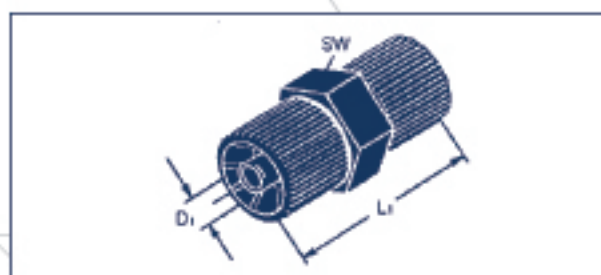


VG / VGR

Straight / reducing compression connectors



Description	Packaging PU	D_1	L_1	SW	Material
VG 6 x 1	100	6 x 1	31	17	Polyamide 6; 30% GF*
VG 8 x 1	100	8 x 1	31	17	Polyamide 6; 30% GF*
VGR 8 x 1 - 6 x 1	100	6 x 1	31	17	Polyamide 6; 30% GF*

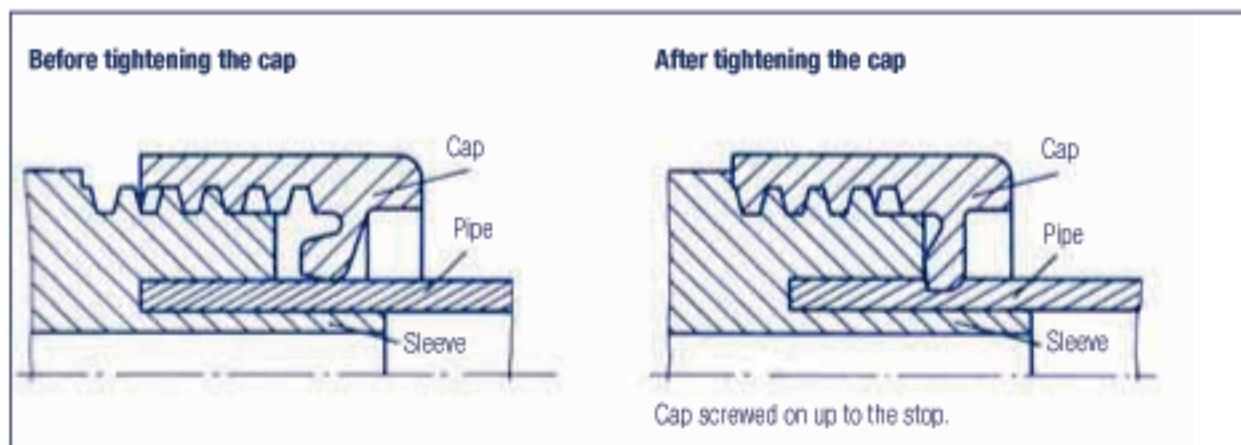
All dimensions in mm. Please refer to the table on Page 163 for further information.

Assembly Instructions

Pipe size: Outside ϕ - x wall thickness

Push the cap onto the pipe, push the pipe onto the sleeve up to the stop. Tighten the cap on the buttress thread up to the stop! (If necessary, use commercially available pliers).

The cap is also available as piece part.



Applications

Depending on the material used NORMAPLAST® hose and pipe connectors are the ideal connectors for lines transporting

- Water
- Air
- Oil
- Fuel

For details please refer to the table "Product and Material Properties" on page 142.



The best way to connect hose and tube

Over the years these top quality very versatile connectors have been used in millions of different applications and the product has become an indispensable aid to the domestic, commercial, industrial and automotive market sectors.



Strength

NORMAPLAST® SV products are proven plastic hose and tube connectors which connect fluid carrying lines reliably and at a reasonable price.

NORMAPLAST® SV hose and tube connectors can be used in motor vehicles as well as in nearly every industrial application.

Short description of technical features



The advantages at a glance

- High strength
- Toughness
- Low weight
- Shock damping
- Scuff resistance
- High Impact resistance

Types and Variants

1. Taper thread connector

These NORMAPLAST® SV connectors made of Polyamide 6 feature on one end a tapered thread and on the other end one or two push-on spigots.

The ribbed surface of the push-on spigots ensures that the hoses are tight-fit after assembly.

Three different thread geometries are distinguished by means of colour coding allowing for a quick visual identification:

Metric taper thread	light grey
Whitworth pipe thread	charcoal
NPT thread	black

(Other materials are available on request)



2. Hose connectors

With these NORMAPLAST® SV connectors without thread hoses are connected quickly and easily with one another by just pushing the hose onto the connectors.

The ribbed surface of the push-on spigots ensures that the hoses are tight-fit after assembly.

The NORMAPLAST® SV hose connectors are made of ecru-coloured POM (acetakopolymerisat); other materials are available on request.



3. Compression

The NORMAPLAST® SV threaded connectors feature on one end a metric thread and on the other end one or two pipe unions.

These compression connectors are made of black polyamide 6 with 30 % glass-fibre reinforcement.



4. Push-on connectors

These NORMAPLAST® SV parts are used for connecting plastic pipes made of PA6 or PA12.

With these connectors safe connections can be achieved even without the use of additional hose clips.

The push-on connectors are made of black polyamide 6 or polyamide 12 containing 30 % glass fibre reinforcement.

The connectors can be supplied with O-rings on request.



Product & Material Properties

Thermal Properties

For the threaded connecting pieces the coefficient of expansion of 100×10^{-6} must be considered if there is any exposure to temperature fluctuations. Our standard materials are classified under the UL (Underwriters Laboratories) system:

Flammability (UL94)

POM, PP, PA6, PA6.6, and PA12 : **HB** (Horizontal Burning)

