

e-skin®

clean-room

SK | SKS | SKY - cleanroom corrugated tube energy supply systems



Advantages of the e-skin® series:

- Reclosable corrugated tube
- Easy to maintain
- For small installation spaces
- Available in three versions
- e-skin® SK - for unsupported lengths up to 4m
- e-skin® soft SKS - made of elastic material, for lower clearance heights than SK
- e-skin® hybrid SKY combines the advantages of e-skin® SK and SKY
- Easy filling with "zipper" function
- Special design allows unsupported lengths
- Cable-friendly with defined minimum bend radius
- Available with interior separation
- Prevents unintentional sideways movement
- Simple maintenance and inspection of the cables inside
- Protection against dust and water ingress
- Suitable for cleanrooms according to IPA cleanroom Class 1
- Available from stock, with a guarantee of up to 36 months



When to use another energy supply system:

- For longer unsupported lengths
 - ▶ E6.1 system, page 832
- When installation space is limited
 - ▶ e-skin® flat SKF, page 798
- For high exposure to dirt
 - ▶ RX e-tubes, page 516



SK, SKS and SKY corrugated tube energy supply systems for cleanrooms

e-skin® is a hose consisting of an upper and lower shell that form a sealed tube when connected to each other. It consists of polymer material (igumid SK) developed specifically for this. The simple redosable mechanism enables easy maintenance and inspection of installed cables. Operating temperature 0°C / +50°C. e-skin® has many advantages over conventional corrugated tubes and it is available in 3 different versions:

- e-skin® SK for longer unsupported lengths
- e-skin® soft SKS with more elastic material and lower installation height
- e-skin® hybrid SKY combines the advantages of e-skin® SK and e-skin® soft SK
- 15% higher fill weight (based on the latest test results for e-skin® SK40 series done in the igus® laboratory)
- 50% more unsupported length (based on the latest test results for the e-skin® SK40 series done in the igus® laboratory)
- Bend radii from 55mm up to 100mm
- IPA cleanroom Class 1
- 5dB(A) quieter than usual "clean cable"
- Interior separation system consisting of "tribo-optimised" iglidur material - to further minimise abrasion between the cables

Industrial industries and applications

- Cleanroom ● Fast, short, unsupported applications ● Hanging and standing applications ● Display and semiconductor production ● Pick & place applications ● Medical technology ● All machines that use corrugated tubes

www.igus.eu/eskin



Series	Inner height <i>hi</i> [mm]	Inner width <i>Bi</i> [mm]	Outer width <i>Ba</i> [mm]	Outer height <i>ha</i> [mm]	Bend radius <i>R min.*</i> [mm]	Unsupported length <i>s</i> [m]	Page
							
SK28	28	68	95	40	055	1.1	822
SK40	38	85	118	57	100	2.0	822

							
SKS20	20	33	50	25	055	0.6	823
SKS28	28	68	95	40	055	0.7	823
SKS40	38	85	118	57	100	1.3	823

							
SKY28	28	68	95	40	055	0.9	824
SKY40	38	85	118	57	100	1.4	824

*Note: the minimum bend radius is determined by the inner side corrugated tube!



Available from stock. Ready to ship in 72hrs.*
*Average time before the ordered goods are dispatched.



Further information about igus® cleanroom e-chains® and the new, unique igus® cleanroom laboratory for IPA cleanroom Class 1 components ▶ From page 145



IPA Qualification Certificate -

Report IG1907-1125:

Tested was e-skin® SK28.068.02.1 (prototype) at $v_1 = 0.5\text{m/s}$, $v_2 = 1\text{m/s}$ and $v_3 = 2\text{m/s}$ or $a_1 = 1\text{m/s}^2$, $a_2 = 2\text{m/s}^2$, $a_3 = 4\text{m/s}^2$



IPA Qualification Certificate -

Report IG 1907-1125:

Tested was e-skin® SKS28.068.02.1 including cables at $v_1 = 0.5\text{m/s}$, $v_2 = 1\text{m/s}$ and $v_3 = 2\text{m/s}$ or $a_1 = 1\text{m/s}^2$, $a_2 = 2\text{m/s}^2$, $a_3 = 4\text{m/s}^2$



