aalberts integrated piping systems

VSH SudoPress Copper

Environmental Product Declaration

in accordance with
ISO 14044, ISO 14040 and EN 15804

EN EPD

1 general information

1.1 note on this document

The original document was written in English, all other versions are a translation of the original document.

1.2 declaration holder

Aalberts integrated piping systems B.V.
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Aalberts integrated piping systems develops the most advanced integrated piping systems for distribution and control of liquids and gases. These systems are used in various markets such as industry, utility and residential construction. We offer fully integrated piping systems in valve, connection, fastening and piping technology. In close cooperation with our customers, we build the perfect integrated piping system that meets all their requirements. Our piping systems are easy to specify, install, check and maintain, saving you considerable time on preparation and installation. We meet the highest quality and industry standards required in our markets. The Aalberts integrated piping systems production locations mentioned in this document, Hilversum and Zeewolde, are certified acc. ISO 9001, ISO 14001 and ISO 45001.

1.3 declared Product

This document applies to the VSH SudoPress Copper fittings listed in the appendix -chapter 5- of this document. Articles with bronze, brass or gunmetal components are not covered in this declaration.
A VSH SudoPress Copper bend 90° FF 22, article number: 6670125, has been used as a reference article.

1.4 verification

The European standard EN15804:2012 +A2:2019 has been used as the core PCR. Environmental product declarations for construction products may not be comparable if they do not comply with the EN15804. It is only possible to make a limited comparison between life cycle assessment results when different background databases are used and/or different assumptions as described in chapter 3.3.

This is a Self-Declared Environmental Product Declaration acc. NEN-EN ISO 14025.

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Date of issue:	01/07/2023
Author of LCA:	Fabian Bruns
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Production data:	2021

Hilversum, September 2023
Aalberts integrated piping systems B.V.

Roland Voermans
COO

2 product

2.1 description and application purpose

VSH SudoPress Copper is a complete piping system suitable for a wide variety of applications, from drinking water, heating and solar installations to cooling water and compressed air systems. The VSH SudoPress Copper range consists of press fittings and pressing tools. The VSH SudoPress Copper fittings are pressed with jaws and slings with V-profile and are available from 12 up to and including 54 mm, including fittings for 14, 16 and 18 mm copper tube.

- VSH SudoPress Copper fittings are made of CU-DHP copper, bronze CC499K (Rg5) or brass (CW617N).
- VSH SudoPress Copper can be used with copper pipes in accordance with EN 1057 R220/R350/R290.

The o-ring has decisive influence on the performance of the system in different applications, with different media and parameters. Depending on the application, different o-rings can be inserted in the fittings:

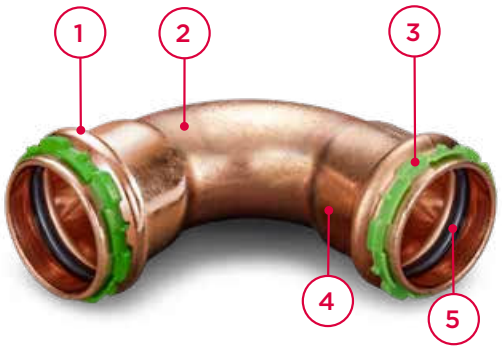
- EPDM (Ethylene Propylene Diene Monomer / black) – standard
- FPM (Fluoroelastomer / green) – for use in specific applications

The VSH SudoPress LBP function is achieved using a special, patented o-ring. Fittings with a Leak Before Pressed function have the advantage that connections which have not been pressed will leak water or testing gas during pressure testing, causing the test pressure to drop. When the test is done with water, the leakage will show around the unpressed connection.

Visu-Control® is an additional safety feature on VSH SudoPress fittings which ensures that a visual and tangible check is carried out (in addition to the Leak Before Pressed function). After pressing, the Visu-Control® ring is disposed of..

2.2 VSH SudoPress Copper fittings

All VSH SudoPress Copper fittings are produced in our modern, automated factory in the France. The VSH SudoPress product range includes fittings, valves, tubes and tools. VSH SudoPress fittings are compatible with various press tool brands. Use our online tool selector to find the right tool for the right material. During the pressing process, bead, socket and tube are deformed to form a leak-tight and mechanically strong, permanent connection



1. fitting bead
2. fitting body
3. Visu-Control® ring
4. insertion socket
5. o-ring

For the composition of the components, see chapter 3.2 “product composition”

2.3 range and conversion factors

The reference product for this declaration is the VSH SudoPress Copper bend 90° FF 22. This article was chosen as a reference because it is the most common product in the VSH SudoPress Copper article range. The life cycle assessment results in chapter 4 can be converted to other articles listed in the appendix of this document. This can be done by multiplying the results with the conversion factor for a specific product. For products and their corresponding conversion factors, see the appendix -chapter 5-.

