Cable and Pipe Entry Products
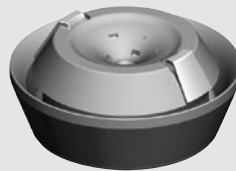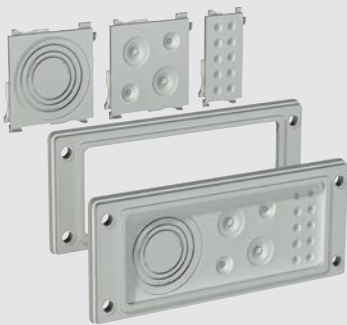
Cable penetration by design

Design-A-Flange | KLIKSEAL® | RUTASEAL® | TSS

TST

TAPPER SEALING TECHNOLOGY

News

Design-A-Flange

Our new and revolutionary flange system allows you to configure your own flange, based on your needs. You can now have a flange that lets you choose the size openings you want, how many you want and where you want to place them.
All openings come with pop-out membranes, and if you need cable anchorage you can either use a KLIKSEAL® or a cable gland directly in the flange. The system allows for changes being made to the configuration later on, should your needs change.
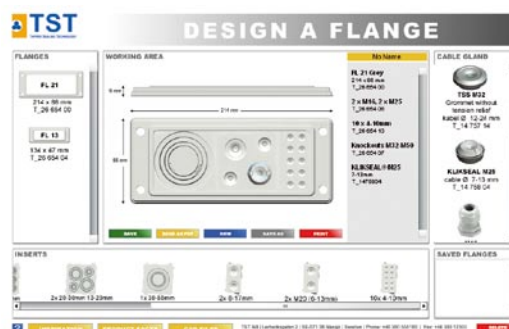*See page 21 - 30 for more information.*

Design-A-Flange configuration software

To help you design your own Design-A-Flange we have created a software that is very easy to use, by using drag-and-drop.

The software can be used from our website:
www.tst-ab.com/daf_tst

New version of KLIKSEAL®

Based on market requests we are coming out with a new version of **KLIKSEAL®** that will work in thinner materials. The new version will work in material thickness from 0,7 mm and upwards.
See page 9 for more information.

Content ....Page

The Company

Offices in Nässjö Sweden

Offices in Nässjö Sweden

Tapper Sealing Technology AB is the production and export division of Rutab AB, Sweden's leading supplier of cable and pipe entries. Our offices and production facility are located in Nässjö, in south central Sweden – one of the country's major logistical centers.

Rutab was founded 1987 and it's first sales year was 1988. The company's primary field is electrical installation material marketed to wholesalers and OEM's. Rutab has had an eventful development, but the business idea has always been to market high quality products at economic prices with extremely swift delivery service.

The product range contains a mixture of own production, brand products and agency products. The core of our range is cable and pipe entries, where our aim is to always be a step ahead of the competition with as complete range as possible.

Both Tapper Sealing Technology and Rutab are ISO approved to ISO 9001 and ISO 14001.

Rutab and TST are since January 2007 partly owned by one of Sweden's largest industrial groups, Nordstjernan.

Warehouse - and production facility in Nässjö, Sweden

Production facility in Nässjö, Sweden

Production

We constantly put a lot of resources into our own product development. We are in the process of building up and developing production of our own designed products produced in rubber and plastic. One example of this effort is our RUTASEAL® rubber grommets, produced with an automated production technique for rubber items, developed entirely within our own company. Another example is KLIKSEAL®, a 2-component injection molded cable and pipe seal with cable anchorage, which also is produced with a completely automated production technique developed within the company. The TSS is designed to replace cheaper and simpler sealing products available on the market. It is a very flexible end-plug/grommet for all applications, with a number of different features not available in competitor products. It is produced using techniques previously unique to rubber manufacturing. Design-A-Flange is the latest example of advanced production technique in a new and innovative product.

KLIKSEAL®

KLIKSEAL® is a revolutionary two-component grommet with cable anchorage – something completely new to the market. Through innovation and advanced production technology, we have designed a product that has many of the advantages found in a cable gland.

Apart from the cable anchorage, KLIKSEAL® is compact, self-adjusting to its surrounding wall thickness (patented), click-fixed in place (patented), has a membrane seal, is waterproof, requires very little effort to install with its collapsible outer membrane (patented), and saves up to 90% of your time.

The installation of a KLIKSEAL® requires no tools and has a "pushout" membrane that is a permanent seal until penetrated by a cable or pipe. Each size of KLIKSEAL® can be used with a large range of cable and pipe diameters. An M25 can be used for cables and pipes ranging from 4 mm to 13 mm. Because of its compact design, the KLIKSEAL® only extends 5,7 mm outside the housing on which it is mounted.

	KLIK SEAL®	Cable Gland IP68	RUTA-SEAL®
Tension relief	✔	✔	✖
Waterproof installation	✔	✔	✔
"Pop-out" membrane	✔	✖	✔
Ergonomic installation	✔	✖	✖
Same protrusion regardless of size	✔	✖	✖
Can be installed from one side	✔	✖	✔
Locks in place	✔	✔	✖
Designed for threaded holes	✖	✔	✖
Self-adjusting to wall thickness	✔	✖	✔
Self-adjusting to cable diameter	✔	✖	✔
Re-usable	✔	✔	✔
Space saving	✔	✖	✔
Time saving installation	✔	✖	✖

TST
TAPPER SEALING TECHNOLOGY

Product Benefits

Cable Anchorage

KLIKSEAL® is tested and certified to Cable Anchorage Type A - the same standard most cable glands are approved to.

Compact design

Designed to blend in with its surrounding.
Product thickness is only 17-20mm, with a protrusion of 5,5 - 5,7 mm on the outside (M20-M25). A cable gland has a protrusion of 30-40mm.

Klik

KLIKSEAL® is an ergonomic product that requires no torque or force during installation. It simply "kliks" into place.

Self adjusting to wall thickness

The ability to self adjust to the wall thickness means there is no need for a lock-nut to install a **KLIKSEAL®**.

Fixed in place

When a **KLIKSEAL®** has been installed it is fixed in both directions like a cable gland and cannot be removed unintentionally.

IP67 = water tight

KLIKSEAL® is water and dust proof, which means that you do not need to worry if you have chosen the right protection class.

"Pop-Out" membrane

KLIKSEAL® is equipped with a "Pop-Out"membrane which means the opening is sealed until the mebrane is popped out. This means it will protect against dust and moisture even if a cable has not been installed.

Rubber coated tension relief for protection of the cable mantle

To avoid possible damage to the mantle of cables installed in a **KLIKSEAL®** the arms providing cable anchorage are coated with TPE. TPE is a plastic material with a "rubbery" texture that works as a protection between the harder plastic and the cable mantle. It also provides dampening against vibration.

Save up to 90% on installation time.

KLIKSEAL® is a superior economic solution as it saves up to 90% on the complete installation time.

Ergonomic installation without tools

Center the **KLIKSEAL®** in the opening, push with both thumbs until it "kliks"into position. Install the cable by pushing it through the grommet.

TST
TAPPER SEALING TECHNOLOGY

Product features TKS KLIKSEAL®

Height of only 17-20 mm, 5,5 - 5,7 mm on the outside depending on size. Cable glands are approx. 30-40 mm.

Handles large range of cable and pipe diameters.
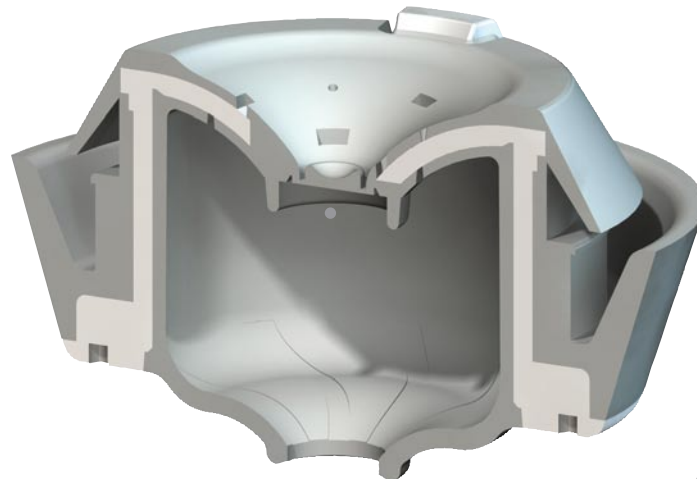
Installation time saving of up to 90%.

Self-adjusting to wall thickness.

