

VSH XPress Carbon



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 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 XPress Carbon fittings listed in the appendix -chapter 5- of this document. Articles with brass or gunmetal components are not covered in this declaration. A VSH XPress Carbon bend 90° FF 22, article number: 6190228, 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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Author of LCA: Fabian Bruns
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Hilversum, February 2023
Aalberts integrated piping systems B.V.



Roland Voermans
COO

2 product

2.1 description and application purpose

VSH XPress Carbon is a complete piping system suitable for a wide variety of applications, from heating and cooling to solar, sprinkler installations and compressed air systems. The VSH XPress Carbon range consists of press fittings, valves, tubes and pressing tools. The VSH XPress Carbon fittings have a M-profile (12 mm to 108 mm).

- VSH XPress Carbon fittings are manufactured from E195 (No. 1.0034) material and protected against corrosion by a layer of zinc that has been applied by electroplating.
- VSH SudoXPress Carbon tubes are available in different steel alloys according to EN 10305-3.
- VSH XPress Sprinkler Galvanised tube is available in E190 (No. 1.0031) material according to EN 10305-3.

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 XPress "Leak Before Pressed" (LBP) function is achieved using a special designed o-ring up to dimension 54 mm. For the dimensions 66.7 to 108 mm, the LBP-function is based on the tolerance between the diameter of the o-rings and the inner diameter of the fitting. Fittings with a LBP function have the advantage that connections which have not been pressed will leak water during pressure testing.

2.2 VSH XPress Carbon fittings

All VSH XPress Carbon fittings are produced in our modern, automated factory in the Netherlands. The VSH XPress Carbon product range includes fittings, valves, tubes and tools. VSH XPress Carbon 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. colour coding
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 XPress Carbon bend 90° FF 22. This article was chosen as a reference because it is the most common product in the VSH XPress Carbon 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 XPress Carbon 90° bend FF 22, consists of the following raw materials:

carbon steel:	79 gram
elastomers:	2 gram
zinc coating:	7 milligram
Total:	81 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.

A2: For transport of materials to Aalberts integrated piping systems in Hilversum 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 XPress products are manufactured in the factory of Aalberts integrated piping systems located in Hilversum, Netherlands. This factory makes use of green electricity for manufacturing the VSH XPress products. Therefore the green electricity Netherlands mix, was used for calculating the electricity consumption. Water and auxiliary materials were considered negligible.

Assembly of products is done at a separate Aalberts integrated piping systems warehouse located in Zeewolde, Netherlands. This warehouse also uses green electricity. The electricity consumption for this process was estimated and modelled at 10% of the electricity consumed for manufacturing.

A4: Transport from the factory in Hilversum to production partners and the warehouse 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 715km. 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 730 km.

A5: The installation is done by use of a press tool which uses a considered negligible amount of energy.

B1-B7: A VSH XPress Carbon fitting is designed for a lifetime of 50+ years of service. A VSH XPress Carbon 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 30km and modelled by use of Class Euro5 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, incineration and landfill. 90% of steel will be recycled, the O-ring incinerated and remainder of the product was calculated to go to landfill.

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 v3.5.71



Product: XPress C bend 90° 22mm EPDM
Unit: 1 units
Manufacturer: Aalberts integrated piping systems

LCA standard: EN15804+A2 (2019)
Standard database: Dutch - Nationale Milieudatabase v3.3 (obv Ecoinvent 3.6)
Externally verified: No
Export date: 10-02-2023



The LCA background information and project dossier have been registered in the online Ecochain application in the account Aalberts integrated piping systems (2021). (☑ = 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												D Reuse- Recovery- Recycling- potential				
A5 Assembly / Construction installation process																