3 life cycle assessment scope

3.1 system boundaries

This EPD can be regarded as a Cradle-to-Gate with options, module C2 and D. The following phases are considered not relevant for this product range: A5, B, C1, C3 and C4.

3.2 declared unit composition

The reference article, VSH SudoPress Copper 90° bend FF 22, consists of the following raw materials:

carbon steel:	84 gram
elastomers:	1.6 gram
plastic:	0.5 gram
Total:	86 gram

3.3 assumptions and background information

A1: For the raw material supply 100% of the materials on the bill of materials were modelled using data from the Ecoinvent database. Also included were copper waste and anciliary materials like water and lubrication oil.
A2: For transport of materials to Aalberts integrated piping systems in Saint-Denis-de-l'Hôtel specific transport distances from materials suppliers were used. Class Euro5 trucks are used as the main means of transport and were used for calculation.
A3: VSH SudoPress Copper products are manufactured in the factory of Aalberts integrated piping systems located in Sain-Denis-de-l'Hôtel, France. This factory makes use of green electricity for manufacturing the VSH SudoPress products. Therefore the green electricity France mix was used for calculating the electricity consumption.
A4: Transport from the factory in Saint-Denis-de-l'Hôtel to the warehouse in Zeewolde is done by Aalberts integrated piping systems and logistical partners. The main means of transport is by Class Euro5 trucks. The transportation distance is calculated at 632 km. Transportation to customers within Europe is done by logistical partners. The main means of transport in Europe is by Class Euro5 trucks.
The average transportation distance is calculated at 662 km.
A5: The installation is done by use of a press tool which uses a considered negligible amount of energy.
B1-B7: A VSH SudoPress Copper fitting is designed for a lifetime of 50+ years of service. A VSH SudoPress Copper fitting needs no maintenance, repair, replacement or refurbishment and has no operational water or energy use during its lifetime.
C1-C4. The piping system is assumed to be stripped as a whole from a building in the demolition process and separate energy used for the fitting de-construction is considered negligible in this process. Transportation to a waste processing site is assumed at 50 km and modelled by use of garbage trucks. The waste processing is assumed to be done at a material level rather than component level since the fittings are permanently fitted onto piping. Therefore energy consumption for the waste processing of fittings was considered negligible. Partial disposal was considered to happen at a recycler rather than a waste processer and is therefore calculated in phase D.
D: Average recycling rates for building materials in Europe were used to calculate the amount of material that went for recycling, landfill and incineration. 90% of copper will be recycled, 32.5% of plastics recycled and 42.5% was modelled to go into landfill. The remainder of the product including 0-ring was modelled to be incinerated.

3.4 quality of life cycle assessment, data and reporting

This environmental product declaration is based on a life cycle assessment conducted according to the ISO 14040 and ISO 14044 and meets further requirements from the EN 15804:2012 + A2:2019.
The modelling and calculation was done in the Ecochain software tool "Helix", which uses the Ecoinvent database. Inventory data was mainly provided by Aalberts integrated piping systems b.v. and was peer reviewed by several internal partners.
The environmental product declaration report is automatically generated to prevent human errors and ensure its quality. Improved quality of the life cycle assessment will be achieved when it would get externally verified according to ISO 14025.
Because of the nature of a life cycle assessment and accompanying assumptions, the environmental impact of a product will remain an underestimate. Care must be taken when comparing EPDs from different sources.
Aalberts integrated piping systems b.v. is committed to providing the most accurate environmental impact possible to its customers and will continue to improve the quality of the data, model and results.

4 life cycle assessment results

The following environmental profile shows the results of the life cycle assessment of a single unit of the declared product.

Environmental Profile

This LCA is calculated according to: ISO 14044, ISO 14040 and EN 15804

Ecochain v3.5.80

Ecochain

Product:	Sudopress Elbow 90° copper FF 22mm EPDM	LCA standard:	EN15804+A2 (2019)
Unit:	1 units	Standard database:	Worldwide - Ecoinvent v 3.8 Cut-Off
Manufacturer:	Aalberts IPS - FR	Externally verified:	No
		Export date:	29-06-2023

integrated piping systems

The LCA background information and project dossier have been registered in the online Ecochain application in the account Aalberts IPS - FR (2022). (☑ = module declared, MND = module not declared).

