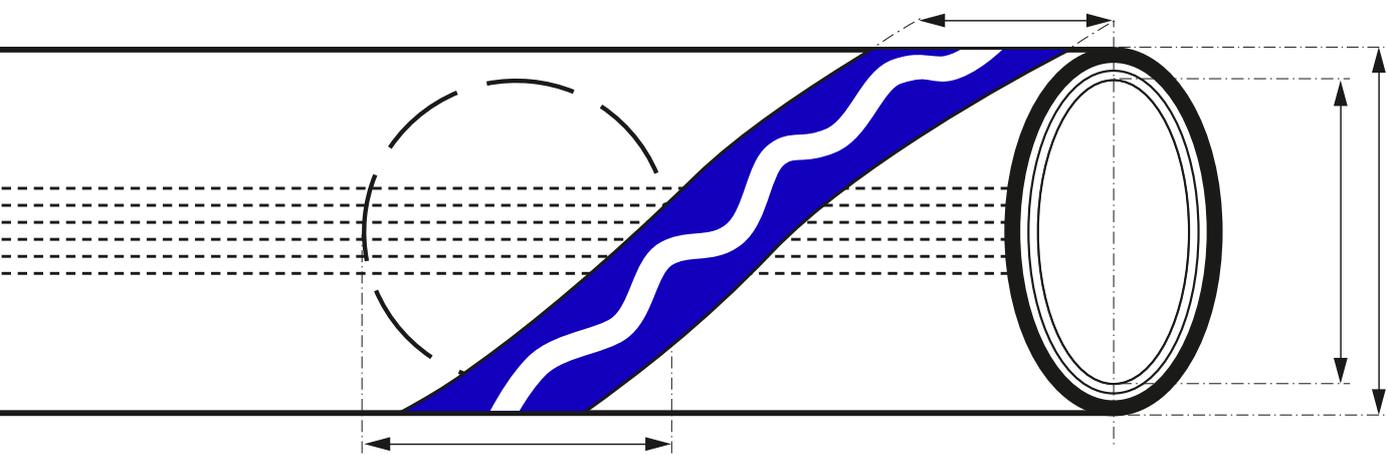


ELAFLEX



SCHLAUCH + ARMATURENTECHNIK
Sales Division PAL Chemical Hoses



PAL High Quality Hoses

CHEMICAL INDUSTRY

Edition 7.2011

made in Germany by

CONTITECH®

PAL High Quality Hoses: Exceeding Standards Requirements.

The PAL range of hoses, manufactured by CONTITECH, stand for reliability, security and long service life. More than sixty years of experience in the construction, development and production of high quality hoses underlines the expertise.

Modern manufacturing equipment, special fabrication procedures, the use of high-grade raw materials and continuous production controls guarantee first class products.

This, together with our long international experience in product application and distribution are the basis for customer satisfaction.

Construction Features

The hose covers are resistant to abrasion, ozone and UV and electrically conductive (elastomer basis: CR or EPDM).

The reinforcements consist of quality textile braids. SD (suction and delivery) hoses are additionally provided with an incorporated steel wire helix.

Working pressure 16 bar, minimum burst pressure 64 bar (higher values for Butapal and Pyropal).

Allowable vacuum see table next page.

Economical and safe - reusable couplings with SPANNLOC and SPANNFIX clamps

All coupling systems as mentioned in the EN 14420 standard are suitable for PAL chemical hoses.

Self-assembly is possible.

ELAFLON® PTFE



Universal Hose

Lining

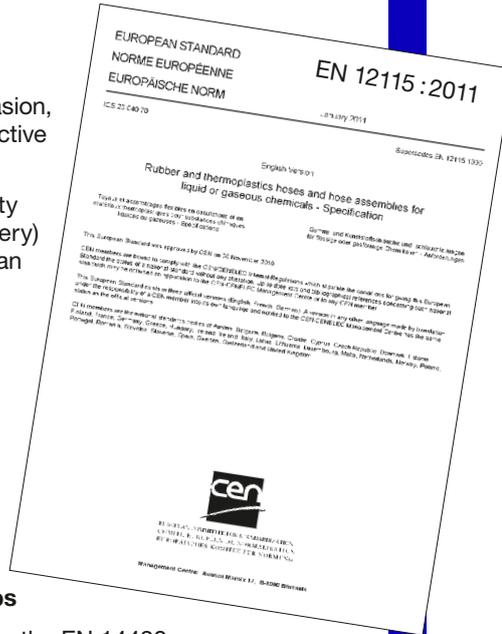
- homogeneous, smooth bore, seamless
- PTFE (polytetrafluorethylene), black
- conform to FDA und USP Class VI
- suitable for all standard chemicals
- temperature range -30 up to +150° C (depending on media)
- steaming out for cleaning up to +150° C, max. 30 min., open ends

