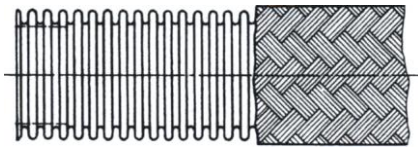


Corrugated Stainless Steel Hoses "ICP-N1"

parallel corrugated, all-metal hose
manufactured from butt-welded tube,
braiding made of 1.4301 / AISI 304

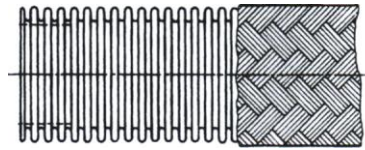
110.1E - 11.12

versions:



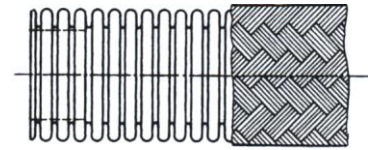
ICP- N1
standard type

for details see leaflet 110.3E + 110.4E



ICP-FL- N1
high flexible type

for special versions see leaflet 110.4E



ICP-V- N1
heavy type

materials:

AISI321 = for use with long-term high temperature
AISI316T = for use with corrosive materials
AISI316L = for use with food and pharmaceuticals

range of temperature:

from -270°C up to max. +600°C

abilities:

flexible, for use with vacuum and pressure, high
mechanical load capacity

DVGW-certificate acc. to DIN 3384 for sizes up to
DN 100 / 4" available

certificates for other purposes on request

application:

for use as pressure- and vacuum hose for
ammoniac, acetate, gasoline, benzol, steam, dye,
acids, bases, gases, vapours

for food products as milk and all milk-based
products, edible oil, alcoholic and non-alcoholic
liquids and pharmaceuticals

for use in several industrial branches such as
production of petro oil, steel, glass, plastics, rubber,
paper, chemical industry and many more

to compensate movement and misalignment during
installation, to reduce noise and oscillation, etc.

reduction factors for pressure

at high operating temperatures

max. operating pressure =
nom. pressure x reduction factor

fittings: soldered or welded, regarding working
conditions, also burr-free acc. to DIN 2827 possible
for fitting types see leaflet 110.2E

for information regarding different ways of length
definition of hose pipes see leaflet 050

for instructions for correct installation of hose pipes
and calculation of hose lengths see leaflet 060 a+b

Torsion has to be avoided in any case!

For determining the correct hose type and pipe
version we need specific information about the
operating conditions (medium, concentration, working
pressure, working temperature, way of installation,
movement); for further information see leaflet 080
(questionnaire for hose pipes)

leaflet 065E a + b "Instructions for hose assemblies"
will be attached to hose delivery

| working temp. in °C | stainless steel types DIN 17441 | | | braiding DIN 17440 |
|---------------------------|---------------------------------------|-----------|-----------|-----------------------|
| | AISI 321 | AISI 316T | AISI 316L | AISI 304 |
| 20 | 1,00 | 1,00 | 1,00 | 1,00 |
| 50 | 0,92 | 0,94 | 0,89 | 0,92 |
| 100 | 0,86 | 0,87 | 0,80 | 0,83 |
| 150 | 0,83 | 0,84 | 0,75 | 0,75 |
| 200 | 0,79 | 0,80 | 0,69 | 0,68 |
| 250 | 0,74 | 0,75 | 0,65 | 0,63 |
| 300 | 0,71 | 0,72 | 0,62 | 0,59 |
| 350 | 0,68 | 0,69 | 0,60 | 0,56 |
| 400 | 0,67 | 0,68 | 0,58 | 0,54 |
| 450 | 0,66 | 0,67 | 0,56 | 0,53 |
| 500 | 0,65 | 0,66 | 0,55 | 0,52 |
| 550 | 0,56 | 0,58 | 0,47 | 0,52 |
| 600 | only for application without pressure | | | |

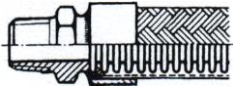
for mixed materials (e.g. hose AISI 321, braiding AISI
304) the lower reduction factor applies

Please note: pulsing or intermittent pressure load,
oscillation or heavy vibration affect design life of
hose pipes!