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	2.316E-1	3.154E-3	6.552E-3	2.413E-1	1.649E-2	2.703E-4	-8.785E-2	1.702E-1
GWP-f	kg CO2 eq	2.307E-1	3.151E-3	5.587E-3	2.395E-1	1.647E-2	2.700E-4	-8.850E-2	1.677E-1
GWP-b	kg CO2 eq	7.710E-4	1.681E-6	9.408E-4	1.714E-3	7.605E-6	1.441E-7	6.079E-4	2.329E-3
GWP-luluc	kg CO2 eq	9.855E-5	1.101E-6	2.501E-5	1.247E-4	6.036E-6	9.439E-8	2.902E-5	1.598E-4
ODP	kg CFC11 eq	4.469E-9	7.158E-10	7.789E-10	5.964E-9	3.636E-9	6.134E-11	-2.920E-9	6.741E-9
AP	mol H+ eq	3.100E-3	1.288E-5	9.867E-5	3.211E-3	9.554E-5	1.103E-6	-3.803E-4	2.928E-3
EP-fw	kg P eq	2.259E-6	2.474E-8	2.043E-7	2.488E-6	1.662E-7	2.121E-9	-2.273E-6	3.830E-7
EP-m	kg N eq	2.294E-4	3.820E-6	2.048E-5	2.537E-4	3.367E-5	3.274E-7	-6.151E-5	2.262E-4
EP-T	mol N eq	1.212E-2	4.225E-5	3.390E-4	1.250E-2	3.712E-4	3.620E-6	-7.180E-4	1.216E-2
POCP	kg NMVOC eq	5.486E-4	1.293E-5	6.348E-5	6.250E-4	1.060E-4	1.108E-6	-5.428E-4	1.893E-4
ADP-mm	kg Sb eq	3.760E-4	8.527E-8	5.680E-7	3.767E-4	4.174E-7	7.308E-9	1.217E-7	3.772E-4
ADP-f	MJ	2.609E+0	4.751E-2	6.131E-2	2.718E+0	2.485E-1	4.072E-3	-6.638E-1	2.307E+0
WDP	m3 depriv.	2.388E-2	1.322E-4	2.604E-3	2.662E-2	8.887E-4	1.133E-5	-1.409E-2	1.343E-2
PM	disease inc.	2.819E-8	2.192E-10	1.002E-9	2.941E-8	1.479E-9	1.879E-11	-8.002E-10	3.011E-8
IR	kBq U-235 eq	3.215E-3	2.077E-4	4.649E-5	3.469E-3	1.041E-3	1.780E-5	7.289E-4	5.257E-3
ETP-fw	CTUe	4.025E+0	3.804E-2	3.131E-1	4.376E+0	2.215E-1	3.260E-3	-2.983E+0	1.617E+0
HTP-c	CTUh	1.149E-10	1.069E-12	1.611E-11	1.320E-10	7.186E-12	9.162E-14	6.039E-11	1.997E-10
HTP-nc	CTUh	5.975E-9	4.148E-11	4.873E-10	6.504E-9	2.423E-10	3.555E-12	2.001E-8	2.676E-8
SQP	Pt	2.291E-1	3.277E-2	2.158E+0	2.419E+0	2.155E-1	2.808E-3	-1.388E-1	2.499E+0
Resource use	Unit	A1	A2	A3	A1-A3	A4	C2	D	Total
PERE	MJ	6.201E-2	6.705E-4	8.266E-1	8.892E-1	3.110E-3	5.746E-5	8.868E-3	9.013E-1
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	6.201E-2	6.705E-4	8.266E-1	8.892E-1	3.110E-3	5.746E-5	8.868E-3	9.013E-1
PENRE	MJ	2.648E+0	5.044E-2	6.528E-2	2.764E+0	2.638E-1	4.323E-3	-6.884E-1	2.343E+0
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	2.648E+0	5.044E-2	6.528E-2	2.764E+0	2.638E-1	4.323E-3	-6.884E-1	2.343E+0
PET	MJ	2.710E+0	5.111E-2	8.918E-1	3.653E+0	2.669E-1	4.380E-3	-6.795E-1	3.245E+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	8.526E-4	5.003E-6	8.256E-5	9.402E-4	3.026E-5	4.288E-7	-3.208E-4	6.500E-4
Output flows and waste categories	Unit	A1	A2	A3	A1-A3	A4	C2	D	Total
HWD	kg	4.784E-5	1.245E-7	3.755E-11	4.796E-5	6.296E-7	1.067E-8	-1.201E-5	3.660E-5
NHWD	kg	3.595E-3	2.271E-3	2.612E-5	5.892E-3	1.576E-2	1.946E-4	3.145E-3	2.499E-2
RWD	kg	2.184E-6	3.240E-7	1.693E-11	2.508E-6	1.631E-6	2.776E-8	-1.097E-8	4.156E-6
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.