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
☑	☑	☑	☑	MND	MND	MND	MND	MND	MND	MND	MND	MND	☑	MND	MND	☑

Product stage

A1 Raw material supply A2 Transport A3 Manufacturing

Construction process stage

A4 Transport gate to site
A5 Assembly / Construction installation process

Use stage

B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment
B6 Operational energy use B7 Operational water use

End-of-Life stage

C1 De-construction demolition C2 Transport C3 Waste processing
C4 Disposal

Benefits and loads beyond the system boundaries

D Reuse- Recovery- Recycling- potential

environmental impacts and parameters

GWP-total = EF Climate Change [kg CO_2 eq]; GWP-f = EF Climate change - Fossil [kg CO_2 eq]; GWP-b = EF Climate Change - Biogenic [kg CO_2 eq]; GWP-luluc = EF Climate Change - Land use and LU change [kg CO_2 eq]; ODP = EF Ozone depletion [kg CFC11 eq]; AP = EF Acidification [mol H+ eq]; EP-fw = EF Eutrophication, freshwater [kg P eq]; EP-m = EF Eutrophication, marine [kg N eq]; EP-T = EF Eutrophication, terrestrial [mol N eq]; POCP = EF Photochemical ozone formation [kg NMVOC eq]; ADP-mm = EF Resource use, minerals and metals [kg Sb eq]; ADP-f = EF Resource use, fossils [MJ]; WDP = EF Water use [m3 depriv.]; PM = EF Particulate matter [disease inc.]; IR = EF Ionising radiation [kBq U-235 eq]; ETP-fw = EF Ecotoxicity, freshwater [CTUe]; HTP-c = EF Human toxicity, cancer [CTUh]; HTP-nc = EF Human toxicity, non-cancer [CTUh]; SQP = EF Land use [Pt]; PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]; PERM = Use of renewable primary energy resources used as raw materials [MJ]; PERT = Total use of renewable primary energy resources [MJ]; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]; PENRM = Use of non-renewable primary energy resources used as raw materials [MJ]; PENRT = Total use of non-renewable primary energy resources [MJ]; PET = Total energy [MJ]; SM = Use of secondary material [kg]; RSF = Use of renewable secondary fuels [MJ]; NRSF = Use of non-renewable secondary fuels [MJ]; FW = Use of net fresh water [m3]; HWD = Hazardous waste disposed [kg]; NHWD = Non-hazardous waste disposed [kg]; RWD = Radioactive waste disposed [kg]; CRU = Components for re-use [kg]; MFR = Materials for recycling [kg]; MER = Materials for energy recovery [kg]; EE = Exported energy [MJ]; EET = Exported energy thermic [MJ]; EEE = Exported energy electric [MJ]