Chemical properties of the plastic materials used

No.	Chemical Substance	Concentration	Temperature	POM	PP	PA 6	PA 6.6	PA 12
1	Acetone	100%	20 °C/50 °C	1/3	1/1	1/0	1/0	1/0
2	Formic acid	98–100%	20 °C/50 °C	4/4	1/3	4/4	4/4	4/4
3	Ammonium hydroxide (spirits of ammonia)	Any	20 °C/50 °C	1/2	1/1	1/0	1/0	1/0
4	Fuel (Super Unleaded, Normal)	Commercial	20 °C/50 °C	1/1	3/4	1/1	1/1	1/1
5	Benzene, B. hydrocarbons	100%	20 °C/50 °C	3/3	3/4	1/0	1/0	1/0
6	Bleaching lye (12.5% active chlorine)	Aqueous solution 12.5%	20 °C/50 °C	4/4	3/3	4/4	4/4	3/3
7	Brake fluid (DOT4)	Commercial	20 °C/50 °C	1/1	1/1	1/1	1/1	1/1
8	Butane	Technically pure	20 °C/50 °C	1/2	1/1	1/0	1/0	1/0
9	Chlorine, chlorine water	Commercial	20 °C/50 °C	4/4	4/4	4/4	4/4	4/4
10	Disinfectant phenols	Diluted solution	20 °C/50 °C	4/4	1/1	4/4	4/4	4/4
11	Diesel fuel, Diesel oil	Commercial	20 °C/50 °C	1/1	1/3	1/1	1/1	1/1
12	Decalcifier	Aqueous solution ~ 10%	20 °C/50 °C	4/4	1/1	2/3	2/3	2/3
13	Photographic developer (1:100)	Commercial	20 °C/50 °C	1/1	1/1	4/4	4/4	4/4
14	Town gas (coal gas, natural gas)	Commercial	20 °C/50 °C	1/1	1/1	1/1	1/1	1/1
15	Crude oil	Commercial	20 °C/50 °C	1/1	3/3	1/1	1/1	1/1
16	Acetic acid (glacial acetic acid)	90%	20 °C/50 °C	4/4	1/2	4/4	4/4	4/4
17	Ethyl alcohol	96% (techn. pure)	20 °C/50 °C	1/2	1/1	1/0	1/0	1/0
18	Photographic emulsion	Commercial	20 °C/50 °C	1/0	1/1	1/0	1/0	1/0
19	Fruit juices	Commercial	20 °C/50 °C	1/1	1/1	1/1	1/1	1/1
20	Glycerine	Technically pure	20 °C/50 °C	1/1	1/1	1/1	1/1	1/1
21	Glystantin	Commercial	20 °C/50 °C	1/1	1/1	3/3	3/3	3/3
22	Heating oil	Commercial	20 °C/50 °C	1/1	1/3	1/1	1/1	1/1
23	Hydraulic fluids	Commercial	20 °C/50 °C	1/0	1/3	1/1	1/1	1/1
24	Carbon dioxide, carbonic acid	Technically pure, saturated	20 °C/50 °C	1/1	1/1	1/0	1/0	1/0
25	Coolants (based on Glycol)	Commercial	20 °C/50 °C	1/1	1/1	3/3	1/1	1/1
26	Methane	Technically pure	20 °C/50 °C	1/1	1/1	1/1	1/1	1/1
27	Methanol	Technically pure	20 °C/50 °C	1/1	1/1	1/1	1/1	3/3
28	Methylethylketon	100%	20 °C/50 °C	3/3	1/3	1/0	1/0	1/0
29	HD engine oils	Commercial	20 °C/50 °C	1/1	1/3	1/1	1/1	1/1

No.	Chemical Substance	Concentration	Temperature	POM	PP	PA 6	PA 6.6	PA 12
30	Sodium hydroxide	40%	20 °C/50 °C	1/1	1/1	1/1	1/1	1/1
31	Ozone	Gaseous	20 °C/50 °C	4/4	3/4	3/4	3/4	3/4
32	Propanol	Technically pure	20 °C/50 °C	1/1	1/1	1/1	1/1	2/2
33	Propane (liquefied gas)	Fluid	20 °C/50 °C	1/1	1/1	1/0	1/0	1/0
34	Propene	96%	20 °C/50 °C	1/0	1/1	1/0	1/0	1/0
35	Rape oil (RME)	Commercial	20 °C/50 °C	1/1	2/2 (*)	1/1	1/1	1/1
36	Hydrochloric acid	Aqueous, 10%	20 °C/50 °C	4/4	1/1	4/4	4/4	3/3
37	Lubricating oils with HD or or with EP additive	Commercial	20 °C/50 °C	1/1	1/2	1/1	1/1	1/1
38	Sulphuric acid	Aqueous, 10%	20 °C/50 °C	4/4	1/2	3/3	3/3	2/2
39	De-icing salt (solutions)	Saturated	20 °C/50 °C	1/2	1/1	1/1	1/1	1/1
40	Soap suds	Solution, diluted	20 °C/50 °C	1/1	2/2 (*)	1/1	1/1	1/1
41	Water (drinking, river, sea)	Technically pure	20 °C/50 °C	1/1	1/1	1/1	1/1	1/1
42	Citric acid	10%	20 °C/50 °C	2/4	1/1	1/0	1/0	1/0

Abbreviations:

POM – Acetalcopolymerisat
 PP – Polypropylen
 PA – Polyamide

0 = No statement available / no declaration possible

1 = Very stable / applicable

(Change in dimensions: none or negligible and reversible; no damage also after long periods of time)

2 = Very stable / applicable

(Change in dimensions: none or negligible and reversible after a short period of time; slightly changed dimensions, possibly irreversible changes in the material characteristics after a longer period of time)

3 = Conditionally applicable

(Change in dimensions: considerable changes; possibly irreversible changes in the material characteristics after a longer period of time)

4 = Not stable / not applicable

(a or extremely affected after a short period of time)

(*) Moisture expansion

The details given in this brochure are based on tests carried out by the granulate manufacturer. They are given as guidelines for our customers but cannot be applied to cases where our customers expect these products to meet requirements not covered by testing.

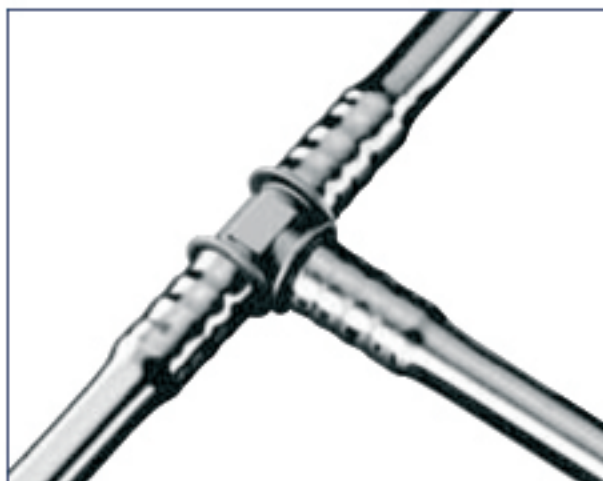
In such cases customers must consult us in advance. Our customers must conduct their own tests to ensure that NORMA-PLAST® plastic hose connectors are suitable for their intended

purpose. We would be pleased to provide help and advice in any way. Liability is strictly limited to our general terms and conditions of sale.

Custom versions will be available if a sufficiently large quantity is ordered. Before use as a safety component, please consult the manufacturer. We reserve the right to make technical changes.