IPA Qualification Certificate -

Report IG 1907-1125:

Tested was e-skin® SKY28.068.02.1 at $v_1 = 0.5\text{m/s}$, $v_2 = 1\text{m/s}$ and $v_3 = 2\text{m/s}$ or $a_1 = 1\text{m/s}^2$, $a_2 = 2\text{m/s}^2$, $a_3 = 4\text{m/s}^2$

supply systems from igus® with
e-skint

e-skin® soft SKS	e-skin® hybrid SKY	
		
67%	87%	
70%	85%	
60%	81%	
100%	95%	
65%	65%	
		
yes	yes	
yes	yes	
32dB(A)	33dB(A)	
6dB(A)	5dB(A)	
► Page 823	► Page 824	
and the new, unique igus® cleanroom from page 145		



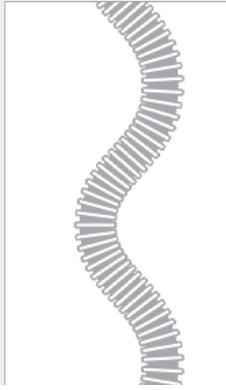
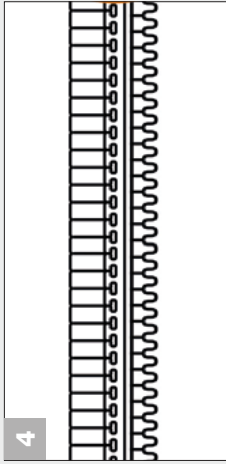
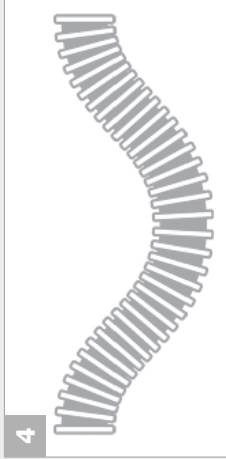
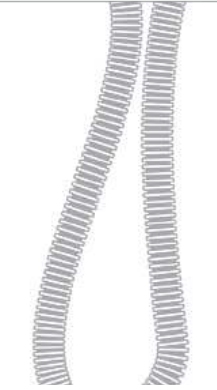
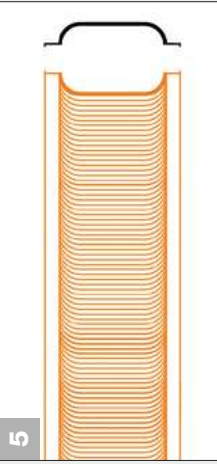
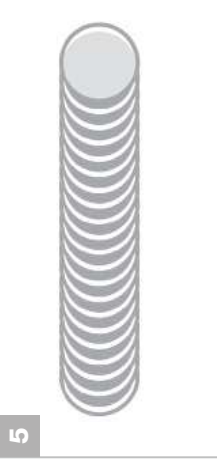
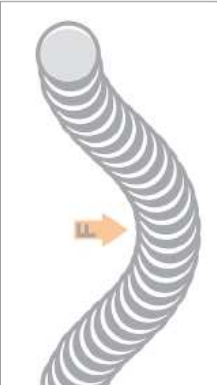
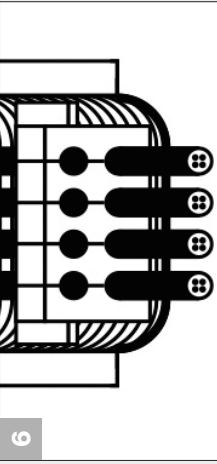

and bending tests show how flexible the e-skin® soft
cables, even under loads that would break other
cables



igus® cleanroom laboratory according to IPA certification ISO Class 1 in accordance with EN ISO 14644-1 in the igus® technical
centre, Cologne. Cleanroom compatibility of chain applications can be tested quickly to your requirements.