statement of confidentiality

results

Environmental impact	Unit	A1	A2	A3	A1-A3	A4	C2	D	Total
GWP-total	kg CO2 eq	4.108E-1	1.009E-2	4.663E-3	4.256E-1	1.853E-2	8.016E-4	-1.275E-1	3.174E-1
GWP-f	kg CO2 eq	4.150E-1	1.008E-2	4.613E-3	4.297E-1	1.851E-2	8.008E-4	-1.271E-1	3.219E-1
GWP-b	kg CO2 eq	-4.612E-3	9.068E-6	4.683E-5	-4.556E-3	1.666E-5	3.542E-7	-2.390E-4	-4.778E-3
GWP-luluc	kg CO2 eq	4.300E-4	3.958E-6	3.635E-6	4.376E-4	7.269E-6	3.564E-7	-1.256E-4	3.196E-4
ODP	kg CFC11 eq	2.484E-8	2.332E-9	1.488E-9	2.866E-8	4.284E-9	3.754E-10	-1.006E-8	2.326E-8
AP	mol H+ eq	4.693E-2	4.090E-5	3.053E-5	4.700E-2	7.512E-5	5.282E-6	-5.593E-3	4.149E-2
EP-fw	kg P eq	3.736E-4	7.066E-8	1.350E-7	3.738E-4	1.298E-7	8.328E-9	-4.467E-5	3.293E-4
EP-m	kg N eq	2.168E-3	1.220E-5	4.692E-6	2.185E-3	2.240E-5	1.380E-6	-5.180E-4	1.691E-3
EP-T	mol N eq	3.286E-2	1.346E-4	5.129E-5	3.305E-2	2.473E-4	1.522E-5	-8.010E-3	2.530E-2
POCP	kg NMVOC eq	8.767E-3	4.124E-5	5.199E-5	8.860E-3	7.574E-5	4.725E-6	-1.763E-3	7.178E-3
ADP-mm	kg Sb eq	2.692E-4	3.505E-8	1.200E-7	2.693E-4	6.437E-8	3.363E-8	-9.321E-5	1.762E-4
ADP-f	MJ	4.467E+0	1.524E-1	4.117E-1	5.032E+0	2.799E-1	2.414E-2	-1.634E+0	3.701E+0
WDP	m3 depriv.	3.424E-1	4.563E-4	4.978E-3	3.478E-1	8.381E-4	4.057E-5	-1.118E-1	2.369E-1
PM	disease inc.	1.010E-7	8.673E-10	1.974E-10	1.020E-7	1.593E-9	5.980E-11	-1.985E-8	8.384E-8
IR	kBq U-235 eq	1.294E-2	6.616E-4	3.480E-3	1.708E-2	1.215E-3	1.042E-4	-7.861E-3	1.054E-2
ETP-fw	CTUe	4.520E+2	1.189E-1	1.616E-1	4.523E+2	2.184E-1	1.619E-2	-9.985E+1	3.527E+2
HTP-c	CTUh	6.285E-9	3.851E-12	4.170E-12	6.293E-9	7.073E-12	3.765E-13	-2.184E-9	4.117E-9
HTP-nc	CTUh	5.379E-7	1.247E-10	1.045E-10	5.382E-7	2.291E-10	1.188E-11	-1.588E-7	3.796E-7
SQP	Pt	6.238E+0	1.047E-1	2.805E-2	6.370E+0	1.923E-1	9.441E-3	-1.704E+0	4.868E+0
Resource use	Unit	A1	A2	A3	A1-A3	A4	C2	D	Total
PERE	MJ	0	2.148E-3	2.690E-2	2.905E-2	3.945E-3	0	3.287E-5	3.302E-2
PERM	MJ	1.309E+0	0	0	1.309E+0	0	1.972E-4	-5.344E-1	7.752E-1
PERT	MJ	1.309E+0	2.148E-3	2.690E-2	1.338E+0	3.945E-3	1.972E-4	-5.344E-1	8.082E-1
PENRE	MJ	0	1.618E-1	4.206E-1	5.824E-1	2.972E-1	0	1.098E-3	8.807E-1
PENRM	MJ	4.762E+0	0	0	4.762E+0	0	2.563E-2	-1.739E+0	3.048E+0
PENRT	MJ	4.762E+0	1.618E-1	4.206E-1	5.344E+0	2.972E-1	2.563E-2	-1.738E+0	3.929E+0
PET	MJ	6.071E+0	1.639E-1	4.475E-1	6.683E+0	3.011E-1	2.583E-2	-2.273E+0	4.737E+0
SM	kg	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m3	8.641E-3	1.699E-5	1.911E-4	8.849E-3	3.120E-5	1.495E-6	-2.816E-3	6.066E-3
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	A4	C2	D	Total
HWD	kg	2.603E-5	3.980E-7	3.054E-7	2.674E-5	7.310E-7	6.569E-8	-2.024E-6	2.551E-5
NHWD	kg	1.582E-1	7.837E-3	6.478E-4	1.667E-1	1.439E-2	5.464E-4	-9.897E-2	8.270E-2
RWD	kg	1.219E-5	1.031E-6	4.643E-6	1.787E-5	1.893E-6	1.673E-7	-7.213E-6	1.271E-5
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0
EE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0

5 appendix

The life cycle assessment results listed in chapter 4 can be converted to the other sales articles listed using the conversion factor in accordance with the following tables.