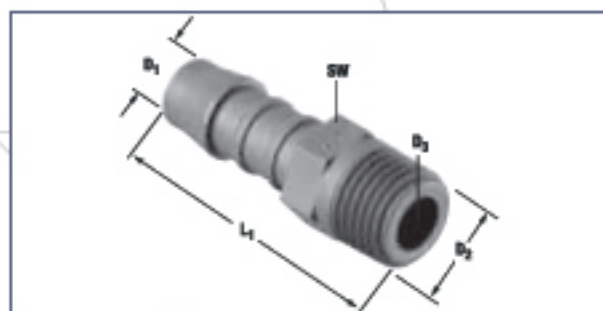


Used as a hose connector



Used as a pipe connector

GES
Straight taper thread connectors



Description	Packaging PU	D ₁	D ₂	D ₃	L ₁ ~	SW	Material
GES 3 / M 5	100	3	M 5	2.5	19.5	6	Polyamide
GES 4 / M 8 x 1	100	4	M 8 x 1 keg	2.5	27	10	Polyamide
GES 4 / M 8 x 1.25	100	4	M 8 x 1.25 keg	2.5	27	10	Polyamide
GES 4 / M 10 x 1	100	4	M 10 x 1 keg	2.5	27	10	Polyamide
GES 4 / M 12 x 1.5	100	4	M 12 x 1.5 keg	2.5	32	14	Polyamide
GES 4 / M 14 x 1.5	100	4	M 14 x 1.5 keg	2.5	32	14	Polyamide
GES 4 / R 1/8	100	4	R 1/8 keg	2.5	27	10	Polyamide
GES 4 / R 1/4	100	4	R 1/4 keg	2.5	32	14	Polyamide
GES 4 / 1/8 NPT	100	4	1/8 NPT	2.5	29	10	Polyamide
GES 4 / 1/4 NPT	100	4	1/4 NPT	2.5	35	14	Polyamide
GES 5 / M 12 x 1.5	100	5	M 12 x 1.5 keg	3	36	14	Polyamide
GES 5 / M 14 x 1.5	100	5	M 14 x 1.5 keg	3	36	14	Polyamide
GES 5 / R 1/4	100	5	R 1/4 keg	3	36	14	Polyamide
GES 5 / R 1/4 NPT	100	5	1/4 NPT	3	39	14	Polyamide
GES 6 / M 10 x 1	100	6	M 10 x 1 keg	4	32.5	10	Polyamide
GES 6 / M 12 x 1.5	100	6	M 12 x 1.5 keg	4	37.5	14	Polyamide
GES 6 / M 14 x 1.5	100	6	M 14 x 1.5 keg	4	36.5	14	Polyamide
GES 6 / R 1/8	100	6	R 1/8 keg	4	32.5	10	Polyamide
GES 6 / R 1/4	100	6	R 1/4 keg	4	37.5	14	Polyamide
GES 6 / R 3/8	100	6	R 3/8 keg	4	39	17	Polyamide
GES 6 / 1/8 NPT	100	6	1/8 NPT	4	34.5	10	Polyamide
GES 6 / 1/4 NPT	100	6	1/4 NPT	4	40.5	14	Polyamide
GES 8 / M 10 x 1	100	8	M 10 x 1 keg	5.6	38	14	Polyamide
GES 8 / M 12 x 1.5	100	8	M 12 x 1.5 keg	5.6	41	14	Polyamide
GES 8 / M 14 x 1.5	100	8	M 14 x 1.5 keg	5.6	41	14	Polyamide
GES 8 / M 18 x 1.5	100	8	M 18 x 1.5 keg	5.6	49	22	Polyamide
GES 8 / M 22 x 1.5	100	8	M 22 x 1.5 keg	5.6	49	22	Polyamide
GES 8 / R 1/8	100	8	R 1/8 keg	5.6	38	14	Polyamide
GES 8 / R 1/4	100	8	R 1/4 keg	5.6	41	14	Polyamide
GES 8 / R 3/8	100	8	R 3/8 keg	5.6	41	17	Polyamide
GES 8 / R 1/2	100	8	R 1/2 keg	5.6	49	22	Polyamide
GES 8 / 1/4 NPT	100	8	1/4 NPT	5.6	44	14	Polyamide
GES 10 / M 12 x 1.5	100	10	M 12 x 1.5 keg	7	43.5	14	Polyamide
GES 10 / M 14 x 1.5	100	10	M 14 x 1.5 keg	7	43.5	14	Polyamide
GES 10 / M 16 x 1.5	100	10	M 16 x 1.5 keg	7	43.5	17	Polyamide
GES 10 / R 1/4	100	10	R 1/4 keg	7	43.5	14	Polyamide

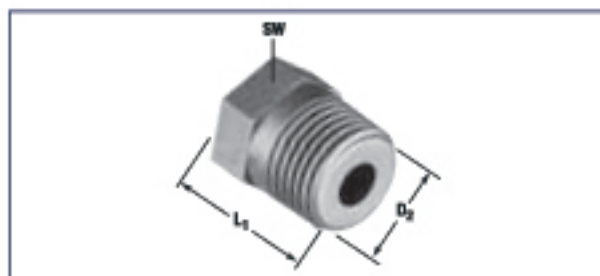
All dimensions in mm. Please refer to the table on Page 163 for further information.

Description	Packaging PU	D ₁	D ₂	D ₃	L ₁ ~	SW	Material
GES 10 / R 3/8	100	10	R 3/8 keg	7	43.5	17	Polyamide
GES 10 / 1/4 NPT	100	10	1/4 NPT	7	46.5	14	Polyamide
GES 10 / 3/8 NPT	100	10	3/8 NPT	7	46.5	17	Polyamide
GES 12 / M 16 x 1.5	100	12	M 16 x 1.5 keg	8.6	45.5	17	Polyamide
GES 12 / M 18 x 1.5	100	12	M 18 x 1.5 keg	8.6	54	22	Polyamide
GES 12 / M 22 x 1.5	100	12	M 22 x 1.5 keg	8.6	54	22	Polyamide
GES 12 / R 3/8	100	12	R 3/8 keg	8.6	45.5	17	Polyamide
GES 12 / R 1/2	100	12	R 1/2 keg	8.6	54	22	Polyamide
GES 12 / 3/8 NPT	100	12	3/8 NPT	8.6	48	17	Polyamide
GES 14 / M 20 x 1.5	100	14	M 20 x 1.5 keg	10	56	22	Polyamide
GES 14 / M 22 x 1.5	100	14	M 22 x 1.5 keg	10	56	22	Polyamide
GES 14 / R 3/8	100	14	R 3/8 keg	10	56	17	Polyamide
GES 14 / R 1/2	100	14	R 1/2 keg	10	56	22	Polyamide
GES 14 / R 1/2 NPT	100	14	1/2 NPT	10	56	22	Polyamide
GES 16 / M 26 x 1.5	50	16	M 26 x 1.5 keg	12	58	27	Polyamide
GES 16 / R 1/2	50	16	R 1/2 keg	12	58	22	Polyamide
GES 16 / R 3/4	50	16	R 3/4 keg	12	58	27	Polyamide
GES 19 / M 26 x 1.5	50	19	M 26 x 1.5 keg	15	58	27	Polyamide
GES 19 / R 3/4	50	19	R 3/4 keg	15	58	27	Polyamide
GES 25 / R 1	25	25	R 1 keg	21	69	32	Polyamide

All dimensions in mm. Please refer to the table on Page 163 for further information.