Ergonomic installation

"Pushout" membrane

Fixed in both directions when mounted.
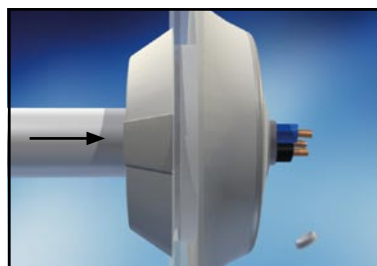
Space saving design

Integrated tension relief

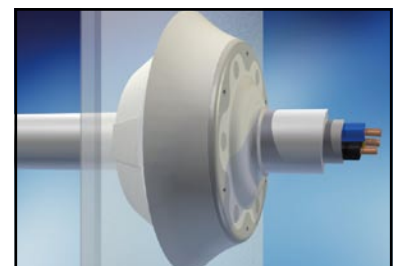KLIK = No material compression during installation.

IP67

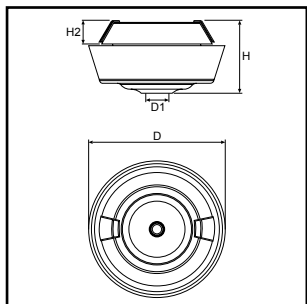Rubber coated tension relief for protection of the cable mantle.
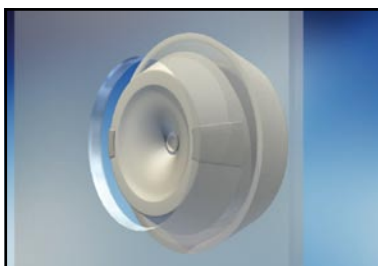
Center the KLIKSEAL in the opening (from the inside), push evenly with both thumbs until it "kliks" into place.

Insert the cable from the side with the polyamide tabs.

Note! KLIKSEAL® is installed from the inside.

KLIKSEAL®

Material

TPE and Polyamide 66 - Halogen Free
UL approved material
Integrated cable anchorage,
wide sealing range.
Material thickness 1,5 - 5 mm
Material thickness IP67/65 2 - 5 mm
Quick and simple assembly without
the use of tools.

Mode of protection IP67 / IP65
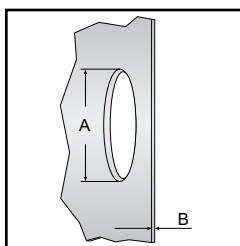**Temperature range** -20ºC....+125ºC [1]
Test standard EN60529:1991+A1
EN50262:1998
EMKO-TUI (03-SEC) FI001/84
Semko report 606620

E-number	Size	IP67 and Cable Anchorage Type A* for Cable Ø mm	IP65 for Cable Ø mm	A mm	B for IP67/65 mm	H mm	H2 mm	D1 mm	D*** mm	Pcs pack	
RAL 7035											
T_14 758 03	M20	7 - 11	4 - 11	20,5	2 - 5	17 - 20	5,5	4,0	29,3 - 34,5	50	2500
T_14 758 04	M25	7 - 13**	4 - 13	25,5	2 - 5	17 - 20	5,7	5,0	34,3 - 40,0	50	2000
RAL 9005											
T_14 758 13	M20	7 - 11	4 - 11	20,5	2 - 5	17 - 20	5,5	4,0	29,3 - 34,5	50	2500
T_14 758 14	M25	7 - 13**	4 - 13	25,5	2 - 5	17 - 20	5,7	5,0	34,3 - 40,0	50	2000
RAL 9010											
T_14 758 23	M20	7 - 11	4 - 11	20,5	2 - 5	17 - 20	5,5	4,0	29,3 - 34,5	50	2500
T_14 758 24	M25	7 - 13**	4 - 13	25,5	2 - 5	17 - 20	5,7	5,0	34,3 - 40,0	50	2000
RAL XYZ											
TKS M20 XYZ	M20	7 - 11	4 - 11	20,5	2 - 5	17 - 20	5,5	4,0	29,3 - 34,5	50	2500
TKS M25 XYZ	M25	7 - 13**	4 - 13	25,5	2 - 5	17 - 20	5,7	5,0	34,3 - 40,0	50	2000

* Cable Anchorage Type A, according to EN 50262.

** 8,1 - 8,9 mm only approved for tension relief.

**** Varies depending on the thickness of material installed in.*

(1) Unstressed material.

Material TPE and Polyamide 66 - Halogen Free
UL approved material

Integrated cable anchorage,
wide sealing range.
Material thickness 0,5 - 3 mm
Material thickness IP67/65 0,5 - 3 mm
Quick and simple assembly without
the use of tools.

Mode of protection IP67 / IP65

Temperature range -20ºC....+125ºC [1]

Test standard EN60529:1991+A1
EN50262:1998
EMKO-TUI (03-SEC) FI001/84

Semko report NA

NA - Not available at time of printing
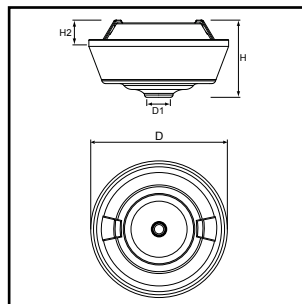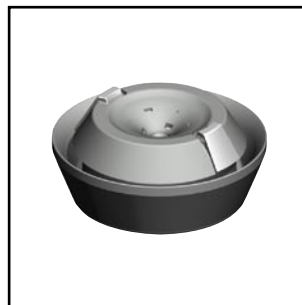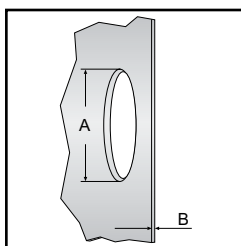
E-number	Size	IP67 and Cable Anchorage Type A* for Cable Ø mm	IP65 for Cable Ø mm	A mm	B for IP67/65 mm	H mm	H2 mm	D1 mm	D*** mm	Pcs pack	
RAL 7035											
T_14 758 07	M20	7 - 11	4 - 11	20,5	0,7 - 3	17 - 20	5,5	4,0	34,2 - 37,2	50	2500
T_14 758 08	M25	7 - 13**	4 - 13	25,5	0,7 - 3	17 - 20	5,7	5,0	39,2 - 42,2	50	2000
RAL 9005											
T_14 758 17	M20	7 - 11	4 - 11	20,5	0,7 - 3	17 - 20	5,5	4,0	34,2 - 37,2	50	2500
T_14 758 18	M25	7 - 13**	4 - 13	25,5	0,7 - 3	17 - 20	5,7	5,0	39,2 - 42,2	50	2000
RAL 9010											
T_14 758 27	M20	7 - 11	4 - 11	20,5	0,7 - 3	17 - 20	5,5	4,0	34,2 - 37,2	50	2500
T_14 758 28	M25	7 - 13**	4 - 13	25,5	0,7 - 3	17 - 20	5,7	5,0	39,2 - 42,2	50	2000
RAL XYZ											
TKST M20 XYZ	M20	7 - 11	4 - 11	20,5	0,7 - 3	17 - 20	5,5	4,0	34,2 - 37,2	50	2500
TKST M25 XYZ	M25	7 - 13**	4 - 13	25,5	0,7 - 3	17 - 20	5,7	5,0	39,2 - 42,2	50	2000

Please observe that all the data in the tables is preliminary. SEMKO test to be performed.

* Cable Anchorage Type A, according to EN 50262.

** 8,1 - 8,9 mm only approved for tension relief.

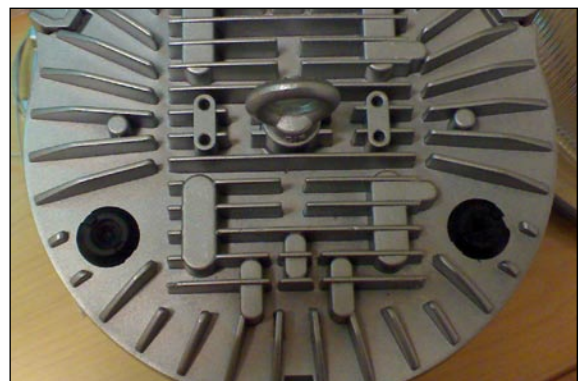**** Varies depending on the thickness of material installed in.*

(1) Unstressed material.

Enclosures and Cabinets

Light fixtures

RUTASEAL® Rubber Grommets

RUTASEAL® is very simple to use and demands no tools, which in turn means lower work cost. It requires no screwdriver or scissors to make the hole, which otherwise would endanger the IP-class seal. RUTASEAL® is SEMKO tested for IP67 internally and externally. The chloroprene version is also DNV approved. RUTASEAL® is produced in EPDM and Chloroprene in both PG and Metric. The seals are produced in black, light grey and grey. RUTASEAL® has a very high finish and the automatic method of production guarantees the same even and high quality on all products at all times.