C1401 straight coupling (2 x press)		
Article no.	dimension	conversion factor
6201351	12	0.33
6201360	15	0.46
6201371	18	0.54
6201382	22	0.70
6201393	28	0.91
6201404	35	1.26
6201415	42	1.75
6201426	54	2.37
6340411	66,7	4.93
6206200	76.1	6.67
6206211	88.9	9.01
6206222	108	13.44

C1403 slip coupling (2 x press)		
Article no.	dimension	conversion factor
6201437	12	0.49
6201448	15	0.68
6201459	18	0.80
6201461	22	1.04
6201470	28	1.38
6201481	35	1.95
6201492	42	2.73
6201503	54	4.09
6341357	66,7	8.43
6206233	76.1	11.60
6206244	88.9	15.85
6206255	108	27.41

C1432 combination tube (not galvanised, welding end x male)		
Article no.	dimension	conversion factor
6207817	15 x 17	1.19
6207828	18 x 20	1.43
6207168	22 x 24	1.73
6207179	28 x 31	2.78
6201514	35 x 38	3.35
6201525	42 x 44,5	3.93
6201536	54 x 57	5.59
6206530	76.1 x 80,5	16.67
6206541	88.9 x 94,9	21.73
6206552	108 x 110	27.36

C1408 bend 90° (2 x press)		
Article no.	dimension	conversion factor
6201547	12	0.40
6201558	15	0.57
6201569	18	0.72
6201571	22	1.00
6201580	28	1.48
6201591	35	2.15

6201602	42	3.25
6201613	54	4.81
6340281	66,7	9.72
6208004	76.1	13.36
6208048	88.9	17.93
6208059	108	24.69

C1411 bend 90° (press x male)		
Article no.	dimension	conversion factor
6201624	12 x Ø12	0.37
6201635	15 x Ø15	0.56
6201646	18 x Ø18	0.72
6201657	22 x Ø22	0.99
6201668	28 x Ø28	1.52
6201679	35 x Ø35	2.14
6201681	42 x Ø42	3.23
6201690	54 x Ø54	4.51
6340290	66,7 x Ø66,7	9.80
6208061	76.1 x Ø76.1	13.19
6208070	88.9 x Ø88.9	16.05
6208081	108 x Ø108	24.69

C1413 bend 45° (2 x press)		
Article no.	dimension	conversion factor
6201701	15	0.48
6201712	18	0.59
6201723	22	0.80
6201734	28	1.16
6201745	35	1.64
6201756	42	2.43
6201767	54	3.48
6340312	66,7	7.49
6208125	76.1	9.88
6208136	88.9	14.05
6208147	108	18.77

C1412 bend 45° (press x male)		
Article no.	dimension	conversion factor
6201778	15 x Ø15	0.49
6201789	18 x Ø18	0.59
6201791	22 x Ø22	0.80
6201800	28 x Ø28	1.15
6201811	35 x Ø35	1.64
6201822	42 x Ø42	2.40
6201833	54 x Ø54	3.51
6340301	66,7 x Ø66,7	8.05
6208092	76.1 x Ø76.1	10.15
6208103	88.9 x Ø88.9	22.84
6208114	108 x Ø108	33.95

C1425 bend pipe 90° (2 x male)		
Article no.	dimension	conversion factor
6201844	Ø12	0.90
6201855	Ø15	1.21
6201866	Ø18	1.37
6201877	Ø22	1.63
6201888	Ø28	2.30
6201899	Ø35	4.73
6201901	Ø42	7.54
6201910	Ø54	11.47

C1417 crossover (2 x male)		
Article no.	dimension	conversion factor
6201921	Ø12	0.73
6201932	Ø15	0.99
6201943	Ø18	1.21
6201954	Ø22	1.79
6201965	Ø28	2.54

C1414 tee (3 x press)		
Article no.	dimension	conversion factor
6202482	12	0.59
6202493	15	0.88
6202504	18	1.05
6202515	22	1.33
6202526	28	1.93
6202537	35	2.65
6202548	42	3.63
6202559	54	5.32
6340334	66,7	10.04
6206442	76.1	15.59
6206453	88.9	19.75
6206464	108	30.47