BST

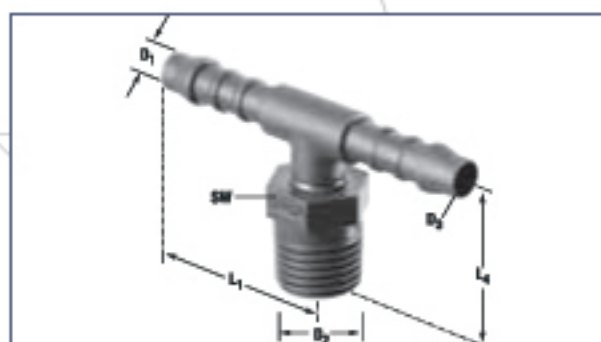
Blanking plugs with screw-in thread



Description	Packaging PU	D ₂	L ₁ ~	SW	Material
BST M 8 x 1	100	M 8 x 1 keg	13	10	Polyamide
BST M 10 x 1	100	M 10 x 1 keg	13.5	10	Polyamide
BST M 12 x 1.5	100	M 12 x 1.5 keg	17.5	14	Polyamide
BST M 14 x 1.5	100	M 14 x 1.5 keg	17.5	14	Polyamide
BST M 18 x 1.5	100	M 18 x 1.5 keg	26.5	22	Polyamide
BST M 20 x 1.5	100	M 20 x 1.5 keg	25	22	Polyamide
BST M 22 x 1.5	100	M 22 x 1.5 keg	26.5	22	Polyamide
BST M 26 x 1.5	100	M 26 x 1.5 keg	26	22	Polyamide
BST R 1/8	100	R 1/8 keg	12.5	10	Polyamide
BST R 1/4	100	R 1/4 keg	17.5	14	Polyamide
BST R 3/8	100	R 3/8 keg	27	17	Polyamide
BST R 1/2	100	R 1/2 keg	27.5	22	Polyamide
BST 1/8 NPT	100	1/8 NPT	14	10	Polyamide
BST 1/4 NPT	100	1/4 NPT	20.5	14	Polyamide

All dimensions in mm. Please refer to the table on Page 163 for further information.

TES
T-taper thread connectors



Description	Packaging PU	D_1	D_2	D_3	L_1	L_4	SW	Material
TES 4 / M 8 x 1	100	4	M 8 x 1 keg	2.5	21	18	10	Polyamide
TES 4 / M 10 x 1	100	4	M 10 x 1 keg	2.5	21	18	10	Polyamide
TES 4 / M 12 x 1.5	100	4	M 12 x 1.5 keg	2.9	21	23	14	Polyamide
TES 4 / R 1/8	100	4	R 1/8 keg	2.5	21	18	10	Polyamide
TES 4 / R 1/4	100	4	R 1/4 keg	2.5	21	23	14	Polyamide
TES 4 / 1/8 NPT	100	4	1/8 NPT	2.5	21	20	10	Polyamide
TES 4 / 1/4 NPT	100	4	1/4 NPT	2.5	21	26	14	Polyamide
TES 6 / M 10 x 1	100	6	M 10 x 1 keg	4	28.5	21	10	Polyamide
TES 6 / M 12 x 1.5	100	6	M 12 x 1.5 keg	4	28.5	26	14	Polyamide
TES 6 / R 1/8	100	6	R 1/8 keg	4	28.5	21	10	Polyamide
TES 6 / R 1/4	100	6	R 1/4 keg	4	28.5	26	14	Polyamide
TES 6 / 1/8 NPT	100	6	1/8 NPT	4	28.5	23	10	Polyamide
TES 6 / 1/4 NPT	100	6	1/4 NPT	4	28.5	29	14	Polyamide
TES 8 / M 12 x 1.5	100	8	M 12 x 1.5 keg	5.6	33	27.5	14	Polyamide
TES 8 / M 14 x 1.5	100	8	M 14 x 1.5 keg	5.6	33	27.5	14	Polyamide
TES 8 / R 1/4	100	8	R 1/4 keg	5.6	33	27.5	14	Polyamide
TES 8 / 1/4 NPT	100	8	1/4 NPT	5.6	33	30.5	14	Polyamide
TES 10 / R 3/8	100	10	R 3/8 keg	7	35.5	30	17	Polyamide

All dimensions in mm. Please refer to the table on Page 163 for further information.

WES

Elbow taper thread connectors



Description	Packaging PU	D ₁	D ₂	D ₃	L ₁	L ₂	SW	Material
WES 3 / M 5	100	3	M 5 keg	2.5	12.5	12.5	6	Polyamide
WES 4 / M 8 x 1	100	4	M 8 x 1 keg	2.7	21	16	10	Polyamide
WES 4 / M 10 x 1	100	4	M 10 x 1 keg	2.7	21	16	10	Polyamide
WES 4 / M 12 x 1.5	100	4	M 12 x 1.5 keg	2.7	21	25	14	Polyamide
WES 4 / M 14 x 1.5	100	4	M 14 x 1.5 keg	2.7	21	25	14	Polyamide
WES 4 / R 1/8	100	4	R 1/8 keg	2.7	21	16	10	Polyamide
WES 4 / R 1/4	100	4	R 1/4 keg	2.7	21	25	14	Polyamide
WES 4 / 1/8 NPT	100	4	1/8 NPT	2.7	21	18	10	Polyamide
WES 4 / 1/4 NPT	100	4	1/4 NPT	2.7	21	28	14	Polyamide
WES 6 / M 10 x 1	100	6	M 10 x 1 keg	4	28.5	21	10	Polyamide
WES 6 / M 12 x 1.5	100	6	M 12 x 1.5 keg	4	28.5	26	14	Polyamide
WES 6 / R 1/8	100	6	R 1/8 keg	4	28.5	21	10	Polyamide
WES 6 / R 1/4	100	6	R 1/4 keg	4	28.5	26	14	Polyamide
WES 6 / R 3/8	100	6	R 3/8 keg	4	28.5	27	17	Polyamide
WES 6 / 1/8 NPT	100	6	1/8 NPT	4	28.5	23	10	Polyamide
WES 6 / 1/4 NPT	100	6	1/4 NPT	4	28.5	29	14	Polyamide
WES 8 / M 10 x 1	100	8	M 10 x 1 keg	5.6	33	23.5	14	Polyamide
WES 8 / M 12 x 1.5	100	8	M 12 x 1.5 keg	5.6	33	27.5	14	Polyamide
WES 8 / M 14 x 1.5	100	8	M 14 x 1.5 keg	5.6	33	27.5	14	Polyamide
WES 8 / M 16 x 1.5	100	8	M 16 x 1.5 keg	5.6	36	27.5	17	Polyamide
WES 8 / M 18 x 1.5	100	8	M 18 x 1.5 keg	5.6	36	36	19	Polyamide
WES 8 / M 22 x 1.5	100	8	M 22 x 1.5 keg	5.6	36	36	22	Polyamide
WES 8 / R 1/8	100	8	R 1/8 keg	5.6	33	23	14	Polyamide
WES 8 / R 1/4	100	8	R 1/4 keg	5.6	33	27.5	14	Polyamide
WES 8 / R 3/8	100	8	R 3/8 keg	5.6	36	31	17	Polyamide
WES 8 / R 1/2	100	8	R 1/2 keg	5.6	36	36	22	Polyamide
WES 8 / 1/4 NPT	100	8	1/4 NPT	5.6	33	30.5	14	Polyamide
WES 10 / M 14 x 1.5	100	10	M 14 x 1.5 keg	7	38	30	14	Polyamide
WES 10 / R 1/4	100	10	R 1/4 keg	7	38	30	14	Polyamide
WES 10 / R 3/8	100	10	R 3/8 keg	7	38	30	17	Polyamide
WES 10 / 1/2 NPT	100	10	1/2 NPT	7	38	38	22	Polyamide
WES 12 / M 16 x 1.5	100	12	M 16 x 1.5 keg	8.6	40.5	30	17	Polyamide
WES 12 / M 18 x 1.5	100	12	M 18 x 1.5 keg	8.6	40.5	36	19	Polyamide
WES 12 / M 22 x 1.5	100	12	M 22 x 1.5 keg	8.6	40.5	36	22	Polyamide
WES 12 / M 26 x 1.5	50	12	M 26 x 1.5 keg	8.6	40.5	36	22	Polyamide
WES 12 / R 3/8	100	12	R 3/8 keg	8.6	40.5	31	17	Polyamide
WES 12 / R 1/2	100	12	R 1/2 keg	8.6	40.5	36	22	Polyamide
WES 12 / 3/8 NPT	100	12	3/8 NPT	8.6	40.5	31	19	Polyamide
WES 19 / M 24 x 2	50	19	M 24 x 2 keg	15	45	42.8	27	Polyamide
WES 19 / R 3/4	50	19	R 3/4 keg	15	45.5	42.8	27	Polyamide
WES 25 / R 1	25	25	R 1 keg	21	60	49	32	Polyamide