SP5270V	straight coupling (2 x press)	
article no.	**dimensions**	**conversion factor**
6671093	12	0.31
6671095	14	0.40
6671104	15	0.40
6671106	16	0.45
6671115	18	0.50
6671126	22	0.69
6671137	28	0.86
6671148	35	1.13
6671159	42	2.62
6671161	54	3.37

SP5275V	slip coupling (2 x press)	
article no.	**dimensions**	**conversion factor**
6671170	12	0.50
6671172	14	0.62
6671181	15	0.62
6671183	16	0.71
6671192	18	0.74
6671203	22	1.00
6671214	28	1.40
6671225	35	1.94
6671236	42	3.44
6671247	54	4.77

SP5002V	elbow 90° (2 x press)	
article no.	**dimensions**	**conversion factor**
6670092	12	0.40
6670094	14	0.52
6670103	15	0.52
6670105	16	0.59
6670114	18	0.73
6670125	22	1.00
6670136	28	1.48
6670147	35	2.17
6670158	42	4.19
6670169	54	5.92

SP5001V	elbow 90° (press x male)	
article no.	**dimensions**	**conversion factor**
6670015	12 x Ø12	0.37
6670017	14 x Ø14	0.50
6670026	15 x Ø15	0.50
6670028	16 x Ø16	0.57
6670037	18 x Ø18	0.71
6670048	22 x Ø22	1.01
6670059	28 x Ø28	1.42
6670061	35 x Ø35	2.09
6670070	42 x Ø42	4.16
6670081	54 x Ø54	5.81

SP5041V	bend 45° (2 x press)	
article no.	**dimensions**	**conversion factor**
6670257	12	0.35
6670259	14	0.44
6670268	15	0.47
6670270	16	0.51
6670279	18	0.59
6670281	22	0.85
6670290	28	1.14
6670301	35	1.44
6670312	42	3.12
6670323	54	4.28

SP5040V	bend 45° (press x male)	
article no.	**dimensions**	**conversion factor**
6670171	12 x Ø12	0.33
6670173	14 x Ø14	0.42
6670180	15 x Ø15	0.44
6670182	16 x Ø16	0.49
6670191	18 x Ø18	0.56
6670202	22 x Ø22	0.81
6670213	28 x Ø28	1.08
6670224	35 x Ø35	1.44
6670235	42 x Ø42	2.97
6670246	54 x Ø54	4.30

SP5085V	crossover (2 x press)	
article no.	**dimensions**	**conversion factor**
6671456	15	1.01
6671467	18	1.41
6671478	22	2.10

SP5086V	crossover (press x male)	
article no.	**dimensions**	**conversion factor**
6671489	12 x Ø12	0.73
6671491	15 x Ø15	0.93
6671500	18 x Ø18	1.17
6671511	22 x Ø22	1.84

SP5130V	tee (3 x press)	
article no.	**dimensions**	**conversion factor**
6670334	12	0.81
6670336	14	0.98
6670345	15	0.98
6670347	16	1.10
6670356	18	1.30
6670367	22	1.70
6670378	28	2.28
6670389	35	3.13
6670391	42	6.02
6670400	54	8.20

SP5130RV	tee reduced (3 x press)	
article no.	**dimensions**	**conversion factor**
6670411	12 x 15 x 12	0.98
6670415	14 x 12 x 14	1.00
6670417	14 x 16 x 14	1.03
6670433	15 x 12 x 15	1.02
6670455	15 x 18 x 15	1.28
6670466	15 x 22 x 15	1.59
6670468	16 x 12 x 16	1.09
6670472	16 x 14 x 16	1.22
6670477	18 x 12 x 18	1.17
6670479	18 x 14 x 18	1.31
6670499	18 x 15 x 18	1.33
6670502	18 x 16 x 18	1.31
6670510	18 x 22 x 18	1.60
6670521	22 x 12 x 22	1.48
6670523	22 x 14 x 22	1.63
6670554	22 x 15 x 22	1.62
6670556	22 x 16 x 22	1.58
6670587	22 x 18 x 22	1.70
6670611	22 x 28 x 22	2.21
6670631	28 x 15 x 28	2.14
6670653	28 x 18 x 28	2.23
6670675	28 x 22 x 28	2.26
6670719	35 x 15 x 35	2.76
6670721	35 x 18 x 35	2.81
6670741	35 x 22 x 35	2.83
6670763	35 x 28 x 35	2.92
6670774	42 x 22 x 42	4.88
6670785	42 x 28 x 42	4.90
6670807	42 x 35 x 42	5.12
6670818	54 x 22 x 54	6.33
6670829	54 x 28 x 54	6.22
6670831	54 x 35 x 54	6.31
6670851	54 x 42 x 54	7.51

