producer: TECNIKAER S.R.L.
VIA GRANDIZZO, 215
10088 VILLETTA (TO)
ITALY
Manufacture/Place of manufacture:
TECNIKAER S.R.L.
VIA GRANDIZZO, 215
10088 VILLETTA (TO)
ITALY
Performance standard: IEC 60075-2-50; IEC 60093-3-75

Classification: ELETTRIC CABLES
Type: TK SEA01, SEA04
Producer: TECNIKAER S.R.L.
VIA GRANDIZZO, 215
10088 VILLETTA (TO)
ITALY
Manufacture/Place of manufacture:
TECNIKAER S.R.L.
VIA GRANDIZZO, 215
10088 VILLETTA (TO)
ITALY
Performance standard: IEC 60075-2-50; IEC 60093-3-75

Issue date: January 10, 2010. The Certificate is valid until: June 10, 2015
M. Maseri
M. Maseri

This certificate consists of 2 pages and 1 attached page.

Certificazione RINA TKSEA01

RINA Certification TKSEA 02

RINA Certification TKSEA 03



RINA Certification TKSEA 04



RINA Certification TKSEA 05





RINA

AGENT/DEALER:



C **RA** US

C **UL** US LISTED

C **UL**



TECNIKABEL srl

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