

VSH SudoPress Copper Gas



Environmental Product Declaration

in accordance with
ISO 14044, ISO 14040 and EN 15804

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 Gas 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 Gas bend 90° FF 22, article number: 6674052, 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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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 Gas is a complete piping system suitable for natural gas and compressed air applications. The VSH SudoPress Copper Gas range consists of press fittings and pressing tools. The VSH SudoPress Copper Gas 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 18mm copper tube.

- VSH SudoPress Copper Gas fittings are made of CU-DHP copper, bronze CC499K (Rg5) or brass (CW617N).
- VSH SudoPress Copper Gas 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. The material is:

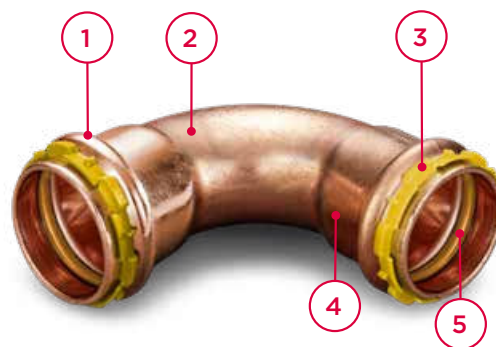
- HNBR (Hydrogenated Nitrile Butadiene Rubber / yellow)

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 gas during pressure testing, causing the test pressure to drop.

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 Gas fittings

All VSH SudoPress Copper Gas 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 Gas bend 90° FF 22. This article was chosen as a reference because it is the most common product in the VSH SudoPress Copper Gas 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 Gas 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 ancillary 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 Gas products are manufactured in the factory of Aalberts integrated piping systems located in Saint-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 Gas fitting is designed for a lifetime of 50+ years of service. A VSH SudoPress Copper Gas 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 processor 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 O-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



Product: Sudopress Elbow 90° Copper Gas FF 22mm HNBR
Unit: 1 units
Manufacturer: Aalberts IPS - FR

LCA standard: EN15804+A2 (2019)
Standard database: Worldwide - Ecoinvent v 3.8 Cut-Off
Externally verified: No
Export date: 30-06-2023



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					Use stage							End-of-Life stage				
A1 Raw material supply A2 Transport A3 Manufacturing					B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment							C1 De-construction demolition C2 Transport C3 Waste processing				
Construction process stage					B6 Operational energy use B7 Operational water use							C4 Disposal				
												Benefits and loads beyond the system boundaries				
A4 Transport gate to site A5 Assembly / Construction installation process												D Reuse- Recovery- Recycling- potential				

environmental impacts and parameters

GWP-total = EF Climate Change [kg CO₂ eq]; GWP-f = EF Climate change - Fossil [kg CO₂ eq]; GWP-b = EF Climate Change - Biogenic [kg CO₂ eq];
GWP-luluc = EF Climate Change - Land use and LU change [kg CO₂ 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

This document and supporting material contain confidential and proprietary business information of Aalberts integrated piping systems. These materials may be printed or (photo) copied or otherwise used only with the written consent of Aalberts integrated piping systems.