SP5130RVR	tee reduced (3 x press)	
article no.	**dimensions**	**conversion factor**
6670413	14 x 12 x 12	0.91
6670422	15 x 12 x 12	1.00
6670444	15 x 15 x 12	0.95
6670470	16 x 14 x 14	1.17
6670474	16 x 16 x 14	1.21
6670488	18 x 15 x 15	1.31
6670501	18 x 18 x 15	1.36
6670532	22 x 15 x 15	1.59
6670543	22 x 15 x 18	1.57
6670565	22 x 18 x 15	1.63
6670576	22 x 18 x 18	1.62
6670598	22 x 22 x 15	1.59
6670609	22 x 22 x 18	1.60
6670620	28 x 15 x 22	2.07
6670642	28 x 18 x 22	2.10
6670664	28 x 22 x 22	2.20
6670686	28 x 28 x 15	2.00
6670697	28 x 28 x 18	2.19
6670708	28 x 28 x 22	2.27
6670730	35 x 22 x 28	2.81
6670752	35 x 28 x 28	3.05
6670796	42 x 35 x 35	4.63
6670840	54 x 42 x 42	7.70

SP4130GV	tee female branch (press x female thread x press)	
article no.	**dimensions**	**conversion factor**
6671764	12 x Rp½" x 12	1.23
6671766	14 x Rp½" x 14	1.41
6671775	15 x Rp½" x 15	1.43
6671777	16 x Rp½ x 16	1.30
6671786	18 x Rp½" x 18	1.43
6671797	22 x Rp½" x 22	1.92
6671808	22 x Rp¾" x 22	2.03
6671819	28 x Rp½" x 28	2.37
6671821	28 x Rp¾" x 28	2.69
6671830	35 x Rp½" x 35	2.43
6671841	42 x Rp½" x 42	4.23
6671852	54 x Rp½" x 54	5.37

SP5240V	reducer (2 x press)	
article no.	**dimensions**	**conversion factor**
6672844	14 x 12	0.34
6670862	15 x 12	0.34
6670864	16 x 14	0.41
6671854	16 x 15	0.38
6670866	18 x 14	0.47
6670873	18 x 15	0.41
6670875	18 x 16	0.44
6670877	22 x 14	0.59
6670884	22 x 15	0.67
6670886	22 x 16	0.59
6670895	22 x 18	0.63
6670906	28 x 22	0.78
6670917	35 x 28	1.16
6670928	42 x 35	1.90
6670939	54 x 42	3.10

SP5243V	reducer (press x male)	
article no.	**dimensions**	**conversion factor**
6674659	Ø14 x 12	0.28
6670950	Ø15 x 12	0.31
6670952	Ø15 x 14	0.35
6670954	Ø15 x 16	0.38
6670956	Ø16 x 12	0.33
6670958	Ø16 x 14	0.34
6670961	Ø18 x 12	0.34
6670963	Ø18 x 14	0.40
6670972	Ø18 x 15	0.43
6670974	Ø18 x 16	0.40
6670976	Ø22 x 14	0.48
6670941	Ø22 x 15	0.44
6670943	Ø22 x 16	0.49
6670983	Ø22 x 18	0.50
6670994	Ø28 x 15	0.73
6670996	Ø28 x 16	0.74
6671005	Ø28 x 18	0.76
6671016	Ø28 x 22	0.70
6671027	Ø35 x 22	0.60
6671038	Ø35 x 28	0.91
6671049	Ø42 x 22	1.65
6671051	Ø42 x 28	1.78
6671060	Ø42 x 35	1.42
6671071	Ø54 x 35	2.19
6671082	Ø54 x 42	2.66

SP4243GV	straight connector (press x male thread)	
article no.	**dimensions**	**conversion factor**
6671907	12 x R⅜"	0.36
6671918	12 x R½"	0.53
6671913	14 x R⅜"	0.42
6671911	14 x R¾"	0.92
6671909	14 x R½"	0.53
6671929	15 x R⅜"	0.43
6671931	15 x R½"	0.55
6671940	15 x R¾"	0.67
6671932	16 x R½"	0.60
6671934	16 x R¾	0.92
6671951	18 x R½"	0.56
6671962	18 x R¾"	0.71
6671973	22 x R½"	0.72
6671984	22 x R¾"	0.85
6671995	22 x R1"	1.07
6672006	28 x R¾"	1.02
6672017	28 x R1"	1.23
6672028	28 x R1¼"	2.22
6672039	35 x R1"	1.52
6672041	35 x R1¼"	2.05
6672050	35 x R1½"	2.27
6672061	42 x R1¼"	2.52
6672072	42 x R1½"	2.45
6672083	54 x R1½"	3.28
6672094	54 x R2"	4.88

