ENERGY
DATA
AIR
LIQUIDS
GUIDANCE
IN ONE SYSTEM

The cable drum without a slip ring - igus® e-spool®

Routing many different cables in a small space: e-spool® uniquely combines two different energy supply systems. The one standard e-chain® is guided by a roller and always provides the correct length and tension of the energy supply system through an integrated retaining spring. In the starting position, the e-chain® is rolled up completely to save space. The twisterband connects the roller with the shaft end block, serving as an interface to the supply side cables. With twisterband no slip ring is needed. This makes data transmission highly reliable, while enabling a high degree of flexibility at the same time. Different media and cable/hose diameters can be carried side by side in one drum (diameters up to 17mm).

Benefits

- Energy supply is possible in all directions (horizontal, vertical, diagonal)
- Space-saving, no "chain station", as the e-chain® is rolled in the starting position, ensuring the paths remain clear
- Cables can be retrospectively added or changed
- Alternative to zig-zag solutions
- Maximum extension and retraction speed 1m/s
- Large standard product range and special projects available

Typical application areas

- Telescopic applications
- Theatre, stage and lighting technology
- Space-saving alternative to zig-zag solutions

Selection table

Part No.	Max. travel distance [m]	Drum ø [mm]	Max. cable ø [mm]	Page
SPFL e-spool® flex light 2.0 - for easy integration into existing customer structures				
SPFL.120	3	120	7	444
SPFL.250	5 -15	250	5 - 15	444
SPF e-spool® flex 2.0 - continuous panel feed				
SPF.250	5 -15	250	5 -15	446
SPF e-spool® flex 2.0 mini - for small installation spaces				
SPF.120	3	120	7	448
SP1 / SPHD1 e-spool® compact - space-saving, spring driven				
SP1.240	2	240	7	450
SP1.400	4	400	12	450
SPHD1.400	4	400	12	450
SPC1 e-spool® for manual operation - cable or hose pulled out by hand				
SPC1.300	5	300	12	452
SP1 e-spool® standard				
SP1.600 / SP2.600*	4	600	17	455
SP1.700 / SP2.700*	7	700	17	455
SP1.850 / SP2.850*	14	850	17	455
SP1 e-spool® HD - for vertical applications, downwards				
SPHD1.600 / SPHD2.600*	4	600	17	456
SPHD1.700 / SPHD2.700*	7	700	17	456
SPHD1.850 / SPHD2.850*	14	850	17	456
e-spool® power - motor-driven, for long extension lengths				
e-spool® power**	25	upon request		458

Part No. SP1 and SPHD1 with 1 twisterband, Part No. SP2 and SPHD2 with 2 twisterbands.

Please contact us at ▶ **www.igus.eu/contact

Technical data

General properties	
Max. speed	≤ 1m/s
Maximum acceleration	≤ 1m/s²
Permitted temperature °C	0°C to +70°C / HD variants: 0°C to +80°C
Maximum fill weight, vertical	≤ 1kg/m

Easy handling: pull-out force is almost constant and secure locking

Without interruption: for energy, data and air

Assembly-friendly: easy replacement of the cable, even with connectors fitted

Space-saving: cable retracts into a compact unit

For easy integration into existing customer structures - e-spool® flex light 2.0

The e-spool® flex 2.0 is the igus® cable drum without a slip ring. Cables diameters from 5mm to 15mm can be used. The cable is safely guided through a feed-through to ensure that it is properly wound up at all times. The intended use of the e-spool® flex light 2.0 is cable guidance with automatic retraction by spring tension for integration into customer structures.

Benefits

- Without interruption (no slip ring), for energy, data, and air
- Space-saving
- Universal assembly in customer structures
- Constant tensile strain on the cable
- Locking mechanism

Typical application areas

- Control panels
- Robotics and automation

Product range

Part No. SPFL	Cable diameter from - to max. [mm]	Max. extension length [m]	Required cable length inside the chain [mm]	System weight[1] [kg]
SPFL.120.07.01.SP*	5 - 7	3	1.1	≈ 2.3
SPFL.250.08.01.SP*	5 - 8	15	4.5	≈ 7.0
SPFL.250.11.01.SP*	8 - 11	10	3.3	≈ 7.0
SPFL.250.15.01.SP*	11 - 15	5	2.4	≈ 7.0

*Index SP = retraction with a retaining spring and locking mechanism.

1) System weight without fill weight.

Order key

SPFL.250.08.01.SP

Series / Type	Disc diameter	Cable diameter	Version	Drive type
SPFL	250	08	01	SP

Order example:

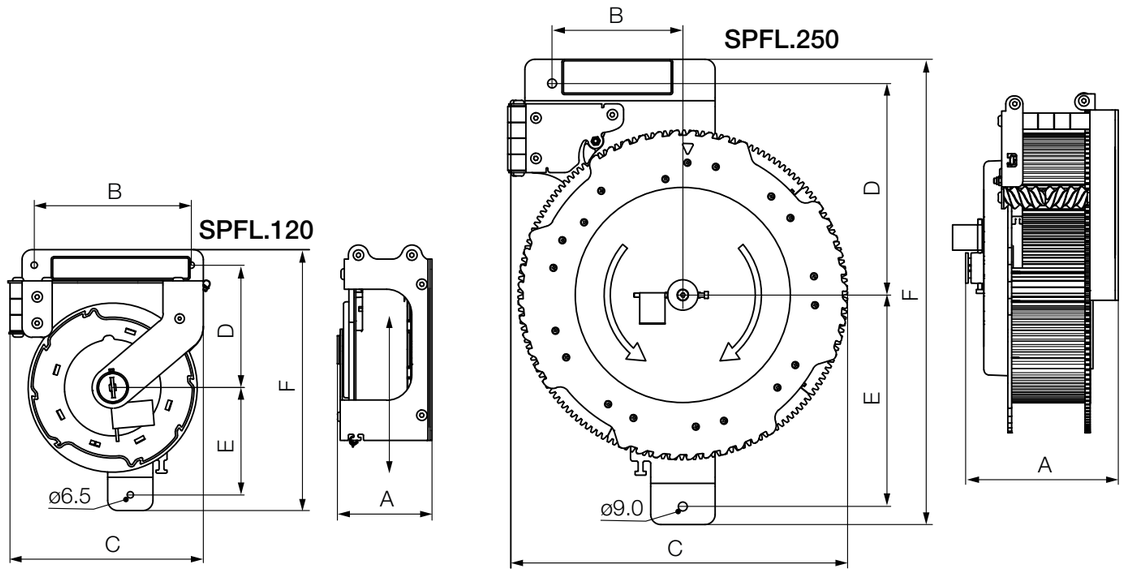
The index ☐ corresponds to the required drive type:

SP for retraction with a with retaining spring and locking mechanism

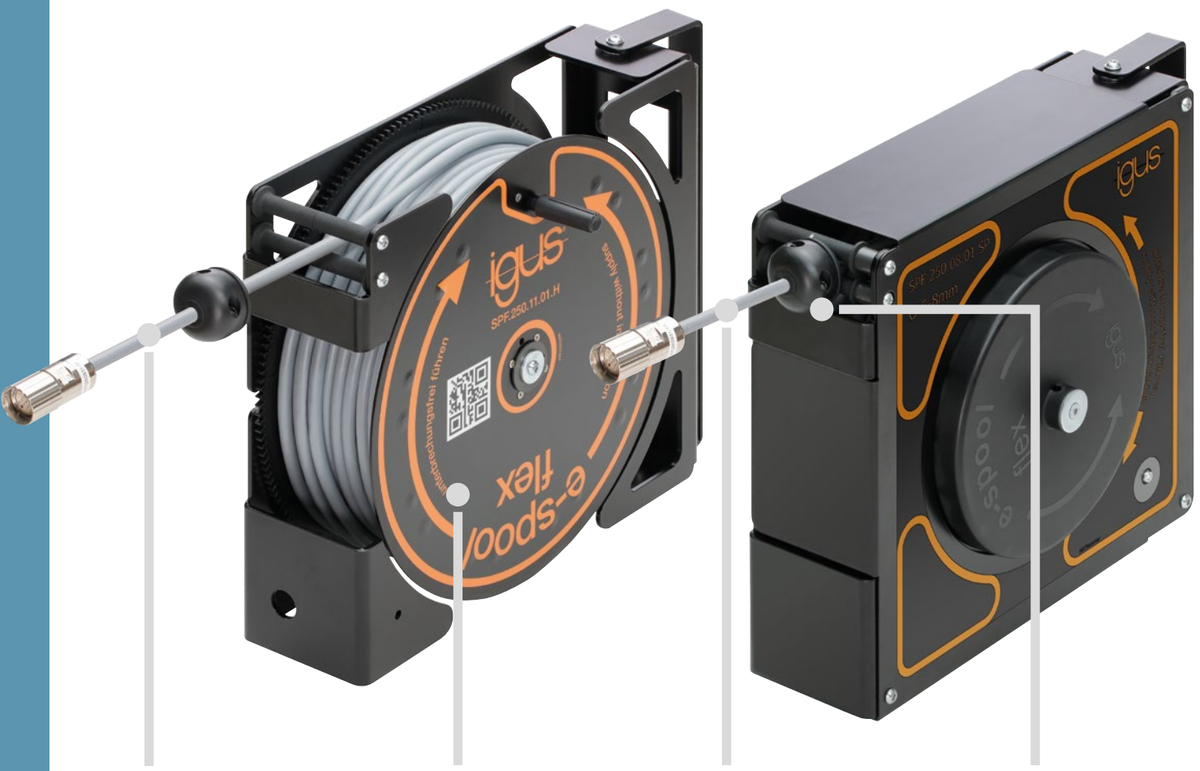
Installation dimensions

Part No. SPFL	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
SPFL.120.07.01.SP	94	156	192	121.5	106,5	259
SPFL.250.08.01.SP	151.5	130	335	210	210	462
SPFL.250.11.01.SP	167.5	130	335	210	210	462
SPFL.250.15.01.SP	184.5	130	335	210	210	462

Note: The spring versions are provided with a ratchet. The locking mechanism can be removed subsequently.



Note: Please consider VDE 0298 part 4 (current carrying capacity and conversion factors for wound cables) when selecting your cables and using e-spool® flex light 2.0.



Easy handling: pull-out force is almost constant and secure locking

Without interruption: for energy, data and air

Assembly-friendly: easy replacement of the cable, even with connectors fitted

Space-saving: cable retracts into a compact unit

Continuous panel feed - e-spool® flex 2.0

The e-spool® flex 2.0 is the igus® cable drum without a slip ring. Cables diameters from 5mm to 15mm can be used. The cable is always safely routed through a feed-through to ensure that it is properly wound up at all times.