results

Environmental impact	Unit	A1	A2	A3	A1-A3	A4	C2	D	Total
GWP-total	kg CO2 eq	4.130E-1	9.817E-3	4.663E-3	4.275E-1	1.853E-2	8.016E-4	-1.275E-1	3.194E-1
GWP-f	kg CO2 eq	4.171E-1	9.805E-3	4.613E-3	4.315E-1	1.851E-2	8.008E-4	-1.271E-1	3.238E-1
GWP-b	kg CO2 eq	-4.503E-3	8.822E-6	4.683E-5	-4.447E-3	1.666E-5	3.542E-7	-2.390E-4	-4.669E-3
GWP-luluc	kg CO2 eq	4.266E-4	3.850E-6	3.635E-6	4.341E-4	7.269E-6	3.564E-7	-1.256E-4	3.161E-4
ODP	kg CFC11 eq	2.383E-8	2.269E-9	1.488E-9	2.759E-8	4.284E-9	3.754E-10	-1.006E-8	2.219E-8
AP	mol H+ eq	4.695E-2	3.979E-5	3.053E-5	4.702E-2	7.512E-5	5.282E-6	-5.593E-3	4.150E-2
EP-fw	kg P eq	3.734E-4	6.874E-8	1.350E-7	3.736E-4	1.298E-7	8.328E-9	-4.467E-5	3.291E-4
EP-m	kg N eq	2.169E-3	1.186E-5	4.692E-6	2.186E-3	2.240E-5	1.380E-6	-5.180E-4	1.691E-3
EP-T	mol N eq	3.287E-2	1.310E-4	5.129E-5	3.305E-2	2.473E-4	1.522E-5	-8.010E-3	2.530E-2
POCP	kg NMVOC eq	8.777E-3	4.012E-5	5.199E-5	8.869E-3	7.574E-5	4.725E-6	-1.763E-3	7.186E-3
ADP-mm	kg Sb eq	2.675E-4	3.409E-8	1.200E-7	2.677E-4	6.437E-8	3.363E-8	-9.321E-5	1.745E-4
ADP-f	MJ	4.490E+0	1.482E-1	4.117E-1	5.050E+0	2.799E-1	2.414E-2	-1.634E+0	3.720E+0
WDP	m3 depriv.	3.403E-1	4.439E-4	4.978E-3	3.457E-1	8.381E-4	4.057E-5	-1.118E-1	2.348E-1
PM	disease inc.	1.010E-7	8.437E-10	1.974E-10	1.020E-7	1.593E-9	5.980E-11	-1.985E-8	8.384E-8
IR	kBq U-235 eq	1.257E-2	6.436E-4	3.480E-3	1.669E-2	1.215E-3	1.042E-4	-7.861E-3	1.015E-2
ETP-fw	CTUe	4.519E+2	1.157E-1	1.616E-1	4.522E+2	2.184E-1	1.619E-2	-9.985E+1	3.526E+2
HTP-c	CTUh	6.283E-9	3.746E-12	4.170E-12	6.291E-9	7.073E-12	3.765E-13	-2.184E-9	4.115E-9
HTP-nc	CTUh	5.379E-7	1.213E-10	1.045E-10	5.381E-7	2.291E-10	1.188E-11	-1.588E-7	3.795E-7
SQP	Pt	6.214E+0	1.019E-1	2.805E-2	6.343E+0	1.923E-1	9.441E-3	-1.704E+0	4.841E+0
Resource use	Unit	A1	A2	A3	A1-A3	A4	C2	D	Total
PERE	MJ	0	2.089E-3	2.690E-2	2.899E-2	3.945E-3	0	3.287E-5	3.297E-2
PERM	MJ	1.305E+0	0	0	1.305E+0	0	1.972E-4	-5.344E-1	7.710E-1
PERT	MJ	1.305E+0	2.089E-3	2.690E-2	1.334E+0	3.945E-3	1.972E-4	-5.344E-1	8.039E-1
PENRE	MJ	0	1.574E-1	4.206E-1	5.780E-1	2.972E-1	0	1.098E-3	8.763E-1
PENRM	MJ	4.787E+0	0	0	4.787E+0	0	2.563E-2	-1.739E+0	3.074E+0
PENRT	MJ	4.787E+0	1.574E-1	4.206E-1	5.365E+0	2.972E-1	2.563E-2	-1.738E+0	3.950E+0
PET	MJ	6.092E+0	1.595E-1	4.475E-1	6.699E+0	3.011E-1	2.583E-2	-2.273E+0	4.754E+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	8.585E-3	1.652E-5	1.911E-4	8.792E-3	3.120E-5	1.495E-6	-2.816E-3	6.009E-3
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	A4	C2	D	Total
HWD	kg	2.597E-5	3.872E-7	3.054E-7	2.666E-5	7.310E-7	6.569E-8	-2.024E-6	2.543E-5
NHWD	kg	1.580E-1	7.624E-3	6.478E-4	1.663E-1	1.439E-2	5.464E-4	-9.897E-2	8.223E-2
RWD	kg	1.170E-5	1.003E-6	4.643E-6	1.734E-5	1.893E-6	1.673E-7	-7.213E-6	1.219E-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.