Electr. conductive Ω/T (EN 12115:2011)

Detailed catalogue page available.

| Ausf. | DN | 13 | 19 | 25 | 32 | 38 | 50 | 63 | 75 | 100 |
|-------|----|----|----|----|----|----|----|----|----|-----|
| D | | | | | | | | | | |
| SD | | | | | | | | | | |

-  = Standard stock size
-  = Special production D
-  = Special production SD



ELAFLON® PLUS FEP



Universal Hose

Lining

- homogeneous, smooth bore, seamless
- FEP (Teflon® FEP fluorethylene propylene), transparent
- conform to FDA und USP Class VI
- suitable for all standard chemicals up to +100° C, briefly up to +130° C
- steaming out for cleaning up to +150° C, max. 30 min., open ends

Cover: EPDM light grey, with OHM-conductive stripe (up to DN 50) or black (DN 63-100)

Electr. conductive Ω (EN 12115:2011)

Detailed catalogue page available.

| Version | DN | 13 | 19 | 25 | 32 | 38 | 50 | 63 | 75 | 100 |
|---------|----|----|----|----|----|----|----|----|----|-----|
| D | | | | | | | | | | |
| SD | | | | | | | | | | |

POLYPAL® PLUS



Universal Chemical Hose

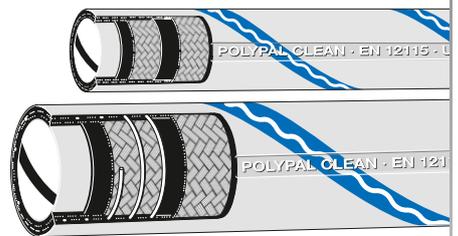
Lining

- homogeneous, smooth bore
- UPE (ultra high molecular polyethylene), black
- suitable for almost all chemicals and petroleum based products as well as solvents at temperatures from -30 bis +100° C
- not suitable for oleum, bromine and chlorosulphoric acid
- steaming out for cleaning up to +130° C, max. 30 min., open ends

Electr. conductive Ω/T (EN 12115:2011)

| Version | DN | 13 | 19 | 25 | 32 | 38 | 50 | 63 | 75 | 100 |
|---------|----|----|----|----|----|----|----|----|----|-----|
| D | | | | | | | | | | |
| SD | | | | | | | | | | |

POLYPAL® CLEAN



Universal Chemical Hose "CLEAN"

Lining

- homogeneous, smooth bore
- UPE white, with conductive OHM spiral stripe, no discolouration
- conform to FDA und USP Class VI. Fulfills requirements of Regulation EC 1935/2004 and of the Commission Directive 2002/72/EC
- suitable for almost all liquid or viscous media at temperatures from -30 bis +100° C
- not suitable for oleum, bromine and chlorosulphoric acid
- steaming out for cleaning up to +130° C, max. 30 min., open ends

Electr. conductive Ω/T (EN 12115:2011)

Detailed catalogue page available.

| Version | DN | 13 | 19 | 25 | 32 | 38 | 50 | 63 | 75 | 100 |
|---------|----|----|----|----|----|----|----|----|----|-----|
| D | | | | | | | | | | |
| SD | | | | | | | | | | |

Explanations with regard to the range of dimensions

1) To avoid hose damage please observe the stated minimum bending radius. Especially hoses with helix and hoses with thermo-plastic linings must not be overbent to avoid kinking. Anti-kinking spirals to protect the area near the couplings are available on request.

2) These values are not valid in case of conveying strongly oxidizing chemicals; in these cases please consult us.