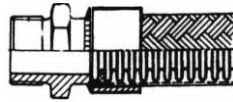
FITTINGS OVERVIEW

materials: steel, stainl. steel (AISI 304, 316L, 316Ti),
malleable iron, brass, red brass

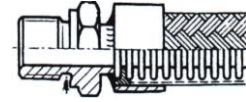
110.2E – 11.12



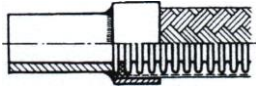
"N1"- hexagonal fitting, male thread, conical, acc. to DIN 2999



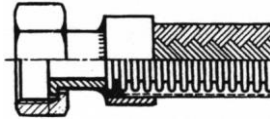
"N2"- hexagonal fitting, male thread, flat sealing, acc. to DIN ISO 228



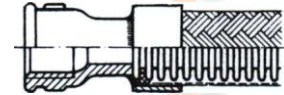
"N4"- hexagonal fitting - same as "N2" with sealing surface at hexagonal



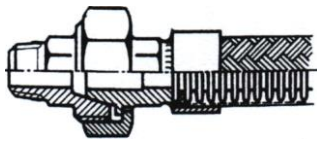
"S5"- welding end "BE-L" – smooth, for olive type fitting



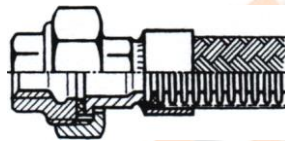
"B2"- collar pipe connection with union nut, flat sealing, whitworth



"M1"- bush, round, female thread acc. to DIN 2999



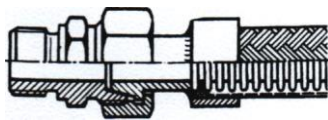
"V1"- 3-part screw connection, conical sealing, acc. to DIN 2999



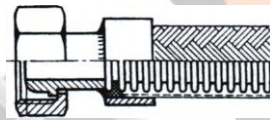
"V2"- 3-part screw connection, flat sealing, acc. to DIN 2999 (ISO)



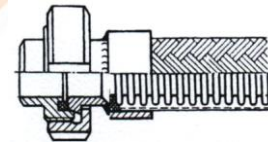
"SKV"- plug-in couplings with self-locking valves – male & female



"V4"- 3-part screw connection, conical sealing, 24°, with male thread acc. to DIN ISO 228 and sealing surface at hexagonal



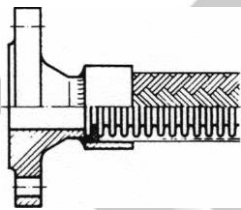
"DKM"- fitting acc. to DIN 3863, with 60° cone and union nut, metric thread



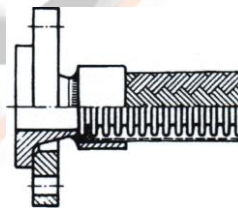
"L1"- complete fitting for food stuffs acc. to DIN 11851 with round thread

"DKR"- union nut with parallel thread

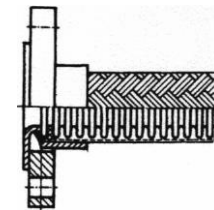
"L2"- cone with swivel nut



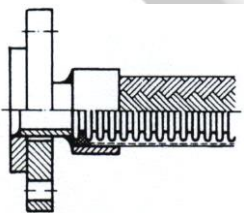
"F1" - fixed flange



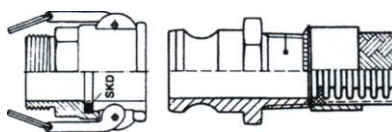
"F2" - welding collar w. swivel flange



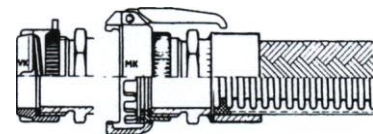
"F3" - welding rim with swivel flange



"F5" - collar pipe connection with swivel flange



"KK"- camlock couplings acc. to DIN 2828 male & female coupling with



"TW"- tank truck couplings type „TW“ DN 50 / 2“ - DN 80 / 3“ - DN 100 / 4“

Corrugated Stainless Steel Hoses "ICP-N1"

ICP = without braiding

ICP- N1 = with stainl.steel braiding, normal corrugated

110.3E - 11.12

application: for liquid, gaseous and corrosive media at high working temperatures