C1415 tee reduced (3 x press)		
Article no.	dimension	conversion factor
6202768	12 x 15 x 12	0.65
6202561	15 x 12 x 15	0.77
6202779	15 x 18 x 15	0.90
6202781	15 x 22 x 15	1.02
6202570	18 x 12 x 18	0.90
6202581	18 x 15 x 18	1.00
6202790	18 x 22 x 18	1.12
6202592	22 x 12 x 22	1.12
6202603	22 x 15 x 22	1.22
6202614	22 x 18 x 22	1.25
6202801	22 x 28 x 22	1.51
6202625	28 x 15 x 28	1.60
6202636	28 x 18 x 28	1.63
6202647	28 x 22 x 28	1.72
6202658	35 x 15 x 35	2.15
6202669	35 x 18 x 35	2.17
6202671	35 x 22 x 35	2.26
6202680	35 x 28 x 35	2.46
6202691	42 x 22 x 42	3.02
6202702	42 x 28 x 42	3.22
6202713	42 x 35 x 42	3.38
6202724	54 x 22 x 54	4.33
6202735	54 x 28 x 54	4.53
6202746	54 x 35 x 54	4.69
6202757	54 x 42 x 54	4.85
6340345	66,7 x 28 x 66,7	8.10

6340356	66,7 x 35 x 66,7	8.30
6340367	66,7 x 42 x 66,7	8.54
6340378	66,7 x 54 x 66,7	8.88
6207047	76.1 x 22 x 76.1	11.79
6207058	76.1 x 28 x 76.1	11.95
6207069	76.1 x 35 x 76.1	12.10
6207071	76.1 x 42 x 76.1	12.26
6206475	76.1 x 54 x 76.1	13.15
6340389	76.1 x 66,7 x 76.1	14.26
6209654	88.9 x 22 x 88.9	15.67
6209665	88.9 x 28 x 88.9	15.51
6209676	88.9 x 35 x 88.9	15.79
6209687	88.9 x 42 x 88.9	15.84
6209698	88.9 x 54 x 88.9	16.20
6340391	88.9 x 66,7 x 88.9	16.26
6206486	88.9 x 76.1 x 88.9	18.52
6209711	108 x 22 x 108	23.85
6209720	108 x 28 x 108	24.09
6209731	108 x 35 x 108	24.28
6209742	108 x 42 x 108	23.43
6209753	108 x 54 x 108	24.32
6209764	108 x 76.1 x 108	26.51
6206497	108 x 88.9 x 108	26.98

C1416 tee reduced (3 x press)		
Article no.	dimension	conversion factor
6206739	22 x 15 x 15	1.17
6206741	22 x 22 x 15	1.65

C1418 tee female branch (press x female thread x press)		
Article no.	dimension	conversion factor
6202812	15 x Rp½" x 15	1.04
6202823	18 x Rp½" x 18	1.20
6209841	18 x Rp¾" x 18	1.46
6202834	22 x Rp½" x 22	1.41
6206706	22 x Rp¾" x 22	1.67
6341995	22 x Rp1" x 22	2.70
6202845	28 x Rp½" x 28	1.79
6207181	28 x Rp¾" x 28	2.04
6209601	28 x Rp1" x 28	3.09
6202856	35 x Rp½" x 35	2.33
6207102	35 x Rp¾" x 35	2.58
6209610	35 x Rp1" x 35	3.64
6202867	42 x Rp½" x 42	3.06
6207113	42 x Rp¾" x 42	3.35
6209621	42 x Rp1" x 42	4.41
6202878	54 x Rp½" x 54	4.41
6207124	54 x Rp¾" x 54	4.65
6207795	54 x Rp1" x 54	5.70
6340400	66,7 x Rp¾" x 66,7	8.26
6206508	76.1 x Rp¾" x 76.1	11.88
6206519	88.9 x Rp¾" x 88.9	16.59
6206521	108 x Rp¾" x 108	23.93