Product features RUTASEAL® & RUTASEAL LIGHT®

IP Class: IP67 (external)

Both Metric and
PG programmes

"Pushout" membrane with
0,25 mm thickness

Internal / External
holes IP67

Internal / External
holes IP67

Produced in halogene-free
EPDM or Chloropren.

RUTASEAL can be assembled
from either end depending upon
the application.

Hardness:
60 ± 5 (Shore density)

Suits material thickness
0,5 - 4 mm both in plastic
and metal.
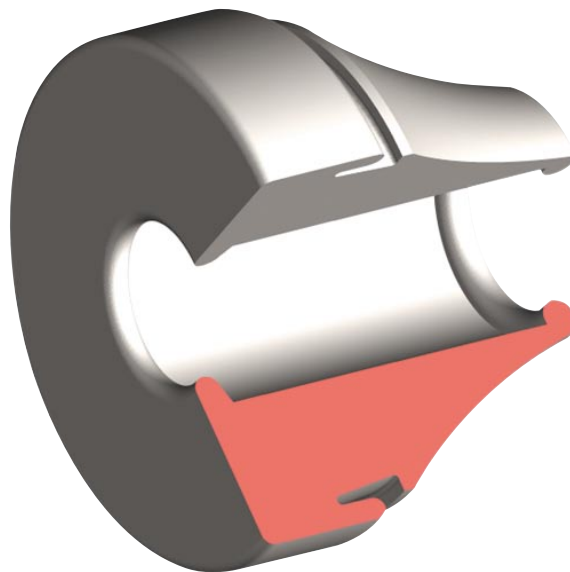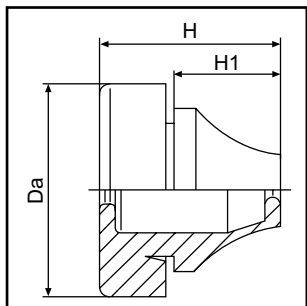

Push the grommet into the hole.

Pierce the grommet with the cable.
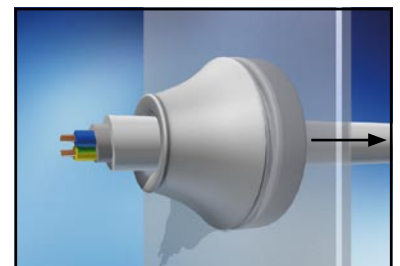
*The grommet is then locked in
position by pulling it back.*

RUTASEAL® EPDM Metric

Material   EPDM - Halogen Free
Resistant to chemicals and weatherproof.

Suitable for holes in materials of 0,5 - 4 mm thickness.
Quick and simple assembly without the use of tools.

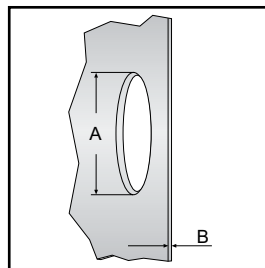**Mode of protection**   IP67 acc. to EN 60529
Temperature range   -40ºC....+110ºC [1]
Test standard   SEMKO 44:1984
Semko report   0211038/01-07

E-number	Size	For cable/ pipe Ø mm	A mm	B mm	Da mm	H mm	H1 mm	Pcs pack	
RAL 7001									
T_14 582 33	M12	4 - 7	12,5	0,5 - 2	20	12,8	5,6	50	2000
T_14 582 34	M16	5 - 9	16,5	1 - 4	21	17,7	11	50	2000
T_14 582 35	M20	8 - 13	20,5	1 - 4	25,5	20	13,4	50	3000
T_14 582 36	M25	11 - 17	25,5	1 - 4	30,5	21,3	15,3	50	2000
T_14 582 37	M32	15 - 20	32,5	1 - 4	38,5	24,6	18,6	25	1000
T_14 582 38	M40	19 - 28	40,5	1 - 4	48,5	29,5	21,7	25	600
T_14 582 39	M50	27 - 35	50,5	1 - 4	60,5	34,8	25	10	250
RAL 9005									
T_14 582 93	M12	4 - 7	12,5	0,5 - 2	20	12,8	5,6	50	2000
T_14 582 94	M16	5 - 9	16,5	1 - 4	21	17,7	11	50	2000
T_14 582 95	M20	8 - 13	20,5	1 - 4	25,5	20	13,4	50	3000
T_14 582 96	M25	11 - 17	25,5	1 - 4	30,5	21,3	15,3	50	2000
T_14 582 97	M32	15 - 20	32,5	1 - 4	38,5	24,6	18,6	25	1000
T_14 582 98	M40	19 - 28	40,5	1 - 4	48,5	29,5	21,7	25	600
T_14 582 99	M50	27 - 35	50,5	1 - 4	60,5	34,8	25	10	250
RAL 7035									
T_14 583 03	M12	4 - 7	12,5	0,5 - 2	20	12,8	5,6	50	2000
T_14 583 04	M16	5 - 9	16,5	1 - 4	21	17,7	11	50	2000
T_14 583 05	M20	8 - 13	20,5	1 - 4	25,5	20	13,4	50	3000
T_14 583 06	M25	11 - 17	25,5	1 - 4	30,5	21,3	15,3	50	2000
T_14 583 07	M32	15 - 20	32,5	1 - 4	38,5	24,6	18,6	25	1000
T_14 583 08	M40	19 - 28	40,5	1 - 4	48,5	29,5	21,7	25	600
T_14 583 09	M50	27 - 35	50,5	1 - 4	60,5	34,8	25	10	250

(1) Unstressed material.

Material Chloroprene
Resistant to chemicals, ageing and weatherproof.

Suitable for holes in materials of 0,5 - 4 mm thickness.
Quick and simple assembly without the use of tools.

Mode of protection IP67 acc. to EN 60529

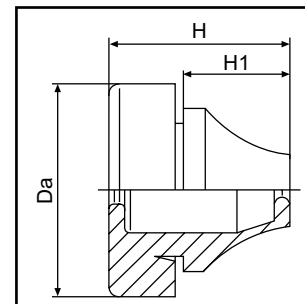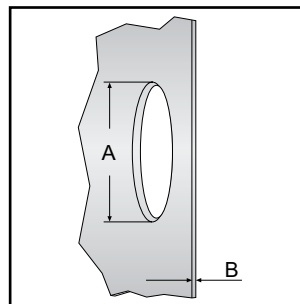**Temperature range** -30ºC....+100ºC [1]

Test standard EMKO TUI (03-SEC) FI 001/84

Semko report 410375

DNV report E-8009

E-number	Size	For cable/ pipe Ø mm	A mm	B mm	Da mm	H mm	H1 mm	Pcs pack	
RAL 9005									
T_14 582 53	M12	4 - 7	12,5	0,5 - 2	20	12,8	5,6	50	2000
T_14 582 54	M16	5 - 9	16,5	1 - 4	21	17,7	11	50	2000
T_14 582 55	M20	8 - 13	20,5	1 - 4	25,5	20	13,4	50	3000
T_14 582 56	M25	11 - 17	25,5	1 - 4	30,5	21,3	15,3	50	2000
T_14 582 57	M32	15 - 20	32,5	1 - 4	38,5	24,6	18,6	25	1000
T_14 582 58	M40	19 - 28	40,5	1 - 4	48,5	29,5	21,7	25	600
T_14 582 59	M50	27 - 35	50,5	1 - 4	60,5	34,8	25	10	250

(1) Unstressed material.

RUTASEAL LIGHT® EPDM Metric
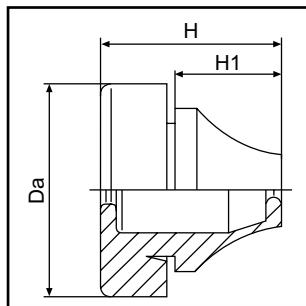
Material   EPDM - Halogen Free
                        Resistant to chemicals and
                        weatherproof.

                        Suitable for holes in materials of
                        1 - 4 mm thickness.
                        Quick and simple assembly without the
                        use of tools.