| DN ID | "ICP" | | | | "ICP-N1" | | | |
|----------|----------------------------------|----------------------------|-------------------------|-----------------------------|----------------------------------|----------------------------|-------------------------|-----------------------------|
| | outside diameter approx.mm | nominal pressure bar | bending radius mm | weight approx. kg / m | outside diameter approx.mm | nominal pressure bar | bending radius mm | weight approx. kg / m |
| 8 | 12.1 | 5 | 125 | 0.08 | 13.6 | 155 | 125 | 0.20 |
| 10 | 14.2 | 5 | 130 | 0.15 | 15.6 | 112 | 130 | 0.29 |
| 12 | 16.7 | 5 | 140 | 0.18 | 18.3 | 88 | 140 | 0.35 |
| 16 | 21.5 | 5 | 160 | 0.24 | 23.8 | 80 | 160 | 0.49 |
| 20 | 26.7 | 3 | 170 | 0.29 | 28.6 | 70 | 170 | 0.54 |
| 25 | 32.3 | 3 | 190 | 0.38 | 34.3 | 60 | 190 | 0.75 |
| 32 | 41.1 | 3 | 260 | 0.49 | 43.1 | 50 | 260 | 1.00 |
| 40 | 49.6 | 2 | 300 | 0.79 | 51.9 | 46 | 300 | 1.50 |
| 50 | 60.5 | 2 | 320 | 1.06 | 62.4 | 40 | 320 | 1.86 |
| 65 | 84.0 | 1 | 500 | 1.28 | 86.0 | 30 | 500 | 2.50 |
| 80 | 98.0 | 1 | 600 | 1.80 | 102.2 | 25 | 600 | 3.43 |
| 100 | 124.0 | 1 | 700 | 2.22 | 126.2 | 16 | 700 | 4.32 |
| 125 | 153.0 | 0.5 | 900 | 3.10 | 155.5 | 15 | 900 | 5.85 |
| 150 | 178.0 | 0.5 | 1000 | 3.85 | 180.5 | 12 | 1000 | 7.33 |
| 200 | 232.0 | 0.5 | 1100 | 7.00 | 235.0 | 10 | 1100 | 11.20 |

also available in ID 6, 250 und 300

ICP- FL = without braiding

ICP- FL- N1 = with stainl.steel braiding, close corrugated and highly flexible

applications: e.g. high requirements at bending, for strainless connection of weighing containers and especially in cases where small bending radiuses are required

| DN ID | "ICP-FL" | | | | "ICP-FL-N1" | | | |
|----------|---------------------------------|----------------------------|-------------------------|-----------------------------|---------------------------------|----------------------------|-------------------------|-----------------------------|
| | outside diameter approx.m | nominal pressure bar | bending radius mm | weight approx. kg / m | outside diameter approx.m | nominal pressure bar | bending radius mm | weight approx. kg / m |
| 8 | 12.1 | 5 | 90 | 0.09 | 13.6 | 156 | 90 | 0.21 |
| 10 | 14.2 | 5 | 100 | 0.12 | 15.6 | 113 | 100 | 0.24 |
| 12 | 16.7 | 5 | 110 | 0.15 | 18.3 | 88 | 110 | 0.28 |
| 16 | 21.5 | 5 | 130 | 0.24 | 23.8 | 80 | 130 | 0.43 |
| 20 | 26.7 | 3 | 145 | 0.30 | 28.6 | 70 | 145 | 0.53 |
| 25 | 34.3 | 3 | 160 | 0.42 | 34.3 | 60 | 160 | 0.83 |
| 32 | 43.1 | 3 | 230 | 0.50 | 43.1 | 50 | 230 | 0.97 |
| 40 | 51.9 | 2 | 250 | 1.00 | 51.9 | 46 | 250 | 1.74 |
| 50 | 60.5 | 2 | 285 | 1.25 | 62.4 | 40 | 285 | 2.05 |
| 65 | 84.0 | 1 | 450 | 1.35 | 86.0 | 30 | 450 | 2.60 |
| 80 | 98.0 | 1 | 530 | 1.75 | 102.2 | 25 | 530 | 3.20 |
| 100 | 124.0 | 0.5 | 600 | 2.10 | 126.2 | 16 | 600 | 4.40 |
| 125 | 153.0 | 0.5 | 810 | 3.25 | 155.5 | 15 | 810 | 5.75 |
| 150 | 178.0 | 0.5 | 900 | 4.00 | 180.5 | 12 | 900 | 6.90 |
| 200 | 232.0 | 0.5 | 1050 | 7.00 | 235.0 | 10 | 1050 | 11.20 |

nominal pressure = pressure at +20°C, for higher temperatures see reduction factors – leaflet 110.1E

bending radius = apply for strainless hoses and frequent movement

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Corrugated stainless steel hoses

standard corrugated – heavy version for heavy load

- ICP-V - without braiding
- ICP-V-N1 - with single braiding
- ICP-V-N2 - with double braiding

applications: e.g. hot oil, overheated steam, corrosive liquids;
especially suited for use at heated level and platen press