SPG5270V straight coupling (2 x press)		
article no.	dimensions	conversion factor
6674668	12	0.30
6674670	14	0.40
6674679	15	0.38
6674692	16	0.45
6674681	18	0.50
6674690	22	0.67
6674701	28	0.87
6674712	35	1.13
6674723	42	2.45
6674734	54	3.47

SPG5275V slip coupling (2 x press)		
article no.	dimensions	conversion factor
6674745	12	0.49
6674747	14	0.62
6674756	15	0.63
6674758	16	0.70
6674767	18	0.76
6674778	22	1.01
6674789	28	1.38
6674791	35	1.98
6674800	42	3.43
6674811	54	4.83

SPG5002V bend 90° (2 x press)		
article no.	dimensions	conversion factor
6674021	12	0.40
6674023	14	0.52
6674030	15	0.52
6674032	16	0.59
6674041	18	0.72
6674052	22	1.00
6674063	28	1.47
6674074	35	2.19
6674085	42	4.17
6674096	54	5.99

SPG5001V bend 90° (press x male)		
article no.	dimensions	conversion factor
6673942	12 x Ø12	0.37
6673944	14 x Ø14	0.49
6673953	15 x Ø15	0.50
6673955	16 x Ø16	0.56
6673964	18 x Ø18	0.70
6673975	22 x Ø22	1.03
6673986	28 x Ø28	1.43
6673997	35 x Ø35	2.10
6674008	42 x Ø42	4.17
6674019	54 x Ø54	5.90

SPG5041V bend 45° (2 x press)		
article no.	dimensions	conversion factor
6674184	12	0.35
6674186	14	0.44
6674195	15	0.47
6674197	16	0.52
6674206	18	0.60
6674217	22	0.87
6674228	28	1.14
6674239	35	1.43
6674241	42	3.12
6674250	54	4.29

SPG5040V bend 45° (press x male)		
article no.	dimensions	conversion factor
6674107	12 x Ø12	0.34
6674109	14 x Ø14	0.42
6674118	15 x Ø15	0.44
6674120	16 x Ø16	0.49
6674129	18 x Ø18	0.58
6674131	22 x Ø22	0.83
6674140	28 x Ø28	1.10
6674151	35 x Ø35	1.42
6674162	42 x Ø42	3.07
6674173	54 x Ø54	4.40

SPG4001GV angle adapter 90° (press x male thread)		
article no.	dimensions	conversion factor
6673447	15 x R½"	1.00
6673458	18 x R½"	1.36
6673469	18 x R¾"	1.55
6673471	22 x R¾"	1.72
6673436	28 x R1"	3.14

SPG4090GV angle adapter 90° (press x female thread)		
article no.	dimensions	conversion factor
6673502	15 x Rp½"	0.91
6673513	18 x Rp½"	1.22
6673524	18 x Rp¾"	1.45
6673535	22 x Rp½"	1.37
6673546	22 x Rp¾"	1.70
6673480	22 x Rp1"	2.56
6673491	28 x Rp1"	2.66

SPG5130V tee (3 x press)		
article no.	dimensions	conversion factor
6674437	12	0.80
6674439	14	0.97
6674448	15	1.01
6674450	16	1.08
6674459	18	1.31
6674461	22	1.71
6674470	28	2.29
6674481	35	3.08
6674492	42	6.08
6674503	54	8.37

SPG5130RV tee reduced (3 x press)		
article no.	dimensions	conversion factor
6672814	14 x 12 x 14	1.00
6672816	14 x 16 x 14	1.14
6674272	15 x 12 x 15	1.00
6674289	16 x 14 x 16	1.20
6674294	18 x 12 x 18	1.29
6674296	18 x 14 x 18	1.30
6674305	18 x 15 x 18	1.36
6674307	18 x 16 x 18	1.36
6674316	22 x 12 x 22	1.53
6674318	22 x 14 x 22	1.60
6674338	22 x 15 x 22	1.60
6674340	22 x 16 x 22	1.62
6674349	22 x 18 x 22	1.72
6674360	28 x 15 x 28	2.10
6674371	28 x 22 x 28	2.24
6674382	35 x 22 x 35	2.83
6674393	35 x 28 x 35	2.94
6674404	42 x 28 x 42	4.93
6674415	42 x 35 x 42	5.07
6674426	54 x 42 x 54	7.50

SPG5130RVR tee reduced (3 x press)		
article no.	dimensions	conversion factor
6674261	15 x 12 x 12	1.02
6674283	15 x 15 x 12	1.02
6674287	16 x 14 x 14	1.17
6674291	16 x 16 x 14	1.17
6674327	22 x 15 x 15	1.56
6674351	22 x 22 x 15	1.65