**Mode of protection** IP67 acc. to EN 60529
Temperature range   -40ºC....+110ºC [1]
Test standard   SEMKO 44:1984
Semko report   300965
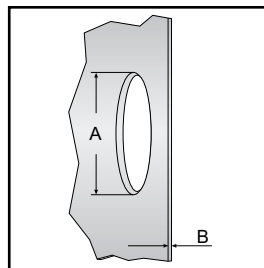
E-number	Size	For cable/ pipe Ø mm	A mm	B mm	Da mm	H mm	H1 mm	Pcs pack	
RAL 7001									
T_14 583 26	M16	5 - 9	16,5	1 - 4	21	17,5	11	50	2000
T_14 583 27	M20	8 - 12	20,5	1 - 4	25,5	19,6	13,4	50	3000
T_14 583 28	M25	11 - 16	25,5	1 - 4	30,5	20,9	15,3	50	2000
RAL 9005									
T_14 583 30	M16	5 - 9	16,5	1 - 4	21	17,5	11	50	2000
T_14 583 31	M20	8 - 12	20,5	1 - 4	25,5	19,6	13,4	50	3000
T_14 583 32	M25	11 - 16	25,5	1 - 4	30,5	20,9	15,3	50	2000
RAL 7035									
T_14 583 34	M16	5 - 9	16,5	1 - 4	21	17,5	11	50	2000
T_14 583 35	M20	8 - 12	20,5	1 - 4	25,5	19,6	13,4	50	3000
T_14 583 36	M25	11 - 16	25,5	1 - 4	30,5	20,9	15,3	50	2000

RUTASEAL®

RUTASEAL LIGHT®

RUTASEAL LIGHT® was originally designed for strip lighting manu-

facturers and similar applications. Less material makes it lighter and

easier to install, while providing IP67 protection. At the same time it is

also easier to pull it out of the opening.

(1) Unstressed material.

RUTASEAL® EPDM PG

Material EPDM - Halogen Free
Resistant to chemicals and
weatherproof.

Suitable for holes in materials of
0,5 - 4 mm thickness.
Quick and simple assembly without the
use of tools.

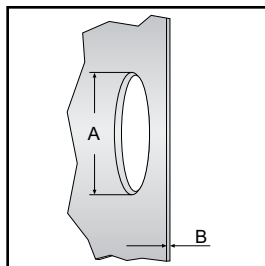**Mode of protection** IP67 acc. to EN 60529
Temperature range -40ºC....+110ºC [1]
Test standard EMKO TUI (03-SEC) FI 001/84
Semko report 410375
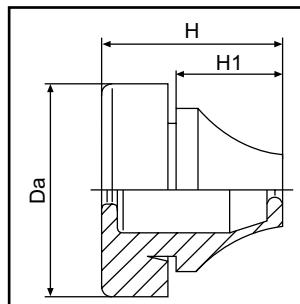
E-number	Size	For cable/ pipe Ø mm	A mm	B mm	Da mm	H mm	H1 mm	Pcs pack	
RAL 7001									
T_14 582 20	PG7/12,5	3 - 5	13	0,5 - 2	20	12,6	5,4	50	2000
T_14 582 21	PG9/15,2	5 - 7	16	1 - 4	21	17,8	10,3	50	2000
T_14 582 22	PG11/18,6	7 - 10	19	1 - 4	24	19,8	12,7	50	3000
T_14 582 23	PG16/22,5	10 - 14	23	1 - 4	28	21,6	14,7	50	2000
T_14 582 24	PG21/28,3	14 - 20	29	1 - 4	35	24,6	17,6	25	1000
T_14 582 25	PG29/37,0	20 - 26	38	1 - 4	46	28,5	20	25	600
T_14 582 26	PG36/47,0	26 - 35	48	1 - 4	58	34,9	23,9	10	250
RAL 9005									
T_RS-PG7S	PG7/12,5	3 - 5	13	0,5 - 2	20	12,6	5,4	50	2000
T_RS-PG9S	PG9/15,2	5 - 7	16	1 - 4	21	17,8	10,3	50	2000
T_RS-PG11S	PG11/18,6	7 - 10	19	1 - 4	24	19,8	12,7	50	3000
T_RS-PG16S	PG16/22,5	10 - 14	23	1 - 4	28	21,6	14,7	50	2000
T_RS-PG21S	PG21/28,3	14 - 20	29	1 - 4	35	24,6	17,6	25	1000
T_RS-PG29S	PG29/37,0	20 - 26	38	1 - 4	46	28,5	20	25	600
T_RS-PG36S	PG36/47,0	26 - 35	48	1 - 4	58	34,9	23,9	10	250
RAL 7035									
T_14 582 12	PG7/12,5	3 - 5	13	0,5 - 2	20	12,6	5,4	50	2000
T_14 582 13	PG9/15,2	5 - 7	16	1 - 4	21	17,8	10,3	50	2000
T_14 582 14	PG11/18,6	7 - 10	19	1 - 4	24	19,8	12,7	50	3000
T_14 582 15	PG16/22,5	10 - 14	23	1 - 4	28	21,6	14,7	50	2000
T_14 582 16	PG21/28,3	14 - 20	29	1 - 4	35	24,6	17,6	25	1000
T_14 582 17	PG29/37,0	20 - 26	38	1 - 4	46	28,5	20	25	600
T_14 582 18	PG36/47,0	26 - 35	48	1 - 4	58	34,9	23,9	10	250

(1) Unstressed material.

RUTASEAL® Chloroprene PG

Material: Chloroprene
Resistant to chemicals, ageing and weatherproof.

Suitable for holes in materials of 0,5 - 4 mm thickness.
Quick and simple assembly without the use of tools.

Mode of protection: IP67 acc. to EN 60529
Temperature range: -30ºC....+100ºC [1]
Test standard: EMKO TUI (03-SEC) FI 001/84
Semko report: 410375
DNV report: E-8009

E-number	Size	For cable/ pipe Ø mm	A mm	B mm	Da mm	H mm	H1 mm	Pcs pack	
RAL 9005									
14 582 42	PG7/12,5	3 - 5	13	0,5 - 2	20	12,6	5,4	50	2000
14 582 43	PG9/15,2	5 - 7	16	1 - 4	21	17,8	10,3	50	2000
14 582 44	PG11/18,6	7 - 10	19	1 - 4	24	19,8	12,7	50	3000
14 582 45	PG16/22,5	10 - 14	23	1 - 4	28	21,6	14,7	50	2000
14 582 46	PG21/28,3	14 - 20	29	1 - 4	35	24,6	17,6	25	1000
14 582 47	PG29/37,0	20 - 26	38	1 - 4	46	28,5	20	25	600
14 582 48	PG36/47,0	26 - 35	48	1 - 4	58	34,9	23,9	10	250

(1) Unstressed material.

TSS
The **TSS** is the latest addition to the TST grommet range.

What makes the **TSS** different from existing products on the market are the built-in features that you do not find in this otherwise relatively simple product.
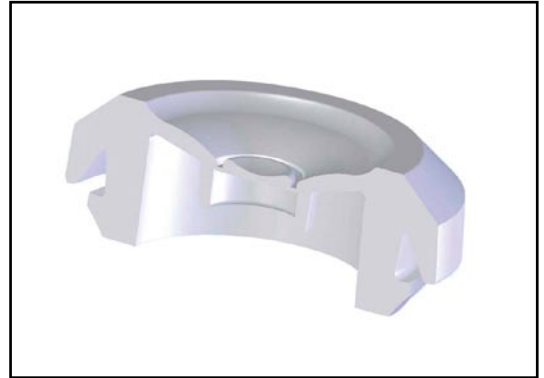
TSS handles an exceptionelly large cable span.

It is the only "simple" grommet manufactured in a rubber-like material, and the only TPE-based end-plug.

With the **"pushout" membrane** you always have a round opening and are guaranteed to have IP67.

The **TSS** is equipped with a sock that closes tight around the cable and allows for it to be moved around like a **"joy-stick"** in the opening without endangering the IP-classification.
So it works extremely well with cables passing through at an angle.

The design makes sure that the grommet stays in place, even when large cables are installed.