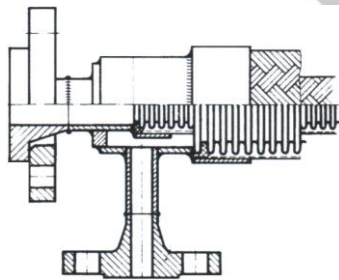
| DN ID | "ICP-V" | "ICP-V-N1" | | | | "ICP-V-N2" | | | |
|----------|----------------------|----------------------------|----------------------|-------------------|-----------------------|----------------------------|----------------------|-------------------|-----------------------|
| | nominal pressure bar | outside diameter approx.mm | nominal Pressure bar | bending radius mm | weight approx. kg / m | outside diameter approx.mm | nominal pressure bar | bending radius mm | weight approx. kg / m |
| 8 | 20 | 14,6 | 260 | 200 | 0,33 | 16,2 | 400 | 220 | 0,48 |
| 10 | 16 | 17,7 | 220 | 220 | 0,47 | 19,1 | 370 | 260 | 0,65 |
| 12 | 15 | 20,2 | 180 | 240 | 0,60 | 21,8 | 320 | 280 | 0,82 |
| 16 | 11 | 25,1 | 100 | 260 | 0,68 | 27,2 | 160 | 290 | 1,00 |
| 20 | 7 | 30,4 | 100 | 270 | 0,84 | 32,8 | 140 | 300 | 1,27 |
| 25 | 6 | 36,0 | 80 | 310 | 1,00 | 38,3 | 120 | 320 | 1,47 |
| 32 | 4 | 44,8 | 80 | 360 | 1,34 | 47,3 | 90 | 380 | 2,01 |
| 40 | 2,5 | 56,0 | 50 | 400 | 1,95 | 58,5 | 82 | 420 | 2,74 |
| 50 | 2,5 | 67,0 | 50 | 460 | 2,55 | 69,9 | 76 | 490 | 3,72 |
| 65 | 2 | 83,9 | 42 | 550 | 3,42 | 87,3 | 60 | 580 | 5,06 |
| 80 | 1,6 | 101,1 | 40 | 680 | 4,50 | 104,3 | 45 | 710 | 6,40 |
| 100 | 1,6 | 124,4 | 32 | 850 | 6,35 | 128,4 | 40 | 900 | 9,16 |
| 125 | 1 | 152,3 | 22 | 1100 | 8,20 | 156,3 | 36 | 1160 | 11,25 |
| 150 | 0,5 | 182,9 | 16 | 1600 | 10,60 | 187,3 | 30 | 1680 | 14,80 |

also available in ID 200 – ID 250 – ID 300

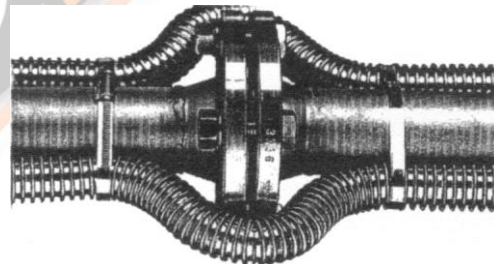
nominal pressure = pressure at +20°C, for higher temperatures see reduction factors – leaflet 110.1E

bending radius = apply for stainless hoses and frequent movement

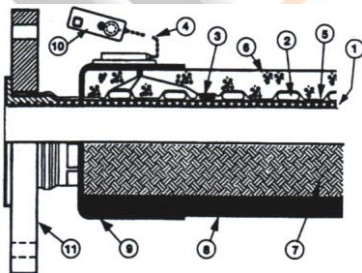
further versions:



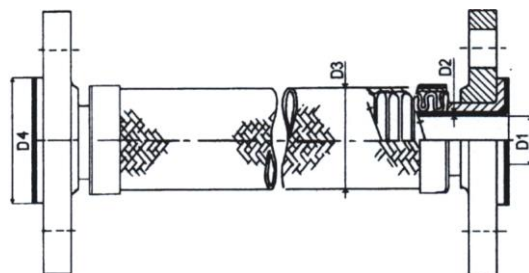
double jacket hose pipe "ICP-.." for heating and cooling with steam, water and oil see leaflet 125 a + b



heat tracing hoses "ICP- S" for pipes, containers and fittings see leaflet 123 a + b



electrically heated hose pipes for conveyance of liquid or gaseous media at even temperatures see leaflet 617 a + b



stainl.steel hoses with liner made of PTFE "ICP-N1-TPA" with bright or black (= antistatic) liner see leaflet 113

indu flex