Benefits

- Without interruption (no slip ring), for energy, data, and air
- Space-saving
- Universal assembly in customer structures
- Constant tensile strain on the cable
- Locking mechanism
- Available with 3 drive options

Typical application areas

- Can be used wherever a cable must move freely during use and must be stowed away safely after use
- Control pendants for robots
- Cable retraction system for workshops, measuring and production areas

Product range

Part No. SPF	Cable diameter from - to max. [mm]	Max. extension length [m]	Required cable length inside the chain [mm]	Weight [kg]
SPF.250.08.01.□*	5 - 8	15	4.5	≈ 8.0
SPF.250.11.01.□*	8 - 11	10	3.3	≈ 8.0
SPF.250.15.01.□*	11 - 15	5	2.4	≈ 8.0

*Part can be combined with three different drives (Index H/SP/SB).

Order key

SPF.250.11.01.SP

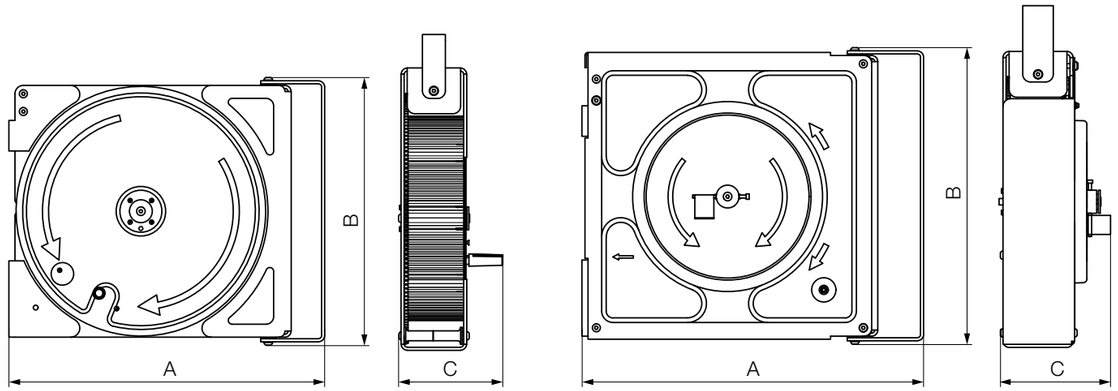
Series / Type	Disc diameter	Cable diameter	Version	Drive type

Order example:
Complete Part No. with index □ of required drive:
- H for retraction with a hand crank
- SP for retraction with a retaining spring and locking mechanism
- SB for retraction with a spring, locking mechanism and retraction brake

Installation dimensions

Part No. SPF	A [mm]	B [mm]	C [mm]
SPF.250.08.01.H	414	350.5	137
SPF.250.08.01.SP / .SB	448	388.5	133
SPF.250.11.01.H	414	350.5	152.6
SPF.250.11.01.SP / .SB	448	388.5	149
SPF.250.15.01.H	424	350.5	170
SPF.250.15.01.SP / .SB	414	350.5	166

Note: The spring versions are provided with a ratchet. The locking mechanism can be removed subsequently.



Note: Please consider VDE 0298 part 4 (current carrying capacity and conversion factors for wound cables) when selecting your cables and using e-spool® flex light 2.0.

Easy handling: pull-out force is almost constant and secure locking

Without interruption: for energy, data and air

Assembly-friendly: easy replacement of the cable, even with connectors fitted

Space-saving: cable retracts into a compact unit

For small installation spaces - e-spool® flex mini

The e-spool® flex mini is the smallest igus® cable drum without a slip ring. Cables diameters from 5mm to 7mm can be used. The cable is always safely routed through a feed-through to ensure that it is properly wound up at all times.

Benefits

- No slip ring
- Without interruption (no slip ring), for energy, data, and air
- Space-saving
- Universal assembly
- Constant tensile strain on the cable
- Cost-effective
- Easy in case of repair

Typical application areas

- Control panels
- Robotics and automation
- Office furniture industry

Product range

Part No. SPF mini	Cable diameter from - to max. [mm]	Max. extension length [m]	Required cable length inside the chain [mm]	Weight [kg]
SPF.120.07.01.SP*	5 - 7	3	1.1	≈ 2.3
SPF.120.07.01.SPL*	5 - 7	3	1.1	≈ 2.3

*Index SP = with a retaining spring and locking mechanism / Index SPL = with a spring and ratchet lever

Order key

SPF.120.07.01.SP

Series / Type	Disc diameter	Cable diameter	Version	Drive type

Order example:
The index ☐ corresponds to the required drive type:
SP for retraction with a spring and locking mechanism
SPL for retraction with a spring and ratchet lever

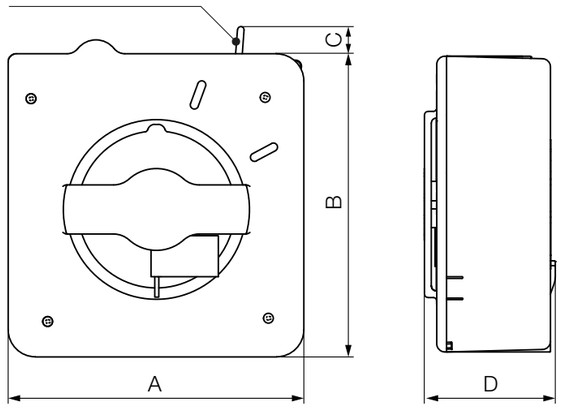
Installation dimensions

Part No. SPF mini	A [mm]	B [mm]	C* [mm]	D [mm]
SPF.120.07.01.SP	181	194	–	80
SPF.120.07.01.SPL	181	194	8	80