C1407 reducer (press x male)		
Article no.	dimension	conversion factor
6202119	Ø15 x 12	0.37
6202121	Ø18 x 12	0.40
6202130	Ø18 x 15	0.49
6202141	Ø22 x 12	0.48
6202152	Ø22 x 15	0.54
6202163	Ø22 x 18	0.59
6202174	Ø28 x 15	0.69
6202185	Ø28 x 18	0.73
6202196	Ø28 x 22	0.80
6202207	Ø35 x 22	0.96
6202218	Ø35 x 28	1.14
6206651	Ø42 x 22	1.35
6206662	Ø42 x 28	1.42
6202229	Ø42 x 35	1.48
6206673	Ø54 x 18	2.11
6202231	Ø54 x 22	2.22
6202240	Ø54 x 28	1.85
6206684	Ø54 x 35	2.09
6202251	Ø54 x 42	2.21
6340213	Ø66,7 x 28	4.27
6340224	Ø66,7 x 35	3.21
6340235	Ø66,7 x 42	3.26
6340246	Ø66,7 x 54	3.58
6206387	Ø76.1 x 42	5.63
6206398	Ø76.1 x 54	5.67
6340257	Ø76.1 x 66,7	5.78
6206409	Ø88.9 x 54	7.28
6340268	Ø88.9 x 66,7	6.86
6206411	Ø88.9 x 76.1	8.72
6340279	Ø108 x 66,7	10.47
6206420	Ø108 x 76.1	11.00
6206431	Ø108 x 88.9	12.35

C1405 straight connector (press x male thread)		
Article no.	dimension	conversion factor
6202262	12 x R $\frac{3}{8}$ "	0.37
6202284	15 x R $\frac{1}{2}$ "	0.58
6202273	15 x R $\frac{3}{8}$ "	0.46
6202295	18 x R $\frac{1}{2}$ "	0.65
6202306	18 x R $\frac{3}{4}$ "	0.85
6206717	22 x R $\frac{1}{2}$ "	0.91
6202317	22 x R $\frac{3}{4}$ "	1.00
6206728	22 x R1"	1.17
6209852	28 x R $\frac{3}{4}$ "	1.33
6202328	28 x R1"	1.44
6341247	35 x R1"	1.93
6202339	35 x R1 $\frac{1}{4}$ "	2.35
6202341	42 x R1 $\frac{1}{2}$ "	2.99
6202350	54 x R2"	4.07
6340422	66,7 x R2 $\frac{1}{2}$ "	8.06
6204781	76.1 x R2 $\frac{1}{2}$ "	8.46
6204792	88.9 x R3"	14.47

C1402 straight connector (press x female thread)		
Article no.	dimension	conversion factor
6202361	12 x Rp $\frac{1}{2}$ "	0.54
6202372	15 x Rp $\frac{1}{2}$ "	0.58
6202383	18 x Rp $\frac{1}{2}$ "	0.80
6202394	18 x Rp $\frac{3}{4}$ "	0.86
6340202	22 x Rp $\frac{1}{2}$ "	1.12
6202405	22 x Rp $\frac{3}{4}$ "	1.06
6341984	22 x Rp1"	1.26
6207806	28 x Rp $\frac{1}{2}$ "	1.94
6209830	28 x Rp $\frac{3}{4}$ "	1.32
6202416	28 x Rp1"	1.94
6340917	35 x Rp $\frac{1}{2}$ "	2.64
6340928	35 x Rp $\frac{3}{4}$ "	2.48
6340939	35 x Rp1"	2.54
6206695	35 x Rp1 $\frac{1}{4}$ "	1.73
6341192	42 x Rp1 $\frac{1}{2}$ "	2.65
6341203	54 x Rp2"	4.44

C1433 straight connector (male x female thread)		
Article no.	dimension	conversion factor
6202427	12 x Rp $\frac{1}{2}$ "	0.62
6209874	12 x Rp $\frac{3}{8}$ "	1.22
6202438	15 x Rp $\frac{1}{2}$ "	0.64
6202449	18 x Rp $\frac{1}{2}$ "	0.70
6202451	18 x Rp $\frac{3}{4}$ "	0.98
6202460	22 x Rp $\frac{1}{2}$ "	0.74
6202471	22 x Rp $\frac{3}{4}$ "	1.02

C1404 straight connector euroconus (press x eurocone)		
Article no.	dimension	conversion factor
6208169	15 x $\frac{3}{4}$ " EK	1.38
6208171	18 x $\frac{3}{4}$ " EK	1.00

C1428 angle adapter 90° (press x male thread)		
Article no.	dimension	conversion factor
6202064	12 x R $\frac{3}{8}$ "	0.81
6202075	15 x R $\frac{3}{8}$ "	0.75
6202086	15 x R $\frac{1}{2}$ "	1.26
6202097	18 x R $\frac{1}{2}$ "	1.17
6202108	22 x R $\frac{3}{4}$ "	2.10