Service life test in the 3,800m² igus® laboratory in Cologne (Germany)

		
<p>Conventional corrugated tubes have the same bend radius for entire length</p>	<p>e-skin® supports itself</p>	<p>Conventional corrugated tubes have very little or any inherent rigidity. e-rib solves this ► www.igus.eu/e-rib</p>
		
<p>Conventional corrugated tubes cannot be used for dynamic applications</p>	<p>e-skin® is openable, easy to fill</p>	<p>Conventional corrugated tubes (for dynamic applications) cannot be opened</p>
		
<p>Any stability in respect of forces acting on the sides</p>	<p>e-skin® can be fitted with interior separation and strain relief</p>	<p>No interior separation possible</p>

	≤ 10 [m/s] / ≤ 75 [m/s²]
emperature °C	+10°C up to +50°
temperature °C	+10°C up to +50°
of igumer SK perature °C	+10°C up to +50°
ature °C	+10°C up to +50°
	UL94-HB



Vertical
standing

upon request

upon request

upon request

upon request

upon request

upon request

upon request



Side mounted
unsupported

upon request

upon request

upon request

upon request

upon request

upon request

upon request



Options with order keys | Examples based on series SK28



Standard

Reverse Bend Radius

Part No. Standard	Part No. RBR

A version with Reverse Bend Radius (RBR) can be easily made by using the lower shell for the complete e-skin®. Thus very defined movements can be implemented with the two parts. Note: the minimum bend radius is determined by the inner side corrugated tube!



SK28.068.02.1

SK28.068.02.RBR.1



Ready to ship in 72hrs.*

Ready to ship in 72hrs.*

*Average time before the ordered goods are dispatched.

Order example | Order key and colour examples | Examples based on series SK28



Order example for complete energy supply system (1m), colour white, with mounting brackets and interior separation:

Energy supply system (1,000mm) Please order the required length in mm	SKS28.068.02.1
+ Mounting brackets	KMA 1 set (with tiewrap plates) SK280.068.12ZB.1
Interior separation	Fitted every 112mm SKS28.1.1.01
Order text:	1,000mm SKS28.068.02.1 + SK280.068.12ZB.1 + 16 x SKS28.1.1.01



Order key

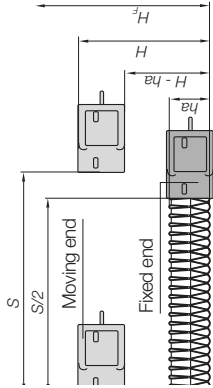
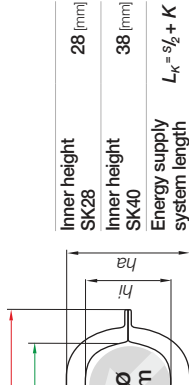
Oval design	SK28.068.02.1	Order index
Series / Type	Colour	Order index
Inner height	<input type="checkbox"/> White	Standard
width index		.1
Version		
Colour index (standard white)		

White e-skin® ready to ship in 72hrs.*



ø" opening principle

$R_{min.}^*$ [mm]	Cable ≤ Ø [mm]	H_F [mm]	Weight [kg/m]
055	20	265 ²⁾	≈ 0.54
100	30	450 ²⁾	≈ 1.15



pecified radius below is the minimum to guarantee the service life of
nes this.

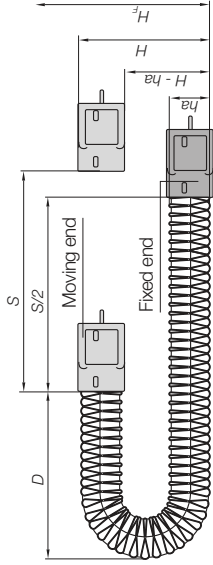
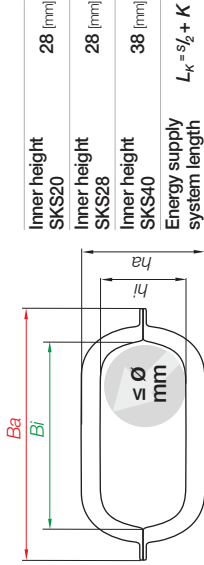
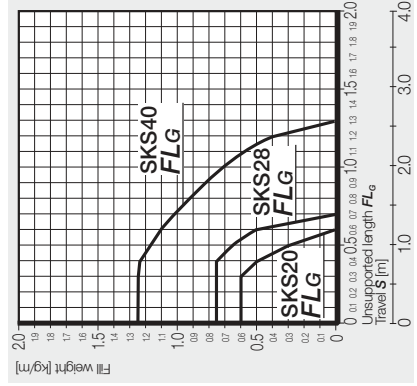