These are some of the features that creates a lot of value added in the **TSS**, and makes it a unique product.
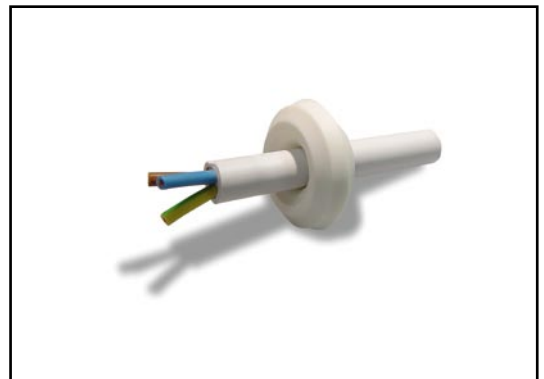
Product features TSS

End-plug/grommet for all applications

Self-adjusting to cable diameter

Significant timesaving

Ergonomic installation

IP67 = Waterproof

Handles exceptionally large cable-span 5 - 24 mm

Secure installation in opening

Suits material thickness 0,5 – 4,5 mm

Easy and fast installation

Temperature range -50°C....+125°C

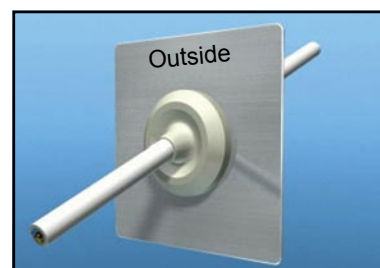"Joy-stick" effect thanks to built-in sock

"Pushout" membrane

Not for temporary use

Push the grommet into the hole.
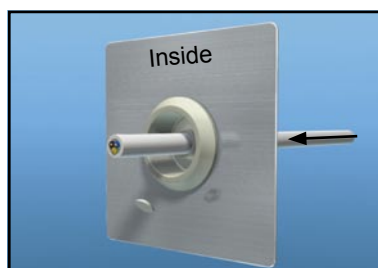
Pierce the grommet with the cable.

Material	TPE - Thermoplastic Elastomer - Halogen Free. UL approved material
Mode of protection	IP67
Temperature range	-50ºC....+125ºC [1]
Test standard	EN60529:1991+A1, EMKO-TUI (03-SEC) FI001/84
Semko report	M16 - 708555-1 M20 - 708555-2 M25 - 708555-3 M32 - 708555-4

- Quick and simple assembly without the use of tools
- Handles exceptionally large cable span
- An end-plug for all applications
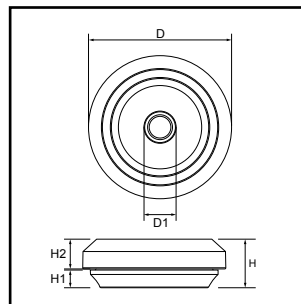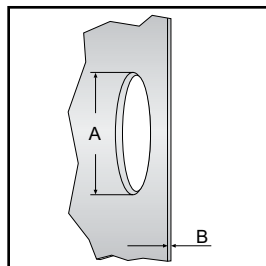
E-number	Size	For cable/ pipe Ø mm	A mm	B mm	D* mm	D1 mm	H mm	H1 mm	H2* mm	Pcs pack	
RAL 7035											
T_14 757 11	M16	5 - 10	16,5	0,5 - 3	23,5	4	11	4	6,75	50	2000
T_14 757 12	M20	6 - 13	20,5	0,5 - 3	27,5	5	11	4	6,75	50	4000
T_14 757 13	M25	8 - 17	25,5	0,5 - 3,5	32,5	7	11	4	6,75	50	3000
T_14 757 14	M32	12 - 24	32,5	0,5 - 4,5	39,5	11	11	4	6,75	25	2000
RAL 9005											
T_14 757 16	M16	5 - 10	16,5	0,5 - 3	23,5	4	11	4	6,75	50	2000
T_14 757 17	M20	6 - 13	20,5	0,5 - 3	27,5	5	11	4	6,75	50	4000
T_14 757 18	M25	8 - 17	25,5	0,5 - 3,5	32,5	7	11	4	6,75	50	3000
T_14 757 19	M32	12 - 24	32,5	0,5 - 4,5	39,5	11	11	4	6,75	25	2000
RAL 9010											
T_14 757 21	M16	5 - 10	16,5	0,5 - 3	23,5	4	11	4	6,75	50	2000
T_14 757 22	M20	6 - 13	20,5	0,5 - 3	27,5	5	11	4	6,75	50	4000
T_14 757 23	M25	8 - 17	25,5	0,5 - 3,5	32,5	7	11	4	6,75	50	3000
T_14 757 24	M32	12 - 24	32,5	0,5 - 4,5	39,5	11	11	4	6,75	25	2000
RAL XYZ											
TSS M16 XYZ	M16	5 - 10	16,5	0,5 - 3	23,5	4	11	4	6,75	50	2000
TSS M20 XYZ	M20	6 - 13	20,5	0,5 - 3	27,5	5	11	4	6,75	50	4000
TSS M25 XYZ	M25	8 - 17	25,5	0,5 - 3,5	32,5	7	11	4	6,75	50	3000
TSS M32 XYZ	M32	12 - 24	32,5	0,5 - 4,5	39,5	11	11	4	6,75	25	2000

*Varies depending on the thickness of material installed in.*

(1) Unstressed material.

Why TST Grommets

What makes our grommets different from the competition?

• Totally automated production in all phases. Production method guarantees an exact quality on all types at all times, also giving very aesthetically pleasing products.

• No tool is required at application, thereby lower work cost. No screwdriver required to make a hole, which often makes an uneven hole adventuring proofing. No scissors to cut off a teat, which often gives wrong size for guaranteed proofing.

• The opening is always sealed until the membrane is pushed out – no need for stop-plugs or blind plugs in the mean time, which creates extra costs.

• Quick and easy installation from one side only -- not necessary to be able to reach opposite side of installation to attach locknut.

• Ergonomically better, no strain on wrists since it does not need to be screwed into place.

• Ideal where space is restricted - less protrusion and space needed. Available in PG & Metric sizes and in several colours and materials.

• All are SEMKO approved for IP67. DNV approval for RUTASEAL® in Chloroprene. KLIKSEAL® approved for cable anchorage type A.

• Superior grommets, both economically and in quality.

• Our new packaging-line allows for customer specified package –size and -labels, should standard sizes and labels not fit your needs.

Examples of applications for RUTASEAL® & TSS
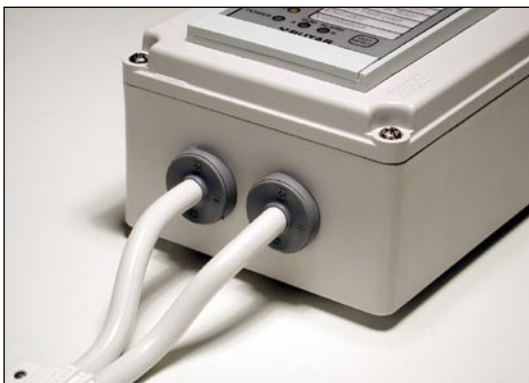
Enclosures and boxes

Light fixtures

Round surfaces

Enclosures

DESIGN - A - FLANGE

With **Design-A-Flange** we are introducing a brand new flange concept, with an unparalleled level of protection and flexibility.

Design-A-Flange is an innovative modular system where inserts can be changed depending on your needs. You can design you own configuration based on how many openings you want, where you want them placed, and what type of seal you want to have. You are no longer forced to use a fixed flange with a certain number of pre-determined openings. You choose the configuration that suits your needs.

The push-out membranes ensures fast and easy installation without worries about achieving the correct IP-level. Should you want cable anchorage on certain cables then just install a Klikseal or a cable gland in the flange. If a cable no longer will be used you can seal the opening either by replacing the insert or cutting out the membrane and sealing the opening with one of our grommets.

Cable penetration by design

Design-A-Flange offers a number of features that you cannot find in any other flange solutions
- Design you own configuration, with the right size openings, and right number of openings placed where you want them
- Push-out membranes to make installation fast, easy and fool-proof
- High IP-protection
- No need to drill separate holes to install a Klikseal or a cable gland
- The inserts are easily changed to adapt to new needs
- Very easy to seal an opening that no longer will be used
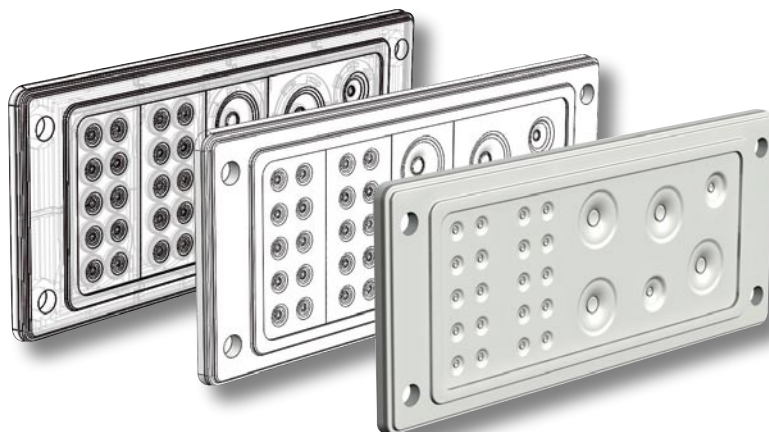
DESIGN-A-FLANGE

The design and technique

Design-A-Flange is very compact in its design and very easy to install. Just slide the inserts together, place them in the frame and install. The inserts lock on to each other as well as to the frame, ensuring a safe and secure installation. Fiberglass re-inforced Polypropylene is used for the frame and the inserts, ensuring a very rigid structure. The soft TPE lets us incorporate push-out membrane seals with exceptional sealing properties. The two materials together with our patented system make it possible to have a flange system with a very slim design. Design-A-Flange is made to have low protrusion and will take up very little space. This allows for very discrete and aesthetic installations. You can even have cable anchorage on your cables by using KLIKSEAL® and still have an installation that takes up a minimum of space. Design-A-Flange is available in the sizes that are most commonly used on the market today. The system is continuously growing and we are sure you will find a version that suits your needs.