3) Only valid in case of at least 1 bar pressure, otherwise the hose kinks. For transportation and stocking, hoses DN 75 and 100 mm may be rolled flat.

| Dimensions according to EN 12115 | Nominal Bore DN [mm] | Wall Thickness [mm] | 1) Min. Bending Radius [mm] | | Weight per Metre [~ kg] | 2) Max. Vacuum [bar] |
|---|----------------------|---------------------|---|--|-------------------------|----------------------|
| | | | Elafion Plus FEP/ PTFE, Polypal Plus, Polypal Clean | Solvapal, Chemopal, Tecnopap, Tankapal, Butapal, Pyropal | | |
| Delivery hoses without helix (Version D) | 13 | 5 | 80 | 80 | 0,35 | – |
| | 16 | 5 | 100 | 90 | 0,42 | – |
| | 19 | 6 | 125 | 100 | 0,6 | – |
| | 22 | 6 | 130 | 130 | 0,6 | – |
| | 25 | 6 | 150 | 150 | 0,8 | – |
| | 32 | 6 | 175 | 175 | 1,0 | – |
| | 38 | 6,5 | 225 | 200 | 1,3 | – |
| | 50 | 8 | 275 | 250 | 2,0 | – |
| | 63 | 8 | 300 | 300 | 2,4 | – |
| | 75 | 8 | – | 350 ³⁾ | 2,8 | – |
| Suction and deliver hoses with helix (Version SD) | 100 | 8 | – | 450 ³⁾ | 3,8 | – |
| | 13 | 5 | 80 | 70 | 0,4 | 0,9 |
| | 19 | 6 | 125 | 80 | 0,7 | 0,9 |
| | 25 | 6 | 150 | 90 | 0,9 | 0,9 |
| | 32 | 6 | 175 | 100 | 1,2 | 0,9 |
| | 38 | 6,5 | 225 | 110 | 1,5 | 0,9 |
| | 50 | 8 | 275 | 140 | 2,1 | 0,9 |
| | 63 | 8 | 300 | 180 | 2,8 | 0,9 |
| 75 | 8 | 350 | 200 | 3,3 | 0,9 | |
| 100 | 8 | 500 | 400 | 4,7 | 0,9 | |

Production lengths: 40 metres · Tolerances correspond to EN 12115 · N.B. values vary depending on type, please enquire

CHEMOPAL®



Chemical Hose

Lining

- homogeneous, smooth bore
- CIIR (chlorobutyl rubber), black
- suitable for a large number of alkalis, acids, acetates, aldehydes, amines, esters, ethers and ketones
- not suitable for aliphatic, aromatic and halogenated hydrocarbons and their derivatives
- temperature range -40 up to +90° C
- steaming out for cleaning up to +150° C, max. 30 min., open ends

Electr. conductive Ω/T (EN 12115:2011)

| Version | DN | 13 | 16 | 19 | 25 | 32 | 38 | 50 | 63 | 75 | 100 |
|---------|----|----|----|----|----|----|----|----|----|----|-----|
| D | | | | | | | | | | | |
| SD | | | | | | | | | | | |

Marking

- characteristic coloured spiral stripe
- abrasion-resistant continuous embossing complying with standard, see examples below