SPG4130GV tee female branch (press x female thread x press)		
article no.	dimensions	conversion factor
6673557	15 x Rp $\frac{1}{2}$ " x 15	1.24
6673568	18 x Rp $\frac{1}{2}$ " x 18	1.41
6673579	22 x Rp $\frac{1}{2}$ " x 22	1.78
6673581	28 x Rp $\frac{1}{2}$ " x 28	2.13
6673590	28 x Rp $\frac{3}{4}$ " x 28	2.70
6673601	35 x Rp $\frac{1}{2}$ " x 35	2.70
6673612	42 x Rp $\frac{1}{2}$ " x 42	4.23
6673623	54 x Rp $\frac{1}{2}$ " x 54	5.36

SPG5243V reducer (male x press)		
article no.	dimensions	conversion factor
6670942	Ø14 x 12	0.31
6674514	Ø15 x 12	0.33
6674516	Ø16 x 12	0.33
6674518	Ø16 x 14	0.35
6674525	Ø18 x 12	0.33
6674527	Ø18 x 14	0.40
6674536	Ø18 x 15	0.42
6674538	Ø18 x 16	0.42
6674540	Ø22 x 14	0.48
6674547	Ø22 x 15	0.44
6674549	Ø22 x 16	0.48
6674558	Ø22 x 18	0.50
6674569	Ø28 x 15	0.67
6674572	Ø28 x 16	0.70
6674571	Ø28 x 18	0.76
6674580	Ø28 x 22	0.70
6674591	Ø35 x 22	0.88
6674602	Ø35 x 28	0.90
6674613	Ø42 x 22	1.50
6674624	Ø42 x 28	1.70
6674635	Ø42 x 35	1.45
6674646	Ø54 x 35	2.27
6674657	Ø54 x 42	2.69

SPG4243GV straight connector (press x male thread)		
article no.	dimensions	conversion factor
6671860	14 x R $\frac{3}{8}$ "	0.42
6671856	14 x R $\frac{1}{2}$ "	0.55
6673678	15 x R $\frac{1}{2}$ "	0.55
6673689	15 x R $\frac{3}{4}$ "	0.69
6673692	16 x R $\frac{1}{2}$ "	0.60
6673694	16 x R $\frac{3}{4}$ "	0.92
6673691	18 x R $\frac{1}{2}$ "	0.56
6673700	18 x R $\frac{3}{4}$ "	0.71
6673711	22 x R $\frac{1}{2}$ "	0.72
6673722	22 x R $\frac{3}{4}$ "	0.83
6673634	22 x R1"	1.07
6673645	28 x R1"	1.23
6673744	28 x R1 $\frac{1}{4}$ "	2.09
6673733	28 x R $\frac{3}{4}$ "	0.98
6673656	35 x R1"	1.58
6673766	35 x R1 $\frac{1}{4}$ "	2.01
6673755	35 x R1 $\frac{1}{2}$ "	2.26
6673788	42 x R1 $\frac{1}{4}$ "	2.43
6673777	42 x R1 $\frac{1}{2}$ "	2.48
6673799	54 x R1 $\frac{1}{2}$ "	3.27
6673667	54 x R2"	4.79

SPG4270GV straight connector (press x female thread)		
article no.	dimensions	conversion factor
6672100	14 x Rp $\frac{3}{8}$ "	0.45
6672096	14 x Rp $\frac{1}{2}$ "	0.77
6673832	15 x Rp $\frac{1}{2}$ "	0.58
6673843	15 x Rp $\frac{3}{4}$ "	0.76
6673845	16 x Rp $\frac{1}{2}$ "	0.78
6673847	16 x Rp $\frac{3}{4}$ "	0.98
6673854	18 x Rp $\frac{1}{2}$ "	0.58
6673865	18 x Rp $\frac{3}{4}$ "	0.73
6673887	22 x Rp $\frac{3}{4}$ "	0.79
6673801	22 x Rp1"	1.60
6673876	22 x Rp $\frac{1}{2}$ "	0.69
6673810	28 x Rp1"	1.56
6673898	35 x Rp $1\frac{1}{4}$ "	1.66
6673909	42 x Rp $1\frac{1}{2}$ "	2.56
6673821	54 x Rp2"	4.38

SPG4471GV wall plate 90° (press x female thread)		
article no.	dimensions	conversion factor
6673911	15 x Rp $\frac{1}{2}$ "	1.13
6673920	18 x Rp $\frac{1}{2}$ "	1.56
6673931	22 x Rp $\frac{3}{4}$ "	1.70