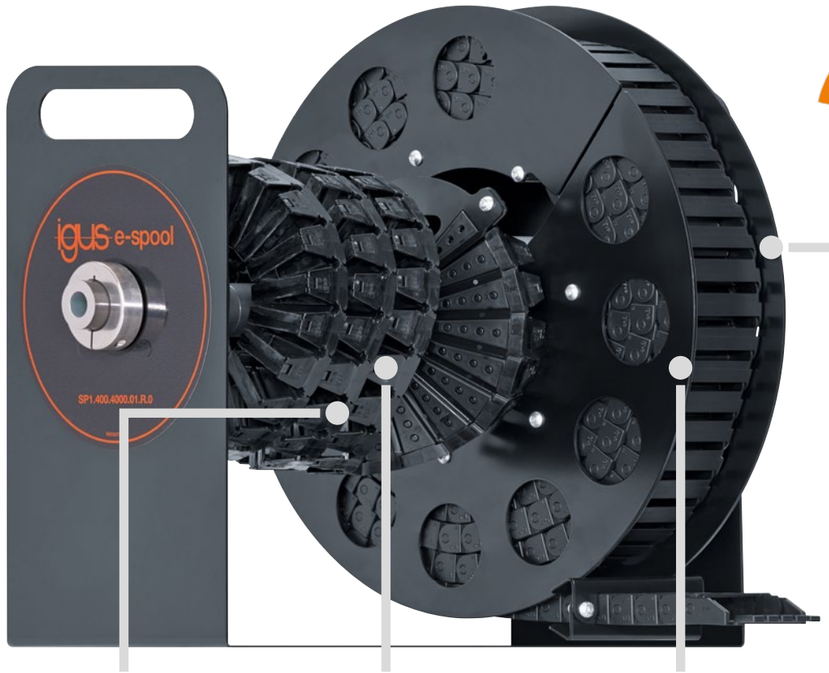
*Ratchet lever only for **SPL**

Note: The spring versions are provided with a ratchet. The locking mechanism can be removed subsequently.

Ratchet lever



Note: Please consider VDE 0298 part 4 (current carrying capacity and conversion factors for wound cables) when selecting your cables and using e-spool® flex light 2.0.



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Flexible use:
energy supply in any direction is possible

Cost-effective:
twisterband enables rotary movement

Flexible:
guidance of different media in one system

Space-saving:
e-chain® retracts into a compact unit

Space-saving and spring-driven - e-spool® compact

The compact e-spools® for 2m and 4m extension are optimised for small installation spaces with smaller linear chains and twisterbands for a wide range of applications. As with the larger standard and HD systems, the compact e-spool® systems enable trouble-free guidance and flexible filling.

Benefits

- Different media (power, data, air and fluids) can be routed together in one system
- Energy supply in all directions
- Space-saving and virtually "invisible"
- Very lightweight design (SP1.240 series made from aluminium)
- Extension lengths up to 2m and 4m
- Cables can be retrospectively added or changed

Typical application areas

- Manual workplaces
- Workstations
- Assembly lines

Product range | With e-chain® and 1 twisterband

Part No. e-spool® with 1 twisterband, extension right or left	*Bi* [mm]	*hi* [mm]	Max. travel distance [m]	Inner radius *R* max.* [mm]	Outer radius *R* max.* [mm]	Max. cable ø [mm]	Weight [kg]
SP1.240.2000.01.R / L.0	23	9	2	24	35	7	≈ 3.30
SP1.400.4000.01.R / L.0	44	15	4	34	57	12	≈ 13.5
SPHD1.400.4000.01.R.0	44	15	4	34	57	12	≈ 17.2

*The max. bend radii in the inner radius and the outer radius should be observed.

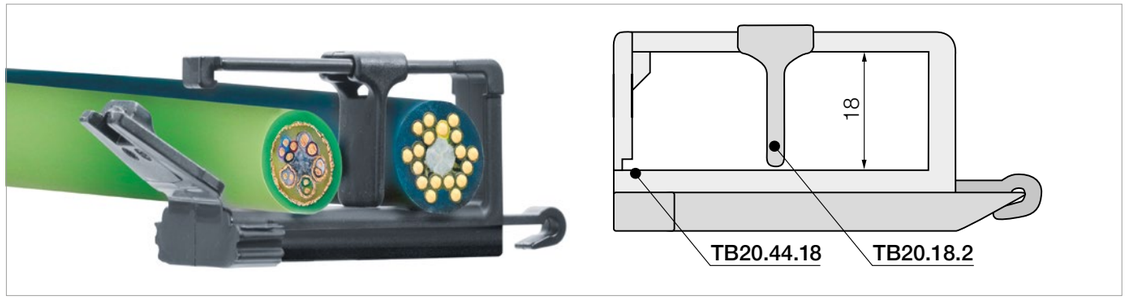
Order key

SP1.240.2000.01.R.0

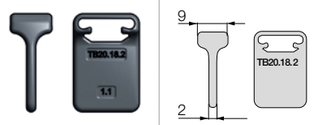
e-spool® with 1 twisterband	Drum diameter	Extension length	Version	Extension R / L	Colour index