C1409 angle adapter 90° (press x female thread)		
Article no.	dimension	conversion factor
6341038	22 x Rp $\frac{1}{2}$ "	2.20
6341049	28 x Rp $\frac{1}{2}$ "	4.16
6341051	35 x Rp $\frac{1}{2}$ "	6.27

C1430 elbow 90° (press x male thread)		
Article no.	dimension	conversion factor
6201976	12 x R $\frac{3}{8}$ "	0.54
6201987	15 x R $\frac{3}{8}$ "	0.69
6201998	15 x R $\frac{1}{2}$ "	0.85
6202009	18 x R $\frac{1}{2}$ "	0.96
6202011	22 x R $\frac{3}{4}$ "	2.00
6202020	28 x R1"	2.16
6202031	35 x R1 $\frac{1}{4}$ "	3.54
6202042	42 x R1 $\frac{1}{2}$ "	4.51
6202053	54 x R2"	6.47

C1438 bend 90° (press x female thread)		
Article no.	dimension	conversion factor
6200931	15 x Rp $\frac{3}{8}$ "	0.63
6200942	15 x Rp $\frac{1}{2}$ "	0.86
6200953	18 x Rp $\frac{1}{2}$ "	1.04
6209577	22 x Rp $\frac{1}{2}$ "	3.09
6200964	22 x Rp $\frac{3}{4}$ "	1.44
6207025	28 x Rp $\frac{1}{2}$ "	2.44
6200986	28 x Rp $\frac{3}{4}$ "	2.02
6209588	28 x Rp1"	2.90
6201063	35 x Rp $\frac{1}{2}$ "	4.35
6201074	35 x Rp $\frac{3}{4}$ "	3.73
6209599	35 x Rp1"	3.19

C1444 straight union (press x female thread)		
Article no.	dimension	conversion factor
6208906	15 x Rp $\frac{1}{2}$ "	1.72
6208917	18 x Rp $\frac{1}{2}$ "	1.77
6208928	22 x Rp $\frac{3}{4}$ "	2.62
6208939	28 x Rp1"	4.12
6208941	35 x Rp1 $\frac{1}{4}$ "	5.47
6208950	42 x Rp1 $\frac{1}{2}$ "	6.28
6208961	54 x Rp2"	10.99

C1431 venturi insert		
Article no.	dimension	conversion factor
6202922	Ø18	0.11
6202933	Ø22	0.14
6202944	Ø28	0.26

C1439 reducer (2 x press)		
Article no.	dimension	conversion factor
6201129	22 x 15	0.56
6201131	28 x 22	0.74

C1426 flanged connector (press x flange)		
Article no.	dimension	conversion factor
6341500	35 x DN32	23.27
6341511	42 x DN40	26.47
6341522	54 x DN50	32.01
6340323	66,7 x DN65	40.68
6206596	76.1 x DN65	39.69
6206607	88.9 x DN80	48.91
6206618	108 x DN100	57.12

C1427 flanged connector PN6 (press x flange)		
Article no.	dimension	conversion factor
6207080	66,7 DN65 PN6	23.16
6206629	76.1 x DN65 PN6	23.77
6206631	88.9 x DN80 PN6	36.84
6206640	108 x DN100 PN6	43.57

C1434 crossing 90° (4 x press)		
Article no.	dimension	conversion factor
6202889	15	1.19
6202891	18 x 15	1.31
6202900	22 x 15	1.53
6202911	22 x 18	1.65
6207135	28 x 15	1.96
6207146	28 x 18	2.09
6207157	28 x 22	2.26

C1429 stop end (1 x press)		
Article no.	dimension	conversion factor
6202955	15	0.25
6202966	18	0.30
6202977	22	0.44
6202988	28	0.57
6202999	35	0.74
6203001	42	1.19
6203010	54	1.79
6340171	66,7	3.74
6206915	76.1	5.33
6206926	88.9	6.81
6206937	108	9.10