Series SKS | Two-piece corrugated tube | With "zipper" opening principle

Part No. SKS	B_i [mm]	B_a [mm]	h_i [mm]	h_a [mm]	$R_{min.}^*$ [mm]	Cable ≤ Ø [mm]	H_F [mm]	Weight [kg/m]
SKS20.033.02.1	33	50	20	25	055	13	160 ^{2,3)} / 200 ^{2,4)}	≈ 0.20
SKS28.068.02.1	68	95	28	40	055	20	200 ⁴⁾	≈ 0.54
SKS40.085.02.1	85	118	38	57	100	30	350 ⁴⁾	≈ 1.15

1) 33% lower clearance height than e-skin® SK28 (based on the latest test results done in the igus® laboratory)
2) Required clearance height H_F with 0.75kg/m fill weight / 2) Required clearance height H_F with 0.50kg/m fill weight
3) H_F : 160mm at $S < 200$ mm / H_F : 200mm at $S > 200$ mm
4) H_F : the minimum bend radius is determined by the inner side corrugated tube!

Installation dimensions



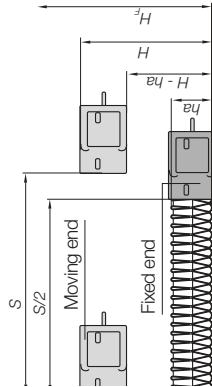
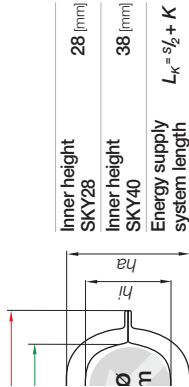
$R_{min.}^*$	SKS20 R 055	SKS28 R 055	SKS40 R 100
H	150	150	300
D	125	130	300
K	300	266	693

*Note: the minimum bend radius is determined by the inner side corrugated tube!
No bend radius is specified in the part number, since it depends on travel and fill weight. The smallest specified radius below is the minimum to guarantee the service life of
the cables. In most applications, however, the radius remains larger because the shape of the tube defines this.

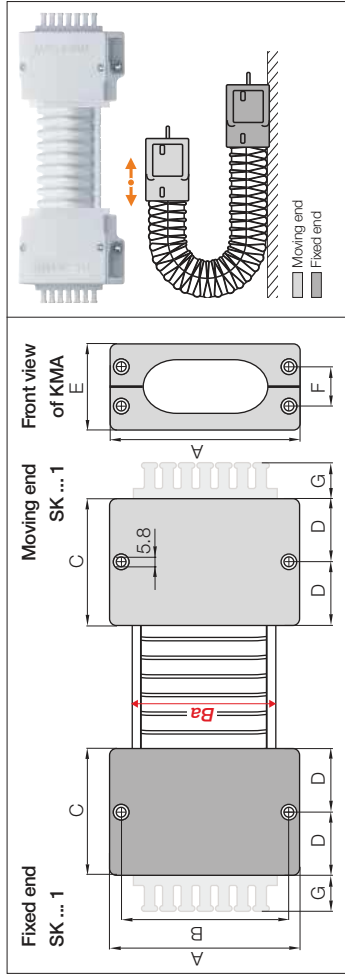


perfect opening principle

R min.* [mm]	Cable ≤ Ø [mm]	H _F [mm]	Weight [kg/m]
055	20	230 ²⁾	≈ 0,54
100	30	400 ²⁾	≈ 1,15
based on the latest test results one in the igus® laboratory			



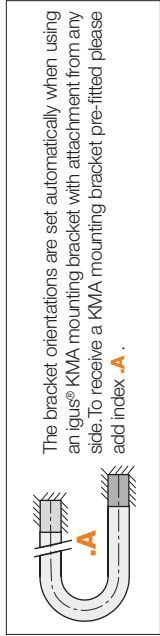
specified radius below is the minimum to guarantee the service life of cables this.