Order example:
The index R / L corresponds to the extension direction:
SP1.240.2000.01.R.0 = e-spool® compact with a single twisterband with 240mm drum diameter and 2,000mm maximum extension length, extension right.
Order index for colour options ▶ **www.igus.eu/info-colours**

Interior separation | For twisterband



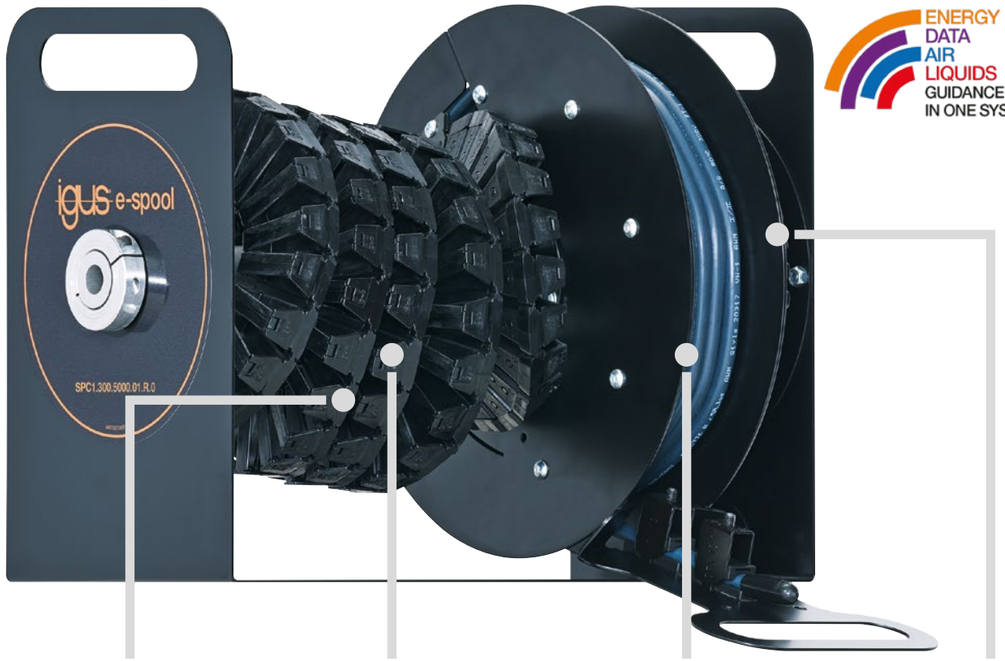
Note: Separators are delivered unassembled. Simply pushed onto the openable crossbar. Separators are assembled every 4th e-chain® link.



Part No. Separator for TB20.44.18
unassembled **TB20.18.2**

Interior separation for twisterband
To fit, simply open the e-chain®, insert a cable and press the separator onto the crossbar.

Theatre, stage and lighting technology: the e-spool® systems mentioned here do not meet the DIN EN 17206 guidelines for stage and theatre operations. If you have questions about this, please contact igus®.



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Flexible use:
energy supply in any direction is possible

Locking:
inertia locking function

Flexible:
for routing of a single cable or hose

Space-saving:
cable retracts neatly when not in use, paths remain free

Cable or hose pulled out by hand - e-spool® for manual operation

The manually operated e-spool® is designed for applications where only one cable or hose is pulled out by hand. The operator pulls out the cable to the required length for a control pendant or tool and can be retracted again after use. To prevent the cable from being under tension all the time, an inertia reel is fitted. In this way, the extension length can be locked. An extension length of up to 5m can be insert achieved.

Benefits

- For applications where one cable or hose is pulled out manually
- Compact, space-saving cable drum without slip ring
- Integrated ratchet to lock/release the retraction (similar to a vacuum cleaner cable)
- Also suitable for media or air hoses
- Handle with mounting option and strain relief

Typical application areas

- Robot teach pendants
- Workstations
- Assembly lines

Product range | With e-chain® and 1 twisterband

Part No. e-spool® with 1 twisterband, extension right	*hi* [mm]	Max. travel distance [m]	Bend radius *R* max.* [mm]	Max. cable ø [mm]	Weight [kg]
SPC1.300.5000.01.R.0	18	5	57	12	≈ 12.5

*The max. bend radius should be observed.

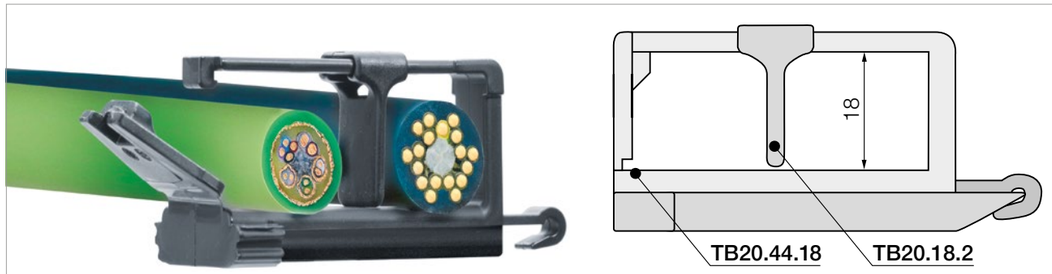
Order key

SPC1.300.5000.01.R.0

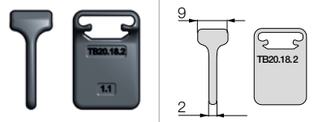
e-spool® with 1 twisterband	Drum diameter	Extension length	Version	Extension R / L	Colour index

Order example:
The index R corresponds to the extension direction:
SPC1.300.5000.01.R.0 = e-spool® for manual operation with a single twisterband with 300mm drum diameter and 5,000mm maximum extension length, extension right.
Order index for colour options ▶ **www.igus.eu/info-colours**

Interior separation | For twisterband



Note: Separators are delivered unassembled. Simply pushed onto the openable crossbar. Separators are assembled every 4th e-chain® link.