All dimensions in mm. Please refer to the table on Page 163 for further information.

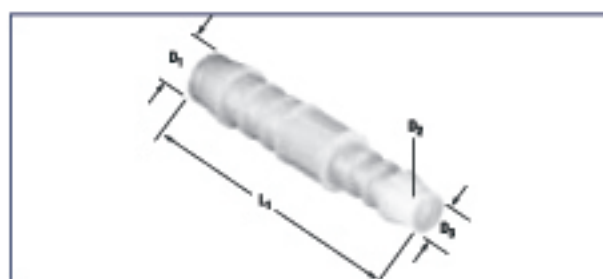
GS Straight push-on connectors



Description	Packaging PU	D ₁	D ₂	L ₁ ~	Material
GS 3	100	3	2.5	25	Acetalcopolymerisat (POM)
GS 4	100	4	2.7	35	Acetalcopolymerisat (POM)
GS 5	100	5	3	45	Acetalcopolymerisat (POM)
GS 6	100	6	4	49	Acetalcopolymerisat (POM)
GS 8	100	8	5.6	56	Acetalcopolymerisat (POM)
GS 10	100	10	7	63	Acetalcopolymerisat (POM)
GS 12	100	12	8.6	66.5	Acetalcopolymerisat (POM)
GS 13	100	13	8.6	73	Acetalcopolymerisat (POM)
GS 14	100	14	10	79	Acetalcopolymerisat (POM)
GS 16	100	16	12	75	Acetalcopolymerisat (POM)
GS 19	100	19	15	76	Acetalcopolymerisat (POM)
GS 25	100	25	21	95	Acetalcopolymerisat (POM)

All dimensions in mm. Please refer to the table on Page 163 for further information.

GRS Reducing straight push-on connectors



Description	Packaging PU	D ₁	D ₂	D ₃	L ₁ ~	Material
GRS 4 - 3	100	4	2.5	3	30	Acetalcopolymerisat (POM)
GRS 5 - 4	100	5	2.7	3	41	Acetalcopolymerisat (POM)
GRS 6 - 4	100	6	2.7	4	42.5	Acetalcopolymerisat (POM)
GRS 8 - 4	100	8	2.7	4	48	Acetalcopolymerisat (POM)
GRS 8 - 6	100	8	4	6	54	Acetalcopolymerisat (POM)
GRS 10 - 6	100	10	4	6	58	Acetalcopolymerisat (POM)
GRS 10 - 8	100	10	5.6	8	60.5	Acetalcopolymerisat (POM)
GRS 12 - 8	100	12	5.6	8	62.5	Acetalcopolymerisat (POM)
GRS 12 - 10	100	12	7	10	64	Acetalcopolymerisat (POM)

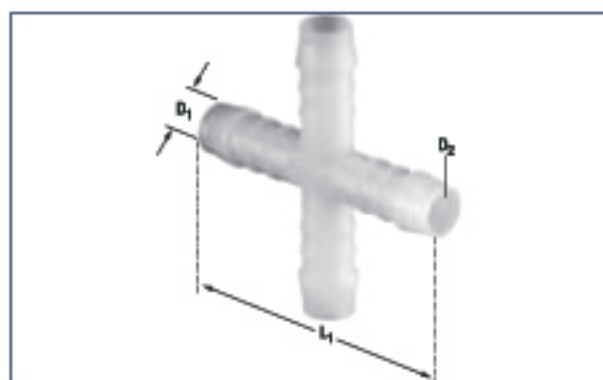
All dimensions in mm. Please refer to the table on Page 163 for further information.

TS Equal T push-on connectors



Description	Packaging PU	D ₁	D ₂	L _{1~}	L _{2~}	Material
TS 3	100	3	2.5	25	12.5	Acetalcopolymerisat (POM)
TS 4	100	4	2.7	35	19.5	Acetalcopolymerisat (POM)
TS 5	100	5	3	42	22	Acetalcopolymerisat (POM)
TS 6	100	6	4	50	26	Acetalcopolymerisat (POM)
TS 7	100	7	5	50	26	Acetalcopolymerisat (POM)
TS 8	100	8	5.6	58	30	Acetalcopolymerisat (POM)
TS 10	100	10	7	62.5	33.5	Acetalcopolymerisat (POM)
TS 12	100	12	8.6	69	36	Acetalcopolymerisat (POM)
TS 13	100	13	8.6	68	36	Acetalcopolymerisat (POM)
TS 14	50	14	10	77.5	41.5	Acetalcopolymerisat (POM)
TS 15	50	15	11	79.5	43.5	Acetalcopolymerisat (POM)
TS 16	50	16	12	81	45	Acetalcopolymerisat (POM)
TS 19	25	19	15	85	45	Acetalcopolymerisat (POM)
TS 25	25	25	21	105	52.5	Acetalcopolymerisat (POM)

All dimensions in mm. Please refer to the table on Page 163 for further information.