SP4270GV	straight connector (press x female thread)	
article no.	**dimensions**	**conversion factor**
6672105	12 x Rp⅜"	0.38
6672116	12 x Rp½"	0.50
6672111	14 x Rp⅜	0.44
6672107	14 x Rp½	0.76
6672109	14 x Rp¾	0.93
6672127	15 x Rp⅜"	0.43
6672138	15 x Rp½"	0.58
6672149	15 x Rp¾"	0.73
6672129	16 x Rp½	0.77
6672131	16 x Rp¾	0.95
6672151	18 x Rp½"	0.57
6672160	18 x Rp¾"	0.73
6672171	22 x Rp½"	0.70
6672182	22 x Rp¾"	0.78
6672193	22 x Rp1"	1.56
6672204	28 x Rp¾"	0.92
6672215	28 x Rp1"	1.56
6672226	28 x Rp1¼"	1.67
6672237	35 x Rp1"	1.47
6672248	35 x Rp1¼"	2.34
6672259	42 x Rp1¼"	2.26
6672261	42 x Rp1½"	2.74
6672270	54 x Rp2"	4.52

SP4281GV	straight connector (male x female thread)	
article no.	**dimensions**	**conversion factor**
6673062	Ø12 x Rp½"	0.48
6673073	Ø15 x Rp½"	0.52
6673084	Ø18 x Rp½"	0.80
6673095	Ø18 x Rp¾"	0.73
6673106	Ø22 x Rp½"	0.60
6673117	Ø22 x Rp¾"	0.81
6673128	Ø28 x Rp¾"	0.74
6673139	Ø28 x Rp1"	1.48
6673141	Ø35 x Rp1"	1.47
6673150	Ø35 x Rp1¼"	1.87
6673161	Ø42 x Rp1½"	2.59
6673172	Ø54 x Rp2"	4.47

SP4280GV	straight connector (male x male thread)	
article no.	**dimensions**	**conversion factor**
6672963	Ø12 x R½"	0.49
6672974	Ø15 x R½"	0.55
6672985	Ø18 x R½"	0.55
6672996	Ø18 x R¾"	0.73
6673007	Ø22 x R½"	0.62
6673018	Ø22 x R¾"	0.91
6673029	Ø28 x R1"	1.23
6673031	Ø35 x R1¼"	1.90
6673040	Ø42 x R1½"	2.70
6673051	Ø54 x R2"	5.58

SP4001GV	angle adapter 90° (press x male thread)	
article no.	**dimensions**	**conversion factor**
6673440	14 x R⅜"	0.81
6673438	14 x R½"	1.08
6671533	15 x R⅜"	0.99
6671544	15 x R½"	1.00
6671535	16 x R½"	1.03
6671555	18 x R½"	1.40
6671566	18 x R¾"	1.56
6671577	22 x R¾"	1.74
6671588	28 x R1"	3.12

SP4092GV	angle adapter 90° (press x male thread)	
article no.	**dimensions**	**conversion factor**
6673293	15 x R½"	0.99
6671709	15 x Rp½"	2.19
6671742	22 x Rp1"	1.98

SP4090GV	angle adapter 90° (press x female thread)	
article no.	**dimensions**	**conversion factor**
6671599	12 x Rp½"	0.98
6671602	14 x Rp½	0.85
6671601	15 x Rp⅜"	0.90
6671610	15 x Rp½"	0.91
6671621	15 x Rp¾"	1.50
6671603	16 x Rp½	0.93
6671605	16 x Rp¾	1.24
6671632	18 x Rp½"	1.22
6671643	18 x Rp¾"	1.45
6671654	22 x Rp½"	1.36
6671665	22 x Rp¾"	1.38
6671687	28 x Rp1"	2.69

SP4330GV	straight union (press x female thread)	
article no.	**dimensions**	**conversion factor**
6672369	12 x Rp½"	1.42
6672371	15 x Rp½"	1.52
6672380	15 x Rp¾"	1.56
6672391	18 x Rp½"	1.65
6672402	18 x Rp¾"	2.05
6672413	22 x Rp¾"	2.16
6672424	22 x Rp1"	2.85
6672435	28 x Rp1"	3.49
6672446	35 x Rp1¼"	4.38
6672457	42 x Rp1½"	5.95
6672468	54 x Rp2"	9.74