Part No. Separator for TB20.44.18 unassembled	TB20.18.2

Interior separation for twisterband

To fit, simply open the e-chain®, insert a cable and press the separator onto the crossbar.

ENERGY DATA AIR LIQUIDS GUIDANCE IN ONE SYSTEM

Flexible use:
energy supply in any direction is possible

Cost-effective:
HD twisterband enables rotary movement

Flexible:
guidance of different media in one system

Space-saving:
e-chain® retracts into a compact unit

Flexible use - igus® e-spool® standard and HD

With igus® e-spools®, cables are wound up in an e-chain® to save space. Various media can be supplied without interruption by the use of the twisterband. Adjustments and extensions of the filling are also possible at any time afterwards. If the e-chain® extension is vertically upwards, igus® recommends the standard e-spool®. For vertical downwards, please use the HD version. For horizontal pull-out direction, the choice of system depends on the application. To select the right system, please get in touch with igus®.

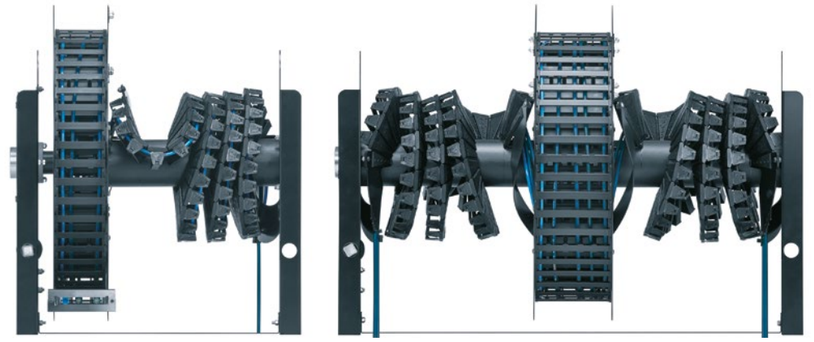
Benefits

- Flexible energy supply - guidance of different media in one system
- No tensile strain on the cables
- Cables can be retrospectively added or changed

Typical application areas

- Telescopic applications
- Theatre, stage and lighting technology
- Space-saving alternative to zig-zag solutions

Standard product range | With e-chain® and 1 or 2 twisterbands



e-spool® standard
Picture left:
with 1 twisterband
Picture right:
with 2 twisterbands

Part No. e-spool® with 1 twisterband, extension right or left	*Bi* [mm]	*hi* [mm]	Max. travel distance [m]	Inner radius *R* max.** [mm]	Outer radius *R* max.** [mm]	Max. cable ø [mm]	Weight [kg]
SP1.600.4000.03.R / L.0*	75	21	4	44	77	17	≈ 33.0
SP1.700.7000.03.R / L.0*	75	21	7	44	77	17	≈ 38.0
SP1.850.14000.03.R / L.0*	75	21	14	44	77	17	≈ 48.0

*Index **R** = extension right / *Index **L** = extension left

**The max. bend radii in the inner radius and the outer radius should be observed.

Part No. e-spool® with 2 twisterbands, extension right or left	*Bi* [mm]	*hi* [mm]	Max. travel distance [m]	Inner radius *R* max.** [mm]	Outer radius *R* max.** [mm]	Max. cable ø [mm]	Weight [kg]
SP2.600.4000.03.R / L.0*	125	21	4	44	77	17	≈ 40.0
SP2.700.7000.03.R / L.0*	125	21	7	44	77	17	≈ 45.0
SP2.850.14000.03.R / L.0*	125	21	14	44	77	17	≈ 55.0

*Index **R** = extension right / *Index **L** = extension left

**The max. bend radii in the inner radius and the outer radius should be observed.

Note: If the e-chain® extension is vertically upwards, igus® recommends the standard e-spool®. For vertical downwards, please use the HD version. For horizontal pull-out direction, the choice of system depends on the application. To select the right system, please get in touch with igus®.

Order key

SP1.600.4000.03.L.0

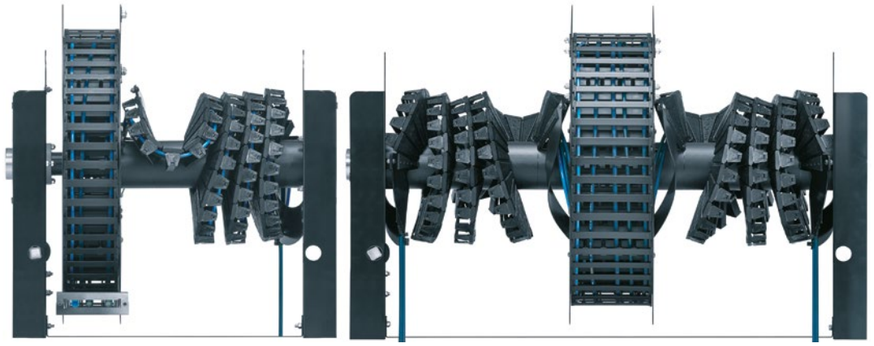
e-spool® with 1 twisterband	Drum diameter	Extension length	Version	Extension R / L	Colour index