PTFE 50 · EN 12115 · SD · Ω/T · ELAFLOX PTFE · FDA · 150° · TRbF 131 · Ω · PN 16 BAR

FEP 50 · ELAFLOX PLUS · EN 12115 · FEP · SD · TRbF 131 · Ω · PN16 · 7.11

CONTI POLYPAL PLUS 50 · EN 12115 · UPE · SD · Ω/T · PN 16 · 7.11

CONTI PCS 50 · POLYPAL CLEAN · EN 12115 · UPE · SD · Ω/T · PN 16 · 7.11

CONTI CHEMOPAL 50 · EN 12115 · CIIR · D · Ω/T · PN 16 · 7.11

CONTI TECNOPAL 75 · EN 12115 · EPDM · SD · Ω/T · PN 16 · 7.11

CONTI SOLVAPAL 32 · EN 12115 · NBR2 · D · Ω/T · PN 16 · 7.11

CONTI BUTAPAL 50 · D · EN 1762 · DVGW · PN 25 BAR · Ω · 7.11

CONTI PYROPAL 164 L · DN 19 · EN ISO 6134 · EPDM · DAMPF · Ω · PN 6 · 7.11

SD 50 · PYROPAL 230 · EN ISO 6134 · 2 A · EPDM · DAMPF · 210° · Ω · PN 18

TECNOPAL®



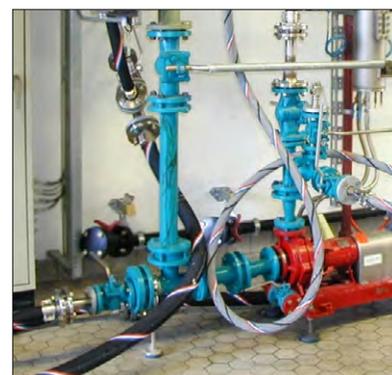
Chemical Hose

Lining

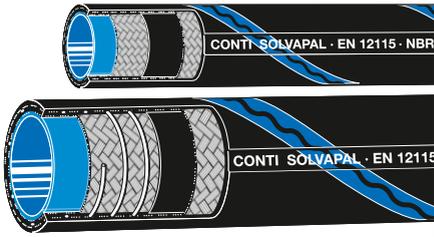
- homogeneous, smooth bore
- EPDM (ethylene propylene rubber), black
- suitable for acids, alkalis, salt solutions, alcohols, polar solvents, acetates, aldehydes, ester, ketones, hot cooling water, hot air (not oily)
- not suitable for aliphatic, aromatic and halogenated hydrocarbons and their derivatives
- temperature range -40 up to +100° C
- steaming out for cleaning up to +150° C, max. 30 min., open ends

Electr. conductive Ω/T (EN 12115:2011)

| Version | DN | 13 | 19 | 22 | 25 | 32 | 38 | 50 | 63 | 75 | 100 |
|---------|----|----|----|----|----|----|----|----|----|----|-----|
| D | | | | | | | | | | | |
| SD | | | | | | | | | | | |



SOLVAPAL®



Solvent Hose

Lining

- homogeneous, smooth bore
- NBR special compound, blue
- suitable for most solvents, paints, also water based, petroleum based products, alcohols, aldehydes, esters and ketones, briefly also for aromatic and chlorinated hydrocarbons
- temperature range -20 up to +80° C (briefly up to +100° C)
- steaming out for cleaning up to +130° C, max. 30 min., open ends

Electr. conductive Ω/T (EN 12115:2011)

| Version | DN | 19 | 25 | 32 | 38 | 50 | 63 | 75 | 100 |
|---------|----|----|----|----|----|----|----|----|-----|
| D | | | | | | | | | |
| SD | | | | | | | | | |

BUTAPAL®



Liquid Petroleum Gas Hose according to EN 1762

Lining

- homogeneous, smooth bore
- NBR, black
- suitable for L.P. Gas and natural gas (gaseous)
- not suitable for ammonia
- temperature range -40 up to +80° C
- working pressure 25 bar, burst pressure > 100 bar
- DVGW approved

Electrically dissipative Ω (EN 1762)

Detailed catalogue page available.

| Version | DN | 13 | 19 | 25 | 32 | 38 | 50 | 75 | 100 |
|---------|----|----|----|----|----|----|----|----|-----|
| D | | | | | | | | | |

PYROPAL® 230



Hose for Saturated Steam 18 bar according to EN ISO 6134

Lining

- homogeneous, smooth bore
- EPDM, black
- suitable for saturated steam +210° C (18 bar) and hot water up to +120° C

Reinforcements

- 2 layers of zinc plated steel braids, asymmetrically woven
- burst pressure > 180 bar

Electrically dissipative Ω (EN ISO 6134)

Detailed catalogue page available.

| Version | DN | 13 | 19 | 25 | 32 | 38 | 50 |
|---------|----|----|----|----|----|----|----|
| D | | | | | | | |

For low pressure steam application use **PYROPAL® 164 L**, available DN 19 + 25 ex stock. Further sizes on request.