Have you ever used a flange with too many pre-determined openings in strange size-configurations that never will be used?

You are no longer forced to use a flange where someone else has decided what size openings, how many, and where they are placed. A pre-determined solution where you often end up having quite a few openings unused is now a thing of the past.

With Design-A-Flange you have the freedom to decide where the inserts are placed, and where the different size openings should be in the frame. You are then able to get a sealing solution that is easier to install, and a very clean uncluttered cable installation.

With Design-A-Flange you can either chose a pre-configured kit or design you own configuration - allowing for a completely tailor made solution.

Have you ever worried about incorrect installations?

All our Design-A-Flange inserts are equipped with push-out membranes. No tools are needed to install the cables. Just push the cables through the membrane of the seal and the installation is complete. Since you always will have a round opening, you are guaranteed to have IP65. You do not need to worry about cutting the right size opening to match the diameter of the cable, or that you made the opening uneven and therefore endangered the IP-classification. Our inserts are designed to avoid these worries and to make sure you have a safe and secure installation with a minimum of work.

The bottom side of the membrane-seal is equipped with a sock that fits tightly around the cable, assuring the IP class even when the cable passes through at an angle.

Have you ever used a flange that is IP65 until you install a cable in it?

A common issue with today's flanges is that either the IP-rating decreases as soon as a cable is installed, or you cannot get a protection level of at least IP65.

With Design-A-Flange you can now have a flange system that is rated IP65, with or without cables installed. For the first time ever you have a flange that provides exceptionally high IP-protection and flexibility.

Have you ever been forced to use a cable gland in addition to a flange to fulfill the demands placed on your installation?

Design-A-Flange and its interchangeable inserts give you an extremely flexible flange solution, allowing you to combine different types of seals. If our water- and dust proof membrane seals are not enough you can cut them out or choose the knock-out insert and install a Klikseal or a cable gland. You can then have cable anchorage for those cables needing this. This gives you the ability to combine different levels of strain relief and IP-rating in the same flange. Design-A-Flange offers tremendous flexibility as you have the possibility to adapt the system even after installation, to fit changing needs or new installations. For the first time ever you are allowed to design a flange solution that suits all your needs – from cable placement to sealing type.

Have you ever wanted to seal an opening where a cable used to be installed?

If you no longer need to use a certain cable it is not necessary to replace the whole flange to seal the opening. You can replace the affected insert with a new one – leaving all other cables installed. Depending on the size of the opening you can also seal the opening by cutting out the membrane seal and installing one of our grommets. The opening can then be "re-used" when needed. Either way you save both time and money compared to other flange solutions.

Have you ever worried about needs changing in the future?

You can choose if you want to have a configuration that is suited for today's needs or one that allows flexibility for the future. Even if your needs change in the future and you did not initially plan for this, you do not need to worry as the inserts can be changed to fit your new demands.

DESIGN-A-FLANGE

Product advantages Design-A-Flange

Interchangeable inserts

Design your own solution

Compact design

"Pop-out" membranes.

IP65, with or without cables

"Free placement" of openings

Possible to change configuration later on.
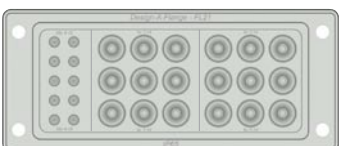
KLIKSEAL® or cable gland installation in the flange.

The Design-A-Flange System

Material	Fiberglass re-inforced Polypropylene and TPE - Halogen Free UL approved materials
Mode of protection	IP65
Temperature range	-20ºC....+125ºC [1]
Test standard	EN 60529:1991+A1, EN 60670-1:2005
Semko report	816003

Prefabricated Flanges

FL21	**T_26 654 01 / 19** Frame + 2(8-17 5-10 6-13) + 20X4-10
FL21	**T_26 654 02 / 20** Frame + 2(8-17 6-13) 30X4-10
FL21	**T_26 654 03 / 21** Frame + 18X7-14 10X4-10
FL13	**T_26 654 05 / 23** Frame + 6-13 10X4-10

KLIKSEAL®   Cable Gland
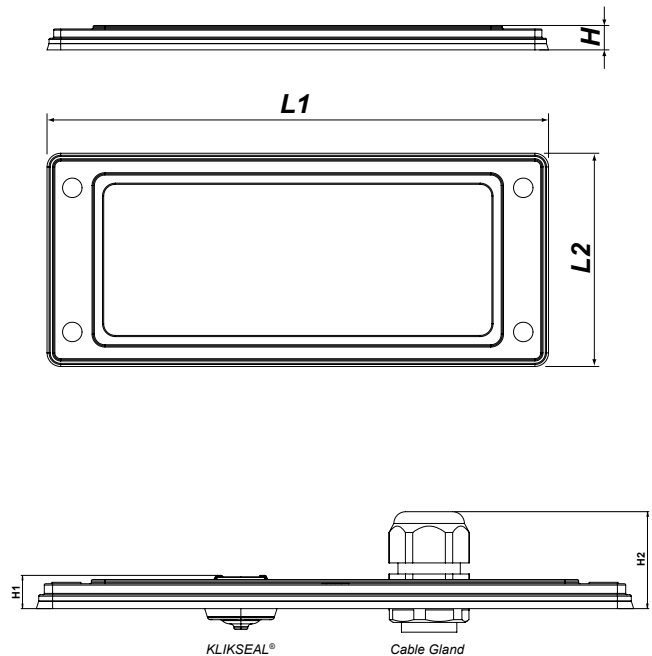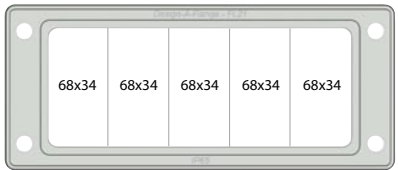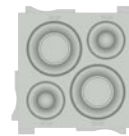
Size	L1 mm	L2 mm	H mm	H1 mm	H2 mm
FL 13	134	52	6,5	12	~ 35
FL 21	214	90	9	12	~ 35

(1) Unstressed material.
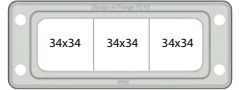
The Design-A-Flange system also available in black.

The DESIGN-A-FLANGE System

Frame
FL21

68x34 | 68x34 | 68x34 | 68x34 | 68x34

T_26 654 00 / 18

Inserts 68x68 for FL21				
2x M25 (8-17mm) *2x M16 (5-10 mm)* *T_26 654 06 / 24*	*KO M32 M40 M50* *T_26 654 07 / 25*	*9x 7-14 mm* *T_26 654 08 / 26*	*2x 20-30mm* *2x 10-20 mm* *T_26 654 09 / 27*	*30-50mm* *T_26 654 10 / 28*

Inserts 68x34 for FL21		
2x 8-17mm *T_26 654 11 / 29*	*2x M20 (6-13mm)* *T_26 654 12 / 30*	*10x 4-10mm* *T_26 654 13 / 31*

Frame
FL13

34x34 | 34x34 | 34x34

T_26 654 04 / 22

Inserts 34x68 for FL13			Insert 34x34 for FL13
2x 8-17mm *T_26 654 14 / 32*	*2x M20 (6-13mm)* *T_26 654 15 / 33*	*10x 4-10mm* *T_26 654 16 / 34*	*1x M20 (6-13mm)* *T_26 654 17 / 35*

Build your own flange at www.tst-ab.com/daf_tst
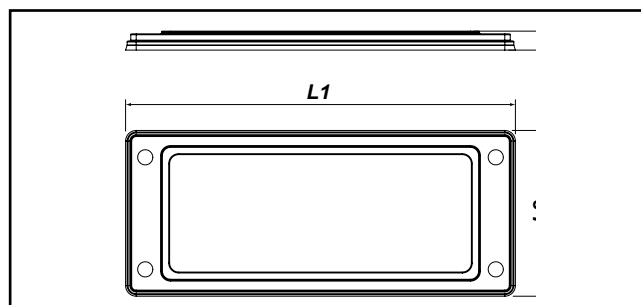
TST
TAPPER SEALING TECHNOLOGY