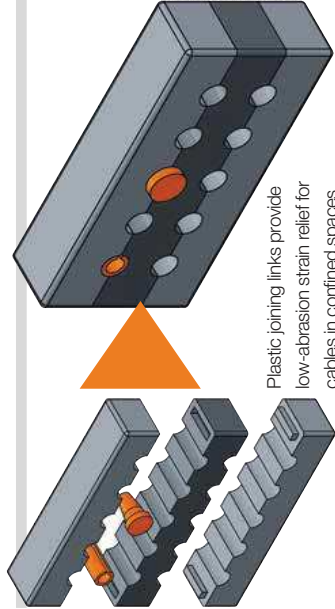
KMA | Recommended for unsupported, vertical hanging, standing applications

Width index	Part No. full set without tiewrap plates	Part No. full set with tiewrap plates	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Number of teeth
033.	▲ SK200.033.12.1	SK200.033.12ZB.1	53	44	32	7	28	-	5	3
068.	▲ SK280.068.12.1	SK280.068.12ZB.1	104	92	68	35	46	21	18	7
085.	▲ SK400.085.12.1	SK400.085.12ZB.1	125	113	68	35	66	41	18	10

(KMA = polymer metal mounting bracket)



Strain relief e.g. clamps, tiewrap plates, nuggets and clips are available from stock. The complete chainfix range with ordering options ▶ From page 1392



Closed clamping block strain relief available upon request

igus 3D CAD, configurators, service life calculation and more ▶ www.igus.eu/eskin



up to
77%*

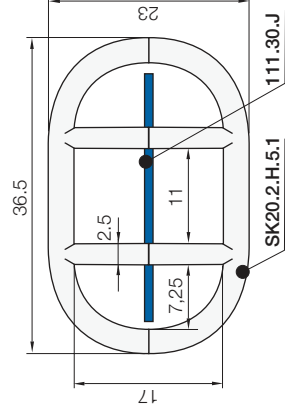
*Less abrasion
compared to igumid
G standard material

separation, maximum interior separation


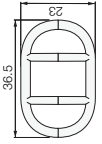


tribo-plastic for a long cable service life.
e-skin® cleanroom corrugated tube. iglidur®
is wear-resistant and drastically minimises

system by up to 77%*
already been sprayed

from the iglidur® range of materials
and SKY
suitability



For inner height h_i 17mm. The wear-optimised, ring-shaped
interior separation is installed every 115mm at the connecting points!

		Smooth, round interior separation	unassembled SK20.2.H.5
			assembled SK20.2.H.5.1
		Full-width shelf, continuous	unassembled 110.30.J
			assembled 111.30.J

Ring-shaped, wear-optimised

Upper and lower shells on which separators are already
injection moulded can be combined with full-width shelves.

Full-width shelves

This option is for applications with many small cables with
similar diameters. The full-width shelves are simply clamped
between them.

Fast opening and closing of the e-skin®

- The tool for closing the e-skin® energy supply
system **part number MT-SK.914.868**
- Cost-effective, handy and fits in every pocket: the proven tool for opening
and closing the e-skin® energy supply system **part number MT-SK.02.1**

More information ► upon request

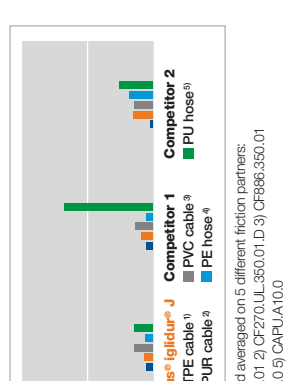


Tool part number
MT-SK.914.868
shown here

e-skin® corrugated tubes - designed in seconds

- Create filling options and configure them completely with interior separation,
mounting brackets and chairflex® cables
- Automatic creation of a parts list and drawing with dimensioning
- Easy inquiry and order of the complete corrugated tube