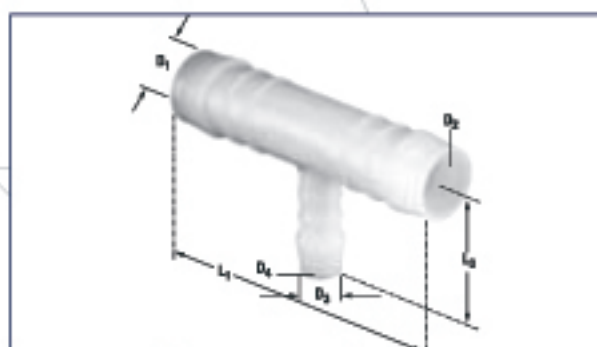
KS Cross push-on connectors

Description	Packaging PU	D ₁	D ₂	L _{1~}	Material
KS 4	100	4	2.9	39	Acetalcopolymerisat (POM)
KS 5	100	5	3	48	Acetalcopolymerisat (POM)
KS 6	100	6	4	48	Acetalcopolymerisat (POM)
KS 12	50	12	8.6	69	Acetalcopolymerisat (POM)

All dimensions in mm. Please refer to the table on Page 163 for further information.

TRS

Reducing T push-on connectors

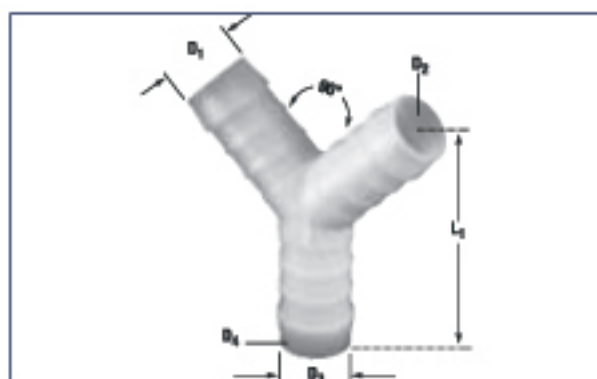


Description	Packaging PU	D ₁	D ₂	D ₃	D ₄	L ₁ ~	L ₂ ~	Material
TRS 3 - 4 - 3	100	3	2.5	4	2.5	25	17.5	Acetalcopolymerisat (POM)
TRS 4 - 6 - 4	100	4	2.7	6	4	37	24	Acetalcopolymerisat (POM)
TRS 6 - 4 - 6	100	6	4	4	2.5	49	20.5	Acetalcopolymerisat (POM)
TRS 8 - 4 - 8	100	8	5.6	4	2.5	56	22	Acetalcopolymerisat (POM)
TRS 8 - 6 - 8	100	8	5.6	6	4	56	28	Acetalcopolymerisat (POM)
TRS 8 - 12 - 8	100	8	5.6	12	8.6	57	34	Acetalcopolymerisat (POM)
TRS 10 - 6 - 10	100	10	7	6	4	62	28	Acetalcopolymerisat (POM)
TRS 10 - 8 - 10	100	10	7	8	5.6	62	31	Acetalcopolymerisat (POM)
TRS 10 - 13 - 10	100	10	7	13	8.6	64	38	Acetalcopolymerisat (POM)
TRS 12 - 6 - 12	100	12	8.6	6	4	69	29	Acetalcopolymerisat (POM)
TRS 12 - 8 - 12	100	12	8.6	8	5.6	69	31	Acetalcopolymerisat (POM)
TRS 12 - 10 - 12	100	12	8.6	10	7	69	33	Acetalcopolymerisat (POM)
TRS 15 - 6 - 15	100	15	11	6	4	78	28	Acetalcopolymerisat (POM)
TRS 15 - 8 - 15	100	15	11	8	5.6	79	33	Acetalcopolymerisat (POM)
TRS 18 - 10 - 18	50	18	14	10	7	79	36	Acetalcopolymerisat (POM)
TRS 18 - 15 - 18	50	18	14	15	11	80	44	Acetalcopolymerisat (POM)

All dimensions in mm. Please refer to the table on Page 163 for further information.

YRS

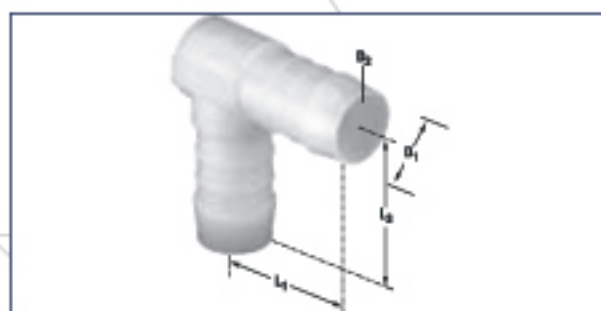
Reducing Y push-on connectors



Description	Packaging PU	D ₁	D ₂	D ₃	D ₄	L ₁ ~	Material
YRS 4 - 6 - 4	100	4	2.7	6	4	35	Acetalcopolymerisat (POM)
YRS 6 - 8 - 6	100	6	4	8	5.6	49	Acetalcopolymerisat (POM)

All dimensions in mm. Please refer to the table on Page 163 for further information.

WS Elbow push-on connectors



Description	Packaging PU	D ₁	D ₂	L ₁ ~	L ₃ ~	Material
WS 3	100	3	2.5	12.5	12.5	Acetalcopolymerisat (POM)
WS 4	100	4	2.5	17.5	19.5	Acetalcopolymerisat (POM)
WS 5	100	5	3	21	22	Acetalcopolymerisat (POM)
WS 6	100	6	4	25	26	Acetalcopolymerisat (POM)
WS 8	100	8	5.6	29	30	Acetalcopolymerisat (POM)
WS 10	100	10	7	31	33.5	Acetalcopolymerisat (POM)
WS 12	100	12	8.6	34.5	36	Acetalcopolymerisat (POM)
WS 13	100	13	8.6	36.5	38.5	Acetalcopolymerisat (POM)
WS 14	100	14	10	38.5	41.5	Acetalcopolymerisat (POM)
WS 15	100	15	11	40	43.5	Acetalcopolymerisat (POM)
WS 16	50	16	12	40.5	45	Acetalcopolymerisat (POM)
WS 19	50	19	15	43.5	46	Acetalcopolymerisat (POM)
WS 25	25	25	21	52.5	52.5	Acetalcopolymerisat (POM)

All dimensions in mm. Please refer to the table on Page 163 for further information.

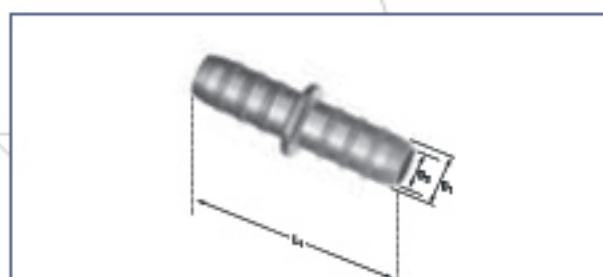
YS Equal Y push-on connectors



Description	Packaging PU	D ₁	D ₂	L ₁ ~	Material
YS 3	100	3	2.5	21	Acetalcopolymerisat (POM)
YS 4	100	4	2.5	25.5	Acetalcopolymerisat (POM)
YS 5	100	5	3	43	Acetalcopolymerisat (POM)
YS 6	100	6	4	44	Acetalcopolymerisat (POM)
YS 8	100	8	5.6	51	Acetalcopolymerisat (POM)
YS 10	100	10	7	54	Acetalcopolymerisat (POM)
YS 12	100	12	8.6	64	Acetalcopolymerisat (POM)
YS 13	100	13	9	65	Acetalcopolymerisat (POM)
YS 14	50	14	10	65	Acetalcopolymerisat (POM)
YS 16	50	16	12	67	Acetalcopolymerisat (POM)
YS 19	25	19	15	72	Acetalcopolymerisat (POM)

All dimensions in mm. Please refer to the table on Page 163 for further information.