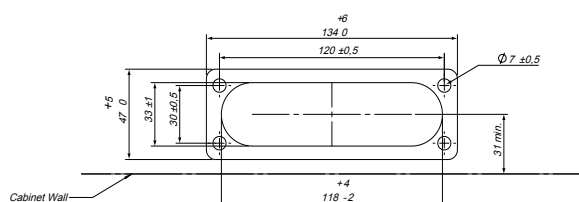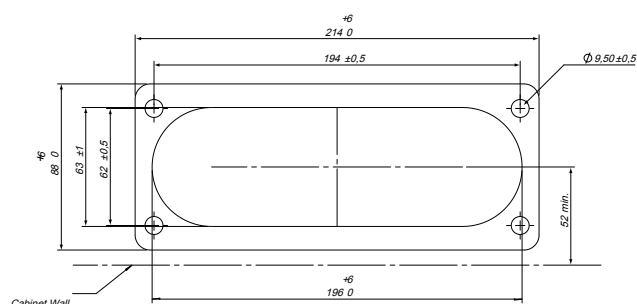| Material	Fiberglass re-inforced Polypropylene and TPE - Halogen Free UL approved materials
Mode of protection	IP65
Temperature range	-20ºC....+125ºC [1]
Test standard	EN 60529:1991 + A1 EN 60670-1:2005, EN 50262:1998 EMKO-TUI(03-SEC)FI001/84
Semko report	816003

E-26 654 00 / 18   E-26 654 04 / 22

L1
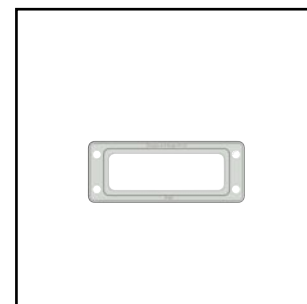
E-number	Size	L1 mm	L2 mm	H mm	Pcs pack	
RAL 7035						
T_26 654 00	FL21	214	90	9	10	100
T_26 654 04	FL13	134	52	6,5	10	100
RAL 9005						
T_26 654 18	FL21	214	90	9	10	100
T_26 654 22	FL13	134	52	6,5	10	100
RAL XYZ						
FL21 FRAME XYZ	FL21	214	90	9	10	100
FL13 FRAME XYZ	FL13	134	52	6,5	10	100

Standards and measurements

FL 13

134 +6 0
120 ±0,5
$\emptyset$ 7 ±0,5
47 +5 0
33 ±1
30 ±0,5
31 min.
118 +4 -2
Cabinet Wall

FL 21

214 +6 0
194 ±0,5
$\emptyset$ 9,50 ±0,5
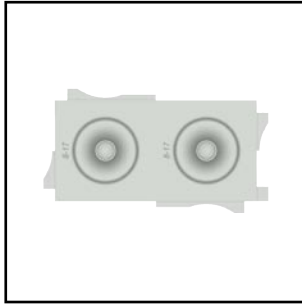88 +6 0
63 ±1
62 ±0,5
52 min.
196 +6 0
Cabinet Wall

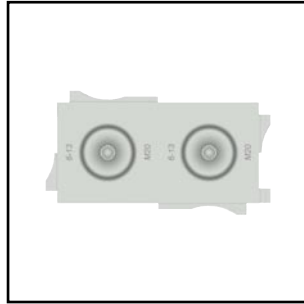*(1) Unstressed material.*

Inserts for FL13

T_26 654 14 / 32

T_26 654 15 / 33
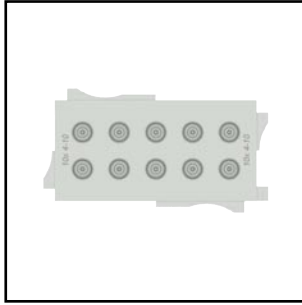
T_26 654 16 / 34
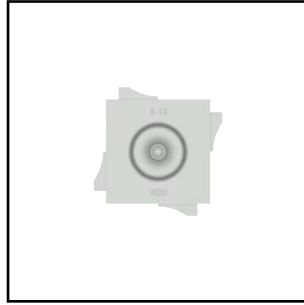
T_26 654 17 / 35

|	
Material	Fiberglass re-inforced Polypropylene and TPE - Halogen Free UL approved materials
Mode of protection	IP65
Temperature range	-20ºC....+125ºC [1]
Test standard	EN 60529:1991 + A1 EN 60670-1:2005, EN 50262:1998 EMKO-TUI(03-SEC)FI001/84
Semko report	816003

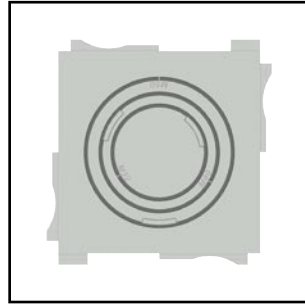| E-number	For use with frame	Description	For cable/pipe Ø mm	Pcs pack	
RAL 7035					
T_26 654 14	FL13	Insert for FL13 34x68, 2x 8-17	8 - 17	10	100
T_26 654 15	FL13	Insert for FL13 34x68 2x M20	6 - 13	10	100
T_26 654 16	FL13	Insert for FL13 34x68 10x 4-10mm	4 - 10	10	100
T_26 654 17	FL13	Insert for FL13 34x34 M20	6 - 13	10	100
RAL 9005					
T_26 654 32	FL13	Insert for FL13 34x68, 2x 8-17	8 - 17	10	100
T_26 654 33	FL13	Insert for FL13 34x68 2x M20	6 - 13	10	100
T_26 654 34	FL13	Insert for FL13 34x68 10x 4-10mm	4 - 10	10	100
T_26 654 35	FL13	Insert for FL13 34x34 M20	6 - 13	10	100
RAL XYZ					
13 6834 2X8-17 XYZ	FL13	Insert for FL13 34x68, 2x 8-17	8 - 17	10	100
13 6834 2X6-13 XYZ	FL13	Insert for FL13 34x68 2x M20	6 - 13	10	100
13 6834 10X4-10 XYZ	FL13	Insert for FL13 34x68 10x 4-10mm	4 - 10	10	100
13 3434 6-13 XYZ	FL13	Insert for FL13 34x34 M20	6 - 13	10	100

Installation of cables
Push the cable through the membrane until the membrane pops out, or push out the membrane before installing the cable with a smaller cable or screwdriver.
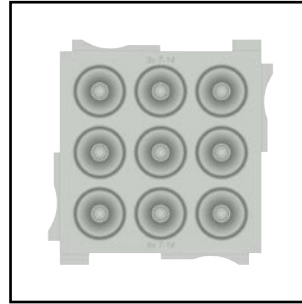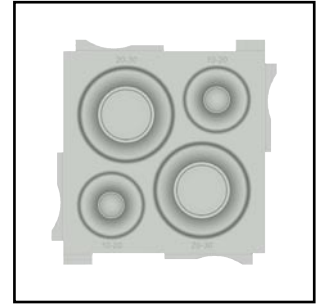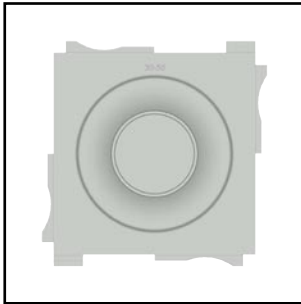
(1) Unstressed material.
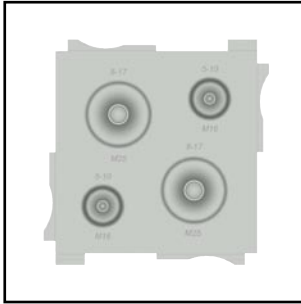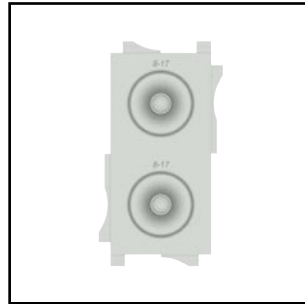
T_26 654 06 / 24