C1436 crossing pair double (press x male)		
Article no.	dimension	conversion factor
6206750	12 x Ø12	2.73
6206761	15 x Ø12	3.36
6206772	15 x Ø15	3.95
6206783	18 x Ø12	3.67
6206794	18 x Ø15	4.02
6206948	22 x Ø12	4.25
6206805	22 x Ø15	4.56
6206816	28 x Ø12	4.96
6206827	28 x Ø15	6.35
6206838	35 x Ø15	6.60

C1437 crossing pair single (press x male)		
Article no.	dimension	conversion factor
6206959	12 x Ø12	2.06
6206961	15 x Ø12	2.68
6206849	15 x Ø15	2.99
6206851	18 x Ø12	3.00
6206860	18 x Ø15	3.19
6206871	22 x Ø12	3.93
6206882	22 x Ø15	3.67
6206893	28 x Ø12	4.27
6206904	28 x Ø15	4.42

C1443 slip coupling (press x female thread)		
Article no.	dimension	conversion factor
6241312	22 x Rp $\frac{1}{2}$ "	1.27
6241323	22 x Rp $\frac{3}{4}$ "	1.67
6241268	28 x Rp $\frac{1}{2}$ "	1.84
6241279	28 x Rp $\frac{3}{4}$ "	1.65

C1447 crossing (4 x press)		
Article no.	dimension	conversion factor
6341005	35 x 28 x 35 x 28	2.90
6340972	35 x 35 x 35 x 35	3.41
6341016	42 x 28 x 42 x 28	3.81
6340983	42 x 42 x 42 x 42	4.47
6341027	54 x 28 x 54 x 28	5.12
6340994	54 x 54 x 54 x 54	6.53

C1446 union coupling (press x female thread)		
Article no.	dimension	conversion factor
6340521	15 x G¾"	0.83
6340532	18 x G¾"	0.84
6342479	22 x G¾"	1.23
6340554	22 x G1»	1.17
6340565	28 x G1¼"	1.83
6340576	35 x G1½"	2.17
6340587	42 x G1¾"	2.89
6340598	54 x G¾"	4.85

C1442 transition for grooved couplings (press x groove)		
Article no.	dimension	conversion factor
6241301	28 x 33,7	1.42
6241345	35 x 42,4	1.93
6241356	42 x 48,3	2.46
6241367	54 x 60,3	3.49
6341181	76.1 x 73,0	6.75
6340774	76.1 x 76.1	6.79
6340785	88.9 x 88.9	8.58
6340796	108 x 114	12.42

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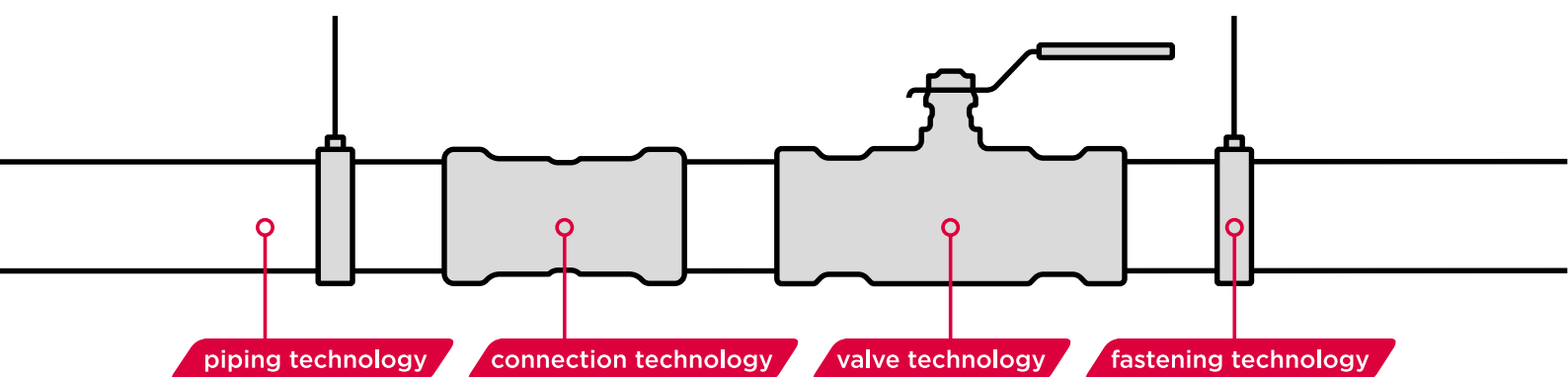
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