SP4331GV	straight union (press x male thread)	
article no.	**dimensions**	**conversion factor**
6672479	12 x R⅜"	1.56
6672481	12 x R½"	1.44
6672490	15 x R½"	1.66
6672501	15 x R¾"	1.69
6672512	18 x R½"	1.84
6672523	18 x R¾"	1.91
6672534	22 x R½"	2.43
6672545	22 x R¾"	2.66
6672556	22 x R1"	2.74
6672567	28 x R1"	3.53
6672578	35 x R1¼"	5.23
6672589	42 x R1½"	6.88
6672591	54 x R2"	10.87

SP4330V	straight union (2 x press)	
article no.	**dimensions**	**conversion factor**
6672281	12	1.40
6672292	15	1.86
6672303	18	1.88
6672314	22	2.50
6672325	28	3.66
6672336	35	4.60
6672347	42	7.08
6672358	54	11.07

SP4359GV	union coupling (press x union nut)	
article no.	**dimensions**	**conversion factor**
6671258	12 x G⅜"	0.41
6671269	12 x G½"	0.49
6671262	14 x G⅜	0.45
6671260	14 x G½	0.57
6671271	15 x G½"	0.58
6671280	15 x G¾"	0.85
6671282	16 x G½	0.62
6671284	16 x G¾	0.83
6671291	18 x G¾"	1.01
6671302	22 x G¾"	1.12
6671313	22 x G1"	1.42
6671324	28 x G1¼"	2.08
6671335	35 x G1¼"	2.58
6676274	35 x G1½"	2.73
6671346	42 x G1½"	3.84
6671357	42 x G1 ¾"	3.79
6671368	54 x G2"	5.95
6671379	54 x G2⅜"	5.81

SP5290V	stop end (1 x male)	
article no.	**dimensions**	**conversion factor**
6673183	Ø12	0.09
6673194	Ø15	0.15
6673205	Ø18	0.21
6673216	Ø22	0.27
6673227	Ø28	0.42
6673238	Ø35	0.55
6673249	Ø42	1.13
6673251	Ø54	2.21

SP5301V	stop end (1 x press)	
article no.	**dimensions**	**conversion factor**
6671381	12	0.17
6671383	14	0.23
6671390	15	0.26
6671392	16	0.27
6674976	18	0.30
6671401	22	0.42
6671412	28	0.56
6671423	35	0.81
6671434	42	1.43
6671445	54	1.95

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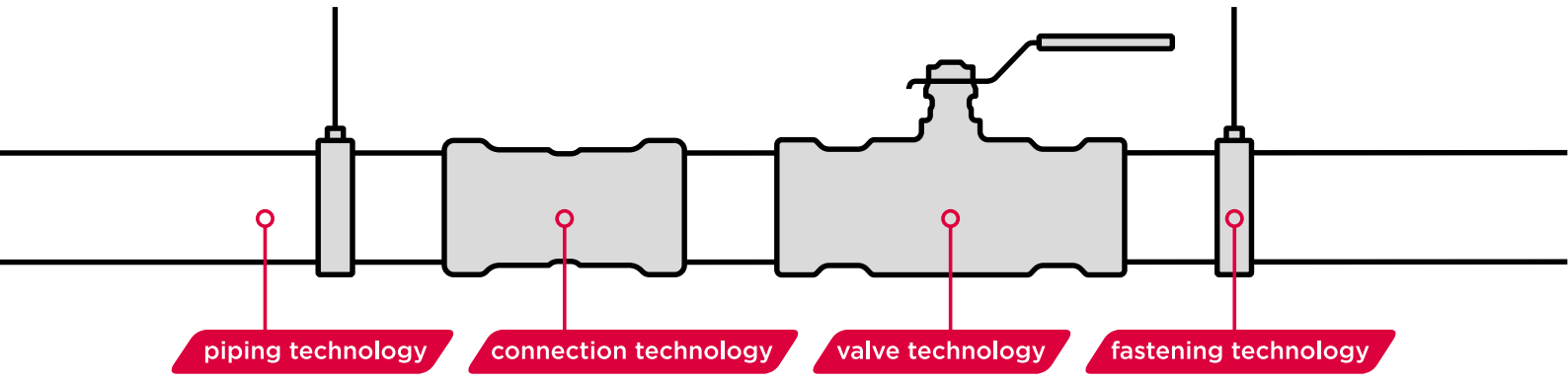

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