Order example:
The index R / L corresponds to the extension direction:
SP2.600.4000.03.L.0 = e-spool® standard
with 2 twisterbands, 600mm drum diameter,
4,000mm maximum extension length, extension left.
Order index for colour options ▶ **www.igus.eu/info-colours**

e-spool® HD | SPHD1 / SPHD2

HD product range | With e-chain® and 1 or 2 twisterbands

For vertical applications, downwards



e-spool® HD
Picture left:
with 1 twisterband
Picture right:
with 2 twisterbands

Part No. e-spool® with 1 twisterband, extension right or left	*Bi* [mm]	*hi* [mm]	Max. travel distance [m]	Inner radius *R* max.** [mm]	Outer radius *R* max.** [mm]	Max. cable ø [mm]	Weight [kg]
SPHD1.600.4000.03.R/L.0*	75	21	4	44	77	17	≈ 52.0
SPHD1.700.7000.03.R/L.0*	75	21	7	44	77	17	≈ 56.5
SPHD1.850.14000.03.R/L.0*	75	21	14	44	77	17	≈ 67.0

*Index **R** = extension right / *Index **L** = extension left

**The max. bend radii in the inner radius and the outer radius should be observed.

Part No. e-spool® with 2 twisterbands, extension right or left	*Bi* [mm]	*hi* [mm]	Max. travel distance [m]	Inner radius *R* max.** [mm]	Outer radius *R* max.** [mm]	Max. cable ø [mm]	Weight [kg]
SPHD2.600.4000.03.R/L.0*	125	21	4	44	77	17	≈ 59.0
SPHD2.700.7000.03.R/L.0*	125	21	7	44	77	17	≈ 64.0
SPHD2.850.14000.03.R/L.0*	125	21	14	44	77	17	≈ 74.0

*Index **R** = extension right / *Index **L** = extension left

**The max. bend radii in the inner radius and the outer radius should be observed.

Order key

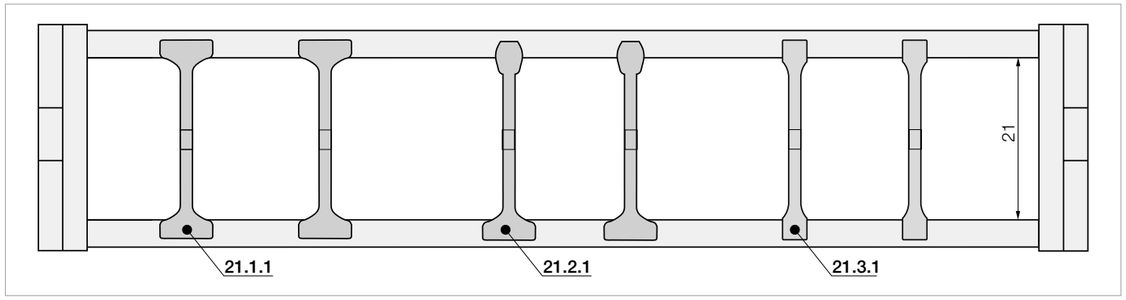
SPHD1.850.7000.03.**R**.0

e-spool® with 1 twisterband	Drum diameter	Extension length	Version	Extension R / L	Colour index

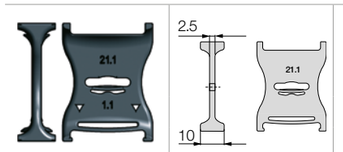
Order example:
The index R / L corresponds to the extension direction:
SPHD1.850.7000.03.R.0 = e-spool® standard
with a single twisterband, 850mm drum diameter,
7,000mm maximum extension length, extension right.
Order index for colour options ► **www.igus.eu/info-colours**

Theatre, stage and lighting technology: the e-spool® systems mentioned here do not meet the DIN EN 17206 guidelines for stage and theatre operations. If you have questions about this, please contact igus®.

Interior separation | For E2/000 e-chains®

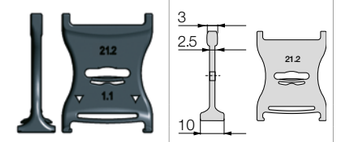


No lateral gap to side links necessary.
As standard separators are fitted every 2nd e-chain® link!



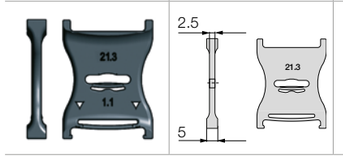
Part No. Standard separator
unassembled **21.1**
assembled **21.1.1**

For all applications
Standard separator with a wide base for maximum holding force.



Part No. Separator, narrow top
unassembled **21.2**
assembled **21.2.1**

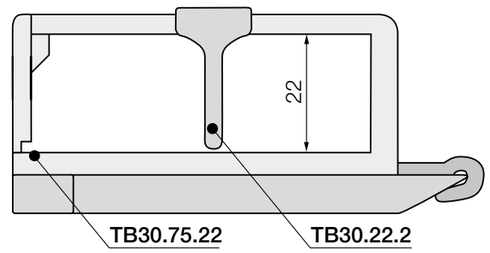
For even faster installation
Wide on one side for high holding force, narrow on opposite side for easy cable fitting.