More information ► www.igus.eu/eskin-quickfill





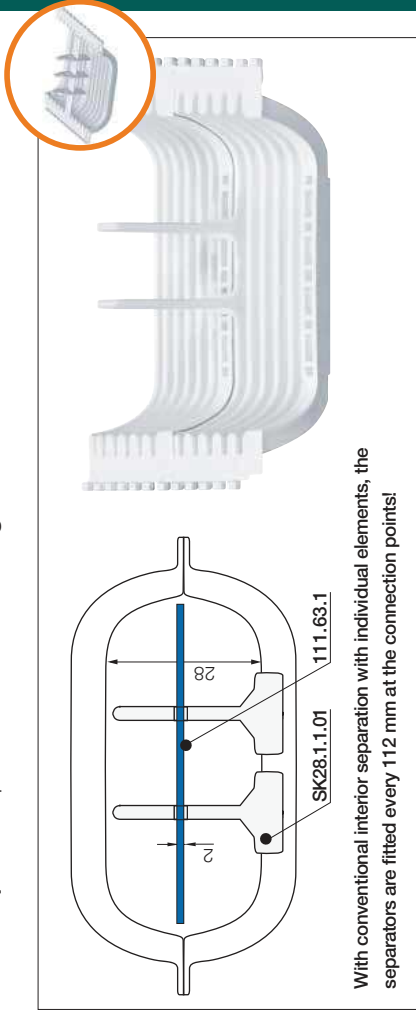
shaped, wear-optimised

in lower shells on which separators are already moulded can be combined with full-width shelves.


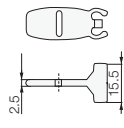
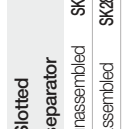

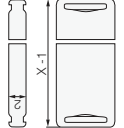
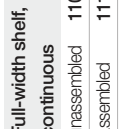

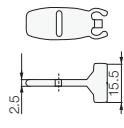
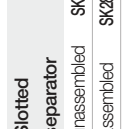
full-width shelves

ion is for applications with many small cables with diameters. The full-width shelves are simply clamped on them.

Tool part number
MT.SK.914.868
shown here



With conventional interior separation with individual elements, the separators are fitted every 112 mm at the connection points!

			Slotted separator	SK28.1.01
				un assembled
			Full-width shelf, continuous	110.63.1
				un assembled
			Full-width shelf, continuous	111.63.1
				assembled

Vertical separation - slotted separators

The interior separation* system for the igus® e-skin® consists of individual separators and full-width shelves, which can be fitted in a variety of ways.

Full-width shelves

This option is for applications with many small cables with similar diameters. For full-width separation.



Absolutely dust-free environment for printed circuit board production using the abrasion-resistant e-skin® from igus®



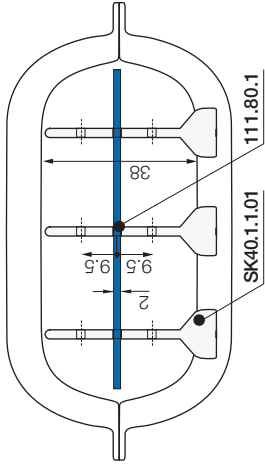
shaped, wear-optimised

in lower shells on which separators are already moulded can be combined with full-width shelves.

full-width shelves

ion is for applications with many small cables with diameters. The full-width shelves are simply clamped to them.

Tool part number
MTSK 914.868
shown here



With conventional interior separation with individual elements, the separators are fitted every 112 mm at the connection points!

	Slotted separator	
	unassembled	SK40.1.01
	Full-width shelf, continuous	
	unassembled	110.80.1
	assembled	111.80.1

Vertical separation - slotted separators

The interior separation* system for the igus® e-skin® consists of individual separators and full-width shelves, which can be fitted in a variety of ways.

Full-width shelves

This option is for applications with many small cables with similar diameters. For full-width separation.



The igus® e-skin® energy supply system can be used for short unsupported lengths in cleanrooms

igus 3D CAD, configurators, service life calculation and more ► www.igus.eu/eskin