SPG5301V stop end (1 x press)		
article no.	dimensions	conversion factor
6673253	12	0.17
6673255	14	0.23
6674822	15	0.26
6674824	16	0.28
6674833	18	0.30
6674844	22	0.43
6674855	28	0.58
6674866	35	0.84
6674877	42	1.42
6674888	54	1.94

SPG-FB non-sealable union coupling (press x union nut)		
article no.	dimensions	conversion factor
6675273	12 x M20 x 1,5	0.59
6675295	14 x M20 x 1,5	0.69
6678317	14 x G $\frac{3}{4}$ "	0.91
6675339	16 x G $\frac{3}{4}$ "	0.87
6675341	18 x G $\frac{3}{4}$ "	0.98
6675306	14 x G $\frac{1}{2}$ "	0.59
6675328	16 x G $\frac{1}{2}$ "	0.63
6675350	22 x G $\frac{3}{4}$ "	1.16

SPG-2P-JPC sealable union coupling (press x union nut)		
article no.	dimensions	conversion factor
6675121	22 x DN20	1.22
6675130	28 x DN20	1.38
6675141	28 x DN32	1.97
6675152	35 x DN32	2.31
6675163	54 x DN50	5.35

SPG-MAM-JPC non-sealable straight connector (press x male thread)		
article no.	dimensions	conversion factor
6675229	22 x DN20	1.23
6675231	28 x DN20	1.55
6675240	28 x DN32	2.21
6675251	35 x DN32	1.94

SPG-MAM-JPG non-sealable straight connector (press x male thread)		
article no.	dimensions	conversion factor
6675174	22 x G1"	1.53
6675185	28 x G $1\frac{1}{4}$ "	2.21
6675196	35 x G $1\frac{1}{2}$ "	2.69

SPG-RC-JPG non-sealable union coupling (press x union nut)		
article no.	dimensions	conversion factor
6675009	12 x G $\frac{1}{2}$ "	0.55
6675011	14 x G $\frac{1}{2}$ "	0.64
6675020	16 x G $\frac{1}{2}$ "	0.65
6675042	18 x G $\frac{1}{2}$ "	0.71
6675031	16 x G $\frac{3}{4}$ "	0.88
6675053	18 x G $\frac{3}{4}$ "	0.99
6675064	22 x G $\frac{3}{4}$ "	1.14
6675075	22 x G1"	1.55
6675097	28 x G $1\frac{1}{4}$ "	2.26
6675108	35 x G $1\frac{1}{2}$ "	2.77
6675119	42 x G2"	5.06
6675086	28 x G1"	1.91

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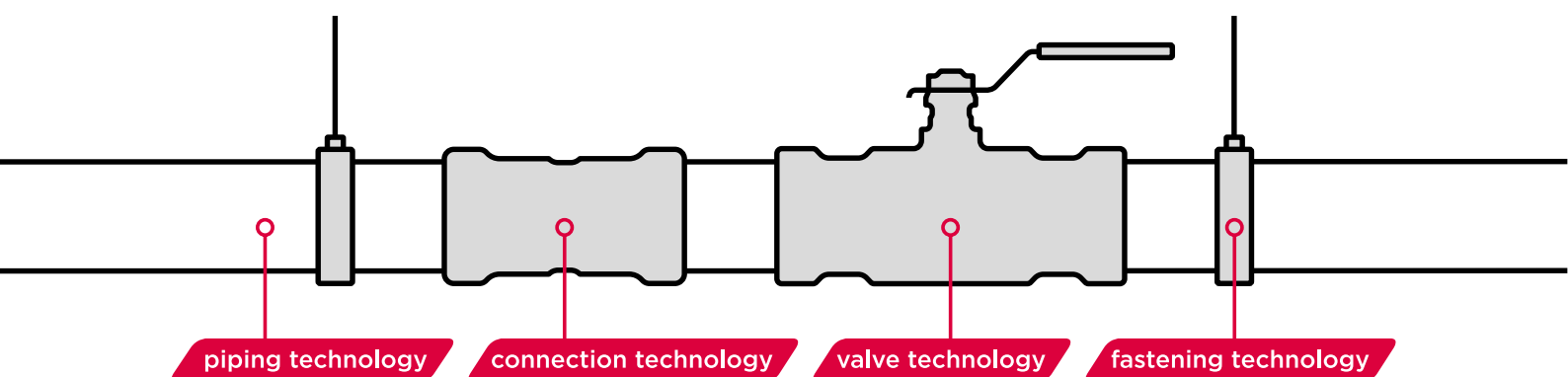
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