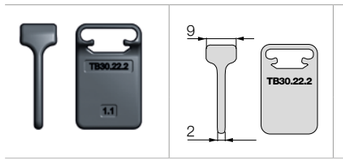
Part No. Separator, narrow
unassembled **21.3**
assembled **21.3.1**

For a large number of thin cables
Separator with a narrow base for a large number of thin cables side by side. Saves space.

Interior separation | For twisterband



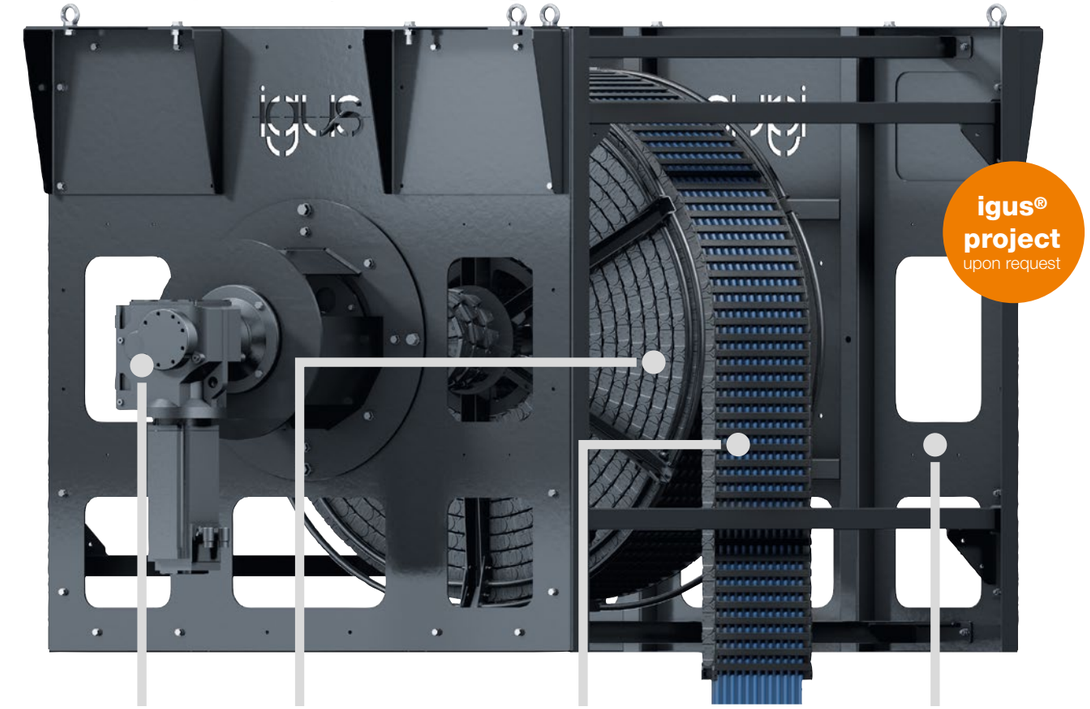
Note: Separators are delivered unassembled. Simply pushed onto the openable crossbar. Separators are assembled every 4th e-chain® link.



Part No. Separator for TB30.75.22
unassembled **TB30.22.2**

Interior separation for twisterband
To fit, simply open the e-chain®, insert a cable and press the separator onto the crossbar.

e-spool® power | Advantages



Motor-driven: extension lengths of up to 25m possible

Flexible: guidance of different media in one system

Space-saving: e-chain® retracts into a compact unit

Optional control system: plug & play controller, developed by igus®

Motor-driven for long extension lengths - e-spool® power

The e-spool® power is a motor-driven e-spool® for travels of up to 25m. Like all e-spool® systems, it can be filled with various cables and hoses and ensures reliable transmission with no breaks or slip rings. An igus® controller, which adapts dynamically to the travel speed, was specially developed for vertically hanging applications in theatres and opera houses and can be ordered as an option.

Benefits

- Travel distances up to 25m (longer distances upon request)
- Solid tubular steel construction
- Flexible filling with electrical and fibre optic cables, and pneumatic hoses
- Future-proof, additions and upgrades possible
- No tensile strain on the cables

Typical application areas

- Theatre, stage and lighting technology
- Indoor and outdoors cranes

ENERGY
DATA
AIR
LIQUIDS
GUIDANCE
IN ONE SYSTEM

Note: This type of system should be designed in conjunction with our engineering team.
Please contact us at ▶ **www.igus.eu/contact**

e-spool® | Guidelines

Guidelines for e-spool®

In view of the special mechanical stress inside an e-spool®, we recommend using igus® chainflex® cables. We also recommend that the following guidelines are observed:

1. Only put cables side by side in the linear chain - never stack them!
2. Where possible, chainflex® cables with a TPE outer jacket should be used for unshielded cables
3. Shielded cables should be chosen from the chainflex® CFROBOT range
4. The maximum bend radius of the twisterband must be accounted for
5. Where possible, use separators to protect cables against cross-over and abrasion against each other. To make the best possible use of the interior space, install the separator in alternate links
6. Insert cables sorted by diameter and/or bend radius - insert small ones in the centre then increasingly larger ones towards the outside
7. Apply strain relief to both ends of the cable - when using a cable tie for strain relief, please ensure the head of the cable tie is underneath to avoid cable damage
8. The cables should be installed in the twisterband with clearance space both outwards and inwards from the rotary axis

Installation instructions

For applications that move horizontally, a smooth surface is required for the e-chain® to travel over.