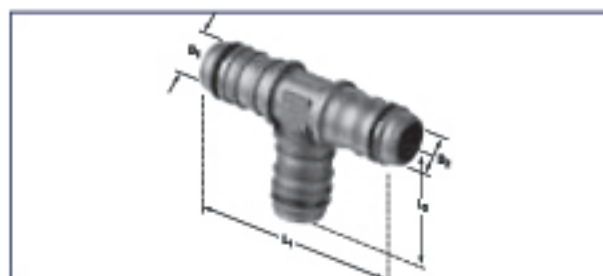
GN Straight plastic pipe connectors



Description	Packaging IC	D ₁	D ₂	L ₁	Material
GN 6	1000	6.4	4.75	45	Polyamide 6 or 12; 30% GF*
GN 8	1000	9.2	6.8	46	Polyamide 6 or 12; 30% GF*
GN 10	1000	11	8	46	Polyamide 6 or 12; 30% GF*
GN 15	500	16.9	12	32	Polyamide 6 or 12; 30% GF*
GN 19	500	21	16	39	Polyamide 6 or 12; 30% GF*
GN 27	250	29	24	42	Polyamide 6 or 12; 30% GF*

All dimensions in mm. Please refer to the table on Page 163 for further information.

TN T plastic pipe connectors



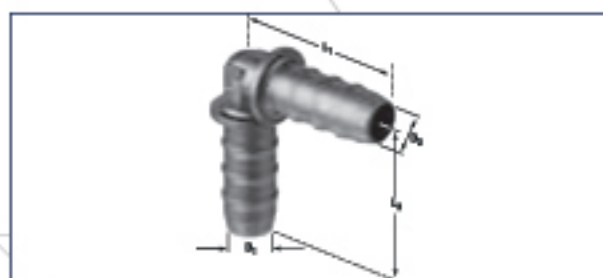
Description	Packaging IC	D ₁	D ₂	L ₁	L ₃	Material
TN 6	1500	6.4	4.75	66	28	Polyamide 6 or 12; 30% GF*
TN 8	1000	9.2	6.8	58	29	Polyamide 6 or 12; 30% GF*
TN 10	1000	11	8	60	30	Polyamide 6 or 12; 30% GF*
TN 15	500	16.4	12	72	36	Polyamide 6 or 12; 30% GF*
TN 19	500	18.9	16	65	32.5	Polyamide 6 or 12; 30% GF*

* GF = glass fibre content

All dimensions in mm. Please refer to the table on Page 163 for further information.

WN

Elbow plastic pipe connectors



Description	Packaging IC	D ₁	D ₂	L _{1~}	L _{3~}	Material
WN 6	1000	6.4	4.75	28	28	Polyamide 6 or 12; 30% GF*
WN 8	1000	9.2	6.8	29	29	Polyamide 6 or 12; 30% GF*
WN 10	1000	11	8	30	30	Polyamide 6 or 12; 30% GF*
WN 19	500	18.9	16	32	32	Polyamide 6 or 12; 30% GF*

All dimensions in mm. Please refer to the table on Page 163 for further information.

YN

Y plastic pipe connectors



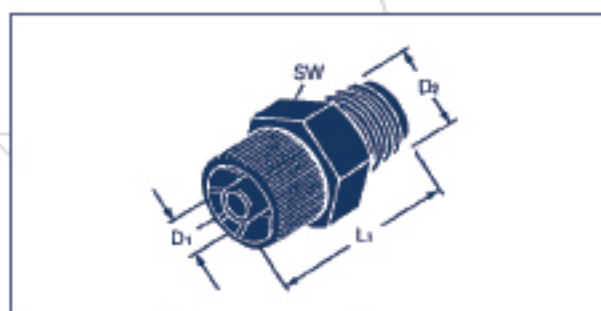
Description	Packaging IC	D ₁	D ₂	L _{1~}	Material
YN 8	1000	8.4	5.8	50.5	Polyamide 6 or 12; 30% GF*

* GF = glass fibre content

All dimensions in mm. Please refer to the table on Page 163 for further information.

EG

Straight compression connectors

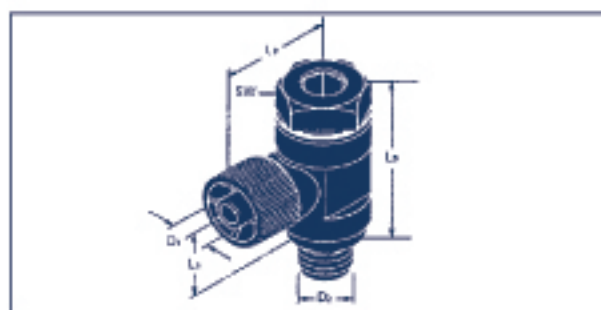


Description	Packaging PU	D ₁	D ₂	L ₁ ~	SW	Material
EG 6 x 1 - R 1/8	100	6 x 1	R 1/8 keg	25	13	Polyamide 6; 30% GF*
EG 6 x 1 - R 1/4	100	6 x 1	R 1/4 keg	31	17	Polyamide 6; 30% GF*
EG 6 x 1 - M 10 x 1	100	6 x 1	M 10 x 1 keg	25	13	Polyamide 6; 30% GF*
EG 8 x 1 - R 1/8	100	8 x 1	R 1/8 keg	25	13	Polyamide 6; 30% GF*
EG 8 x 1 - R 1/4	100	8 x 1	R 1/4 keg	31	17	Polyamide 6; 30% GF*
EG 8 x 1 - M 10 x 1	100	8 x 1	M 10 x 1 keg	25	13	Polyamide 6; 30% GF*

All dimensions in mm. Please refer to the table on Page 163 for further information.