Further catalogue material available:

Resistance Chart
PAL HIGH QUALITY HOSES FOR THE CHEMICAL INDUSTRY

made by **COMTECH**

PYROPAL®

US 10 000 steel reinforcement PYROPAL® 230 manufactured by COMTECH is suitable for open and discharge as well as for closed steam circuits. Specially developed high performing EPDM compounds in combination with the asymmetrically woven reinforcement of zinc plated steel braids make PYROPAL® 230 a top quality product. Extremely long lifespan, good flexibility and light bending radii guarantee simple handling, leading to high operational safety and cost efficient assembly of the fittings (- hoses). The admissible working pressure for saturated steam is 18 bar (cool water 25 bar, minimum burst pressure 180 bar). The lining of this braided hose is made of black, electrically conductive EPDM. It is homogeneous, smooth and resistant to hot water up to +120°C. Not of resistant. The maximum steam temperature is 210° C / 18 bar. Overheated steam (dry steam) condenses the liquid, even below 210° C. The robust cover also is also black, electrically conductive EPDM. This makes the cover extremely resistant to ozone, UV, heat, accelerated aging and abrasion. PYROPAL® is marked with a warning red spiral.

Lining

- homogeneous, smooth bore, seamless
- EPDM (EPT), black, electrically conductive
- suitable for saturated steam 18 bar (2 210° C)
- suitable for hot water up to a maximum of +120° C

Reinforcements

- galvanized steel braids, asymmetrically woven
- admissible working pressure for saturated steam 18 bar
- minimum burst pressure 180 bar (10:1 safety factor)

Cover

- black, pre-punched
- EPDM (EPT)
- resistant to ozone, UV, heat, accelerated aging and abrasion
- electrically conductive
- warning: red spiral and continuously embossed text in a straight line

BUTAPAL®

Manufactured by COMTECH - for propane, butane and other L.P. Gases. Also suitable for natural gas. Not suitable for ammonia.

Application: as well for supplies to domestic and industrial storage tanks, as pump hose for vehicle refueling for tank loading and unloading from rail tankers, road tankers and ships. Very flexible though rugged and long-living construction with two braids braids with low extensibility. Admissible working pressure 25 bar. The hose cover of black, electrically conductive chloroprene is highly resistant to abrasion, ozone, UV and ageing. Cost efficient assembly of the fittings (DN10) on special request by the customer, the two copper strands incorporated in the hose can be connected to the hose fittings optionally. Resulting electrical resistance R < 10¹² Ohm.

ELAFLEX® hoses EN 1762-1997 (The approval mark DVGW-REG-4621/0334 PN 25 BAR 13 (month/year))

Lining

- homogeneous, smooth, seamless
- NBR (Nitrile Butadiene Rubber), black, electrically conductive
- resistant to diffusion
- temperature range -40°C up to +70°C (special L.P. type does not crack at temperatures down to -60°C)

Reinforcements

- 2 Twillgewebestextilien resistant to decay
- working pressure up to 25 bar
- min. burst pressure 100 bar (10:1 safety factor)
- 2 crossed braided copper strands

Cover

- CR (Chloroprene Rubber), black, perforated, electrically conductive
- resistant to abrasion, ozone, UV and ageing
- marking: orange spiral and abrasion-resistant continuously embossed text in a straight line

ELAFLEX®

Standard production length 40 metres - DN 19 - 50 also available up to 80 metres upon request.

| Normal Chlorine CR (mm) | Wall Thickness (mm) | Min. Bending Radius (mm) | Weight per Metre (kg) |
|-------------------------|---------------------|--------------------------|-----------------------|
| 13 | 2.0 | 150 | 0.8 |
| 19 | 2.5 | 200 | 1.2 |
| 25 | 3.0 | 250 | 1.8 |
| 32 | 3.5 | 300 | 2.5 |
| 38 | 4.0 | 350 | 3.2 |
| 50 | 5.0 | 450 | 4.5 |

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POLYPAL® CLEAN

Universal-Chemicals POLYPAL CLEAN

ELAFLO PLUS FEP

ELAFLO PLUS FEP UNIVERSALHOSE

ELAFLO PLUS PTFE

ELAFLO PLUS PTFE UNIVERSALHOSE



The Complete Hose System from your PAL Service Partner

PAL chemical hoses are distributed by authorized Service Partners.

The right hose for every medium -
the right coupling for every hose :
PAL Service Partners will give you
expert advice and supply the complete
hose assembly with either threaded
end fittings, quick couplings or flanged
ends. Professionally mounted with safety
clamps, checked and certified.

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