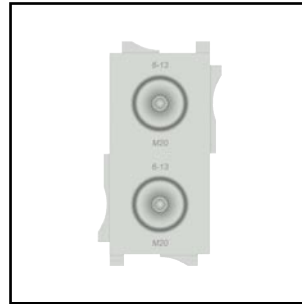T_26 654 07 / 25

T_26 654 08 / 26

T_26 654 09 / 27
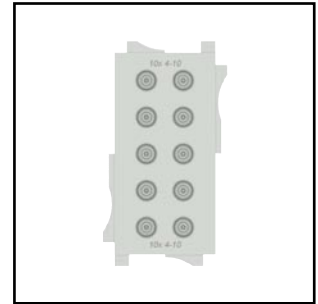

T_26 654 10 / 28

T_26 654 11 / 29

T_26 654 12 / 30

T_26 654 13 / 31

E-number	For use with frame	Description	For cable/pipe Ø mm	Pcs pack	

RAL 7035

E-number	For use with frame	Description	For cable/pipe Ø mm	Pcs pack	
T_26 654 06	FL21	Insert for FL21 68x68, 2xM25 + 2xM16	8-17, 5-10	10	100
T_26 654 07	FL21	Insert for FL21 68x68 Knockout M50, M40, M32	-	10	100
T_26 654 08	FL21	Insert for FL21 68x68 9x 7-14mm	7-14	10	100
T_26 654 09	FL21	Insert for FL21 68x68 2x 20-30mm + 2x 10-20mm	20-30, 10-20	10	100
T_26 654 10	FL21	Insert for FL21 68x68 30-50mm	30-50	10	100
T_26 654 11	FL21	Insert for FL21 68x34 2x 8-17mm	8-17	10	100
T_26 654 12	FL21	Insert for FL21 68x34 2x M20	6-13	10	100
T_26 654 13	FL21	Insert for FL21 68x34 10x 4-10mm	4-10	10	100

RAL 9005

| E-number	For use with frame	Description	For cable/pipe Ø mm	Pcs pack	
T_26 654 24	FL21	Insert for FL21 68x68, 2xM25 + 2xM16	8-17, 5-10	10	100
T_26 654 25	FL21	Insert for FL21 68x68 Knockout M50, M40, M32	-	10	100
T_26 654 26	FL21	Insert for FL21 68x68 9x 7-14mm	7-14	10	100
T_26 654 27	FL21	Insert for FL21 68x68 2x 20-30mm + 2x 10-20mm	20-30, 10-20	10	100
T_26 654 28	FL21	Insert for FL21 68x68 30-50mm	30-50	10	100
T_26 654 29	FL21	Insert for FL21 68x34 2x 8-17mm	8-17	10	100
T_26 654 30	FL21	Insert for FL21 68x34 2x M20	6-13	10	100
T_26 654 31	FL21	Insert for FL21 68x34 10x 4-10mm	4-10	10	100

RAL XYZ

| E-number	For use with frame	Description	For cable/pipe Ø mm	Pcs pack	
6868 2(8-17 5-10) XYZ	FL21	Insert for FL21 68x68, 2xM25 + 2xM16	8-17, 5-10	10	100
6868 KO M50 M40 M32 XYZ	FL21	Insert for FL21 68x68 Knockout M50, M40, M32	-	10	100
6868 9X7-14 XYZ	FL21	Insert for FL21 68x68 9x 7-14mm	7-14	10	100
6868 2(20-30 10-20) XYZ	FL21	Insert for FL21 68x68 2x 20-30mm + 2x 10-20mm	20-30, 10-20	10	100
6868 30-50 XYZ	FL21	Insert for FL21 68x68 30-50mm	30-50	10	100
6834 2X8-17 XYZ	FL21	Insert for FL21 68x34 2x 8-17mm	8-17	10	100
6834 2X6-13 XYZ	FL21	Insert for FL21 68x34 2x M20	6-13	10	100
6834 10X4-10 XYZ	FL21	Insert for FL21 68x34 10x 4-10mm	4-10	10	100

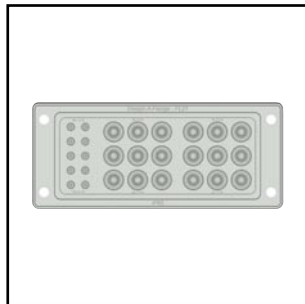*For technical info about the inserts see page 28.*

TST
TAPPER SEALING TECHNOLOGY
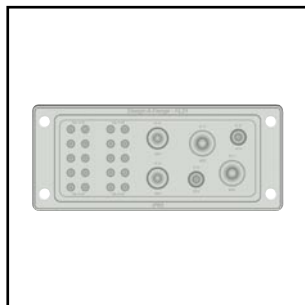
T_26 654 01 / 19
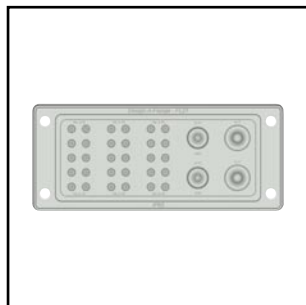
T_26 654 02 / 20

T_26 654 03 / 21

Material	*Fiberglass re-inforced Polypropylene and TPE - UL approved materials Halogen-Free*
Mode of protection	IP65
Temperature range	-20ºC....+125ºC [1]
Test standard	EN 60529:1991 + A1 EN 60670-1:2005, EN 50262:1998 EMKO-TUI(03-SEC)FI001/84
Semko report	816003

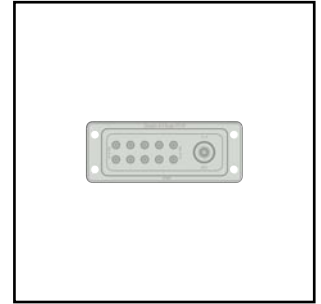| E-number	Size	Description	For cable/pipe Ø mm	Pcs pack	
RAL 7035					
T_26 654 01	FL21	Flange FL21 2x(M25M16M20) 20x4-10	2x 5 - 10 mm 2x 8 - 17 mm 2x 6 -13 mm 20x 4 - 10 mm	10	100
T_26 654 02	FL21	Flange FL21 2x(M25M20) 30x4-10	2x 6 - 13 mm 2x 8 - 17 mm 30x 4 - 10 mm	10	100
T_26 654 03	FL21	Flange FL21 18x7-14 10x4-10	18x 7 - 14 mm 10x 4 - 10 mm	10	100
RAL 9005					
T_26 654 19	FL21	Flange FL21 2x(M25M16M20) 20x4-10	2x 5 - 10 mm 2x 8 - 17 mm 2x 6 -13 mm 20x 4 - 10 mm	10	100
T_26 654 20	FL21	Flange FL21 2x(M25M20) 30x4-10	2x 6 - 13 mm 2x 8 - 17 mm 30x 4 - 10 mm	10	100
T_26 654 21	FL21	Flange FL21 18x7-14 10x4-10	18x 7 - 14 mm 10x 4 - 10 mm	10	100
RAL XYZ					
2(8-17 5-10 6-13) 20X4-10 XYZ	FL21	Flange FL21 2x(M25M16M20) 20x4-10	2x 5 - 10 mm 2x 8 - 17 mm 2x 6 -13 mm 20x 4 - 10 mm	10	100
T2(8-17 6-13) 30X4-10 XYZ	FL21	Flange FL21 2x(M25M20) 30x4-10	2x 6 - 13 mm 2x 8 - 17 mm 30x 4 - 10 mm	10	100
18X7-14 10X4-10 XYZ	FL21	Flange FL21 18x7-14 10x4-10	18x 7 - 14 mm 10x 4 - 10 mm	10	100

Installation of cables
Push the cable through the membrane until the membrane pops out, or push out the membrane before installing the cable with a smaller cable or screwdriver.

(1) Unstressed material.

Material	*Fiberglass re-inforced Polypropylene and TPE - UL approved materials Halogen-Free*
Mode of protection	IP65
Temperature range	-20ºC....+125ºC [1]
Test standard	EN 60529:1991 + A1 EN 60670-1:2005, EN 50262:1998 EMKO-TUI(03-SEC)FI001/84
Semko report	816003

T_26 654 05 / 23

E-number	Size	Description	For cable/pipe Ø mm	Pcs pack	
RAL 7035					
T_26 654 05	FL13	Flange FL13 1xM20 10x4-10	1x 6 - 13 mm 10x 4 - 10 mm	10	100
RAL 9005					
T_26 654 23	FL13	Flange FL13 1xM20 10x4-10	1x 6 - 13 mm 10x 4 - 10 mm	10	100
RAL 9010					
6-13 10X4-10 XYZ	FL13	Flange FL13 1xM20 10x4-10	1x 6 - 13 mm 10x 4 - 10 mm	10	100

Installation of cables
Push the cable through the membrane until the membrane pops out, or push out the membrane before installing the cable with a smaller cable or screwdriver.

(1) Unstressed material.

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