EWS

Swivel elbow compression connectors

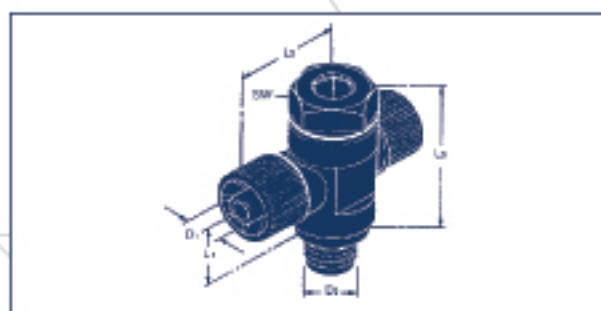


Description	Packaging PU	D ₁	D ₂	L ₁ ~	L ₂ ~	L ₃ ~	SW	Material
EWS 6 x 1 - R 1/8	100	6 x 1	R 1/8	14	21	30	13	Polyamide 6; 30% GF*
EWS 6 x 1 - R 1/4	100	6 x 1	R 1/4	15	23	33.5	17	Polyamide 6; 30% GF*
EWS 6 x 1 - M 10 x 1	100	6 x 1	M 10 x 1	14	21	30	13	Polyamide 6; 30% GF*
EWS 8 x 1 - R 1/8	100	8 x 1	R 1/8	14	21	30	13	Polyamide 6; 30% GF*
EWS 8 x 1 - R 1/4	100	8 x 1	R 1/4	15	23	33.5	17	Polyamide 6; 30% GF*
EWS 8 x 1 - M 10 x 1	100	8 x 1	M 10 x 1	14	21	30	13	Polyamide 6; 30% GF*

* GF = glass fibre content

All dimensions in mm. Please refer to the table on Page 163 for further information.

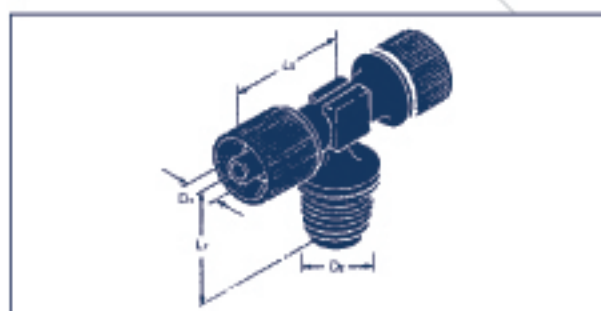
ETS Swivel T compression connectors



Description	Packaging PU	D ₁	D ₂	L ₁ ~	L ₂ ~	L ₃ ~	SW	Material
ETS 6 x 1 - R 1/8	100	6 x 1	R 1/8	14	21	30	13	Polyamide 6; 30% GF*
ETS 6 x 1 - R 1/4	100	6 x 1	R 1/4	15	23	33.5	17	Polyamide 6; 30% GF*
ETS 6 x 1 - M 10 x 1	100	6 x 1	M 10 x 1	14	21	30	13	Polyamide 6; 30% GF*
ETS 8 x 1 - R 1/4	100	8 x 1	R 1/4	15	23	33.5	17	Polyamide 6; 30% GF*

All dimensions in mm. Please refer to the table on Page 163 for further information.

ET T compression connectors



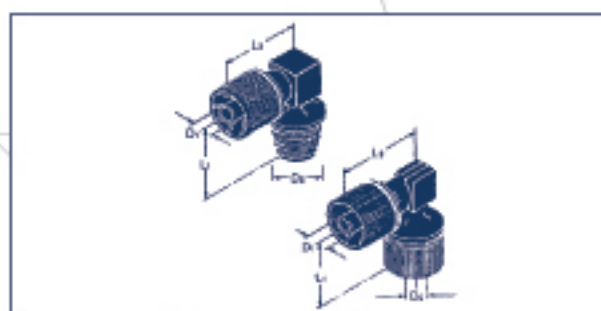
Description	Packaging PU	D ₁	D ₂	L ₁ ~	L ₂ ~	Material
ET 6 x 1 - R 1/8	100	6 x 1	R 1/8 keg	19	23	Polyamide 6; 30% GF*
ET 6 x 1 - R 1/4	100	6 x 1	R 1/4 keg	23	23	Polyamide 6; 30% GF*
ET 6 x 1 - M 10 x 1	100	6 x 1	M 10 x 1 keg	19	23	Polyamide 6; 30% GF*
ET 8 x 1 - R 1/8	100	8 x 1	R 1/8 keg	19	23	Polyamide 6; 30% GF*
ET 8 x 1 - R 1/4	100	8 x 1	R 1/4 keg	23	23	Polyamide 6; 30% GF*
ET 8 x 1 - M 10 x 1	100	8 x 1	M 10 x 1 keg	19	23	Polyamide 6; 30% GF*

* GF = glass fibre content

All dimensions in mm. Please refer to the table on Page 163 for further information.

EW / WV

Elbow compression connectors

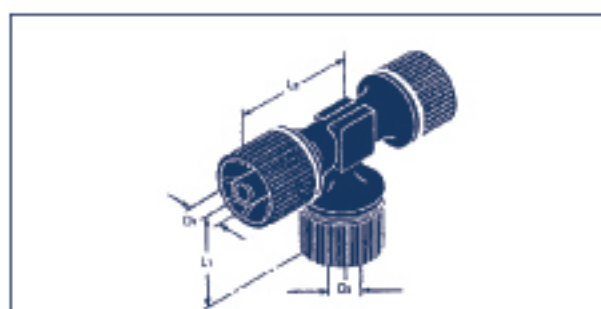


Description	Packaging PU	D ₁	D ₂	L ₁ ~	L ₂ ~	Material
EW 6 x 1 - R 1/8	100	6 x 1	R 1/8 keg	19	23	Polyamide 6; 30% GF*
EW 6 x 1 - R 1/4	100	6 x 1	R 1/4 keg	23	23	Polyamide 6; 30% GF*
EW 6 x 1 - M 10 x 1	100	6 x 1	M 10 x 1 keg	19	23	Polyamide 6; 30% GF*
EW 8 x 1 - R 1/8	100	8 x 1	R 1/8 keg	19	23	Polyamide 6; 30% GF*
EW 8 x 1 - R 1/4	100	8 x 1	R 1/4 keg	23	23	Polyamide 6; 30% GF*
EW 8 x 1 - M 10 x 1	100	8 x 1	M 10 x 1 keg	19	23	Polyamide 6; 30% GF*
WV 6 x 1	100	6 x 1	6 x 1	23	23	Polyamide 6; 30% GF*
WV 8 x 1	100	8 x 1	8 x 1	23	23	Polyamide 6; 30% GF*

All dimensions in mm. Please refer to the table on Page 163 for further information.

VT / VTR

Equal T and
reducing T compression connectors



Description	Packaging PU	D ₁	D ₂	L ₁ ~	L ₂ ~	Material
VT 6 x 1	100	6 x 1	6 x 1	23	23	Polyamide 6; 30% GF*
VT 8 x 1	100	8 x 1	8 x 1	23	23	Polyamide 6; 30% GF*
VTR 6 x 1 - 8 x 1 - 6 x 1	100	6 x 1	8 x 1	23	23	Polyamide 6; 30% GF*
VTR 8 x 1 - 6 x 1 - 8 x 1	100	8 x 1	6 x 1	23	23	Polyamide 6; 30% GF*

All dimensions in mm. Please refer to the table on Page 163 for further information.